JACKSON COUNTY FIRE DISTRICT 5

STATION 4 SEISMIC REHABILITATION PROJECT

BID DOCUMENTS

HMK COMPANY

Soderstrom Architects

SEPTEMBER 26, 2022

PROJECT MANAGER:

Richard Randleman, Sr. Project Manager
HMK Company
46 N Front Street, Suite 201
Medford, OR 97501
Phone: 541-821-3674
Email: richard.randleman@hmkco.org

DESIGN PROFESSIONAL:

Erica Janowski, Associate Principal
Soderstrom Architects
1331 NW Lovejoy Street, Suite 775
Portland, Oregon 97209
Phone: 503-595-2525
Email: ericaj@sdra.com

FIRE DISTRICT:

Charles Hanley, Fire Chief
Jackson County Fire District 5
5811 S Pacific Highway
Phoenix, Oregon 97535
Phone: 541-535-4222
Email: hanley@jcfd5.com

PROJECT:

Jackson County Fire District 5
Station 4 Seismic Rehabilitation

LOCATION:

JCFD5 Station 4
40 Neil Creek Road
Ashland, OR 97520

TABLE OF CONTENTS

DIVISION 00 -- PROCUREMENT AND CONTRACTING REQUIREMENTS

DIVISION 01 -- GENERAL REQUIREMENTS

THE JACKSON COUNTY FIRE DISTRICT 5
STATION 4 SEISMIC REHABILITATION PROJECT
Bids Due 2:00 PM, October 25, 2022

INVITATION FOR BIDS

NOTICE IS HEREBY GIVEN that sealed bids will be accepted at **the HMK Medford Office**, by Richard Randleman, Sr. Project Manager, HMK Company, **46 N Front Street, Suite 201, Medford, OR 97501** until **2:00 PM** Local Time, **October 25, 2022,** at which time and place bids will be closed. The bids will be publicly opened and read immediately after closing.

The work consists of:

The project consists of seismic rehabilitation to Station 4 (formerly Station 2). The project includes structural upgrades, a new roof, windows/doors, and siding to upgrade the facility up to an essential rating. It also includes owner upgraded apparatus bay doors and interior remodeling. The estimate for the scope of work is $799,000.00.

The following deadlines and restrictions are applicable to the project: Project start date **December 5, 2022**. Contract must meet a Substantial Completion date of **August 15, 2023.**

A **MANDATORY** Pre-Bid Meeting will be held at **10:00 AM on October 5, 2022, at Station 4 located at 40 Neil Creek Road, Ashland, OR 97520**. Representatives of the Contractors will meet with the Owner and Project Manager for review of the project specifications and then visit the site for a walk of the facility. Statements made by the Contracting Agency's representatives at the meeting are not binding upon the Contracting Agency unless confirmed by written Addendum.

All bids must be submitted on the bid forms furnished to the bidders. Each bid shall be submitted in a sealed envelope and plainly marked **"STATION 4 SEISMIC REHABILITATION PROJECT"** and show the name and business address of the bidder. Each bid must be accompanied by an unconditional cashier's check, certified check or surety bond of the bidder in the amount of ten percent (10%). Unsuccessful bidders will have their security refunded to them when the contract has been awarded.

Bid documents may be obtained from HMK Company web site https://www.hmkco.org/bid-documents/, or at HMK Company, Medford Office, located at 46 N Front Street, Suite 201, Medford, OR 97501.

Any questions, clarifications, or objections to the bid specifications must be submitted via email to the attention of Richard Randleman, Sr. Project Manager, HMK Company, richard.randleman@hmkco.org. To be considered, such questions, clarifications, or objections must be received by **2:00 PM Tuesday, October 18, 2022.**

This contract is for a public work subject to ORS 279C.800 to 279C.870 (the Oregon Prevailing Wage Rate Law). **BOLI wage rates will be applicable to this project.** No Bid will be received or considered by the Contracting Agency unless the offer contains a statement by the Bidder as a part of its Bid that Contractor agrees to be bound by and will comply with the provisions of ORS 279C.838, 279C.840 or 40 U.S.C. 3141 to 3148. The wage rates are included in the bid documents which are available as noted above.

No bid for a construction contract shall be received or considered by the public contracting agency unless the bidder is licensed by, and in good standing with, the Construction Contractors Board of the State of Oregon as required by ORS 701.035 and 701.055. Each bid must identify whether the bidder is an Oregon resident bidder, as defined in ORS 279A.120.

Bidder's attention is directed to compliance with ORS 279C.370 regarding submission of the First-Tier

Subcontractor Disclosure Form. If the contract amount exceeds $100,000.00, the First-Tier Subcontractor Disclosure Form will be required and may be submitted either with the bid or within **two (2)** hours after the bid closing time and date at the bid site address. Failure to provide the First-Tier Subcontractor Disclosure Form may result in bid rejection.

The District reserves the right to reject any or all bids, to waive formalities, and to postpone the award of the contract for sixty (60) days. All bids and all prices quoted in bids shall be firm for a period of sixty (60) days after the bid closing date. Prequalification is not required for this project.

Dated this September 26, 2022

Richard Randleman,
Sr. Project Manager, HMK Company
on behalf of Jackson County Fire District 5

PART 1 – GENERAL

1.1 GENERAL

A. The Work contemplated under this contract with the Jackson County Fire District 5, (also referred to as the Owner or the Fire District), includes all labor, materials, transportation, equipment and services necessary for, and reasonably incidental to, the completion of all Work in connection with the project described in the bidding documents.

B. A brief summary of the Work to be completed for the Fire District is as follows:

The project consists of seismic rehabilitation to Station 4 (formerly Station 2). The project includes structural upgrades, a new roof, windows/doors, and siding to upgrade the facility up to an essential rating. It also includes owner upgraded apparatus bay doors and interior remodeling. The estimate for the scope of work is $799,000.00.

1.2 EXAMINATION OF SITE AND CONDITIONS

A. Prior to submitting a bid, the bidder shall examine the facilities, and ascertain all of the physical conditions in relation thereto. The bidder shall also make a careful examination of the drawings, specifications and other contract documents and shall fully inform himself as to the quantity of materials and the sources of supply of the materials. Failure to make these precautions will not release the successful bidder from entering into a contract or excuse him from performing the Work in strict accordance with the terms of the contract.

B. The Owner will not be responsible for any loss or any unanticipated costs that may be suffered by the successful bidder as a result of such bidder's failure to fully inform himself in advance with regard to all conditions pertaining to the Work and the character of the Work required. No statement made by any officer, agent or employee of the Owner in relation to the physical conditions pertaining to the site of the Work will be binding on the Owner.

1.3 INTERPRETATION OF CONTRACT DOCUMENTS

A. If any person contemplating submitting a bid for the proposed contract finds discrepancies in, or omission from, or is in doubt as to the true meaning of any part of the drawings, specifications or form of contract documents, they may submit to Richard Randleman, Sr. Project Manager, HMK Company, richard.randleman@hmkco.org, a request via email, for an interpretation thereof. The deadline to submit requests is **2:00 PM local time, Tuesday, October 18, 2022.** The person submitting the request will be responsible for its delivery prior to the time of closing.

B. Any official interpretation of the drawings, specifications, and conditions of the contract or forms of contract documents will be made only by subsequent addenda issued by the Project Manager. The Owner will not be responsible for any other explanation or interpretation of the proposed documents.

1.4 SPECIFIED PRODUCTS AND SUBSTITUTIONS

A. Bids must be based upon the use of items and manufacturers named in the specifications, or approved equals issued by addenda during the bidding period.

Approval of equals or substitutions must not be assumed.

B. If a prospective bidder ~~or supplier~~ seeks approval of a particular manufacturer's material or product other than the material, product and / or manufacturer designated in the specifications, they may submit a written request for such substitute material, product and / or manufacturer. Substitution requests must be submitted through a bidding General Contractor. Requests submitted directly from sub-contractors or manufacturers will not be considered. Substitution requests are to be submitted using the Substitution Request Form included in this project manual. Substitution requests must be received in the office of the architect no later than **7 calendar days before bid, before 2:00 PM** local time. The person requesting the substitution will be responsible for delivery of the substitution request form prior to the time of closing. **Emailed Substitution Request Forms will be accepted by Richard Randleman, Sr. Project Manager,** richard.randleman@hmkco.org.

C. Approval of substitution requests will be made only by addenda issued by the Project Manager during the bidding period. The Owner will not be responsible for any other approval of a particular manufacturer's materials.

1.5 PRE-BID MEETING

A. A MANDATORY Pre-Bid Meeting will be held at 10:00 AM on October 5, 2022, at Station 4, 40 Neil Creek Road, Ashland, OR 97520. Representatives of the Contractors will meet with the Owner and Project Manager at the site for review of the project specifications and site walk of the facility.

B. Contractors intending to submit proposals for this project must attend this pre-bid meeting. No other meeting will be held.

C. Statements made by the Contracting Agency's representatives at the meeting are not binding upon the Contracting Agency unless confirmed by written Addenda.

D. Contracting Agency will not mail notice of Addenda but will publish notice of any Addenda on HMK Company's web site. Addenda may be downloaded off the HMK Company Web site, https://www.hmkco.org/bid-documents/. Bidders should frequently check the HMK Company's Web site until closing, i.e., at least once weekly until the week of closing and at least once daily the week of the closing.

1.6 GENERAL STATUTORY PROVISIONS CONCERNING PUBLIC CONTRACTS

A. In accordance with the provisions of Oregon Revised Statues (ORS) 279C.530, it is agreed that the Contractor shall make prompt payment, as due, to all person supplying to the contractor labor or materials for the prosecution of the Work provided for herein, pay all contributions or amounts due the State Industrial Accident Fund from the Contractor incurred in the performance of the contract herein, not permit any lien or claims to be file or prosecuted against the Fire District on account of any labor or material furnished, and to pay the State Tax Commission all sums withheld from employees pursuant to ORS 316.169, ORS 316.189 and ORS 316.167.

B. Pursuant to ORS 279C.515, it is agreed that if the Contractor fails, neglects or refuses to make prompt payment on any claim for labor or services furnished to the Contractor by any persons in connection with this agreement as such claim becomes due, the proper officer of officers representing the Fire District may pay such claim to the person

furnishing the labor or service and charge the amount of the payment against the Contractor. The payment of a claim in the manner authorized in this paragraph shall not relieve the Contractor or his surety from obligation with respect to any unpaid claims.

C. Pursuant to ORS 279C.520, it is a condition of this agreement that no person shall be employed by the Contractor for more than eight (8) hours in any one (1) day, or forty hours in any one (1) week, except in cases of necessity, emergency or where the public policy absolutely requires it, and in such cases, the person shall be paid at least time and a half pay for all overtime in excess of eight (8) hours in any one (1) day and for Work performed on Saturdays and legal holidays.

D. Pursuant to ORS 279C.525 the Contractor shall comply with the provisions of all federal, state and local statues, ordinances and regulations dealing with the prevention of environmental pollution and the preservation of natural resources that affect the project.

E. Pursuant to ORS 279C.530, it is an express condition of this agreement that the Contractor shall, promptly, as due, make payment to any person, co-partnership, association or corporation furnishing medical, surgical and hospital care or other needed care and attention, incident to sickness or injury, to the employees of such Contractor, or all sums which the Contractor may or shall have deducted from their wages of his employees for such services pursuant to the terms of ORS 279B.230, and any contract entered into pursuant thereto, or collected or deducted from the wages of its employees pursuant to any law, contract or agreement for the purposes of providing or paying for such service.

F. The hourly rate of wage to be paid by the Contractor (and incorporated in his subcontracts) shall not be less than provided in ORS 279C.800 to ORS 279C.870, and as hereinafter included in Section 00 7343-BOLI Wage Rate Requirements.

G. Pursuant to ORS 645.001 et seq. OAR Chapter 437, Div. 3 and OAR Chapter 437-002-0320 through OAR Chapter 437-002-0325, the Contractor shall comply with the following conditions under any contract to provide the Fire District with goods or services.

1. Contractors and their employees shall comply with the requirements of the above cited Laws, Rules, Policies and Regulations

2. The Contractor shall review the Material Safety Data Sheets filed by the Fire District to determine if there are any chemicals stored at the site of Work which the Contractor or any subcontractors will use, or could be exposed to in an emergency

3. Workers shall inform the executive officer at the location where services are being performed of all hazardous chemicals which they or their sub-contractors bring upon education facility property, and upon request, provide the Fire District with M.S.D.S. for such chemicals

H. Each bid shall identify whether the bidder is an Oregon resident bidder, as defined in ORS 279A.120.

I. Pursuant to ORS 279C.830 (3), the contractor and every subcontractor must have a

public works bond filed with the Construction Contractors Board before starting work on the project, unless exempt under ORS 279C.836 (4), (7), (8) or (9).

1.7 BID SECURITY

A. No bid will be considered unless accompanied by a cashier's check or bid bond executed in favor of the Fire District and associated facility for an amount equal to at least ten percent (10%) of the base bid and shall accompany the bid as evidence of good faith and as guarantee that if awarded the contract the bidder will execute the contract and provide a performance bond and payment bond as required. The successful bidder's check or bid bond will be retained until the bidder has entered into a satisfactory contract and furnished a 100% performance bond and payment bond. The Owner reserves the right to hold the bid security as hereinafter noted.

B. The bid bond shall be furnished by a bonding company licensed to do business in the State of Oregon.

C. Should the successful bidder fail to execute and deliver the signed agreement and a satisfactory payment bond and performance bond within ten (10) days after the bid has been accepted by the Owner, the cashiers check or bid bond may be forfeited as liquidated damages at the option of the Owner. The date of acceptance of the bid and the award of the contract as contemplated by the contract documents shall mean the day on which the Owner takes official action in making the award.

1.8 EXECUTION OF THE BID FORM

A. The bid form invites bids on definite drawings and specifications. Only the amounts and information asked for on the bid form furnished will be considered as the bid. Each bidder shall bid upon the Work exactly as specified and provided in the bid form. The bidder shall include in a sum to cover the cost of all items contemplated by the bidding documents.

B. The bid form included in the project manual as Document 00 4100 is the official bid form that will be used in submitting a bid. Only the official bid form may be used in submitting a bid.

C. All blank spaces in the official bid form shall be filled and numbers shall be stated both in writing and in figures. If the bid is made by a partnership, it shall contain the names of each partner and shall be signed in the firm name, followed by the signature of the partner signing for the firm. The address of the bidder shall be typed or printed on the bid form.

D. Bids which are incomplete, or which are conditioned in any way, or which contain erasures or alterations may be rejected.

1.9 SUBMISSION OF BID

A. The bid proposal shall be sealed in an opaque envelope, addressed as follows:

BID PROPOSAL
STATION 4 SEISMIC REHABILITATION PROJECT
JACKSON COUNTY FIRE DISTRICT 5

46 N Front Street, Suite 201
Medford, Oregon 97501
Attn: Richard Randleman, Sr. Project Manager

B. Bids will be received up to **2:00 pm, local time, October 25, 2022**, at the address listed above.

C. Any bid submitted after the scheduled closing time will be returned to the bidder unopened.

1.10 OPENING OF BIDS

A. A public bid opening will be held immediately following the scheduled closing. Each and every bid received prior to the closing time will be publicly opened and read aloud irrespective of any irregularities or informalities contained in such bids.

1.11 EVALUATION PROCESS

A. Apparent successful bid will meet the requirements set forth in Section 00 4100 Bid Form, with the lowest base bid announced at bid opening.

1.12 SOLICITATION AND AWARD PROTESTS

A. Solicitation protests will be handled pursuant to OAR 137-049-0260(3)

B. Award protests will be handled pursuant to OAR 137-049-0450(4).

1.13 DURATION OF BID PROPOSALS

A. The base bid shall be irrevocable for a period of sixty (60) days from the date and time of bid opening.

B. The base bid may be adjusted for alternate prices and / or unit prices for a period of sixty (60) days from the date and time of bid opening.

1.14 CONTRACT AND BOND

A. Within ten (10) days after receipt of Notice of Award, any bidder to whom a contract is awarded shall execute a formal written contract and shall furnish corporate surety bonds with a surety company satisfactory to the Fire District in an amount equal to the full contract sum based upon the estimated quantities of items covered by the contract for the faithful performance of said contract and all provisions thereof; provided, the formation of said contract shall not be completed and the Fire District shall not be liable thereon until said formal written contract has been executed both by the successful bidder and by the Fire District and a performance bond and a payment bond, properly executed has been delivered and accepted by the Fire District.

B. The cashiers check or bid bond of the bidder with whom a contract is entered into will be returned when said contract has been properly executed by the bidder and said performance and payment bond, properly executed, has been delivered to and accepted by the Fire District. The cashiers check or bid bond to each bidder who was not awarded a contract will be returned promptly after the contract and bond of the successful bidder, properly executed, has been delivered to and accepted by the Fire District.

C. Any bidder to whom a contract is awarded and who shall default in executing said formal written contract or in furnishing a satisfactory performance and payment bond within the time and in the manner required by these specifications shall be liable to the Fire District for whatever damages, including expenses and attorney's fees as may be incurred by the Fire District in recovering to another bidder whether by a single action or by successive actions, shall not operate to release any defaulting bidder from said liability. The parties agree that the cashiers check or bid bond amount is fair determination of the amount of damages which the Fire District would incur as a result of any such failure on the part of the bidder and the full amount will be forfeited as liquidated damages and will not constitute a penalty. In the event competent tribunal finds that this amount does not properly represent an award of liquidated damages, expenses and attorney's fees incurred by the Fire District as a result of the bidder's default, then the final determination of the tribunal shall be deemed to represent the damages, expenses and attorney's fees incurred by the Fire District as a result of the bidder's default.

1.15 SUBSTANTIAL COMPLETION AND LIQUIDATED DAMAGES

A. Substantial Completion shall occur on **August 15, 2023.**

B Should the building not be ready for occupancy by the time and date listed above, liquidated damages to be paid by the Contractor to the Owner for each calendar day of delay, shall be included in the terms of any contract awarded hereunder in lieu of a penalty. The amount of liquidated damages shall be $1,000.00 per day.

1.16 FIRE DISTRICT PERSONNEL EXCLUDED FROM THE CONTRACT

A. No officer, agent or employee of the Fire District shall be permitted any interest in the contract.

1.17 RESERVATIONS

A. The Board of Directors of Jackson County Fire District 5, expressly reserves the following rights:

1. To reject all bids

2. To waive any or all irregularities in bids submitted

3. To consider the responsibility and competency of bidders in making any award

4. In the event two or more bids shall be for the same amount for the same Work, to award the contract by lot or otherwise as it deems appropriate

5. To award contract to one Contractor with the aggregate low bid

6. To reject any bid or bids not in compliance with prescribed bidding procedures and requirements

7. To reject any bid or bids not meeting the specifications set forth herein

8. In the event any bidder to whom a contract is awarded shall default in executing said formal contract or in furnishing a satisfactory performance and

payment bond within the time and in the manner herein before specified, to re-award the contract to another bidder.

9. To accept Alternates in any order or combination, and to determine the low Bidder on the basis of the sum of the Base Bid and Alternates accepted.

10. District may reject any bid not in compliance with all prescribed Public Contracting procedures and requirements, including the requirement to demonstrate the Bidder's responsibility under ORS 279C.375(3)(b) and may reject for good cause all bids after finding that doing so is in the public's interest.

1.18 ACCEPTANCE OF CONDITIONS

A. Each bidder by submission of a bid assents to each and every term and condition set forth anywhere in these contract documents and agrees to be bound thereby.

1.19 INTERPRETATION UPON CONTRACT DOCUMENTS

A. Only the Board of Directors of the Jackson County Fire District 5 as represented by the Project Manager has authority to place any interpretation upon the foregoing or annexed contract documents. Any interpretation, either verbal or written, attempted to be placed thereon by any other person will not be binding upon the Fire District.

1.20 EQUAL EMPLOYMENT

A. All bidders shall comply with the Provision of Executive Order 1246 (30 F.R. 12319-25) regarding Equal Employment Opportunity.

1.21 IMMIGRATION REFORM AND CONTROL ACT

A. All bidders shall comply with the provisions of the Immigration Reform and Control Act of 1986 regarding the verification of employment eligibility.

1.22 REFERENCES REQUIREMENTS

A. All bidders shall provide a list of three different project references for projects that the Contractor worked on within the last three years of comparable size and scope. **References must be submitted with the Bid From**.

B. Bidders shall use their own form to supply their list of references. The list of project references shall include the following information:

1. Name of the Project

2. Project description

3. Project location

4. Project date

5. Dollar value of the Project

6. Name of the project contact person

7. Telephone number for contact person

8. Email for contact person

C. The references will be checked to determine if they are supportive of the bidder's ability to meet the requirements of this ITB.

D. The bidder must provide references that can be contacted regarding the quality of workmanship, level of service provided, timeliness of completion, and adherence to specifications.

E. The Fire District reserves the right to choose and investigate any reference whether or not furnished by the bidder, and to investigate past performance of any bidder with respect to its successful performance on similar projects, its completion or delivery of service on schedule, and its lawful payment of suppliers, Subcontractors, and employees.

F. The Fire District may postpone the award or execution of the Contract after the announcement of the apparent successful Contractor in order to complete its investigation. The Fire District may reject a bid if, in the opinion of the Fire District the overall reference responses indicate inadequate performance of the Contractor.

G. The Fire District representative will make three attempts to contact the references from the list provided by the Contractor. If the reference is not contacted after three attempts that reference will be removed from the list and the bid rejected as non-responsive.

H. Each reference contacted shall be asked the same questions, including but not limited to: (1) quality of service; (2) delivery; (3) responsiveness to reported problems, including orders and billing; (4) how well the Contractor met the terms of the contract; and (5) whether or not the reference would choose to hire the Contractor again.

~~**1.23 CRIMINAL HISTORY CHECK / PHOTO ID**~~

~~A. It is the responsibility of the Contractor to submit the names of all Contractor employees and all Subcontractor employees who will be on the job site for more than one day. These employees shall fill out a criminal history form provided by the Fire District and the Contractor must submit the completed forms to HMK Company (HMKCO). Criminal history checks will be run through the Oregon State Police as provided for in ORS 326.603. The Fire District shall bear the cost of processing such Criminal history checks.~~

~~1. Through the signature on the criminal history form, authorization is also given to HMK Company and its representative to investigate this information. Further, with this signature, consent is given to all governmental agencies, public or private companies and individuals to release information regarding the individual to the HMK Company and to their representative. The Fire District shall bear the cost of processing such Criminal history checks.~~

~~B. In accordance with ORS 326.603(8) the Fire District is required to terminate the employment or contract status of any individual who refuses to consent to a criminal~~

~~history check of to be fingerprinted or falsely swears to the non-conviction of any crime.~~

~~C. In accordance with ORS 326.603(7)(a) no individual found to have been convicted of any crime listed in ORS 342.143 or of an attempt to commit one of the listed crimes shall be allowed to work on any Fire District site.~~

~~1. It is vital that employees are instructed to accurately complete criminal history forms. Crimes listed in ORS 342.143 which automatically bar an individual from employment with or contracting with the Fire District are primarily crimes of violence, crimes against children, and sex related crimes. However, falsely swearing that you have not been convicted of a crime obligates the Fire District to terminate employment or contract status even if the crime is not listed in ORS 342.143.~~

~~D. No Employee shall have direct contact with students.~~

~~E. All employees working on site for more than one day shall wear a Name and Photo Identification Badge. Any employee on site for less than one day shall wear a visitor badge. Badges shall be the responsibility of the Contractor to provide. Badge shall state the Jackson County Fire District 5, name of the project, employee name, and company they represent.~~

1.24 TOBACCO FREE FACILITY

A. All bidders shall comply with OAR 581.021.0110 and ORS 326.051 regarding Tobacco Use on Public Grounds.

B. For the purpose of this document “tobacco” is defined to include any lighted or unlighted cigarette, cigar, pipe, clove cigarette, and any other smoking product, spit

tobacco, also known as smokeless, dip, chew, snuff, in any form, nicotine or nicotine delivering devices, chemicals or devices that produce the physical effect of nicotine substances or any other tobacco substitute (e.g., e-cigarettes). This does not include FDA approved nicotine replacement therapy products used for the purpose of cessation.

C. No employee, sub-contractor, material supplier, or project visitor is permitted to smoke, inhale, dip, or chew or sell tobacco at any time, ~~including non-education hours.~~

1. In any building, facility; or

2 On facility grounds, or parking lots.

END OF SECTION

DATE:_____

LEGAL NAME OF BIDDER:_____

To: Jackson County Fire District 5
Board of Directors;
5811 S Pacific Highway
Phoenix, Oregon 97535

The Undersigned, having examined the Contract Documents, including the Bidding and Contract Requirements, the General Requirements, the Technical Specifications entitled:

STATION 4 SEISMIC REHABILITATION PROJECT

As prepared by Soderstrom Architects and Jackson County Fire District 5, as well as the premises and conditions affecting the Work, hereby proposes and agrees to perform, within the time stipulated, the Work, including all its component parts, and everything required to be performed, and to provide and furnish all labor, material, tools, expendable equipment, transportation and all other services required to perform the Work and complete in a workmanlike manner ready for use, all as required by and in strict accordance with the Contract Documents for the sums computed as follows:

BASE BIDS:

Project: Station 4 Seismic Rehabilitation Project

_____DOLLARS $_____

which lump sums are hereby designated as BASE BIDS,

TIME OF COMPLETION

The Undersigned agrees if awarded the Contract to complete all the Work in an acceptable manner in conformance with the Contract Documents and within the time specified.

ADDITIONAL REQUIREMENTS

1. The Undersigned agrees that the enclosed Bid Guarantee (bid bond, certified or cashier's check) in the amount of ten percent (10%) of the Basic Bid sum made payable to the Owner, shall be kept in escrow with the Owner; that its amount shall be a measure of liquidated damages the Owner will sustain by failure of the Undersigned to execute agreement and furnish bond, and that if the Undersigned fails to deliver the prescribed bond within ten (10) calendar days after receipt of the written notice of award, then the Bid Guarantee shall become the property of the Owner.

2. Should this proposal not be accepted within sixty (60) calendar days after the date and time of bid opening, or if the Undersigned executes Agreement and delivers bond, the Bid Guarantee shall be returned.

3. Contractor's State of Oregon Contractors' License Registration Number.

_____

4. Receipt of Addenda numbered _____ is hereby acknowledged.

5. The undersigned certifies that the Bidder is a _____ Bidder as defined in ORS 279A.120. ("Resident" or "Non-Resident", to be filled in by Bidder)

6. References are to be submitted with Bid Form as per Section 00 2113, 1.20.

7. Written Certification of Non-Discrimination in obtaining required subcontractors in accordance with ORS 279A.110(4) is to be submitted with Bid Form.

8. Contractor agrees to be bound by and will comply with the provisions of ORS 279C.838, 279C.840 or 40 U.S.C. 3141 to 3148.

SIGNATURES

_____
Legal Name of Bidder's Firm

By:_____ Title: _____

Address:_____ Telephone:_____

Email: _____

State of Incorporation, if Corporation:_____

Names of Partners, if Partnership:

_____ _____

Signed By_____

_____
Printed Name of Bidder / Firm

Bids which are submitted by Bid Closing, but for which a required disclosure submittal has not been made by the specified Disclosure Deadline, are not responsive and shall not be considered for Contract award.

AGENCY SUPPLIED INFORMATION:

PROJECT NAME: Station 4 Seismic Rehabilitation Project

BID #: N/A BID CLOSING: Date: **October 25, 2022** Time: **2:00 PM**
REQUIRED DISCLOSURE DEADLINE: Date: **October 25, 2022** Time: **4:00 PM**
Deliver Form To (Agency): Jackson County Fire District 5
Designated Recipient (Person): Richard Randleman, Sr. Project Manager
Agency's Address: 46 N Front Street, Suite 201
Medford, Oregon 97501
Email: richard.randleman@hmkco.org

INSTRUCTIONS:

The contracting agency will insert "N/A" below if the contract value is not anticipated to exceed $100,000. Otherwise, this form must be submitted either with the bid or within **TWO (2)** working hours after the advertised bid closing date and time;

FAILURE TO SUBMIT THIS FORM BY THE DISCLOSURE DEADLINE WILL RESULT IN A NON-RESPONSIVE BID. A NON-RESPONSIVE BID WILL NOT BE CONSIDERED FOR AWARD.

It is the responsibility of bidders to submit this disclosure form and any additional sheets, with the bid number and project name clearly marked, and must be submitted at the location specified in the Invitation to Bid on the advertised bid closing date and within two (2) working hours after the advertised bid closing time at the location indicated by the specified disclosure deadline. See "Instructions to Bidders".

List below the name of each subcontractor that will be furnishing labor or materials and that is required to be disclosed, the category of work that the subcontractor will be performing and the dollar value of the subcontract. Enter" NONE" if there are no subcontractors that need to be disclosed. (ATTACH ADDITIONAL SHEETS IF NEEDED).

BIDDER DISCLOSURE:

SUBCONTRACTOR NAME	DOLLAR VALUE	CATEGORY OF WORK
1)		
2)		
3)		
4)		
5)		
6)		

7)		
8)		
9)		
10)		
11)		
12)		
13)		
14)		
15)		
16)		

The above listed first-tier subcontractor(s) are providing labor, or labor and material, with a Dollar Value equal to or greater than:

a) Five percent (5%) of the total Contract Price, but at least $15,000. (If the Dollar Value is less than $15,000, do not list the subcontractor above);

or

b) $350,000 regardless of the percentage of the total Contract Price.

Form Submitted By (Bidder Name): _____

Contact Name: _____

Phone #: _____

Email: _____

END OF SECTION

AGREEMENT made as of the___ day of _____, 2022, between **JACKSON COUNTY FIRE DISTRICT 5 (**hereinafter "the Owner") **and** _____, (hereinafter "the Contractor").

The Project is: Jackson County Fire District 5
Station 4
Seismic Rehabilitation Project

The Owner is: Jackson County Fire District 5
Charles Hanley, Fire Chief
5811 S Pacific Highway
Phoenix, OR 97535

The Consultant is: Soderstrom Architects
Erica Janowski, Associate Principal
1331 NW Lovejoy Street, Suite 775
Portland, OR 97209

The Contractor is: **To Be Determined**

The Owner and Contractor agree as follows:

ARTICLE 1 THE CONTRACT DOCUMENTS

The Contract Documents consist of this Agreement, the General Conditions of the Contract, any Supplementary, or other Conditions, Drawings, Specifications, Addenda issued prior to execution of this Agreement, other documents listed in this Agreement and Modifications issued after execution of this Agreement; these form the Contract, and are incorporated by this reference herein. The Contract represents the entire and integrated agreement between the parties and supersedes prior negotiations, representations or agreements, either written or oral. An enumeration of the Contract Documents, other than Modifications, appears in Article 8.

ARTICLE 2 THE WORK OF THIS CONTRACT

The Contractor shall fully execute the Work described in the Contract Documents, including such construction activity as is reasonably inferable from the Contract Documents as necessary to produce the results intended by the Contract Documents, except to the extent specifically indicated in the Contract Documents to be the responsibility of others.

ARTICLE 3 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION

3.1 The date of commencement of the Work shall be the date of the date to be fixed in a notice to proceed issued by the Owner, which shall be issued no less than two (2) days prior to the date of commencement.

3.2 The Contract Time shall be measured from the date of commencement.

3.3 The Contractor shall continuously and diligently prosecute the Work and shall achieve Substantial Completion of the entire Work not later than **August 15, 2023**, subject to approved adjustments of this Contract Time as provided in the Contract Documents.

3.4. If the Contractor fails to achieve Substantial Completion of the Work within the Contract Time and as otherwise required by the Contract Documents, the Owner shall be entitled to recover from the Contractor

as liquidated damages and not as a penalty $1,000.00 per day which shall commence on the first day following the expiration of the Contract Time and continuing until the date of Substantial Completion. Such liquidated damages are hereby agreed to be a reasonable estimate of the damages the Owner will incur as a result of delay in the completion of the Work. The Owner may deduct any accrued liquidated damages from any unpaid amount due or to become due to the Contractor. Any Liquidated damages not so deducted shall be paid to the Owner upon demand together with interest as provided by Oregon law.

ARTICLE 4 CONTRACT SUM

4.1 The Owner shall pay the Contractor the Contract Sum in current funds for the Contractor's proper and timely performance of the Contract and full and final completion of the Work. The Contract Sum shall be _____ Dollars ($_____). This sum includes all general conditions, profit, overhead and all other amounts due or to become due to the Contractor for the proper and timely performance of the Contract and full and final completion of the Work. The Contract sum is subject to authorized additions and deductions as provided in the Contract Documents.

4.2 PERMITS, FEES AND NOTICES

4.2.1 The Contractor shall secure and pay for:

.1 All pertinent specialty permits. (The owner is securing and paying for the plan review, building permit, and system development fees.)

4.2.2 The Contractor will be responsible for any renewals of and penalties arising from the building permit and from all other permits and governmental or utility fees. The Contractor shall secure and pay for all other permits and governmental fees, licenses and inspections necessary for proper execution and completion of the Work which are customarily secured after execution of the Contract and which are legally required when bids are received or negotiations concluded, including without limitation electrical, sewer, water, and plumbing permits and fees.

4.3 The Contract Sum is based upon the following alternates, if any, which are described in the Contract Documents and are hereby accepted by the Owner:

4.4 Unit prices, if any, are as follows: See Section 00 4100, Bid Form

ARTICLE 5 PAYMENTS

5.1 PROGRESS PAYMENTS

5.1.1 Based upon Applications for Payment which include all the necessary supporting documentation is received by the Owners Delegated Representative, and Owner not later than the first day of the month, and Certificates for Payment are issued by the Owners Delegated Representative, the Owner shall make progress payments on account of the Contract Sum to the Contractor as provided below and elsewhere in the Contract Documents.

5.1.2 The period covered by each Application for Payment shall be one calendar month ending on the last day of the month, or as follows:

5.1.3 Provided that an Application for Payment and all supporting documentation, including all full and unconditional lien waivers related to the Work for which payment is requested is received by the Owners Delegated Representative and Owner not later than the first day of a month, the Owner shall make payment to the Contractor not later than the last day following the Owners Delegated Representative's approval. If

an Application for Payment is received by the Owners Delegated Representative after the application date fixed above, payment shall be as set forth below.

5.1.4 Each Application for Payment shall be based on the most recent schedule of values submitted by the Contractor in accordance with the Contract Documents. The schedule of values shall allocate the entire Contract Sum among the various portions of the Work. The schedule of values shall be prepared in such form and supported by such data to substantiate its accuracy as the Owners Delegated Representative and any Lender may require. This schedule, unless objected to by the Owners Delegated Representative, shall be used as a basis for reviewing the Contractor's Applications for Payment, provided, however, in no instance shall the schedule of values ever exceed the reasonable value of the Work performed.

5.1.5 Applications for Payment shall indicate the percentage of completion of each portion of the Work as of the end of the period covered by the Application for Payment.

5.1.6 Unless otherwise provided in the Owner's agreement with any Lender, and subject to other provisions of the Contract Documents, the amount of each progress payment shall be computed as follows:

.1 Take that portion of the Contract Sum properly allocable to completed Work as determined by multiplying the percentage completion of each portion of the Work by the share of the Contract Sum allocated to that portion of the Work in the schedule of values, less retainage of Five percent (5%). Pending final determination of cost to the Owner of changes in the Work, amounts not in dispute shall be included as provided in Subparagraph 7.3.8 of the General Conditions, or as modified by the parties;

.2 Add that portion of the Contract Sum properly allocable to materials and equipment delivered and suitably stored at the site for subsequent incorporation in the completed construction (or, if approved in advance by the Owner, suitably stored off the site at a location agreed upon in writing), less retainage of five percent (5%);

.3 Subtract the aggregate of 9.5 previous Payments made by the Owner; and

.4 Subtract amounts, if any, for which the Owners Delegated Representative has withheld or nullified a Certificate for Payment as provided in Paragraph 9.5 of the General Conditions.

or as modified by the parties.

5.1.7 The progress payment amount determined in accordance with Subparagraph 5.1.6 shall be further modified under the following circumstances:

.1 Add, upon Substantial Completion of the Work, a sum sufficient to increase the total payments to the full amount of the Contract Sum, less such amounts as the Owners Delegated Representative, any Lender or the Owner shall determine for incomplete Work, retainage applicable to such Work and unsettled claims;

.2 Add, if final completion of the Work is thereafter materially delayed through no fault of the Contractor, any additional amounts payable in accordance with Subparagraph 9.10.3 of the General Conditions.

5.1.8 Reduction or limitation of retainage, if any, shall be as follows:

5.1.9 Except with the Owner's prior written approval, the Contractor shall not make advance payments to suppliers for materials or equipment which have not been delivered and stored at the site.

5.1.10 Contractor shall:

.1 Make payment promptly, as and when due, to all persons supplying to labor, materials, equipment or services;

.2 Pay all contributions or amounts due the Industrial Accident Fund from Contractor or any Subcontractor incurred in the performance of the Work;

.3 Not permit any lien or claim to be filed or prosecuted against the Owner, on account of any labor, materials, equipment or services furnished, supplied or provided;

.4 Pay to the Department of Revenue all sums withheld from employees pursuant to ORS 316.167;

.5 Demonstrate that an employee drug testing program as set forth herein is in place for Contractor and all Subcontractors within 10 days of receiving a Notice of Award pursuant to ORS 279C.505;

.6 To the extent that any demolition is included as a part of the Work, salvage or recycle construction and demolition debris, if feasible and cost-effective;

.7 To the extent that any lawn or landscape maintenance is included as a part of the Work, compost or mulch yard waste material at an approved site, if feasible and cost-effective.

.8 Promptly pay all sums due the State Unemployment Compensation Fund and ensure such payment from any Subcontractor in connection with the performance of the contract.

5.1.11 If the Contractor fails, neglects or refuses to make prompt payment of any claim for labor or services furnished to the Contractor or any Subcontractor by any person in connection with the Work as such claim becomes due, the proper officer or officers representing the Owner may pay such claim to the person furnishing the labor or services and charge the amount of the payment against funds due or to become due the Contractor by reason of this Agreement. The payment of a claim in the manner authorized hereby shall not relieve the Contractor or his surety from his or its obligation with respect to any unpaid claim. If the Contracting Agency is unable to determine the validity of any claim for labor or material furnished, the Contracting Agency may withhold from any current payment due Contractor an amount equal to said claim until its validity is determined and the claim, if valid, is paid.

5.1.12 If the Contractor or a first-tier Subcontractor fails, neglects or refuses to make payment to a person furnishing labor or materials in connection with the Work within 30 days after receipt of payment from the Owner or the Contractor, the Contractor or first-tier Subcontractor shall owe the person the amount due plus interest charges commencing at the end of the 10-day period that payment is due under ORS 279C.505 and 279C.580 and ending upon final payment, unless payment is subject to a good faith dispute as defined in ORS 279C.505 and 279C.580. The rate of interest charged to the Contractor or first-tier Subcontractor on the amount due shall equal three times the discount rate on 90-day commercial paper in effect at the Federal Reserve Bank in the Federal Reserve district that includes Oregon on the date that is 30 days after the date when payment was received from the Owner or from the Contractor, but the rate of interest shall not exceed 30 percent. The amount of interest may not be waived.

5.1.13 If the Contractor or a Subcontractor fails neglects or refuses to make payment to a person furnishing labor or materials in connection with the Work, the person may file a complaint with the Construction Contractors Board, unless payment is subject to a good faith dispute as defined in ORS 279C.505 and 279C.580.

5.1.14 The payment of a claim in the manner authorized in this Agreement shall not relieve the Contractor or the Contractor's surety from obligation with respect to any unpaid claims.

5.1.15 No person shall be employed by the Contractor or any Subcontractors, which are subject to the statutory limitations of Oregon law for more than ten (10) hours in any one (1) day, or 40 hours in any one (1) week, except in cases of necessity, emergency, or where the public policy absolutely requires it, and in such cases, the employee shall be paid at least time and a half pay:

.1 For all overtime in excess of eight (8) hours a day or 40 hours in any one (1) week when the work week is five (5) consecutive days, Monday through Friday; or

.2 For all overtime in excess of ten (10) hours a day or 40 hours in any one (1) week when the work week is four (4) consecutive days, Monday through Friday; and

.3 For all Work performed on Saturday and on any legal holiday specified in ORS 279C.540.

5.1.16 The Contractor shall give notice to employees in writing, either at the time of hire or before commencement of Work on the Project, or by posting a notice in a location frequented by employees, of the number of hours per day and days per week that the employees may be required to work. The Contractor shall include an identical provision in its subcontracts and require all Subcontractors, of any tier, to include an identical provision in all subcontracts.

5.1.17 The Contractor shall promptly, as and when due, make payment to any person, co-partnership, association or corporation, furnishing medical, surgical and hospital care or other needed care and attention, incident to sickness or injury, to the employees of the Contractor, of all sums which the Contractor agrees to pay for such services and all moneys and sums which Contractor collected or deducted from the wages of employees pursuant to any law, contract or agreement for the purpose of providing or paying for such service.

5.1.18 Every Subcontractor will comply with ORS 656.017, unless it is an exempt employer under ORS 656.126.

5.1.19 The Contractor is not a contributing member to the Public Employees' Retirement System and will be responsible for any and all federal, state and local taxes applicable to payments received under this Agreement. The Contractor will not be eligible for any benefits from these contract payments of federal Social Security, employment insurance, Workers' Compensation or the Public Employees' Retirement System.

5.1.20 The provisions of ORS 279C.800 to ORS 279C.870 relating to the prevailing wage rates will be complied with**.**

.1 The latest prevailing wage rates for public works contracts in Oregon are contained in the following publications: The July 1, 2022, Prevailing Wage Rates for Public Works Projects in Oregon, including any amendments. Such publications can be reviewed electronically at:

https://www.oregon.gov/boli/employers/Pages/prevailing-wage-rates.aspx

and are hereby incorporated as part of the contract documents.

.2 The hourly rate of wage to be paid by the Contractor or every Subcontractor subject to prevailing wage rates to workers, shall be not less than the prevailing rate of wage for an hour's work in the same trade or occupation in the locality where such labor is performed.

5.1.21 The Contractor and every Subcontractor subject to prevailing wage rates to employees shall keep the prevailing wage rates for that project posted in a conspicuous and accessible place in or about the project.

5.1.22 The Contractor and every Subcontractor subject to prevailing wage rates shall also provide for or contribute to a health and welfare plan or a pension plan, or both, for its employees on the Project and shall post notice describing such plans in a conspicuous and accessible place in or about the Project. The notice preferably shall be posted in the same place as the notice required under 5.1.16. In addition to the description of the plans, the notice shall contain information on how and where to make claims and where to obtain further information.

5.1.23 The Contractor represents and agrees that the specifications contain a sufficient provision stating the existing prevailing rate of wage which must be paid to workers in each trade or occupation required for such public work employed in the performance of the Work either by the Contractor or any Subcontractor or other person doing or contracting to do the whole or any part of the Work contemplated by the contract. Such workers shall be paid not less than such specified minimum hourly rate of wage.

5.1.24 The District represents and agrees that the specifications contain a sufficient provision stating that a fee is required to be paid to the Commissioner of the Bureau of Labor and Industries as provided in ORS 279C.825. The fee shall be paid to the commissioner pursuant to the administrative rule of the commissioner.

5.1.25 The Contractor or the Contractor's surety and every Subcontractor or Subcontractor's surety subject to prevailing wage rates shall file certified statements with the Owner in writing in the form prescribed by the Commissioner of the Bureau of Labor and Industries, certifying the hourly rate of wage paid each worker which Contractor or the Subcontractor has employed upon such public work, and further certifying that no worker employed upon such public work has been paid less than the prevailing rate of wage or less than the minimum hourly rate of wage specified in the contract, which certificate and statement shall be verified by the oath of Contractor or the Contractor's surety or Subcontractor or the Subcontractor's surety that the Contractor or Subcontractor has read such statement and certificate and knows the contents thereof and that the same is true to the Contractor's or subcontractor's knowledge. The certified statements shall set out accurately and completely the payroll records for the prior week including the name and address of each worker, the worker's correct classification, rate of pay, daily and weekly number of hours worked, deductions made and actual wages paid. Each certified statement required shall be delivered or mailed by Contractor or the Subcontractor to the public contracting agency. Certified statements for each week, during which the Contractor or the Subcontractor employs a worker upon the Project shall be submitted once a month, by the fifth (5^{th}) business day of the following month.

.1 If a contractor is required to file certified statements under ORS 279C.845, the Contracting Agency shall retain 25% of any amount earned by the contractor on the public works project until the contractor has filed with the Contracting Agency statement as required by ORS 279C.845. The Contracting Agency shall pay the contractor the amount retained within 14 days after the contractor files the required certified statements, regardless of whether a subcontractor has failed to file certified statements required by statute. The Contracting Agency is not required to verify the truth of the contents of certified statements filed by the contractor under this section and ORS 279C.845.

.2 The contractor shall retain 25% of any amount earned by a first-tier subcontractor on this public works contract until the subcontractor has filed with the Contracting Agency certified statements as required by ORS 279C.845. The contractor shall verify that the first-tier subcontractor has filed the certified statements before the contractor may pay the subcontractor any amount retained. The contractor shall pay the first-tier subcontractor the amount retained within 14 days after the subcontractor files the certified statements as

required by ORS 279C.845. Neither the Contracting Agency nor the contractor is required to verify the truth of the contents of certified statements filed by a first-tier subcontractor.

5.1.26 The Contractor or Subcontractor shall preserve the certified statements for a period of three (3) years from the date of completion of the contract.

5.1.27 Per ORS 279C.855, the Contractor represents and agrees that the Owner has fully and timely included a provision in the Contract Documents that the Contractor and any Subcontractor shall comply with ORS 279C.840 in the invitation for bids, the request for bids, the contract specifications, the accepted bid or elsewhere in the Contract Documents and that the Owner has no liability for unpaid minimum wages.

5.1.28 Owner shall make progress payments on the contract monthly as Work progresses. Payments shall be based upon estimates of Work completed that are approved by the Owner. A progress payment shall not be considered acceptance or approval of any Work or waiver of any defects therein. In instances when an invoice is filled out incorrectly, or when there is any defect or impropriety in any submitted invoice or when there is a good faith dispute, the Owner shall so notify the Contractor within 15 days stating the reason or reasons the invoice is defective or improper or the reasons for the dispute. A defective or improper invoice, if corrected by the Contractor within seven days of being notified by the Owner, shall not cause a payment to be made later than specified in this section.

5.1.29 If requested in writing by a first-tier Subcontractor, Contractor, within ten (10) calendar days after receiving the request, shall send to the first-tier Subcontractor a copy of that portion of any invoice, request for payment submitted to the Owner or pay document provided by the Owner to the Contractor specifically related to any labor or materials supplied by the first-tier Subcontractor.

5.1.30 Payment of interest may be postponed when payment on the principal is delayed because of disagreement between Owner and Contractor.

5.1.31 The Owner may reserve as retainage from any progress payment an amount not to exceed five percent of the payment. As Work progresses, the Owner may in its sole discretion reduce the amount of the retainage and the Owner may in its sole discretion eliminate retainage on any remaining monthly contract payments after 50 percent of the Work under the contract is completed if, in the Owner's sole opinion, such Work is progressing satisfactorily. Elimination or reduction of retainage shall be allowed only upon written application by the Contractor, which application shall include written approval of the Contractor's surety; except that when the contract Work is 97-1/2 percent completed the Owner may, at its discretion and without application by the Contractor, reduce the retained amount to 100 percent of the value of the Work remaining to be done. Upon receipt of a written application by the Contractor, the Owner shall respond in writing within a reasonable time.

5.1.32 The retainage held by the Owner shall be included in and paid to the Contractor as part of the final payment of the contract price. The Contractor shall notify the Owner in writing when the Contractor considers the Work complete and the Owner shall, within 15 days after receiving the written notice, either accept the Work or notify the Contractor of Work yet to be performed on the contract.

5.1.33 The Contractor shall not request payment from the Owner of any amount withheld or retained in accordance herewith.

5.1.34 Such time as the Contractor has determined and certified to the Owner that the Subcontractor is entitled to the payment of such amount. A dispute between the Contractor and a first-tier Subcontractor relating to the amount or entitlement of a first-tier Subcontractor to a payment or a late payment interest penalty under a clause included in the subcontract pursuant to the terms hereof does not constitute a dispute to which the Owner is a party. The Owner shall not be included as a party in any administrative or judicial proceeding involving such a dispute. The Contractor shall include in each subcontract for property

or services entered into by the Contractor and a first-tier Subcontractor, including a material supplier, for the purpose of performing a construction contract:

.1 A payment clause that obligates the Contractor to pay the first-tier Subcontractor for satisfactory performance under its subcontract within ten (10) days out of such amounts as are paid to the Contractor by the Owner under such contract; and

.2 An interest penalty clause that obligates the Contractor, if payment is not made within 30 days after receipt of payment from the Owner, to pay to the first-tier Subcontractor an interest penalty on amounts due in the case of each payment not made in accordance with the payment clause included in the subcontract pursuant to subparagraph .1 of this 5.1.34. The Contractor or first-tier Subcontractor shall not be obligated to pay an interest penalty if the only reason that the Contractor or first-tier Subcontractor did not make payment when payment was due is that the Contractor or first-tier Subcontractor did not receive payment from the Owner or the Contractor when payment was due. The interest penalty shall be:

(A) For the period beginning on the day after the required payment date and ending on the date on which payment of the amount due is made; and

(B) Computed at the rate specified in ORS 279C.515(2).

5.1.35 The Contractor shall include in each of its subcontracts, for the purpose of performance of such contract condition, a provision requiring the first-tier Subcontractor to include a payment clause and an interest penalty clause conforming to the standards of 5.1.33 in each of its subcontracts and to require each of its Subcontractors to include such clauses in their subcontracts with each lower-tier Subcontractor or supplier.

5.1.36 If the Contractor is an employer, the Contractor is a subject employer under Oregon's Workers' Compensation Law and shall comply with ORS 656.017 and shall provide Workers' Compensation coverage for all their "subject workers" as defined in ORS Chapter 656.

5.1.37 The Contractor and all Subcontractors subject to licensing with the Oregon Construction Contractors Board shall be duly licensed and in good standing therewith at the time they bid any Work, enter into any contract to perform any Work, perform any Work and at all times under which any warranty or repair obligation applies. The Contractor and all Subcontractors performing any Work which requires any other governmental licensing, such as those with the Elevator and Electrical Board, Plumbing Board or Landscape Contractors Board, shall be duly licensed with all appropriate governmental agencies at the time they bid any Work, enter into any contract to perform any Work, perform any Work and at all times under which any warranty or repair obligation applies.

5.1.38 If federal funds are involved, federal laws, rules and regulations applicable to the grant shall govern in the event they conflict with any provision of this Agreement or other required by law. The Contractor certifies that it is not currently employed by the federal government. This provision does not preclude the Contractor from holding another contract with the federal government.

5.1.39 The Contractor shall timely provide the Owner its name, address, social security, federal employee identification number and such other information as the Department of Revenue may require or request.

5.1.40 The Contractor shall comply and require all Subcontractors to comply with the applicable requirements of all laws, codes, ordinances, regulations and statutes, including but not limited to those in ORS Chapters 279A, B and C. To the extent that ORS Chapters 279A, B and C, or any other law, code, ordinance or regulations, requires any tender or condition to be included in this Agreement, such tender or condition is hereby incorporated by this reference. Nothing contained herein shall be construed so as to require the commission of any act contrary to law, code, rule, statute, ordinance or regulation, and wherever

there is any conflict between any provisions contained herein and any statute, law, code, ordinance, rule or regulation the provision of this Agreement which is affected shall be curtailed and limited only to the extent necessary to bring it within the requirements of the law, code, rule, statute, ordinance or regulation.

5.1.41 If the Contractor is a foreign Contractor and the contract price exceeds $10,000, the Contractor shall promptly report to the Department of Revenue on forms to be provided by the Department of Revenue the total contract price, terms of payment, length of contract and such other information as the Department of Revenue may require before final payment can be received on the public contract. For purposes of this A.3 I, a foreign Contractor is one who is not domiciled in or registered to do business in the State of Oregon.

5.1.42 In compliance with the provisions of ORS 279C.525, the following is a list of federal, state and local agencies, of which the Contracting Agency has knowledge, that have enacted ordinances or regulations dealing with the prevention of environmental pollution and the preservation of natural resources that may affect the performance of the contract:

FEDERAL AGENCIES:

- Agriculture, Department of
    - Forest Service
    - Soil Conservation Service
- Defense, Department of
    - Army Corps of Engineers
- Environmental Protection Agency
- Interior, Department of
    - Bureau of Sport Fisheries and Wildlife
    - Bureau of Outdoor Recreation
    - Bureau of Land Management
    - Bureau of Indian Affairs
    - Bureau of Reclamation
- Labor, Department of
    - Occupational Safety and Health Administration
- Transportation, Department of
    - Federal Highway Administration
    - Homeland Security, Department of
        - Coast Guard

STATE AGENCIES:

- Agriculture, Department of
- Environmental Quality, Department of
- Fish and Wildlife, Department of
- Forestry, Department of
- Geology and Mineral Industries, Department of
- Human Resources, Department of
- Land Conservation and Development Commission
- Soil and Water Conservation Commission
- State Engineer
- State Land Board
- Water Resources Board

LOCAL AGENCIES:

- City Council

- County Court
- County Commissioners, Board of
- Port Districts
- Metropolitan Service Districts
- County Service Districts
- Sanitary Districts
- Water Districts
- Fire Protection Districts

5.1.43 Contractor certifies that it has not and will not discriminate against minority, women, minority-owned or women-owned businesses, or emerging small business enterprises or a disadvantaged business enterprise in obtaining any required Subcontractors, or against a business enterprise that is owned or controlled by, or that employs a service-disabled veteran as defined in ORS 408.225 including but not limited to when obtaining or awarding subcontracts.

5.1.44 The Contractor shall use recyclable products to the maximum extent economically feasible in the performance of the Contract Work set forth in this document.

5.1.45 As referenced herein, an employee drug testing policy shall be as follows:

.1 The Contractor or Subcontractor shall have in place at the time of the execution of this Contract, and shall maintain during the term of this Contract, a Qualifying Employee Drug Testing Program for its employees that includes, at a minimum, the following:

(A) A written employee drug testing policy;

(B) Required drug testing for all new Subject Employees or, alternatively, required testing of all Subject Employees every 12 months on a random selection basis; and

(C) Required testing of a Subject Employee when the Contractor or Subcontractor has reasonable cause to believe the Subject Employee is under the influence of drugs.

A drug testing program that meets the above requirements will be deemed a "Qualifying Employee Drug Testing Program." For the purposes of this section an employee is a "Subject Employee" only if that employee will be working on the Project job site.

.2 The Contractor shall require each Subcontractor providing labor for the Project to:

(A) Demonstrate to the Contractor that it has a Qualifying Employee Drug Testing Program for the Subcontractor's Subject Employees, and represent and warrant to the Contractor that the Qualifying Employee Drug Testing Program is in place at the time of subcontract execution and will continue in full force and effect for the duration of the subcontract; or

(B) Require that the Subcontractor's Subject Employees participate in Contractor's Qualifying Employee Drug Testing Program for the duration of the subcontract.

5.1.46 Unless exempt under ORS 279C.836(4), (7), (8) or (9), before starting work on this contract, or any subcontract hereunder, contractor and all subcontractors must have on file with the Construction Contractors Board a public works bond with a corporate surety authorized to do business in the state of Oregon in the amount of $30,000. The bond must provide that the contractor or subcontractor will pay

claims ordered by the Bureau of Labor and Industries to workers performing labor upon public works projects. The bond must be a continuing obligation, and the surety's liability for the aggregate of claims that may be payable from the bond may not exceed the penal sum of the bond. The bond must remain in effect continuously until depleted by claims paid under ORS 279C.836(2), unless the surety sooner cancels the bond. The surety may cancel the bond by giving 30 days' written notice to the contractor or subcontractor, to the board and to the Bureau of Labor and Industries. When the bond is canceled, the surety is relieved of further liability for work performed on contracts entered into after the cancellation. The cancellation does not limit the surety's liability for work performed on contracts entered into before the cancellation. Contractor further certifies that contractor will include in every subcontract or provision requiring a subcontractor to have a public works bond filed with the Construction Contractors Board before starting work on the project, unless exempt under ORS 279C.836(4), (7), (8), or (9).

.1 Unless exempt under ORS 279C.836(4), (7), (8), or (9), before permitting a subcontractor to start work on this public works project, the contractor shall verify that the subcontractor has filed a public works bond as required under this section or has elected not to file a public works bond under ORS 279C.836(7).

.2 Unless public contracting agency has been notified of any applicable exemptions under ORS 279C.836(4), (7), (8), or (9), the public works bond requirement above is in addition to any other bond contractors or subcontractors may be required to obtain under this contract.

5.1.47 Contractor certifies its compliance with the Oregon tax laws, in accordance with ORS 305.385.

5.1.48 Pursuant to District Public Contracting Rule 137-049-0880, Owner may, at reasonable times and places, have access to and an opportunity to inspect, examine, copy, and audit all Contractor records relating to the Contract.

5.1.49 The following notice is applicable to Work involving excavation. "ATTENTION: Oregon law requires you to follow rules adopted by the Oregon Utility Notification Center. Those rules are set forth in OAR 952-001-0010 through OAR 952-001-0090. You may obtain copies of the rules by calling the center at (503) 232-1987."

5.2 FINAL PAYMENT

5.2.1 Final payment, constituting the entire unpaid balance of the Contract Sum, shall be made by the Owner to the Contractor when:

.1 A final Certificate for Payment has been issued by the Owners Delegated Representative.

5.2.2 The Owner's final payment to the Contractor shall be made no later than 30 days after the issuance of the Owners Delegated Representative's final Certificate for Payment.

ARTICLE 6 TERMINATION OR SUSPENSION

6.1 The Contract may be terminated by the Owner or the Contractor as provided in Article 14 of the General Conditions.

6.2 The Work may be suspended by the Owner as provided in Article 14 of the General Conditions.

6.3 The Owner shall, in addition to the Right to Stop the Work, have the right to require that the Contractor replace or remove construction personnel assigned to the Work, if, in the Owner's sole determination, specific construction personnel are impairing or impeding the prosecution of the Work.

ARTICLE 7 MISCELLANEOUS PROVISIONS

7.1 Where reference is made in this Agreement to a provision of the General Conditions or another Contract Document, the reference refers to that provision as amended or supplemented by other provisions of the Contract Documents.

7.2 Payments due and unpaid under the Contract shall bear interest from the date payment is due at the rate stated below, or in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.

7.3 The Owner's representative is: Richard Randleman, Sr. Project Manager, HMK Company. The Owner may change this representative at any time.

7.4 The Contractor's Representative is: _____.

7.5 Neither the Owner's nor the Contractor's Representative shall be changed without ten (10) days written notice to the other party.

7.6 CONTRACTOR'S CONSTRUCTION SCHEDULES

7.6.1 Within ten (10) days after issuance of the Notice to Proceed, the Contractor shall submit a preliminary schedule of the Work. Within 30 days after issuance of the Notice to Proceed, and before any progress payment need be made, the Contractor, after consultations with its Subcontractors and Suppliers of any tier, shall submit six copies of a Contractor's Construction Schedule to the Owners Delegated Representative and one copy to the Owner. Not less than ten percent of the Progress Payment may be withheld until a Contractor's Construction Schedule in a form satisfactory to the Owners Delegated Representative and Owner has been submitted. Neither the Owner nor the Owners Delegated Representative will review the substance of the Contractor's Construction Schedule.

7.6.2 The Contractor's Construction Schedule shall be based upon a critical path method ("CPM") analysis of construction activities and sequence of operations needed for the orderly performance and completion of all separable parts of the Work in accordance with the Contract and within the Contract Time. The schedule shall be a critical path method type in the form of a precedence diagram and activity listing and shall be time-scaled. It shall include the Notice to Proceed date, the Date(s) of Substantial Completion, and the Date(s) of Final Completion in accordance with the Contract Documents. The Critical Path shall be clearly indicated on the Contractor's Construction Schedule. No more than 20% of the progress activities shall be on the critical path, and no more than 30% shall have less than five days of float. The value of any single activity shall not exceed $50,000, except that 5% of the total activities may exceed this limit without prior approval. The time-scaled network diagram shall be summarized on a single sheet not to exceed 11"x 17".

7.6.2.1 The network diagram shall show in detail and in order the sequence of all significant activities, their descriptions, start and finish dates, durations and dependencies, necessary to complete all Work and any separable parts thereof. The activity listing shall show the following information for each activity on the network diagram:

.1 Description;

.2 Duration (not to exceed fifteen working days);

.3 Craft;

.4 Equipment (including hours of usage);

.5 Start and finish dates;

.6 Total float time and free float time;

.7 Dates that work must be performed and completed by other Contractors or Subcontractors to support the Work and the interfaces with such other Contractors; and

.8 Cost-loading, correlated to the Schedule of Values, which, upon approval, shall be used as a basis for determining action on progress payments throughout the Project.

7.6.2.2 A schedule for the purchase and receipt of items required for performance of the Work, showing lead times between purchase order placement and delivery dates, shall be integrated with the Contractor's Construction Schedule. The Contractor shall furnish the Owners Delegated Representative with copies of all purchase orders and acknowledgments and fabrication, production, and shipping schedules for all major items on the critical path within ten days of the Contractor's receipt of each purchase order, acknowledgment or schedule. Neither the Owners Delegated Representative nor the Owner shall be deemed to have approved or accepted any such material, or its schedule, nor deemed to have waived this requirement if some or all of the material is not received.

7.6.2.3 Milestone completion dates shall be clearly defined on the Contractor's Construction Schedule.

7.6.2.4 If abbreviations are used in the Contractor's Construction Schedule, a legend shall be provided to define all abbreviations.

7.6.2.5 The Contractor shall prepare and keep current a schedule of submittals, coordinated with the Contractor's Construction Schedule, which allows the Owners Delegated Representative at least ten (10) days to review the submittals.

7.6.2.6 The Progress Schedules shall be submitted as both a paper copy and in electronic format using the latest version of Microsoft Project. The Contractor may request to use different project management software, such as, Suretrak, but must first receive approval from the Owner, by demonstrating its capabilities. This can be accomplished by submitting a sample CPM printout of similar scope. If the alternative software is accepted, the Contractor will be required to supply the Owner an authorized copy of the software with all user support manuals.

7.6.2.7 At each monthly meeting with the Owner, the Contractor shall submit (a) a bar chart schedule showing the activities planned for the next month, and (b) a report showing actual starts and finishes from the previous month. The bar-chart schedule shall show all Work activities numbered according to the CPM, any submittal or delivery activities with less than five (5) days, one (1) float, and any permitting, testing, or inspection activities by others.

7.6.3 Within ten days after receipt by the Owners Delegated Representative, two copies of the Contractor's Construction Schedule will be returned to the Contractor with comments, following review by the Owner. Review by the Owner and Owners Delegated Representative of the Contractor's Construction Schedule shall not constitute an approval or acceptance of the Contractor's construction means, methods, or sequencing, or its ability to complete the Work in a timely manner.

7.6.4 The Contractor shall utilize and comply with the Contractor's Construction Schedule. The Contractor shall not be entitled to any adjustment in the Contract Time, the Contractor's Construction Schedule, or the Contract Sum, or to any additional payment of any sort by reason of the loss or use of any float time, including time between the Contractor’s anticipated completion date and end of the Contract Time, whether or not the float time is described as such on the Contractor’s Construction Schedule.

7.6.5 Should the Contractor fail to meet any scheduled date as shown on the current Contractor's Construction Schedule, the Contractor shall, if requested, be required at its own expense to submit within ten days of the request an updated Contractor's Construction Schedule. If the Contractor's progress indicates to the Owner that the Work will not be Substantially Completed within the Contract Time, the Contractor shall, at its own expense, increase its work force and / or working hours to bring the actual completion dates of the activities into conformance with the Contractor's Construction Schedule and Substantial Completion within the Contract Time. The Contractor shall also submit a revised Contractor's Construction Schedule at its own expense within ten days of notice from the Owners Delegated Representative that the sequence of Work varies significantly from that shown on the Contractor's Construction Schedule. Neither the Owner nor the Owners Delegated Representative will, however, review the substance or sequence of the Contractor's Construction Schedule.

7.6.6 Schedule Float Utilization. Float belongs to the benefit of the Project for the Owner's use and no float shall be used without the Owner's written approval. Any float time to activities not on the critical path shall be used by the Contractor to optimize its construction process. Any float time between the end of the

final construction activity and the final completion date shall be used by the Owner in determining if additional contract days are to be awarded for changes in the contract or for delays to the contract caused by the Owner. The Contractor will not be entitled to any adjustment in the Contract Time, the Construction Schedule, or the Contract Sum, or to any additional payment of any sort by reason of the Owner's use of float time between the end of the final construction activity and the final completion date.

7.6.7 Delays. The Contractor shall, within seven days of the event, notify the Owner and Owners Delegated Representative in writing of any proposed changes in the Contractor's Construction Schedule or the Contract Time and of any event which could delay performance or supplying of any item of the Work and shall indicate the expected duration of the delay, the anticipated effect of the delay on the Contractor's Construction Schedule, and the action being taken to correct the delay situation. In the event the Contractor is entitled to a change in the Contract Time, the adjustment to the Contract Time shall be limited to the change in the critical path of construction activities.

7.6.8 Final Completion. The Contractor shall attain Final Completion of the Work in accordance with the Contract within 60 days after the date of Substantial Completion.

7.6.9 Meetings. During the period commencing with the issuance of Notice to Proceed and ending with the date of Final Completion of the Work, the Contractor shall attend and participate in and ensure applicable Subcontractors of any tier and Suppliers attend and participate in:

.1 A pre-contract meeting;

.2 A pre-construction meeting;

.3 Regular weekly Project status meetings scheduled by the Owner or by the Owners Delegated Representative to review progress of the Work, to discuss the Contractor's progress reports, to obtain necessary Owner's or Owners Delegated Representative's approvals, and generally to keep the Owner and Owners Delegated Representative informed and involved in the progress of the Project; and

.4 Regular on-site meetings scheduled by the Owner or by the Owners Delegated Representative to review progress of the Work and other pertinent matters.

7.7 Any and all references to "Engineer" or "the Engineer" in this Agreement or in the General Conditions of the Contract shall be deemed for all purposes to mean and refer to: Owners Delegated Representative.

7.8 If any provision of this Agreement or application thereof to any extent shall be invalid or unenforceable the remainder of the Agreement or its application thereof shall not be affected thereby and the provision or application shall be enforced to the fullest extent permitted by law.

7.9 The Contractor shall not assign this Agreement without the prior written permission of the Owner. Contractor shall assign to Owner any and all rights that the Contractor now has or hereafter may acquire pursuant to a contract related to the Project which rights the Owner shall thereafter be entitled to assign to another person or entity including without limitation any Lender, upon the request of the Owner, provided, however, until the exercise of such rights of assignment by the Owner, there shall be no privity or contractual relationship between the Owner and such persons and entities. The Contractor hereby consents to the free assignment of this Agreement in whole or in part by the Owner to any other person or entity including but not limited to any Lender.

7.10 The Contractor represents and warrants to the Owner who relies thereon as follows:

7.10.1 It and all of its Subcontractors are financially solvent, able to pay debts as they become due and have sufficient working capital to timely perform and complete all obligations related to the Project.

7.10.2 That it is able to timely and completely furnish all the labor, material, equipment and services to necessary to fully complete the Work within the Contract Time.

7.10.3 It and all of its Subcontractors are duly and properly licensed and in good standing with the Oregon Construction Contractors Board and all other governmental agencies and are signatories to collective bargaining agreements.

7.10.4 It has visited the site, undertaken any and all tests it deems advisable, is familiar with the structure and that it is unaware of any potential condition with would increase the Contract Sum or Contract Time.

7.10.5 It and all of its Subcontractors possess a high level of experience and expertise in projects similar to the Project.

7.10.6 Neither Contractor nor any of its Subcontractors are "exempt" from the requirement to provide Workers' Compensation Insurance under Oregon law.

7.10.7 It is fully authorized to execute this Agreement and perform all the obligations required of it hereunder.

7.11 The representations and warranties of 7.11 are in addition to and not in lieu of any other obligation or law and survive the execution of this Agreement and final completion of the Project.

ARTICLE 8 ENUMERATION OF CONTRACT DOCUMENTS

8.1 The Contract Documents, except for Modifications issued after execution of this Agreement, are enumerated as follows:

8.1.1 This Agreement.

8.1.2 The General Conditions.

8.1.3 The Supplementary and other Conditions of the Contract.

8.1.4 The Specifications are those contained in the Project Manual dated September 26, 2022.

8.1.5 The Drawings are bound in the project manual.

8.1.6 The Addenda, if any, are as follows:

Portions of Addenda relating to bidding requirements are not part of the Contract Documents unless the bidding requirements are also enumerated in this Article 8.

8.1.7 Other documents, if any, forming part of the Contract Documents are as follows:

a. Exhibits _____

This Agreement is entered into as of the day and year first written above and is executed in at least three original copies, of which one is to be delivered to the Contractor, one to the Owners Delegated Representative for use in the administration of the Contract, and the remainder to the Owner.

CONTRACTOR TO BE DETERMINED		**JACKSON COUNTY FIRE DISTRICT 5**	
By:	_____	**By:**	_____
			Charles Hanley
Title:	_____	**Title:**	**Fire Chief**
Date:	_____	**Date:**	_____
Federal ID #:	_____		

ARTICLE 1 GENERAL PROVISION

1.1 BASIC DEFINITIONS

1.1.1 THE CONTRACT DOCUMENTS

The Contract Documents consist of the Agreement between Owner and Contractor (hereinafter the Agreement), the Request for Bids or Proposals. Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, and Addenda issued prior to execution of the Contract, other documents listed in the Agreement and Modifications issued after execution of the Contract. A Modification is (1) a written amendment to the Contract signed by both parties, (2) a Change Order, (3) a Construction Change Directive or (4) a written order for a minor change in the Work issued by the Consultant. Contractor acknowledges and represents that it has examined all Contract Documents and will examine all Contract Documents created after execution of the Agreement. Contractor represents that such Contract Documents are suitable and sufficient to enable Contractor to timely complete the Work for the Contract Sum within the Contract Time.

1.1.2 THE CONTRACT

The Contract Documents form the Contract for Construction. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations or agreements, either written or oral. The Contract may be amended or modified only by a Modification. The Contract Documents shall not be construed to create a contractual relationship of any kind (1) between the Consultant and Contractor, (2) between the Owner and any Subcontractor, including, but not limited to, any Sub-subcontractor, (3) between the Owner and Consultant or (4) between any persons or entities other than the Owner and Contractor. The Consultant shall, however, be entitled to performance and enforcement of obligations under the Contract intended to facilitate performance of the Consultant's duties.

1.1.3 THE WORK

The term "Work" means the construction and services required by the Contract Documents, whether completed or partially completed, and includes any and all labor (including, but not limited to, supervision and management), transportation, materials, equipment and services provided or to be provided by the Contractor to timely fulfill the Contractor's obligations and render the Project complete and usable for its intended purpose. The Work includes all labor, material, equipment and services incidental to or which may be inferred from any of the Contract Documents. The Work may constitute the whole or a part of the Project.

1.1.4 THE PROJECT

The Project is the total construction of which the Work performed under the Contract Documents may be the whole or a part and which may include construction by the Owner or by separate contractors.

1.1.5 THE DRAWINGS

The Drawings are the graphic and pictorial portions of the Contract Documents showing the design, location and dimensions of the Work, generally including plans, elevations, sections, details, schedules and diagrams.

1.1.6 THE SPECIFICATIONS

The Specifications are that portion of the Contract Documents consisting of the written requirements for materials, equipment, systems, standards and workmanship for the Work, and performance of related services.

1.1.7 THE PROJECT MANUAL

The Project Manual is a volume assembled for the Work which may include the bidding requirements, sample forms, Conditions of the Contract and Specifications.

1.2 CORRELATION AND INTENT OF THE CONTRACT DOCUMENTS

1.2.1 The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all; performance by the Contractor shall be required only to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results. In case of any conflict in the requirements of the Contract Documents, the Contractor is deemed to have included the better Quality and larger Quantity of the Work.

1.2.2 Organization of the Specifications into divisions, sections and articles, and arrangement of Drawings shall not control the Contractor in dividing the Work among Subcontractors or in establishing the extent of Work to be performed by any trade.

1.2.3 Unless otherwise stated in the Contract Documents, words which have well-known technical or construction industry meanings are used in the Contract Documents in accordance with such recognized meanings.

1.3 CAPITALIZATION

1.3.1 Terms capitalized in these General Conditions include those which are (1) specifically defined, (2) the titles of numbered articles and identified references to Paragraphs, Subparagraphs and Clauses in the document or (3) the titles of other documents.

1.4 INTERPRETATION

1.4.1 In the interest of brevity the Contract Documents frequently omit modifying words such as "all" and "any" and articles such as "the" and "an," but the fact that a modifier or an article is absent from one statement and appears in another is not intended to affect the interpretation of either statement.

1.5 EXECUTION OF CONTRACT DOCUMENTS

1.5.1 The Contract Documents shall be signed by the Owner and Contractor. If either the Owner or Contractor or both do not sign all the Contract Documents, the Consultant shall identify such unsigned Documents upon request.

1.5.2 Execution of the Agreement by the Contractor is a representation that the Contractor has visited the site, become fully familiar with the nature, location and character of the site and surrounding areas, weather conditions, availability of labor, materials, equipment and services, site conditions, surface conditions, subsurface conditions, the Contract Documents, existing local conditions under which the Work is to be performed, the time period for performance and completion of the Work. Contractor represents that it has performed personal observations and correlated the observations with the requirements of the Contract Documents such that the Contractor is not aware of any discrepancies, omissions, ambiguities or conflicts in or among any of the Contract Documents.

1.6 OWNERSHIP AND USE OF DRAWINGS, SPECIFICATIONS AND OTHER INSTRUMENTS OF SERVICE

1.6.1 The Drawings, Specifications and other documents, including any in electronic form, prepared by the Consultant and the Consultant's consultants are documents through which the Work to be executed by the Contractor is described. The Contractor may retain one record set. Neither the Contractor nor any

Subcontractor, including, but not limited to, any Sub-subcontractor or material or equipment supplier shall own or claim any intellectual property rights in the Drawings, Specifications and other documents prepared by the Consultant or the Consultant's consultants. All copies of the documents, except the Contractor's record set, shall be returned or suitably accounted for to the Consultant, on request, upon completion of the Work. The Drawings, Specifications and other documents prepared by the Consultant and the Consultant's consultants, and copies thereof furnished to the Contractor, are for use solely with respect to this Project. They are not to be used by the Contractor or any Subcontractor, including, but not limited to, any Sub-subcontractor or material or equipment supplier on other projects or for additions to this Project outside the scope of the Work without the specific written consent of the Owner, Consultant and the Consultant's consultants. The Contractor, Subcontractors, including, but not limited to, any Sub-subcontractors and material or equipment suppliers are authorized to use and reproduce applicable portions of the Drawings, Specifications and other documents prepared by the Consultant and the Consultant's consultants appropriate to and for use in the execution of their Work under the Contract Documents only. All copies made under this authorization shall bear the statutory copyright notice, if any, shown on the Drawings, Specifications and other documents prepared by the Consultant and the Consultant's consultants. Submittal or distribution to meet official regulatory requirements or for other purposes in connection with this Project is not to be construed as publication in derogation of the any intellectual property right or other reserved rights.

ARTICLE 2 OWNER

2.1 GENERAL

2.1.1 The Owner is the entity identified as such in the Agreement and is referred to throughout the Contract Documents. The Owner may designate in writing a representative who subject to the limitations provided by law, shall have express authority to bind the Owner with respect to all matters requiring the Owner's approval or authorization. Except as otherwise provided in Subparagraph 4.1, the Consultant does not have such authority. The term "Owner" means the Owner or the Owner's Authorized Representative.

2.2 INFORMATION AND SERVICES REQUIRED OF THE OWNER

2.2.1 Except for permits and fees, including those required under Subparagraph 3.7, which are the responsibility of the Contractor under the Contract Documents, the Owner shall secure and pay for necessary approvals, easements, assessments and charges required for construction, use or occupancy of permanent structures or for permanent changes in existing facilities.

2.3 OWNER'S RIGHT TO STOP THE WORK

2.3.1 If the Contractor fails to correct Work which is not in accordance with the requirements of the Contract Documents as required by Paragraph 1.1.3, or persistently fails to carry out Work in accordance with the Contract Documents, the Owner may issue a written order to the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, the right of the Owner to stop the Work shall not give rise to a duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity, nor give rise to any claim for additions to the Contract Sum or Contract Time.

2.3.2 The Owner shall, in addition to the Right to Stop the Work, have the right to require that the Contractor replace or remove construction personnel assigned to the Work, if, in the Owner’s sole determination, specific construction personnel are impairing or impeding the prosecution of the Work.

2.4 OWNER'S RIGHT TO CARRY OUT THE WORK

2.4.1 If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a seven-day period after receipt of written notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner may, immediately without prejudice to other remedies the Owner may have, correct such deficiencies. In such case an appropriate Change Order shall be issued deducting from payments then or thereafter due the Contractor the

reasonable cost of correcting such deficiencies, including Owner's expenses and compensation for the Consultant's additional services made necessary by such default, neglect or failure. Such change order shall be deemed signed by the Contractor for the purposes of this Agreement even if the Contractor fails to physically sign such Change Order. If payments then or thereafter due the Contractor are not sufficient to cover such amounts, the Contractor shall promptly pay the difference to the Owner. The rights stated herein shall be in addition to and not in lieu of any rights afforded the Owner.

ARTICLE 3 CONTRACTOR

3.1 GENERAL

3.1.1 The Contractor is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The term "Contractor" means the Contractor or the Contractor's Authorized Representative.

3.1.2 The Contractor shall perform and complete the Work in accordance with the Contract Documents for the Contract Sum and within the Contract Time.

3.1.3 The Contractor shall not be relieved of obligations to perform the Work in accordance with the Contract Documents either by activities or duties of the Consultant in the Consultant's administration of the Contract, or in the performance of its obligations or by tests, inspections or approvals required or performed by persons other than the Contractor.

3.2 REVIEW OF CONTRACT DOCUMENTS AND FIELD CONDITIONS BY CONTRACTOR

3.2.1 Since the Contract Documents are complementary, before starting each portion of the Work, the Contractor shall carefully study and compare the various Drawings and other Contract Documents relative to that portion of the Work, as well as the information furnished by the Owner, shall take field measurements of any existing conditions, including all general reference points and interfering site conditions related to that portion of the Work and shall observe any conditions at the site affecting it and shall carefully compare such field measurements and conditions and other information known to the Contractor with the Contract Documents before commencing such activities. These obligations are for the purpose of facilitating construction by the Contractor and are not for the purpose of discovering errors, omissions, or inconsistencies in the Contract Documents; however, any errors, inconsistencies or omissions known, recognized or discovered by the Contractor shall be reported promptly to the Consultant in writing as a request for information in such form as the Consultant may require.

3.2.2 Any design errors or omissions noted by the Contractor during this review shall be reported promptly to the Consultant in writing, but it is recognized that the Contractor's review is made in the Contractor's capacity as a contractor and not as a licensed design professional unless otherwise specifically provided in the Contract Documents. The Contractor is not required to ascertain that the Contract Documents are in accordance with applicable laws, statutes, ordinances, building codes, and rules and regulations, but any nonconformity recognized discovered by or made known to the Contractor shall be reported promptly to the Consultant in writing. The accuracy of grades, elevations, dimensions, locations or otherwise of existing conditions are not warranted to be accurate. The Contractor is solely responsible for verifying the accuracy of grades, elevations, dimensions, locations or otherwise of existing conditions prior to entering in to the Contract.

3.2.3 If the Contractor believes that additional cost or time is involved because of clarifications or instructions issued by the Consultant in response to the Contractor's notices or requests for information pursuant to Subparagraphs 3.2.1 and 3.2.2, the Contractor shall make Claims as provided in Subparagraphs 4.3.6 and 4.3.7. If the Contractor fails to perform the obligations of Subparagraphs 3.2.1 and 3.2.2, the Contractor shall pay such costs and damages to the Owner as would have been avoided if the Contractor had performed such obligations. Except as provided herein, the Contractor shall not be liable to the Owner or Consultant for damages resulting from errors, inconsistencies or omissions in the Contract Documents or for differences between field measurements or conditions and the Contract

Documents unless the Contractor discovered, had knowledge of, recognized or should have recognized such error, inconsistency, omission or difference and failed to report it to the Owner and to the Consultant or accepted the responsibility to verify the same. If the Contractor performs any construction activity it knows or reasonably should have known involves an error, inconsistency or omission in the Contract Documents or reports referenced therein without such notice to the Owner and the Consultant, the Contractor shall assume responsibility for such performance and shall bear the costs attributed to the correction.

3.2.4. In addition to and not in derogation of the Contractor's duties the Contractor shall take all field measurements and verify all field conditions and shall carefully compare such field measurements and conditions with all other information known to the Contractor or included in any of the Contract Documents before commencing any construction activity for the Work. The Owner shall not be liable for any errors, inconsistencies or omissions which should have been reasonably discovered and the Contractor shall report in writing to the Consultant and Owner any errors, inconsistencies or omissions.

3.2.5. Any investigations of subsurface conditions have been made for design purposes only. The results of these investigations may be available for the convenience of the Bidders and the Sub-bidders but are not a part of the Contract Documents. While the Contractor may rely on such investigation results there is no representations or warranties, express or implied that the conditions indicated are representative of those existing at the site or that unforeseen developments may not occur. The Contractor is solely responsible for reasonably interpreting the information and extrapolating beyond the location of each individual boring, test pit, or other testing location.

3.2.6. The Contractor shall do no work without applicable Drawings, Specifications, or written modifications or, where required, Shop Drawings, Product Data, or Samples, unless instructed to do so in writing by the Consultant and Owner.

3.3 SUPERVISION AND CONSTRUCTION PROCEDURES

3.3.1 The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for and have control over construction means, methods, techniques, sequences and procedures and for coordinating all portions of the Work under the Contract. Contractor shall review any specified construction or installation procedure and shall advise the Owner and the Consultant in writing if the specified procedure deviates from acceptable construction practices will impact any warranty or if the Contractor has any objection thereto.

3.3.2 The Contractor shall be responsible to the Owner for acts and omissions of the Contractor's employees, Subcontractors, of any tier, and their agents and employees, and any other persons or entities performing portions of the Work for or on behalf of the Contractor or any Subcontractors of any tier and for any damages, losses, costs and expenses resulting from such acts or omissions.

3.3.3 The Contractor shall be responsible for inspection of portions of Work already performed to determine that such portions are in proper condition to receive subsequent Work.

3.3.4. The Contractor shall inspect, prior to installation, all materials and equipment delivered to, installed at, or fabricated at the site and shall reject that which will not conform to the Contract Documents when fully and properly installed.

3.4 LABOR AND MATERIALS

3.4.1 Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, materials, equipment, tools, telephone, data transmission, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for proper execution and completion of the Work, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work.

3.4.2 The Contractor may make substitutions only with the written consent of the Owner, after evaluation by the Consultant and in accordance with a Change Order.

3.4.3 The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Contract. The Contractor shall not permit employment of unfit persons or persons not skilled in tasks assigned to them.

3.5 WARRANTY

3.5.1 The Contractor warrants to the Owner and Consultant that the Work, including, but not limited to, any and all materials and equipment furnished under the Contract will be of good quality and new unless otherwise required or permitted by the Contract Documents, that the Work will be free from defects not inherent in the quality required or permitted, and that the Work will conform to the requirements of the Contract Documents. Work not conforming to these requirements, including substitutions not properly approved and authorized, may be considered defective. The Contractor's warranty excludes remedy for damage or defect caused by abuse, modifications not executed by the Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear and normal usage. If required by the Consultant, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment. In addition, the Contractor assigns to the Owner any and all warranties. The Contractor further warrants that all construction activity of the Work shall be performed on the Work so as to preserve all such warranties. To the extent that any warranty is non-assignable, Contractor warrants that it will pursue such warranty claim for the use and benefit of the Owner without cost or expense to the owner. The Contractor shall require this provision to be included in all subcontracts of any tier.

3.6 TAXES

3.6.1 The Contractor shall pay as and when due sales, consumer, property, occupational, Social Security benefits, unemployment compensation, use and similar taxes, excises, duties and assessments for the Work provided by the Contractor.

3.7 PERMITS, FEES AND NOTICES

3.7.1 Unless otherwise provided in the Contract Documents, the Contractor shall secure and pay for the building permit and other permits and governmental fees, licenses and inspections necessary for proper execution and completion of the Work which are customarily secured after execution of the Contract and which are legally required when bids are received, negotiations concluded or the Contract is executed. To the extent that there is any difference in these requirements the most stringent requirements on the Contractor shall apply.

3.7.2 The Contractor shall comply with and give notices required by laws, ordinances, rules, regulations and lawful orders of public authorities applicable to performance of the Work. If the Contractor fails to comply or give such notices it will be liable for and shall to the fullest extent permitted by law defend indemnify and hold the Owner and Consultant and their respective employees, officers and agents harmless from any costs, loss, penalty or damage.

3.7.3 Except as otherwise provided herein, it is not the Contractor's responsibility to ascertain that the Contract Documents are in accordance with applicable laws, statutes, ordinances, building codes, and rules and regulations. However, if the Contractor becomes aware, gains knowledge, recognizes or observes that portions of the Contract Documents are at variance therewith, the Contractor shall promptly notify the Consultant and Owner in writing, and necessary changes shall be accomplished by appropriate Modification.

3.7.4 If the Contractor performs Work knowing the construction activity to be contrary to laws, statutes, ordinances, building codes, and rules and regulations without such notice to the Consultant and Owner, the

Contractor shall assume appropriate responsibility for such Work and shall bear the costs, loss, damages and penalties attributable to correction.

3.8 ALLOWANCES

3.8.1 The Contractor shall include in the Contract Sum any and all allowances stated in the Contract Documents. Items covered by allowances shall be supplied for such amounts and by such persons or entities as the Owner may direct, but the Contractor shall not be required to employ persons or entities to whom the Contractor has reasonable objection.

3.8.2 Unless otherwise provided in the Contract Documents:

.1 allowances shall cover the cost to the Contractor of materials and equipment delivered at-the site and all required taxes, less applicable trade discounts;

.2 Contractor's costs for unloading and handling at the site, labor, installation costs, overhead, profit and other expenses contemplated for stated allowance amounts shall be included in the Contract Sum but not in the allowances;

.3 whenever costs are more than or less than allowances, the Contract Sum shall be adjusted accordingly by Change Order. The amount of the Change Order shall reflect (I) the difference between actual costs and the allowances under Clause 3.8.2.1 and (2) changes in Contractor's costs under Clause 3.8.2.2.

3.8.3 Materials and equipment under an allowance shall be selected by the Owner in sufficient time to avoid delay in the Work.

3.9 SUPERINTENDENT

3.9.1 The Contractor shall employ an experienced and competent superintendent and necessary assistants who shall be in attendance at the Project site at all times during performance of the Work including completion of the punch list. The Contractor shall notify the Consultant and the Owners Representative as to the identity of the superintendent who shall not be changed during the course of the Work without prior written notification to the Consultant and Owner Representative. The superintendent shall represent the Contractor, and communications given to the superintendent shall be as binding as if given to the Contractor. Important communications shall be confirmed in writing. Other communications shall be similarly confirmed on written request in each case.

3.10 CONTRACTOR'S CONSTRUCTION SCHEDULES

3.10.1 The Contractor, promptly and within ten (10) days after being awarded the Contract, shall prepare and submit for the Owner's and Consultant's information a preliminary Contractor's construction schedule for the Work consistent with the with the requirements of the Contract Documents. Prior to submitting its first Application for Payment, the Contractor, after consultation with its subcontractors, shall submit six (6) hard copies and one electronic copy of the Contractor’s construction schedule consistent with the requirements of the Contract Documents. The schedule shall not exceed time limits current under the Contract Documents, shall be revised at appropriate intervals as required by the conditions of the Work and Project, shall be related to the entire Project to the extent required by the Contract Documents, and shall provide for expeditious and practicable execution of the Work. The construction schedule shall not be changed without the prior written consent of the Owners Representative.

3.10.2 The Contractor shall prepare and keep current, for the Consultant's review, a schedule of submittals which is coordinated with the Contractor's construction schedule and allows the Owner and the Consultant reasonable time to review in accordance with the Specifications and submittal procedures. The Contractor should expect a response time of approximately 21 days from the Consultant and Consultant’s consultants. Neither the Consultant nor Owner can represent or guarantee response times from governmental

authorities, such as permitting agencies. Neither the Contractor's preparation, nor the Consultant's receipt or review shall modify the Contractor's responsibility to make required submittals or to do so in a timely manner.

3.10.3 The Contractor shall perform the Work in accordance with the most recent schedules submitted to the Owner and accepted by the Owner and shall promptly notify the Owner of any deviations from the schedule. Should the Contractor fail to comply with the schedule, or in the Owner's opinion fail, refuse, or neglect to supply a sufficient amount of labor, materials, equipment or services in the prosecution of the Work, the Owner shall have the right to direct the Contractor to furnish such additional labor, materials, equipment or services to comply with the schedule and all costs thereof shall be borne by the Contractor and shall not increase the Contract Sum. All schedules submitted shall be in the form acceptable to the Owner using critical path methodology (CPM) clearly showing overall Project and specific items and tasks of construction activities, dependencies and durations as well as overall and specific commencement and completions dates. The critical path activities shall be highlighted, float and non-critical activities shall be shown and the start and stop times for each activity shall be listed. Float belongs to the benefit of the Project for the Owner's use and no float shall be used without the Owner's written approval. The Contractor shall at all times monitor the progress of the Work for conformance with the CPM schedule accepted by the Owner and shall promptly advise the Owner and Consultant of any impacts or delays or potential impacts or delays. The Contractor shall also update the construction schedule to reflect actual conditions and shall propose plans in order to avoid or correct any impact or delays.

3.11 DOCUMENTS AND SAMPLES AT THE SITE

3.11.1 The Contractor shall maintain at the site for the Owner one (1) record copy of the Drawings, Specifications, Addenda, Change Orders and other Modifications, in good order and marked currently to record field changes and selections made during construction, and one (1) record copy of approved Shop Drawings, Product Data, Samples and similar required submittals. These shall be accessible to inspectors and available to the Consultant and Owner and shall be delivered to the Consultant for submittal to the Owner upon completion of the Work and before Contractor's request for final payment.

3.12 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

3.12.1 Shop Drawings are drawings, diagrams, schedules and other data specially prepared for the Work by the Contractor or a Subcontractor, Sub-subcontractor, manufacturer, supplier or distributor to illustrate some portion of the Work.

3.12.2 Product Data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams and other information furnished by the Contractor to illustrate materials or equipment for some portion of the Work.

3.12.3 Samples are physical examples which illustrate materials, equipment or workmanship and establish standards by which the Work will be judged.

3.12.4 Shop Drawings, Product Data, Samples and similar submittals are not Contract Documents. The purpose of their submittal is to demonstrate for those portions of the Work for which submittals are required by the Contract Documents the way by which the Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents. Review by the Consultant or any other person is subject to the limitations of Subparagraph 4.2. 7. Information submittals upon which the Consultant is not expected to take responsive action may be so identified in the Contract Documents. Submittals which are not required by the Contract Documents may be returned by the Consultant without action.

3.12.5 The Contractor shall review for compliance with the Contract Documents, approve and submit to the Consultant, Shop Drawings, Product Data, Samples and similar submittals required by the Contract Documents with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of the Owner or of separate contractors. Submittals which are not marked as reviewed for

compliance with the Contract Documents and approved by the Contractor may be returned by the Consultant without action.

3.12.6 By approving and submitting Shop Drawings, Product Data, Samples and similar submittals, the Contractor represents that the Contractor has determined and verified materials, field measurements and field construction criteria related thereto, or will do so, and has checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.

3.12.7 The Contractor shall perform no portion of the Work for which the Contract Documents require submittal and review of Shop Drawings, Product Data, Samples or similar submittals until the respective submittal has been approved by the Consultant.

3.12.8 The Work shall be in accordance with approved submittals except that the Contractor shall not be relieved of responsibility for deviations from requirements of the Contract Documents by any approval of Shop Drawings, Product Data, Samples or similar submittals unless the Contractor has specifically informed the Consultant and Owner in writing of such deviation at the time of submittal and (1) the Consultant has given specific written approval to the specific deviation as a minor change in the Work, or (2) a Change Order or Construction Change Directive has been issued authorizing the deviation. The Contractor shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples or similar submittals by the, any person's approval thereof.

3.12.9 The Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, Product Data, Samples or similar submittals, to revisions other than those requested by the Consultant on previous submittals. In the absence of such written notice, any person's approval of a resubmission shall not apply to such revisions. Contractor shall submit Shop Drawings, Product Data, Samples and similar submittals in forms and in a manner reasonably acceptable to the Consultant. Contractor shall submit no less than two (2) copies or examples for review of any Shop Drawings, Product Data, Samples or similar submittals at Contractor’s sole cost and expense.

3.12.10 The Contractor shall not be required to provide professional services which constitute the practice of Architecture or engineering unless such services are specifically required by the Contract Documents for a portion of the Work or unless the Contractor needs to provide such services in order to carry out the Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. The Contractor shall not be required to provide professional services in violation of applicable law. If professional design services or certifications by a design professional related to systems, materials or equipment are specifically required of the Contractor by the Contract Documents, the Owner and the Consultant will specify all performance and design criteria that such services must satisfy. The Contractor shall cause such services or certifications to be provided by a properly licensed design professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to the Consultant. The Owner and the Consultant shall be entitled to rely upon the adequacy, accuracy and completeness of the services, certifications or approvals performed by such design professionals, provided the Owner and Consultant have specified to the Contractor all performance and design criteria that such services must satisfy. Pursuant to this Subparagraph 3.12.10, the Consultant will review, approve or take other appropriate action on submittals only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Contractor shall not be responsible for the adequacy of the performance or design criteria required by the Contract Documents.

3.13 USE OF SITE

3.13.1 The Contractor shall confine operations at the site to areas permitted by law, ordinances, permits and the Contract Documents and shall not unreasonably encumber the site with materials or equipment. Notwithstanding anything contained in the Contract Documents to the contrary, the Contractor shall, as part of the Work, not disrupt or interfere in any manner with any of the Owner’s or Owner’s authorized provider’s

operations at the Project site or any other locations, including, without limitation any and all ~~educational,~~ social, athletic or recreational programs, activities, classes or events. Contractor shall not park or otherwise utilize any other area designated by the Owner or typically used by Owner's employees, staff, ~~students, parents or~~ visitors or local residents or businesses.

3.14 CUTTING AND PATCHING

3.14.1 The Contractor shall be responsible for cutting, fitting or patching required to complete the Work or to make its parts fit together properly.

3.14.2 The Contractor shall not damage or endanger a portion of the Work or fully or partially completed construction of the Owner or separate contractors by cutting, patching or otherwise altering such construction, or by excavation. The Contractor shall not cut or otherwise alter such construction by the Owner or a separate contractor except with written consent of the Owner and of such separate contractor; such consent shall not be unreasonably withheld. The Contractor shall not unreasonably withhold from the Owner or a separate contractor the Contractor's consent to cutting or otherwise altering the Work. To the extent that the Work involves renovation, alteration or repair of existing improvements, cutting and patching essential for the Project shall be successfully completed and Contractor shall perform the Work so that it is fully integrated into the existing improvements operationally and aesthetically.

3.15 CLEANING UP

3.15.1 The Contractor shall at all times keep the premises and surrounding area free from accumulation of waste materials or rubbish caused by operations under the Contract. At completion of the Work, the Contractor shall remove from and about the Project waste materials, rubbish, the Contractor's tools, construction equipment, machinery and surplus materials.

3.15.2 If the Contractor fails to clean up as provided in the Contract Documents, the Owner may do so and the cost thereof shall be charged to the Contractor.

3.16 ACCESS TO WORK

3.16.1 The Contractor shall provide the Owner and Consultant and their employees. agents and officers access to the Work in preparation and progress wherever located.

3.17 ROYALTIES, PATENTS AND COPYRIGHTS

3.17.1 The Contractor shall pay all royalties and license fees. The Contractor shall defend suits or claims for infringement of copyrights and patent rights and shall hold the Owner and Consultant harmless from loss on account thereof, but shall not be responsible for such defense or loss when a particular design, process or product of a particular manufacturer or manufacturers is required by the Contract Documents or where the copyright violations are contained in Drawings, Specifications or other documents prepared by the Owner or Consultant. However, if the Contractor has reason to believe that the required design, process or product is an infringement of a copyright or a patent, the Contractor shall be responsible for such loss unless such information is promptly furnished to the Consultant in writing.

3.18 INDEMNIFICATION

3.18.1 To the fullest extent permitted by law and to the extent claims, damages, losses or expenses are not covered by Project Management Protective Liability insurance purchased by the Contractor in accordance with Paragraph 11.2, the Contractor shall indemnify and hold harmless the Owner, Consultant, Consultant's consultants, and agents and employees of any of them from and against claims, damages, losses and expenses, including, but not limited to, attorneys' fees, arising out of or resulting from performance of the Work, provided that such claim, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), but only to the extent

caused by the negligent acts or omissions of the Contractor, any Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity which would otherwise exist as to a party or person described in this Paragraph 3.18.

3.18.2 In claims against any person or entity indemnified under this Paragraph 3.18 by an employee of the Contractor, Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, the indemnification obligation under Subparagraph 3.18.1 shall not be limited by a limitation on amount or type of damages, compensation or benefits payable by or for the Contractor or a Subcontractor under workers' compensation acts, disability benefit acts or other employee benefit acts.

ARTICLE 4 ADMINISTRATION OF THE CONTRACT

4.1 CONSULTANT OR OWNER'S REPRESENTATIVE

4.1.1 The term "Consultant" as used in the Contract Documents, shall mean Soderstrom Architects or "Owner's Representative", as used in the Contract Documents, shall mean HMK Company (HMKCO), and its respective personnel.

4.1.2.1 If a licensed Consultant is engaged by Owner who is not designated as the "Owner's Representative", the Owner shall make written directive and notification to Contractor, which shall perform any Contract Administration duties. For ease of reference and consistency, the term "Consultant" shall be used in the Contract Documents to refer to the contract administrator.

4.1.2 Duties, responsibilities and limitations of authority of the Consultant as set forth in the Contract Documents shall not be restricted, modified or extended without written consent of the Owner, and Consultant.

4.1.3 If the employment of the Consultant is terminated, the Owner shall employ a new Consultant under such terms and conditions as are agreeable between the Owner and the new Consultant.

4.2 CONSULTANT'S ADMINISTRATION OF THE CONTRACT

4.2.1 The Consultant may provide administration of the Contract as described in the Contract Documents, and may be an Owner's representative (1) during construction, (2) until final payment is due and (3) with the Owner's concurrence, from time to time during the one-year period for correction of Work described in Paragraph 12.2. The Consultant will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents, unless otherwise modified in writing in accordance with other provisions of the Contract.

4.2.2 The Consultant, as a representative of the Owner, will visit the site at intervals appropriate to the stage of the Contractor's operations (1) to become generally familiar with and to keep the Owner informed about the progress and quality of the portion of the Work completed, (2) to endeavor to guard the Owner against defects and deficiencies in the Work, and (3) to determine in general if the Work is being performed in a manner indicating that the Work, when fully completed, will be in accordance with the Contract Documents. However, the Consultant will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. The Consultant will neither have control over or charge of, nor be responsible for the construction means, methods, techniques, sequences or procedures, or for the safety precautions and programs in connection with the Work, since these are solely the Contractor's rights and responsibilities under the Contract Documents, except as provided in Subparagraph 3.3.1.

4.2.3 The Consultant will not be responsible for the Contractor's failure to perform the Work in accordance with the requirements of the Contract Documents. The Consultant will not have control over or charge of and will not be responsible for acts or omissions of the Contractor, any Subcontractors, or their agents or employees, or any other persons or entities performing portions of the Work.

4.2.4 Communications Facilitating Contract Administration. The Owner, Owners Representative and Contractor may communicate with each other through the Consultant about matters arising out of or relating to the Contract. The Contractor shall also PROVIDE THE OWNER AND OWNERS REPRESENTATIVE WITH A DIRECT COPY OF ALL WRITTEN COMMUNICATIONS TO THE CONSULTANT, including all notices, requests, Claims and potential changes in the Contract Sum or Time, but not including Shop Drawings, Product Data or Samples. Communications by and with the Consultant's consultants shall be through the Consultant. Communications by and with Subcontractors and material suppliers shall be through the Contractor. Communications by and with separate contractors shall be through the Owner.

4.2.5 Based on the Consultant's evaluations of the Contractor's Applications for Payment, the Consultant may review and certify the amounts due the Contractor and will issue Certificates for Payment in such amounts.

4.2.6 The Consultant may have authority to reject Work that does not conform to the Contract Documents. Whenever the Consultant considers it necessary or advisable, the Consultant may have authority to require inspection or testing of the Work in accordance with Subparagraphs 13.5.2 and 13.5.3, whether or not such Work is fabricated, installed or completed. However, neither this authority of the Consultant nor a decision made in good faith either to exercise or not to exercise such authority shall give rise to a duty or responsibility of the Consultant to the Contractor, Subcontractors, material and equipment suppliers, their agents or employees, or other persons or entities performing portions of the Work.

4.2.7 The Consultant will review and approve or take other appropriate action upon the Contractor's submittals such as Shop Drawings, Product Data and Samples, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Consultant's action will be taken with such reasonable promptness as to cause no delay in the Work or in the activities of the Owner, Contractor or separate contractors, while allowing sufficient time in the Consultant's professional judgment to permit adequate review. Review of such submittals is not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the Contractor as required by the Contract Documents. The Consultant's review of the Contractor's submittals shall not relieve the Contractor of the obligations under Paragraphs 3.3, 3.5 and 3.12. The Consultant's review shall not constitute approval of safety precautions or, unless otherwise specifically stated by the Consultant, of any construction means, methods, techniques, sequences or procedures. The Consultant's approval of a specific item shall not indicate approval of an assembly of which the item is a component.

4.2.8 The Consultant may prepare Change Orders and Construction Change Directives, and may authorize minor changes in the Work as provided in Paragraph 7.4.

4.2.9 The Consultant may conduct inspections to determine the date or dates of Substantial Completion and the date of final completion, may receive and forward to the Owner, for the Owner's review and records, written warranties and related documents required by the Contract and assembled by the Contractor, and may issue a final Certificate for Payment upon compliance with the requirements of the Contract Documents.

4.2.10 If the Owner and Consultant designate, the Consultant will provide one or more project representatives to assist in carrying out the Consultant's responsibilities at the site.

4.2.11 The Consultant may interpret and decide matters concerning performance under and requirements of, the Contract Documents on written request of either the Owner or Contractor. The Consultant's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness. If no agreement is made concerning the time within which interpretations required of the Consultant shall be furnished in compliance with this Paragraph 4.2, then delay shall not be recognized on account of failure by the Consultant to furnish such interpretations until 5 days after written request is made for them.

4.2.12 Interpretations and decisions of the Consultant, if any, will be consistent with the intent of and reasonably inferable from the Contract Documents and will be in writing or in the form of drawings. When making such interpretations and initial decisions, the Consultant will endeavor to secure faithful performance by both Owner and Contractor, will not show partiality to either and will not be liable for results of interpretations or decisions so rendered in good faith.

4.2.13 The Consultant's decisions on matters relating to aesthetic effect may be final if consistent with the intent expressed in the Contract Documents. The terms and conditions of the Owner's agreement with the Consultant shall govern the Consultant's responsibilities.

4.3 CLAIMS AND DISPUTES

4.3.1 Definition. A Claim is a demand or assertion by one of the parties seeking, as a matter of right, adjustment or interpretation of Contract terms, payment of money, and extension of time or other relief with respect to the terms of the Contract. The term "Claim" also includes other disputes and matters in question between the Owner and Contractor arising out of or relating to the Contract. Claims must be initiated by written notice. The responsibility to substantiate Claims shall rest with the party making the Claim.

4.3.2 Time Limits on Claims. Claims by either party must be initiated within 21 days after occurrence of the event giving rise to such Claim or within 21 days after the claimant first recognizes the condition giving rise to the Claim, whichever is later. Claims must be initiated by written notice to the Consultant and the other party.

4.3.3 Continuing Contract Performance. Pending final resolution of a Claim except as otherwise agreed in writing or as provided in Subparagraph 9.7.1 and Article 14, the Contractor shall proceed diligently with performance of the Contract and the Owner shall continue to make payments in accordance with the Contract Documents.

4.3.4 Claims for Concealed or Unknown Conditions. Except as otherwise provided herein, if conditions are encountered at the site which are (1) subsurface or otherwise concealed physical conditions which differ materially from those indicated in the Contract Documents or (2) unknown physical conditions of an unusual nature, which differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents, the Contractor shall give written notice to the Owner and the Consultant promptly before conditions are disturbed and in no event later than seven (7) days after first observance of the conditions. The Consultant may promptly investigate such conditions and, if they differ materially and cause an increase or decrease in the Contractor's cost of, or time required for, performance of any part of the Work, will recommend an equitable adjustment in the Contract Sum or Contract Time, or both, consistent with the requirements of the Contract Documents. If the Consultant determines that the conditions at the site are not materially different from those indicated in the Contract Documents and that no change in the terms of the Contract is justified, the Consultant may so notify the Owner and Contractor in writing, stating the reasons. Any claim of the Contractor arising from the Consultant’s determination shall be made in accordance with the dispute resolution procedures set forth in Paragraphs 4.4 through 4.6. No adjustment in the Contract Time or Sum shall be permitted, however, if connection with any concealed or unknown condition which does not materially differ from those disclosed or which should have reasonably been discovered by the Contractor’s prior visits, observations, tests or for which the Contractor assumed any responsibility to verify.

4.3.5 Claims for Additional Cost. If the Contractor wishes to make Claim for an increase in the Contract Sum, written notice as provided herein shall be given before proceeding to execute the Work, and a Claim must be made in accordance with Paragraphs 4.4 through 4.6 or it will be deemed waived. Prior notice is not required for Clams relating to an emergency endangering life or property arising under Paragraph 10.6.

4.3.6 If the Contractor believes additional cost is involved for reasons, including, but not limited to:

.1 a written interpretation from the Consultant

.2 an order by the Owner to stop the Work where the Contractor was not at fault

.3 a written order for a minor change in the Work issued by the Consultant

.4 failure of payment by the Owner

.5 termination of the Contract by the Owner

.6 Owner's suspension or

.7 other reasonable grounds, Claim shall be filed in accordance with this Paragraph 4.3.

All Claims for additional costs shall include any and all costs, including, but not limited to, any and all direct and indirect costs thereof.

4.3.7 Claims for Additional Time

4.3.7.1 If the Contractor wishes to make Claim for an increase in the Contract Time, written notice as provided herein shall be given and a Claim shall be made as provided herein. The Contractor's Claim shall include an estimate of any cost and of probable effect of delay on progress of the Work. In the case of a continuing delay, only one Claim is necessary. If the delay was not caused by the Owner, the Contractor, a Subcontractor of any tier, or the Consultant, or anyone acting on behalf of any of them, the Contractor shall be entitled only to an increase in the Contract Time, in accordance with the Contract documents, but not a change in the Contract Sum. If the delay was caused by the Contractor, a Subcontractor of any tier, or anyone acting on behalf of any of them, the Contractor is not entitled to an increase in the Contract Time or in the Contract Sum.

4.3.7.2 If adverse weather conditions are the basis for a Claim for additional time, such Claim shall be documented by data substantiating that weather conditions were abnormal for the period of time, could not have been reasonably anticipated and had an adverse effect on the scheduled construction, and that the Work was on schedule (or was not behind schedule through the fault of the Contractor) at the time the adverse weather conditions occurred. Neither the Contract Time nor the Contract Sum will be adjusted for normal inclement weather. The Contractor shall be entitled to a change in the Contract Time only if the Contractor can substantiate to the reasonable satisfaction of the Owner and Consultant that there was materially greater than normal inclement weather considering the full term of the Contract Time and using a ten-year average of accumulated record mean values from climatological data compiled by the U.S. Department of Commerce National Oceanic and Atmospheric Administration for the locale of the Project, and that the alleged abnormal inclement weather actually extended the critical path of the Work. IF the total net accumulated number of calendar days lost due to inclement weather from commencement of the Work until Final Completion exceeds the total net accumulated to be expected for the same period from the aforesaid data, and the Owner grants the critical path.

4.3.8 Injury or Damage to Person or Property. If either party to the Contract suffers injury or damage to person or property because of an act or omission of the other party, or of others for whose acts such party is legally responsible, written notice of such injury or damage, whether or not insured, shall be given to the other party within a reasonable time not exceeding 21 days after discovery. The notice shall provide sufficient detail to enable the other party to investigate the matter.

4.3.9 If unit prices are stated in the Contract Documents or subsequently agreed upon, and if quantities originally contemplated are materially changed in a proposed Change Order or Construction Change Directive so that application of such unit prices to quantities of Work proposed will cause substantial inequity to the Owner or Contractor, the applicable unit prices shall be equitably adjusted.

4.3.10 Time is of the Essence. The parties agree that the Owner shall be entitled to recover liquidated damages at the rate stated in the Agreement, which shall commence on the first day following the expiration of the Contract Time and continuing until the date of Substantial completion.

4.4 RESOLUTION OF CLAIMS AND DISPUTES

4.4.1 In an effort to reduce the incidence and costs to all parties of extended disputes, all Claims, direct or indirect, arising out of, or relating to, the Contract Documents or the breach thereof, except claims which have been waived under the terms of the Contract Documents, shall be decided exclusively by the following alternative dispute resolution procedure unless the parties mutually agree in writing otherwise.

4.4.2 The Contractor shall submit a written notice of any Claim to the Owner and the Consultant within 14 days of the occurrence of the event giving rise to such Claim and shall include a clear description of the event leading to or causing the Claim. The Contract shall submit a written Claim as providing herein within 30 days of the notice. Claims shall include a clear description of the Claim and any proposed change in the Contract Sum (showing all components and calculations) and/or Contract Time (showing cause of and analysis of the resultant delay in the critical path) of the Claim and shall provide data fully supporting the Claim. Failure to properly submit the notice of Claim shall constitute waiver of the Claim. The Claim shall be deemed to include all changes, direct and indirect, in cost and in time to which the Contractor (and Subcontractors of any tier) is entitled. Any claim of a Subcontractor of any tier may be brought only through, and after review by, the Contractor.

4.4.3 Upon receipt of a Claim against the Contractor or at any time thereafter, the Consultant or the Owner may, but is not obligated to, notify the surety, if any, of the nature and amount of the Claim. If the Claim relates to a possibility of a Contractor's default, the Consultant or the Owner may, but is not obligated to, notify the surety and request the surety's assistance in resolving the controversy.

4.4.4 If a claim relates to or is the subject of a mechanic's lien or construction lien, the party asserting such Claim may proceed in accordance with applicable law to comply with the lien notice or filing deadlines prior to resolution of the Claim by the Consultant, by mediation or by litigation.

4.4.5 Within 30 days of the Owner's receipt of the written Claim, the Contactor may require that an officer of the Contractor, a principal of the Consultant, and the Owner's Superintendent or designee (all with authority to settle) meet, confer, and attempt to resolve the Claim during the following 21 days. The Owner may continue the meeting to a time after it has assembled and reviewed data. If the Claim is not resolved, the Contractor may bring no claim against the Owner unless the Claim is first subject to nonbinding mediation as described in Paragraph 4.5. This requirement cannot be waived except by an explicit written waiver.

4.4.6 The Contractor agrees that the Owner may join the Contractor as a party to any litigation/arbitration involving the alleged fault of the Contractor or Subcontractor of any tier.

4.5 MEDIATION

4.5.1 Any Claim arising out of or relating to the Contract, except Claims relating to aesthetic effect and except those waived shall be subject to mediation as a condition precedent to the institution of legal or equitable proceedings by either party. This requirement cannot be waived except by an express written waiver.

4.5.2 The parties shall endeavor to resolve their claims by mediation, which unless the parties mutually agree otherwise, shall be in accordance with the Construction Industry Mediation Rule of the American Arbitration Association currently in effect. Request for mediation shall be filed in writing with the other party to the Contract and with the American Arbitration Association. Mediation shall proceed in advance of legal or equitable proceedings, which shall be stayed pending mediation unless stayed for a longer period by agreement of the parties or court order.

4.5.3 The parties to the mediation shall share the mediator's fee and any filing fees equally. The mediation shall be held in the place where the Project is located, unless another location is mutually agreed upon. Agreements reached in mediation shall be enforceable as settlement agreements in any court having jurisdiction thereof.

4.5.4 An officer of the Contract and the Owner's Superintendent or designee must attend the mediation session with authority to settle the Claim. To the extent there are other parties in interest, such as the Consultant or Subcontractors, their representatives, also with the authority to settle the Claim, shall also attend the mediation session. Unless the Owner and the Contractor mutually agree in writing otherwise, all unresolved Claims shall be considered at a single mediation session which shall occur prior to Final Acceptance by the Owner.

4.6 LITIGATION

4.6.1 The Contractor may bring no litigation on Claims unless such Claims have been properly raised and considered in the procedures of Subparagraphs 4.4.1 through 4.4.3 above. All unresolved Claims of the Contractor shall be waived and released unless the Contractor has complied with the time limits of the Contract Documents, and litigation is served and filed within the earlier of (a) 120 days after the Date of Substantial Completion approved in writing by the Owner or (b) 60 days after Final Acceptance. This requirement cannot be waived except by an explicit written waiver signed by the Owner and the Contractor. The pendency of mediation shall toll these deadlines until the later of the mediator providing written notice to the parties of impasse or 30 days after the date of the last mediation session. Neither the Contractor nor a Subcontractor of any tier, whether claiming under a lien statute or otherwise, shall be entitled to attorneys' fees directly or indirectly from the Owner (but may recover attorneys' fees from the statutory Retainage fund itself to the extent allowable under law).

4.6.2 Judgment on Final Award. The award rendered by the arbitrator or arbitrators shall be final, and judgment may be entered upon it in accordance with applicable law in any court having jurisdiction thereof.

ARTICLE 5 SUBCONTRACTORS

5.1 DEFINITIONS

5.1.1 The term "Subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Subcontractor or an authorized representative of the Subcontractor. The term "Subcontractor" does not include a separate contractor or subcontractors of a separate contractor.

5.2 AWARD OF SUBCONTRACTS AND OTHER CONTRACTS FOR PORTIONS OF THE WORK

5.2.1 The Contractor shall not change a Subcontractor, person or entity previously selected if the Owner or Consultant makes reasonable objection to such substitute. The Contractor shall require bids and contracts from Subcontractors to be submitted in a format which specifically sets for the amount of any credit that the Owner will ultimately be the benefit of, if all or any portion of any Subcontractor's Work is deleted. In no instance shall the Owner be obligated to pay any fee, profit or overheard for Work which is deleted from any Subcontractor's scope or from that of the Contractor.

5.3 SUBCONTRACTUAL RELATIONS

5.3.1 By appropriate agreement, written where legally required for validity, the Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by terms of the Contract Documents, and to assume toward the Contractor all the obligations and responsibilities, including the responsibility for safety of the Subcontractor's Work, which the Contractor, by these Documents, assumes toward the Owner or Consultant. Each subcontract agreement shall preserve and protect the rights of the Owner and Consultant under the Contract Documents with respect to the Work to be performed by the Subcontractor so that subcontracting thereof will not prejudice such rights. Where appropriate, the Contractor shall require each Subcontractor to enter into similar agreements with other Subcontractors. The Contractor shall make available to each proposed Subcontractor, prior to the execution of the subcontract agreement, copies of the Contract Documents to which the Subcontractor will be bound, and, upon written request of the Subcontractor, identify to the Subcontractor terms and conditions of the proposed subcontract agreement which may be at variance with the Contract Documents.

Subcontractors will similarly make copies of applicable portions of such documents available to their respective proposed Sub-subcontractors.

5.4 CONTINGENT ASSIGNMENT OF SUBCONTRACTS

5.4.1 Each subcontract agreement for a portion of the Work is assigned by the Contractor to the Owner or to another contractor should Owner so elect and consent, provided that:

.1 assignment is effective only after termination of the Contract by the Owner and only for those subcontract agreements which the Owner accepts by notifying the Subcontractor and Contractor in writing; and

.2 assignment is subject to the prior rights of the surety, if any, obligated under bond relating to the Contract.

5.4.2 Each subcontract shall specifically provide that the Owner (or other contractor) shall only be responsible to the subcontractor for those obligations that accrue after the Owner's or other contractor's exercise of rights under the conditional assignment required hereby.

ARTICLE 6 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

6.1 OWNER'S RIGHT TO PERFORM CONSTRUCTION AND TO AWARD SEPARATE CONTRACTS

6.1.1 The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, and to award separate contracts in connection with other portions of the Project or other construction or operations on the site under Conditions of the Contract identical or substantially similar to these including those portions related to insurance and waiver of subrogation. If the Contractor claims that delay or additional cost is involved because of such action by the Owner, the Contractor shall make such Claim as provided in Paragraph 4.3.

6.1.2 When separate contracts are awarded for different portions of the Project or other construction or operations on the site, the term "Contractor" in the Contract Documents in each case shall mean the Contractor who executes each separate Owner-Contractor Agreement.

6.1.3 The Owner shall provide for coordination of the activities of the Owner's own forces and of each separate contractor with the Work of the Contractor, who shall cooperate with them. The Contractor shall participate with other separate contractors and the Owner in reviewing their construction schedules when directed to do so. The Contractor shall make without an increase in the Contract Time or Sum any revisions to the construction schedule deemed necessary after a joint review and mutual agreement. The construction schedules shall then constitute the schedules to be used by the Contractor, separate contractors and the Owner until subsequently revised.

6.1.4 Unless otherwise provided in the Contract Documents, when the Owner performs construction or operations related to the Project with the Owner's own forces, the Owner shall be deemed to be subject to the same obligations and to have the same rights which apply to the Contractor under the Conditions of the Contract, including, without excluding others, those stated in Article 3, this Article 6 and Articles 10, 11 and 12.

6.2 MUTUAL RESPONSIBILITY

6.2.1 The Contractor shall afford the Owner and separate contractors reasonable opportunity for introduction and storage of their materials and equipment and performance of their activities, and shall connect and coordinate the Contractor's construction and operations with theirs as required by the Contract Documents.

6.2.2 If part of the Contractor's Work depends for proper execution or results upon construction or operations by the Owner or a separate contractor, the Contractor shall, prior to proceeding with that portion of the Work, promptly report to the Consultant apparent discrepancies or defects in such other construction that would render it unsuitable for such proper execution and results. Failure of the Contractor so to report shall constitute an acknowledgment that the Owner's or separate contractor's completed or partially completed construction is fit and proper to receive the Contractor's Work, except as to defects not then reasonably discoverable.

6.2.3 The Owner shall be reimbursed by the Contractor for costs incurred by the Owner which are payable to a separate contractor because of delays, improperly timed activities or defective construction of the Contractor or any Subcontractors. The Owner shall be responsible to the Contractor for costs incurred by the Contractor because of delays, improperly timed activities, and damage to the Work or defective construction of a separate contractor.

6.2.4 The Contractor shall promptly remedy damage wrongfully caused by the Contractor or Subcontractors to completed or partially completed construction or to property of the Owner or separate contractors as provided in Subparagraph 10.2.5.

6.3 OWNER'S RIGHT TO CLEAN UP

6.3.1 If a dispute arises among the Contractor, separate contractors and the Owner as to the responsibility under their respective contracts for maintaining the premises and surrounding area free from waste materials and rubbish, the Owner may clean up and the Consultant may allocate the cost among those responsible.

ARTICLE 7 CHANGES IN THE WORK

7.1 GENERAL

7.1.1 Changes in the Work may be accomplished after execution of the Contract, and without invalidating the Contract, solely by Change Order, Construction Change Directive or order for a minor change in the Work, subject to the limitations stated in this Article 7 and elsewhere in the Contract Documents.

7.1.2 A Change Order shall be based upon agreement among the Owner, Contractor and Consultant; a Construction Change Directive requires agreement by the Owner and Consultant and may or may not be agreed to by the Contractor; an order for a minor change in the Work may be issued by the Consultant alone.

7.1.3 Changes in the Work shall be performed under applicable provisions of the Contract Documents, and the Contractor shall proceed promptly, unless otherwise provided in the Change Order, Construction Change Directive or order for a minor change in the Work.

7.1.4 Before effectuating a change in the Work, the Owner may request the Contractor to propose the amount of change in the Contract Sum, if any, and the extent of change in the Contract Time, if any, arising from the proposed change in the Work. The Contractor shall submit its responsive proposal as soon as possible and within 14 days and shall in good faith specify the components and amounts by which the Contract Sum and/or Contract Time would change. Labor, materials and equipment shall be limited to and itemized in the manner described in Paragraph 7.5 for the Contractor and major Subcontractors. If the Contractor fails to respond within this time, the Owner may withhold some or all of a progress payment otherwise due until the tardy proposal is received. If the Owner accepts the proposal in writing, the Owner will be immediately bound, the change will be included in a future Change Order, and the change in the Work shall commence expeditiously. The Owner may reject the proposal, in which case the Owner may either not effectuate the change in the Work or may order the change through a Construction Change Directive or an order for a minor change in the Work. The Consultant may confer directly with Subcontractors of any tier concerning any item proposed to the Owner under this Article.

7.2 CHANGE ORDERS

7.2.1 A Change Order is a written instrument which may be prepared by the Consultant and signed by the Owner, Contractor and which may be signed by the Consultant, stating their agreement upon all of the following:

.1 change in the Work;

.2 the amount of the adjustment, if any, in the Contract Sum; and

.3 the extent of the adjustment, if any, in the Contract Time.

7.2.2 Methods used in determining adjustments to the Contract Sum may include those listed in Subparagraph 7.3.3. Agreement on a Change Order shall constitute full and final settlement of all issues and matters related to the change in Work which is subject to the Change Order including, without limitation, any and all direct and indirect costs and all adjustments in the Contract Time and Sum. There shall be no fee due or to become due to the Contractor related to deductive Change Orders.

7.3 CONSTRUCTION CHANGE DIRECTIVES

7.3.1 A Construction Change Directive is a written order which may be prepared by the Consultant and signed by the Owner, and which may be signed by the Consultant, directing a change in the Work prior to agreement on adjustment, if any, in the Contract Sum or Contract Time, or both. The Owner may by Construction Change Directive, without invalidating the Contract, order changes in the Work within the general scope of the Contract consisting of additions, deletions or other revisions, the Contract Sum and Contract Time being adjusted accordingly.

7.3.2 A Construction Change Directive shall be used in the absence of total agreement on the terms of a Change Order.

7.3.3 If the Construction Change Directive provides for an adjustment to the Contract Sum, the adjustment shall be based on one of the following methods:

.1 mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation;

.2 unit prices stated in the Contract Documents or subsequently agreed upon;

.3 cost to be determined in a manner agreed upon by the parties (accompanied by an itemized estimate of probable cost) and a mutually acceptable fixed or percentage fee; or

.4 as provided in Subparagraph 7.3.6.

7.3.4 Upon receipt of a Construction Change Directive, the Contractor shall promptly proceed with the change in the Work involved. As soon as possible and within seven (7) days of receipt the Contractor shall advise the Consultant in writing of the Contractor's agreement or disagreement with the proposed adjustment or the method, if any, provided in the Construction Change Directive for determining the proposed adjustment in the Contract Sum or Contract Time. The Contractor's response shall reasonably specify the reasons for its disagreement and the adjustment or other terms that it proposes. Without such timely written response, the Contractor shall conclusively be deemed to have accepted the Owner’s adjustment. The Contractor’s disagreement shall not relieve the Contractor of its obligations to comply promptly with any written notice issued by the Owner or the Consultant. The adjustment shall then be determined by the Consultant in accordance with the provisions of the Contract Documents.

7.3.5 A Construction Change Directive signed by the Contractor indicates the agreement of the Contractor therewith, including adjustment in Contract Sum and Contract Time or the method for determining them.

Such agreement shall be effective immediately and shall be incorporated into and be construed and interpreted as a Change Order.

7.3.6 If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum, or if cost is to be determined under Clause 7.3.3.3, the Contractor shall keep and present itemized in the categories of Paragraph 7.5 and in such form as the Consultant may prescribe, an itemized accounting together with appropriate supporting data. In order to facilitate checking of such quotations, all proposals, except those so minor that their propriety can be seen be inspection, shall be accompanied by complete itemization of costs, including labor, equipment, material and subcontract costs. Labor, equipment and materials shall be itemized in the manner described in Paragraph 7.5. When major cost items arise from Subcontractors of any tier, these items shall also be similarly itemized. Approval may not be given without such itemization. Failure to provide data within 21 days of the Owner's request shall constitute waiver of any Claim for changes in the Contract Time or Contract Sum. The total cost of any change, including a Claim under Paragraph 4.3 or 4.4, shall be limited to the reasonable value, as determined by the Consultant (subject to appeal through the dispute resolution procedure of Paragraph 4.4), of the items in Paragraph 7.5. Unless otherwise agreed in writing by the Owner, the cost shall not exceed the lower of the prevailing cost for the work in the locality of the Project or the cost of the work in the current edition of R.S. Means Company, Inc., Building Construction Cost Data as adjusted to local costs and conditions. The Consultant and the Owner may communicate directly with Subcontractors concerning costs of any Work included in a Construction Change Directive. If the Contractor disagrees with the method for the adjustment in the Contract Time, the adjustment and method shall be referred to the Consultant for determination, and any adjustment shall be limited to the change in the actual critical path of the Contractor's Construction Schedule directly caused thereby.

7.3.7 The amount of credit to be allowed by the Contractor to the Owner for a deletion or change which results in a net decrease in the Contract Sum shall be the largest of (1) the reasonable and prevailing value of the deletion or change; (2) the line item value in the Schedule of Values: or (3) the actual net cost as confirmed by the Consultant. When both additions and credits covering related Work or substitutions are involved in a change, the allowance for overhead and profit shall be figured on the basis of net increase, if any, with respect to that change.

7.3.8 Pending final determination of the total cost of a Construction Change Directive to the Owner and provided that any amounts not in dispute for such changes in the Work shall be included in Applications for Payment accompanied by a Change Order indicating the parties' agreement with part or all of such costs. If the Contractor adds a reservation of rights that has not been initialed b the Owner, all the amounts for the Construction Change Directive shall be considered disputed unless costs are renegotiated or the reservation is withdrawn or changed in a manner satisfactory to the Owner.

7.3.9 When the Owner and Contractor agree with the determination made by the Consultant concerning the adjustments in the Contract Sum and Contract Time, or otherwise reach agreement upon the adjustments, such agreement shall be effective immediately and shall be recorded by preparation and execution of an appropriate Change Order.

7.4 MINOR CHANGES IN THE WORK

7.4.1 The Consultant and the Owner will have authority to order minor changes in the Work not involving adjustment in the Contract Sum or extension of the Contract Time and not inconsistent with the intent of the Contract Documents. Such changes shall be effected by written order and shall be binding on the Owner and Contractor. The Contractor shall carry out any and all such written orders promptly. If at the option of the Owner, the Consultant exercises any authority, right(s) or duty(ies) stated anywhere in this Agreement or any other Contract Document as an authority, right or duty the Consultant may perform, the Contractor shall comply with, be bound by and respond therewith and thereto, including, but not limited to, the exercise of any authority, right(s) or duty(ies) related to minor work.

7.5 PRICING COMPONENTS

7.5.1 The total cost of any changed Work or of any other increase or decrease in the Contract Sum, including a Claim, shall be limited to the following components:

.1 Basic wages: The hourly wage (without markup, fringe benefits or labor burden) not to exceed that specified in the applicable "Intent to Pay Prevailing Wage" for the laborers, apprentices, journeymen, and foremen performing and/or directly supervising the changed Work on the site. The premium portion of overtime wages is not included unless pre-approved by the Owner.

.2 Fringe benefits: Fringe benefits paid by the Contractor as established by the Oregon Bureau of Labor and Industries or contributed to labor trust funds as itemized fringe benefits, whichever is applicable. Costs paid or incurred by the Contractor for vacations, per diem, bonuses, stock options, or discretionary payments to employees are not reimbursable.

.3 Workers' insurances: Direct contributions to the State of Oregon as industrial insurance; medical aid; and supplemental pension by class and rates established by the Oregon Bureau of Labor and Industries.

.4 Federal insurances: Direct contributions required by the Federal Insurance Compensation Act (FICA); Federal Unemployment Tax Act (FUTA); and State Unemployment Compensation Act (SUCA).

7.5.2 Direct material costs: This is an itemization, including material invoice, of the quantity and cost of additional materials reasonable and necessary to perform the change in the Work. The unit cost shall be based upon the net cost after all discounts or rebates, freight costs, express charges, or special delivery costs, when applicable. No lump sum costs will be allowed except when approved in advance by the Consultant. Discounts and rebates based on prompt payment may be included, however, if the Contractor offers but the Owner declines the opportunity.

7.5.3 Construction equipment usage costs: This is an itemization of the actual length of time that construction equipment appropriate for the Work will be used solely on the change in the Work at the site times the applicable rental cost as established by the lower of the local prevailing rate published in The Rental Rate Blue Book by Data Quest, San Jose, California, or the actual rate paid to an unrelated third party as evidenced by rental receipts. Actual, reasonable mobilization costs are permitted if the equipment is brought to the Site solely for the change in the Work. If equipment is required for which a rental rate is not established by The Rental Rate Blue Book, an agreed rental rate shall be established for the equipment, which rate and use must be approved by the Consultant prior to performing the work. If more than one rate is applicable, the lowest rate will be utilized. The rates in effect at the time of the performance of the changed Work are the maximum rates allowable for equipment of modern design and in good working condition and include full compensation for furnishing all fuel, oil, lubrication, repairs, maintenance, and insurance. Equipment not of modern design and/or not in good working condition will have lower rates. Hourly, weekly, and/or monthly rates, as appropriate, will be applied to yield the lowest total cost. The rate for equipment necessarily standing by for future use on the changed Work shall be 50% of the rate established above. The total cost of rental allowed shall not exceed the cost of purchasing the equipment outright.

7.5.4 Cost of change in insurance or bond premium. This is defined as:

.1 Contractors' liability insurance: The cost (expressed as a percentage) of any changes in the Contractor's liability insurance arising directly from the changed Work; and

.2 Public works bond: The cost (expressed as a percentage) of the change in the Contractor's premium for the Contractor's bond arising directly from the changed Work.

Upon request, the Contractor shall provide the Owner with supporting documentation from its insurer or surety of any associated cost incurred.

7.5.5 Subcontractor costs: These are payments the Contractor makes to Subcontractors for changed Work performed by Subcontractors. The Subcontractors' cost of changed Work shall be determined in the same manner as prescribed in this Paragraph 7.5.

7.5.6 Fee: This is the allowance for all combined overhead, profit and other costs, including all office, home office and site overhead (including project manager, project engineers, project foreman, estimator, superintendent and their vehicles), taxes (except for sales tax), warranty, safety costs, quality control/assurance, purchasing, small or hand tool or expendable charges, preparation of as-built drawings, impact on unchanged Work, Claim preparation, and delay and impact costs of any kind, added to the total cost to the Owner of any Change Order, Construction Change Directive, Claim or any other claim of any kind on this Project. It shall be limited in all cases to the following schedule:

.1 The Contractor shall receive 15% of the cost of any materials supplied or work properly performed by the Contractor's own forces.

.2 The Contractor shall receive 8% of the amount owed directly to a Subcontractor or Supplier for materials supplied or work properly performed by that Subcontractor or Supplier.

.3 Each Subcontractor of any tier shall receive 12% of the cost of any materials properly supplied or work properly performed by its own forces.

.4 Each Subcontractor of any tier shall receive 8% of the amount it properly incurs for materials supplied or work properly performed by its suppliers or subcontractors of any lower tier.

.5 The cost to which this Fee is to be applied shall be determined in accordance with Paragraph 7.5.1-7.5.4.

.6 The total summed Fee of the Contractor and all Subcontractors of any tier shall not exceed 25%. None of the fee percentages authorized in this Paragraph 7.5.6 may be compounded with any other fee percentage or percentages authorized in this paragraph.

If a change in the Work involves both additive and deductive items, the appropriate Fee allowed will be added to the net difference of the items. If the net difference is negative, no Fee will be added to the negative figure as a further deduction.

ARTICLE 8 TIME

8.1 DEFINITIONS

8.1.1 Unless otherwise provided, Contract Time is the period of time, including authorized adjustments, allotted in the Contract Documents for Substantial Completion of the Work.

8.1.2 The date of commencement of the Work is the date established in the Agreement.

8.1.3 The date of Substantial Completion is the date certified by the Consultant in accordance with Paragraph 9.8.

8.1.4 The term "day" as used in the Contract Documents shall mean calendar day unless otherwise specifically defined. Time is expressly declared of the essence as it relates to the performance of the Contractor's Work. Without limiting the foregoing, Contractor must complete the Project in the manner required hereby on the date required hereby. The failure to so complete the Project shall cause the Owner

to incur substantial costs and expenses, including, but not limited to, those related to staffing, ~~teachers~~, management, transportation, publication, communication, signage, and rental, all of which costs and expenses the Contractor shall be liable for.

8.2 PROGRESS AND COMPLETION

8.2.1 Time limits stated in the Contract Documents are of the essence of the Contract. By executing the Agreement the Contractor confirms that the Contract Time is a reasonable period for performing the Work.

8.2.2 The Contractor shall not knowingly, except by agreement or instruction of the Owner in writing, prematurely commence operations on the site or elsewhere prior to the effective date of insurance required by Article II to be furnished by the Contractor and Owner. The date of commencement of the Work shall not be changed by the effective date of such insurance. The Contractor shall notify the Owner in writing not less than five days or other agreed period before commencing the Work.

8.2.3 The Contractor shall proceed expeditiously with adequate forces and shall achieve Substantial Completion and Final Completion within the Contract Time.

8.3 DELAYS AND EXTENSIONS OF TIME

8.3.1 If the Contractor is unreasonably delayed at any time .in the commencement or progress of the Work (1) by an act or neglect of the Owner or Consultant, or of an employee of either, or of a separate contractor employed by the Owner, or (2) by changes ordered in the Work only to the extent reflected in approved Change Orders providing for specific extensions of the Contract Time, or (3) b unanticipated, abnormal weather (see Paragraph 4.3.7), or (4) by unexpected industry-wide labor disputes, fire, unusual delay in deliveries, governmental delays (including permit delays not caused by the Owner), unavoidable casualties or other causes beyond the Contractor's control, or (5) by delay authorized by the Owner pending mediation and litigation, or (6) by other causes which the Consultant determines may justify delay, then the Contract Time shall be extended by Change Order for such reasonable time, limited to the change in the actual critical path of the Contractor's Construction Schedule directly caused thereby, as the Consultant may determine consistent with the provisions of the Contract Documents. In no event, however, shall the Contractor be entitled to any extension of time absent proof of (1) delay to an activity on the critical path of the Contract Schedule, also as to actually delay the Project completion beyond the date of Substantial Completion, or (2) delay transforming an activity into the critical path of the Contract Schedule, so as to actually delay the Project completion beyond the date of Substantial Completion.

8.3.2 Claims relating to time shall be made in accordance with applicable provisions of Paragraphs 4.3 and 4.4. That the Owner or Consultant may be aware of the occurrence or existence of a delay through means other than the Contractor’s written notification shall not constitute a waiver of a timely or written notice or Claim.

8.3.3 This Paragraph 8.3 does not preclude recovery of damages for delay by either party under other provisions of the Contract Documents.

.1 If the delay was not caused by the Owner, the Contractor, a Subcontractor of any tier, or the Consultant, or anyone acting on behalf of any of them, the Contractor is entitled only to an increase in the Contract Time in accordance with the Contract Documents, but not a change in the Contract Sum. If the delay was caused by the Contractor, a Subcontractor of any tier, or anyone acting on behalf of any of them, the Contractor is not entitled to an increase in the Contract Time or in the Contract Sum. The Contractor shall not recover damages, an equitable adjustment or an increase in the Contract Sum or Contract Time from the Owner where the Contractor could have reasonably avoided the delay by the exercise of due diligence. The Contractor shall be able to recover an increase in the Contract Sum, consistent with the terms of the Contract Documents, only if a delay in the critical path was unreasonable and caused by the Owner. A Subcontractor is not entitled

to damages, an equitable adjustment or an increase in the Contract Sum for any delay that does not increase the Contract Time.

.2 In the event the Contractor (including any Subcontractors of any tier) is held to be entitled to damages from the Owner for delay beyond the payment permitted in Subparagraph 7.5.6, it is agreed that the total combined damages to the Contractor and any Subcontractors of any tier for each day of delay shall be limited to the same daily liquidated damage rate specified in the Contract Documents due the Owner for the Contractor's delay in achieving Substantial Completion. No damages will be allowed for any time prior to 14 days before receipt of written notice of the Claim of the delay pursuant to Subparagraph 4.4.2.

.3 The Contractor shall not in any event be entitled to damages arising out of actual or alleged loss of efficiency; morale, fatigue, attitude, or labor rhythm; constructive acceleration; home office overhead; expectant under run; trade stacking; reassignment of workers; rescheduling of work, concurrent operations; dilution of supervision; learning curve; beneficial or joint occupancy; logistics; ripple; season change; extended overhead; profit upon damages for delay; impact damages; or similar damages.

.4 The Contractor shall not be entitled to any adjustment in the Contract Time or in the Contract Sum, or to any additional payment of any sort, by reason of the loss or the use of any float time, including time between the Contractor's anticipated completion date and the end of the Contract Time, whether or not the float time is described as such on the Contractor's Construction Schedule.

ARTICLE 9 PAYMENTS AND COMPLETION

9.1 CONTRACT SUM

9.1.1 The Contract Sum is stated in the Agreement and, including authorized adjustments, is the total amount payable by the Owner to the Contractor for performance of the Work under the Contract Documents.

9.2 SCHEDULE OF VALUES

9.2.1 Within seven (7) calendar days of the execution of this the Agreement and with each Application for Payment, the Contractor shall submit to the Consultant a schedule of values in a form satisfactory to the Consultant and Owner allocated to various portions of the Work, prepared in such form and supported by such data to substantiate its accuracy as the Consultant may require. This schedule, unless objected to by the Consultant or Owner, shall be used as a basis for reviewing the Contractor's Applications for Payment.

9.3 APPLICATIONS FOR PAYMENT

9.3.1 At least ten days before the date established for each progress payment, the Contractor shall submit to the Consultant an itemized Application for Payment for operations completed in accordance with the schedule of values. Such application shall be notarized and supported by such data substantiating the Contractor's right to payment as the Owner or Consultant may require, such as copies of requisitions from Subcontractors and material suppliers and reflecting Retainage if provided for in the Contract Documents.

9.3.1.1 As provided in Subparagraph 7.3.8, such applications may include requests for payment on account of changes in the Work which have been properly authorized by Construction Change Directives, or by interim determinations of the Consultant, but not yet included in Change Orders.

9.3.1.2 Such applications may not include requests for payment for portions of the Work for which the Contractor does not intend to pay to any Subcontractor including any material supplier.

9.3.2 Unless otherwise provided in the Contract Documents, payments shall be made on account of materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work. If approved in advance by the Owner, payment may similarly be made for materials and equipment suitably stored off the site at a location agreed upon in writing. Payment for materials and equipment stored on or off the site shall be conditioned upon compliance by the Contractor with procedures satisfactory to the Owner to establish the Owner's free and clear title to such materials and equipment or otherwise protect the Owner's interest, and shall include the costs of applicable insurance, storage and transportation to the site for such materials and equipment stored off the site.

9.3.3 The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application for Payment all Work for which Certificates for Payment have been previously issued and payments received from the Owner shall, be free and clear of any and all liens, claims, security interests or encumbrances in favor of the Contractor, and any all Subcontractors, including any material suppliers, or other persons or entities making a claim by reason of having provided labor, materials and equipment relating to the Work.

9.4 CERTIFICATES FOR PAYMENT

9.4.1 The Consultant may, within seven (7) days after receipt of the Contractor's Application for Payment, either issue to the Owner a Certificate for Payment, with a copy to the Contractor, for such amount as the Consultant determines is properly due, or notify the Contractor and Owner in writing of the Consultant's reasons for withholding certification in whole or in part as provided in Subparagraph 9.5.1.

9.4.2 The issuance of a Certificate for Payment will constitute a representation by the Consultant to the Owner, based on the Consultant's evaluation of the Work and the data comprising the Application for Payment, that the Work has progressed to the point indicated and that, to the best of the Consultant's knowledge, information and belief, the quality of the Work is in accordance with the Contract Documents. The foregoing representations are subject to an evaluation of the Work for conformance with the Contract Documents upon Substantial Completion, to results of subsequent tests and inspections, to correction of minor deviations from the Contract Documents prior to completion and to specific qualifications expressed by the Consultant. However, the issuance of a Certificate for Payment will not be a representation that the Consultant has (I) made exhaustive or continuous on-site inspections to check the quality or quantity of the Work, (2) reviewed construction means, methods, techniques, sequences or procedures, (3) reviewed copies of requisitions received from Subcontractors and material suppliers and other data requested by the Owner to substantiate the Contractor's right to payment, or (4) made examination to ascertain how or for what purpose the Contractor has used money previously paid on account of the Contract Sum.

9.5 DECISIONS TO WITHHOLD CERTIFICATION

9.5.1 The Consultant may withhold a Certificate for Payment in whole or in part, to the extent reasonably necessary to protect the Owner, if, in the Consultant's opinion the representations to the Owner required by Subparagraph 9.4.2 cannot be made. If the Consultant is unable to certify payment in the amount of the Application, the Consultant may notify the Contractor and Owner as provided in Subparagraph 9.4. I. If the Contractor and Consultant cannot agree on a revised amount, the Consultant may promptly issue a Certificate for Payment for the amount for which the Consultant is able to make such representations to the Owner. The Consultant may also withhold a Certificate for Payment or, because of subsequently discovered evidence, may nullify the whole or a part of a Certificate for Payment previously issued, to such extent as

may be necessary in the Consultant's opinion to protect the Owner from loss for which the Contractor is responsible, including loss resulting from acts and omissions described in Subparagraph 3.3.2, because of:

.1 defective Work not remedied;

.2 third party claims filed or reasonable evidence indicating probable filing of such claims unless security is acceptable to the Owner is provided by the Contractor;

.3 failure of the Contractor to make payments properly to Subcontractors or for labor, materials or equipment;

.4 reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;

.5 damage to the Owner or another contractor;

.6 reasonable evidence that the Work will not be completed within the Contract Time, and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay; or

.7 Any other failure to comply with the Contract Documents or Contractor's persistent failure to carry out the Work in accordance with the Contract Documents.

9.5.2 When the above reasons for withholding certification are removed, certification will be made for amounts previously withheld.

9.6 PROGRESS PAYMENTS

9.6.1 After the Consultant has received all the necessary documents and properly issued a Certificate for Payment, the Owner shall make payment in the manner and within the time provided in the Contract Documents and may so notify the Consultant.

9.6.2 If not done previously, The Contractor shall promptly pay each Subcontractor, upon receipt of payment from the Owner, out of the amount paid to the Contractor on account of such Subcontractor's portion of the Work, the amount to which said Subcontractor is entitled, reflecting percentages actually retained from payments to the Contractor on account of such Subcontractor's portion of the Work. The Contractor shall, by appropriate agreement with each Subcontractor, require each Subcontractor to make payments to Sub-subcontractors in a similar manner.

9.6.3 The Consultant or Owner may on request, furnish to any Subcontractors or any other person or entity, if practicable, information regarding percentages of completion or amounts applied for by the Contractor and action taken thereon by the Consultant and Owner on account of portions of the Work done by such Subcontractor.

9.6.4 Neither the Owner nor Consultant shall have an obligation to pay nor to see to the payment of money to a Subcontractor except as may otherwise be required by law.

9.6.5 Payment to material suppliers shall be treated in a manner similar to that provided for Subcontractors because by the definitions of this Agreement they are a Subcontractor.

9.6.6 A Certificate for Payment, a progress payment, or partial or entire use or occupancy of the Project by the Owner shall not constitute acceptance of Work not in accordance with the Contract Documents.

9.6.7 Payments received by the Contractor for Work properly performed by Subcontractors and suppliers shall be held by the Contractor for those Subcontractors or suppliers who performed Work or furnished materials, or both, under contract with the Contractor for which payment was made by the Owner. Nothing contained herein shall require money to be placed in a separate account and not commingled with money of the Contractor, shall create any fiduciary liability or tort liability on the part of the Contractor for breach of trust or shall entitle any person or entity to an award of punitive damages against the Contractor for breach of the requirements of this provision.

9.7 FAILURE OF PAYMENT

9.7.1 If the Consultant does not issue a Certificate for Payment, through no fault of the Contractor, within seven days after receipt of the Contractor's Application for Payment, or if the Owner does not pay the Contractor within seven days after the date established in the Contract Documents the amount certified by the Consultant or awarded by arbitration, then the Contractor may, upon seven additional days' written notice to the Owner and Consultant, stop the Work until payment of the amount owing has been received. The Contract Time shall be extended appropriately, and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shut-down, delay and start-up, plus interest as provided for in the Contract Documents.

9.8 SUBSTANTIAL COMPLETION

9.8.1 Substantial Completion is the stage in the progress of the Work, or portion thereof designated and approved by the Consultant and Owner, when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so that the Owner can fully occupy and utilize the Work, or designated portion thereof, for its intended use. All Work other than incidental corrective or punch list work and final cleaning shall have been completed, including but not limited to the following:

.1 Obtain temporary occupancy permits, pressure vessel permits, elevator permits, and similar approvals or certificates by governing authorities and franchised services, assuring the Owner’s full access and use of completed Work.

.2 Submit the Contractor’s punch list of items to be completed or corrected and written request for inspection.

.3 Complete final start-up, testing, and commence instruction and training sessions on all major building systems, including HVAC and controls, intercom, data communications, fire alarm, telephone, fire sprinkler, security and clocks.

.4 Make final changeover of locks and transmit new keys to the Owner, and advise the Owner of the changeover in security provisions.

.5 Discontinue or change over and remove temporary facilities and services from the project site.

.6 Advise the Owner on coordination of shifting insurance coverages, including proof of extended coverages as required.

The Work is not Substantially Complete unless the Consultant reasonably judges that the Work can achieve Final completion within 60 days, appropriate cleaning has occurred, all systems and parts are commissioned and usable, including balancing of the HVAC system, utilities are connected and operating normally, all required temporary occupancy permits have been issued and the work is accessible by normal vehicular and pedestrian traffic routes. The fact that the owner may occupy the Work or a designated portion thereof does not indicate that the work is Substantially Complete or is acceptable in whole or in part, nor does such occupation toll or change any liquidated damages due the Owner.

9.8.1.2 Date of commissioning of Critical Systems. The following systems of the Work, and any other systems designated in the Contract Documents, are considered “Critical Systems”: the HVAC system, the data communication system(s), the intercom system, the life safety system(s) and the security system. When the Contractor considers that the Critical Systems are up and running and ready for normal operation as specified for each phase, the Contractor shall so notify the Consultant in writing a minimum of 14 days prior to the Date of Substantial Completion for that portion or phase as fixed in the contract Documents. The Consultant will then schedule a pre-commissioning inspection of these systems to determine whether the Critical Systems are complete and ready for normal operation. If the Consultant’s inspection discloses that the Critical Systems are not Substantially Complete or that any item which is not in accordance with the requirements of the Contract Documents, the Contractor shall expeditiously, and before the Date of Commissioning, complete or correct such item upon notification by the Consultant. The Contractor shall then submit a request for another inspection by the Consultant to determine completion of the Critical Systems and pay the costs associated with the re-inspection, including fees of the Consultant and its consultants. When the Critical Systems are complete, the Consultant will notify the Owner in writing, which shall establish the Date of Commissioning. Warranties on the Critical Systems required by the Contract Documents shall commence on the Date of Commissioning, unless otherwise provided. The Date of Commissioning shall not have an effect on the duties of the parties at Substantial Completion.

9.8.1.3 Indemnification. The Contractor shall defend, indemnify, and hold harmless the Owner and the Consultant and their agents, employees, and consultants, successors and assigns from and against all claims, damages, losses and expenses of third parties, direct and indirect, or consequential, including costs, design professional fees, and attorneys’ fees incurred by the owner related to such claims and in proving the right to indemnification, arising out of or resulting from the failure of the Contractor to attain the Date of Commissioning less than 30 days prior to the Date of Substantial Completion fixed by the Contract Documents. In particular, the Contractor acknowledges that a 30-day period after the Date of Commissioning and prior to occupancy is specified during which the HVAC system is scheduled to operate under a procedure intended to dissipate out-gassing that may occur from interior and other materials.

9.8.2 When the Contractor considers that the Work, or a portion thereof which the Owner agrees to accept separately, is substantially complete, the Contractor shall prepare and submit to the Consultant and Owner a comprehensive list of items to be completed or corrected prior to final payment. The Contractor shall proceed promptly to complete and correct all items on the list. Failure to include an item on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

9.8.3 Upon receipt of the Contractor's list, the Consultant and the Owner will make an inspection to determine whether the Work or designated portion thereof is substantially complete. If the Consultant's inspection discloses any item, whether or not included on the Contractor's list, which is not sufficiently complete in accordance with the Contract Documents so that the Owner can occupy and utilize the Work or designated portion thereof for its intended use, the Contractor shall, before issuance of the Certificate of Substantial Completion, complete or correct such item upon notification by the Consultant or Owner. In such case, the Contractor shall then submit a request for another inspection by the Consultant to determine Substantial Completion. If the Owner or Consultant determines that the Work or designated portion is not

substantially complete, then the contractor shall expeditiously complete the Work or designated portion, request another inspection and pay all costs associated with any re-inspection.

9.8.4 When the Work or designated portion thereof is substantially complete, the Consultant may prepare a Certificate of Substantial Completion which, upon approval of the Owner, may establish the date of Substantial Completion, shall establish responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance, and shall fix the time within which the Contractor shall finish all items on the list accompanying the Certificate. Warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion. The Contractor shall attach and submit with the executed Certificate or Substantial Completion a written list of each outstanding and unresolved Claim; any Claim not so submitted and identified, other than Retainage and the undisputed balance of the Contract Sum, shall be deemed waived and abandoned. If the Owner or Consultant determines that the Work or designated portion is not substantially complete, the Contractor shall expeditiously complete the Work or designated portion, again request an inspection, and pay the costs associated with the re-inspection, including Consultant and consultant fees.

9.8.5 The Certificate of Substantial Completion shall be submitted to the Owner and Contractor for their written acceptance of responsibilities assigned to them in such Certificate. Any items not included by the Consultant but required or necessary for Final Completion of the Contract shall be supplies and installed by the Contractor as a part of the Contract Sum, notwithstanding their not being recorded by the Consultant. Upon written acceptance of the Certificate of Substantial Completion and upon the Contractor's application, the Owner shall make payment as provided in the Contract Documents. Such payment shall be adjusted for Work that is incomplete or not in accordance with the requirements of the Contract Documents. No further payment will be due or owing until the payment at Final Completion.

9.8.6 The Contractor shall prepare, continue to monitor with the Consultant, and cause to be completed, all punch lists with respect to the activity of each Subcontractor and report weekly to the Owner on outstanding punch list items. Beginning 90 days before the scheduled date of Substantial Completion, the Contractor shall prepare reports weekly, identifying items to be competed in order to obtain temporary and permanent certificates of occupancy and make recommendations to the Owner with respect to effectuating the earliest possible completion.

9.9 PARTIAL OCCUPANCY OR USE

9.9.1 The Owner may occupy or use any completed or partially completed portion of the Work at any stage when such portion is designated by separate agreement with the Contractor, provided such occupancy or use is consented to by the insurer as required under Clause 11.3.1.5 and authorized by public authorities having jurisdiction over the Work. Such partial occupancy or use may commence whether or not the portion is substantially complete, provided the Owner and Contractor have accepted in writing the responsibilities assigned to each of them for payments, Retainage, if any, security, maintenance, heat, utilities, damage to the Work and insurance, and have agreed in writing concerning the period for correction of the Work and commencement of warranties required by the Contract Documents. When the Contractor considers a portion substantially complete, the Contractor shall prepare and submit a list to the Consultant and Owner as provided under Subparagraph 9.8.2. Consent of the Contractor to partial occupancy or use shall not be unreasonably withheld. The stage of the progress of the Work shall be determined by written agreement between the Owner and Contractor or, if no agreement is reached, by decision of the Consultant.

9.9.2 Immediately prior to such partial occupancy or use, the Owner and Contractor shall, and Consultant may, jointly inspect the area to be occupied or portion of the Work to be used in order to determine and record the condition of the Work.

9.9.3 Unless otherwise agreed upon, partial occupancy or use of a portion or portions of the Work shall not constitute acceptance of Work not complying with the requirements of the Contract Documents.

9.10 FINAL COMPLETION AND FINAL PAYMENT

9.10.1 FINAL COMPLETION.

9.10.1.1 If, at sixty (60) days after the Date of Substantial Completion, the Owner considers that the punch list items are unlikely to be completed within sixty (60) days of Substantial Completion, the Owner may, upon seven (7) days' written notice to the contractor, take over and perform some or all of the punch list items. If the Contractor fails to correct the deficiencies within the period required, the Owner may deduct the actual cost of performing this punch list work, including costs, plus 10% to account for the Owner's transaction costs from the Contract Sum.

9.10.1.2 Upon receipt of written notice from the Contractor that the Work is ready for final inspection and acceptance, the Consultant may promptly make such inspection accompanied by the Contractor and, when the Consultant finds all punch list items fully completed and the Work acceptable under the Contract Documents and the Contract fully performed, the Consultant may promptly notify the Contractor and the Owner in writing that to the best of the Consultant's knowledge, information and belief, and on the basis of the Consultant's on-site visits and inspections, the Work has been completed in accordance with terms and conditions of the Contract Documents. If the Consultant determines that some or all of the punch list items are not fully completed, then the Contractor shall be responsible to the Owner for all costs, including re-inspection fees, associated with any subsequent Consultant's inspection. The Consultant's final Certificate for Payment will constitute a further representation that conditions listed in Subparagraph 9.10.2 as precedent to the Contractor's being entitled to final payment have been fulfilled.

9.10.1.3 The Contractor is liable for, and the Owner may deduct from any amounts due the Contractor, all Consultant, architect, engineer or other design consultant fees incurred by the Owner for services performed more than 60 days after Substantial Completion of all the Work, whether or not those services would have been performed prior to that date had Final Completion been achieved in a timely manner.

9.10.1.4 When the Consultant finds that the Work has been concluded, a final occupancy permit has been issued, and the Contractor has submitted all the items in Subparagraph 9.10.2.1 to the Consultant, the Contractor may submit a final Application for Payment. The Consultant will then promptly issue a final Certificate for Payment stating that the entire balance found to be due the Contractor and noted in said final Certificate is due and payable. The Consultant's final Certificate for Payment shall establish the date of Final Completion upon its execution by the Owner.

9.10.1.5 "Final Completion" will be attained when the Contractor has accomplished the following:

.1 Complete all requirements listed in Paragraph 9.8 for Substantial Completion.

.2 Complete all remaining punch list items, notify Consultant and Owner that all work is complete.

.3 Obtain permanent occupancy permits.

.4 Submit final change order and final Application for Payment.

.5 Submit recorded documents, final property survey, and operation and maintenance manuals.

.6 Deliver tools, spare parts, extra stock of material and similar physical items to the Owner.

.7 Complete final cleaning.

.8 Complete instruction and train in sessions on all major building systems including HVAC, intercom data communications, fire alarm, telephone, fire sprinkler, security and clocks.

9.10.2 FINAL ACCEPTANCE AND PAYMENT

9.10.2.1 Final payment shall not become due until after the Owner's Board of Directors has formally accepted the Project "Final Acceptance". To achieve Final Acceptance, the Consultant must have issued a final Certificate of Payment under Subparagraph 9.10.1, Final Completion must have occurred, and the Contractor must have submitted to the Consultant the following:

.1 an affidavit that any and all payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or the Owner's property might be responsible or encumbered (less amounts withheld by Owner) have been paid or otherwise satisfied together with full and final unconditional waivers by the Contractor and all Subcontractors in a form and with content acceptable to the Owner, except for any Subcontractor claims that are specifically identified on the affidavit,

.2 a certificate evidencing that insurance required by the Contract Documents to remain in force after final payment is currently in effect and will not be canceled or allowed to expire until at least 30 days' prior written notice has been given to the Owner,

.3 a written statement that the Contractor knows of no substantial reason that the insurance will not be renewable to cover the period required by the Contract Documents,

.4 consent of surety, if any, to final payment,

.5 other data establishing payment or satisfaction of or protection against obligations, such as receipts, releases and waivers of liens, claims, security interests or encumbrances arising out of the Contract, to the extent and in such form as may be designated by the Owner. If a Subcontractor refuses to furnish a release or waiver required by the Owner,

the Contractor shall furnish a bond satisfactory to the Owner to indemnify the Owner against such lien or cash deposit off such lien or claim whichever the Owner may request. Such cash deposit shall be paid with the Contractor's own funds. If such lien remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging such lien, including all costs and reasonable attorneys' fees,

.6 an “Affidavit of Wages” from the Contractor and each Subcontractor of every tier certified by all required governmental authorities.

.7 a letter from the Consultant indicating that the Work is complete and recommending Final Acceptance of the Project by the Owner.

.8 certification that all materials in the Work are "lead-free" and "asbestos-free," and

.9 all warranties, guarantees, training manuals, operation instructions, certificates, spare parts, maintenance stock, specified excess material, as-built drawings and other documents or items required by the Contract Documents or local governmental entities.

9.10.3 If, after Substantial Completion of the Work, final completion thereof is materially delayed through no fault of the Contractor, and the Consultant so confirms, the Owner shall, upon application by the Contractor and certification by the Consultant, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted to the extent permitted by statute. If the remaining balance for Work not fully completed or corrected is less than Retainage stipulated in the Contract Documents, and if bonds have been furnished, the written consent of surety to payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by the Contractor to the Consultant prior to certification of such payment. Such payment shall be made under terms and conditions governing final payment, except that it shall not constitute a waiver of claims.

9.10.4 If a Subcontractor of any tier or supplier refuses to furnish a release or waiver required by the Owner the Owner may (a) retain in the fund, account, or escrow funds in such amount as to defray the cost of foreclosing the liens of such claims and to pay attorneys' fees, the total of which shall be no less than 150% of the claimed amount, or (b) accept a bond from the Contractor, satisfactory to the owner, to indemnify the Owner against such lien. If any such lien remains unsatisfied after all payments from the Retainage are made, the Contractor shall refund to the Owner all moneys that the Owner may be compelled to pay in discharging such lien, including all costs and reasonable attorneys' fees.

9.10.5 Release of Retainage. Retainage will be held and applied by the Owner as required by law. Release of Retainage will be processed in the ordinary course of business upon expiration of sixty (60) days following Final Acceptance of the Work by the Owner provided that no notice of lien shall have been given as provided by law, and that no claims have been brought to the attention of the Owner and that the Owner has no claims under this Contract.

9.10.6 WAIVER OF CLAIMS

9.10.6.1 Final Payment by Owner. The making of final payment shall not constitute a waiver of any Claims by the Owner.

9.10.6.2 Final Payment to Contractor. Acceptance of final payment by the Contractor, or any Subcontractors including but not limited to any material supplier shall constitute a waiver of claims by that payee except those previously timely made in writing delivered to the Owner, Consultant and identified by that payee as unsettled and attached to Contractor's final Application for Payment.

9.10.6.3 Change Orders. The execution of a Change Order shall constitute a waiver of Claims by the Contractor arising out of the Work to be performed or deleted pursuant to the Change Order, except as specifically described in the Change Order. Reservations of rights will be deemed waived and are void unless the reserved rights are specifically described in detail to the satisfaction of the Owner and are initialed by the Owner.

9.10.7 The Contractor shall maintain books, ledgers, records, documents, estimates, correspondence, logs, electronic data and other evidence pertaining to the costs incurred by the Contractor in connection with or related to the Contract ("records") to such extent and in such detail as will property reflect and fully support compliance with requirements of the Contract Documents and with all costs, charges and other amounts of whatever nature under the contract. The Contractor shall preserve such records for a period of three (3) years following the date of Final Acceptance under the contract and for such longer period as may be required by any other provision of the contract. Within seven (7) days of the Owner's requires, the Contractor agrees to make available at the office of the Contractor during normal business hours all records for inspection, audit and reproduction by the Owner or its representatives. These requirements shall be applicable to each Subcontractor of any tier and included in each Subcontract and purchase order issued with respect to the Work, except fixed-price Subcontracts where the price is $25,000 or less.

ARTICLE 10 PROTECTION OF PERSONS AND PROPERTY

10.1 SAFETY PRECAUTIONS AND PROGRAMS

10.1.1 The Contractor shall use best efforts and shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the performance of the Contract.

10.2 SAFETY OF PERSONS AND PROPERTY

10.2.1 The Contractor shall use best efforts to take precautions for safety of, and provide protection to prevent damage, injury or loss to:

.1 employees on the Work and other persons who may be affected thereby;

.2 the Work and materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody or control of the Contractor or the Contractor's Subcontractors or Sub-subcontractors; and

.3 other property at the site or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction.

10.2.2 The Contractor shall give notices and comply with applicable laws, ordinances, rules, regulations and lawful orders of public authorities bearing on safety of persons or property or their protection from damage, injury or loss.

10.2.3 The Contractor shall use best efforts to erect and maintain, as required by existing conditions and performance of the Contract, safeguards for safety and protection, including posting danger signs and other warnings against hazards, promulgating safety regulations and notifying owners and users of adjacent sites and utilities and to protect adjacent property and improvements from any damage. Any damage to such property or improvements shall be promptly remedied at Contractor’s sole cost and expense.

10.2.4 When use or storage of explosives or other hazardous materials or equipment or unusual methods are necessary for execution of the Work, the Contractor shall exercise utmost care and carry on such activities under supervision of properly qualified personnel and notify the Owner and Consultant in advance to such storage. To the extent that Owner's Operations limit the use or storage of explosives or other hazardous materials or equipment they shall not be used or stored at the Project.

10.2.5 The Contractor shall promptly remedy damage and loss (other than damage or loss insured under property insurance required by the Contract Documents) to property referred to in Clauses 10.2.1.2 and 10.2.1.3 caused in whole or in part by the Contractor, any Subcontractors, a Sub-subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable and for which the Contractor is responsible under Clauses 10.2.1.2 and 10.2.1.3, except damage or loss attributable to acts or omissions of the Owner or Consultant or anyone directly or indirectly employed by either of them, or by anyone for whose acts either of them may be liable, and not attributable to the fault or negligence of the Contractor. The foregoing obligations of the Contractor are in addition to the Contractor's obligations under Paragraph 3.18.

10.2.6 The Contractor shall designate a responsible member of the Contractor's organization at the site whose duty shall be the prevention of accidents. This person shall be the Contractor's superintendent unless otherwise designated by the Contractor in writing to the Owner and Consultant.

10.2.7 The Contractor shall not load or permit any part of the construction or site to be loaded so as to endanger its safety.

10.2.8 Contractor shall specifically comply with any and all laws, rules and regulations related to hazardous materials (including without limitation asbestos) and hazardous material abatement including by not limited to those relating to contracting and the performance of such work.

10.3 HAZARDOUS MATERIALS

10.3.1 If reasonable precautions will be inadequate to prevent foreseeable bodily injury or death to persons resulting from a material or substance, including but not limited to asbestos, encountered on the site by the Contractor, the Contractor shall, upon recognizing the condition, immediately stop Work in the affected area and promptly report the condition to the Owner and Consultant in writing. By executing this Contract, Contactor represents and warrants that it has no knowledge of any material or substance which would give rise to any obligation of the Owner under any provision of 10.3.

10.3.2 The Owner shall obtain the services of a licensed laboratory to verify the presence or absence of the material or substance reported by the Contractor and, in the event such material or substance is found to be present, to verify that it has been rendered harmless. Unless otherwise required by the Contract Documents, the Owner shall furnish in writing to the Contractor and Consultant the names and qualifications of persons or entities who are to perform tests verifying the presence or absence of such material or substance or who are to perform the task of removal or safe containment of such material or substance. The Contractor and the Consultant will promptly reply to the Owner in writing stating whether or not either has reasonable objection to the persons or entities proposed by the Owner. If either the Contractor or Consultant has an objection to a person or entity proposed by the Owner, the Owner shall propose another to whom the Contractor and the Consultant have no reasonable objection. When the material or substance has been rendered harmless, Work in the affected area shall resume upon written agreement of the Owner and Contractor. The Contract Time shall be extended appropriately, and the Contract Sum shall be increased in the amount of the Contractor's reasonable additional costs of shut-down, delay and start-up, which adjustments shall be accomplished as provided in Article 7.

10.4 The Owner shall not be responsible under Paragraph 10.3 for materials and substances brought to the site by the Contractor.

10.5 EMERGENCIES

10.5.1 In an emergency affecting safety of persons or property, the Contractor shall act, at the Contractors discretion, to prevent threatened damage, injury or loss. Additional compensation or extension of time claimed by the Contractor on account of an emergency shall be determined as provided in Paragraph 4.3.

ARTICLE 11 INSURANCE AND BONDS

11.1 CONTRACTOR'S LIABILITY INSURANCE

11.1.1 The Contractor shall purchase from and maintain in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located such insurance as will protect the Contractor from claims set forth below which may arise out of or result from the Contractor's operations under the Contract and for which the Contractor may be legally liable, whether such operations be by the Contractor or by any Subcontractors, or by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable:

.1 claims under workers' compensation, disability benefit and other similar employee benefit acts which are applicable to the Work to be performed;

.2 claims for damages because of bodily injury, occupational sickness or disease, or death of the Contractor's employees;

.3 claims for damages because of bodily injury, sickness or disease, or death of any person other than the Contractor's employees;

.4 claims for damages insured by usual personal injury liability coverage;

.5 claims for damages, other than to the Work itself, because of injury to or destruction of tangible property, including loss of use resulting therefrom;

.6 claims for damages because of bodily injury, death of a person or property damage arising out of ownership, maintenance or use of a motor vehicle;

.7 claims for bodily injury or property damage arising out of completed operations; and

.8 claims involving contractual liability insurance applicable to the Contractor's obligations under Paragraph 3.18.

11.1.2 The insurance required by Subparagraph 11.1.1 shall be written for not less than limits of liability specified in the Contract Documents or required by law, whichever coverage is greater. Coverage's, whether written on an occurrence or claims-made basis, shall be maintained without interruption from date of commencement of the Work until date of final payment and termination of any coverage required to be maintained after final payment.

11.1.3 Certificates of insurance acceptable to the Owner shall be filed with the Owner prior to commencement of the Work. These certificates and the insurance policies required by this Paragraph 11.1 shall contain a provision that coverages afforded under the policies will not be canceled or allowed to expire until at least 30 days' prior written notice has been given to the Owner. If any of the foregoing insurance coverages are required to remain in force after final payment and are reasonably available, an additional certificate evidencing continuation of such coverage shall be submitted with the final Application for Payment as required by Subparagraph 9.10.2. Information concerning reduction of coverage on account of revised limits or claims paid under the General Aggregate, or both, shall be furnished by the Contractor with reasonable promptness in accordance with the Contractor's information and belief.

11.2 PROJECT MANAGEMENT PROTECTIVE LIABILITY INSURANCE

11.2.1 The Owner may also in addition to or in the alternative require the Contractor to purchase and maintain Project Management Protective Liability insurance from the Contractor's usual sources as primary coverage for the Owner's, Contractor's and Consultant's vicarious liability for construction operations under the Contract. Unless otherwise required by the Contract Documents, the Owner shall reimburse the Contractor by increasing the Contract Sum to pay the cost of purchasing and maintaining such optional insurance coverage and the Contractor shall not be responsible for purchasing any other liability insurance on behalf of the Owner. The minimum limits of liability purchased with such coverage shall be equal to the aggregate of the limits required for Contractor's Liability Insurance under Clauses 11.1.1.2 through 11.1.1.5.

11.2.2 To the extent damages are covered by Project Management Protective Liability insurance, the Owner, Contractor and Consultant waive all rights against each other for damages, except such rights as

they may have to the proceeds of such insurance. The policy shall provide for such waivers of subrogation by endorsement or otherwise.

11.2.3 The Owner may require the Contractor to include the Owner, Owners Representative, Consultant or any other persons or entities as additional insureds on the Contractor's Liability Insurance coverage under Paragraph 11.1 or as set out elsewhere in the Contract Documents.

11.3 PROPERTY INSURANCE

11.3.1 Unless otherwise provided, the Owner shall purchase and maintain, in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located, property insurance written on a builder's risk "all-risk" or equivalent policy form in the amount of the initial Contract Sum, plus value of subsequent Contract modifications and cost of materials supplied or installed by others, comprising total value for the entire Project at the site on a replacement cost basis without optional deductibles. Such property insurance shall be maintained, until final payment has been made as provided in Paragraph 9.10 or until no person or entity other than the Owner has an insurable interest in the property required by this Paragraph 11.3 to be covered, whichever is later. This insurance shall include interests of the Owner, the Contractor, Subcontractors and Sub-subcontractors in the Project.

11.3.1.1 Property insurance may be on an "all-risk" or equivalent policy form and shall include, without limitation, insurance against the perils of fire (with extended coverage) and physical loss or damage including, without duplication of coverage, theft, vandalism, malicious mischief, collapse, earthquake, flood, windstorm, false work, testing and startup, temporary buildings and debris removal including demolition occasioned by enforcement of any applicable legal requirements, and may cover reasonable compensation for Consultant's and Contractor's services and expenses required as a result of such insured loss.

11.3.1.2 If the Owner does not intend to purchase such insurance the Owner shall so inform the Contractor. The Contractor may, then following 14 days prior written notice to the Owner by the Contractor effect such insurance which will protect the interests of the Owner, Contractor, Subcontractors and Sub-subcontractors in the Work, and if approved by the Owner in its discretion and in writing before the purchase thereof the costs thereof may be charged to the Owner.

11.3.1.3 If the property insurance requires deductibles, the Owner need not pay costs not covered because of such deductibles and they shall be paid by Contractor.

11.3.1.4 This property insurance, if any may at the Owner's option cover portions of the Work stored off the site, and also portions of the Work in transit.

11.3.1.5 Partial occupancy or use in accordance with Paragraph 9.9 may commence absent the insurance company or companies providing property insurance having consented to such partial occupancy or use by endorsement or otherwise.

11.3.2 Loss of Use Insurance. The Owner, at the Owner's option, may purchase and maintain such insurance as will insure the Owner against loss of use of the Owner's property due to fire or other hazards, however caused.

11.3.3 If during the Project construction period the Owner insures properties, real or personal or both, at or adjacent to the site by property insurance under policies separate from those insuring the Project, or if after final payment property insurance is to be provided on the completed Project through a policy or policies other than those insuring the Project during the construction period, the Owner shall waive all rights in accordance with the terms of Subparagraph 11.3.5 for damages caused by fire or other causes of loss

covered by this separate property insurance. All separate policies shall provide this waiver of subrogation by endorsement or otherwise.

11.3.4 Before an exposure to loss may occur, the Owner shall file with the Contractor a copy of each policy that includes insurance coverage's required by this Paragraph 11.3. Each policy shall contain all generally applicable conditions, definitions, exclusions and endorsements related to this Project. Each policy shall contain a provision that the policy will not be canceled or allowed to expire, and that its limits will not be reduced, until at least 30 days' prior written notice has been given to the Contractor.

11.3.5 Waivers of Subrogation. The Owner and Contractor waive all rights against (1) each other and any of their subcontractors, sub-subcontractors, agents and employees, each of the other, and (2) the Consultant, Consultant's consultants, separate contractors described in Article 6, if any, and any of their subcontractors, sub-subcontractors, agents and employees, for damages caused by fire or other causes of loss to the extent covered by property insurance obtained pursuant to this Paragraph 11.3 or other property insurance applicable to the Work, except such rights as they have to proceeds of such insurance held by the Owner as fiduciary. The Owner or Contractor, as appropriate, shall require of the Consultant, Consultant's consultants, separate contractors described in Article 6, if any, and the subcontractors, sub-subcontractors, agents and employees of any of them, by appropriate agreements, written where legally required for validity, similar waivers each in favor of other parties enumerated herein. The policies shall provide such waivers of subrogation by endorsement or otherwise. A waiver of subrogation shall be effective as to a person or entity even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, did not pay the insurance premium directly or indirectly, and whether or not the person or entity had an insurable interest in the property damaged.

11.3.6 A loss insured under Owner's property insurance shall be adjusted by the Owner as fiduciary and made payable to the Owner as fiduciary for the insureds, as their interests may appear, subject to requirements of any applicable mortgagee clause and of Subparagraph 11.3.7. The Contractor shall pay Subcontractors their just shares of insurance proceeds received by the Contractor, and by appropriate agreements, written where legally required for validity, shall require Subcontractors to make payments to their Sub-subcontractors in similar manner.

11.3.7 The Owner as fiduciary shall have power to adjust and settle a loss with insurers unless one of the parties in interest shall object in writing within five days after occurrence of loss to the Owner's exercise of this power; if such objection is made, the dispute shall be resolved as provided in Paragraphs 4.5 and 4.6. The Owner as fiduciary shall, in the case of arbitration, make settlement with insurers in accordance with directions of the arbitrators. If distribution of insurance proceeds by arbitration is required, the arbitrators will direct such distribution.

11.4 PERFORMANCE BOND AND PAYMENT BOND

11.4.1 The Owner shall have the right to require the Contractor to furnish bonds covering faithful performance of the Contract and payment of obligations arising thereunder as stipulated in bidding requirements or specifically required in any of the Contract Documents.

11.4.2 Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the Contract, the Contractor shall promptly furnish a copy of the bonds or shall permit a copy to be made.

11.4.2 A notice of claim on Contractor's payment bond shall be submitted only in accordance with ORS 279C.600 and 279C.605.

ARTICLE 12 UNCOVERING AND CORRECTION OF WORK

12.1 UNCOVERING OF WORK

12.1.1 If a portion of the Work is covered contrary to the Consultant's or Owner's request or to requirements specifically expressed in the Contract Documents, it must, if required in writing by the Consultant or Owner, be uncovered for the Consultant's or Owner's observation or examination and be replaced at the Contractor's expense without change in the Contract Time.

12.1.2 If a portion of the Work has been covered which the Consultant or Owner has not specifically requested to examine prior to its being covered, the Consultant or Owner may request to see such Work and it shall be uncovered by the Contractor. If such Work is in full and strict accordance with the Contract Documents, costs of uncovering and replacement shall, by appropriate Change Order, be at the Owner's expense. If such Work is not in full and strict accordance with the Contract Documents, correction shall be at the Contractor's sole expense unless the condition was caused by the Owner or a separate contractor in which event the Owner shall be responsible for payment of such costs.

12.2 CORRECTION OF WORK

12.2.1 BEFORE OR AFTER SUBSTANTIAL COMPLETION

12.2.1.1 The Contractor shall promptly correct Work rejected by the Consultant or failing to conform to the requirements of the Contract Documents, whether discovered before or after Substantial Completion and whether or not fabricated, installed or completed. Costs of correcting such rejected Work, including additional testing and inspections and compensation for the Consultant's services and expenses made necessary thereby, shall be at the Contractor's expense. If prior to Substantial Completion the contractor or any Subcontractors or anyone they are responsible for uses or damages any portion of the Work, they shall return it to “like new” condition without any increase in the Contract Time or Sum.

12.2.2 AFTER SUBSTANTIAL COMPLETION

12.2.2.1 In addition to the Contractor's obligations under Paragraph 3.5, if, within one year after the date of Substantial Completion of the Work or designated portion thereof or after the date for commencement of warranties established under Subparagraph 9.9.1, or by terms of an applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly (but in no event later than seven days) after receipt of written notice from the Owner to do so unless the Owner has previously given the Contractor a full and final written acceptance of such condition. The Owner shall give such notice promptly after discovery of the condition. During the one-year period for correction of Work, if the Owner fails to notify the Contractor and give the Contractor an opportunity to make the correction, the Owner waives the rights to require correction by the Contractor and to make a claim for breach of warranty. If the Contractor fails to correct nonconforming Work promptly during that period after receipt of notice from the Owner or Consultant, the Owner may correct it in accordance with Paragraph 2.4.

12.2.2.2 The one-year period for correction of Work shall be extended with respect to portions of Work first performed after Substantial Completion by the period of time between Substantial Completion and the actual performance of the Work.

12.2.2.3 The one-year period for correction of Work shall be extended by corrective Work performed by the Contractor pursuant to this Paragraph 12.2.

12.2.3 The Contractor shall remove from the site portions of the Work which are not in accordance with the requirements of the Contract Documents and are neither corrected by the Contractor nor accepted by the Owner.

12.2.4 The Contractor shall bear the sole cost of correcting destroyed or damaged construction, whether completed or partially completed, of the Owner or separate contractors caused by the Contractor's correction or removal of Work which is not in accordance with the requirements of the Contract Documents.

12.2.5 Nothing contained in this Paragraph 12.2 shall be construed to establish a period of limitation with respect to other obligations which the Contractor might have under the Contract Documents. Establishment of the one-year period for correction of Work as described in Subparagraph 12.2.2 relates only to the specific obligation of the Contractor to correct the Work, and has no relationship to the time within which the obligation to comply with the Contract Documents may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to the Contractor's obligations other than specifically to correct the Work.

12.3 ACCEPTANCE OF NONCONFORMING WORK

12.3.1 If the Owner prefers to accept Work which is not in accordance with the requirements of the Contract Documents, the Owner may do so instead of requiring its removal and correction, in which case the Contract Sum will be reduced as appropriate and equitable. Such adjustment shall be effected whether or not final payment has been made.

ARTICLE 13 MISCELLANEOUS PROVISIONS

13.1 GOVERNING LAW

13.1.1 The Contract shall be governed by the law of the State of Oregon.

13.2 SUCCESSORS AND ASSIGNS

13.2.1 The Owner and Contractor respectively bind themselves, their partners, successors, assigns and legal representatives to the other party hereto and to partners, successors, assigns and legal representatives of such other party in respect to covenants, agreements and obligations contained in the Contract Documents.

13.2.2 The Owner may, without consent of the Contractor, assign the Contract to any person or entity. In such event, they shall assume the Owner's rights and obligations under the Contract Documents. The Contractor shall execute all consents reasonably required to facilitate such assignment.

13.3 WRITTEN NOTICE

13.3.1 Written notice shall be deemed to have been duly served if delivered in person to the individual or a member of the firm or entity or to an officer of the corporation for which it was intended, or if delivered at or sent by registered or certified mail to the last business address known to the party giving notice. Notice by e-mail or facsimile shall not constitute written notice unless the Owner shall otherwise agree.

13.4 RIGHTS AND REMEDIES

13.4.1 Duties and obligations imposed by the Contract Documents and rights and remedies available thereunder shall be in addition to and not a limitation of duties, obligations, rights and remedies otherwise imposed or available by law.

13.4.2 No action or failure to act by the Owner, Consultant or Contractor shall constitute a waiver of a right or duty afforded them under the Contract, nor shall such action or failure to act constitute approval of or acquiescence in a breach thereunder, except as may be specifically agreed in writing.

13.5 TESTS AND INSPECTIONS

13.5.1 Tests, inspections and approvals of portions of the Work required by the Contract Documents or by laws, ordinances, rules, regulations or orders of public authorities having jurisdiction shall be made at an appropriate time. Unless otherwise provided, the Contractor shall timely make all arrangements for such tests, inspections and approvals with an independent testing laboratory or entity acceptable to the Owner, or with the appropriate public authority, and shall bear all related costs of tests, inspections and approvals. Except as otherwise provided herein, the cost of private-independent tests by third-parties to this Agreement shall be at Owner's expense. The Contractor shall give the Consultant and Owner timely notice of when and where tests and inspections are to be made so that the Consultant and Owner may be present for such procedures. The Owner shall bear costs of tests, inspections or approvals which do not become requirements until after bids are received or negotiations concluded.

13.5.2 If the Consultant, Owner or public authorities having jurisdiction determine that portions of the Work require additional testing, inspection or approval not included under Subparagraph 13.5.1, the Consultant may, upon written authorization from the Owner, instruct the Contractor to make arrangements for such additional testing, inspection or approval by an entity acceptable to the Owner, and the Contractor shall give timely notice to the Consultant and Owner of when and where tests and inspections are to be made so that the Consultant and Owner may be present for such procedures. Such costs, except as provided in Subparagraph 13.5.3, or otherwise in the Contract Documents shall be at the Owner's expense.

13.5.3 If such procedures for testing, inspection or approval under Subparagraphs 13.5.1 and 13.5.2 reveal failure of the portions of the Work to comply with requirements established by the Contract Documents, all costs made necessary by such failure including those of repeated procedures and compensation for the Consultant's and Owner's services and expenses shall be at the Contractor's sole cost and expense.

13.5.4 Required certificates of testing, inspection or approval shall, unless otherwise required by the Contract Documents, be secured by the Contractor and promptly delivered to the Consultant.

13.5.5 If the Consultant is to observe tests, inspections or approvals required by the Contract Documents, the Consultant will do so reasonably and, where practicable, at the normal place of testing.

13.5.6 Tests or inspections conducted pursuant to the Contract Documents shall be made promptly to avoid unreasonable delay in the Work.

13.6 INTEREST

13.6.1 Payments due and unpaid under the Contract Documents shall bear interest from the date payment is due at such rate as the parties may agree upon in writing or, in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.

13.7 COMMENCEMENT OF STATUTORY LIMITATION PERIOD

13.7.1 As between the Owner and Contractor any applicable statute of limitations shall accrue as provided by law in all events before substantial completion, between substantial completion and final certificate for payment, after final certificate for payment and otherwise.

ARTICLE 14 TERMINATION OR SUSPENSION OF THE CONTRACT

14.1 TERMINATION BY THE CONTRACTOR

14.1.1 The Contractor may terminate the Contract if the Work is stopped for a period of 30 consecutive days through no act or fault of the Contractor or any Subcontractors, Sub-subcontractor or their agents or employees or any other persons or entities performing portions of the Work under direct or indirect contract with the Contractor, for any of the following reasons:

.1 issuance of an order of a court or other public authority having jurisdiction which requires all Work to be stopped:

.2 an act of government, such as a declaration of national emergency which requires all Work to be stopped; or

.3 because the Consultant has not issued a Certificate for Payment and has not notified the Contractor of the reason for withholding certification as provided in Subparagraph 9.4.1, or because the Owner has not made payment on a Certificate for Payment within the time stated in the Contract Documents following 30 prior written notice to the Owner.

14.1.2 If one of the reasons described in Subparagraph 14.1.1 exists, the Contractor may, upon seven days' written notice to the Owner and Consultant, terminate the Contract and recover from the Owner payment for Work executed and for proven loss with respect to materials, equipment, tools, and construction equipment and machinery, including agreed reasonable overhead and profit.

14.2 TERMINATION BY THE OWNER FOR CAUSE

14.2.1 The Owner may terminate the Contract if the Contractor:

.1 persistently or repeatedly refuses or fails to supply enough properly skilled workers or proper materials;

.2 fails to make payment to Subcontractors for materials or labor in accordance with the respective agreements between the Contractor and the Subcontractors;

.3 persistently disregards laws, ordinances, or rules, regulations or orders of a public authority having jurisdiction; or

.4 otherwise is guilty of substantial breach of a provision of the Contract Documents.

14.2.2 When any of the above reasons exist, the Owner, upon certification by the Consultant that sufficient cause exists to justify such action, may without prejudice to any other rights or remedies of the Owner and after giving the Contractor and the Contractor's surety, if any, seven days' written notice, terminate employment of the Contractor and may, subject to any prior rights of the surety:

.1 take possession of the site and of all materials, equipment, tools, and construction equipment and machinery thereon owned by the Contractor (but not the construction equipment owned, operated and used by Subcontractors in the performance of their Work);

.2 accept assignment of subcontracts pursuant to Paragraph 5.4; and

.3 finish the Work by whatever reasonable method the Owner may deem expedient. Upon request of the Contractor, the Owner shall furnish to the Contractor a detailed accounting of the costs incurred by the Owner in finishing the Work.

14.2.3 When the Owner terminates the Contract for one of the reasons stated in Subparagraph 14.2.1, the Contractor shall not be entitled to receive further payment until the Work is finished.

14.2.4 If the unpaid balance of the Contract Sum exceeds costs of finishing the Work, including compensation for the Consultant's services and expenses made necessary thereby, and other damages incurred by the Owner and not expressly waived, such excess shall be paid to the Contractor. If such costs and damages exceed the unpaid balance, the Contractor shall pay the difference to the Owner. The amount to be paid to the Contractor or Owner, as the case may be, shall be certified by the Consultant, upon application, and this obligation for payment shall survive termination of the Contract. Contractor hereby fully, finally and unconditionally waives any and all other claims, including but not limited to those for lost or anticipated profits or overhead.

14.3 SUSPENSION BY THE OWNER FOR CONVENIENCE

14.3.1 The Owner may, without cause, order the Contractor in writing to suspend, delay or interrupt the Work in whole or in part for such period of time as the Owner may determine.

14.3.2 The Contract Sum and Contract Time shall be adjusted for increases in the cost and time caused by suspension, delay or interruption as described in Subparagraph 14.3.1. Adjustment of the Contract Sum shall include profit. No adjustment shall be made to the extent:

.1 that performance is, was or would have been so suspended, delayed or interrupted by another cause for which the Contractor is responsible; or

.2 that an equitable adjustment is made or denied under another provision of the Contract.

14.4 TERMINATION BY THE OWNER FOR CONVENIENCE

14.4.1 The Owner may, at any time, terminate the Contract for the Owner's convenience and without cause.

14.4.2 Upon receipt of written notice from the Owner of such termination for the Owner's convenience, the Contractor shall:

.1 cease operations as directed by the Owner in the notice;

.2 take actions necessary, or that the Owner may direct, for the protection and preservation of the Work; and

.3 except for Work directed to be performed prior to the effective date of termination stated in the notice, terminate all existing subcontracts and purchase orders and enter into no further subcontracts and purchase orders.

14.4.3 In case of such termination for the Owner's convenience, the Contractor shall be entitled to receive payment for Work executed, and costs incurred by reason of such termination as provided in 14.4.4,

14.4.4. Upon on such termination Contractor shall recover as its sole remedy payment for Work properly and timely performed and installed prior to the effective date of the termination and for items properly and timely fabricated off the site and delivered and stored in accordance with the Owner's instructions prior to the effective date of termination. Contractor hereby fully, finally and unconditionally waives any and all other claims, including but not limited to those for lost or anticipated profits, or overhead. Owner shall be credited for payments previously made and claims the Owner has.

END SECTION

PAYMENT BOND

Bond No. _____

The undersigned, _____ as Principal and _____ as Surety, a corporation organized and existing under the laws of the state of _____, are held and bound unto JACKSON COUNTY FIRE DISTRICT 5 and its heirs, executers, administrators, and assigns as Obligee, for the use and benefit of all persons or entities that provide labor, materials, equipment or supplies for use under the Contract described below, in the penal sum of_____ Dollars ($_____), lawful money of the United States of America, for the payment of which Principal and Surety bind themselves and their heirs, executors, administrators, successors and assigns, jointly and severally.

WHEREAS Principal has entered into a Construction Contract ("Contract") dated _____, 2022 with Obligee for the Station 4 Seismic Rehabilitation Project ("Project"), which Contract is made a part hereof as if fully incorporated herein.

NOW, THEREFORE, THE CONDITIONS OF THIS OBLIGATION are such that if Principal shall promptly make payment to all persons or entities that provide labor, material, equipment or supplies for use under said Contract, then this obligation shall be null and void; otherwise, it shall remain in full force and effect. In the event that Principal shall be, and declared by Obligee to be in default under the Contract, the Surety, at the request of the Obligee, shall promptly remedy the default in a manner acceptable to the Owner.

In any event, this obligation shall remain in full force and effect for the applicable period of limitations or repose, whichever is longer.

Surety acknowledges that Obligee does not owe any duty to Surety to advise, notify or consult with Surety on any matters relating to the Principal or the Project, including, but not limited to, Principal's payments to Architect, Subcontractors or Principal's use of Project funds.

Principal and Surety hereby jointly and severally agree that any person or entity that provides labor, material, equipment or supplies for use under said Contract and has not been paid in full, and any other party entitled to make claim on the bond under ORS 279C, if notice is given within the applicable time period set forth in ORS 279C.605 may sue on this bond for the use of such person or entity, prosecute the suit to final judgment for such sums as may be justly due and owing claimant and have execution thereon. Obligee shall not be liable for the payment of any damages, costs or expenses (including attorney fees) awarded in any such suit.

No prepayment or delay in payment and no change, extension, assignment, addition or alteration of any provision of said Contract and no forbearance on the part of Obligee shall operate to relieve Surety from liability on this bond, and Surety hereby consents to any such changes, extensions, additions and alterations without further notice to or consent by Surety.

In the event arbitration, litigation or any other proceeding is brought upon this bond by Obligee and judgment or award is entered in Obligee's favor, Surety shall pay all of Obligee's costs incurred in such arbitration, litigation or other proceeding, including any attorney and expert witness fees.

Nonpayment of the bond premium will not invalidate this bond, nor shall any Obligee be obligated for the payment of any premiums

This bond is given and received under authority of ORS Chapter 279C, the provisions of which hereby are incorporated into this bond and made a part hereof.

Executed this _____ day of _____, 2022.

_____
PRINCIPAL

_____
Title

_____
Address

_____
SURETY

_____
Title

_____
Address

COUNTERSIGNED:

_____
Resident Agent

_____
Address

PERFORMANCE BOND

Bond No. _____

The undersigned, _____ as Principal and _____ as Surety, a corporation organized and existing under the laws of the state of _____, are held and bound unto JACKSON COUNTY FIRE DISTRICT 5 and its heirs, executers, administrators, and assigns as Obligee, in the penal sum of _____ Dollars ($_____), lawful money of the United States of America, for the payment of which Principal and Surety bind themselves and their heirs, executors, administrators, successors and assigns, jointly and severally.

WHEREAS Principal has entered into a Construction Contract ("Contract") dated _____, 2022 with Obligee for Station 4 Seismic Rehabilitation Project ("Project"), which Contract is made a part hereof as if fully incorporated herein.

NOW, THEREFORE, THE CONDITIONS OF THIS OBLIGATION are such that if Principal shall faithfully, punctually and completely perform and abide with the covenants, terms, conditions and provisions of said Contract and any extensions thereof in all respects and within the time prescribed therein, including, but not limited to, the terms of any warranty and guarantee required under the said Contract; shall pay all laborers, mechanics, subcontractors, material and equipment suppliers and all persons supplying to Principal or its subcontractors and suppliers at any tier labor, materials, supplies or equipment for the prosecution of the work or any part thereof; shall fully defend, indemnify and hold Obligee harmless from all cost and damage that Obligee may suffer by reason of Principal's failure to do so; and shall in all respects perform said Contract according to applicable law, then this obligation shall be null and void; otherwise, it shall remain in full force and effect. In the event that Principal shall be, and declared by Obligee to be in default under the Contract, the Surety, at the request of the Obligee, shall promptly remedy the default in a manner acceptable to the Owner.

In any event, this obligation shall remain in full force and effect for the applicable period of limitations or repose, whichever is longer.

Surety acknowledges that Obligee does not owe any duty to Surety to advise, notify or consult with Surety on any matters relating to the Principal or the Project, including, but not limited to, Principal's payments to Subcontractors or Contractor's use of Project funds.

No prepayment or delay in payment and no change, extension, assignment, addition or alteration of any provision of said Contract and no forbearance on the part of Obligee shall operate to relieve Surety from liability on this bond, and Surety hereby consents to any such changes, extensions, additions and alterations without further notice to or consent by Surety.

In the event arbitration, litigation or any other proceeding is brought upon this bond by Obligee and judgment or award is entered in Obligee's favor, Surety shall pay all of Obligee's costs incurred in such arbitration, litigation, or other proceeding, including any attorney and expert witness fees.

In the event there is an arbitration clause in said Contract, Surety agrees to participate in and to be bound by any such arbitration to the same extent Principal is bound.

Nonpayment of the bond premium will not invalidate this bond, nor shall any Obligee be obligated for the payment of any premiums.

This bond is given and received under authority of ORS Chapter 279C, the provisions of which hereby are incorporated into this bond and made a part hereof.

Executed this _____ day of _____, 2022.

_____
PRINCIPAL

_____
Title

_____
Address

_____
SURETY

_____
Title

_____
Address

COUNTERSIGNED:

_____
Resident Agent

_____
Address

PART 1 GENERAL

1.01 MINIMUM WAGE RATES

A. The minimum wage rates to be paid all crafts and labor on this contract shall be the prevailing wage for the individual crafts involved in the Jackson County area during the life of the contract and as determined by the Commissioner of the Oregon Bureau of Labor and Industries, or in the case of a Federal-Aid project, the wage determination decision of the Federal Secretary of Labor, along with conformance to ORS 279C, as may be applicable to the supplying of the services and/or materials called for in the bid.

B. Every contractor and subcontractor shall pay workers not less than the specified minimum hourly rate of wage for each trade or occupation in each locality. When a public works project is subject to Davis-Bacon Act (40 U.S.C. 3141 et seq) that would otherwise be subject to state prevailing wages, if the state prevailing rate of wage is higher than the federal prevailing rate of wage, the contractor and every subcontractor on the project shall pay at least the state prevailing rate of wage.

C. Each worker in each trade or occupation employed in the performance of the contract either by the contractor, subcontractor or other person doing or contracting to do or contracting for the whole or any part of the work on the contract, must be paid not less than the applicable state prevailing rate of wage in accordance with ORS 279C.383 and 279C.840, or the applicable federal prevailing rate of wage, whichever is higher.

1.02 GENERAL REQUIREMENTS

A. If a dispute arises as to what the prevailing wage rate for any class of worker is, and if the dispute cannot be settled by the parties involved, it may be referred to the Commission of the Bureau of Labor and Industries, State of Oregon, for final determination. The Wage Rates are minimum rates only and the Owner will not consider any claims or additional compensation because of payment made by Contractor or a Sub-Contractor of any wage rate in excess of the prevailing rate.

B. Prevailing Wage Rates:

1. Pursuant to ORS Ch. 279C.800 - 279C.870, "Prevailing Wage Rates for Public Works Contracts in Oregon," effective July 1, 2022, and amendments, if any, are bound hereinafter and are included as a part of this Specification.

C. Other requirements related to Prevailing Wage are listed in Section 00 5000 – Agreement for Stipulated Sum.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

ARTICLE 11 - INSURANCE AND BONDS

Revise 11.1.2: Add the following:

The insurance required by 11.1.1 shall be written for not less than the following limits, or greater if required by law and underwritten by an insurance company rated A or A+ by A.M. Best & Co.

1. **Workers' Compensation:** Statutory

2. **Comprehensive General Liability** (**including Premises-Operations:** Independent Contractor's Protective; Products and Completed Operations; Explosion, Underground & Collapse; Broad-Form Property Damage, Blanket Contractual Liability, Personal Injury with Employment Exclusion Deleted):

   (a) Bodily Injury

$2,000,000	Each Occurrence
$4,000,000	Annual Aggregate

   (b) Property Damage

$2,000,000	Each Occurrence
$4,000,000	Annual Aggregate

   (c) Products and Completed Operations to be maintained for two (2) years after final payment.

   (d) Property Damage Liability Insurance shall provide X, C and U coverages.

3. **Comprehensive Automobile Liability:**

   (a) Bodily Injury

$1,000,000	Each Person
$1,000,000	Each Occurrence

   (b) Property Damage

$1,000,000	Each Occurrence

4. The Owner shall be named as the Certificate Holder.

5. In addition, furnish true umbrella coverage, which provides excess limits over the primary layer and broader scope, in an amount not less than $2,000,000.

6. Insurance shall be written by a firm licensed to do business in the State of Oregon and as approved by the Owner. The Owner's specification or approval of this insurance or of its amount shall not relieve or decrease the liability of the Contractor under the Contract Documents or otherwise.

11.1.3: Add the following:

The Contractor shall furnish one copy of the General Liability and Automobile Liability policy. The policies shall name the Jackson County Fire District 5 and its members, partners, officers, directors, agents, and employees, and the successors in interest of the foregoing, as Certificate Holder, using ISO additional insureds endorsement CG 20 10 11 85 or a substitute providing equivalent coverages within ten (10) days after the Owner issues a "Notice of Intent to Award Contract". The Contractor shall furnish to the Owner copies of any subsequently issued endorsements amending, modifying, altering or restricting coverage or limits.

END OF SECTION

PART 1 GENERAL

1.01 PROJECT

A. Project Name: Station 4 Seismic Rehabilitation Project.

B. Owner's Name: Jackson County Fire District 5.

C. Architect/Consultant's Name: Soderstrom Architects.

D. The Project consists of seismic rehabilitation to Station 4 (formerly Station 2). The project includes structural upgrades, a new roof, windows/doors, and siding to upgrade the facility up to an essential rating. It also includes owner upgraded apparatus bay doors and interior remodeling.

1.02 CONTRACT DESCRIPTION

1.03 WORK BY OWNER

A. Items noted OFOI (Owner-Furnished, Owner-Installed) will be supplied and installed by Owner before Substantial Completion. Some items include:

B. Items noted OFCI (Owner-Furnished, Contractor-Installed) will be supplied by the Owner for installation by Contractor before Substantial Completion. Some items include:

C. Items noted OFOICC (Owner Furnished, Owner Install, Contractor Coordinated) will be supplied by the Owner, installed by the Owner’s contractor, but the responsibility of the Contractor to coordinate installation before Substantial Completion.

1.04 OWNER OCCUPANCY

A. Owner intends to occupy the Project upon Substantial Completion

B. Cooperate with Owner to minimize conflict and to facilitate Owner's operations.

C. Schedule the Work to accommodate Owner occupancy.

1.05 CONTRACTOR USE OF SITE AND PREMISES

A. Except as otherwise stipulated herein, Contractors will have complete use of the Premises within the boundaries of the project as shown on the Drawings for the execution of the Work.

B. The possession, use, or distribution of illicit drugs and alcohol on the Owner's premises is prohibited. Prescription medications brought to the project site shall be in the original container bearing the name of the drug, the name of the physician and the prescribed dosage.

C. TOBACCO FREE INSTITUTION: All bidders shall comply with OAR 581.021.0110 and ORS 326.051 regarding Tobacco Use on Public Grounds. For the purpose of this document “tobacco” is defined to include any lighted or unlighted cigarette, cigar, pipe, clove cigarette, and any other smoking product, spit tobacco, also known as smokeless, dip, chew, snuff, in any form, nicotine or nicotine delivering devices, chemicals or devices that produce the physical effect of nicotine substances or any other tobacco substitute

(e.g., e-cigarettes). This does not include FDA approved nicotine replacement therapy products used for the purpose of cessation. No employee, sub-contractor, material supplier, or project visitor is permitted to smoke, inhale, dip, or chew or sell tobacco at any time, including after hours.

1. In any building, facility; or
2. On facility grounds, or parking lots.

D. Tools and building materials shall never be left out when an unsecured work area is vacated.

E. Ladders and scaffolding will be taken down when an unsecured work area is vacated.

F. Open holes and other tripping hazards shall be fenced or barricaded when an unsecured work area is vacated.

G. "Secured Work Area" is defined as an area having a perimeter cyclone fence at least 6 feet in height, with gates which close and lock so that no casual entrance is possible by unauthorized personnel.

H. Operations resulting in vapors, emissions or flying objects shall be conducted in such a way as to prevent exposure to any unprotected parties or property.

1.06 WORK SEQUENCE

1.07 DUST PROTECTION AND SAFETY BARRIERS

A. The Contractor shall erect temporary Dust and Safety Barriers around all of the Construction Operations to keep dust and debris within the localized work area, and to protect the owner, staff, and the public from construction activities. Additional requirements may be required if airborne dust is judged by the Owner to be a problem.

B. The Contractor shall take precautions to protect existing smoke detectors from damage or deterioration from dust caused by work of this contract.

1.08 OVERTIME WORK

A. The Contractor shall notify the Owner in writing, at least 48 hours in advance of any overtime work, including nights, weekends, and holidays. Do no overtime work without Owner's prior approval.

B. The Contractor shall reimburse the Architect and Owner for any expenses incurred by them because of Contractor's overtime work.

1.09 WORK IN PUBLIC RIGHT-OF-WAY

A. The Contractor shall obtain any required Permits, pay Permit Fees, arrange for inspections by Regulatory Agencies, and comply with governing Regulatory Agency requirements.

1.10 PROTECTING EXISTING UTILITIES

A. Original Building Drawings and Site Survey Drawings indicate approximate location of any known, concealed Utility Lines. Before starting work, Contractor shall determine exact location of any of these Lines that could be damaged by Contract Work.

B. Contractor shall assume that other unknown Utility Lines do exist, and Contractor shall proceed with caution when working in areas that could conceal unknown Utilities.

C. If such Utility Lines are encountered, immediately request disposition instructions from Architect.

D. If Utility Lines are damaged; remove, repair, or replace Lines as directed. Additional compensation and/or extension of time, if any, caused by removing, repairing, or replacing Lines will be determined in accordance with General Conditions.

1.11 PROTECTING EXISTING LANDSCAPING & TREES

A. Protect existing Trees, not designated for removal, against damage caused by work of this contract.

B. Provide necessary Fencing and Barricades. Erect prior to Work, and unless otherwise instructed, remove after Work completion.

C. Prohibit Earth stockpiling, Material storage, and Vehicle Parking and Traffic within Drip-line of Trees.

D. Prohibit dumping of Refuse, Chemicals, and other Materials and puddling or running Water which may injure Plant growth including Root systems.

E. Prohibit Foot and Vehicle Traffic which may compact Soil over Root Systems.

F. Prohibit any unnecessary cutting, breaking and skinning of Branches and Roots, and prohibit skinning and bruising of Bark. All tree pruning activities shall be conducted by a certified arborist.

G. Prohibit all cutting, breaking, and skinning of branches and roots, and skinning or bruising of bark of any trees within the street Right of Way. Consult with a certified arborist and the Authority havign jurisdiction prior to starting and construction activities that may threaten to damage street trees.

H. Prohibit Fires, High-heat and Smoke adjacent to Trees.

I. Repair or replace with plants of equal size, any material damaged by Construction Operations.

J. Where damaged Trees cannot realistically be repaired or replaced, pay Owner, as Liquidated Damage, value of Trees as determined by Council of Tree & Landscape Appraisers and as distributed by International Society of Arborculture. Copies can be obtained from Society at Box 71, Urbana, IL 61801.

1.12 PROTECTING EXISTING SUBGRADE

A. Contractor shall protect against damage, existing Subgrade and Earthwork provided under this Contract.

B. Where necessary to accomplish required protection, provide additional Temporary Fill or other approved Cover over Work to be protected.

1.13 PROTECT EXISTING STRUCTURES

A. Contractor shall protect against damage, existing building parts not scheduled for repair or remodel under this contract.

B. Where necessary to accomplish required protection, provide additional Temporary barricades, cushioning, or other approved Cover over material to be protected.

1.14 HAZARDOUS MATERIALS

A. Building Materials Containing Asbestos and Lead have been found in this building in the past. The Owner has previously removed or encapsulated most of the asbestos. By this notice, the Contractor and the Sub-contractors, and their workers, are asked to be aware of the possible presence of Asbestos Bearing Materials, lead and other hazardous materials and if found, or even suspected, to immediately stop work in the area, and notify the Architect and the Owners Project Mnager of the location and condition. A separate independent contract will be issued by the Owner to have the suspected material tested and if needed removed or encapsulated.

B. The Contractor and Sub-contractors, and their workers shall be extremely careful when working around any asbestos or encapsulated asbestos materials, and take any necessary precautions to avoid disturbing the asbestos or the encapsulation materials. If the asbestos or the encapsulation is disturbed, immediately stop work in the area, and notify the Engineer and the Owners Facility Manager of the location and condition.

~~1.15 CRIMINAL HISTORY CHECK / PHOTO ID~~

~~A. The names of all Contractor and all Subcontractor employees who will be on the job site for more than one day must be submitted to the District. These employees shall fill out a criminal history form provided by the District. Criminal history checks will be run through the Oregon State Police as provided for in ORS 326.603. The District shall bear the cost of processing such Criminal history checks.~~

~~1. Through the signature on the criminal history form, authorization is also given to HMKCO and its representative to investigate this information. Further, with this signature, consent is given to all governmental agencies, public or private companies and individuals to release information regarding the individual to the HMKCO and to their representative. The District shall bear the cost of processing such Criminal history checks.~~

~~B. In accordance with ORS 326.603(8) the District is required to terminate the employment or contract status of any individual who refuses to consent to a criminal history check of to be fingerprinted or falsely swears to the non conviction of any crime.~~

~~C. In accordance with ORS 326.603(7)(a) no individual found to have been convicted of any crime listed in ORS 342.143 or of an attempt to commit one of the listed crimes shall be allowed to work on any District site.~~

~~1. It is vital that employees are instructed to accurately complete criminal history forms. Crimes listed in ORS 342.143 which automatically bar an individual from employment with or contracting with the District are primarily crimes of violence, crimes against children, and sex related crimes. However, falsely swearing that you have not been convicted of a crime obligates the District to terminate employment or contract status even if the crime is not listed in ORS 342.143.~~

~~D. All employees working on site shall wear a Name and Photo Identification Badge. The Contractor shall provide all Photo ID badge. Badge shall state Jackson County Fire District 5, name of the project, employee name, and company they represent.~~

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Procedures for preparation and submittal of applications for progress payments.

B. Documentation of changes in Contract Sum and Contract Time.

C. Change procedures.

D. Correlation of Contractor submittals based on changes.

E. Procedures for preparation and submittal of application for final payment.

F. Schedule of Values.

G. Payments for products stored off site.

1.02 RELATED REQUIREMENTS

A. Section 00 5000 - Agreement Form: Contract Sum, retainages, payment period, monetary values of unit prices.

B. Section 00 6000 - General Conditions and Document 00 8000 - Supplementary Conditions: Additional requirements for progress payments, final payment, changes in the Work.

C. Section 00 7343 - Prevailing Wage Rates.

1.03 SUBMITTALS

A. Submit a preliminary draft to the Consultant 3 weeks prior to the submittal for the first Application. The purpose preliminary draft is to confirm the level of detail required by the Design Team. The Contractor is to make adjusted requested by the Consultant. The level of detail may include values as separate lines (entities) for each Specification Section. The Consultant will not review any Application submitted until changes requested by the Consultant to the preliminary draft have been incorporated.

1.04 SCHEDULE OF VALUES

A. Form to be used: AIA G703 or equivalent.

B. Electronic media printout including equivalent information will be considered in lieu of standard form specified; submit draft to Consultant for approval.

C. Forms filled out by hand will not be accepted.

D. Submit Schedule of Values in duplicate within 15 days after date of Owner-Contractor Agreement.

1. The purpose of the preliminary draft is to confirm the level of detail required by the Design Team, and the Contractor is to make adjustments as requested. The Consultant will not review any Application submitted until changes requested by the Consultant to the preliminary draft have been incorporated.

E. Format: Utilize the Table of Contents of this Project Manual. Identify each line item with number and title of the specification Section. Identify the following.

1. Each major Work Item.

2. Each subcontracted Work Item. For each major Subcontract (i.e. mechanical, electrical and plumbing), list products and operations of that Subcontract as separate line items. List labor and materials seperately for each major subcontractor.

3. Any Products to be stored, for which separate payments will be requested.

F. Include separately from each line item, a direct proportional amount of Contractor's overhead and profit.

G. Revise schedule to list approved Change Orders, with each Application For Payment.

H. Round off values to nearest dollar.

I. Sum of values listed shall equal total Contract Sum.

J. Substantiating Data: When requested by Consultant, submit justifying Substantiating Data and Line Item Amounts in question.

1.05 APPLICATIONS FOR PROGRESS PAYMENTS

A. Payment Period: Monthly.

B. Form to be used: AIA G702 and G703.

C. Electronic media printout including equivalent information will be considered in lieu of standard form specified; submit sample to Consultant for approval.

D. Forms filled out by hand will not be accepted.

E. Execute certification by signature of authorized officer.

F. Use data from approved Schedule of Values. Provide dollar value in each column for each line item for portion of work performed and for stored products.

G. List each authorized Change Order as a separate line item, listing Change Order number and dollar amount as for an original item of Work. Include individual line items for change orders involving multiple items.

H. Submit one digital copy in PDF format of each Application for Payment.

I. Include the following with the application:

1. Construction progress schedule, revised and current as specified in Section 01 3216.

2. Payment for materials and equipment stored off the site shall be conditioned upon compliance by the Contractor with procedures satisfactory to the Owner.

J. When Consultant requires substantiating information, submit data justifying dollar amounts in question. Provide one copy of data with cover letter for each copy of submittal. Show application number and date, and line item by number and description.

K. Submit Applications for Payment to Consultant at times stipulated below.

L. When Consultant finds Application properly completed and correct, Consultant will transmit 3 copies of Certificate for Payment to Owner for approval of payment, with one copy to Contractor, and one retained for files.

1.06 ALTERNATE CONSTRUCTION PAYMENT MANAGEMENT SYSTEMS:

A. Nothing contained herein would prohibit the Contractor from proposing the use of a Construction Payment Management System that substantially complies with the requirements of this section. The contractor shall pay all additional fees associated with the Owner and Consultant's use of this system.

1.07 PAYMENT FOR PRODUCTS STORED OFF THE PROJECT SITE

A. When delay or added cost to Owner can be avoided by storing Products off Site, Owner will make payment to Contractor for said Products provided that

B. Contractor shall:

1. Locate Storage Facilities within 20 miles of the Consultant's Office or the Project Site.

2. Make Storage Facilities available for Consultant's visual inspection.

3. Segregate and label Stored Products for specified Project.

4. Assume all risk for loss.

5. Assume responsibility for exceeding Product "Shelf-Life".

6. Protect Stored Products and provide applicable Insurance against their damage, discoloration, and theft, listing the Owner and any Mortgagee as Additional Named Insured.

7. Submit itemized Inventory and Schedule of Values for Stored Products together with Certificate of Insurance.

8. Submit payment requests to Owner as part of Contractor's regular Progress Payment Request. Payment requests can only be for the actual invoiced amount to the contractor or sub-contractor by their respective material supplier. Provide copies of invoice to justify amount requested.

9. Reimburse Owner for damages sustained if Stored Products are not delivered to Jobsite when needed.

10. Submit to Owner, with copy to Consultant, a written Waiver of Lien insuring Owner against claims for unpaid Storage Costs.

11. Upon receipt of payment from Owner, prepare and issue to Owner, with a copy for Consultant, and any Mortgagee, a Bill of Sale for Stored Products.

1.08 PREVAILING WAGE PAYMENT CERTIFICATION

A. Submit Prevailing Wage Payment Certification Forms as required by Section 00 7343.

1.09 APPLICATION PAYMENT SCHEDULE

A. Within 15 Days, following Owner's approval of payment of in-order Application for Payment, the Owner will:

1. Until Substantial Completion, pay Ninety-Five Percent (95%) as defined in General Conditions during the previous month, as estimated by Consultant.

B. After execution of Certificate of Substantial Completion, and within 15 days, following Owner's approval of payment of the next in-order Application for Payment, the Owner will pay:

1. Balance due under Contract, excluding a Retainage Amount of at least $1,000, or double the estimated value of uncompleted and/or unacceptable portions of Work, whichever is the greater amount.

C. Thirty (30) days after final inspection and acceptance by Owner, and within 15 days following Owner's approval of payment of final in-order Application for Payment, the Owner will pay:

1. Balance due under Contract, provided Work be then fully completed and Contract be then fully performed.

1.10 MODIFICATION PROCEDURES

A. Submit name of the individual authorized to receive change documents and who will be responsible for informing others in Contractor's employ or subcontractors of changes to the Contract Documents.

B. For minor changes not involving an adjustment to the Contract Sum or Contract Time, Consultant will issue instructions directly to Contractor.

C. For other required changes, Consultant will issue a Construction Change Directive document signed by Owner instructing Contractor to proceed with the change, for subsequent inclusion in a Change Order.

1. The document will describe the required changes and will designate method of determining any change in Contract Sum or Contract Time.

2. Promptly execute the change.

D. For changes for which advance pricing is desired, Consultant will issue a Proposal Request document that includes a detailed description of a proposed change with supplementary or revised drawings and specifications, a change in Contract Time for executing the change with a stipulation of any overtime work required and the period of time during which the requested price will be considered valid. Contractor shall prepare and submit a fixed price quotation within 7 calendar days.

E. Contractor may propose a change by submitting a request for change to Consultant, describing the proposed change and its full effect on the Work, with a statement describing the reason for the change, and the effect on the Contract Sum and Contract Time with full documentation and a statement describing the effect on Work by separate or other contractors. Document any requested substitutions in accordance with Section 01 6000.

F. Computation of Change in Contract Amount: As specified in the Agreement and Conditions of the Contract.

1. For change requested by Consultant for work falling under a fixed price contract, the amount will be based on Contractor's price quotation.

2. For change requested by Contractor, the amount will be based on the Contractor's request for a Change Order as approved by Consultant.

3. For pre-determined unit prices and quantities, the amount will based on the fixed unit prices.

4. For change ordered by Consultant without a quotation from Contractor, the amount will be determined by Consultant based on the Contractor's substantiation of costs as specified for Time and Material work.

G. Substantiation of Costs: Provide full information required for evaluation.

1. On request, provide the following data:

a. Quantities of products, labor, and equipment.

b. Taxes, insurance, and bonds.

c. Overhead and profit.

d. Justification for any change in Contract Time.

e. Credit for deletions from Contract, similarly documented.

2. Support each claim for additional costs with additional information:

a. Origin and date of claim.

b. Dates and times work was performed, and by whom.

c. Time records and wage rates paid.

d. Invoices and receipts for products, equipment, and subcontracts, similarly documented.

3. For Time and Material work, submit itemized account and supporting data after completion of change, within time limits indicated in the Conditions of the Contract.

H. Execution of Change Orders: Consultant will issue Change Orders for signatures of parties as provided in the Conditions of the Contract.

I. After execution of Change Order, promptly revise Schedule of Values and Application for Payment forms to record each authorized Change Order as a separate line item and adjust the Contract Sum.

J. Promptly revise progress schedules to reflect any change in Contract Time, revise sub-schedules to adjust times for other items of work affected by the change, and resubmit.

K. Promptly enter changes in Project Record Documents.

1.11 APPLICATION FOR FINAL PAYMENT

A. Prepare Application for Final Payment as specified for progress payments, identifying total adjusted Contract Sum, previous payments, and sum remaining due.

B. Application for Final Payment will not be considered until the following have been accomplished:

1. All closeout procedures specified in Section 01 7000.

2. Submit final Application for Payment with unconditional lien releases and supporting documentation not previously submitted and accepted in accordance with requirements of General Conditions.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Preconstruction meeting.

B. Progress meetings.

C. Submittals for review, information, and project closeout.

D. Number of copies of submittals.

E. Submittal procedures.

1.02 RELATED REQUIREMENTS

A. Section 00 6000 - General Conditions.

B. Section 01 3216 - Construction Progress Schedule: Form, content, and administration of schedules.

C. Section 01 7000 - Execution and Closeout Requirements: Additional coordination requirements.

D. Section 01 7800 - Closeout Submittals: Project record documents.

1.03 CONSTRUCTION ORGANIZATION & START-UP

A. Responsible Parties:

1. Immediately following Contract execution, Owner will and Contractor shall identify who, within their respective organizations, will be responsible for Project Coordination.

B. The Contractor shall establish on-site Lines of Authority and Communications including the following:

1. Schedule attendance at Preconstruction Meeting and schedule and conduct Progress Meetings as specified in Section 01 3000.

2. Establish procedures for Intra-project Communications including:

a. Submittals.

b. Reports & Records.

c. Recommendations.

d. Coordination Drawings.

e. Schedules.

f. Resolution of Conflicts.

3. Technical Documents Interpretation:

   a. Consult with Consultant to obtain interpretation.

   b. Assist in resolution of questions or conflicts which may arise.

   c. Transmit written interpretations to Subcontractors and to other concerned parties.

4. Permits & Approvals:

   a. Verify that Subcontractors have obtained required Permits and Inspections for Work and for Temporary Facilities.

5. Control use of Site:

   a. Supervise Field Engineering and Project Layout.

   b. Allocate Field Office Space and Work and Storage Areas for use of each Subcontractor.

1.04 COORDINATING SUBCONTRACTORS' WORK

A. Coordinate the Work of all Subcontractors and make certain that, where the Work of one Trade is dependent upon the Work of another Trade, the Work first installed is properly placed, installed, aligned, and finished as specified or required to properly receive subsequent Materials applied or attached thereto.

B. Direct Subcontractors to correct defects in Substrates they install when Subcontractors of subsequent Materials have a reasonable and justifiable objection to such surfaces.

C. Do not force Subcontractors to apply or install Products to improperly placed or improperly finished Substrates that would result in an unsatisfactory or unacceptable finished Product.

1.05 COORDINATING WORK WITH WORK OF OWNER OR OTHER CONTRACTS

A. Coordinate, and make certain that, where Work of either party is dependent upon the other party, the Work first performed is properly placed, installed, aligned, and finished as required to permit the proper installation of the Work following.

B. If the Owner's Work in any way interferes with the Contractor's Work, so notify the Owner sufficiently in advance so that the Owner has reasonable time to make necessary adjustments.

C. If the Contractor's Work in any way interferes with Owner's Work, so notify the Owner as soon as possible. If the Contractor's Work must be modified to accommodate the Owner's Work, except as described elsewhere in this Specification, the Contract Sum and/or the Contract Time will, when necessary be adjusted by a Change Order.

D. Mechanical & Electrical Equipment start-up:

   1. Coordinate check-out of Utilities, Operational Systems, and Equipment.

   2. Assist in initial start-up and testing.

3. Record starting dates of Systems and Equipment operation.

E. At completion of Work of each Subcontract, conduct inspection to assure that:

1. Work is acceptable.

2. Specified cleaning has been accomplished, and Temporary Facilities and Debris has been removed from Site.

F. Substantial Completion: See Section 002113 1.13

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 PRECONSTRUCTION MEETING

A. Owner will schedule a meeting after Notice of Award.

B. Attendance Required:

1. Owner.

2. Consultant.

3. Contractor.

4. Contractor's Superintendent.

5. Major Subcontractors.

C. Agenda:

1. Introductions.

2. Execution of Owner- Contractor Agreement.

3. Submission of executed bonds, insurance certificates and background checks.

4. Description of Project

5. Distribution of Contract Documents.

6. Submission of list of Subcontractors, list of Products, schedule of values, and progress schedule.

7. Designation of personnel representing the parties to Contract, Owner and Consultant.

8. Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal request, Change Orders, and Contract closeout procedures.

a. Written Change Order requests required

b. Supporting back-up will be required for all Change Orders

c. Describe Contractor's procedure for review and oversight in the preparation of Change Orders

d. Mark-up limitations on Change Orders (See General Conditions Article 7.1.4)

e. Processing time required

f. Applications for Payment

1) Use AIA documents G702 and G703 latest edition

2) Provide 4 signed and notarized copies

3) Wage certifications to be attached

9. Scheduling, start date and date of substantial completion.

10. Building permit status.

11. Prevailing wage requirements.

12. Public Agency submittal of RESPONSIBILITY DETERMINATION FORM to Construction Contractor's Board.

13. Communications.

14. Role of Owner's Project Manager.

15. Employee Security Screening and Identification Badging.

16. Submittals required per Contract Documents.

17. MSDS Information

18. Erosion control procedures

19. Waste management procedures

20. Environmental quality requirements

21. Hazardous materials

22. Construction activities, working hours, use of site and building.

23. Staging and parking areas.

24. Temporary facilities and utilities.

25. Request for information and clarification of design

26. Correction of Defects.

27. Weekly on-site progress meetings.

28. Safety and Emergency Procedures.

29. Verify that Contractor's Mandatory Drug Testing Program is in place.

30. Daily Clean-up

31. Project Closeout, substantial completion, final completion.

32. Record drawings and Operations and Maintenance Manuals

33. Tour of Project by Owner's staff and guests (if applicable)

34. Additional Comments

D. Consultant will record minutes and distribute copies within [five] days after meeting to participants, with digital copies to Owner, participants, and those affected by decisions made.

3.02 PROGRESS MEETINGS

A. Schedule and administer meetings throughout progress of the Work at weekly intervals.

B. Make arrangements for meetings, prepare agenda with copies for participants, preside at meetings.

C. Attendance Required:

1. Contractor.

2. Owner.

3. Consultant.

4. Contractor's Superintendent.

5. Major Subcontractors.

D. Agenda:

1. Review minutes of previous meetings.

2. Review of Work progress.

3. Field observations, problems, and decisions.

4. Identification of problems that impede, or will impede, planned progress.

5. Review of submittals schedule and status of submittals.

6. Review of off-site fabrication and delivery schedules.

7. Maintenance of progress schedule.

8. Corrective measures to regain projected schedules.

9. Planned progress during succeeding work period.

10. Coordination of projected progress.

11. Maintenance of quality and work standards.

12. Effect of proposed changes on progress schedule and coordination.

13. Other business relating to Work.

E. The Owner's Project Manager will record minutes and distribute copies within five days after meeting to participants, with digital copies to Contractor, Owner, participants, and those affected by decisions made.

3.03 PRE-INSTALLATION CONFERENCES

A. When required in individual specification sections, the Contractor shall convene a pre-installation meeting prior to commencing work of that section.

B. Require attendance of parties directly affecting, or affected by, work of the specific section.

C. Notify Consultant minimum four days in advance of meeting date.

D. The Contractor shall be responsible to prepare agenda and preside at meeting:

1. Review conditions of installation, preparation and installation procedures.

2. Review coordination with related work.

E. The Contractor shall be responsible to record minutes and distribute copies within four days after meeting to participants, with copies to Consultant, Owner's Project Manager, participants, and those affected by decisions made.

3.04 CONSTRUCTION PROGRESS SCHEDULE - SEE SECTION 01 3216

3.05 SUBMITTALS FOR REVIEW

A. When the following are specified in individual sections, submit them for review:

1. Product data.

2. Shop drawings.

3. Samples for selection.

4. Samples for verification.

5. Other information required in individual specification sections.

B. Submit to Consultant for review for the limited purpose of checking for conformance with information given and the design concept expressed in the contract documents.

C. Product Data:

1. Clearly mark each copy to identify pertinent Products.

2. Show performance characteristics and capacities.

3. Show dimensions, field dimensions, and required clearances.

4. Show wiring and piping diagrams, and controls.

5. Show standard schematic drawings and diagrams:

a. Modify to delete information not applicable to Work.

b. Supplement standard information to provide information specifically applicable to Work.

c. Assure that any photo copied material is clearly legible or provide all original material.

D. Samples will be reviewed only for aesthetic, color, or finish selection.

E. After review, provide copies and distribute in accordance with SUBMITTAL PROCEDURES article below and for record documents purposes described in Section 01 7800 - Closeout Submittals.

3.06 SUBMITTALS FOR INFORMATION

A. When the following are specified in individual sections, submit them for information:

1. Design data.

2. Certificates.

3. Test reports.

4. Inspection reports.

5. Manufacturer's instructions.

6. Manufacturer's field reports.

7. Other information required in individual specification sections.

8. Other types indicated.

B. Submit for Consultant's knowledge as contract administrator or for Owner. No action will be taken.

3.07 SUBMITTALS FOR PROJECT CLOSEOUT

A. Submit Correction Punch List for Substantial Completion.

B. Submit Final Correction Punch List for Substantial Completion.

C. When the following are specified in individual sections, submit them at project closeout:

1. Project record documents.

2. Operation and maintenance data.

3. Warranties.

4. Bonds.

5. Other information required in individual specification sections.

6. Other types as indicated.

D. Submit for Owner's benefit during and after project completion.

3.08 NUMBER OF COPIES OF SUBMITTALS

A. Electronic Documents: Submit one electronic copy in PDF format; an electronically-marked up file will be returned. Create PDFs at native size and right-side up; illegible files will be rejected.

B. Samples: Submit the number specified in individual specification sections; two of which will be retained by Consultant.

1. After review, produce duplicates.

2. Retained samples will not be returned to Contractor unless specifically so stated.

3. Show full range of color, texture & pattern.

3.09 SUBMITTAL PROCEDURES

A. Shop Drawing Procedures:

1. Prepare accurate, drawn-to-scale, original shop drawing documentation by interpreting the Contract Documents and coordinating related Work.

2. Generic, non-project specific information submitted as shop drawings do not meet the requirements for shop drawings.

B. Transmit each submittal with a copy of approved submittal form.

C. Transmit each submittal with a transmittal form that clearly describes submittal contents and the quantity of items delivered.

D. Sequentially number the transmittal form. Revise submittals with original number and a sequential alphabetic suffix.

E. Identify Project, Contractor, Subcontractor or supplier; pertinent drawing and detail number, and specification section number, as appropriate on each copy.

F. Apply Contractor's stamp, signed or initialed certifying that review, approval, verification of Products required, field dimensions, adjacent construction Work, and coordination of information is in accordance with the requirements of the Work and Contract Documents.

G. Deliver submittals to Consultant at business address.

H. Schedule submittals to expedite the Project, and coordinate submission of related items.

I. For each submittal for review, allow 15 days excluding delivery time to and from the Contractor.

J. Identify variations from Contract Documents and Product or system limitations that may be detrimental to successful performance of the completed Work.

K. Notify Consultant in writing, at submission time, of any deviations in Submittals from Contract Document requirements.

L. Provide space for Contractor and Consultant review stamps.

M. When revised for resubmission, identify all changes made since previous submission.

N. Distribute reviewed submittals as appropriate. Instruct parties to promptly report any inability to comply with requirements.

O. Submittals not requested will not be recognized or processed.

P. Submit Shop Drawings, Product Data, and Samples only for those Items specifically required. The Consultant will not be obligated to review Shop Drawings, Product Data, or Samples other than those required by the Contract Documents.

Q. Perform no Work or Fabrication requiring Submittal until Consultant approves Submittal.

END OF SECTION

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

A. Related Requirements

B. General Requirements

C. Definition of Schedule Documents and Submittal Requirements

D. Contractor's Schedule Management

E. Coordination

F. Schedule Format Requirements

G. Weather Impacts and Delays

H. Schedule Updates and Schedule (Network) Revisions

I. Time Impact Analysis for Changed Conditions

J. Recovery Schedule

K. Timeliness of Schedule Document Submittals

L. Owner Review of Schedule Submittals

1.02 RELATED REQUIREMENTS

A. The General Provisions, and General Requirements of the Specifications apply to the work specified in this Section.

B. Section 00 0120 – Bidder-Designed Items and Deferred Submittals

C. Section 01 6300 – Approval For Substitution and Product Options

1.03 GENERAL REQUIREMENTS

A. The Schedules (and schedule documents) described herein are for the following purposes:

1. To define the Contractor's Baseline Plan (including logic and use of resources) for completing the Work

2. To report progress in completion of the Work

3. To evaluate any changes to the Contractor's Baseline Plan and subsequent updated plans

B. In addition, the schedule documents shall serve as a communication tool between the Owner and the Contractor, and the Contractor and its subcontractors. The Owner

encourages the Contractor to use the Schedule to establish an understanding with all parties of the assumptions regarding the Work, and the various constraints and opportunities that are possible within the plan. As the work progresses, the Contractor and the Owner's Representative will use the Schedule to assess impacts and to formulate the best methods to complete the Work on, or ahead of the contractual completion dates. The schedule documents will also be used by the Contract Administrator to evaluate the Contractor's monthly progress payment requests.

C. The Work shall be scheduled and performed pursuant to the provisions of the Contract including any specific dates for Contract completion milestones, phase completion and the like or requirements included in the General Conditions, the Owner-Contractor Agreement, or elsewhere in the Contract documents. All Contract milestone and completion dates listed in these specifications, or elsewhere in the Contract documents, represent only interface dates or major items of the Work. The Contractor is responsible for completion of all aspects of the Work in accordance with the Contract.

D. At any time throughout the course of the Work, the Owner reserves the right to require additional activities to be added to the Schedule to further define the Contractor's plan and intentions regarding the execution of the Work. In each instance, such activities or changes shall be made by the Contractor at no cost or delay to the Owner. The Owner's Representative suggestions would not waive the contractor's right to establish its means and method or its obligation to execute the project in a timely and efficient manner.

E. Should the Contractor desire or intend to complete the Work, or any portion of the Work, earlier than the specified Contract milestone, phase, or similar dates or the overall Contract completion date, the Owner will not be liable to the Contractor for any costs or other damages should the Contractor be unable to complete the Work before Contractor's earlier milestone or completion dates. The duties and obligations of Owner to the Contractor shall be consistent with and applicable only to the completion of the Work on the specified Contract milestone dates or the Contract completion dates unless the Owner and the Contractor otherwise agree in writing, formalized by a change order. The Contractor may finish early but shall not make any claims for additional time-related costs before the expiration of the specified Contract milestone, phase, or similar dates or the overall Contract completion date.

F. The services provided by the Owner's Representative, the existence of schedules, networks or any other charts or services prepared or performed by the Owner's Representative, shall in no way relieve the Contractor of the responsibility for complying with all of the requirements of the Contract documents, including, but not limited to, the responsibility for completing the Work within the Contract Time and the responsibility of planning, scheduling, and coordinating the Work.

G. It is understood that during the prosecution of certain aspects of the work, i.e., phasing; commissioning; work with possible impacts to facilities and/or tenant operations; or utility shutdowns, a separate detailed scheduled will be required. The Contractor shall prepare these schedules in a timely manner as required for distribution by the Owner's Representative to all affected parties. The Contractor shall provide these schedules at no additional cost.

H. In addition to requirements specified herein, schedules shall include the following activities specific to Owner:

1. Delivery of Operational and Maintenance Training Manuals.

2. Submittal and expected approval of manufacturer's recommended spare parts list.

3. System inspection and punch list preparation.

I. The Contractor, including his Project Manager and Superintendent shall hold an orientation meeting with Owner, wherein the Contractor presents his approach to planning the work, developing the schedules, and meeting the requirements of this Section. This orientation meeting shall be held prior to submittal of the Baseline Schedule. The Contractor shall not delay preparation of the required schedules and schedule documents prior to this meeting; however, the Contractor shall be responsible for any changes or corrections to his scheduling as a result of this meeting.

1.04 DEFINITION OF SCHEDULE DOCUMENTS AND SUBMITTAL REQUIREMENTS

A. The following outlines the schedules and schedule documents required by this section to be submitted by the Contractor. Details on each item (and all items) to be submitted are provided in further paragraphs in this Section and in referenced sections.

1. Preliminary (4-Month) Schedule: This schedule is to detail all Contractor work, including procurement activities, mobilization, submittals, and construction activities for the first four months following the date of Notice to Proceed, and be used while the Contractor is developing his baseline schedule. All critical or completion dates required in the contract shall be incorporated into this schedule. The following submittal requirements apply to the preliminary schedule:

a. The Preliminary Schedule shall be submitted in a format and with content acceptable to the Owner's Representative and shall be submitted to the Contract Administrator no later than 10 calendar days after Notice to Proceed.

b. For purposes of this Preliminary Schedule, the Contractor is to assume that construction activities will occur within 30 calendar days after Notice to Proceed.

c. Allow five (5) working days for initial review and five (5) working days for resubmittal reviews by the Contract Administrator.

2. Baseline Schedule: This is a detailed schedule including a narrative of schedule status developed using the Critical Path Method (CPM). It represents the Contractor's plan for the Work from the date of award of the Contract and will be used to make the first Progress Schedule.

a. Submittal requirements: The Baseline Schedule shall be submitted in Primavera P6 format and with content acceptable to the Owner's Representative. The Contractor shall obtain (1) perpetual license of

Primavera P6 EPPM for use by the District PM and (1) license for use by the contractor during the contract duration.

b. Narrative of Schedule Status: This is a narrative that describes the key aspects of the submitted schedules. The Baseline Schedule narrative shall define the key aspects of the Contractor's plan for the Work that

includes the following key sections. The narratives submitted with the Baseline Schedules are required to be stand-alone documents that do not require Baseline Schedules to be attached in order to be comprehensible:

(1) The layout and logic used in the Schedule

(2) Critical submittals

(3) Long-lead equipment and material procurement.

(4) The critical path

(5) An overall float analysis

(6) Any interface concerns with Owner

(7) Costs to date

c. Activities: The schedule shall be grouped by the following work activities:

(1) Mobilization Activities

(2) Procurement Activities

(3) Manufacturing Activities

(4) Quality Control Activities

(5) Installation Activities

(6) Testing Activities

(7) Commissioning Activities

(8) Demobilization Activities

3. Master Summary Schedule: The cost-loaded Master Summary Schedule shall be developed by the Contractor and submitted to the Contract Administrator with the Baseline Schedule and each monthly Progress Schedule.

a. The Master Summary Schedule shall show the sequence in which Contractor proposes to perform the Work, all completion dates and critical dates indicated in the Contract Documents, and the dates on which Contractor plans to start and finish major portions of the Work. The Contractor shall include enough activities in the Master Summary Schedule, so that all significant portions of the Work, critical interfaces, coordination with Owner and milestone and completion dates are addressed.

b. The Summary Schedule shall be cost-loaded, at a high level, to develop a cash flow curve.

4. Critical Path Schedule: This schedule shall show the critical path derived first from the Baseline Schedule and subsequently from the current Progress Schedule. This is a time-scaled network logic diagram, showing only the current critical path of the Work along with its current progress. In the event of near critical path work (less than 10 days of float), the Owner's Representative may request the near critical paths also be shown. The following submittal requirements apply to the Critical Path Schedule:

    a. Submittal Requirements:

        (1) Submit with Baseline Schedule.

        (2) Update and submit with the Progress Schedule.

        (3) Export Primavera P6 schedule data to the client in live file format for all submissions.

5. Progress Schedule: This is a detailed schedule, developed using the Critical Path Method (CPM), which is derived from the Baseline Schedule. The first Progress Schedule is the initial monthly progress update of the Baseline Schedule. Subsequent Progress Schedules will be submitted on a monthly basis that updates the previously issued Progress Schedule. The Progress Schedule will also be used to compare percent complete requested by the Contractor in the monthly progress payment applications, to analyze delays and impacts in all Time Impact Analyses (TIA), and to determine whether a Recovery Schedule is needed from the Contractor.

    a. Submittal requirements: Progress schedules are due monthly to coincide with the progress payment requests. The updated progress schedule will be targeted against the approved baseline and will include baseline start, finish, float, and original duration.

    b. Narrative of Schedule Status: This is a narrative that describes the key aspects of the submitted schedules. The Progress Schedule narrative shall define the key aspects of the Contractor's plan for the Work that includes the following key sections. The narratives submitted with the Progress Schedules are required to be stand-alone documents that do not require Progress Schedules to be attached in order to be comprehensible:

        (1) Progress in Last Period

        (2) Critical Path Progress and Concerns

        (3) Potential Delays and Time Impact Analyses

        (4) Submittal Status (focus on critical submittals and concerns)

        (5) Equipment and Material Delivery Status

        (6) Quality Control Status

        (7) Manufacturing Status

(8) Costs to Date

6. Weekly Short Interval Schedule: This is a three-week Look-Ahead Schedule for use in the weekly schedule review meetings. The weekly interval schedules shall include the current activities from the Progress Schedule and all other schedule information deemed necessary.

   a. Submittal requirements:

      (1) Provide the schedule in a format acceptable to the Owner's Representative.

      (2) Submitted no later than 24 hours before the weekly schedule review meeting.

      (3) Distribute the final weekly interval schedule to all field supervision no later than the next workday following the weekly schedule review meeting.

7. Recovery Schedule: This schedule will be required from the Contractor in the event that certain conditions exist such that critical or milestone dates are in jeopardy of being delayed. Recovery Schedule requirements are defined in later paragraphs of this section.

   a. Submittal requirements: Submit five (5) working days after notice from the Contract Administrator that a Recovery Schedule is required.

8. Time Impact Analysis: This schedule analysis shall be part of the back-up data required from the Contractor in the event the Contractor claims that Contract changes delayed or impacted the Work and shall be included in any change proposal claiming increase in time. The Time Impact Analysis requirements are defined in later paragraphs of this section.

   a. Submittal requirements: Formal submittal of the Time Impact Analysis shall be within 15 calendar days of occurrence of the delay. Failure to submit within the 15 calendar days waives the Contractor's right to claim additional costs or time as a result of such delay.

9. Schedule of Submittals: Submit per the following table:

Deliverable	Hard Copies	Electronic Copies	Submittal Due	Remarks
Preliminary (Four-Month) Schedule	2 color copies of each sort	1	10 calendar days after the Notice to Proceed	One-time submittal. Submit using same format requirements as the Baseline Schedule
Baseline Schedule	2 color copies of each sort	1	30 calendar days after the Notice to Proceed	Acceptance is prerequisite to issuance of NTP. Critical Path Schedule is integral to Baseline Schedule. **Also, see Note (1).**
Progress Schedule		1	Monthly	Critical Path Schedule is integral to Progress Schedule. **Also, see Note (1).**
Master Summary Schedule		1	With the Baseline Schedule, then Monthly	One-time submittal. Submit with the Baseline Schedule and each Progress Schedule
As-Built Schedule	Include color copy in project O&M	1	Within 30 days of substantial completion	Project schedule shall be considered as-built for work completed and updated with each progress billing. Final document shall be included in O&M
Weekly Look-Ahead Schedule	Sufficient copies for weekly meeting attendees	1	1 Electronic copy 24 hours before weekly schedule review meeting, harmonize with sufficient copies for attendee's color copies presented at OAC Meeting	
Recovery Schedule	2 color copies	1	Within 5 days of notice to submit	
Time Impact Analysis	2 color copies	1	Within 15 days of date of delay claimed	Submit with all changes requesting time extensions

Note (1) Includes Master Summary Schedule, Narrative of Schedule Status, Manpower Loading Curve, and Subcontractor Log.

1.05 CONTRACTOR'S SCHEDULE MANAGEMENT

A. Scheduling Organization: The Contractor shall provide a Contractor's Scheduling Manager (CSM) to the implementation and management of the scheduling requirements of the Contract documents. The CSM (who may be the Contractor's Project Manager, Superintendent, or other qualified staff person) shall be on site at all times during the progress of the work, or as otherwise authorized in writing by the Contract Administrator.

B. Qualifications of Contractor's Scheduling Manager:

1. The CSM shall demonstrate acceptable professional familiarity with P6 software, hardware, and/or other scheduling systems and experience necessary to implement all scheduling requirements of the Contract in a timely and expeditious manner.

2. The Owner's Representative will monitor the performance of the CSM. The CSM's performance will be judged on the timeliness and completeness of Contractor's compliance with the scheduling requirements of the Contract documents. If the CSM fails to perform in accordance with the scheduling requirements of the Contract documents, the CSM shall, at the direction of the Contract Administrator, be replaced at no cost to Owner or delay allowable to the project.

1.06 COORDINATION

A. The Contractor shall coordinate the Work with that of Owner contractors, Owner Operations, and Owner tenants, and shall cooperate fully with the Owner's Representative in maintaining an orderly progress toward completion of the Work as scheduled.

B. A Time Impact Analysis (TIA) shall be required to support any claim by the Contractor for delay caused by failure of Owner-furnished equipment and materials to arrive as scheduled, or failure of other Owner interface work or tenants to meet their schedules. The TIA shall be based on Owner activities having the same level of predecessor and successor logic to display delay impacts as the Contractor's Work.

C. The Contractor shall inform its subcontractors of the delivery status of Owner-furnished equipment and material, and of the progress of other interfacing Owner construction work while the Work is underway.

1.07 SCHEDULE FORMAT REQUIREMENTS

A. Unless otherwise specified, the Baseline and Progress Schedules shall be produced utilizing the Microsoft Windows based Primavera P6 Project Management of the most current version.

B. The Baseline and Progress Schedules shall employ the Critical Path Method (CPM) using retained logic for the planning, scheduling and reporting of the work to be performed under this Contract. The type of schedule shall be Precedence Diagramming Method (PDM).

C. The Baseline and Progress Schedules shall include but not be limited to:

1. All Critical, Milestone, and Completion dates defined in the Contract, as well as Owner-provided equipment delivery dates.

2. Date of Contract Award, Notice To Proceed, Mobilization, Substantial Completion, and Overall Beneficial Occupancy, Completion of each Phase, Pre-final Inspections, Final Inspections, and Final Acceptance.

3. Critical procurement and submittal activities including: shop drawings and sample submittals, Owner review of submittals, re-submittals and Owner review of re-submittals, fabrication and delivery for all key, critical path, near critical path and long-lead equipment and material. Owner reserves the right to require the Contractor to add procurement activities to the schedule for any key or long-lead equipment, materials or submittals it deems necessary to monitor the Contractor's schedule for this work.

4. Quality Control Activities, Testing, Pre-Installation Activities, Commissioning, training and closeout activities.

5. Offsite activities that interface with the Contractor's Work, including work by Owner and Owner contractors, delivery of Owner-furnished materials, utilities, agencies, critical Owner operations, Owner tenants, and other similar activities.

D. Activity Descriptions and Setup

1. The description of work by activity and activity coding shall contain the specific type of work to be done and the physical area of the work to which the activity pertains.

2. Activity boundaries shall be easily measurable, and descriptions shall be clear and concise. Activity descriptions should not be prefaced with "Begin" or "Complete." The beginning and end of each activity shall be readily verifiable, and physical progress shall be quantifiable.

3. In general, each critical path and key activity shall be associated with a single performing organization (subcontractor). For other activities, where there is similar type work in an area, organizations (subcontractors) may be grouped for a single activity. Where deemed necessary to define critical, key or unusual work, Owner reserves the right to require additional activities be added to the Contractor's schedule to provide that an activity be associated with each organization (subcontractor). The organization related to the activity shall be identified in a background sort code, such that reports sorted by organization can be made using the scheduling software. Construction Specifications Institute (CSI) codes relating to the division of the work shall be assigned to activities in the same manner described above for organizations. CSI codes are also to be assigned to background sort codes that allow reports by CSI code to be made using the scheduling software.

4. Activity durations over fifteen (15) working days shall be kept to a minimum and shall be used only for non-construction activities, such as shop drawing and sample submittals, fabrication and delivery of materials and equipment, concrete curing, and General Conditions activities. Exceptions to this shall be accepted in writing by the Contract Administrator. The duration of activities shall be in workdays.

5. Activity costs shall be limited to a maximum of Two-Hundred-Fifty-Thousand Dollars ($250,000), excluding major equipment and materials. Exceptions to this shall be accepted in writing by the Contract Administrator.

6. For critical path and near critical path activities, Contractor shall use Finish-to-Start relationships to the extent possible. Contractor shall use more activities if necessary, to use Finish-to-Start relationships in preference to use of Start-to-Start relationships. The Owner reserves the right to require the addition of activities to further define critical path and near critical path work in the Schedule.

7. Activities that constitute the controlling operations or critical path will be identified by use of color (red). The critical path is defined as activities with total float less than one day. Near critical is defined as total float in the range of one to ten days. The critical path and near critical activities shall be less than 25 percent of the total activities in the Baseline Schedule.

8. Imposed completion dates for events other than the Milestone Dates or Completion Dates are generally not permitted. Artificial constraints (imposed start dates) are generally not permitted, except possibly for use in Owner- furnished materials, Owner interface dates and the like. Upon creating a new project schedule in the software, the option planned start and planned completion dates should be appropriately inserted. This will allow the schedule calculations to identify negative float when projected dates slip past the planned completion date. All Owner-furnished materials and Owner interface dates shall have an early start/finish and late start/finish range. All Owner dates shall be related to the Contractor's Work with predecessor and successor logic such that float is correctly calculated on Owner-furnished materials and Owner interface dates.

9. Activity numbering shall be spaced (or gapped) to allow inclusion of new activities between existing activities while still maintaining a similarity of numbering for like activities. Numbering by area, level, etc. is encouraged to assist in analysis. The numbering may be alphanumeric to allow easier identification of areas, etc. At a minimum, the following code fields should be included:

    a. RESP – Responsibility (Owner, Owner's Representative, Sub Consultants, Jurisdictions, Key Third Parties, Contractors, Sub Contractor and, Vendors)

    b. PHAS – Phases

    c. AREA – Locations

    d. STEP – Steps or Sub AREAs

    e. ITEM – Specification Section Numbers

    f. CONO – Change Order Numbers

10. Activities that have started and are in progress shall be "scheduled" on each submitted schedule. Planned durations for remaining work and planned completions of remaining work on activities shall be used. Activities shall not "ride" the data date line, with scheduled completions being the remaining durations, unless the Contractor actually plans to complete work within the remaining duration. Schedules submitted with activities "riding" the data date line will not be accepted by Owner.

11. The work breakdown and coding structure (WBS) should, at a minimum, incorporate the following:

a. Milestones/Hammocks

b. Deferred Approvals (by CSI, including Agency Approvals)

c. Submittals (by CSI)

d. Quality Control Activities, Pre-Installation Activities, Commissioning, Designer of Record Observations, Mock-ups

e. Work

i. mobilization

ii. Grading/Underground Utilities

iii. Foundations

iv. Structures

v. Exterior Skin and Roof

vi. Interior Construction:

a. By Floor

b. By Major Unique Functional Area

c. Electrical and MEP Equipment

d. Unique Elements

e. Equipment, including OFCI, OFOI and OFOICC

f. Start-Up, Commissioning and Test & Balance (by system and element)

g. Fire and Life-Safety and Systems Pre-Tests (by system and element)

h. Fire and Life-Safety Jurisdictional Tests and Inspections (by system and element)

i. Final Sign Offs by the Design Team and Jurisdictions

E. Schedule Layout and Sequence of Activities

1. The schedule layout shall be consistent with the Project Conditions and milestones set forth in the Contract documents. Work to complete each milestone shall be easily identifiable in the Contractor's overall schedule.

2. The layout shall be consistent with the Work required to meet the Contract milestone dates. In general, it is desired to have the Work needed to meet the Contract milestones be detailed activities that summarize, or roll-up to provide plan and status information reported for the milestone. The summarized overall

schedule shall allow reporting of physical progress, cost, and manpower loading for the entire work. Owner intent will be to use the Contractor's schedule for milestones to summarize activities in Owner Master Schedule for all projects.

3. The Schedule layout shall be arranged to allow easy physical progress monitoring of physical areas. Essentially, each level and area within level or area and level within area or the like shall be broken down within the Schedule. These areas and levels shall summarize (or rollup) for reporting purposes. The Contractor shall establish the layout that is needed to meet his Contract responsibilities. The Contractor shall use his selected layout to coordinate with the Contractor's submitted progress payment applications, such that the Schedule, physical progress, the progress payment application and physical progress can be compared to determine the actual progress payments to be made to the Contractor.

4. The calendar is established including agreed working times and holidays. The calendar should not be altered during the project unless the Owner's Representative expressly agrees.

5. Only activity types such "Start Milestone," "Finish Milestone," and "Task" will be allowed with prior authorization by the Owner's Representative. Level of effort (LOE) activities may be used to summarize work as needed to produce summary level schedules for presentation purposes.

6. All activities should have both predecessor and successor logic ties that accurately represent the sequence and interdependence of all related activities except Project Start (which would not have any predecessors) and the last Contract Milestone (which would not have any successors).

7. Negative lags may not be used (there will be no exceptions to this requirement). FS – Finish-to-Start with zero (0) duration logic ties are preferable.

8. SF – Start-to-Finish logic ties are not acceptable.

F. Formats of Schedules Submitted to Owner's Representative

1. The formats of schedules (and schedule documents) shall be submitted to the Owner's Representative are described below. The formats described are solely for reporting information and analysis use with Owner and are not intended to direct the Contractor in his own methods of scheduling. The Contractor may use any schedule format needed for his own use in performing his responsibilities in the Contract.

2. All schedules (and schedule documents) shall be submitted with clear identification of Owner and Contractor's job numbers, schedule names, descriptions, plot dates, data dates, file numbers, issue numbers and the like.

3. All Baseline, Progress and Summary Schedules submitted shall be formatted in a fixed sequence of summary and detail activities for the Contract duration for ease of reference in progress updates. This sequence shall be established by the Contractor and acceptable to the Owner's Representative. The sequence shall be set up in the software such that re-sequencing or reorganizing of the Schedules is not required to generate Owner required schedules and reports.

This allows a one to one comparison of each Schedule issued with previous Schedules for analysis purposes, including the As-built Schedule.

4. All Baseline, Progress, and Summary Schedules shall be submitted with the activity description data listed from left to right, as follows: Activity ID, Activity Description, Original Duration, Remaining Duration, Total Float, Percent Complete, Early Start, and Early Finish. The early start and finish dates shall display an “A” after the dates if started (and finished). The Baseline Schedule shall also have the late start and late finish dates to the right of the early finish dates. The Owner reserves the right, at no cost, to require the Contractor to add the late start and late Finish dates to the Progress and Summary Schedules at any time.

5. The status bars on all schedules shall display the physical percent complete of progress. This same physical percent complete shall also be used in the data field. The percent complete of activity duration to show progress shall not be used.

6. The Baseline and Progress Schedules shall be submitted as color plotted time-scaled logic diagrams, with sufficient calendar and spacing to allow activity description information, bars and logic to be easily read. For each submitted schedule, a color plotted time-scaled logic diagram of just critical path activities shall be submitted. The fixed format, as described above, shall be used for all time-scaled logic diagram submittals throughout the duration of the project.

7. The Baseline, Progress, and Summary Schedules shall be submitted in bar chart format with activity data on the left side and bars on the right side. Logic shall not be displayed. Activity descriptions shall be displayed in the bar area. These bar chart schedules shall be 11” x 17” in size, and readable.

8. The Progress Schedule shall be submitted in an additional bar chart format that displays the previous month’s Progress Schedule as a “Target” schedule for comparison use. The first Progress Schedule shall use the Baseline Schedule as the “Target” schedule. The “Target” bars shall be of smaller size, of different color, and below the current schedule’s bars. Two color copies shall be submitted. The size shall be 11” x 17”.

9. The Baseline and Progress Schedules shall be submitted in a bar chart format, as described above, but shall contain only the critical path activities. In the event that the Contractor’s schedule has more than 25 percent of the activities as critical path or near critical path, the Contractor shall submit an additional bar chart schedule containing both the critical path and near critical path (as previously defined) activities.

10. The Baseline and Progress Schedules shall be submitted with a tabular report that displays the activity data previously listed in this subsection, sorted by Activity Number. Owner reserves the right to request up to two additional tabular reports, in a format requested by the Owner’s Representative, with any schedule submittal, Time Impact Analysis, or Recovery Schedule, at no additional cost to Owner.

11. The Baseline and Progress Schedules shall be submitted with a predecessor and successor report in 8-1/2” x 11”, black and white format, displaying the activity data previously listed in this subsection and the predecessors and successors for

each activity. This shall be in the fixed activity format.

12. All schedules and schedule documents submitted to the Owner's Representative shall be in hard copy, as described above, and in the submitted format via electronic transmission that contains the schedule data files.

1.08 WEATHER IMPACTS AND DELAY

A. The Contractor agrees that he shall not be entitled to a time extension due to normal inclement weather, which can be expected at the project locale due to precipitation, snow, temperature, or other weather conditions. Normal inclement weather shall be defined as the most recent five-year average of accumulated record mean values from climatological data compiled by the US Department of Commerce, National Oceanic and Atmospheric Administration (NOAA) monitoring station nearest to the project site. The Contractor shall include in its Baseline Schedule and all Progress Schedules, allowances for normal inclement weather. Agreed rain days will be tied to specific activity sequences in specific seasons.

B. The Contractor shall only be entitled to an extension of Contract time, if the Contractor can substantiate that the severity of the weather was in excess of the normal inclement weather, and such weather conditions actually delayed the critical path of the Work. Time extensions will not be allowed for weather delays to non-critical path portions of the Work. Approved time extensions for abnormal weather conditions shall be deemed excusable and non-compensable.

C. No extension of time will be made for abnormal inclement weather after the portions of the Work in progress at the time are enclosed, except for site work. Site work delays at that time will be allowed only if the abnormal weather causes a critical path delay to the Contract Time or milestone date related to that site work. For the purpose of this paragraph, the term enclosed is defined to mean when the Work in an area of a structure or building is sufficiently closed in (portions of exterior walls up and portions of roof in place), so as to permit adequate conditioning of the air to allow the various trades to perform the Work.

D. The Contractor is responsible for providing any temporary weather enclosures necessary for Work to proceed without weather delays.

1.09 SCHEDULE UPDATES AND SCHEDULE (NETWORK) REVISIONS

A. During the course of the Work and issuance of the Progress Schedules, updating to reflect actual progress shall not be considered revisions to the Schedule. Such updating shall include revisions to activity durations and certain sequences on a monthly basis. Included in the Progress Schedule updates shall be activities and changes that have already been reviewed and accepted by Owner such as the effect of accepted Owner changes, the agreed duration of delays caused by acts of God or other conditions or events which have affected the progress of the Work. The Progress Schedules, when formally submitted, shall display current progress, as well as displaying the forecast or projected Work to the end of the Project.

B. On all Progress Schedule submittals, the Contractor shall submit a printed list of all schedule logic changes along with the reason for each change. This list is an integral part of the Schedule submittal. This list shall be generated from the scheduling software and be the same logic included electronic transmission. Owner shall accept this list as part of its overall Progress Schedule submittal review and acceptance process.

C. Should the Contractor, after Owner acceptance of the Baseline Schedule and any Progress Schedules, desire to change the logic of its plan of construction, the Contractor shall submit in writing its requested revisions to the Owner's Representative. The request shall include a written narrative of the reasons for the activity and logic changes, a description of the logic for rescheduling the work, and the methods of maintaining adherence to critical and milestone dates. In addition, for changes affecting sequences of the Work, the Contractor shall provide a time-scaled logic diagram that compares the original sequence of work to the requested revised sequence of work. The Contractor shall submit the requested revision in a timely manner such that Owner may review the request submittal the same time frame and manner as required for other schedule submittals. Upon Owner acceptance of the request, the Contractor shall include the revision in the next upcoming Progress Schedule.

D. Neither the updating or revision of the Contractor's Progress Schedule, nor the submittal, updating, change or revision of any schedule (or schedule document) for the Owner's review and acceptance shall have the effect of amending or modifying, in any way, the Contract Time, any Contract completion date, or Contract milestone dates or of modifying or limiting in any way Contractor's obligations under this Contract.

1.10 TIME IMPACT ANALYSIS FOR CHANGED CONDITIONS

A. If delays are experienced that the Contractor believes are caused by Owner, the Contractor shall submit a formal written Time Impact Analysis (TIA). The TIA shall define the impact of each change or delay to the current accepted Progress Schedule. The TIA shall include a written narrative of the impact of such delays, and a schedule in time-scaled logic diagram format that depicts how the changed or delayed work affects other activities in the current accepted Progress Schedule.

B. In addition to the Contractor's presentation of the impact in the TIA, the Contractor shall include in the TIA, a mitigation plan that reduces or eliminates the claimed delay. The mitigation plan shall include specific Owner and Contractor actions as well as the cost to the Contractor to proceed with the mitigation.

C. In the event that the Contractor requests a Contract time extension, the time impacts to critical path activities in the current accepted Progress Schedule shall be clearly shown on a schedule in time-scaled logic diagram format. Extensions of time will be granted only to the extent that such changes or delays cause the time for the changed activity and related activities to exceed the total float along the affected path of activities at the time of Owner directive to proceed with the change or the actual commencement of the delay included in the TIA.

D. Schedule float is not for the exclusive use or benefit of either the Contractor or Owner. Neither Owner nor the Contractor "owns" the float. The project or Work "owns" the float. Liability for delay to Contract or milestone dates rests with the party whose action (or inaction) caused the delay beyond the float that was available at the time of the delaying action (or inaction).

E. Each formal TIA shall be submitted as an integral element of the Contractor's change order proposal.

F. A copy of Owner accepted TIA will be incorporated in the change order signed by Owner and the Contract Administrator for such change. Any changes to the Schedule will be incorporated into the next update of the Progress Schedule following the Owner's

acceptance of the TIA.

G. The Contractor shall be responsible for all costs associated with the preparation of the TIA and the incorporation of accepted TIA's, or portion of TIA's, in the Progress Schedule.

H. If agreement is not reached on a TIA, or a portion of a TIA, the Progress Schedule, including any time extensions, shall be revised only to the extent accepted by Owner. For any TIA, or portion of a TIA, that is not accepted by Owner, the Contractor may submit a claim in accordance with the Conditions of the Contract.

1.11 RECOVERY SCHEDULE

A. Should any conditions exist, such that certain activities shown on the Contractor's Progress Schedule fall behind schedule to the extent that any of the mandatory critical dates or milestone completion dates are at risk of being delayed, the Contractor shall be required, at no cost to Owner, to prepare and submit to the Owner's Representative a supplementary Recovery Schedule. The Recovery Schedule shall be in a form and detail appropriate to the need, to explain and display to the Owner's Representative how the Contractor intends to re-schedule those activities to regain compliance with the last previously accepted Progress Schedule.

B. After determination by the Owner's Representative of the requirement for a Recovery Schedule, the Contractor shall, within five (5) calendar days, submit to Owner's Representative, the Recovery Schedule. The Recovery Schedule shall represent the Contractor's best judgment as to how the Contractor's work shall be reorganized such that the work may return to the accepted Progress Schedule within the maximum one-month period. The Recovery Schedule shall be prepared at a similar level of detail as the Progress Schedule and shall be based on the accepted Progress Schedule.

C. The Owner's Representative will have seven (7) calendar days to review the Recovery Schedule submittal. Any revisions that result from the Owners Representative's review shall be resubmitted within three (3) workdays by the Contractor for acceptance by the Contract Administrator. The accepted Recovery Schedule shall then be the Schedule that the Contractor shall use in planning, organizing, directing, coordinating, performing and executing the Work (including all activities of subcontractors, equipment vendors and suppliers) that is included on the Recovery Schedule. All other Work shall proceed per the accepted Progress Schedule.

D. No later than five (5) calendar days prior to the expiration of the Recovery Schedule, the Owner's Representative and Contractor will meet to determine whether the Contractor has regained compliance with the accepted Progress Schedule. At the direction of the Owner's Representative, one of the following will occur:

1. If, in the opinion of the Owner's Representative, the Contractor is still behind schedule, the Contractor shall prepare another Recovery Schedule, at the Contractor's expense, to take effect for a maximum of one additional month from the start of the new Recovery Schedule.

2. If, in the opinion of the Owner's Representative, the Contractor has sufficiently regained compliance with the Progress Schedule, the use of the Progress Schedule shall be resumed.

1.12 TIMELINESS OF SCHEDULE DOCUMENT SUBMITTALS

A. The Schedule (and schedule documents) shall be submitted in a timely manner, as required by this Section. Failure to submit the Schedule and schedule documents on time

and in an acceptable format shall result in withholding of payments and other remedies.

1.13 OWNER REVIEW OF SCHEDULE SUBMITTALS

A. All schedule documents shall be formally submitted and will be reviewed by Owner and returned to the Contractor with the required acceptance or action noted.

B. In providing review comments on schedule (and schedule document) submittals, and in this section, Contract Administrator may use the word “accepted”, “not accepted” or variations thereof in conveying its review comments to the Contractor. At any time, the “accepted” or similar wording is used, such wording shall have no different meaning than similar wording, such as “no exceptions taken.”

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Submittals.

B. References and standards.

C. Testing and inspection agencies and services.

D. Control of installation.

E. Mock-ups.

F. Tolerances.

G. Manufacturers' field services.

H. Defect Assessment.

1.02 RELATED REQUIREMENTS

A. Section 00 6000 - General Conditions: Inspections and approvals required by public authorities.

B. Section 01 3000 - Administrative Requirements: Submittal procedures.

C. Section 01 6000 - Product Requirements: Requirements for material and product quality.

1.03 REFERENCE STANDARDS

A. ASTM C1021 - Standard Practice for Laboratories Engaged in Testing of Building Sealants; 2008 (Reapproved 2014).

B. ASTM C1077 - Standard Practice for Laboratories Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Laboratory Evaluation; 2014.

C. ASTM C1093 - Standard Practice for Accreditation of Testing Agencies for Masonry; 2013.

D. ASTM D3740 - Standard Practice for Minimum Requirements for Agencies Engaged in the Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction; 2012a.

E. ASTM E329 - Standard Specification for Agencies Engaged in Construction Inspection, Testing, or Special Inspection; 2014a.

F. ASTM E543 - Standard Specification for Agencies Performing Nondestructive Testing; 2013.

G. OSSC - Oregon Structural Specialty Code, latest edition.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Design Data: Submit for Consultant's knowledge as contract administrator for the limited purpose of assessing conformance with information given and the design concept expressed in the contract documents, or for Owner's information.

C. Test Reports: After each test/inspection, promptly submit two copies of report to Consultant and to Contractor.

1. Include:

a. Date issued.

b. Project title and number.

c. Name of inspector.

d. Date and time of sampling or inspection.

e. Identification of product and specifications section.

f. Location in the Project.

g. Type of test/inspection.

h. Date of test/inspection.

i. Results of test/inspection.

j. Conformance with Contract Documents.

k. When requested by Consultant, provide interpretation of results.

2. Test report submittals are for Consultant's knowledge as contract administrator for the limited purpose of assessing conformance with information given and the design concept expressed in the contract documents, or for Owner's information.

D. Certificates: When specified in individual specification sections, submit certification by the manufacturer and Contractor or installation/application subcontractor to Consultant, in quantities specified for Product Data.

1. Indicate material or product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.

2. Certificates may be recent or previous test results on material or product, but must be acceptable to Consultant.

E. Manufacturer's Instructions: When specified in individual specification sections, submit printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, for the Owner's information. Indicate special procedures, perimeter conditions requiring special attention, and special environmental criteria required for application or installation.

F. Manufacturer's Field Reports: Submit reports for Consultant's benefit as contract administrator or for Owner.

1. Submit for information for the limited purpose of assessing conformance with information given and the design concept expressed in the contract documents.

G. Erection Drawings: Submit drawings for Consultant's benefit as contract administrator or for Owner.

1. Submit for information for the limited purpose of assessing conformance with information given and the design concept expressed in the contract documents.

2. Data indicating inappropriate or unacceptable Work may be subject to action by Consultant or Owner.

1.05 REFERENCES AND STANDARDS

A. For products and workmanship specified by reference to a document or documents not included in the Project Manual, also referred to as reference standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.

B. Conform to reference standard of date of issue current on date of Contract Documents, except where a specific date is established by applicable code.

C. Obtain copies of standards where required by product specification sections.

D. Maintain copy at project site during submittals, planning, and progress of the specific work, until Substantial Completion.

E. Should specified reference standards conflict with Contract Documents, request clarification from Consultant before proceeding.

F. Neither the contractual relationships, duties, or responsibilities of the parties in Contract nor those of Consultant shall be altered from the Contract Documents by mention or inference otherwise in any reference document.

1.06 TESTING AND INSPECTION AGENCIES AND SERVICES

A. Owner will employ and pay for services of an independent testing agency to perform other specified testing.

B. Employment of agency in no way relieves Contractor of obligation to perform Work in accordance with requirements of Contract Documents.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 CONTROL OF INSTALLATION

A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce Work of specified quality.

B. Comply with manufacturers' instructions, including each step in sequence.

C. Should manufacturers' instructions conflict with Contract Documents, request clarification from Consultant before proceeding.

D. Comply with specified standards as minimum quality for the Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.

E. Have Work performed by persons qualified to produce required and specified quality.

F. Verify that field measurements are as indicated on shop drawings or as instructed by the manufacturer.

G. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, and disfigurement.

3.02 MOCK-UPS

A. Before installing portions of the Work where mock-ups are required, construct mock-ups in location and size indicated for each form of construction and finish required to comply with the following requirements, using materials indicated for the completed Work. The purpose of mock-up is to demonstrate the proposed range of aesthetic effects and workmanship.

B. Accepted mock-ups establish the standard of quality the Consultant will use to judge the Work.

C. Integrated Exterior Mock-ups: construct integrated exterior mock-up as indicated on Drawings. Coordinate installation of exterior envelope materials and products as required in individual Specification Sections. Provide adequate supporting structure for mock-up materials as necessary.

D. Notify Consultant fifteen (15) working days in advance of dates and times when mockups will be constructed.

E. Provide supervisory personnel who will oversee mock-up construction. Provide workers that will be employed during the construction at Project.

F. Tests shall be performed under provisions identified in this section and identified in the respective product specification sections.

G. Assemble and erect specified items with specified attachment and anchorage devices, flashings, seals, and finishes.

H. Obtain Consultant's approval of mock-ups before starting work, fabrication, or construction.

I. Accepted mock-ups shall be a comparison standard for the remaining Work.

J. Where mock-up has been accepted by Consultant and is specified in product specification sections to be removed, protect mock-up throughout construction, remove mock-up and clear area when directed to do so by Consultant.

K. Where possible salvage and recycle the demolished mock-up materials.

3.03 TOLERANCES

A. Monitor fabrication and installation tolerance control of products to produce acceptable Work. Do not permit tolerances to accumulate.

B. Comply with manufacturers' tolerances. Should manufacturers' tolerances conflict with Contract Documents, request clarification from Consultant before proceeding.

C. Adjust products to appropriate dimensions; position before securing products in place.

3.04 TESTING AND INSPECTION

A. See individual specification sections and the current building code for testing and inspection required.

B. Testing Agency Duties:

1. Provide qualified personnel at site. Cooperate with Consultant and Contractor in performance of services.

2. Perform specified sampling and testing of products in accordance with specified standards.

3. Ascertain compliance of materials and mixes with requirements of Contract Documents.

4. Promptly notify Consultant and Contractor of observed irregularities or non-conformance of Work or products.

5. Perform additional tests and inspections required by Consultant.

6. Submit reports of all tests/inspections specified.

C. Limits on Testing/Inspection Agency Authority:

1. Agency may not release, revoke, alter, or enlarge on requirements of Contract Documents.

2. Agency may not approve or accept any portion of the Work.

3. Agency may not assume any duties of Contractor.

4. Agency has no authority to stop the Work.

D. Contractor Responsibilities:

1. Deliver to agency at designated location, adequate samples of materials proposed to be used that require testing, along with proposed mix designs.

2. Cooperate with laboratory personnel, and provide access to the Work and to manufacturers' facilities.

3. Provide incidental labor and facilities:

a. To provide access to Work to be tested/inspected.

b. To obtain and handle samples at the site or at source of Products to be tested/inspected.

c. To facilitate tests/inspections.

d. To provide storage and curing of test samples.

4. Notify Consultant and laboratory 24 hours prior to expected time for operations requiring testing/inspection services.

5. Employ services of an independent qualified testing laboratory and pay for additional samples, tests, and inspections required by Contractor beyond specified requirements.

6. Arrange with Owner's agency and pay for additional samples, tests, and inspections required by Contractor beyond specified requirements.

E. Re-testing required because of non-conformance to specified requirements shall be performed by the same agency on instructions by Consultant.

F. Re-testing required because of non-conformance to specified requirements shall be paid for by Contractor. Payment for re testing will be charged to the Contractor by deducting testing charges from the Contract Price.

3.05 MANUFACTURERS' FIELD SERVICES

A. When specified in individual specification sections, require material or product suppliers or manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces and installation, quality of workmanship, start-up of equipment, test, adjust and balance of equipment as applicable, and to initiate instructions when necessary.

B. Submit qualifications of observer to Consultant 30 days in advance of required observations.

1. Observer subject to approval of Consultant.

2. Observer subject to approval of Owner.

C. Report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers' written instructions.

3.06 DEFECT ASSESSMENT

A. Replace Work or portions of the Work not conforming to specified requirements.

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Temporary telecommunications services.

B. Temporary sanitary facilities.

C. Temporary Controls: Barriers, enclosures, and fencing.

D. Security requirements.

E. Vehicular access and parking.

F. Waste removal facilities and services.

G. Project identification sign.

H. Field offices.

1.02 RELATED REQUIREMENTS

A. Section 01 5100 - Temporary Utilities.

1.03 REFERENCE STANDARDS

A. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2015a.

1.04 TELECOMMUNICATIONS SERVICES

A. Provide, maintain, and pay for telecommunications services to field office at time of project mobilization.

B. Telecommunications services shall include:

1. Windows-based personal computer dedicated to project telecommunications, with necessary software and laser printer.

2. Telephone Land Lines: One line, minimum; one handset per line.

    a. Cell phone service with voice mail for the project superintendent is an acceptable alternative to a fixed telephone device for this project.

3. Internet Connections: Minimum of one; DSL modem or faster.

4. Email: Account/address reserved for project use.

5. Facsimile Service: Minimum of one dedicated fax machine/printer, with dedicated phone line.

    a. This service may reside at the Contractor's office for this project if someone in the office can regularly check the device for messages.

C. Provide a digital camera at the site capable of taking pictures of job conditions and sending.jpg images via e-mail to Owner and Architect.

1.05 TEMPORARY SANITARY FACILITIES

A. Provide and maintain required facilities and enclosures. Provide at time of project mobilization.

B. Maintain daily in clean and sanitary condition.

1.06 BARRIERS

A. Provide barriers to protect workers on the site and the public against injury.

B. Provide barriers to prevent unauthorized entry to construction areas, to prevent access to areas that could be hazardous to workers or the public, to allow for owner's use of site and to protect existing facilities and adjacent properties from damage from construction operations and demolition.

C. Provide barricades and covered walkways required by governing authorities for public rights-of-way and for public access to existing building.

D. Provide protection for plants designated to remain. Replace damaged plants.

E. Protect non-owned vehicular traffic, stored materials, site, and structures from damage.

F. Traffic Controls: Provide as required to maintain safe working environment for Owner and Contractor personnel using the site.

1.07 TEMPORARY FIRE PROTECTION

A. Provide and maintain necessary facilities and equipment to safeguard Project against Fire Damage.

1.08 FENCING

A. Provide 6 foot high fence around construction site; equip with vehicular and pedestrian gates with locks.

1.09 EXTERIOR ENCLOSURES

A. Provide temporary insulated weather tight closure of exterior openings to accommodate acceptable working conditions and protection for Products, to allow for temporary heating and maintenance of required ambient temperatures identified in individual specification sections, and to prevent entry of unauthorized persons. Provide access doors with self-closing hardware and locks.

1.10 INTERIOR ENCLOSURES

A. Provide temporary partitions and ceilings as indicated to separate work areas from Owner-occupied areas, to prevent penetration of dust and moisture into Owner-occupied areas, and to prevent damage to existing materials and equipment.

B. Construction: Framing and reinforced polyethylene sheet materials with closed joints and sealed edges at intersections with existing surfaces:

1. Maximum flame spread rating of 75 in accordance with ASTM E84.

1.11 SECURITY

A. Provide security and facilities to protect Work, existing facilities, and Owner's operations from unauthorized entry, vandalism, or theft.

B. Coordinate with Owner's security program.

1.12 VEHICULAR ACCESS AND PARKING

A. Comply with regulations relating to use of streets and sidewalks, access to emergency facilities, and access for emergency vehicles.

B. Coordinate access and haul routes with governing authorities and Owner.

C. Provide and maintain access to fire hydrants, free of obstructions.

D. Provide means of removing mud from vehicle wheels before entering streets.

E. Designated existing on-site roads may be used for construction traffic.

F. Provide temporary parking areas to accommodate construction personnel. When site space is not adequate, provide additional off-site parking.

G. Existing parking areas may be used for construction parking.

H. Do not allow vehicle parking on existing pavement.

I. Use designated drop off and delivery areas for short term parking only.

J. Do not use Owner's Parking Lots for overnight vehicle storage.

K. Designate one parking space for Owner and Architect use.

L. Repair existing facilities damaged by use, to original condition.

M. Provide trained and equipped flag persons to regulate traffic when construction operations or traffic encroach on public traffic lanes.

1.13 MATERIAL STORAGE SPACE

A. Maintain within Project Limits in accordance with Architect's and Owner's instructions. Do not block exitways or overload structure.

1.14 WASTE REMOVAL

A. See Section 01 7419 - Construction Waste Management and Disposal, for additional requirements.

B. Encourage the separation of waste materials and sorting and disposal at a local recycling center.

C. Provide waste removal facilities and services as required to maintain the site in clean and orderly condition.

D. Provide containers with lids. Remove trash from site periodically.

E. If materials to be recycled or re-used on the project must be stored on-site, provide suitable non-combustible containers; locate containers holding flammable material outside the structure unless otherwise approved by the authorities having jurisdiction.

F. Open free-fall chutes are not permitted. Terminate closed chutes into appropriate containers with lids.

1.15 PROJECT IDENTIFICATION

A. A project sign is not required for this project.

B. No other signs are allowed without Owner permission except those required by law.

1.16 FIELD OFFICES

A. Office: Weathertight, with lighting, electrical outlets, heating, cooling equipment, and equipped with sturdy furniture and storage space for drawings and all project documents.

B. Provide space for Project meetings, with table and chairs to accommodate 8 persons.

C. Provide office within 15 days from Notice to Proceed, maintain, and remove prior to Substantial Completion or as agreed by Owner.

D. Contractor shall provide a field office, minimum 8’x20’ for Owners Rep: Weathertight, with lighting, electrical outlets, internet, heating, cooling equipment, and equipped with sturdy furniture and storage space for drawings and all project documents. Provide separate keyed lock.

1. Provide space for Project meetings, with table and chairs to accommodate 8 persons.

2. Provide office within 15 days from Notice to Proceed, maintain, and remove prior to Substantial Completion or as agreed by Owner.

3. Provide Utilities: power and internet.

1.17 VISITOR PERSONAL PROTECTION EQUIPMENT

A. Provide six sets of Personal Protection Equipment (PPE) for use by official visitors to the project site during construction. Visitor PPE shall include as a minimum, hard hat and protective eye goggles. Provide high visibility garments when moving vehicles are in use on the construction site. Store in Field Office and reserve for use by visitors to the project site.

B. Maintain in good condition through the course of the project and replace equipment that does not meet personal safety requirements.

1.18 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS

A. Remove temporary utilities, equipment, facilities, materials, prior to Date of Substantial Completion inspection.

B. Remove underground installations to a minimum depth of 2 feet. Grade site as indicated.

C. Clean and repair damage caused by installation or use of temporary work.

D. Restore existing facilities used during construction to original condition.

E. Restore new permanent facilities used during construction to specified condition.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Temporary Utilities: Electricity, lighting, heat, ventilation, and water.

1.02 RELATED REQUIREMENTS

A. Section 01 5000 - Temporary Facilities and Controls:

1. Temporary telecommunications services for administrative purposes.

2. Temporary sanitary facilities required by law.

1.03 CONSERVATION

A. It is the Owner's practice to utilize natural resources responsibly. Exercise appropriate energy and water conservation measures at all times.

1.04 TEMPORARY ELECTRICITY

A. Cost of Labor, Material and Energy: By Contractor.

B. Provide power service required from utility source.

C. Provide power outlets for construction operations, with branch wiring and distribution boxes located at each floor. Provide flexible power cords as required.

D. Provide main service disconnect and over-current protection at convenient location and meter.

E. Permanent convenience receptacles may be utilized during construction.

F. Provide adequate distribution equipment, wiring, and outlets to provide single phase branch circuits for power and lighting.

1.05 TEMPORARY LIGHTING FOR CONSTRUCTION PURPOSES

A. Provide and maintain incandescent lighting for construction operations to achieve a minimum lighting level of 2 watt/sq ft.

B. Provide and maintain 1 watt/sq ft lighting to exterior staging and storage areas after dark for security purposes.

C. Provide and maintain 0.25 watt/sq ft H.I.D. lighting to interior work areas after dark for security purposes.

D. Provide branch wiring from power source to distribution boxes with lighting conductors, pigtails, and lamps as required.

E. Maintain lighting and provide routine repairs.

F. Permanent building lighting may be utilized during construction.

1.06 TEMPORARY HEATING

A. Cost of of Labor, Material and Energy: By Contractor.

B. Provide heating devices and heat as needed to maintain specified conditions for construction operations.

C. Maintain minimum ambient temperature of 50 degrees F in areas where construction is in progress, unless indicated otherwise in specifications.

1.07 TEMPORARY COOLING

A. Provide cooling devices and cooling as needed to maintain specified conditions for construction operations.

B. Maintain maximum ambient temperature of 80 degrees F in areas where construction is in progress, unless indicated otherwise in specifications.

1.08 TEMPORARY VENTILATION

A. Existing ventilation equipment may not be used.

1.09 TEMPORARY WATER SERVICE

A. Cost of Labor, Materials, and Water Used: By Contractor.

B. Provide and maintain suitable quality water service for construction operations at time of project mobilization.

C. Connect to existing water source.

1. Exercise measures to conserve water.

D. Extend branch piping with outlets located so water is available by hoses with threaded connections. Provide temporary pipe insulation to prevent freezing.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Prevention of erosion due to construction activities.

B. Prevention of sedimentation of waterways, open drainage ways, and storm and sanitary sewers due to construction activities.

C. Restoration of areas eroded due to insufficient preventive measures.

D. Compensation of Owner for fines levied by authorities having jurisdiction due to non-compliance by Contractor.

1.02 REFERENCE STANDARDS

A. ASTM D4355 - Standard Test Method for Deterioration of Geotextiles by Exposure to Light, Moisture, and Heat in a Xenon Arc Type Apparatus; 2007.

B. ASTM D4491 - Standard Test Methods for Water Permeability of Geotextiles by Permittivity; 1999a (Reapproved 2014).

C. ASTM D4533 - Standard Test Method for Trapezoid Tearing Strength of Geotextiles; 2011.

D. ASTM D4632/D4632M - Standard Test Method for Grab Breaking Load and Elongation of Geotextiles; 2015a.

E. ASTM D4751 - Standard Test Method for Determining Apparent Opening Size of a Geotextile; 2012.

F. ASTM D4873 - Standard Guide for Identification, Storage, and Handling of Geosynthetic Rolls and Samples; 2002 (Reapproved 2009).

1.03 PERFORMANCE REQUIREMENTS

A. Comply with all requirements of state and local jurisdictions for erosion and sedimentation control.

B. Develop and follow an Erosion and Sedimentation Prevention Plan and submit periodic inspection reports.

C. Do not begin clearing, grading, or other work involving disturbance of ground surface cover until applicable permits have been obtained; furnish all documentation required to obtain applicable permits.

1. An erosion control permit is required. The Owner shall apply, pay for, and secure the permit. The contractor shall comply with the construction erosion control permit.

2. Owner will withhold payment to Contractor equivalent to all fines resulting from non-compliance with applicable regulations.

D. Timing: Put preventive measures in place as soon as possible after disturbance of surface cover and before precipitation occurs.

E. Storm Water Runoff: Control increased storm water runoff due to disturbance of surface cover due to construction activities for this project.

1. Prevent runoff into storm and sanitary sewer systems, including open drainage channels, in excess of actual capacity or amount allowed by authorities having jurisdiction, whichever is less.

2. Anticipate runoff volume due to the most extreme short term and 24-hour rainfall events that might occur in 25 years.

F. Erosion On Site: Minimize wind, water, and vehicular erosion of soil on project site due to construction activities for this project.

1. Control movement of sediment and soil from temporary stockpiles of soil.

2. Prevent development of ruts due to equipment and vehicular traffic.

3. If erosion occurs due to non-compliance with these requirements, restore eroded areas at no cost to Owner.

G. Erosion Off Site: Prevent erosion of soil and deposition of sediment on other properties caused by water leaving the project site due to construction activities for this project.

1. Prevent windblown soil from leaving the project site.

2. Prevent tracking of mud onto public roads outside site.

3. Prevent mud and sediment from flowing onto sidewalks and pavements.

4. If erosion occurs due to non-compliance with these requirements, restore eroded areas at no cost to Owner.

H. Sedimentation of Waterways On Site: Prevent sedimentation of waterways on the project site, including rivers, streams, lakes, ponds, open drainage ways, storm sewers, and sanitary sewers.

1. If sedimentation occurs, install or correct preventive measures immediately at no cost to Owner; remove deposited sediments; comply with requirements of authorities having jurisdiction.

2. If sediment basins are used as temporary preventive measures, pump dry and remove deposited sediment after each storm.

I. Sedimentation of Waterways Off Site: Prevent sedimentation of waterways off the project site, including rivers, streams, lakes, ponds, open drainage ways, storm sewers, and sanitary sewers.

1. If sedimentation occurs, install or correct preventive measures immediately at no cost to Owner; remove deposited sediments; comply with requirements of authorities having jurisdiction.

J. Open Water: Prevent standing water that could become stagnant.

K. Maintenance: Maintain temporary preventive measures until permanent measures have been established.

1.04 WORK INCLUDED BUT SPECIFIED ELSEWHERE

A. Erosion control products and construction work within any jurisdictional right-of-way shall conform to the requirments of that jurisdiction, in addition to the requirements herein and those shown on the private improvement drawings.

B. Erosion control products and construction work within the any jurisdictional right-of-way shall conform to the requirments of that jurisdiction, 1990 Standard Specifications for Public Works Construction published by the Oregon Chapter of APWA (Amended in 1996) and to the requirements herein and those shown on the private improvement drawings.

1.05 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Erosion and Sedimentation Control Plan:

1. Submit within 2 weeks after Notice to Proceed.

2. Include:

a. Site plan identifying soils and vegetation, existing erosion problems, and areas vulnerable to erosion due to topography, soils, vegetation, or drainage.

b. Site plan showing grading; new improvements; temporary roads, traffic accesses, and other temporary construction; and proposed preventive measures.

c. Where extensive areas of soil will be disturbed, include storm water flow and volume calculations, soil loss predictions, and proposed preventive measures.

d. Schedule of temporary preventive measures, in relation to ground disturbing activities.

e. Other information required by law.

f. Format required by law is acceptable, provided any additional information specified is also included.

3. Obtain the approval of the Plan by authorities having jurisdiction.

4. Obtain the approval of the Plan by Owner.

C. Certificate: Mill certificate for silt fence fabric attesting that fabric and factory seams comply with specified requirements, signed by legally authorized official of manufacturer; indicate actual minimum average roll values; identify fabric by roll identification numbers.

D. Inspection Reports: Submit report of each inspection; identify each preventive measure, indicate condition, and specify maintenance or repair required and accomplished.

PART 2 PRODUCTS

2.01 MATERIALS

A. Mulch: Use one of the following:

1. Straw or hay.

2. Wood waste, chips, or bark.

3. Erosion control matting or netting.

4. Polyethylene film, where specifically indicated only.

B. Grass Seed For Temporary Cover: Select a species appropriate to climate, planting season, and intended purpose. If same area will later be planted with permanent vegetation, do not use species known to be excessively competitive or prone to volunteer in subsequent seasons.

C. Bales: Air dry, rectangular straw bales.

1. Cross Section: 14 by 18 inches, minimum.

2. Bindings: Wire or string, around long dimension.

D. Bale Stakes: One of the following, minimum 3 feet long:

1. Steel U- or T-section, with minimum mass of 1.33 lb per linear foot.

2. Wood, 2 by 2 inches in cross section.

E. Silt Fence Fabric: Polypropylene geotextile resistant to common soil chemicals, mildew, and insects; non-biodegradable; in longest lengths possible; fabric including seams with the following minimum average roll lengths:

1. Average Opening Size: 30 U.S. Std. Sieve, maximum, when tested in accordance with ASTM D4751.

2. Permittivity: 0.05 sec^-1, minimum, when tested in accordance with ASTM D4491.

3. Ultraviolet Resistance: Retaining at least 70 percent of tensile strength, when tested in accordance with ASTM D4355 after 500 hours exposure.

4. Tensile Strength: 100 lb-f, minimum, in cross-machine direction; 124 lb-f, minimum, in machine direction; when tested in accordance with ASTM D4632/D4632M.

5. Elongation: 15 to 30 percent, when tested in accordance with ASTM D4632/D4632M.

6. Tear Strength: 55 lb-f, minimum, when tested in accordance with ASTM D4533.

7. Color: Manufacturer's standard, with embedment and fastener lines preprinted.

F. Silt Fence Posts: One of the following, minimum 5 feet long:

1. Softwood, 4 by 4 inches in cross section.

G. Gravel: See Section 32 1123 for aggregate.

PART 3 EXECUTION

3.01 EXAMINATION

A. Examine site and identify existing features that contribute to erosion resistance; maintain such existing features to greatest extent possible.

3.02 PREPARATION

A. Schedule work so that soil surfaces are left exposed for the minimum amount of time.

3.03 SCOPE OF PREVENTIVE MEASURES

A. In all cases, if permanent erosion resistant measures have been installed temporary preventive measures are not required.

B. Construction Entrances: Traffic-bearing aggregate surface.

1. Width: As required; 20 feet, minimum.

2. Length: 50 feet, minimum.

3. Provide at each construction entrance from public right-of-way and where noted on drawings.

4. Where necessary to prevent tracking of mud onto right-of-way, provide wheel washing area out of direct traffic lane, with drain into sediment trap or basin.

C. Linear Sediment Barriers: Made of silt fences.

1. Provide linear sediment barriers:

a. Along downhill perimeter edge of disturbed areas, including soil stockpiles.

2. Space sediment barriers with the following maximum slope length upslope from barrier:

a. Slope of Less Than 2 Percent: 100 feet..

b. Slope Between 2 and 5 Percent: 75 feet.

c. Slope Between 5 and 10 Percent: 50 feet.

d. Slope Between 10 and 20 Percent: 25 feet.

e. Slope Over 20 Percent: 15 feet.

D. Storm Drain Curb Inlet Sediment Trap: Protect each curb inlet using one of the following measures:

1. Filter fabric wrapped around hollow concrete blocks blocking entire inlet face area; use one piece of fabric wrapped at least 1-1/2 times around concrete blocks and secured to prevent dislodging; orient cores of blocks so runoff passes into inlet.

2. Straw bale row blocking entire inlet face area; anchor into pavement.

E. Storm Drain Drop Inlet Sediment Traps: As detailed on drawings.

F. Temporary Splash Pads: Stone aggregate over filter fabric; size to suit application; provide at downspout outlets and storm water outlets.

G. Soil Stockpiles: Protect using one of the following measures:

1. Cover with polyethylene film, secured by placing soil on outer edges.

2. Cover with mulch at least 4 inches thickness of pine needles, sawdust, bark, wood chips, or shredded leaves, or 6 inches of straw or hay.

H. Mulching: Use only for areas that may be subjected to erosion for less than 6 months.

1. Wood Waste: Use only on slopes 3:1 or flatter; no anchoring required.

I. Temporary Seeding: Use where temporary vegetated cover is required.

3.04 INSTALLATION

A. Traffic-Bearing Aggregate Surface:

1. Excavate minimum of 6 inches.

2. Place geotextile fabric full width and length, with minimum 12 inch overlap at joints.

3. Place and compact at least 6 inches of 1.5 to 3.5 inch diameter stone.

B. Silt Fences:

1. Store and handle fabric in accordance with ASTM D4873.

2. Where slope gradient is less than 3:1 or barriers will be in place less than 6 months, use nominal 16 inch high barriers with minimum 36 inch long posts spaced at 6 feet maximum, with fabric embedded at least 4 inches in ground.

3. Where slope gradient is steeper than 3:1 or barriers will be in place over 6 months, use nominal 28 inch high barriers, minimum 48 inch long posts spaced at 6 feet maximum, with fabric embedded at least 6 inches in ground.

4. Where slope gradient is steeper than 3:1 and vertical height of slope between barriers is more than 20 feet, use nominal 32 inch high barriers with woven wire reinforcement and steel posts spaced at 4 feet maximum, with fabric embedded at least 6 inches in ground.

5. Install with top of fabric at nominal height and embedment as specified.

6. Do not splice fabric width; minimize splices in fabric length; splice at post only, overlapping at least 18 inches, with extra post.

7. Fasten fabric to wood posts using one of the following:

a. Four nails per post with 3/4 inch diameter flat or button head, 1 inch long, and 14 gage, 0.083 inch shank diameter.

b. Five staples per post with at least 17 gage, 0.0453 inch wire, 3/4 inch crown width and 1/2 inch long legs.

8. Wherever runoff will flow around end of barrier or over the top, provide temporary splash pad or other outlet protection; at such outlets in the run of the barrier, make barrier not more than 12 inches high with post spacing not more than 4 feet.

C. Straw Bale Rows:

1. Install bales in continuous rows with ends butting tightly, with one bale at each end of row turned uphill.

2. Install bales so that bindings are not in contact with the ground.

3. Embed bales at least 4 inches in the ground.

4. Anchor bales with at least two stakes per bale, driven at least 18 inches into the ground; drive first stake in each bale toward the previously placed bale to force bales together.

5. Fill gaps between ends of bales with loose straw wedged tightly.

6. Place soil excavated for trench against bales on the upslope side of the row, compacted.

D. Mulching Over Large Areas:

1. Dry Straw and Hay: Apply 2-1/2 tons per acre; anchor using dull disc harrow or emulsified asphalt applied using same spraying machine at 100 gallons of water per ton of mulch.

2. Wood Waste: Apply 6 to 9 tons per acre.

3. Erosion Control Matting: Comply with manufacturer's instructions.

E. Mulching Over Small and Medium Areas:

1. Dry Straw and Hay: Apply 4 to 6 inches depth.

2. Wood Waste: Apply 2 to 3inches depth.

3. Erosion Control Matting: Comply with manufacturer's instructions.

F. Temporary Seeding:

1. When hydraulic seeder is used, seedbed preparation is not required.

2. When surface soil has been sealed by rainfall or consists of smooth undisturbed cut slopes, and conventional or manual seeding is to be used, prepare seedbed by scarifying sufficiently to allow seed to lodge and germinate.

3. If temporary mulching was used on planting area but not removed, apply nitrogen fertilizer at 1 pound per 1000 sq ft.

4. On soils of very low fertility, apply 10-10-10 fertilizer at rate of 12 to 16 pounds per 1000 sq ft.

5. Incorporate fertilizer into soil before seeding.

6. Apply seed uniformly; if using drill or cultipacker seeders place seed 1/2 to 1 inch deep.

7. Irrigate as required to thoroughly wet soil to depth that will ensure germination, without causing runoff or erosion.

8. Repeat irrigation as required until grass is established.

3.05 MAINTENANCE

A. Inspect preventive measures weekly, within 24 hours after the end of any storm that produces 0.5 inches or more rainfall at the project site, and daily during prolonged rainfall.

B. Repair deficiencies immediately.

C. Silt Fences:

1. Promptly replace fabric that deteriorates unless need for fence has passed.

2. Remove silt deposits that exceed one-third of the height of the fence.

3. Repair fences that are undercut by runoff or otherwise damaged, whether by runoff or other causes.

D. Straw Bale Rows:

1. Promptly replace bales that fall apart or otherwise deteriorate unless need has passed.

2. Remove silt deposits that exceed one-half of the height of the bales.

3. Repair bale rows that are undercut by runoff or otherwise damaged, whether by runoff or other causes.

E. Clean out temporary sediment control structures weekly and relocate soil on site.

F. Place sediment in appropriate locations on site; do not remove from site.

3.06 CLEAN UP

A. Remove temporary measures after permanent measures have been installed, unless permitted to remain by Architect.

B. Clean out temporary sediment control structures that are to remain as permanent measures.

C. Where removal of temporary measures would leave exposed soil, shape surface to an acceptable grade and finish to match adjacent ground surfaces.

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Construction procedures to promote adequate indoor air quality after construction.

B. Building flush-out after construction and before occupancy.

C. Testing indoor air quality after completion of construction.

1.02 PROJECT GOALS

A. Dust and Airborne Particulates: Prevent deposition of dust and other particulates in HVAC ducts and equipment.

1. Cleaning of ductwork is not contemplated under this Contract.

2. Contractor shall bear the cost of cleaning required due to failure to protect ducts and equipment from construction dust.

B. Airborne Contaminants: Procedures and products have been specified to minimize indoor air pollutants.

1. Furnish products meeting the specifications.

2. Avoid construction practices that could result in contamination of installed products leading to indoor air pollution.

1.03 RELATED REQUIREMENTS

A. Section 01 4000 - Quality Requirements: Testing and inspection services.

B. Section 01 6116 - Volatile Organic Compound (VOC) Content Restrictions.

1.04 REFERENCE STANDARDS

A. ASTM D5197 - Standard Test Method for Determination of Formaldehyde and Other Carbonyl Compounds in Air (Active Sampler Methodology); 2009.

B. CAL (CDPH SM) - Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions From Indoor Sources Using Environmental Chambers; California Department of Public Health; v1.1, 2010.

C. EPA 600/4-90/010 - Compendium of Methods for the Determination of Air Pollutants in Indoor Air; April 1990.

D. EPA 625/R-96/010b - Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air; January 1999.

E. SMACNA (OCC) - IAQ Guidelines for Occupied Buildings Under Construction; 2007.

1.05 DEFINITIONS

A. Adsorptive Materials: Gypsum board, acoustical ceiling tile and panels, carpet and carpet tile, fabrics, fibrous insulation, and other similar products.

B. Contaminants: Gases, vapors, regulated pollutants, airborne mold and mildew, and the like, as specified.

C. Particulates: Dust, dirt, and other airborne solid matter.

D. Wet Work: Concrete, plaster, coatings, and other products that emit water vapor or volatile organic compounds during installation, drying, or curing.

1.06 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Indoor Air Quality Management Plan: Describe in detail measures to be taken to promote adequate indoor air quality upon completion; use SMACNA (OCC) as a guide.

1. Submit not less than 60 days before enclosure of building.
2. Identify potential sources of odor and dust.
3. Identify construction activities likely to produce odor or dust.
4. Identify areas of project potentially affected, especially occupied areas.
5. Evaluate potential problems by severity and describe methods of control.
6. Describe construction ventilation to be provided, including type and duration of ventilation, use of permanent HVAC systems, types of filters and schedule for replacement of filters.
7. Describe cleaning and dust control procedures.

C. Air Contaminant Test Plan: Identify:

1. Testing agency qualifications.
2. Locations and scheduling of air sampling.
3. Test procedures, in detail.
4. Test instruments and apparatus.
5. Sampling methods.

D. Air Contaminant Test Reports: Show:

1. Location where each sample was taken, and time.
2. Test values for each air sample; average the values of each set of 3.
3. HVAC operating conditions.
4. Certification of test equipment calibration.
5. Other conditions or discrepancies that might have influenced results.

PART 2 PRODUCTS

2.01 MATERIALS

A. Low VOC Materials: See Section 01 6116.

B. Low VOC Materials: See individual sections for specific requirements for materials with low VOC content.

PART 3 EXECUTION

3.01 CONSTRUCTION PROCEDURES

A. Prevent the absorption of moisture and humidity by adsorptive materials by:

1. Sequencing the delivery of such materials so that they are not present in the building until wet work is completed and dry.

2. Delivery and storage of such materials in fully sealed moisture-impermeable packaging.

3. Provide sufficient ventilation for drying within reasonable time frame.

B. Begin construction ventilation when building is substantially enclosed.

C. If extremely dusty or dirty work must be conducted inside the building, shut down HVAC systems for the duration; remove dust and dirt completely before restarting systems.

D. HVAC equipment and ductwork may NOT be used for ventilation during construction:

1. Provide temporary ventilation equivalent to 1.5 air changes per hour, minimum.

2. Exhaust directly to outside.

3. Seal HVAC air inlets and outlets immediately after duct installation.

E. Do not store construction materials or waste in mechanical or electrical rooms.

F. Prior to use of return air ductwork without intake filters clean up and remove dust and debris generated by construction activities.

1. Inspect duct intakes, return air grilles, and terminal units for dust.

2. Clean plenum spaces, including top sides of lay-in ceilings, outsides of ducts, tops of pipes and conduit.

3. Clean tops of doors and frames.

4. Clean mechanical and electrical rooms, including tops of pipes, ducts, and conduit, equipment, and supports.

5. Clean return plenums of air handling units.

6. Remove intake filters last, after cleaning is complete.

G. Do not perform dusty or dirty work after starting use of return air ducts without intake filters.

H. Use other relevant recommendations of SMACNA (OCC) for avoiding unnecessary contamination due to construction procedures.

3.02 BUILDING FLUSH-OUT

A. Contractor's Option: Either full continuous flush-out OR satisfactory air contaminant testing is required, not both.

B. Perform building flush-out before occupancy.

C. Do not start flush-out until:

1. All construction is complete.

2. HVAC systems have been tested, adjusted, and balanced for proper operation.

3. Inspection of inside of return air ducts and terminal units confirms that cleaning is not necessary.

4. New HVAC filtration media have been installed.

D. Building Flush-Out: Operate all ventilation systems at normal flow rates with 100 percent outside air until a total air volume of 14,000 cubic feet per square foot of floor area has been supplied.

1. Obtain Owner's concurrence that construction is complete enough before beginning flush-out.

2. Maintain interior temperature of at least 60 degrees F and interior relative humidity no higher than 60 percent.

3. If additional construction involving materials that produce particulates or any of the specified contaminants is conducted during flush-out, start flush-out over.

4. If interior spaces must be occupied prior to completion of the flush-out, supply a minimum of 25 percent of the total air volume prior to occupancy, and:

a. Begin ventilation at least three hours prior to daily occupancy.

b. Continue ventilation during all occupied periods.

c. Provide minimum outside air volume of 0.30 cfm per square foot or design minimum outside air rate, whichever is greater.

E. Install new HVAC filtration media after completion of flush-out and before occupancy or further testing.

3.03 AIR CONTAMINANT TESTING

A. Contractor's Option: Either full continuous flush-out OR satisfactory air contaminant testing is required, not both.

B. Perform air contaminant testing before occupancy.

C. Do not start air contaminant testing until:

1. All construction is complete, including interior finishes.

2. HVAC systems have been tested, adjusted, and balanced for proper operation.

3. New HVAC filtration media have been installed.

D. Indoor Air Samples: Collect from spaces representative of occupied areas:

1. Collect samples while operable windows and exterior doors are closed, HVAC system is running normally as if occupied, with design minimum outdoor air, but with the building unoccupied.

2. Collect samples from spaces in each contiguous floor area in each air handler zone, but not less than one sample per 25,000 square feet; take samples from areas having the least ventilation and those having the greatest presumed source strength.

3. Collect samples from height from 36 inches to 72 inches above floor.

4. Collect samples from same locations on 3 consecutive days during normal business hours; average the results of each set of 3 samples.

5. Exception: Areas with normal very high outside air ventilation rates, such as laboratories, do not need to be tested.

6. When retesting the same building areas, take samples from at least the same locations as in first test.

E. Outdoor Air Samples: Collect samples at outside air intake of each air handler at the same time as indoor samples are taken.

F. Analyze air samples and submit report.

G. Air Contaminant Concentration Limits:

1. Formaldehyde: Not more than 27 parts per billion.

2. PM10 Particulates: Not more than 50 micrograms per cubic meter.

3. Total Volatile Organic Compounds (TVOCs): Not more than 500 micrograms per cubic meter.

4. Chemicals Listed in CAL (CDPH SM) Table 4-1, except Formaldehyde: Allowable concentrations listed in Table 4-1.

5. Carbon Monoxide: Not more than 9 parts per million and not more than 2 parts per million higher than outdoor air.

H. Air Contaminant Concentration Test Methods:

1. Formaldehyde: ASTM D5197, EPA 625 Method TO-11A, or EPA 600 Method IP-6.

2. Particulates: EPA 600 Method IP-10.

3. Total Volatile Organic Compounds (TVOC): EPA 625 Method TO-1, TO-15, or TO-17; or EPA 600 Method IP-1.

4. Chemicals Listed in CAL (CDPH SM) Table 4-1, except Formaldehyde: ASTM D5197, or EPA 625 Method TO-1, TO-15, or TO-17.

5. Carbon Monoxide: EPA 600 Method IP-3, plus measure outdoor air; measure in ppm; report both indoor and outdoor measurements.

I. Air Contaminant Concentration Determination and Limits:

1. Carbon Monoxide: Not more than 9 parts per million and not more than 2 parts per million higher than outdoor air.

2. Airborne Mold and Mildew: Measure in relation to outside air; not higher than outside air.

3. Formaldehyde: Not more than 50 parts per billion.

4. Formaldehyde: Measure in micrograms per cubic meter, in relation to outside air; not more than 20 micrograms per cubic meter higher than outside air.

5. Total Volatile Organic Compounds (TVOC): Not more than 500 micrograms per cubic meter.

6. Total Volatile Organic Compounds (TVOC): Measure in micrograms per cubic meter, in relation to outside air; not more than 200 micrograms per cubic meter higher than outside air.

7. Particulates (PM10): Not more than 50 micrograms per cubic meter.

8. Total Particulates (PM): Measure in micrograms per cubic meter, in relation to outside air; not more than 20 micrograms per cubic meter higher than outside air.

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. General product requirements.

B. Re-use of existing products.

C. Transportation, handling, storage and protection.

D. Product option requirements.

E. Substitution limitations and procedures.

F. Procedures for Owner-supplied products.

G. Maintenance materials, including extra materials, spare parts, tools, and software.

1.02 RELATED REQUIREMENTS

A. Document 00 2113 - Instructions to Bidders: Product options and substitution procedures prior to bid date.

B. Section 01 4000 - Quality Requirements: Product quality monitoring.

C. Section 01 6023 - Substitution Request Form

D. Section 01 6116 - Volatile Organic Compound (VOC) Content Restrictions: Requirements for VOC-restricted product categories.

E. Section 01 7419 - Construction Waste Management and Disposal: Waste disposal requirements potentially affecting packaging and substitutions.

1.03 REFERENCE STANDARDS

A. GEI (SCH) - GREENGUARD "Children and Schools" Certified Products; GREENGUARD Environmental Institute; current listings at www.greenguard.org.

B. GreenSeal GS-36 - Commercial Adhesives; Green Seal, Inc.; 2000.

C. SCAQMD 1168 - South Coast Air Quality Management District Rule No.1168; current edition; www.aqmd.gov

1.04 SUBMITTALS

A. Proposed Products List: Submit list of major products that comply with the specifications and are proposed for use, with name of manufacturer, trade name, and model number of each product.

1. Submit within 15 days after date of Subcontract Award Notice.

2. For products specified only by reference standards, list applicable reference standards.

B. Product Data Submittals: Submit manufacturer's standard published data. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this Project.

C. Shop Drawing Submittals: Prepared specifically for this Project; indicate utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.

D. Sample Submittals: Illustrate functional and aesthetic characteristics of the product, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.

1. For selection from standard finishes, submit samples of the full range of the manufacturer's standard colors, textures, and patterns.

PART 2 PRODUCTS

2.01 EXISTING PRODUCTS

A. Do not use materials and equipment removed from existing premises unless specifically required or permitted by the Contract Documents.

B. Unforeseen historic items encountered remain the property of the Owner; notify Owner promptly upon discovery; protect, remove, handle, and store as directed by Owner.

C. Existing materials and equipment indicated to be removed, but not to be re-used, relocated, reinstalled, delivered to the Owner, or otherwise indicated as to remain the property of the Owner, become the property of the Contractor; remove from site.

D. Reused Products: Reused products include materials and equipment previously used in this or other construction, salvaged and refurbished as specified.

2.02 NEW PRODUCTS

A. Provide new products unless specifically required or permitted by the Contract Documents.

2.03 PRODUCT OPTIONS

A. Products Specified by Reference Standards or by Description Only: Use any product meeting those standards or description.

B. Products Specified by Naming One or More Manufacturers: Use a product of one of the manufacturers named and meeting specifications, no options or substitutions allowed.

C. Products Specified by Naming One or More Manufacturers with a Provision for Substitutions: Submit a request for substitution for any manufacturer not named.

2.04 MAINTENANCE MATERIALS

A. Furnish extra materials, spare parts, tools, and software of types and in quantities specified in individual specification sections.

PART 3 EXECUTION

3.01 SUBSTITUTION PROCEDURES

A. Instructions to Bidders specifies process and time restrictions for submitting requests for substitutions during the bidding period. Comply with requirements specified in that section.

B. Substitutions may be considered when a product becomes unavailable through no fault of the Contractor.

C. Document each request on Form 01-6023 with complete data substantiating compliance of proposed substitution with Contract Documents. **Include a point by point comparative analysis in matrix form.**

D. Substitutions

1. Notify Architect when Contractor is aware of materials, equipment, or products that meet the aesthetic and programmatic intent of Contract Documents, but which are more environmentally responsible than materials, equipment, or products specified or indicated in the Contract Documents.

E. A request for substitution constitutes a representation that the submitter:

1. Has investigated proposed product and determined that it meets or exceeds the quality level of the specified product.

2. Agrees to provide the same warranty for the substitution as for the specified product.

3. Agrees to coordinate installation and make changes to other Work that may be required for the Work to be complete with no additional cost to Owner.

4. Waives claims for additional costs or time extension that may subsequently become apparent.

F. Substitutions will not be allowed post bid.

G. Each request for substitution approval shall include:

1. Identity of Product for which substitution is requested; include Specification Section.

2. Identity of substitution; include complete Product description, drawings, photographs, performance and test data, and any other information necessary for evaluation.

3. ~~Identify compliance with any described LEED product requirements~~.

4. Quality comparison of proposed substitution with specified product.

5. Changes in other Work required because of substitution.

6. Effect on construction progress schedule.

7. Cost of proposed substitution compared with specified product.

8. Any required license fees or royalties.

9. Availability of maintenance service.

10. Source of replacement materials.

H. Architect will be sole judge of acceptability of any proposed substitution.

3.02 SUBSTITUTIONS AFTER CONTRACT AWARD

A. Approval will be granted only when:

1. Specified Product cannot be delivered without Project delay, or
2. Specified Product has been discontinued, or
3. Specified Product has been replaced by superior Product, or
4. Specified Product cannot be guaranteed as specified, or
5. Specified Product will not perform properly, or
6. Specified Product will not fit within designated space, or
7. Specified Product does not comply with governing codes, or
8. Substitution will be clearly in Owner's interest.

B. Architect will issue Change Order authorizing approved substitutions and revising Contract Sum where appropriate.

3.03 CONTRACT COMPLIANCE

A. Substitution approval does not relieve Contractor from responsibility for proper execution of the Work and for compliance with other Contract requirements.

3.04 OWNER-SUPPLIED PRODUCTS

A. See Section 01 1000 for identification of Owner-supplied products.

B. Owner's Responsibilities:

1. Arrange for and deliver Owner reviewed shop drawings, product data, and samples, to Contractor.
2. Arrange and pay for product delivery to site.
3. On delivery, inspect products jointly with Contractor.
4. Submit claims for transportation damage and replace damaged, defective, or deficient items.
5. Arrange for manufacturers' warranties, inspections, and service.

C. Contractor's Responsibilities:

1. Review Owner reviewed shop drawings, product data, and samples.

2. Receive and unload products at site; inspect for completeness or damage jointly with Owner.

3. Handle, store, install and finish products.

4. Repair or replace items damaged after receipt.

3.05 TRANSPORTATION AND HANDLING

A. Package products for shipment in manner to prevent damage; for equipment, package to avoid loss of factory calibration.

B. If special precautions are required, attach instructions prominently and legibly on outside of packaging.

C. Coordinate schedule of product delivery to designated prepared areas in order to minimize site storage time and potential damage to stored materials.

D. Transport and handle products in accordance with manufacturer's instructions.

E. Transport materials in covered trucks to prevent contamination of product and littering of surrounding areas.

F. Promptly inspect shipments to ensure that products comply with requirements, quantities are correct, and products are undamaged.

G. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage, and to minimize handling.

H. Arrange for the return of packing materials, such as wood pallets, where economically feasible.

3.06 STORAGE AND PROTECTION

A. Designate receiving/storage areas for incoming products so that they are delivered according to installation schedule and placed convenient to work area in order to minimize waste due to excessive materials handling and misapplication.

B. Store and protect products in accordance with manufacturers' instructions.

C. Store with seals and labels intact and legible.

D. Store sensitive products in weather tight, climate controlled, enclosures in an environment favorable to product.

E. For exterior storage of fabricated products, place on sloped supports above ground.

F. Protect products from damage or deterioration due to construction operations, weather, precipitation, humidity, temperature, sunlight and ultraviolet light, dirt, dust, and other contaminants.

G. Comply with manufacturer's warranty conditions, if any.

H. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of products.

I. Prevent contact with material that may cause corrosion, discoloration, or staining.

J. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.

K. Arrange storage of products to permit access for inspection. Periodically inspect to verify products are undamaged and are maintained in acceptable condition.

END OF SECTION

SUBSTITUTION REQUEST: DATE SUBMITTED _____

1.01 SUBMIT TO: Richard Randleman, Sr. Project Manager, richard.randleman@hmkco.org

1.02 PROJECT: Station 4 Seismic Rehabilitation Project

1.03 SPECIFIED ITEM:

A. SECTION NAME AND NUMBER: _____

B. PRODUCT TYPE AND NAME AND MODEL: _____

C. PARAGRAPH AND PRODUCT DESCRIPTION: _____

1.04 PROPOSED SUBSTITUTION:

A. MANUFACTURER AND MODEL NUMBER(S): _____

B. PRODUCT DESCRIPTION: _____

C. Attached data includes product description, specifications, drawings, photographs, performance, test data and **point by point comparative matrix** adequate for evaluation of request including identification of applicable data portions. Attached data also includes description of changes to Contract Documents the proposed substitution requires for proper installation.

D. It is the responsibility of the requestee to assemble a comparative matrix outlining key elements of proposed substitution.

1.05 UNDERSIGNED CERTIFIES FOLLOWING ITEMS, UNLESS MODIFIED BY ATTACHMENTS, ARE CORRECT:

A. Proposed substitution does not affect dimensions shown on the drawings.

B. Undersigned pays for changes to building design, including engineering design, detailing, and construction costs caused by proposed substitution.

C. Proposed substitution has no adverse effect on other trades, construction schedule, or specified warranty requirements.

D. Maintenance and service parts are available locally or readily obtainable for proposed substitution.

1.06 UNDERSIGNED FURTHER CERTIFIES FUNCTION, APPEARANCE, AND QUALITY OF PROPOSED SUBSTITUTION ARE EQUIVALENT OR SUPERIOR TO SPECIFIED ITEM.

1.07 UNDERSIGNED FURTHER CERTIFIES THAT THE MANUFACTURER OF THE PROPOSED SUBSTITUTION IS AWARE OF THIS SUBSTITUTION REQUEST AND AGREES TO THE STATEMENTS NOTED ABOVE.

1.08 UNDERSIGNED AGREES THAT THE TERMS AND CONDITIONS FOR SUBSTITUTIONS FOUND IN BIDDING DOCUMENTS APPLY TO THIS PROPOSED SUBSTITUTION.

1.09 SUBMITTED BY:

A. PRINT NAME: _____

SIGNATURE:_____

B. FIRM NAME: _____

C. FULL MAILING ADDRESS: _____

City: _____ State: _____ Zip:_____

D. PHONE: _____ E-MAIL: _____

1.10 FOR USE BY ARCHITECT OR ENGINEER

A. APPROVED OR APPROVED AS NOTED BY: _____

B. NOT APPROVED BY: _____

C. RECEIVED TOO LATE: _____

D. REMARKS: _____

E. DATE OF RESPONSE: _____

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Requirement for installer certification that they did not use any non-compliant products.

B. VOC restrictions for product categories listed below under "DEFINITIONS."

C. All products of each category that are installed in the project must comply; Owner's project goals do not allow for partial compliance.

1.02 RELATED REQUIREMENTS

A. Section 01 3000 - Administrative Requirements: Submittal procedures.

C. Section 01 4000 - Quality Requirements: Procedures for testing and certifications.

D. Section 01 5721 - Indoor Air Quality Controls: Procedures and testing.

E. Section 01 6000 - Product Requirements: Fundamental product requirements, substitutions and product options, delivery, storage, and handling.

1.03 DEFINITIONS

A. VOC-Restricted Products: All products of each of the following categories when installed or applied on-site in the building interior:

1. Adhesives, sealants, and sealer coatings.
2. Carpet.
3. Carpet tile.
4. Resilient floor coverings.
5. Paints and coatings.
6. Insulation.
7. Gypsum board.
8. Acoustical ceilings and panels.
9. Cabinet work.
10. Wall coverings.
11. Composite wood and agrifiber products used either alone or as part of another product.
12. Other products when specifically stated in the specifications.

B. Interior of Building: Anywhere inside the exterior weather barrier.

C. Adhesives: All gunnable, trowelable, liquid-applied, and aerosol adhesives, whether specified or not; including flooring adhesives, resilient base adhesives, and pipe jointing adhesives.

D. Sealants: All gunnable, trowelable, and liquid-applied joint sealants and sealant primers, whether specified or not; including firestopping sealants and duct joint sealers.

1.04 REFERENCE STANDARDS

A. CRI (GLP) - Green Label Plus Testing Program - Certified Products; Carpet and Rug Institute; Current Edition.

B. GreenSeal GC-03 - Anti-Corrosive Paints; Green Seal, Inc.; 2007

C. GreenSeal GS-11 - Paints; Green Seal, Inc.; 1993.

D. GreenSeal GS-36 - Commercial Adhesives; Green Seal, Inc.; 2011.

E. SCAQMD 1113 - South Coast Air Quality Management District Rule No.1113; current edition; http://www.aqmd.gov/

F. SCAQMD 1168 - South Coast Air Quality Management District Rule No.1168; current edition; www.aqmd.gov

G. SCS (CPD) - SCS Certified Products; Scientific Certification Systems; current listings at www.scscertified.com

1.05 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Evidence of Compliance: Submit for each different product in each applicable category.

C. Product Data: For each VOC-restricted product used in the project, submit evidence of compliance.

D. Installer Certifications Regarding Prohibited Content: Require each installer of any type of product (not just the products for which VOC restrictions are specified) to certify that either 1) no adhesives, joint sealants, paints, coatings, or composite wood or agrifiber products have been used in the installation of his products, or 2) that such products used comply with these requirements.

PART 2 PRODUCTS

2.01 MATERIALS

A. All Products: Comply with the most stringent of federal, State, and local requirements, or these specifications.

B. Adhesives and Joint Sealants: Provide only products having volatile organic compound (VOC) content not greater than required by South Coast Air Quality Management District Rule No.1168.

1. Definition: This provision applies to gunnable, trowelable, and liquid-applied adhesives, sealants, and sealant primers used anywhere on the interior of the building inside the weather barrier, including duct sealers and fire stopping.

2. ~~LEED:~~ Not Used

3. Certification: Require each installer to certify compliance and submit product data showing product content.

   a. Evidence of Compliance: Acceptable types of evidence are:

      1) Report of laboratory testing performed in accordance with requirements.

      2) Published product data showing compliance with requirements.

      3) Certification by manufacturer that product complies with requirements.

      4) SCAQMD limits for specific product categories:

         a) Architectural ApplicationsVOC Limit g/L less water

            1. Indoor Carpet Adhesives 50

            2. Carpet Pad Adhesives 50

            3. Outdoor Carpet Adhesives 150

            4. Wood Flooring Adhesive 100

            5. Rubber Floor Adhesives 60

            6. Subfloor Adhesives 50

            7. Ceramic Tile Adhesives 65

            8. VCT and Asphalt Tile Adhesives 50

            9. Dry Wall and Panel Adhesives 50

            10. Cove Base Adhesives 50

            11. Multipurpose Construction Adhesives 70

            12. Structural Glazing Adhesives 100

            13. Single Ply Roof Membrane Adhesives 250

         b) Specialty Applications VOC Limits g/L less water

            1. PVC Welding 510

            2. CPVC Welding490

            3. ABS Welding 325

            4. Plastic Cement Welding250

            5. Adhesive Primer for Plastic 550

6. Computer Diskette Manufacturing350
7. Contact Adhesive 80
8. Special Purpose Contact Adhesive250
9. Tire Retread 100
10. Adhesive Primer for Traffic Marking Tape150
11. Structural Wood Member Adhesive140
12. Sheet Applied Rubber Lining Operations850
13. Top and Trim Adhesive250

c) Substrate Specific ApplicationsVOC Limit g/L less water
1. Metal to Metal 30
2. Plastic Foams 50
3. Porous Material (except wood) 50
4. Wood 30
5. Fiberglass 80

d) Sealants VOC Limit g/L less water
1. Architectural 250
2. Marine Deck 760
3. Nonmembrane Roof 300
4. Roadway 250
5. Single-Ply Roof Membrane 450
6. Other 420

e) Sealant Primers VOC Limit g/L less water
1. Architectural Non Porous250
2. Architectural Porous775
3. Modified Bituminous 500
4. Marine Deck 760
5. Other 750

C. Aerosol Adhesives: Provide only products having volatile organic compound (VOC) content not greater than required by GreenSeal GS-36.

1. ~~LEED:~~ Not Used

2. Certification: Require each installer to certify compliance and submit product data showing product content.

    a. Evidence of Compliance: Acceptable types of evidence are:

        1) Current GreenSeal Certification.

        2) Report of laboratory testing performed in accordance with GreenSeal GS-36 requirements.

        3) Published product data showing compliance with requirements.

3. GreenSeal limits for specific product categories:

    a. Aerosol AdhesivesVOC Weight g/L minus water

        1) General purpose mist spray65% VOCs by weight

        2) General purpose web spray55% VOCs by weight

        3) Special purpose aerosol adhesives (all types)70% VOCs by weight

D. Paints and Coatings:

1. Definition: This provision applies to paints and coatings used anywhere on the interior of the building inside the weather barrier, including all primers and sealers.

2. Provide coatings that comply with the most stringent requirements specified in the following:

    a. Architectural Paints and Coatings: Do not exceed VOC content limits established in GreenSeal GS-11.

    b. Anti-Corrosive and Anti-Rust Paints: Do not exceed VOC content limits established in GreenSeal GS-03.

    c. Clear Wood Finishes, Floor Coatings, Stains, Primers and Shellacs: Do not exceed the VOC content limits established in SCAQMD Rule No. 1113.

3. Determination of VOC Content: Testing and calculation in accordance with 40 CFR 59, Subpart D (EPA Method 24), exclusive of colorants added to a tint base and water added at project site; or other method acceptable to authorities having jurisdiction.

4. This provision is applicable to LEED Credit EQ 4.1; submit LEED Prohibited Content Installer Certification Forms and all support material per section 01 35 16.07.

5. Certification: Require each installer to certify compliance and submit product data showing product content.

    a. Evidence of Compliance: Acceptable types of evidence are:

1) Report of laboratory testing performed in accordance with requirements.

2) Published product data showing compliance with requirements.

6. Limits for specific product categories:

a. Architectural paints, coatings and primers applied to interior walls and ceilings per GreenSeal GS-11

1) Flats: 50 g/L

2) Non-Flats: 150 g/L

3) Primers 50 g/L

b. Interior Anti-Corrosive and Anti-rust paints, coatings and primers per GreenSeal GS-03, Anti-Corrosive Paints

1) 250 g/L

c. All other coatings, paints and sealers per SCAQMD Rule #1113, Architectural Coatings

1) Coating CategoryVOC Limit g/L

(a) Bond Breakers 350

(b) Clear Wood Finishes275

(c) Varnish275

(d) Sanding Sealers275

(e) Lacquer275

(f) Clear Brushing Lacquer275

(g) Concrete-Curing Compounds100

(h) Concrete-Curing Compounds For Roadways and Bridges350

(i) Dry-Fog Coatings150

(j) Fire-Proofing Exterior Coatings350

(k) Fire-Retardant Coatings Clear 650

(l) Fire-Retardant Coatings Pigmented 350

(m) Flats50

(n) Floor Coatings50

(o) Graphic Arts (Sign) Coatings 500

(p) Industrial Maintenance (IM) Coatings100

(q) High Temperature IM Coatings 420

(r) Zinc-Rich IM Primers100

(s) Japans/Faux Finishing Coatings350

(t) Magnesite Cement Coatings450

(u) Mastic Coatings300

(v) Metallic Pigmented Coatings500

(w) Multi-Color Coatings250

(x) Nonflat Coatings50

(y) Nonflat High Gloss50

(z) Pigmented Lacquer 275

(aa) Pre-Treatment Wash Primers420

(ab) Primers, Sealers, and Undercoaters100

(ac) Quick-Dry Enamels 50

(ad) Quick-Dry Primers, Sealers, and Undercoaters100

(ae) Recycled Coatings250

(af) Roof Coatings50

(ag) Roof Coatings, Aluminum100

(ah) Roof Primers, Bituminous350

(ai) Rust Preventative Coatings100

(aj) Shellac Clear 730

(ak) Shellac Pigmented 550

(al) Specialty Primers100

(am) Stains100

(an) Stains, Interior 250

(ao) Swimming Pool Coatings Repair340

(ap) Swimming Pool Coatings Other340

(aq) Traffic Coatings100

(ar) Waterproofing Sealers100

(as) Waterproofing Concrete/Masonry Sealers100

(at) Wood Preservatives Below-Ground350

(au) Wood Preservatives- Other 350

(av) Low-Solids Coating 120

E. Carpet and Adhesive: Provide products having VOC content not greater than that required for CRI Green Label Plus certification.

1. Evidence of Compliance: Acceptable types of evidence are:

a. Current Green Label Plus Certification.

b. Report of laboratory testing performed in accordance with requirements.

F. Carpet Tile and Adhesive: Provide products having VOC content not greater than that required for CRI Green Label Plus certification.

1. Evidence of Compliance: Acceptable types of evidence are:

a. Current Green Label Plus Certification.

b. Report of laboratory testing performed in accordance with requirements.

G. Composite Wood and Agrifiber Products and Adhesives Used for Laminating Them: Provide products having no added urea-formaldehyde resins.

1. Evidence of Compliance: Acceptable types of evidence are:

a. Current SCS "No Added Urea Formaldehyde" certification; www.scscertified.com.

b. Published product data showing compliance with requirements.

H. Other Product Categories: Comply with limitations specified elsewhere.

PART 3 EXECUTION

3.01 FIELD QUALITY CONTROL

A. Owner reserves the right to reject non-compliant products, whether installed or not, and require their removal and replacement with compliant products at no extra cost to Owner.

B. Additional costs to restore indoor air quality due to installation of non-compliant products will be borne by Contractor.

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Examination, preparation, and general installation procedures.

B. Requirements for alterations work, including selective demolition, except removal, disposal, and/or remediation of hazardous materials and toxic substances.

C. Requirements for forming openings in existing construction for all work including mechanical and electrical work.

D. Pre-installation meetings.

E. Cutting and patching.

F. Surveying for laying out the work.

G. Cleaning and protection.

H. Starting of systems and equipment.

I. Demonstration and instruction of Owner personnel.

J. Closeout procedures, including Contractor's Correction Punch List, except payment procedures.

K. General requirements for maintenance service.

L. Substantial completion

M. Final Completion

N. Additional fees for delays in completing work

1.02 RELATED REQUIREMENTS

A. Section 01 1000 - Summary: Limitations on working in existing building; continued occupancy; work sequence; identification of salvaged and relocated materials.

B. Section 01 3000 - Administrative Requirements: Submittals procedures, Electronic document submittal service.

C. Section 01 4000 - Quality Requirements: Testing and inspection procedures.

D. Section 01 5000 - Temporary Facilities and Controls: Temporary exterior enclosures.

E. Section 01 5000 - Temporary Facilities and Controls: Temporary interior partitions.

F. Section 01 5100 - Temporary Utilities: Temporary heating, cooling, and ventilating facilities.

G. Section 01 7419 - Construction Waste Management and Disposal: Additional procedures for trash/waste removal, recycling, salvage, and reuse.

H. Section 01 7800 - Closeout Submittals: Project record documents, operation and maintenance data, warranties and bonds.

1.03 REFERENCE STANDARDS

A. NFPA 241 - Standard for Safeguarding Construction, Alteration, and Demolition Operations; 2013.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Survey work: Submit name, address, and telephone number of Surveyor before starting survey work.

1. On request, submit documentation verifying accuracy of survey work.

2. Submit a copy of site drawing signed by the Land Surveyor, that the elevations and locations of the work are in conformance with Contract Documents.

3. Submit surveys and survey logs for the project record.

C. Cutting and Patching: Submit written request in advance of cutting or alteration that affects:

1. Structural integrity of any element of Project.

2. Integrity of weather exposed or moisture resistant element.

3. Efficiency, maintenance, or safety of any operational element.

4. Visual qualities of sight exposed elements.

5. Work of Owner or separate Contractor.

6. Include in request:

a. Identification of Project.

b. Location and description of affected work.

c. Necessity for cutting or alteration.

d. Description of proposed work and products to be used.

e. Effect on work of Owner or separate Contractor.

f. Written permission of affected separate Contractor.

g. Date and time work will be executed.

D. Project Record Documents: Accurately record actual locations of capped and active utilities.

1.05 QUALIFICATIONS

A. For survey work, employ a land surveyor registered in the State in which the Project is located and acceptable to Architect. Submit evidence of Surveyor's Errors and Omissions insurance coverage in the form of an Insurance Certificate.

1.06 PROJECT CONDITIONS

A. Use of explosives is not permitted.

B. Grade site to drain. Maintain excavations free of water. Provide, operate, and maintain pumping equipment.

C. Protect site from puddling or running water. Provide water barriers as required to protect site from soil erosion.

D. Ventilate enclosed areas to assist cure of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors, or gases.

E. Dust Control: Execute work by methods to minimize raising dust from construction operations. Provide positive means to prevent air-borne dust from dispersing into atmosphere and over adjacent property.

1. Provide dust-proof enclosures to prevent entry of dust generated outdoors.

F. Erosion and Sediment Control: Plan and execute work by methods to control surface drainage from cuts and fills, from borrow and waste disposal areas. Prevent erosion and sedimentation.

1. Minimize amount of bare soil exposed at one time.

2. Provide temporary measures such as berms, dikes, and drains, to prevent water flow.

3. Construct fill and waste areas by selective placement to avoid erosive surface silts or clays.

4. Periodically inspect earthwork to detect evidence of erosion and sedimentation; promptly apply corrective measures.

G. Noise Control: Provide methods, means, and facilities to minimize noise produced by construction operations.

1. At All Times: Excessively noisy tools and operations will not be tolerated inside the building at any time of day; excessively noisy includes jackhammers.

2. Outdoors: Limit conduct of especially noisy exterior work to the hours of 8 am to 5 pm.

3. Indoors: Limit conduct of especially noisy interior work to the hours of 6 pm to 7 am.

H. Pest and Rodent Control: Provide methods, means, and facilities to prevent pests and insects from damaging the work.

I. Pollution Control: Provide methods, means, and facilities to prevent contamination of soil, water, and atmosphere from discharge of noxious, toxic substances, and pollutants produced by construction operations. Comply with federal, state, and local regulations.

1.07 COORDINATION

A. Coordinate work of alterations and renovations to expedite completion sequentially and to accommodate occupancy requirements.

B. Coordinate scheduling, submittals, and work of the various sections of the Project Manual to ensure efficient and orderly sequence of installation of interdependent construction elements, with provisions for accommodating items installed later.

C. Notify affected utility companies and comply with their requirements.

D. Verify that utility requirements and characteristics of new operating equipment are compatible with building utilities. Coordinate work of various sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.

E. Coordinate space requirements, supports, and installation of mechanical and electrical work that are indicated diagrammatically on Drawings. Follow routing shown for pipes, ducts, and conduit, as closely as practicable; place runs parallel with lines of building. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.

F. In finished areas except as otherwise indicated, conceal pipes, ducts, and wiring within the construction. Coordinate locations of fixtures and outlets with finish elements.

G. Coordinate completion and clean-up of work of separate sections.

H. After Owner occupancy of premises, coordinate access to site for correction of defective work and work not in accordance with Contract Documents, to minimize disruption of Owner's activities.

1.08 CONTRACTOR'S FULL TIME SUPERVISION OF THE WORK

A. Contractor shall provide an on-site project superintendent to be present full time whenever work is occurring on site.

B. Contractor's Superintendent shall maintain a Daily Log of work activities at the site during construction.

1. Submit copies of the Daliy Logs to the Owner on a weekly basis.

PART 2 PRODUCTS

2.01 PATCHING MATERIALS

A. New Materials: As specified in product sections; match existing products and work for patching and extending work.

B. Type and Quality of Existing Products: Determine by inspecting and testing products where necessary, referring to existing work as a standard.

C. Product Substitution: For any proposed change in materials, submit request for substitution described in Section 01 6000 - Product Requirements.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that existing site conditions and substrate surfaces are acceptable for subsequent work. Start of work means acceptance of existing conditions.

B. Verify that existing substrate is capable of structural support or attachment of new work being applied or attached.

C. Examine and verify specific conditions described in individual specification sections.

D. Take field measurements before confirming product orders or beginning fabrication, to minimize waste due to over-ordering or misfabrication.

E. Verify that utility services are available, of the correct characteristics, and in the correct locations.

F. Prior to Cutting: Examine existing conditions prior to commencing work, including elements subject to damage or movement during cutting and patching. After uncovering existing work, assess conditions affecting performance of work. Beginning of cutting or patching means acceptance of existing conditions.

3.02 PREPARATION

A. Clean substrate surfaces prior to applying next material or substance.

B. Seal cracks or openings of substrate prior to applying next material or substance.

C. Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying any new material or substance in contact or bond.

3.03 PREINSTALLATION MEETINGS

A. When required in individual specification sections, convene a preinstallation meeting at the site prior to commencing work of the section.

B. Require attendance of parties directly affecting, or affected by, work of the specific section.

C. Notify Architect seven days in advance of meeting date.

D. Prepare agenda and preside at meeting:

1. Review conditions of examination, preparation and installation procedures.

2. Review coordination with related work.

E. Record minutes and distribute copies within two days after meeting to participants, with two copies to Architect, Owner, participants, and those affected by decisions made.

3.04 LAYING OUT THE WORK

A. Verify locations of survey control points prior to starting work.

B. Promptly notify Architect of any discrepancies discovered.

C. Protect survey control points prior to starting site work; preserve permanent reference points during construction.

D. Promptly report to Architect the loss or destruction of any reference point or relocation required because of changes in grades or other reasons.

E. Replace dislocated survey control points based on original survey control. Make no changes without prior written notice to Architect.

F. Utilize recognized engineering survey practices.

G. Establish elevations, lines and levels. Locate and lay out by instrumentation and similar appropriate means:

1. Site improvements including pavements; stakes for grading, fill and topsoil placement; utility locations, slopes, and invert elevations.

2. Grid or axis for structures.

3. Building foundation, column locations, ground floor elevations.

H. Periodically verify layouts by same means.

I. Maintain a complete and accurate log of control and survey work as it progresses.

3.05 GENERAL INSTALLATION REQUIREMENTS

A. Install products as specified in individual sections, in accordance with manufacturer's instructions and recommendations, and so as to avoid waste due to necessity for replacement.

B. Make vertical elements plumb and horizontal elements level, unless otherwise indicated.

C. Install equipment and fittings plumb and level, neatly aligned with adjacent vertical and horizontal lines, unless otherwise indicated.

D. Make consistent texture on surfaces, with seamless transitions, unless otherwise indicated.

E. Make neat transitions between different surfaces, maintaining texture and appearance.

3.06 ALTERATIONS

A. The stability and integrity of the existing structure during demolition and selective demolition shall be maintained at levels generally acceptable within the construction industry by the use of temporary bracing, shoring, and underpinning until the proposed structure modifications are completed. In no case shall the existing structure be allowed to become unsafe during construction.

B. The design, installation, and removal of shoring and bracing systems required to provide temporary support of the existing structure during construction shall be the responsibility of the Contractor and shall be designed to support the dead, live, soil, earthquake, and wind loads that may be imposed on the structure during construction in accordance with industry standards and generally accepted engineering principals. Provide the services of a registered professional engineer to design these systems when required by Oregon State Statute and the building code.

C. Drawings showing existing construction and utilities are based on casual field observation and existing record documents only.

1. Verify that construction and utility arrangements are as shown.

2. Report discrepancies to Architect before disturbing existing installation.

3. Beginning of alterations work constitutes acceptance of existing conditions.

D. Keep areas in which alterations are being conducted separated from other areas that are still occupied.

1. Provide, erect, and maintain temporary dustproof partitions of construction specified in Section 01 5000 in locations indicated on drawings.

2. Provide appropriate temporary signage including signage for exit or building egress.

E. Maintain weatherproof exterior building enclosure except for interruptions required for replacement or modifications; take care to prevent water and humidity damage.

1. Where openings in exterior enclosure exist, provide construction to make exterior enclosure weatherproof.

2. Insulate existing ducts or pipes that are exposed to outdoor ambient temperatures by alterations work.

F. Comply with regulatory requirements for Alteration Work:

1. Conform to applicable code for demolition work, dust control, products requiring electrical disconnection and re-connection.

2. Obtain required permits from authorities.

3. Do not close or obstruct egress from any building exit or site exit.

4. Do not disable or disrupt building fire or life safety systems without 3 days' prior written notice to Owner.

5. Conform to applicable regulatory procedures when hazardous or contaminated materials are discovered. Stop all work in the area and notify the Owner's representative.

a. Owner will provide verification, abatement, and removal as required to complete the Work.

G. Remove existing work as indicated and as required to accomplish new work.

1. Remove items indicated on drawings.

2. Relocate items indicated on drawings.

3. Where new surface finishes are to be applied to existing work, perform removals, patch, and prepare existing surfaces as required to receive new finish; remove existing finish if necessary for successful application of new finish.

4. Where new surface finishes are not specified or indicated, patch holes and damaged surfaces to match adjacent finished surfaces as closely as possible

H. Services (Including but not limited to HVAC, Plumbing, Fire Protection, Electrical, and Telecommunications): Remove, relocate, and extend existing systems to accommodate new construction.

1. Notify affected utility companies before starting work and comply with their requirements.

2. Mark location and termination of utilities.

3. Maintain existing active systems that are to remain in operation; maintain access to equipment and operational components; if necessary, modify installation to allow access or provide access panel.

4. Do not interrupt existing utilities serving occupied or used facilities, except when authorized in writing by the Owner. Provide temporary services during interruption of existing utilities, as acceptable to the Owner

5. Where existing systems or equipment are not active and Contract Documents require reactivation, put back into operational condition; repair supply, distribution, and equipment as required.

6. Where existing active systems serve occupied facilities but are to be replaced with new services, maintain existing systems in service until new systems are complete and ready for service.

a. Disable existing systems only to make switchovers and connections; minimize duration of outages.

b. Provide temporary connections as required to maintain existing systems in service.

7. Verify that abandoned services serve only abandoned facilities.

8. Remove abandoned pipe, ducts, conduits, and equipment, including those above accessible ceilings; remove back to source of supply where possible, otherwise cap stub and tag with identification; patch holes left by removal using materials specified for new construction.

I. Protect existing work to remain.

1. Prevent movement of structure; provide shoring and bracing if necessary.

2. Perform cutting to accomplish removals neatly and as specified for cutting new work.

3. Repair adjacent construction and finishes damaged during removal work.

4. Cover finish floors to remain.

5. Use only rubber tired vehicles for conveying materials in building.

J. Adapt existing work to fit new work: Make as neat and smooth transition as possible.

1. When existing finished surfaces are cut so that a smooth transition with new work is not possible, terminate existing surface along a straight line at a natural line of division and make recommendation to Architect.

2. Where removal of partitions or walls results in adjacent spaces becoming one, rework floors, walls, and ceilings to a smooth plane without breaks, steps, or bulkheads.

3. Where a change of plane of 1/4 inch or more occurs in existing work, submit recommendation for providing a smooth transition for Architect review and request instructions.

4. Trim existing wood doors as necessary to clear new floor finish. Refinish trim as required.

K. Patching: Where the existing surface is not indicated to be refinished, patch to match the surface finish that existed prior to cutting. Where the surface is indicated to be refinished, patch so that the substrate is ready for the new finish.

L. Refinish existing surfaces as indicated:

1. Where rooms or spaces are indicated to be refinished, refinish all visible existing surfaces to remain to the specified condition for each material, with a neat transition to adjacent finishes.

2. If mechanical or electrical work is exposed accidentally during the work, re-cover and refinish to match.

M. Clean existing systems and equipment.

N. Remove demolition debris and abandoned items from alterations areas and dispose of off-site; do not burn or bury.

O. Clean remaining structure, equipment and facilities of all dirt, dust, and debris caused by demolition work. Return areas to conditions existing prior to the start of the work.

P. Do not begin new construction in alterations areas before demolition is complete.

Q. Comply with all other applicable requirements of this section.

3.07 CUTTING AND PATCHING

A. Whenever possible, execute the work by methods that avoid cutting or patching.

B. See Alterations article above for additional requirements.

C. Perform whatever cutting and patching is necessary to:

1. Complete the work.

2. Fit products together to integrate with other work.

3. Provide openings for penetration of mechanical, electrical, and other services.

4. Match work that has been cut to adjacent work.

5. Repair areas adjacent to cuts to required condition.

6. Repair new work damaged by subsequent work.

7. Remove samples of installed work for testing when requested.

8. Remove and replace defective and non-conforming work.

D. Execute work by methods that avoid damage to other work and that will provide appropriate surfaces to receive patching and finishing. In existing work, minimize damage and restore to original condition.

E. Employ original installer to perform cutting for weather exposed and moisture resistant elements, and sight exposed surfaces.

F. Cut rigid materials using masonry saw or core drill. Pneumatic tools not allowed without prior approval.

G. Restore work with new products in accordance with requirements of Contract Documents.

H. Fit work air tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.

I. At penetrations of fire rated walls, partitions, ceiling, or floor construction, completely seal voids with fire rated material in accordance with Section 07 8400, to full thickness of the penetrated element.

J. Sawcutting:

1. Employ experienced sawcutting contractor to make all holes, or slab and pavement cutting shown in drawings for architectural, structural, mechanical and electrical work.

2. Do not use water saws in occupied areas, unless otherwise approved.

3. Cut openings square and plumb with sharp edges. Minimize overcutting at corners.

4. Verify location of existing utilities in work area and make proper precautions to protect, disconnect and relocate, or terminate services as directed.

K. Patching:

1. Finish patched surfaces to match finish that existed prior to patching. On continuous surfaces, refinish to nearest intersection or natural break. For an assembly, refinish entire unit.

2. Match color, texture, and appearance.

3. Repair patched surfaces that are damaged, lifted, discolored, or showing other imperfections due to patching work. If defects are due to condition of substrate, repair substrate prior to repairing finish.

L. Maintain adequate Temporary Support necessary to assure structural integrity of affected Work.

M. Protect other portions of Project Work against damage and discoloration.

N. Protect Work exposed by cutting against damage and discoloration.

O. Refinish surfaces to match adjacent finish. For continuous surfaces, refinish to nearest intersection or natural break. For an assembly, refinish entire unit.

P. Make neat transitions. Patch work to match adjacent work in texture and appearance. Where new work abuts or aligns with existing, perform a smooth and even transition.

Q. Patch or replace surfaces that are damaged, lifted, discolored, or showing other imperfections due to patching work. Repair substrate prior to patching finish. Finish patches to produce uniform finish and texture over entire area. When finish cannot be matched, refinish entire surface to nearest intersections.

3.08 PROGRESS CLEANING

A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.

B. Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces, and other closed or remote spaces, prior to enclosing the space.

C. Broom and vacuum clean interior areas prior to start of surface finishing, and continue cleaning to eliminate dust.

D. Collect and remove waste materials, debris, and trash/rubbish from site periodically and dispose off-site; do not burn or bury.

3.09 PROTECTION OF INSTALLED WORK

A. Protect installed work from damage by construction operations.

B. Provide special protection where specified in individual specification sections.

C. Provide temporary and removable protection for installed products. Control activity in immediate work area to prevent damage.

D. Provide protective coverings at walls, projections, jambs, sills, and soffits of openings.

E. Protect finished floors, stairs, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet materials.

F. Prohibit traffic or storage upon waterproofed or roofed surfaces. If traffic or activity is necessary, obtain recommendations for protection from waterproofing or roofing material manufacturer.

G. Prohibit traffic from landscaped areas.

H. Remove protective coverings when no longer needed; reuse or recycle plastic coverings if possible.

3.10 SYSTEM STARTUP

A. Coordinate schedule for start-up of various equipment and systems.

B. Notify Architect and owner seven days prior to start-up of each item.

C. Verify that each piece of equipment or system has been checked for proper lubrication, drive rotation, belt tension, control sequence, and for conditions that may cause damage.

D. Verify tests, meter readings, and specified electrical characteristics agree with those required by the equipment or system manufacturer.

E. Verify that wiring and support components for equipment are complete and tested.

F. Execute start-up under supervision of applicable Contractor personnel and manufacturer's representative in accordance with manufacturers' instructions.

G. When specified in individual specification Sections, require manufacturer to provide authorized representative to be present at site to inspect, check, and approve equipment or system installation prior to start-up, and to supervise placing equipment or system in operation.

H. Submit a written report that equipment or system has been properly installed and is functioning correctly.

3.11 DEMONSTRATION AND INSTRUCTION

A. Demonstrate operation and maintenance of products to Owner's personnel two weeks prior to date of Substantial Completion.

B. Demonstrate start-up, operation, control, adjustment, trouble-shooting, servicing, maintenance, and shutdown of each item of equipment at scheduled time, at equipment location.

C. For equipment or systems requiring seasonal operation, perform demonstration for other season within six months.

D. Provide a qualified person who is knowledgeable about the Project to perform demonstration and instruction of owner personnel.

E. Utilize operation and maintenance manuals as basis for instruction. Review contents of manual with Owner's personnel in detail to explain all aspects of operation and maintenance.

F. Prepare and insert additional data in operations and maintenance manuals when need for additional data becomes apparent during instruction.

G. The amount of time required for instruction on each item of equipment and system is that specified in individual sections.

3.12 ADJUSTING

A. Adjust operating products and equipment to ensure smooth and unhindered operation.

B. Testing, adjusting, and balancing HVAC systems: See Section 23 0593 - Testing, Adjusting, and Balancing for HVAC.

3.13 FINAL CLEANING

A. Use cleaning materials that are nonhazardous.

B. Clean interior and exterior glass, surfaces exposed to view; remove temporary labels, stains and foreign substances, polish transparent and glossy surfaces, vacuum carpeted and soft surfaces.

C. Remove all labels that are not permanent. Do not paint or otherwise cover fire test labels or nameplates on mechanical and electrical equipment.

D. Clean equipment and fixtures to a sanitary condition with cleaning materials appropriate to the surface and material being cleaned.

E. Clean interior floors in accordance with flooring manufacturer instructions.

F. Clean filters of operating equipment.

G. Clean debris from roofs, gutters, downspouts, scuppers, overflow drains, area drains, and drainage systems.

H. Clean site; sweep paved areas, rake clean landscaped surfaces.

I. Remove waste, surplus materials, trash/rubbish, and construction facilities from the site; dispose of in legal manner; do not burn or bury.

3.14 CLOSEOUT PROCEDURES

A. Make submittals that are required by governing or other authorities.

B. Accompany Project Coordinator on preliminary inspection to determine items to be listed for completion or correction in the Contractor's Correction Punch List for Contractor's Notice of Substantial Completion.

C. Notify Architect when work is considered ready for Architect's Substantial Completion inspection.

D. Conduct Substantial Completion inspection and create Final Correction Punch List containing Architect's and Contractor's comprehensive list of items identified to be completed or corrected and submit to Architect.

3.15 SUBSTANTIAL COMPLETION

A. Submit written certification that Contract Documents have been reviewed, work has been inspected, and that work is complete in accordance with Contract Documents and ready for Architect's review.

B. Complete all required maintenance work prior to the date of substantial completion.

C. When Contractor considers Work substantially complete, as defined in General Conditions, submit to the Architect:

1. Written notice that Work, or designated portion thereof, is substantially complete.

2. List of Items to be completed or corrected.

3. Copy of Final or Temporary Occupancy Permit.

D. Architect will, as soon as possible thereafter, make an observation visit to the site to determine completion status.

E. Should Architect determine that Work is not substantially complete:

1. Architect will promptly notify Contractor in writing, giving reasons therefore.

2. Contractor shall remedy Work deficiencies, and send second notice of substantial completion to Architect.

3. Architect will review the corrected work.

F. When Architect concurs that Work is substantially complete, Architect will:

1. Prepare Certificate of Substantial Completion, accompanied by Contractor's list of items to be completed or corrected, as verified and amended by Architect.

2. Submit Certificate to Owner and Contractor for their written acceptance of the responsibilities assigned to them in the Certificate.

G. Correct items of work listed in executed Certificates of Substantial Completion and comply with requirements for access to Owner-occupied areas.

H. Notify Architect when work is considered finally complete.

I. Complete items of work determined by Architect's final inspection.

J. See: ***General Conditions of the Contract for Construction*** for additonal requirements.

3.16 FINAL ACCEPTANCE

A. When Contractor considers Work complete, submit written certification that:

1. Contract Documents have been reviewed.

2. Contractor has inspected Work for compliance with Contract Documents.

3. Work has been completed in accordance with Contract Documents.

4. Equipment and Systems have been tested in presence of Owner's Representative and are operational.

5. Work is complete and ready for final inspection.

B. Architect will, as soon as possible thereafter, make an observation visit to the site to determine completion status.

C. Should Architect consider Work incomplete or defective:

1. Architect will promptly notify Contractor in writing, listing incomplete or defective Work.

2. Contractor shall immediately remedy deficiencies, and send second written certification to Architect that Work is complete.

3. Architect will review the corrected Work.

D. When Architect finds Work acceptable under Contract Documents, Architect will request Contractor to make closeout submittals.

E. See: ***General Conditions of the Contract for Construction*** for additonal requirements.

3.17 ADDITIONAL FEES FOR DELAYS IN COMPLETING THE WORK

A. Architect will make 2 visits to the project site, one at Substantial Completion and one at Final Completion.

B. Should Architect be required to make more than the stated 2 final site visits due to Contractor's failure to correct specified deficiencies:

1. Owner will compensate Architect for additional services.

2. Owner will deduct Architect's compensation amount from Contractor's final payment as follows:

a. Principal's time at their contracted hourly rate.

b. Employees' time at their contracted hourly rate.

c. Consultant employees and Others at 1.1 times the direct cost incurred.

d. Charges will be made for necessary travel time, commercial air fare, auto expense computed at current allowable IRS mileage rate, room and board, and all other expenses incurred in making inspections.

END OF SECTION

PART 1 GENERAL

1.01 WASTE MANAGEMENT REQUIREMENTS

A. Owner requires that this project generate the least amount of trash and waste possible.

B. Employ processes that ensure the generation of as little waste as possible due to error, poor planning, breakage, mishandling, contamination, or other factors.

C. Minimize trash/waste disposal in landfills; reuse, salvage, or recycle as much waste as economically feasible.

D. Required Recycling, Salvage, and Reuse: The following may not be disposed of in landfills or by incineration:

1. Aluminum and plastic beverage containers.

2. Corrugated cardboard.

3. Wood pallets.

4. Clean dimensional wood: May be used as blocking or furring.

5. Land clearing debris, including brush, branches, logs, and stumps; see Section 31 1000 - Site Clearing for use options.

6. Metals, including packaging banding, metal studs, sheet metal, structural steel, piping, reinforcing bars, door frames, and other items made of steel, iron, galvanized steel, stainless steel, aluminum, copper, zinc, lead, brass, and bronze.

7. Fluorescent lamps (light bulbs).

E. Contractor shall submit periodic Waste Disposal Reports; all landfill disposal, recycling, salvage, and reuse must be reported regardless of to whom the cost or savings accrues; use the same units of measure on all reports.

F. Contractor shall develop and follow a Waste Management Plan designed to implement these requirements.

G. Methods of trash/waste disposal that are not acceptable are:

1. Burning on the project site.

2. Burying on the project site.

3. Dumping or burying on other property, public or private.

4. Other illegal dumping or burying.

5. Incineration, either on- or off-site.

6. Use of Owner's trash receptacles.

H. Regulatory Requirements: Contractor is responsible for knowing and complying with regulatory requirements, including but not limited to Federal, state and local

requirements, pertaining to legal disposal of all construction and demolition waste materials.

1.02 RELATED REQUIREMENTS

A. Section 01 3000 - Administrative Requirements: Additional requirements for project meetings, reports, submittal procedures, and project documentation.

B. Section 01 5000 - Temporary Facilities and Controls: Additional requirements related to trash/waste collection and removal facilities and services.

C. Section 01 6000 - Product Requirements: Waste prevention requirements related to delivery, storage, and handling.

D. Section 01 7000 - Execution and Closeout Requirements: Trash/waste prevention procedures related to demolition, cutting and patching, installation, protection, and cleaning.

1.03 DEFINITIONS

A. Clean: Untreated and unpainted; not contaminated with oils, solvents, caulk, or the like.

B. Construction and Demolition Waste: Solid wastes typically including building materials, packaging, trash, debris, and rubble resulting from construction, remodeling, repair and demolition operations.

C. Hazardous: Exhibiting the characteristics of hazardous substances, i.e., ignitibility, corrosivity, toxicity or reactivity.

D. Nonhazardous: Exhibiting none of the characteristics of hazardous substances, i.e., ignitibility, corrosivity, toxicity, or reactivity.

E. Nontoxic: Neither immediately poisonous to humans nor poisonous after a long period of exposure.

F. Recyclable: The ability of a product or material to be recovered at the end of its life cycle and remanufactured into a new product for reuse by others.

G. Recycle: To remove a waste material from the project site to another site for remanufacture into a new product for reuse by others.

H. Recycling: The process of sorting, cleansing, treating and reconstituting solid waste and other discarded materials for the purpose of using the altered form. Recycling does not include burning, incinerating, or thermally destroying waste.

I. Return: To give back reusable items or unused products to vendors for credit.

J. Reuse: To reuse a construction waste material in some manner on the project site.

K. Salvage: To remove a waste material from the project site to another site for resale or reuse by others.

L. Sediment: Soil and other debris that has been eroded and transported by storm or well production run-off water.

M. Source Separation: The act of keeping different types of waste materials separate beginning from the first time they become waste.

N. Toxic: Poisonous to humans either immediately or after a long period of exposure.

O. Trash: Any product or material unable to be reused, returned, recycled, or salvaged.

P. Waste: Extra material or material that has reached the end of its useful life in its intended use. Waste includes salvageable, returnable, recyclable, and reusable material.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Submit Waste Management Plan within 10 calendar days after receipt of Notice of Award of Bid, or prior to any trash or waste removal, whichever occurs sooner; submit projection of all trash and waste that will require disposal and alternatives to landfilling.

C. Waste Management Plan: Include the following information:

1. Analysis of the trash and waste projected to be generated during the entire project construction cycle, including types and quantities.

2. Landfill Options: The name, address, and telephone number of the landfill(s) where trash/waste will be disposed of, the applicable landfill tipping fee(s), and the projected cost of disposing of all project trash/waste in the landfill(s).

3. Landfill Alternatives: List all waste materials that will be diverted from landfills by reuse, salvage, or recycling.

D. Waste Disposal Reports: Submit at specified intervals, with details of quantities of trash and waste, means of disposal or reuse, and costs; show both totals to date and since last report.

1. Submit updated Report with each Application for Progress Payment; failure to submit Report will delay payment.

2. Submit Report on a form acceptable to Owner.

3. Landfill Disposal: Include the following information:

a. Identification of material.

b. Amount, in tons or cubic yards, of trash/waste material from the project disposed of in landfills.

c. State the identity of landfills, total amount of tipping fees paid to landfill, and total disposal cost.

d. Include manifests, weight tickets, receipts, and invoices as evidence of quantity and cost.

4. Recycled and Salvaged Materials: Include the following information for each:

a. Identification of material, including those retrieved by installer for use on other projects.

b. Amount, in tons or cubic yards, date removed from the project site, and receiving party.

c. Transportation cost, amount paid or received for the material, and the net total cost or savings of salvage or recycling each material.

d. Include manifests, weight tickets, receipts, and invoices as evidence of quantity and cost.

e. Certification by receiving party that materials will not be disposed of in landfills or by incineration.

5. Material Reused on Project: Include the following information for each:

a. Identification of material and how it was used in the project.

b. Amount, in tons or cubic yards.

c. Include weight tickets as evidence of quantity.

6. Other Disposal Methods: Include information similar to that described above, as appropriate to disposal method.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 WASTE MANAGEMENT PLAN IMPLEMENTATION

A. Manager: Designate an on-site person or persons responsible for instructing workers and overseeing and documenting results of the Waste Management Plan.

B. Spill Response Planning - Establish spill prevention and cleanup procedures. Identify all potential spill areas and develop procedures for avoiding and responding to spills should they occur.

C. Communication: Distribute copies of the Waste Management Plan to job site foreman, each subcontractor, Owner, and Architect.

D. Instruction: Provide on-site instruction of appropriate separation, handling, and recycling, salvage, reuse, and return methods to be used by all parties at the appropriate stages of the project.

E. Meetings: Discuss trash/waste management goals and issues at project meetings.

1. Pre-bid meeting.

2. Pre-construction meeting.

3. Regular job-site meetings.

F. Facilities: Provide specific facilities for separation and storage of materials for recycling, salvage, reuse, return, and trash disposal, for use by all contractors and installers.

1. Provide containers as required.

2. Provide adequate space for pick-up and delivery and convenience to subcontractors.

3. If an enclosed area is not provided, clearly lay out and label a specific area on-site.

4. Keep recycling and trash/waste bin areas neat and clean and clearly marked in order to avoid contamination of materials.

G. Hazardous Wastes: Separate, store, and dispose of hazardous wastes according to applicable regulations.

H. Recycling: Separate, store, protect, and handle at the site identified recyclable waste products in order to prevent contamination of materials and to maximize recyclability of identified materials. Arrange for timely pickups from the site or deliveries to recycling facility in order to prevent contamination of recyclable materials.

I. Reuse of Materials On-Site: Set aside, sort, and protect separated products in preparation for reuse.

J. Salvage: Set aside, sort, and protect products to be salvaged for reuse off-site.

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Project Record Documents.

B. Operation and Maintenance Data.

C. Warranties and bonds.

1.02 RELATED REQUIREMENTS

A. ***Section 00 6000 General Conditions of Construction Contract*** for additonal requirements.

B. Section 01 3000 - Administrative Requirements: Submittals procedures, shop drawings, product data, and samples.

C. Section 01 7000 - Execution and Closeout Requirements: Contract closeout procedures.

D. Individual Product Sections: Specific requirements for operation and maintenance data.

E. Individual Product Sections: Warranties required for specific products or Work.

1.03 SUBMITTALS

A. Substantial Completion will not commence before the Operations and Maintenance Manuals, Warranties, and the Record Drawings are submitted in accordance with Section 01 7000.

B. Project Record Documents: Submit documents to Consultant Prior to Substantial Completion.

C. Operation and Maintenance Data:

1. Submit one paper copy of preliminary draft or proposed formats and outlines of contents before start of Work. Consultant will review draft and return the one copy with comments.

2. For equipment, or component parts of equipment put into service during construction and operated by Owner, submit completed documents within ten days after acceptance.

3. Submit one copy of completed documents 30 days prior to scheduled date of substantial completion.. This copy will be reviewed and returned, with Consultant comments. Revise content of all document sets as required prior to final submission.

4. Submit three digital copy in PDF file format on CD or DVD discs, and three paper sets of revised final documents in final form prior to date of Substantial Completion.

5. Either the draft copy or the final copy of the O&M manuals must be on the project site during any of the operator training scheduled for the project.

D. Warranties and Bonds:

1. For equipment or component parts of equipment put into service during construction with Owner's permission, submit documents within 10 days after acceptance.

2. Make other submittals within 10 days after Date of Substantial Completion, prior to final Application for Payment.

3. For items of Work for which acceptance is delayed beyond Date of Substantial Completion, submit within 10 days after acceptance, listing the date of acceptance as the beginning of the warranty period.

4. Submit three digital copies in PDF file format on CD or DVD discs, and [three] paper sets of final documents prior to date of Substantial Completion.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 PROJECT RECORD DOCUMENTS

A. Maintain on site one set of the following record documents; record actual revisions to the Work:

1. Drawings.

2. Specifications.

3. Addenda.

4. Change Orders and other modifications to the Contract.

B. Maintenance of documents and samples.

1. Store in Contractor's Field Office apart from Documents used for Construction.

2. Provide Files, Shelving and Cabinets necessary to safely and securely store Documents and Samples.

3. Maintain Documents in a clean, dry, legible, and good order.

4. Do not use Record Documents for Construction Purposes.

5. Make Documents available at all time for Consultant's inspection

C. Ensure entries are complete and accurate, enabling future reference by Owner.

D. Store record documents separate from documents used for construction.

E. Record information concurrent with construction progress.

F. Specifications: Legibly mark and record at each product section description of actual products installed, including the following:

1. Manufacturer's name and product model and number.

2. Product substitutions or alternates utilized.

3. Changes made by Addenda and modifications.

G. Record Drawings: Legibly mark each item to record actual construction including:

1. Measured depths of foundations in relation to finish first floor datum.

2. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.

3. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.

4. Field changes of dimension and detail.

5. Details not on original Contract drawings.

3.02 OPERATION AND MAINTENANCE DATA

A. Source Data: For each product or system, list names, addresses and telephone numbers of Subcontractors and suppliers, including local source of supplies and replacement parts.

B. Product Data: Mark each sheet to clearly identify specific products and component parts, and data applicable to installation. Delete inapplicable information.

C. Drawings: Supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams. Do not use Project Record Documents as maintenance drawings.

D. Typed Text: As required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions.

3.03 OPERATION AND MAINTENANCE DATA FOR MATERIALS AND FINISHES

A. For Each Product, Applied Material, and Finish:

1. Product data, with catalog number, size, composition, and color and texture designations.

2. Information for re-ordering custom manufactured products.

B. Instructions for Care and Maintenance: Manufacturer's recommendations for cleaning agents and methods, precautions against detrimental cleaning agents and methods, and recommended schedule for cleaning and maintenance.

C. Moisture protection and weather-exposed products: Include product data listing applicable reference standards, chemical composition, and details of installation. Provide recommendations for inspections, maintenance, and repair.

D. Additional information as specified in individual product specification sections.

E. Where additional instructions are required, beyond the manufacturer's standard printed instructions, have instructions prepared by personnel experienced in the operation and maintenance of the specific products.

F. Provide a listing in Table of Contents for design data, with tabbed fly sheet and space for insertion of data.

3.04 OPERATION AND MAINTENANCE DATA FOR EQUIPMENT AND SYSTEMS

A. In addition to requirements called for in other sections of this manual, provide the following:

B. For Each Item of Equipment and Each System:

1. Description of unit or system, and component parts.

2. Identify function, normal operating characteristics, and limiting conditions.

3. Include performance curves, with engineering data and tests.

4. Complete nomenclature and model number of replaceable parts.

C. Where additional instructions are required, beyond the manufacturer's standard printed instructions, have instructions prepared by personnel experienced in the operation and maintenance of the specific products.

D. Panelboard Circuit Directories: Provide electrical service characteristics, controls, and communications; typed.

E. Include color coded wiring diagrams as installed.

F. Operating Procedures: Include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shut-down, and emergency instructions. Include summer, winter, and any special operating instructions.

G. Maintenance Requirements: Include routine procedures and guide for preventative maintenance and trouble shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.

H. Provide servicing and lubrication schedule, and list of lubricants required.

I. Include manufacturer's printed operation and maintenance instructions.

J. Include sequence of operation by controls manufacturer.

K. Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.

L. Provide control diagrams by controls manufacturer as installed.

M. Provide Contractor's coordination drawings, with color coded piping diagrams as installed.

N. Provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.

O. Provide list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.

P. Include test and balancing reports.

3.05 ASSEMBLY OF OPERATION AND MAINTENANCE MANUALS

A. Assemble operation and maintenance data into durable manuals for Owner's personnel use, with data arranged in the same sequence as, and identified by, the specification sections.

B. Where systems involve more than one specification section, provide separate tabbed divider for each system.

C. Prepare instructions and data by personnel experienced in maintenance and operation of described products.

D. Prepare data in the form of an instructional manual.

E. Digital O&M Manuals: In addition to binders described below, prepare manuals as PDF documents organized similar to the printed manuals. Copy to one or more properly labeled CD or DVD discs.

1. Searchable PDF files are preferred when possible. Table of Contents and any divider pages in these PDF files must be searchable.

2. Digital copies of O&M Manuals must be organized by section.

F. Paper & 3 Ring Binder O&M Manuals: Binders to be Wilson Jones #344 Series of equivalent, as approved by the Owner. Minimum ring size 1”. When multiple binders are used, correlate data into related consistent groupings. Do not overfill binders.

G. Cover: Identify each binder with typed or printed title OPERATION AND MAINTENANCE INSTRUCTIONS; identify title of Project; identify subject matter of contents.

H. Project Directory: Title and address of Project; names, addresses, and telephone numbers of Consultant, Consultants, Contractor and subcontractors, with names of responsible parties.

I. Tables of Contents: List every item separated by a divider, using the same identification as on the divider tab; where multiple volumes are required, include all volumes Tables of Contents in each volume, with the current volume clearly identified.

J. Dividers: Provide tabbed dividers for each separate product and system; identify the contents on the divider tab; immediately following the divider tab include a description of product and major component parts of equipment.

K. Text: Manufacturer's printed data, or typewritten data on 24 pound paper.

L. Drawings: Provide with reinforced punched binder tab. Bind in with text; fold larger drawings to size of text pages.

M. Arrangement of Contents: Organize each volume in parts as follows:

1. Project Directory.

2. Table of Contents, of all volumes, and of this volume.

3. Operation and Maintenance Data: Arranged by system, then by product category.

a. Source data.

b. Operation and maintenance data.

c. Field quality control data.

d. Original warranties and bonds.

3.06 WARRANTIES AND BONDS

A. Obtain warranties and bonds, executed in duplicate by responsible Subcontractors, suppliers, and manufacturers, within 10 days after completion of the applicable item of work. Except for items put into use with Owner's permission, leave date of beginning of time of warranty until Date of Substantial completion is determined.

B. Verify that documents are in proper form, contain full information, and when required have been are notarized.

C. Co-execute submittals when required.

D. Retain warranties and bonds until time specified for submittal.

E. Manual: Binders to be Wilson Jones #344 Series of equivalent, as approved by the Owner. Minimum ring size 1”. Do not overfill binders.

F. Cover: Identify each binder with typed or printed title WARRANTIES AND BONDS, with title of Project; name, address and telephone number of Contractor and equipment supplier; and name of responsible company principal.

G. Table of Contents: Neatly typed, in the sequence of the Table of Contents of the Project Manual, with each item identified with the number and title of the specification section in which specified, and the name of product or work item.

H. Separate each warranty or bond with index tab sheets keyed to the Table of Contents listing. Provide full information, using separate typed sheets as necessary. List Subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible principal.

3.07 EVIDENCE OF PAYMENTS & RELEASE OF LIENS

A. Contractor shall submit the following:

1. Contractor's Affidavit of Payment of Debts and Claims, AIA Document G-706 or equivilant form.

2. Contractor's Affidavit of Release of Liens, AIA Document G-706A or equivilant form, including the following:

a. Consent of Contractor's Surety to Final Payment, AIA Document G-707, or equivilant form.

b. Contractor's Release or Waiver of Liens.

c. Separate releases or waivers of lien for Subcontractors, Suppliers, and others with lien rights against Owner's Property, together with list of those parties.

3. Duly sign and execute all Submittals, before delivery to Consultant.

3.08 CONTRACTOR'S CLOSEOUT SUBMITTALS TO CONSULTANT

A. Wage Certification: Section 00 7343 and 01 2000.

B. Building Official's Certificate of Mechanical & Electrical Inspections.

C. Building Official's Certificate of Occupancy.

3.09 SPARE PART & MAINTENANCE MATERIAL SUBMITTALS TO OWNER

A. All spare parts and extra material are to be delivered to the owner prior to the date of substantial completion. Provide written confirmation of delivery, noting quantity and description as well as storage location. Obtain written acceptance from Owner for receipt of stored items.

B. Specific Requirements: See Specifications Sections.

C. Products: Identical to those included in Project Work.

D. Storage Location: Where directed by Owner.

E. Required Submittals: See Specification Sections.

3.10 FINAL ADJUSTMENT OF ACCOUNTS

A. Submit final statement of accounting to Consultant, including the following:

1. Original Contract Sum.
2. Additions and deductions resulting from:
    a. Previous Change Orders.
    b. Adjustments to Cash Allowances
    c. Other adjustments.
    d. Deductions for uncompleted Work.
    e. Deductions for Reinspection Payments.
3. Total Contract Sum, as adjusted.
4. Previous Payments.
5. Sum remaining due.

B. Consultant will prepare and issue final Change Order, reflecting approved adjustments to Contract Sum not previously made by Change Orders.

3.11 FINAL APPLICATION FOR PAYMENT

A. Follow procedures specified in Section 01 2000.

END OF SECTION

PART 1 GENERAL

1.01 SUMMARY

A. Demonstration of products and systems to be commissioned and where indicated in specific specification sections.

B. Training of Owner personnel in operation and maintenance is required for:

1. All software-operated systems
2. HVAC systems and equipment
3. Plumbing equipment
4. Electrical systems and equipment
5. Conveying systems
6. Landscape irrigation
7. Items specified in individual product Sections

1.02 RELATED REQUIREMENTS

A. Section 01 7800 - Closeout Submittals: Operation and maintenance manuals

B. Other Specification Sections: Additional requirements for demonstration and training

1.03 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures; except:

1. Make all submittals specified in this section, and elsewhere where indicated for commissioning purposes, directly to the Commissioning Authority
2. Submit one copy to the Commissioning Authority, not to be returned
3. Make commissioning submittals on time schedule specified by Commissioning Authority
4. Submittals indicated as "Draft" are intended for the use of the Commissioning Authority in preparation of overall Training Plan; submit in editable electronic format

B. Draft Training Plans: Owner will designate personnel to be trained; tailor training to needs and skill-level of attendees.

1. Submit to Commissioning Authority for review and inclusion in overall training plan.
2. Submit not less than four weeks prior to start of training.
3. Revise and resubmit until acceptable.
4. Provide an overall schedule showing all training sessions.
5. Include at least the following for each training session:

a. Identification, date, time, and duration.

b. Description of products and/or systems to be covered.

c. Name of firm and person conducting training; include qualifications.

d. Intended audience, such as job description.

e. Objectives of training and suggested methods of ensuring adequate training.

f. Methods to be used, such as classroom lecture, live demonstrations, hands-on, etc.

g. Media to be used, such a slides, hand-outs, etc.

h. Training equipment required, such as projector, projection screen, etc., to be provided by Contractor.

C. Training Manuals: Provide training manual for each attendee; allow for minimum of two attendees per training session.

1. Include applicable portion of O&M manuals.

2. Include copies of all hand-outs, slides, overheads, video presentations, etc., that are not included in O&M manuals.

3. Provide one extra copy of each training manual to be included with operation and maintenance data.

D. Training Reports:

1. Identification of each training session, date, time, and duration.

2. Sign-in sheet showing names and job titles of attendees.

3. List of attendee questions and written answers given, including copies of and references to supporting documentation required for clarification; include answers to questions that could not be answered in original training session.

4. Include Commissioning Authority's formal acceptance of training session.

E. Video Recordings: Submit digital video recording of each demonstration and training session for Owner's subsequent use.

1. Format: DVD Disc.

2. Label each disc and container with session identification and date.

1.04 QUALITY ASSURANCE

A. Instructor Qualifications: Familiar with design, operation, maintenance and troubleshooting of the relevant products and systems.

1. Provide as instructors the most qualified trainer of those contractors and/or installers who actually supplied and installed the systems and equipment.

2. Where a single person is not familiar with all aspects, provide specialists with necessary qualifications.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 DEMONSTRATION - GENERAL

A. Demonstrations conducted during system start-up do not qualify as demonstrations for the purposes of this section, unless approved in advance by Owner.

B. Demonstrations conducted during Functional Testing need not be repeated unless Owner personnel training is specified.

C. Demonstration may be combined with Owner personnel training if applicable.

D. Operating Equipment and Systems: Demonstrate operation in all modes, including start-up, shut-down, seasonal changeover, emergency conditions, and troubleshooting, and maintenance procedures, including scheduled and preventive maintenance.

1. Perform demonstrations not less than two weeks prior to Substantial Completion.

2. For equipment or systems requiring seasonal operation, perform demonstration for other season within six months.

E. Non-Operating Products: Demonstrate cleaning, scheduled and preventive maintenance, and repair procedures.

1. Perform demonstrations not less than two weeks prior to Substantial Completion.

3.02 TRAINING - GENERAL

A. Commissioning Authority will prepare the Training Plan based on draft plans submitted.

B. Conduct training on-site unless otherwise indicated.

C. Owner will provide classroom and seating at no cost to Contractor.

D. Do not start training until Functional Testing is complete, unless otherwise specified or approved by the Commissioning Authority.

E. Provide training in minimum two hour segments.

F. The Commissioning Authority is responsible for determining that the training was satisfactorily completed and will provide approval forms.

G. Training schedule will be subject to availability of Owner's personnel to be trained; re-schedule training sessions as required by Owner; once schedule has been approved by Owner failure to conduct sessions according to schedule will be cause for Owner to charge Contractor for personnel "show-up" time.

H. Review of Facility Policy on Operation and Maintenance Data: During training discuss:

1. The location of the O&M manuals and procedures for use and preservation; backup copies.

2. Typical contents and organization of all manuals, including explanatory information, system narratives, and product specific information.

3. Typical uses of the O&M manuals.

I. Product- and System-Specific Training:

1. Review the applicable O&M manuals.

2. For systems, provide an overview of system operation, design parameters and constraints, and operational strategies.

3. Review instructions for proper operation in all modes, including start-up, shut-down, seasonal changeover and emergency procedures, and for maintenance, including preventative maintenance.

4. Provide hands-on training on all operational modes possible and preventive maintenance.

5. Emphasize safe and proper operating requirements; discuss relevant health and safety issues and emergency procedures.

6. Discuss common troubleshooting problems and solutions.

7. Discuss any peculiarities of equipment installation or operation.

8. Discuss warranties and guarantees, including procedures necessary to avoid voiding coverage.

9. Review recommended tools and spare parts inventory suggestions of manufacturers.

10. Review spare parts and tools required to be furnished by Contractor.

11. Review spare parts suppliers and sources and procurement procedures.

J. Be prepared to answer questions raised by training attendees; if unable to answer during training session, provide written response within three days.

END OF SECTION

Geotechnical Investigation and Site-Specific Seismic-Hazard Study Jackson County Fire District 5 Station #2

Ashland, Oregon

December 15, 2021

Prepared for

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TABLE OF CONTENTS

TABLES

FIGURES

APPENDICES

1 INTRODUCTION

As requested, GRI completed a geotechnical investigation and site-specific seismic hazard study for the seismic retrofit of the existing structure and construction of a building addition at the Jackson County Fire District 5 (JCFD5) Station #2, located at 40 Neil Creek Road in Ashland, Oregon. The Vicinity Map, Figure 1, shows the general location of the site. The purpose of the investigation was to evaluate subsurface conditions at the site and develop geotechnical recommendations for use in the design and construction of the proposed project. The investigation included a review of available subsurface and geologic information, subsurface explorations, laboratory testing, and engineering analyses. As part of our investigation, GRI completed a site-specific seismic-hazard study in accordance with the amended Section 1803 of the 2019 Oregon Structural Specialty Code (OSSC) for essential facility structures (ORS 455.447) and American Society of Civil Engineers (ASCE) 41-17 *Seismic Evaluation and Retrofit of Existing Buildings,* which reference the 2016 ASCE 7-16 document, *Minimum Design Loads and Associated Criteria for Buildings and Other Structures* (ASCE 7-16), for seismic design. This report describes the work accomplished and provides conclusions and recommendations for use in the design and construction of the proposed improvements.

2 PROJECT DESCRIPTION

As currently planned, the existing fire station will be seismically retrofitted and an addition will be constructed. Based on a review of available preliminary plans, we understand the addition will have a footprint of about 1, 850 square feet and will be located on the south and east sides of the existing fire station. Based on the existing building at the site, we anticipate the new fire station will consist of a one-story building constructed with slab-on-grade floors and will not include a basement. Foundation loads are estimated at a maximum column load of approximately 100 kips to 200 kips and wall loads of 4 kips/foot. We understand the planned improvements will be constructed to meet the requirements of the 2019 OSSC. We anticipate cuts and fills required to establish the planned site grades will be less than about 5 feet.

A new 22,000-gallon above-ground water tank will also be constructed within the north area of the property, adjacent to the existing well house. We understand the water tank will be 22 feet in diameter and 8 feet tall. Additional planned improvements will include new water and sanitary sewer lines, asphalt (AC) and portland cement concrete (PCC) pavement. The locations of the proposed improvements are shown on the Site Plan, Figure 2.

3 SITE DESCRIPTION

3.1 Topography

Our review of available topographic maps and a provided site survey indicates the site gently slopes from south to north and ranges from about elevation 2,158 feet on the southern edge to about elevation 2,145 feet (World Geodetic System [WGS] 84) on its northern edge. In general, the site is bordered by residential properties to the north, east, and south and by Neil Creek Road to the west. Station #2 is currently located in the approximate center of the property and is bordered by PCC, AC, and gravel surfacing to the west and south and by grass surfacing to the north and east. Small groups of mature trees cover the property.

3.2 Geology

Published geologic mapping indicates the site is mantled with alluvial fan deposits underlain by sedimentary mudstone, known locally as the Hornbrook Formation (Wiley, 2011). In general, the alluvium is composed of silt, clay, sand, and gravel with cobbles. The Hornbrook Formation consists of mudstone and underlies the alluvium at depths of about 7 feet to 12.5 feet at the site.

4 SUBSURFACE CONDITIONS

4.1 General

Subsurface materials and conditions at the site were investigated on November 1 and 2, 2021, with four borings, designated B-1 through B-4, advanced to depths ranging from 11.5 feet to 30 feet below existing site grades. The approximate boring locations are shown on Figure 2. Logs of the borings are provided on Figures 1A through 4A. One flat-plate dilatometer test (DMT) probe was attempted but was refused due to the relative density and gravel content of the near-surface soil at the site. The field and laboratory programs conducted to evaluate the physical engineering properties of the materials encountered in the borings are described in Appendix A. The terms and symbols used to describe the materials encountered in the borings are defined in Tables 1A and 2A, and on the attached legend.

4.2 Soils

For the purpose of discussion, the materials disclosed by our investigation have been grouped into the following categories based on their physical characteristics and engineering properties and listed as they were encountered below the ground surface:

a. PAVEMENT and Crushed Rock BASE COURSE
b. FILL
c. SAND and GRAVEL (Alluvial Fan Deposits)
d. MUDSTONE (Hornbrook Formation)

The following paragraphs provide a description of the soil units and a discussion of the groundwater conditions at the site.

a. PAVEMENT and Crushed Rock BASE COURSE

Boring B-2 was advanced in the driveway and encountered approximately 3 inches of AC pavement at the ground surface. The AC pavement is underlain by about 5 inches of crushed-rock base (CRB) course. About 8 inches to 12 inches of CRB associated with the access driveways was encountered at the ground surface in the location of borings B-1, B-3, and B-4.

b. FILL

Sand fill was encountered below the pavement and crushed rock sections at the location of borings B-2 and B-3 to depths of about 7 feet and 10.5 feet, respectively. The sand fill is likely associated with site grading and pipe zone backfill. The sand is brown, fine to medium grained, contains variable gravel content ranging from a trace of gravel to gravelly and a trace of silt. Cobbles, wood fragments, and fine roots were encountered in boring B-3 to a depth of about 4 feet. Based on SPT N-values, the relative density of the sand fill is loose to medium dense. Natural moisture contents, fines contents, and other laboratory testing data are provided on Figures 1A through 4A and in Table 3A of Appendix A.

c. SAND and GRAVEL (Alluvial Fan Deposits)

Alluvial sand and sandy gravel were encountered below the pavement section, CRB, or fill in borings B-1, B-2, and B-4 to depths ranging from 7.5 feet to 12.5 feet. The sand is brown to brown mottled rust and contains variable clay and gravel content ranging from some clay to clayey and some gravel to gravelly. The sandy gravel, encountered in boring B-1 between 10 feet and 12.5 feet, is brown and contains some clay. The sand is fine to coarse grained, and the gravel is subrounded to subangular. Based on SPT N-values, the relative density of the sand and gravel alluvium is loose to very dense. Natural moisture contents, fines contents, and other laboratory testing data are provided on Figures 1A through 4A and in Table 3A of Appendix A. Boring B-2 was terminated in alluvial sand at a depth of 11.5 feet.

d. MUDSTONE (Hornbrook Formation)

Mudstone was encountered beneath the alluvial fan deposits in borings B-1 and B-4, and beneath the fill in boring B-3, at depths varying from 7.5 feet to 12.5 feet. The upper 2.5 feet to 5 feet of the mudstone is brown and gray mottled rust to gray, predominantly decomposed to moderately weathered, extremely soft to very soft (R0 to R1), and contains a blocky structure. The decomposed to moderately weathered mudstone resembles gravelly clay. The mudstone becomes gray, slightly weathered to fresh, very soft to soft (R1 to R2), and very thinly to thinly laminated with depth. The mudstone was sampled

using HQ coring techniques in borings B-1 and B-4 below depths of 26 feet and 25 feet, respectively.

Boring B-3 was terminated in mudstone at a depth of 11.5 feet and borings B-1 and B-4 were terminated in mudstone at depths of 30 feet.

4.3 Groundwater

Borings B-1 and B-4 were advanced using mud-rotary and HQ core drilling techniques that do not permit measurement of groundwater. Borings B-3 and B-4 were advanced using open-hole, hollow-stem auger drilling techniques to depths of 11.5 feet. Groundwater was not observed in the hollow-stem auger borings. Based on the conditions observed in the hollow-stem auger borings, the regional groundwater level is deeper than 10 feet below the ground surface at the site. Perched groundwater conditions may occur at shallower depths and may approach the ground surface in the fine-grained silt soils that mantle the site during the wet winter and spring months or following periods of heavy or prolonged rainfall.

5 CONCLUSIONS AND RECOMMENDATIONS

5.1 General

Subsurface explorations completed for this investigation encountered up to 12.5 feet of fill and alluvial fan deposits. The sand fill encountered in the existing driveway areas is loose to medium dense. The alluvial fan deposits consisting of sand and gravel are typically medium dense to very dense. The alluvial fan deposits may contain cobbles and boulders. Mudstone of the Hornbrook Formation underlies the site at a depth of about 7.5 feet to 12.5 feet. We anticipate the local groundwater level typically occurs at depths of about 5 feet to 10 feet below the ground surface throughout the year; however, perched groundwater may approach the ground surface in localized areas during the wet winter and spring months or following periods of prolonged or intense precipitation.

In our opinion, foundation support for new structural loads can be provided by conventional spread and wall foundations established in firm, undisturbed, native soil or compacted structural fill. The primary geotechnical considerations associated with the construction of the proposed building include the high clay content of the near-surface alluvial fan soil causing the soil to be moisture sensitive and the potential for shallow, perched groundwater conditions. The following sections of this report provide our conclusions and recommendations for the design and construction of the proposed JCFD5 Station #2 improvements.

5.2 Seismic Considerations

5.2.1 Design Acceleration Parameters

We understand the proposed seismic retrofit of the existing structure and construction of a building addition is being designed in accordance with the 2019 Oregon Structural Specialty Code (2019 OSSC) and 2017 American Society of Civil Engineers (ASCE 41-17), *Seismic Evaluation and Retrofit of Existing Buildings,* which reference the 2016 ASCE document (ASCE 7-16), *Minimum Design Loads and Associated Criteria for Buildings and Other Structures*, for seismic design. We understand the existing structure evaluation for this project is being conducted at BSE-2N and BSE-1N hazard levels. The BSE-2N seismic hazard level is defined by the MCE_R ground motions. The BSE-1N hazard level matches the design earthquake ground motions and is defined as two-thirds of the BSE-2N hazard level. A site-specific seismic-hazard study was completed for the project to fulfill the requirements of amended Section 1803 of the 2019 OSSC for essential-facility structures. Details of the site-specific seismic-hazard study and development of the recommended response spectrum are provided in Appendix B.

For the project site located at the approximate latitude and longitude coordinates of 42.1541° N and 122.6284° W longitude, the S_S and S_1 mapped spectral response acceleration parameters are 0.59 g and 0.33 g, respectively. These parameters represent the ground motion values for Site Class B/C or bedrock conditions. To establish the ground-surface MCE_R spectrum, these bedrock spectral parameters are adjusted for site class using the short- and long-period site coefficients, F_a and F_v, in accordance with Section 11.4.3 of ASCE 7-16.

In accordance with Section 20.4 of ASCE 7-16, the site is classified as Site Class C based on the results of the subsurface exploration completed for the project. Therefore, the short- and long-period site coefficients, F_a and F_v, of 1.26 and 1.50, are used to adjust the site effects for Site Class C conditions in accordance with Section 11.4.3 of ASCE 7-16 and develop the ground surface MCE_R (BSE-2N) spectral values. The design level (BSE-1N) response spectrum is calculated as two-thirds of the ground-surface MCE_R spectral values. The recommended MCE_R/BSE-2N and design level/BSE-1N spectral-response parameters for Site Class C conditions are provided below in Table 5-1.

Table 5-1: RECOMMENDED SEISMIC DESIGN PARAMETERS

Seismic Parameter	Recommended Values*
Site Class	C
MCE_R/BSE-2N 0.2-Sec Period Spectral Response Acceleration, S_{MS}/S_{XS}	0.75 g
MCE_R/BSE-2N 1.0-Sec Period Spectral Response Acceleration, S_{M1}/S_{X1}	0.49 g
Design Level/BSE-1N 0.2-Sec Period Spectral Response Acceleration, S_{DS}/S_{XS}	0.50 g
Design Level/BSE-1N 1.0-Sec Period Spectral Response Acceleration, S_{D1}/S_{X1}	0.33 g

5.2.2 Other Seismic Hazards

Based on the subsurface exploration results (relative density of the granular soil at the site) and expected groundwater depth, we anticipate the potential for liquefaction or cyclic softening at the site is considered to be low for the code-based seismic event and seismically induced settlements are estimated to be less than 1 inch. We anticipate a low risk of lateral spreading and/or slope instability affecting the planned improvement and additions based on the subsurface conditions, topography, and site location. In our opinion, the potential for earthquake-induced fault displacement and ground rupture at the site is low unless occurring on a previously unknown or unmapped fault. The risk of damage by a tsunami and/or seiche at the site is absent.

5.3 Earthwork

5.3.1 General

The high clay content of the near-surface soil that mantles the site will cause the sand to be moisture sensitive and perched groundwater may approach the ground surface during the wet winter months and following periods of sustained precipitation. Therefore, in our opinion, earthwork can be completed most economically during the dry summer months, typically extending from June to mid-October. Our experience is that the moisture content of the upper few feet of soils with a high-fines content will decrease during extended warm, dry weather. However, below this depth, the moisture content of the soil tends to remain relatively unchanged and well above the optimum moisture content for compaction. As a result, the contractor must use construction equipment and procedures to prevent disturbance and softening of the subgrade soils. To minimize disturbance of the moisture-sensitive soils, site grading can be completed using track-mounted hydraulic excavators. The excavation should be finished using a smooth-edged bucket to produce a firm, undisturbed surface. It may also be necessary to construct granular haul roads and work pads concurrently with excavation to minimize subgrade disturbance. If the subgrade

is disturbed during construction, soft, disturbed soils should be overexcavated to firm soil and backfilled with structural fill.

Granular work pads will be required to protect the underlying subgrade and provide a firm working surface for construction activities if construction occurs during wet ground conditions. In our opinion, a 12- to 18-inch-thick granular work pad should be sufficient to prevent disturbance of the subgrade by lighter construction equipment and limited traffic by dump trucks. Haul roads and other high-density traffic areas will require a minimum of 18 inches to 24 inches of fragmental rock, up to 6-inch nominal size, to reduce the risk of subgrade deterioration. The use of geotextile fabric over the subgrade may lessen the need for maintenance during construction.

5.3.2 Site Preparation

The ground surface within all building areas, paved areas, walkways, and areas to receive structural fill should be stripped of existing vegetation, surface organics, and loose surface soils or fill. All trees, brush, and surficial organic material should be removed from within the limits of the proposed improvements. Excavations required to remove unsuitable soils, brush, and trees should be backfilled with structural fill. Organic strippings should be disposed of off site or stockpiled on site for use in landscaped areas.

Following stripping or excavation to design elevation, the exposed subgrade should be evaluated by a qualified geotechnical engineer or an engineering geologist. Proof rolling with a loaded dump truck may be part of this evaluation. Any soft areas or areas of unsuitable material disclosed by the evaluation should be overexcavated to firm material and backfilled with structural fill.

5.3.3 Site Grading

Final grading across the project site should provide positive drainage of surface water away from adjacent properties and slopes to reduce the potential for erosion and ponding. Temporary excavation slopes should be made no steeper than about 1H:1V (Horizontal to Vertical), and permanent cut-and-fill slopes should be no steeper than 2H:1V.

5.3.4 Prior Site Development

Site improvements within previously developed areas include the risk of encountering undocumented or poorly documented improvements and infrastructure. Although not encountered within the subsurface explorations completed at the site, the possibility does exist to encounter existing underground improvements.

5.4 Excavation

5.4.1 General

We anticipate the maximum depth of cuts to establish final site grades will generally be less than 5 feet and the depth of utility excavations may be on the order of 5 feet to 10 feet. Excavations at the site will encounter possible fill soils, clay, silt, sand, gravel, and possibly cobbles and boulders. The method of excavation and design of excavation support are the responsibility of the contractor and are subject to applicable local, state, and federal safety regulations, including the current Occupational Safety and Health Administration (OSHA) excavation and trench safety standards. The means, methods, and sequencing of construction operations and site safety are also the contractor's responsibility. The information provided below is for the use of our client and should not be interpreted to imply we are assuming responsibility for the contractor's actions or site safety.

5.4.2 Utility Excavations

In our opinion, there are three significant considerations associated with the design and construction of new utilities:

1. Provide stable excavation sideslopes or support for trench sidewalls to minimize loss of ground.

2. Provide a safe working environment during construction.

3. Minimize post-construction settlement of the utility and ground surface.

According to current Occupational Safety and Health Administration (OSHA) regulations, the fine-grained soils encountered in the explorations may be classified as Type C. In our opinion, trench excavations should be laterally supported or alternatively provided with sideslopes of 1H:1V or flatter to a maximum height of 10 feet, provided static groundwater or seepage is not encountered. If groundwater is encountered, the sideslopes should be sloped at 1.5H:1V or flatter. In our opinion, adequate lateral support may be provided by common methods, such as the use of a trench shield or hydraulic shoring systems.

We anticipate the groundwater level will typically occur below the anticipated maximum excavation depth; however, perched groundwater may develop in utility trenches and within the fine-grained soils that mantle the site during periods of heavy or prolonged rainfall. Groundwater seepage, running-soil conditions, and unstable trench sidewalls or soft trench subgrades, if encountered during construction, will require dewatering of the excavation and trench sidewall support. The impact of these conditions can be reduced by completing trench excavation during the summer months when groundwater levels are lowest.

We anticipate groundwater inflow if encountered, can generally be controlled by pumping from sumps. To facilitate dewatering, it will be necessary to overexcavate the trench bottom to permit the installation of a granular working blanket. We estimate the required thickness of the granular working blanket will be on the order of 1 foot or as required to maintain a stable trench bottom. The actual required depth of overexcavation will depend on the conditions exposed in the trench and the effectiveness of the contractor's dewatering efforts. The thickness of the granular blanket must be evaluated based on field observations during construction. We recommend the use of relatively clean, free-draining material, such as 2- to 4-inch-minus crushed rock, for this purpose.

5.5 Structural Fill

In our opinion, the on-site soils that are free of organics and other deleterious materials and debris are suitable for use in structural fills. Soil containing more than about 10% fines are moisture sensitive and can be placed and adequately compacted only during the dry summer months from June to mid-October. If fill soils with high fines content are compacted at a moisture content that is higher than recommended, the specified densities cannot be achieved, and the fill material will be relatively weak and compressible.

On-site soil used as structural fill should be moisture conditioned to within 3% of optimum moisture content prior to compaction. The moisture-conditioned, fine-grained soil should be placed in 9-inch to 12-inch-thick lifts (loose) and compacted with vibratory equipment to at least 95% of the maximum dry density determined in accordance with ASTM International (ASTM) D698. For construction during the wet winter and spring months, fills should be constructed using imported granular materials that are relatively clean, which are discussed below.

Imported granular material would be most suitable for the construction of structural fills during wet weather. Granular material such as sand, sandy gravel, or crushed rock with a maximum size of 1.5 inches would be suitable structural fill material. Granular material that has less than 5% passing the No. 200 sieve (washed analysis) can usually be placed during periods of wet weather. Granular backfill should be placed in lifts and compacted with vibratory equipment to at least 95% of the maximum dry density determined in accordance with ASTM International (ASTM) D698. Appropriate lift thicknesses will depend on the type of compaction equipment used. For example, if hand-operated, vibratory-plate equipment is used, lift thicknesses should be limited to 6 inches to 8 inches. If smooth-drum vibratory rollers are used, lift thicknesses to 12 inches are appropriate, and if backhoe- or excavator-mounted vibratory plates are used, lift thicknesses up to 2 feet may be acceptable. A minimum of four passes with the roller are generally required to achieve compaction. Hand-operated equipment should be used within 5 feet of building walls or retaining walls.

All utility trench excavations within building, pavement, and hardscape areas should be backfilled with relatively clean, granular material such as sand, sandy gravel, or crushed rock of up to 1½-inch maximum size and having less than 5% passing the No. 200 sieve (washed analysis). The bottom of the excavation should be thoroughly cleaned to remove loose materials and the utilities should be underlain by a minimum 6-inch thickness of bedding material. The granular backfill material should be compacted to at least 95% of the maximum dry density determined by ASTM D698 in the upper 5 feet of the trench and at least 92% of this density below a depth of 5 feet. The use of hoe-mounted, vibratory-plate compactors is usually the most efficient for this purpose. Flooding or jetting as a means of compacting the trench backfill should not be permitted.

Fill placed in landscaped areas should be compacted to a minimum of about 90% of the maximum dry density as determined by ASTM D698. The moisture content of soils placed in landscaped areas is not as critical, provided construction equipment can effectively handle the materials.

5.6 Foundation Support

5.6.1 General

The maximum column and wall loads are estimated to be approximately 100 kips to 200 kips and 4 kips/foot, respectively. In our opinion, the proposed structural loads can be supported on conventional spread and wall footings in accordance with the following design criteria.

5.6.2 Foundation Design Criteria

All footings should be established in firm, undisturbed, native soil or compacted structural fill at a minimum depth of 18 inches below the lowest adjacent finished grade. The embedment depth may be reduced for interior, thickened-edge footings if underlain by crushed rock that extends at least 18 inches below the bottom of slab elevation. For example, if the base of the interior thickened-edge footing is located 8 inches below the bottom of slab elevation, then a 10-inch-thick rock section will be required. Excavations for all foundations should be made with a smooth-edged bucket to reduce subgrade disturbance and a qualified geotechnical engineer should observe all footing excavations. Soft or otherwise unsuitable material encountered at the foundation subgrade level should be overexcavated and backfilled with granular structural fill. Our experience indicates soils with a high fines content are easily disturbed by excavation and construction activities. In this regard, we recommend installing a minimum 6-inch-thick layer of compacted crushed rock in the bottom of all footing excavations. Relatively clean, ¾-inch-minus crushed rock is suitable for this purpose and should be compacted with a lightweight vibratory compactor.

Footings established in accordance with these criteria can be designed based on an allowable soil bearing pressure of 3,500 pounds per square foot (psf) with a minimum footing width of 24 inches for column footings and 18 inches for wall footings. We estimate the total static settlement of spread and wall footings designed in accordance with the recommendations presented above will be less than 1 inch for footings supporting column and wall loads of up to 100 kips to 200 kips and 4 kips/foot, respectively. Differential static settlements between adjacent, comparably loaded footings on similar subgrade conditions are estimated to be less than half the total settlement.

Horizontal shear forces can be resisted partially or completely by frictional forces developed between the base of footings and the underlying soil and soil passive resistance. The total frictional resistance between the footing and the soil is the normal force times the coefficient of friction between the soil and the base of the footing. We recommend an ultimate value of 0.40 for the coefficient of friction for footings cast on granular material. The normal force is the sum of the vertical forces, i.e., dead load plus real live load. If additional lateral resistance is required, passive earth pressures against embedded footings can be computed based on an equivalent fluid having a unit weight of 250 pounds per cubic foot. This design passive earth pressure will be applicable only if the footing is cast neat against undisturbed soil or if backfill for the footings is placed as granular structural fill. This design passive earth pressure also assumes up to 0.2*t of lateral movement of the structure will occur in order for the soil to develop this resistance, where "t" is the thickness of the footing. This value also assumes the ground surface in front of the foundation is horizontal, i.e., it does not slope downward away from the toe of the footing.

5.7 Subdrainage and Floor Support

To provide a capillary break and reduce the risk of damp floors, slab-on-grade floors established at or above adjacent final site grades should be underlain by a minimum of 8 inches of free-draining, clean, angular rock. This material should consist of angular rock such as 1½- to ¾-inch crushed rock with less than 2% passing the No. 200 sieve (washed analysis) and should be capped with a 2-inch-thick layer of compacted, ¾-inch-minus crushed rock. The slab base course section should be placed in one lift and compacted to at least 95% of the maximum dry density (ASTM D698) or until well keyed. In areas where floor coverings will be provided or moisture-sensitive materials stored, it would be appropriate to also install a vapor-retarding membrane. The membrane should be installed as recommended by the manufacturer. In addition, a foundation drain should be installed around the building perimeter to collect water that could potentially infiltrate beneath the foundations and should discharge to an approved storm drain.

Although the finished floor elevations for the proposed structures are anticipated to be established near or above the adjacent surrounding site grades, if structures such as floors are established below final site grades, the structure should be provided with a subdrainage system. A subdrainage system will reduce the buildup of hydrostatic pressures on the floor slab and the risk of groundwater entering through embedded walls and floor slabs. GRI should be contacted if embedded structures are being considered.

In our opinion, it is appropriate to assume a coefficient of subgrade reaction, k, of 175 pounds per cubic inch to characterize the subgrade support for point loading with 10 inches of compacted crushed rock beneath the floor slab.

5.8 Retaining Wall Design

5.8.1 General

Design lateral earth pressures for retaining walls depend on the type of construction, i.e., the ability of the wall to yield. Possible conditions are 1) a wall that is laterally supported at its base and/or top and therefore is unable to yield to the active state, and 2) a retaining wall, such as a cantilevered cast-in-place wall, which yields to the active state by tilting about its base.

The exposed height and planned construction type of retaining walls at the site is unknown. However, based on the existing site grades and planned improvements, we estimate the maximum height of any planned retaining walls will be less than 5 feet and the backfill behind the wall will be level. The retaining walls should be designed in substantial conformance with the requirements set forth in Section 1807.2 of the 2019 OSSC.

5.8.2 Foundation Design

The retaining wall should be embedded a minimum of 18 inches below the lowest adjacent grade. To provide uniform support, the retaining wall should be founded on a minimum-6-inch-thick gravel leveling pad. Well-graded, crushed rock meeting the gradation requirements of the 2021 Oregon Department of Transportation (ODOT) Standard Specifications for Construction (SSC) Section 02630.10, "Dense-Graded Aggregate", having a maximum particle size of 1 inch is suitable for this purpose. The leveling pad should be founded on firm native soil and should extend beyond the wall footprint a minimum of 12 inches on all sides.

Excavation to the subgrade elevation of the wall should be made with excavators equipped with a smooth-edged bucket, and the wall subgrade should be evaluated by a member of GRI's geotechnical engineering staff. Any areas of soft subgrade or unsuitable fill materials

should be overexcavated to firm material and backfilled with structural fill following the recommendations provided in this report.

Provided the subgrade is prepared as described above, the cast-in-place retaining wall can be designed based on an allowable bearing pressure of 2,500 psf. Settlement of the retaining wall is estimated to be less than about 1 inch. These bearing pressures assume a footing width of at least 2 feet.

5.8.3 Resistance to Lateral Loads

Lateral forces can be resisted partially or completely by frictional forces developed between the base of the wall and the underlying crushed rock. We recommend an ultimate value for the coefficient of friction of 0.45 for cast-in-place concrete or 0.35 for precast modular concrete block, assuming a minimum-6-inch-thick leveling course of compacted crushed-rock fill placed over native subgrade. For preliminary design purposes, passive resistance against the embedded portion of the wall can be computed based on equivalent fluid unit weight of 250 pcf, assuming the ground surface in front of the wall is flat, and the footing is backfilled with compacted structural fill.

5.8.4 Lateral Earth Pressures

Lateral earth pressures behind retaining walls free to yield in the active state can be computed based on an equivalent fluid unit weight of 35 pcf for horizontal wall backfill. In areas where there will be vehicle traffic behind the wall, we recommend a uniform surcharge load of 200 psf is applied to the ground surface above the wall for a horizontal distance of 5 feet behind the wall. Additional lateral pressures induced by surcharge loads in the backfill area can also be estimated using the guidelines provided on Figure 3. The recommended earth pressures assume no hydrostatic pressures will develop behind the retaining wall and a positive drainage system will be installed behind the wall.

The dynamic lateral earth pressure increment for a cantilevered (active state) wall can be estimated using an equivalent fluid unit weight of 5 pcf for horizontal wall backfill. The dynamic lateral earth pressure increment should be added to the static lateral earth pressure.

5.8.5 Wall Drainage and Backfill

We recommend the wall backfill consist of imported granular material such as sand, sandy gravel, or crushed rock with a maximum particle size of 3 inches and less than 10% passing the No. 200 sieve (washed analysis). Granular backfill should be placed in lifts and compacted with vibratory equipment to at least 95% of the maximum dry density determined in accordance with ASTM International (ASTM) D698. Appropriate lift thicknesses will depend on the type of compaction equipment used. For example, if hand-operated, vibratory-plate equipment is used, lift thicknesses should be limited to 6 inches

to 8 inches. If smooth-drum vibratory rollers are used, lift thicknesses up to 12 inches are appropriate, and if backhoe- or excavator-mounted vibratory plates are used, lift thicknesses up to 2 feet may be acceptable.

The drainage system for retaining walls should consist of a minimum 12-inch-wide "drainage blanket" consisting of free-draining granular fill placed against the back of the wall. Materials used to construct the drainage blanket should consist of open-graded, angular crushed rock with a maximum size of up to 1½ inches and not more than about 2% passing the No. 200 sieve (washed analysis). Crushed rock meeting the gradation requirements of SSC Section 00430.11, Granular Drain Backfill Material, is suitable for this purpose. A perforated drainpipe without a sock and sloped to drain from behind or through a sleeve in the front of the wall should be placed at the bottom of the drainage blanket at the base of the wall. Weepholes would be appropriate as an alternative to the perforated collection pipe. A nonwoven geotextile filter fabric meeting the requirements in SSC Section 02320.20 for Type 1, Nonwoven Geotextile Fabric, should be placed between the drainage blanket and general wall backfill.

5.9 Pavement Design

The JCFD5 Station #2 traffic loading will be primarily fire apparatus and automobile traffic, with occasional light- and heavy-truck traffic. Based on conversations with the fire station crew and you, we assume up to eight trips per day of a Type 3 engine, a water tender, and a Type 6 brush truck (future addition). Additionally, we assume garbage truck traffic will visit the fire station on average once per week. The load equivalency factors (LEFs) were developed based on the American Association of State Highway and Transportation Officials (AASHTO) load factors and used to convert the assumed apparatus frequency into Equivalent Single Axle Load (ESAL) repetitions. The garbage truck LEFs are based on the factors given in the Oregon Department of Transportation (ODOT) Pavement Design Guide for Class 6 trucks, respectively. Based on the above information, the estimated cumulative ESAL repetitions (traffic loading) developed for a 20-year design period is 340,000 and 390,000 ESALs for flexible and rigid pavements, respectively. We used design subgrade modulus of 6,150 psi based on the results of the standard penetration testing performed during the boring explorations.

We developed pavement-design recommendations in general accordance with the AASHTO 1993 Guide for Design of Pavement Structures and the 1998 supplement. Our pavement-design recommendations for the proposed JCFD5 Station #2 are provided in Table 5-2.

Table 5-2: RECOMMENDED AC PAVEMENT SECTIONS

Pavement Type	AC Thickness, inches	PCC Thickness, inches	CRB Thickness, inches	Compacted Subgrade Thickness, inches
AC	5	- -	6	- -
PCC	- -	7	6	12

Note: The recommended pavement sections should be considered minimum thicknesses and underlain by a non-woven geotextile fabric.

If construction is completed during wet weather or if soft subgrade is encountered, the CRB thickness may need to be increased to 14 inches to allow for compaction of CRB without disturbing the underlying subgrade.

It should be assumed that some maintenance will be required over the life of the pavement (20 years). The recommended pavement sections assume pavement construction will be accomplished during the dry season and after the construction of the building has been completed. If wet-weather pavement construction is considered, it will likely be necessary to increase the thickness of crushed-rock base course or amend the subgrade with cement to support construction equipment and protect the subgrade from disturbance. The indicated sections are not intended to support extensive construction traffic, such as forklifts, dump trucks, and concrete trucks. Pavements subject to construction traffic may require repair.

For the above-indicated sections, drainage is an essential aspect of pavement performance. We recommend all paved areas be provided positive drainage to remove surface water and water within the base course. This will be particularly important in cut sections or at low points within the paved areas, such as at catch basins. Effective methods to prevent saturation of the base course materials include providing weepholes in the sidewalls of catch basins, subdrains in conjunction with utility excavations, and separate trench drain systems. To ensure quality materials and construction practices, we recommend the pavement work conform to ODOT standards.

Prior to placing base course materials, all pavement areas should be proof rolled with a fully loaded, 10-cubic-yard dump truck. Any soft areas detected by the proof rolling should be overexcavated to firm ground and backfilled with compacted structural fill.

To help ensure quality materials and construction practices, we recommend the pavement work conform to ODOT standards.

GRI's specifications for construction of the pavement section are presented below in Table 5-3.

Table 5-3: ODOT SPECIFICATIONS FOR CONSTRUCTION

Materials/Activity	Specification
Asphalt Concrete Pavement	Special Provision 00745. Lime or latex treatment of aggregate is not required. AC shall have a minimum lift thickness of 2 inches and a maximum lift thickness of 3 inches. Use Performance Grade (PG) 64-22 binder and mix level 2 and ½-inch size.
Portland Cement Concrete	Special Provision 00756. Maximum joint spacing of 12 feet. Ratio of the slab length to slab width should be between 0.8 and 1.25. The concrete must not be opened to heavy truck traffic until it attains 100% of the specified 28-day strength.
Aggregate Base	Special Provision 00641 (1 in.-0 or ¾ in.-0).
Subgrade Geotextile	Special Provision 00350.
Subgrade Compaction	Special Provision 00330.

6 DESIGN REVIEW AND CONSTRUCTION SERVICES

We welcome the opportunity to review and discuss construction plans and specifications for this project as they are being developed. In addition, GRI should be retained to review all geotechnical-related portions of the plans and specifications to evaluate whether they are in conformance with the recommendations provided in our report. To observe compliance with the intent of our recommendations, the design concepts, and the plans and specifications, it is our opinion all construction operations pertaining to earthwork and foundation installation should be observed by a GRI representative. Our construction-phase services will allow for timely design changes if site conditions are encountered that are different from those described in our report. If we do not have the opportunity to confirm our interpretations, assumptions, and analyses during construction, we cannot be responsible for the application of our recommendations to subsurface conditions different from those described in this report.

7 LIMITATIONS

This report has been prepared to aid the project team in the design of this project. The scope is limited to the specific project and location described within this report, and our description of the project represents our understanding of the significant aspects of the project relevant to earthwork and design and construction of the proposed improvements. In the event that any changes in the design and location of the project elements as outlined in this report are planned, we should be given the opportunity to review the changes and modify or reaffirm the conclusions and recommendations of this report in writing.

The conclusions and recommendations in this report are based on the data obtained from the subsurface explorations at the locations shown on Figure 2 and other sources of

information discussed in this report. In the performance of subsurface investigations, specific information is obtained at specific locations at specific times. However, it is acknowledged that variations in subsurface conditions may exist between exploration locations. This report does not reflect variations that may occur between these explorations. The nature and extent of variation may not become evident until construction. If during construction, subsurface conditions differ from those encountered in the explorations, we should be advised at once so we can observe and review these conditions and reconsider our recommendations where necessary.

Submitted for GRI,

Renews: 06/2022

A. Wesley Spang, PhD, PE, GE
Principal

Thomas P. Gayne, PE
Project Engineer

This document has been submitted electronically.

8 REFERENCES

American Society of Civil Engineers, 2016, ASCE 7-16, Minimum design loads for buildings and other structures, Draft Copy, ASCE, Reston, Virginia.

Wiley, T. J., McClaughry, J. D., and D'Allura, J. A., 2011, Geologic database and generalized geologic map of Bear Creek Valley, Jackson County, Oregon: Portland, Oreg., Oregon Department of Geology and Mineral Industries, Open-File Report O-11-11, 75 p., 1 pl., plate scale 1:63,360, geodatabase data scale 1:8,000.

U.S. Geological Survey (USGS), Interactive Fault Map, accessed 11/24/21 from USGS website: https://www.usgs.gov/natural-hazards/earthquake-hazards/faults.

USGS, Unified hazard tool, Conterminous U.S. 2014(v4.0x), accessed 11/24/21 from USGS website: https://earthquake.usgs.gov/hazards/interactive/.

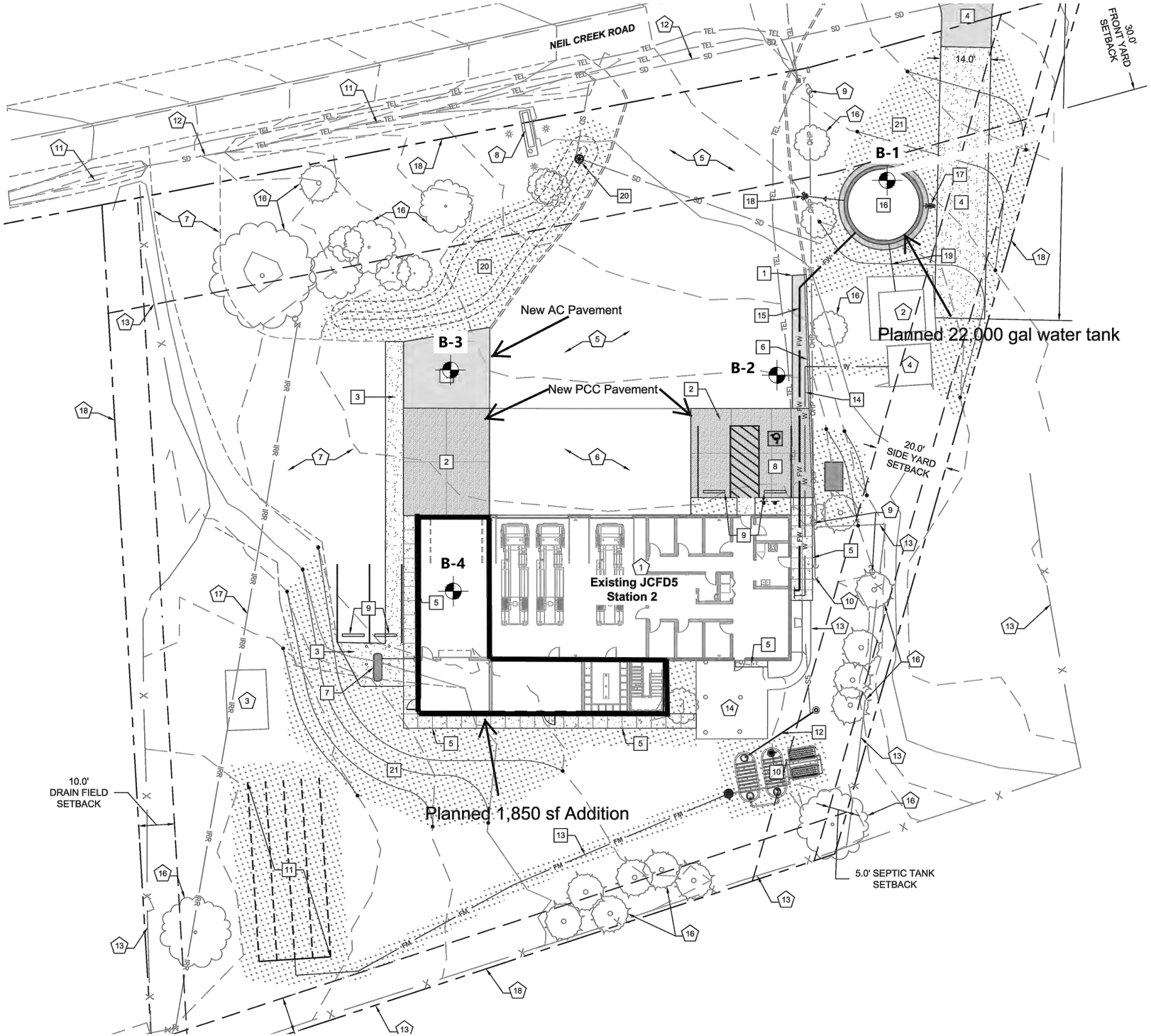
0 0.5 1 Miles

GRI

JACKSON COUNTY FIRE DISTRICT 5
JCFD5 STATION 2 IMPROVEMENTS

VICINITY MAP

DEC. 2021 JOB NO. 6557-A FIG. 1



BORING COMPLETED BY GRI (NOVEMBER 1-2, 2021)

BASE MAP FROM FILE BY SODERSTROM ARCHITECTS

N

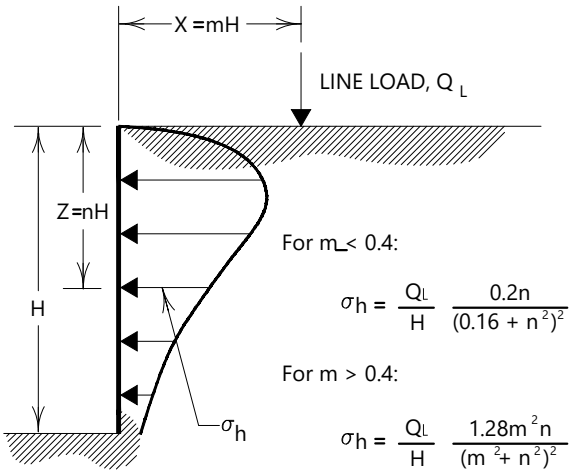
0 30 60 FEET

GRI

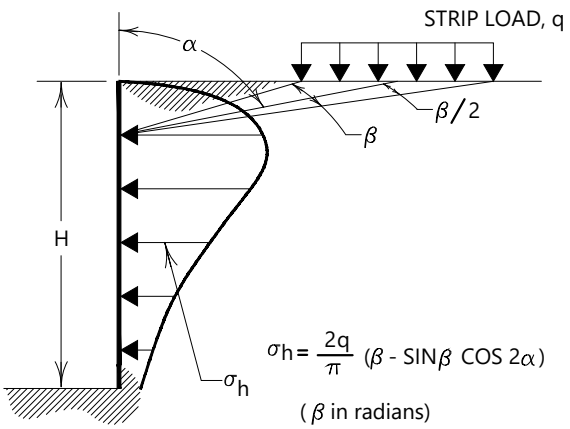
JACKSON COUNTY FIRE DISTRICT 5
JCFD5 STATION 2 IMPROVEMENTS

SITE PLAN

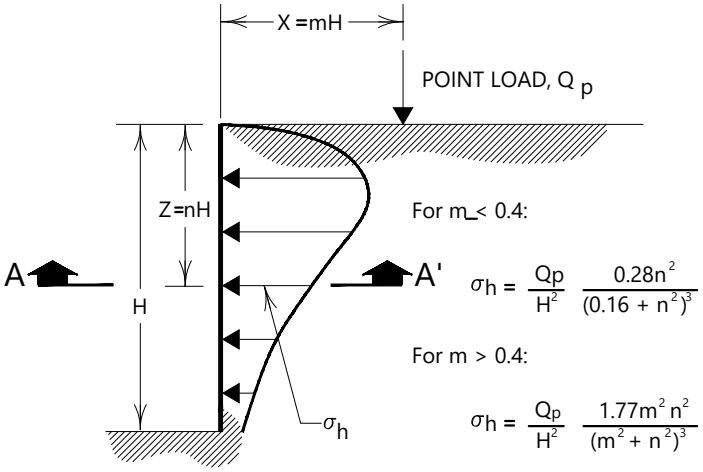
DEC. 2021 JOB NO. 6557-A FIG. 2

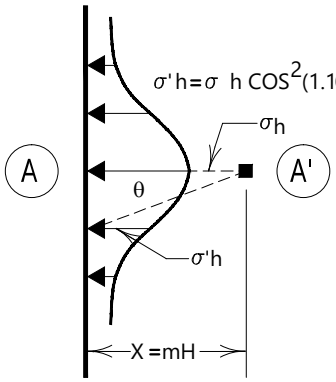


LINE LOAD PARALLEL TO WALL



STRIP LOAD PARALLEL TO WALL





DISTRIBUTION OF HORIZONTAL PRESSURES

VERTICAL POINT LOAD

NOTES:

1. THESE GUIDELINES APPLY TO RIGID WALLS WITH POISSON'S RATIO ASSUMED TO BE 0.5 FOR BACKFILL MATERIALS.

2. LATERAL PRESSURES FROM ANY COMBINATION OF ABOVE LOADS MAY BE DETERMINED BY THE PRINCIPLE OF SUPERPOSITION.

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JACKSON COUNTY FIRE DISTRICT 5
JCFD5 STATION 2 IMPROVEMENTS

SURCHARGE-INDUCED LATERAL PRESSURE

DEC. 2021 JOB NO. 6557-A FIG. 3

APPENDIX A

Field Explorations and Laboratory Testing

APPENDIX A

FIELD EXPLORATIONS AND LABORATORY TESTING

A.1 FIELD EXPLORATIONS

A.1.1 General

Subsurface materials and conditions were investigated on November 1 and 2, 2021, with four borings, designated B-1 through B-4. The approximate locations of the explorations completed for this investigation are shown on the Site Plan, Figure 2. The field-exploration work was coordinated and documented by an experienced member of GRI's geotechnical engineering staff, who maintained a log of the materials and conditions disclosed during the course of work.

Borings B-1 and B-4 were advanced to depths of 30 feet using mud-rotary and HQ core drilling techniques and borings B-2 and B-3 were advanced to depths of 11.5 feet using hollow-stem auger drilling techniques. The borings were advanced with a truck-mounted CME 75HT drill rig provided and operated by Western States Soil Conservation, Inc., of Hubbard, Oregon. Disturbed soil samples were obtained using a 2-inch-outside-diameter (O.D.) standard split-spoon sampler or a larger, 3-inch-O.D. California-modified split-spoon (CMS) sampler. The CMS sampler was used when sample recovery was not possible with the split-spoon sampler due to the particle size of the material being sampled. Standard Penetration Tests (SPT) were conducted by driving the samplers into the soil a distance of 18 inches using a 140-pound hammer dropped 30 inches. The number of blows required to drive the SPT sampler the last 12 inches is known as the Standard Penetration Resistance, or SPT N-value. The number of blows required to drive the CMS sampler the last 12 inches is denoted as the SPT N*-value. The SPT N- and N*-values provide a measure of the relative density of granular soils and relative consistency of cohesive soils. Samples obtained from the borings were placed in airtight jars and returned to our laboratory for further classification and testing.

Logs of the borings are provided on Figures 1A through 4A. The logs present a summary of the various types of materials encountered in the boring and note the depth where the materials and/or characteristics of the materials change. To the right of the summary, the numbers and types of samples taken during the drilling operation are indicated. Farther to the right, SPT N- or N*-values are shown graphically, along with the natural moisture content and percent passing the No. 200 sieve, where applicable. The terms and symbols used to describe the materials encountered in the borings are defined in Tables 1A and 2A and the attached legend.

A.2 LABORATORY TESTING

A.2.1 General

The samples obtained from the borings were examined in our laboratory, where the physical characteristics of the samples were noted and the field classifications modified where necessary. At the time of classification, the natural moisture content of each sample was determined. Additional testing included grain-size analyses. A summary of the laboratory test results has been provided in Table 3A. The following sections describe the testing program in more detail.

A.2.2 Natural Moisture Contents

Natural moisture content determinations were made in conformance with ASTM D2216. The results are summarized on Figures 1A through 4A and in Table 3A.

A.2.3 Grain-Size Analysis

A.2.3.1 Washed-Sieve Method

To assist in classification of the soils, samples of known dry weight were washed over a No. 200 sieve. The material retained on the sieve is oven-dried and weighed. The percentage of material passing the No. 200 sieve is then calculated. The results are summarized on Figures 1A through 4A and in Table 3A.

Table 1A
GUIDELINES FOR CLASSIFICATION OF SOIL

Description of Relative Density for Granular Soil

Relative Density	Standard Penetration Resistance, (N-values) blows/ft	California-Modified Penetration Resistance (SPT N*-values), blows/ft
Very Loose	0 - 4	0 – 11
Loose	4 - 10	11 – 26
Medium Dense	10 - 30	26 – 74
Dense	30 - 50	74 – 120
Very Dense	over 50	more than 120

Description of Consistency for Fine-Grained (Cohesive) Soils

Consistency	Standard Penetration Resistance (N-values), blows/ft	Torvane or Undrained Shear Strength, tsf
Very Soft	0 - 2	less than 0.125
Soft	2 - 4	0.125 - 0.25
Medium Stiff	4 - 8	0.25 - 0.50
Stiff	8 - 15	0.50 - 1.0
Very Stiff	15 - 30	1.0 - 2.0
Hard	over 30	over 2.0

Grain-Size Classification	Modifier for Subclassification		
		Primary Constituent SAND or GRAVEL	Primary Constituent SILT or CLAY
	Adjective	Percentage of Other Material (By Weight)	
Boulders: >12 in.	trace:	5 - 15 (sand, gravel)	5 - 15 (sand, gravel)
Cobbles: 3-12 in.	some:	15 - 30 (sand, gravel)	15 - 30 (sand, gravel)
Gravel: ¼ - ¾ in. (fine); ¾ - 3 in. (coarse)	sandy, gravelly:	30 - 50 (sand, gravel)	30 - 50 (sand, gravel)
Sand: No. 200 - No. 40 sieve (fine); No. 40 - No. 10 sieve (medium); No. 10 - No. 4 sieve (coarse)	trace:	<5 (silt, clay)	*Relationship of clay and silt determined by plasticity index test*
	some:	5 - 12 (silt, clay)	
Silt/Clay: Pass No. 200 sieve	silty, clayey:	12 - 50 (silt, clay)	

Table 2A

GUIDELINES FOR CLASSIFICATION OF ROCK

Relative Rock Weathering Scale

Term	Field Identification
Fresh	Crystals are bright. Discontinuities may show some minor surface staining. No discoloration in rock fabric.
Slightly Weathered	Rock mass is generally fresh. Discontinuities are stained and may contain clay. Some discoloration in rock fabric. Decomposition extends up to 1 in. into rock.
Moderately Weathered	Rock mass is decomposed 50% or less. Significant portions of rock show discoloration and weathering effects. Crystals are dull and show visible chemical alteration. Discontinuities are stained and may contain secondary mineral deposits.
Predominantly Decomposed	Rock mass is more than 50% decomposed. Rock can be excavated with geologist's pick. All discontinuities exhibit secondary mineralization. Complete discoloration of rock fabric. Surface of core is friable and usually pitted due to washing out of highly altered minerals by drilling water.
Decomposed	Rock mass is completely decomposed. Original rock "fabric" may be evident. May be reduced to soil with hand pressure.

Relative Rock Hardness Scale

Term	Hardness Designation	Field Identification	Approximate Unconfined Compressive Strength
Extremely Soft	R0	Can be indented with difficulty by thumbnail. May be moldable or friable with finger pressure.	< 100 psi
Very Soft	R1	Crumbles under firm blows with point of a geology pick. Can be peeled by a pocketknife and scratched with fingernail.	100 - 1,000 psi
Soft	R2	Can be peeled by a pocketknife with difficulty. Cannot be scratched with fingernail. Shallow indentation made by firm blow of geology pick.	1,000 - 4,000 psi
Medium Hard	R3	Can be scratched by knife or pick. Specimen can be fractured with a single firm blow of hammer/geology pick.	4,000 - 8,000 psi
Hard	R4	Can be scratched with knife or pick only with difficulty. Several hard hammer blows required to fracture specimen.	8,000 - 16,000 psi
Very Hard	R5	Cannot be scratched by knife or sharp pick. Specimen requires many blows of hammer to fracture or chip. Hammer rebounds after impact.	> 16,000 psi

RQD and Rock Quality

Relation of RQD and Rock Quality	
RQD (Rock Quality Designation), %	Description of Rock Quality
0 - 25	Very Poor
25 - 50	Poor
50 - 75	Fair
75 - 90	Good
90 - 100	Excellent

Terminology for Planar Surface		
Bedding	Joints and Fractures	Spacing
Laminated	Very Close	< 2 in.
Thin	Close	2 in. – 12 in.
Medium	Moderately Close	12 in. – 36 in.
Thick	Wide	36 in. – 10 ft
Massive	Very Wide	> 10 ft

Table 2A

SUMMARY OF LABORATORY RESULTS

Sample Information						Atterberg Limits			
Location	Sample	Depth, ft	Elevation, ft	Moisture Content, %	Dry Unit Weight, pcf	Liquid Limit, %	Plasticity Index, %	Fines Content, %	Soil Type
B-1	S-1	2.5	2144.5	13	--	--	--	26	Clayey SAND
	S-2	5.0	2142.0	8	--	--	--	--	SAND
	S-3	7.5	2139.5	14	--	--	--	9	SAND
	S-5	12.5	2134.5	13	--	--	--	--	MUDSTONE
B-2	S-1	2.5	2147.5	9	--	--	--	--	FILL
	S-2	5.0	2145.0	8	--	--	--	--	FILL
	S-3	7.5	2142.5	11	--	--	--	19	Clayey SAND
	S-4	10.0	2140.0	18	--	--	--	--	Clayey SAND
B-3	S-1	2.5	2152.5	3	--	--	--	--	FILL
	S-2	5.0	2150.0	2	--	--	--	--	FILL
	S-3	7.5	2147.5	4	--	--	--	--	FILL
	S-4	10.0	2145.0	12	--	--	--	--	FILL
B-4	S-1	2.5	2152.5	16	--	--	--	--	Clayey SAND
	S-2	5.0	2150.0	17	--	--	--	35	Clayey SAND
	S-3	7.5	2147.5	16	--	--	--	--	MUDSTONE
	S-4	10.0	2145.0	19	--	--	--	--	MUDSTONE

GRI

BORING AND TEST PIT LOG LEGEND

SOIL SYMBOLS

Symbol	Typical Description
	LANDSCAPE MATERIALS
	FILL
	GRAVEL; clean to some silt, clay, and sand
	Sandy GRAVEL; clean to some silt and clay
	Silty GRAVEL; up to some clay and sand
	Clayey GRAVEL; up to some silt and sand
	SAND; clean to some silt, clay, and gravel
	Gravelly SAND; clean to some silt and clay
	Silty SAND; up to some clay and gravel
	Clayey SAND; up to some silt and gravel
	SILT; up to some clay, sand, and gravel
	Gravelly SILT; up to some clay and sand
	Sandy SILT; up to some clay and gravel
	Clayey SILT; up to some sand and gravel
	CLAY; up to some silt, sand, and gravel
	Gravelly CLAY; up to some silt and sand
	Sandy CLAY; up to some silt and gravel
	Silty CLAY; up to some sand and gravel
	PEAT

BEDROCK SYMBOLS

Symbol	Typical Description
	BASALT
	MUDSTONE
	SILTSTONE
	SANDSTONE

SURFACE MATERIAL SYMBOLS

Symbol	Typical Description
	Asphalt concrete PAVEMENT
	Portland cement concrete PAVEMENT
	Crushed rock BASE COURSE

SAMPLER SYMBOLS

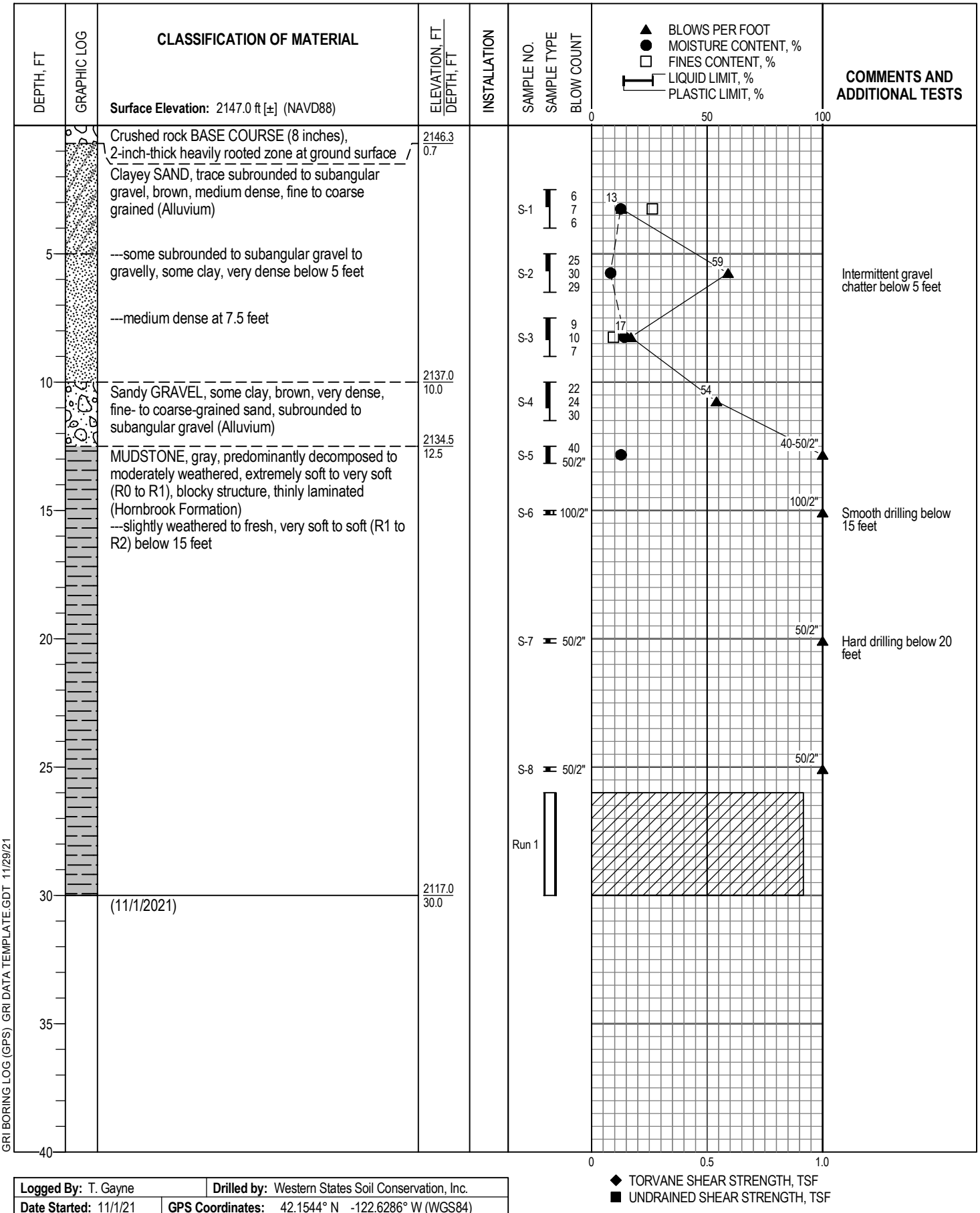
Symbol	Sampler Description
	2.0 in. O.D. split-spoon sampler and Standard Penetration Test with recovery (ASTM D1586)
	Shelby tube sampler with recovery (ASTM D1587)
	3.0 in. O.D. split-spoon sampler with recovery (ASTM D3550)
	Grab Sample
	Rock core sample interval
	Sonic core sample interval
	Push probe sample interval

INSTALLATION SYMBOLS

Symbol	Symbol Description
	Flush-mount monument set in concrete
	Concrete, well casing shown where applicable
	Bentonite seal, well casing shown if applicable
	Filter pack, machine-slotted well casing shown where applicable
	Grout, vibrating-wire transducer cable shown where applicable
	Vibrating-wire pressure transducer
	1-in.-diameter solid PVC
	1-in.-diameter hand-slotted PVC
	Grout, inclinometer casing shown where applicable

FIELD MEASUREMENTS

Symbol	Typical Description
	Groundwater level during drilling and date measured
	Groundwater level after drilling and date measured
	Rock/sonic core or push probe recovery (%)
	Rock quality designation (RQD, %)



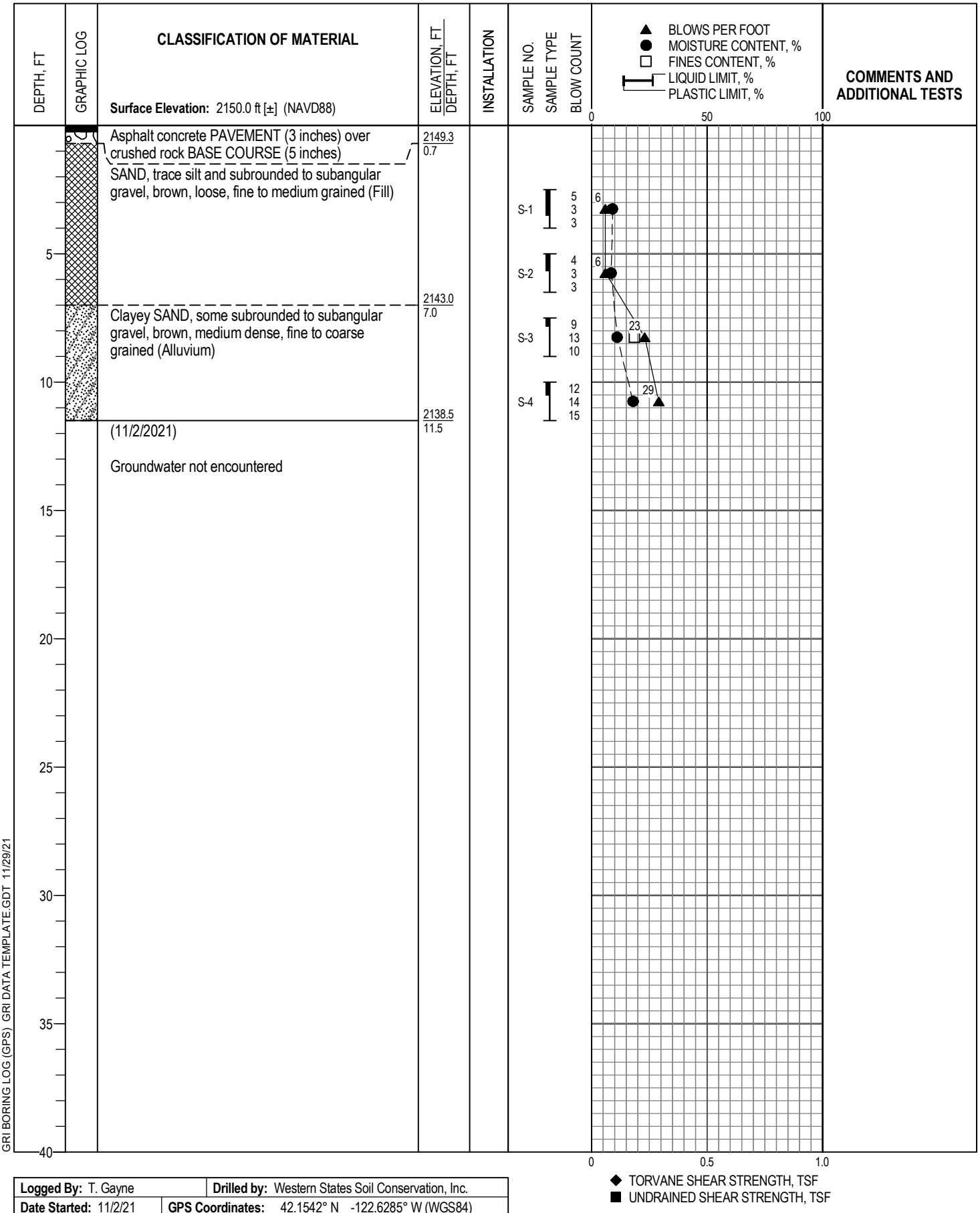
GRI BORING LOG (GPS) GRI DATA TEMPLATE.GDT 11/29/21

Logged By: T. Gayne	**Drilled by:** Western States Soil Conservation, Inc.	
Date Started: 11/1/21	**GPS Coordinates:** 42.1544° N -122.6286° W (WGS84)	
Drilling Method: Mud Rotary **Equipment:** CME 75 HT Truck-Mounted Drill Rig **Hole Diameter:** 5 in.		**Hammer Type:** Auto Hammer **Weight:** 140 lb **Drop:** 30 in. **Energy Ratio:** 0.8
Note: See Legend for Explanation of Symbols		

GRI

BORING B-1

DEC. 2021 JOB NO. 6557-A FIG. 1A

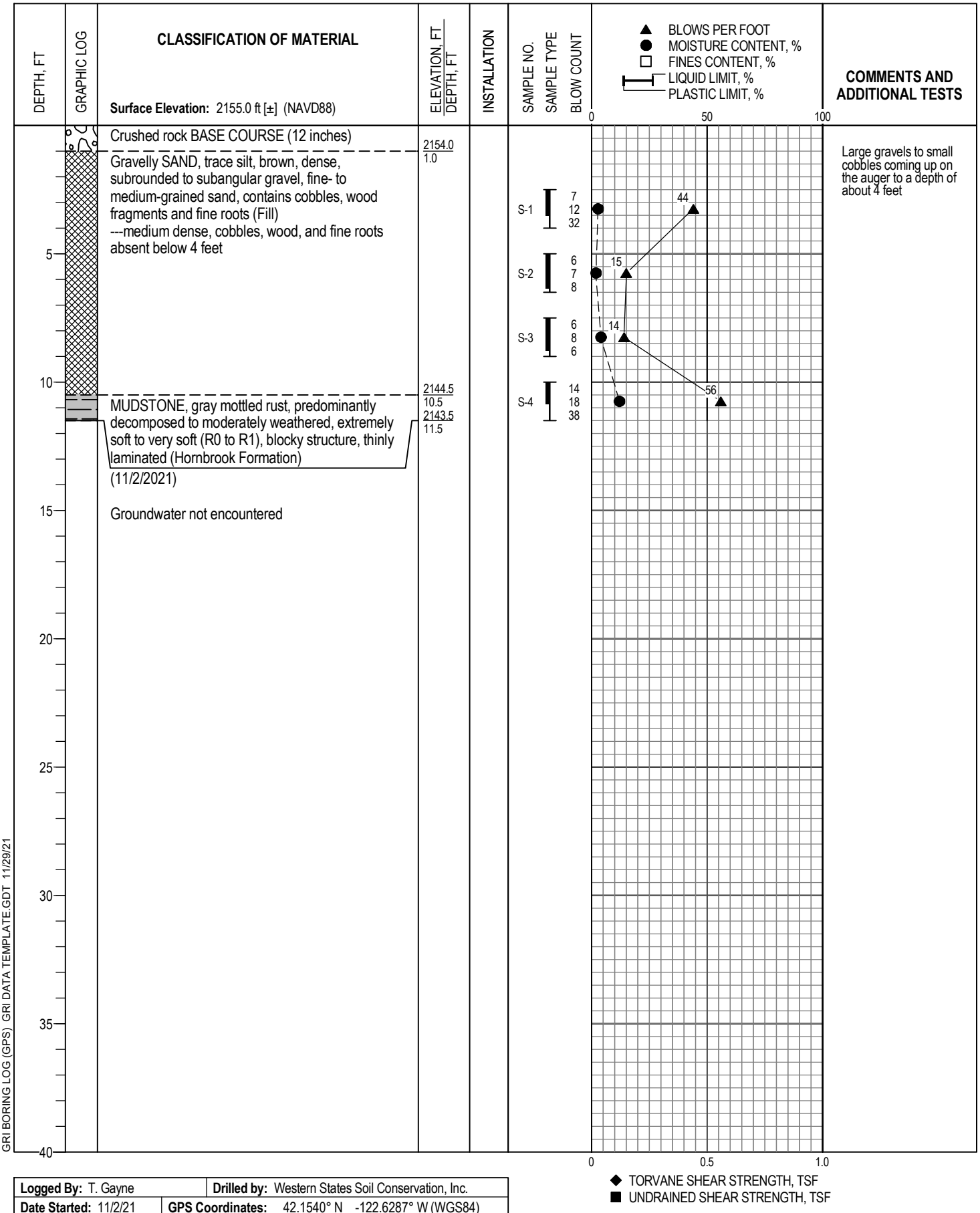


GRI BORING LOG (GPS) GRI DATA TEMPLATE.GDT 11/29/21

Logged By: T. Gayne	**Drilled by:** Western States Soil Conservation, Inc.	
Date Started: 11/2/21	**GPS Coordinates:** 42.1542° N -122.6285° W (WGS84)	
Drilling Method: Hollow-Stem Auger **Equipment:** CME 75 HT Truck-Mounted Drill Rig **Hole Diameter:** 8 in.		**Hammer Type:** Auto Hammer **Weight:** 140 lb **Drop:** 30 in. **Energy Ratio:** 0.8
Note: See Legend for Explanation of Symbols		

BORING B-2

DEC. 2021 JOB NO. 6557-A FIG. 2A

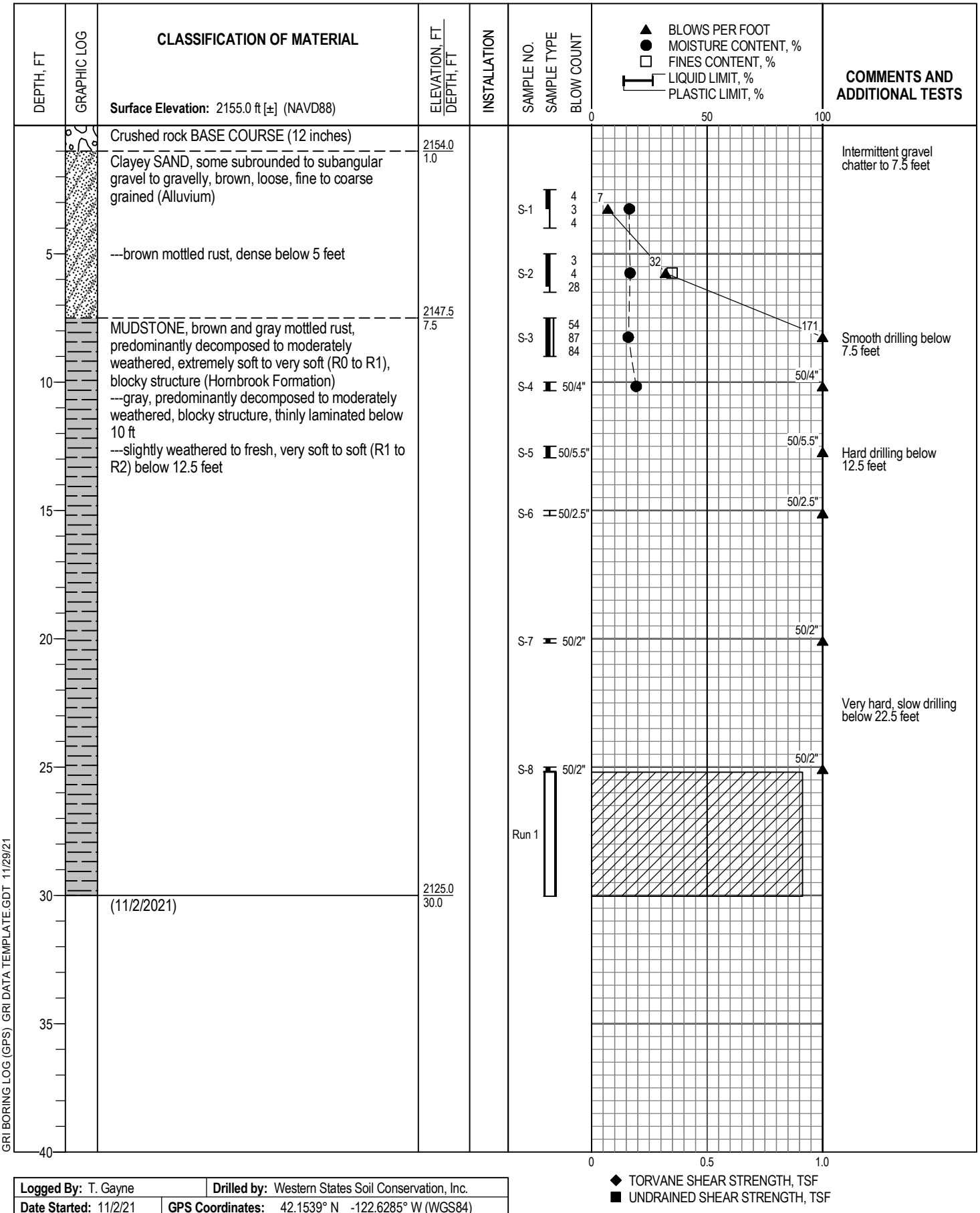


GRI BORING LOG (GPS) GRI DATA TEMPLATE.GDT 11/29/21

Logged By: T. Gayne	**Drilled by:** Western States Soil Conservation, Inc.	
Date Started: 11/2/21	**GPS Coordinates:** 42.1540° N -122.6287° W (WGS84)	
Drilling Method: Hollow-Stem Auger **Equipment:** CME 75 HT Truck-Mounted Drill Rig **Hole Diameter:** 8 in.		**Hammer Type:** Auto Hammer **Weight:** 140 lb **Drop:** 30 in. **Energy Ratio:** 0.8
Note: See Legend for Explanation of Symbols		

BORING B-3

DEC. 2021 JOB NO. 6557-A FIG. 3A



Logged By: T. Gayne	**Drilled by:** Western States Soil Conservation, Inc.
Date Started: 11/2/21	**GPS Coordinates:** 42.1539° N -122.6285° W (WGS84)
Drilling Method: Mud Rotary **Equipment:** CME 75 HT Truck-Mounted Drill Rig **Hole Diameter:** 5 in.	**Hammer Type:** Auto Hammer **Weight:** 140 lb **Drop:** 30 in. **Energy Ratio:** 0.8
Note: See Legend for Explanation of Symbols	

BORING B-4

DEC. 2021 JOB NO. 6557-A FIG. 4A

APPENDIX B

Site-Specific Seismic-Hazard Study

APPENDIX B

SITE-SPECIFIC SEISMIC-HAZARD STUDY

B.1 GENERAL

GRI completed a site-specific seismic-hazard study for the seismic retrofit of the existing structure and construction of a building addition at the Jackson County Fire District 5 (JCFD5) Station #2, located at 40 Neil Creek Road in Ashland, Oregon. The purpose of this study was to evaluate the potential seismic hazards associated with regional and local seismicity. The site-specific seismic hazard study is intended to fulfill the requirements of amended Section 1803 of the 2019 Oregon Structural Specialty Code (OSSC) for essential facility structures (ORS 455.447) and 2017 American Society of Civil Engineers (ASCE 41-17), *Seismic Evaluation and Retrofit of Existing Buildings,* which reference the 2016 ASCE document (ASCE 7-16), *Minimum Design Loads and Associated Criteria for Buildings and Other Structures*, for seismic design. Our site-specific seismic-hazard study was based on the potential for regional and local seismic activity, as described in the existing scientific literature, and the subsurface conditions at the site, as disclosed by the geotechnical exploration completed for the project. Specifically, our work included the following tasks:

1. A review of available literature, including published papers, maps, open-file reports, seismic histories and catalogs, and other sources of information regarding the tectonic setting, regional and local geology, and historical seismic activity that might have a significant effect on the site.

2. Compilation, examination, and evaluation of existing subsurface data gathered at the site, including classification and laboratory analyses of soil samples. This information was used to prepare a generalized subsurface profile for the site.

3. Identification of potential seismic sources appropriate for the site and characterization of those sources in terms of magnitude, distance, and acceleration response spectra.

4. Office studies based on the generalized subsurface profile and controlling seismic sources resulting in conclusions and recommendations concerning:

    a. Specific seismic events and characteristic earthquakes that might have a significant effect on the project site.

    b. The potential for ground motion amplification and liquefaction or soil-strength loss at the site.

c. Site-specific acceleration response spectra for design of structures at the site.

This appendix describes the work accomplished and summarizes our conclusions and recommendations.

B.2 TECTONIC AND GEOLOGIC SETTING

On a regional scale, the site is located in the southeast portion of the Rogue River basin, an area that encompasses the High Cascades, Western Cascades, Klamath Mountains, and Coast Range. The site lies approximately 85 kilometers inland from the down-dip edge of the seismogenic extent of the Cascadia Subduction Zone (CSZ), an active convergent-plate boundary along which remnants of the Farallon Plate (the Gorda, Juan de Fuca, and Explorer plates) are being subducted beneath the western edge of the North American continent. The subduction zone is a broad, eastward-dipping zone of contact between the upper portion of the subducting slabs of the Gorda, Juan de Fuca, and Explorer plates and the overriding North American Plate as shown on the Tectonic Setting Summary, Figure 1B.

On a local scale, the site is located in the Bear Creek Valley, a narrow alluvial basin flanked by the Klamath Mountains and Western Cascades physiographic provinces. The distribution of faults considered active within the Quaternary Period by the U.S. Geological Survey (USGS) are shown on the Local Fault Map, Figure 2B. Information regarding the continuity and potential activity of these faults is lacking due largely to the scale at which geologic mapping in the area has been conducted and the presence of thick, geologically young, basin-filling sediments that obscure structural features of the underlying rock. Active faults may be present within the basin, but clear stratigraphic and/or geophysical evidence regarding their location and extent is not presently available.

Published geologic mapping indicates portions of the site are mantled with Pleistocene and Holocene alluvial fan deposits generally consisting of silt, sand, and gravel with cobbles. The unconsolidated fan deposits are typically characterized by intermittent channels and sediment accumulation through normal fluvial deposition. The local surface geology in close proximity to the site is shown on the Local Geologic Map, Figure 3B.

B.3 SEISMICITY

B.3.1 General

Because of the proximity of the site to the CSZ and its location within the Bear Creek Valley, three seismic sources contribute to the potential for damaging earthquake motions at the site. Two of these sources are associated with tectonic activity related to the CSZ, including the interface subduction-zone events related to sudden slip between the upper surface of the Juan de Fuca Plate and lower surface of the North American Plate and subcrustal

(Benioff zone) events related to deformation and volume changes within the deeper portion of the subducted Juan de Fuca Plate. The third source is associated with movement on relatively shallow faults within and adjacent to the Bear Creek Valley. Each of these sources is considered capable of producing damaging earthquakes in the Pacific Northwest; however, there are no historical records of significant subcrustal earthquakes (M_W >6.0) in northwest Oregon and southwest Washington. Wong (2005) hypothesizes that due to subduction-zone geometry, geophysical conditions, and local geology, southwest Washington and northwest Oregon may not be subject to subcrustal earthquakes of significant magnitude.

Based on a review of historical records and evaluation of U.S. Geological Survey (USGS) national seismic-hazard maps (NSHMs), the megathrust CSZ is a primary source at the site, while the local crustal (background-gridded) source contributes significantly to the seismicity.

B.3.2 Cascadia Subduction Zone (CSZ)

Coastal paleoseismic evidence, offshore geological studies, and historical tsunami accounts indicate the CSZ is capable of producing large-magnitude, megathrust earthquakes (M_W 8 to M_W 9) at the interface between the Juan de Fuca and North American plates (Atwater et al., 1995; Goldfinger et al., 2012). Geological studies indicate these megathrust earthquakes have occurred repeatedly in the past 10,000 years (Walton et al., 2021). A combination of paleoseismic and geologic studies (Kelsey et al., 2005) and geodetic studies (Savage et al., 2000) indicate rate of strain accumulation consistent with the assumption that the CSZ is locked beneath offshore northern California, Oregon, Washington, and southern British Columbia (Fluck et al., 1997; Wang et al., 2001). Numerous geological and geophysical studies suggest the CSZ may be segmented (Hughes and Carr, 1980; Weaver and Michaelson, 1985; Guffanti and Weaver, 1988; Goldfinger, 1994; Kelsey and Bockheim, 1994; Mitchell et al., 1994; Personius, 1995; Nelson and Personius, 1996; Witter, 1999), but the most recent studies suggest that for the last great earthquake in 1700, most of the subduction zone ruptured in a single M_W 9.0 earthquake (Satake et al., 1996; Atwater and Hemphill-Haley, 1997; Clague et al., 2000). There is consensus within the scientific community that the most recent great earthquake occurred along the CSZ in January 1700 (Atwater et al., 2015) based on paleoseismic evidence and historical records of an orphan tsunami in Japan. Tsunami modeling completed for the 1700 orphan-tsunami indicated the 1700 earthquake ruptured the whole length of the CSZ and had a moment magnitude of about M_W 9.0 (Satake et al., 2003).

The average recurrence interval for a CSZ megathrust event is estimated to be around 350 years to 600 years based on prehistoric geologic evidence (Atwater and Hemphill-

Haley 1997; Kelsey et al., 2002; Witter et al., 2003). Tsunami inundation in buried marshes along the Washington and Oregon coast and stratigraphic evidence from the Cascadia margin support these recurrence intervals (Kelsey et al., 2005; Goldfinger et al., 2003). Goldfinger et al. (2003, 2012, 2017) evaluated turbidite evidence at the heads of Cascadia submarine canyons, results of which indicated the occurrence of more than 40 great earthquakes over the past 10,000 years with partial or entire length rupture of the CSZ. About 20 of the earthquake events are associated with partial ruptures concentrated in the southern part of the margin and have estimated recurrence intervals of about 220 years to 320 years. About 19 of the events are associated with a rupture of the full CSZ, characterized by a moment magnitude (M_W) of about 8.5 to 9.1 or greater earthquake. Considering a combination of recent paleoseismic, geodetic, and geologic research, the average recurrence interval for a full-rupture CSZ earthquake is estimated to be about 500 years to 540 years (Walton et al., 2021).

The USGS probabilistic analysis assumes four potential locations (three alternative down-dip edge options and one up-dip edge option) for the eastern edge of the earthquake rupture zone for the CSZ, as shown on Figure 4B. As discussed in Petersen et al. (2014), the 2014 USGS mapping effort represents the 2014 CSZ source model with the full-CSZ ruptures with moment magnitudes from M_W 8.6 to M_W 9.3, supplemented by partial ruptures with smaller magnitudes (M_W 8.0 to M_W 9.1). There is also a possibility of serial M_W 8 earthquakes that rupture the entire CSZ over a period of a few decades or less; however, this is not implemented in the current NSHMs. The partial ruptures were accounted for using a segmented model and an unsegmented model. The magnitude-frequency distribution showing the contributions to the earthquake rates from each of the models and how the estimated rates vary along the fault is presented on Figure 5B. In general, the earthquake rates along the CSZ are dominated by the full-characteristic CSZ ruptures (i.e., from northern California to southern British Columbia), indicating the larger M_W 8.6 to M_W 9.3 earthquakes likely occur more often than the smaller, segmented ruptures.

B.3.3 Local Crustal Event

Sudden crustal movements along relatively shallow, local faults in the project area, although rare, have been responsible for local crustal earthquakes. The precise relationship between specific earthquakes and individual faults is not well understood since few of the faults in the area are expressed at the ground surface and there is a limited history of crustal events in the region. The history of local seismic activity is commonly used as a basis for determining the size and frequency to be expected of local crustal events. Although the historical record of local earthquakes is relatively short (the earliest reported seismic event in the area occurred in 1920), it can serve as a guide for estimating the potential for seismic activity in the area.

Based on fault mapping conducted by the USGS (2014 National Seismic Hazard Maps), the Sky Lakes fault zone is the nearest crustal source, located approximately 41 kilometers from the project site. The Sky Lakes fault zone is considered to consist of normal faults that dip to the east with a total length of approximately 53 kilometers and a characteristic earthquake magnitude of M_W 7.0. In general, our review of the 2014 USGS PSHA deaggregations indicates the background-gridded seismic source is one of the sources contributing significantly to the seismicity of the site. The background-gridded seismic source is an areal source zone, which accounts for random earthquakes that are not attributed to known faults. The background seismicity is represented by a characteristic earthquake magnitude of about M_W 6.05 and contributes about 16% to the overall seismic hazard at the site.

B.4 CODE BACKGROUND AND DESIGN SEISMIC PARAMETERS

B.4.1 Code Background

As previously mentioned, we understand the project will be designed in accordance with the 2019 OSSC and ASCE 41-17, which references ASCE 7-16, for seismic design of the structure. The ASCE 7-16 standard requires evaluation of seismic hazards based on the probabilistic Risk-Targeted Maximum Considered Earthquake (MCE_R), which is defined in Chapter 21 of ASCE 7-16 as the response spectrum expected to achieve a 1% probability of building collapse within a 50-year period. The design earthquake ground motions are defined by two-thirds of the MCE_R ground motions. ASCE 41-17 considers four specific seismic-hazard levels, designated BSE-2N; BSE-1N; BSE 2E; and BSE-1E. For the purposes of this project, we understand the existing structure evaluation is being conducted at BSE-2N and BSE-1N hazard levels. The BSE-1N and BSE-2N hazard levels are based on the Risk-Targeted Maximum Considered Earthquake (MCE_R) ground motions consistent with ASCE 7-16. The BSE-2N seismic hazard level is defined by the MCE_R ground motions. The BSE-1N hazard level is provided with the intent of matching the design earthquake ground motions in ASCE 7-16, and therefore is defined as two-thirds of the BSE-2N hazard level.

The ASCE methodology uses two bedrock spectral response mapped acceleration parameters, S_S and S_1, corresponding to periods around 0.2 second and 1.0 second to develop the MCE_R response spectrum. To establish the ground-surface MCE_R spectrum, these mapped bedrock spectral parameters are adjusted for site class using the short- and long-period site coefficients, F_a and F_v, in accordance with Section 11.4.3 of ASCE 7-16.

B.4.2 Design Seismic Parameters

For the project site located at the approximate latitude and longitude coordinates of 42.1541° N and 122.6284° W longitude, the S_S and S_1 mapped spectral response acceleration parameters are 0.59 g and 0.33 g, respectively. These parameters represent the ground motion values for Site Class B/C or bedrock conditions. To establish the ground-surface MCE_R spectrum, these bedrock spectral parameters are adjusted for site

class using the short- and long-period site coefficients, F_a and F_v, in accordance with Section 11.4.3 of ASCE 7-16.

In accordance with Section 20.4 of ASCE 7-16, the site is classified as Site Class C based on the results of the subsurface exploration completed for the project. Therefore, the short- and long-period site coefficients, F_a and F_v, of 1.26 and 1.50, are used to adjust the site effects for Site Class C conditions in accordance with Section 11.4.3 of ASCE 7-16 and develop the ground surface MCE_R (BSE-2N) spectral values. The design level (BSE-1N) response spectrum is calculated as two-thirds of the ground-surface MCE_R spectral values. The recommended MCE_R/BSE-2N and design level/BSE-1N spectral-response parameters for Site Class C conditions are provided below in Table 1B.

Table 1B: RECOMMENDED SEISMIC DESIGN PARAMETERS

Seismic Parameter	Recommended Values*
Site Class	C
MCE_R/BSE-2N 0.2-Sec Period Spectral Response Acceleration, S_{MS}/S_{XS}	0.75 g
MCE_R/BSE-2N 1.0-Sec Period Spectral Response Acceleration, S_{M1}/S_{X1}	0.49 g
Design Level/BSE-1N 0.2-Sec Period Spectral Response Acceleration, S_{DS}/S_{XS}	0.50 g
Design Level/BSE-1N 1.0-Sec Period Spectral Response Acceleration, S_{D1}/S_{X1}	0.33 g

B.5 REFERENCES

American Society of Civil Engineers (ASCE), 2016, ASCE 7-16: Minimum design loads and associated criteria for buildings and other structures: ASCE, Reston, Virginia.

American Society of Civil Engineers (ASCE), 2017, ASCE 41-17: Seismic Evaluation and Retrofit of Existing Buildings: ASCE, Reston, Virginia.

Atwater, B. F., and Hemphill-Haley, E., 1997, Recurrence intervals for great earthquakes of the past 3,500 years at northeastern Willapa Bay, Washington, U.S. Geological Survey, Professional Paper 1576, 108 pages.

Atwater, B. F., Musumi-Rokkaku, S., Satake, K., Tsuji, Y., Ueda, K., and Yamaguchi, D. K., 2015, The orphan tsunami of 1700—Japanese clues to a parent earthquake in North America, 2nd ed., U.S. Geological Survey, Professional Paper 1707, Seattle, University of Washington Press, 135 pages.

Atwater, B. F., Nelson, A. R., Clague, J. J., Carver, G. A., Yamaguchi, D. K., Bobrowsky, P. T., Bourgeois, J., Darienzo, M. E., Grant, W. C., Hemphill-Haley, E., Kelsey, H. M., Jacoby, G. C., Nishenko, S. P., Palmer, S. P., Peterson, C. D., and Reinhart, M. A., 1995, Summary of coastal geologic evidence for past great earthquakes at the Cascadia subduction zone: Earthquake Spectra, v. 11, no. 1, pp. 1-18.

Blakely, R.J., Wells, R.E., Tolan, T.L., Beeson, M.H., Trehu, A.M., and Liberty, L.M., 2000, New aeromagnetic data reveal large strike-slip (?) faults in the Northern Willamette Valley, Oregon: Bulletin of the Geological Society of America, v. 112, p. 1225–1233,

Clague, J. J., Atwater, B. F., Wang, K., Wang, Y., and Wong, I., 2000, Penrose conference report--Great Cascadia earthquake tricentennial: GSA Today, v. 10, no. 11, pp. 14-15.

Fluck, P., Hyndman, R. D., and Wang, K., 1997, Three-dimensional dislocation model for great earthquakes of the Cascadia subduction zone: Journal of Geophysical Research, v. 102, no. B9, pp. 20,539-20,550.

Goldfinger, C., 1994, Active deformation of the Cascadia Forearc--Implications for great earthquake potential in Oregon and Washington, Oregon State University, unpublished dissertation.

Goldfinger, C., Galer, S., Beeson, J., Hamilton, T., Black, B., Romsos, C., Patton, J., Nelson, C. H., Hausmann, R., and Morey, A., 2017, The importance of site selection, sediment

supply, and hydrodynamics: A case study of submarine paleoseismology on the northern Cascadia margin, Washington USA: Marine Geology, v. 384, pp. 4-16.

Goldfinger, C., Nelson, C. H., and Johnson, J. E., 2003, Holocene earthquake records from the Cascadia subduction zone and northern San Andreas fault based on precise dating of offshore turbidites: Annual Review of Earth and Planetary Sciences 31, pp. 555-577.

Goldfinger, C., Nelson, C. H., Morey, A., Johnson, J. E., Gutierrez-Pastor, J., Eriksson, A. T., Karabanov, E., Patton, J., Gracia, E., Enkin, R., Dallimore, A., Dunhill, G., and Vallier, T., 2012, Turbidite event history: Methods and implications for holocene paleoseismicity of the Cascadia Subduction Zone, U.S. Geological Survey, Professional Paper 1661.

Guffanti, M., and Weaver, C. S., 1988, Distribution of Late Cenozoic volcanic vents in the Cascade Range--Volcanic arc segmentation and regional tectonic considerations: Journal of Geophysical Research, v. 93, no. B6, pp. 6,513-6,529.

Hughes, J. M., and Carr, M. J., 1980, Segmentation of the Cascade volcanic chain: Geology, v. 8, pp. 15-17.

Kelsey, H. M., and Bockheim, J. G., 1994, Coastal landscape evolution as a function of eustasy and surface uplift rate, Cascadia margin, southern Oregon: Geological Society of America Bulletin, v. 106, pp. 840-854.

Kelsey, H. M., Nelson, A. R., Hemphill-Haley, E., and Witter, R. C., 2005, Tsunami history of an Oregon coastal lake reveals a 4600-year record of great earthquakes on the Cascadia subduction zone: GSA Bulletin, v. 117, pp. 1,009-1,032.

Kelsey, H. M., Witter, R. C., and Hemphill-Haley, E., 2002, Pl.-boundary earthquakes and tsunamis of the past 5500-year, Sixes River estuary, southern Oregon: Geological Society of America Bulletin, v. 114, no. 3, pp. 298-314.

Mitchell, C. E., Vincent, P., Weldon, R. J. III, and Richards, M. A., 1994, Present-day vertical deformation of the Cascadia margin, Pacific Northwest, United States: Journal of Geophysical Research, v. 99, no. B6, pp. 12,257-12,277.

Nelson, A. R., and Personius, S. F., 1996, Great-earthquake potential in Oregon and Washington--An overview of recent coastal geologic studies and their bearing on segmentation of Holocene ruptures, central Cascadia subduction zone, in Rogers, A. M., Walsh, T. J., Kockelman, W. J., and Priest, G. R., eds., Assessing earthquake

hazards and reducing risk in the Pacific Northwest, U.S. Geological Survey, Professional Paper 1560, v. 1, pp. 91-114.

Personius, S. F., 1995, Late Quaternary stream incision and uplift in the forearc of the Cascadia subduction zone, western Oregon: Journal of Geophysical Research, v. 100, no. B10, pp. 20,193-20,210.

Oregon Structural Specialty Code (OSSC), 2019.

Personius, S. F., Dart, R. L., Bradley, L. A., and Haller, K. M., 2003, Map and data for Quaternary faults and folds in Oregon, U.S. Geological Survey, Open-File Report OF-2003-95.

Petersen, M. D., Moschetti, M. P., Powers, P. M., Mueller, C. S., Haller, K. M., Frankel, A. D., Zeng, Y., Rezaeian, S., Harmsen, S. C., Boyd, O. S., Field, N., Chen, R., Rukstales, K. S., Nico, L., Wheeler, R. L., Williams, R. A., and Olsen, A. H., 2014, Documentation for the 2014 update of the United States national seismic hazard maps, U.S. Geological Survey, Open-File Report 2014–1091, 243 pages, http://dx.doi.org/10.3133/ofr20141091.

Satake, K., Shimazaki, K., Tsuji, Y., and Ueda, K., 1996, Time and size of a giant earthquake in Cascadia inferred from Japanese tsunami records of January 1700: Nature, v. 379, pp. 246-249.

Satake, K., Wang, K., and Atwater, B.F., 2003, Fault slip and seismic moment of the 1700 Cascadia earthquake inferred from Japanese tsunami descriptions: Journal of Geophysical Research, v. 108, no. B11, p. 2535, doi: 10.1029 /2003JB002521.

Savage, J. C., Svarc, J. L., Prescott, W. H., and Murray, M. H., 2000, Deformation across the forearc of the Cascadia subduction zone at Cape Blanco, Oregon: Journal of Geophysical Research, v. 105, no. B2, pp. 3,095-3,102.

Walton, M., Staisch, L., Dura., T, Pearl, J., Sherrod, B., Gomberg, J., Engelhart, S., Tréhu, A., Watt, J., Perkins, J., Witter, R., Bartlow, N., Goldfinger, C., Kelsey, H., Morey, A., Sahakian, V., Tobin, H., Wang, K., Wells, R., Wirth, E, 2021,Toward an Integrative Geological and Geophysical View of Cascadia Subduction Zone Earthquakes, Annu. Rev. Earth Planet. Sci. 2021, v. 49, pp. 367-398.

Walker, G.W., and MacLeod, N.S., 1991, Geologic map of Oregon: U.S. Geological Survey, scale 1:500,000.

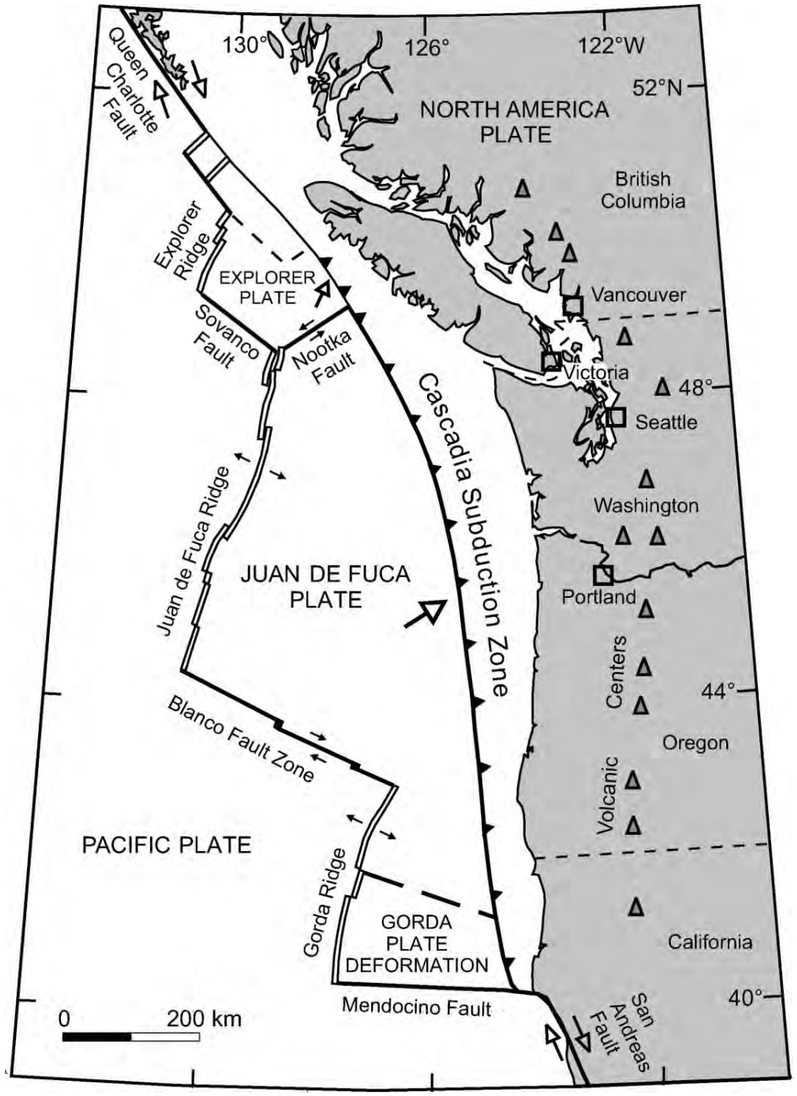
Wang, Y., He, J., Dragert, H., and James, T. S., 2001, Three-dimensional viscoelastic interseismic deformation model for the Cascadia subduction zone: Earth, Planets and Space, v. 53, pp. 295-306.

Weaver, C. S., and Michaelson, C. A., 1985, Seismicity and volcanism in the Pacific Northwest--Evidence for the segmentation of the Juan de Fuca Pl.: Geophysical Research Letters, v. 12, no. 4, pp. 215-218.

Witter, R. C., 1999, Late Holocene Paleoseismicity, tsunamis and relative sea-level changes along the south-central Cascadia subduction zone, southern Oregon: University of Oregon, unpublished PhD dissertation, 178 pages.

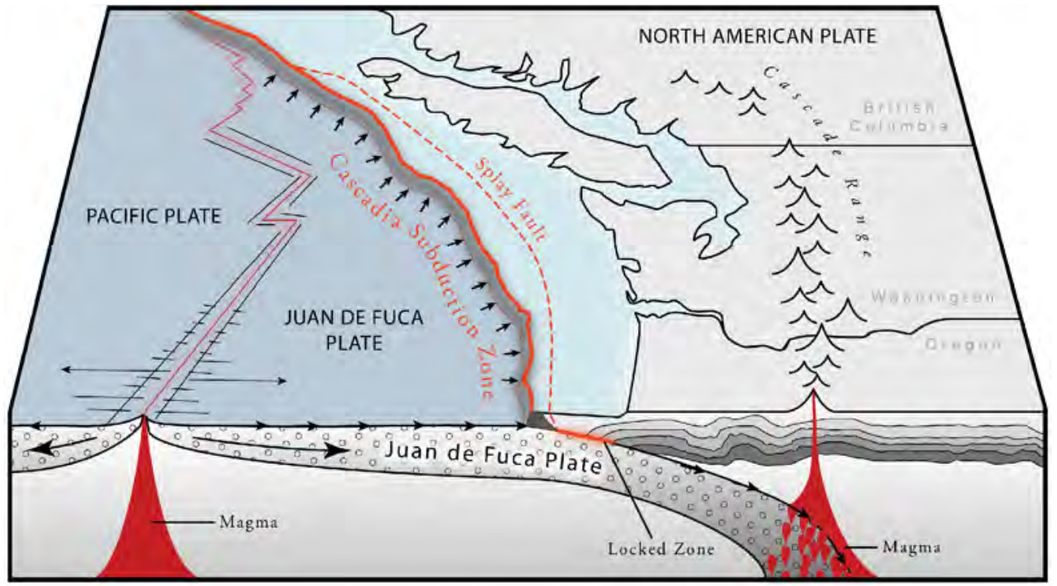
Witter, R. C., Kelsey, H. M., and Hemphill-Haley, E., 2003, Great Cascadia earthquakes and tsunamis of the past 6700 years, Coquille River estuary, southern coastal Oregon: Geological Society of America Bulletin 115, pp. 1,289-1,306.

Wong, I., 2005, Low potential for large intraslab earthquakes in the central Cascadia Subduction Zone: Bulletin of the Seismological Society of America, v. 95, issue 5, pp. 1880-1902.



A) TECTONIC MAP OF PACIFIC NORTHWEST, SHOWING ORIENTATION AND EXTENT OF CASCADIA SUBDUCTION ZONE (MODIFIED FROM DRAGERT AND OTHERS, 1994)

Cascadia Subduction Zone Setting

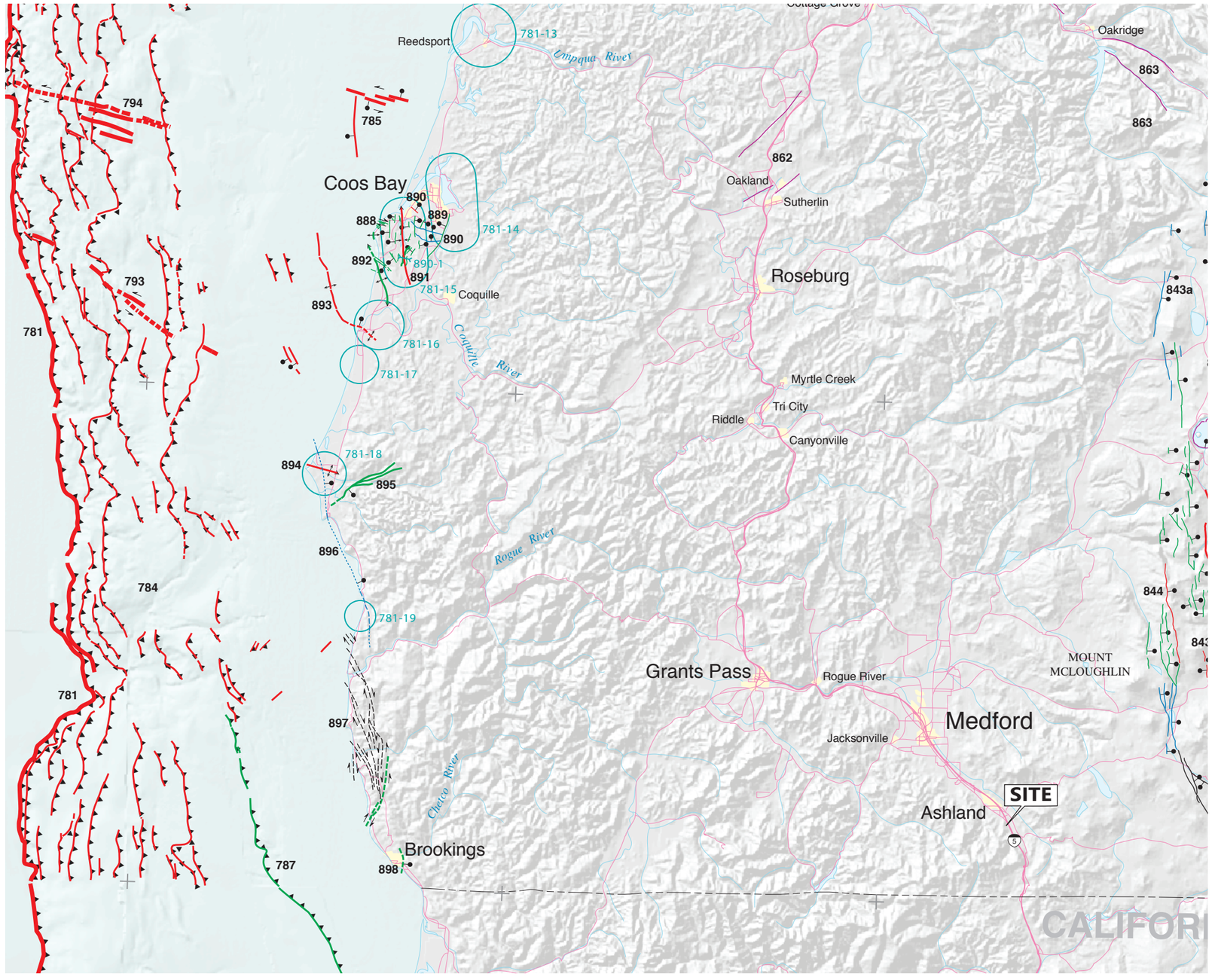


CASCADIA SUBDUCTION ZONE SETTING, TSUNAMI INUNDATION MAPS, OREGON DEPARTMENT OF GEOLOGY AND MINERAL INDUSTRY, 2013

GRI

TECTONIC SETTING SUMMARY

DEC. 2021 JOB NO. 6557-A FIG. 1B



MAP EXPLANATION

TIME OF MOST RECENT SURFACE RUPTURE

- Holocene (<10,000 years) or post last glaciation (<15,000 years; 15 ka); no historic ruptures in Oregon to date
- Late Quaternary (<130,000; post penultimate glaciation)
- Late and middle Quaternary (<750,000 years; 750 ka)
- Quaternary, undifferentiated (<1,600,000 years; <1.6 Ma)
- Class B structure (age or origin uncertain)

SLIP RATE

- >5 mm/year
- 1.0-5.0 mm/year
- 0.2-1.0 mm/year
- <0.2 mm/year

TRACE

- Mostly continuous at map scale
- Mostly discontinuous at map scale
- Inferred or concealed

STRUCTURE TYPE AND RELATED FEATURES

- Normal or high-angle reverse fault
- Strike-slip fault
- Thrust fault
- Anticlinal fold
- Synclinal fold
- Monoclinal fold
- Plunge direction of fold
- Fault section marker

DETAILED STUDY SITES

- 731-2 Trench site
- 781-2 Subduction zone study site

CULTURAL AND GEOGRAPHIC FEATURES

- Divided highway
- Primary or secondary road
- Permanent river or stream
- Intermittent river or stream
- Permanent or intermittent lake

FAULT NUMBER	NAME OF STRUCTURE
781	CASCADIA SUBDUCTION ZONE
844	SKY LAKES FAULT ZONE
843	KLAMATH GRABEN FAULT SYSTEM
843a	WEST KLAMATH LAKE SECTION

FROM: PERSONIUS, S.F., AND OTHERS, 2003, MAP OF QUATERNARY FAULTS AND FOLDS IN OREGON, USGS vOPEN FILE REPORT OFR-03-095.

N

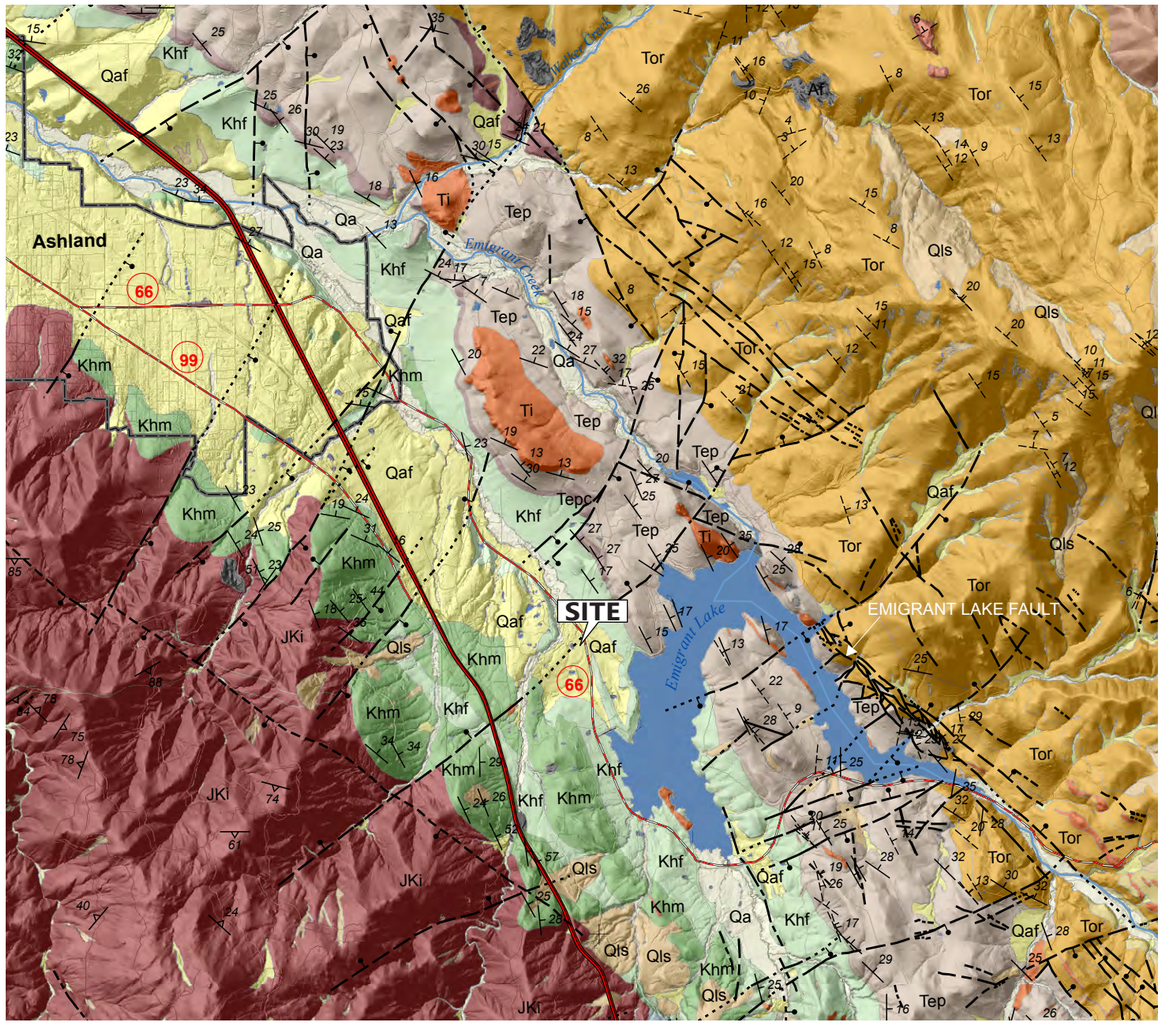
0 25 50 MILES

0 25 50 KILOMETERS

GRI

LOCAL FAULT MAP

DEC. 2021 JOB NO. 6557-A FIG. 2B



EXPLANATION OF MAP SYMBOLS

- USGS 7.5' Quadrangle Corner
- Study Area Boundary
- Cross Section
- Interstate
- State Route
- Local Road
- Urban Growth Boundary
- Water Course
- Open Water

- Small, minor inclined joint, showing strike and dip
- Small, minor vertical or near-vertical joint, showing strike
- Horizontal bedding
- Inclined bedding, showing strike and dip
- Vertical bedding, showing strike
- Gently inclined (between 0° and 30°) bedding, as determined remotely or from aerial photographs, showing approximate strike and direction of dip
- Moderately inclined (between 30° and 60°) bedding, as determined remotely or from aerial photographs, showing approximate strike and direction of dip
- Steeply inclined (between 60° and 90°) bedding, as determined remotely or from aerial photographs, showing approximate strike and direction of dip
- Inclined generic foliation, showing strike and dip
- Vertical generic foliation, showing strike
- Inclined flow banding, lamination, layering, or foliation in igneous rock
- Vertical flow banding, lamination, layering, or foliation in igneous rock, showing strike
- Inclined generic lineation or linear structure, showing bearing and plunge
- Inclined aligned-mineral lineation, showing bearing and plunge

- Fault - identity and existence certain, solid where accurate, long dash where approximate, dotted where concealed
- Normal fault - identity and existence certain, bar and ball on downthrown side, solid where accurate, long dash where approximate, dotted where concealed. Question mark indicates a questionable identity and existence
- Normal fault - identity and existence certain, bar and ball on downthrown side, location inferred
- Oblique-slip fault, right-lateral offset - identity and existence certain, bar and ball on downthrown side, arrows show relative motion, solid where accurate, dotted where concealed
- Lineament

EXPLANATION OF MAP UNITS

QUATERNARY SURFICIAL DEPOSITS

Af — **Artificial Fill (Anthropocene)**
Man-made deposits of gravel, sand, silt, clay, and construction material; includes dams, road embankments, causeways, large culvert fills, and, locally, mined land. *(Geodatabase unit Af)*

HAt — **Tufa (Holocene and Anthropocene)**
Porous, limestonelike deposits that formed along the Anderson Creek drainage in areas downstream from carbonate-saturated springs. The distinctive stepped, flat-bottomed valley is underlain by tufa produced when water cooled evaporated or otherwise precipitated (e.g., by microbes) calcium carbonate, thus building up the valley floor. *(Geodatabase unit HAt)*

Qa — **Alluvium (Quarternary)**
Unconsolidated gravel, sand, silt, and clay deposited in active stream channels, in the bed of the former Gold Ray Reservoir, and on adjoining flood plains of the Rogue River, Bear Creek, and their tributaries. Near the confluence of Bear Creek and the Rogue River, the unit is up to 15 m (50 ft) thick and fills channels and floodplains of sand, silt, and gravel up to 1.6 km (1.0 mi) wide. Unit Qa ranges in age from late Pleistocene to Anthropocene. These active floodplains are set into older Pleistocene terrace deposits. Areas underlain by unit Qa may be subject to significant flooding and channel migration hazards. Most of the area shown as Qa was inundated by the 1861 flood (Beaulieu and Hughes, 1977). The unit can be a productive unconfined aquifer but may be susceptible to contamination. The unit is an important source of sand and gravel used for aggregate. *(Geodatabase Units Aa, Al, Ha, Qa, Qoa)*

Qls — **Landslide deposits (Quaternary)**
Irregular bodies of chaotically mixed rock, soil, and colluvium deposited by landslides. Mapped deposits range in size from 45 m^2 (500 ft^2) to over 10 km^2 (3.6 mi^2). Landslides are more common in mixed lithologies of volcanic formations that crop out along the eastern side of the valley. Triggering mechanisms for landslides include intense rainfall, earthquakes, devegetation, excavation, loading, and loss of root strength following fires. Many larger landslides have probably been intermittently active over hundreds or thousands of years, and all areas of existing landslide deposits should be considered at risk for further slope movement. *(Geodatabase units Als, Hls, Qls)*

Qaf — **Alluvial fans, debris fans and colluvium (Quaternary)**
Gravel, sand, silt, clay, and woody debris mantling shallow to moderately steep slopes or deposited where steep upland drainages reach the valley floor. Rapidly moving debris flows, which pose hazards to life and property, may occur during episodes of intense rainfall, and the deposits from these events will be concentrated on alluvial fans that lie at the mouths of steep-sided, colluvium-filled canyons and upland drainages. May be a productive aquifer but is susceptible to contamination. *(Geodatabase units Aaf, Haf, Hdf, Qc, Qaf, Qafg, Qafs, Qdf)*

Qt — **Terrace deposits (Pleistocene)**
Gravel and sand deposits that underlie much of the flat valley floor and are incised by younger streams. Includes the broad plain between the Rogue River and Medford in the north that merges with (or is covered by) coalescing alluvial fans where Griffin, Coleman, Jackson, and Anderson Creeks leave steeper terrane and emerge on the valley floor to the south. The oldest, highest surface recognized is topped with distinctive subrounded mounds 0.5 to 1.5 m (1.6 to 4.9 ft) high and 8 to 40 m (26 to 131 ft) across. May be a productive aquifer but is susceptible to contamination. *(Geodatabase units Qtl, Qtm, Qtu)*

Disconformity

CENOZOIC VOLCANIC AND SEDIMENTARY ROCKS

Volcanic Rocks of the Early High Cascades

Tmtr — **Table Rocks Andesite (late Miocene, 7.2 Ma)**
Andesite lava flow that forms the "U"-shaped mesas of Upper Table Rock and Lower Table Rock (Wiley and Smith, 1993; Hladky, 1998). Although the lava originally flowed down the valley of the ancestral Rogue River from its source near Olson Mountain, the lava now forms elevated resistant caps that protect the lower parts of the mesas from erosion; an excellent example of "inverted topography." The 210 m (700 ft) elevation difference between the base of the Table Rocks lava flow and the bedrock channel beneath alluvium at the valley floor suggests that the Rogue River cuts downward at a rate of approximately 30 m (100 ft) per million years. Rock from this lava flow was used to construct the William L. Jess Dam at Lost Creek Lake. The mesa surfaces are locally covered with roughly circular mounds 3 to 30 m (10 to 100 ft) in diameter and 30-60 cm (1-2 ft) high. *(Geodatabase unit Tmtr)*

Angular Unconformity

Volcanic and Sedimentary Rocks of the Early Western Cascades

Tmh — **Heppsie Formation (early Miocene)**
Basaltic andesite, basalt, and andesite lava flows that originated east of the study area and flowed westward, in some cases down paleocanyons (Hladky, 1995). Radiometric ages for the unit range from 21.9 to 22.7 Ma. Basalt flows typically have columnar joints; andesite flows are platy. Locally used as a crushed aggregate resource. *(Geodatabase unit Tmh)*

Little Butte Volcanics

Tmw — **Wasson Formation (lower Miocene)**
Interlayered tuff, basaltic to dacitic lava flows, related vent deposits, and lake-bed sediment. The Wasson Formation includes the 21.4 Ma tuff of Eagle Butte, a thick, nonwelded to welded, dacitic ash-flow tuff. Lacustrine shales are thinly laminated and locally contain fossil leaves. Some of the largest landslides in the area occur where Wasson Formation tuffs are overlain by Heppsie Formation lava flows. *(Geodatabase units Tmwt, Tmwv, Tmwn, Tmww, Tmws, Tmwl, Tmwn1, Tmww2, Tmwn3, Tmww4, Tmwn5)*

Tmg — **Grizzly Peak Volcanics (lower Miocene)**
Basaltic andesite lava flows, volcanic mudflow breccia, vent deposits, and tuff erupted from a large early Miocene stratovolcano near Grizzly Peak (Hladky, 1996). Consists of an upper unit of lava flows, mudflow breccias, and vent deposits; a middle unit of tuff with a few flows; and a lower unit of flows and vent deposits. *(Geodatabase units Tmgb, Tmub, Tmgx, Tmgl, Tmgv, Tmgp, Tmpt, Tmpb, Tmpv)*

Tor — **Roxy Formation (Oligocene and lower Miocene)**
Basaltic andesite and andesite lava flows, tuff and volcaniclastic rocks, and vent complexes that form the eastern margin of Bear Creek Valley. Radiometrically dated lava flows range in age from 30.8 Ma to 24.6 Ma (Fiebelkorn and others, 1983). The Roxy Formation is divided into the Iron Gate, Dry Creek, Soda Springs, Camp Creek, and Rio Canyon Members. Thick paleosols in the lower part of the Formation suggest the presence of internal disconformities spanning significant periods of time. The lava flows of this unit are a source for crushed rock aggregate. The interbedded flows and volcaniclastic rocks are highly susceptible to landslides. *(Geodatabase units Torb, Torl, Torv, Tolc, Toro, Torc, Tort, Tora, Tocb, Tocc, Tocy, Tocz, Toca, Tocv, Tosc, Tost, Tord, Todb, Tori, Torw, Tops)*

Toc — **Colestin Formation (lower Oligocene)**
Nonmarine andesitic to dacitic or rhyolitic volcaniclastic, pyroclastic, and flow rocks with minor basaltic material (Carlton, 1972; Bestland, 1987). These are the oldest of the Early Western Cascade Range volcanic units exposed in Bear Creek Valley. Preserved only in the southern part of the study area. *(Geodatabase unit Toc)*

Unconformity (angular?)

PALEOGENE TERRESTRIAL SEDIMENTARY ROCKS

Payne Cliffs Formation (middle and upper Eocene)
Terrestrial sedimentary rocks ranging from conglomerate to claystone and coal. Generally east-dipping along the Bear Creek Valley but broadly folded in the Sams Valley and Table Rocks area (Wiley and Hladky, 1991). Fine-grained facies are prone to landslides. Divided to show:

Tepv — **Volcaniclastic sandstone member (upper Eocene)**
Volcaniclastic sandstone, pebbly sandstone, and shale that make up the upper part of the Payne Cliffs east of Ashland. These rocks are the earliest indication of volcanic activity in the Western Cascade Range in the area. *(Geodatabase unit Tepv)*

Tep — **Arkosic sandstone and siltstone (middle and upper Eocene)**
Arkosic nonmarine sandstone, siltstone, pebbly sandstone, shale, and claystone. *(Geodatabase unit Tep)*

Tepc — **Basal conglomerate member (middle Eocene)**
Conglomerate, pebbly sandstone, and sandstone that mark the base of the Payne Cliffs Formation (Wiley and others, 1998). The basal conglomerate overlies the marine Hornbrook Formation with slight angular unconformity; and upper Cretaceous, Paleocene, and lower Eocene strata are missing along the unconformity. *(Geodatabase unit Tepc)*

Unconformity

CRETACEOUS MARINE SEDIMENTARY ROCKS

Hornbrook Formation (mid- to Late Cretaceous)
Siliciclastic, locally fossiliferous sedimentary rocks deposited in varied environments ranging from very shallow (nonmarine?) nearshore to deep (below wave base) marine submarine fans. These rocks lap across Jurassic tectonostratigraphic terranes in southern Oregon and northern California and so provide a minimum age for amalgamation. To show fining-upward sequences that are associated with repeated marine transgressions this unit has been divided into:

Khf — **Fine-grained facies (mid- to Late Cretaceous)**
Marine siltstone and mudstone deposited on deep submarine fans, includes some thin-bedded turbidites. *(Geodatabase units Kbg, Kdc, Kmm, Kdh)*

Khm — **Hornbrook Formation, sandstone (mid- to Late Cretaceous)**
Siliciclastic sandstone with minor siltstone, pebbly sandstone, and conglomerate. Deposited in shallow to deep submarine fan environments. *(Geodatabase units Krg, Kog, Kbhs, Kpr, Ka)*

Khsc — **Hornbrook Formation, sandstone and conglomerate (mid- to Late Cretaceous)**
Micaceous and arkosic pebbly sandstone, conglomerate, sandstone, and siltstone. Sedimentary structures indicate that these rocks formed in both shallow and deep marine (submarine fan) environments. *(Geodatabase units Kjv, Kbhc)*

Angular Unconformity

JURASSIC AND TRIASSIC TECTONOSTRATIGRAPHIC TERRANES

Applegate Terrane (Jurassic and Triassic)
Complexly deformed broken formation consisting of variably metamorphosed marine volcaniclastic and quartzose sedimentary rock (Wiley, 2006a), mafic to intermediate volcanic rock, and ultramafic rock and serpentinite. Thick sequences of interlayered metavolcaniclastic and metasiliciclastic rocks suggest that both volcanic (arc?) and continental sources contributed sediment to this terrane. Over several kilometers these rocks appear to be broadly warped into domelike and basinlike structures. Amphibolite-grade metamorphic rock is more common near structural highs or plutons, whereas greenschist-facies rocks are preserved in structural lows (Wiley, 2006b). The chemistry of the metavolcanic rocks and presence of ultramafic rocks suggest that this terrane originated in a back-arc or ocean margin setting. Divided to show:

JTrs — **Metasedimentary rock (Jurassic and Triassic)**
Predominantly volcaniclastic metasandstone, argillite, and metaconglomerate, with small lenses of limestone and marble. The protolith was probably a sedimentary apron derived from a nearby volcanic arc. *(Geodatabase units JTrs, JTrsa, JTram, JTrl)*

JTrq — **Quartzose metasedimentary rock (Jurassic and Triassic)**
Quartzite and laminated to massive quartzose meta-siltstone beds alternating with siliceous slate and phyllite. Locally includes quartzbiotite schist and metachert. *(Geodatabase unit JTrq)*

JTrv — **Metavolcanic rock (Jurassic and Triassic)**
Meta-andesite and metabasaltic andesite derived from volcanic rocks erupted in or near the marine environment. Distinguished from volcaniclastic sedimentary rocks by the presence of vesicles or amygdules and associated deep- to bright red or maroon soils. *(Geodatabase units JTra, JTraa, JTrdt, JTrv)*

u — **Ultramafic rock (Jurassic and Triassic)**
Serpentinite and serpentized pyroxenite, harzburgite, and dunite. The serpentinite is typically associated with fault zones, and the serpentinized ultramafic rocks are interpreted as fault-bounded blocks of oceanic or transitional crust. Commonly associated with bright red soils of poor quality and resultant patches and fields of stunted vegetation. *(Geodatabase units sp, u)*

INTRUSIVE ROCKS

Ti — **Tertiary intrusive rocks (Eocene to Miocene)**
Mafic to intermediate dikes and sills occur throughout the valley with a distinctive suite of felsic dikes present from Emigrant Lake south. Most dikes south of Emigrant Lake parallel the northwest trend of nearby faults. Where fresh and appropriately jointed, this unit is an aggregate source for crushed rock. *(Geodatabase units Ti, Tmib, Tmdi, Tii, Tid, Tif, Tih, Tim)*

JKi — **Mesozoic intrusive rocks (Late Jurassic to Early Cretaceous)**
Granitic intrusions ranging in composition from granite to diorite and quartz diorite. There are three main intrusions: the 148 Ma Gold Hill pluton, the 154 Ma Jacksonville pluton, and the 161 Ma Ashland batholith (zircon ages reported by Irwin and Wooden, 1999). Locally, this unit includes small dikes of more wide ranging composition including a distinctive suite of andesite dikes containing abundant acicular hornblende. Permeability is widely variable in the plutons and batholith. High permeability is generally associated with the base of deeply weathered rock but may occur in fresher rock along fracture zones. *(Geodatabase units KJi, Jghi, Jji, Jad, Jag, Jagd, Jam, Jaq, Jat)*

N

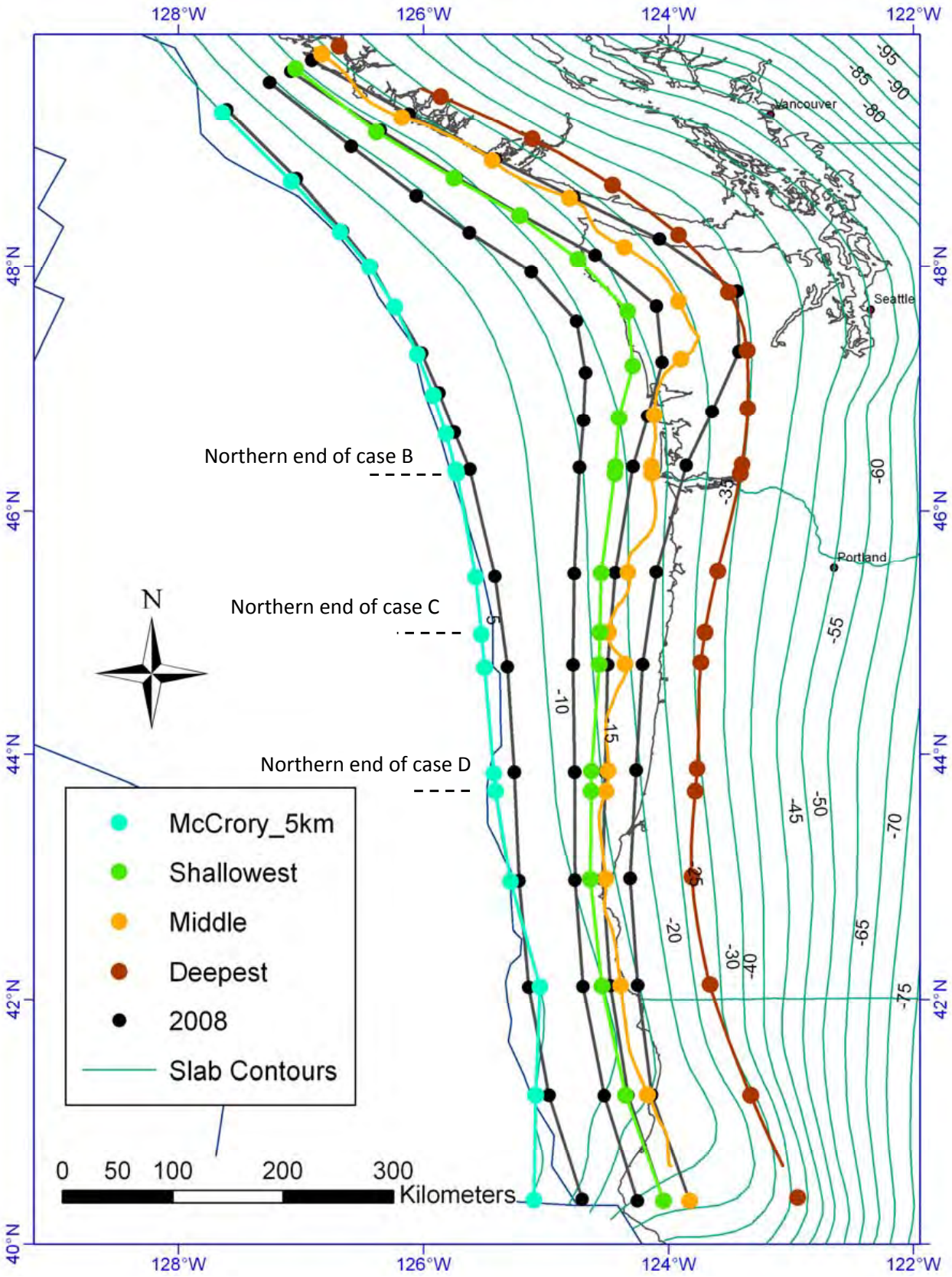
0 1 2 MILE

Wiley, T.J., McClaughry, J. D., and D'Allura, J. A., 2011, Geologic database and gereralized geologic map of Bear Creek Valley, Jackson County, Oregon: Oregon Dapartment of Geology and Mineral Industries (DOGAMI), Open-File Report O-11-11

GRI

LOCAL GEOLOGIC MAP

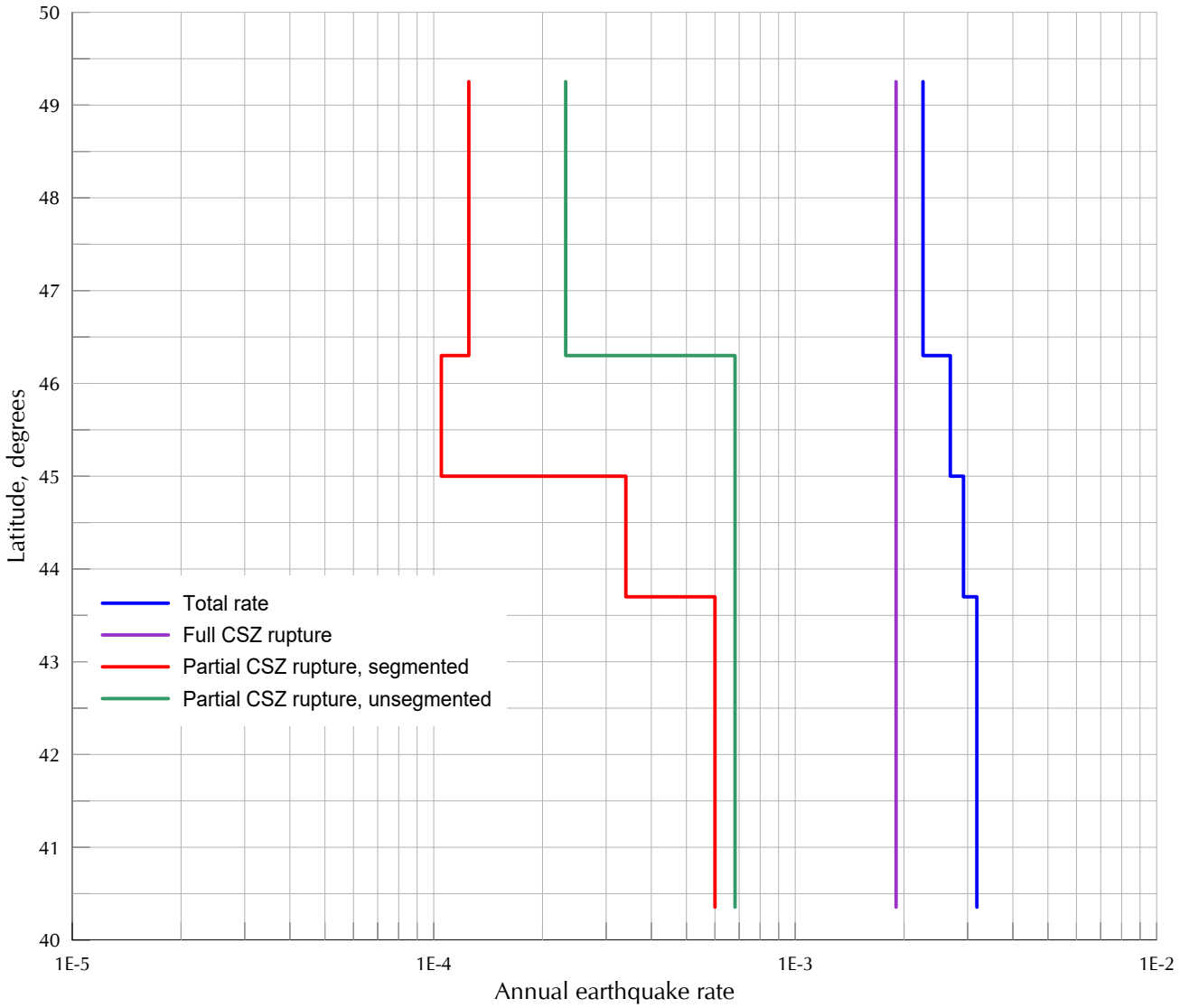
DEC. 2021 JOB NO. 6557-A FIG. 3B



GRI

LOCATION OF SURFACE TRACES FOR UP-DIP EDGE & THREE DOWN-DIP EDGE OPTIONS USED IN 2014 NSHMS
(CHEN ET.AL 2014)

DEC. 2021 JOB NO. 6557-A FIG. 4B



REFERENCE:
PETERSEN, M.D., MOSCHETTI, M.P., POWERS, P.M., MUELLER, C.S., HALLER, K.M., FRANKEL, A.D., ZENG, Y., REZAEIAN, S., HARMSEN, S.C., BOYD, O.S., FIELD, N., CHEN, R., RUKSTALES, K.S., NICO, L., WHEELER, R.L., WILLIAMS, R.A., AND OLSEN, A.H., 2014, DOCUMENTATION FOR THE 2014 UPDATE OF THE UNITED STATES NATIONAL SEISMIC HAZARD MAPS: U.S. GEOLOGICAL SURVEY OPEN-FILE REPORT 2014–1091, 243 P.

GRI

VARIATION OF EARTHQUAKE RATES CASCADIA SUBDUCTION ZONE (CSZ)

DEC. 2021 JOB NO. 6557-A FIG. 5B

consultants

Regulated Building Materials Survey Report

Purpose: Pre-Renovation

Client:
Jackson County Fire District No. 5
5811 South Pacific Highway
Phoenix, Oregon 97535

Project:
Jackson County Fire District No. 5 - Station 4
40 Neil Creek Road
Ashland, Oregon 97520

G2 Project #: 22-88

January 23, 2022

Prepared By:

G2 Consultants
16869 SW 65th Avenue, #15
Lake Oswego, Oregon 97035
www.g2ci.com
CCB #223539

Regulated Building Materials Survey Report

G2 Consultants Project #: 22-88

Purpose of Inspection:	Pre-Renovation
Scope of Inspection:	Entire Building
Project Address:	40 Neil Creek Road
Project Address 2:	Ashland, Oregon 97520
Project Description:	Regulated Building Materials Survey
Owner or Facility Operator:	Jackson County Fire District No. 5
Owner or Facility Operator Phone #:	541-535-4222

Technical Certifications

Consultant	Discipline	Certification #	Regulatory Agency	Phone Number
Sean Friend	Asbestos Building Inspector	IR-21-8998B	EPA	(503) 863-0860
	Lead-Based Paint Inspector	2743-Indv-I 9152743-I	EPA / OR Health Authority Oregon CCB	

Table of Contents

Executive Summary

G2 Consultants (G2) was retained by HMK Company (HMK), on behalf of Jackson County Fire District No. 5, to conduct a regulated building materials survey. The survey included a comprehensive building inspection for asbestos-containing materials (ACM), a limited inspection for lead-based paint (LBP), and a visual inspection for universal waste, and items suspected of containing mercury or polychlorinated biphenyls (PCB). The survey was conducted at Station 4 of Jackson County Fire District No. 5, located at 40 Neil Creek Road in Ashland, Oregon. The scope of the regulated building materials survey included the interior, exterior, and roof of the building. Authorization was provided by Richard Randleman with HMK Company.

Date(s) of Inspection: January 10-18, 2022

Purpose of Inspection: Pre-Renovation

Scope of Inspection: Regulated Building Materials Survey

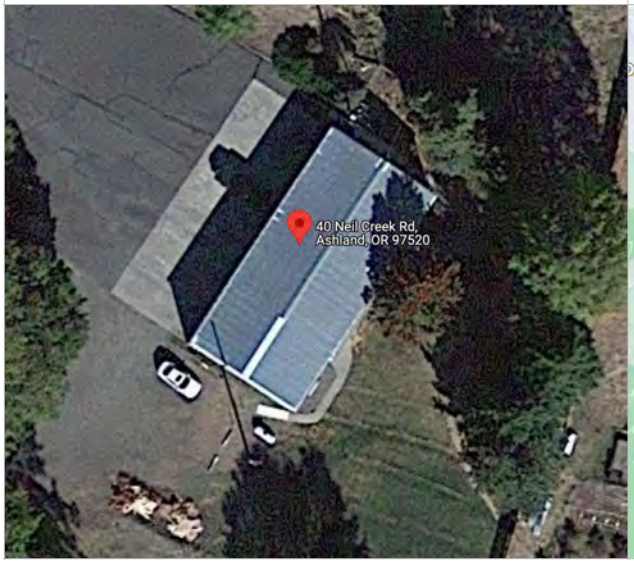
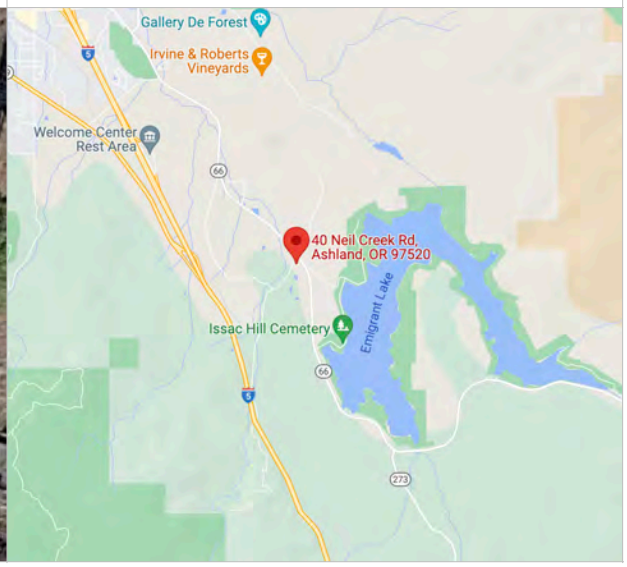
Asbestos
Results of the inspection have determined that asbestos was not detected in any of the materials sampled as part of this survey.

Lead-Based Paint
Results of the inspection have determined that LBP was not detected on any of the materials tested in the interior or exterior of the structure that is equal to or above the concentration of 1.0 milligram per centimeter squared (mg/cm^2). Potential lead-containing paint (LCP) below the threshold concentration of 1.0 mg/cm^2 was identified on various painted components.

Universal Waste, Mercury and PCBs
Results of the inspection indicate that items suspect for containing mercury and PCBs, or that are classified as universal waste, such as fluorescent tubes and ballasts, were present in the structure.

Description of Structure(s)

Type of facility:	Fire Station
Past uses:	-
Age of construction:	1970
Approximate square footage:	3,500 sq. ft.
Number of floors:	1
Outbuildings included in inspection:	None

Aerial Photo of Subject Property	Location of Subject Property
	

Scope of Inspection

G2 was contracted by HMK to perform a regulated building materials survey for ACM, an inspection for LBP, and a visual inspection for universal waste and items suspected of containing mercury or PCBs. The survey was conducted at Station 4 of Jackson County Fire District No. 5, located at 40 Neil Creek Road in Ashland, Oregon. The survey was conducted to represent all suspect materials within the scope of work. The scope of work for the building included surveying interior, exterior, and roofing materials, as outlined by HMK at the time of inspection.

Asbestos

The scope of services was to perform a visual and tactile inspection, and identify the presence, quantity, and location of any accessible ACM, within the area(s) of the scope of work. All identified accessible suspect materials were sampled. The building was occupied during the survey. Limited destructive sampling techniques were utilized to gain access to potentially hidden materials, such as hidden layers under finished floors, within wall cavities, etc. Additional suspect materials may be present in other interstitial spaces that were inaccessible at the time of the site visit.

Lead-Based Paint

Readings of the lead content of painted surfaces throughout the interior and exterior of the structure were collected using an X-Ray Fluorescence (XRF) device. The readings were taken on the predominant interior and exterior colors of paint to provide a general understanding of the distribution of lead in these surfaces. All Federal, State and City regulations governing the inspection were followed.

Universal Waste, Mercury and PCBs

A visual inspection of the buildings was conducted for the presence of universal waste and items suspected to contain PCBs and mercury.

Inspection Findings

Asbestos

Results of the inspection have determined that asbestos was not detected in any of the materials sampled as part of this survey.

Non-Asbestos-Containing Materials			
HM No.†	Material Description	Material Location	No. of Samples
1	Wall Texture, Knockdown	Throughout	3
2	Drywall and Joint Compound	Throughout	3
3	Ceiling Texture, Popcorn	Bathroom	3
4	Wall Texture, Orange Peel	Bathroom	3
5	Window Putty, White	Office Window	2
6	Backsplash Adhesive, Chalky White	Kitchen	2
7	Sink Undercoating, Black	Kitchen	2
8	Backsplash Adhesive, White	Bathroom	2
9	Door Frame Putty, White	Throughout (Door Frames)	2
10	Caulking, White	Bathroom	2
11	Door Frame Putty, Off-White	Apparatus Bay	2
12	Fiberglass Insulation Backing, White	Throughout	2
13	Fiberglass Insulation Backing, Tan Asphaltic	Throughout	2
14	Window Putty, Chalky White	Exterior Windows	2
15	Caulking, Tan	Exterior Siding	2
16	CMU Mortar, Gray	Exterior - Northwest Side	2
17	Roof Patch and Repair, Clear	Roof	2
18	Roof Patch and Repair, Black	Roof	2
19	Carpet Glue, Tan	Break Room, Dorms, Hallway	2
20	Leveling Compound, White	Kitchen, Reception, Office	2
21	Caulking, Gray	Bathroom	2

Non-Asbestos-Containing Materials			
HM No.†	Material Description	Material Location	No. of Samples
22	Grout from 12" x 12" Ceramic Floor Tile, Gray	Bathroom	2
23	Mortar from 12" x 12" Ceramic Floor Tile, Gray	Bathroom	2

† - Homogeneous material number

Details of the samples collected, including locations of individual samples can be found in Appendix B: Laboratory Analysis Results and Chain of Custody.

Lead-Based Paint

Results of the inspection have determined that LBP was not detected on any of the materials tested in the interior or exterior of the structure that is equal to or above the concentration of 1.0 milligram per centimeter squared (mg/cm^2). Potential LCP below the threshold concentration of 1.0 mg/cm^2 was identified on various painted components.

These findings are not intended to provide an exhaustive list of all LBP on the subject property. Readings of representative painted surfaces throughout the interior and exterior of the structure(s) were collected in order to provide the property owner a general indication of the distribution of lead for renovation or demolition purposes. Not all painted components were tested as part of this limited LBP inspection.

Universal Waste, Mercury and PCBs

Results of the inspection indicate that items suspect for containing mercury and PCBs, or that are classified as universal waste, such as fluorescent tubes and ballasts, were present in the structure. The following is a list of items observed:

- Ballasts - 26
- 4' Fluorescent Tubes - 52
- High Intensity Discharge Lights - 3

Recommended Response Actions

Asbestos

Asbestos-Containing Materials (ACM)
Any building material which contains asbestos in an amount greater than 1% is considered ACM by the United States Environmental Protection Agency (EPA), Occupational Safety and Health Administration (OSHA), the State of Oregon Department of Environmental Quality (DEQ) and the Oregon Occupational Safety and Health Division (OR-OSHA).

Results of the inspection have determined that asbestos was not detected in any of the materials sampled as part of this survey.

All identified and presumed ACM must be removed by licensed asbestos abatement contractor, or other certified individual, prior to impact if they are to be disturbed during renovation or demolition activities.

Any ACM likely to be disturbed during renovation or demolition activities, other than by incidental contact with no generation of debris related to other construction activities, should be abated by a licensed asbestos-abatement contractor. Any activities conducted where the primary object of the activity is the removal of ACM must be conducted by a licensed asbestos abatement contractor or other properly trained individuals.

The National Emissions Standards for Hazardous Air Pollutants (NESHAPs) requires that all Regulated Asbestos-Containing Materials (RACMs) be removed from a building prior to demolition.

Asbestos-Containing Materials - 1% Asbestos or Less
Any building material which contains asbestos in an amount of 1% or less is considered asbestos-containing by OSHA, and by OR-OSHA. Although these materials are not considered ACMs, workers must be protected from exposure to asbestos, regardless of the percentage.

No materials were identified that contained 1% or less asbestos during this inspection.

Lead-Based Paint
Results of the inspection have determined that LBP was not detected on any of the materials tested in the interior or exterior of the structure that is equal to or above the concentration of 1.0 milligram per centimeter squared (mg/cm^2). Potential LCP below the threshold concentration of 1.0 mg/cm^2 was identified on various painted components.

LCP or LBP films could create lead dust or lead contaminated soil hazards if the paint is turned to dust by abrasion, scraping or sanding. If conditions of intact paint surfaces become destabilized, these conditions will need to be addressed. All LBP films in poor condition must be stabilized if the structure is to be demolished. If any construction or modernization work is done on the premises, this report should be given to the contractor(s). OSHA/OR-OSHA have requirements for employees working with or around LCP.

Contractors and other personnel who may impact these materials should be informed of the results of this inspection. LBP is a common cause of lead poisoning in children and represents a threat to the health and welfare of the occupants. Where economically feasible, it is our recommendation that all components that tested positive, and any similar untested components, be considered lead-laden, and lead-safe procedures are incorporated into any overall renovation and maintenance strategy in order to reduce the potential for contamination and/or exposure. Safe methods include: containing any work area to prevent dispersal of lead dust and chips, wet sanding and scraping at a minimum; collecting all paint chips and debris and, properly disposing of them.

Details of the locations and lead content for all of the readings can be found in Appendix C: XRF Readings Table.

If additional painted surfaces are discovered that were not tested as part of this inspection, or that are expected to be impacted as part of any renovation or demolition work, they should be presumed LBP until tested to show otherwise.

A risk assessment has not been conducted to evaluate potential lead hazards present at the building and surrounding soil as part of this scope of work.

Universal Waste, Mercury and PCBs

Results of the inspection indicate that items suspect for containing mercury and PCBs, or that are classified as universal waste, such as fluorescent tubes and ballasts, were present in the structures included as part of this scope of work. Additional materials may be present in the structures, hidden in boxes or in locations inaccessible due to the stored contents. These items must be disposed of properly prior to demolition.

Methodology

Asbestos

The field work was conducted using industry best practices. Samples of representative accessible suspect materials within the scope of work were collected during the course of the inspection. Materials were sampled according to homogeneous groupings using the Asbestos Hazard Emergency Response Act (AHERA) sampling guidelines.

Samples were collected in such a manner as to minimize release of the material into the surroundings. Sample number, material description, sample location and material location were recorded at the time of sampling. Each sample was placed in a sample container labeled with a unique sample number and submitted to SGS Forensic Analytical Laboratories, a NVLAP-accredited laboratory, for analysis under chain of custody documentation. Samples were analyzed in accordance with EPA Method 600/R-93-116, using PLM with dispersion staining and using visual area estimation to determine percent asbestos content. This method allows for the identification of the primary types of asbestos used in building materials. The lower limit of detection for this method is one percent. Samples containing one percent or less asbestos by PLM with visual area estimation are reported as “Trace.”

Lead-Based Paint

All testing of suspect LBP was conducted utilizing a Niton X-ray fluorescence LBP analyzer, Model XLp-300A bearing Serial #25643. The source type, cadmium-109 (Cd^{109}), was sourced on April 29, 2020. G2 followed the Performance Characteristics Sheets (PCS) for the specific X-Ray fluorescence instrument used during the LBP evaluation of the property. The XRF PCS is presented in Appendix D. The instrument was calibrated to the manufacturer's specifications and was also periodically verified against the National Institute of Standards and Testing (NIST) Standard Reference Material (SRM) 2579 lead film (1.0 mg/cm^2).

The calibration of the instrument is conducted in accordance with the PCS for this instrument. These instruments are calibrated using a calibration standard block of known lead content. If for any reason the instruments do not maintain a consistent calibration reading within the manufacturer's standards for performance on the calibration block supplied by the manufacturer, manufacturer's recommendations are used to bring the instrument into calibration. If the instrument cannot be brought back into calibration, it is taken off the site and sent back to the manufacturer for repair and/or re-calibration.

Wall "A" in each room is the wall where the front entrance door opening is located (or aligned with street). Going clockwise and facing Wall "A," Wall "B" will always be to your right, Wall "C" directly to the rear and Wall "D" to the left. Doors, windows and closets may be designated as left, center or right depending on their location on the wall.

All individuals who performed this XRF testing and visual assessment have EPA and/or state licenses as Lead Inspector/Risk Assessors and have been trained in the use, calibration and maintenance of the XRF, along with the principles of radiation safety, in accordance with the work practices of 40 CFR 745, section 227, for states and Native American tribal groups.

PCBs and Mercury-Containing Materials
As part of this survey, a visual inspection for items suspect for containing PCBs and mercury or that are classified as universal waste was conducted. Items known to be suspect for PCBs, if identified, were quantified and catalogued.

Limitations

G2 has performed this inspection in accordance with best industry methods and practices of the profession, and consistent with the level of care and skill ordinarily exercised by reputable environmental consultants under similar circumstances and conditions. The observations contained within this assessment are based upon site conditions readily accessible at the time of the site inspection. No other representation, guarantee or warranty, express or implied, is included or intended in this hazardous materials survey report. If any untested suspect materials are encountered during demolition activities, they should be assumed to be ACM and not disturbed, unless sampling and analysis of the materials proves otherwise.

The LBP portion of the inspection was planned, developed, and implemented based on G2's professional experience in performing LBP inspections. G2 performed a limited inspection for lead-based paint of the predominant painted surfaces in order to provide a general indication of the distribution of lead for renovation purposes. G2 utilized state-of-the-art practices and techniques in accordance with regulatory standards while performing this inspection. A copy of personnel and company certifications has been provided in Appendix E. G2's evaluation of the painted surfaces identified during this inspection is based on conditions observed at the time of the inspection. G2 cannot be responsible for changing conditions that may alter the relative exposure risk for future changes in accepted methodology.

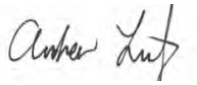
The owner is responsible to convey information regarding identified lead content to inhabitants, contractors, etc. expected to potentially be exposed. G2 recommends that both the contractor and the owner keep the records for three years.

This report consists of a visual survey, and XRF analysis of the readily accessible areas of this building and tested components. The presence or absence of LBP or LBP hazards applies only to the tested or assessed surfaces on the date(s) of the field visit and it should be understood that conditions may change due to deterioration or maintenance. The results and material conditions noted within this report were accurate at the time of the evaluation and in no way reflect the conditions at the property after the date of the evaluation.

As with all environmental investigations, this inspection is limited to the defined scope and does not purport to set forth all hazards, nor indicate that other hazards do not exist.

Respectfully Submitted and Reviewed By:

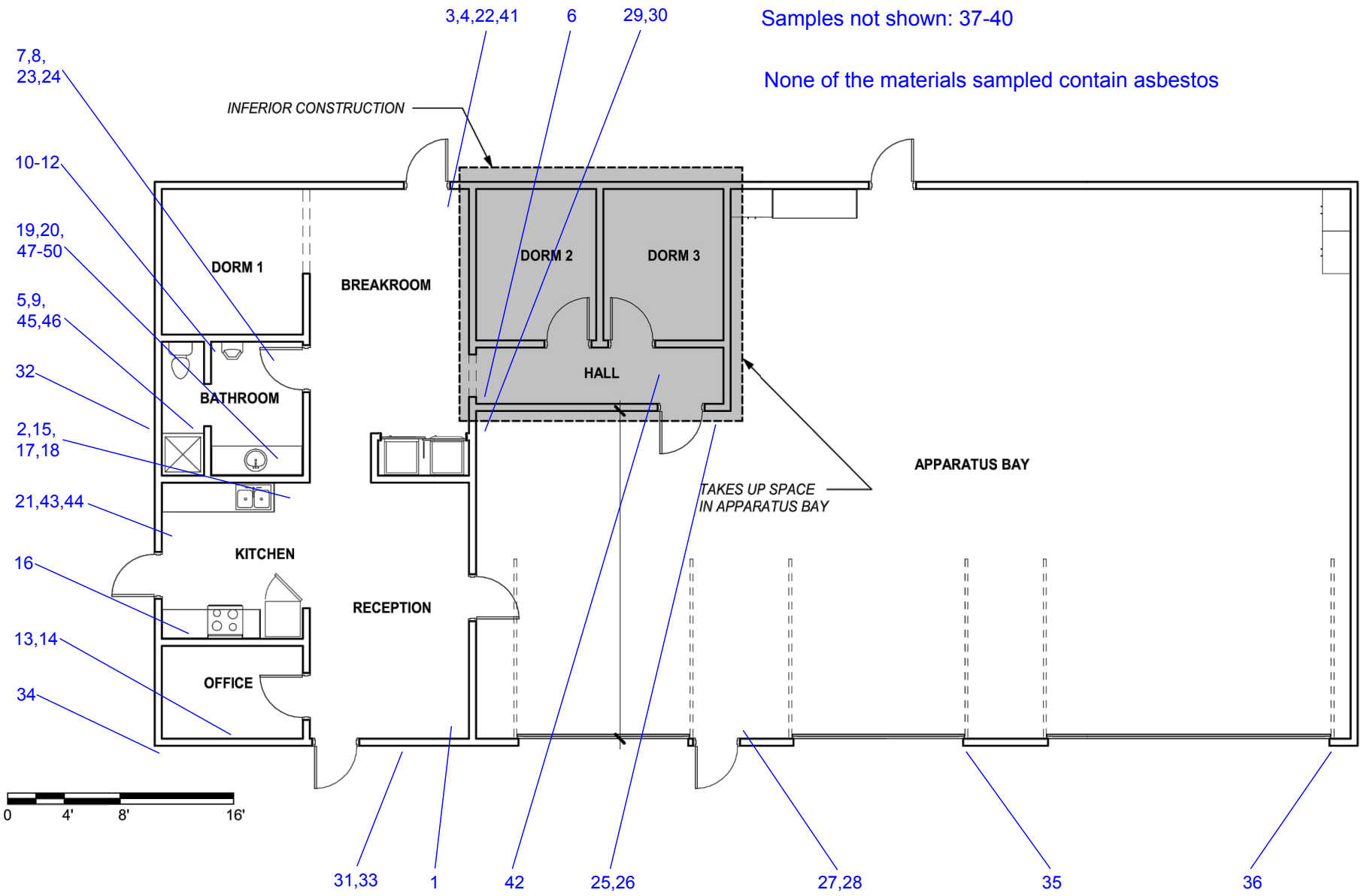
Sean Friend
Sr. Project Specialist
G2 Consultants



Andrew Lutz
Project Manager
G2 Consultants

Appendix A:

Sample Location Drawings



Notes:

Client: Jackson County Fire District 5
Project: Station 4 RBMS
Location: 40 Neil Creek Road Ashland, OR 97520

G2 Project #: 22-88

Building: JCFD5 Station 4
Floor: Main Level
Dwg Type: Sample Locations

consultants
16869 SW 65th Avenue #15
Lake Oswego, OR 97035
888.998.g2ci
888.887.6422 fax
www.g2ci.com

Report North

Date: 1-23-22

Drawn By: SMF

Page #: 1/1

Appendix B:

Laboratory Analysis Results and Chain of Custody

SGS FORENSIC LABORATORIES

Final Report

Bulk Asbestos Analysis

(EPA Method 40CFR, Part 763, Appendix E to Subpart E and EPA 600/R-93-116, Visual Area Estimation)
NVLAP Lab Code: 101459-0

G2 Consultants Inc.
Noal Kraft
16869 SW 65th Avenue
#15
Lake Oswego, OR 97035

Client ID: L1159
Report Number: B327936
Date Received: 01/17/22
Date Analyzed: 01/19/22
Date Printed: 01/19/22
First Reported: 01/19/22

Job ID/Site: 22-88 - Jackson County Fire District 5, 5811 South Pacific Highway

SGSFL Job ID: L1159
Total Samples Submitted: 50
Total Samples Analyzed: 50

Date(s) Collected: 01/13/2022

Sample ID	Lab Number	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer
22-88-1	12521542						
Layer: White Texture			**ND**				
Layer: Paint			**ND**				
Total Composite Values of Fibrous Components: **Asbestos (ND)**							
Cellulose (Trace)							
Analyst: JNOMURA Date Analyzed: 01/19/22							
22-88-2	12521543						
Layer: White Texture			**ND**				
Layer: Paint			**ND**				
Layer: White Texture			**ND**				
Layer: Paint			**ND**				
Total Composite Values of Fibrous Components: **Asbestos (ND)**							
Cellulose (Trace)							
Analyst: JNOMURA Date Analyzed: 01/19/22							
22-88-3	12521544						
Layer: White Texture			**ND**				
Layer: Paint			**ND**				
Total Composite Values of Fibrous Components: **Asbestos (ND)**							
Cellulose (Trace)							
Analyst: JNOMURA Date Analyzed: 01/19/22							
22-88-4	12521545						
Layer: White Drywall			**ND**				
Layer: White Joint Compound			**ND**				
Layer: White Tape			**ND**				
Layer: White Joint Compound			**ND**				
Layer: Paint			**ND**				
Total Composite Values of Fibrous Components: **Asbestos (ND)**							
Cellulose (20 %) Fibrous Glass (10 %)							
Analyst: JNOMURA Date Analyzed: 01/19/22							

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Report Number: B327936

Client Name: G2 Consultants Inc. **Date Printed:** 01/19/22

Sample ID	Lab Number	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer
22-88-5	12521546						
Layer: White Drywall			**ND**				
Layer: White Joint Compound			**ND**				
Layer: Paint			**ND**				
Total Composite Values of Fibrous Components:		**Asbestos (ND)**					
Cellulose (20 %) Fibrous Glass (10 %)							
Analyst: JNOMURA Date Analyzed: 01/19/22							
22-88-6	12521547						
Layer: White Drywall			**ND**				
Layer: White Joint Compound			**ND**				
Layer: Paint			**ND**				
Total Composite Values of Fibrous Components:		**Asbestos (ND)**					
Cellulose (20 %) Fibrous Glass (10 %)							
Analyst: JNOMURA Date Analyzed: 01/19/22							
22-88-7	12521548						
Layer: White Non-Fibrous Material			**ND**				
Layer: Paint			**ND**				
Total Composite Values of Fibrous Components:		**Asbestos (ND)**					
Cellulose (Trace)							
Analyst: JNOMURA Date Analyzed: 01/19/22							
22-88-8	12521549						
Layer: White Non-Fibrous Material			**ND**				
Layer: Paint			**ND**				
Total Composite Values of Fibrous Components:		**Asbestos (ND)**					
Cellulose (Trace)							
Analyst: JNOMURA Date Analyzed: 01/19/22							
22-88-9	12521550						
Layer: White Non-Fibrous Material			**ND**				
Layer: Paint			**ND**				
Total Composite Values of Fibrous Components:		**Asbestos (ND)**					
Cellulose (Trace)							
Analyst: JNOMURA Date Analyzed: 01/19/22							
22-88-10	12521551						
Layer: White Texture			**ND**				
Layer: Paint			**ND**				
Total Composite Values of Fibrous Components:		**Asbestos (ND)**					
Cellulose (Trace)							
Analyst: JNOMURA Date Analyzed: 01/19/22							
22-88-11	12521552						
Layer: White Texture			**ND**				
Layer: Paint			**ND**				
Total Composite Values of Fibrous Components:		**Asbestos (ND)**					
Cellulose (Trace)							
Analyst: JNOMURA Date Analyzed: 01/19/22							

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Report Number: B327936

Client Name: G2 Consultants Inc. **Date Printed:** 01/19/22

Sample ID	Lab Number	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer
22-88-12	12521553						
Layer: White Texture			**ND**				
Layer: Paint			**ND**				
Total Composite Values of Fibrous Components: Cellulose (Trace)		**Asbestos (ND)**					
Analyst: JNOMURA	Date Analyzed: 01/19/22						
22-88-13	12521554						
Layer: White Putty			**ND**				
Layer: Paint			**ND**				
Total Composite Values of Fibrous Components: Cellulose (Trace)		**Asbestos (ND)**					
Analyst: JNOMURA	Date Analyzed: 01/19/22						
22-88-14	12521555						
Layer: White Putty			**ND**				
Total Composite Values of Fibrous Components:		**Asbestos (ND)**					
Analyst: JNOMURA	Date Analyzed: 01/19/22						
22-88-15	12521556						
Layer: White Adhesive			**ND**				
Total Composite Values of Fibrous Components:		**Asbestos (ND)**					
Analyst: JNOMURA	Date Analyzed: 01/19/22						
22-88-16	12521557						
Layer: White Adhesive			**ND**				
Layer: Paint			**ND**				
Total Composite Values of Fibrous Components:		**Asbestos (ND)**					
Analyst: JNOMURA	Date Analyzed: 01/19/22						
22-88-17	12521558						
Layer: Black Coating			**ND**				
Total Composite Values of Fibrous Components:		**Asbestos (ND)**					
Analyst: JNOMURA	Date Analyzed: 01/19/22						
22-88-18	12521559						
Layer: Black Coating			**ND**				
Total Composite Values of Fibrous Components:		**Asbestos (ND)**					
Analyst: JNOMURA	Date Analyzed: 01/19/22						
22-88-19	12521560						
Layer: White Adhesive			**ND**				
Layer: Paint			**ND**				
Total Composite Values of Fibrous Components:		**Asbestos (ND)**					
Analyst: JNOMURA	Date Analyzed: 01/19/22						

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Sample ID	Lab Number	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer
22-88-20	12521561						
Layer: White Adhesive			**ND**				
Layer: Paint			**ND**				
Total Composite Values of Fibrous Components:		**Asbestos (ND)**					
Analyst: JNOMURA Date Analyzed: 01/19/22							
22-88-21	12521562						
Layer: White Putty			**ND**				
Layer: Paint			**ND**				
Total Composite Values of Fibrous Components:		**Asbestos (ND)**					
Cellulose (Trace)							
Analyst: JNOMURA Date Analyzed: 01/19/22							
22-88-22	12521563						
Layer: White Putty			**ND**				
Layer: Paint			**ND**				
Total Composite Values of Fibrous Components:		**Asbestos (ND)**					
Cellulose (Trace)							
Analyst: JNOMURA Date Analyzed: 01/19/22							
22-88-23	12521564						
Layer: White Non-Fibrous Material			**ND**				
Total Composite Values of Fibrous Components:		**Asbestos (ND)**					
Analyst: JNOMURA Date Analyzed: 01/19/22							
22-88-24	12521565						
Layer: White Non-Fibrous Material			**ND**				
Total Composite Values of Fibrous Components:		**Asbestos (ND)**					
Analyst: JNOMURA Date Analyzed: 01/19/22							
22-88-25	12521566						
Layer: Off-White Putty			**ND**				
Total Composite Values of Fibrous Components:		**Asbestos (ND)**					
Analyst: JNOMURA Date Analyzed: 01/19/22							
22-88-26	12521567						
Layer: Off-White Putty			**ND**				
Total Composite Values of Fibrous Components:		**Asbestos (ND)**					
Analyst: JNOMURA Date Analyzed: 01/19/22							
22-88-27	12521568						
Layer: White Non-Fibrous Material			**ND**				
Layer: Yellow Fibrous Material			**ND**				
Total Composite Values of Fibrous Components:		**Asbestos (ND)**					
Fibrous Glass (5 %)							
Analyst: JNOMURA Date Analyzed: 01/19/22							

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Report Number: B327936

Client Name: G2 Consultants Inc. **Date Printed:** 01/19/22

Sample ID	Lab Number	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer
22-88-28	12521569						
Layer: White Non-Fibrous Material			**ND**				
Layer: Yellow Fibrous Material			**ND**				
Total Composite Values of Fibrous Components: Fibrous Glass (Trace)		**Asbestos (ND)**					
Analyst: JNOMURA Date Analyzed: 01/19/22							
22-88-29	12521570						
Layer: Tan Fibrous Material			**ND**				
Total Composite Values of Fibrous Components: Cellulose (40 %)		**Asbestos (ND)**					
Analyst: JNOMURA Date Analyzed: 01/19/22							
22-88-30	12521571						
Layer: Tan Fibrous Material			**ND**				
Total Composite Values of Fibrous Components: Cellulose (40 %)		**Asbestos (ND)**					
Analyst: JNOMURA Date Analyzed: 01/19/22							
22-88-31	12521572						
Layer: White Putty			**ND**				
Total Composite Values of Fibrous Components:		**Asbestos (ND)**					
Analyst: JNOMURA Date Analyzed: 01/19/22							
22-88-32	12521573						
Layer: White Putty			**ND**				
Total Composite Values of Fibrous Components:		**Asbestos (ND)**					
Analyst: JNOMURA Date Analyzed: 01/19/22							
22-88-33	12521574						
Layer: White Non-Fibrous Material			**ND**				
Layer: Paint			**ND**				
Total Composite Values of Fibrous Components: Cellulose (Trace)		**Asbestos (ND)**					
Analyst: JNOMURA Date Analyzed: 01/19/22							
22-88-34	12521575						
Layer: White Non-Fibrous Material			**ND**				
Layer: Paint			**ND**				
Total Composite Values of Fibrous Components: Cellulose (Trace)		**Asbestos (ND)**					
Analyst: JNOMURA Date Analyzed: 01/19/22							
22-88-35	12521576						
Layer: Grey Mortar			**ND**				
Total Composite Values of Fibrous Components:		**Asbestos (ND)**					
Analyst: JNOMURA Date Analyzed: 01/19/22							

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Report Number: B327936

Client Name: G2 Consultants Inc. **Date Printed:** 01/19/22

Sample ID	Lab Number	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer
22-88-36	12521577						
Layer: Grey Mortar			**ND**				
Total Composite Values of Fibrous Components:		**Asbestos (ND)**					
Analyst: JNOMURA Date Analyzed: 01/19/22							
22-88-37	12521578						
Layer: Clear Non-Fibrous Material			**ND**				
Total Composite Values of Fibrous Components:		**Asbestos (ND)**					
Analyst: JNOMURA Date Analyzed: 01/19/22							
22-88-38	12521579						
Layer: Clear Non-Fibrous Material			**ND**				
Total Composite Values of Fibrous Components:		**Asbestos (ND)**					
Analyst: JNOMURA Date Analyzed: 01/19/22							
22-88-39	12521580						
Layer: Black Mastic			**ND**				
Total Composite Values of Fibrous Components:		**Asbestos (ND)**					
Cellulose (10 %)							
Analyst: JNOMURA Date Analyzed: 01/19/22							
22-88-40	12521581						
Layer: Black Mastic			**ND**				
Total Composite Values of Fibrous Components:		**Asbestos (ND)**					
Cellulose (10 %)							
Analyst: JNOMURA Date Analyzed: 01/19/22							
22-88-41	12521582						
Layer: Tan Mastic			**ND**				
Total Composite Values of Fibrous Components:		**Asbestos (ND)**					
Analyst: JNOMURA Date Analyzed: 01/19/22							
22-88-42	12521583						
Layer: Tan Mastic			**ND**				
Total Composite Values of Fibrous Components:		**Asbestos (ND)**					
Analyst: JNOMURA Date Analyzed: 01/19/22							
22-88-43	12521584						
Layer: White Non-Fibrous Material			**ND**				
Total Composite Values of Fibrous Components:		**Asbestos (ND)**					
Cellulose (Trace)							
Analyst: JNOMURA Date Analyzed: 01/19/22							

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Report Number: B327936

Client Name: G2 Consultants Inc. **Date Printed:** 01/19/22

Sample ID	Lab Number	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer
22-88-44	12521585						
Layer: White Non-Fibrous Material			**ND**				
Total Composite Values of Fibrous Components: Cellulose (Trace)		**Asbestos (ND)**					
Analyst: JNOMURA Date Analyzed: 01/19/22							
22-88-45	12521586						
Layer: Tan Non-Fibrous Material			**ND**				
Layer: Paint			**ND**				
Total Composite Values of Fibrous Components: Cellulose (Trace)		**Asbestos (ND)**					
Analyst: JNOMURA Date Analyzed: 01/19/22							
22-88-46	12521587						
Layer: Tan Non-Fibrous Material			**ND**				
Layer: Paint			**ND**				
Total Composite Values of Fibrous Components: Cellulose (Trace)		**Asbestos (ND)**					
Analyst: JNOMURA Date Analyzed: 01/19/22							
22-88-47	12521588						
Layer: Grey Grout			**ND**				
Total Composite Values of Fibrous Components:		**Asbestos (ND)**					
Analyst: JNOMURA Date Analyzed: 01/19/22							
22-88-48	12521589						
Layer: Grey Grout			**ND**				
Total Composite Values of Fibrous Components:		**Asbestos (ND)**					
Analyst: JNOMURA Date Analyzed: 01/19/22							
22-88-49	12521590						
Layer: Grey Mortar			**ND**				
Total Composite Values of Fibrous Components:		**Asbestos (ND)**					
Analyst: JNOMURA Date Analyzed: 01/19/22							
22-88-50	12521591						
Layer: Grey Mortar			**ND**				
Total Composite Values of Fibrous Components:		**Asbestos (ND)**					
Analyst: JNOMURA Date Analyzed: 01/19/22							

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Report Number: B327936

Client Name: G2 Consultants Inc. **Date Printed:** 01/19/22

Sample ID	Lab Number	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer

Tad Thrower, Laboratory Supervisor, Hayward Laboratory

Note: Limit of Quantification ('LOQ') = 1%. 'Trace' denotes the presence of asbestos below the LOQ. 'ND' = 'None Detected'.

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consultants

CHAIN OF CUSTODY RECORD

Page #: 1 of 3
G2 Job #: 22-88
Sample Date: 1-13-2022
Submit Date: 1-14-2022
Sampled By: SF

Jobsite Address:
40 Neil Creek Road
0
Ashland
OR

G2 Client: Jackson County Fire District 5
Address: 5811 South Pacific Highway

G2 Contact: Dan Rouse
Phone #: (503) 701-7325

Asbestos:

X PLM ☐ PLM/Point Count 400 ☐ Wipe ☐ Other: Notes:
☐ TEM ☐ PLM/Point Count 1000 ☐ Vac

Turn-Around Time: ☐ RUSH ☐ 24-Hour X 48-Hour ☐ 72-Hour

Results to: labresults@g2ci.com

HM#	Material Description	Sample #	Sample Location	Condition I/P	Friable Y/N	Quantity
1	Wall Texture, Knock-Down	22-88 -1	Entry			
		-2	Kitchen			
		-3	Break Room			
2	DW + JC	-4	Break Room			
		-5	Bathroom			
		-6	Hallway			
3	Ceiling Texture, Popcorn	-7	Bathroom			
		-8	↓			
		-9	↓			
4	Wall Texture, Orange peel	-10	Bathroom			
		-11	↓			
		-12	↓			
5	Window Putty, white	-13	Office			
		-14	↓			
6	Backsplash Adhesive, chalky white	-15	Kitchen			
		-16	↓			
7	Sink undercoating, Black	-17	Kitchen			
		-18	↓			
8	Backsplash Adhesive, white	-19	Bathroom			
		-20	↓			

Samples Relinquished by: Sean Friend	Samples Relinquished by:
Date and Time: 1-14-2022 - 12:30	Date and Time:
Samples Received by:	Samples Received by:
Date and Time:	Date and Time:

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JAN 17 2022
BY: OR FX-7041 11:30

Jobsite Address:
40 Neil Creek Road
0
Ashland
97520

G2 Job #: 22-88

HM#	Material Description	Sample #	Sample Location	Condition I/P	Friable Y/N	Quantity
9	Door Frame Putty, white	22-88-21	Kitchen Door			
		-22	Breakroom Door			
HM#	Material Description	Sample #	Sample Location	Condition I/P	Friable Y/N	Quantity
10	Caulking, white	-23	Bathroom			
		-24	↓			
HM#	Material Description	Sample #	Sample Location	Condition I/P	Friable Y/N	Quantity
11	Door Frame Putty, OFF-white	-25	Apparatus Bay			
		-26	↓			
HM#	Material Description	Sample #	Sample Location	Condition I/P	Friable Y/N	Quantity
12	Fiberglass insulation Backing, white	-27	Apparatus Bay			
		-28	↓			
HM#	Material Description	Sample #	Sample Location	Condition I/P	Friable Y/N	Quantity
13	Fiberglass insulation Backing, Tan Asphalt/2	-29	Apparatus Bay			
		-30	↓			
HM#	Material Description	Sample #	Sample Location	Condition I/P	Friable Y/N	Quantity
14	Window Putty, chalky white	-31	Exterior			
		-32	↓			
HM#	Material Description	Sample #	Sample Location	Condition I/P	Friable Y/N	Quantity
15	Caulking, Tan	-33	Exterior			
		-34	↓			
HM#	Material Description	Sample #	Sample Location	Condition I/P	Friable Y/N	Quantity
16	CMU mortar, Gray	-35	Exterior			
		-36	↓			
HM#	Material Description	Sample #	Sample Location	Condition I/P	Friable Y/N	Quantity
17	Roof Patch + Repair, Clear	-37	Roof			
		-38	↓			
HM#	Material Description	Sample #	Sample Location	Condition I/P	Friable Y/N	Quantity
18	Roof Patch + Repair, Black	-39	Roof			
		-40	↓			
HM#	Material Description	Sample #	Sample Location	Condition G/F/P	Friable Y/N	Quantity
19	Carpet Glue, Tan	-41	Breakroom			
		-42	Hallway			

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Jobsite Address:
40 Neil Creek Road
0
Ashland
97520

G2 Job #: 22-88

HM#	Material Description	Sample #	Sample Location	Condition I/P	Friable Y/N	Quantity
20	Leveling Compound, white	22-88	Kitchen			
		-43	↓			
		-44				
HM#	Material Description	Sample #	Sample Location	Condition I/P	Friable Y/N	Quantity
21	Caulking, Gray	-45	Bathroom			
		-46	↓			
HM#	Material Description	Sample #	Sample Location	Condition I/P	Friable Y/N	Quantity
22	12x12 ces. FT		Bathroom			
	Grout, Gray	-47				
		-48	↓			
HM#	Material Description	Sample #	Sample Location	Condition I/P	Friable Y/N	Quantity
23	12x12 ces. FT		Bathroom			
	mortar, Gray	-49				
		-50	↓			
HM#	Material Description	Sample #	Sample Location	Condition I/P	Friable Y/N	Quantity
HM#	Material Description	Sample #	Sample Location	Condition I/P	Friable Y/N	Quantity
HM#	Material Description	Sample #	Sample Location	Condition I/P	Friable Y/N	Quantity
HM#	Material Description	Sample #	Sample Location	Condition I/P	Friable Y/N	Quantity
HM#	Material Description	Sample #	Sample Location	Condition I/P	Friable Y/N	Quantity
HM#	Material Description	Sample #	Sample Location	Condition G/F/P	Friable Y/N	Quantity

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Appendix C:

XRF Readings Table

Jackson County Fire District 5
RBMS
Station 4 - 40 Neil Creek Rd. Ashland, OR 97520
XRF Readings Table
01-23-22

READING NO	SITE	STRUCTURE	FLOOR	ROOM	COMPONENT	SUBSTRATE	SIDE	COLOR	RESULTS	CONDITION	PbC	UNITS	ACTION LEVEL	PbC Error
2482	CALIBRATION										1.98	cps		0
2483	CALIBRATION								POSITIVE		1.1	mg/cm^2	1	0.1
2484	CALIBRATION								POSITIVE		1	mg/cm^2	1	0.1
2485	CALIBRATION								POSITIVE		1	mg/cm^2	1	0.1
2486	40 Neil Creek Rd	Fire Station 4	First	Entry	Door	Wood	A	Black	NEGATIVE	Intact	0	mg/cm^2	1	0.02
2487	40 Neil Creek Rd	Fire Station 4	First	Entry	Door Jamb	Metal	A	Gray	NEGATIVE	Intact	0.03	mg/cm^2	1	0.06
2488	40 Neil Creek Rd	Fire Station 4	First	Entry	Baseboard	Wood	B	White	NEGATIVE	Intact	0	mg/cm^2	1	0.02
2489	40 Neil Creek Rd	Fire Station 4	First	Entry	Door Trim	Wood	B	White	NEGATIVE	Intact	0	mg/cm^2	1	0.02
2490	40 Neil Creek Rd	Fire Station 4	First	Entry	Wall	Drywall	C	Gray	NEGATIVE	Intact	0	mg/cm^2	1	0.02
2491	40 Neil Creek Rd	Fire Station 4	First	Entry	Ceiling	Drywall	C	Gray	NEGATIVE	Intact	0	mg/cm^2	1	0.02
2492	40 Neil Creek Rd	Fire Station 4	First	Entry	Cabinet Door	Wood	D	White	NEGATIVE	Intact	0	mg/cm^2	1	0.02
2493	40 Neil Creek Rd	Fire Station 4	First	Entry	Cabinet Face	Wood	D	Black	NEGATIVE	Intact	0.01	mg/cm^2	1	0.04
2494	40 Neil Creek Rd	Fire Station 4	First	Office	Window	Metal	A	White	NEGATIVE	Intact	0	mg/cm^2	1	0.02
2495	40 Neil Creek Rd	Fire Station 4	First	Office	Wall	Drywall	A	Gray	NEGATIVE	Intact	0	mg/cm^2	1	0.02
2496	40 Neil Creek Rd	Fire Station 4	First	Office	Baseboard	Wood	C	White	NEGATIVE	Intact	0.01	mg/cm^2	1	0.04
2497	40 Neil Creek Rd	Fire Station 4	First	Office	Door Jamb	Wood	D	White	NEGATIVE	Intact	0	mg/cm^2	1	0.02
2498	40 Neil Creek Rd	Fire Station 4	First	Office	Door	Wood	D	White	NEGATIVE	Intact	0	mg/cm^2	1	0.02
2499	40 Neil Creek Rd	Fire Station 4	First	Kitchen	Cabinet Door	Wood	A	White	NEGATIVE	Intact	0	mg/cm^2	1	0.02
2500	40 Neil Creek Rd	Fire Station 4	First	Kitchen	Wall	Drywall	B	Gray	NEGATIVE	Intact	0	mg/cm^2	1	0.02
2501	40 Neil Creek Rd	Fire Station 4	First	Kitchen	Door	Wood	B	White	NEGATIVE	Intact	0.01	mg/cm^2	1	0.05
2502	40 Neil Creek Rd	Fire Station 4	First	Kitchen	Door Jamb	Metal	B	Gray	NEGATIVE	Intact	0.02	mg/cm^2	1	0.07
2503	40 Neil Creek Rd	Fire Station 4	First	Kitchen	Window	Metal	B	White	NEGATIVE	Intact	<LOD	mg/cm^2	1	0
2504	40 Neil Creek Rd	Fire Station 4	First	Kitchen	Window	Metal	B	White	NEGATIVE	Intact	0	mg/cm^2	1	0.02
2505	40 Neil Creek Rd	Fire Station 4	First	Break Room	Baseboard	Wood	A	White	NEGATIVE	Intact	0	mg/cm^2	1	0.02
2506	40 Neil Creek Rd	Fire Station 4	First	Break Room	Wall	Drywall	B	Gray	NEGATIVE	Intact	0	mg/cm^2	1	0.02
2507	40 Neil Creek Rd	Fire Station 4	First	Break Room	Door Trim	Wood	B	White	NEGATIVE	Intact	0	mg/cm^2	1	0.02
2508	40 Neil Creek Rd	Fire Station 4	First	Break Room	Door	Wood	C	White	NEGATIVE	Intact	0.02	mg/cm^2	1	0.08
2509	40 Neil Creek Rd	Fire Station 4	First	Break Room	Door Jamb	Metal	C	White	NEGATIVE	Intact	0.03	mg/cm^2	1	0.08
2510	40 Neil Creek Rd	Fire Station 4	First	Break Room	Ceiling	Drywall	C	Gray	NEGATIVE	Intact	0	mg/cm^2	1	0.02
2511	40 Neil Creek Rd	Fire Station 4	First	Break Room	Wall Trim	Wood	D	Red	NEGATIVE	Intact	0	mg/cm^2	1	0.02
2512	40 Neil Creek Rd	Fire Station 4	First	Break Room	Table	Wood	D	Stained	NEGATIVE	Intact	0	mg/cm^2	1	0.02
2513	40 Neil Creek Rd	Fire Station 4	First	Break Room	Table	Wood	D	Stained	NEGATIVE	Intact	0	mg/cm^2	1	0.02
2514	40 Neil Creek Rd	Fire Station 4	First	Bathroom	Sink	Ceramic	A	White	NEGATIVE	Intact	0.02	mg/cm^2	1	0.1
2515	40 Neil Creek Rd	Fire Station 4	First	Bathroom	Floor	Ceramic	A	Tan	NEGATIVE	Intact	0.02	mg/cm^2	1	0.08
2516	40 Neil Creek Rd	Fire Station 4	First	Bathroom	Wall	Drywall	B	White	NEGATIVE	Intact	0	mg/cm^2	1	0.02
2517	40 Neil Creek Rd	Fire Station 4	First	Bathroom	Cabinet Door	Wood	C	Stained	NEGATIVE	Intact	0	mg/cm^2	1	0.02
2518	40 Neil Creek Rd	Fire Station 4	First	Bathroom	Toilet	Ceramic	C	White	NEGATIVE	Intact	0.04	mg/cm^2	1	0.15
2519	40 Neil Creek Rd	Fire Station 4	First	Bathroom	Urinal	Ceramic	C	White	NEGATIVE	Intact	0.01	mg/cm^2	1	0.05
2520	40 Neil Creek Rd	Fire Station 4	First	Bathroom	Door Jamb	Wood	D	White	NEGATIVE	Intact	0.01	mg/cm^2	1	0.06
2521	40 Neil Creek Rd	Fire Station 4	First	Bathroom	Door Trim	Wood	D	White	NEGATIVE	Intact	0	mg/cm^2	1	0.02
2522	40 Neil Creek Rd	Fire Station 4	First	Bathroom	Door	Wood	D	White	NEGATIVE	Intact	0	mg/cm^2	1	0.02
2523	40 Neil Creek Rd	Fire Station 4	First	Dorm	Wall	Drywall	A	Gray	NEGATIVE	Intact	0	mg/cm^2	1	0.02
2524	40 Neil Creek Rd	Fire Station 4	First	Dorm	Baseboard	Wood	B	White	NEGATIVE	Intact	0	mg/cm^2	1	0.03
2525	40 Neil Creek Rd	Fire Station 4	First	Dorm	Door	Wood	D	White	NEGATIVE	Intact	0	mg/cm^2	1	0.02
2526	40 Neil Creek Rd	Fire Station 4	First	Dorm	Door Jamb	Wood	D	White	NEGATIVE	Intact	0	mg/cm^2	1	0.02
2527	40 Neil Creek Rd	Fire Station 4	First	Dorm	Door Trim	Wood	D	White	NEGATIVE	Intact	0	mg/cm^2	1	0.02
2528	40 Neil Creek Rd	Fire Station 4	First	Hallway	Wall	Drywall	A	Gray	NEGATIVE	Intact	0	mg/cm^2	1	0.02
2529	40 Neil Creek Rd	Fire Station 4	First	Hallway	Baseboard	Wood	A	White	NEGATIVE	Intact	0	mg/cm^2	1	0.02
2530	40 Neil Creek Rd	Fire Station 4	First	Hallway	Door Trim	Wood	C	White	NEGATIVE	Intact	0	mg/cm^2	1	0.02
2531	40 Neil Creek Rd	Fire Station 4	First	Apparatus Bay	Door	Metal	A	Gray	NEGATIVE	Intact	0	mg/cm^2	1	0.02
2532	40 Neil Creek Rd	Fire Station 4	First	Apparatus Bay	Door Jamb	Metal	A	Gray	NEGATIVE	Intact	0	mg/cm^2	1	0.02
2533	40 Neil Creek Rd	Fire Station 4	First	Apparatus Bay	Beam	Metal	A	Red	NEGATIVE	Intact	0.3	mg/cm^2	1	0.35
2534	40 Neil Creek Rd	Fire Station 4	First	Apparatus Bay	Garage Door	Metal	A	White	NEGATIVE	Intact	0	mg/cm^2	1	0.02
2535	40 Neil Creek Rd	Fire Station 4	First	Apparatus Bay	Door	Wood	B	White	NEGATIVE	Intact	0	mg/cm^2	1	0.02
2536	40 Neil Creek Rd	Fire Station 4	First	Apparatus Bay	Door Jamb	Wood	B	White	NEGATIVE	Intact	0	mg/cm^2	1	0.02
2537	40 Neil Creek Rd	Fire Station 4	First	Apparatus Bay	Door Trim	Wood	B	Stained	NEGATIVE	Intact	0	mg/cm^2	1	0.02
2538	40 Neil Creek Rd	Fire Station 4	First	Apparatus Bay	Wall	Drywall	B	White	NEGATIVE	Intact	0	mg/cm^2	1	0.02
2539	40 Neil Creek Rd	Fire Station 4	First	Apparatus Bay	Cabinet Door	Wood	C	Stained	NEGATIVE	Intact	0	mg/cm^2	1	0.02
2540	40 Neil Creek Rd	Fire Station 4	First	Apparatus Bay	Door	Wood	C	Brown	NEGATIVE	Intact	0.03	mg/cm^2	1	0.06
2541	40 Neil Creek Rd	Fire Station 4	First	Apparatus Bay	Beam	Metal	C	Red	NEGATIVE	Intact	0	mg/cm^2	1	0.02
2542	40 Neil Creek Rd	Fire Station 4	First	Exterior	Siding	Wood	A	Beige	NEGATIVE	Intact	0	mg/cm^2	1	0.02
2543	40 Neil Creek Rd	Fire Station 4	First	Exterior	Wall Trim	Wood	A	Off-White	NEGATIVE	Intact	0	mg/cm^2	1	0.02
2544	40 Neil Creek Rd	Fire Station 4	First	Exterior	Window	Metal	A	White	NEGATIVE	Intact	0	mg/cm^2	1	0.02
2545	40 Neil Creek Rd	Fire Station 4	First	Exterior	Window Trim	Wood	A	Off-White	NEGATIVE	Intact	0	mg/cm^2	1	0.02
2546	40 Neil Creek Rd	Fire Station 4	First	Exterior	Door	Metal	A	Black	NEGATIVE	Intact	0	mg/cm^2	1	0.02
2547	40 Neil Creek Rd	Fire Station 4	First	Exterior	Downspout	Metal	B	Off-White	NEGATIVE	Intact	<LOD	mg/cm^2	1	0
2548	40 Neil Creek Rd	Fire Station 4	First	Exterior	Downspout	Metal	B	Off-White	NEGATIVE	Intact	0	mg/cm^2	1	0.02
2549	40 Neil Creek Rd	Fire Station 4	First	Exterior	Siding	Metal	B	Off-White	NEGATIVE	Intact	0.01	mg/cm^2	1	0.07
2550	40 Neil Creek Rd	Fire Station 4	First	Exterior	Door	Metal	B	White	NEGATIVE	Intact	0	mg/cm^2	1	0.02
2551	40 Neil Creek Rd	Fire Station 4	First	Exterior	Window	Metal	B	White	NEGATIVE	Intact	0	mg/cm^2	1	0.02
2552	40 Neil Creek Rd	Fire Station 4	First	Exterior	Downspout	Metal	C	Off-White	NEGATIVE	Intact	0.13	mg/cm^2	1	0.7
2553	40 Neil Creek Rd	Fire Station 4	First	Exterior	Siding	Metal	C	Off-White	NEGATIVE	Intact	0.01	mg/cm^2	1	0.03
2554	40 Neil Creek Rd	Fire Station 4	First	Exterior	Window	Metal	C	White	NEGATIVE	Intact	0	mg/cm^2	1	0.02
2555	40 Neil Creek Rd	Fire Station 4	First	Exterior	Post	Metal	C	Off-White	NEGATIVE	Intact	0	mg/cm^2	1	0.02
2556	40 Neil Creek Rd	Fire Station 4	First	Exterior	Fascia	Metal	C	Off-White	NEGATIVE	Intact	0	mg/cm^2	1	0.02
2557	40 Neil Creek Rd	Fire Station 4	First	Exterior	Door	Metal	C	White	NEGATIVE	Intact	0	mg/cm^2	1	0.02
2558	40 Neil Creek Rd	Fire Station 4	First	Exterior	Downspout	Metal	C	Gray	NEGATIVE	Intact	0	mg/cm^2	1	0.04
2559	40 Neil Creek Rd	Fire Station 4	First	Exterior	Siding	Metal	D	Off-White	NEGATIVE	Intact	0.01	mg/cm^2	1	0.04
2560	40 Neil Creek Rd	Fire Station 4	First	Exterior	Downspout	Metal	D	Off-White	NEGATIVE	Intact	0	mg/cm^2	1	0.02

Jackson County Fire District 5
RBMS
Station 4 40 Neil Creek Rd. Ashland, OR 97520
XRF Readings Table
01-20-22

READING NO	SITE	STRUCTURE	FLOOR	ROOM	COMPONENT	SUBSTRATE	SIDE	COLOR	RESULTS	CONDITION	PbC	UNITS	ACTION LEVEL	PbC Error
2561	CALIBRATION								POSITIVE		1.1	mg/cm^2	1	0.1
2562	CALIBRATION								POSITIVE		1.1	mg/cm^2	1	0.1
2563	CALIBRATION								POSITIVE		1.1	mg/cm^2	1	0.1
2564	CALIBRATION								POSITIVE		1.1	mg/cm^2	1	0.1

Appendix D:

Performance Characteristics Sheet

(PCS)

Performance Characteristic Sheet

EFFECTIVE DATE: **September 24, 2004** **EDITION NO.: 1**

MANUFACTURER AND MODEL:

Make: *Niton LLC*
Tested Model: *XLp 300*
Source: ^{109}Cd
Note: This PCS is also applicable to the equivalent model variations indicated below, for the Lead-in-Paint K+L variable reading time mode, in the XLi and XLp series:

XLi 300A, XLi 301A, XLi 302A and XLi 303A.
XLp 300A, XLp 301A, XLp 302A and XLp 303A.
XLi 700A, XLi 701A, XLi 702A and XLi 703A.
XLp 700A, XLp 701A, XLp 702A, and XLp 703A.

Note: The XLi and XLp versions refer to the shape of the handle part of the instrument. The differences in the model numbers reflect other modes available, in addition to Lead-in-Paint modes. The manufacturer states that specifications for these instruments are identical for the source, detector, and detector electronics relative to the Lead-in-Paint mode.

FIELD OPERATION GUIDANCE

OPERATING PARAMETERS:

Lead-in-Paint K+L variable reading time mode.

XRF CALIBRATION CHECK LIMITS:

0.8 to 1.2 mg/cm^2 (inclusive)

The calibration of the XRF instrument should be checked using the paint film nearest 1.0 mg/cm^2 in the NIST Standard Reference Material (SRM) used (e.g., for NIST SRM 2579, use the 1.02 mg/cm^2 film).

If readings are outside the acceptable calibration check range, follow the manufacturer's instructions to bring the instruments into control before XRF testing proceeds.

SUBSTRATE CORRECTION:

For XRF results using Lead-in-Paint K+L variable reading time mode, substrate correction is <u>not</u> needed for:

Brick, Concrete, Drywall, Metal, Plaster, and Wood

INCONCLUSIVE RANGE OR THRESHOLD:

K+L MODE READING DESCRIPTION	SUBSTRATE	THRESHOLD (mg/cm^2)
Results not corrected for substrate bias on any substrate	Brick	1.0
	Concrete	1.0
	Drywall	1.0
	Metal	1.0
	Plaster	1.0
	Wood	1.0

BACKGROUND INFORMATION

EVALUATION DATA SOURCE AND DATE:

This sheet is supplemental information to be used in conjunction with Chapter 7 of the HUD *Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing* ("HUD Guidelines"). Performance parameters shown on this sheet are calculated from the EPA/HUD evaluation using archived building components. Testing was conducted in August 2004 on 133 testing combinations. The instruments that were used to perform the testing had new sources; one instrument's was installed in November 2003 with 40 mCi initial strength, and the other's was installed June 2004 with 40 mCi initial strength.

OPERATING PARAMETERS:

Performance parameters shown in this sheet are applicable only when properly operating the instrument using the manufacturer's instructions and procedures described in Chapter 7 of the HUD Guidelines.

SUBSTRATE CORRECTION VALUE COMPUTATION:

Substrate correction is not needed for brick, concrete, drywall, metal, plaster or wood when using Lead-in-Paint K+L variable reading time mode, the normal operating mode for these instruments. If substrate correction is desired, refer to Chapter 7 of the HUD Guidelines for guidance on correcting XRF results for substrate bias.

EVALUATING THE QUALITY OF XRF TESTING:

Randomly select ten testing combinations for retesting from each house or from two randomly selected units in multifamily housing. Use the K+L variable time mode readings.

Conduct XRF retesting at the ten testing combinations selected for retesting.

Determine if the XRF testing in the units or house passed or failed the test by applying the steps below.

Compute the Retest Tolerance Limit by the following steps:

Determine XRF results for the original and retest XRF readings. Do not correct the original or retest results for substrate bias. In single-family housing a result is defined as the average of three readings. In multifamily housing, a result is a single reading. Therefore, there will be ten original and ten retest XRF results for each house or for the two selected units.

Calculate the average of the original XRF result and retest XRF result for each testing combination.

Square the average for each testing combination.

Add the ten squared averages together. Call this quantity C.

Multiply the number C by 0.0072. Call this quantity D.

Add the number 0.032 to D. Call this quantity E.

Take the square root of E. Call this quantity F.

Multiply F by 1.645. The result is the Retest Tolerance Limit.

Compute the average of all ten original XRF results.

Compute the average of all ten re-test XRF results.

Find the absolute difference of the two averages.

If the difference is less than the Retest Tolerance Limit, the inspection has passed the retest. If the difference of the overall averages equals or exceeds the Retest Tolerance Limit, this procedure should be repeated with ten new testing combinations. If the difference of the overall averages is equal to or greater than the Retest Tolerance Limit a second time, then the inspection should be considered deficient.

Use of this procedure is estimated to produce a spurious result approximately 1% of the time. That is, results of this procedure will call for further examination when no examination is warranted in approximately 1 out of 100 dwelling units tested.

TESTING TIMES:

For the Lead-in-Paint K+L variable reading time mode, the instrument continues to read until it is moved away from the testing surface, terminated by the user, or the instrument software indicates the reading is complete. The following table provides testing time information for this testing mode. The times have been adjusted for source decay, normalized to the initial source strengths as noted above. Source strength and type of substrate will affect actual testing times. At the time of testing, the instruments had source strengths of 26.6 and 36.6 mCi.

Testing Times Using K+L Reading Mode (Seconds)						
	All Data			Median for laboratory-measured lead levels (mg/cm^2)		
Substrate	25^{th} Percentile	Median	75^{th} Percentile	Pb < 0.25	0.25 ≤ Pb<1.0	1.0 ≤ Pb
Wood Drywall	4	11	19	11	15	11
Metal	4	12	18	9	12	14
Brick Concrete Plaster	8	16	22	15	18	16

CLASSIFICATION RESULTS:

XRF results are classified as positive if they are greater than or equal to the threshold, and negative if they are less than the threshold.

DOCUMENTATION:

A document titled *Methodology for XRF Performance Characteristic Sheets* provides an explanation of the statistical methodology used to construct the data in the sheets, and provides empirical results from using the recommended inconclusive ranges or thresholds for specific XRF instruments. For a copy of this document call the National Lead Information Center Clearinghouse at 1-800-424-LEAD.

This XRF Performance Characteristic Sheet was developed by the Midwest Research Institute (MRI) and QuanTech, Inc., under a contract between MRI and the XRF manufacturer. HUD has determined that the information provided here is acceptable when used as guidance in conjunction with Chapter 7, Lead-Based Paint Inspection, of HUD's *Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing*.

Testing Protocol

Testing was conducted in accordance with Chapter 7 of the Guidelines for the Evaluation and Control of Lead-Based Paint (LBP) Hazards in Housing as published by HUD in October 1997. Exterior and interior XRF readings were taken on representative painted surfaces on each building component in each room equivalent, per the limited scope of work. The EPA and HUD definition of LBP is lead equal to or greater than 1.0 mg/ cm^2. All XRF readings below the regulatory threshold are considered negative and all readings at and above this level are considered positive. Since readings below 1.0 mg/ cm^2 can still pose health hazards, they are shown as <1%.

When establishing a sampling strategy, the following is used as a reference:

A "room" is an identifiable part of a residence, such as a room, foyer, staircase, hallway, or a house exterior or other exterior area. Exterior areas contain items such as play areas, painted swing sets, painted sandboxes, etc. Small closets or other similar areas adjoining rooms should not be considered as separate room equivalents unless they are obviously dissimilar from the adjoining room equivalent. However, walk-in closets should be considered as separate room equivalents.

Each room equivalent is made up of "components". Components may be located inside or outside a building. For example, components in a room could be its ceiling, floor, walls, a door and its casing, the window sash, and window casings. The substrate is the material underneath the paint of a component. Although many different substrates exist, HUD guidelines recommend classifying substrates into one of six types: (1) brick; (2) concrete; (3) drywall; (4) metal, (5) plaster; and (6) wood. If the true substrate under investigation is not one of the aforementioned types, HUD guidelines mandate the inspector/risk assessor to select the substrate type that most closely resembles one of the six defined substrate types. For substrates that are layered, such as plaster on concrete, the substrate directly beneath the painted surface is identified during a LBP inspection. A "testing combination" is characterized by the room equivalent, component, and substrate. Visible color may not be an accurate predictor of painting history and is not included in the definition of a testing combination. Components that are coated with paint, varnish, shellac, wallpaper, stain, or other coating should be considered as separate testing combinations. Certain building components that are adjacent to each other and not likely to have different painting histories can be grouped together into a single testing combination as follows:

- Window casings, stops, jambs, and aprons
- Interior window mullions and window sashes
- Interior window components may not be grouped with exterior window components
- Exterior window mullions and window sashes
- Door jambs, stops, transoms, casings, and other door parts
- Door stiles, rails, panels, mullions, and other door parts
- Baseboards and associated trim (such as quarter-round or other caps)
- Painted electrical sockets, switches, or plates can be grouped with the walls.

The "test location" is a specific area on a testing combination where the XRF was used to test for LBP.

De minimis levels for deteriorated LBP are defined follows: (1) For a component with a small surface area, such as window sills, or baseboards, 10% of the surface area; (2) For an interior component with a large surface area, such as an interior wall, 2 square feet of the surface area; and (3) For an exterior component with a large surface area, 20 square feet of the surface area.

According to the HUD guidelines, a lead reading by XRF of 1.0 mg/cm^2 or above is considered positive for the presence of LBP. An XRF reading below 1.0 mg/cm^2 is considered negative; however, a reading below 1.0 mg/cm^2 could still be harmful if proper precautions are not taken during activities that disturb

these paint films. If there are any inconclusive readings, a paint-chip sample may be collected for laboratory analysis. Laboratory analysis of samples collected will only be performed by an EPA approved National Lead Laboratory Accreditation Program (NLLAP) laboratory. There is no inconclusive range for laboratory measurements/results.

Only painted, stained, or varnished components of a dwelling are tested during a LBP evaluation. Wall "A" or "1" in each room is the wall where the front entrance door opening is located (or aligned with street). Going clockwise and facing outward Wall "A" or "1", Wall "B" or "2" will always be to your right, Wall "C" or "3" directly to the rear and Wall "D" or "4" to the left. Doors, windows and closets are designated as left, center or right depending on their location on the wall. When more than one window/door is on a wall, features are numbered left to right.

Assessment Logic

A LBP evaluation is performed by use of the following assessment logic. Any paint found to contain lead below the HUD standard of 1.0 mg/cm^2, regardless of condition, is not considered lead-based paint. Components having lead levels at or above the action level are visually assessed for condition and approximate surface area. The paint condition is placed into one of three categories using the risk assessor's professional judgment. These categories are: (1) intact (good), (2) fair and (3) deteriorated (poor), based on the HUD Guidelines for Evaluation and Control of LBP Hazards in Housing, Chapter 5: Risk Assessment [Table 5-3], June, 1995.

Categories of Paint Film Quality

	Total Area of Deteriorated Paint on Each Component		
Type of Building Component[1]	Intact	Fair[2]	Poor[3]
Exterior components with large surface areas	Entire surface is intact	Less than or equal to 10 square feet	More than 10 square feet
Interior components with large surface areas (walls, ceilings, floors, doors)	Entire surface is intact	Less than or equal to 10 square feet	More than 2 square feet
Interior components with small surface areas (window sills, baseboards, soffits, trim)	Entire surface is intact	Less than or equal to 10 percent of the total surface area of the component	More than 10 percent of the total square

Building component[1] in this table refers to each individual component or side of building, not the combined surface area of all similar components in a room (e.g., a wall with 1 square foot of deteriorated paint is in "fair" condition, even if the other three walls in a room are intact).

Fair[2] - Surfaces in "fair" condition should be repaired and/or monitored, but are not considered to be "lead-based paint hazards" as defined in Title X.

Poor[3] - Surfaces in "poor" condition are considered to be "lead-based paint hazards" as defined in Title X and should be addressed through abatement or interim controls.

Appendix E:

Certifications and Accreditation

THIS IS TO CERTIFY THAT

SEAN FRIEND

HAS SUCCESSFULLY COMPLETED THE TRAINING COURSE

for

ASBESTOS INSPECTOR REFRESHER

In accordance with TSCA Title II, Part 763, Subpart E, Appendix C of 40 CFR

CCB #SRA0615 4-Hr Training

Course Date: 12/02/2021

Course Location: Online,

Certificate: IR-21-8998B

4-Hour AHERA Inspector Refresher Training; AHERA is the Asbestos Hazard Emergency Response Act enacting Title II of Toxic Substance Control Act (TSCA)

Expiration Date: 12/02/2022

For verification of the authenticity of this certificate contact:
PBS Engineering and Environmental Inc.
4412 S Corbett Avenue
Portland, Oregon 97239
503.248.1939

Andy Fridley, Instructor

State of Oregon
Oregon Health Authority

Sean M. Friend

is certified by the Oregon Health Authority to conduct Lead-Based Paint Activities

Inspector

Certification Number:	2743--Indv--I
Issuance Date:	7/21/2021
Expiration Date:	7/21/2024

Oregon Health Authority

000462
SEAN MICHAEL FRIEND
16869 SW 65TH AVE #15
LAKE OSWEGO 97035

CONSTRUCTION CONTRACTORS BOARD
LEAD-BASED PAINT

LICENSE NUMBER: 9152743-I

EXPIRATION DATE: 08/19/2022

ENTITY TYPE: N/A

CONSTRUCTION CONTRACTORS BOARD
LEAD-BASED PAINT

SEAN MICHAEL FRIEND

16869 SW 65TH AVE #15

LAKE OSWEGO 97035

⇦ ⇦ ⇦ ⇦
POCKET CARD
⇦ ⇦ ⇦ ⇦

fold and detach along perforation

⇩ ⇩ ⇩ ⇩ ⇩
LICENSE CARD
⇩ ⇩ ⇩ ⇩ ⇩

STATE OF OREGON
CONSTRUCTION CONTRACTORS BOARD
LEAD-BASED PAINT CERTIFICATE

This document certifies that:

SEAN MICHAEL FRIEND
16869 SW 65TH AVE #15
LAKE OSWEGO 97035

is licensed in accordance with Oregon Law as Lead Inspector Contractor

LICENSE NUMBER: 9152743-I

EXPIRATION DATE: 08/19/2022

ENTITY TYPE: N/A

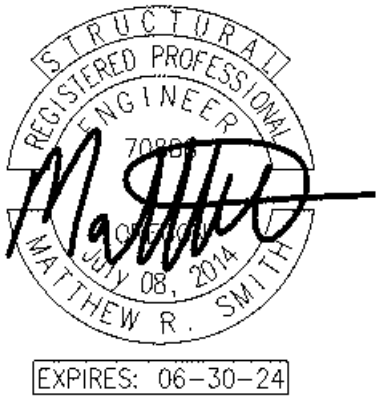
JCFD #5
FIRE STATION #4
SEISMIC REHABILITATION

STRUCTURAL CALCULATIONS

M-0263-21
40 Neil Creek Rd,
Ashland, OR 97520

PREPARED BY: Joseph A. Gipner

REVIEWED BY: Matthew R. Smith, PE, SE



08/22/2022
Job Number: M-0263-21

Project Narrative

The scope of this project consists of the lateral and gravity analysis of existing structural elements at Jackson County Fire District #5 Fire Station #4 (formally station #2) for a seismic rehabilitation of the existing structures. ASCE 7-16 was used to perform the analysis and retrofit of the structure.

Design Criteria

Location:	Jackson County
Governing Code:	2019 Oregon Structural Specialty Code
	ASCE 7-16:
Category IV Building:	Importance Factors 1.5(E), 1.20(S) & 1.0(W)

Dead Load:

Roof = 17 psf
Stud Wall = 15 psf
Mezzanine = 15 psf

Live Loads

Mezz. = 50 psf

Snow Load:

Roof = 29 psf

Wind Load:

Wind Speed:	V = 107 mph (3-second gust)
Exposure:	B (λ = 1.0)
Enclosure:	Enclosed
Topographic Factor:	K_{zt} = 1.0

Seismic Load:

Site Class:	C
Accel. Coeff's:	S_{DS} = 0.5 g
Response Mod. Factor:	R = 6.5
Response Coeff.:	Cs = 0.12
Seismic Design Category:	D

ZCS ENGINEERING ARCHITECTURE

CLIENT SCFD #5
PROJECT FS #2 RETROFIT
NO. M-0263-21 BY JAG
DATE SHEET 1 OF

ROOF WEIGHT

	(PSF)
(METAL) ROOFING	3.0
INSULATION	2.0
3/4" PLYWOOD	2.5
8" STEEL PURLINS, 5' O.C.	1.5
CEILING FINISH	3.0
STEEL GIRDERS/FRAMES	1.5
MEP & MISC	3.5

TOTAL = 17 PSF

EXT. WALLS = 15 PSF

INT. PARTITION = 12 PSF

MEZZ. & ATTIC FRAMING = 15 PSF

SNOW LOAD

P_g = 30 psf , C_s = 1.0 , I_s = 1.2

$P_f = 0.7 C_e C_t I_s P_g = 0.7(0.9)(1.0)(1.2)(30\ psf) = 15.12\ psf$

OSSC MIN. SL: 30 PSF · I_s + 5 psf = 29 PSF → GOVERNS

Oregon Snow Loading

The design ground snow of any location in the state of Oregon may be determined by entering the latitude and longitude of your site into the boxes below. The tool provides the design ground snow load (pg in ASCE7*) for your site. The design ground snow load values can also be viewed on the online map. Users are strongly recommended to review the Map Usage Notes.

Ground snow loads are very sensitive to geographic location, and particularly sensitive to elevation. It is recommended that the latitude and longitude values be entered with a precision of 0.001 (about 105 yards).

* ASCE Standard (ASCE/SEI 7-10) *Minimum Design Loads for Buildings and Other Structures* published by the American Society of Civil Engineers.

Latitude - Longitude Lookup

Results

Latitude:	42.15409349696096
Longitude:	-122.62858259214349
Snow Load:	20.0 psf
Modeled Elevation:	2198 ft

Site Elevation versus Modeled Grid Elevation

Site elevation refers to the elevation (above sea level, in feet) of the location for which the snow load is required. The modeled grid elevation is the average elevation of the 4 km (about 2-1/2 miles) grid cell that was used in the snow load modeling. In relatively flat terrain, the two elevations will likely be the same or very similar. In sloped or mountainous terrain, the two elevations may be quite different.

The design ground snow load may be underreported for some locations where the site elevation is higher than the modeled grid elevation. Consult the Map Usage Notes if your site elevation is more than 100 ft. above the modeled grid elevation shown, or if your site is at or near the top of a hill.

Oregon Design Ground Snow Load Look Up Results

It is important that the user of this tool understand the principals and limitations of the modeling used to create it. Ground snow loads can vary dramatically over short distances due to changes in precipitation and elevation. It is critical to use good engineering judgment when interpreting and using the results reported by this tool. The user is recommended to review the online map, to gain a better understanding of the variations and range of magnitudes of the ground snow loads in the vicinity of the site location.

In remote regions at high elevation, reliable snow data was not available during the creation of the map. A site-specific case study is required to determine the design ground snow load in these areas. The ground snow load values on the map are based on extrapolation, and are not recommended for design. See the Map Usage Notes for the regions that require a site-specific case study.

It is recommended that the local building official having jurisdiction at the site be consulted for minimum design ground snow or roof snow loads.

The reported design ground snow loads must be adjusted as required by Chapter 7 of ASCE7* for site exposure, roof slope, roof configuration, etc. Only the properly adjusted loads can be used to design roof structural elements.

Oregon requires a minimum roof snow load of 20 psf (pm in ASCE7*) for all roofs, plus a 5 psf rain-on-snow surcharge for many roof types, resulting in a 25 psf minimum roof design load for most roofs. See the Map Usage Notes or *Snow Load Analysis for Oregon, Part II* for further information.

* ASCE Standard (ASCE/SEI 7-10) Minimum Design Loads for Buildings and Other Structures published by the American Society of Civil Engineers.

WIND LOAD

$P_s = \lambda K_{zt} P_{s30}$ (28.5-1), $\lambda = 1.0$ (B), $K_{zt} = 1.0$, V: 107 mph

P_{s30}: 10° (A) = 20.7 (B) = -8.6 (C) = 13.75 (D) = -5 (PSF)

A & C MIN: 16 PSF, B & D MIN = 8 PSF

a = 6.2'

TRANVESE GABLE END:

WL: (20.7 PSF)(90 SF) + (16 PSF)(218 SF) = 5,351 #
↳ TRIB TO LL A OR B ·0.6 = 3,211 #

5351 · 2 = 10.7 k → FULL GABLE END WL

LONGITUDINAL:

WL = [20.7 PSF · (172 SF) + 16 PSF · (131 SF) + 8 PSF (77 SF) = 6,273 #
↳ TRIB TO GL 5 ·0.6 = 3,764 #

WL = [16 PSF (578 SF) + 8 PSF (197 SF)] = 10,424 #
↳ GL-3 ·0.6 = 6,255 #

WL = [20.7 PSF (172 SF) + 16 PSF (103 SF) + 8 PSF (70 SF) = 5,769 #
↳ GL-1 ·0.6 = 3,462 #

OSHPD

Latitude, Longitude: 42.15409349696096, -122.62858259214349

Date	5/3/2022, 3:45:05 PM
Design Code Reference Document	ASCE7-16
Risk Category	IV
Site Class	C - Very Dense Soil and Soft Rock

Type	Value	Description
S_S	0.589	MCE_R ground motion. (for 0.2 second period)
S_1	0.327	MCE_R ground motion. (for 1.0s period)
S_{MS}	0.744	Site-modified spectral acceleration value
S_{M1}	0.491	Site-modified spectral acceleration value
S_{DS}	0.496	Numeric seismic design value at 0.2 second SA
S_{D1}	0.327	Numeric seismic design value at 1.0 second SA

Type	Value	Description
SDC	D	Seismic design category
F_a	1.265	Site amplification factor at 0.2 second
F_v	1.5	Site amplification factor at 1.0 second
PGA	0.273	MCE_G peak ground acceleration
F_{PGA}	1.2	Site amplification factor at PGA
PGA_M	0.327	Site modified peak ground acceleration
T_L	16	Long-period transition period in seconds
SsRT	0.589	Probabilistic risk-targeted ground motion. (0.2 second)
SsUH	0.667	Factored uniform-hazard (2% probability of exceedance in 50 years) spectral acceleration
SsD	1.5	Factored deterministic acceleration value. (0.2 second)
S1RT	0.327	Probabilistic risk-targeted ground motion. (1.0 second)
S1UH	0.377	Factored uniform-hazard (2% probability of exceedance in 50 years) spectral acceleration.
S1D	0.6	Factored deterministic acceleration value. (1.0 second)
PGAd	0.5	Factored deterministic acceleration value. (Peak Ground Acceleration)
C_{RS}	0.882	Mapped value of the risk coefficient at short periods
C_{R1}	0.868	Mapped value of the risk coefficient at a period of 1 s

TABLE 1609.3
BASIC DESIGN WIND SPEED, *V*, FOR RISK CATEGORY I, II, III AND IV BUILDINGS AND OTHER STRUCTURES

COUNTY	RISK CATEGORY I BASIC DESIGN WIND SPEED (MPH)	RISK CATEGORY II BASIC DESIGN WIND SPEED (MPH)	RISK CATEGORY III BASIC DESIGN WIND SPEED (MPH)	RISK CATEGORY IV BASIC DESIGN WIND SPEED (MPH)
Baker	97	103	110	114
Benton	90	96	102	107
Clackamas Clackamas special wind region[a]	92 115	98 120	105 130	109 130
Clatsop Clatsop special wind region[a]	91 125	96 135	102 145	107 145
Columbia Columbia special wind region[a]	91 115	97 120	103 130	107 130
Coos Coos special wind region[a, b]	89 115[b]	95 120[b]	101 130[b]	106 130[b]
Crook Crook special wind region[a]	93 100	100 110	106 115	111 115
Curry Curry special wind region[a]	88 125	94 135	101 145	105 145
Deschutes Deschutes special wind region[a]	93 100	99 110	106 115	110 115
Douglas Douglas special wind region[a, b]	91 115[b]	97 120[b]	103 130[b]	108 130[b]
Gilliam[d]	94[d]	100[d]	107[d]	111[d]
Grant	95	101	108	113
Harney	94	101	108	112
Hood River[c] Hood River N.45.5° special wind region[a, c] Hood River S.45.5° special wind region[a]	92[c] 115[c] 100	98[c] 120[c] 110	105[c] 130[c] 115	109[c] 130[c] 115
Jackson	90	96	103	107
Jefferson Jefferson special wind region[a]	93 100	99 110	106 115	110 115
Josephine	89	95	102	106
Klamath Klamath special wind region[a]	91 100	98 110	104 115	108 115
Lake	93	99	106	111
Lane Lane special wind region[a, b]	91 115[b]	98 120[b]	105 130[b]	110 130[b]
Lincoln Lincoln special wind region[a]	90 125	96 135	102 145	106 145
Linn	92	98	104	108
Malheur	96	102	109	113
Marion	92	98	104	108
Morrow[d]	94[d]	101[d]	108[d]	112[d]
Multnomah[c] Multnomah special wind region[a, c]	92[c] 115[c]	98[c] 120[c]	105[c] 130[c]	110[c] 130[c]
Polk	90	97	103	107

(continued)

ZCS ENGINEERING ARCHITECTURE

CLIENT	Soderstrom		
PROJECT	JCDF#5 FS#2		
NO.	M-0263-21	BY	JAG
DATE	5/5/2022	SHEET	OF

Seismic Values		
Sds	=	0.5
R	=	6.5
Ie	=	1.5
Cs	=	0.12

Wall Weights			
Wood Walls	=	15	psf
CMU Veneer	=	45	psf

Roof Area			
Transverse Width	=	40	ft
Longitudinal Width	=	84	ft
Area of Roof	=	3360	sq ft
Weight of Roof	=	17	psf

Longitudinal Direction			
Perp Wall Length	=	230	ft
Perp Wall Height	=	14	ft
CMU Venner Legnth	=	84	ft
CMU Venner Height	=	4	ft
Total Weight	=	89	Kips
Base Shear	=	10.2	kips
Distributed Load	=	256	plf

Transverse Direction			
Perp Wall Length	=	180	ft
Perp Wall Height	=	15	ft
CMU Venner Legnth	=	0	ft
CMU Venner Height	=	0	ft
Total Weight	=	77	Kips
Base Shear	=	8.9	kips
Distributed Load	=	106	plf

ZCS ENGINEERING ARCHITECTURE

CLIENT	Soderstrom		
PROJECT	JCDF#5 FS#2		
NO.	M-0263-21	BY	JAG
DATE	5/5/2022	SHEET	OF

Lateral Loads

Longitudinal Direction at Roof

Total Roof Load	=	10.2 kips
Width	=	40 ft

Shear Line	Trib (ft)	Load (kips)
GL-A	20 ft	5.1 kips
GL-B	20 ft	5.1 kips

Longitudinal Roof Diaphgram

Transverse Depth	=	84 ft
Roof Shear	=	61 plf

Plywood:
Boundary Nailing:
Panel Edge Nailing:

Transverse Direction at Roof

Total Roof Load	=	8.9 kips
Width	=	84 ft

Shear Line	Trib (ft)	Load (kips)
GL-1	20 ft	2.1 kips
GL-3	42 ft	4.5 kips
GL-5	22 ft	2.3 kips

Transverse Roof Diaphgram

Longitudinal Depth	=	40 ft
Roof Shear	=	112 plf

Plywood:
Boundary Nailing:
Panel Edge Nailing:

ZCS ENGINEERING ARCHITECTURE

CLIENT	Soderstrom		
PROJECT	JCDF#5 FS#2		
NO.	M-0263-21	BY	JAG
DATE	5/5/2022	SHEET	OF

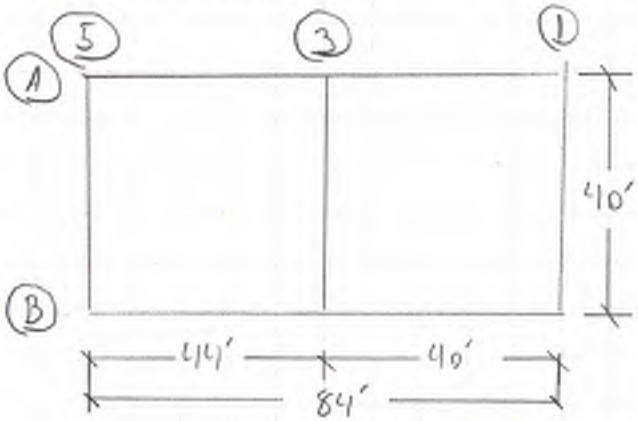
ASD Lateral Loads				
Shear line	Seismic (Kips)	Wind (Kips)	Governing Load	Design Load
GL-A	3.59	3.21	Seismic	3.59 kips
GL-B	3.59	3.21	Seismic	3.59 kips
GL-1	1.49	3.46	Wind	3.46 kips
GL-3	3.12	6.26	Wind	6.26 kips
GL-5	1.64	3.76	Wind	3.76 kips

Note: Wind loads were not calculated through excel sheet, see hand calcs for how these loads were develeoped.

FO

LRDF Lateral Loads				
Shear line	Seismic (Kips)	Wind (Kips)	Governing Load	Design Load
GL-A	5.12	5.35	Wind	5.35 kips
GL-B	5.12	5.35	Wind	5.35 kips
GL-1	2.13	5.77	Wind	5.77 kips
GL-3	4.46	10.42	Wind	10.42 kips
GL-5	2.34	6.27	Wind	6.27 kips

ROOF DIAPH.

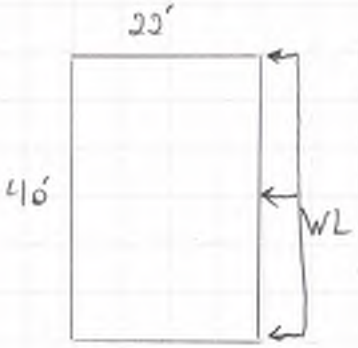


LONGITUDINAL LOAD: 3.59 K ÷ 84' = 43 PLF (ASD)

TRANVERSE LOAD = 3.76 K ÷ 40' = 94 PLF (ASD)
5.3

- USE [15/32" PLYWOOD W/ NO. 10 SCREWS @ 6" & 12"] CAPACITY: 555 PLF ÷ 2.5 (ASD) = 222 PLF
  - ↳ THICKER PLY MAY BE REQ'D TO MEET SPANS

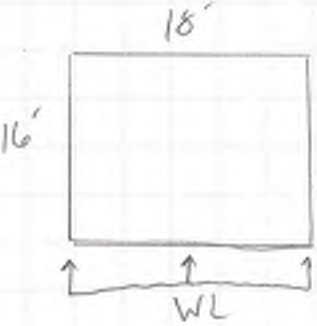
2ND FLOOR ATTIC DIAPH.



WL = 0.6 [6.0' · 7' · 20.7 PSF + (46' - 6.0') · 7' · 16 PSF]
= 2,811 lbs ÷ 2 ÷ 22' = 64 PLF

• USE [MIN. ½" PLY W/ 8d @ 6" & 12"] CAPACITY: 180 PLF ASD

2ND FLOOR MEZZ. DIAPH.



WL = 0.6 [18' · 7' · 16 PSF]
= 1,210 lbs ÷ 2 ÷ 16' = 38 PLF

• USE [MIN. ½" PLY W/ 8d @ 6" & 12"] CAPACITY: 180 PLF

using the applicable *safety factors* and *resistance factors* given in this section in accordance with the applicable design method – *ASD* or *LRFD* as follows:

$\Omega_v = 2.50$ (*ASD*)

$\phi_v = 0.60$ (*LRFD*)

F2.4.3 Design Deflection

The deflection of a *diaphragm* with *wood structural panel* sheathing shown in Table F2.4-1 shall be determined by principles of mechanics considering the deformation of the sheathing and its attachment, *chords* and *collectors*.

Table F2.4-1
Nominal Shear Strength (v_n) per Unit Length for Diaphragms Sheathed With Wood Structural Panel Sheathing [1,2]
***U.S. and Mexico* (lb/ft)**

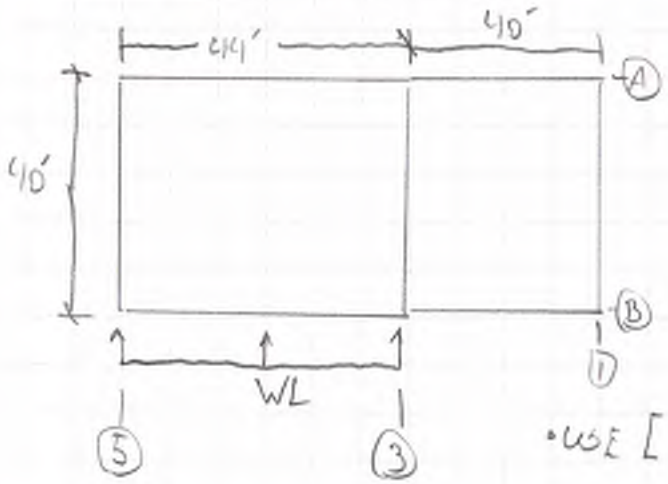
Sheathing	Thickness (in.)	Blocked				Unblocked	
		Screw spacing at diaphragm boundary edges and at all continuous panel edges (in.)				Screws spaced maximum of 6 in. on all supported edges	
		6	4	2.5	2	Load perpendicular to unblocked edges and continuous panel joints	All other configurations
		Screw spacing at all other panel edges (in.)					
		6	6	4	3		
Structural I	3/8	768	1022	1660	2045	685	510
	7/16	768	1127	1800	2255	755	565
	15/32	925	1232	1970	2465	825	615
C-D, C-C and other graded wood structural panels	3/8	690	920	1470	1840	615	460
	7/16	760	1015	1620	2030	680	505
	15/32	832	1110	1770	2215	740	555

1. For SI: 1" = 25.4 mm, 1 ft = 0.305 m, 1 lb = 4.45 N
2. For *diaphragms* sheathed with *wood structural panels*, tabulated R_n values are applicable for short-term *load* duration (seismic *loads*).

F2.5 Requirements Where the Seismic Response Modification Coefficient, R, is Greater Than Three

Where the *seismic response modification coefficient*, R, used to determine the lateral forces is taken greater than 3 and the *diaphragm* is constructed with *cold-formed steel* framing sheathed with *wood structural panels*, the *diaphragm* shall meet the additional requirements in this section.

ROOF DIAPH CORD CHECK



$WL = 0.6[30.7\ PSF \cdot 6.9' \cdot 13.25'/2 + 37.8' \cdot 13.25'/2 \cdot 16\ PSF + 8\ PSF \cdot 3.5' \cdot 41'-1"$

$= 3,764\ lbs \div 41'-1" = 85.6\ PLF$

MAX T & C: $\frac{WL^2}{8} \div D = \frac{85.6 \cdot 44^2}{8} \div 41'-0"$

$= 518\ lbs$

• USE [600T200-43] MIN TOP TRACK

ROOF COLLECTOR ALONG LL-A

ASD: LL-A, EL = 3.59 kip. DRAG LOAD 5 TO 0.2 = $3.59\ kips \cdot 58'/84'$

$\Omega_0 = 2-1/2$, $= 2,570\ lbs \cdot \Omega_0$

$= 6,198\ lbs$

• USE [600T200-54 W/ BRACING @ 2'-0" O.C.]

SPLICE CONN.: $t_1 = t_2 = 0.054"$ $d = 5/32"$ (#8), $F_u = 65\ ksi$ (16 GA)

J4.3 AISI S100: $\Omega = 3.0$ ASD

$P_{nv} = 4.2 (t_2^3 d)^{1/2} \cdot F_{u2} = 4.2((0.054)^3 \cdot 5/32\ in)^{1/2} \cdot 65\ ksi$

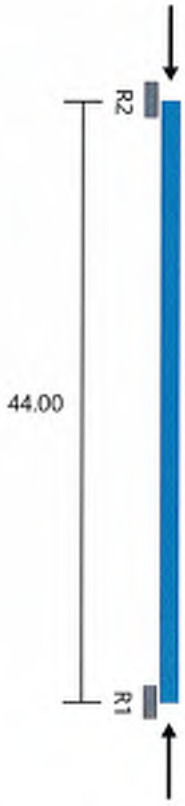
$= 1.35\ k \div \Omega = 451\ \#$

OR

$P_{nv} = 2.7\ t_1\ d\ F_{u1} = 2.7(0.054)(5/32)(65\ ksi) = 1,48 \div \Omega = 493\ \#$

$6,198\ \# \div 451\ \#/screw = 13.8$ screws req'd

W/ 16 GA TOP TRACK



Reactions and Connections

Number of Connectors Required at each Reaction: 1

Support	Reaction (lb)	Simpson Strong-Tie Connector	No. of Req'd screws to stud	No. of Req'd # 12-14 Anchors
R1	0.00	No Solutions	-	-
R2	0.00	SCB45.5	2	

Total Vertical Shear Carried by Connectors (lb) : 0

Bridging Connectors - Design Method = AISI S100

Span/CantiLever	Simpson Strong-Tie Bridging Connector	Stress Ratio
Span	N/A	-

Shear and Web Crippling Checks

Bending and Shear (Unstiffened): N/A

Bending and Shear (Stiffened): NA

Web Stiffeners Required?: No

Section : 600T200-43 Single Track
Maxo = 929.8 Ft-Lb **Moment of Intertia, I** = 2.08 in^4
Fy = 33.0 ksi
Va = 1377.1 lb

Loads have not been modified for strength checks
Loads have not been modified for deflection calculations
Reactions have been multiplied by 1.0 for opposite load direction for connection design

Flexural and Deflection Check

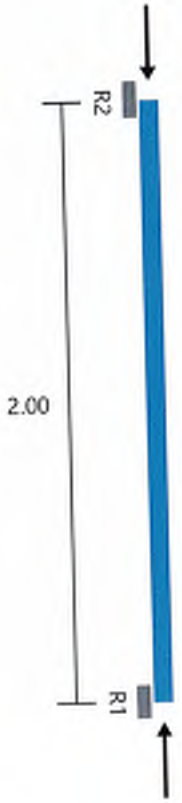
Span	Mmax Ft-Lb	Mmax/ Maxo	Mpos Ft-Lb	Bracing (in)	Ma(Brc) Ft-Lb	Mpos/ Ma(Brc)	Deflection (in)	Deflection Ratio
Span	0.0	0.000	0.0	48.0	896.5	0.000	0.000	L/0

Combined Bending and Axial Load Details

Span	Axial Ld (lb)	Bracing(in) KyLy	Bracing(in) KtLt	Max KL/r	K-phi (lb-in/in)	Lm Bracing (in)	Allow load(lb)	P/Pa	Intr. Value
Span	520.0(c)	48.0	48.0	224	0.0	528.0	861.6(c)	0.60	0.60

Project Name: New WorkSpace
Model: Roof Diaph. Collector GL -A
Code: 2012 NASPEC [AISI S100-2012]

Date: 08/16/2022
Simpson Strong-Tie® CFS Designer™ 2.0.3.0



Reactions and Connections

Number of Connectors Required at each Reaction: 1

Support	Reaction (lb)	Simpson Strong-Tie Connector	No. of Req'd screws to stud	No. of Req'd # 12-14 Anchors
R1	0.00	No Solutions	-	-
R2	0.00	SCB45.5	2	

Total Vertical Shear Carried by Connectors (lb) : 0

Bridging Connectors - Design Method = AISI S211

Span/CantiLever	Simpson Strong-Tie Bridging Connector	Stress Ratio
Span	N/A	-

Shear and Web Crippling Checks

Bending and Shear (Unstiffened): N/A
Bending and Shear (Stiffened): NA
Web Stiffeners Required?: No

Section : 600T200-54 Single Track
Maxo = 1789.9 Ft-Lb **Moment of Intertia, I =** 2.64 in^4

Fy = 50.0 ksi
Va = 2728.3 lb

Loads have not been modified for strength checks
Loads have been multiplied by 0.70 for deflection calculations
Reactions have been multiplied by 1.0 for opposite load direction for connection design

Flexural and Deflection Check

Span	Mmax Ft-Lb	Mmax/ Maxo	Mpos Ft-Lb	Bracing (in)	Ma(Brc) Ft-Lb	Mpos/ Ma(Brc)	Deflection (in)	Ratio
Span	0.0	0.000	0.0	None	1789.9	0.000	0.000	L/0

Combined Bending and Axial Load Details

Span	Axial Ld (lb)	Bracing(in) KyLy	Bracing(in) KtLt	Max KL/r	K-phi (lb-in/in)	Lm Bracing (in)	Allow load(lb)	P/Pa	Intr. Value
Span	6200.0(c)	None	None	40	0.0	24.0	6235.5(c)	0.99	0.99

NON-STACKING TYPE-1 SEGMENTED SHEAR WALLS

GL-A SW										
Frame shear =	3590	lb								
Total SW length =	8.0	Ft.+	4.5	Ft.+	3.50	Ft.	+			
	3.5	Ft.	0.0	Ft.+	0.0	Ft.	+			
	0.0	Ft.	0.0	Ft.+	0.0	Ft.	=	19.5	Ft.	
Wall length =	**19.50**	**Ft.**								
Wall height =	13.75	Ft.								
Load Type =	**Seismic**					**trib.**				
Wall uniform dead load (allow.)=	144	Plf =	17	Psf	x	2	Ft.			
		+	15	Psf	x	13.8	Ft.			
Wall shear Load=	184	PLF				(Walls)				
	Use:	**7/16" OSB**								
HOLDOWN FORCES:										
Aspect Ratio=	3.93	<	4	**OK**						
Overturning Moment =	20.25	kip-ft.	11.39	kip-ft.	8.86	kip-ft.				
Resisting Moment =	4.61	kip-ft.	1.46	kip-ft.	0.88	kip-ft.				
Holdown tension =	2.09	kips	2.48	kips	2.66	kips				
USE:	**FOUNDATION HOLDOWN**									
SW, 4:1 Max Aspect Capacity=	214	PLF	121	PLF	94	PLF				
For SW Aspect > 2:1	**OK**		**NG**		**NG**					
	94	PLF								
	NG									
TYPE 1 SW NG, USE TYPE 2										

USE SIMPSON HTT4 W/ SET 3G EPOXY, MIN 5-1/2" EMBED, CAPACITY = 4.3 kips

NON-STACKING TYPE-2 PERFORATED SHEAR WALLS

Frame shear =	3590	lb								
Total SW length =	4.5	Ft.+	3.5	Ft.+	3.5	Ft.	+			
	0.0	Ft.	0.0	Ft.+	0.0	Ft.	=	11.5	Ft.	
Wall Length	24.00	Ft.								
Full Sheathing Wall length =	11.50	Ft.								
Wall height =	13.75	Ft.	Opening Hieght =		7	Ft.				
Ca =	0.63									
Load Type =	**Seismic**				**trib.**					
Total SW Length =	**19.50**	Ft.	[Include type 2 & applicable type 1 SW]							
Wall shear Load=	184	PLF								
Wall uniform dead load (allow.)=	144	Plf =	17	Psf	x	2	Ft.			
		+	15	Psf	x	13.8	Ft.			
HOLDOWN FORCES:										
Overturning Moment =	60.75	kip-ft.								
Resisting Moment =	41.52	kip-ft.								
Holdown tension =	0.82	kips								
USE:	7/16" OSB W/ #8 SCREWS AT 4" & 12" & 43 MIL STUDS									
Vn=	1235		Ω =	2.5	ASD					
TYPE 2 SW CAPACITY =	311	PLF	**OK**							
TYPE 1 SW CAPACITY =	494	PLF	**OK**							

NON-STACKING TYPE-1 SEGMENTED SHEAR WALLS

GL-B SW										
Frame shear =	3590	lb								
Total SW length =	26.75	Ft.+	18.3	Ft.+	8.3	Ft.	+			
	0.0	Ft.	0.0	Ft.+	0.0	Ft.	+			
	0.0	Ft.	0.0	Ft.+	0.0	Ft.	=	53.3	Ft.	
Wall length =	**53.25**	**Ft.**								
Wall height =	13.75	Ft.								
Load Type =	**Seismic**					**trib.**				
Wall uniform dead load (allow.)=	144	Plf =	17	Psf	x	2	Ft.			
		+	15	Psf	x	13.8	Ft.			
Wall shear Load=	67	PLF -				(Walls)				
	Use:	**7/16" OSB**								
HOLDOWN FORCES:										
Aspect Ratio=	1.67	<	4	**OK**						
Overturning Moment =	24.80	kip-ft.	16.92	kip-ft.	7.65	kip-ft.				
Resisting Moment =	51.57	kip-ft.	24.01	kip-ft.	4.91	kip-ft.				
Holdown tension =	-1.02	kips	-0.40	kips	0.35	kips				

USE: **NO HOLDOWN REQUIRED**

USE: 7/16" OSB W/ #8 SCREWS AT 6" & 12" & 33 MIL STUDS

Vn= 700 Ω = 2.5 ASD

CAPACITY = 280 PLF - **OK**

NON-STACKING TYPE-1 SEGMENTED SHEAR WALLS

GL-1 SW

Frame shear =	3460	lb								
Total SW length =	8.0	Ft.+	6.5	Ft.+	11.50	Ft.	+			
	0.0	Ft.	0.0	Ft.+	0.0	Ft.	+			
	0.0	Ft.	0.0	Ft.+	0.0	Ft.		=	26.0	Ft.
Wall length =	**26.00**	**Ft.**								
Wall height =	17.00	Ft.								
Load Type =	**Wind**					**trib.**				
Wall uniform dead load (allow.)=	255	Plf =	17	Psf	x	10	Ft.			
		+	15	Psf	x	17.0	Ft.			
Wall shear Load=	133	PLF				(Walls)				
	Use:	**7/16" OSB**								
HOLDOWN FORCES:										
Aspect Ratio=	2.62	<	4	**OK**						
Overturning Moment =	18.10	kip-ft.	14.71	kip-ft.	26.02	kip-ft.				
Resisting Moment =	8.16	kip-ft.	5.39	kip-ft.	16.86	kip-ft.				
Holdown tension =	1.33	kips	1.55	kips	0.83	kips				
USE:	**FOUNDATION HOLDOWN**									
SW, 4:1 Aspect, MaxCapacity=	125	PLF	102	PLF	180	PLF				
	NG		**NG**		**OK**					

TYPE 1 SW NG, USE TYPE 2

NON-STACKING TYPE-2 PERFORATED SHEAR WALLS

Frame shear =	3590	lb								
Total SW length =	8.0	Ft.+	6.5	Ft.+	11.5	Ft.	+			
	0.0	Ft.	0.0	Ft.+	0.0	Ft.	+			
	0.0	Ft.	0.0	Ft.+	0.0	Ft.		=	26.0	Ft.
Total Wall Length	40.00	Ft.								
Full Sheathing Wall length =	26.00	Ft.								
Wall height =	13.75	Ft.	Opening Hieght =		7	Ft.				
Ca =	0.63									
Load Type =	**Seismic**				**trib.**					
Wall shear Load=	138	PLF			(Walls)					
Wall uniform dead load (allow.)=	173	Plf =	17	Psf	x	2	Ft.			
		+	15	Psf	x	17.0	Ft.			
HOLDOWN FORCES:										
Overturning Moment =	75.94	kip-ft.								
Resisting Moment =	138.72	kip-ft.								
Holdown tension =	-1.59	kips								

USE:	7/16" OSB W/ #8 SCREWS AT 4" & 12" & 33 MIL STUDS			
Vn=	915	Ω =	2.5	ASD
CAPACITY =	231 PLF	**OK**		

NON-STACKING TYPE-1 SEGMENTED SHEAR WALLS

GL-3 SW

Frame shear =	6260	lb								
Total SW length =	8.75	Ft.+	24.0	Ft.+	0.0	Ft.	+			
	0.0	Ft.	0.0	Ft.+	0.0	Ft.	+			
	0.0	Ft.	0.0	Ft.+	0.0	Ft.		=	32.8	Ft.
Wall length =	**32.8**	**Ft.**								
Wall height =	17.0	Ft.								
Load Type =	**Wind**					**Trib**				
Wall uniform dead load (allow.)=	255	Plf =	17	Psf	x	10	Ft.			
		+	15	Psf	x	17.0	Ft.			
Wall shear Load=	191	Plf	(ASD)			(Walls)				
	Use:	**7/16" OSB**								

HOLDOWN FORCES:

Aspect Ratio=	1.94	< 4	**OK**	
Overturning Moment =	28.43	kip-ft.	77.99	kip-ft.
Resisting Moment =	9.76	kip-ft.	73.44	kip-ft.
Holdown tension =	2.26	kips	0.19	kips

USE: FOUNDATION HOLDOWN

USE: 7/16" OSB W/ #8 SCREWS AT 6" & 12" & 33 MIL STUDS

Vn= 700 Ω = 2.5 ASD

CAPACITY = 280 PLF **OK**

OR Sd 24"d 12 IN 2x STUD WALL CAPACITY: 260 PLF ASD

GL-5 SW

Frame shear =	3760	lb								
Total SW length =	40.0	Ft.+	0.0	Ft.+	0.00	Ft.	+			
	0.0	Ft.	0.0	Ft.+	0.0	Ft.	+			
	0.0	Ft.	0.0	Ft.+	0.0	Ft.		=	40.0	Ft.
Wall length =	**40.00**	**Ft.**								
Wall height =	17.0	Ft.								
Load Type =	**Wind**					**trib.**				
Wall uniform dead load (allow.)=	255	Plf =	17	Psf	x	10	Ft.			
		+	15	Psf	x	17.0	Ft.			
Wall shear Load=	94	Plf	(ASD)			(Walls)				
	Use:	**7/16" OSB**								

HOLDOWN FORCES:

Aspect Ratio=	0.43	< 4	**OK**			
Overturning Moment =	63.92	kip-ft.	0.00	kip-ft.	0.00	kip-ft.
Resisting Moment =	204.00	kip-ft.	0.00	kip-ft.	0.00	kip-ft.
Holdown tension =	-3.55	kips	0.00	kips	0.00	kips

USE: NO HOLDOWN REQUIRED

USE: 7/16" OSB W/ #8 SCREWS AT 6" & 12" & 33 MIL STUDS

Vn= 700 Ω = 2.5 ASD

CAPACITY = 280 PLF **OK**

Table E1.3-1
Nominal Shear Strength [Resistance] (v_n) per Unit Length for Seismic and Other In-Plane Loads [1,4]
For Shear Walls Sheathed With Wood Structural Panels on One Side of Wall

U.S. and Mexico (lb/ft)							
Assembly Description	Max. Aspect Ratio (h:w)	Fastener Spacing at Panel Edges[2] (in.)				Designation Thickness[5] of Stud and Track (mils)	Minimum Sheathing Screw Size
		6	4	3	2		
15/32" Structural 1 Sheathing (4-ply)	2:1[3]	780	990	-	-	33 or 43	8
	2:1	890	1330	1775	2190	43 or 54	8
						68	10
7/16" OSB	2:1[3]	700	915	-	-	33	8
	2:1[3]	825	1235	1545	2060	43 or 54	8
	2:1	940	1410	1760	2350	54	8
	2:1	1230	1850	2310	3080	68	10

Canada (kN/m)						
Assembly Description	Max. Aspect Ratio (h:w)	Fastener Spacing at Panel Edges[2] (mm)			Designation Thickness[5] of Stud and Track (mils)	Required Sheathing Screw Size
		150	100	75		
9.5 mm CSP Sheathing	2:1[3]	8.5	11.8	14.2	43 (min.)	8
12.5 mm CSP Sheathing	2:1[3]	9.5	13.0	19.4	43 (min.)	8
12.5 mm DFP Sheathing	2:1[3]	11.6	17.2	22.1	43 (min.)	8
9 mm OSB 2R24/W24	2:1[3]	9.6	14.3	18.2	43 (min.)	8
11 mm OSB 1R24/2F16/W24	2:1[3]	9.9	14.6	18.5	43 (min.)	8

1. For SI: 1" = 25.4 mm, 1 ft = 0.305 m, 1 lb = 4.45 N. For U.S. Customary Units: 1 mm = 0.0394", 1 m = 3.28 ft, 1 N = 0.225 lb
2. See Section E1.4.1.1 for installation requirements for screws in the field of the panel.
3. See Section E1.3.1.1 for *shear wall* height-to-length aspect ratios (h:w) greater than 2:1, but not exceeding 4:1.
4. See Section E1.3.1.1.2 and Section E1.3.1.1.3 for requirements for sheathing applied to both sides of wall.
5. Only where *Designation Thickness* is specified as a (min) is substitution with a thicker member permitted.

SIMPSON Strong-Tie

Anchor Designer™ Software
Version 3.0.7775.0

Company:		Date:	8/16/2022
Engineer:		Page:	1/5
Project:			
Address:			
Phone:			
E-mail:			

1.Project information

Customer company:
Customer contact name:
Customer e-mail:
Comment:

Project description:
Location:
Fastening description:

2. Input Data & Anchor Parameters

General
Design method:ACI 318-14
Units: Imperial units

Anchor Information:
Anchor type: Bonded anchor
Material: F1554 Grade 36
Diameter (inch): 0.625
Effective Embedment depth, h_{ef} (inch): 5.500
Code report: ICC-ES ESR-4057
Anchor category: -
Anchor ductility: Yes
h_{min} (inch): 6.88
c_{ac} (inch): 9.41
C_{min} (inch): 1.75
S_{min} (inch): 3.00

Base Material
Concrete: Normal-weight
Concrete thickness, h (inch): 12.00
State: Cracked
Compressive strength, f'_c (psi): 2500
$\Psi_{c,V}$: 1.0
Reinforcement condition: B tension, B shear
Supplemental reinforcement: Not applicable
Reinforcement provided at corners: No
Ignore concrete breakout in tension: No
Ignore concrete breakout in shear: No
Hole condition: Dry concrete
Inspection: Periodic
Temperature range, Short/Long: 150/110°F
Ignore 6do requirement: Not applicable
Build-up grout pad: No

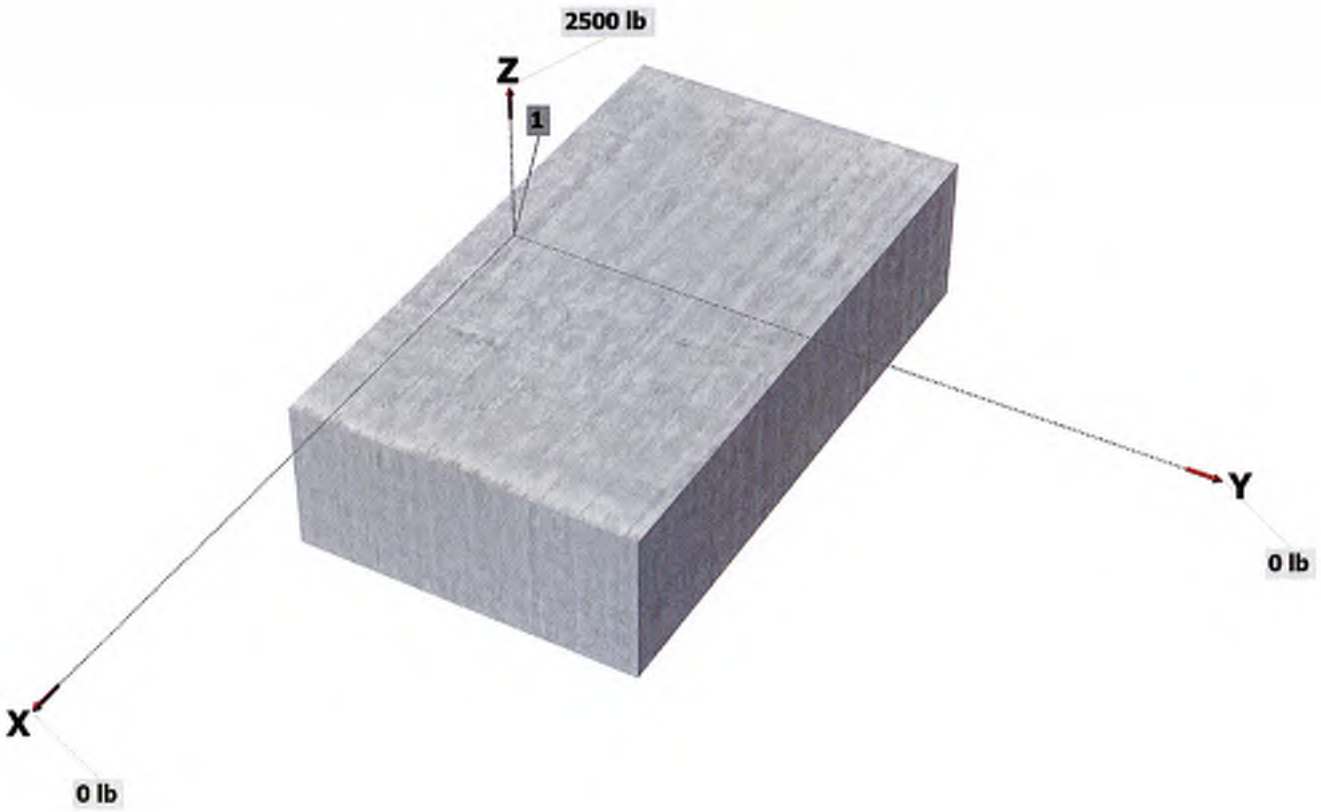
Recommended Anchor
Anchor Name: SET-3G - SET-3G w/ 5/8"Ø F1554 Gr. 36
Code Report: ICC-ES ESR-4057

Load and Geometry
Load factor source: ACI 318 Section 5.3
Load combination: not set
Seismic design: Yes
Anchors subjected to sustained tension: No
Ductility section for tension: 17.2.3.4.2 not applicable
Ductility section for shear: 17.2.3.5.2 not applicable
Ω_3 factor: not set
Apply entire shear load at front row: No
Anchors only resisting wind and/or seismic loads: Yes

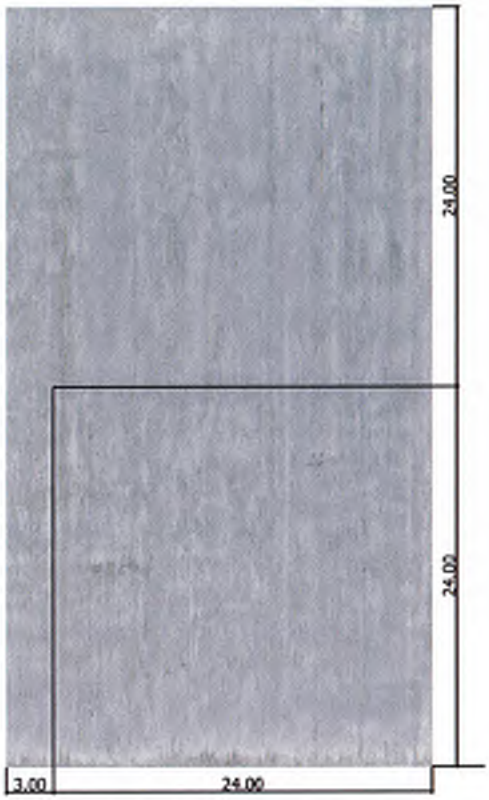
Strength level loads:

N_{ua} [lb]: 2500
V_{uax} [lb]: 0
V_{uay} [lb]: 0

<Figure 1>



<Figure 2>



3. Resulting Anchor Forces

Anchor	Tension load, N_{ua} (lb)	Shear load x, V_{uax} (lb)	Shear load y, V_{uay} (lb)	Shear load combined, $\sqrt{(V_{uax})^2+(V_{uay})^2}$ (lb)
1	2500.0	0.0	0.0	0.0
Sum	2500.0	0.0	0.0	0.0

Maximum concrete compression strain (‰): 0.00
Maximum concrete compression stress (psi): 0
Resultant tension force (lb): 2500
Resultant compression force (lb): 0
Eccentricity of resultant tension forces in x-axis, e'_{Nx} (inch): 0.00
Eccentricity of resultant tension forces in y-axis, e'_{Ny} (inch): 0.00

4. Steel Strength of Anchor in Tension (Sec. 17.4.1)

N_{sa} (lb)	ϕ	ϕN_{sa} (lb)
13110	0.75	9833

5. Concrete Breakout Strength of Anchor in Tension (Sec. 17.4.2)

$N_b = k_c \lambda_a \sqrt{f'_c} h_{ef}^{1.5}$ (Eq. 17.4.2.2a)

k_c	λ_a	f'_c (psi)	h_{ef} (in)	N_b (lb)
17.0	1.00	2500	5.500	10964

$0.75\phi N_{cb} = 0.75\phi (A_{Nc} / A_{Nco}) \Psi_{ed,N} \Psi_{c,N} \Psi_{cp,N} N_b$ (Sec. 17.3.1 & Eq. 17.4.2.1a)

A_{Nc} (in²)	A_{Nco} (in²)	$c_{a,min}$ (in)	$\Psi_{ed,N}$	$\Psi_{c,N}$	$\Psi_{cp,N}$	N_b (lb)	ϕ	$0.75\phi N_{cb}$ (lb)
185.63	272.25	3.00	0.809	1.00	1.000	10964	0.65	2949

6. Adhesive Strength of Anchor in Tension (Sec. 17.4.5)

$\tau_{k,cr} = \tau_{k,cr} f_{short\text{-}term} K_{sat} (f'_c / 2{,}500)^n \alpha_{N,seis}$

$\tau_{k,cr}$ (psi)	$f_{short\text{-}term}$	K_{sat}	$\alpha_{N,seis}$	f'_c (psi)	n	$\tau_{k,cr}$ (psi)
1356	1.00	1.00	1.00	2500	0.24	1356

$N_{ba} = \lambda_a \tau_{cr} \pi d_a h_{ef}$ (Eq. 17.4.5.2)

λ_a	τ_{cr} (psi)	d_a (in)	h_{ef} (in)	N_{ba} (lb)
1.00	1356	0.63	5.500	14644

$0.75\phi N_a = 0.75\phi (A_{Na} / A_{Na0}) \Psi_{ed,Na} \Psi_{cp,Na} N_{ba}$ (Sec. 17.3.1 & Eq. 17.4.5.1a)

A_{Na} (in²)	A_{Na0} (in²)	c_{Na} (in)	$c_{a,min}$ (in)	$\Psi_{ed,Na}$	$\Psi_{g,Na}$	N_{a0} (lb)	ϕ	$0.75\phi N_a$ (lb)
206.12	307.10	8.76	3.00	0.803	1.000	14644	0.65	3846

11. Results

11. Interaction of Tensile and Shear Forces (Sec. D.7)?

Tension	Factored Load, N_{ua} (lb)	Design Strength, ϕN_n (lb)	Ratio	Status
Steel	2500	9833	0.25	Pass
Concrete breakout	**2500**	**2949**	**0.85**	**Pass (Governs)**
Adhesive	2500	3846	0.65	Pass

SET-3G w/ 5/8"Ø F1554 Gr. 36 with hef = 5.500 inch meets the selected design criteria.

12. Warnings

- Per designer input, the tensile component of the strength-level earthquake force applied to anchors does not exceed 20 percent of the total factored anchor tensile force associated with the same load combination. Therefore the ductility requirements of ACI 318 17.2.3.4.2 for tension need not be satisfied – designer to verify.

- Per designer input, the shear component of the strength-level earthquake force applied to anchors does not exceed 20 percent of the total factored anchor shear force associated with the same load combination. Therefore the ductility requirements of ACI 318 17.2.3.5.2 for shear need not be satisfied – designer to verify.

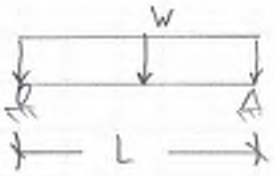
- Designer must exercise own judgement to determine if this design is suitable.

- Refer to manufacturer's product literature for hole cleaning and installation instructions.

ZCS ENGINEERING ARCHITECTURE

CLIENT
PROJECT FS #2
NO. M-0263 BY JAG
DATE SHEET 6 OF

ROOF PURLINS



W: DL = 17 PSF
SL = 29 PSF

ORIGINAL: TRIB = 4' O.C. L = 30'
ADD.: TRIB = 35" O.C. L = 24'

M_{MAX} = 13,360 lb-ft , M_{MAX} = 12,896 lb-ft

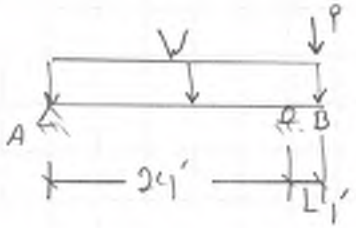
LRFD: 1.2 DL + 1.6 SL, w = 66.8 PLF • TRIB

800Z 300-71 CAPACITY, M_c = 7.57 k-ft NO GOOD

PROVIDE (N) FRAMING IN-BETWEEN (I).

ORIGINAL:
TRIB = 3' , M_{MAX} = 6,680 lb-ft O.K.

ADDITION: (ASSUME NO PT LOAD)
~~TRIB = 16"~~ , ~~M_{MAX} = 6,913 lb-ft~~ O.K.



W: DL = 17 PSF
SL = 29 PSF
TRIB = 16"

P: DL = 17 PSF
SL = 29 PSF
TRIB = 10' - 11/12"

LRFD: 1.2 DL + 1.6 LL

V_u = 1.113 k < 6.32 k O.K.
M_u = 6 k-ft < 7.57 k-ft O.K.

SELECTION TABLE

Resistance

F_y = steel yield strength = 50 ksi
V_r = factored shear strength
B_r int. = factored web crippling strength with 4 in. of interior support
B_r ext.= factored web crippling strength with 4 in. of exterior support
M_r = factored moment resistance considering lateral and distortional buckling

Design assumptions

- The values in the table have been calculated according to Limit States Design (LSD) and CSA S136-16 standard for cold-formed steel.
- Shaded M_r values indicates that distortional buckling may govern the design for the given section if the compression flange is not restrained against distortional buckling.
- The design engineer shall determine the cases when distortional buckling is applicable.
- Rotational rigidity of the sheathing is neglected ($k\phi = 0$) and moment gradient factor has been conservatively set to 1 ($\beta = 1$) for the calculation of the distortional buckling resistance.
- The web crippling resistance is calculated with one flange loading condition.
- The shear resistance is taken as the minimum between the elastic resistance (F_y) of the gross section and the plastic resistance (F_u) of the net section.
- The net section for shear is taken with:
  - 2 bolt holes of $^{9}/_{16}$ in. diameter for section depth d < 8 in.
  - 3 bolt holes of $^{9}/_{16}$ in. diameter for section depth d ≥ 8 in.

Example – Wall girt selection

Single span: 25 ft.
Girt spacing: 5 ft.
Positive external wind pressure: 8.0 + 6.6 = 14.6 psf
Negative external wind pressure: 5.9 + 6.6 = 12.5 psf
Two rows of discrete bracing are used to prevent the section from buckling at a third of the span.
Metal siding is fixed to the exterior flange at 12 in. c/c. The cladding is considered to prevent distortional buckling and lateral-torsional buckling.
Deflections are limited to span / 180 considering the wall composition.

Positive w_f = 1.4 x 14.6 psf x 5.0 ft. = 102 lb./ft.
Negative w_f = 1.4 x 12.5 psf x 5.0 ft. = 88 lb./ft.
M_f^+ = 0.102 kip/ft. x (25 ft.)^2 / 8 = 8.0 kip·ft.
M_f^- = 0.088 kip/ft. x (25 ft.)^2 / 8 = 6.9 kip·ft.
V_f = 0.102 kip/ft. x 25 ft. / 2 = 1.28 kip

$$I_{min.}\ (\text{deflection} < \text{span} / 180) = \frac{180 \times 5 \times 0.75 \times 0.073\ \text{kip/ft.} \times (25\ \text{ft.})^3 \times 144}{384 \times 29{,}500\ \text{ksi}}$$

$I_{min.}$ = 9.8 in.^{4}

The Properties table lists many sections with a value of I_x greater than $I_{min.}$
800Z300-71 I_x = 11.63 in.^{4}
900Z300-71 I_x = 15.29 in.^{4}
1000Z300-71 I_x = 19.56 in.^{4}

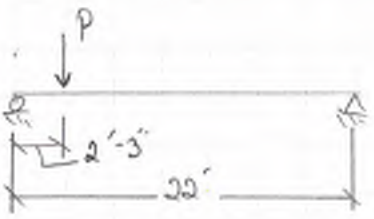
The sections can be verified with the use of the selection tables:
M_r^+ = M_r @ 0 ft. > M_f^+
M_r^- = min. (M_r flexural-torsional @ 8 ft.-4 in., M_r distortional) > M_f^-

The discrete bracings must be connected to the section according to standard S136-16.
$V_r > V_f$
$P_r > V_f$

Section			Web crippling		Distortional buckling
No.	Nomenclature	V_r kip	B_r ext. kip	B_r int. kip	M_r kip·ft.
1	600Z300-57	4.37	1.34	2.42	4.04
2	600Z300-71	7.58	2.03	3.88	5.52
3	600Z300-86	10.91	2.85	5.47	7.11
4	600Z300-100	13.56	3.78	7.42	8.77
5	600Z300-114	15.39	4.83	9.66	10.49
6	600Z300-128	17.20	6.00	12.17	12.26
7	800Z300-57	3.22	1.29	2.38	5.50
8	800Z300-71	6.32	1.96	3.74	7.57
9	800Z300-86	10.91	2.76	5.39	9.80
10	800Z300-100	14.85	3.68	7.33	12.17
11	800Z300-114	19.40	4.71	9.54	14.64
12	800Z300-128	24.24	5.85	12.04	17.19
13	900Z300-71	5.59	1.93	3.71	8.60
14	900Z300-86	9.69	2.72	5.36	11.17
15	900Z300-100	14.85	3.63	7.28	13.90
16	900Z300-114	19.40	4.65	9.49	16.77
17	900Z300-128	24.55	5.78	11.97	19.75
18	1000Z300-71	5.01	1.90	3.69	9.64
19	1000Z300-86	8.68	2.68	5.32	12.55
20	1000Z300-100	13.82	3.58	7.24	15.66
21	1000Z300-114	19.40	4.60	9.44	18.93
22	1000Z300-128	24.55	5.72	11.91	22.34
23	1200Z300-71	4.34	1.85	3.64	11.68
24	1200Z300-86	7.18	2.61	5.26	15.28
25	1200Z300-100	11.43	3.50	7.17	19.16
26	1200Z300-114	17.10	4.50	9.35	23.27
27	1200Z300-128	24.41	5.60	11.80	27.58
28	1400Z300-71	3.53	1.80	3.60	13.63
29	1400Z300-86	6.12	2.55	5.21	17.93
30	1400Z300-100	9.74	3.42	7.10	22.58
31	1400Z300-114	14.57	4.41	9.26	27.55
32	1400Z300-128	20.79	5.50	11.70	32.78

Section			Dimension					Property										
No.	Nomenclature	Former Nomenclature	d in.	b in.	h in.	t in.	Gage	I_x eff. in.^{4}	S_x eff. in.^{3}	r_x in.	I_y in.^{4}	S_y eff. in.^{3}	r_y in.	$r_{min.}$ in.	J x10^{-3} in.^{4}	C_w in.^{6}	A_g in.^{2}	θ deg.
1	600Z300-57	Z6x3.0	6.00	3.00	0.95	0.060	16	4.71	1.24	2.45	2.25	0.50	1.66	0.94	0.98	12.81	0.81	31.19
2	600Z300-71	Z6x3.6	6.00	3.00	0.95	0.075	14	6.01	1.71	2.44	2.78	0.59	1.65	0.94	1.90	15.76	1.01	31.17
3	600Z300-86	Z6x4.3	6.00	3.00	0.95	0.090	13	7.20	2.11	2.44	3.30	0.79	1.65	0.93	3.28	18.61	1.21	31.15
4	600Z300-100	Z6x5.1	6.00	3.00	0.95	0.105	12	8.32	2.61	2.43	3.81	1.01	1.64	0.93	5.18	21.36	1.41	31.13
5	600Z300-114	Z6x5.8	6.00	3.00	0.95	0.120	11	9.42	3.04	2.42	4.31	1.19	1.64	0.93	7.71	24.02	1.61	31.11
6	600Z300-128	Z6x6.5	6.00	3.00	0.95	0.135	10	10.50	3.50	2.42	4.79	1.33	1.63	0.92	10.94	26.58	1.80	31.08
7	800Z300-57	Z8x3.4	8.00	3.00	0.95	0.060	16	9.13	1.94	3.18	2.25	0.51	1.55	0.97	1.12	24.23	0.93	21.74
8	800Z300-71	Z8x4.2	8.00	3.00	0.95	0.075	14	11.63	2.51	3.17	2.78	0.60	1.54	0.97	2.18	29.84	1.16	21.71
9	800Z300-86	Z8x4.9	8.00	3.00	0.95	0.090	13	13.96	3.09	3.17	3.30	0.79	1.54	0.97	3.76	35.29	1.39	21.67
10	800Z300-100	Z8x5.9	8.00	3.00	0.95	0.105	12	16.16	3.81	3.16	3.81	1.01	1.53	0.96	5.98	40.57	1.62	21.64
11	800Z300-114	Z8x6.7	8.00	3.00	0.95	0.120	11	18.33	4.43	3.15	4.31	1.19	1.53	0.96	8.88	45.69	1.85	21.60
12	800Z300-128	Z8x7.5	8.00	3.00	0.95	0.135	10	20.46	5.12	3.14	4.79	1.33	1.52	0.96	12.58	50.64	2.07	21.57
13	900Z300-71	Z9x4.4	9.00	3.00	0.95	0.075	14	15.29	2.95	3.53	2.78	0.60	1.50	0.97	2.32	38.78	1.24	18.57
14	900Z300-86	Z9x5.2	9.00	3.00	0.95	0.090	13	18.36	3.62	3.52	3.30	0.79	1.49	0.97	4.01	45.88	1.48	18.54
15	900Z300-100	Z9x6.2	9.00	3.00	0.95	0.105	12	21.27	4.46	3.51	3.81	1.01	1.49	0.96	6.34	52.77	1.73	18.50
16	900Z300-114	Z9x7.1	9.00	3.00	0.95	0.120	11	24.14	5.19	3.50	4.31	1.19	1.48	0.96	9.44	59.46	1.97	18.46
17	900Z300-128	Z9x8.0	9.00	3.00	0.95	0.135	10	26.97	5.99	3.50	4.79	1.33	1.47	0.96	13.40	65.94	2.21	18.43
18	1000Z300-71	Z10x4.6	10.00	3.00	0.95	0.075	14	19.56	3.39	3.87	2.78	0.60	1.45	0.97	2.47	49.00	1.31	16.11
19	1000Z300-86	Z10x5.5	10.00	3.00	0.95	0.090	13	23.51	4.19	3.87	3.30	0.79	1.45	0.97	4.25	58.00	1.57	16.07
20	1000Z300-100	Z10x6.6	10.00	3.00	0.95	0.105	12	27.25	5.15	3.86	3.81	1.01	1.44	0.96	6.73	66.74	1.83	16.04
21	1000Z300-114	Z10x7.5	10.00	3.00	0.95	0.120	11	30.93	5.98	3.85	4.31	1.19	1.44	0.96	10.01	75.23	2.09	16.00
22	1000Z300-128	Z10x8.4	10.00	3.00	0.95	0.135	10	34.57	6.91	3.84	4.79	1.33	1.43	0.96	14.22	83.46	2.34	15.97
23	1200Z300-71	Z12x5.2	12.00	3.00	0.95	0.075	14	30.10	4.01	4.55	2.78	0.60	1.38	0.96	2.75	73.38	1.46	12.53
24	1200Z300-86	Z12x6.2	12.00	3.00	0.95	0.090	13	36.20	5.42	4.54	3.38	0.80	1.37	0.96	4.73	86.91	1.75	12.50
25	1200Z300-100	Z12x7.3	12.00	3.00	0.95	0.105	12	41.96	6.63	4.54	3.81	1.01	1.37	0.95	7.50	100.86	2.04	12.46
26	1200Z300-114	Z12x8.3	12.00	3.00	0.95	0.120	11	47.71	7.78	4.53	4.31	1.19	1.36	0.95	11.16	112.86	2.33	12.43
27	1200Z300-128	Z12x9.4	12.00	3.00	0.95	0.135	10	53.35	8.89	4.52	4.79	1.33	1.36	0.94	15.86	125.29	2.61	12.40
28	1400Z300-71	Z14x5.7	14.00	3.00	0.95	0.075	14	40.96	4.38	5.21	2.78	0.61	1.31	0.94	3.03	103.07	1.61	10.08
29	1400Z300-86	Z14x6.8	14.00	3.00	0.95	0.090	13	50.43	5.69	5.21	3.30	0.80	1.31	0.94	5.22	122.13	1.93	10.05
30	1400Z300-100	Z14x8.0	14.00	3.00	0.95	0.105	12	59.47	7.34	5.20	3.81	1.01	1.30	0.94	8.27	140.68	2.25	10.02
31	1400Z300-114	Z14x9.1	14.00	3.00	0.95	0.120	11	68.47	8.85	5.19	4.31	1.19	1.30	0.93	12.32	158.73	2.57	9.99
32	1400Z300-128	Z14x10.3	14.00	3.00	0.95	0.135	10	77.36	10.54	5.18	4.79	1.33	1.29	0.93	17.50	176.29	2.88	9.96

ATTIC BEAM: GL 2.1 TO 1



P: DL = 17 PSF
SL = 29 PSF
TRIB = 400 SF

• USE [7" x 5" x 1/2" HSS]

HSS COLUMN - GL 4

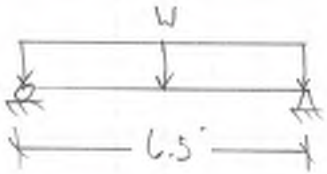
P: DL = 17 PSF
SL = 29 PSF
TRIB = 440 SF

• USE [4x4x1/4 HSS]

FTG: LOAD = 20.5 k ÷ 3.5 k/SF = 6 SF = 2.5' x 2.5'

• USE [30" x 30" x 12" W (4) #4 E.W.]

HDR AT GL-3

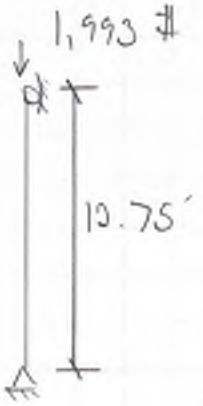


DL = 17 PSF
SL = 29 PSF
TRIB = 20'

SHEAR WALL BOUNDARY STUD

GL-A: LOAD = 3.6k, T-C = 3.6k · 13.75' ÷ 23.25' = 2,084 #

GL-B @ 8'-3" SEGMENT, T-C = 67 PLF · 8.25' · 13.75' ÷ 8' = 950 #
LOAD = 67 PLF



• USE [6665900-54 SIMPLE STUD]

Reactions and Connections

Number of Connectors Required at each Reaction: 1

Support	Reaction (lb)	Simpson Strong-Tie Connector	No. of Req'd screws to stud	No. of Req'd # 12-14 Anchors
R1	0.00	No Solutions	-	-
R2	0.00	SCB45.5	2	

Total Vertical Shear Carried by Connectors (lb) : 0

Bridging Connectors - Design Method = AISI S100

Span/CantiLever	Simpson Strong-Tie Bridging Connector	Stress Ratio
Span	N/A	-

Shear and Web Crippling Checks

Bending and Shear (Unstiffened): N/A

Bending and Shear (Stiffened): NA

Web Stiffeners Required?: No

Section : 600S200-54 Single C Stud
Maxo = 2532.9 Ft-Lb **Moment of Intertia, I =** 3.32 in^4
Fy = 50.0 ksi
Va = 2822.9 lb

Loads have not been modified for strength checks
Loads have been multiplied by 0.70 for deflection calculations
Reactions have been multiplied by 1.0 for opposite load direction for connection design

Flexural and Deflection Check

Span	Mmax Ft-Lb	Mmax/ Maxo	Mpos Ft-Lb	Bracing (in)	Ma(Brc) Ft-Lb	Mpos/ Ma(Brc)	Deflection (in)	Deflection Ratio
Span	0.0	0.000	0.0	None	545.8	0.000	0.000	L/0

Distortional Buckling Check

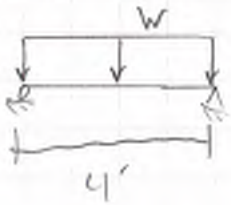
Span	K-phi lb-in/in	Lm Brac in	Ma-d Ft-Lb	Mmax/ Ma-d
Span	0.00	165.0	2281.9	0.000

Combined Bending and Axial Load Details

Span	Axial Ld (lb)	Bracing(in) KyLy	Bracing(in) KtLt	Max KL/r	K-phi (lb-in/in)	Lm Bracing (in)	Allow load(lb)	P/Pa	Intr. Value
Span	2100.0(c)	Sheathed	Sheathed	71	0.0	165.0	3222.2(c)	0.65	0.65

Sheathing braced design based on 1/2 inch Gypsum Sheathing, No.6 Screws
See AISI S211-07 for Sheathing Braced design limitations.

WINDOW HDR GL-B

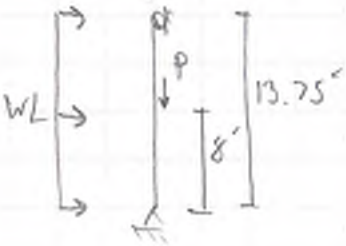


W: MEZZ. ROOF
DL: 15 PSF DL: 17 PSF
LL: 50 PSF SL: 21 PSF
TRIB: 8' TRIB: 2'

*USE [6005300-54 BOXED W/ T-TRACK]

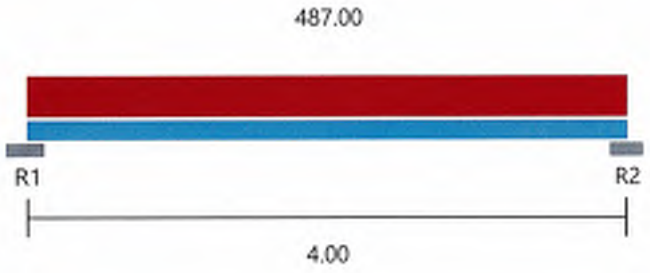
REACTION: 1,240 lbs

TYP. JAMB STUD (EXTERIOR)



P: 1,240 lbs

WL: 16 PSF
TRIB: [16'/12 + 4'] ÷ 2 = 3.34'



Reactions

Support	Reactions (lb)
R1	974.00
R2	974.00

Shear and Web Crippling Checks

Bending and Shear (Unstiffened): 17.3% Stressed @R1

Bending and Shear (Stiffened): NA

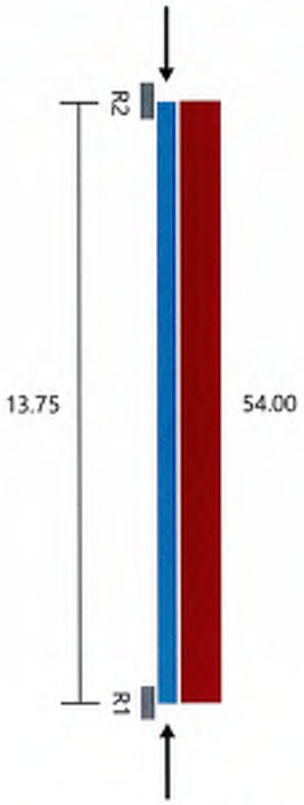
Web Stiffeners Required?: No

Section : (2) 600S200-54 Boxed C Stud
Maxo = 5065.9 Ft-Lb **Moment of Intertia, I =** 6.64 in^4
Fy = 50.0 ksi
Va = 5645.8 lb

Loads have not been modified for strength checks
Loads have been multiplied by 0.70 for deflection calculations

Flexural and Deflection Check

Span	Mmax Ft-Lb	Mmax/ Maxo	Mpos Ft-Lb	Bracing (in)	Ma(Brc) Ft-Lb	Mpos/ Ma(Brc)	Deflection (in)	Ratio
Span	974.0	0.192	974.0	None	5065.9	0.192	0.010	L/4787



Reactions and Connections

Number of Connectors Required at each Reaction: 2

Support	Reaction (lb)	Simpson Strong-Tie Connector	No. of Req'd screws to stud	No. of Req'd # 12-14 Anchors
R1	371.25	No Solutions	-	-
R2	371.25	No Solutions	-	-

Total Vertical Shear Carried by Connectors (lb) : 0

Bridging Connectors - Design Method = AISI S100

Span/CantiLever	Simpson Strong-Tie Bridging Connector	Stress Ratio
Span	N/A	-

Shear and Web Crippling Checks

Bending and Shear (Unstiffened): 6.8% Stressed @R2

Bending and Shear (Stiffened): NA

Web Stiffeners Required?: No

Section : (2) 600S200-54 Boxed C Stud
Maxo = 4012.3 Ft-Lb **Moment of Intertia, I** = 6.64 in^4

Fy = 33.0 ksi
Va = 5478.1 lb

Loads have not been modified for strength checks
Loads have been multiplied by 0.70 for deflection calculations
Reactions have been multiplied by 1.0 for opposite load direction for connection design

Flexural and Deflection Check

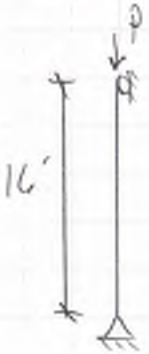
Span	Mmax Ft-Lb	Mmax/ Maxo	Mpos Ft-Lb	Bracing (in)	Ma(Brc) Ft-Lb	Mpos/ Ma(Brc)	Deflection (in)	Deflection Ratio
Span	1276.2	0.318	1276.2	None	4012.3	0.318	0.155	L/1063

Combined Bending and Axial Load Details

Span	Axial Ld (lb)	Bracing(in) KyLy	Bracing(in) KtLt	Max KL/r	K-phi (lb-in/in)	Lm Bracing (in)	Allow load(lb)	P/Pa	Intr. Value
Span	1240.0(c)	None	None	108	0.0	165.0	8937.5(c)	0.14	0.46

Member Interconnection Spacing = 24 in
See NASPEC D1.2 for additional interconnection requirements

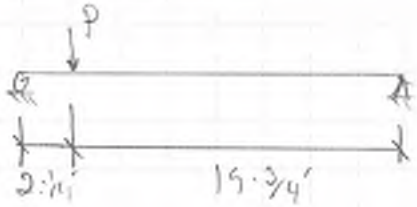
COLUMN GL-4



P: DL = 17 PSF = 7.5k
SL = 29 PSF = 10.8k
TRIB = 440 SF

•USE [4x4x3/8 HSS] , FTG: •USE [30" x 30" x 10" w/ (4)#5 E.W.]

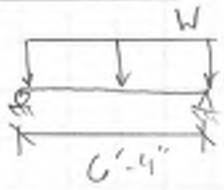
ATTIC BEAM



P: DL = 17 PSF = 6.8k
SL = 29 PSF = 11.6k
TRIB = 400 SF

•USE [W8 x 24] , SUPPORT BY 6x6 POST

HDR GL-3



W: DL = 17 PSF
SL = 29 PSF
TRIB = 10'

•USE [6x6]

Project Title:
Engineer:
Project ID:
Project Descr:

Steel Column

Project File: jcfd#5 fs#2.ec6

DESCRIPTION: Column GL-4

Code References

Calculations per AISC 360-16, IBC 2018, CBC 2019, ASCE 7-16
Load Combinations Used : ASCE 7-16

General Information

Steel Section Name : **HSS4x4x3/8**
Analysis Method : Allowable Strength
Steel Stress Grade , A500, Grade C, Fy = 50 ksi, Carbon Steel
Fy : Steel Yield 50.0 ksi
E : Elastic Bending Modulus 29,000.0 ksi

Overall Column Height 16 ft
Top & Bottom Fixity Top & Bottom Pinned
Brace condition for deflection (buckling) along columns :
X-X (width) axis :
Unbraced Length for buckling ABOUT Y-Y Axis = 16 ft, K = 1.0
Y-Y (depth) axis :
Unbraced Length for buckling ABOUT X-X Axis = 16 ft, K = 1.0

Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Column self weight included : 276.320 lbs * Dead Load Factor
AXIAL LOADS . . .
Roof: Axial Load at 16.0 ft, D = 7.50, S = 12.80 k

DESIGN SUMMARY

Bending & Shear Check Results

PASS Max. Axial+Bending Stress Ratio = 0.4886 : 1
Load Combination +D+S
Location of max.above base 0.0 ft
At maximum location values are . . .
Pa : Axial 20.576 k
Pn / Omega : Allowabl 42.115 k
Ma-x : Applied 0.0 k-ft
Mn-x / Omega : Allowable 15.943 k-ft
Ma-y : Applied 0.0 k-ft
Mn-y / Omega : Allowable 15.943 k-ft

PASS Maximum Shear Stress Rati 0.0 : 1
Load Combination 0.0
Location of max.above base 0.0 ft
At maximum location values are . . .
Va : Applied 0.0 k
Vn / Omega : Allowable 0.0 k

Maximum Load Reactions . .
Top along X-X 0.0 k
Bottom along X-X 0.0 k
Top along Y-Y 0.0 k
Bottom along Y-Y 0.0 k

Maximum Load Deflections . . .
Along Y-Y 0.0 in at 0.0 ft above base
for load combination :
Along X-X 0.0 in at 0.0 ft above base
for load combination :

Load Combination Results

Load Combination	Maximum Axial + Bending Stress Ratios: Stress Ratio	Status	Location	Cbx	Cby	KxLx/Ry	KyLy/Rx	Maximum Shear Ratios: Stress Ratio	Status	Location
D Only	0.185	PASS	0.00 ft	1.00	1.00	130.61	130.61	0.000	PASS	0.00 ft
+D+S	0.489	PASS	0.00 ft	1.00	1.00	130.61	130.61	0.000	PASS	0.00 ft
+D+0.750S	0.413	PASS	0.00 ft	1.00	1.00	130.61	130.61	0.000	PASS	0.00 ft
+0.60D	0.111	PASS	0.00 ft	1.00	1.00	130.61	130.61	0.000	PASS	0.00 ft

Maximum Reactions

Note: Only non-zero reactions are listed.

Load Combination	Axial Reaction @ Base	X-X Axis Reaction k @ Base	@ Top	Y-Y Axis Reaction @ Base	@ Top	Mx - End Moments k-ft @ Base	@ Top	My - End Moments @ Base	@ Top
D Only	7.776								
+D+S	20.576								
+D+0.750S	17.376								
+0.60D	4.666								
S Only	12.800								

Extreme Reactions

Item	Extreme Value	Axial Reaction @ Base	X-X Axis Reaction k @ Base	@ Top	Y-Y Axis Reaction @ Base	@ Top	Mx - End Moments k-ft @ Base	@ Top	My - End Moments @ Base	@ Top
Axial @ Base	Maximum	20.576								
"	Minimum	4.666								

Project Title:
Engineer:
Project ID:
Project Descr:

Steel Column

Project File: jcfd#5 fs#2.ec6

DESCRIPTION: Column GL-4

Extreme Reactions

Item	Extreme Value	Axial Reaction @ Base	X-X Axis Reaction @ Base	@ Top	k	Y-Y Axis Reaction @ Base	@ Top	Mx - End Moments k-ft @ Base	@ Top	My - End Moments @ Base	@ Top
Reaction, X-X Axis Base	Maximum	7.776									
"	Minimum	7.776									
Reaction, Y-Y Axis Base	Maximum	7.776									
"	Minimum	7.776									
Reaction, X-X Axis Top	Maximum	7.776									
"	Minimum	7.776									
Reaction, Y-Y Axis Top	Maximum	7.776									
"	Minimum	7.776									
Moment, X-X Axis Base	Maximum	7.776									
"	Minimum	7.776									
Moment, Y-Y Axis Base	Maximum	7.776									
"	Minimum	7.776									
Moment, X-X Axis Top	Maximum	7.776									
"	Minimum	7.776									
Moment, Y-Y Axis Top	Maximum	7.776									
"	Minimum	7.776									

Maximum Deflections for Load Combinations

Load Combination	Max. X-X Deflection	Distance	Max. Y-Y Deflection	Distance
D Only	0.0000 in	0.000 ft	0.000 in	0.000 ft
+D+S	0.0000 in	0.000 ft	0.000 in	0.000 ft
+D+0.750S	0.0000 in	0.000 ft	0.000 in	0.000 ft
+0.60D	0.0000 in	0.000 ft	0.000 in	0.000 ft
S Only	0.0000 in	0.000 ft	0.000 in	0.000 ft

Steel Section Properties : HSS4x4x3/8

Depth	=	4.000 in	I xx	=	10.30 in^4	J	=	17.500 in^4
Design Thick	=	0.349 in	S xx	=	5.13 in^3			
Width	=	4.000 in	R xx	=	1.470 in			
Wall Thick	=	0.375 in	Zx	=	6.390 in^3			
Area	=	4.780 in^2	I yy	=	10.300 in^4	C	=	9.140 in^3
Weight	=	17.270 plf	S yy	=	5.130 in^3			
			R yy	=	1.470 in			
Ycg	=	0.000 in						

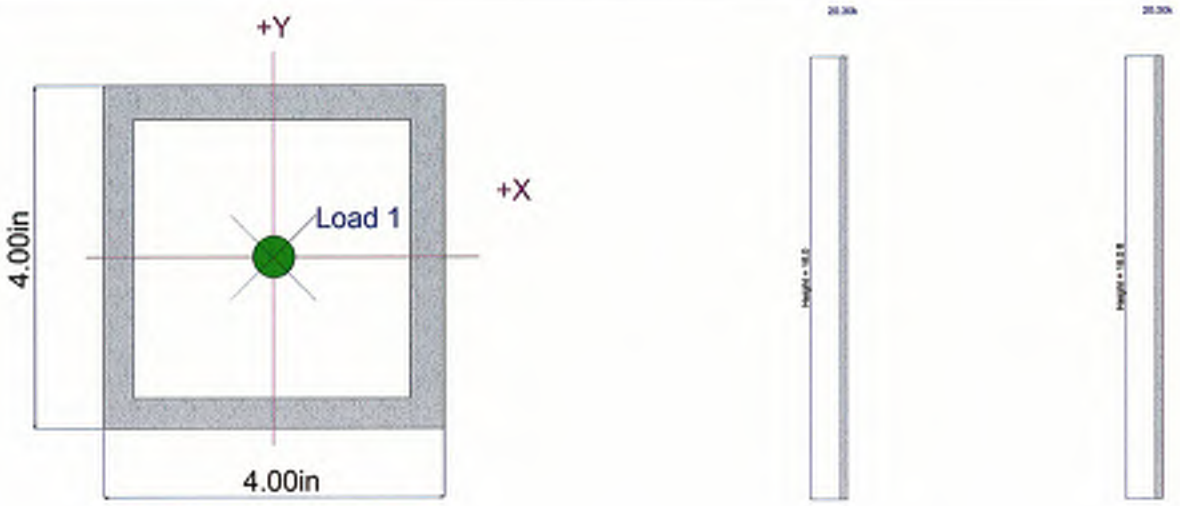
Project Title:
Engineer:
Project ID:
Project Descr:

Steel Column

Project File: jcfd#5 fs#2.ec6

DESCRIPTION: Column GL-4

Sketches



Project Title:
Engineer:
Project ID:
Project Descr:

General Footing

Project File: jcfd#5 fs#2.ec6

DESCRIPTION: FTG for Column GL-4

Code References

Calculations per ACI 318-14, IBC 2018, CBC 2019, ASCE 7-16
Load Combinations Used : ASCE 7-16

General Information

Material Properties

f'c : Concrete 28 day strength	=	2.50 ksi
fy : Rebar Yield	=	60.0 ksi
Ec : Concrete Elastic Modulus	=	3,122.0 ksi
Concrete Density	=	145.0 pcf
φ Values Flexure	=	0.90
Shear	=	0.750

Analysis Settings

Min Steel % Bending Reinf.	=	
Min Allow % Temp Reinf.	=	0.00180
Min. Overturning Safety Factor	=	1.0 : 1
Min. Sliding Safety Factor	=	1.0 : 1
Add Ftg Wt for Soil Pressure	:	Yes
Use ftg wt for stability, moments & shears	:	Yes
Add Pedestal Wt for Soil Pressure	:	No
Use Pedestal wt for stability, mom & shear	:	No

Soil Design Values

Allowable Soil Bearing	=	3.50 ksf
Soil Density	=	110.0 pcf
Increase Bearing By Footing Weight	=	No
Soil Passive Resistance (for Sliding)	=	250.0 pcf
Soil/Concrete Friction Coeff.	=	0.30

Increases based on footing Depth

Footing base depth below soil surface	=	ft
Allow press. increase per foot of depth	=	ksf
when footing base is below	=	ft

Increases based on footing plan dimension

Allowable pressure increase per foot of depth	=	ksf
when max. length or width is greater than	=	ft

Dimensions

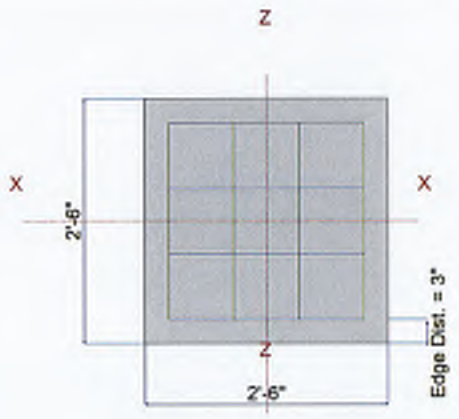
Width parallel to X-X Axis	=	2.50 ft
Length parallel to Z-Z Axis	=	2.50 ft
Footing Thickness	=	12.0 in

Pedestal dimensions...

px : parallel to X-X Axis	=	in
pz : parallel to Z-Z Axis	=	in
Height		in

Rebar Centerline to Edge of Concrete...

at Bottom of footing	=	3.0 in



Reinforcing

Bars parallel to X-X Axis			
Number of Bars	=		4.0
Reinforcing Bar Size	=	#	5
Bars parallel to Z-Z Axis			
Number of Bars	=		4.0
Reinforcing Bar Size	=	#	5

Bandwidth Distribution Check (ACI 15.4.4.2)

Direction Requiring Closer Separation	n/a
# Bars required within zone	n/a
# Bars required on each side of zone	n/a

X-X Section Looking to +Z

Z-Z Section Looking to +X

Applied Loads

		D	Lr	L	S	W	E	H	
P : Column Load	=	7.50			12.80				k
OB : Overburden	=								ksf
M-xx	=								k-ft
M-zz	=								k-ft
V-x	=								k
V-z	=								k

Project Title:
Engineer:
Project ID:
Project Descr:

General Footing

Project File: jcfd#5 fs#2.ec6

DESCRIPTION: FTG for Column GL-4

DESIGN SUMMARY

Design OK

	Min. Ratio	Item	Applied	Capacity	Governing Load Combination
PASS	0.9694	Soil Bearing	3.393 ksf	3.50 ksf	+D+S about Z-Z axis
PASS	n/a	Overturning - X-X	0.0 k-ft	0.0 k-ft	No Overturning
PASS	n/a	Overturning - Z-Z	0.0 k-ft	0.0 k-ft	No Overturning
PASS	n/a	Sliding - X-X	0.0 k	0.0 k	No Sliding
PASS	n/a	Sliding - Z-Z	0.0 k	0.0 k	No Sliding
PASS	n/a	Uplift	0.0 k	0.0 k	No Uplift
PASS	0.1962	Z Flexure (+X)	3.685 k-ft/ft	18.786 k-ft/ft	+1.20D+1.60S
PASS	0.1962	Z Flexure (-X)	3.685 k-ft/ft	18.786 k-ft/ft	+1.20D+1.60S
PASS	0.1962	X Flexure (+Z)	3.685 k-ft/ft	18.786 k-ft/ft	+1.20D+1.60S
PASS	0.1962	X Flexure (-Z)	3.685 k-ft/ft	18.786 k-ft/ft	+1.20D+1.60S
PASS	0.2912	1-way Shear (+X)	21.837 psi	75.0 psi	+1.20D+1.60S
PASS	0.2912	1-way Shear (-X)	21.837 psi	75.0 psi	+1.20D+1.60S
PASS	0.2912	1-way Shear (+Z)	21.837 psi	75.0 psi	+1.20D+1.60S
PASS	0.2912	1-way Shear (-Z)	21.837 psi	75.0 psi	+1.20D+1.60S
PASS	0.5520	2-way Punching	82.799 psi	150.0 psi	+1.20D+1.60S

Detailed Results

Soil Bearing

Rotation Axis & Load Combination...	Gross Allowable	Xecc (in)	Zecc (in)	Actual Soil Bearing Stress @ Location Bottom, -Z	Top, +Z	Left, -X	Right, +X	Actual / Allow Ratio
X-X, D Only	3.50	n/a	0.0	1.345	1.345	n/a	n/a	0.384
X-X, +D+S	3.50	n/a	0.0	3.393	3.393	n/a	n/a	0.969
X-X, +D+0.750S	3.50	n/a	0.0	2.881	2.881	n/a	n/a	0.823
X-X, +0.60D	3.50	n/a	0.0	0.8070	0.8070	n/a	n/a	0.231
Z-Z, D Only	3.50	0.0	n/a	n/a	n/a	1.345	1.345	0.384
Z-Z, +D+S	3.50	0.0	n/a	n/a	n/a	3.393	3.393	0.969
Z-Z, +D+0.750S	3.50	0.0	n/a	n/a	n/a	2.881	2.881	0.823
Z-Z, +0.60D	3.50	0.0	n/a	n/a	n/a	0.8070	0.8070	0.231

Overturning Stability

Rotation Axis & Load Combination...	Overturning Moment	Resisting Moment	Stability Ratio	Status
Footing Has NO Overturning				

All units k

Sliding Stability

Force Application Axis Load Combination...	Sliding Force	Resisting Force	Stability Ratio	Status
Footing Has NO Sliding				

Footing Flexure

Flexure Axis & Load Combination	Mu k-ft	Side	Tension Surface	As Req'd in^2	Gvrn. As in^2	Actual As in^2	Phi*Mn k-ft	Status
X-X, +1.40D	1.313	+Z	Bottom	0.2592	AsMin	0.4960	18.786	OK
X-X, +1.40D	1.313	-Z	Bottom	0.2592	AsMin	0.4960	18.786	OK
X-X, +1.20D	1.125	+Z	Bottom	0.2592	AsMin	0.4960	18.786	OK
X-X, +1.20D	1.125	-Z	Bottom	0.2592	AsMin	0.4960	18.786	OK
X-X, +1.20D+0.50S	1.925	+Z	Bottom	0.2592	AsMin	0.4960	18.786	OK
X-X, +1.20D+0.50S	1.925	-Z	Bottom	0.2592	AsMin	0.4960	18.786	OK
X-X, +1.20D+1.60S	3.685	+Z	Bottom	0.2592	AsMin	0.4960	18.786	OK
X-X, +1.20D+1.60S	3.685	-Z	Bottom	0.2592	AsMin	0.4960	18.786	OK
X-X, +0.90D	0.8438	+Z	Bottom	0.2592	AsMin	0.4960	18.786	OK
X-X, +0.90D	0.8438	-Z	Bottom	0.2592	AsMin	0.4960	18.786	OK
X-X, +1.20D+0.20S	1.445	+Z	Bottom	0.2592	AsMin	0.4960	18.786	OK
X-X, +1.20D+0.20S	1.445	-Z	Bottom	0.2592	AsMin	0.4960	18.786	OK
Z-Z, +1.40D	1.313	-X	Bottom	0.2592	AsMin	0.4960	18.786	OK
Z-Z, +1.40D	1.313	+X	Bottom	0.2592	AsMin	0.4960	18.786	OK
Z-Z, +1.20D	1.125	-X	Bottom	0.2592	AsMin	0.4960	18.786	OK
Z-Z, +1.20D	1.125	+X	Bottom	0.2592	AsMin	0.4960	18.786	OK
Z-Z, +1.20D+0.50S	1.925	-X	Bottom	0.2592	AsMin	0.4960	18.786	OK

Project Title:
Engineer:
Project ID:
Project Descr:

General Footing

Project File: jcfd#5 fs#2.ec6

DESCRIPTION: FTG for Column GL-4

Footing Flexure

Flexure Axis & Load Combination	Mu k-ft	Side	Tension Surface	As Req'd in^2	Gvrn. As in^2	Actual As in^2	Phi*Mn k-ft	Status
Z-Z, +1.20D+0.50S	1.925	+X	Bottom	0.2592	AsMin	0.4960	18.786	OK
Z-Z, +1.20D+1.60S	3.685	-X	Bottom	0.2592	AsMin	0.4960	18.786	OK
Z-Z, +1.20D+1.60S	3.685	+X	Bottom	0.2592	AsMin	0.4960	18.786	OK
Z-Z, +0.90D	0.8438	-X	Bottom	0.2592	AsMin	0.4960	18.786	OK
Z-Z, +0.90D	0.8438	+X	Bottom	0.2592	AsMin	0.4960	18.786	OK
Z-Z, +1.20D+0.20S	1.445	-X	Bottom	0.2592	AsMin	0.4960	18.786	OK
Z-Z, +1.20D+0.20S	1.445	+X	Bottom	0.2592	AsMin	0.4960	18.786	OK

One Way Shear

Load Combination...	Vu @ -X	Vu @ +X	Vu @ -Z	Vu @ +Z	Vu:Max	Phi Vn	Vu / Phi*Vn	Status
+1.40D	7.78 psi	7.78 psi	7.78 psi	7.78 psi	7.78 psi	75.00 psi	0.10	OK
+1.20D	6.67 psi	6.67 psi	6.67 psi	6.67 psi	6.67 psi	75.00 psi	0.09	OK
+1.20D+0.50S	11.41 psi	11.41 psi	11.41 psi	11.41 psi	11.41 psi	75.00 psi	0.15	OK
+1.20D+1.60S	21.84 psi	21.84 psi	21.84 psi	21.84 psi	21.84 psi	75.00 psi	0.29	OK
+0.90D	5.00 psi	5.00 psi	5.00 psi	5.00 psi	5.00 psi	75.00 psi	0.07	OK
+1.20D+0.20S	8.56 psi	8.56 psi	8.56 psi	8.56 psi	8.56 psi	75.00 psi	0.11	OK

Two-Way "Punching" Shear

All units k

Load Combination...	Vu	Phi*Vn	Vu / Phi*Vn	Status
+1.40D	29.49 psi	150.00 psi	0.1966	OK
+1.20D	25.28 psi	150.00 psi	0.1685	OK
+1.20D+0.50S	43.25 psi	150.00 psi	0.2884	OK
+1.20D+1.60S	82.80 psi	150.00 psi	0.552	OK
+0.90D	18.96 psi	150.00 psi	0.1264	OK
+1.20D+0.20S	32.47 psi	150.00 psi	0.2165	OK

Project Title:
Engineer:
Project ID:
Project Descr:

Steel Beam

Project File: jcfd#5 fs#2.ec6

DESCRIPTION: Attic Beam: GL 2.1 to 1

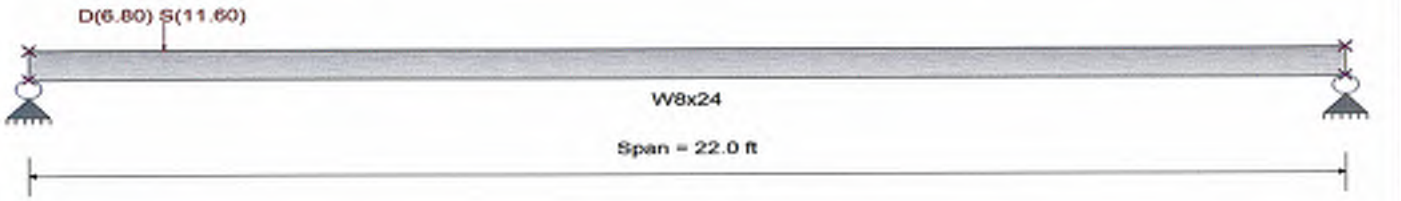
CODE REFERENCES

Calculations per AISC 360-16, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : ASCE 7-16

Material Properties

Analysis Method :Allowable Strength Design
Beam Bracing : Completely Unbraced
Bending Axis : Major Axis Bending

Fy : Steel Yield : 50.0 ksi
E: Modulus : 29,000.0 ksi



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight NOT internally calculated and added
Load(s) for Span Number 1
Point Load : D = 6.80, S = 11.60 k @ 2.250 ft

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio =	0.792 : 1	Maximum Shear Stress Ratio =	0.425 : 1
Section used for this span	W8x24	Section used for this span	W8x24
Ma : Applied	37.142 k-ft	Va : Applied	16.518 k
Mn / Omega : Allowable	46.923 k-ft	Vn/Omega : Allowable	38.857 k
Load Combination	+D+S	Load Combination	+D+S
		Location of maximum on span	0.000 ft
Span # where maximum occurs	Span # 1	Span # where maximum occurs	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.578 in	Ratio =	456	>=240.	
Max Upward Transient Deflection	0.000 in	Ratio =	0	<240.0	Span: 1 : S Only
Max Downward Total Deflection	0.918 in	Ratio =	288	>=180	Span: 1 : +D+S
Max Upward Total Deflection	0.000 in	Ratio =	0	<180	

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	Summary of Moment Values Mmax +	Mmax -	Ma Max	Mnx	Mnx/Omega	Cb	Rm	Summary of Shear Values Va Max	VnxVnx/Omega
D Only												
Dsgn. L = 22.00 ft	1	0.293	0.157	13.73		13.73	78.36	46.92	1.55	1.00	6.10	58.29 38.86
+D+S												
Dsgn. L = 22.00 ft	1	0.792	0.425	37.14		37.14	78.36	46.92	1.55	1.00	16.52	58.29 38.86
+D+0.750S												
Dsgn. L = 22.00 ft	1	0.667	0.358	31.29		31.29	78.36	46.92	1.55	1.00	13.91	58.29 38.86
+0.60D												
Dsgn. L = 22.00 ft	1	0.176	0.094	8.24		8.24	78.36	46.92	1.55	1.00	3.66	58.29 38.86

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+S	1	0.9175	9.366		0.0000	0.000

Vertical Reactions

Support notation : Far left is # Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	16.518	1.882
Overall MINimum	3.663	0.417
D Only	6.105	0.695
+D+S	16.518	1.882
+D+0.750S	13.915	1.585
+0.60D	3.663	0.417

Project Title:
Engineer:
Project ID:
Project Descr:

Steel Beam

Project File: jcfd#5 fs#2.ec6

DESCRIPTION: Attic Beam: GL 2.1 to 1

Vertical Reactions

Support notation : Far left is #' Values in KIPS

Load Combination	Support 1	Support 2
S Only	10.414	1.186

Project Title:
Engineer:
Project ID:
Project Descr:

Wood Column

Project File: jcfd#5 fs#2.ec6

DESCRIPTION: Post GL - 2.2

Code References

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
Load Combinations Used : ASCE 7-16

General Information

Analysis Method	Allowable Stress Design		
End Fixities	Top & Bottom Pinned		
Overall Column Height	8 ft		
(Used for non-slender calculations)			
Wood Species	Douglas Fir-Larch		
Wood Grade	No.2		
Fb +	900 psi	Fv	180 psi
Fb -	900 psi	Ft	575 psi
Fc - Prll	1350 psi	Density	31.21 pcf
Fc - Perp	625 psi		

E : Modulus of Elasticity . . .	x-x Bending	y-y Bending	Axial
Basic	1600	1600	1600 ksi
Minimum	580	580	

Wood Section Name	6x6		
Wood Grading/Manuf.	Graded Lumber		
Wood Member Type	Sawn		
Exact Width	5.50 in	Allow Stress Modification Factors	
Exact Depth	5.50 in	Cf or Cv for Bending	1.0
Area	30.250 in^2	Cf or Cv for Compressio	1.0
Ix	76.255 in^4	Cf or Cv for Tension	1.0
Iy	76.255 in^4	Cm : Wet Use Factor	1.0
		Ct : Temperature Fact	1.0
		Cfu : Flat Use Factor	1.0
		Kf : Built-up columns	1.0 *NDS 15.3.2*
		Use Cr : Repetitive ?	No

Brace condition for deflection (buckling) along columns :
X-X (width) axis : Fully braced against buckling ABOUT Y-Y Axis
Y-Y (depth) axis : Unbraced Length for buckling ABOUT X-X Axis = 8 ft, K

Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Column self weight included : 52.450 lbs * Dead Load Factor
AXIAL LOADS . . .
Axial Load at 8.0 ft, D = 6.110, S = 10.420 k

DESIGN SUMMARY

Bending & Shear Check Results

PASS Max. Axial+Bending Stress Ratio = **0.5090 : 1**

Load Combination	+D+S
Governing NDS Forumla	Comp Only, fc/Fc'
Location of max.above base	0.0 ft
At maximum location values are .	
Applied Axial	16.582 k
Applied Mx	0.0 k-ft
Applied My	0.0 k-ft
Fc : Allowable	1,077.0 psi

PASS Maximum Shear Stress Ratio = **0.0 : 1**

Load Combination	+0.60D
Location of max.above base	8.0 ft
Applied Design Shear	0.0 psi
Allowable Shear	288.0 psi

Maximum SERVICE Lateral Load Reactions . .

Top along Y-Y	0.0 k	Bottom along Y-Y	0.0 k
Top along X-X	0.0 k	Bottom along X-X	0.0 k

Maximum SERVICE Load Lateral Deflections . . .

Along Y-Y 0.0 in at 0.0 ft above base
for load combination : n/a
Along X-X 0.0 in at 0.0 ft above base
for load combination : n/a

Other Factors used to calculate allowable stresses . . .

	Bending	Compression	Tension

Load Combination Results

Load Combination	C_D	C_P	Maximum Axial + Bending Stress Ratios: Stress Ratio	Status	Location	Maximum Shear Ratios: Stress Ratio	Status	Location
D Only	0.900	0.771	0.2176	PASS	0.0 ft	0.0	PASS	8.0 ft
+D+S	1.150	0.694	0.5090	PASS	0.0 ft	0.0	PASS	8.0 ft
+D+0.750S	1.150	0.694	0.4290	PASS	0.0 ft	0.0	PASS	8.0 ft
+0.60D	1.600	0.572	0.09897	PASS	0.0 ft	0.0	PASS	8.0 ft

Maximum Reactions

Note: Only non-zero reactions are listed.

Load Combination	X-X Axis Reaction k @ Base	@ Top	Y-Y Axis Reaction @ Base	@ Top	Axial Reaction @ Base	My - End Moments k-ft @ Base	@ Top	Mx - End Moments @ Base	@ Top
D Only					6.162				
+D+S					16.582				
+D+0.750S					13.977				

Project Title:
Engineer:
Project ID:
Project Descr:

Wood Column

Project File: jcfd#5 fs#2.ec6

LIC# : KW-06014690, Build:20.22.7.7 ZCS, INC. (c) ENERCALC INC 1983-2022

DESCRIPTION: Post GL - 2.2

Maximum Reactions

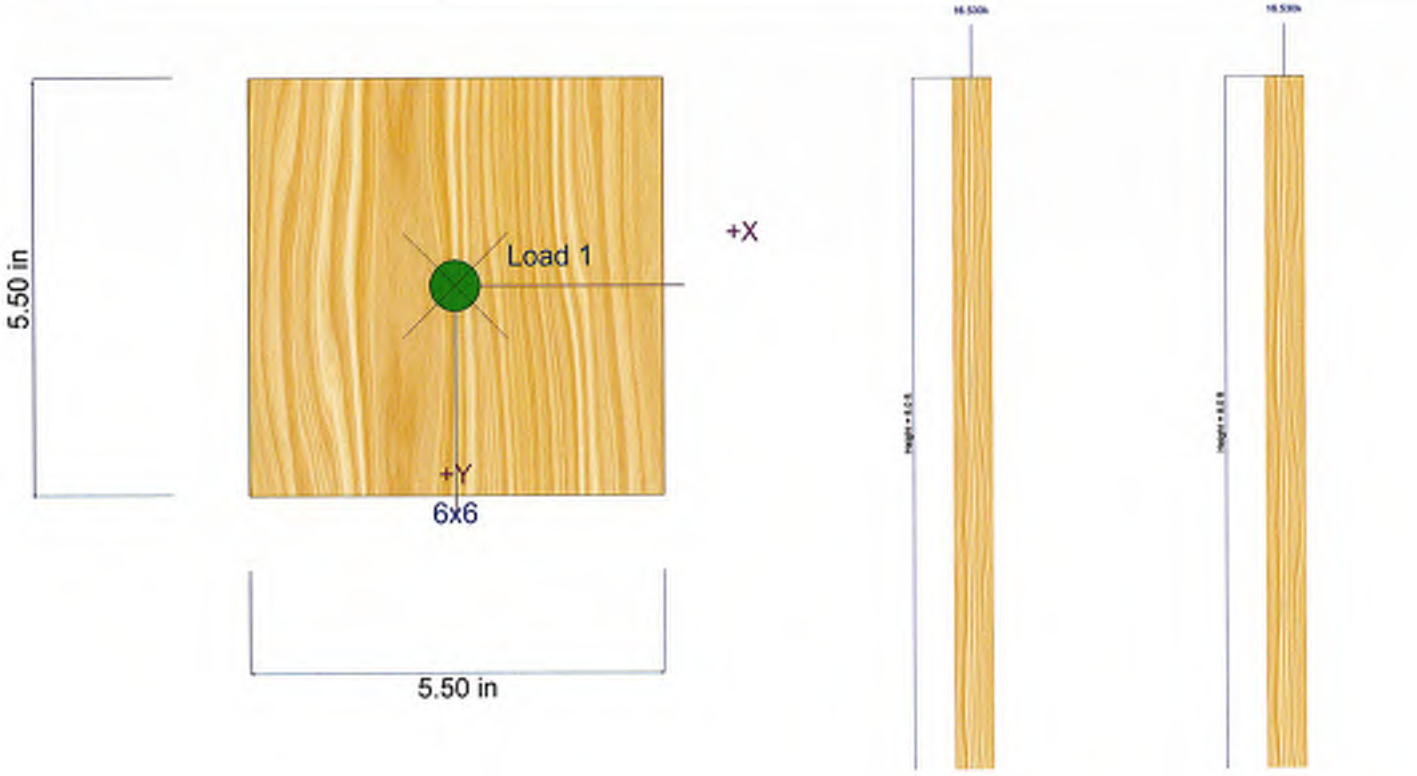
Note: Only non-zero reactions are listed.

Load Combination	X-X Axis Reaction @ Base	@ Top	k	Y-Y Axis Reaction @ Base	@ Top	Axial Reaction @ Base	My - End Moments @ Base	@ Top	k-ft	Mx - End Moments @ Base	@ Top
+0.60D						3.697					
S Only						10.420					

Maximum Deflections for Load Combinations

Load Combination	Max. X-X Deflection	Distance	Max. Y-Y Deflection	Distance
D Only	0.0000 in	0.000ft	0.000 in	0.000ft
+D+S	0.0000 in	0.000ft	0.000 in	0.000ft
+D+0.750S	0.0000 in	0.000ft	0.000 in	0.000ft
+0.60D	0.0000 in	0.000ft	0.000 in	0.000ft
S Only	0.0000 in	0.000ft	0.000 in	0.000ft

Sketches



Project Title:
Engineer:
Project ID:
Project Descr:

Wood Beam

Project File: jcfd#5 fs#2.ec6

DESCRIPTION: HDR GL - 3

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : ASCE 7-16

Material Properties

Analysis Method : Allowable Stress Design
Load Combination : ASCE 7-16

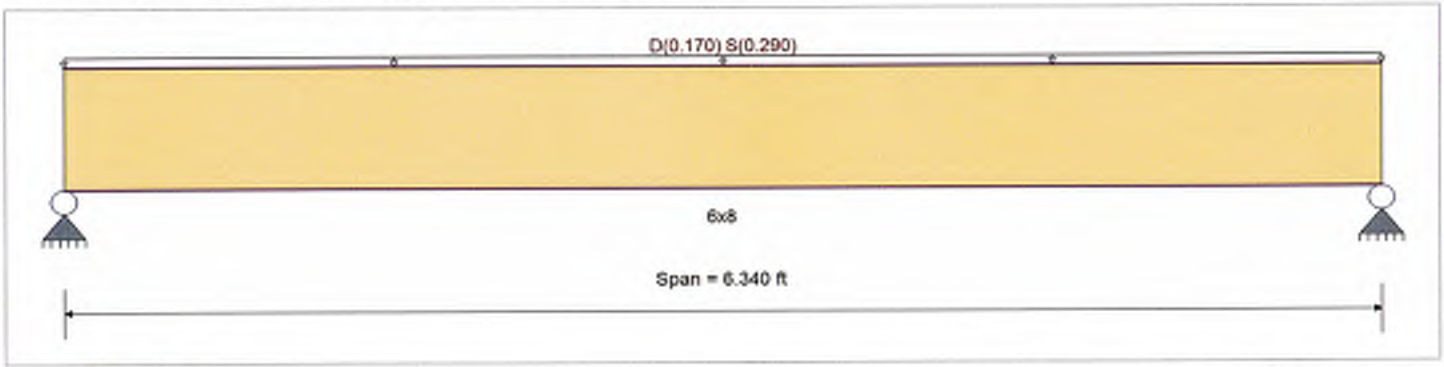
Wood Species : Douglas Fir-Larch
Wood Grade : No.2

Beam Bracing : Beam is Fully Braced against lateral-torsional buckling

Fb +	900.0 psi
Fb -	900.0 psi
Fc - Prll	1,350.0 psi
Fc - Perp	625.0 psi
Fv	180.0 psi
Ft	575.0 psi

E : Modulus of Elasticity

Ebend- xx	1,600.0 ksi
Eminbend - xx	580.0 ksi
Density	31.210 pcf



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight NOT internally calculated and added
Loads on all spans...
Uniform Load on ALL spans : D = 0.0170, S = 0.0290 ksf, Tributary Width = 10.0 ft

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.520 : 1	Maximum Shear Stress Ratio	=	0.206 : 1
Section used for this span		6x8	Section used for this span		6x8
fb: Actual	=	537.89 psi	fv: Actual	=	42.58 psi
Fb: Allowable	=	1,035.00 psi	Fv: Allowable	=	207.00 psi
Load Combination		+D+S	Load Combination		+D+S
Location of maximum on span	=	3.170 ft	Location of maximum on span	=	5.715 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.034 in	Ratio =	2219 >=360	Span: 1 : S Only
Max Upward Transient Deflection	0 in	Ratio =	0 <360	n/a
Max Downward Total Deflection	0.054 in	Ratio =	1399 >=180	Span: 1 : +D+S
Max Upward Total Deflection	0 in	Ratio =	0 <180	n/a

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	C_d	$C_{F/V}$	C_i	C_r	C_m	C_t	C_L	Moment Values M	fb	F'b	Shear Values V	fv	F'v
D Only													0.00	0.00	0.00	0.00
Length = 6.340 ft	1	0.245	0.097	0.90	1.000	1.00	1.00	1.00	1.00	1.00	0.85	198.79	810.00	0.43	15.73	162.00
+D+S					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 6.340 ft	1	0.520	0.206	1.15	1.000	1.00	1.00	1.00	1.00	1.00	2.31	537.89	1035.00	1.17	42.58	207.00
+D+0.750S					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 6.340 ft	1	0.438	0.173	1.15	1.000	1.00	1.00	1.00	1.00	1.00	1.95	453.11	1035.00	0.99	35.86	207.00
+0.60D					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 6.340 ft	1	0.083	0.033	1.60	1.000	1.00	1.00	1.00	1.00	1.00	0.51	119.27	1440.00	0.26	9.44	288.00

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+S	1	0.0544	3.193		0.0000	0.000

Project Title:
Engineer:
Project ID:
Project Descr:

Wood Beam

Project File: jcfd#5 fs#2.ec6

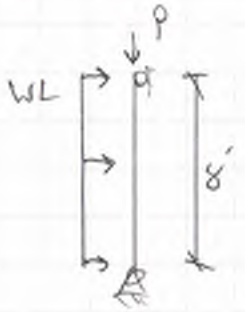
DESCRIPTION: HDR GL - 3

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	1.458	1.458
Overall MINimum	0.919	0.919
D Only	0.539	0.539
+D+S	1.458	1.458
+D+0.750S	1.228	1.228
+0.60D	0.323	0.323
S Only	0.919	0.919

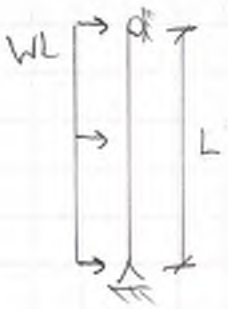
ATTIC BEAM POST [BUILT-UP CFS POST]



P: DL = .7 k
SL = 1.9 k

WL: 16 PSF · 16/12' = 21.3 PSF

TYP. EXTERIOR STUD



WL: 16 PSF

L = 10.25', UL TRIB = 16/12' · USE [600S200-54 @ 16" o.c.]

L > 14', · USE [600S200-54 @ 12" o.c.]
↳ [GABLE END STUD]

Cold Formed Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm. Coeff. [1e^{-6}F^{-1}]	Density [k/ft^3]	Yield [ksi]	Fu [ksi]
1	A653 SS Gr33	29500	11346	0.3	0.65	0.49	33	45
2	A653 SS Gr50/1	29500	11346	0.3	0.65	0.49	50	65

Cold Formed Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rule	Area [in^2]	Iyy [in^4]	Izz [in^4]	J [in^4]
1	CF Post	2-600S250-97(12GA)-FF	Column	None	A653 SS Gr50/1	Typical	2.28	8.545	12.644	15.039
2	Stud	600S200-54(16GA)	Column	None	A653 SS Gr50/1	Typical	0.592	0.334	3.173	0.0005754

Node Loads and Enforced Displacements (BLC 1 : DL)

	Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s^2/ft, k*s^2*ft)]
1	N6	L	Y	-0.7

Node Loads and Enforced Displacements (BLC 2 : SL)

	Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s^2/ft, k*s^2*ft)]
1	N6	L	Y	-1.2

Member Distributed Loads (BLC 3 : Wind Load)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	Built-Up CFS Post	X	0.021	0.021	0	%100
2	Typ. Stud	X	0.021	0.021	0	%100
3	Gable End Stud	X	0.016	0.016	0	%100

Load Combinations

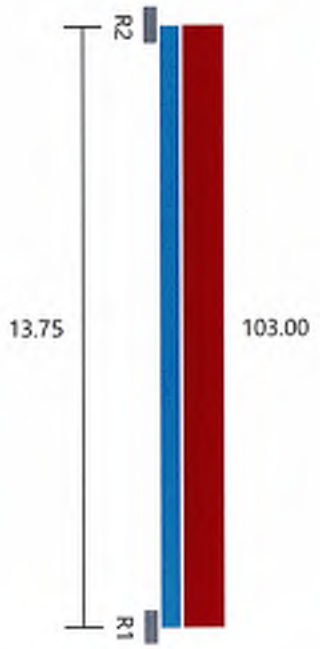
	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
1	Deflection 1	Yes	Y	DL	1										
2	Deflection 2	Yes	Y	LL	1										
3	Deflection 3	Yes	Y	DL	1	LL	1								
4	IBC 16-1	Yes	Y	DL	1.4										
5	IBC 16-2 (a)	Yes	Y	DL	1.2	LL	1.6	LLS	1.6						
6	IBC 16-2 (b)	Yes	Y	DL	1.2	LL	1.6	LLS	1.6	SL	0.5	SLN	0.5		
7	IBC 16-3 (c)	Yes	Y	DL	1.2	SL	1.6	SLN	1.6	LL	0.5	LLS	1		
8	IBC 16-3 (b)	Yes	Y	DL	1.2	WL	0.5								
9	IBC 16-3 (d)	Yes	Y	DL	1.2	SL	1.6	SLN	1.6	WL	0.5				
10	IBC 16-4 (a)	Yes	Y	DL	1.2	WL	1	LL	0.5	LLS	1				
11	IBC 16-4 (b)	Yes	Y	DL	1.2	WL	1	LL	0.5	LLS	1	SL	0.5	SLN	0.5
12	IBC 16-6	Yes	Y	DL	0.9	WL	1								

AISI S100-16: ASD Member Cold Formed Steel Code Checks

	LC	Member	Shape	UC Max	Loc[ft]	Shear UC	Loc[ft]	Dir	Pn/Om[k]	Tn/Om[k]	Mnyy/Om[k-ft]	Mnzz/Om[k-ft]	Vny/Om[k]	Vnz/Om[k]	Cb	Eqn
1	1	Built-Up CFS Post	2-600S250-97(12GA)-FF	0.042	8	0	8	y	16.581	68.265	6.871	9.938	19.755	14.048	1	H1.2-1
2	1	Typ. Stud	600S200-54(16GA)	0	14	0	14	y	1.657	17.723	0.597	2.589	2.54	3.072	1	F3.1-1
3	1	Gable End Stud	600S200-54(16GA)	0	15.5	0	15.5	y	1.369	17.723	0.597	2.589	2.54	3.072	1	F3.1-1
4	2	Built-Up CFS Post	2-600S250-97(12GA)-FF	0	8	0	8	y	16.581	68.265	6.872	10.423	19.755	14.048	1	F3.1-1
5	2	Typ. Stud	600S200-54(16GA)	0	14	0	14	y	1.657	17.723	0.597	2.589	2.54	3.072	1	F3.1-1
6	2	Gable End Stud	600S200-54(16GA)	0	15.5	0	15.5	y	1.369	17.723	0.597	2.589	2.54	3.072	1	F3.1-1
7	3	Built-Up CFS Post	2-600S250-97(12GA)-FF	0.042	8	0	8	y	16.581	68.265	6.871	9.938	19.755	14.048	1	H1.2-1

AISI S100-16: ASD Member Cold Formed Steel Code Checks (Continued)

	LC	Member	Shape	UC Max	Loc[ft]	Shear UC	Loc[ft]	Dir	Pn/Om[k]	Tn/Om[k]	Mmyy/Om[k-ft]	Mnzz/Om[k-ft]	Vny/Om[k]	Vnz/Om[k]	Cb	Eqn
8	3	Typ. Stud	600S200-54(16GA)	0	14	0	14	y	1.657	17.723	0.597	2.589	2.54	3.072	1	F3.1-1
9	3	Gable End Stud	600S200-54(16GA)	0	15.5	0	15.5	y	1.369	17.723	0.597	2.589	2.54	3.072	1	F3.1-1
10	4	Built-Up CFS Post	2-600S250-97(12GA)-FF	0.059	8	0	8	y	16.581	68.265	6.871	9.938	19.755	14.048	1	H1.2-1
11	4	Typ. Stud	600S200-54(16GA)	0	14	0	14	y	1.657	17.723	0.597	2.589	2.54	3.072	1	F3.1-1
12	4	Gable End Stud	600S200-54(16GA)	0	15.5	0	15.5	y	1.369	17.723	0.597	2.589	2.54	3.072	1	F3.1-1
13	5	Built-Up CFS Post	2-600S250-97(12GA)-FF	0.051	8	0	8	y	16.581	68.265	6.871	9.938	19.755	14.048	1	H1.2-1
14	5	Typ. Stud	600S200-54(16GA)	0	14	0	14	y	1.657	17.723	0.597	2.589	2.54	3.072	1	F3.1-1
15	5	Gable End Stud	600S200-54(16GA)	0	15.5	0	15.5	y	1.369	17.723	0.597	2.589	2.54	3.072	1	F3.1-1
16	6	Built-Up CFS Post	2-600S250-97(12GA)-FF	0.087	8	0	8	y	16.581	68.265	6.871	9.938	19.755	14.048	1	H1.2-1
17	6	Typ. Stud	600S200-54(16GA)	0	14	0	14	y	1.657	17.723	0.597	2.589	2.54	3.072	1	F3.1-1
18	6	Gable End Stud	600S200-54(16GA)	0	15.5	0	15.5	y	1.369	17.723	0.597	2.589	2.54	3.072	1	F3.1-1
19	7	Built-Up CFS Post	2-600S250-97(12GA)-FF	0.166	8	0	8	y	16.581	68.265	6.871	9.938	19.755	14.048	1	H1.2-1
20	7	Typ. Stud	600S200-54(16GA)	0	14	0	14	y	1.657	17.723	0.597	2.589	2.54	3.072	1	F3.1-1
21	7	Gable End Stud	600S200-54(16GA)	0	15.5	0	15.5	y	1.369	17.723	0.597	2.589	2.54	3.072	1	F3.1-1
22	8	Built-Up CFS Post	2-600S250-97(12GA)-FF	0.059	4	0.002	8	y	16.581	68.265	6.871	10.131	19.755	14.048	1.136	H1.2-1
23	8	Typ. Stud	600S200-54(16GA)	0.419	7	0.029	14	y	1.657	17.723	0.268	0.625	2.54	3.072	1.136	H1.2-1
24	8	Gable End Stud	600S200-54(16GA)	0.462	7.75	0.024	15.5	y	1.369	17.723	0.228	0.52	2.54	3.072	1.136	H1.2-1
25	9	Built-Up CFS Post	2-600S250-97(12GA)-FF	0.175	4	0.002	8	y	16.581	68.265	6.871	10.131	19.755	14.048	1.136	H1.2-1
26	9	Typ. Stud	600S200-54(16GA)	0.419	7	0.029	14	y	1.657	17.723	0.268	0.625	2.54	3.072	1.136	H1.2-1
27	9	Gable End Stud	600S200-54(16GA)	0.462	7.75	0.024	15.5	y	1.369	17.723	0.228	0.52	2.54	3.072	1.136	H1.2-1
28	10	Built-Up CFS Post	2-600S250-97(12GA)-FF	0.068	4	0.004	8	y	16.581	68.265	6.871	10.131	19.755	14.048	1.136	H1.2-1
29	10	Typ. Stud	600S200-54(16GA)	0.839	7	0.059	14	y	1.657	17.723	0.268	0.625	2.54	3.072	1.136	H1.2-1
30	10	Gable End Stud	600S200-54(16GA)	0.923	7.75	0.049	15.5	y	1.369	17.723	0.228	0.52	2.54	3.072	1.136	H1.2-1
31	11	Built-Up CFS Post	2-600S250-97(12GA)-FF	0.104	4	0.004	8	y	16.581	68.265	6.871	10.131	19.755	14.048	1.136	H1.2-1
32	11	Typ. Stud	600S200-54(16GA)	0.839	7	0.059	14	y	1.657	17.723	0.268	0.625	2.54	3.072	1.136	H1.2-1
33	11	Gable End Stud	600S200-54(16GA)	0.923	7.75	0.049	15.5	y	1.369	17.723	0.228	0.52	2.54	3.072	1.136	H1.2-1
34	12	Built-Up CFS Post	2-600S250-97(12GA)-FF	0.055	4	0.004	8	y	16.581	68.265	6.871	10.131	19.755	14.048	1.136	H1.2-1
35	12	Typ. Stud	600S200-54(16GA)	0.839	7	0.059	14	y	1.657	17.723	0.268	0.625	2.54	3.072	1.136	H1.2-1
36	12	Gable End Stud	600S200-54(16GA)	0.923	7.75	0.049	15.5	y	1.369	17.723	0.228	0.52	2.54	3.072	1.136	H1.2-1



Reactions and Connections

Number of Connectors Required at each Reaction: 2

Support	Reaction (lb)	Simpson Strong-Tie Connector	No. of Req'd screws to stud	No. of Req'd # 12-14 Anchors
R1	708.13	No Solutions	-	-
R2	708.13	SCB45.5	2	2

Total Vertical Shear Carried by Connectors (lb) : 0

Bridging Connectors - Design Method = AISI S100

Span/CantiLever	Simpson Strong-Tie Bridging Connector	Stress Ratio
Span	N/A	-

Shear and Web Crippling Checks

Bending and Shear (Unstiffened): 12.5% Stressed @R1

Bending and Shear (Stiffened): NA

Web Stiffeners Required?: No

Section : (2) 600S200-54 Boxed C Stud

Maxo = 5065.9 Ft-Lb **Moment of Intertia, I** = 6.64 in^4

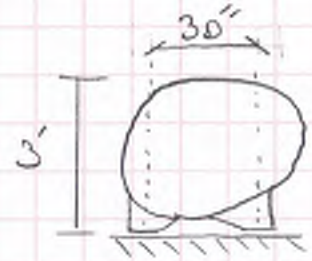
Fy = 50.0 ksi
Va = 5645.8 lb

Loads have not been modified for strength checks
Loads have been multiplied by 0.70 for deflection calculations
Reactions have been multiplied by 1.0 for opposite load direction for connection design

Flexural and Deflection Check

Span	Mmax Ft-Lb	Mmax/ Maxo	Mpos Ft-Lb	Bracing (in)	Ma(Brc) Ft-Lb	Mpos/ Ma(Brc)	Deflection (in)	Deflection Ratio
Span	2434.2	0.481	2434.2	None	5065.9	0.481	0.296	L/557

PROPANE TANK ANCHORAGE



DL: TANK = 1000 lbs, PROPANE = 4.11 lb/gal · 500 gal
= 2,100 lbs

W_p = 3,100 lbs

HORIZ. FORCE:

$$F_p = \frac{0.4 a_p S_{DS} W_p \left(1 + \frac{2x}{h}\right)}{\left(R_p / I_p\right)}$$

a_p = 2.5, R_p = 2.5, S_{DS} = 0.5

$\frac{2x}{h}$ = 0, I_p = 1.0

F_p = 690 lbs

OVERTURNING: $\sum M = F_p/2 \cdot 2' - (W_p/2)0.6 \cdot 1.25'$

= −540 lb-ft NO OVERTURNING

USE [MIN ½" ø TITEN A.B.] SHEAR CAPACITY = 1,165 # w/ 2-3/4" EMBED

Station 4 - Neil Creek

JCFD #5

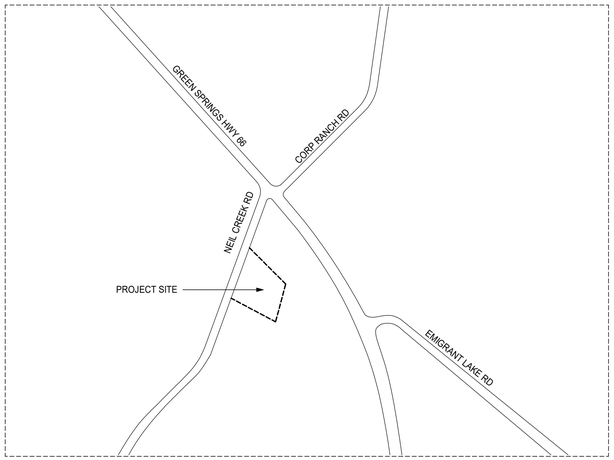
40 NEIL CREEK RD
ASHLAND, OR 97520

PERMIT / BID SET 09.09.22

Soderstrom
Architects

DATE PRINTED: 9/9/2022 10:37:35 AM
FILE PATH: BIM 360://JCFD #5 - Station 22/1058-Neil Creek.rvt

VICINITY MAP:



Station 4 - Neil Creek

PROJECT ADDRESS:

40 NEIL CREEK RD
ASHLAND, OR 97520

PROJECT SUMMARY:

SEISMIC UPDATE OF EXISTING 3600 SF BUILDING

PROJECT TEAM

OWNER
JACKSON COUNTY FIRE DISTRICT 5
5811 S. Pacific Hwy
Phoenix, OR 97535
(541) 535-2883
Charles Hanley, Fire Chief

OWNER'S REPRESENTATIVE
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David McKay, Principal in Charge
Richard Randleman, Senior Project Manager

ARCHITECT
SODERSTROM ARCHITECTS, LTD.
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1200 NW Natio Parkway, Suite 410
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Fax. (503) 273-8584
Dan Van Calcar, Principal
Erica Jankowski, Project Architect

STRUCTURAL ENGINEER
ZCS ENGINEERING AND ARCHITECTURE
www.zcsea.com
43 Hawthorne St.
Medford, OR 97504
(541) 500-8588
Sylas E. Allen, Principal
Joey Gipner, Lead Engineering Designer

SHEET INDEX

DESIGN BUILD

THE FOLLOWING ITEMS ARE DESIGN-BUILD BY THE CONTRACTOR

A. HVAC SYSTEM -
   a. NEW HVAC SYSTEM AT EXERCISE AREA (HEATING AND COOLING). CONNECT TO EXISTING SYSTEM.
   b. RELOCATE / REINSTALL EXISTING RADIANT AND UNIT HEATERS IN APPARATUS BAY AFFECTED BY CONSTRUCTION.

A. PLUMBING -
   a. NEW UNDERGROUND LINES AS INDICATED,
   b. REPLACEMENT / REINSTALLATION OF FIXTURES AS INDICATED.

A. ELECTRICAL -
   a. REPLACE EXISTING SERVICE CONNECTION / GEAR AT ENTRY POINT TO BUILDING.
   b. PROVIDE NEW LIGHTS AT EXERCISE AREA #111.
   c. REPLACE/REINSTALL FIXTURES AS INDICATED
   d. UNDERGROUND CONDUIT TO CONNECT TO FUTURE GENERATOR AS SHOWN ON DRAWINGS.

BID ALTERNATES

PROVIDE PRICING FOR THE FOLLOWING BID ALTERNATES

1. ALT NO. 1: APPARATUS BAY DOORS
   A. BASE BID: PROVIDE BI-FOLD DOORS AT APPARATUS BAY AS SHOWN IN PLANS AND SPECIFICATIONS
   B. PROVIDE A DEDUCTIVE PRICE TO REPLACE THE SHOWN BI-FOLD DOORS (DOORS 110B, 110C, AND 111B) WITH INSULATED OVERHEAD DOORS, ELECTRICALLY OPERATED. SAFETY ACCESSORIES TO REMAIN. USE WAYNE DALTON THERMOSPAN MODEL 200-20 WITH ONE ROW OF FULL GLASS LITES AS BASIS OF DESIGN FOR PRICING.
2. ALT NO. 2: CEILING PATCH/REPAIR
   A. PROVIDE A UNIT PRICE TO PATCH, REPAIR, AND PAINT EXISTING GYP BOARD CEILINGS IN THE LIVING QUARTERS AREA TO MATCH EXISTING.
3. ALT NO. 3: NEW RESTROOMS
   A. BASE BID: REPLACE EXISTING TOILET AND SHOWER IN ROOM 105 WITH NEW FIXTURES IN SAME LOCATION. EXISTING COUNTER / SINK AND URINAL TO REMAIN.
   B. ALTERNATE: PROVIDE PRICE TO REMODEL EXISTING RESTROOM 105 AND ADD RESTROOM 112 AS SHOWN ON A4.01. INCLUDE ALL RELATED PLUMBING, LIGHT FIXTURES, AND HEATING/EXHAUST.

PROJECT NOTES

1. THE CONSTRUCTION CONTRACT IS FOR THE CONSTRUCTION OF A COMPLETE AND FULLY FUNCTIONING INSTALLATION. THESE DOCUMENTS DESCRIBE THE DESIGN INTENT AND SPECIFIC REQUIREMENTS OF THE INSTALLATION. THESE DOCUMENTS DO NOT INTEND TO SHOW EVERY ITEM REQUIRED TO CONSTRUCT THE WORK. ITEMS SUCH AS FASTENERS, CONNECTORS, FILLERS, MISCELLANEOUS CLOSURE ELEMENTS, ANCILLARY CONTROL WIRING AND POWER WHERE REQUIRED FOR THE CONTROL OR OPERATION OF THE PROVIDED EQUIPMENT ARE NOT ALWAYS SHOWN BUT ARE CONSIDERED INCLUDED IN THE SCOPE OF THE WORK. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE A FULLY FUNCTIONING INSTALLATION WHICH MEETS THE DESIGN INTENT, INCLUDING THE SPECIFIC REQUIREMENTS INCLUDED IN THESE DOCUMENTS.
2. ALL ITEMS IN THESE DOCUMENTS ARE NEW UNLESS OTHERWISE NOTED.
3. THESE DOCUMENTS DESCRIBE A SINGLE CONSTRUCTION CONTRACT. THE USE OF SUBCONTRACTORS IS THE ELECTION OF THE CONTRACTOR. THESE DOCUMENTS DO NOT INTEND TO DIVIDE THE WORK AMONG THE CONTRACTOR'S SUBCONTRACTORS. WHERE THE DOCUMENTS IDENTIFY WORK WHICH IS "NOT IN MECHANICAL WORK" OR "NOT IN ELECTRICAL WORK" IT MEANS THAT WORK IS NOT FURTHER DESCRIBED OR SPECIFIED IN THE MECHANICAL OR ELECTRICAL DRAWINGS OR SPECIFICATIONS. IT DOES NOT PRECLUDE THE CONTRACTOR FROM DELEGATING THE WORK TO THE ENTITIES OF HIS ELECTION. IN ADDITION THE DIVISION OF THE CONTRACT DOCUMENTS INTO ARCHITECTURAL, STRUCTURAL, MECHANICAL, ELECTRICAL AND OTHER DESIGN DISCIPLINES NEITHER DIVIDES THE WORK FOR THOSE DISCIPLINES AS SHOWN ONLY IN THOSE DRAWINGS OR SPECIFICATIONS.
4. ITEMS INDICATED IN THIS SET NOTED "BY OWNER" ARE NOT IN THE CONTRACT (N.I.C.)
5. UNLESS OTHERWISE NOTED, IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR AND THE SUBCONTRACTORS TO REVIEW ALL DRAWINGS, PROJECT MANUAL, ADDENDA, ETC. IN ORDER TO ASSURE THE COORDINATION OF ALL WORK AFFECTING EACH TRADE. FAILURE TO REVIEW AND COORDINATE ALL CONTRACT DOCUMENTS BY THE GENERAL CONTRACTOR WITH ALL THE SUBCONTRACTORS FOR APPLICABLE ITEMS OF THE WORK SHALL NOT RELIVE THE RESPONSIBLE PARTY FROM PERFORMING ALL WORK SO REQUIRED AS PART OF THE CONTRACT.
6. UNLESS OTHERWISE NOTED, THE PROJECT MANUAL, WHICH INCLUDES THE GENERAL CONDITIONS, SUPPLEMENTAL CONDITIONS, AND TECHNICAL SPECIFICATIONS, AND THE DRAWINGS ARE COMPLEMENTARY AND TOGETHER DESCRIBE THE PROJECT REQUIREMENTS. WHERE THERE ARE DISCREPANCIES BETWEEN THE PROJECT MANUAL AND THE DRAWINGS, THE CONTRACTOR SHALL ADVISE THE ARCHITECT AND REQUEST A CLARIFICATION. THE ORDER OF PRECEDENCE BETWEEN THE DRAWINGS AND THE PROJECT MANUAL IS AS DEFINED IN THE PROJECT MANUAL.
7. UNLESS OTHERWISE NOTED, THE CONTRACTOR SHALL LAYOUT AND SEQUENCE THE INSTALLATION OF THE WORK SO THAT THE DIFFERENT SYSTEMS DO NOT OBSTRUCT THE INSTALLATION OF SUCCESSIVE WORK. IN GENERAL, SYSTEMS INSTALLED FIRST SHOULD BE KEPT AS HIGH AND TIGHT TO STRUCTURE AS POSSIBLE TO LEAVE SPACE AVAILABLE FOR SYSTEMS WHICH FOLLOW.
8. IF DISCREPANCIES EXISTS BETWEEN THE SPECIFICATIONS AND DRAWINGS, THE MORE STRINGENT REQUIREMENTS SHALL PREVAIL. THE GENERAL CONTRACTOR SHALL NOTIFY THE OWNER'S REPRESENTATIVES OF ANY DISCREPANCIES.
9. THE DRAWINGS SHALL NOT BE SCALED. THE GENERAL CONTRACTOR SHALL REFER TO THE DIMENSIONS INDICATED OR THE ACTUAL SIZES OF CONSTRUCTION ITEMS. WHERE NO DIMENSIONS OR METHOD OF DETERMINING A LOCATION IS GIVEN, VERIFY CORRECT DIMENSIONS OR LOCATION WITH THE OWNER'S REPRESENTATIVE PRIOR TO INSTALLATION.
10. THE DRAWINGS AND REFERENCED DETAILS HAVE BEEN DIMENSIONED IN ORDER TO ESTABLISH THE CONTROL AND GUIDELINES FOR FIELD LAYOUT. WHERE A DISCREPANCY EXISTS BETWEEN THE DRAWING AND THE DETAIL THE CONTRACTOR SHALL NOTIFY THE OWNER'S REPRESENTATIVE FOR CLARIFICATION PRIOR TO INSTALLATION.
11. DIMENSIONS ARE TO FACE OF STUD UNLESS OTHERWISE NOTED.
12. WHERE DIMENSIONS ARE NOTED TO BE VERIFIED IN THE FIELD (VIF) THE DIMENSION SHOWN IS THE DESIGN BASIS, BUT MAY DIFFER FROM ACTUAL CONDITIONS. CONTRACTOR SHALL VERIFY THESE DIMENSIONS WHILE LAYING OUT THE WORK AND REPORT ANY DISCREPANCIES BETWEEN THE DESIGN BASIS AND ACTUAL DIMENSIONS TO THE OWNER'S REPRESENTATIVE PRIOR TO PROCEEDING WITH THE WORK. WHERE DIMENSIONS ARE NOTED "+/-" FIELD DIMENSIONS MAY VARY FROM THE NOTED DIMENSIONS BY MINOR AMOUNTS. IF THE CONTRACTOR IDENTIFIES DIMENSIONS IN THE FIELD THAT DIFFER BY MORE THAN 1" FROM THE +/- DIMENSIONS INDICTED IN THE DRAWINGS, THE CONTRACTOR SHOULD CONFIRM DIFFERENTIAL WITH ARCHITECTS.
13. DETAILS ARE KEYED TO THE PLANS AT TYPICAL LOCATIONS. TYPICAL DETAILS APPLY TO ALL LOCATIONS WHICH ARE SIMILAR BUT ARE NOT OTHERWISE DETAILED. THE CONTRACTOR AND SUBCONTRACTORS ARE RESPONSIBLE TO COORDINATE THE LOCATION OF TYPICAL DETAILS AND INSTALL THE WORK INDICATED. IF DISCREPANCIES EXIST OR QUALIFICATION IS REQUIRED, THE CONTRACTOR SHALL NOTIFY THE OWNER'S REPRESENTATIVE FOR CLARIFICATION PRIOR TO PROCEEDING.
14. FINISHES ARE KEYED TO THE DRAWINGS AT TYPICAL LOCATIONS. THE FINISHES APPLY TO ALL LOCATIONS WHICH ARE SIMILAR BUT ARE NOT OTHERWISE DETAILED. CONTRACTOR AND SUBCONTRACTORS ARE RESPONSIBLE TO COORDINATE THE LOCATION ALL TYPICAL DETAILS AND INSTALL THE WORK INDICATED. IF DISCREPANCIES EXIST OR QUALIFICATION IS REQUIRED, THE CONTRACTOR SHALL NOTIFY THE OWNER'S REPRESENTATIVE FOR CLARIFICATION PRIOR TO PROCEEDING.
15. ABBREVIATIONS ON THIS SHEET APPLY TO THE ENTIRE SET UNLESS OTHERWISE NOTED.
16. IT IS THE GENERAL CONTRACTOR'S RESPONSIBILITY TO VERIFY SIZE AND INVERT ELEVATION OF OPENINGS / SLEEVES THROUGH CONCRETE AND MASONRY WALLS AND CONCRETE FOUNDATION WALLS. OPENINGS / SLEEVES ARE NOT LIMITED TO THOSE SHOWN ON STRUCTURAL DRAWING SHEETS.
17. ELEVATIONS ARE TO TOP OF CONCRETE OR OTHER HARD SURFACE MATERIAL.
18. DETAILS ARE INTENDED TO SHOW METHOD AND MANNER OF ACCOMPLISHING THE WORK. MINOR MODIFICATIONS MAY BE REQUIRED TO SUIT JOB DIMENSIONS OR CONDITIONS AND SHALL BE INCLUDED AS PART OF THE WORK.
19. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS AND EXISTING CONDITIONS AT THE SITE BEFORE COMMENCING WORK AND REPORT ANY DISCREPANCIES TO THE ARCHITECT PRIOR TO START OF THE WORK. IN CASE OF CONFLICT BETWEEN ARCHITECTURAL AND CONSULTANTS DRAWINGS, THE ARCHITECT WILL DETERMINE THE CORRECT INTENTION OF THE WORK.
20. NOTES AND DETAILS ON DRAWINGS SHALL TAKE PRECEDENCE OVER GENERAL NOTES, SYMBOLS, AND TYPICAL DETAILS. SPECIFIC NOTES ON DETAILS APPLY TO SIMILAR CONDITIONS UNLESS NOTED OTHERWISE (UNO / UON).

DEFERRED SUBMITTAL

SUBMITTAL DOCUMENTS FOR DESIGN-BUILD AHJ DEFERRED SUBMITAL ITEMS SHALL BE SUBMITED TO THE ARCHITECT OF RECORD BY THE GENERAL CONTRACTOR. ARCHITECT AND APPROPRIATE ENGINEER OF RECORD SHALL REVIEW AND RETURN. THE GENERAL CONTRACTOR SHALL THEN FORWARD AHJ SUBMITTAL ITEMS TO THE BUILDING OFFICAL FOR AHJ APPROVAL WITH A NOTATION INDICATING THAT THE DEFERRED SUBMITTAL DOCUMENTS HAVE BEEN REVIEWED AND THAT THEY HAVE BEEN FOUND IN GENERAL CONFORMANCE WITH THE DESIGN OF THE BUILDING. THE AHJ DEFERRED SUBMITAL ITEMS SHALL NOT BE INSTALLED UNTIL THEIR DESIGN AND SUBMITAL DOCUMENTS HAVE BEEN APPROVED BY THE BUILDING OFFICIAL.

Soderstrom
Architects

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Portland, OR 97209

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JCFD #5
Station 4 - Neil Creek
40 NEIL CREEK RD
ASHLAND, OR 97520

Project

Consultant

Revisions

No.	Description	Date

Stamp

REGISTERED ARCHITECT
5209
JOHN D. VAN CALCAR
PORTLAND, OREGON
RENEWAL DATE
12-31-21
STATE OF OREGON

Issuance
PERMIT / BID SET

Date
09.09.22

Project Number
21058

Drawing Title
PROJECT INFO

Sheet No
G1.01

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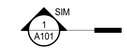
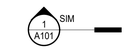
ABBREVIATIONS

#	POUND OR NUMBER
A/C	AIR CONDITIONING
A/V	AUDIO VISUAL
AB	ANCHOR BOLT
AC	ASPHALTIC CONCRETE
ACM	ALUMINUM COMPOSITE METAL
ACT	ACOUSTICAL CEILING TILE
AD	AREA DRAIN
ADD	ADDENDUM
ADH	ADHESIVE
ADJ	ADJUSTABLE, ADJACENT
AFF	ABOVE FINISH FLOOR
AGG	AGGREGATE
AHJ	AUTHORITY HAVING JURISDICTION
AL(UM)	ALUMINUM
ALT	ALTERNATE
ANOD	ANODIZED
AP	ACCESS / ACOUSTIC PANEL
APPROX	APPROXIMATE
ARCH	ARCHITECT(URAL)
AUTO	AUTOMATIC
BATT	BATT INSULATION
BD	BOARD
BIT	BITUMINOUS
BLDG	BUILDING
BLKG	BLOCKING
BM	BENCH MARK
BO	BOTTOM OF
BOL	BOLLARD
BOT	BOTTOM
BR(N)Z	BRONZE
BSMT	BASEMENT
CAB	CABINET
CB	CATCH BASIN
CCTV	CLOSED CIRCUIT TV
CEM	CEMENT
CF	CUBIC FOOT
CG	CORNER GUARD
CI	CONTINUOUS INSULATION
CJ(T)	CONTROL JOINT
CL	CENTERLINE
CLG	CEILING
CLR	CLEAR(ANCE)
CMU	CONCRETE MASONRY UNIT
COL	COLUMN
CONC	CONCRETE
CONST	CONSTRUCTION
CONT	CONTINUE, CONTINUOUS
COORD	COORDINATE
CPT	CARPET
CRS	COURSE
CS	COUNTERSINK
CSMT	CASEMENT
CT	CERAMIC TILE
CTR	CENTER
CUST	CUSTODIAL
CX	CONNECTION
CY	CUBIC YARD
DEM(O)	DEMOLISH, DEMOLITION
DEP	DEPRESSED
DF	DRINKING FOUNTAIN
DIA	DIAMETER
DIAG	DIAGONAL
DIM	DIMENSION
DISP	DISPENSER
DIV	DIVISION
DL	DEAD LOAD
DMT	DEMOUNTABLE
DN	DOWN
DR	DOOR
DS	DOWNSPOUT
DTL	DETAIL
DWG(S)	DRAWING(S)
DWR	DRAWER
E	EAST
EA	EACH
EB	EXPANSION BOLT
EJ	EXPANSION JOINT
EL, ELEV	ELEVATION
ELEC	ELECTRIC(AL)
EMER(G)	EMERGENCY
ENCL	ENCLOSE(URE)
EOS	EDGE OF SLAB
EP	ELECTRICAL PANEL BOARD
EPDM	ETHYLENE PROPYLENE DIENEMONOMER
EQ	EQUAL
EQUIP	EQUIPMENT
EST	ESTIMATE
EXH	EXHAUST
EXIST/(E)	EXISTING
EXP	EXPOSED, EXPANSION
EXT	EXTERIOR
FA	FIRE ALARM
FAF	FLUID APPLIED FLOORING
FD	FLOOR DRAIN, FIRE DAMPER
FE(C)	FIRE EXTINGUISHER (CABINET)
FF	FINISH FLOOR
FFE	FURNISHINGS FIXTURES AND EQUIPMENT
FGL	FIBERGLASS
FHC	FIRE HOSE CABINET
FHMS	FLATHEAD MACHINE SCREW
FHWS	FLATHEAD WOOD SCREW
FIN	FINISH(ED)
FL	FLOOR
FLASHG	FLASHING
FLCO	FLOOR CLEANOUT
FLR	FLOOR(ING)
FLS	FIRE LIFE SAFETY
FLUOR	FLUORESCENT
FND(N)	FOUNDATION
FOC	FACE OF CONCRETE
FOF	FACE OF FINISH
FOS	FACE OF STEEL/STUD
FP	FIREPROOFING
FR	FRAME(D), FRAMING
FS	FULL SIZE, FLAME SPREAD
FT	FIRE TREATED
FTG	FOOTING
GA	GAUGE
GALV	GALVANIZED
GB	GRAB BAR, GYPSUM BOARD
GL	GLASS, GLAZING, GRIDLINE
GWB	GYPSUM WALL BOARD
GYP (BD)	GYPSUM (BOARD)
HB	HOSE BIB
HBD	HARDBOARD
HC	HOLLOW CORE
HD	HEAVY DUTY
HDR	HEADER
HDW(R)	HARDWARE
HM	HOLLOW METAL
HOR(IZ)	HORIZONTAL
HR	HOUR
HT	HEIGHT
HTG	HEATING
HVAC	HEATING, VENTILLATION, AND AIR CONDITIONING
HWD	HARDWOOD
HWH	HOT WATER HEATER
ID	INSIDE DIAMETER
INCL	INCLUDE(D), INCLUDING
INS(UL)	INSULATE(D), INSULATION
INT	INTERIOR
JAN(T)	JANITOR
JC	JANITOR'S CLOSET
JT	JOINT
KO	KNOCK-OUT
LAM	LAMINATE(D)
LAV	LAVATORY
LH	LEFT HAND
LW	LIGHTWEIGHT
MAX	MAXIMUM
MB	MACHINE BOLT, MARKER BOARD
MECH	MECHANICAL
MEZZ	MEZZANINE
MFR	MANUFACTURE(R)
MGR	MANAGER
MH	MANHOLE
MIN	MINIMUM
MISC	MISCELLANEOUS
MO	MASONRY OPENING
MOD	MODULAR
MP	METAL PANEL
MRGB	MOISTURE RESISTANT GYPSUM WALL BOARD
MTL	METAL
MULL	MULLION
MWP	MEMBRANE WATERPROOFING
N	NORTH
NAT	NATURAL
NIC	NOT IN CONTRACT
NOM	NOMINAL
NTS	NOT TO SCALE
OA	OVERALL
OC	ON CENTER
OD	OUTSIDE DIAMETER
OH	OVERHEAD
OPG	OPENING
OPP	OPPOSITE
OVHD	OVERHEAD
PAR	PARAPET
PERF	PERFORATE(D)
PJT	PANEL JOINT
PLAM	PLASTIC LAMINATE
PLAT	PLATFORM
PNL	PANEL
PNT	PAINT
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PT	PRESSURE TREATED, POINT
PTD	PAINTED, PAPER TOWEL DISPENSER
PTL	PARTIAL
PTN	PARTION
PVC	POLYVINYL CHLORIDE
PWD	PLYWOOD
QT	QUARRY TILE
RA	RETURN AIR
RAD	RADIUS
RB	RESILIENT BASE
RCP	REFLECTED CEILING PLAN
RD	ROOF DRAIN
REF(R)	REFER(ENCE), REFRIGERATOR
REINF	REINFORCE(D), REINFORCING
REQ(D)	REQUIRED
REV	REVISION(S), REVISED
RH	RIGHT HAND
RM	ROOM
RND	ROUND
RO	ROUGH OPENING
S	SOUTH
SA	SUPPLY AIR
SAM	SELF-ADHERED MEMBRANE
SC	SOLID CORE
SCHED	SCHEDULE
SEC(T)	SECTION
SIM	SIMILAR
SL	SLEEVE
SPEC(S)	SPECIFICATION(S)
SQ	SQUARE
SS	STAINLESS STEEL
STD	STANDARD
STL	STEEL
STRUCT	STRUCTURAL
SUPP	SUPPLEMENT, SUPPLY
SUSP	SUSPENDED
SV	SHEET VINYL
TB	TACKBOARD
TCKBD	
TEL	TELEPHONE
TEMP	TEMPERED, TEMPERATURE
TG, T&G	TONGUE AND GROOVE
TO	TOP OF
TOC	TOP OF CURB, TOP OF CONCRETE
TOF	TOP OF FRAMING
TOP	TOP OF PARAPET
TOPL	TOP OF PLATE
TOR	TOP OF ROOF
TOS	TOP OF STEEL
TOW	TOP OF WALL
TS	TUBE STEEL
TYP	TYPICAL
U/C	UNDERCOUNTER
UON, UNO	UNLESS NOTED OTHERWISE
VB	VAPOR BARRIER
VCT	VINYL COMPOSITION TILE
VERT	VERTICAL
VEST	VESTIBULE
VFY	VERIFY
VIF	VERIFY IN FIELD
W	WEST
W/	WITH
W/O	WITHOUT
WC	WATER CLOSET
WD	WOOD
WP	WATERPROOF(ING)
WS	WATERSTOP
WWF	WELDED WIRE FABRIC
XPS	EXTRUDED POLYSTYRENE
YD	YARD
±	PLUS OR MINUS
ø	DIAMETER

SYMBOLS LEGEND



BUILDING SECTION MARK
1=SECTION NO.
A101= SHEET NO.



WALL SECTION MARK
1=SECTION NO.
A101= SHEET NO.

EXTERIOR ELEVATION MARK
1=SECTION NO.
A101= SHEET NO.

INTERIOR ELEVATION MARK FILLED
1=SECTION NO.
A101= SHEET NO.

DETAIL SECTION MARK
1=SECTION NO.
A101= SHEET NO.

ENLARGED VIEW MARK
1=SECTION NO.
A101= SHEET NO.

PARTITION MARK
(REF. PARTITION TYPES)

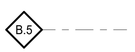
DOOR TAG

INTERIOR FRAME MARK

EXTERIOR FRAME MARK

NORTH ARROW

LEVEL MARK



GRID HEAD

KEYNOTE - REFER TO LEGEND ON SHEET

REVISION CLOUD AND MARK

CONTROL JOINT

GRAPHIC SCALE

MATCHLINE

ALIGN DISCONTINOUS PLANES

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Revisions

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NOTES, SYMBOLS, LEGENDS, AND ABBREVIATIONS

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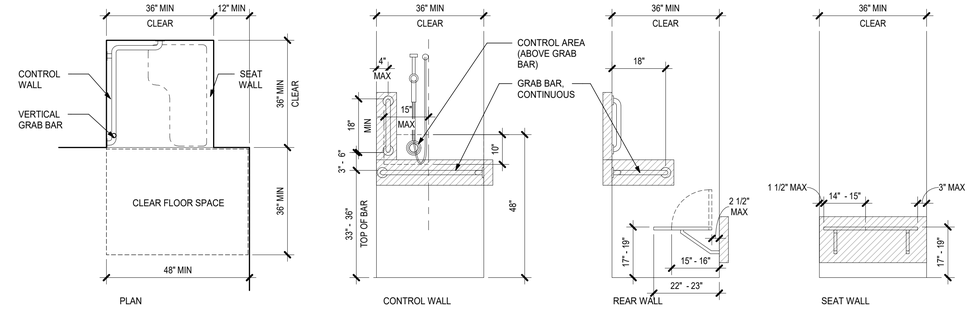
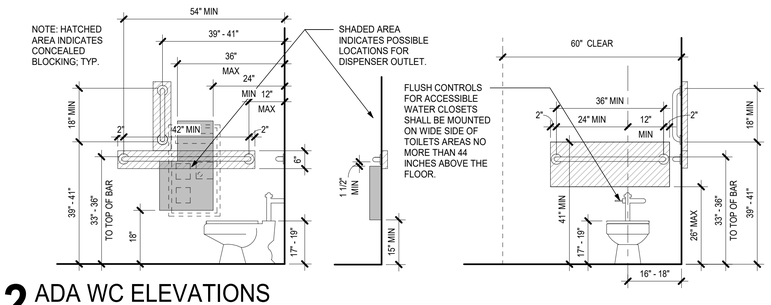


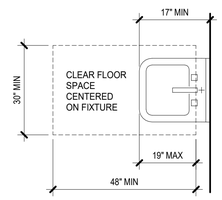
1 ADA TRANSFER SHOWER MOUNTING

1/2" = 1'-0"



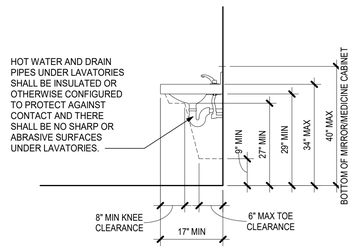
2 ADA WC ELEVATIONS

1/2" = 1'-0"



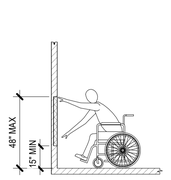
3 TYP LAVATORY PLAN

1/2" = 1'-0"

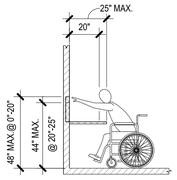


4 TYP LAVATORY ELEVATION

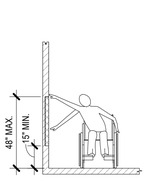
1/2" = 1'-0"



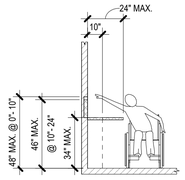
A117.1 FIGURE 308.2.1
UNOBSTRUCTED FORWARD REACH



A117.1 FIGURE 308.2.2
OBSTRUCTED HIGH FORWARD REACH (A) AND (B)



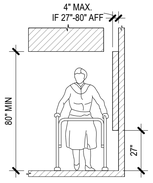
A117.1 FIGURE 308.3.1
UNOBSTRUCTED SIDE REACH



A117.1 FIGURE 308.3.2
OBSTRUCTED HIGH SIDE REACH (A) AND (B)

5 TYP REACH RANGES

1/4" = 1'-0"



A117.1 FIGURE 307.2
LIMITS OF PROTRUDING OBJECTS

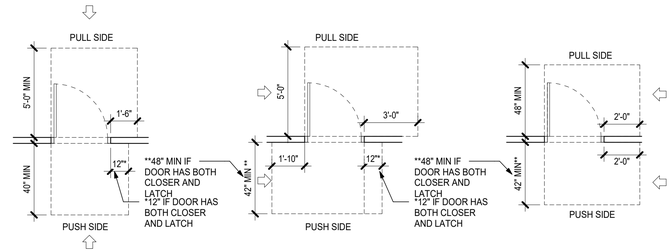
6 PROTRUDING OBJECTS

1/4" = 1'-0"

NOTE: X*1= 18" MIN, 24" PREFERRED

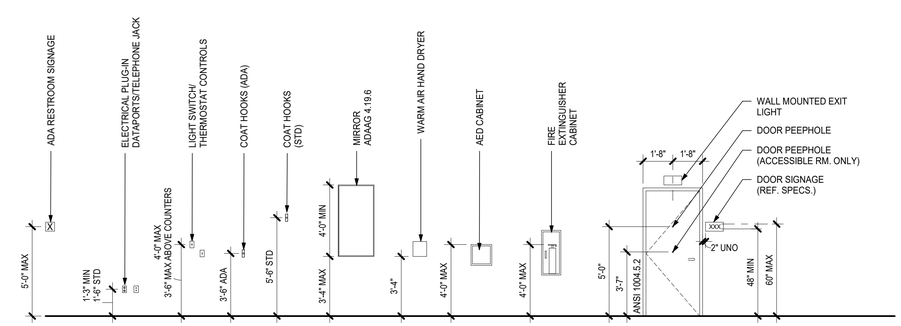
NOTE: X*1= 36" MIN IF Y*1=60"; X*1=42" MIN IF Y*1= 54"

NOTE: Y*1= 54" MIN IF DOOR HAS CLOSER



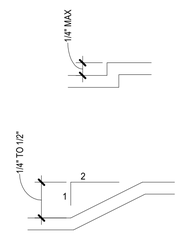
7 TYP ADA DOOR CLEARANCES

1/4" = 1'-0"



8 TYP ADA MOUNTING HEIGHTS

1/4" = 1'-0"



9 LEVEL CHANGES

1/4" = 1'-0"

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Station 4 - Neil Creek

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ASHLAND, OR 97520

Consultant

Revisions

No.	Description	Date

Stamp

REGISTERED ARCHITECT
5209
JOHN D. VAN CALCAR
PORTLAND, OREGON
RENEWAL DATE
12-31-21
STATE OF OREGON

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ACCESSIBILITY DETAILS

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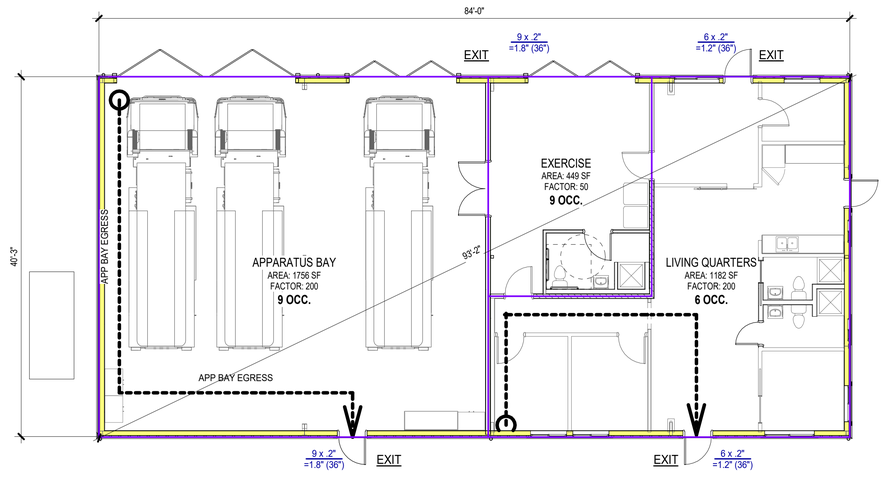

NORTH

1 EXITING AND OCCUPANCY PLAN - LEVEL 1

1/8" = 1'-0"

LEGEND

- 60 x .2" =20" (36") — OCCUPANT LOAD AT EXIT; CODE WIDTH PER OCCUPANT; ACTUAL PROVIDED EXIT WIDTH; MIN CODE CALC EXIT WIDTH
- FEC-X — FIRE EXTINGUISHER SYMBOL - CONTRACTOR TO VERIFY ALL LOCATIONS WITH FIRE CODE OFFICIAL PRIOR TO INSTALL
- MAXIMUM PATH OF EGRESS TRAVEL
- 20-MINUTE RATED FIRE PARTITION
- K — KNOX BOX; FINAL LOCATIONS PER DIRECTION FIRE MARSHALL
- EXIT SIGN

SHEET NOTES

1. CONFIRM FINAL LOCATION AND REQUIREMENTS OF POSTED FIRE LANE STRIPING AND SIGNAGE WITH FIRE OFFICIAL.
2. VERIFY ALL FIRE EXTINGUISHER LOCATIONS WITH FIRE CODE OFFICIAL PRIOR TO INSTALL
3. REFERENCE ELECTRICAL PLANS FOR EXIT SIGN LOCATIONS

CODE SUMMARY

GOVERNING CODES AND STANDARDS

- 2019 Oregon Structural Specialty Code
- 2021 Oregon Energy Efficiency Specialty Code
- 2019 Oregon Fire Code
- 2021 Oregon Plumbing Specialty Code
- 2019 Oregon Mechanical Specialty Code
- 2021 Oregon Electrical Specialty Code
- 2009 ANSI 117.1 Guidelines for Accessible and Useable Buildings & Facilities
- ASHRAE 90.1-2019

PROPERTY DESCRIPTION AND ZONING

LEGAL DESCRIPTION: 392E30 302

PARCEL SIZE: 1.23 ACRES

ZONE: RR-5 (RURAL RESIDENTIAL)

JURISDICTION: JACKSON COUNTY

TYPE AND CLASSIFICATION

CONSTRUCTION TYPE: VB

FIRE PROTECTION: NON SPRINKLERED

USE AND OCCUPANCY CLASSIFICATION

NON-SEPARATED MIXED USE

ALLOWABLE BUILDING AREA AND HEIGHT FOR NON-SEPARATED OCCUPANCIES SHALL BE BASED ON THE MOST RESTRICTIVE ALLOWANCES FOR THE OCCUPANCY GROUP UNDER CONSIDERATION (OSSC SECTION 508.3.2)

OCCUPANCIES: S-1 (APPARATUS BAY AND SUPPORT)
R-2 (DWELLING / SLEEPING UNITS) - MOST RESTRICTIVE
B (EXERCISE / OFFICE)

BUILDING AREA

TOTAL FLOOR AREA: 3,385 SF
ALLOWABLE AREA: 7,000 SF (BASED ON TABULAR AREA FOR R-2 OCCUPANCY - TABLE 506.2)

BUILDING HEIGHTS

NUMBER OF STORIES: 1
ALLOWABLE STORIES: 1 (BASED ON S-1, TABLE 504.4)

BUILDING HEIGHT: 26 FT 8 IN
ALLOWABLE HEIGHT: 40 FT (BASED ON R-2, TABLE 504.3)

BUILDING YARDS

NORTH: 100 FT MINIMUM TO R.O.W.
EAST: 28 FT MINIMUM
SOUTH: 54 FT MINIMUM
WEST: 100 FT MINIMUM

EGRESS REQUIREMENTS

NUMBER OF EXITS REQUIRED: 2 REQUIRED WHEN OCCUPANCY IS MORE THAN 20 (R-2 OCCUPANCY)

MAX. ALLOWED TRAVEL DISTANCE: (NON-SPRINKLERED) 100 FT (B, S-1)
*MAX TRAVEL DISTANCE FOR NON-SPRINKLERED R OCCUPANCY IS NOT GIVEN IN CODE. NO CHANGES ARE BEING MADE TO THE RESIDENTIAL PORTION, AND SPRINKLER ADDITION IS NOT REQUIRED. TWO EXITS ARE PROVIDED FROM THE RESIDENTIAL PORTION, WITH A MAXIMUM TRAVEL DISTANCE OF LESS THAN 50 FT

OCCUPANCY SCHEDULE

LEVEL	AREA NAME	AREA	FACTOR	OCC
LEVEL 1	LIVING QUARTERS	1182 SF	200	6
LEVEL 1	APPARATUS BAY	1756 SF	200	9
LEVEL 1	EXERCISE	449 SF	50	9
				24

FLS EGRESS PATHS

PATH	DIST
APP BAY EGRESS	63'-10"
LIVING QUARTERS EGRESS	47'-5"

ENERGY CODE

CLIMATE ZONE: 4C

COMPLIANCE PATH: SIMPLIFIED TRADE OFF (SEE ATTACHED COMCHECK FORM)

ASSEMBLY R-VALUES:
EXTERIOR WALL: R-19 BATT + R3 c.i.
ROOF: R-30 c.i.
EXTERIOR HM DOORS: R-6 MIN.
SECTIONAL DOORS: R-3 MIN. (U 0.31 MAXIMUM)
WINDOWS: U: .35 MAXIMUM, SHGC .35 MAXIMUM
SLAB ON GRADE: (EXISTING) UNHEATED, UNINSULATED

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FIRE LIFE SAFETY PLANS

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G3.01

DIVISION 02 - EXISTING CONDITIONS

SECTION 02 4100
DEMOLITION

PART 1 GENERAL

1.01 SUBMITTALS

A. Site Plan: Indicate:

B. Demolition Plan: Submit demolition plan as required by OSHA and local AHJs.

C. Project Record Documents: Accurately record actual locations of capped and active utilities and subsurface construction.

1.02 QUALITY ASSURANCE

A. Demolition Firm Qualifications: Company specializing in the type of work required.

PART 3 EXECUTION

2.01 GENERAL PROCEDURES AND PROJECT CONDITIONS

A. Comply with applicable codes and regulations for demolition operations and safety of adjacent structures and the public.
1. Obtain required permits.
2. Take precautions to prevent catastrophic or uncontrolled collapse of structures to be removed; do not allow worker or public access within range of potential collapse of unstable structures.
3. Provide, erect, and maintain temporary barriers and security devices.

B. Do not begin removal until built elements to be salvaged or relocated have been removed.

C. Minimize production of dust due to demolition operations. Do not use water if that will result in ice, flooding, sedimentation of public waterways or storm sewers, or other pollution.

D. Hazardous Materials:
1. If hazardous materials are discovered during removal operations, stop work and notify Architect and Owner; hazardous materials include regulated asbestos containing materials, lead, PCBs, and mercury.

E. Perform demolition in a manner that maximizes salvage and recycling of materials.

2.02 EXISTING UTILITIES

A. Coordinate work with utility companies. Notify utilities before starting work, comply with their requirements, and obtain required permits.

B. Protect existing utilities to remain from damage.

2.03 SELECTIVE DEMOLITION FOR ALTERATIONS

A. Existing construction and utilities indicated on drawings are based on casual field observation only.

B. Maintain weatherproof exterior building enclosure to Living Quarters, except for interruptions required for replacement or modifications; prevent water and humidity damage.

C. Remove existing work as indicated and required to accomplish new work.

D. Services including, but not limited to, HVAC, Plumbing, Fire Protection, Electrical, and Telecommunications: Remove existing systems and equipment as indicated.

E. Protect existing work to remain.

2.04 DEBRIS AND WASTE REMOVAL

A. Remove debris, junk, and trash from site.

END OF SECTION

DIVISION 04 - MASONRY

SECTION 04 7300
MANUFACTURED STONE MASONRY

PART 1 GENERAL

1.01 SUBMITTALS

A. Product Data: Provide data for lightweight synthetic stone veneer, mortar, lath, rainscreen drainage material, and water-resistive barrier, including:
1. Preparation instructions and recommendations.
2. Storage and handling requirements and recommendations.
3. Color charts.
4. Installation methods.

B. Shop Drawings: Submit detail drawings depicting proper installation and flashing techniques. Coordinate locations with those found on drawings.

C. Selection Samples: For each finish product specified, two complete sets of color chips representing manufacturer's full range of available colors and patterns.

D. Samples: Submit four samples of lightweight synthetic stone veneers to illustrate color, texture, and extremes of color range.

1.02 WARRANTY

A. See Section 01 7800 - Closeout Submittals for additional warranty requirements.

B. Provide 15 year manufacturer warranty for mortar and other installation materials used in exterior installations over steel or wood framing.

PART 2 PRODUCTS

2.01 MECHANICALLY ATTACHED LIGHTWEIGHT SYNTHETIC STONE VENEER

A. Individual cast masonry units using mixture of polymers, lightweight aggregates, and color pigments to replicate appearance of dry stacked natural stone and designed to be face nailed to backing surface or adhered to cementitious substrate.
1. Style: As indicated on drawings.
2. Color, Texture, Range, Special Shapes: As selected by Architect from manufacturer's standard styles.
3. Performance Criteria:
a. Comply with ICC-ES AC92 acceptance criteria.
b. Wind Load Testing: Comply with ASTM E330/E330M.
c. Accelerated Weathering: Tested in accordance with ASTM G155; 2,000 hours with no deleterious effects.
d. Water Degradation Resistance: No cracking, checking, crazing, erosion, blistering, peeling, delamination, or corrosion of finish coating after 120 days exposure, when tested in accordance with ASTM D2247.

B. Trim: Provide factory manufactured corner units.

2.02 MORTAR APPLICATIONS

A. At Contractor's option, mortar may be field-mixed from packaged dry materials, made from factory premixed dry materials with addition of water only, or ready-mixed.

B. Mortar Color: As selected from manufacturer's full line.

C. Scratch Coat Mortars: Scratch coat mortars for application directly to metal lath.
1. Site-Mixed: ASTM C270, Type N, using the Proportion Method as specified in Section 04 0511.
2. Prepackaged/Preblended: ASTM C1714/C1714M, Type N.

2.03 MORTAR MIXES

A. Packaged Dry Material for Mortar for Unit Masonry: Premixed masonry cement and mason's sand; complying with ASTM C1714/C1714M and capable of producing mortar of the specified strength in accordance with ASTM C270 with the addition of water only.
1. Type: Type N.
2. Color: Mineral pigments added as required to produce approved color sample.

B. Colored Mortar: Proportion selected pigments and other ingredients to match Architect's sample, without exceeding manufacturer's recommended pigment-to-cement ratio.

2.04 ACCESSORIES

A. Metal Lath with Rainscreen Drainage Material: Factory-assembled combination of mesh drainage material and metal lath.

B. Casing Beads, Weep Screeds, and Joint Accessories

C. Water-Resistive Barrier: See Section 07 2500.

D. Fasteners for GFRC Synthetic Stone Panels, Steel Framing: No.8 or No.10 self-drilling, self-tapping screws; corrosion resistant finish or hot dip galvanized to ASTM A153/A153M, minimum 3 thread penetration through framing.

PART 3 EXECUTION

3.01 INSTALLATION - RAINSCREEN DRAINAGE MATERIAL

A. Install rainscreen drainage material and metal lath with accessories over sheathing material and water-resistive barrier with fastening system in accordance with ASTM C1063 into wood or metal studs. Install drainage material with filter fabric mortar screen to exterior.

B. Install metal lath with rainscreen drainage material in accordance with the manufacturer's instructions.

3.02 INSTALLATION - SCRATCH COAT

A. Apply mortar scratch coat of 1/2 inch (12.5 mm) nominal to cover metal lath in accordance with ASTM C926. Scratch surface when somewhat firm. If scratch coat dries before applying setting bed mortar and AMSMV, moisten scratch coat by misting it with water.

3.03 INSTALLATION - MECHANICALLY ATTACHED LIGHTWEIGHT SYNTHETIC STONE VENEER

A. Install mechanically attached lightweight synthetic stone veneer in accordance with manufacturer's instructions, subject to conditions of ICC-ES Evaluation Report ESR-2859.

3.04 INSTALLATION - MASONRY FLASHINGS

A. Whether or not specifically indicated, install masonry flashing to divert water to exterior at all locations where downward flow of water will be interrupted.

END OF SECTION

DIVISION 06 - WOOD, PLASTICS, AND COMPOSITES

SECTION 06 1000
ROUGH CARPENTRY

PART 2 PRODUCTS

1.01 GENERAL REQUIREMENTS

A. Dimension Lumber: Comply with PS 20 and requirements of specified grading agencies, as well as any requirements noted on Structural drawings.
1. If no species is specified, provide species graded by the agency specified; if no grading agency is specified, provide lumber graded by grading agency meeting the specified requirements.
2. Grading Agency: Grading agency whose rules are approved by the Board of Review, American Lumber Standard Committee at www.alsc.org, and who provides grading service for the species and grade specified; provide lumber stamped with grade mark unless otherwise indicated.

1.02 DIMENSION LUMBER FOR CONCEALED APPLICATIONS

A. Sizes: Nominal sizes as indicated on drawings, S4S.

B. Moisture Content: S-dry or MC19.

C. Stud Framing (2 by 2 through 2 by 6 (50 by 50 mm through 50 by 150 mm)):
1. Species: Douglas Fir-Larch.
2. Grade: No. 2.

1.03 CONSTRUCTION PANELS

A. Roof Sheathing: PS 2 type, rated Structural I Sheathing.
1. Bond Classification: Exterior.
2. Span Rating: 32.
3. Performance Category: 1/2 PERF CAT.

B. Wall Sheathing: Plywood, PS 1, Grade C-D, Exposure I.

C. Communications and Electrical Room Mounting Boards: PS 1 A-D plywood, or medium density fiberboard; 3/4 inch (19 mm) thick; flame spread index of 25 or less, smoke developed index of 450 or less, when tested in accordance with ASTM E84.

1.04 ACCESSORIES

A. Fasteners and Anchors:
1. Metal and Finish: Hot-dipped galvanized steel complying with ASTM A153/A153M for high humidity and preservative-treated wood locations, unfinished steel elsewhere.
2. Drywall Screws: Bugle head, hardened steel, power driven type, length three times thickness of sheathing.

1.05 FACTORY WOOD TREATMENT

A. Treated Lumber and Plywood: Comply with requirements of AWPA U1 - Use Category System for wood treatments determined by use categories, expected service conditions, and specific applications.

PART 3 EXECUTION

2.01 INSTALLATION - GENERAL

A. Select material sizes to minimize waste.

B. Where treated wood is used on interior, provide temporary ventilation during and immediately after installation sufficient to remove indoor air contaminants.

2.02 FRAMING INSTALLATION

A. Set structural members level, plumb, and true to line. Discard pieces with defects that would lower required strength.

B. Install structural members full length without splices unless otherwise specifically detailed.

C. Comply with member sizes, spacing, and configurations indicated, and fastener size and spacing indicated, but not less than required by applicable codes and AWC (WFCM) Wood Frame Construction Manual.

2.03 INSTALLATION OF CONSTRUCTION PANELS

A. Roof Sheathing: Secure panels with long dimension perpendicular to framing members, with ends staggered and over firm bearing.

B. Wall Sheathing: Secure with long dimension perpendicular to wall studs, with ends over firm bearing and staggered, using nails, screws, or staples.

END OF SECTION

DIVISION 07 - THERMAL AND MOISTURE PROTECTION

SECTION 07 2100
THERMAL INSULATION

PART 1 GENERAL

1.01 SUBMITTALS

A. Product Data: Provide data on product characteristics, performance criteria, and product limitations.

PART 2 PRODUCTS

2.01 APPLICATIONS

A. Insulation Over Metal Stud Framed Walls, Continuous: Mineral fiber board.

B. Insulation in Metal Framed Walls: Batt insulation with separate vapor retarder.

C. Insulation in Wood Framed Walls: Batt insulation with no vapor retarder.

D. Insulation Over Roof Deck: Polyisocyanurate board.

2.02 FOAM BOARD INSULATION MATERIALS

A. Polyisocyanurate (ISO) Board Insulation: Rigid cellular foam, comply with ASTM C1289.
1. Classifications:
a. Type I: Faced with aluminum foil on both major surfaces of the core foam.
1) Class 1 - Non-reinforced core foam.
2) Compressive Strength: 16 psi (110 kPa), minimum.
3) Thermal Resistance, R-value (RSI-value): At 1-1/2 inch (38.1 mm) thick; 9.0 (1.59), minimum, at 75 degrees F (24 degrees C).
b. Type V: Faced with oriented strand board (OSB) or plywood on one major surface of the core foam and faced on the other major surface with any facer described in this specification.
1) Compressive Strength: 16 psi (110 kPa), minimum.
2) Thermal Resistance, R-value (RSI-value): At 1-1/2 inch (38.1 mm) thick; 6.2 (1.09), minimum, at 75 degrees F (24 degrees C).
2. Flame Spread Index (FSI): Class A - 0 to 25, when tested in accordance with ASTM E84.
3. Smoke Developed Index (SDI): 450 or less, when tested in accordance with ASTM E84.
4. Board Size: 48 inch by 96 inch (1220 mm by 2440 mm).
5. Board Thickness: 1.0 inch (25 mm) minimum.
6. Board Edges: Square.

2.03 MINERAL FIBER BOARD INSULATION MATERIALS

A. Mineral Wool Block and Board Thermal Insulation: Complying with ASTM C612.
1. Flame Spread Index: 25 or less, when tested with facing, if any, in accordance with ASTM E84.
2. Smoke Developed Index: 50 or less, when tested with facing, if any, in accordance with ASTM E84.
3. Board Thickness: 1 inch (25.4 mm) minimum.
4. Board Edges: Square.

2.04 MINERAL FIBER BLANKET INSULATION MATERIALS

A. Flexible Glass Fiber Blanket Thermal Insulation: Preformed insulation, complying with ASTM C665; friction fit.
1. Flame Spread Index: 75 or less, when tested in accordance with ASTM E84.
2. Smoke Developed Index: 450 or less, when tested in accordance with ASTM E84.
3. Combustibility: Non-combustible, when tested in accordance with ASTM E136, except for facing, if any.

2.05 ACCESSORIES

A. Interior Vapor Retarder: Modified polyethylene/polyacrylate (PE/PA) film reinforced with polyethylene terephthalate (PET) fibers, 12 mil, 0.012 inch (0.30 mm) thick.
1. Width: 4.9 feet (1.5 m).

B. Tape: Reinforced polyethylene film with acrylic pressure sensitive adhesive.
1. Application: Sealing of interior circular penetrations, such as pipes or cables.

C. Flashing Tape: Special reinforced film with high performance adhesive.
1. Application: Window and door opening flashing tape.

D. Tape joints of rigid insulation in accordance with roofing and insulation manufacturers' instructions.

E. Continuous Insulation (CI) Support Systems: Composite framing support (CFS) system consisting of insulated fiberglass reinforced plastic (FRP) girts that support CI and provide cladding attachment support integrated with specified exterior wall cladding.
1. Substrate: Attach CFS system components to exterior sheathing over metal stud framing or exterior sheathing over wood stud framing.

F. Nails or Staples: Steel wire; electroplated or galvanized; type and size to suit application.

G. Adhesive: Type recommended by insulation manufacturer for application.

PART 3 EXECUTION

3.01 BOARD INSTALLATION USING COMPOSITE FRAMING SUPPORT (CFS) SYSTEM

A. Install CFS system in accordance with manufacturer's installation instructions.

B. Install CFS system in compliance with system orientation, sizes, and locations as indicated on drawings.

3.02 BOARD INSTALLATION OVER LOW SLOPE ROOF DECK

A. Board Installation Over Roof Deck, General:
1. See applicable roofing specification section for specific board installation requirements.
2. Fasten insulation to deck in accordance with roofing manufacturer's written instructions and applicable Factory Mutual requirements.
3. Do not apply more insulation than can be covered with roofing on the same day.

3.03 BATT INSTALLATION

A. Install insulation and vapor retarder in accordance with manufacturer's instructions.

B. Install in exterior wall and roof spaces without gaps or voids. Do not compress insulation.

END OF SECTION

SECTION 07 2500
WEATHER BARRIERS

PART 1 GENERAL

1.01 SUBMITTALS

A. Product Data: Provide data on material characteristics, performance criteria, and limitations.

B. Shop Drawings: Provide drawings of special joint conditions.

PART 2 PRODUCTS

2.01 WEATHER BARRIER ASSEMBLIES

A. Water-Resistive Barrier: Provide on exterior walls under exterior cladding.
1. Use building paper unless otherwise indicated.

B. Air Barrier:
1. On outside surface of sheathing of exterior walls use air barrier coating, fluid applied type.

C. Interior Vapor Retarder:
1. On inside face of studs of exterior walls, under cladding, use mechanically fastened vapor retarder sheet.
2. On bottom face of rafters, under cladding, use mechanically fastened vapor retarder sheet.
3. On elevated floors over crawl space use vapor retarder sheet, mechanically fastened type.

D. Exterior Vapor Retarder:
1. On outside surface of sheathing use vapor retarder sheet, self-adhesive type.

2.02 WATER-RESISTIVE BARRIER MATERIALS (NEITHER AIR BARRIER OR VAPOR RETARDER)

A. Building Paper: Asphalt-saturated Kraft building paper complying with requirements of ICC-ES AC38 Grade D.
1. Water Penetration Resistance: Withstand a water head of 21 inches (55 cm), minimum, for minimum of five hours, when tested in accordance with AATCC Test Method 127.

2.03 AIR BARRIER MATERIALS (WATER VAPOR PERMEABLE AND WATER-RESISTIVE)

A. Air Barrier Sheet, Self-Adhered: Primer is not required on substrate materials.
1. Air Permeance: 0.004 cfm/sq ft (0.02 L/(s sq m)), maximum, when tested in accordance with ASTM E2178.
2. Water Vapor Permeance: 10 perms (572 ng/(Pa s sq m)), minimum, when tested in accordance with ASTM E96/E96M Procedure A (Desiccant Method) at 73.4 degrees F (23 degrees C).
3. Water Penetration Resistance Around Nails: Pass, when tested in accordance with ASTM D1970/D1970M (modified).
4. Ultraviolet (UV) and Weathering Resistance: Approved in writing by manufacturer for up to 150 days of weather exposure.
5. Surface Burning Characteristics: Flame spread index of 25 or less, smoke developed index of 450 or less (Class A), when tested in accordance with ASTM E84.
6. Complies with NFPA 285 wall assembly requirements.
7. Seam and Perimeter Tape: As recommended by sheet manufacturer.
8. Manufacturers:

B. Air Barrier, Fluid Applied: Vapor permeable, elastomeric waterproofing.
1. Air Barrier Coating:
a. Material: Silyl-terminated polyether (STPE)
b. Dry Film Thickness (DFT): 12 mil, 12 inch (0.305 mm), minimum.
c. Air Permeance: 0.004 cfm/sq ft (0.02 L/(s sq m)), maximum, when tested in accordance with ASTM E2178.
d. Water Vapor Permeance: 5 perms (287 ng/(Pa s sq m)), minimum, when tested in accordance with ASTM E96/E96M Procedure B (Water Method) at 73.4 degrees F (23 degrees C).
e. Ultraviolet (UV) and Weathering Resistance: Approved in writing by manufacturer for up to twelve months of weather exposure after application.
f. Elongation: 250 percent, minimum, when tested in accordance with ASTM D412.
g. Surface Burning Characteristics: Flame spread index of 25 or less, smoke developed index of 450 or less, when tested in accordance with ASTM E84.
h. Complies with NFPA 285 wall assembly requirements.
i. Code Acceptance: Comply with applicable requirements of ICC-ES AC212.
j. Sealants, Tapes and Accessories: As recommended by coating manufacturer.

2.04 VAPOR RETARDER MATERIALS (AIR BARRIER AND WATER-RESISTIVE)

A. Vapor Retarder Sheet: ASTM D1970/D1970M.
1. Water Vapor Permeance: 0.1 perm (5.7 ng/(Pa s sq m)), maximum, when tested in accordance with ASTM E96/E96M.
2. Seam and Perimeter Tape: As recommended by sheet manufacturer.

B. Vapor Retarder Sheet: Multi-layer, fabric-, cord-, grid-, or aluminum-reinforced polyethylene or equivalent, complying with ASTM E1745, Class A; stated by manufacturer as suitable for application indicated. Single ply polyethylene is prohibited.
1. Water Vapor Permeance: 0.3 perm (17 ng/(Pa s sq m)), maximum, when tested in accordance with ASTM E96/E96M.
2. Seam and Perimeter Tape: Polyethylene self adhering type, mesh reinforced, 2 inches (50 mm) wide, compatible with sheet material.

C. Vapor Retarder Sheet: Multi-layer, fabric-, cord-, grid-, or aluminum-reinforced polyethylene or equivalent, complying with ASTM E1745, Class A; fire-retardant type; stated by manufacturer as suitable for application indicated. Single ply polyethylene is prohibited.
1. Water Vapor Permeance: 0.3 perm (17 ng/(Pa s sq m)), maximum, when tested in accordance with ASTM E96/E96M.
2. Surface Burning Characteristics: Flame spread index of 25 or less, smoke developed index of 450 or less (Class A), when tested in accordance with ASTM E84.
3. Seam and Perimeter Tape: Polyethylene self adhering type, mesh reinforced, 2 inches (50 mm) wide, compatible with sheet material.

D. Vapor Retarder Sheet: ASTM D4397 polyethylene film, clear.
1. Thickness: 10 mil, 0.010 inch (0.254 mm).
2. Water Vapor Permeance: As required by referenced standard for thickness specified.
3. Seam and Perimeter Tape: Polyethylene self adhering type, mesh reinforced, 2 inches (50 mm) wide, compatible with sheet material.

2.05 ACCESSORIES

A. Sealants, Tapes, and Accessories for Sealing Weather Barrier and Sealing Weather Barrier to Adjacent Substrates: As specified or as recommended by weather barrier manufacturer.

B. Flexible Flashing: Self-adhesive sheet flashing complying with ASTM D1970/D1970M, except slip resistance requirement is waived if not installed on a roof.

C. Sill Plate Sealer: Polyethylene foam gasket; bridges gap between foundation structure and sill plate.
1. Width: 3-1/2 inches (89 mm).

D. Liquid Flashing: One part, fast curing, non-sag, elastomeric, gun grade, trowelable liquid flashing.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install materials in accordance with manufacturer's instructions.

B. Water-Resistive Barriers: Install continuous barrier over surfaces indicated, with sheets lapped to shed water but with seams not sealed.

C. Air Barriers: Install continuous air tight barrier over surfaces indicated, with sealed seams and with sealed joints to adjacent surfaces.

D. Vapor Retarders: Install continuous air tight barrier over surfaces indicated, with sealed seams and with sealed joints to adjacent surfaces.

E. Apply sealants and adhesives within recommended application temperature ranges. Consult manufacturer if temperature is out of this range.

F. Mechanically Fastened Sheets - On Exterior:
1. Install sheets shingle-fashion to shed water, with seams generally horizontal.

G. Self-Adhered Sheets:
1. Prepare substrate in manner recommended by sheet manufacturer; fill and tape joints in substrate and between dissimilar materials.

H. Coatings:
1. Prepare substrate in manner recommended by coating manufacturer; treat joints in substrate and between dissimilar materials as recommended by manufacturer.

I. Openings and Penetrations in Exterior Weather Barriers:
1. Install flashing over sills, covering entire sill frame member, extending at least 5 inches (125 mm) onto weather barrier and at least 6 inches (150 mm) up jambs; mechanically fasten stretched edges.

END OF SECTION

SECTION 07 4113
METAL ROOF PANELS

PART 1 GENERAL

1.01 SUBMITTALS

A. Shop Drawings: Include layouts of roof panels, details of edge and penetration conditions, spacing and type of connections, flashings, underlayments, and special conditions.

B. Selection Samples: For each roofing system specified, submit color chips representing manufacturer's full range of available colors and patterns.

1.02 WARRANTY

A. See Section 01 7800 - Closeout Submittals for additional warranty requirements.

B. Finish Warranty: Provide 10-year manufacturer warranty against excessive degradation of exterior finish. Include provision for replacement of units with excessive fading, chalking, or flaking. Complete forms in Owner's name and register with warrantor.

PART 2 PRODUCTS

2.01 PERFORMANCE REQUIREMENTS

A. Metal Roof Panels: Provide complete roofing assemblies, including roof panels, clips, fasteners, connectors, and miscellaneous accessories, tested for compliance with the following minimum standards:
1. Structural Design Criteria: Provide panel assemblies designed to safely support design loads at support spacing indicated, with deflection not to exceed L/180 of span length(L) when tested in accordance with ASTM E1592.
a. Dead Loads: Weight of roofing system.
b. Live Loads: As required by ASCE 7.
2. Overall: Complete weathertight system tested and approved in accordance with ASTM E1592.
3. Wind Uplift: Class 90 wind uplift resistance of UL 580.
4. Thermal Movement: Design system to accommodate without deformation anticipated thermal movement over ambient temperature range of 100 degrees F (56 degrees C).

2.02 METAL ROOF PANELS

A. Metal Roof Panels: Provide complete engineered system complying with specified requirements and capable of remaining weathertight while withstanding anticipated movement of substrate and thermally induced movement of roofing system.

B. Metal Panels: Factory-formed panels with factory-applied finish.
1. Basis of Design: AEP Span "Span-Loc"
2. Steel Panels:
a. Aluminum-coated steel complying with ASTM A463/A463M; minimum Type 2 T2-65 (T2M-200) coating.
b. Steel Thickness: Minimum 24 gauge, 0.024 inch (0.61 mm).
3. Profile: Standing seam, with minimum 1-inch (25.4 mm) seam height; concealed fastener system for field seaming with special tool.
4. Texture: Smooth, with intermediate ribs for added stiffness.
5. Length: Full length of roof slope, without lapped horizontal joints.
6. Width: Maximum panel coverage of 18 inches (457 mm).

2.03 ATTACHMENT SYSTEM

A. Concealed System: Provide manufacturer's standard stainless steel or nylon-coated aluminum concealed anchor clips designed for specific roofing system and engineered to meet performance requirements, including anticipated thermal movement.

2.04 FINISHES

A. Fluoropolymer Coil Coating System: Manufacturer's standard multi-coat metal coil coating system complying with AAMA 2605, including at least 70 percent polyvinylidene fluoride (PVDF) resin, and at least 80 percent of coil coated metal surfaces having minimum total dry film thickness (DFT) of 0.9 mil, 0.0009 inch (0.023 mm); color and gloss as selected from manufacturer's standards.

2.05 ACCESSORIES

A. Underlayment: Synthetic non-asphaltic sheet, intended by manufacturer for mechanically fastened roofing underlayment without sealed seams.

PART 3 EXECUTION

3.01 INSTALLATION

A. Overall: Install roofing system in accordance with approved shop drawings and metal roof panel manufacturer's instructions and recommendations, as applicable to specific project conditions; securely anchor components of roofing system in place allowing for thermal and structural movement.

B. Accessories: Install necessary components that are required for complete roofing assembly, including flashings, gutters, downspouts, trim, closure strips, caps, equipment curbs, rib closures, ridge closures, and similar roof accessory items.

END OF SECTION

SECTION 07 4646
FIBER-CEMENT SIDING

PART 1 GENERAL

1.01 SUBMITTALS

A. Product Data: Submit manufacturer's data sheets on each product to be used, including:
1. Manufacturer's requirements for related materials to be installed by others.
2. Installation methods, including nail patterns.

B. Shop Drawings: Indicate dimensions, layout, joints, construction details, support clips, and methods of anchorage.

1.02 FIELD CONDITIONS

A. Do not install panels when air temperature or relative humidity are outside manufacturer's limits.

1.03 WARRANTY

A. See Section 01 7800 - Closeout Submittals for additional warranty requirements.

B. Extended Correction Period: Correct defective work within 2-year period commencing on Date of Substantial Completion.

PART 2 PRODUCTS

2.01 FIBER-CEMENT SIDING

A. Panel Siding: Vertically oriented panels made of cement and cellulose fiber formed under high pressure with integral surface texture, complying with ASTM C1186, Type A, Grade II; with machined edges, for nail attachment.
1. Length (Height): 96 inches (2400 mm), nominal.
2. Width: 48 inches (1220 mm).
3. Thickness: 5/16 inch (8 mm), nominal.
4. Finish: Factory applied primer.
5. Warranty: 50 year limited; transferable.

B. Soffit Panels: Smooth panels of same material and finish.

C. Accessories:
1. Batten boards
a. Style: Wood grain texture
b. Height: 144 inches
c. Width: 2 1/2 inches
d. Thickness: 3/4 inch
e. Finish: Factory Primed
2. Trim boards
a. Window and Door trim: 5 1/2 inch wide boards
b. Fascia Boards: 11 1/4 inch wide boards
c. Miscellaneous trims: 3 1/2" wide boards
d. Thickness: 1 inch
e. Finish: Factory Primed
3. Fasteners as recommended by manufacturer for application
4. Furring strips as required for installation

PART 3 EXECUTION

3.01 INSTALLATION

A. Install in accordance with manufacturer's instructions and recommendations.
1. Read warranty and comply with terms necessary to maintain warranty coverage.

B. Over Wood and Wood-Composite Sheathing: Fasten siding through sheathing into studs.

C. Over Foam Sheathing: Read and comply with sheathing manufacturer's recommendations.

D. Do not install siding less than 6 inches (152 mm) from ground surface, or closer than 1 inch (25.4 mm) to roofs, patios, porches, and other surfaces where water may collect.

END OF SECTION

SECTION 07 6200
SHEET METAL FLASHING AND TRIM

PART 1 GENERAL

1.01 SUBMITTALS

A. Shop Drawings: Indicate material profile, jointing pattern, jointing details, fastening methods, flashings, terminations, and installation details.

1.02 QUALITY ASSURANCE

A. Perform work in accordance with SMACNA (ASMM) requirements and standard details, except as otherwise indicated.

PART 2 PRODUCTS

2.01 SHEET MATERIALS

A. Galvanized Steel: ASTM A653/A653M, with G90/Z275 zinc coating; minimum 24-gauge, 0.0239-inch (0.61 mm) thick base metal.

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Consultant

Revisions

No.	Description	Date

Stamp

REGISTERED ARCHITECT
5209
JOHN D. VAN CALCAR
PORTLAND, OREGON
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B. Pre-Finished Galvanized Steel: ASTM A653/A653M, with G90/Z275 zinc coating; minimum 24-gauge, 0.0239-inch (0.61 mm) thick base metal, shop pre-coated with PVDF coating.
1. Polyvinylidene Fluoride (PVDF) Coating: Superior performing organic powder coating, AAMA 2605; multiple coat, thermally cured fluoropolymer finish system.
2. Color: As selected by Architect from manufacturer's full colors.

C. Stainless Steel: ASTM A666, Type 304 alloy, soft temper, 28 gauge, 0.0156 inch (0.40 mm) thick; smooth No. 4 - Brushed finish.

2.02 FABRICATION

A. Form sections true to shape, accurate in size, square, and free from distortion or defects.

B. Form pieces in longest possible lengths.

C. Form material with flat lock seams, except where otherwise indicated; at moving joints, use sealed lapped, bayonet-type or interlocking hooked seams.

2.03 GUTTER AND DOWNSPOUT FABRICATION

A. Gutters: SMACNA (ASMM) Rectangular profile.

B. Downspouts: Square profile.

C. Accessories: Profiled to suit gutters and downspouts.
1. Anchorage Devices: In accordance with SMACNA (ASMM) requirements.
2. Gutter Supports: Straps.
3. Downspout Supports: Brackets.

D. Splash Pads: Precast concrete type, of size and profiles indicated; minimum 3,000 psi (21 MPa) at 28 days, with minimum 5 percent air entrainment.

2.04 ACCESSORIES

A. Fasteners: Galvanized steel, with soft neoprene washers.

B. Primer: Zinc chromate type.

C. Concealed Sealants: Non-curing butyl sealant.

D. Exposed Sealants: ASTM C920; elastomeric sealant, with minimum movement capability as recommended by manufacturer for substrates to be sealed; color to match adjacent material.

E. Asphalt Roof Cement: ASTM D4586/D4586M, Type I, asbestos-free.

PART 3 EXECUTION

3.01 INSTALLATION

A. Secure flashings in place using concealed fasteners, and use exposed fasteners only where permitted..

B. Seal metal joints watertight.

END OF SECTION

SECTION 07 9200
JOINT SEALANTS

PART 1 GENERAL

1.01 SUBMITTALS

A. Product Data for Sealants: Submit manufacturer's technical data sheets for each product to be used, that includes the following.
1. Physical characteristics, including movement capability, VOC content, hardness, cure time, and color availability.
2. List of backing materials approved for use with the specific product.
3. Substrates that product is known to satisfactorily adhere to and with which it is compatible.
4. Substrates the product should not be used on.

B. Product Data for Accessory Products: Submit manufacturer's technical data sheet for each product to be used, including physical characteristics, installation instructions, and recommended tools.

C. Samples for Verification: Where custom sealant color is specified, obtain directions from Architect and submit at least two physical samples for verification of color of each required sealant.

PART 2 PRODUCTS

2.01 JOINT SEALANT APPLICATIONS

A. Scope:
1. Exterior Joints: Seal open joints, whether or not the joint is indicated on drawings, unless specifically indicated not to be sealed. Exterior joints to be sealed include, but are not limited to, the following items.
a. Wall expansion and control joints.
b. Joints between door, window, and other frames and adjacent construction.
c. Joints between different exposed materials.
d. Openings below ledge angles in masonry.
e. Other joints indicated below.
2. Interior Joints: Do not seal interior joints unless specifically indicated to be sealed. Interior joints to be sealed include, but are not limited to, the following items.
a. Joints between door, window, and other frames and adjacent construction.
b. Other joints indicated below.
3. Do not seal the following types of joints.
a. Intentional weepholes in masonry.
b. Joints indicated to be treated with manufactured expansion joint cover or some other type of sealing device.
c. Joints where sealant is specified to be provided by manufacturer of product to be sealed.
d. Joints where installation of sealant is specified in another section.
e. Joints between suspended panel ceilings/grid and walls.

B. Exterior Joints: Use non-sag silyl-terminated polyether/polyurethane sealant, unless otherwise indicated.
1. Lap Joints in Sheet Metal Fabrications: Butyl rubber, non-curing.
2. Exposed Joints in Metal Panel Roofing Systems and Sheet Metal Fabrications at Roofs: Hybrid urethane sealant.
3. Control and Expansion Joints in Concrete Paving: Self-leveling polyurethane "traffic-grade" sealant.

C. Interior Joints: Use non-sag polyurethane sealant, unless otherwise indicated.
1. Wall and Ceiling Joints in Non-Wet Areas: Acrylic emulsion latex sealant.
2. Wall and Ceiling Joints in Wet Areas: Non-sag polyurethane sealant for continuous liquid immersion.
3. Joints between Fixtures in Wet Areas and Floors, Walls, and Ceilings: Mildew-resistant silicone sealant; white.
4. Narrow Control Joints in Interior Concrete Slabs: Self-leveling epoxy sealant.
5. Other Floor Joints: Self-leveling polyurethane "traffic-grade" sealant.

D. Interior Wet Areas: Bathrooms, restrooms, kitchens, and food service areas; fixtures in wet areas include plumbing fixtures, food service equipment, countertops, cabinets, and other similar items.

2.02 JOINT SEALANTS - GENERAL

A. Colors: As indicated on drawings.

2.03 NONSAG JOINT SEALANTS

A. Mildew-Resistant Silicone Sealant: ASTM C920, Grade NS, Uses M and A; single component, mildew resistant; not expected to withstand continuous water immersion or traffic.
1. Color: White.

B. Hybrid Urethane Sealant: ASTM C920, Grade NS, Uses M and A; single component; not expected to withstand continuous water immersion or traffic.
1. Movement Capability: Plus and minus 50 percent, minimum.
2. Color: Match adjacent finished surfaces.

C. Tamper-Resistant, Silyl-Terminated Polyether (STPE) Sealant: ASTM C920, Grade NS, Uses M and A; single component; not expected to withstand continuous water immersion or traffic.
1. Movement Capability: Plus and minus 50 percent, minimum
2. Color: Match adjacent finished surfaces.

D. Polyurethane Sealant: ASTM C920, Grade NS, Uses M and A; single component; not expected to withstand continuous water immersion or traffic.
1. Movement Capability: Plus and minus 25 percent, minimum.
2. Color: Match adjacent finished surfaces.

E. Polyurethane Sealant for Continuous Water Immersion: ASTM C920, Grade NS, Uses M and A; single component; explicitly approved by manufacturer for continuous water immersion; suitable for traffic exposure when recessed below traffic surface.
1. Movement Capability: Plus and minus 35 percent, minimum.
2. Color: Match adjacent finished surfaces.

F. Acrylic Emulsion Latex: Water-based acoustical; ASTM C834, single component, non-staining, non-bleeding, non-sagging; not intended for exterior use.
1. Color: Standard colors matching finished surfaces, Type OP (opaque).

G. Acrylic Latex Sealant: ASTM C834; for use as acoustical sealant and in firestopping systems for expansion joints and through penetrations.
1. Color: White.
2. Fire Rated System: Complies with UL 263 and ASTM E119 with UL fire resistance classifications.

H. Non-Curing Butyl Sealant: Solvent-based acoustical, single component, non-sag, non-skinning, non-hardening, non-bleeding; non-vapor-permeable; intended for fully concealed applications.

2.04 SELF-LEVELING SEALANTS

A. Self-Leveling Polyurethane Sealant: ASTM C920, Grade P, Uses M and A; single component; explicitly approved by manufacturer for traffic exposure; not expected to withstand continuous water immersion .
1. Movement Capability: Plus and minus 25 percent, minimum.
2. Color: Gray.

B. Semi-Rigid Self-Leveling Epoxy Joint Filler: Epoxy or epoxy/polyurethane copolymer; intended for filling cracks and control joints not subject to significant movement; rigid enough to support concrete edges under traffic.
1. Composition: Multi-component, 100 percent solids by weight.
2. Durometer Hardness: Minimum of 85 for Type A, after seven days when tested in accordance with {\rs\#1}.
3. Color: Concrete gray.

2.05 ACCESSORIES

A. Backer Rod: Cylindrical cellular foam rod with surface that sealant will not adhere to, compatible with specific sealant used, and recommended by backing and sealant manufacturers for specific application.

B. Backing Tape: Self-adhesive polyethylene tape with surface that sealant will not adhere to and recommended by tape and sealant manufacturers for specific application.

C. Primers: Type recommended by sealant manufacturer to suit application; non-staining.

PART 3 EXECUTION

3.01 EXAMINATION

3.02 INSTALLATION

A. Perform work in accordance with sealant manufacturer's requirements for preparation of surfaces and material installation instructions.

B. Perform installation in accordance with ASTM C1193.

C. Perform acoustical sealant application work in accordance with ASTM C919.

D. Install bond breaker backing tape where backer rod cannot be used.

E. Install sealant free of air pockets, foreign embedded matter, ridges, and sags, and without getting sealant on adjacent surfaces.

F. Nonsag Sealants: Tool surface concave, unless otherwise indicated; remove masking tape immediately after tooling sealant surface.

G. Concrete Floor Joint Filler: After full cure, shave joint filler flush with top of concrete slab.

END OF SECTION

DIVISION 08 - OPENINGS

SECTION 08 1113
HOLLOW METAL DOORS AND FRAMES

PART 1 GENERAL

1.01 SUBMITTALS

A. Product Data: Materials and details of design and construction, hardware locations, reinforcement type and locations, anchorage and fastening methods, and finishes.

B. Shop Drawings: Details of each opening, showing elevations, glazing, frame profiles, and any indicated finish requirements.

PART 2 PRODUCTS

2.01 PERFORMANCE REQUIREMENTS

A. Requirements for Hollow Metal Doors and Frames:
1. Steel Sheet: Comply with one or more of the following requirements; galvannealed steel complying with ASTM A653/A653M, cold-rolled steel complying with ASTM A1008/A1008M, or hot-rolled pickled and oiled (HRPO) steel complying with ASTM A1011/A1011M, commercial steel (CS) Type B, for each.
2. Accessibility: Comply with ICC A117.1 and ADA Standards.
3. Exterior Door Top Closures: Flush end closure channel, with top and door faces aligned.
4. Door Edge Profile: Manufacturers standard for application indicated.
5. Typical Door Face Sheets: Flush.
6. Glazed Lights: Non-removable stops on non-secure side; sizes and configurations as indicated on drawings. Style: Manufacturer's standard.
7. Hardware Preparations, Selections and Locations: Comply with NAAMM HMMA 830 and NAAMM HMMA 831 or BHMA A156.115 and ANSI/SDI A250.8 (SDI-100) in accordance with specified requirements.
8. Zinc Coating for Typical Interior and/or Exterior Locations: Provide metal components zinc-coated (galvanized) and/or zinc-iron alloy-coated (galvannealed) by the hot-dip process in accordance with ASTM A653/A653M, with manufacturer's standard coating thickness, unless noted otherwise for specific hollow metal doors and frames.

B. Combined Requirements: If a particular door and frame unit is indicated to comply with more than one type of requirement, comply with the specified requirements for each type; for instance, an exterior door that is also indicated as being sound-rated must comply with the requirements specified for exterior doors and for sound-rated doors; where two requirements conflict, comply with the most stringent.

2.02 HOLLOW METAL DOORS

A. Door Finish: Factory primed and field finished.

B. Exterior Doors: Thermally insulated.
1. Based on SDI Standards: ANSI/SDI A250.8 (SDI-100).
a. Level 3 - Extra Heavy-duty.
b. Physical Performance Level B, 500,000 cycles; in accordance with ANSI/SDI A250.4.
c. Model 1 - Full Flush.
d. Door Face Metal Thickness: 16 gauge, 0.053 inch (1.3 mm), minimum.
2. Door Thermal Resistance: R-Value of 6.0 minimum, for installed thickness of polystyrene.
3. Door Thickness: 1-3/4 inches (44.5 mm), nominal.
4. Weatherstripping: Refer to Section 08 7100.

C. Interior Doors, Non-Fire-Rated:
1. Based on SDI Standards: ANSI/SDI A250.8 (SDI-100).
a. Level 3 - Extra Heavy-duty.
b. Physical Performance Level B, 500,000 cycles; in accordance with ANSI/SDI A250.4.
c. Model 1 - Full Flush.
d. Door Face Metal Thickness: 16 gauge, 0.053 inch (1.3 mm), minimum.
2. Door Thickness: 1-3/4 inches (44.5 mm), nominal.

2.03 HOLLOW METAL FRAMES

A. Comply with standards and/or custom guidelines as indicated for corresponding door in accordance with applicable door frame requirements.

B. Frame Finish: Factory primed and field finished.

C. Exterior Door Frames: Full profile/continuously welded type.
1. See drawings for frame profile
2. Frame Metal Thickness: 14 gauge, 0.067 inch (1.7 mm), minimum.
3. Weatherstripping: Separate, see Section 08 7100.

D. Interior Door Frames, Non-Fire Rated: Full profile/continuously welded type.
1. Frame Metal Thickness: 14 gauge, 0.067 inch (1.7 mm), minimum.

E. Frames Wider than 48 inches (1219 mm): Reinforce with steel channel fitted tightly into frame head, flush with top.

2.04 FINISHES

A. Primer: Rust-inhibiting, complying with ANSI/SDI A250.10, door manufacturer's standard.

B. Bituminous Coating: Cold-applied asphalt mastic, compounded for 15 mil, 0.015 inch (0.4 mm) dry film thickness (DFT) per coat; provide inert-type noncorrosive compound free of asbestos fibers, sulfur components, and other deleterious impurities.

2.05 ACCESSORIES

A. Door Window Frames: Door window frames with glazing securely fastened within door opening.
1. Size: As indicated on drawings.
2. Glazing: 1/4 inch (6.4 mm) thick, tempered glass, in compliance with requirements of authorities having jurisdiction.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install doors and frames in accordance with manufacturer's instructions and related requirements of specified door and frame standards or custom guidelines indicated.

B. Coordinate frame anchor placement with wall construction.

END OF SECTION

SECTION 08 3613
SECTIONAL DOORS

PART 1 GENERAL

1.01 SUBMITTALS

A. Shop Drawings: Indicate opening dimensions and required tolerances, connection details, anchorage spacing, hardware locations, and installation details.

B. Product Data: Show component construction, anchorage method, and hardware.

C. Samples: Submit two panel finish samples, 6 by 6 inch ([___] by [___] mm) in size, illustrating color and finish.

1.02 WARRANTY

A. Correct defective Work within a five year period after Date of Substantial Completion.

B. Warranty: Include coverage for electric motor and transmission.

PART 2 PRODUCTS

2.01 FOUR-FOLD SIDE OPENING METAL DOORS

A. Steel Doors: Stile and rail steel with glazed panels, insulated; side opening operating style with track and hardware; steel complying with ASTM A1011/A1011M.
1. Basis of Design: Door Engineering and Manufacturing, Model FF300XT
2. Performance: Withstand positive and negative wind loads equal to 1.5 times design wind loads specified by local code without damage or permanent set, when tested in accordance with ASTM E330/E330M, using 10 second duration of maximum load.
3. Door Nominal Thickness: 2-3/8 inch (60.3 mm) thick.
4. Overall Door Height: As indicated on drawings.
5. Overall Door Width: As indicated on drawings.
6. Thermal Transmittance: U-factor (Usi-factor) of 0.31 Btu/hr sq ft degrees F (1.76 W/sq m K), maximum (R-3 minimum).
7. Exterior Finish: Factory finished with standard factory finish; color as selected by Architect.
8. Interior Finish: Factory finished with standard factory finish; color as selected from manufacturers standard line.
9. Glazed Lights: As show on drawings; set in place with resilient glazing channel.
10. Operation: Automatic, electric powered.
11. Storage: Store panels to exterior of building

B. Door Panels: Steel construction, with steel sheet having 14 gauge, 0.0747 inch (1.9 mm) minimum thickness and welded joints; rabbeted weather joints at meeting rails.

C. Window Frame: Manufacturers standard, finish to match.

D. Glazing: Fully tempered glass; insulated glass units; clear; 1/2 inch (12.7 mm) overall thickness.

E. Mounting Frame: Pre-hung tube steel frame, minimum 4"x6" tube, with factory attached hinges and supports

2.02 COMPONENTS

A. Four-Fold Operating Door Hardware: Provide guide tracks and brackets, trolleys, center guides, and jamb and fold hinges as required for opening layout.

B. Sill Weatherstripping: Resilient hollow rubber strip, one piece; fitted to bottom of door panel, full length contact.

C. Jamb Weatherstripping: Roll formed steel section full height of jamb, fitted with resilient weatherstripping, placed in moderate contact with door panels.

D. Head Weatherstripping: EPDM rubber seal, one piece full length.

E. Panel Joint Weatherstripping: Neoprene foam seal, one piece full length.

2.03 ELECTRIC OPERATION

A. Operator, Controls, Actuators, and Safeties: Comply with UL 325; provide products listed by ITS (DIR), UL (DIR), or testing agency acceptable to authorities having jurisdiction.
1. Provide interlock switches on motor operated units.

B. Electric Operators:
1. Mounting: Center mounted draw bar assembly.
2. Motor Enclosure:
a. Exterior Doors: NEMA MG 1, Type 4; totally enclosed fan cooled (TEFC).
3. Motor Rating: 1/2 hp (375 W); continuous duty.
4. Motor Voltage: 208 volts, three phase, 60 Hz.
5. Motor Controller: NEMA ICS 2, full voltage, reversing magnetic motor starter.
6. Controller Enclosure: NEMA 250, Type 1.
7. Opening Speed: 12 inches per second (300 mm/s).
8. Brake: Adjustable friction clutch type, activated by motor controller.
9. Manual override in case of power failure.

C. Control Station: Provide standard three button (Open-Close-Stop) momentary-contact control device for each operator complying with UL 325.
1. 24 volt circuit.
2. Surface mounted, at interior door jamb.
3. Entrapment Protection Devices: Provide sensing devices and safety mechanisms complying with UL 325.
a. Primary Device: Provide light-curtain type NEMA 4X photo eye sensors, covering floor level to 72" above floor.
b. Secondary Device: Provide (1) interior, overhead mounted, presence sensor BEA IS40P or equal.

D. Safety Edge: Located at leading edge of sectional door panel, full width; electro-mechanical sensitized type, wired to stop and reverse door direction upon striking object; hollow neoprene covered to provide weatherstrip seal.

E. Radio Controls: Provide one (1) radio receiver and (1) single button remotes per door. Remotes to open and close doors with single button

PART 3 EXECUTION

3.01 INSTALLATION

A. Install door unit assembly in accordance with manufacturer's instructions.

B. Anchor assembly to wall construction and building framing without distortion or stress.

C. Securely brace door tracks suspended from structure. Secure tracks to structural members only.

D. Coordinate installation of electrical service. Complete power and control wiring from disconnect to unit components.

END OF SECTION

SECTION 08 5313
VINYL WINDOWS

PART 1 GENERAL

1.01 SUBMITTALS

A. Product Data: Provide component dimensions, anchors, fasteners, glass, and internal drainage.

B. Shop Drawings: Indicate opening dimensions, framed opening tolerances, affected related work, and installation requirements.

C. Samples: Two panels, 4 by 4 inch ([___] by [___] mm) in size, showing finished surfaces.

D. Grade Substantiation: Prior to submitting shop drawings or starting fabrication, submit one of the following showing compliance with specified grade:
1. Evidence of AAMA Certification.
2. Evidence of WDMA Certification.
3. Evidence of CSA Certification.
4. Test report(s) by independent testing agency itemizing compliance and acceptable to authorities having jurisdiction.

E. Test Reports: Prior to submitting shop drawings or starting fabrication, submit test report(s) by independent testing agency showing compliance with performance requirements in excess of those prescribed by specified grade.

1.02 WARRANTY

A. See Section 01 7800 - Closeout Submittals for additional warranty requirements.

B. Correct defective work within a 5-year period after Date of Substantial Completion.

C. Manufacturer's Warranty: Provide five-year manufacturer warranty for insulated glass units from seal failure, interpane dusting or misting, and replacement of same. Include coverage for degradation of vinyl color finish. Complete form in Owner's name and register with manufacturer.

PART 2 PRODUCTS

2.01 DESCRIPTION

A. Vinyl Windows: Factory fabricated frame and sash members of extruded, hollow, ultra-violet-resistant, polyvinyl chloride (PVC) with integral color; with factory-installed glazing, hardware, related flashings, anchorage and attachment devices.
1. Basis of Design: Milgard "Trinsic" series
2. Configuration: As indicated on drawings.
a. Product Type: HS - Horizontal sliding window in accordance with AAMA/WDMA/CSA 101/I.S.2/A440.
3. Color: Color as selected.
4. Operable Units: Double weatherstripped.
5. Framing Members: Fusion welded corners and joints, with internal reinforcement where required for structural rigidity; concealed fasteners.
6. System Internal Drainage: Drain to exterior side by means of weep drainage network any water entering joints, condensation within glazing channel, or other migrating moisture within system.
7. Glazing Stops, Trim, Flashings, and Accessory Pieces: Formed of rigid PVC, fitting tightly into frame assembly.
8. Mounting Flange: Integral to frame assembly, providing weather stop at entire perimeter of frame.
9. Insect Screens: Tight fitting for operating sash location.

2.02 PERFORMANCE REQUIREMENTS

A. Grade: AAMA/WDMA/CSA 101/I.S.2/A440 requirements for specific window type:
1. Performance Class (PC): LC.
2. Performance Grade (PG): Equivalent to or greater than specified design pressure.

B. Design Pressure: In accordance with applicable codes.

C. Overall Thermal Transmittance (U-value): 0.35, maximum, including glazing, measured on window sizes required for this project.

D. Solar Heat Gain Coefficient: 0.35 maximum, including glazing, measured on window sizes required for this project.

2.03 COMPONENTS

A. Glazing: Insulated double pane, annealed glass, clear, low-E coated, argon filled, with glass thicknesses as recommended by manufacturer for specified wind conditions and acoustic rating indicated.
1. Glass Stops: Snap-on PVC glazing bead with color to match sash and frame.
2. Glazing Tape: Closed cell foam type with double sided adhesive.

B. Frame Depth: 2-11/16 inches (68.3 mm).

C. Insect Screens: Aluminum, extruded or roll-formed frame with mitered and reinforced corners; apply screen mesh taut to frame; secure to window with hardware to allow easy removal.
1. Hardware: Manufacturer's standard; quantity as required per screen.
2. Screen Mesh: Vinyl-coated fiberglass, window manufacturer's 18 x 16 mesh.
3. Frame Finish: Manufacturer's standard, color to match window frame and sash color.

D. Operable Sash Weatherstripping: Wool pile; permanently resilient, profiled to maintain weather seal in accordance with AAMA 701/702.

2.04 HARDWARE

A. Horizontal Sliding Sash: Rigid PVC interfacing tracks with dual brass wheel and stainless steel axle assembly housing, provide two sets for each operating sash and opening stops in head and sill track as required.

B. Finish of Exposed Hardware: Baked enamel, match interior sash and frame color.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install window unit assemblies in accordance with manufacturers instructions and applicable building codes.

B. Attach window frame and shims to perimeter opening to accommodate construction tolerances and other irregularities as necessary.

C. Align window plumb and level, free of warp or twist, and maintain dimensional tolerances and alignment with adjacent work.

3.02 ADJUSTING

A. Adjust hardware for smooth operation and secure weathertight closure.

END OF SECTION

SECTION 08 7100
DOOR HARDWARE

PART 1 GENERAL

1.01 ADMINISTRATIVE REQUIREMENTS

A. Furnish templates for door and frame preparation to manufacturers and fabricators of products requiring internal reinforcement for door hardware.

B. Keying Requirements Meeting:
1. Schedule meeting at project site prior to Contractor occupancy.
2. Attendance Required:
a. Contractor.
b. Owner.
c. Architect.
3. Agenda:
a. Establish keying requirements.
b. Verify locksets and locking hardware are functionally correct for project requirements.
c. Establish keying submittal schedule and update requirements.
4. Incorporate "Keying Requirements Meeting" decisions into keying submittal upon review of door hardware keying system including, but not limited to, the following:

1.02 SUBMITTALS

A. Product Data: Manufacturer's catalog literature for each type of hardware, marked to clearly show products to be furnished for this project, and includes construction details, material descriptions, finishes, and dimensions and profiles of individual components.

B. Shop Drawings - Door Hardware Schedule: Submit detailed listing that includes each item of hardware to be installed on each door. Use door numbering scheme as included in Contract Documents.
1. Provide complete description for each door listed.
2. Provide manufacturer name, product names, and catalog numbers; include functions, types, styles, sizes and finishes of each item.
3. Include account of abbreviations and symbols used in schedule.

C. Keying Schedule:
1. Submit three (3) copies of Keying Schedule in compliance with requirements established during Keying Requirements Meeting unless otherwise indicated.

PART 2 PRODUCTS

2.01 DESIGN AND PERFORMANCE CRITERIA

A. Provide specified door hardware as required to make doors fully functional, compliant with applicable codes, and secure to extent indicated.

B. Provide door hardware products that comply with the following requirements:
1. Applicable provisions of federal, state, and local codes.

2.02 HINGES

A. Hinges: Comply with BHMA A156.1, Grade 1.
1. Provide hinges on every swinging door.
2. Provide ball-bearing hinges at each door.
3. Provide non-removable pins on exterior outswinging doors.
4. Provide following quantity of butt hinges for each door:
a. Doors From 60 inches (1.5 m) High up to 90 inches (2.3 m) High: Three hinges.

2.03 FLUSH BOLTS

A. Flush Bolts: Comply with BHMA A156.16, Grade 1.
1. Flush Bolt Throw: 3/4 inch (19 mm), minimum.
2. Provides extension bolts in leading edge of door, one bolt into floor, one bolt into top of frame.
a. Pairs of Swing Doors: At inactive leaves, provide flush bolts of type as required to comply with code.
3. Provide dustproof floor strike for bolt into floor, except at metal thresholds.
4. Automatic Flush Bolts: Automatically latch upon closing of door; automatic retraction of bolts when active leaf is opened; located on inactive leaf of pair of doors.

2.04 LOCK CYLINDERS

A. Lock Cylinders: Provide key access on outside of each lock, unless otherwise indicated.
1. Provide standard type cylinders, Grade 1, with six-pin core in compliance with BHMA A156.5 at locations indicated. Confirm with Owner prior to ordering
2. Provide cylinders from same manufacturer as locking device.
3. Provide cams and/or tailpieces as required for locking devices.

2.05 CYLINDRICAL LOCKS

A. Cylindrical Locks (Bored): Comply with BHMA A156.2, Grade 1, 4000 Series.
1. Bored Hole: 2-1/8 inch (54 mm) diameter.
2. Latchbolt Throw: 1/2 inch (12.7 mm), minimum.
3. Backset: 2-3/4 inch (70 mm) unless otherwise indicated.
4. Strikes: Provide manufacturer's standard strike for each latchset or lockset with strike box and curved lip extending to protect frame in compliance with indicated requirements.
a. Finish: To match lock or latch.
5. Provide a lock for each door, unless otherwise indicated that lock is not required.
6. Trim: Provide lever handle or pull trim on outside of each lock, unless otherwise indicated.

2.06 COORDINATORS

A. Coordinators: Provide on doors having closers and self-latching or automatic flush bolts to ensure that inactive door leaf closes before active door leaf.
1. Type: Bar, unless otherwise indicated.
2. Material: Aluminum, unless otherwise indicated.
3. Ensure that coordination of other door hardware affected by placement of coordinators and carry bar is applied properly for completely operable installation.

2.07 CLOSERS

A. Closers: Comply with BHMA A156.4, Grade 1.
1. Type: Surface mounted to door.
2. Provide door closer on each exterior door.

2.08 PROTECTION PLATES

A. Protection Plates: Comply with BHMA A156.6.

B. Metal Properties: Stainless steel.
1. Metal, Heavy Duty: Thickness 0.062 inch (1.57 mm), minimum.

C. Edges: Beveled, on four sides unless otherwise indicated.

D. Fasteners: Countersunk screw fasteners.

2.09 KICK PLATES

A. Kick Plates: Provide along bottom edge of push side of every door with closer, except aluminum storefront and glass entry doors, unless otherwise indicated.
1. Size: 12 inch (305 mm) high by 2 inch (51 mm) less door width (LDW) on push side of door.

2.10 THRESHOLDS

A. Thresholds: Comply with BHMA A156.21.
1. Provide threshold at each exterior door, unless otherwise indicated.
2. Type: Rabbeted with door stop.
3. Material: Stainless steel.
4. Threshold Surface: Fluted horizontal grooves across full width.
5. Field cut threshold to profile of frame and width of door sill for tight fit.

2.11 WEATHERSTRIPPING AND GASKETING

A. Weatherstripping and Gasketing: Comply with BHMA A156.22.
1. Head and Jamb Type: Adjustable.

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Revisions

No.	Description	Date

Stamp
REGISTERED ARCHITECT
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JOHN D. VAN CALCAR
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12-31-21
STATE OF OREGON

Issuance
PERMIT / BID SET

Date
09.09.22

Project Number
21058

Drawing Title
SPECIFICATIONS

Sheet No
G4.02

2. Door Sweep Type: Encased in retainer.
3. Material: Aluminum, with brush weatherstripping.
4. Provide weatherstripping on each exterior door at head, jambs, and meeting stiles of door pairs, unless otherwise indicated.
5. Provide door bottom sweep on each exterior door, unless otherwise indicated.
6. Provide weatherstripping on each interior doors that directly accesses Apparatus Bay.

2.12 LATCH PROTECTOR

A. Latch Protector: Provide on door to protect latch from being tampered with while in locked position.
1. Type: Standard latch protector.
2. Material: Stainless steel.

2.13 FINISHES

A. Finishes: Provide door hardware of same finish, unless otherwise indicated.
1. Primary Finish: 630; satin stainless steel, with stainless steel 300 series base material (former US equivalent US32D); BHMA A156.18.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install hardware in accordance with manufacturer's instructions and applicable codes.

B. Use templates provided by hardware item manufacturer.

C. Do not install surface mounted items until application of finishes to substrate are fully completed.

3.02 ADJUSTING

A. Adjust hardware for smooth operation.

END OF SECTION

DIVISION 09 - FINISHES

SECTION 09 2116
GYPSUM BOARD ASSEMBLIES

PART 1 GENERAL

1.01 SUBMITTALS

A. Product Data: Provide data on metal framing, gypsum board, accessories, and joint finishing system.

PART 2 PRODUCTS

2.01 METAL FRAMING MATERIALS

A. Non-structural Framing System Components: ASTM C645; galvanized sheet steel, of size and properties necessary to comply with ASTM C754 for the spacing indicated, with maximum deflection of wall framing of L/120 at 5 psf (L/120 at 240 Pa).
1. Studs: C-shaped with knurled or embossed faces.
2. Runners: U shaped, sized to match studs.
3. Furring Members: Hat-shaped sections, minimum depth of 7/8 inch (22 mm).

2.02 BOARD MATERIALS

A. Gypsum Wallboard: Paper-faced gypsum panels as defined in ASTM C1396/C1396M; sizes to minimize joints in place; ends square cut.
1. Application: Use for vertical surfaces and ceilings, unless otherwise indicated.
2. Mold Resistance: Score of 10, when tested in accordance with ASTM D3273.
a. Mold-resistant board is required whenever board is being installed before the building is enclosed and conditioned.
3. Thickness:

B. Abuse Resistant Wallboard:
1. Application: At Apparatus Bay walls.
2. Mold Resistance: Score of 10, when tested in accordance with ASTM D3273.
3. Type: Fire-resistance-rated Type X, UL or WH listed.
4. Thickness: 5/8 inch (16 mm).
5. Edges: Tapered.

C. Backing Board For Wet Areas: One of the following products:
1. Application: Surfaces behind tile in wet areas including tub and shower surrounds and shower ceilings.
2. Mold Resistance: Score of 10, when tested in accordance with ASTM D3273.
3. ASTM Cement-Based Board: Non-gypsum-based, cementitious board complying with ASTM C1288.
4. Glass Mat Faced Board: Coated glass mat water-resistant gypsum backing panel as defined in ASTM C1178/C1178M.

D. Ceiling Board: Special sag resistant gypsum ceiling board as defined in ASTM C1396/C1396M; sizes to minimize joints in place; ends square cut.
1. Application: Ceilings, unless otherwise indicated.
2. Thickness: 1/2 inch (13 mm).
3. Edges: Tapered.

2.03 GYPSUM BOARD ACCESSORIES

A. Acoustic Insulation: See Section 07 2100.

B. Beads, Joint Accessories, and Other Trim: ASTM C1047, rigid plastic, galvanized steel, or rolled zinc, unless noted otherwise.
1. Corner Beads: Low profile, for 90 degree outside corners.

C. Joint Materials: ASTM C475/C475M and as recommended by gypsum board manufacturer for project conditions.
1. Fiberglass Tape: 2 inch (50 mm) wide, coated glass fiber tape for joints and corners, except as otherwise indicated.
2. Paper Tape: 2 inch (50 mm) wide, creased paper tape for joints and corners, except as otherwise indicated.
3. Joint Compound: Setting type, field-mixed.

PART 3 EXECUTION

3.01 FRAMING INSTALLATION

A. Metal Framing: Install in accordance with ASTM C754 and manufacturer's instructions.

3.02 BOARD INSTALLATION

A. Comply with ASTM C840, GA-216, and manufacturer's instructions. Install to minimize butt end joints, especially in highly visible locations.

B. Single-Layer Nonrated: Install gypsum board in most economical direction, with ends and edges occurring over firm bearing.

C. Exposed Gypsum Board in Interior Wet Areas: Seal joints, cut edges, and holes with water-resistant sealant.

D. Cementitious Backing Board: Install over steel framing members and plywood substrate where indicated, in accordance with ANSI A108.11 and manufacturer's instructions.

E. Installation on Metal Framing: Use screws for attachment of gypsum board except face layer of nonrated double-layer assemblies, which may be installed by means of adhesive lamination.

3.03 JOINT TREATMENT

A. Paper Faced Gypsum Board: Use paper joint tape, embed with drying type joint compound and finish with drying type joint compound.

B. Finish gypsum board in accordance with levels defined in ASTM C840, as follows:
1. Level 4: Walls and ceilings to receive paint finish or wall coverings, unless otherwise indicated.
2. Level 2: In utility areas, behind cabinetry, and on backing board to receive tile finish.
3. Level 1: Fire-resistance-rated wall areas above finished ceilings, whether or not accessible in the completed construction.

END OF SECTION

SECTION 09 6500
RESILIENT FLOORING

PART 1 GENERAL

1.01 SUBMITTALS

A. Product Data: Provide data on specified products, describing physical and performance characteristics; including sizes, patterns and colors available; and installation instructions.

B. Shop Drawings: Indicate seaming plans and floor patterns.

C. Verification Samples: Submit two samples, 4 by 4 inch ([___] by [___] mm) in size illustrating color and pattern for each resilient flooring product specified.

PART 2 PRODUCTS

2.01 SHEET FLOORING

A. Rubber Sheet Flooring: 100 percent rubber composition, color and pattern through total thickness.
1. Minimum Requirements: Comply with ASTM F1859, Type 1, without backing.
2. Thickness: 0.125 inch (3.2 mm) minimum.
3. Sheet Width: 36 inch (910 mm) minimum.
4. Seams: Heat welded.
5. Surface Texture: Smooth.
6. Color: To be selected by Architect from manufacturer's full range.

B. Welding Rod: Solid bead in material compatible with flooring, produced by flooring manufacturer for heat welding seams, and in color matching field color.

2.02 ACCESSORIES

A. Subfloor Filler: White premix latex; type recommended by adhesive material manufacturer.

B. Primers, Adhesives, and Seam Sealer: Waterproof; types recommended by flooring manufacturer.

C. Moldings, Transition and Edge Strips: Same material as flooring.

D. Filler for Coved Base: Plastic.

PART 3 EXECUTION

3.01 INSTALLATION - GENERAL

A. Starting installation constitutes acceptance of subfloor conditions.

B. Install in accordance with manufacturer's written instructions.

C. Adhesive-Applied Installation:
1. Spread only enough adhesive to permit installation of materials before initial set.
2. Fit joints and butt seams tightly.
3. Set flooring in place, press with heavy roller to attain full adhesion.

3.02 INSTALLATION - SHEET FLOORING

A. Lay flooring with joints and seams parallel to longer room dimensions, to produce minimum number of seams. Lay out seams to avoid widths less than 1/3 of roll width; match patterns at seams.

B. Coved Base: Use coved base filler as backing at floor to wall junction. Extend sheet flooring vertically to height indicated, and cover top edge with metal cap strip.

END OF SECTION

SECTION 09 9100
PAINTING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Scope: Finish exterior surfaces exposed to view, unless fully factory-finished and unless otherwise indicated, including the following:
1. Both sides and edges of plywood backboards for electrical and telecom equipment before installing equipment.

B. Do Not Paint or Finish the Following Items:
1. Items factory-finished unless otherwise indicated; materials and products having factory-applied primers are not considered factory finished.
2. Items indicated to receive other finishes.
3. Items indicated to remain unfinished.
4. Fire rating labels, equipment serial number and capacity labels, and operating parts of equipment.
5. Stainless steel, anodized aluminum, bronze, terne-coated stainless steel, zinc, and lead.
6. Floors, unless specifically indicated.
7. Ceramic and other types of tiles.
8. Brick, glass unit masonry, architectural concrete, cast stone, integrally colored plaster and stucco.
9. Glass.
10. Concealed pipes, ducts, and conduits.

1.02 SUBMITTALS

A. Product Data: Provide complete list of products to be used, with the following information for each:
1. Manufacturer's name, product name and/or catalog number, and general product category (e.g. "alkyd enamel").
2. MPI product number (e.g. MPI #47).
3. Cross-reference to specified paint system(s) product is to be used in; include description of each system.

B. Samples: Submit three paper "draw down" samples, 8-1/2 by 11 inches (216 by 279 mm) in size, illustrating range of colors available for each finishing product specified.
1. Where sheen is specified, submit samples in only that sheen.
2. Where sheen is not specified, discuss sheen options with Architect before preparing samples, to eliminate sheens not required.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Provide paints and finishes used in any individual system from the same manufacturer; no exceptions.

2.02 PAINTS AND FINISHES - GENERAL

A. Paints and Finishes: Ready-mixed, unless required to be a field-catalyzed paint.
1. Where MPI paint numbers are specified, provide products listed in Master Painters Institute Approved Product List, current edition available at www.paintinfo.com, for specified MPI categories, except as otherwise indicated.
2. Provide paints and finishes of a soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating, with good flow and brushing properties, and capable of drying or curing free of streaks or sags.
3. Provide materials that are compatible with one another and the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.
4. Supply each paint material in quantity required to complete entire project's work from a single production run.
5. Do not reduce, thin, or dilute paint or finishes or add materials unless such procedure is described explicitly in manufacturer's product instructions.

2.03 PAINT SYSTEMS - EXTERIOR

A. Exterior Surfaces to be Painted, Unless Otherwise Indicated: Including fiber cement siding, primed wood, and primed metal.
1. Two top coats and one coat primer.
2. Top Coat(s): Exterior Latex; MPI #10, 11, 15, 119, or 214.
3. Top Coat Sheen:
a. Eggshell: MPI gloss level 3; use this sheen at all locations.

2.04 PAINT SYSTEMS - INTERIOR

A. Interior Surfaces to be Painted, Unless Otherwise Indicated: Including gypsum board, wood, uncoated steel, shop primed steel, galvanized steel, aluminum, and acoustical ceilings.
1. Two top coats and one coat primer.
2. Top Coat(s): Institutional Low Odor/VOC Interior Latex; MPI #143, 144, 145, 146, 147, or 148.
3. Top Coat Sheen:
a. Flat: MPI gloss level 1; use this sheen for ceilings and other overhead surfaces.
b. Eggshell: MPI gloss level 3; use this sheen at all locations.
4. Primer: As recommended by top coat manufacturer for specific substrate.

B. Restrooms: Including gypsum board and shop primed steel.
1. Two top coats and one coat primer.
2. Top Coat(s): Interior Epoxy-Modified Latex; MPI #115 or 215.
3. Top Coat Sheen:
a. Semi-Gloss: MPI gloss level 5; use this sheen at restrooms.
4. Primer: As recommended by top coat manufacturer for specific substrate.

C. Dry Fall: Metals; exposed structure and overhead-mounted services at Apparatus Bay, including shop primed structural steel, metal fabrications, galvanized ducts, galvanized conduit, and galvanized piping.
1. One top coat; white.
2. Top Coat: Latex Dry Fall; MPI #118, 155, or 226.
3. Top Coat Sheen:
a. Flat: MPI gloss level 1; use this sheen at all locations.
4. Primer: As recommended by top coat manufacturer for specific substrate.

PART 3 EXECUTION

3.01 EXAMINATION

A. Measure moisture content of surfaces using an electronic moisture meter. Do not apply finishes unless moisture content of surfaces are below the following maximums:
1. Fiber Cement Siding: 12 percent.
2. Exterior Wood: 15 percent, measured in accordance with ASTM D4442.
3. Gypsum Wallboard: 12 percent.
4. Interior Wood: 15 percent, measured in accordance with ASTM D4442.

3.02 PREPARATION

A. Clean surfaces thoroughly and correct defects prior to application.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.03 APPLICATION

A. Apply products in accordance with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual".

B. Do not apply finishes to surfaces that are not dry. Allow applied coats to dry before next coat is applied.

END OF SECTION

DIVISION 23 - HEATING, VENTILATING, AND AIR-CONDITIONING (HVAC)

SECTION 23 0000
DESIGN-BUILD MECHANICAL

PART 1 GENERAL

1.01 DESCRIPTION OF WORK

A. This project consists seismic retrofit and minor remodel upgrades to the existing JCFD #5 Station 4 building. Refer to construction drawings for additional information and scope of work.
1. Base Bid Building:
2. Installation of new supply/return and thermostat at Exercise 111. This is expected to be connected to the existing HVAC system.
3. Removal and reinstallation of mechanical units affected by construction.
a. Seismic bracing as required
b. Removal of supply and return duct

B. Perform a detailed field investigation and prepare design documents with Oregon Mechanical engineer's stamp and signature, suitable for plan check submission and construction.

1.02 SECTION INCLUDES

A. Design and construction of mechanical heating system under the base bid.

1.03 REQUIREMENTS

A. The Mechanical (HVAC) Drawings shall be provided by the Contractor.

B. Submittals shall be submitted to the Owner for review.
1. Construction shall not commence until the detailed Drawings, Specifications, and engineering calculations have been accepted and approved by the Owner and the Reviewing Agency.

C. Construction Documents and Reviewing Agency Submittals:
1. Drawings shall be scalable, dated, stamped and signed by the Contractor's Registered Mechanical Engineer for the State of Oregon, and shall be provided in PDF and hardcopy format, 24"x36" size.
2. Specifications shall be provided in hardcopy format, 8.5"x11" size.
3. Drawings and Specifications shall be suitable for submission to the Reviewing Agency for review.

D. Coordinate with the electrical design-build Contractor and his electrical engineer for the mechanical equipment being installed as part of this project.

E. Provide Structural Engineering analysis and design of Structure to accommodate all HVAC equipment added by this scope of work.

F. Heating, ventilating, and cooling system design shall be in accordance with the requirements of the current Oregon Mechanical Specialty Code (OMSC), local laws and ordinances and with load calculations in accordance with ASHRAE procedures.

1.04 SUBMITTALS FOR REVIEW

A. Construction Documents Components:
1. Drawings including:
a. Mechanical Systems Plan Drawings;
b. Mechanical sectional drawings, if required for clarity;
c. Completed mechanical energy code forms;
d. HVAC heating and cooling load calculations and ductwork static pressure loss calculations for fan selections;
2. Mechanical Specifications

B. Reviewing Agency Submittal:
1. Reviewing Agency comments and Contractor responses.
2. Drawings with Reviewing Agency comments incorporated.
3. Mechanical Specifications.
4. Final stamped, signed and approved drawings suitable for construction.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 GENERAL

A. Drawings:
1. Coordinate drawings with other disciplines, including architectural, structural, plumbing, and electrical.
2. Screened line types and fonts shall represent work that is not included in this contract.
3. Bold line types and fonts shall represent work that is included in this contract.
4. Revisions to drawings after the construction Documents submittal shall be noted with:
a. Revision notes in the drawing title block including the revision number, brief description, date, and initials of the person responsible for the revision.
b. "Clouds" encompassing the drawing revision.
c. "Delta" blocks adjacent to the clouds with revision numbers corresponding to the associated title block revision notes.

B. Existing Documentation:
1. There is minimal documentation of the existing mechanical systems in the building. Architect will provide AutoCAD floor plan drawings, sections, elevations, sections and roof framing as requested. Drawings are provided as a courtesy, and may be incomplete, and/or out of date. The Contractor shall independently perform all required field investigations.

C. Equipment Evaluation:
1. Evaluate existing mechanical equipment and components to remain and verify the equipment is in good working order and meets the current code requirements.

D. Mechanical Design:
1. Mechanical system performance shall be returned to the state in which it was before construction.
2. Mechanical calculations and design shall be performed in accordance with the requirements of the OMSC and ASHRAE. Coordinate with the Owner, Engineer, and other disciplines to determine locations and space requirements of all new equipment and ductwork.

END OF SECTION

DIVISION 26 - ELECTRICAL

SECTION 26 0000
DESIGN-BUILD ELECTRICAL

PART 1 GENERAL

1.01 DESCRIPTION OF WORK

A. This project consists seismic retrofit and minor remodel upgrades to the existing JCFD #5 Station 4 building. Refer to construction drawings for additional information and scope of work.

B. The project shall include the following line items as part of the bid:
1. Base Bid:
a. Install and specify new LED light fixtures in Exercise 111.
b. Provide new electrical gear at point of service to the building. Review existing conditions to determine what items are needed and if any can be re-used.
c. Coordinate electrical fixtures, wiring, and conduit in exterior walls that are being rebuilt as part of this work. Re-use where possible, and replace as necessary.
d. Install all new electrical in new wall to match existing configuration, unless noted otherwise.
e. Reinstall wiring to mechanical units as necessary
f. Provide wiring to sectional doors.
g. Provide under slab conduit for future generator connection.

C. Work specified in this Section shall be designed under the responsible charge of a professional engineer registered in the State of Oregon. Design documents shall be stamped and signed.

D. Design documents shall meet all of the following requirements:
1. Suitable for review by the Owner and the Owner's consultants.
2. Meet the requirements of Authorities Having Jurisdiction, including but not limited to the Building Department, the Fire Marshal, the power company, and Jackson County Fire District No. 5
3. Conform to codes, laws, and ordinances as called for in this Specification.

1.02 ASSUMPTION

A. The existing service is sized to accommodate this project's loads.

1.03 SECTION INCLUDES

A. Design and construction of electrical power distribution and lighting systems.

1.04 REQUIREMENTS

A. The electrical and lighting system drawings shall be provided by the Contractor.

B. Submittals shall be submitted to the Owner for review coinciding with the construction schedule. It is the responsibility of the Electrical Contractor to coordinate these submittals. Any lead-time issues need to be brought to the General Contractor's attention within 10 days of receiving signed contracts.
1. Construction shall not commence until the detailed drawings, Specifications, and engineering calculations have been accepted and approved by the Owner and the Reviewing Agencies.

C. Construction Documents and Reviewing Agency Submittals:
1. Drawings shall be scalable, dated, stamped and signed by the Contractor's Registered Electrical Engineer for the State of Oregon, and shall be provided in PDF and hardcopy format, 24"x36" size.
2. Specifications shall be provided in hardcopy format, 8.5"x11" size.
3. Drawings and Specifications shall be suitable for submission to the Reviewing Agency for review.

D. Coordinate with the mechanical design contractor for mechanical equipment being installed as part of this project.

E. Electrical and lighting system design shall be in accordance with the requirements of the current versions of the National Electrical Code (NEC), Oregon Electrical Specialty Code (OESC) and local laws and ordinances.

1.05 SUBMITTALS FOR REVIEW

A. Construction Documents Components:
1. Field investigation report including items described in Part 3.2.
2. Drawings including:
a. Locations of major equipment requiring new or modified power distribution design.
b. Convenience receptacle and data.
c. Lighting control-operating schemes.
d. Photometric plot files identifying general and emergency lighting foot-candle levels for the space.
3. Light fixture schedule for new fixtures, describing for each fixture type:
a. Assigned fixture tag.
b. Manufacturer and model number.
c. Light fixture type (recessed can, troffer, strip, etc.).
d. Mounting height.
e. Fixture dimensions.
f. Diffuser type.
g. Mounting type (suspended, T-bar, surface, etc.).
h. Quantity and lamp type ((2) F32T8, (1) 32W CFL, etc.).
i. Ballast quantity, type, and voltage.
j. Actual power usage, including ballast.
k. Energy Code-assigned power usage.
4. Light fixture catalog cut sheets, for each fixture type, shall include the following information:
a. Photometric performance.
5. Electrical Specifications outline.
a. Completed lighting energy code forms.
b. Oregon engineering stamp with signatures.
6. Electrical Specifications.

B. Reviewing Agency Submittal:
1. Reviewing Agency comments and Contractor responses.
2. Drawings with Reviewing Agency comments incorporated.
3. Electrical Specifications.
4. Final stamped, signed and approved drawings suitable for construction.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 GENERAL

A. Drawings:
1. Coordinate drawings with other disciplines, including architectural, structural, civil, landscape, and mechanical.
2. Screened line types and fonts shall represent work that is not included in this contract.
3. Bold line types and fonts shall represent work that is included in this contract.
4. Revisions to drawings after the Construction Documents submittal shall be noted with:
a. Revision notes in the drawing title block including the revision number, brief description, date, and initials of the person responsible for the revision.
b. "Clouds" encompassing the drawing revision.
c. "Delta" blocks adjacent to the clouds with revision numbers corresponding to the associated title block revision notes.

B. Existing Documentation:
1. There is minimal documentation of the existing electrical systems in the building. Architect will provide AutoCAD floor plan drawings, sections, elevations, sections and roof framing as requested. Drawings are provided as a courtesy, and may be incomplete, and/or out of date. The Contractor shall independently perform all required field investigations.

C. Equipment Evaluation:
1. Evaluate existing electrical equipment and components to remain and verify the equipment is in good working order, meets the current code requirements, and is of adequate capacity. For deficiencies, provide detailed information, including recommendations, and costs thereof.

D. Electrical Design:
1. Electrical calculations and design shall be performed in accordance with the requirements of the NEC.

E. Lighting Design.
1. Lighting design, calculations, and lamp types shall meet the requirements of the OEESC.

3.02 FIELD INVESTIGATION

A. Perform an extensive field investigation and record information required to perform the electrical and lighting designs described herein.

B. The field investigation shall cover:
1. All areas required to complete this project's scope of work.

3.03 ELECTRICAL DESIGN

A. Coordinate with the Owner, Architect, and other disciplines to determine locations and electrical requirements of all new equipment requiring power distribution.

B. Conduit and Feeders:
1. Feeders shall be copper.
2. Voltage drop from the utility meter to the furthest electrical load shall not exceed 6%.
3. Sizes shall be per NEC requirements.
4. Conductors shall not be smaller than #12 gauge.
5. Determine routing to new mechanical systems, lighting, and other new equipment.
6. Routing shall be designed to avoid penetrations of load bearing walls and structural supports; obtain written approval from the Structural Engineer where penetrations occur.
7. Minimum size conduit shall be 1/2-inch; except 3/4-inch minimum shall be used for underground conduit.

C. Receptacles:
1. Spacing shall be 12 feet on-center maximum, or as needed to meet the furniture layouts indicated in the drawings.
2. Height shall be 18" above finished floor, 46" above finished floor when installed above a countertop, or as required by the equipment served by the receptacle.
3. When located in a bathroom/restroom, outside, or within 6 feet of the outside edge of a sink, receptacles shall have ground-fault-circuit-interrupter protection.
4. Weatherproof GFCI receptacle shall be within 25 feet of outdoor mechanical equipment.

3.04 LIGHTING DESIGN

A. Minimum lighting intensities shall meet the following design criteria:
1. Exterior: Average of 2 foot-candles at ground level , not to exceed 5foot-candles.
2. Selected light fixtures shall accommodate replacement of lamps from below the ceiling.

END OF SECTION

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Project

JCFD #5
Station 4 - Neil Creek

40 NEIL CREEK RD
ASHLAND, OR 97520

Consultant

Revisions

No.	Description	Date

Stamp

REGISTERED ARCHITECT
5209
JOHN D. VAN CALCAR
PORTLAND, OREGON
RENEWAL DATE
12-31-21
STATE OF OREGON

Issuance

PERMIT / BID SET

Date

09.09.22

Project Number

21058

Drawing Title

SPECIFICATIONS

Sheet No

G4.03

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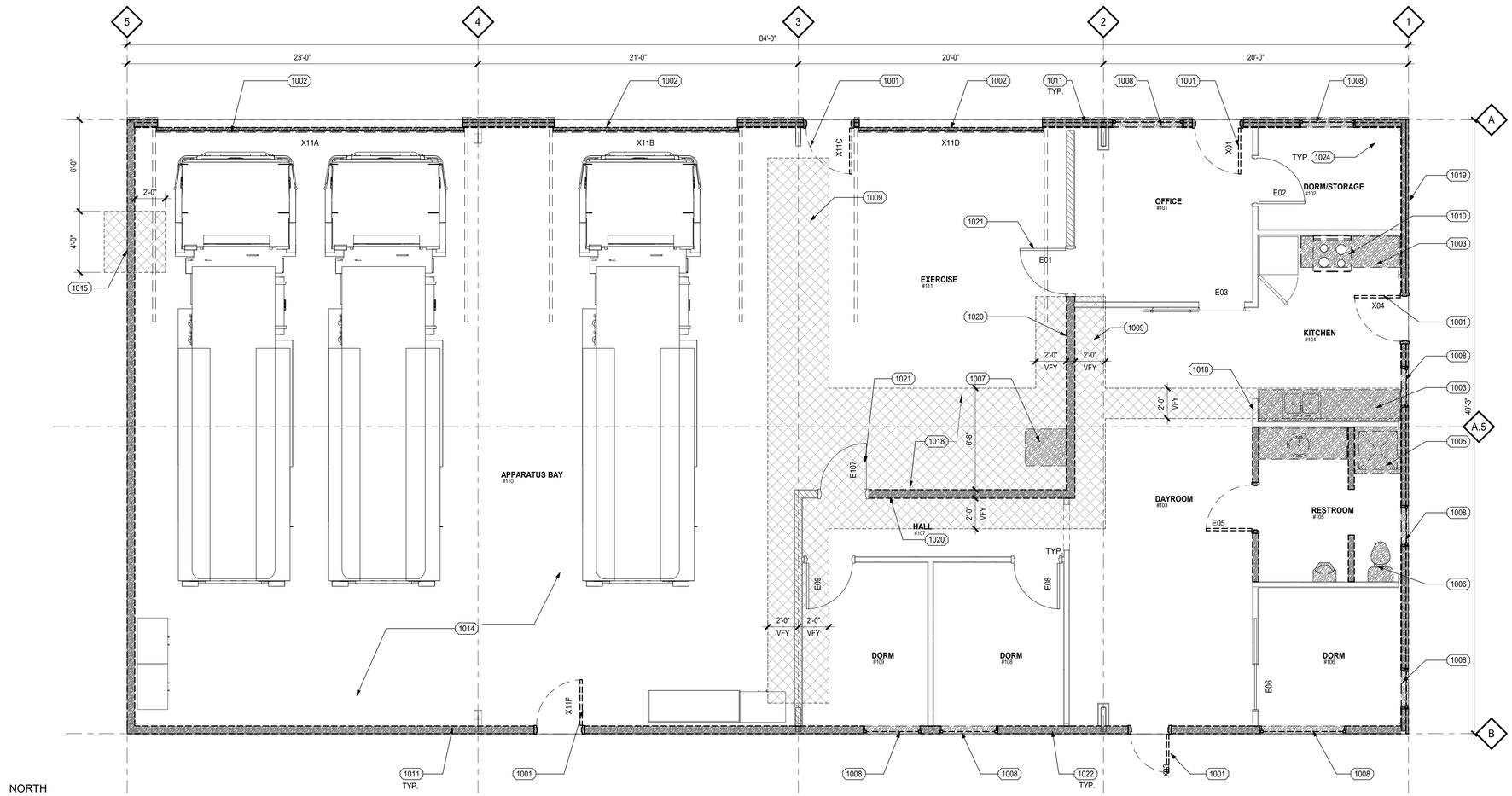
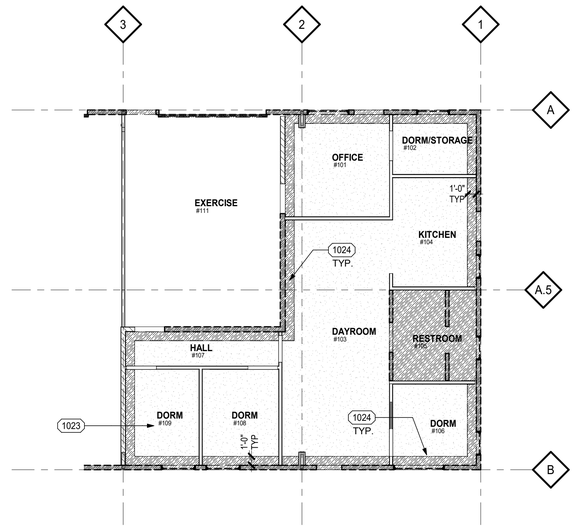


NORTH

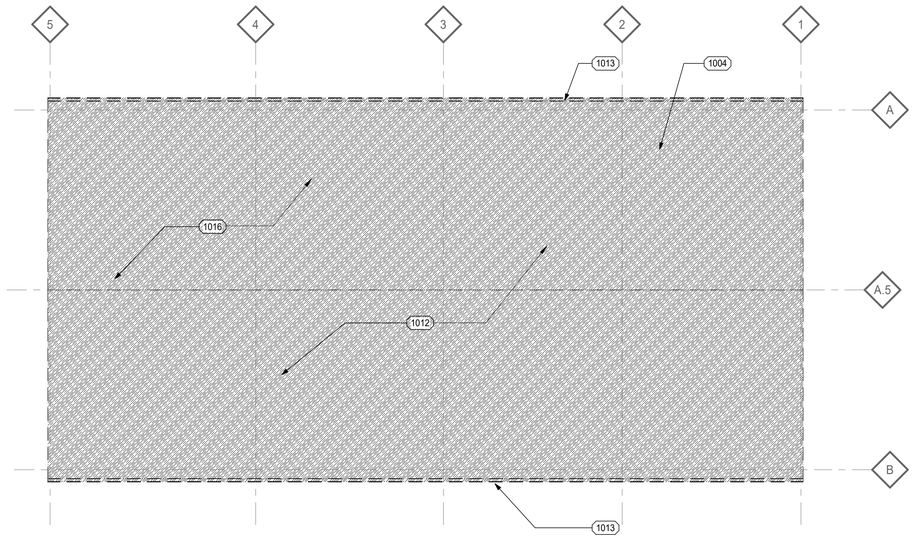
1 ARCH DEMOLITION OVERALL FLOOR PLAN

1/4" = 1'-0"



3 DEMOLITION CEILING PLAN

1/8" = 1'-0"



2 DEMOLITION ROOF PLAN

1/8" = 1'-0"

SHEET NOTES

1. VERIFY EXTENT OF DEMOLITION WITH PROPOSED FLOOR PLANS.
2. PATCH ALL EXISTING WALLS AS REQUIRED TO PROVIDE A SMOOTH SURFACE FOR NEW FINISHES.
3. CONTRACTOR SHALL PROVIDE TEMPORARY PARTITION DUST BARRIERS IN ORDER TO MINIMIZE THE SPREAD OF DUST AND DEBRIS, AND TO PROTECT ADJACENT SPACES.
4. CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL DEMOLITION MATERIAL, IN ACCORDANCE WITH BUILDING OWNER / TENANT STANDARDS.
5. PULL ANY DEMOLISHED WIRING BACK TO THE NEAREST JUNCTION BOX AND CAP IN ACCORDANCE WITH CODE.
6. PULL ANY DEMOLISHED PLUMBING LINES BACK TO THE NEAREST POINT OF CIRCULATION AND CAP IN ACCORDANCE WITH CODE.
7. REFER TO NON-ARCHITECTURAL SHEETS FOR ADDITIONAL DEMOLITION SCOPE.

LEGEND

- WALL TO BE DEMOLISHED
- EXISTING WALL TO REMAIN
- ITEM TO BE DEMOLISHED
- SLAB TO BE DEMOLISHED
- (E) METAL ROOF TO BE DEMOLISHED
- (E) DOOR AND FRAME TO BE DEMOLISHED

LEGEND - KEYNOTES

MARK	DESCRIPTION
1001	DEMOLISH (E) MAN DOOR
1002	DEMOLISH (E) OVERHEAD DOOR AND DOOR TRACKS
1003	REMOVE (E) COUNTER IF NECESSARY DURING CONSTRUCTION. PROTECT AND REINSTALL.
1004	REMOVE EXISTING ANTENNA AND PROTECT FOR RE-INSTALLATION
1005	DEMOLISH (E) SHOWER
1006	DEMOLISH (E) TOILET
1007	(E) WASHER AND DRYER TO BE RELOCATED
1008	DEMOLISH (E) WINDOWS
1009	DEMOLISH CONCRETE AS REQUIRED FOR NEW STRUCTURAL FOOTINGS. CONFIRM DEMOLITION EXTENTS WITH STRUCTURAL - DO NOT CUT EXISTING FOOTINGS.
1010	EXISTING KITCHEN APPLIANCES TO BE TEMPORARILY REMOVED AND RETURNED AT THE END OF CONSTRUCTION.
1011	DEMOLISH (E) EXTERIOR FINISHES, SHEATHING, INSULATION, AND FRAMING. WIRING/PIPES TO REMAIN. SEE STRUCTURAL FOR ADDITIONAL INFORMATION.
1012	DEMOLISH (E) ROOF DECK, PURLINS, AND SUPPORTS. SEE STRUCTURAL FOR ADDITIONAL INFORMATION
1013	DEMOLISH (E) EXISTING GUTTERS AND DOWNSPOUTS
1014	EXISTING PROPANE RADIANT HEATERS TO REMAIN. IF NECESSARY, REMOVE, PROTECT, AND REINSTALL AT END OF CONSTRUCTION
1015	DEMOLISH CONCRETE FOR NEW UNDERSLAB ELECTRICAL CONDUIT, TO CONNECT TO FUTURE GENERATOR
1016	EXISTING LIGHT FIXTURES TO REMAIN. IF NECESSARY, REMOVE, PROTECT, AND REINSTALL AT END OF CONSTRUCTION.
1018	DEMOLISH CONCRETE FOR NEW UNDERSLAB UTILITY CONCRETE
1019	REMOVE EXISTING ELECTRICAL GEAR. PROVIDE REPLACEMENTS
1020	REMOVE EXISTING BEARING WALL BETWEEN DOOR FRAMING. MAINTAIN MEZZANINE FRAMING SUPPORT DURING CONSTRUCTION. WALLS ABOVE MEZZANINE TO REMAIN. SEE STRUCTURAL FOR ADDITIONAL INFORMATION
1021	REMOVE DOOR DURING CONSTRUCTION. PROTECT AND REINSTALL.
1022	ALL EXISTING EXTERIOR LIGHTS, SPEAKERS, AND OTHER BUILDING-MOUNTED EQUIPMENT TO REMAIN UNLESS OTHERWISE NOTED. REMOVE AND PROTECT DURING CONSTRUCTION AND REINSTALL AT PROJECT CLOSE
1023	REMOVE GAS FIRED UNIT HEATER LOCATED ABOVE MEZZANINE AND PROTECT FOR RELOCATION
1024	REMOVE 1'-0" OF CEILING ADJACENT TO EXTERIOR WALLS AND INTERIOR WALLS MODIFIED BY WORK.

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Drawing Title
ARCH DEMOLITION PLANS

Sheet No
AD2.01

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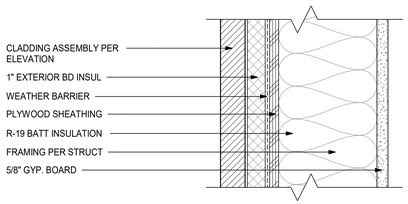
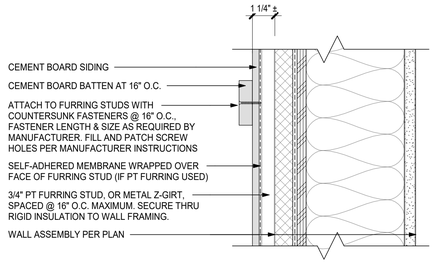
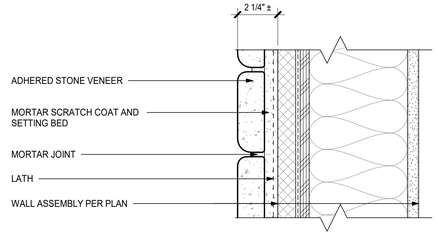


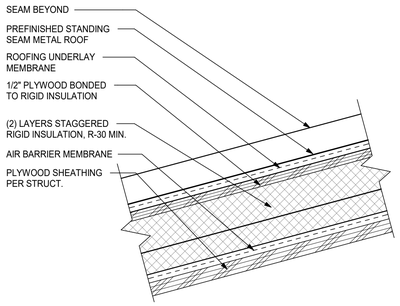
1 TYPICAL EXTERIOR ASSEMBLY
3" = 1'-0"



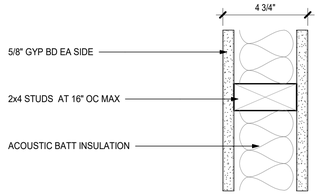
2 EXT CLAD - CEMENT BD PANEL SYSTEM
3" = 1'-0"



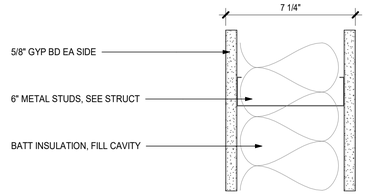
3 EXT CLAD - CEMENT BD PANEL SYSTEM
3" = 1'-0"



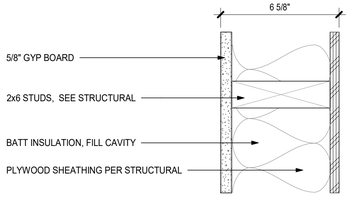
4 ROOF ASSEMBLY
3" = 1'-0"



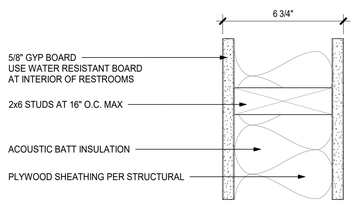
5 PARTITION TYPE 'B01'
3" = 1'-0"



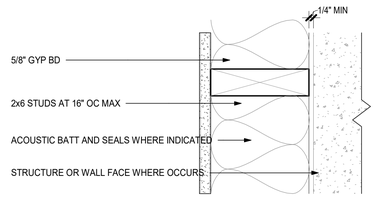
6 PARTITION TYPE 'B02'
3" = 1'-0"



7 PARTITION TYPE 'B03'
3" = 1'-0"



8 PARTITION TYPE 'B04'
3" = 1'-0"

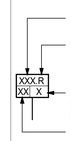


9 PARTITION TYPE 'F01'
3" = 1'-0"

SHEET NOTES

1. DIMENSIONS ARE GENERALLY PROVIDED WITH REFERENCE TO NEAREST GRIDLINE WITHIN THAT QUADRANT OR AREA.
2. ALL DIMENSIONS ARE FACE OF STUD (FOS) UNLESS OTHERWISE NOTED. CONTRACTOR TO ACCOUNT FOR BUILD-UP OF BACKING PLATES, PAN-HEAD SCREWS, ETC. IN LAYOUT OF TRACK TO ACCOMMODATE BUILD-UP AND PRESERVE REQUIRED DIMENSIONS.
3. DIMENSION STRINGS ARE TO BE RECONCILED TO COLUMN GRIDLINES AT EACH INTERSECTION WITH A PERPENDICULAR RUN OF PLAN DIMENSIONS.
4. ALL "MINIMUM" OR "CLEAR" DIMENSIONS SHALL BE MAINTAINED. ADA AND OTHER CODE REQUIRED MINIMUM DIMENSIONS ARE TO BE MAINTAINED AND FINAL CONFORMING LAYOUT VERIFICATIONS ARE THE CONTRACTORS RESPONSIBILITY.
5. FIXED DIMENSIONS NOTED OUTSIDE THESE AREAS AND NOT NOTED AS "MINIMUM" OR "CLEAR" DIMENSIONS MAY BE ASSUMED TO HAVE A TOLERANCE OF +/- 1/4".
6. DIMENSION STRINGS ATTEMPT TO PROVIDE A BREAK IN ITS LENGTH WITHIN EACH COLUMN BAY. WHERE THIS DOES NOT OCCUR, CONTRACTOR MAY SEEK A WRITTEN INTERPRETATION TO ACCOMMODATE A +/- TOLERANCE AT LOCATIONS NOT OTHERWISE NOTED AS "MINIMUM" OR " CLEAR" VIA RFI PROCESS.
7. WALL LOCATIONS NOT SPECIFICALLY DIMENSIONED BUT IN CLOSE RELATIVE LOCATION TO DIMENSIONED WALLS ARE TO BE ALIGNED FLUSH. ARCHITECT TO PROVIDE CLARIFICATION AT AREAS OF CONCERN.
8. WHERE TWO CORRIDORS INTERSECT, IT IS TO BE ASSUMED THAT THE WALL FACES ACROSS THE INTERSECTING CORRIDOR SHOULD CONTINUE IN ALIGNMENT (KEEPING A CONSISTENT CORRIDOR WIDTH).
9. SHEATHING:
   A. USE 5/8-INCH THICK TYPE X GYPSUM, WATER RESISTANT CORE WALLBOARD ASTM C1396, EXCEPT FOR SPECIAL CONDITIONS. USE FIRE RESISTANT TYPE X WALLBOARD ASTM C1396 IN FIRE RESISTANT RATED ASSEMBLIES. USE MOISTURE RESISTANT GLASS FIBER REINFORCED CONCRETE BACKING WALLBOARD ASTM C1325 AT WET LOCATIONS SUCH AS SHOWERS REQUIRING THE APPLICATION OF TILE. USE MOISTURE RESISTANT GLASS MAT PANELS ASTM C1658 BEHIND TILE AT NON-WET AREAS AND PAINTED AREAS SUBJECT TO MOISTURE.
10. FINISH:
    A. PROVIDE ACCESSORIES, FASTENERS, AND FINISHING MATERIALS IN ACCORDANCE WITH ASTM C1047, C1002, AND C840. INSTALL AND FINISH GYPSUM WALLBOARD IN ACCORDANCE WITH ASTM C840. PROVIDE FINISH LEVEL AS NOTED IN SPECIFICATIONS.
11. RATED:
    A. PROVIDE FIRE AND/OR SMOKE RATED PARTITIONS THAT COMPLY WITH PUBLISHED UL, FM GLOBAL, OR IBC DESIGNS.

LEGEND



PARTITION FIRE RATING:

BLANK	NON RATED
.S	SMOKE 1 HOUR RATED.
.1	1 HOUR RATED.
.2	2 HOUR RATED.

PARTITION HEIGHT:

BLANK	GYP BD TERMINATE 6" ABOVE FINISHED CEILING.
A	BOTH SIDES OF GYP BD TO U/S OF DECK
B	ONE SIDE OF GYP BD EXTEND TO U/S OF DECK
XX	PARTIAL WALL HEIGHT (IN INCHES)

PARTITION ACOUSTIC RATING:

BLANK	ACOUSTIC WALL; SOUND BATT FULL CAVITY WIDTH AND HEIGHT
XX	ACOUSTIC WALL (SPECIFIC STC RATING); SOUND BATT FULL CAVITY WIDTH AND HEIGHT
N	NO ACOUSTIC REQUIREMENT

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Revisions

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TYPICAL ASSEMBLIES

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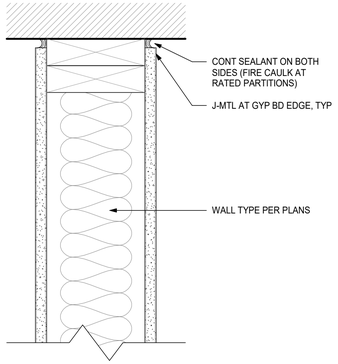
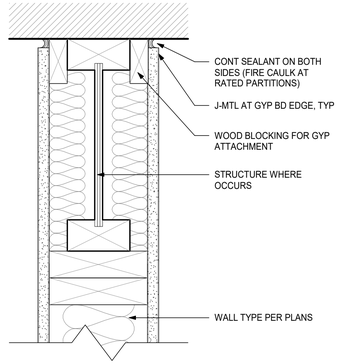
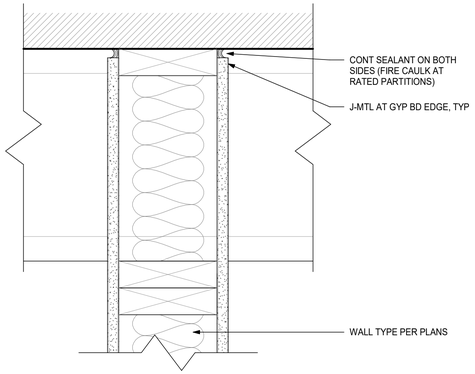


TYPICAL / PARALLEL TO STRUCTURE



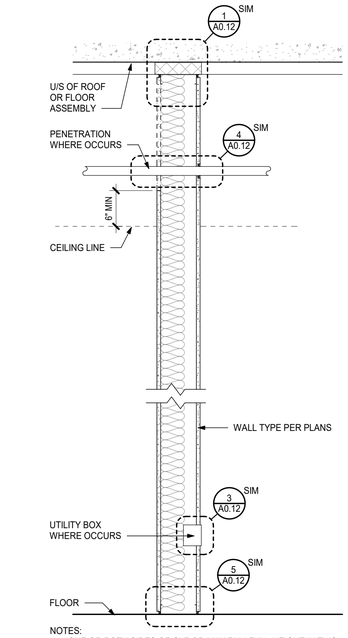
CENTERED ON STRUCTURAL MEMBER



PERPENDICULAR TO STRUCTURE

1 PARTITION HEAD CONDITIONS

3" = 1'-0"



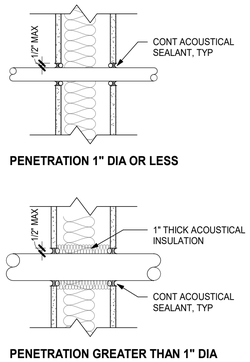
NOTES:
1. ONE OR BOTH SIDES OF GYP BD MAY RUN FULL-HEIGHT IN THIS CONDITION. REFER TO PARTITION TYPE LEGEND.
2. IN ROOMS WHERE NO CEILING IS CALLED FOR, THEN THE STUDS AND GYP BD SHALL RUN TO THE UNDERSIDE OF THE FLOOR / ROOF ASSEMBLY ABOVE.

2 NON-RATED PARTITION

1" = 1'-0"

3 UTILITY BOX PENETRATION

3" = 1'-0"

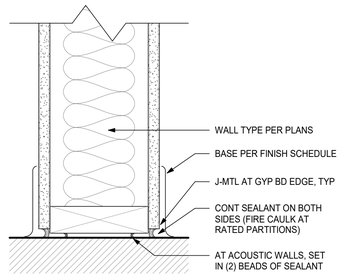


PENETRATION 1" DIA OR LESS

PENETRATION GREATER THAN 1" DIA

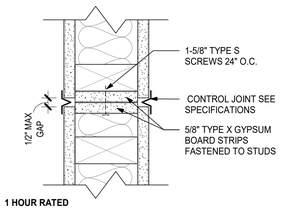
4 NON-RATED PENETRATIONS

1 1/2" = 1'-0"

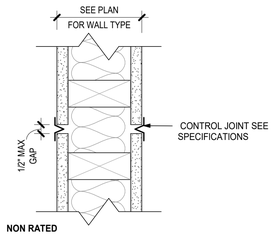


5 PARTITION SILL - TYP

3" = 1'-0"



1 HOUR RATED



NON RATED

6 GYP CONTROL JOINT1

3" = 1'-0"

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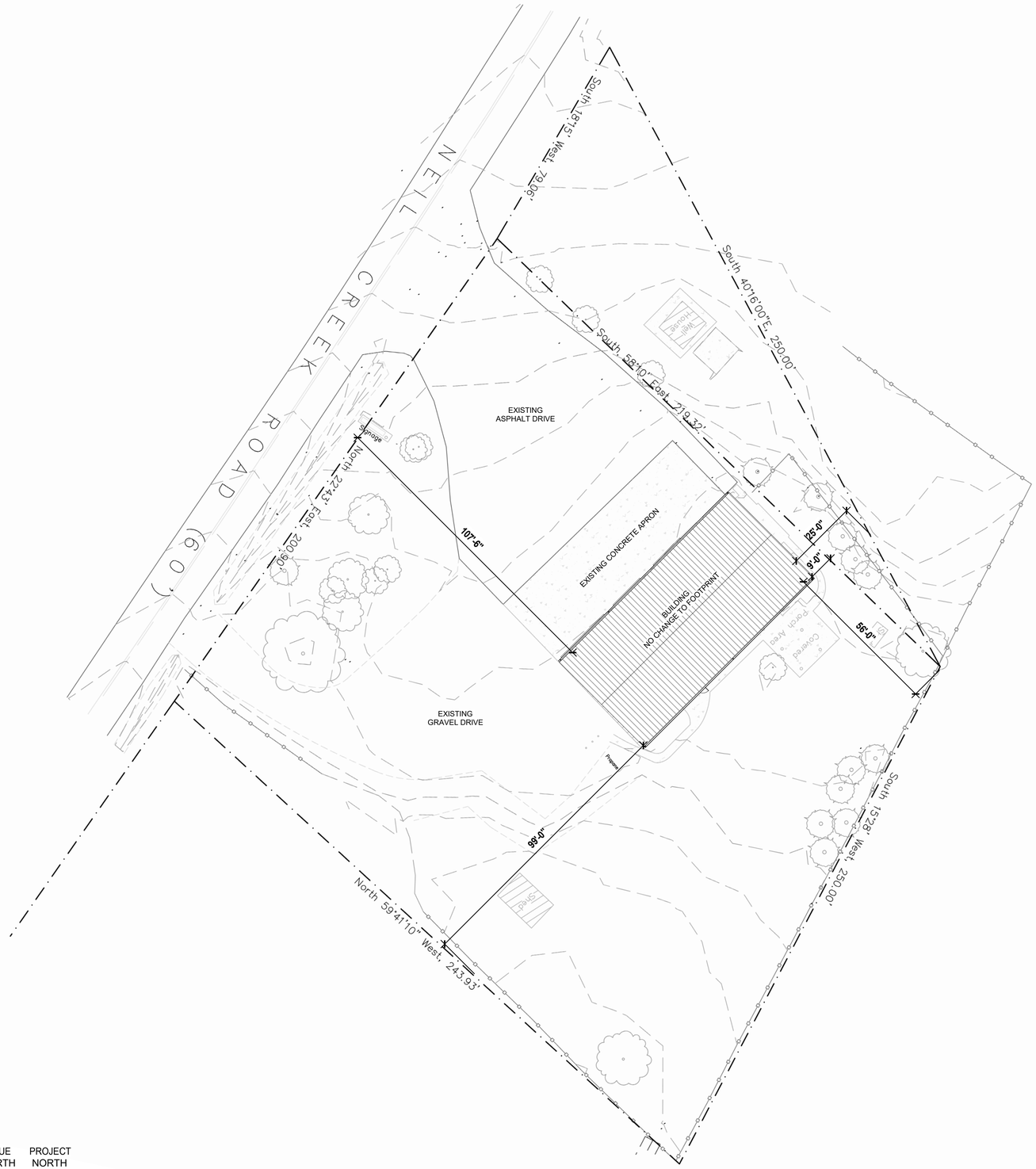

TRUE NORTH PROJECT NORTH

1 OVERALL SITE PLAN

1" = 20'-0"

SHEET NOTES

1. ARCHITECTURAL SITE PLAN SHOWN FOR REFERENCE ONLY.
2. NO MODIFICATIONS PROPOSED TO SITE UNDER THIS PERMIT

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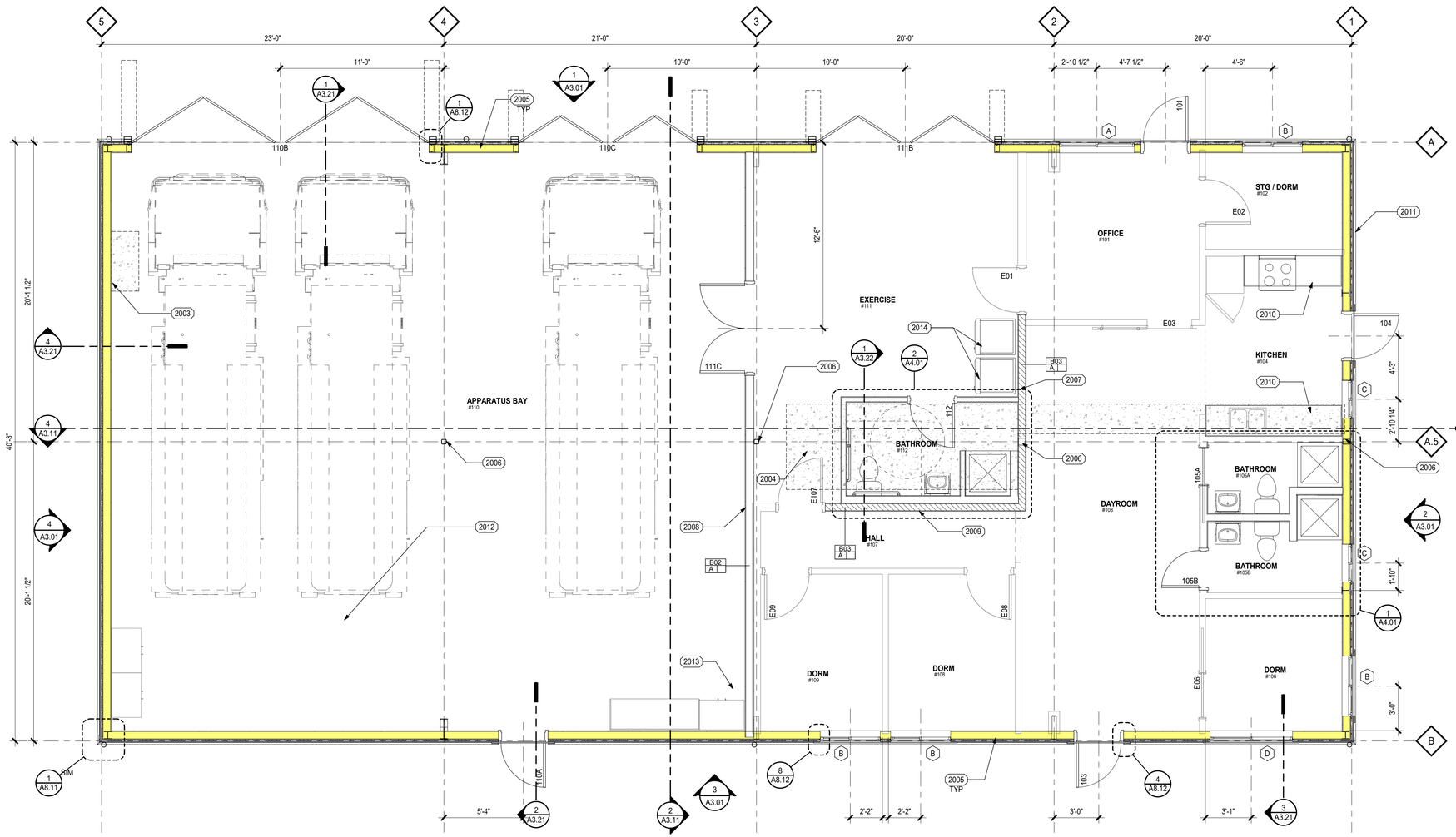
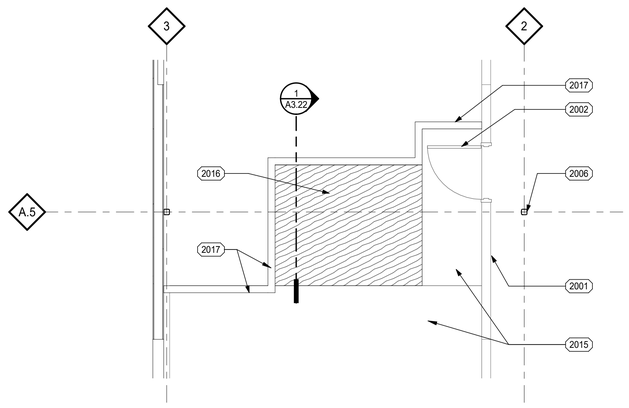


NORTH

1 FIRST FLOOR PLAN

1/4" = 1'-0"



2 MEZZANINE PLAN

1/4" = 1'-0"

SHEET NOTES

1. ANY EXTERIOR WALL NOT LABELED WITH A WALL TAG SHALL BE WALL TYPE: W01
2. ANY INTERIOR WALL NOT LABELED WITH A WALL TAG SHALL BE WALL TYPE: B01, WITH GYP TERMINATING AT UNDERSIDE OF ROOF DECK.
3. REFER TO SHEET A0.11 FOR INTERIOR PARTITION TYPES AND KEY.
4. REFER TO DIMENSIONAL STANDARDS ON A0.11.

LEGEND

- 1 / A101 SIM — ENLARGED VIEW MARK (1=SECTION NO., A101= SHEET NO.)
- XXX R / XX | X — PARTITION MARK (REF. INTERIOR ASSEMBLIES)
- A 1001 — DOOR TAG
- NEW WALL
- EXISTING WALL TO REMAIN
- EXISTING BEARING WALL TO REMAIN
- NEW BEARING WALL

LEGEND - KEYNOTES

MARK	DESCRIPTION
2001	EXISTING WALL TO REMAIN
2002	EXISTING DOOR TO REMAIN
2003	PROVIDE UNDERSLAB CONDUIT FOR FUTURE GENERATOR CONNECTION. 6" DIA - VERIFY SIZE PRIOR TO INSTALLATION
2004	PROVIDE UNDERSLAB WASTE PIPING FOR RESTROOM AND LAUNDRY. SIZE FOR ONE ADDITIONAL TOILET, SHOWER, AND LAVATORY ABOVE WHAT IS SHOWN.
2005	NEW EXTERIOR WALL ASSEMBLY, SEE DETAIL 1/A0.11
2006	NEW COLUMN, SEE STRUCTURAL
2007	NEW BEARING WALL, SEE STRUCTURAL
2008	NEW SHEAR WALL, SEE STRUCTURAL
2009	REPLACE ANY FLOORING MATERIALS REMOVED OR DAMAGED DURING CONSTRUCTION WITH SAME TYPE.
2010	REPLACE EXISTING COUNTERS, CABINETS, AND APPLIANCES REMOVED DURING CONSTRUCTION. CONNECT ALL PLUMBING AND ELECTRICAL HOOK-UPS.
2011	REPLACE ELECTRICAL SERVICE GEAR. MOUNT ON FIRE-TREATED PLYWOOD BACKING
2012	RE-INSTALL ANY LIGHTS OR HEATERS REMOVED DURING CONSTRUCTION. REPLACE ANY THAT WERE NOT SALVAGED.
2013	INSTALL RELOCATED GAS UNIT HEATER IN APP BAY. CONNECT ALL PIPING / VENTS
2014	REINSTALL / HOOK-UP WASHER/DRYER
2015	EXISTING MEZZANINE - SEE STRUCTURAL FOR ADDITIONAL INFORMATION
2016	NEW MEZZANINE ADDITION PER ALT NO. 3 - SEE STRUCTURAL FOR ADDITIONAL INFORMATION
2017	NEW 42" WALL. SEE 1/A9.11

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FLOOR PLANS

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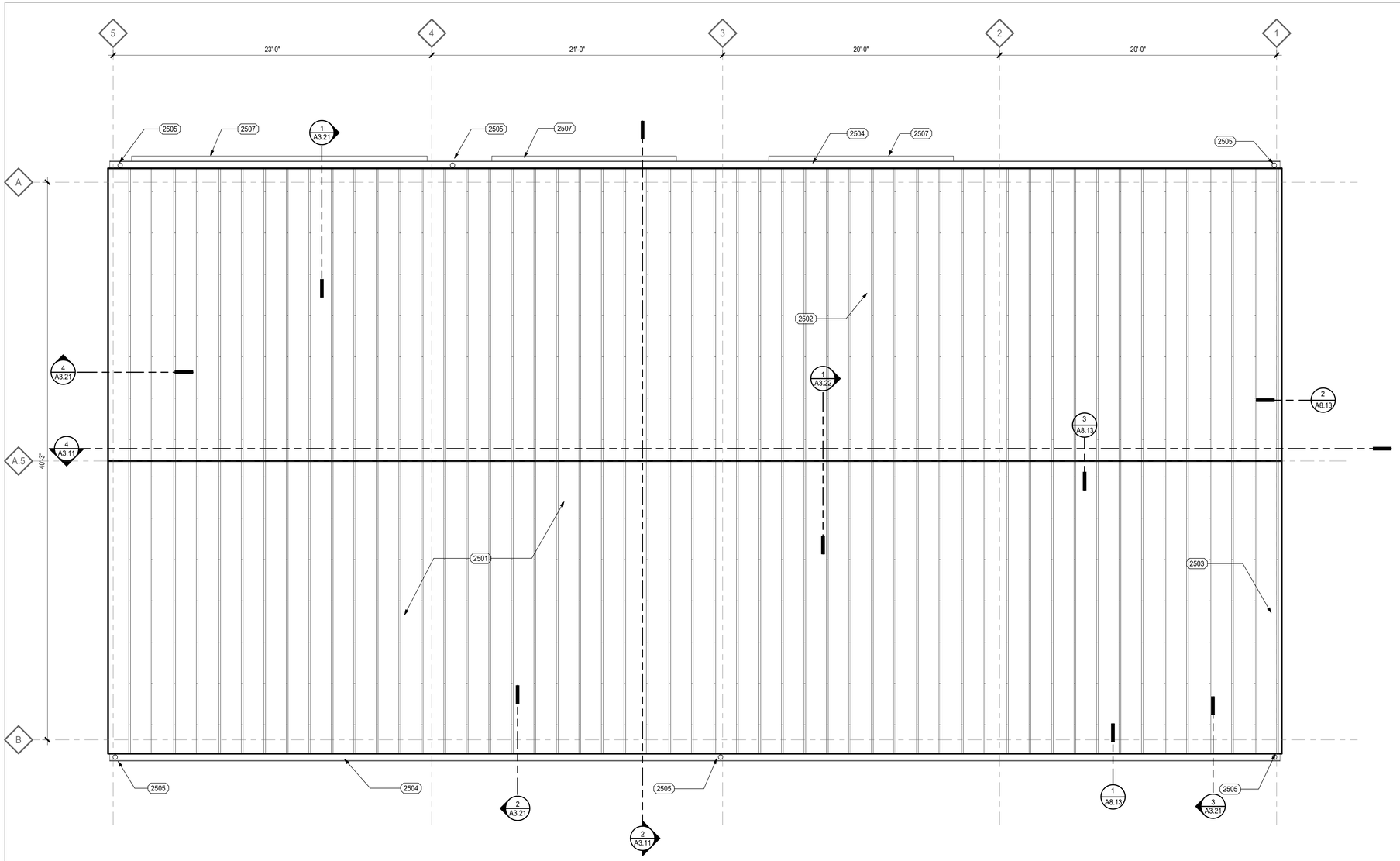

1 OVERALL ROOF PLAN

1/4" = 1'-0"

SHEET NOTES

1. ALL ROOF TOP EQUIPMENT WILL REQUIRE COLLATERAL PENETRATION FLASHING FOR CONDUIT AND/ OR PIPING. NOT ALL PENETRATIONS ARE INDICATED ON THIS PLAN. REFER TO THE MECHANICAL AND ELECTRICAL DRAWINGS AND THE SPECIFICATIONS MANUAL LOCATIONS AND QUANTITES OF OTHER PENETRATIONS NOT INDICATED ON THIS PLAN.
2. ROOF ELEVATIONS SHOWN TO TOP OF THE ROOF SYSTEM. ALL ROOF ELEVATIONS ARE APPROXIMATE AND ARE TO BE FIELD VERIFIED.
3. REFER TO TYPICAL ROOF DETAILS FOR FURTHER INFORMATION.
4. ALL DOWNSPOUTS ARE 6" DIA UNLESS NOTED OTHERWISE.

LEGEND

X" / 12"	DIRECTION OF ROOF SLOPE
SC / DS	SCUPPER / DOWNSPOUT - SEE CIVIL DWGS FOR STORM DRAIN CONNECTION
	ROOF VENTS AND EQUIPMENT - SEE MECH DWGS
	ROOF TOP SPLIT UNIT ON P.T. SLEEPERS - SEE SLEEPER DETAIL
	ROOF HATCH

LEGEND - KEYNOTES

MARK	DESCRIPTION
2501	NEW STANDING SEAM ROOF ASSEMBLY, SEE 4/A0.11
2502	RADIO ANTENNA LOCATION - CONFIRM WITH OWNER PRIOR TO INSTALLATION
2503	MAINTAIN EXISTING PLUMING AND MECHANICAL EXHAUST VENTS
2504	6"X6" GUTTER
2505	6" DOWNSPOUT
2507	BI-FOLD DOOR HOUSING CANOPY BELOW

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ROOF PLAN

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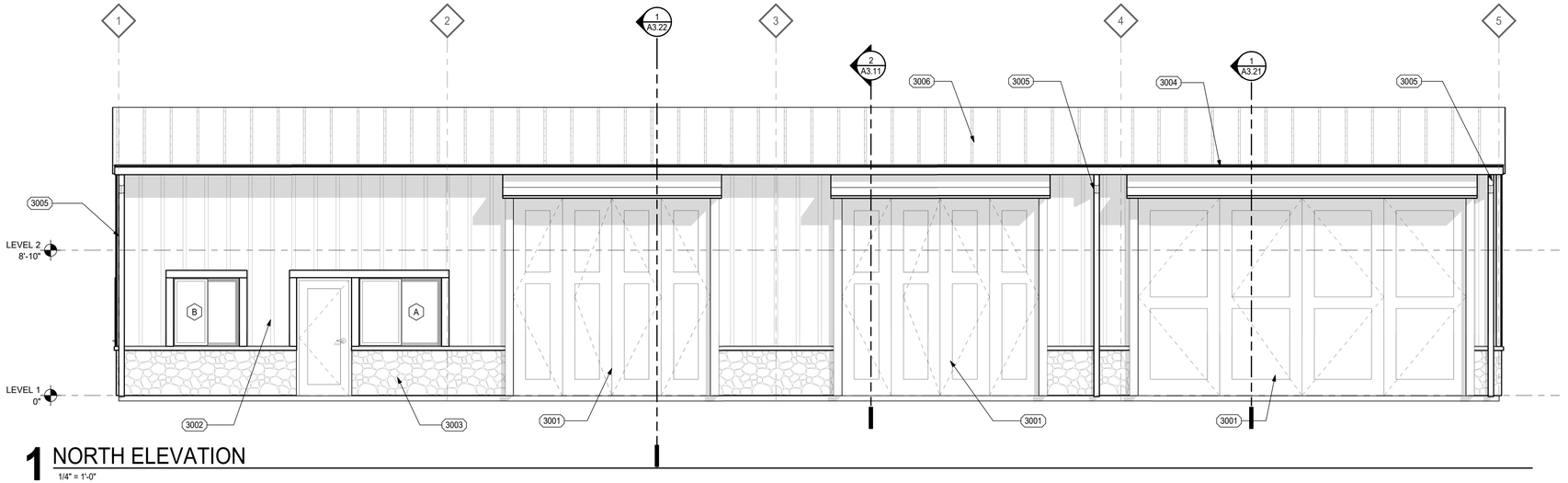
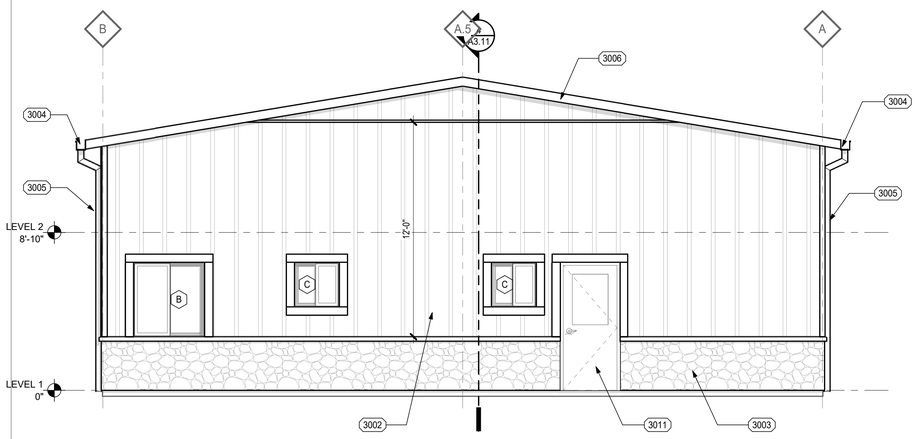


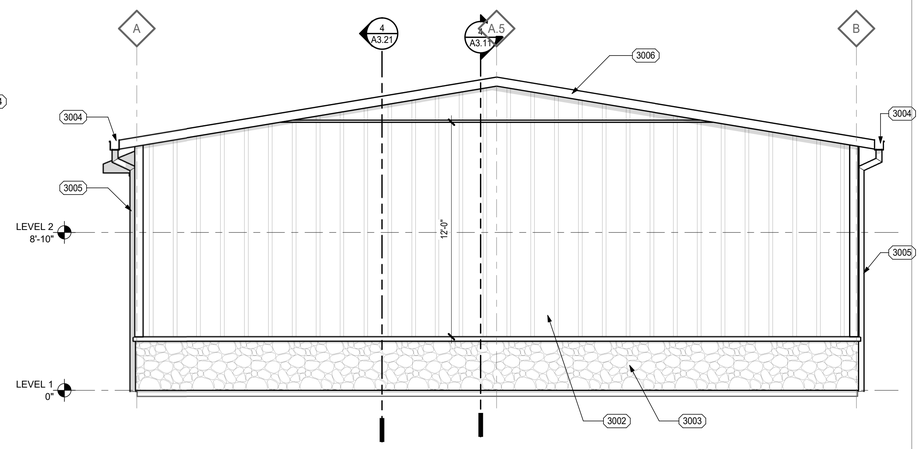
1 NORTH ELEVATION

1/4" = 1'-0"



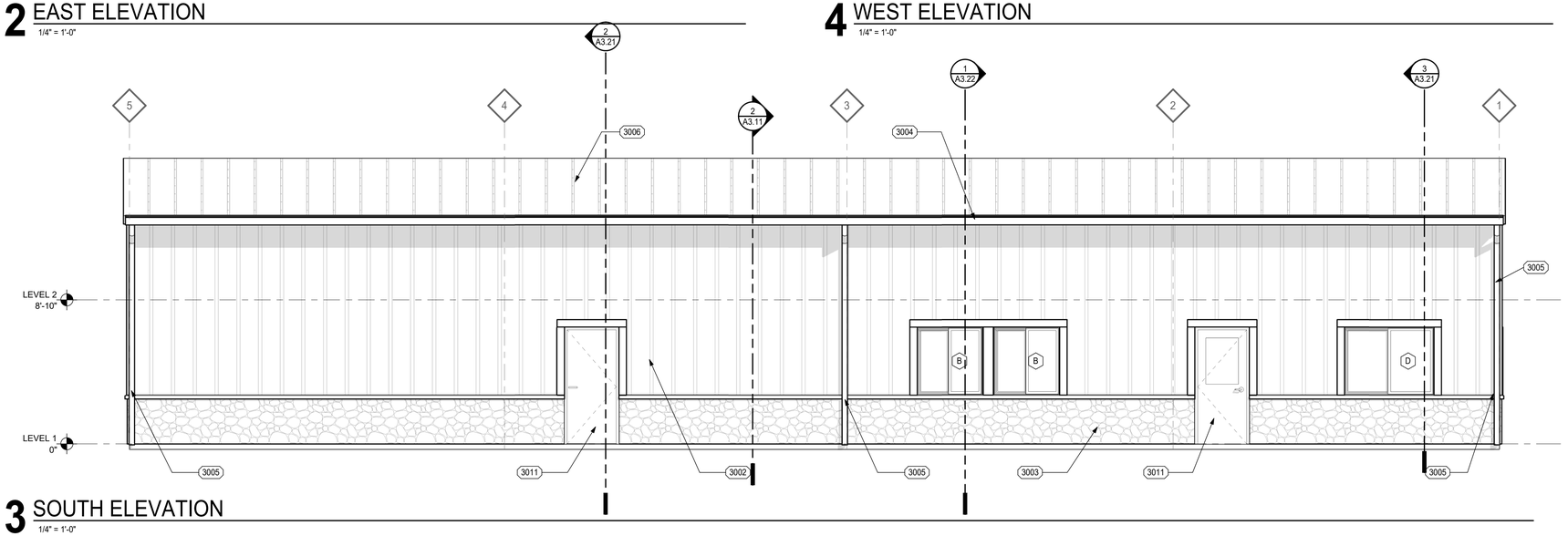
2 EAST ELEVATION

1/4" = 1'-0"



4 WEST ELEVATION

1/4" = 1'-0"



3 SOUTH ELEVATION

1/4" = 1'-0"

SHEET NOTES

1. REFER TO EXTERIOR ASSEMBLIES TYPES ON A0.01
2. REFER TO EXTERIOR FRAME TYPES ON A8.01

LEGEND - KEYNOTES

MARK	DESCRIPTION
3001	4-FOLD DOORS - RED
3002	FIBER CEMENT SIDING - BOARD AND BATTEN, WITH BATTENS AT 16" O.C. PAINT P-3
3003	PRE-MANUFACTURED STONE BASE - EL DORADO STONE "RIVER ROCK" OR SIMILAR. PROVIDE FACTORY-MANUFACTURED CORNER PIECES
3004	6"X6" GUTTER, PREFINISHED TO MATCH ROOF
3005	6" DIA. DOWNSPOUT, PREFINISHED TO MATCH WALL
3006	STANDING SEAM METAL ROOF
3011	EXTERIOR DOOR, PAINTED P-4

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EXTERIOR ELEVATIONS

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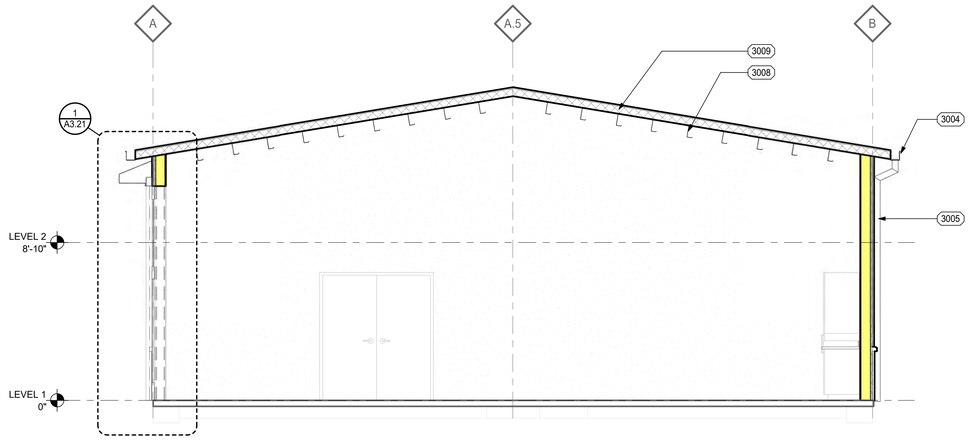
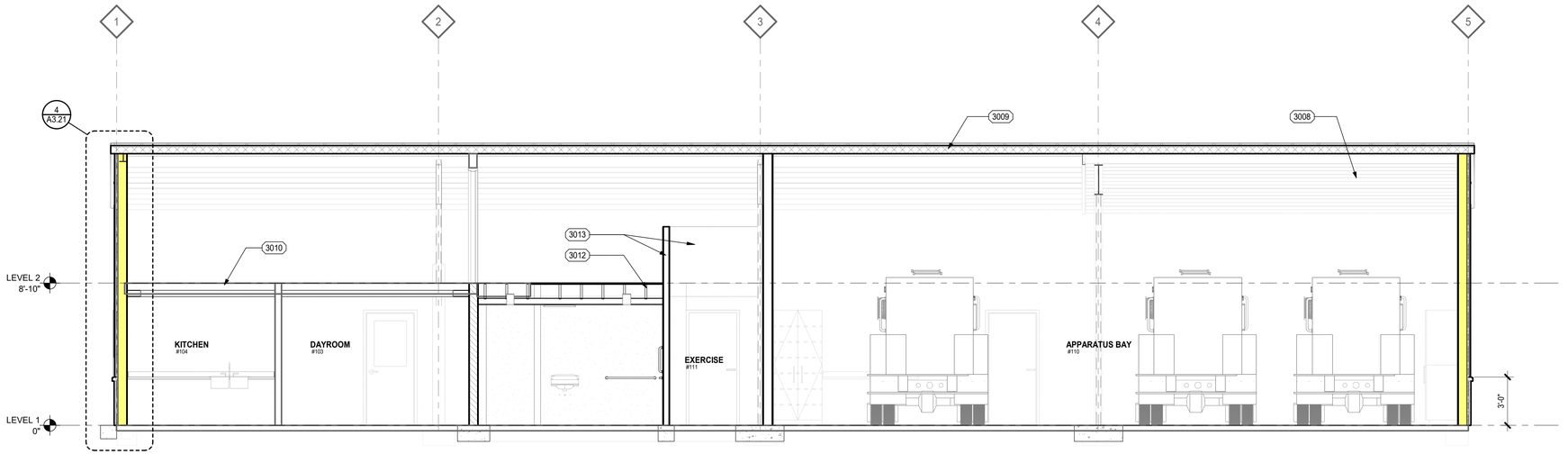


2 APPARATUS BAY - N/S SECTION

1/4" = 1'-0"

LEGEND - KEYNOTES	
MARK	DESCRIPTION
3004	6"X6" GUTTER, PREFINISHED TO MATCH ROOF
3005	6" DIA. DOWNSPOUT, PREFINISHED TO MATCH WALL
3008	NEW FRAMING PER STRUCTURAL
3009	REPLACEMENT ROOF ASSEMBLY
3010	EXISTING MEZZANINE TO REMAIN
3012	NEW MEZZANINE ADDITION - SEE STRUCTURAL
3013	NEW 42" HIGH WALL AT MEZZANINE



4 APPARATUS BAY - E/W SECTION

1/4" = 1'-0"

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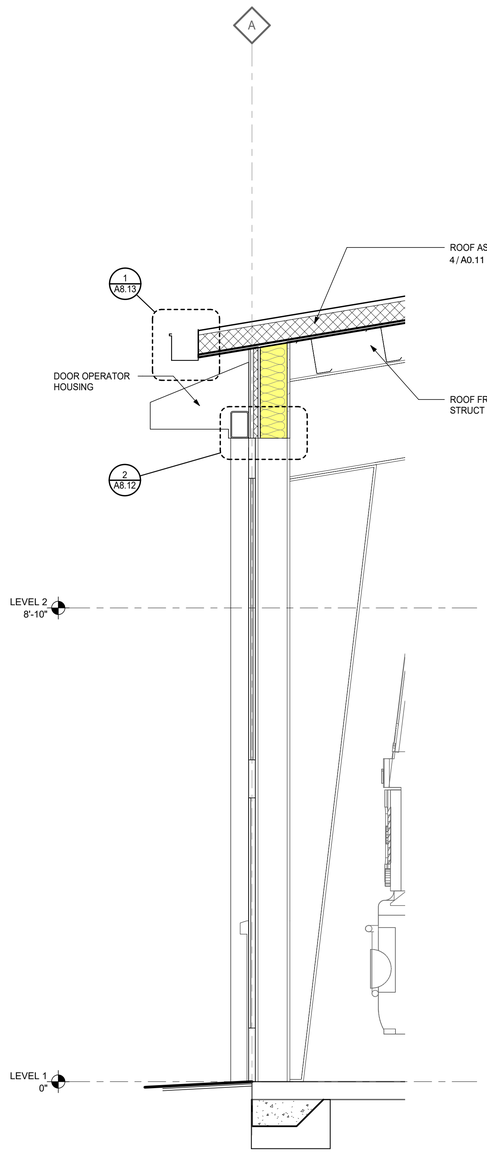
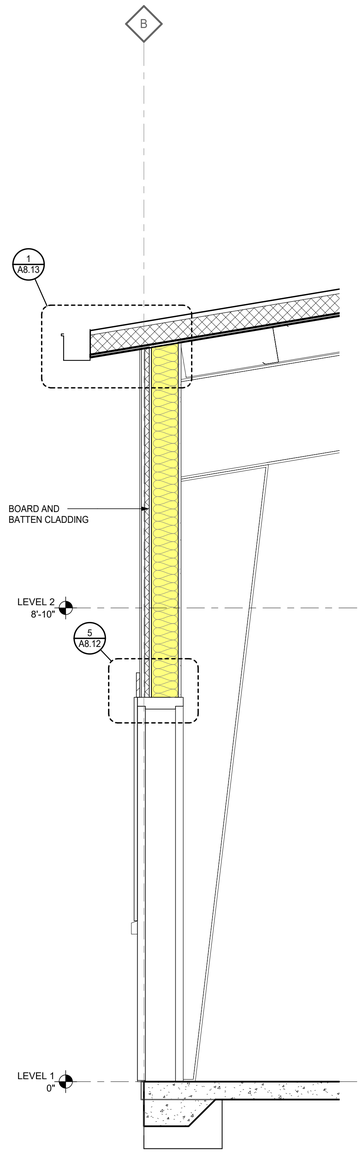
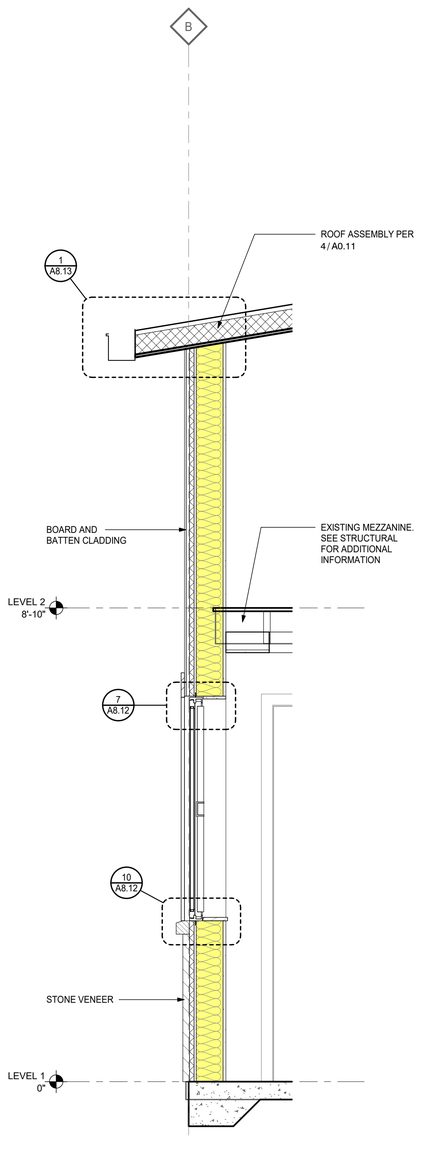


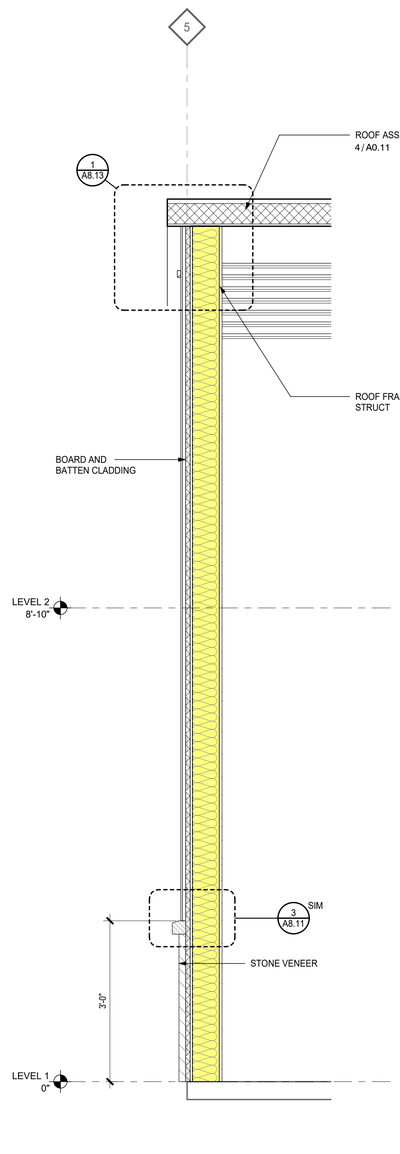
1 SECTION AT BIFOLD DOOR
3/4" = 1'-0"



2 SECTION AT PERSONEL DOOR
3/4" = 1'-0"



3 SECTION AT WINDOW
3/4" = 1'-0"



4 SECTION AT END WALL
3/4" = 1'-0"

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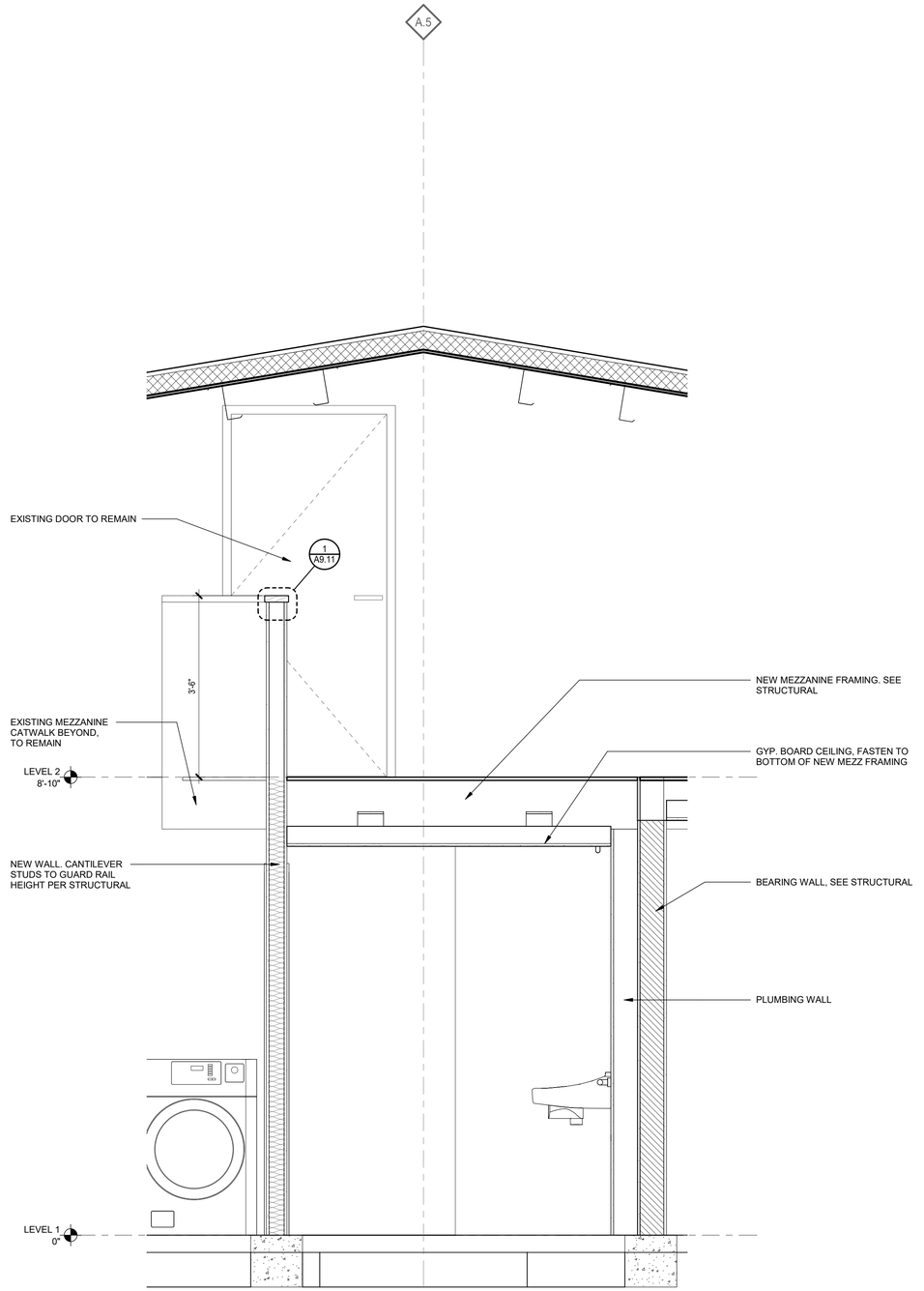
Drawing Title
EXTERIOR WALL SECTIONS

Sheet No
A3.21



1 SECTION AT MEZZANINE ADDITION

3/4" = 1'-0"

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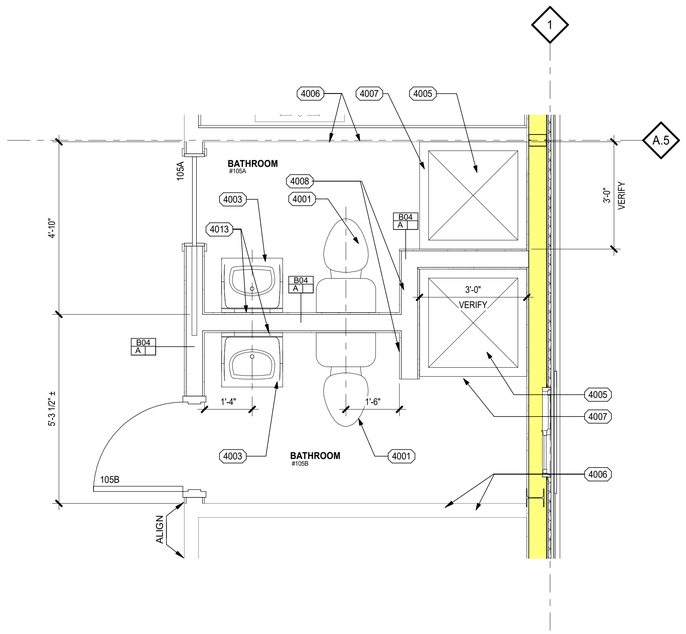
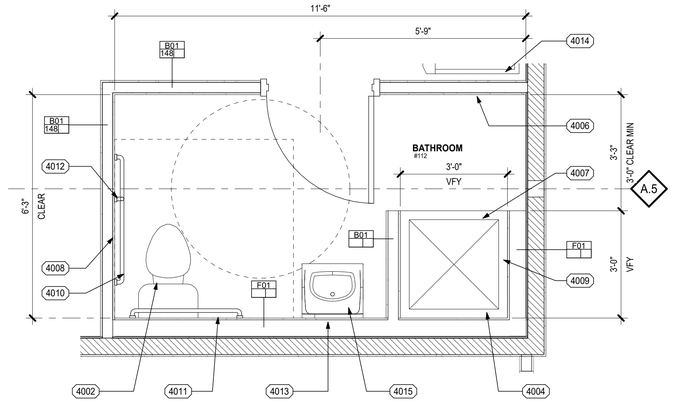
Drawing Title
ALTERNATE NO. 3
RESTROOM / MEZZ
ADDITION SECTION

Sheet No
A3.22



1 REMODELED RESTROOM 105

1/2" = 1'-0"



2 NEW RESTROOM 112

1/2" = 1'-0"

SHEET NOTES

1. ANY EXTERIOR WALL NOT LABELED WITH A WALL TAG SHALL BE WALL TYPE: W01
2. ANY INTERIOR WALL NOT LABELED WITH A WALL TAG SHALL BE WALL TYPE: B01, WITH GYP TERMINATING AT UNDERSIDE OF ROOF DECK.
3. REFER TO SHEET A0.11 FOR INTERIOR PARTITION TYPES AND KEY.
4. REFER TO DIMENSIONAL STANDARDS ON A0.11.

1. PROVIDE EPOXY PAINT AT ALL WALLS
2. PROVIDE SHEET VINYL FLOORING

LEGEND - KEYNOTES

MARK	DESCRIPTION
4001	NEW FLOOR MOUNT TANK TOILET
4002	NEW ADA ACCESSIBLE FLOOR MOUNT TANK TOILET
4003	NEW WALL-MOUNT LAVATORY
4004	NEW ADA PRE-FAB SHOWER INSERT WITH SEAT AND GRAB BARS
4005	NEW PRE-FAB SHOWER INSERT
4006	ROBE HOOK
4007	SHOWER CURTAIN AND ROD
4008	COMBINATION TOILET PAPER/ SEAT COVER/ NAPKIN DISPOSAL
4009	LOCATION OF SHOWER CONTROLS / HEAD
4010	42" HORIZONTAL GRAB BAR
4011	36" HORIZONTAL GRAB BAR
4012	18" VERTICAL GRAB BAR
4013	NEW WALL-MOUNTED MIRROR, 24"X36"
4014	RELOCATED WASHER AND DRYER
4015	NEW ADA ACCESSIBLE WALL-MOUNT LAVATORY

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Drawing Title
ALTERNATE NO. 3
RESTROOM PLANS

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A4.01

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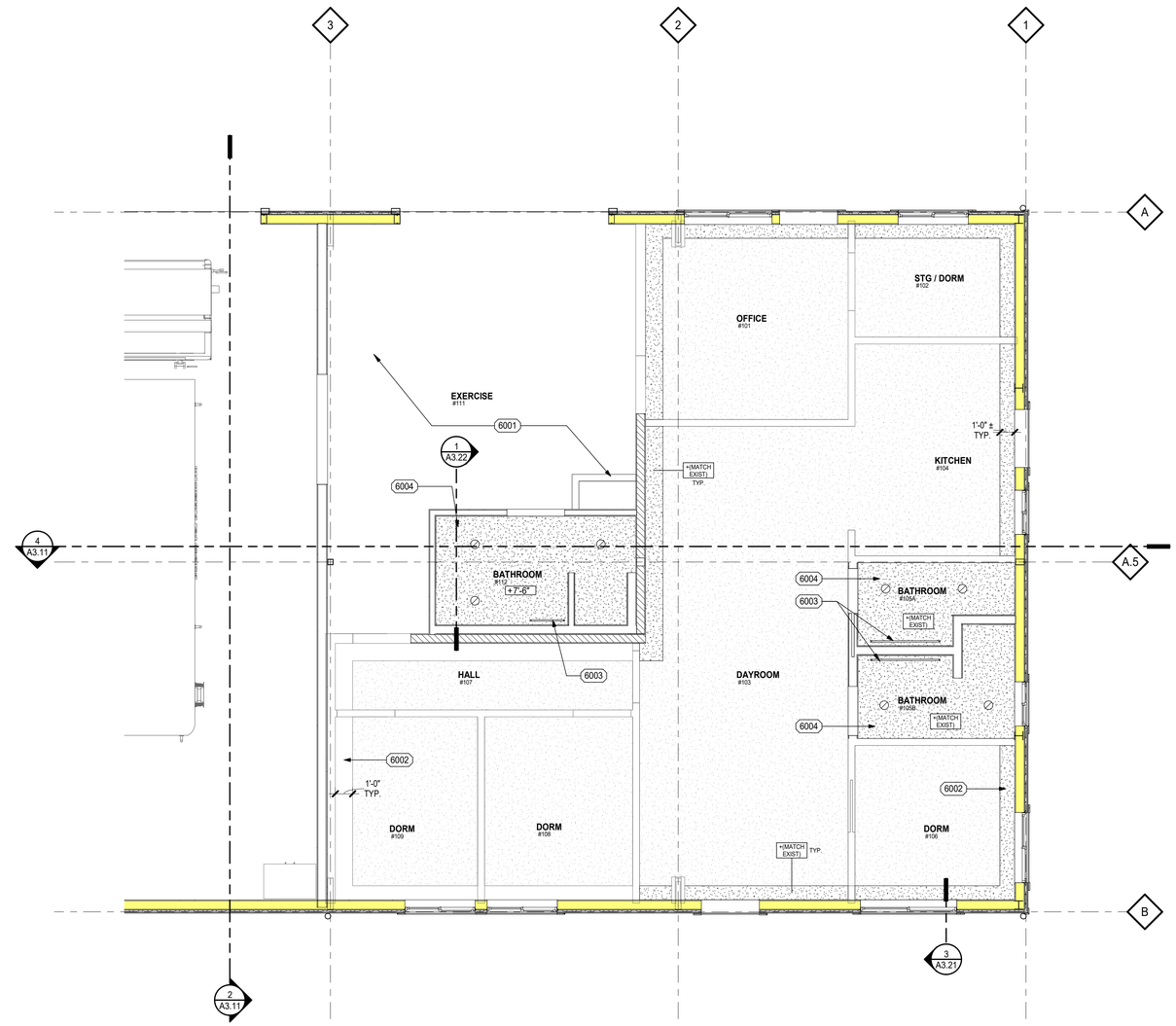

NORTH

1 PARTIAL REFLECTED CEILING PLAN

1/4" = 1'-0"

SHEET NOTES

1. REPORT TO ARCHITECT ANY CONFLICTS BETWEEN ELECTRICAL, MECHANICAL, OR STRUCTURAL DRAWINGS AND THIS LAYOUT.
2. ALL VISIBLE STRUCTURE, DUCTWORK, PIPES, CONDUITS, AND OTHER ASSOCIATED COMPONENTS NOT FULLY CONCEALED BEHIND A CONTINUOUS CEILING TO BE PAINTED.
3. EXISTING LIGHTS, MECHANICAL GRILLES, ETC. ARE NOT SHOWN. ALL ELECTRICAL AND MECHANICAL ITEMS TO REMAIN UNLESS AFFECTED BY CONSTRUCTION. REPLACE ITEMS AFFECTED BY CONSTRUCTION IN ORIGINAL LOCATION, UNLESS OTHERWISE NOTED.
4. ALL LIGHTING IS SHOWN FOR DESIGN INTENT ONLY. DESIGN-BUILD ELECTRICIAN IS RSPONSIBLE FOR ALL ASPECTS OF LIGHTING, INCLUDING PHOTOMETRICS AND ENERGY / ELECTRICAL CODE COMPLIANCE.

LEGEND

- X'-XX" — CEILING SPOT HEIGHT
- +(MATCH EXIST) — FINISH CEILING HEIGHT ABOVE FINISH FLOOR
- NEW GYP BOARD CEILING
- EXISTING GYP BOARD CEILING
- LIGHT FIXTURES - FOR DESIGN INTENT ONLY

LEGEND - KEYNOTES

MARK	DESCRIPTION
6001	PAINT ALL EXPOSED STRUCTURE, PIPING, ETC.
6002	INFILL GYP CEILING. FINISH AND PAINT TO MATCH EXISTING
6003	PROVIDE LIGHTING AT MIRROR.
6004	DESIGN-BUILD MECHANICAL TO PROVIDE EXHAUST AND HEAT

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Drawing Title
REFLECTED CEILING PLAN

Sheet No
A6.01

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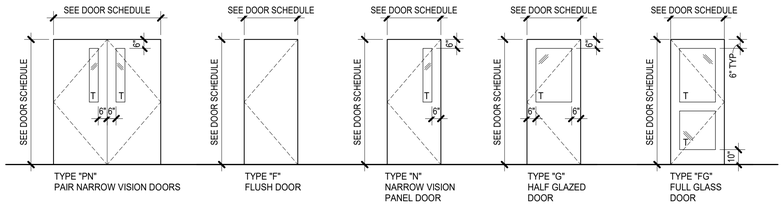
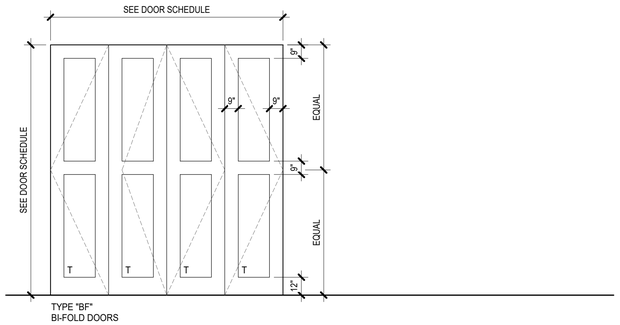
SHEET NOTES

1. "SAFETY GLAZING" SHALL BE PROVIDED IN ALL "HAZARDOUS LOCATIONS" DEFINED IN OSSC.
2. "T" ON FRAME TYPES INDICATES TEMPERED SAFETY GLAZING.
3. VERIFY IN FIELD ALL ROUGH OPENING DIMENSIONS.
4. SEE FLEXIBLE FLASHING DIAGRAM FOR FLASHING AT EXTERIOR OPENINGS.

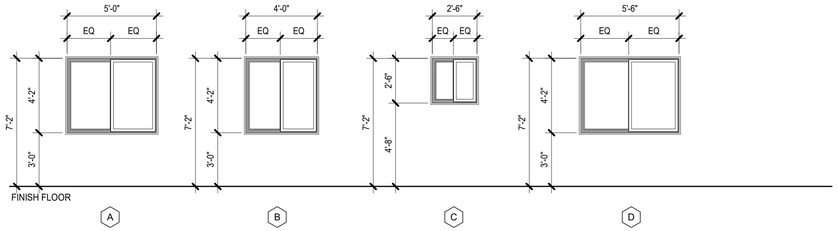
LEGEND

AL	ALUMINUM
FF	FACTORY FINISH
HM	HOLLOW METAL
HMK	HOLLOW METAL KNOCKDOWN
HMW	HOLLOW METAL WELDED
P	PAINT
SF	STOREFRONT
STL	STEEL
WD	WOOD

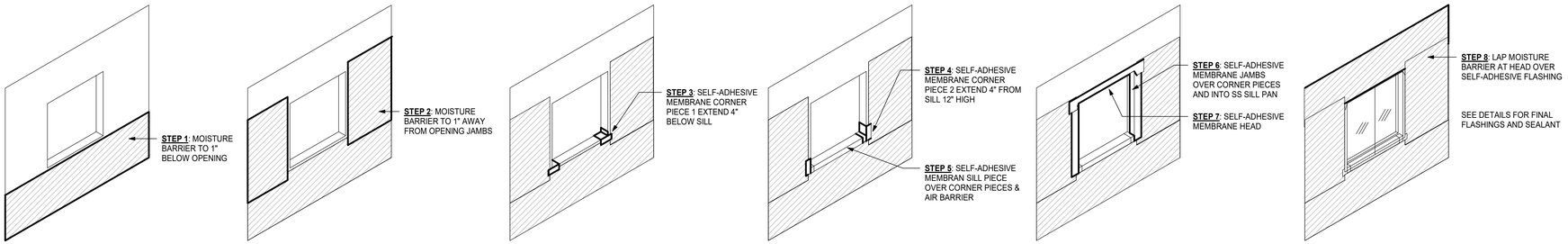




LEGEND - DOOR TYPES



WINDOW TYPES



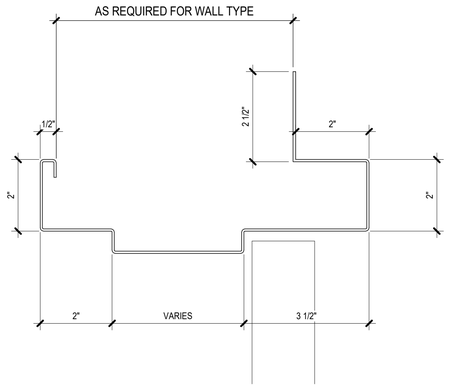
1 FLEXIBLE FLASHING DIAGRAM

12" = 1'-0"

DOOR AND FRAME SCHEDULE

MARK	DOORS OPENING SIZE WIDTH	DOORS OPENING SIZE HGT.	DOORS TYPE	DOORS MAT	DOORS FIN	FRAMES MAT	FRAMES FIN	FRAMES DETAILS HEAD	FRAMES DETAILS JAMB	HARDWARE SET	NOTES
101	3'-0"	7'-0"	FG	HMI	PT	HMW	P			LOCKSET	COORDINATE WITH OWNER'S KEYING SYSTEM
103	3'-0"	7'-0"	G	HMI	PT	HMW	P			LOCKSET	COORDINATE WITH OWNER'S KEYING SYSTEM
104	3'-0"	7'-0"	G	HMI	PT	HMW	P			LOCKSET	COORDINATE WITH OWNER'S KEYING SYSTEM
105A	2'-6"	7'-0"									
105B	2'-6"	7'-0"									
110A	3'-0"	7'-0"	F	HMI	PT	HMW	P			LOCKSET	COORDINATE WITH OWNER'S KEYING SYSTEM
110B	20'-0"	12'-0"	BF	ST	FF	---	---				
110C	12'-0"	12'-0"	BF	ST	FF	---	---				
111B	12'-0"	12'-0"	BF	ST	PT	---	---				
111C	6'-0"	7'-0"	PN	HM	PT	HMW	P			LATCHSET	
112	26'-0"	7'-0"	BF	ST	PT	---	---				

1. PROVIDE CLOSER, WEATHERSTRIPPING, SWEEP AND WALL STOP AT ALL DOORS.



2 EXTERIOR HM DOOR FRAME

6" = 1'-0"

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DOOR SCHEDULE AND FRAME TYPES

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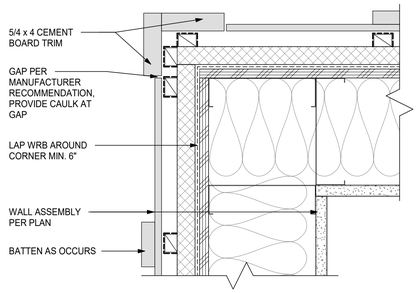
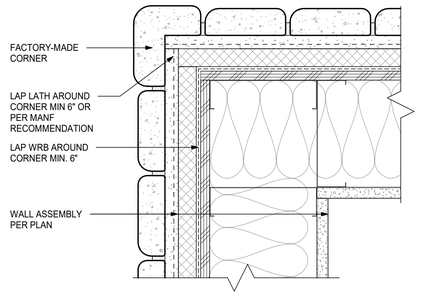
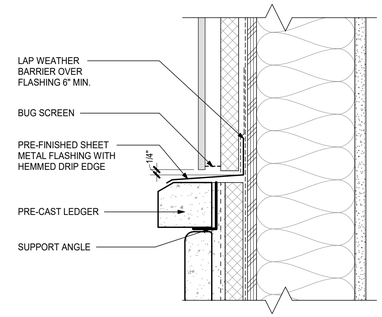


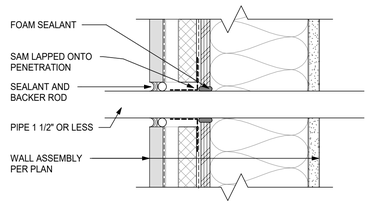
1 SIDING - OUTSIDE CORNER
3" = 1'-0"



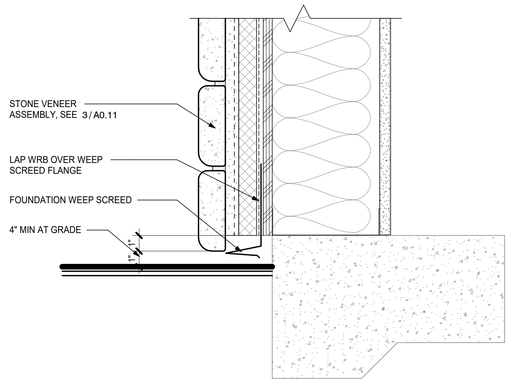
2 OUTSIDE CORNER - STONE
3" = 1'-0"



3 STONE VENEER TRANSITION
3" = 1'-0"



5 PENETRATION AT CEMENT BOARD
3" = 1'-0"



4 STONE VENEER TO GRADE
3" = 1'-0"

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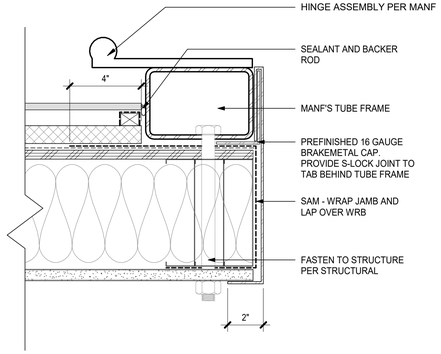
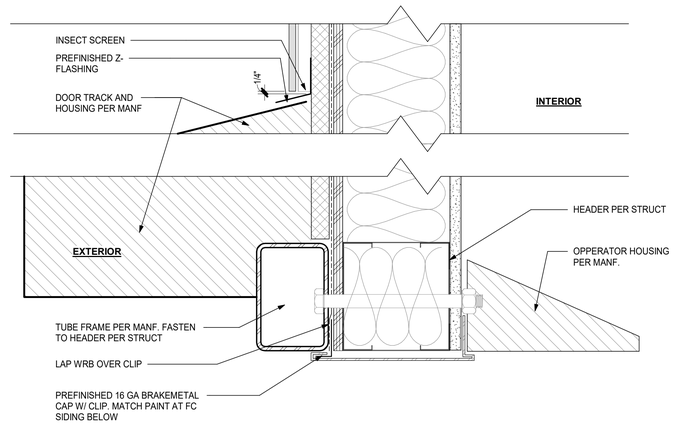


1 APP BAY DOOR JAMB

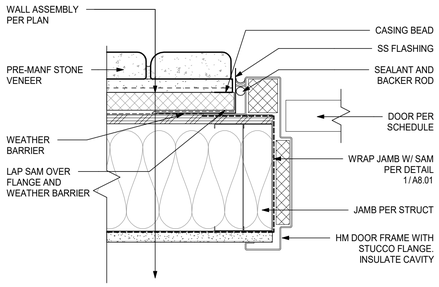
3" = 1'-0"

SIM AT STONE VENEER



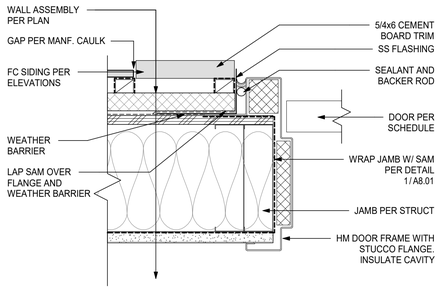
2 APP BAY DOOR HEAD

3" = 1'-0"



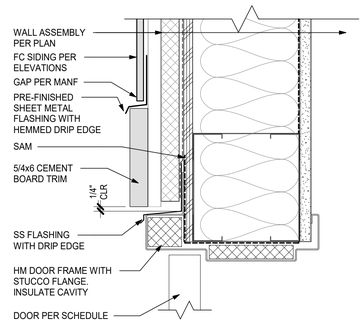
3 HM DOOR JAMB AT STONE VENEER

3" = 1'-0"



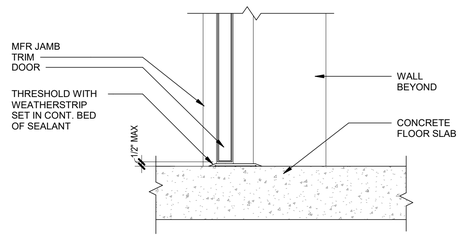
4 EXT. HM DOOR JAMB AT CEMENT BOARD

3" = 1'-0"



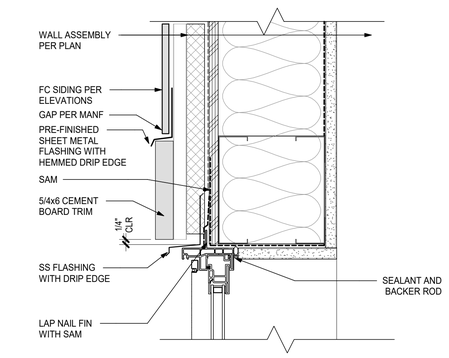
5 EXT. HM DOOR HEAD

3" = 1'-0"



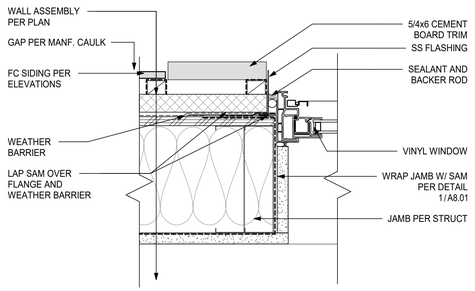
6 EXT. DOOR THRESHOLD

1 1/2" = 1'-0"



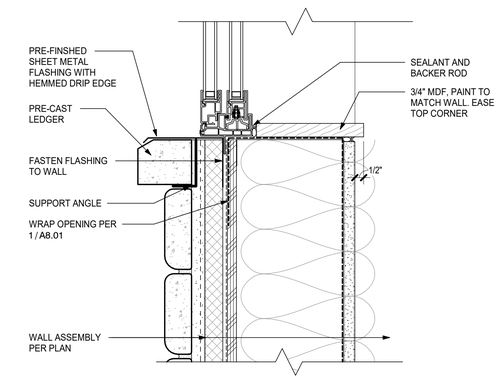
7 WINDOW HEAD

3" = 1'-0"



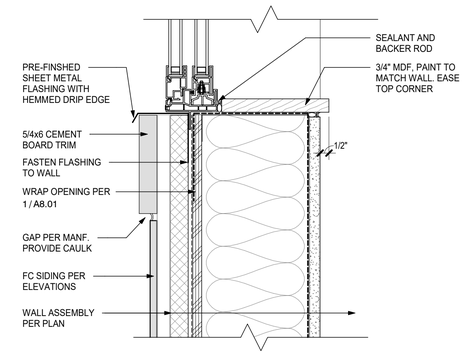
8 WINDOW JAMB

3" = 1'-0"



9 WINDOW SILL - STONE VENEER

3" = 1'-0"



10 WINDOW SILL - CEMENT BOARD

3" = 1'-0"

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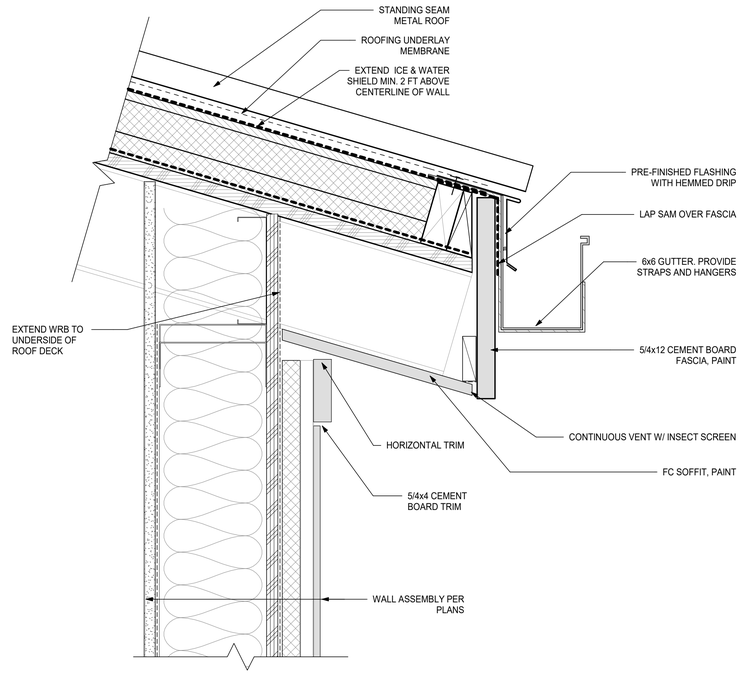
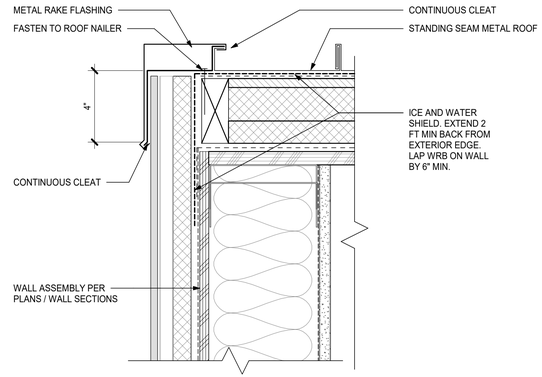


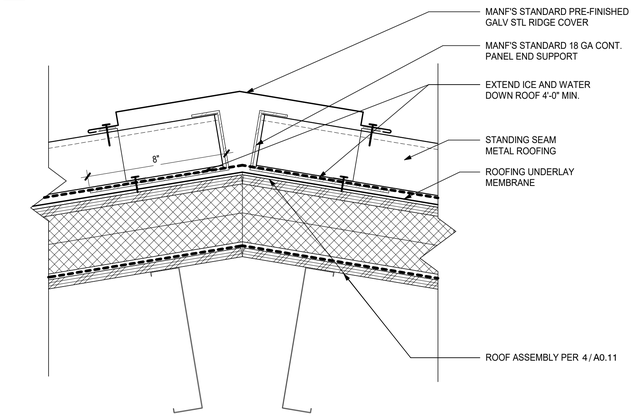
1 EAVE @ WOOD ROOF

3" = 1'-0"



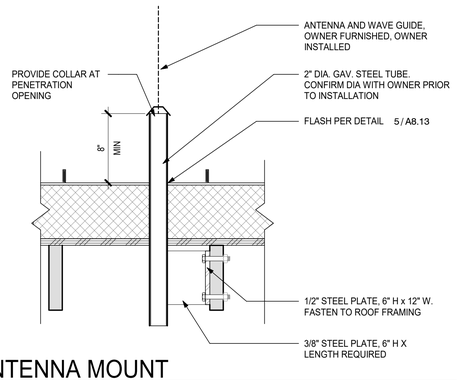
2 TYP. RAKE CONDITION

3" = 1'-0"



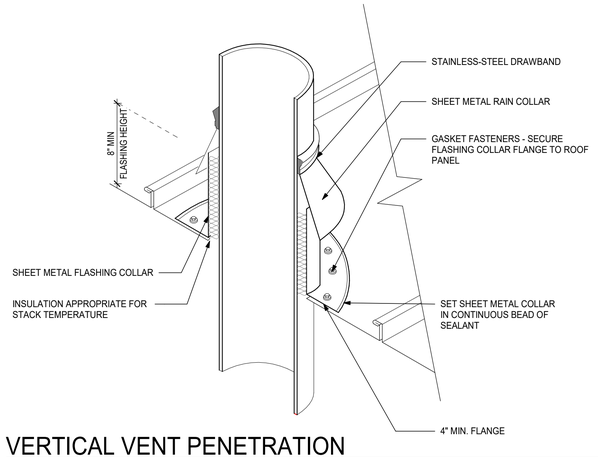
3 RIDGE CONDITION

3" = 1'-0"



4 ANTENNA MOUNT

1 1/2" = 1'-0"



5 VERTICAL VENT PENETRATION

1/2" = 1'-0"

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JCFD #5
Station 4 - Neil Creek

40 NEIL CREEK RD
ASHLAND, OR 97520

Project

Consultant

Revisions

No.	Description	Date

Stamp

REGISTERED ARCHITECT
5209
JOHN D. VAN CALCAR
PORTLAND, OREGON
RENEWAL DATE
12-31-21
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ROOM FINISH SCHEDULE

Level	ROOM #	ROOM NAME	FLOOR	BASE	WALLS				CEILING	MISC
					NORTH	EAST	SOUTH	WEST		
LEVEL 1	101	OFFICE	LVT (EXIST)	RB	PT-1	EXIST	EXIST	EXIST	EXIST	
LEVEL 1	102	STG / DORM	LVT (EXIST)	RB	PT-1	PT-1	EXIST	EXIST	EXIST	
LEVEL 1	103	DAYROOM	LVT (EXIST)	RB	EXIST	EXIST	PT-1	PT-1	EXIST	
LEVEL 1	104	KITCHEN	LVT (EXIST)	RB	EXIST	PT-1	EXIST	EXIST	EXIST	
LEVEL 1	105A	BATHROOM	SV	6" SV	PT-2	PT-2	PT-2	PT-2	PT-1	1
LEVEL 1	105B	BATHROOM	SV	6" SV	PT-2	PT-2	PT-2	PT-2	PT-1	1
LEVEL 1	106	DORM	LVT (EXIST)	RB	EXIST	PT-1	PT-1	EXIST	EXIST	
LEVEL 1	107	HALL	LVT (EXIST)	RB	PT-1	EXIST	EXIST	EXIST	EXIST	
LEVEL 1	108	DORM	LVT (EXIST)	RB	EXIST	EXIST	PT-1	EXIST	EXIST	
LEVEL 1	109	DORM	LVT (EXIST)	RB	EXIST	EXIST	PT-1	EXIST	EXIST	
LEVEL 1	110	APPARATUS BAY	CONC	CONC	PT-1	PT-1	PT-1	PT-1	OTS	PROVIDE PLYWOOD WAINSCOT ALL WALLS
LEVEL 1	111	EXERCISE	RUB (EXIST)	RB	PT-1	PT-1	PT-1	PT-1	OTS	
LEVEL 1	112	BATHROOM	SV	6" SV	PT-2	PT-2	PT-2	PT-2	PT-1	2

A. IF NECESSARY TO REPLACE KITCHEN CABINETS, PROVIDE SOLID WOOD DOORS. USE PLYWOOD AT ANY CABINETS AT SINK OR DISHWASHER
B. REPLACE ANY FLOORING MATERIALS REMOVED OR DAMAGED DURING CONSTRUCTION WITH SAME TYPE.
C. PROVIDE FLOOR TRANSITIONS BETWEEN DISSIMILAR FLOORING MATERIALS. WHERE NOT INDICATED, TRANSITION IS TO OCCUR CENTERED UNDER DOOR.

SCHEDULE NOTES:

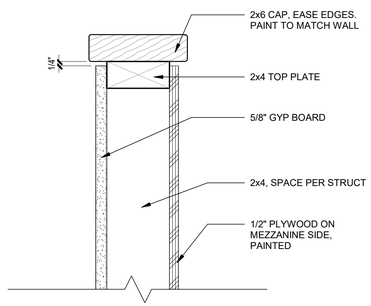
1. FINISHES NOTED ARE FOR ALTERNATE NO. 3. IF THIS ALTERNATE IS NOT SELECTED, PATCH AND REPAIR EXISTING FINISHES ONLY
2. FINISHES NOTED ARE FOR ALTERNATE NO.3. IF THIS ALTERNATE IS NOT SELECTED, THIS AREA WILL BE PART OF EXERCISE 111 AND FINISHED TO MATCH.

FINISH ABBREVIATIONS:

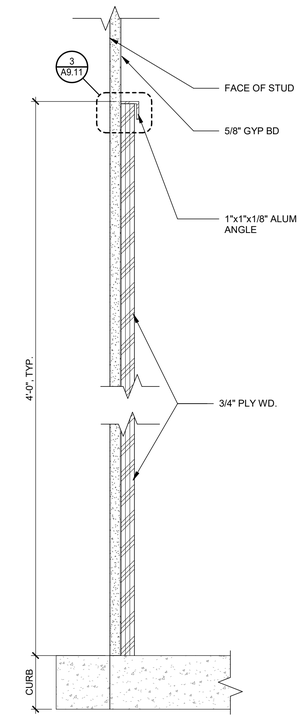
ACT	ACOUSTIC CEILING TILE
AP	ACOUSTIC PANEL
CPT	CARPET TILE
CT	CERAMIC OR PORCELAIN TILE
FRP	FIBERGLASS-REINFORCED PLASTIC
GYP	GYPSUM WALL BOARD
LVT	LUXURY VINYL TILE
MM	MELAMINE
PT	PAINT
PC	POLISHED CONCRETE
PLAM	PLASTIC LAMINATE
RB	RESILIENT BASE
RF	RESILIENT FLOORING
RUBBER	RUBBER EXERCISE FLOORING
SC	SEALED CONCRETE
SURF	SOLID SURFACE
SV	SHEET VINYL
TB	TACKBOARD
WOM	WALK-OFF MAT

FINISHES

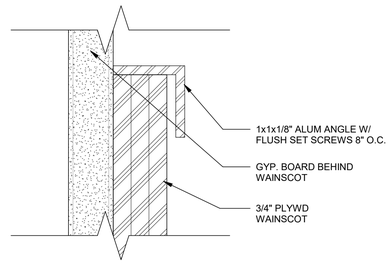
PT-1	BASIC WHITE, LATEX, COLOR TO MATCH EXISTING
PT-2	BASIC WHITE, EPOXY, COLOR TO BE DETERMINED
SV	MANNINGTON COMMERCIAL "COLORFIELDS" SHEET WELD SEAMS



1 LOW WALL CAP
3" = 1'-0"



2 APP BAY WAINSCOT
3" = 1'-0"



3 TRIM @ WAINSCOT - APP BAY
12" = 1'-0"

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INTERIOR DETAILS AND FINISH SCHEDULE

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PROJECT STRUCTURAL NOTES (JACKSON COUNTY, OREGON)

GENERAL INFORMATION:

1. STRUCTURAL DRAWINGS ARE A PORTION OF THE CONTRACT DOCUMENTS AND ARE INTENDED TO BE USED WITH ARCHITECTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING THE REQUIREMENTS FROM THESE DRAWINGS INTO THEIR SHOP DRAWINGS AND WORK. THESE GENERAL NOTES SUPPLEMENT THE PROJECT SPECIFICATIONS. REFER TO THE PROJECT SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS. NOTES AND DETAILS ON THE STRUCTURAL DRAWINGS SHALL TAKE PRECEDENCE OVER THE GENERAL NOTES AND TYPICAL DETAILS. WHERE NO DETAILS ARE GIVEN, CONSTRUCTION SHALL BE AS SHOWN FOR SIMILAR WORK.
2. THE STRUCTURE IS DESIGNED TO FUNCTION AS A UNIT UPON COMPLETION. THE CONTRACTOR IS RESPONSIBLE FOR FURNISHING ALL TEMPORARY BRACING AND/OR SUPPORT THAT MAY BE REQUIRED AS THE RESULT OF THE CONTRACTOR'S CONSTRUCTION METHODS AND/OR SEQUENCES.
3. ALL EXISTING CONDITIONS, DIMENSIONS AND ELEVATIONS SHALL BE FIELD VERIFIED. THE CONTRACTOR SHALL NOTIFY THE ARCHITECT OF ANY SIGNIFICANT DISCREPANCIES FROM CONDITIONS SHOWN ON THE DRAWINGS.
4. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONSTRUCTION MEANS AND METHODS. RESPONSIBILITY SHALL INCLUDE BUT NOT LIMITED TO DEMOLITION AND CONSTRUCTION MEANS AND METHODS, TECHNIQUES, SEQUENCING, AND SAFETY REQUIRED TO COMPLETE CONSTRUCTION.
5. UNLESS OTHERWISE NOTED, MATERIAL AND DESIGN SPECIFICATIONS CITED HEREIN SHALL BE THOSE CONFORMING WITH THE VERSION OF THE APPLICABLE SPECIFICATIONS OR CODE MOST RECENTLY ADOPTED BY THE PERMITTING AUTHORITY. THESE STRUCTURAL NOTES ARE TO BE USED AS A SUPPLEMENT TO THE SPECIFICATIONS.
6. THIS STRUCTURE AND ALL OF ITS PARTS MUST BE ADEQUATELY BRACED AGAINST WIND, LATERAL EARTH AND SEISMIC FORCES UNTIL THE PERMANENT LATERAL-FORCE RESISTING SYSTEMS HAVE BEEN CONSTRUCTED AND ALL ATTACHMENTS AND CONNECTIONS NECESSARY FOR THE STABILITY OF THE STRUCTURE AND ITS PARTS HAVE BEEN MADE.
7. ALL FEATURES OF CONSTRUCTION NOT FULLY SHOWN SHALL BE OF THE SAME TYPE AND CHARACTER AS SHOWN FOR SIMILAR CONDITIONS, SUBJECT TO REVIEW BY THE ARCHITECT AND STRUCTURAL ENGINEER OF RECORD.
8. ALL PRODUCTS AND MATERIALS USED BY THE CONTRACTOR SHALL BE APPLIED, PLACED, ERECTED OR INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
9. ALL KEYNOTES INDICATE NEW ITEMS TYPICALLY UNLESS NOTED OTHERWISE.

CODE REQUIREMENT:

1. CONFORM TO THE 2019 OREGON STRUCTURAL SPECIALTY CODE, BASED ON THE 2018 INTERNATIONAL BUILDING CODE (IBC). NOTE: THIS APPLIES TO ALL REFERENCES TO OSSC.

DESIGN CRITERIA:

1. THE WORK UNDER THE FOLLOWING SPECIFICATION SECTIONS IS SUBJECT TO SPECIAL INSPECTIONS AS DESCRIBED IN SECTION 1704 OF THE OSSC.

2. DESIGN IS BASED ON THE STRENGTH AND DEFLECTION CRITERIA OF THE OSSC. IN ADDITION TO THE DEAD LOADS, THE FOLLOWING LOADING AND ALLOWABLE LOAD IS USED FOR DESIGN:

A. LIVE LOADS:
- ROOF: 20 PSF
- MEZZANINE: 40 PSF

B. GROUND SNOW LOAD: 20 PSF
- EXPOSURE FACTOR: 1.0
- SNOW IMPORTANCE FACTOR: 1.2
- THERMAL FACTOR: 1.0
- FLAT ROOF SNOW LOAD: 29 PSF

C. WIND LOAD:
- BASIC WIND SPEED (3-SECOND GUST): 107 MPH
- WIND EXPOSURE: B
- WIND IMPORTANCE FACTOR: 1.0
- BUILDING CATEGORY: IV
- TOPOGRAPHIC FACTOR: 1.0

D. EARTHQUAKE DESIGN DATA:
- RISK CATEGORY: IV
- S_S: 0.59g
- S_1: 0.33g
- S_{DS}: 0.496g
- S_{D1}: 0.327g
- SITE CLASS: C
- SEISMIC DESIGN CATEGORY: D
- SEISMIC IMPORTANCE FACTOR: 1.5
- ANALYSIS PROCEDURE: EQUIVALENT LATERAL FORCE

BASIC SEISMIC-FORCE RESISTING SYSTEM:
LIGHT FRAMED SHEAR WALLS
- RESPONSE MODIFICATION FACTOR: R = 6.5
- SEISMIC RESPONSE COEFFICIENT: C_S = 0.114

SPECIAL INSPECTION:

1. SPECIAL INSPECTIONS WILL BE PROVIDED BY THE OWNER BASED ON THE REQUIREMENTS OF THE OSSC AS SUMMARIZED IN THE ZCS ENGINEERING SPECIAL INSPECTION CHECKLIST DATED **08/22/2022**. CONTRACTOR SHALL PROVIDE SUFFICIENT NOTICE AND ACCESS FOR THE SPECIAL INSPECTOR TO PERFORM THESE INSPECTIONS.

STRUCTURAL OBSERVATION:

1. THE STRUCTURAL ENGINEER OF RECORD (SER) WILL PERFORM STRUCTURAL OBSERVATION BASED ON THE REQUIREMENTS OF THE OSSC. THE STAGES OF CONSTRUCTION LISTED BELOW. CONTRACTOR SHALL PROVIDE SUFFICIENT NOTICE AND ACCESS FOR THE SER TO PERFORM THESE OBSERVATIONS.

STRUCTURAL OBSERVATION PROGRAM			
ITEM	OBSERVED BY (2)		COMMENTS
	AOR	SER	
PRIOR TO FIRST CONCRETE POUR		X	REF. NOTES A, C, D, E
PRIOR TO WALL COVERINGS		X	REF. NOTES A, C, D
AS REQUIRED TO ADDRESS STRUCTURAL ISSUES		X	REF. NOTES A, C, D

2. PROGRAM FOOTNOTES:

A. CONTRACTOR IS RESPONSIBLE FOR NOTIFYING THE SER IN ADVANCE.
B. SER - STRUCTURAL ENGINEER OF RECORD / AOR - ARCHITECT OF RECORD
C. A FIELD REPORT WILL BE SUBMITTED TO THE BUILDING DEPARTMENT FOLLOWING EACH SITE VISIT.
D. STRUCTURAL OBSERVATION IS FOR THE GENERAL CONFORMANCE OF THE STRUCTURAL DRAWING, SPECIAL INSPECTION IS STILL REQUIRED.
E. AFTER REINFORCING STEEL HAS BEEN INSTALLED.

SUBMITTALS:

1. SHOP DRAWINGS SHALL BE SUBMITTED TO THE ARCHITECT PRIOR TO FABRICATION AND CONSTRUCTION REGARDING ALL STRUCTURAL ITEMS, INCLUDING THE FOLLOWING:
   A. CONCRETE MIX DESIGNS, CONCRETE AND MASONRY REINFORCEMENT (INCLUDING MILL TEST REPORTS), STRUCTURAL STEEL (INCLUDING MILL TEST REPORTS)
   B. ANY CHANGES TO THE STRUCTURAL DRAWINGS SHALL BE SUBMITTED TO THE ARCHITECT AND ARE SUBJECT TO REVIEW AND ACCEPTANCE OF THE STRUCTURAL ENGINEER OF RECORD.
   C. DESIGN DRAWINGS, SHOP DRAWINGS, AND CALCULATIONS FOR THE DESIGN AND FABRICATION OF ITEMS THAT ARE DESIGNED BY OTHERS, INCLUDING: GLUE-LAMINATED MEMBERS, PRE-MANUFACTURED WOOD JOISTS, PRE-MANUFACTURED WOOD ROOF TRUSS SYSTEMS, TECTUM ROOF DECK AND ATTACHMENTS (INCLUDING SUPPORT, BRACING AND ANCHORAGE), WINDOW WALL, CURTAIN WALLS, AND ALL OTHER GLAZING SYSTEMS SHALL BEAR THE SEAL AND SIGNATURE OF A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF OREGON, AND SHALL BE INCLUDED FOR CONNECTIONS TO THE STRUCTURE, CONSIDERING LOCALIZED EFFECTS ON STRUCTURAL ELEMENTS INDUCED BY THE CONNECTION LOADS. DESIGN SHALL BE BASED ON THE REQUIREMENTS OF THE OSSC WITH THE FOLLOWING:
      - EARTHQUAKE AND WIND LOADS AS NOTED IN DESIGN CRITERIA
      - MAXIMUM INELASTIC STORY DRIFT M: 0.XXX INCHES (N/S DIRECTION) & 0.XXX INCHES (E/W DIRECTION).
   D. THE CONTRACTOR SHALL COORDINATE SEISMIC RESTRAINTS OF MECHANICAL, PLUMBING, AND ELECTRICAL EQUIPMENT, MACHINERY, AND ASSOCIATED PIPING WITH THE STRUCTURE. ANY CONNECTIONS TO THE STRUCTURE SHALL CONFORM TO OSSC AND SHALL BE SUBMITTED TO THE ARCHITECT PRIOR TO FABRICATION.

DIVISION 03 - CONCRETE

CONCRETE:

1. CONCRETE WORK SHALL CONFORM TO CHAPTER 19 OF THE OSSC. CONCRETE STRENGTHS SHALL BE VERIFIED BY STANDARD 28 DAY CYLINDER TESTS PER ASTM C39, AND SHALL BE AS FOLLOWS:

ABSOLUTE WATER-CEMENT RATIO BY WEIGHT			
f'c (PSI)	NON AIR-ENTRAINED	AIR-ENTRAINED	USE
3,000	N/A	0.50	MISC. CONCRETE, CURBS, SIDEWALKS, ETC.
4,000	0.50	N/A	INTERIOR SLABS ON GRADE
4,000	0.45	N/A	BASEMENT WALLS AND SPREAD FOOTINGS

2. VERIFY WATER/CEMENT RATIO WITH FLOOR COVERING MANUFACTURER FOR CONCRETE FLOORS WITH MOISTURE SENSITIVE FLOOR COVERINGS, AND VERIFY COORDINATE WITH PROJECT SPECIFICATIONS.
3. MINIMUM CEMENT CONTENT PER CUBIC YARD SHALL BE AS FOLLOWS:
   - f'c=4,000 psi: 550 lbs.
4. FLY ASH CONFORMING TO ASTM C618 (INCLUDING TABLE 2A) TYPE F, MAY BE USED TO REPLACE UP TO 20% OF THE CEMENT CONTENT, PROVIDED THAT THE MIX STRENGTH IS SUBSTANTIATED BY TEST DATA.
5. THE CONTRACTOR SHALL SUBMIT CONCRETE MIX DESIGNS, ALONG WITH TEST DATA COMPLIANT WITH OSSC SECTION 1905, A MINIMUM OF TWO WEEKS PRIOR TO PLACING CONCRETE. NO WATER MAY BE ADDED TO CONCRETE IN THE FIELD UNLESS SPECIFICALLY APPROVED IN WRITING BY THE CONCRETE SUPPLIER IN CONJUNCTION WITH THE CONCRETE MIX DESIGN.
6. A WATER-REDUCING ADMIXTURE CONFORMING TO ASTM C494, USED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS, SHALL BE INCORPORATED IN CONCRETE DESIGN MIXES. A HIGH-RANGE WATER-REDUCING (HRWR) ADMIXTURE CONFORMING TO ASTM C494, TYPE F OR G, MAY BE USED IN CONCRETE MIXES PROVIDING THAT THE SLUMP DOES NOT EXCEED 8". AN AIR-ENTRAINING AGENT CONFORMING TO ASTM C260 SHALL BE USED IN CONCRETE MIXES FOR EXTERIOR HORIZONTAL SURFACES EXPOSED TO WEATHER. THE AMOUNT OF ENTRAINED AIR SHALL BE 5% +/- 1% BY VOLUME.

CONCRETE CAST IN PLACE:

1. STRUCTURAL CALCULATIONS ARE BASED ON 2,500 psi CONCRETE STRENGTH, THEREFORE SPECIAL INSPECTION IS NOT REQUIRED PER OSSC 1705.3.
2. CONCRETE SHALL HAVE A MAXIMUM SLUMP OF 4" WITHOUT THE USE OF ADMIXTURES AS NOTED.
3. A MINIMUM OF THREE (3) CONCRETE TEST CYLINDERS SHALL BE PROVIDED FOR EACH ONE HUNDRED (100) CU. YARDS, OR EACH DAY OF POUR, FOR EACH CONCRETE STRENGTH. CYLINDERS SHALL BE TESTED AS FOLLOWS:
   A. ONE (1) AT SEVEN (7) DAYS, AND
   B. TWO (2) AT TWENTY-EIGHT (28) DAYS
4. CONCRETE CYLINDER SAMPLING AND TESTING SHALL CONFORM WITH ASTM SPECIFICATIONS. ACCEPTANCE OF CONCRETE SHALL BE GOVERNED BY THE PROVISIONS OF ACI 318 "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE". TWO (2) SETS OF MIX DESIGNS, WITH COMPLETE STATISTICAL BACKUP, SHALL BE SUBMITTED FOR REVIEW.
5. CONCRETE MATERIALS, FORM WORK, MIXING, PLACING AND CURING SHALL CONFORM WITH THE SPECIFICATIONS CONTAINED IN THE ACI "MANUAL OF CONCRETE PRACTICE".
6. CONCRETE SLABS SHALL BE INSTALLED WITH CONSTRUCTION JOINTS NOT SPACED FARTHER THAN 12'-6" APART AND SHALL BE DIVIDED INTO APPROXIMATELY SQUARE PANELS. PANEL DIMENSION RATIOS SHALL NOT EXCEED 1.5:1.
7. **ALL SAW CUT CONTROL JOINTS SHALL BE CUT WITHIN 4 TO 12 HOURS AFTER CONCRETE PLACEMENT. SAW CUT SHALL BE 1.5" DEEP.**
8. CONCRETE SHALL NOT BE PLACED ON FROZEN GROUND.
9. BOND NEW CONCRETE TO EXISTING CONCRETE WITH "WELD-CRETE", AS MANUFACTURED BY LARSON PRODUCTS CORPORATION, OR APPROVED. AS A MINIMUM, EXISTING CONCRETE SURFACES SHALL BE ROUGHENED BY CHIPPING TO A MINIMUM 1/4" AMPLITUDE TO EXPOSE COARSE AGGREGATE. PREPARATION AND APPLICATION IS TO BE IN STRICT ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
10. ALL EXPOSED CORNERS SHALL HAVE 3/4" CHAMFER, UNLESS NOTES OTHERWISE.
11. MASS CONCRETE CONSTRUCTION: AGGREGATE SIZE USED SHALL BE 1 1/2".
   A. MAXIMUM SLUMP SHALL NOT EXCEED THREE INCHES (3"). MASTERBUILDER'S RHEOBILD 1000 MAY BE USED TO INCREASE WORKABILITY.
   B. POZZOLANS CONSTITUTING FIFTEEN PERCENT (15%) OF THE WEIGHT OF THE PORTLAND-POZZOLAN CEMENT MIX MAY BE ADDED TO THE MIX TO AID IN REDUCING TEMPERATURE RISE. COOL WATER SHALL USED DURING BATCHING.
   C. CURING SHALL BE DONE BY WATER FOR A MINIMUM OF FOURTEEN (14) DAYS.
   D. MASS CONCRETE APPLIES TO SECTION THICKER THAN 3'-0"; FIFTY-SIX (56) DAY COMPRESSIVE STRENGTH MAY BE USED.

CONCRETE REINFORCING STEEL:

1. REINFORCING STEEL SHALL CONFORM TO ASTM A615, GRADE 60. FOR DEFORMED BARS AND ASTM A185 FOR SMOOTH WELDED WIRE FABRIC (WWF), UNLESS OTHERWISE NOTED. REINFORCING STEEL TO BE WELDED SHALL CONFORM TO ASTM A706. REINFORCING STEEL SHALL BE SECURELY TIED IN PLACE WITH #16 ANNEALED IRON WIRE.
2. BARS IN SLABS SHALL BE SUPPORTED ON WELL CURED CONCRETE BLOCKS OR APPROVED METAL CHAIRS, AS SPECIFIED BY THE CRSI MANUAL OF STRANDED PRACTICE, MSP-1. REINFORCING STEEL SHALL BE DETAINED IN ACCORDANCE WITH THE "ACI MANUAL OF STANDARD PRACTICE, MSP-1 REINFORCING STEEL SHALL BE DETAILED IN ACCORDANCE WITH THE "ACI MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES", ACI 315. LAP ALL REINFORCING BARS PER THE TYPICAL LAP SPLICE LENGTH SCHEDULE, EXCEPT AS NOTED. MECHANICAL SPLICES NOTED ON THE PLANS SHALL BE DAYTON BAR-GRIP SPLICES OR APPROVED WITH A CURRENT ICC APPROVAL REPORT.

TYPICAL LAP SPLICE LENGTH SCHEDULE								
BAR SIZE	3,000 psi		4,000 psi		5,000 psi		6,000 psi	
	CASE 1	CASE 2	CASE 1	CASE 2	CASE 1	CASE 2	CASE 1	CASE 2
#3	22	32	19	28	17	25	16	23
#4	29	43	25	37	22	33	20	31
#5	36	54	31	47	28	42	25	38
#6	43	64	37	56	33	50	31	46

NOTES:
A. DIMENSIONS ARE IN INCHES.
B. CASES 1 AND 2 ARE DEFINED AS FOLLOWS: (db = BAR DIAMETER)
   a. BEAMS OR COLUMNS:
      - CASE 1: COVER ≥ db AND c-c SPACING ≥ 2db
      - CASE 2: COVER < db OR c-c SPACING < 2db
   b. ALL OTHERS:
      - CASE 1: COVER ≥ db AND c-c SPACING ≥ 3db
      - CASE 2: COVER < db OR c-c SPACING < 3db
C. FOR TOP BARS, MULTIPLY LAP LENGTH ABOVE BY 1.3. TOP BARS ARE HORIZONTAL BARS WITH MORE THAN 12" OF CONCRETE CAST BELOW THE BARS.

3. REINFORCEMENT SHALL BE SECURED IN FORMS WITH TIES AND ANCHORAGE TO PREVENT DISPLACEMENT. ALL TIE WIRE SHALL BE MIN. #16 ANNEALED STEEL.
4. ALL REINFORCING STEEL SHALL BE TIED 100% ALONG ALL PERIMETER EDGES AND 50%FIELD.
5. REINFORCING (MINIMUM UNLESS NOTED OTHERWISE ON PLANS)
   A. PLACE TWO (2) NO. 4 CONTINUOUS AT BOTTOM, TOP AND AT DISCONTINUOUS ENDS OF ALL FOUNDATIONS.
   B. PLACE 2'-0" x 1'-0" BARS AT CORNERS AND INTERSECTIONS FOR WALLS AND FOUNDATIONS EQUAL IN SIZE AND NUMBER TO HORIZONTAL REINFORCING.
   C. PLACE TWO (2) NO. 4x OPENING DIMENSIONS PLUS 4'-0" EACH SIDE OF ALL OPENINGS AND TWO (2) NO. 4x4'-0" DIAGONAL BARS AT EACH CORNER OF ALL SLAB OPENINGS GREATER THAN 1'-6" IN DIMENSION.
6. ALL REINFORCING STEEL SHALL BE DETAILED, FABRICATED AND PLACED IN ACCORDANCE WITH ACI DETAILING MANUAL 315.
   A. ALL REINFORCING STEEL SHALL BE ACCURATELY AND SECURELY PLACED.
   B. REINFORCING SHALL NOT BE BENT OR DISPLACED FOR THE CONVENIENCE OF OTHER TRADES, UNLESS APPROVED BY THE STRUCTURAL ENGINEER.
   C. SPLAY REINFORCING STEEL AROUND OPENINGS WITH 1" IN 10" SPLAY, UNLESS NOTED OTHERWISE.
   D. MINIMUM COVER FROM CONCRETE SURFACES TO REINFORCING STEEL SHALL BE:
      - 3" TO BOTTOM OF FOOTING
      - 2" TO EARTH FACE OF WALL
      - 3/4" TO INSIDE FACE OF WALL
      - 1-1/2" TO MAIN STEEL BEAMS AND COLUMNS
      - 3/4" SLAB TO TOP AND BOTTOM SURFACES, CENTER OF SLAB ON GRADE
7. REINFORCEMENT BARS SHALL NOT BE TACK WELDED, WELDED, HEATED OR CUT, UNLESS INDICATED ON THE CONTRACT DOCUMENTS OR APPROVED BY THE STRUCTURAL ENGINEER OF RECORD.
8. REINFORCEMENT COUPLERS SHALL BE LENTON, FOX-HOWLETT OR APPROVED, CAPABLE OF DEVELOPING ONE HUNDRED TWENTY-FIVE PERCENT (125%) OF THE SPECIFIED YIELD STRENGTH OF THE REINFORCEMENT.

CONCRETE ACCESSORIES:

1. EXPANSION BOLTS SHALL BE HILTI KWIK TZ, SIMPSON STRONG BOLT, DEWALT POWER-STUD+SD2, OR APPROVED WITH EQUIVALENT ICC ALLOWABLE TENSION AND SHEAR VALUES. EXPANSION BOLTS SHALL BE INSTALLED IN STRICT CONFORMANCE WITH MANUFACTURER'S RECOMMENDATIONS. DO NOT CUT REINFORCING IN NEW OR EXISTING CONCRETE DURING INSTALLATION.
2. EPOXY ADHESIVE SHALL BE HILTI HIT-RE 500 V3, SIMPSON SET-XP, DEWALT PURE110+ EPOXY, DEWALT AC200+ ACRYLIC, OR APPROVED WITH EQUIVALENT ICC ALLOWABLE TENSION AND SHEAR VALUES. EPOXY ANCHORS SHALL BE INSTALLED IN STRICT CONFORMANCE WITH MANUFACTURER'S RECOMMENDATIONS. DO NOT CUT REINFORCING IN NEW OR EXISTING CONCRETE DURING INSTALLATION.
3. PERMANENTLY EXPOSED EMBEDDED PLATES AND ANGLES SHALL BE HOT-DIPPED, GALVANIZED AFTER FABRICATION, UNLESS OTHERWISE NOTED. NO LOADS OR WELDS SHALL BE PLACED ON EMBEDDED PLATES OR ANGLES FOR A MINIMUM OF 7 DAYS AFTER CASTING.
4. ADHESIVE ANCHORS INSTALLED IN HORIZONTALLY OR UPWARDLY INCLINED ORIENTATIONS TO RESIST SUSTAINED TENSION LOADS SHALL BE DONE BY A CERTIFIED ADHESIVE ANCHOR INSTALLER (AAI) AS CERTIFIED THROUGH ACI/CRSI, OR AN APPROVED ALTERNATE WHEN SUBMITTED AND APPROVED BY THE EOR (ACI 318-11 D.9.2.2)/(ACI 318-14 17.8.2.2). PROOF OF CURRENT CERTIFICATION SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO COMMENCEMENT OF INSTALLATION.
5. ADHESIVE ANCHORS MUST BE INSTALLED IN CONCRETE AGED A MINIMUM OF 21 DAYS (ACI 318-11 D.2.2)/(ACI 318-14 17.1.2).

DIVISION 05 - METALS

STRUCTURAL STEEL AND MISCELLANEOUS IRON:

STRUCTURAL STEEL SHALL BE:

STRUCTURAL STEEL	
ASTM A992, GRADE 50	WIDE FLANGE SHAPES
ASTM A572, GRADE 50	PLATES WHERE NOTED
ASTM A36	CHANNELS, PLATES, AND ANGLES, U.N.O.
ASTM A500, GRADE C (Fy = 50 KSI)	HOLLOW STRUCTURAL SECTIONS (TUBES)
ASTM A53, GRADE B (Fy = 35 KSI)	PIPES

1. DESIGN, FABRICATION, AND ERECTION SHALL BE IN ACCORDANCE WITH THE "AISC SPECIFICATION FOR THE DESIGN, FABRICATION, AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS" WITH "COMMENTARY" AND THE "CODE OF STANDARD PRACTICE", WITH EXCEPTIONS NOTED IN SPECIFICATIONS.
2. DRAWINGS ARE DIMENSIONED FOR LAYOUT AND NOT DIMENSIONED PER AISC STANDARDS. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO COORDINATE BETWEEN ALL DRAWINGS AND DEVELOP SHOP DRAWINGS WITH DETAIL AND DIMENSIONING PER AISC.
3. ALL FABRICATION, ERECTION, IDENTIFICATION, AND PAINTING SHALL CONFORM TO AISC SPECIFICATIONS.
4. ALL STEEL EXPOSED TO WEATHER, SOIL, MOISTURE, OR AS DENOTED ON PLANS SHALL BE HOT DIP GALVANIZED PER ASTM A-123, OR OTHER APPROVED PROTECTIVE COATING.
5. ALL WELDING SHALL CONFORM TO AWS (LATEST EDITION) SPECIFICATIONS.
   A. ALL WELDERS TO BE QUALIFIED UNDER AWS SPECIFICATIONS WITHIN THE PAST TWO YEARS FOR THE TYPE OF WELDING PERFORMED.
   B. ALL WELDS SHALL BE PERFORMED USING PRE-QUALIFIED WELDING PROCEDURES.
   C. WELDS FILLER METAL SHALL BE AWS A5.1 OR A5.5 E70XX ELECTRODES OR AWS A5.18 ER70S-X.
   D. AFTER FABRICATION, BUT BEFORE INSTALLATION, REMOVE RUST, SCALE, GREASE, AND OIL BY WIRE BRUSHING AND CHEMICAL TREATMENT.
   E. WELDING OF REINFORCING STEEL SHALL BE AS SPECIFIED IN THESE STRUCTURAL NOTES UNDER **"CONCRETE REINFORCING STEEL"**.
   F. WELDS TO METAL DECK, METAL STUDS OR OTHER LIGHT GAUGE METALS SHALL CONFORM WITH AWS D1.3.
6. ALL HIGH-STRENGTH BOLTS, MATERIAL AND INSTALLATION, SHALL CONFORM WITH ASTM STANDARDS.
   A. BOLTS SHALL CONFORM WITH ASTM A 325, TYPE N. BOLTS NOT NOTED IN THE DRAWINGS AS TYPE SC SHALL BE TYPE N.
   B. FOR BEARING-TYPE CONNECTIONS, TYPE N BOLTS SHALL BE TIGHTENED TO A SNUG TIGHT CONDITION, ONLY.
   C. ALL HIGH-STRENGTH BOLTS SHALL BE INSTALLED WITH HARDENED WASHERS, CONFORMING WITH ASTM F 436, AND NUTS, CONFORMING WITH ASTM A 563.
   D. NO WELDING TO HIGH-STRENGTH BOLTS IS ALLOWED.
7. ALL MEMBERS SHALL BE CONNECTED WITH SEMI-FINISHED MACHINE BOLTS, UNLESS NOTED OTHERWISE ON PLANS. MACHINE BOLTS SHALL CONFORM TO ASTM A 307, GRADE A.
8. STRUCTURAL STEEL AND MISCELLANEOUS IRON:
   A. EXPANSION ANCHORS SHALL BE I.C.B.O. APPROVED (ZINC PLATED IN ACCORDANCE WITH ASTM B633, HOT-DIPPED GALVANIZED IN ACCORDANCE WITH ASTMA 153, A.I.S.I. 304 STAINLESS STEEL) AND CONFORM WITH FS FF-S-325, GROUP II, TYPE 4, CLASS 1. ACCEPTABLE ANCHORS ARE HILTI "KWIK-BOLT TZ", SIMPSON STRONG BOLT, OR DEWALT POWER STUD+. ANCHORS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
   B. ADHESIVE ANCHORS SHALL BE I.C.B.O. APPROVED AND SHALL CONSIST OF ALL-THREAD ANCHOR ROD, NUT, WASHER AND EPOXY INJECTION GEL SYSTEM. ANCHOR RODS SHALL BE MANUFACTURED FROM:
      a. A-36 MATERIAL (ZINC PLATED IN ACCORDANCE WITH ASTM B 633, HOT-DIPPED GALVANIZED IN ACCORDANCE WITH ASTM A 153).
      b. ASTM A 193, GRADE B-7 MATERIAL (ZINC PLATED IN ACCORDANCE WITH ASTM B 633, HOT-DIPPED GALVANIZED IN ACCORDANCE WITH ASTM A 153).
      c. A.I.S.I. 304 OR 316 STAINLESS STEEL, IN ACCORDANCE WITH ASTM F 593. ANCHOR RODS SHALL HAVE ROLLED THREADS. NUTS SHALL CONFORM WITH ASTM A 194. ACCEPTABLE ADHESIVE INJECTION GEL SYSTEMS ARE THE HILTI HIT-RE 500 V3, SIMPSON SET XP OR DEWALT 1000+. ANCHORS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
9. ANCHOR BOLT SHALL CONFORM WITH ASTM A 307, GRADE A, AND SHALL BE PROVIDED WITH STANDARD WASHERS AND NUTS. GALVANIZE EXTERIOR BOLTS. GALVANIZING SHALL BE IN ACCORDANCE WITH ASTM A 153, CLASS C. NUTS SHALL BE OVER-TAPPED TO CLASS 2A FIT BEFORE GALVANIZING, IN ACCORDANCE WITH ASTM A 563.
10. BOLT HEADS OR NUTS BEARING ON SLOPING FLANGES SHALL BE EQUIPPED WITH BEVELED WASHERS.
11. ERECTION AIDS (SUCH AS BOLTS, CLIPS, SHIMS, SEATS OR ANY OTHERS REQUIRED TO FACILITATE CONSTRUCTION) ARE THE RESPONSIBILITY OF THE CONTRACTOR TO DESIGN AND PROVIDE.
12. ALL BRACING SHALL HAVE TWO (2) BOLT CONNECTIONS, UNLESS NOTED OTHERWISE. ALL CROSS BRACING SHALL BE BOLTED AT INTERSECTIONS WITH TWO (2) BOLT MINIMUM FOR ST AND ONE (1) BOLT FOR ANGLES. PROVIDE FILLER PLATE BETWEEN CROSS BRACES, AS REQUIRED.
13. ALL HAND RAILS SHALL BE 1 1/2" DIAMETER STEEL PIPE, STANDARD WEIGHT, HOT-DIPPED GALVANIZED IN ACCORDANCE WITH ASTM A 123.

LIGHT GAUGE STEEL FRAMING:

1. STEEL IS TO BE:
   A. ASTM A 446 GRADE D (FY = 50 KSI) FOR 12, 14 AND 16 GAUGE.
   B. ASTM A 446 GRADE A (FY = 33 KSI) FOR 18 GAUGE AND LIGHTER.
   C. ASTM 653 SQ., GRADE A (FY = 33 KSI) FOR 18 GAUGE OR 20 GAUGE FOR SHEAR WALLS.
2. ALL FABRICATION, ERECTION AND IDENTIFICATION OF LIGHT GAUGE STEEL FRAMING SHALL CONFORM WITH OSSC SECTION 2210 AND AISI "SPECIFICATIONS FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS".
3. FASTENING OF COMPONENTS SHALL BE WITH SELF-DRILLING SCREWS.
4. FASTENING OF COMPONENTS SHALL BE WITH WELDING.
   A. WELDS SHALL BE OF SUFFICIENT SIZE TO ENSURE THE STRENGTH OF THE CONNECTION.
   B. ALL WELDING SHALL CONFORM WITH A.W.S. SPECIFICATIONS. TOUCH UP WELDS WITH ZINCRICH PAINT.
   C. WELDERS SHALL BE A.W.S. CERTIFIED FOR LIGHT GAUGE METAL WELDING.
   D. WELDING ELECTRODES SHALL BE E6OXX.
5. STEEL STUDS OR JOISTS SHALL BE "S" STUDS OR "J" JOISTS WITH STIFFENED LIPS, UNLESS NOTED OTHERWISE, AS MANUFACTURED BY KNORR STEEL FRAMING SYSTEMS, MEMBERS OF THE METAL STUD MANUFACTURER'S ASSOCIATION, OR APPROVED. SIZE AND GAUGE ARE AS NOTED ON DRAWINGS.
6. PROVIDE ALL ACCESSORIES INCLUDING, BUT NOT NECESSARILY LIMITED TO, TRACKS, CLIPS, WEB STIFFENERS, ANCHORS, FASTENING DEVICES AND OTHER ACCESSORIES REQUIRED FOR A COMPLETE AND PROPER INSTALLATION.
7. END BLOCKING SHALL BE PROVIDED WHERE JOIST ENDS ARE NOT OTHERWISE RESTRAINED FROM ROTATION.
8. JOISTS SHALL BE LOCATED DIRECTLY OVER BEARING STUDS, UNLESS NOTED OTHERWISE.
9. SPLICES IN AXIALLY LOADED STUDS SHALL NOT BE PERMITTED.
10. EACH FLANGE OF STUDS SHALL BE SECURELY ATTACHED TO FLANGES OF BOTH UPPER AND LOWER RUNNERS.
11. WHEN METAL STUDS ARE USED IN BEARING WALL CONSTRUCTION, STUDS MUST FIT TIGHTLY INTO THE TOP AND BOTTOM TRACKS. END GAPS WILL NOT BE ALLOWED.

DIVISION 06 - WOOD, PLASTICS AND COMPOSITES

FRAMING LUMBER:

1. ALL FRAMING LUMBER SHALL BE DOUGLAS FIR-LARCH AND SHALL BE GRADED UNDER THE MOST RECENTLY ADOPTED RULES OF THE WEST COAST LUMBER INSPECTION BUREAU (WCLIB).
2. ALL BEAMS AND JOISTS SHALL BE NO. 2 MINIMUM, UNLESS INDICATED OTHERWISE ON THE PLANS.
3. ALL STUDS AND BLOCKING SHALL BE NO. 2.
4. ALL LUMBER IN CONTACT WITH CONCRETE OR EXPOSED SHALL BE PRESSURE TREATED IN ACCORDANCE WITH AWPA STANDARD C-2 AND SHALL BEAR THE AWPA QUALITY MARK.
5. DOUBLE ALL JOISTS UNDER WALL PARTITIONS, AND PROVIDE BLOCKING BETWEEN JOISTS WHERE BEARING WALLS ARE PERPENDICULAR TO JOISTS.
6. ALL GLULAM BEAMS TO BE 24F-V4 TYPICAL. 24F-V8 FOR CANTILEVERED OR CONTINUOUS SPAN.
7. ALL LVL LUMBER TO BE MICROLAM LVL OR APPROVED EQUAL.

PLYWOOD SHEATHING:

1. ALL PLYWOOD SHALL BE C-D GRADE WITH EXTERIOR GLUE MANUFACTURED IN ACCORDANCE WITH THE UNITED STATES PRODUCT STANDARDS PS 1-83/ANSI A199.1 "FOR CONSTRUCTION AND INDUSTRIAL PLYWOOD" AND SHALL CONFORM TO OSSC SECTION 2303 AND SHALL BEAR THE APA TRADEMARK OF THE APA.
2. PLYWOOD SHALL BE LAID WITH END JOINTS STAGGERED.
3. BLOCK ALL SHEAR WALL SHEATHING WITH 2x BLOCKING AT ALL EDGES.
4. ROOF SHEATHING TO BE UNBLOCKED 1/2" C-D 32/16 PLY, UNLESS NOTED OTHERWISE ON PLANS.
5. FLOOR SHEATHING TO BE UNBLOCKED 3/4" 2-4-1 T&G C-D 32/16 PLY, UNLESS NOTED OTHERWISE.
6. EXTERIOR WALLS TO BE 7/16" EXPOSURE I, C-D PLY. OR OSB SHEATHING U.N.O. SEE PLANS FOR SHEAR WALL TYPE AND CORRESPONDENCE SHEAR WALL SCHEDULE FOR REQUIREMENTS.
7. OSB MAY BE SUBSTITUTED FOR PLYWOOD WITH SAME SPAN RATING.

NAILING AND FASTENERS:

1. NAILING INDICATED ON PLANS AND DETAILS ARE "COMMON" NAILS. MINIMUM FRAMING NAILING SHALL CONFORM TO OSSC TABLE 2304.10.1. SEE DETAILS FOR ADDITIONAL TYPICAL NAILING REQUIREMENTS. SUBSTITUTION OF NAILS OTHER THAN "COMMON" IS NOT PERMITTED WITHOUT PRIOR APPROVAL.
2. POWER DRIVEN NAILS OTHER THAN "COMMON" NAILS MAY BE USED IF DATA IS SUBMITTED AND APPROVED PRIOR TO USE.
3. APPLY 1/4 DIAMETER CONTINUOUS BEAD OF GLUE TO TOPS OF WOOD FRAMED FLOOR JOISTS, BLOCKING, AND PLATES IMMEDIATELY PRIOR TO PLACEMENT OF FLOOR SHEATHING.
4. ALL BOLTED CONNECTIONS SHALL BE MADE WITH MACHINE BOLTS (M.B.) CONFORMING TO ASTM A307. ALL BOLTS AND LAGS SHALL BE INSTALLED WITH STANDARD WASHERS, UNLESS NOTED.
5. JOIST HANGERS, HOLDOWNS AND OTHER FRAMING ACCESSORIES ARE REFERRED TO ON PLANS BY PARTICULAR TYPE AS MANUFACTURED BY SIMPSON COMPANY, SAN LEANDRO, CA. ALL HARDWARE IS TO BE FASTENED PER MANUFACTURER'S SPECIFICATIONS, U.N.O.
6. ALL PLATES AND LEDGERS SHALL BE ANCHORED WITH A MINIMUM OF THREE FASTENERS PER PIECE.
7. PRE-DRILL HOLES FOR LAG BOLTS. SOAP THREADS OF LAGS IMMEDIATELY PRIOR TO INSTALLATION.
8. EPOXY ANCHOR BOLTS AND ADHESIVE INDICATED ON DRAWINGS SHALL BE HILTI HIT-RE 500 V3, SIMPSON SET XP, OR DEWALT PURE110+ EPOXY, DEWALT AC200+ ACRYLIC, OR REDHEAD/RAMSET EPCON, OR APPROVED EQUAL. DEPTH OF EMBEDMENT SHALL BE AS PER MANUFACTURER SPECIFICATIONS, UNLESS NOTED OTHERWISE. INSTALL ALL EPOXY FASTENERS IN STRICT ACCORDANCE WITH THE MANUFACTURER'S REQUIREMENTS.
9. PLYWOOD NAILING SHALL BE AS FOLLOWS, UNLESS NOTED OTHERWISE ON PLANS:
   A. ROOF SHEATHING:
      a. 8d @ 4" o.c. ALONG ALL BOUNDARY EDGES
      b. 8d @ 6" o.c. ALONG ALL SUPPORTED PANEL EDGES
      c. 8d @ 12" o.c. AT INTERMEDIATE FRAMING
   B. FLOOR SHEATHING:
      a. 10d @ 4" o.c. ALONG ALL BOUNDARY EDGES
      b. 10d @ 6" o.c. ALONG ALL SUPPORTED PANEL EDGES
      c. 10d @ 12" o.c. AT INTERMEDIATE FRAMING
   C. WALL SHEATHING: (BLOCK ALL EDGES WITH 2x4 FLATS)
      a. 8d @ 6" o.c. ALONG ALL PANEL EDGES
      b. 8d @ 12" o.c. AT INTERMEDIATE STUDS
10. SILL AT WALLS SHALL BE BOLTED TO CONCRETE WITH 5/8" DIAMETER x 10" LONG ANCHOR BOLTS AT 4'-0" o.c. MAXIMUM AND WITHIN 1'-0" OF SILL PLATE ENDS, CORNERS OR SPLICES, UNLESS DETAILED OTHERWISE. STEEL PLATE WASHERS SHALL BE INSTALLED AT ALL ANCHOR BOLTS IN SHEAR WALLS, WITH MINIMUM DIMENSIONS OF 3" x 3" x 3/16" THICK, AND SHALL BE INSTALLED WITHIN 1/2" OF SHEATHING FACE. SIMPSON BPS BEARING PLATE OR APPROVED EQUAL MAY BE USED.

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LIGHT GAUGE STEEL SHEAR WALL SCHEDULE

⟨X⟩	SHEATHING	FASTENERS	EDGE (o.c.)	FIELD (o.c.)	TYP. STUD DIMENSION & SPACING (o.c.)	PANEL EDGE STUD DIMENSION	BOTTOM/TOP TRACK DIMENSION	BOTTOM PLATE/TRACK ATTACHMENT (o.c.)	TOP PLATE/TRACK ATTACHMENT (o.c.)	REMARKS
A	7/16" OSB, ONE SIDE	#8 SHEATHING SCREW	6"	12"	600S200-54 [50] @ 16" o.c.	600S200-54 [50]	600T200-54 [50]	1/2" DIA. x 4" TITEN A.B. @ 4'-0"	LSFC4.25 @ 4'-0" o.c.	33 MIL PANEL BLOCKING
B	7/16" OSB, ONE SIDE	#8 SHEATHING SCREW	4"	12"	600S200-54 [50] @ 16" o.c.	600S200-54 [50]	600T200-54 [50]	1/2" DIA. x 4" TITEN A.B. @ 3'-0"	LSFC4.25 @ 3'-0" o.c.	33 MIL PANEL BLOCKING

1. ALL PLYWOOD/OSB TO BE APA RATED STRUCTURAL 1 EXTERIOR SHEATHING
2. ALL SCREWS TO BE FLAT HEAD SELF DRILLING.
3. ATTACH RIM JOIST AND / OR BLOCKING TO SHEAR WALL AS INDICATED IN TABLE ABOVE.
4. ALL WALL SHEATHING TO EXTEND FULL HEIGHT OF WALL, TOP TRACK TO BOTTOM TRACK.
5. ALL SHEAR WALLS AND HOLDOWNS MUST HAVE CONTINUOUS LOAD PATH TO FOUNDATION.
6. ALL SHEATHING PANEL EDGES TO BE ATTACHED TO STUDS OR BLOCKING TO MATCH REQUIREMENTS FOR EDGE STUDS.
7. FLAT STRAP OF MINIMUM 33 MILS THICKNESS WITH MINIMUM 1-1/2" WIDTH MAY BE USED AS PANEL EDGE BLOCKING.
8. FOR SHEAR WALLS SPACED @ 24" o.c. MAX. INSTALL SHEATHING WITH LONG DIMENSION ACROSS STUDS.
9. ALL CLIPS TO USE MAX FASTENER QUANTITY CONFIGURATION.

WOOD SHEAR WALL SCHEDULE

⟨X⟩	SHEATHING	NAIL SIZE	EDGE NAILING (o.c.)	FIELD NAILING (o.c.)	PANEL EDGE STUDS	TOP PLATE A35 (o.c.)	BOTTOM PLATE DIMENSION	BOTTOM PLATE FASTENING (o.c.)	SILL PLATE ANCHORAGE (o.c.)	REMARKS
C	7/16" APA RATED	8d	6"	12"	2x6	3'-0"	P.T. 2x6	N/A	5/8" DIA. A.B. @ 4'-0"	--

1. ALL PLYWOOD TO BE APA RATED STRUCTURAL 1 EXTERIOR SHEATHING
2. ALL NAILS TO BE COMMON OR GALVANIZED BOX TYPE.
3. FLOOR AND ROOF DIAPHRAGMS TO BE NAILED WITH 10d NAILS @ 6" o.c. EDGE NAILING AND 12" ON CENTER FIELD NAILING U.N.O. USE PLYWOOD THICKNESS AS INDICATED ON PLAN.
4. ATTACH RIM JOIST AND / OR BLOCKING TO SHEAR WALL AS INDICATED IN TABLE ABOVE.
5. ALL WALL SHEATHING TO EXTEND FULL HEIGHT OF WALL, TOP PLATE TO BOTTOM PLATE.
6. ALL SHEAR WALLS AND HOLDOWNS MUST HAVE CONTINUOUS LOAD PATH TO FOUNDATION.
7. USE PL1/4x3x0'-3" WASHER TYPICAL AT ALL ANCHOR BOLTS.
8. WHERE TOP PLATE FASTENING IS LESS THAN 12" o.c., USE MINIMUM BLOCKING OF 2-1/2" MANUFACTURED LUMBER (MICROLLAM LVL, OR PARALLAM PSL).
9. GYPSUM SHEATHING TO BE ATTACHED WITH SCREWS (TYPE AS NOTED IN SCHEDULE). SCREWS FOR ATTACHMENT OF GYPSUM SHEATHING MUST BE TYPE W OR S.
10. ALL SHEAR WALLS TO BE FULLY BLOCKED U.N.O. BLOCKING TO MATCH REQUIREMENTS FOR PANEL EDGE STUDS.
11. FOR SHEAR WALLS w/ (2) ROWS OF BOTTOM PLATE NAILING, USE MIN. 1-3/4" RIM BOARD, SPACE ROWS A MIN. OF 1/2" APART, AND STAGGER NAILS.
12. FOR SHEAR WALLS w/ STUDS SPACED @ 24" o.c. MAX. INSTALL SHEATHING WITH LONG DIMENSION ACROSS STUDS.

FOUNDATION SCHEDULE

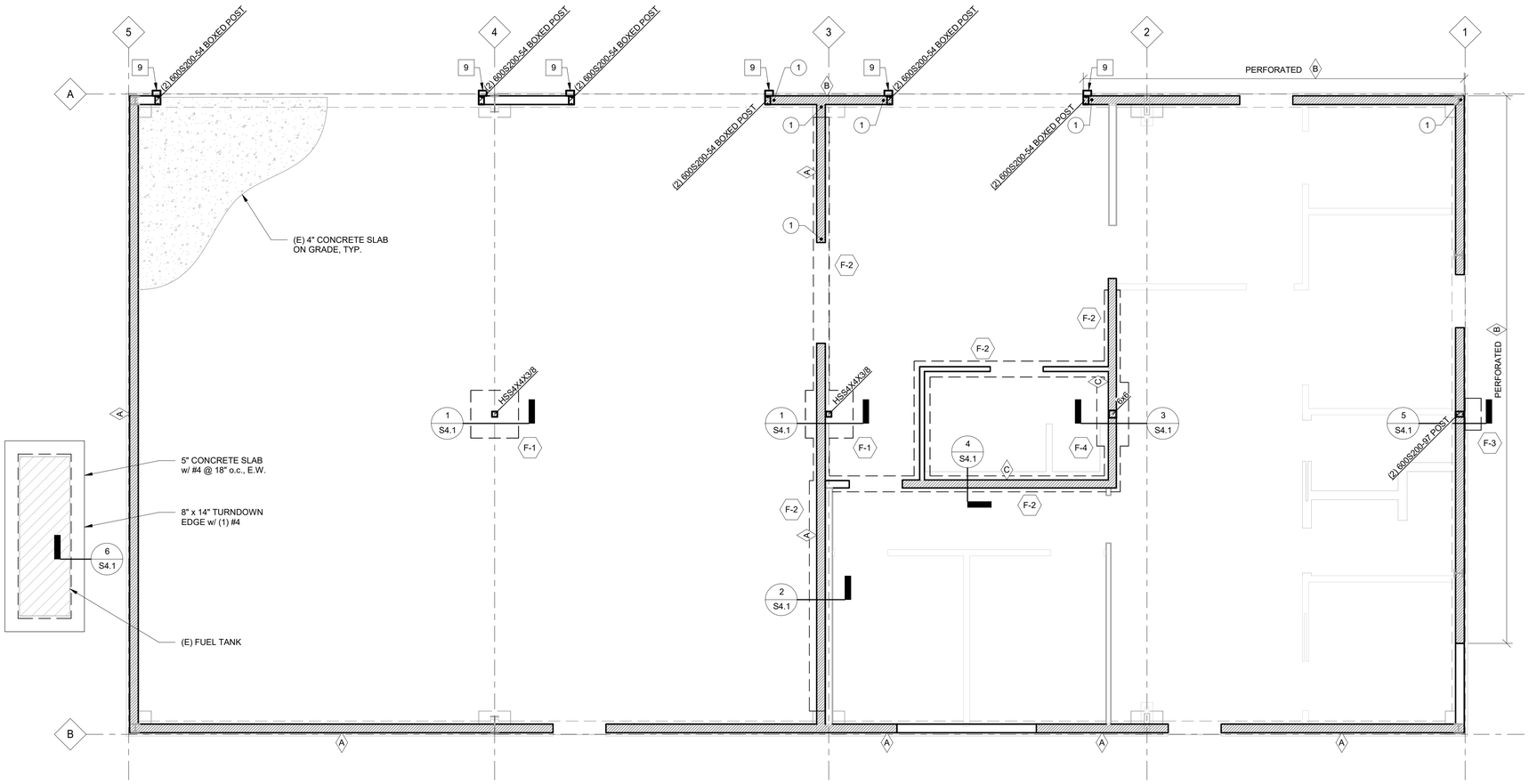
MARK	WIDTH	LENGTH	DEPTH	REINFORCEMENT
F-1	3' - 0"	3' - 0"	1' - 0"	(4) #4 BARS EACH WAY
F-2	1' - 0"	CONT.	1' - 0"	(2) #4 CONT.
F-3	1' - 0"	2' - 0"	0' - 10"	(3) #4 TRANSVERSE & (2) #4 LONGITUDINAL
F-4	2' - 0"	4' - 0"	1' - 0"	(6) #4 TRANSVERSE & (4) #4 LONGITUDINAL

1. UNLESS NOTED OTHERWISE, REINFORCEMENT TO BE SPACED EVENLY IN FOOTING WITH CORRECT SIDE AND BOTTOM CLEARANCES.

SHEAR WALL HOLDOWN SCHEDULE

(#)	COMPRESSION POST	HOLDOWN TYPE	ROD DIAMETER	NOTES
1	(2) S200-54	HTT4	5/8" DIA. W/ SET-3G EPOXY. MIN. 5-1/2" EMDEBMENT	(18) #10 SELF-TAPPING SCREWS

1. NAILS ARE TO BE COMMON WIRE NAILS, U.N.O.
2. HARDWARE IS TO BE SIMPSON, U.N.O.
3. HOLDOWN HARDWARE CAN BE EXTENDED WITH A307 THREADED ROD AND COUPLER.
4. ALIGN ALL HOLDOWNS FOR THE FULL HEIGHT OF STRUCTURE.
5. ALL HARDWARE TO BE INSTALLED PER MANUFACTURE'S SPECIFICATIONS.
6. HOLDOWN ANCHOR BOLTS ARE IN ADDITION TO TYPICAL SILL PLATE ANCHOR BOLTS.
7. EXTEND THREADED ROD TO WITHIN 3" CLEAR OF BOTTOM OF FOOTING, U.N.O.
8. STRAP HOLDOWNS (MSTC ETC.) LOADS ARE BASED ON FLOOR TO FLOOR CLEAR SPAN TABLES w/ A CLEAR SPAN OF 18" (11 7/8-12 DEPTH).



1 S1.1 FOUNDATION PLAN
1/4" = 1'-0"

FOUNDATION PLAN NOTES

A. DIMENSIONS SHOWN ARE FOR REFERENCE ONLY, CONFIRM w/ ARCHITECTURAL PLAN & DETAILS.

B. BOTTOM OF FOOTINGS TO BE PLACED BELOW FROST DEPTH OR AS NOTED IN THE GEOTECHNICAL REPORT, WHICHEVER IS GREATER.

C. COORDINATE PENETRATIONS OF SITE UTILITIES, MECHANICAL DUCTS, PIPING, AND ELECTRICAL CONDUIT/PANELS TO MINIMIZE IMPACT TO STRUCTURAL FRAMING. PLUMBING FIXTURES SHOWN ON FLOOR FOR REFERENCE AND POSSIBLE FRAMING CONFLICTS ONLY.

D. ALL FOOTINGS ARE TO BE CENTERED UNDER COLUMNS U.N.O.

E. ALL FOOTINGS TO BEAR OVER GRADE OVER FIRM, UNDISTURBED, NON-ORGANIC, NON-EXPANSIVE NATIVE MATERIAL, OR STRUCTURAL FILL AS REQUIRED PER GEOTECHNICAL REPORT.

F. SEE SHEET S0.1 FOR ALL STRUCTURAL GENERAL NOTES.

G. ALL KEYNOTES INDICATE NEW ITEMS TYPICALLY UNLESS NOTED OTHERWISE.

H. ⟨X⟩ INDICATES SHEAR WALL TYPE. SEE SHEAR WALL SCHEDULE FOR ADDITIONAL INFORMATION.

I. INDICATES (N) SHEAR WALL LOCATION ABOVE FOUNDATION. SEE SHEAR WALL SCHEDULE FOR ADDITIONAL INFORMATION.

J. INDICATES (E) BEARING WALL TO REMAIN.

K. INDICATES (N) WOOD FRAMED BEARING WALL.

L. ALL SHEAR WALLS INDICATED AS "PERFORATED" THE CONTRACTOR SHALL PROVIDE NAILING PATTERN AROUND ALL WALL PENETRATIONS AS CALLED OUT ON FRAMING PLANS IN CORRESPONDENCE WITH THE SHEAR WALL SCHEDULE.

M. (#) INDICATES HOLDOWN TYPE AND LOCATION. SEE HOLDOWN SCHEDULE FOR ADDITIONAL INFORMATION.

N. F-XX INDICATES FOOTING TYPE PER FOUNDATION SCHEDULE AND TOP OF FOOTING ELEVATION.

STRUCTURAL KEYNOTES

1. 15/32" PLYWOOD ROOF SHEATHING FASTENED TO STEEL FRAMING w/ #10 FLAT HEAD SCREWS @ 6" o.c. BOUNDARY & 12" o.c. FIELD.
2. PROVIDE SIMPSON LSTA36 STRAP @ 4'-0" ALONG RIDGE @ BREAK IN SHEATHING.
3. FULL WIDTH 2x BLOCKING w/ CONTINUOUS SIMPSON CMSTC16 COIL STRAP.
4. PLYWOOD FLOOR SHEATHING. THICKNESS TO MATCH (E) ADJACENT PARTIAL SHEATHING w/ 8d NAILS @ 6" o.c. BOUNDARY & 12" o.c. FIELD. USE #10 SHEATHING SCREWS @ 6" o.c. BOUNDARY AND 12" o.c. FIELD AT LIGHT GAUGE STEEL FRAMING.
5. ATTACH WATER HEATER TO STUD WALL FRAMING w/ SEISMIC WATER HEATER RESTRAINING STRAP/ SAFETY STRAP.
6. BRACE (E) HANGING MECHANICAL UNIT PER 11/S5.1. SEE ARCH PLAN FOR REINSTALLATION LOCATION.
7. SIMPSON CMSTC16 STRAP OVER BREAK IN DOUBLE TOP PLATE OR TRACK.
8. REDUCE STUD SPACING TO 12" o.c. WHEN BOTTOM TRACK TO TOP TRACK EXCEEDS 14'-0" IN HEIGHT.
9. TUBE STEEL FRAME PER BAY DOOR MANUFACTURER REQUIREMENTS. SEE 9/S6.1 FOR JAMB DETAIL.

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LIGHT GAUGE STEEL SHEAR WALL SCHEDULE

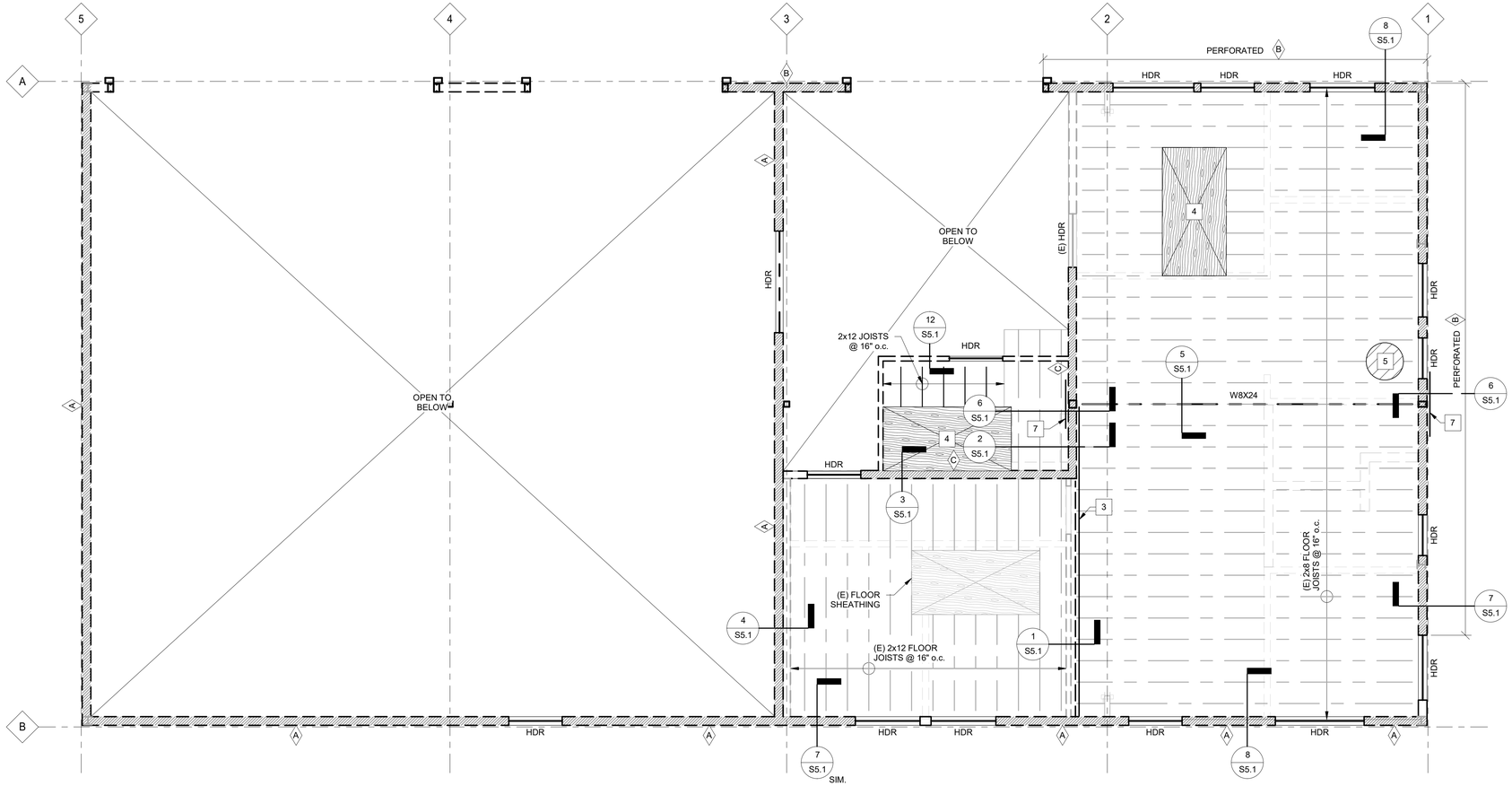
⟨X⟩	SHEATHING	FASTENERS	EDGE (o.c.)	FIELD (o.c.)	TYP. STUD DIMENSION & SPACING (o.c.)	PANEL EDGE STUD DIMENSION	BOTTOM/TOP TRACK DIMENSION	BOTTOM PLATE/TRACK ATTACHMENT (o.c.)	TOP PLATE/TRACK ATTACHMENT (o.c.)	REMARKS
A	7/16" OSB, ONE SIDE	#8 SHEATHING SCREW	6"	12"	600S200-54 [50] @ 16" o.c.	600S200-54 [50]	600T200-54 [50]	1/2" DIA. x 4" TITEN A.B. @ 4'-0"	LSFC4.25 @ 4'-0" o.c.	33 MIL PANEL BLOCKING
B	7/16" OSB, ONE SIDE	#8 SHEATHING SCREW	4"	12"	600S200-54 [50] @ 16" o.c.	600S200-54 [50]	600T200-54 [50]	1/2" DIA. x 4" TITEN A.B. @ 3'-0"	LSFC4.25 @ 3'-0" o.c.	33 MIL PANEL BLOCKING

1. ALL PLYWOOD/OSB TO BE APA RATED STRUCTURAL 1 EXTERIOR SHEATHING
2. ALL SCREWS TO BE FLAT HEAD SELF DRILLING.
3. ATTACH RIM JOIST AND / OR BLOCKING TO SHEAR WALL AS INDICATED IN TABLE ABOVE.
4. ALL WALL SHEATHING TO EXTEND FULL HEIGHT OF WALL, TOP TRACK TO BOTTOM TRACK.
5. ALL SHEAR WALLS AND HOLDOWNS MUST HAVE CONTINUOUS LOAD PATH TO FOUNDATION.
6. ALL SHEATHING PANEL EDGES TO BE ATTACHED TO STUDS OR BLOCKING TO MATCH REQUIREMENTS FOR EDGE STUDS.
7. FLAT STRAP OF MINIMUM 33 MILS THICKNESS WITH MINIMUM 1-1/2" WIDTH MAY BE USED AS PANEL EDGE BLOCKING.
8. FOR SHEAR WALLS SPACED @ 24" o.c. MAX. INSTALL SHEATHING WITH LONG DIMENSION ACROSS STUDS.
9. ALL CLIPS TO USE MAX FASTENER QUANTITY CONFIGURATION.

WOOD SHEAR WALL SCHEDULE

⟨X⟩	SHEATHING	NAIL SIZE	EDGE NAILING (o.c.)	FIELD NAILING (o.c.)	PANEL EDGE STUDS	TOP PLATE A35 (o.c.)	BOTTOM PLATE DIMENSION	BOTTOM PLATE FASTENING (o.c.)	SILL PLATE ANCHORAGE (o.c.)	REMARKS
C	7/16" APA RATED	8d	6"	12"	2x6	3'-0"	P.T. 2x6	N/A	5/8" DIA. A.B. @ 4'-0"	--

1. ALL PLYWOOD TO BE APA RATED STRUCTURAL 1 EXTERIOR SHEATHING
2. ALL NAILS TO BE COMMON OR GALVANIZED BOX TYPE.
3. FLOOR AND ROOF DIAPHRAGMS TO BE NAILED WITH 10d NAILS @ 6" o.c. EDGE NAILING AND 12" ON CENTER FIELD NAILING U.N.O. USE PLYWOOD THICKNESS AS INDICATED ON PLAN.
4. ATTACH RIM JOIST AND / OR BLOCKING TO SHEAR WALL AS INDICATED IN TABLE ABOVE.
5. ALL WALL SHEATHING TO EXTEND FULL HEIGHT OF WALL, TOP PLATE TO BOTTOM PLATE.
6. ALL SHEAR WALLS AND HOLDOWNS MUST HAVE CONTINUOUS LOAD PATH TO FOUNDATION.
7. USE PL1/4x3x0'-3" WASHER TYPICAL AT ALL ANCHOR BOLTS.
8. WHERE TOP PLATE FASTENING IS LESS THAN 12" o.c., USE MINIMUM BLOCKING OF 2-1/2" MANUFACTURED LUMBER (MICROLLAM LVL, OR PARALLAM PSL).
9. GYPSUM SHEATHING TO BE ATTACHED WITH SCREWS (TYPE AS NOTED IN SCHEDULE). SCREWS FOR ATTACHMENT OF GYPSUM SHEATHING MUST BE TYPE W OR S.
10. ALL SHEAR WALLS TO BE FULLY BLOCKED U.N.O. BLOCKING TO MATCH REQUIREMENTS FOR PANEL EDGE STUDS.
11. FOR SHEAR WALLS w/ (2) ROWS OF BOTTOM PLATE NAILING, USE MIN. 1-3/4" RIM BOARD, SPACE ROWS A MIN. OF 1/2" APART, AND STAGGER NAILS.
12. FOR SHEAR WALLS w/ STUDS SPACED @ 24" o.c. MAX. INSTALL SHEATHING WITH LONG DIMENSION ACROSS STUDS.



1 S2.1 MEZZANINE FLOOR FRAMING PLAN
1/4" = 1'-0"

FLOOR FRAMING PLAN NOTES

A. COORDINATE ALL DIMENSIONS & FEATURES NOT SHOWN WITH ARCHITECT.

B. SEE SHEET S0.1 FOR ALL NOTES AND SCHEDULES.

C. ALL KEYNOTES INDICATE NEW ITEMS TYPICALLY UNLESS NOTED OTHERWISE.

D. BEAMS ARE EQUALLY SPACED IN BAYS, U.N.O.

E. BEAMS ARE CENTERED ON COLUMNS, WALLS, AND/OR GRID LINES, U.N.O.

F. ⟨X⟩ INDICATES SHEAR WALL TYPE. SEE SHEAR WALL SCHEDULE FOR ADDITIONAL INFORMATION.

G. INDICATES SHEAR WALL LOCATION BELOW FRAMING. SEE SHEAR WALL SCHEDULE FOR ADDITIONAL INFORMATION.

H. ALL SHEAR WALLS INDICATED AS "PERFORATED" THE CONTRACTOR SHALL PROVIDE NAILING PATTERN AROUND ALL WALL PENETRATIONS AS CALLED OUT ON FRAMING PLANS IN CORRESPONDENCE WITH THE SHEAR WALL SCHEDULE.

I. TYPICAL STEEL STUD WALL HEADER IS 600S200-54 BOXED WITH 600T200-54 WITH 600S200-54 BOXED 600T200-54 JAMB STUD. SEE TYPICAL EXTERIOR SILL AND JAMB DETAILS FOR ADDITIONAL INFORMATION.

J. TYPICAL WOOD STUD WALL HEADER TO BE (2) 2x6 WITH SINGLE TRIMMER AND SINGLE KING STUD, U.N.O.

STRUCTURAL KEYNOTES

1. 15/32" PLYWOOD ROOF SHEATHING FASTENED TO STEEL FRAMING w/ #10 FLAT HEAD SCREWS @ 6" o.c. BOUNDARY & 12" o.c. FIELD.
2. PROVIDE SIMPSON LSTA36 STRAP @ 4'-0" ALONG RIDGE @ BREAK IN SHEATHING.
3. FULL WIDTH 2x BLOCKING w/ CONTINUOUS SIMPSON CMSTC16 COIL STRAP.
4. PLYWOOD FLOOR SHEATHING. THICKNESS TO MATCH (E) ADJACENT PARTIAL SHEATHING w/ 8d NAILS @ 6" o.c. BOUNDARY & 12" o.c. FIELD. USE #10 SHEATHING SCREWS @ 6" o.c. BOUNDARY AND 12" o.c. FIELD AT LIGHT GAUGE STEEL FRAMING.
5. ATTACH WATER HEATER TO STUD WALL FRAMING w/ SEISMIC WATER HEATER RESTRAINING STRAP/ SAFETY STRAP.
6. BRACE (E) HANGING MECHANICAL UNIT PER 11/S5.1. SEE ARCH PLAN FOR REINSTALLATION LOCATION.
7. SIMPSON CMSTC16 STRAP OVER BREAK IN DOUBLE TOP PLATE OR TRACK.
8. REDUCE STUD SPACING TO 12" o.c. WHEN BOTTOM TRACK TO TOP TRACK EXCEEDS 14'-0" IN HEIGHT.
9. TUBE STEEL FRAME PER BAY DOOR MANUFACTURER REQUIREMENTS. SEE 9/S6.1 FOR JAMB DETAIL.

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Revisions

No.	Description	Date

Stamp

STRUCTURAL REGISTERED PROFESSIONAL ENGINEER 70858 MATTHEW R. SMITH JULY 08, 2014 EXPIRES: 06-30-24

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Drawing Title
MEZZANINE FLOOR FRAMING PLAN

Sheet No
S2.1

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LIGHT GAUGE STEEL SHEAR WALL SCHEDULE

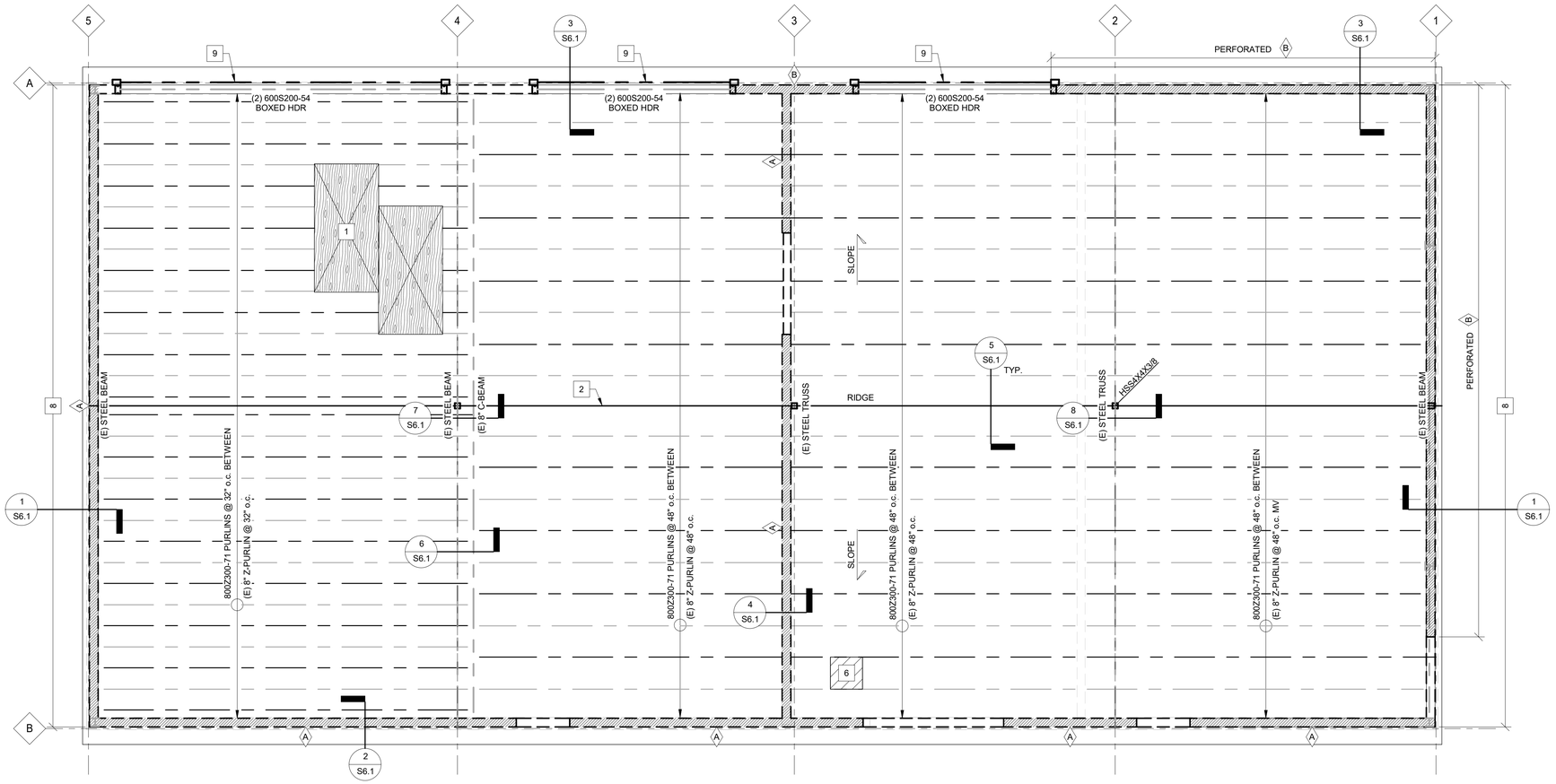
⟨X⟩	SHEATHING	FASTENERS	EDGE (o.c.)	FIELD (o.c.)	TYP. STUD DIMENSION & SPACING (o.c.)	PANEL EDGE STUD DIMENSION	BOTTOM/TOP TRACK DIMENSION	BOTTOM PLATE/TRACK ATTACHMENT (o.c.)	TOP PLATE/TRACK ATTACHMENT (o.c.)	REMARKS
A	7/16" OSB, ONE SIDE	#8 SHEATHING SCREW	6"	12"	600S200-54 [50] @ 16" o.c.	600S200-54 [50]	600T200-54 [50]	1/2" DIA. x 4" TITEN A.B. @ 4'-0"	LSFC4.25 @ 4'-0" o.c.	33 MIL PANEL BLOCKING
B	7/16" OSB, ONE SIDE	#8 SHEATHING SCREW	4"	12"	600S200-54 [50] @ 16" o.c.	600S200-54 [50]	600T200-54 [50]	1/2" DIA. x 4" TITEN A.B. @ 3'-0"	LSFC4.25 @ 3'-0" o.c.	33 MIL PANEL BLOCKING

1. ALL PLYWOOD/OSB TO BE APA RATED STRUCTURAL 1 EXTERIOR SHEATHING
2. ALL SCREWS TO BE FLAT HEAD SELF DRILLING.
3. ATTACH RIM JOIST AND / OR BLOCKING TO SHEAR WALL AS INDICATED IN TABLE ABOVE.
4. ALL WALL SHEATHING TO EXTEND FULL HEIGHT OF WALL, TOP TRACK TO BOTTOM TRACK.
5. ALL SHEAR WALLS AND HOLDOWNS MUST HAVE CONTINUOUS LOAD PATH TO FOUNDATION.
6. ALL SHEATHING PANEL EDGES TO BE ATTACHED TO STUDS OR BLOCKING TO MATCH REQUIREMENTS FOR EDGE STUDS.
7. FLAT STRAP OF MINIMUM 33 MILS THICKNESS WITH MINIMUM 1-1/2" WIDTH MAY BE USED AS PANEL EDGE BLOCKING.
8. FOR SHEAR WALLS SPACED @ 24" o.c. MAX. INSTALL SHEATHING WITH LONG DIMENSION ACROSS STUDS.
9. ALL CLIPS TO USE MAX FASTENER QUANTITY CONFIGURATION.

WOOD SHEAR WALL SCHEDULE

⟨X⟩	SHEATHING	NAIL SIZE	EDGE NAILING (o.c.)	FIELD NAILING (o.c.)	PANEL EDGE STUDS	TOP PLATE A35 (o.c.)	BOTTOM PLATE DIMENSION	BOTTOM PLATE FASTENING (o.c.)	SILL PLATE ANCHORAGE (o.c.)	REMARKS
C	7/16" APA RATED	8d	6"	12"	2x6	3'-0"	P.T. 2x6	N/A	5/8" DIA. A.B. @ 4'-0"	--

1. ALL PLYWOOD TO BE APA RATED STRUCTURAL 1 EXTERIOR SHEATHING
2. ALL NAILS TO BE COMMON OR GALVANIZED BOX TYPE.
3. FLOOR AND ROOF DIAPHRAGMS TO BE NAILED WITH 10d NAILS @ 6" o.c. EDGE NAILING AND 12" ON CENTER FIELD NAILING U.N.O. USE PLYWOOD THICKNESS AS INDICATED ON PLAN.
4. ATTACH RIM JOIST AND / OR BLOCKING TO SHEAR WALL AS INDICATED IN TABLE ABOVE.
5. ALL WALL SHEATHING TO EXTEND FULL HEIGHT OF WALL, TOP PLATE TO BOTTOM PLATE.
6. ALL SHEAR WALLS AND HOLDOWNS MUST HAVE CONTINUOUS LOAD PATH TO FOUNDATION.
7. USE PL1/4x3x0'-3" WASHER TYPICAL AT ALL ANCHOR BOLTS.
8. WHERE TOP PLATE FASTENING IS LESS THAN 12" o.c., USE MINIMUM BLOCKING OF 2-1/2" MANUFACTURED LUMBER (MICROLLAM LVL, OR PARALLAM PSL).
9. GYPSUM SHEATHING TO BE ATTACHED WITH SCREWS (TYPE AS NOTED IN SCHEDULE). SCREWS FOR ATTACHMENT OF GYPSUM SHEATHING MUST BE TYPE W OR S.
10. ALL SHEAR WALLS TO BE FULLY BLOCKED U.N.O. BLOCKING TO MATCH REQUIREMENTS FOR PANEL EDGE STUDS.
11. FOR SHEAR WALLS w/ (2) ROWS OF BOTTOM PLATE NAILING, USE MIN. 1-3/4" RIM BOARD, SPACE ROWS A MIN. OF 1/2" APART, AND STAGGER NAILS.
12. FOR SHEAR WALLS w/ STUDS SPACED @ 24" o.c. MAX. INSTALL SHEATHING WITH LONG DIMENSION ACROSS STUDS.



1 S3.1 ROOF FRAMING PLAN
1/4" = 1'-0"

ROOF FRAMING PLAN NOTES

A. COORDINATE ALL DIMENSIONS & FEATURES NOT SHOWN WITH ARCHITECT.

B. SEE SHEET S0.1 FOR ALL GENERAL STRUCTURAL NOTES.

C. ALL KEYNOTES INDICATE NEW ITEMS TYPICALLY UNLESS NOTED OTHERWISE.

D. BEAMS ARE EQUALLY SPACED IN BAYS, U.N.O.

E. BEAMS ARE CENTERED ON COLUMNS, WALLS, AND/OR GRID LINES, U.N.O.

F. ⟨X⟩ INDICATES SHEAR WALL TYPE. SEE SHEAR WALL SCHEDULE FOR ADDITIONAL INFORMATION.

G. INDICATES SHEAR WALL LOCATION BELOW FRAMING. SEE SHEAR WALL SCHEDULE FOR ADDITIONAL INFORMATION.

H. ALL SHEAR WALLS INDICATED AS "PERFORATED" THE CONTRACTOR SHALL PROVIDE NAILING PATTERN AROUND ALL WALL PENETRATIONS AS CALLED OUT ON FRAMING PLANS IN CORRESPONDENCE WITH THE SHEAR WALL SCHEDULE.

I. ALL ROOF PURLINS TO HAVE X-BRIDGING @ MID-SPAN. USE SIMPSON TB27 @ 16" o.c. PURLIN SPACING AND TB36 @ 24" o.c. PURLIN SPACING.

J. SPLICE BREAKS IN STUD WALL TOP TRACK w/ FLAT 16 GAUGE [50] STRAP w/ (16) #8 SCREWS EACH SIDE OF BREAK.

STRUCTURAL KEYNOTES

1. 15/32" PLYWOOD ROOF SHEATHING FASTENED TO STEEL FRAMING w/ #10 FLAT HEAD SCREWS @ 6" o.c. BOUNDARY & 12" o.c. FIELD.
2. PROVIDE SIMPSON LSTA36 STRAP @ 4'-0" ALONG RIDGE @ BREAK IN SHEATHING.
3. FULL WIDTH 2x BLOCKING w/ CONTINUOUS SIMPSON CMSTC16 COIL STRAP.
4. PLYWOOD FLOOR SHEATHING. THICKNESS TO MATCH (E) ADJACENT PARTIAL SHEATHING w/ 8d NAILS @ 6" o.c. BOUNDARY & 12" o.c. FIELD. USE #10 SHEATHING SCREWS @ 6" o.c. BOUNDARY AND 12" o.c. FIELD AT LIGHT GAUGE STEEL FRAMING.
5. ATTACH WATER HEATER TO STUD WALL FRAMING w/ SEISMIC WATER HEATER RESTRAINING STRAP/ SAFETY STRAP.
6. BRACE (E) HANGING MECHANICAL UNIT PER 11/S5.1. SEE ARCH PLAN FOR REINSTALLATION LOCATION.
7. SIMPSON CMSTC16 STRAP OVER BREAK IN DOUBLE TOP PLATE OR TRACK.
8. REDUCE STUD SPACING TO 12" o.c. WHEN BOTTOM TRACK TO TOP TRACK EXCEEDS 14'-0" IN HEIGHT.
9. TUBE STEEL FRAME PER BAY DOOR MANUFACTURER REQUIREMENTS. SEE 9/S6.1 FOR JAMB DETAIL.

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Revisions

No.	Description	Date

Stamp

STRUCTURAL REGISTERED PROFESSIONAL ENGINEER 70858 OREGON JULY 08, 2014 MATTHEW R. SMITH
EXPIRES: 06-30-24

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ROOF FRAMING PLAN

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S3.1

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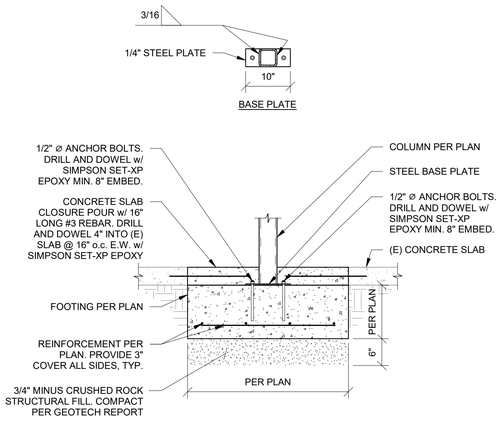
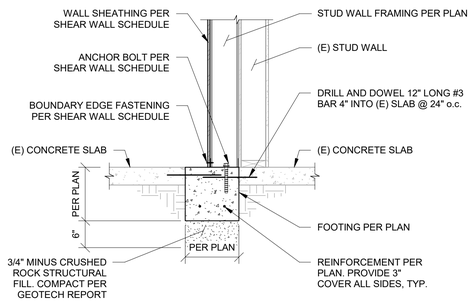
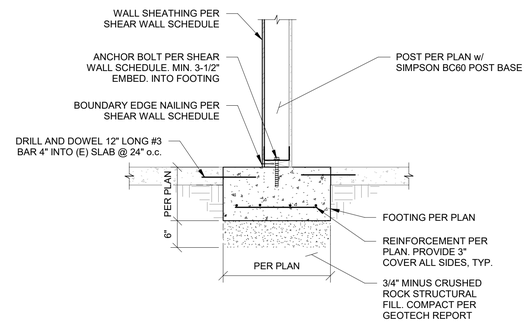


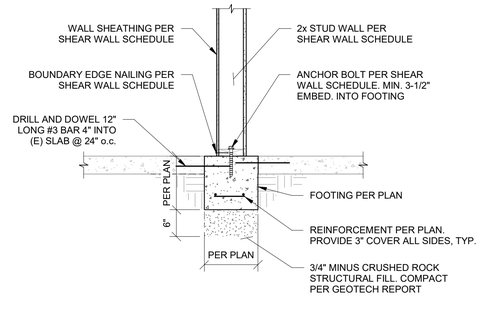
1 S4.1 SPREAD FOOTING
3/4" = 1'-0"



2 S4.1 STRIP FOOTING AT (N) SHEAR WALL
3/4" = 1'-0"



3 S4.1 SPREAD FOOTING AT INTERIOR WALL
3/4" = 1'-0"



4 S4.1 STRIP FOOTING AT (E) INTERIOR WALL
3/4" = 1'-0"

SECTION A-A

5 S4.1 SPREAD FOOTING AT EXTERIOR WALL
3/4" = 1'-0"

6 S4.1 FUEL TANK FOOTING
3/4" = 1'-0"

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Revisions

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Date
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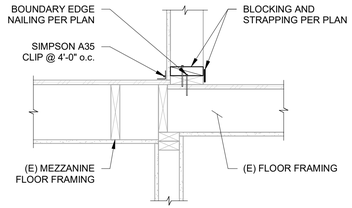
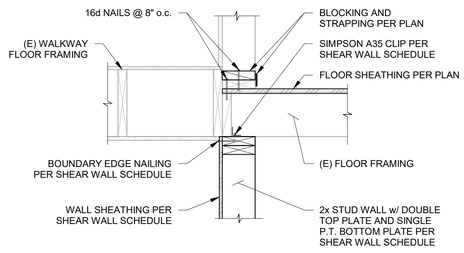
Drawing Title
FOUNDATION DETAILS

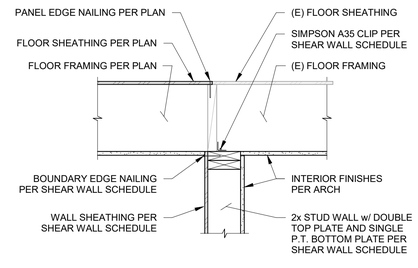
Sheet No
S4.1



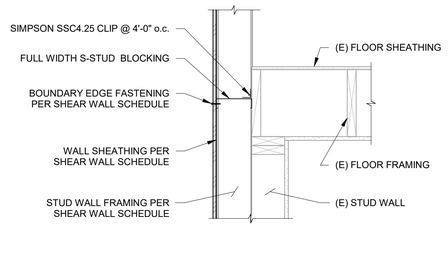
1 S5.1 DRAG BLOCKING CONNECTION
1" = 1'-0"



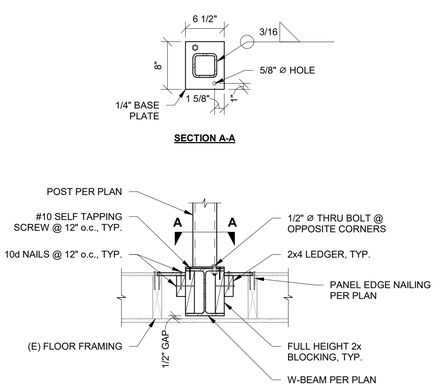
2 S5.1 INTERIOR WALL TO PERPENDICULAR FLOOR FRAMING
1" = 1'-0"



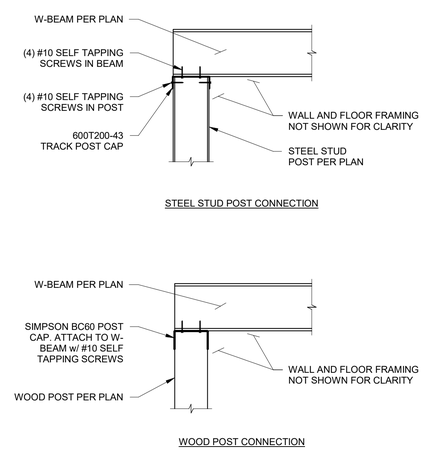
3 S5.1 MEZZANINE FLOOR FRAMING TO PERPENDICULAR STUD WALL
1" = 1'-0"



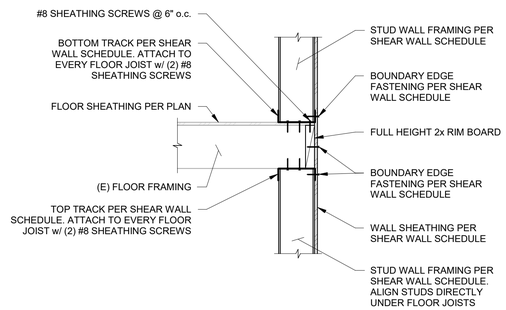
4 S5.1 MEZZANINE FLOOR FRAMING TO PARALLEL STUD WALL
1" = 1'-0"



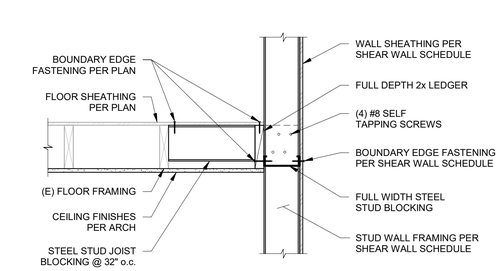
5 S5.1 STEEL FLOOR BEAM
1" = 1'-0"



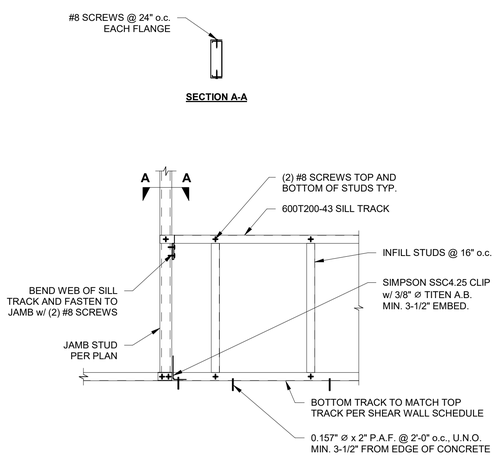
6 S5.1 W-BEAM TO POST CONNECTION
1" = 1'-0"



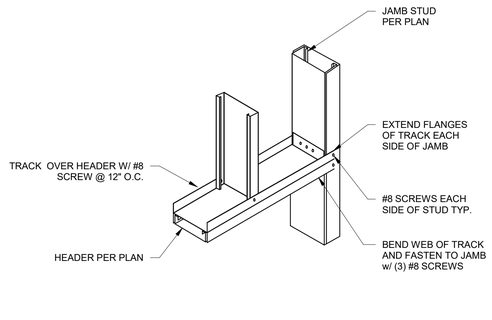
7 S5.1 EXTERIOR WALL TO PERPENDICULAR FLOOR FRAMING
1" = 1'-0"



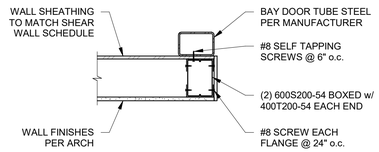
8 S5.1 EXTERIOR WALL TO PARALLEL FLOOR FRAMING
1" = 1'-0"



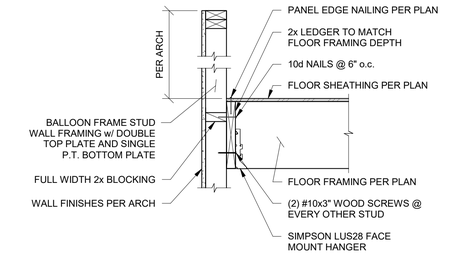
9 S5.1 TYP. EXTERIOR SILL DETAIL
1" = 1'-0"



10 S5.1 TYP. EXTERIOR HEADER TO JAMB DETAIL
1" = 1'-0"



11 S5.1 BAY DOOR WALL JAMB
1" = 1'-0"



12 S5.1 MEZZANINE GUARD RAIL
1" = 1'-0"

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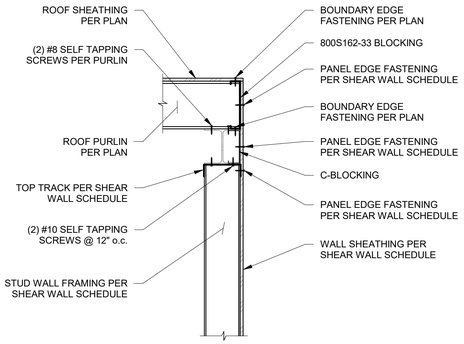
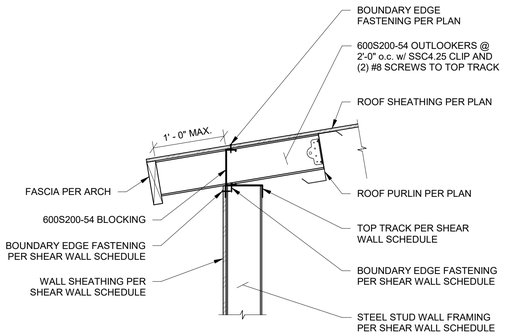
Drawing Title
FRAMING DETAILS

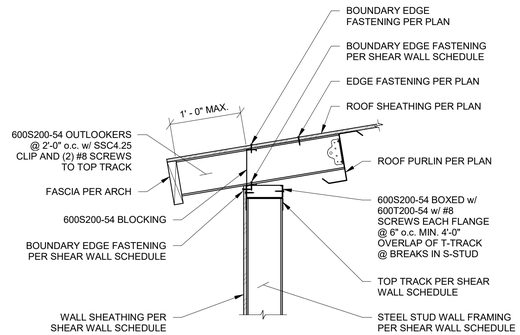
Sheet No
S5.1



1 S6.1 EXTERIOR WALL TO PERPENDICULAR ROOF FRAMING
1" = 1'-0"



2 S6.1 REAR EXTERIOR WALL TO PARALLEL ROOF FRAMING
1" = 1'-0"



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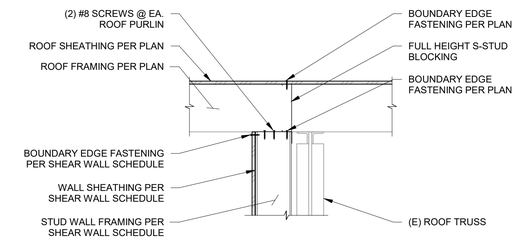

4 S6.1 INTERIOR SHEAR WALL TO PERPENDICULAR ROOF FRAMING
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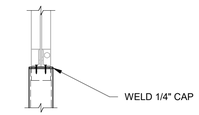
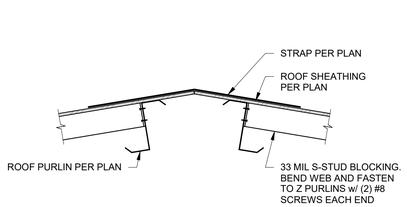


SECTION A-A



5 S6.1 TYP. ROOF RIDGE
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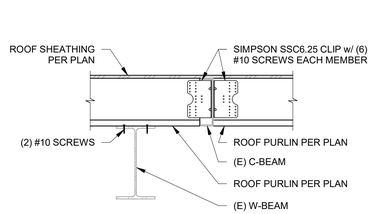

6 S6.1 TYP. CANTILEVER PURLIN CONNECTION
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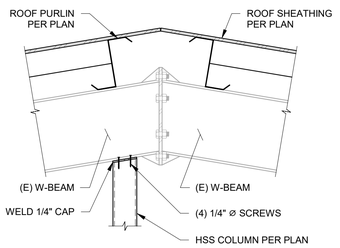

7 S6.1 HSS TO W-BEAM
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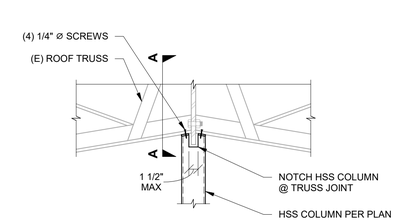

8 S6.1 HSS TO ROOF TRUSS
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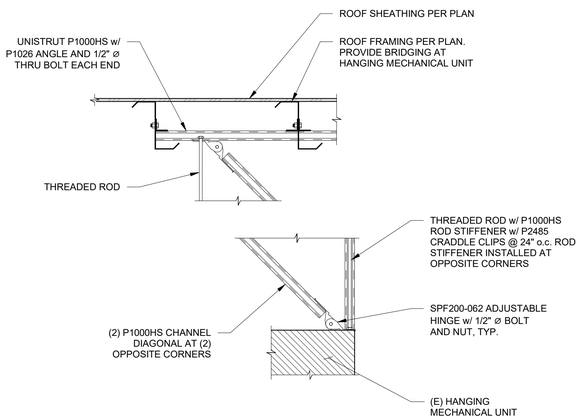

9 S6.1 HANGING MECHANICAL UNIT BRACING
1" = 1'-0"

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Soderstrom Architects

1200 NW Naito Parkway, Suite 410
Portland, OR 97209

T 503-228-5617
F 503-227-8584

sdra.com

Project

JCFD #5
STATION #4 - NEIL CREEK
40 NEIL CREEK RD
ASHLAND, OR 97520

Consultant

ZCS ENGINEERING ARCHITECTURE
45 Hawthorne Street, Medford, Oregon 97504 | 541-500-8588

Revisions

No.	Description	Date

Stamp

STRUCTURAL REGISTERED PROFESSIONAL ENGINEER 70858 OREGON NOV. 08, 2014 MATTHEW R. SMITH
EXPIRES: 06-30-24

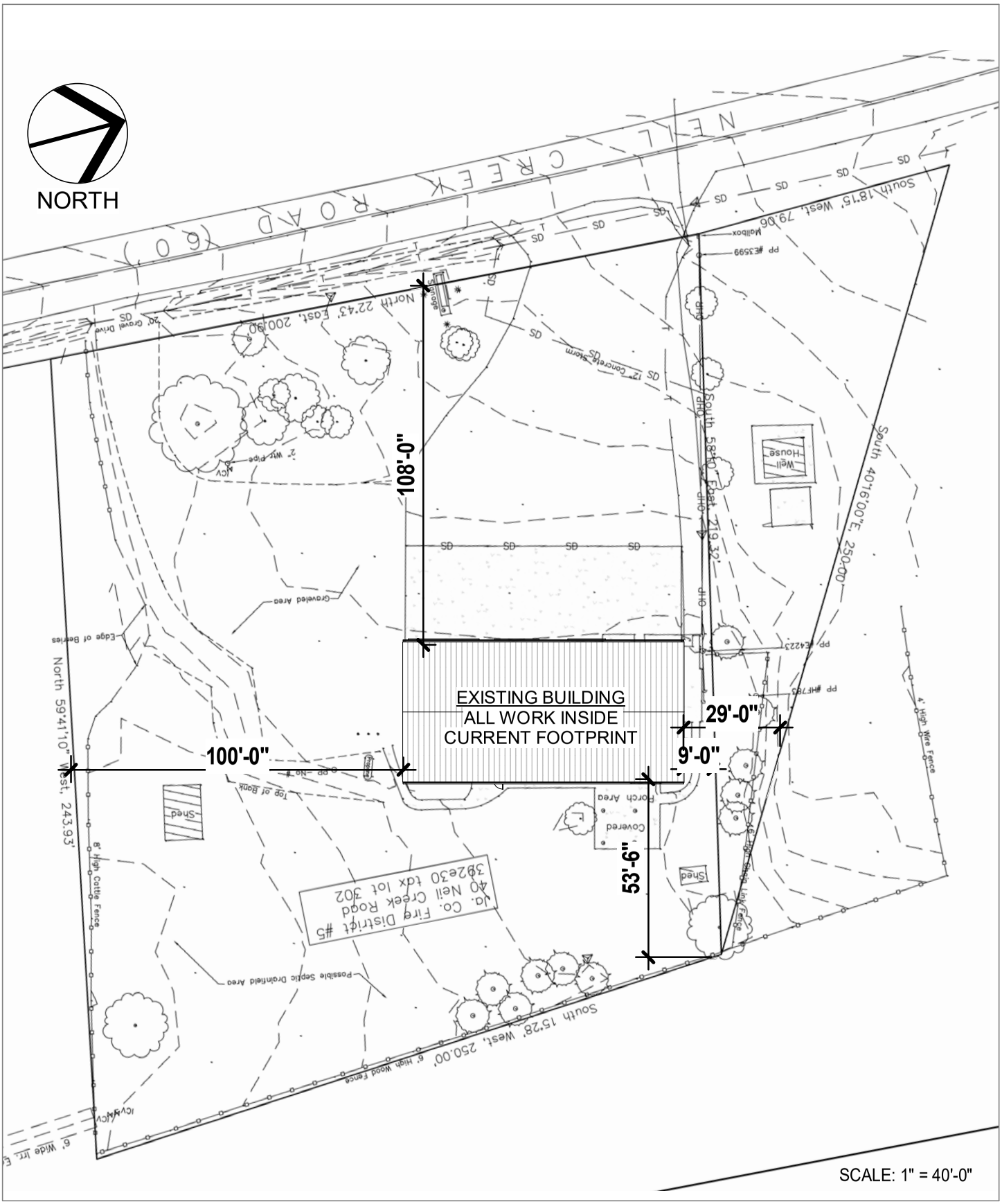
Issuance
PERMIT / BID SET

Date
09.07.22

Project Number
M-0263-21

Drawing Title
ROOF FRAMING DETAILS

Sheet No
S6.1



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Sheet Ref
PLOT PLAN

Sheet Issue
SEISMIC RETROFIT

JCFD #5
Station 4 - Neil Creek
40 NEIL CREEK RD
ASHLAND, OR 97520

Project No: 21058
Date: 08/22/22

Soderstrom Architects

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Attachment A

PREVAILING WAGE RATES

for

Public Works Contracts in Oregon

Oregon Bureau of Labor and Industries

Prevailing Wage Rates for Public Works Contracts

Val Hoyle
Labor Commissioner
Rates Effective July 1, 2022

VAL HOYLE
Labor Commissioner

In this rate book are the new prevailing wage rates for Oregon non-residential public works projects, effective July 1, 2022.

Prevailing wage rates are the minimum hourly wages that must be paid to all workers employed on all public works projects. In the 2021 Legislative Session, the Legislature passed Senate Bill (SB) 493 which was signed by the Governor with the effective date of January 1, 2022. SB 493 amends state PWR law (ORS 279C.815) and provides that the prevailing rate of wage for each locality is the wage in the collective bargaining agreement that covers that occupation. If more than one collective bargaining agreement covers that occupation, the highest rate of wage among the collective bargaining agreements will prevail. Accordingly, the rates in this book are determined using wage information from current collective bargaining agreements for each trade and occupation for each of the 14 geographic regions of the state.

Thank you for your engagement in the process and commitment to Oregon law.

Our team is ready to help support you with any questions you have. We also offer regular, free informational seminars and webinars for contractors and public agencies. Contact us at PWR.Email@boli.oregon.gov or (971) 353-2416.

Val Hoyle
Labor Commissioner

More information about prevailing wage rates:

The Oregon Bureau of Labor & Industries publishes the prevailing wage rates (PWR) that are required to be paid to workers on non-residential Oregon public works projects.

A separate document, *Definitions of Covered Occupations for Public Works Contracts in Oregon,* provides occupational definitions used to classify the duties performed on public works projects. These definitions are used to find the correct prevailing wage rate.

The rate book and definition publications are available online at https://www.oregon.gov/boli as well as additional information and supporting documents and forms.

Please contact us at PWR.Email@boli.oregon.gov or (971) 353-2416, for additional information such as:

- Applicable prevailing wage rates for projects (Generally, the rates in effect at the time the bid specifications are first advertised are those that apply for the duration of the project.)
- Federal Davis-Bacon rates (In cases where projects are subject to both state PWR and federal Davis-Bacon rates, the higher wage must be paid.)
- Required PWR provisions for specifications and contracts
- Apprentice rates

TABLE OF CONTENTS

JULY 1, 2022

Forms necessary to comply with ORS 279C.800 through ORS 279C.870 can be found on our website at https://www.oregon.gov/boli/employers/Pages/prevailing-wage.aspx. Contractors are encouraged to use and keep on file the forms provided as master copies for use on future prevailing wage rate projects.

All of the information in this booklet can be accessed and printed from the Internet at: www.oregon.gov/BOLI

Pursuant to ORS 279C.800 to ORS 279C.870, the prevailing wage rates contained in this booklet have been adopted for use on public works contracts in Oregon.

Required Postings for Prevailing Wage Contractors and Subcontractors

PREVAILING WAGE RATES

Every contractor and subcontractor engaged in work on a public works must post the applicable prevailing wage rates for that project in an obvious place on the worksite so workers have ready access to the information.

DETAILS OF FRINGE BENEFIT PROGRAMS

When a contractor or subcontractor provides or contributes to a health and welfare plan or a pension plan, or both, for employees who are working on a public works project, the details of all fringe benefit plans or programs must be posted on the worksite.

The posting must include a description of the plan or plans, information about how and where claims can be made and where to obtain more information. The notice must be posted in an obvious place on the work site in the same location as the prevailing wage rates.

WORK SCHEDULE

Contractors and subcontractors must give workers the regular work schedule (days of the week and number of hours per day) in writing before beginning work on the project.

Contractors and subcontractors may provide the schedule at the time of hire, prior to starting work on the contract, or by posting the schedule in a location frequented by employees, along with the prevailing wage rate information and any fringe benefit information.

If an employer fails to give written notice of the worker's schedule, the work schedule will be presumed to be a five-day schedule. The schedule may only be changed if the change is intended to be permanent and is not designed to evade the PWR overtime requirements.

ORS 279C.840(4); OAR 839-025-0033(1). ORS 279C.840(5); OAR 839-025-0033(2). ORS 279C.540(2); OAR 839-025-0034.

PUBLIC WORKS BONDS

Every contractor and subcontractor who works on public works projects subject to the prevailing wage rate (PWR) law is required to file a $30,000 **"PUBLIC WORKS BOND"** with the Construction Contractors' Board (CCB). This includes flagging and landscaping companies, temporary employment agencies, and sometimes sole proprietors.

The key elements of ORS 279C.830(2) and ORS 279C.836 specify that:

- Specifications for every contract for public works must contain language stating that the contractor and every subcontractor must have a public works bond filed with the CCB before starting work on the project, unless otherwise exempt.
- Every contract awarded by a contracting agency must contain language requiring the contractor:
  - To have a public works bond filed with the CCB before starting work on the project, unless otherwise exempt; and
  - To include in every subcontract a provision requiring the subcontractor to have a public works bond filed with the CCB before starting work on the project unless otherwise exempt
- Every subcontract that a contractor or subcontractor awards in connection with a public works contract between a contractor and a public agency must require any subcontractor to have a public works bond filed with the CCB before starting work on the public works project, unless otherwise exempt.
- Before permitting a subcontractor to start work on a public works project, contractors must first verify their subcontractors either have filed the bond, or have elected not to file a public works bond due to a bona fide exemption.
- The PWR bond is to be used exclusively for unpaid wages determined to be due by the Bureau of Labor & Industries.
- The bond is in effect continuously (you do not have to have one per project).
- A public works bond is in addition to any other required bond the contractor or subcontractor is required to obtain.

Exemptions:

- Allowed for a disadvantaged business enterprise, a minority-owned business, woman-owned business, a business that a service-disabled veteran owns or an emerging small business certified under ORS 200.055, for the first FOUR years of certification;
  - Exempt contractor must still file written verification of certification with the CCB, and give the CCB written notice that they elect not to file a bond.
  - The prime contractor must give written notice to the public agency that they elect not to file a public works bond.
  - Subcontractors must give written notice to the prime contractor that they elect not to file a public works bond.
- For projects with a total project cost of $100,000 or less, a public works bond is not required. (Note this is the total project cost, not an individual contract amount.)
- Emergency projects, as defined in ORS 279A.010(f).

PREVAILING WAGE RATES

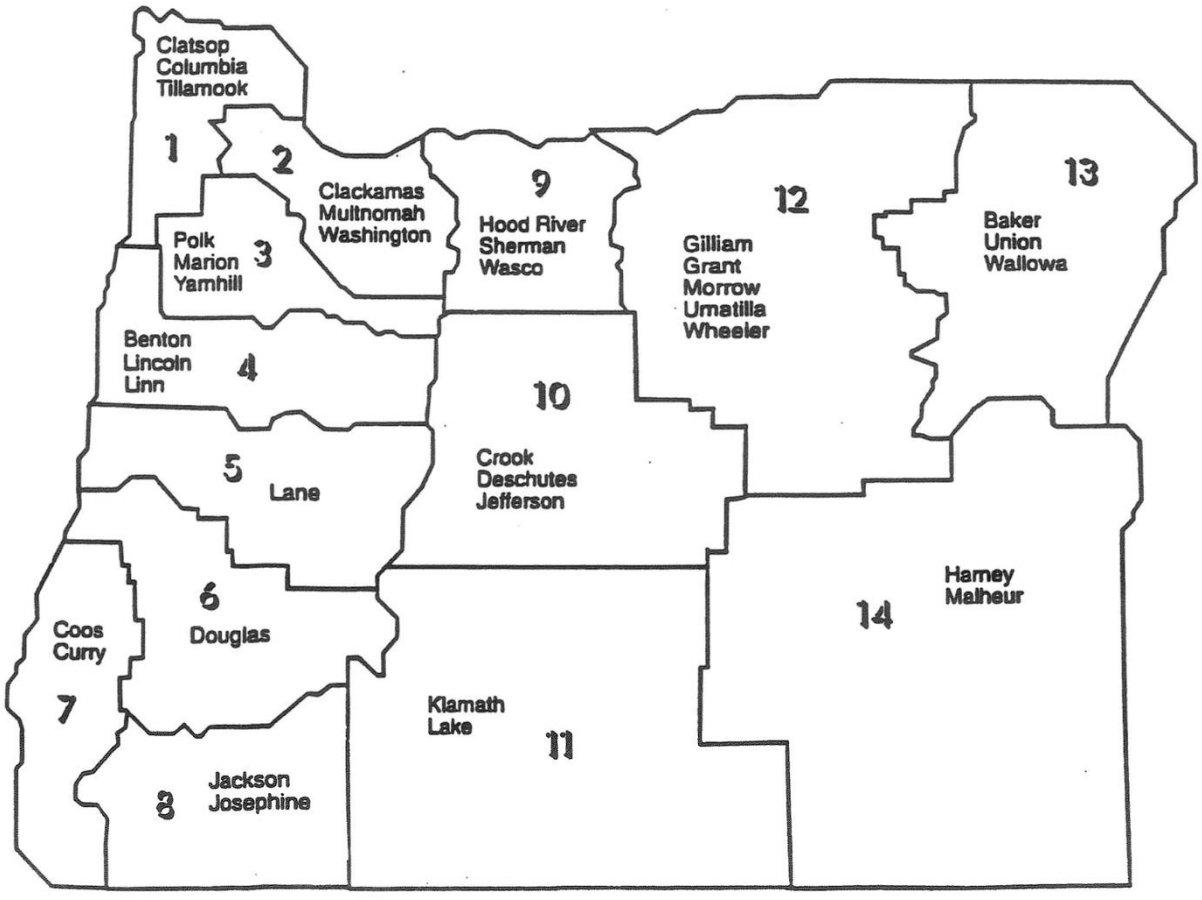
FINDING THE CORRECT PREVAILING WAGE RATE

To find the correct rate(s) required on your public works project, you will need:

- the date the project was first advertised for bid
- the county your project is in
- the duties of workers on the job

Generally, the rate you should look for is based on the date the project was first advertised for bid. (See OAR 839-025-0020(8) for information about projects that contract through a CM/GC, or contract manager/general contractor.)

The Labor Commissioner must establish the prevailing rate of wage for each region as defined in law. (See ORS 279C.800.) Each region is comprised of one to five counties. See below instructions on locating the correct prevailing wage rate for your public works project.



To find the correct rate in this rate book:

1. *Determine the duties that are being performed by each worker.* Use the booklet *Definitions of Covered Occupations* to find the definition that most closely matches the actual work performed by the worker. You can find this publication online at https://www.oregon.gov/boli/employers/Pages/occupational-definitions.aspx.

2. *Find the correct occupation in the "Prevailing Wage Rate for Public Works Contracts" below.* The prevailing wage rate is made up of an hourly base rate and an hourly fringe rate. The combination of these two amounts must be paid to each worker. Watch for possible zone differential, shift differential, and/or hazard pay. If the occupation lists different rates for different Areas of the state, locate the Area that includes the county where the project is located.

Apprentices must be paid consistent with their registered apprenticeship program standard. You can find apprenticeship rates on our website at https://www.oregon.gov/boli/employers/Pages/prevailing-wage-rates.aspx. You may also contact the agency to confirm the correct apprenticeship rate.

The "Prevailing Wage Rate Laws" handbook provides specific information and answers questions regarding prevailing wage laws and is available on our website at https://www.oregon.gov/boli/employers/Pages/prevailing-wage.aspx.

If you have any questions about any of this information, please contact the Bureau of Labor & Industries at PWR.Email@boli.oregon.gov or (971) 353-2416.

July 1, 2022

Prevailing Wage Rates by Occupations—Table of Contents

Using the booklet, Definitions of Covered Occupations, find the definition and group number, if applicable, that most closely matches the actual work being performed by the worker.

ASBESTOS WORKER/INSULATOR	**57.17**	**23.02**
Firestop Containment	**42.38**	**16.69**
BOILERMAKER	**40.46**	**30.59**
BRICKLAYER/STONEMASON	**43.00**	**24.25**

This trade is tended by "Tenders to Mason Trades."

Add $1.00 per hour to base rate for refractory repair work.

CARPENTER

Zone A (Base Rate)

Group 1	**44.80**	**19.21**
Group 2	**44.97**	**19.21**
Group 3	**50.24**	**19.21**
Group 4	**Eliminated**	
Group 5	**45.40**	**19.21**
Group 6	**45.74**	**19.21**

Zone Differential for Carpenters
Add to Zone A Base Rate

Zone B	**1.25** per hour
Zone C	**1.70** per hour
Zone D	**2.00** per hour
Zone E	**3.00** per hour
Zone F	**5.00** per hour
Zone G	**10.00** per hour

Zone A: Projects located within 30 miles of the respective city hall of the cities listed.
Zone B: More than 30 miles but less than 40 miles.
Zone C: More than 40 miles but less than 50 miles.
Zone D: More than 50 miles but less than 60 miles.
Zone E: More than 60 miles but less than 70 miles.
Zone F: More than 70 miles but less than 100 miles.
Zone G: More than 100 miles.

Reference Cities for Group 1 and 2 Carpenters

Albany	Goldendale	Madras	Roseburg
Astoria	Grants Pass	Medford	Salem
Baker City	Hermiston	Newport	The Dalles
Bend	Hood River	Ontario	Tillamook
Brookings	Klamath Falls	Pendleton	Vancouver
Burns	La Grande	Portland	
Coos Bay	Lakeview	Port Orford	
Eugene	Longview	Reedsport	

Reference Cities for Group 3 Carpenters

Eugene	Medford	Portland	Vancouver
Longview	North Bend	The Dalles	

CARPENTER (continued)

Reference Cities for Group 5 and 6 Carpenters

Bend	Longview	North Bend
Eugene	Medford	Portland

Zones for **Group 6** Carpenter are determined by the distance between the project site and **either**

1) The worker's residence; ***or***

2) City Hall of a reference city listed, whichever is closer.

Note: All job or project locations shall be computed (determined) on the basis of road miles and in the following manner. A mileage measurement will start at the entrance to the respective city hall, facing the project (if possible), and shall proceed by the normal route (shortest time--best road via Google Maps) to the geographical center on the highway, railroad, and street construction projects (end of measurement). On all project contracts, the geographical center where the major portion of the construction is located, shall be considered the center of the project (end measurement).

Group 2, 5 and 6:
Welders shall receive a 5% premium per hour based on their Group's journeyman wage rate, with an 8-hour minimum.

Group 1 and 3:
When working with toxic treated wood, workers shall receive $.25/hour premium pay for minimum of eight (8) hours.

Group 5 and 6:
When working with creosote and other toxic treated wood, workers shall receive $.25/hour premium pay for minimum of eight (8) hours.

Group 6:
When working in sheet pile coffer dams or cells up to the external water level, workers shall receive $.15/hour premium pay for minimum of eight (8) hours.

CEMENT MASON
This trade is tended by "Concrete Laborer."

Group 1	**39.97**	**21.17**
Group 2	**40.81**	**21.17**
Group 3	**40.81**	**21.17**
Group 4	**41.64**	**21.17**

Zone Differential for Cement Mason
Add to Basic Hourly Rate

Zone A	**3.00** per hour
Zone B	**5.00** per hour
Zone C	**10.00** per hour

Zone A: Projects located 60-79 miles of the respective city hall of the Reference Cities listed below.
Zone B: Projects located 80-99 miles of the respective city hall of the Reference Cities listed below.
Zone C: Projects located 100 or more miles of the respective city hall of the Reference Cities listed below.

Reference Cities for Cement Mason

Bend	Eugene	Pendleton	Salem	Vancouver
Corvallis	Medford	Portland	The Dalles	

When a contractor takes current employees to a project that is located more than 59 miles from the city hall of the Reference City that is closest to the contractor's place of business, Zone Pay is to be paid for the distance between the city hall of the identified Reference City and the project site.

CEMENT MASON (continued)

Note: All miles are to be determined on the basis of road miles using the normal route (shortest time – best road), from the city hall of the Reference City closest to the contractor's place of business and the project.

DIVER & DIVER TENDER

Zone 1 (Base Rate)

DIVER	**95.32**	**19.21**
DIVER TENDER	**51.32**	**19.21**

1) For those workers who reside within a reference city below, their zone pay shall be computed from the city hall of the city wherein they reside.

2) For those workers who reside nearer to a project than is the city hall of any reference city below, the mileage from their residence may be used in computing their zone pay differential.

3) The zone pay for all other projects shall be computed from the city hall of the nearest reference city listed below.

Zone Differential for Diver/Diver Tender
Add to Zone 1 Base Rate

Zone 2 **1.25** per hour
Zone 3 **1.70** per hour
Zone 4 **2.00** per hour
Zone 5 **3.00** per hour
Zone 6 **5.00** per hour
Zone 7 **10.00** per hour

Zone 1: Projects located within 30 miles of city hall of the reference cities listed.
Zone 2: More than 30 miles, but less than 40 miles.
Zone 3: More than 40 miles, but less than 50 miles.
Zone 4: More than 50 miles, but less than 60 miles.
Zone 5: More than 60 miles, but less than 70 miles.
Zone 6: More than 70 miles, but less than 100 miles.
Zone 7: More than 100 miles.

Reference Cities for Diver/Diver Tender

Bend	Longview	North Bend
Eugene	Medford	Portland

Note: All job or project locations shall be computed (determined) on the basis of road miles and in the following manner. A mileage measurement will start at the entrance to the respective city hall, facing the project (if possible), and shall proceed by the normal route (shortest time--best road via Google Maps) to the geographical center on the highway, railroad, and street construction projects (end of measurement). On all project contracts, the geographical center where the major portion of the construction is located, shall be considered the center of the project (end measurement).

Diver Depth Pay:

Depth Below Water Surface (FSW)	Daily Depth Pay
50-100 ft.	$2.00 per foot over 50 feet
101-150 ft.	$3.00 per foot over 100 feet
151-220 ft.	$4.00 per foot over 150 feet
Over 220 ft.	$5.00 per foot over 220 feet

The actual depth in FSW shall be used in determining depth premium.

See Diver Enclosure Pay on page 9

DIVER & DIVER TENDER (continued)

Diver Enclosure Pay (working without vertical escape):

Distance Traveled in the Enclosure	Daily Enclosure Pay
0 – 25ft.	N/C
25 – 300 ft.	$1.00 per foot from the entrance
300 – 600 ft.	$1.50 per foot beginning at 300 ft.
Over 600 ft.	$2.00 per foot beginning at 600 ft.

DREDGER

Zone A (Base Rate)

Leverman (Hydraulic & Clamshell)	**51.46**	**16.15**
Assistant Engineer (Watch Engineer, Mechanic Machinist)	**48.30**	**16.15**
Tenderman (Boatman Attending Dredge Plant), Fireman	**46.81**	**16.15**
Fill Equipment Operator	**45.64**	**16.15**
Assistant Mate	**42.94**	**16.15**

Zone Differential for Dredgers
Add to Zone A Base Rate

Zone B **3.00** per hour
Zone C **6.00** per hour

Zone mileage based on road miles:

Zone A: Center of jobsite to no more than 30 miles from the city hall of Portland.
Zone B: More than 30 miles but not more than 60 miles.
Zone C: Over 60 miles.

DRYWALL, LATHER, ACOUSTICAL CARPENTER & CEILING INSTALLER

Zone 1 (Base Rate)

1. DRYWALL INSTALLER	**44.74**	**18.91**
2. LATHER, ACOUSTICAL CARPENTER & CEILING INSTALLER	**44.74**	**18.91**

Zone Differential for Lather, Acoustical Carpenter & Ceiling Installer

Zone mileage based on road miles:

Zone B	61-80 miles	**6.00** per hour
Zone C	81-100 miles	**9.00** per hour
Zone D	101 or more	**12.00** per hour

The correct transportation allowance shall be based on AAA road mileage from the City Hall of the transportation reference cities herein listed.

See reference cities for zone differential on page 10

DRYWALL, LATHER, ACOUSTICAL CARPENTER & CEILING INSTALLER (continued)

Reference Cities for Drywall, Lather, Acoustical Carpenter & Ceiling Installer

Albany	Bend	Grants Pass	Medford	Portland	Seaside
Astoria	Brookings	Hermiston	Newport	Reedsport	The Dalles
Baker	Coquille	Klamath Falls	North Bend	Roseburg	Tillamook
Bandon	Eugene	Kelso-Longview	Pendleton	Salem	Vancouver

Certified welders shall receive 5% over the base wage rate, with an eight (8) hour minimum.

ELECTRICIAN

Area 1 (Region 14)

Electrician	**40.97**	**18.58**
Lighting Maintenance and Material Handler	**19.95**	**10.00**

Reference County

Malheur

Shift Differential

1st Shift "day"	Between the hours of 8:00am and 4:30pm	8 hours pay for 8 hours work
2nd Shift "swing"	Between the hours of 4:30pm and 12:30am	8 hours pay for 8 hours work plus 7.5% for all hours worked
3rd Shift "graveyard"	Between the hours of 12:30am and 8:00am	8 hours pay for 8 hours work plus 15% for all hours worked.

When workers are required to work under compressed air or to work from trusses, scaffolds, swinging scaffolds, bosun's chair or on building frames, stacks or towers at a distance, the following should be added to base rate.

50 – 90 feet to the ground	Add 1 ½ x the base rate
90+ feet to the ground	Add 2 x the base rate

Pursuant to ORS 279C.815(2)(b), the Electrician Area 6 rate is the highest rate of wage among the collective bargaining agreements for Electrician Areas 1 and 6.

Area 2 (Regions 12 and 13)

Electrician	**51.75**	**24.18**
Cable Splicer	**54.34**	**24.26**
Certified Welder	**56.93**	**24.34**
Material Handler	**31.05**	**13.06**

Reference Counties

Baker	Grant	Umatilla	Wallowa
Gilliam	Morrow	Union	Wheeler

Add 50% of the base rate when workers are required to work under the following conditions:

1) Under compressed air with atmospheric pressure exceeding normal pressure by at least 10%.

2) From trusses, swing scaffolds, bosun's chairs, open platforms, unguarded scaffolds, open ladders, frames, tanks, stacks, silos and towers where the workman is subject to a direct fall of (a) more than 60 feet or (b) into turbulent water under bridges, powerhouses or spillway faces of dams.

ELECTRICIAN (continued)

Area 3 (Regions 4, 5, 6 and 7)

Electrician	**43.97**	**22.81**

Reference Counties

Coos Curry Douglas

Lane – **See Area 4** Lincoln – **See Area 4**

Shift Differential

1st Shift "day"	Between the hours of 8:00am and 4:30pm	8 hours pay for 8 hours work
2nd Shift "swing"	Between the hours of 4:30pm and 1:00am	8 hours pay for 8 hours work plus 17% for all hours worked
3rd Shift "graveyard"	Between the hours of 12:30am and 9:00am	8 hours pay for 8 hours work plus 31% for all hours worked.

When workers are required to work under compressed air or where gas masks are required, or to work from trusses, all scaffolds including mobile elevated platforms, any temporary structure, bosun's chair or on frames, stacks, towers, tanks, within 15' of the leading edges of any building at a distance of:

50 – 75 feet to the ground	Add 1 ½ x the base rate
75+ feet to the ground	Add 2 x the base rate

High Time is not required to be paid on any permanent structure with permanent adequate safeguards (handrails, mid-rails, and toe guards). Any vehicle equipped with outriggers are exempted from this section.

Area 4 (Regions 3, 4, 5, and 10)

Electrician	**49.36**	**20.20**
Cable Splicer	**54.30**	**20.35**
Lighting Maintenance/Material Handler	**22.67**	**10.08**

Reference Counties for Area 4

Benton	Deschutes	Lane	Lincoln
Crook	Jefferson	Linn	

Marion – **See Area 5 rate** Polk – **See Area 5 rate** Yamhill – **See Area 5 rate**

Shift Differential

1st Shift "day"	Between the hours of 8:00am and 4:30pm	8 hours pay for 8 hours work
2nd Shift "swing"	Between the hours of 4:30pm and 1:00am	8 hours pay for 8 hours work plus 17% for all hours worked
3rd Shift "graveyard"	Between the hours of 12:30am and 9:00am	8 hours pay for 8 hours work plus 31.4% for all hours worked.

ELECTRICIAN (continued)

Area 5 (Regions 1, 2, 3 and 9)

Electrician	**53.85**	**27.84**
Electrical Welder	**59.24**	**28.00**
Material Handler/Lighting Maintenance	**30.69**	**19.62**

Reference Counties

Clackamas	Hood River	Polk	Wasco
Clatsop	Marion	Sherman	Washington
Columbia	Multnomah	Tillamook	Yamhill

Shift Differential

1st Shift "day"	Between the hours of 7:00am and 5:30pm	8 hours pay for 8 hours work
2nd Shift "swing"	Between the hours of 4:30pm and 3:00am	8 hours pay for 8 hours work plus 17.3% for all hours worked
3rd Shift "graveyard"	Between the hours of 12:30am and 11:00am	8 hours pay for 8 hours work plus 31.4% for all hours worked.

Zone Pay for Area 5 – **Electrician and Electrical Welder**
Add to Basic Hourly Rate

Zone mileage based on air miles:

Zone 1	31-50 miles	**1.50** per hour
Zone 2	51-70 miles	**3.50** per hour
Zone 3	71-90 miles	**5.50** per hour
Zone 4	Beyond 90	**9.00** per hour

There shall be a 30-mile free zone from downtown Portland City Hall and a similar 15-mile free zone around the following cities:

Astoria	Seaside	Tillamook
Hood River	The Dalles	

Further, the free zone at the Oregon coast shall extend along Hwy 101 west to the ocean Hwy 101 east 10 miles if not already covered by the above 15-mile free zone.

Area 6 (Regions 6, 8, 11 and 14)

Electrician	**40.97**	**18.58**
Lighting Maintenance and Material Handler	**19.95**	**10.00**

Reference Counties

Harney	Josephine	Lake
Jackson	Klamath	Malheur

Douglas – **See Area 3 rate**

See shift differential on page 13

ELECTRICIAN (continued)

Shift Differential

1st Shift "day"	Between the hours of 8:00am and 4:30pm	8 hours pay for 8 hours work
2nd Shift "swing"	Between the hours of 4:30pm and 1:00am	8 hours pay for 8 hours work plus 7.5% for all hours worked
3rd Shift "graveyard"	Between the hours of 12:30am and 9:00am	8 hours pay for 8 hours work plus 15% for all hours worked.

When workers are required to work under compressed air or to work from trusses, scaffolds, swinging scaffolds, bosun's chair or on building frames, stacks or towers at a distance, the following should be added to base rate.

50 – 90 feet to the ground	Add 1 ½ x the base rate
90+ feet to the ground	Add 2 x the base rate

ELEVATOR CONSTRUCTOR, INSTALLER AND MECHANIC

Area 1 (Regions 12 and 13)

Mechanic	**59.70**	**43.48**

Reference Counties

Baker Union Wallowa

Umatilla – **See Area 2 rate**

Area 2 (Regions 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, and 14)

Mechanic	**59.95**	**43.68**

Reference Counties

Benton	Douglas	Klamath	Multnomah	Deschutes
Clackamas	Gilliam	Lake	Polk	Josephine
Clatsop	Grant	Lane	Sherman	Morrow
Columbia	Harney	Lincoln	Tillamook	Wheeler
Coos	Hood River	Linn	Umatilla	Yamhill
Crook	Jackson	Malheur	Wasco	
Curry	Jefferson	Marion	Washington	

FENCE CONSTRUCTOR (NON-METAL)	**34.98**	**16.55**
FENCE ERECTOR (METAL)	**34.98**	**16.55**
GLAZIER	**44.43**	**25.09**

Add $1.00 to base rate when employee works from a swing stage, scaffold, suspended contrivance or mechanical apparatus from the third floor up or thirty feet of free fall (whichever is less), and employee is required to wear a safety belt.

Add twenty percent (20%) to base rate when employee works from a bosun chair (non-motorized single-man apparatus), regardless of height.

Certified welders shall receive twenty percent (20%) above the base rate for actual time spent performing welding duties.

HAZARDOUS MATERIALS HANDLER	**28.03**	**14.18**
HIGHWAY/PARKING STRIPER	**38.18**	**15.08**

Shift Differential
Add $1.85/hour to base rate for shifts that start between 3:00pm and 4:00am.

IRONWORKER

Zone 1 (Base Rate):	**41.13**	**30.72**

Zone Differential for Ironworker
Add to Basic Hourly Rate

Zone 2 **5.63/**hr. or $45.00 maximum per day
Zone 3 **8.75**/hr. or $70.00 maximum per day
Zone 4 **11.25/**hr. or $90.00 maximum per day

Zone 1: Projects located within 45 miles of city hall in the reference cities listed below.
Zone 2: More than 46 miles, but less than 60 miles.
Zone 3: More than 61 miles, but less than 100 miles.
Zone 4: More than 100 miles.

Note: Zone pay for Ironworkers shall be determined using the quickest route per Google Maps and computed from the city hall or dispatch center of the reference cities listed below **or** the residence of the employee, whichever is nearer to the project.

Reference Cities and Dispatch Center

Medford Portland

LABORER

Zone A (Base Rate):

Group 1	**34.98**	**16.55**
Group 2	**36.25**	**16.55**
Group 3 (Flagger)	**30.38**	**16.55**
Group 4 (Landscape Laborer)	**24.17**	**16.55**

Zone Differential for Laborers
Add to Zone A Base Rate

Zone B **.85** per hour
Zone C **1.25** per hour
Zone D **2.00** per hour
Zone E **4.00** per hour
Zone F **5.00** per hour

Zone A: Projects located within 30 miles of city hall in the reference cities listed.
Zone B: More than 30 miles but less than 40 miles.
Zone C: More than 40 miles but less than 50 miles.
Zone D: More than 50 miles but less than 80 miles.
Zone E: More than 80 miles but less than 100 miles.
Zone F: More than 100 miles.

See reference cities for zone differential page 15

LABORER (continued)

Reference Cities for Laborer

Albany	Burns	Hermiston	Roseburg
Astoria	Coos Bay	Klamath Falls	Salem
Baker City	Eugene	Medford	The Dalles
Bend	Grants Pass	Portland	

Note: All job or project locations shall be computed (determined) on the basis of road miles and in the following manner. A mileage measurement will start at the entrance to the respective city hall, facing the project (if possible), and shall proceed by the normal route (shortest time, best road) to the geographical center on the highway, railroad, and street construction projects (end of measurement). On all other project contracts, the geographical center where the major portion of the construction is located, shall be considered the center of the project (end measurement).

Any Laborer working in Live Sewers shall receive forty dollars ($40) per day in addition to their regular pay.

LANDSCAPE LABORER/TECHNICIAN (Laborer Group 4) **24.17** **16.55**

LIMITED ENERGY ELECTRICIAN

Area 1 (Region 14) **33.76** **14.26**

Reference County

Malheur

Pursuant to ORS 279C.815(2)(b), the Limited Energy Electrician Area 6 rate is the highest rate of wage among the collective bargaining agreements for Limited Energy Electrician Areas 1 and 6.

Area 2 (Regions 12 and 13) **33.19** **15.16**

Reference Counties

Baker	Grant	Umatilla	Wallowa
Gilliam	Morrow	Union	Wheeler

Area 3 (Regions 4, 5, 6 and 7) **33.42** **20.14**

Reference Counties

Benton	Curry	Lane	Linn
Coos	Douglas	Lincoln	

Area 4 (Regions 3, 4, 5 and 10) **36.17** **17.26**

Reference Counties

Benton	Jefferson	Linn
Crook	Lane	Lincoln
Deschutes		

Benton – **See Area 3 rate**	Linn – **See Area 3 rate**	Polk – **See Area 5 rate**
Lane – **See Area 3 rate**	Marion – **See Area 5 rate**	Yamhill – **See Area 5 rate**

LIMITED ENERGY ELECTRICIAN (continued)

Area 5 (Regions 1, 2, 3 and 9)	**44.23**	**22.30**

Reference Counties

Clackamas	Hood River	Polk	Wasco
Clatsop	Marion	Sherman	Washington
Columbia	Multnomah	Tillamook	Yamhill

Area 6 (Regions 6, 8, 11 and 14)	**33.76**	**14.26**

Reference Counties

Harney	Josephine	Lake
Jackson	Klamath	Malheur

Douglas – **See Area 3 rate**

LINE CONSTRUCTOR

Area 1 (All Regions)

Group 1	**64.58**	**23.24**
Group 2	**57.66**	**23.13**
Group 3	**33.05**	**15.49**
Group 4	**49.59**	**19.69**
Group 5	**43.25**	**16.85**
Group 6	**35.75**	**16.62**
Group 7	**19.24**	**12.42**

Reference Counties

All counties

Pursuant to ORS 279C.815(2)(b), the Line Constructor Area 1 rate is the highest rate of wage among the collective bargaining agreements for Line Constructor Area 1 and Area 2.

MARBLE SETTER	**44.00**	**24.25**

This trade is tendered by “Tile, Terrazzo, & Marble Finishers.”

Add $1.00 per hour to base rate for refractory repair work.

PAINTER & DRYWALL TAPER

COMMERCIAL PAINTING	**30.72**	**14.18**
INDUSTRIAL PAINTING	**32.52**	**14.18**
BRIDGE PAINTING	**38.19**	**14.18**

Shift Differential for Painter
Add $2.00/hour to base rate for entire shift if any hours are worked outside of 5:00 a.m. to 5:00 p.m.

See Drywall Taper on page 17.

PAINTER & DRYWALL TAPER (continued)

DRYWALL TAPER

Zone A (Base Rate	**42.52**	**19.13**

Zone Differential for Drywall Taper
Add to Zone A Base Rate

Zone B **6.00** per hour
Zone C **9.00** per hour
Zone D **12.00** per hour

Dispatch Cities for Drywall Taper

Albany	Bend	Grants Pass	Medford	Portland	Seaside
Astoria	Brookings	Hermiston	Newport	Reedsport	The Dalles
Baker	Coquille	Klamath Falls	North Bend	Roseburg	Tillamook
Bandon	Eugene	Kelso-Longview	Pendleton	Salem	Vancouver

Zone A: Projects located less than 61 miles of the respective city hall of the dispatch cities listed.
Zone B: Projects located 61 miles to 80 miles.
Zone C: Projects located 81 miles to 100 miles.
Zone D: Projects located 101 miles or more.

Note: Zone pay is based on AAA Road Mileage.

PLASTERER AND STUCCO MASON

This trade is tended by "Tenders to Plasterers."

Zone A (Base Rate)	**41.16**	**19.23**

Zone Differential for Plasterer and Stucco Mason
Add to Zone A Base Rate

Zone B **6.00** per hour
Zone C **9.00** per hour
Zone D **12.00** per hour

Zone A: Projects located less than 61 miles of the respective city hall of the reference cities listed below.
Zone B: Projects located 61 miles to 80 miles.
Zone C: Projects located 81 miles to 100 miles.
Zone D: Projects located 101 miles or more.

Reference Cities for Plasterer & Stucco Mason

Bend	Eugene	Medford	Portland	Seaside
Coos Bay	La Grande	Newport	Salem	The Dalles

Add $1.00 to base rate for swinging scaffold work.

Add $2.00 to base rate for nozzle technicians on plastering machines.

PLUMBER/PIPEFITTER/STEAMFITTER

Area 1 (Regions 13 and 14) **34.00** **17.07**

Reference Counties

Harney Malheur

Baker – **See Area 2 rates**

Zone Differential for Area 1
Add to Base Rate

Zone 1	**2.50** per hour
Zone 2	**3.50** per hour
Zone 3	**5.00** per hour

Zone mileage based on road miles:
Zone 1: Forty (40) to fifty five (55) miles from City Hall in Boise, Idaho.
Zone 2: Fifty five (55) to one hundred (100) miles from City Hall in Boise, Idaho.
Zone 3: Over one hundred (100) miles from City Hall in Boise, Idaho.

Add $2.21 to base rate if it is possible for worker to fall 30 ft. or more, or if required to wear a fresh-air mask or similar equipment for 2 hours or more.

Area 2 (Regions 12 and 13) **54.00** **34.11**

Reference Counties

Baker	Grant	Umatilla	Wallowa
Gilliam	Morrow	Union	Wheeler

Zone Differential for Area 2
Add to Base Rate

Zone 2 **10.62/**hr. not to exceed $80.00 day.

Zone 2: Eighty (80) miles or more from City Hall in Pasco, Washington.

Zone mileage based on road miles:

Add $1.00 to base rate in one-hour minimum increments if it is possible for worker to fall 35 ft. or more.

Add $1.00 to base rate in one-hour minimum increments if worker is required to wear a mask in hazardous areas.

Area 3 (Regions 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11 and 12) **50.68** **35.00**

Reference Counties

Benton	Deschutes	Lake	Sherman
Clackamas	Douglas	Lane	Tillamook
Clatsop	Hood River	Lincoln	Wasco
Columbia	Jackson	Linn	Washington
Coos	Jefferson	Marion	Yamhill
Crook	Josephine	Multnomah	
Curry	Klamath	Polk	

Gilliam – **See Area 2 rate** Wheeler – **See Area 2 rate**

POWER EQUIPMENT OPERATOR

Zone 1 (Base Rate)		
Group 1	**51.65**	**16.35**
Group 1A	**53.81**	**16.35**
Group 1B	**55.97**	**16.35**
Group 2	**49.74**	**16.35**
Group 3	**48.59**	**16.35**
Group 4	**45.26**	**16.35**
Group 5	**44.02**	**16.35**
Group 6	**40.80**	**16.35**

POWER EQUIPMENT OPERATOR MAP

Zone Pay Differential for Power Equipment Operator
Add to Zone 1 Base Rate

Zone 2 **3.00** per hour
Zone 3 **6.00** per hour

For projects in the following metropolitan counties:

Clackamas	Marion	Washington
Columbia	Multnomah	Yamhill

POWER EQUIPMENT OPERATOR (continued)

(A) All jobs or projects located in Multnomah, Clackamas and Marion counties, West of the western boundary of Mt. Hood National Forest and West of Mile Post 30 on Interstate 84 and West of Mile Post 30 on State Hwy 26 and West of Mile Post 30 on Hwy 22 and all jobs located in Yamhill County, Washington County and Columbia County shall receive Zone 1 pay for all classifications.

(B) All jobs or projects located in the area outside the *identified boundary* above, but less than 50 miles from the Portland City Hall shall receive Zone 2 pay for all classifications.

(C) All jobs or projects located more than 50 miles from the Portland City Hall, but outside the identified border above, shall receive Zone 3 pay for all classifications.

Reference cities for projects in all remaining counties:

Albany	Coos Bay	Grants Pass	Medford
Bend	Eugene	Klamath Falls	Roseburg

(A) All jobs or projects located within 30 miles of the respective city hall of the above mentioned cities shall receive Zone 1 pay for all classifications.

(B) All jobs or projects located more than 30 miles and less than 50 miles from the respective city hall of the above mentioned cities shall receive Zone 2 for all classifications.

(C) All jobs or projects located more than 50 miles from the respective city hall of the above mentioned cities shall receive Zone 3 pay for all classifications.

Note: All job or project locations shall be computed (determined) on the basis of road miles and in the following manner. A mileage measurement will start at the entrance to the respective city hall, facing the project (if possible), and shall proceed by the normal route (shortest time-best road) to the geographical center on the highway, railroad, and street construction projects (end of measurement). On all other project contracts, the geographical center where the major portion of the construction is located, shall be considered the center of the project (end measurement).

Add $10.00/hour hyperbaric pay for Group 4 Tunnel Boring Machine Mechanic.

Add $0.40 to the base rate for any and all work performed underground, including operating, servicing and repairing of equipment.

Add $0.50 to the base rate per hour for any employee who works suspended by a rope or cable.

Add $0.50 to the base rate for employees who do “pioneer” work (break open a cut, build road, etc.) more than one hundred fifty (150) feet above grade elevation.

Note: A Hazardous Waste Removal Differential must be added to the base rate if work is performed inside the boundary of a Federally Designated Waste Site. For information on this differential, call the Prevailing Wage Rate Coordinator at (971) 353-2416.

Shift Differential

Two-Shift Operations:

On a two-shift operation, when the second shift starts after 4:30 p.m., second-shift workers shall be paid the base hourly wage rate plus 5% for all hours worked.

When the second shift starts at 8:00 p.m. or later, the second-shift workers shall be paid at the base hourly wage rate plus 10% for all hours worked.

Three-Shift Operations:

On a three-shift operation, the base hourly wage rate plus five percent (5%) shall be paid to all second-shift workers for all hours worked, and the base hourly wage rate plus ten percent (10%) shall be paid to all third shift workers for all hours worked.

ROOFER

Area 1 (Regions 1, 2, 9, 10, 12 and 13) **38.78** **20.48**

Reference Counties

Baker	Deschutes	Morrow	Union
Clackamas	Gilliam	Multnomah	Wasco
Clatsop	Grant	Sherman	Wallowa
Columbia	Hood River	Tillamook	Washington
Crook	Jefferson	Umatilla	Wheeler

Add 10% to the base rate for handling coal tar pitch or coal tar based materials.

Add 10% to the base rate for handling fiberglass insulation.

Area 2 (Regions 3, 4, 5, 6, 7, 8, 10, 11 and 14) **32.55** **18.65**

Reference Counties

Benton	Harney	Lake	Malheur
Coos	Jackson	Lane	Marion
Curry	Josephine	Lincoln	Polk
Douglas	Klamath	Linn	Yamhill

Crook – **See Area 1 rates** Deschutes – **See Area 1 rates**

Add $2.00 to the base rate for handling coal tar products.

Add $1.50 to the base rate for handling fiberglass insulation.

Area 4 (Regions 12 and 13) **38.78** **20.48**

Reference Counties

Umatilla Union Wallowa

Pursuant to ORS 279C.815(2)(b), the Roofer Area 1 rate is the highest rate of wage among the collective bargaining agreements for Roofer Areas 1, 4 and 5.

Add 10% to the base rate for handling coal tar pitch or coal tar based materials.

Add 10% to the base rate for handling fiberglass insulation.

Area 5 (Region 12) **38.78** **20.48**

Reference County

Morrow

Pursuant to ORS 279C.815(2)(b), the Roofer Area 1 rate is the highest rate of wage among the collective bargaining agreements for Roofer Areas 1, 4 and 5.

Add 10% to the base rate for handling coal tar pitch or coal tar based materials.

Add 10% to the base rate for handling fiberglass insulation.

SHEET METAL WORKER

Area 1 (Regions 1, 2, 3, 4, 9 and 12) **45.80** **25.46**

Reference Counties

Benton	Grant	Morrow	Umatilla
Clackamas	Hood River	Multnomah	Wasco
Clatsop	Lincoln	Polk	Washington
Columbia	Linn	Sherman	Wheeler
Gilliam	Marion	Tillamook	Yamhill

Add $1.00 to base rate for work performed on any swinging platform, swinging chair or swinging ladder.

Add $1.00 to base rate for work where a worker is exposed to resins, chemicals or acid.

Area 2 (Regions 13 and 14) -------- --------

Reference Counties

Baker – **See Area 3 rate** Malheur – **See Area 6 rate**

Area 3 (Regions 12 and 13) **44.09** **25.28**

Reference Counties

Baker Union Wallowa

Morrow – **See Area 1 rate** Umatilla – **See Area 1 rate**

Add $.45 to base rate for work performed on any swinging stage, swinging scaffold or boson chair in excess of thirty (30) feet above the ground.

Add $1.00 to base rate for work where it is necessary to wear a chemically activated type face mask.

Area 4 (Regions 5 and 6) **37.78** **22.72**

Reference Counties

Douglas Lane

Add $1.00 to base rate for work performed on any swinging platform, swinging chair or swinging ladder.

Add $1.00 to base rate for work where a worker is exposed to resins, chemicals or acid.

Area 5 (Region 7) **38.14** **23.76**

Reference Counties

Coos Curry

Add $1.00 to base rate for work performed on any swinging platform, swinging chair or swinging ladder.

Add $1.00 to base rate for work where a worker is exposed to resins, chemicals or acid.

SHEET METAL WORKER (continued)

Area 6 (Regions 7, 8, 11 and 14)	**32.12**	**21.39**

Reference Counties

Harney	Josephine	Lake
Jackson	Klamath	Malheur

Curry – **See Area 5 rate**

Add $1.00 to base rate for work performed on any swinging platform, swinging chair or swinging ladder.

Add $1.00 to base rate for work where a worker is exposed to resins, chemicals or acid.

Area 7 (Region 10)	**35.36**	**21.31**

Reference Counties

Crook	Deschutes	Jefferson

Add $1.00 to base rate for work performed on any swinging platform, swinging chair or swinging ladder.

Add $1.00 to base rate for work where a worker is exposed to resins, chemicals or acid.

SOFT FLOOR LAYER	**37.23**	**18.17**

SPRINKLER FITTER

Area 1 (Regions 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, and 14)	**44.13**	**25.84**

Reference Counties

Benton	Douglas	Klamath	Multnomah
Clackamas	Gilliam	Lake	Polk
Clatsop	Grant	Lane	Sherman
Columbia	Harney	Lincoln	Tillamook
Coos	Hood River	Linn	Umatilla
Crook	Jackson	Malheur	Wasco
Curry	Jefferson	Marion	Washington
Deschutes	Josephine	Morrow	Wheeler
			Yamhill

Area 2 (Regions 12, 13, 14)	**37.81**	**25.83**

Reference Counties

Baker	Union	Wallowa

Gilliam – **See Area 1 rate**	Malheur – **See Area 1 rate**	Umatilla – **See Area 1 rate**
Grant – **See Area 1 rate**	Morrow – **See Area 1 rate**	

TENDER TO MASON TRADES (Brick and Stonemason, Mortar Mixer, Hod Carrier)	**38.79**	**16.55**

Add $0.50 to base rate for refractory repair work.

TENDER TO PLASTERER AND STUCCO MASON

Zone A (Base Rate)	**37.62**	**17.80**

Zone Differential for Tender to Plasterer and Stucco Mason
Add to Zone A Base Rate

Zone B **6.00** per hour
Zone C **9.00** per hour
Zone D **12.00** per hour

Zone A: Projects located within 60 miles of city hall in the reference cities listed.
Zone B: More than 61 miles but less than 80 miles.
Zone C: More than 81 miles but less than 100 miles.
Zone D: More than 101 miles

Reference Cities

Bend	Eugene	Medford	Portland	Seaside
Coos Bay	La Grande	Newport	Salem	The Dalles

Add $0.50 to base rate for refractory repair work.

TESTING AND BALANCING (TAB) TECHNICIAN

For work performed under the Sheet Metal classification, including Air-Handling Equipment, Ductwork

See SHEET METAL WORKER RATE

For work performed under the Plumber/Pipefitter/Steamfitter classification, including Water Distribution Systems

See PLUMBER/PIPEFITTER/STEAMFITTER RATE

TILE SETTER/TERRAZZO WORKER: Hard Tile Setter	**37.65**	**20.83**

This trade is tended by “Tile, Terrazzo, & Marble Finisher.”

Add $1.00 when performing terrazzo work.

Add $1.00 when working with epoxy, furnane, or alkor acetylene.

TILE, TERRAZZO, AND MARBLE FINISHER

1. TILE, TERRAZZO FINISHER	**28.29**	**15.30**

Add $1.00 when performing terrazzo work.

Add $1.00 when working with epoxy, furnane, or alkor acetylene.

2. BRICK & MARBLE FINISHER	**28.29**	**15.43**

Add $1.00 per hour to base rate for refractory repair work.

TRUCK DRIVER

Zone A (Base Rate)

Group 1	**30.09**	**16.73**
Group 2	**30.23**	**16.73**
Group 3	**30.37**	**16.73**
Group 4	**30.67**	**16.73**
Group 5	**30.91**	**16.73**
Group 6	**31.10**	**16.73**
Group 7	**31.32**	**16.73**

Zone differential for Truck Drivers
Add to Zone A Base Rate

Zone B	**.65** per hour
Zone C	**1.15** per hour
Zone D	**1.70** per hour
Zone E	**2.75** per hour

Zone A: Projects within 30 miles of the cities listed.
Zone B: More than 30 miles but less than 40 miles.
Zone C: More than 40 miles but less than 50 miles.
Zone D: More than 50 miles but less than 80 miles.
Zone E: More than 80 miles.

Reference Cities

Albany	Burns	Hermiston	Madras	Oregon City	Roseburg
Astoria	Coos Bay	Hood River	Medford	Pendleton	Salem
Baker	Corvallis	Klamath Falls	McMinnville	Portland	The Dalles
Bend	Eugene	La Grande	Newport	Port Orford	Tillamook
Bingen	Goldendale	Lakeview	Ontario	Reedsport	Vancouver
Brookings	Grants Pass	Longview			

Note: All job or project locations shall be computed (determined) on the basis of road miles and in the following manner. A mileage measurement will start at the entrance to the respective city hall, facing the project (if possible), and shall proceed by the normal route (shortest time-best road) to the geographical center on the highway, railroad, and street construction projects (end of measurement). On all other project contracts, the geographical center where the major portion of the construction is located, shall be considered the center of the project (end measurement).

LIST OF CONTRACTORS INELIGIBLE
TO RECEIVE PUBLIC WORKS CONTRACTS
PUBLICATION DATE: JULY 1, 2022

To: All Oregon Contracting Agencies

Pursuant to ORS 279C.860, contractors on this list are ineligible to receive public works contracts subject to the Prevailing Wage Rate Law. These contractors and subcontractors, as well as any firm, corporation, partnership or association in which the contractor or subcontractor has a financial interest are ineligible to receive public works contracts until removed from this list. You can find the most current and up to date list of contractors ineligible to receive public works contracts on our website at https://www.oregon.gov/boli/employers/Pages/pwr-ineligible-contractors.aspx.

If you have questions regarding the list or for the most current information regarding persons ineligible to receive prevailing wage contracts, please contact the Prevailing Wage Rate Coordinator in Portland at (971) 353-2416.

	CONTRACTOR NAME	DATE PLACED	REMOVAL DATE
1.	**A1 Dumptruck Services LLC** 703 N Hayden Meadows Dr., #206 Portland, OR 97213 731 N Hayden Meadows Dr., #206 Portland, OR 97217 2408 NE 164th Avenue Vancouver, WA 98684	February 24, 2020	February 23, 2027
2.	**Advanced Flagging & Pilot Car Inc.** 16400 NE Las Brisas Ct., Apt. 43 Portland, OR 97230 650 NE Holladay St. Portland, OR 97232 16400 NE Las Brisas Ct. Portland, OR 97230	February 5, 2021	February 4, 2024
3.	**Barker, Michael** 32966 Tennessee Road Lebanon, OR 97355	January 5, 2021	January 4, 2024
4.	**Bell-Eddy, Kimberly** 8535 Woodard Ave. SE Salem, OR 97317	January 12, 2016	January 11, 2023
5.	**Cameron Creations** **Steven Cameron** **Nancy Cameron** PO Box 2 Lowell, OR 97452	May 25, 2000	Not to be Removed
6.	**Canell's Flagging LLC** 731 N Hayden Meadows Dr., Ste 107 Portland, OR 97217	November 24, 2020	November 23, 2023
7.	**Canell, Angela** 2416 NE 11th Avenue Portland, OR 97212 529 SE Grand #307 Portland, OR 97214	November 24, 2020	November 23, 2023
8.	**CJ Construction, Inc.** 2969 Ferguson St NW Salem, OR 97304 846 55th Ave. Salem, OR 97304	December 11, 2020	November 6, 2023

LIST OF CONTRACTORS INELIGIBLE
TO RECEIVE PUBLIC WORKS CONTRACTS
PUBLICATION DATE: JULY 1, 2022

	CONTRACTOR NAME	DATE PLACED	REMOVAL DATE
9.	**Covington, Timothy** **aka Tim York** 16055 NE Stanton St. Portland, OR 97230 2933 NE 11th Ave. Portland, OR 97212 12231 NE Stanton St. Portland, OR 97230	April 13, 2021	April 12, 2024
10.	**Diversified Masonry LLC** PO Box 144 Ranchester, WY 82839	January 5, 2021	January 4, 2024
11.	**Friedman, Jennifer** 2526 Ellen Lane NW Salem, OR 97304 4400 Shaw St NW Salem, OR 97304 4400 Salem-Dallas Hwy Salem, OR 97304 PO Box 5172 Salem, OR 97304	December 11, 2020	October 10, 2023
12.	**Friedman, Scott** 2969 Ferguson St NW Salem, OR 97304 4400 Dallas Hwy Salem, OR 97304 PO Box 5172 Salem, OR 97304	December 11, 2020	October 10, 2023
13.	**Graeme, Eugene** 169 SE Cody Lane Madras, OR 97741	July 3, 2017	July 2, 2027
14.	**Green Thumb Landscape and Maintenance, Inc.,** **aka Green Thumb Landscaping,** **aka GT General Contracting** 4400 Dallas Hwy Salem, OR 97304 PO Box 5172 Salem, OR 97304	December 11, 2020	October 10, 2023
15.	**Green Thumb LLC, aka Green Thumb Contracting** 4400 Salem-Dallas Hwy Salem, OR 97304 4400 Shaw St NW Salem, OR 97304 PO Box 5172 Salem, OR 97304	December 11, 2020	October 10, 2023
16.	**High-N-Shine Concrete Floors** 9024 Silver Star Ave. Vancouver, WA 98664	February 3, 2020	February 2, 2023

LIST OF CONTRACTORS INELIGIBLE
TO RECEIVE PUBLIC WORKS CONTRACTS
PUBLICATION DATE: JULY 1, 2022

	CONTRACTOR NAME	DATE PLACED	REMOVAL DATE
17.	**Hoang, Lisa** **aka Kim Lien Hoang,** **aka Lien Kim Hoang,** **aka Kim Hope,** **aka Lisa K Ryan,** **aka Ryan Lien Hoang,** **aka Kim L Hoang,** **aka Lien Hoang Ryan,** **aka Lien K Hoang-Ryan,** **aka Hoang K Lien,** **aka Lisa Hall,** **aka Lisa Kim Ryan,** **aka Lien Ryan,** **aka Lien Hoang Ryan,** **aka Kim Hoang Lien,** **aka K Lisa Hoang** 703 N Hayden Meadows Dr, #206 Portland, OR 97213 731 N Hayden Meadows Dr, #206 Portland, OR 97217 2408 NE 164th Avenue Vancouver, WA 98684	February 24, 2020	February 23, 2027
18.	**Kim Bell Flagging, Inc.** 8535 Woodard Ave. SE Salem, OR 97317	January 12, 2016	January 11, 2023
19.	**Miller, David** 731 NW Naito Parkway, #215 Portland, OR 97209	June 17, 2020	Not to be Removed
20.	**Nam, Sang In** **dba Cornerstone Janitorial Services** 130 NE Danbury Ave. Hillsboro, OR 97124	September 20, 2016	Not to be Removed
21.	**Nguyen, Hai T.** 9024 Silver Star Ave. Vancouver, WA 98664	February 3, 2020	February 2, 2023
22.	**NW Flagging LLC** 703 N Hayden Meadows Dr., #206 Portland, OR 97213 731 N Hayden Meadows Dr., #206 Portland, OR 97217 2408 NE 164th Avenue Vancouver, WA 98684	February 24, 2020	February 23, 2027
23.	**Oregon Building & Landscaping Services LLC** 703 N Hayden Meadows Dr., #206 Portland, OR 97213 731 N Hayden Meadows Dr., #206 Portland, OR 97217 2408 NE 164th Avenue Vancouver, WA 98684	February 24, 2020	February 23, 2027

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TO RECEIVE PUBLIC WORKS CONTRACTS
PUBLICATION DATE: JULY 1, 2022

	CONTRACTOR NAME	DATE PLACED	REMOVAL DATE
24.	**Pacific NW Drywall & Acoustics LLC** **aka Pacific NW Drywall& Acoustics LLC** 731 NW Naito Parkway #215 Portland, OR 97209	June 17, 2020	Not to be Removed
25.	**Polson, Pacharee** 9024 Silver Star Ave. Vancouver, WA 98664	February 3, 2020	February 2, 2023
26.	**Regional Traffic Management LLC** 703 N Hayden Meadows Dr., #206 Portland, OR 97213 731 N Hayden Meadows Dr., #206 Portland, OR 97217 2408 NE 164th Avenue Vancouver, WA 98684	February 24, 2020	February 23, 2027
27.	**Tatom, Alan** 168 Clearwater Avenue NE Salem, OR 97301	July 10, 2015	July 9, 2025
28.	**Thomas, Antonio** 16400 NE Las Brisas Ct., Apt. 43 Portland, OR 97230 650 NE Holladay St. Portland, OR 97232 16400 NE Las Brisas Ct. Portland, OR 97230	February 5, 2021	February 4, 2024
29.	**Walker, Phillip** 580 Market Street NE Salem, OR 97301	July 10, 2015	July 9, 2025
30.	**WCI Construction LLC** 169 SE Cody Lane Madras, OR 97741	July 3, 2017	July 2, 2027
31.	**WWJD Traffic Control, Inc.** 168 Clearwater Avenue NE Salem, OR 97301	July 10, 2015	July 9, 2025

VAL HOYLE, COMMISSIONER
BUREAU OF LABOR AND INDUSTRIES

Prevailing Wage Rate Laws Handbook

The 2022 edition of the ***Prevailing Wage Rate Laws Handbook*** is now available on our website at https://www.oregon.gov/boli/employers/Pages/prevailing-wage.aspx.

In addition to providing this and other PWR publications, Oregon BOLI Labor & Industries' PWR Unit regularly offers free, informational seminars for both public agencies and contractors. The current schedule is available online at https://www.oregon.gov/boli/employers/Pages/prevailing-wage-seminars.aspx.

If you are interested in being included on our mailing lists for future seminar notifications, please contact us at PWR.Email@boli.oregon.gov or (971) 353-2416.