Elizabeth Comfort
Finance Director

Department of Finance
Public Services Building
2051 Kaen Road, Suite 490 | Oregon City, OR 97045

September 26, 2024 BCC Agenda Date/Item: _____

Board of County Commissioners
Clackamas County

Approval of a Public Improvement Contract (#15036) with A.C. Schommer & Sons, Inc. for the new Clackamas County Stabilization Center. Contract value is $1,632,992. Funding is through the State of Oregon. No County General Funds are involved.

Previous Board Action/Review	Briefed at Issues Sept. 24, 2024		
Performance Clackamas	Build (maintain) a strong infrastructure. Ensure a safe, healthy and secure communities.		
Counsel Review	Yes	**Procurement Review**	Yes
Contact Person	Marcus Gorton	**Contact Phone**	503-781-3221

EXECUTIVE SUMMARY: On behalf of the Health, Housing & Human Services Department and the Clackamas County Sheriff's Office, the Finance Department is seeking approval of a Public Improvement Contract with A.C. Schommer & Sons, Inc. to remodel the former Women's Center building at 9200 McBrod Avenue in Milwaukie for the new Clackamas County Stabilization Center. Clackamas County received a direct allocation of $4.0 million from the Oregon Legislature in House Bill 5204 to fund this project.

In response to community need for rapid behavioral health assessment and crisis stabilization, the Health, Housing & Human Services Department and the Clackamas County Sheriff's Office have partnered to develop the Clackamas County Stabilization Center. This is part of Clackamas County's effort to increase access points for services within its Recovery-oriented System of Care.

The Clackamas County Stabilization Center, which will include two complimentary programs in the north and south halves of the building, will serve adults primarily referred by law enforcement, health providers, and mobile crisis responders. The program will build on the successful neighborhood relationships of the Clackamas County's Corrections Center that has existed at the site for more than 25 years. The Stabilization Center will be a comfortable and safe place for community members who need short-term support, coping skills and connections to resources to manage a crisis. The building's north half will operate a 24/7 schedule to provide short-term, drop-in behavioral health crisis stabilization services. The building's south half will provide short- and medium-term housing stabilization to people experiencing homelessness through referrals from the county's Coordinated Housing Access system. The two programs will be complimentary, ensuring close coordination and collaboration between the county's behavioral health and housing systems. The site will be operated by one or more community-based organizations experienced in delivering related services. Solicitations for services are open now and the providers will be selected by the end of November.

For Filing Use Only

A.C. Schommer & Sons, Inc. was selected as the contractor to remodel the 5,609 square foot building through a competitive procurement process. Work includes a full interior demolition and remodel, as well as extensive site improvements that will allow for the delivery of safe, comfortable, and trauma-informed services. Construction is anticipated to start soon and, per the contract, the final completion date for construction is June 30, 2025.

The bid was advertised in accordance with ORS and LCRB Rules on July 7th, 2024, and closed on August 27th, 2024. Seven general contracting companies submitted proposals, and, after review, A.C. Schommer & Sons, Inc. was determined to be lowest responsive bidder and recommended for the award of this contract.

RECOMMENDATION: Staff respectfully requests that the Board of County Commissioners approve this Contract (#15036) and authorize Chair Smith to sign on behalf of Clackamas County.

Respectfully submitted,

Elizabeth Comfort

Elizabeth Comfort
Director Finance

CLACKAMAS COUNTY
PUBLIC IMPROVEMENT CONTRACT
Contract #15036

This Public Improvement Contract (the "Contract"), is made by and between the Clackamas County, a political subdivision of the State of Oregon ("Owner"), and A.C. Schommer & Sons, Inc. (the "Contractor"), both collectively the "Parties." This Contract shall become effective on the date this Contract has been signed by all the Parties and shall expire upon completion the completion of all obligations under the terms of this Contract unless terminated earlier by the Parties.

All capitalized terms in this Contract shall have the meanings identified in the Clackamas County General Conditions for Public Improvement Contracts (10/13/2021) ("General Conditions") referenced within the Instructions to Bidders.

Project Name: BID #2024-65 McBrod Corrections Remodel Project

1. Contract Price, Contract Documents and Work.
The Contractor hereby agrees to perform all Work described in, and reasonably inferred from, the Contract Documents. In consideration of the Contractor performing the Work in accordance with the terms of the Contract, the Owner agrees to pay the Contractor the sum of one million six hundred thirty-two thousand nine hundred ninety-two dollars ($1,632,992.00) (the "Contract Price"). Payment will be made in accordance with the terms and conditions provided in the Contract Documents. The Contract Price is the amount contemplated by the Base Bid.

The following documents are incorporated by reference in this Contract and made a part hereof:

- Notice of Contract Opportunity
- Supplemental Instructions to Bidders
- Bid Form
- Clackamas County General Conditions
- Prevailing Wage Rates
- Plans, Specifications and Drawings
- Instructions to Bidders
- Bid Bond
- Performance Bond and Payment Bond
- Supplemental General Conditions
- Payroll and Certified Statement Form

2. Representatives.
Contractor has named Chris McGhie as its Authorized Representative to act on its behalf. Owner designates, or shall designate, its Authorized Representative as indicted below (check one):

☒ Unless otherwise specified in the Contract Documents, the Owner designates Marcus Gorton as its Authorized Representative in the administration of this Contract. The above-named individual shall be the initial point of contact for matters related to Contract performance, payment, authorization, and to carry out the responsibilities of the Owner.

☐ Name of Owner's Authorized Representative shall be submitted by Owner in a separate writing.

3. Key Persons.
The Contractor's personnel identified below shall be considered Key Persons and shall not be replaced during the project without the written permission of Owner, which shall not be unreasonably withheld. If the Contractor intends to substitute personnel, a request must be given to Owner at least 30 days prior to the intended time of substitution. When replacements have been approved by Owner, the Contractor shall provide a transition period of at least 10 working days during which the original and replacement personnel shall be working on the project concurrently. Once a replacement for any of these staff members is authorized, further

replacement shall not occur without the written permission of Owner. The Contractor's project staff shall consist of the following personnel:

Project Executive: Chris McGhie shall be the Contractor's project executive, and will provide oversight and guidance throughout the project term.

Project Manager: Eric Martin shall be the Contractor's project manager and will participate in all meetings throughout the project term.

Job Superintendent: Seth Pownall shall be the Contractor's on-site job superintendent throughout the project term.

Project Engineer: Constance Vaughn shall be the Contractor's project engineer, providing assistance to the project manager, and subcontractor and supplier coordination throughout the project term.

4. Contract Dates.
The Contractor agrees to complete the Work in accordance with the following key dates:

COMMENCEMENT DATE: Upon Issuance of Notice to Proceed
SUBSTANTIAL COMPLETION DATE: 02/30/2025
FINAL COMPLETION DATE: 06/30/2025

Time is of the essence for this Contract. It is imperative that the Work in this Contract reach Substantial Completion and Final Completion by the above specified dates.

5. Insurance Certificates.
In accordance with Section G.3.5 of the General Conditions Contractor shall furnish proof of the required insurance naming Clackamas County as an additional insured. Insurance certificates may be returned with the signed Contract or may be emailed to the County Contract Analyst.

6. Tax Compliance.
The Contractor shall comply with all federal, state and local laws, regulation, executive orders and ordinances applicable to this Contract. Contractor represents and warrants that it has complied, and will continue to comply throughout the duration of this Contract and any extensions, with all tax laws of this state or any political subdivision of this state, including but not limited to ORS 305.620 and ORS chapters 316, 317, and 318. Any violation of this section shall constitute a material breach of this Contract and shall entitle County to terminate this Contract, to pursue and recover any and all damages that arise from the breach and the termination of this Contract, and to pursue any or all of the remedies available under this Contract or applicable law.

7. Confidential Information.
Contractor acknowledges that it and its employees or agents may, in the course of performing their responsibilities under this Contract, be exposed to or acquire information that is confidential to Owner. Any and all information of any form obtained by Contractor or its employees or agents in the performance of this Contract shall be deemed confidential information of Owner ("Confidential Information"). Contractor agrees to hold Confidential Information in strict confidence, using at least the same degree of care that Contractor uses in maintaining the confidentiality of its own confidential information, and not to copy, reproduce, sell, assign, license, market, transfer or otherwise dispose of, give, or disclose Confidential Information to third parties or use Confidential Information for any purpose unless specifically authorized in writing under this Contract.

8. Counterparts.
This Contract may be executed in several counterparts, all of which when taken together shall constitute an agreement binding on all Parties, notwithstanding that all Parties are not signatories to the same counterpart. Each copy of the Contract so executed shall constitute an original.

9. Integration.
All provisions of state law required to be part of this Contract, whether listed in the General or Special Conditions or otherwise, are hereby integrated and adopted herein. Contractor acknowledges the obligations thereunder and that failure to comply with such terms is a material breach of this Contract.

The Contract Documents constitute the entire agreement between the parties. There are no other understandings, agreements or representations, oral or written, not specified herein regarding this Contract. Contractor, by the signature below of its authorized representative, hereby acknowledges that it has read this Contract, understands it, and agrees to be bound by its terms and conditions.

10. Compliance with Applicable Law. Contractor shall comply with all federal, state, county, and local laws, ordinances, and regulations applicable to the Work to be done under this Contract including, but not limited to, compliance with the prohibitions set forth in ORS 652.220, compliance of which is a material element of this Contract and failure to comply is a material breach that entitles County to exercise any rights and remedies available under this Contract including, but not limited to, termination for default.

11. Responsibility for Taxes. Contractor is solely responsible for payment of any federal, state, or local taxes required as a result of the Contract or the Work including, but not limited, to payment of the corporate activity tax imposed under enrolled HB 3427 (2019 Oregon regular legislative session). Contractor may not include its federal, state, or local tax obligations as part of the cost to perform the Work.

In witness whereof, Owner executes this Contract and the Contractor does execute the same as of the day and year first above written.

Contractor DATA:
A.C. Schommer & Sons, Inc.
6421 NE Colwood Way
Portland, Oregon 97218

Contractor CCB # 4937 Expiration Date: 09/27/2024
Oregon Business Registry # 110955-10 Entity Type: DBC State of Formation: Oregon

Payment information will be reported to the IRS under the name and taxpayer ID# provided by the Contractor. Information must be provided prior to contract approval. Information not matching IRS records could subject Contractor to 28 percent backup withholding.

A.C. Schommer & Sons, Inc.	Clackamas County
_____	_____
Authorized Signature Date	Chair Date
_____	APPROVED AS TO FORM
Name / Title Printed	_____
	County Counsel Date

CLACKAMAS COUNTY
PUBLIC IMPROVEMENT CONTRACT OPPORTUNITY

Table of Contents

CLACKAMAS COUNTY
NOTICE OF PUBLIC IMPROVEMENT CONTRACT OPPORTUNITY

INVITATION TO BID #2024-65
McBrod Corrections Remodel Project
July 22, 2024

Clackamas County ("County") through its Board of County Commissioners is accepting sealed bids for the **McBrod Corrections Remodel Project** until **August 15, 2024, 3:00 PM,** Pacific Time, ("Bid Closing") at the following location:

Bidding Documents can be downloaded from the state of Oregon procurement website ("OregonBuys") at the following address: https://oregonbuys.gov/bso/view/login/login.xhtml, Document No. S-C01010-00011017.

Prospective Bidders will need to sign in to download the information and that information will be accumulated for a Plan Holder's List. Prospective Bidders are responsible for obtaining any Addenda from Website listed above.

Submitting Proposals: Bid Locker
Proposals will only be accepted electronically thru a secure online bid submission service, **Bid Locker**.
Email submissions to Clackamas County email addresses will no longer be accepted.

A. Completed proposal documents must arrive electronically via Bid Locker located at https://bidlocker.us/a/clackamascounty/BidLocker.
B. Bid Locker will electronically document the date and time of all submissions. Completed documents must arrive by the deadline indicated in Section 1 or as modified by Addendum. LATE PROPOSALS WILL NOT BE ACCEPTED.
C. Proposers must register and create a profile for their business with Bid Locker in order to submit for this project. It is free to register for Bid Locker.
D. Proposers with further questions concerning Bid Locker may review the Vendor's Guide located at https://www.clackamas.us/how-to-bid-on-county-projects .

Engineers Estimate: $3,600,000.00

Contact Information
Procurement Process and Technical Questions: Ryan Rice, rrice@clackamas.us.

A **Non-Mandatory Pre-Bid Conference** will be conducted on August 1, 2024 at 10:00 AM. Bidders shall meet with County representatives at the McBrod Building, located at 9200 McBrod Avenue, Milwaukie Oregon 97222. Attendance will be documented through a sign-in sheet prepared by the County representative.

Bids will be opened and publicly read aloud at the above Delivery address after the Bid Closing. Bid results will also be posted to the OregonBuys listing shortly after the opening.

Prevailing Wage
Prevailing Wage Rates requirements apply to this Project because the maximum compensation for all Owner-contracted Work is more than $50,000. Contractor and all subcontractors shall comply with the provisions of ORS 279C.800 through 279C.870, relative to Prevailing Wage Rates. The Bureau of Labor and Industries (BOLI) wage rates and requirements set forth in the following BOLI booklet (and any

listed amendments to that booklet), which are incorporated herein by reference, apply to the Work authorized under this Agreement:

PREVAILING WAGE RATES for Public Works Contracts in Oregon, July 5, 2024, which can be downloaded at the following web address:, which can be downloaded at the following web address: http://www.oregon.gov/boli/WHD/PWR/Pages/pwr_state.aspx
The Work will take place in Clackamas County, Oregon.

Clackamas County encourages bids from Minority, Women, and Emerging Small Businesses.

CLACKAMAS COUNTY
PUBLIC IMPROVEMENT CONTRACT

INSTRUCTIONS TO BIDDERS

Clackamas County Local Contract Review Board Rules ("LCRB Rules") govern this procurement process. LCRB Rules may be found at: http://www.clackamas.us/code/documents/appendixc.pdf. The Instructions to Bidders is applicable to the procurement process for Clackamas County, or any component unit thereof identified on the Notice of Public Improvement Contract Opportunity, herein after referred to as the "Owner."

Article 1. Scope of Work

The work contemplated under this contract with the Owner, includes all labor, materials, transportation, equipment and services necessary for, and reasonably incidental to, the completion of all construction work in connection with the project described in the Project Manual which includes, but is not necessarily limited to, the Notice of Public Improvement Contract Opportunity, Instructions to Bidders, Supplemental Instructions to Bidders, Bid Form, Bid Bond, Public Improvement Contract Form, Performance Bond, Payment Bond, Clackamas County General Conditions for Public Improvement Contracts (10/13/2021), Supplemental General Conditions, and Plans, Specifications and Drawings.

Article 2. Examination of Site and Conditions

Before making a Bid, the Bidder shall examine the site of the work and ascertain all the physical conditions in relation thereto. The Bidder shall also make a careful examination of the Project Manual including the plans, specifications, and drawings and other contract documents, and shall be fully informed as to the quality and quantity of materials and the sources of supply of the materials. Failure to take these steps will not release the successful Bidder from entering into the contract nor excuse the Bidder from performing the work in strict accordance with the terms of the contract at the price established by the Bid.

The Owner will not be responsible for any loss or for any unanticipated costs, which may be suffered by the successful Bidder, as a result of such Bidder's failure to be fully informed in advance with regard to all conditions pertaining to the work and the character of the work required, including site conditions. No statement made by an elected official, officer, agent, or employee of the Owner in relation to the physical or other conditions pertaining to the site of the work will be binding on the Owner, unless covered by the Project Manual or an Addendum.

Article 3. Interpretation of Project Manual and Approval of Materials Equal to Those Provided in the Specifications

If any Bidder contemplating submitting a Bid for the proposed contract is in doubt as to the true meaning of any part of the plans, specifications or forms of contract documents, or detects discrepancies or omissions, such Bidder may submit to the Architect (read "Engineer" throughout in lieu of Architect as appropriate) a written request for an interpretation thereof at least ten (10) calendar days prior to the date set for the Bid Closing.

When a prospective Bidder seeks approval of a particular manufacturer's material, process or item of equal value, utility or merit other than that designated by the Architect in the Project Manual, the Bidder may submit to the Architect a written request for approval of such substitute at least ten (10) calendar days prior to the date set for the Bid Closing. The prospective Bidder submitting the request will be responsible for its prompt delivery.

Requests of approval for a substitution from that specified shall be accompanied by samples, records of performance, certified copies of tests by

impartial and recognized laboratories, and such other information as the Architect may request.

To establish a basis of quality, certain processes, types of machinery and equipment or kinds of materials may be specified in the Project Manual either by description of process or by designating a manufacturer by name and referring to a brand or product designation or by specifying a kind of material. Whenever a process is designated or a manufacturer's name, brand or item designation is given, or whenever a process or material covered by patent is designated or described, it shall be understood that the words "or approved equal" follow such name, designation or description, whether in fact they do so or not.

Any interpretation of the Project Manual or approval of manufacturer's material will be made only by an Addendum duly issued. All Addenda will be posted to the OregonBuys listing and will become a part of the Project Manual. The Owner will not be responsible for any other explanation or interpretation of the Project Manual nor for any other approval of a particular manufacturer's process or item for any Bidder.

When the Architect approves a substitution by Addendum, it is with the understanding that the Contractor guarantees the substituted article or material to be equal or better than the one specified.

Article 4. Security to Be Furnished by Each Bidder

Each Bid must be accompanied by either 1) a cashier's check or a certified check drawn on a bank authorized to do business in the State of Oregon, or 2) a Bid bond described hereinafter, executed in favor of the Owner, for an amount equal to ten percent (10%) of the total amount Bid as a 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 contract satisfactory to Owner and furnished a one hundred percent (100%) performance bond and one hundred percent (100%) payment bond. The Owner reserves the right to hold the Bid security as described in Article 10 hereof. Should the successful Bidder fail to execute and deliver the contract as provided for in Article 12 hereof, including a satisfactory performance bond and payment bond within twenty (20) calendar days after the Bid has been accepted by the Owner, then the contract award made to such Bidder may be considered canceled and the Bid security may be forfeited as liquidated damages at the option of the Owner. The date of the acceptance of the Bid and the award of the contract as contemplated by the Project Manual shall mean the date of acceptance specified in the Notice of Intent to Award.

Article 5. Execution of Bid Bond

Should the Bidder elect to utilize a Bid bond as described in Article 4 in order to satisfy the Bid security requirements, such form must be completed in the following manner:

A. Bid bonds must be executed on the County forms, which will be provided to all prospective Bidders by the Owner.

B. The Bid bond shall be executed on behalf of a bonding company licensed to do business in the State of Oregon.

C. In the case of a sole individual, the bond need only be executed as principal by the sole individual. In the case of a partnership, the bond must be executed by at least one of the partners. In the case of a corporation, the bond must be executed by stating the official name of the corporation under which is placed the signature of an officer authorized to sign on behalf of the corporation followed by such person's official capacity, such as president, etc. The corporation seal should then be affixed to the bond.

D. The name of the surety must be stated in the execution over the signature of its duly authorized attorney-in-fact and accompanied by the seal of the surety corporation.

Article 6. Execution of the Bid Form

Each Bid shall be made in accordance with: (i) the sample Bid Form accompanying these instructions; (ii) the appropriate signatures for a sole individual, partnership, corporation or limited liability corporation shall be added as noted in Article 5C above; (iii) numbers pertaining to base Bids shall be stated both in writing and in figures; and (iv) the Bidder's address shall be typed or printed.

The Bid Form relates to Bids on a specific Project Manual. 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 the Bid a sum to cover the cost of all items contemplated by the Contract. The Bidder shall Bid upon all alternates that may be indicated on the Bid Form. When Bidding on an alternate for which there is no charge, the Bidder shall write the words "No Charge" in the space provided on the Bid Form. If one or more alternates are shown on the Bid Form, the Bidder shall indicate whether each is "add" or "deduct."

Article 7. Prohibition of Alterations to Bid

Bids that are incomplete, or contain ambiguities or have differing conditions required by the Bidder, including requested changes or exceptions to the Public Improvement Contract form or other portions of the Project Manual, may be rejected in Owner's sole and absolute discretion.

Article 8. Submission of Bid

Each Bid shall be sealed in an envelope, properly addressed to the Owner, showing on the outside of the envelope the name of the Bidder and the name of the project. Bids will be received at the time and place stated in the Notice of Public Improvement Contract Opportunity.

Article 9. Bid Closing and Opening of Bids

All Bids must be received by the Owner at the place and time set for the Bid Closing. Any Bids received after the scheduled Bid Closing time for receipt of Bids will be rejected.

At the time of opening and reading of Bids, each Bid received will be publicly opened and read aloud, irrespective of any irregularities or informalities in such Bids.

Generally, Bid results will be posted to the OregonBuys Website within a couple hours of the opening.

Article 10. Acceptance or Rejection of Bids by Owner

Unless all Bids are rejected, the Owner will award a contract based on the lowest responsive Bid from a responsible Bidder. If that Bidder does not execute the contract, it will be awarded to the next lowest responsible Bidder or Bidders in succession.

The Owner reserves the right to reject all Bids and to waive minor informalities. The procedures for contract awards shall be in compliance with the provisions of the LCRB Rules in effect at that time.

The Owner reserves the right to hold the Bid and Bid security of the three lowest Bidders for a period of thirty (30) calendar days from and after the time of Bid opening pending award of the contract. Following award of the contract the Bid security of the three lowest Bidders may be held twenty (20) calendar days pending execution of the contract. All other Bids will be rejected and Bid security will be returned.

In determining the lowest Bidder, the Owner reserves the right to take into consideration any or all authorized base Bids as well as alternates or combinations indicated in the Bid Form.

If no Bid has been accepted within thirty (30) calendar days after the opening of the Bids, each of the three lowest Bidders may withdraw the Bid submitted and request the return of the Bid security.

Article 11. Withdrawal of Bid

At any time prior to the Bid Closing, a Bidder may withdraw its Bid. This will not preclude the

submission of another Bid by such Bidder prior to the time set for the Bid Closing.

After the time set for the Bid Closing, no Bidder will be permitted to withdraw its Bid within the time frames specified in Article 10 for award and execution, except as provided for in that Article.

Article 12. Execution of Contract, Performance Bond and Payment Bond

The Owner will provide the successful Bidder with contract forms within seven (7) calendar days after the completion of the award protest period. The Bidder is required to execute the contract forms as provided, including a performance bond and a payment bond from a surety company licensed to do surety business in the State of Oregon, within seven (7) calendar days after receipt of the contract forms. The contract forms shall be delivered to the Owner in the number called for and to the location as instructed by the Owner.

Article 13. Recyclable Products

Contractors will use recyclable products to the maximum extent economically feasible in the performance of the Contract.

Article 14. Clarification or Protest of the Solicitation Document or Specifications

Any request for clarification or protest of the solicitation document or specifications must be submitted in the manner provided for in the applicable section of the LCRB Rules to the Procurement Representative referenced in the Notice of Public Improvement Contract Opportunity.

A protest of the Solicitation Document must be received within seven (7) business days of the issuance of the Bid or within three (3) business days of issuance of an addendum.

Requests for clarification may be submitted no less than five (5) business days prior to the Bid Closing Date.

Article 15. Protest of Intent to Award

Owner will name the apparent successful Bidder in a "Notice of Intent to Award" letter. Identification of the apparent successful Bidder is procedural only and creates no right in the named Bidder to the award of the contract. Competing Bidders will be notified by publication of the Notice of Intent to Award on the OregonBuys Website of the selection of the apparent successful Bidder(s) and Bidders shall be given seven (7) calendar days from the date on the "Notice of Intent to Award" letter to review the file at the Procurement Division office and file a written protest of award, pursuant to C-049-0450. Any award protest must be in writing and must be delivered by email, hand delivery, or mail to the Procurement Division Director at: Procurement Division, 2051 Kaen Road, Oregon City, OR 97045.

Article 16. Disclosure of First-Tier Subcontractors

Within two (2) working hours after the Bid Closing, all Bidders shall submit to the County a disclosure form identifying any first-tier subcontractors (those entities that would be contracting directly with the prime contractor) that will be furnishing labor and materials on the contract, if awarded, whose subcontract value would be equal to or greater than: (a) Five percent (5%) of the total contract price, but at least $15,000; or (b) $350,000, regardless of the percentage of the total contract price.

Disclosures may be submitted with the Bid or may be hand delivered to the Bid Closing address or emailed to the Contract Information Analyst listed on the Notice of Contract Opportunity.

CLACKAMAS COUNTY
PUBLIC IMPROVEMENT CONTRACT

SUPPLEMENTAL INSTRUCTIONS TO BIDDERS

Project Name #2024-65 McBrod Corrections Remodel Project

The following modify the Clackamas County "Instructions to Bidders" for this Project. Where a portion of the Instructions to Bidders has been modified by these Supplemental Instructions to Bidders, the unaltered portions shall remain in effect.

1. **Non-Mandatory Pre-Bid Conference** will be conducted on **August 1, 2024 at 10:00 AM.** Bidders shall meet with County representatives at the McBrod Building, located at 9200 McBrod Avenue, Milwaukie Oregon 97222. Attendance will be documented through a sign-in sheet prepared by the County representative.

2. **Electronic Submissions:** The County is requiring all bids for this project be electronically submitted. Complete Bids (including all attachments) will only be accepted electronically thru a secure online bid submission service, Bid Locker. Email submissions to Clackamas County email addresses will no longer be accepted. https://bidlocker.us/a/clackamascounty/BidLocker.

   Bids will be publicly read aloud via the computer application, Zoom. Bidders will be allowed to video conference or listen by phone to the bid results. The projects Zoom meeting can be accessed via the information below:

   https://clackamascounty.zoom.us/j/82529340629

   Meeting ID: 825 2934 0629

   One tap mobile
   +17193594580,,82529340629# US
   +12532050468,,82529340629# US

**The Apparent Low bid results will be posted to the projects OregonBuys listing as soon as possible following the bid opening.

3. **Good Faith Effort:** Clackamas County encourages participation in contracts by Historically Underrepresented Businesses. "Historically Underrepresented Businesses" are State of Oregon-certified and self-identified minority, women and emerging small business as well as firms that are certified federally or by another state or entity with substantially similar requirements as the State of Oregon.

Bidders must perform Good Faith Effort (defined below) and submit **Form 1 and Form 2** for the Bidders Bid to be considered responsive. **Form 1 and Form 2** must be submitted within **two (2) hours** after the Closing Date and Time. Form 1 and Form 2 may be submitted to either the Contact Information Analyst listed on Notice of Contract Opportunity or via the https://bidlocker.us/a/clackamascounty/BidLocker listing.

"Good Faith Effort" is a requirement of a prime contractor to reach out to at least three Historically Underrepresented Business Subcontractors for each division of work that will be subcontracted out and to complete the required forms. If fewer than three Historically Underrepresented Business Subcontractors are reasonably available for a particular division of work, the Bidder must specifically note the reason for there being fewer than three contacts. The outreach should be performed with sufficient time to give the subcontractors at least 5 calendar days to respond to the opportunity. Form 3, which documents the actual amount of subcontractors on the project, must be submitted with the project final pay application. Compliance with the Good Faith Effort and submission of Forms 1, 2 and 3 is a contractual requirement for final payment.

The sufficiency of the documentation or the performance of Good Faith Effort shall be in the sole and absolute determination of Clackamas County. Only those Bidders that Clackamas County has determined have not sufficiently performed Good Faith Effort shall have protest rights of the determination for such Bidder. No Bidder shall have protest rights of the sufficiency of any other Bidder completing Good Faith Effort.

CLACKAMAS COUNTY
GOOD FAITH EFFORT
SUBCONTRACTOR AND SELF-PERFORMED WORK LIST
(FORM 1)

Prime Contractor Name: **Total Contract Amount:**

Project Name: #2024-65 McBrod Corrections Remodel Project

PRIME SELF-PERFORMING: Identify below **ALL** GFE Divisions of Work (DOW) to be self-performed. Good Faith Efforts are otherwise required.

DOW BIDDER WILL SELF-PERFORM	***(GFE not required)***

PRIME CONTRACTOR SHALL DISCLOSE AND LIST ALL SUBCONTRACTORS, including those Minority-owned, Woman-owned, and Emerging Small Businesses ("M/W/ESB") that you intend to use on the project. Delivery via bid locker https://bidlocker.us/a/clackamascounty/BidLocker within 2 hours of the BID/Quote Closing Date/Time.

LIST ALL SUBCONTRACTORS BELOW Use **correct legal name** of Subcontractor (No Assumed Business Names)	**Division of Work** (Painting, electrical, landscaping, etc.) List **ALL** DOW performed by Subcontractors	**DOLLAR AMOUNT OF SUBCONTRACT**	If Certified or self-reporting MBE/WBE/ESB Subcontractor Check box ☑		
			MBE	WBE	ESB
Name **Address** **City/St/Zip** **Phone#** **OCCB#**	See Attached Bid Summary		☐	☐	☐
Name **Address** **City/St/Zip** **Phone#** **OCCB#**			☐	☐	☐
Name **Address** **City/St/Zip** **Phone#** **OCCB#**			☐	☐	☐
Name **Address** **City/St/Zip** **Phone#** **OCCB#**			☐	☐	☐

GFE SUBCONTRACTOR AND SELF-PERFORMED WORK LIST (FORM 1) cont'd

Prime Contractor Name: **Total Contract Amount:**

Project Name: 2024-65 McBrod Corrections Remodel Project

LIST ALL SUBCONTRACTORS BELOW Use **correct legal name** of Subcontractor (No Assumed Business Names)	**Division of Work** (Painting, electrical, landscaping, etc.) List **ALL** DOW performed by Subcontractors	**DOLLAR AMOUNT OF SUBCONTRACT**	If Certified or self-reporting MBE/WBE/ESB Subcontractor Check box ✔		
			MBE	WBE	ESB
Name **Address** **City/St/Zip** **Phone#** **OCCB#**			☐	☐	☐
Name **Address** **City/St/Zip** **Phone#** **OCCB#**			☐	☐	☐
Name **Address** **City/St/Zip** **Phone#** **OCCB#**			☐	☐	☐
Name **Address** **City/St/Zip** **Phone#** **OCCB#**			☐	☐	☐
Name **Address** **City/St/Zip** **Phone#** **OCCB#**			☐	☐	☐
Name **Address** **City/St/Zip** **Phone#** **OCCB#**			☐	☐	☐
Name **Address** **City/St/Zip** **Phone#** **OCCB#**			☐	☐	☐

CLACKAMAS COUNTY
GOOD FAITH EFFORT
M/W/ESB CONTACT / BIDS RECEIVED LOG
(FORM 2)

Prime Contractor:

Project: 2024-65 McBrod Corrections Remodel Project

Prime Contractor must contact or endeavor to contact at least 3 M/W/ESB Subcontractors for each Division of Work. Prime Contractor shall record its contacts with M/W/ESB Subcontractors through use of this log (or equivalent) entering all required information. All columns shall be completed where applicable. Additional forms may be copied if needed.

NAME OF M/W/ESB SUBCONTRACTOR	Divisions of Work (Painting, electrical, landscaping, etc.)	Date Solicitation Letter / Fax Sent	PHONE CONTACT		BID ACTIVITY Check Yes or No			REJECTED BIDS (if bid received & not used)		Notes
			Date of Call	Person Receiving Call	Will Bid	Bid Received	Bid Used	Bid Amount	Reason Not Used (Price, Scope or Other. If Other, explain in Notes>>)	
					☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No			
					☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No			
					☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No			
					☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No			
					☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No			
					☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No			
					☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No			

McBrod Crisis Center

Prepared by Schommer & Sons, Inc. - 6421 NE Colwood Way, Portland, OR 97218, USA

Project Lead: Elliot Lowe (elowe@schommer-sons.com)

Project Location: United States of America

Proposal Summary

Generated August 27, 2024

BID PACKAGES

- 011074: Demolition
- 017432: Final Clean
- 033000: Cast in Place Concrete
- 050000: Canopy Stair and Guardrail Installation
- 055000: Metal Fabrications
- 061100: Wood Framing
- 064100: Casework and Countertops
- 072116: Building Insulation and Vapor barrier
- 074646: Exterior Siding
- 075400: Roofing
- 076200: Sheet Metal
- 081113: Provide Doors and hardware
- 087100: Install Doors frames and hardware
- 091000: Painting
- 092000: Drywall
- 092000: Metal Framing
- 093000: Tile
- 096000: Flooring
- 102800: Bathroom Accessories
- 113013: Appliances
- 113013: Install Appliances, bathroom accessories etc.
- 122113: Window Coverings
- 220000: Plumbing
- 230000: Mechanical
- 260000: Electrical
- 310000: Earthwork
- 320000: AC Paving
- 321423: Unit Pavers
- 321723: Striping and Pavement Markings

Soft Awarded / Apparent Low

Soft awarded bids are highlighted in blue

Company	Total Cost
Demolition Contractors, Inc.	**$40,670**
Clean-World Maintenance, Inc.	**$5,379**
Toby Davis Concrete, Inc.	**$49,625**
Complete Fusion Welding LLC	**$83,951**
FabCo LLC	**$41,159**
Schommer & Sons, Inc.	**$54,713**
Oregon Corrections Enterprises	**$24,837**
Usi-Jb Insulation	**$3,535**
Schommer & Sons, Inc.	**$29,000**
Griffith Roofing	**$76,403**
Great NW Gutters	**$10,247**
Building Material Specialties, Inc.	**$100,343**
All Trades General Contractors	**$16,171**
Melhus and Company Inc. dba Empire Painting	**$34,989**
Caslin, Inc	**$78,645**
Western Partitions, Inc.	**$0**
Don Frank Floors, Inc.	**$29,851**
Don Frank Floors, Inc.	**$27,575**
Building Material Specialties, Inc.	**$4,288**
Standard TV & Appliance	**$4,719**
Renko NW Inc.	**$0**
Superior Interiors, Inc.	**$6,794**
Wilson and Sons Construction LLC	**$113,815**
Dan's Top Notch	**$156,385**
Cox Electric, Inc.	**$164,656**
Wilson and Sons Construction LLC	**$65,670**
Vancouver Paving Company	**$30,800**
Cedar Landscape Construction, Inc.	**$20,690**
B&T Striping and Curbing	**$3,885**

Company	Name	Email	Phone	Labor Type	Enterprise Type	Bid Package	Address	DBE Certificates
3 Kings Environmental, Inc.	Jason Hawks	jhawks@3kingsinc.com	+1 360-949-5822	Union, Non-Union, Prevailing Wages		Demolition	2211 West Valley Highway East, Sumner, WA 98390, United States of America	
A Plus Quality Construction LLC	Gerardo Molina	molinag@aplusqualityllc.com	+1 971-292-5555	Non-Union		Drywall	4972 Sunnyview Road Northeast, Salem, OR 97305, United States of America	
AA Asphalting LLC	Leah Kariniemi	leah.kariniemi@aaasphalting.com	+1 360-883-9222	Non-Union	Other	AC Paving	12414 Northeast 99th Street, Vancouver, WA 98682, United States of America	
ABC Roofing, a Tecta America Company LLC	Todd Miller	tmiller@tectaamerica.com	+1 503-961-2282	Union		Roofing	11305 NE Marx St, Portland, OR 97220, USA	
Accurate Concrete Cutting Inc	Jason Tipps	jasont@accurate-concrete-cut.com	+1 503-285-6731	Union	Women Business Enterprise (WBE)	Concrete Saw Cutting	6816 Northeast 40th Avenue, Suite A, Vancouver, WA 98661, United States of America	
Accurate Electric Unlimited, Inc.	Aaron Taylor	aaron.t@aeuinc.com	+1 360-984-1040	Union	None	Electrical	Vancouver, WA 98687 US	State of Washington Department of Enterprise Services|Small Business (SB)
Alamo Paving Co.	Carly Bykoski	carly@alamopaving.com	+1 503-443-5143	Non-Union	Women Business Enterprise (WBE)	AC Paving	Clackamas, OR, USA	Oregon Certification Office for Business Inclusion and Diversity|Women Business Enterprises (WBE)
All City Paving	All City Paving Bid Invites	estimating@allcitypaving.com	+1 503-393-4604	Prevailing Wages, Non-Union	Women Business Enterprise (WBE), Disadvantaged Business Enterprise (DBE), Small Business Enterprise (SBE)	AC Paving	8890 Huff Ave NE, Salem, OR 97303, USA	
All Trades General Contractors	Joshua Anderson	janderson@alltradesgc.com	+1 503-446-5954	Non-Union	None	Install Doors frames and hardware	4945 NE 109th Ave, Portland, OR 97220, USA	
Alliant Systems, LLC dba Alliant Systems	Max Brown	m.brown@alliant-systems.com	+1 971-412-7950	Union, Prevailing Wages	None	Plumbing	351 NW 12th Ave, Portland, OR 97209, USA	
Ambrose Glass	Tim Sullivan	tim@ambroseglass.com	+1 541-508-9542	Union	Small Business Enterprise (SBE)	Glass & Glazing	2545 NW Division St, Gresham, OR 97030, USA	
American Direct Procurement	Jeff Nehler	jeffn@americandirectco.com	+1 503-907-2187	Union, Non-Union	None, Other	Provide Doors and hardware	18285 Northeast Halsey Street, Portland, OR 97230, USA	
American Heating, Inc.	Tim Trammel	tim@americanheating.net	+1 503-239-4600	Non-Union	None	Mechanical	5035 Southeast 24th Avenue, Portland, OR 97202, USA	
Anderson Erosion Control Inc.	Kevin Madsen	kevin@andersonsec.com	+1 541-998-2062		Disadvantaged Business Enterprise (DBE), Women Business Enterprise (WBE)	Unit Pavers	Junction City, OR 97448, USA	
Andres Landscape	Andres Picon	andreslandscape@outlook.com	+1 503-632-3366	Prevailing Wages	Other	Unit Pavers	Oregon City, 97045, OR 97045, USA	
Arctic Sheet Metal, Inc.	Dan Justice	djustice@arctic.biz	+1 503-313-3579	Union	None	Plumbing	2310 Northeast Columbia Boulevard, Portland, OR 97211, USA	
Art Cortez Construction, Inc.		kelly@artcortezconstruction.com		Union	Minority Business Enterprise (MBE), Disadvantaged Business Enterprise (DBE)	Install Doors frames and hardware	15783 NW Dairy Creek Rd, North Plains, OR 97133, USA	
Atlas Electrical Contractors, Inc.	Daniel Aguirre	dana@atlaselectrical.com	+1 503-659-2212	Union, Non-Union	Small Business Enterprise (SBE)	Electrical	4403 Southeast Roethe Road, Milwaukie, OR 97267, United States of America	
B&T Striping and Curbing	Tori Klages	toriklages@hotmail.com	+1 503-363-2171	Non-Union, Prevailing Wages	None	Striping and Pavement Markings	4478 Medina Avenue Southeast, Salem, OR 97317, USA	
Basco	BRETT PHEARSON	brettp@bascoappliances.com	+1 503-412-6760	Non-Union	Small Business Enterprise (SBE)	Appliances	1411 NW Davis St, Portland, OR 97209, USA	
Bedrock Concrete Cutting	Ian Osborne	iano@bedrockconcretecutting.com	+1 503-761-3961	Union	Small Business Enterprise (SBE)	Concrete	4334 Northeast 148th Avenue, Portland, OR 97230, United States of America	Oregon Certification Office for Business Inclusion and Diversity|Emerging Small Business (ESB)
Bell Hardware	ian madden	ianm@bellhardware.com	+1 503-570-9610			Provide Doors and hardware	26300 SW 95th Ave, 102, Wilsonville, OR 97070, USA	
Best Cabinet and Granite Supply, Inc.	Shelley Chen	shelley@bestcabinetus.com	+1 360-953-8186	Non-Union	Minority Business Enterprise (MBE), Women Business Enterprise (WBE), Small Business Enterprise (SBE)	Casework and Countertops	3001 E 4th Plain Blvd, Vancouver, WA 98661, USA	Washington State Office of Minority and Women's Owned Business Enterprises|Minority Women-Owned Business Enterprise (M/WBE)
Black Line Contract Glazing	Darand Davies	darand@blacklineglazing.com	+1 503-878-8585	Union	Small Business Enterprise (SBE)	Glass & Glazing	2763 22nd Street Southeast, Salem, OR 97302, United States of America	
Boles Brothers Inc.	Debbie Mather	debbie@bolesbrothers.com	+1 503-475-4444	Non-Union		Painting	28300 Northeast Mountain Top Road, Newberg, OR 97132 US	
Brix Paving Northwest Inc.	Bill Bracale	bbracale@brixpaving.com	+1 503-570-9355	Non-Union, Prevailing Wages	None	AC Paving	11277 SW Clay St, Suite C, Sherwood, OR 97140, USA	
Builders' Hardware & Supply Company, Inc.	Erin Mott	erinmott@builders-hardware.com	+1 206-281-3710	Non-Union, Prevailing Wages, None	None	Provide Doors and hardware	6411 South 216th Street, Kent, WA 98032, United States of America	
Building Material Specialties, Inc.	Richard Cardinaux	richard@bms-oregon.com		Non-Union, Union, Prevailing Wages	None	Provide Doors and hardware	201 SW Spring St, Hillsboro, OR 97123, USA	
Carlson Roofing Company Inc.	Mitch Wheelhouse	mitch@carlsonroof.com	+1 971-416-7728	Union	Other	Roofing	Hillsboro, OR, USA	
Cash's Drapery	Sales Email	sales@cashsdrapery.com	(503) 654-3939	Non-Union, Union	Small Business Enterprise (SBE)	Window Coverings	2366 Southeast Ochoco Street, Milwaukie, OR 97222, USA	
CCI Caseworks Inc.	Tim Blaker	tim@ccicaseworks.com	+1 360-953-9641	Union	Women Business Enterprise (WBE)	Casework and Countertops	7509 S 5th St, Ridgefield, WA 98642, USA	
Cedar Landscape Construction, Inc.	Stellan Haddick	stellan@cedarlandscape.com	+1 503-486-5212	Non-Union, Prevailing Wages	None	Unit Pavers	14375 SW Patricia Ave, Hillsboro, OR 97123, USA	
Chown Inc.	Joel Chown	joelc@chown.com	+1 503-278-2455	Union, Non-Union, Prevailing Wages	None	Provide Doors and hardware	333 Northwest 16th Avenue, Portland, OR 97209, USA	
Clark County Paving	Michael Owenby	paving@clarkcountypaving.com	(360) 773-6885	Non-Union	Small Business Enterprise (SBE)	AC Paving	Brush Prairie, WA 98604, United States of America	
Clean-World Maintenance, Inc.	Eric Burris	eburris@cwminc.com	+1 360-256-9250	Non-Union, Prevailing Wages	Women Business Enterprise (WBE)	Final Clean	Vancouver, WA 98682, USA	Washington State Office of Minority and Women's Owned Business Enterprises|Women-owned Business Enterprise (WBE)
Coast Sweeping Service, Inc.	Calvin Harmon	calvinh@coastpave.com	+1 503-896-1627	Non-Union	None	Striping and Pavement Markings	11060 Southwest Tonquin Road, Sherwood, OR 97140, United States of America	
Cochran, Inc.	Erin Holmes	eholmes@cochraninc.com	+1 971-205-4242	Union, Non-Union	Women Business Enterprise (WBE), Other, None	Electrical	7550 Southwest Tech Center Drive, Tigard, OR 97223, USA	Women's Business Enterprise National Council|Women-owned Business Enterprise (WBE)
Columbia River Roofing	Eric Finnerty	eric@crroof.com	+1 503-674-8754	Non-Union	Small Business Enterprise (SBE)	Roofing	2951 NW Division St #150, Gresham, OR 97030, USA	
Complete Fusion Welding LLC	Abdias Calixte	completefusionwelding@yahoo.com	+1 360-232-2051	Union	Disadvantaged Business Enterprise (DBE)	Canopy Stair and Guardrail Installation	Portland, 97218, OR 97218, USA	
CS 1 Real Interiors Inc	gibran chavez	office@cs1realinteriors.com	+1 971-217-0257	Non-Union	Small Business Enterprise (SBE), Minority Business Enterprise (MBE)	Drywall	21785 Southwest Tualatin Valley Highway, Hillsboro, OR 97006, United States of America	Oregon Certification Office for Business Inclusion and Diversity|Disadvantaged Business Enterprise (DBE);Oregon Certification Office for Business Inclusion and Diversity|Minority Business Enterprise (MBE);Oregon Certification Office for Business Inclusion and Diversity|Emerging Small Business (ESB)
D & F Plumbing Co.	Joshua Brajevich	joshbrajevich@dandfplumbing.com	+1 971-409-0238	Union		Plumbing	12007 Northeast 95th Street, Vancouver, WA 98682, United States of America	
D & S Concrete Construction Inc.	Christine Davison	office@dandsconcreteconstruction.com	+1 503-474-7273	Union	Other	Cast in Place Concrete	735 3rd St, Dayton, OR 97114, USA	
Dakota Construction Services, Inc.	Thor Lohn	thor@dakotaroofingnw.com		Non-Union, Prevailing Wages	Small Business Enterprise (SBE)	Roofing	1191 Capitol Street Northeast, Salem, OR 97301, United States of America	
Dan's Top Notch	Dan Reude	dtncommercial@gmail.com	+1 360-835-9364	Non-Union	Other	Mechanical	594 C St, Washougal, WA 98671, USA	
DB Steel, Inc.	Joshua Hemmert	joshua@dbsteel.us	+1 503-929-2898	Non-Union	Small Business Enterprise (SBE)	Metal Fabrications	1800 Main St, Oregon City, OR 97045, USA	
Demolition Contractors, Inc.	Rob Donily	radonily@hotmail.com	+1 503-783-1590	Non-Union	None	Demolition	Tualatin, OR 97062 US	
DeTemple Company, Inc.	DeTemple Projects	bids@detemple.com	+1 503-227-2641	Union	None	Plumbing	5636 NE Hassalo St, Portland, OR 97213, USA	National Women Business Owners Corporation|Minority Women-Owned Business Enterprise (M/WBE)
Diamond Design Precast	Jasmine Kempma	jasmine@ddpconcrete.com	+1 360-435-6151	Non-Union		Precast concrete Stairs	19405 63rd Avenue Northeast, Arlington, WA 98223, United States of America	
District Painting Company	District Painting Co.	bids@districtpaintingco.com	+1 503-560-7662	Non-Union	None	Painting	2712 Southeast Steele Street, Portland, OR 97202, United States of America	Oregon Certification Office for Business Inclusion and Diversity|Emerging Small Business (ESB)
Don Frank Floors, Inc.	John Duty	johnd@donfrankfloors.com	+1 503-235-5447	Union	None	Tile	15550 Southeast Piazza Avenue, Clackamas, OR 97015, USA	
Don Rhyne Painting	Jeff Leitzel	jeff@donrhynepainting.com	+1 503-658-8100	Non-Union	Small Business Enterprise (SBE)	Painting	19800 Southeast Damascus Lane, Damascus, OR 97089, USA	
Door Solutions, Inc.	Michael Rosenthal	mike@doorsolutionspdx.com	+1 503-828-9811	Non-Union		Provide Doors and hardware	7921 SW Nimbus Ave #28, Beaverton, OR 97008, USA	
Doyen Wood Products	Brian Davis	brian@partsandpiecesinc.com	+1 503-908-3156	Non-Union		Casework and Countertops	2300 SE Beta St, Suite D, Milwaukie, OR 97222, USA	
DT Striping LLC	Donnie Crawford	dtstriping@aol.com	+1 503-969-6006	Non-Union	Disadvantaged Business Enterprise (DBE), Minority Business Enterprise (MBE), Women Business Enterprise (WBE), Other	Striping and Pavement Markings	11844 Southeast Raymond Street, 1, Portland, OR 97266, United States of America	United States Department of Transportation|Disadvantaged Business Enterprise (DBE);United States Department of Transportation|Emerging Small Business (ESB);United States Department of Transportation|Minority Business Enterprise (MBE)
Eastside Metal Fab	Joe Tompkins	wrightmfg7474@aol.com	+1 503-774-9689	Non-Union	None	Canopy and Guardrail Installation	7474 SE. Johnson Creek Boulevard, Portland, OR 97206, United States of America	
Eastside Paving Inc.	Sean Patrick	sean@eastsidepaving.com	+1 503-519-6479	Non-Union, Union	None	AC Paving	1702 Northwest Eleven Mile Avenue, Gresham, OR 97030 US	
EC Electric and Power Systems West	Dave Brown	dave.brown@ecpowerslife.com	+1 503-224-3683	Union, Prevailing Wages	Other, None, Disadvantaged Business Enterprise (DBE)	Electrical	2121 NW Thurman St, Portland, OR 97210, USA	
Evolution Plumbing	Rich Pine	rich.pine@evoplumbing.net	+1 503-655-3388	Non-Union	Small Business Enterprise (SBE)	Plumbing	7210 NE 47th Ave, Portland, OR 97218, USA	
FabCo LLC	Simon Chernishoff	simonc@fabconw.com		Non-Union		Canopy and Guardrail Installation	2215 Progress Way, Woodburn, OR 97071, United States of America	
Faustrollean Fixture Co., Inc.	Brenden Drew	bdrew@faustro.com		Union	None	Casework and Countertops	2665 Northeast Riverside Way, Portland, OR 97211, USA	
Finish Line Concrete Cutting, Inc.	Casey Jorgenson	caseyj@flcci.com	+1 360-518-6996	Union	Other	Concrete Saw Cutting	9305 Northeast 117th Avenue, Vancouver, WA 98662, USA	
Fireball Demolition LLC	Lucia Flores	fireball.demolition@gmail.com	+1 360-261-9274	None, Non-Union		Demolition	13216 Northeast 59th Street, Unit 53, Vancouver, WA 98682, United States of America	

First Impressions Concrete	Levi Ostlund	bids@firstimpressionsconcrete.com	(360) 984-8091	Non-Union	None	Concrete	Vancouver, WA 98682, USA	
Floor Solutions, LLC	Doug Ramsay	dougr@floorsol.com		Union, Non-Union, Prevailing Wages	None, Small Business Enterprise (SBE)	Tile	2121 NW Front Ave, Portland, OR 97209, USA	
G Builds LLC	Mak Reutov	max@gbuilds.com	+1 503-444-0380	None, Prevailing Wages, Non-Union		Wood Framing	P.O Box 676, Mt. Angel, OR 97362, United States of America	
Garon Roofing & Sheet Metal, Inc.	Ryan Nikkila	ryan@garonroofing.com	+1 360-254-0380	Union	Women Business Enterprise (WBE)	Roofing	8204 Northeast 78th Street, Vancouver, WA 98662 US	Oregon Certification Office for Business Inclusion and Diversity|Women Business Enterprises (WBE);King County Business Development & Contract Compliance (Washington)|Small Business (SB);Washington State Office of Minority and Women's Owned Business Enterprises|Women Business Enterprises (WBE)
Gibson Door & Millwork, Inc.	Bill Gibson	bill@gibsondoor.com		Union, Non-Union	Women Business Enterprise (WBE), Disadvantaged Business Enterprise (DBE), Small Business Enterprise (SBE)	Install Doors frames and hardware	10148 Southeast Clatsop Street, Portland, OR 97266, USA	Oregon Certification Office for Business Inclusion and Diversity|Disadvantaged Business Enterprise (DBE);Oregon Certification Office for Business Inclusion and Diversity|Women Business Enterprises (WBE)
Gill Electric LLC	robert gill	gillelectric.rob@gmail.com	+1 503-878-2018	Non-Union	None	Electrical	2900 Northeast 152nd Avenue, Vancouver, WA 98682, United States of America	
GlenCo Creations, LLC	Glen McKinney	glencocr@gmail.com	+1 503-915-6250	Non-Union, None	Other	Unit Pavers	309 Rosedell St, Amity, OR 97101, USA	
Gore Electric Company	Darrell Gore	darrell@goreec.com	+1 971-297-8198	Union	None	Electrical	26458 SW Daniel Rd, Beaverton, OR 97007, USA	
Great Floors	Rich Meredith	r.meredith@greatfloors.com	+1 360-695-1231	Non-Union, Prevailing Wages	Other, None	Flooring	524 Sherman Ave, Coeur d'Alene, ID 83814, USA	
Great NW Gutters		stephanie@greatnwgutters.com		Non-Union, Union	None	Sheet Metal	19975 SW Cipole Rd, Tualatin, OR 97062, USA	
Green Mountain Fabrication	Wade Goen	wadecg@gmfabinc.com	+1 360-430-7100	Non-Union	Small Business Enterprise (SBE)	Canopy and Guardrail Installation	PO Box 1720, Woodland, WA 98674, United States of America	
Griffith Roofing	Rick Gehrts	rickg@griffithroofingcompany.com	+1 503-643-1596	Union	None	Roofing	6815 SW 111th Ave, Beaverton, OR 97008, USA	
Hard-Core Contractors, Inc.	Jason Noyes	jason@hardcorecontractors.com	+1 612-237-6787	Non-Union, Prevailing Wages	None	Building Insulation and Vapor barrier	3250 J St, Hubbard, OR 97032, USA	
Harlenâ€™s Drywall Co. Inc.	Tonya Nolan	tonya@harlensdrywall.com	+1 360-574-1424	Union	None	Drywall	14615 NE 13th Ct, Vancouver, WA 98685, USA	
Heinz Mechanical Industries, Inc	Eric Waliezer	ericw@heinz-mech.com	+1 971-242-8202	Union	Women Business Enterprise (WBE)	Plumbing	12434 Southeast Capps Road, Clackamas, OR 97015, United States of America	Women's Business Enterprise National Council|Women-owned Business Enterprise (WBE)
Hilltop Commercial Supply Inc.	Stan JauJou	info@hilltopcommercialsupply.com		Non-Union	Women Business Enterprise (WBE)	Bathroom Accessories	218 Long Branch Rd, Eagle Point, OR 97524, USA	Oregon Certification Office for Business Inclusion and Diversity|Women-owned Business Enterprise (WBE)
HR Mechanical Services	Hans Randklev	hans.r@hrmechanicalservices.com	+1 541-264-1176	Non-Union, Prevailing Wages	Small Business Enterprise (SBE)	Plumbing	42556 Island Inn Dr, Lebanon, OR 97355, USA	
Hunter-Davisson, Inc.	Geoffrey Ledbetter	gledbetter@hunterdavisson.com	(503) 542-3650	Non-Union	None	Mechanical	1800 Southeast Pershing Street, Portland, OR 97202, USA	
Hydro-Temp Mechanical, Inc.	Jared Carkin	jaredc@hydrotempmech.com	+1 503-582-8525	Non-Union, Prevailing Wages	None	Mechanical	28465 SW Boberg Rd, Wilsonville, OR 97070, USA	United States Small Business Administration|Small Business Administration 8(a) Program
Insulation Contractors of Washington, LLC	Gary Trauter	gtrauter@iconinsul.com	+1 253-395-1895	Union, Non-Union, Prevailing Wages	None, Other	Building Insulation and Vapor barrier	22706 58th Pl S, Kent, WA 98032, USA	
Ironeagle Paving Inc	kristopher thomas	ironeaglepavinginc@gmail.com	(206) 406-8497	Union		Earthwork	4906 NE Mallory Ave, Portland, OR 97211, USA	
Irs Environmental of Portland, Inc.	Bruce Korum	brucek@irsenvironmental.com	+1 503-693-6388	Non-Union, Union	Minority Business Enterprise (MBE), Women Business Enterprise (WBE), Disadvantaged Business Enterprise (DBE), Other	Demolition	777 SW Armco Ave, Hillsboro, OR 97123, USA	Oregon Certification Office for Business Inclusion and Diversity|Minority Business Enterprise (MBE);Oregon Certification Office for Business Inclusion and Diversity|Women Business Enterprises (WBE);United States Small Business Administration|Disadvantaged Business Enterprise (DBE)
Jet Industries	Katie Overton	estimating@jetindustries.net	+1 503-363-2334	Non-Union	None	Mechanical	1935 Silverton Rd NE, Salem, OR 97301, USA	
Johnson Concrete Products	Trask Ward	traskjcp@gmail.com	+1 503-774-2351	Non-Union		Precast concrete Stairs	6500 Southeast Johnson Creek Boulevard, Portland, OR 97206, United States of America	
JR Swigart Co.	Kathleen Espartero	kathleen@jrswigart.com		Non-Union, Prevailing Wages	None	Roofing	Pasco, WA 99302, USA	
JZ Striping & Seal Coating LLC	Deisy Uriarte	jz@jzstripingsealcoating.net	+1 503-975-6677	None	Other	Striping and Pavement Markings	Clackamas, OR 97015, USA	
Kodiak Pacific Construction Co.	tim shields	tims@kodiakco.com	+1 503-783-4320	Non-Union, Prevailing Wages	Women Business Enterprise (WBE)	Earthwork	10940 Southwest Clutter Road, Sherwood, OR 97140 US	Oregon Certification Office for Business Inclusion and Diversity|Women Business Enterprises (WBE)
Konell Construction & Demolition Corp.	Khara Hillis	khara@konell.net	+1 503-668-3516	Non-Union	Small Business Enterprise (SBE)	Earthwork	36000 Industrial Way, Sandy, OR 97055, USA	
Lakeside Industries, Inc.	Adam Bridgens	adam.bridgens@lakesideindustries.com	+1 503-222-6421	Union, Prevailing Wages, Non-Union	None	AC Paving	4850 Northwest Front Avenue, Portland, OR 97210, USA	
Laneco	David Oberst	david.oberst@lanecoinc.com	+1 503-239-6858	Non-Union, Prevailing Wages	Small Business Enterprise (SBE)	Demolition	8823 N Harborgate St, Portland, OR 97203, USA	
Lauzon Contracting, LLC	Mark teneyck	mteneyck@lauzoncontracting.com	+1 503-780-7569	Non-Union	Women Business Enterprise (WBE), Small Business Enterprise (SBE)	Earthwork	13577 Southeast Willingham Court, Clackamas, OR 97015, USA	Oregon Certification Office for Business Inclusion and Diversity|Women Business Enterprises (WBE);Oregon Certification Office for Business Inclusion and Diversity|Disadvantaged Business Enterprise (DBE)
Lawson Corp	Josh Larson	jlarson@lawson-corp.com	+1 503-852-0035	Non-Union	None	Earthwork	230 South Park Street, Carlton, OR 97111, United States of America	
LC Custom Interiors LLC	Jesse Free	accounting@lccustominteriors.com	+1 360-791-3898	Non-Union, Prevailing Wages		Window Coverings	Olympia, WA, USA	
LCD Excavation	Tyler Anderson	tanderson@lcdexcavation.com	+1 503-718-7934	Non-Union, Prevailing Wages	None	Earthwork	13625 SW Farmington Rd, Beaverton, OR 97005, USA	
Legend Custom Woodworking, Inc.	frank ball	frankb@legendcw.com	+1 503-669-1000	Non-Union	None	Casework and Countertops	17415 SE Kendall Ct, Portland, OR 97236, USA	
LOCAL Plumbing Co	Tom Allender	toma@localplumbingco.com	+1 503-642-2067	Non-Union	Disabled Veteran Business Enterprise (DVBE)	Plumbing	20833 Southwest Olds Place, Unit 206, Sherwood, OR 97140, United States of America	United States Department of Veteran Affairs|Service-Disabled Veteran-Owned Small Business (SDVOSB)
Lovett	Lowell Hayward	lowell.h@lovettservices.com		Non-Union, Prevailing Wages	None	Plumbing	6920 NE 42nd Ave, Portland, OR 97218, USA	
Madden Fabrication	Shawn Lindstrom	slindstrom@madfab.com	+1 503-226-3968	Non-Union	Small Business Enterprise (SBE)	Metal Fabrications	2550 Northwest 25th Place, Portland, OR 97210, USA	
Market Contractors Ltd	Dann Golden-Collum	danng@marketcontractors.com	+1 503-358-4684	Non-Union	None	Casework and Countertops	10250 NE Marx St, Portland, OR 97220, USA	
Martin Sheet Metal Inc.	Ryan Martin	ryan@martinsheetmetalinc.com	+1 503-647-2248	Non-Union	None	Install Metal Siding	9950 Northwest Glencoe Road, North Plains, OR 97133, USA	
McDonald & Wetle, Inc.	Mark McKay	markm@mcdonaldwetle.com	+1 503-667-0175	Union, Non-Union	None	Roofing	2020 Northeast 194th Avenue, Portland, OR 97230, USA	
McGee Plumbing Co., Inc.	Sherrie Johnson	assistmcgee@hotmail.com	+1 360-835-2859	Non-Union	Minority Business Enterprise (MBE)	Plumbing	Washougal, WA, USA	
Medallion Industries	Shawn Hansen	shawn.hansen@medallionindustries.com	1 503-221-0170	Non-Union	Other	Provide Doors and hardware	3221 Northwest Yeon Avenue, Portland, OR 97210 US	
MLS Interiors, LLC	Leanna Smith	leanna@kdwindowcoverings.com	+1 503-975-6422	None, Non-Union	Minority Business Enterprise (MBE), Small Business Enterprise (SBE), Women Business Enterprise (WBE)	Window Coverings	11935 SW 128th Ave, Tigard, OR 97223, USA	
Modular Paving Systems, Inc.	Joel Clausen	joel@modularpaving.com	+1 503-579-5560	Non-Union	None	Unit Pavers	5566 SE Stark St, Portland, OR 97215, USA	
Mt. Hood Corporations, Inc.	Doug Martin	doug@mthoodcleaners.com	+1 503-668-4181	Union, Non-Union	None	Window Coverings	37625 Sunset St, Sandy, OR 97055, USA	
NativeWorks LLC	NativeWorks Estimating	estimating@pdxnativeworks.com	+1 503-421-4395	Union	Disadvantaged Business Enterprise (DBE), Small Business Enterprise (SBE), Women Business Enterprise (WBE), Minority Business Enterprise (MBE)	Drywall	PORTLAND, OR 97203, United States of America	Oregon Certification Office for Business Inclusion and Diversity|Minority Business Enterprise (MBE);Oregon Certification Office for Business Inclusion and Diversity|Disadvantaged Business Enterprise (DBE);Oregon Certification Office for Business Inclusion and Diversity|Women-owned Business Enterprise (WBE);Oregon Certification Office for Business Inclusion and Diversity|Small Business Enterprise (SBE);Washington State Office of Minority and Women's Owned Business Enterprises|Minority Women-Owned Business Enterprise (M/WBE)
Noble Sheet Metal Inc	Dustin Noble	noblesminc@gmail.com	+1 360-844-0819	Non-Union	Other	Sheet Metal	715 NE 22nd Ave, Camas, WA 98607, USA	
North Cascade Excavating	connor reese	connor@nce.us	+1 360-977-2373	Non-Union	Other	Earthwork	428 North Pekin Road, Woodland, WA 98674, United States of America	
Northstar CG, LP - PNW	Will Wheeler	wwheeler@northstar.com	+1 503-496-8155	Union	Other	Demolition	8160 304th Ave SE, Issaquah, WA 98027, USA	
NorthStar Contracting Group, Inc.	Jose Padilla	jpadilla@northstar.com	1 425-881-0623	Union, Prevailing Wages	None	Demolition	10367 Southeast Helena Street, Portland, OR 97222, USA	
Northwest Commercial Exterior Company	jose Verduzco	jose@nwcec.com	+1 503-968-1613	Union, Non-Union, Prevailing Wages	Minority Business Enterprise (MBE), Small Business Enterprise (SBE)	Exterior Siding	14865 Southwest 74th Avenue, Tigard, OR 97224, USA	
Northwest Door & Supply	Bruce Gard	gardnwdoor@gmail.com	+1 503-692-9494	Non-Union	None	Provide Doors and hardware	10550 Southwest Manhasset Drive, Tualatin, OR 97062, USA	
Northwestern Rebar	Mike Manzhura	mike@northwesternrebar.com	+1 360-828-7478	Non-Union	Other	Rebar	Vancouver, WA 98682, USA	
Northwestern Roofing & Sheet Metal Inc.	J.R. Barreras	jr@nwrasm.com	+1 503-235-0130	Union	Women Business Enterprise (WBE)	Roofing	930 Southeast Lincoln Street, Portland, OR 97214, United States of America	Oregon Certification Office for Business Inclusion and Diversity|Minority Women-Owned Business Enterprise (M/WBE)
OEG Inc.,	Brad Sisson	brad.sisson@oeg.us.com	+1 503-849-2252	Union	None, Other	Electrical	3200 Northwest Yeon Avenue, Portland, OR 97210, United States of America	

Oregon Door Consultants	Chris Warren	chris@oregondoorconsultants.com	+1 800-621-0790	Union	Disadvantaged Business Enterprise (DBE), Small Business Enterprise (SBE), Minority Business Enterprise (MBE)	Install Doors frames and hardware	Southwest 72nd Avenue, Tigard, OR 97224, United States of America	Washington State Office of Minority and Women's Owned Business Enterprises|Disadvantaged Business Enterprise (DBE);Oregon Certification Office for Business Inclusion and Diversity|Emerging Small Business (ESB);Oregon Certification Office for Business Inclusion and Diversity|Minority Business Enterprise (MBE)
Pacific Landscape Services, Inc.	Genna Smith	genna@pacificlandscapeservices.com	+1 360-910-1141	Non-Union		Unit Pavers	2200 Roosevelt Avenue, Vancouver, WA 98660, United States of America	Washington State Office of Minority and Women's Owned Business Enterprises|Women Business Enterprises (WBE)
Pacific Northwest Environmental LLC	Chad Weiler	chadw@pnwenvironmental.com	+1 503-891-9982	Union	Other	Demolition	19645 SE Sunnyside Rd, Damascus, OR 97089, USA	Oregon Certification Office for Business Inclusion and Diversity|Women-owned Business Enterprise (WBE);United States Small Business Administration|Women Owned Small Business (WOSB)
Pacific Northwest Glass Mirror LLC	Adam Zytniowski	projectmgr@pacificnwglass.com	+1 360-719-2929	Union	Women Business Enterprise (WBE), Small Business Enterprise (SBE)	Glass & Glazing	14413 NE 10th Ave, A107, Vancouver, WA 98685, USA	Washington State Office of Minority and Women's Owned Business Enterprises|Women Business Enterprises (WBE);King County Business Development & Contract Compliance (Washington)|Small Business Enterprise (SBE);Women's Business Enterprise National Council|Women-owned Business Enterprise (WBE);Women's Business Enterprise National Council|Women Owned Small Business (WOSB)
Pavement Maintenance Inc.	Justine Tipton-Kemper	salesadmin@pavemaint.com	+1 503-257-9257	Non-Union, Union	Other	Striping and Pavement Markings	10100 Northeast Marx Street, Portland, OR 97220 US	
Penetrations, Inc.	Travis Squires	tspeninc@aol.com	+1 503-743-4111			Concrete Saw Cutting	Turner, OR 97392 US	
Performance Abatement Services	jose Vazquez	jose.vazquez-castaneda@pcg.com	+1 760-459-9639	Union		Demolition	13600 Northeast 10th Avenue, Vancouver, WA 98685, United States of America	
PG Long Floorcovering	Christian Belgrave	christian@pglongllc.com	+1 503-307-7430	Non-Union	Other	Flooring	13935 NE Airport Way, Portland, OR 97230, USA	
Pioneer Sheet Metal, Inc.	John Fappas	johnf@pioneersheetmetalinc.com	+1 503-492-1095	Non-Union	None	Sheet Metal	Fairview, OR 97024, USA	
Plumbline Drywall	Brent Clune	brent@plumblinedrywall.com	+1 503-841-0025	Non-Union	Minority Business Enterprise (MBE), Small Business Enterprise (SBE)	Drywall	7235 SW Bonita Rd, Tigard, OR 97224, USA	
Portland Electrical Construction Inc.	Pete Boen	pete@portlandelectrical.com	+1 503-655-2281	Non-Union, Prevailing Wages	Women Business Enterprise (WBE)	Electrical	21187 Oregon 99E, Aurora, OR 97002, United States of America	United States General Services Administration|Women-owned Business Enterprise (WBE)
Portland Sheet Metal Works	Jon Pace	jpace@portlandsheetmetal.com	+1 503-654-8582	Non-Union	Other	Install Metal Siding	10101 Southeast Brittany Court, Clackamas, OR 97015, USA	
Premier Pacific Roofing	lorena arias	lorena@pprquality.com	+1 541-406-8967	Non-Union	Small Business Enterprise (SBE), Minority Business Enterprise (MBE)	Roofing	12520 Southeast 93rd Avenue, Clackamas, OR 97015, United States of America	Oregon Certification Office for Business Inclusion and Diversity|Minority Business Enterprise (MBE)
Prestige Electric	Jeff Downer	prestigeelectric@comcast.net	+1 360-210-4269	Non-Union		Electrical	Washougal, WA 98671, United States of America	
Professional Minority Group, Inc.	Ramon Martinez	ramon@pmgasbestos.com	+1 503-761-5924	Non-Union	Minority Business Enterprise (MBE), Women Business Enterprise (WBE), Disadvantaged Business Enterprise (DBE)	Demolition	27090 Highway 224, Eagle Creek, OR 97022 US	Oregon Certification Office for Business Inclusion and Diversity|Minority Business Enterprise (MBE);Oregon Certification Office for Business Inclusion and Diversity|Women Business Enterprises (WBE)
Renko NW Inc.	Alex Oni	estimating@renkonwinc.com	+1 503-703-0804	Union	None	Install Appliances, bathroom accessories etc.	Clackamas, OR, United States of America	
River City Painting	Paul Medvedev	paulm@rivercitypaintingllc.com	+1 971-409-2109	Non-Union	None	Painting	15828 SE 114th Ave, Clackamas, OR 97015, USA	
Roedel Tile Contracting Co. Inc.	John Carlson	john@roedeltile.com	+1 503-285-9878	Union	None	Tile	Portland, OR 97294, USA	
Rubenstein's Contract Carpet, LLC - Oregon	Marty Housden	marty@rubensteins.com	+1 503-224-1007	Union, Non-Union	None	Flooring	700 North Hayden Island Drive, Suite 180, Portland, OR 97217, United States of America	
Salem Fire Alarm, Inc.	Robert West	robert@salemfirealarm.com	+1 503-302-1155	Union	Small Business Enterprise (SBE)	Electrical	3160 22nd Street Southeast, Salem, OR 97302, USA	
Sarkinen Plumbing, Inc.	Barry Stripp	barry@sarkinenhomeservices.com	+1 360-355-6721	Non-Union	None	Electrical	9502 NE 72nd Ave, Vancouver, WA 98665, USA	
Schonert & Associates, Inc.	Don Schonert	don@schonerttile.com	+1 503-723-9413	Union	None	Tile	12452 Southeast Capps Road, Clackamas, OR 97015, USA	
Sequoia Stonescapes	Gale Schroeder	galeschroeder@gmail.com	+1 971-241-0312	Prevailing Wages	Small Business Enterprise (SBE)	Unit Pavers	Rickreall, OR 97371, USA	
Siegner and Company	Ian Siegner	ian@siegnerandcompany.com	+1 503-735-3001	Union	None	Painting	13560 Southeast Pheasant Court, Milwaukie, OR 97222, United States of America	
Skyline Construction Services, LLC	Chad Hulstine	chad@skylineconstructs.com		Union	Small Business Enterprise (SBE)	Wood Framing	2474 Lorence Road NE, Silverton, OR 97381, United States of America	Oregon Certification Office for Business Inclusion and Diversity|Emerging Small Business (ESB)
Snyder Roofing of Oregon, LLC	Service Estimating Coordinator	jmaher@snyder-builds.com	+1 503-726-6594	Union, Non-Union	None	Roofing	12650 Southwest Hall Boulevard, Tigard, OR 97223, United States of America	
Solid Form Fabrication	Andrew Brown	andrew@teamsolidform.com	+1 503-435-1400	Non-Union, Prevailing Wages		Metal Fabrications	2706 Northeast Rivergate Street, McMinnville, OR 97128, United States of America	
Spectrum Custom Interiors LLC	Eric Morrison	ericm@spectrumwoodworking.com	+1 971-236-5300	Union, Non-Union, Prevailing Wages	None	Casework and Countertops	13663 South Holcomb Boulevard, Oregon City, OR 97045, United States of America	
Standard TV & Appliance	Matthew Roma	mroma@standardtvandappliance.com		Non-Union	Other, Small Business Enterprise (SBE)	Appliances	5240 SE 82nd Ave, Portland, OR 97266, USA	Women's Business Enterprise National Council|Women-owned Business Enterprise (WBE)
Stoner Electric Group	John Barnes	johnb@stonergroup.com	+1 360-896-8104	Union	None	Electrical	12214 Southeast Mill Plain Boulevard, Suite 200, Vancouver, WA 98684, United States of America	
Summit Wood Creations	Reyna Badillo	reyna@summitwoodcreations.com	+1 503-230-7018	Non-Union	Minority Business Enterprise (MBE), Women Business Enterprise (WBE)	Casework and Countertops	1431 SE Tacoma St, Portland, OR 97202, USA	Oregon Certification Office for Business Inclusion and Diversity|Disadvantaged Business Enterprise (DBE);Oregon Certification Office for Business Inclusion and Diversity|Emerging Small Business (ESB);Oregon Certification Office for Business Inclusion and Diversity|Minority Business Enterprise (MBE);Oregon Certification Office for Business Inclusion and Diversity|Women Business Enterprises (WBE)
Superior Interiors, Inc.	Ricardo Tipton	ricardo@superiorinteriorsinc.com	+1 360-828-5594	Non-Union, Union	Women Business Enterprise (WBE), Small Business Enterprise (SBE)	Window Coverings	11800 Northeast 95th Street, 210, Vancouver, WA 98682, United States of America	Oregon Certification Office for Business Inclusion and Diversity|Women Business Enterprises (WBE);Washington State Office of Minority and Women's Owned Business Enterprises|Women Business Enterprises (WBE);Oregon Certification Office for Business Inclusion and Diversity|Women Business Enterprises (WBE);Oregon Certification Office for Business Inclusion and Diversity|Women Business Enterprises (WBE)
T OLSEN Contracting LLC	Mason Olsen	mason@tolsenco.com	+1 503-575-5842	Non-Union, Prevailing Wages	Women Business Enterprise (WBE), Disadvantaged Business Enterprise (DBE)	Earthwork	12683 Northeast Whitaker Way, Suite 12715A, Portland, OR 97230, United States of America	Oregon Certification Office for Business Inclusion and Diversity|Women Business Enterprises (WBE);Washington State Office of Minority and Women's Owned Business Enterprises|Disadvantaged Business Enterprise (DBE);Oregon Certification Office for Business Inclusion and Diversity|Emerging Small Business (ESB);Washington State Office of Minority and Women's Owned Business Enterprises|Women Business Enterprises (WBE);Oregon Certification Office for Business Inclusion and Diversity|Disadvantaged Business Enterprise (DBE)
T. T. & L. Sheet Metal, Inc.	Jake Waibel	jake@ttlsm.com	+1 503-641-0552	Non-Union, Union, Prevailing Wages	None	Install Metal Siding	6585 SW Fallbrook Pl, Beaverton, OR 97008, USA	
TFT Construction, Inc.	Ashley Monchamp	ashley@tftconstruction.net	+1 971-241-0830	Non-Union	None	AC Paving	53990 W Lane Rd, Scappoose, OR 97056, USA	
The Harver Company	Eric Schlender	erics@harverco.com	+1 541-600-5812	Union	None	Metal Framing	10000 SW Commerce Circle, Wilsonville, OR 97070, United States of America	
The Muirlands Company	Ryan Lewis	ryanl@muirlandscorp.com		Non-Union	None	Wood Framing	Salem, OR, USA	
Thomas Kay Textiles, Inc.	Jeff Heinz	jeff@tktfloors.com	+1 503-581-8378	Non-Union	Small Business Enterprise (SBE)	Tile	2744 Pence Loop Southeast, Salem, OR 97302, USA	
TMC Contractors LLC	Kurt Marttila	tmccontractorsllc@gmail.com	+1 360-600-9078	Non-Union, Prevailing Wages		Earthwork	608 East Yacolt Road, Yacolt, WA 98675, United States of America	
Toby Davis Concrete, Inc.	Toby Davis	tobydavisconcrete@gmail.com	+1 503-539-4778			Cast in Place Concrete	450 Hermanson St, Woodburn, OR 97071, USA	
Total Mechanical, Inc.	Bishoy Khalil	bishoyk@totalmechanical.com	+1 360-852-5606	Union	None	Mechanical	4857 NW Lake Rd #300, Suite 300, Camas, WA 98607, USA	
United Electric	Troy Jolma	troyj@unitedelect.com	+1 360-984-3589	Non-Union	None	Electrical	22515 Northeast 92nd Avenue, Battle Ground, WA 98604, United States of America	
Usi-Jb Insulation	Randy Crismon	rcrismon@usiinc.com	+1 503-625-9700	Non-Union	Other	Building Insulation and Vapor barrier	14255 Southwest Galbreath Drive, Sherwood, OR 97140, United States of America	

Valley Shades	Zachariah Garrison	zach@valleyshades.com	+1 503-489-8321	Non-Union	None	Window Coverings	7228 Southwest Terwilliger Boulevard, Portland, OR 97219, United States of America	Oregon Certification Office for Business Inclusion and Diversity|Emerging Small Business (ESB)
Van Lom Concrete	Shannon Lee	slee@vanlomconcrete.com	+1 971-291-6994	Union	None	Concrete	PO BOX 1068, Beaverton, OR 97075, United States of America	
Vancouver Paving Company	Jeff Pietrzykowski	jeffp@vancouverpavingco.com	+1 360-573-7973	Non-Union	Women Business Enterprise (WBE), Disadvantaged Business Enterprise (DBE), Minority Business Enterprise (MBE)	AC Paving	1201 Northeast 154th Street, Vancouver, WA 98685, USA	
Virginia Altman Excavation, LLC.	Andrew Altman	altmanexcavation@gmail.com	+1 971-221-1787	Prevailing Wages		Earthwork	16427 Hiram Avenue, Oregon City, OR 97045, United States of America	
W. E. Given Contracting, Inc.	Kim Tingley	kimntingley@yahoo.com	(503) 849-8026	Union	Minority Business Enterprise (MBE), Women Business Enterprise (WBE)	Painting	SE Ambler Rd, POBox 38, Clackamas, OR 97015, USA	Oregon Certification Office for Business Inclusion and Diversity|Women Business Enterprises (WBE);Oregon Certification Office for Business Inclusion and Diversity|Minority Business Enterprise (MBE)
W.H. Cress Company, Inc.	tara Sager	tara@whcress.com	+1 503-620-1664	Non-Union, Union	None	Bathroom Accessories	9966 Southwest Katherine Street, Tigard, OR 97223, USA	
Western Partitions, Inc.	Patrick Counts	patrick.counts@wpibuilds.com	+1 503-577-7087	Union, Prevailing Wages	None	Demolition	26055 SW Canyon Creek Rd, Wilsonville, OR 97070, USA	
Wilson and Sons Construction LLC	Katy Wilson	katy.wilsonsons@gmail.com	+1 503-780-7142	Union		Earthwork	13873 Southeast Richey Road, Boring, OR 97009, United States of America	Oregon Certification Office for Business Inclusion and Diversity|Women-owned Business Enterprise (WBE);Oregon Certification Office for Business Inclusion and Diversity|Emerging Small Business (ESB)
Zavala Corporation	Eduardo Moron-Avalos	eduardo.m@zavalacorp.com	+1 971-340-7983	Non-Union, Union, Prevailing Wages	Minority Business Enterprise (MBE), Disadvantaged Business Enterprise (DBE), Small Business Enterprise (SBE)	Cast in Place Concrete	1040 NW Corporate Dr, Troutdale, OR 97060, USA	Oregon Certification Office for Business Inclusion and Diversity|Minority Business Enterprise (MBE);Washington State Office of Minority and Women's Owned Business Enterprises|Minority Business Enterprise (MBE);Oregon Certification Office for Business Inclusion and Diversity|Disadvantaged Business Enterprise (DBE);Washington State Office of Minority and Women's Owned Business Enterprises|Disadvantaged Business Enterprise (DBE)

CLACKAMAS COUNTY
GOOD FAITH EFFORT
PROJECT COMPLETION REPORT
(FORM 3)

Prime Contractor Name: **Total Contract Amount:**

Project Name: 2024-65 McBrod Corrections Remodel Project

Complete this form and submit with your request for final payment upon the project completion. Please list all subcontractors used for the project. Use additional sheets as necessary.

LIST ALL SUBCONTRACTORS BELOW Use **correct legal name** of Subcontractor (No Assumed Business Names)	**Division of Work** (Painting, electrical, landscaping, etc.) List **ALL** DOW performed by Subcontractors	**FINAL DOLLAR AMOUNT OF SUBCONTRACT**	If Certified or self-reported MBE/WBE/ESB Subcontractor Check box		
			MBE	WBE	ESB
Name **Address** **City/St/Zip** **Phone#** **OCCB#**			☐	☐	☐
Name **Address** **City/St/Zip** **Phone#** **OCCB#**			☐	☐	☐
Name **Address** **City/St/Zip** **Phone#** **OCCB#**			☐	☐	☐
Name **Address** **City/St/Zip** **Phone#** **OCCB#**			☐	☐	☐
Name **Address** **City/St/Zip** **Phone#** **OCCB#**			☐	☐	☐
Name **Address** **City/St/Zip** **Phone#** **OCCB#**			☐	☐	☐

BY SIGNING BELOW, I HEREBY CERTIFY THAT THE ABOVE LISTED FIRMS HAVE BEEN UTILIZED BY OUR COMPANY IN THE AMOUNTS REPRESENTED ABOVE AND THAT THE INFORMATION CONTAINED HEREIN IS COMPLETE AND ACCURATE. .

____ ________________

Authorized Signature of Contractor Representative Date

CLACKAMAS COUNTY
PUBLIC IMPROVEMENT CONTRACT

BID BOND

Project Name: # 2024-65
McBrod Corrections Remodel Project

We, A.C. Schommer & Sons, Inc., as "Principal,"
(Name of Principal)

and Western Surety Company, an South Dakota Corporation,
(Name of Surety)

authorized to transact Surety business in Oregon, as "Surety," hereby jointly and severally bind ourselves, our respective heirs, executors, administrators, successors and assigns to pay unto Clackamas County ("Obligee") the sum of ($ 10%)

Ten Percent of Total Amount Bid dollars.

WHEREAS, the condition of the obligation of this bond is that Principal has submitted its proposal or bid to an agency of the Obligee in response to Obligee's procurement document (No.) for the project identified above which proposal or bid is made a part of this bond by reference, and Principal is required to furnish bid security in an amount equal to ten (10%) percent of the total amount of the bid pursuant to the procurement document.

NOW, THEREFORE, if the Obligee shall accept the bid of the Principal and the Principal shall enter into a Contract with the Obligee in accordance with the terms of such bid, and give such bond or bonds as may be specified in the bidding or Contract Documents with good and sufficient surety for the faithful performance of such Contract and for the prompt payment of labor and material furnished in the prosecution thereof, or in the event of the failure of the Principal to enter such Contract and give such bond or bonds, if the Principal shall pay to the Obligee the difference not to exceed the penalty hereof between the amount specified in said bid and such larger amount for which the Obligee may in good faith contract with another party to perform the Work covered by said bid, then this obligation shall be null and void, otherwise to remain in full force and effect.

IN WITNESS WHEREOF, we have caused this instrument to be executed and sealed by our duly authorized legal representatives this 14th day of August, 20 24 .

Principal: A.C. Schommer & Sons, Inc.

By: _____
Signature

President
Official Capacity

Attest: _____
Corporation Secretary

Surety: Western Surety Company

By: Attorney-In-Fact _____

Vicki Mather
Name

PO Box 28067
Address

Portland OR 97228-8067
City State Zip

800-331-6053
Phone

605-335-0357
Fax

Western Surety Company

POWER OF ATTORNEY APPOINTING INDIVIDUAL ATTORNEY-IN-FACT

Know All Men By These Presents, That WESTERN SURETY COMPANY, a South Dakota corporation, is a duly organized and existing corporation having its principal office in the City of Sioux Falls, and State of South Dakota, and that it does by virtue of the signature and seal herein affixed hereby make, constitute and appoint

Philip O Forker, Vicki Mather, Gloria Bruning, J Patrick Dooney, Richard W Kowalski, Brent Olson, Leticia Romano, Joel Dietzman, Christopher A Reburn, Gail A Price, Justin Cumnock, Andrew Choruby, Chloe Lyons, Casey J Geske, Sterling Drew Roddan, Individually

of Lake Oswego, OR, its true and lawful Attorney(s)-in-Fact with full power and authority hereby conferred to sign, seal and execute for and on its behalf bonds, undertakings and other obligatory instruments of similar nature

- In Unlimited Amounts -

and to bind it thereby as fully and to the same extent as if such instruments were signed by a duly authorized officer of the corporation and all the acts of said Attorney, pursuant to the authority hereby given, are hereby ratified and confirmed.

This Power of Attorney is made and executed pursuant to and by authority of the Authorizing By-Laws and Resolutions printed at the bottom of this page, duly adopted, as indicated, by the shareholders of the corporation.

In Witness Whereof, WESTERN SURETY COMPANY has caused these presents to be signed by its Vice President and its corporate seal to be hereto affixed on this 6th day of November, 2023.

WESTERN SURETY COMPANY

Larry Kasten, Vice President

State of South Dakota
County of Minnehaha } ss

On this 6th day of November, 2023, before me personally came Larry Kasten, to me known, who, being by me duly sworn, did depose and say: that he resides in the City of Sioux Falls, State of South Dakota; that he is a Vice President of WESTERN SURETY COMPANY described in and which executed the above instrument; that he knows the seal of said corporation; that the seal affixed to the said instrument is such corporate seal; that it was so affixed pursuant to authority given by the Board of Directors of said corporation and that he signed his name thereto pursuant to like authority, and acknowledges same to be the act and deed of said corporation.

My commission expires
March 2, 2026

M. BENT NOTARY PUBLIC SOUTH DAKOTA

M. Bent, Notary Public

CERTIFICATE

I, L. Nelson, Assistant Secretary of WESTERN SURETY COMPANY do hereby certify that the Power of Attorney hereinabove set forth is still in force, and further certify that the By-Law and Resolutions of the corporation printed below this certificate are still in force. In testimony whereof I have hereunto subscribed my name and affixed the seal of the said corporation this 14th day of August, 2024.

WESTERN SURETY COMPANY

L. Nelson, Assistant Secretary

Authorizing By-Laws and Resolutions

ADOPTED BY THE SHAREHOLDERS OF WESTERN SURETY COMPANY

This Power of Attorney is made and executed pursuant to and by authority of the following By-Law duly adopted by the shareholders of the Company.

Section 7. All bonds, policies, undertakings, Powers of Attorney, or other obligations of the corporation shall be executed in the corporate name of the Company by the President, Secretary, and Assistant Secretary, Treasurer, or any Vice President, or by such other officers as the Board of Directors may authorize. The President, any Vice President, Secretary, any Assistant Secretary, or the Treasurer may appoint Attorneys in Fact or agents who shall have authority to issue bonds, policies, or undertakings in the name of the Company. The corporate seal is not necessary for the validity of any bonds, policies, undertakings, Powers of Attorney or other obligations of the corporation. The signature of any such officer and the corporate seal may be printed by facsimile.

This Power of Attorney is signed by Larry Kasten, Vice President, who has been authorized pursuant to the above Bylaw to execute power of attorneys on behalf of Western Surety Company.

This Power of Attorney may be signed by digital signature and sealed by a digital or otherwise electronic-formatted corporate seal under and by the authority of the following Resolution adopted by the Board of Directors of the Company by unanimous written consent dated the 27th day of April, 2022:

"RESOLVED: That it is in the best interest of the Company to periodically ratify and confirm any corporate documents signed by digital signatures and to ratify and confirm the use of a digital or otherwise electronic-formatted corporate seal, each to be considered the act and deed of the Company."

Go to www.cnasuretv.com > Owner / Obligee Services > Validate Bond Coverage, if you want to verify bond authenticity.

CLACKAMAS COUNTY
PUBLIC IMPROVEMENT CONTRACT

BID FORM

PROJECT: #2024-65 McBrod Corrections Remodel Project
BID CLOSING: August 15, 2024, 3:00 PM, Pacific Time
BID OPENING: August 15, 2024, 3:05 PM, Pacific Time

FROM: A.C. Schommer & Sons, Inc.
Bidder's Name (must be full legal name, not ABN/DBA)

TO: https://bidlocker.us/a/clackamascounty/BidLocker

1. Bidder is (*check one of the following and insert information requested*):

____a. An individual; or

____b. A partnership registered under the laws of the State of _____; or

__X__c. A corporation organized under the laws of the State of Oregon; or

____d. A limited liability corporation organized under the laws of the State of _____;

and authorized to do business in the State of Oregon hereby proposes to furnish all material and labor and perform all work hereinafter indicated for the above project in strict accordance with the Contract Documents for the Basic Bid as follows:

One Million Six Hundred Thirty Two Nine Hundred Ninety Two Dollars ($1,632,992.00)

and the Undersigned agrees to be bound by the following documents:

- Notice of Public Improvement Contract Opportunity
- Instructions to Bidders
- Bid Bond
- Public Improvement Contract Form
- Clackamas County General Conditions
- Prevailing Wage Rates
- Plans, Specifications and Drawings
- Supplemental Instructions to Bidders
- Bid Form
- Performance Bond and Payment Bond
- Supplemental General Conditions
- Payroll and Certified Statement Form

- ADDENDA numbered __1__ through __6__, inclusive *(fill in blanks)*

2. The Undersigned proposes to add to or deduct from the Base Bid indicated above the items of work relating to the following Alternate(s) as designated in the Specifications: N/A

3. The Undersigned proposes to add to or deduct from the Base Bid indicated above the items or work relating to the following Unit Price(s) as designated in the Specifications, for which any adjustments in the Contract amount will be made in accordance with Section D of the Clackamas County General Conditions: Lump Sum Bid.

4. The work shall be completed within the time stipulated and specified in the contract documents.

5. Accompanying herewith is Bid Security which is equal to ten percent (10%) of the total amount of the Basic Bid, plus the total sum of all Alternatives (if any).

6. The Undersigned agrees, if awarded the Contract, to execute and deliver to Clackamas County, within twenty (20) calendar days after receiving the Contract forms, a Contract Form, and a satisfactory Performance Bond and Payment Bond each in an amount equal to one hundred percent (100%) of the Contract sum, using forms provided by the Owner. The surety requested to issue the Performance Bond and Payment Bond will be:

Western Surety Company.

(name of surety company - not insurance agency)

The Undersigned hereby authorizes said surety company to disclose any information to the Owner concerning the Undersigned's ability to supply a Performance Bond and Payment Bond each in the amount of the Contract.

7. The Undersigned further agrees that the Bid Security accompanying the Bid is left in escrow with Clackamas County; that the amount thereof is the measure of liquidated damages which the Owner will sustain by the failure of the Undersigned to execute and deliver the above-named Contract Form, Performance Bond and Payment Bond, each as published, and that if the Undersigned defaults in either executing the Contract Form or providing the Performance Bond and Payment Bond within twenty (20) calendar days after receiving the Contract forms, then the Bid Security shall become the property of the Owner at the Owner's option; but if the Bid is not accepted within thirty (30) calendar days of the time set for the opening of the Bids, or if the Undersigned executes and timely delivers said Contract Form, Performance Bond and Payment Bond, the Bid Security shall be returned.

8. The Undersigned certifies that: (i) This Bid has been arrived at independently and is being submitted without collusion with and without any agreement, understanding, or planned common course of action with any other vendor of materials, supplies, equipment or services described in the invitation to bid designed to limit independent bidding or competition; and (ii) the contents of the Bid have not been communicated by the Undersigned or its employees or agents to any person not an employee or agent of the Undersigned or its surety on any Bond furnished with the Bid and will not be communicated to such person prior to the official opening of the Bid.

9. The undersigned ☒ **HAS,** ☐ **HAS NOT** (*check one*) paid unemployment or income taxes in Oregon within the past 12 months and ☒ **DOES,** ☐ **DOES NOT** (*check one*) a business address in Oregon. The undersigned acknowledges that, if the selected bidder, that the undersigned will have to pay all applicable taxes and register to do business in the State of Oregon before executing the Contract Form.

10. The Undersigned agrees, if awarded a contract, to comply with the provisions of ORS 279C.800 through 279C.870 pertaining to the payment of the prevailing rates of wage.

11. Contractor's CCB registration number is 4937. As a condition to submitting a bid, a Contractor must be registered with the Oregon Construction Contractors Board in accordance with ORS 701.035 to 701.055, and disclose the registration number. Failure to register and disclose the number will make the bid unresponsive and it will be rejected, unless contrary to federal law.

12. The successful Bidder hereby certifies that all subcontractors who will perform construction work as described in ORS 701.005(2) were registered with the Construction Contractors Board in accordance with ORS 701.035 to 701.055 at the time the subcontractor(s) made a bid to work under the contract.

13. The successful Bidder hereby certifies that, in compliance with the Worker's Compensation Law of the State of Oregon, its Worker's Compensation Insurance provider is SAIF, Policy No. 744526, and that Contractor shall submit Certificates of Insurance as required.

14. Contractor's Key Individuals for this project (supply information as applicable):

Project Executive: Chris McGhie, Cell Phone: 503.849.0625,
Project Manager: Eric Martin, Cell Phone: 360.487.9266,
Job Superintendent: Seth Pownall, Cell Phone: 971.275.0029,
Project Engineer: Constance Vaughn, Cell Phone: 210.563.4156.

15. The Undersigned certifies that it has not discriminated against minority, women, or emerging small businesses in obtaining any subcontracts for this project.

16. The Undersigned certifies that it has a drug testing program in accordance with ORS 279C.505.

REMINDER: Bidder must submit the below First-Tier Subcontractor Disclosure Form.

By signature below, Contractor agrees to be bound by this Bid.

NAME OF FIRM A.C. Schommer & Sons, Inc.

ADDRESS 6421 NE Colwood Way
Portland, OR 97218

TELEPHONE NO 502.287.4646

EMAIL cmcghie@schommer-sons.com

SIGNATURE 1) _____
Sole Individual

or 2) _____
Partner

or 3) _____
Authorized Officer or Employee of Corporation

***** *END OF BID* *****

FIRST-TIER SUBCONTRACTOR DISCLOSURE FORM
PROJECT: #2024-65 McBrod Corrections Remodel Project

BID OPENING: August 15, 2024, 3:00 PM, Pacific Time

Failure to submit this Form by the disclosure deadline will result in a nonresponsive bid.

INSTRUCTIONS:
This First-Tier Subcontractor Disclosure Form ("Form") must be submitted and received at the location specified in the Notice of Public Improvement Contract Opportunity on the advertised Bid Closing, and within two working hours after the advertised Bid Closing Time.

Proposals will only be accepted electronically thru a secure online bid submission service, **Bid Locker**. *Email submissions to Clackamas County email addresses will no longer be accepted.*

A. Completed proposal documents must arrive electronically via Bid Locker located at https://bidlocker.us/a/clackamascounty/BidLocker.
B. Bid Locker will electronically document the date and time of all submissions. Completed documents must arrive by the deadline indicated in Section 1 or as modified by Addendum. LATE PROPOSALS WILL NOT BE ACCEPTED.
C. Proposers must register and create a profile for their business with Bid Locker in order to submit for this project. It is free to register for Bid Locker.
D. Proposers with further questions concerning Bid Locker may review the Vendor's Guide located at https://www.clackamas.us/how-to-bid-on-county-projects .

Subcontractor lists may be submitted with the bid in the same envelope or email at the Bid Closing date and time. Subcontractor lists **MUST** be submitted within **two (2) hours** of the Bid Closing date and time.

List below the name of each subcontractor that will be furnishing labor, or labor and materials, for which disclosure is required, the category of work that the subcontractor will be performing, and the dollar value of the subcontract. Enter **"NONE"** if the value of the project bid is less than $100,000 or there are no subcontractors that need to be disclosed. ATTACH ADDITIONAL SHEETS IF NECESSARY.

	SUBCONTRACTOR NAME	DOLLAR VALUE	CATEGORY OF WORK
1.	York Custom Mechanical	89,970	Plumbing
2.	Dan's Top Notch	156,385	Mechanical
3.	Cox Electric	164,656	Electrical
4.	Complete Fusion Welding, LLC	83,951	Structural Steel
5.			
6.			

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

a) 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.

Firm Name: A.C. Schommer & Sons, Inc.

Bidder Signature:  Phone # 503.849.0625

CLACKAMAS COUNTY
PUBLIC IMPROVEMENT CONTRACT
SUPPLEMENTAL GENERAL CONDITIONS

PROJECT: #2024-65 McBrod Corrections Remodel Project

The following modifies the October 13, 2021 Clackamas County General Conditions for Public Improvement Contracts ("County General Conditions") for this Contract. Except as modified below, all other terms and conditions of the County General Conditions shall remain in effect.

1. **Permits**
   Section B.4-Permits of the County General Conditions is hereby deleted in it is entirety and replaced with the following:

   B.4 PERMITS
   The County shall obtain and pay for all necessary project permits. Contractor shall be responsible for signing permits and all violations of the law, in connection with the construction or caused by obstructing streets, sidewalks or otherwise. Contractor shall give all requisite notices to public authorities.

2. **Indemnity, Bonding, and Insurance**
   Remove and replace section G.3.4.1 with the following:

   Commercial General Liability: Upon execution of a Contract, Contractor shall obtain, and keep in effect at Contractor's expense for the term of the Contract, Commercial General Liability Insurance ("CGL") covering bodily injury and property damage in the amount of not less than $2,000,000 per claim and $4,000,000 per occurrence in a form satisfactory to Owner. This insurance shall include personal injury liability, products and completed operations, and contractual liability coverage for the indemnities provided under the Contract (to the extent contractual liability coverage for the indemnity is available in the marketplace), and shall be issued on an occurrence basis written on ISO Form GC 00 01 (12 04 or later) or an equivalent form approved in advance by Owner. The CGL shall provide separation of insured language. The policy or policies obtained by Contractor for purposes of fulfilling the requirements of this section shall be primary insurance with respect to the Owner. Any insurance or self-insurance maintained by the County shall be excess and shall not contribute to it.

3. **Good Faith Effort**
   As a condition of Contractor being awarded a Contract for this Project, Contractor must complete Good Faith Effort outreach and documentation as described in the Supplemental Instructions to Bidders of the Solicitation Document.

The Contractor may not change who is performing each Division of Work identified in Form 1 of the Good Faith Effort without the express written advance approval of Owner. This includes substituting identified subcontractors, self-performance of a Division of Work that was identified to be performed by a subcontractor, or the Contractor subcontracting a Division of Work that was identified to be self-performed by the Contractor.

Contractor shall be required to submit the completed Form 3 with its final pay application as a condition of final payment.

CLACKAMAS COUNTY GENERAL CONDITIONS FOR PUBLIC IMPROVEMENT CONTRACTS
October 13, 2021

INSTRUCTIONS: The attached **Clackamas County General Conditions for Public Improvement Contracts ("County General Conditions")** apply to all designated Public Improvement contracts. Changes to the County General Conditions (including any additions, deletions or substitutions) should only be made by attaching Public Improvement Supplemental General Conditions. The text of these County General Conditions should not otherwise be altered.

TABLE OF SECTIONS

CLACKAMAS COUNTY GENERAL CONDITIONS FOR PUBLIC IMPROVEMENT CONTRACTS ("County General Conditions")

SECTION A
GENERAL PROVISIONS

A.1 DEFINITION OF TERMS

In the Contract Documents the following terms shall be as defined below:

APPLICABLE LAWS, means all federal, state and local laws, codes, rules, regulations and ordinances, as amended applicable to the Work, to the Contract, or to the parties individually.

APPROVED BY CONTRACTING AGENCY, for purposes of ORS 279C.570(2), means the date a progress payment is approved by the Clackamas County Treasurer's office.

ARCHITECT/ENGINEER, means the Person appointed by the Owner to make drawings and specifications and, to provide contract administration of the Work contemplated by the Contract to the extent provided herein or by supplemental instruction of Owner (under which Owner may delegate responsibilities to the Architect/Engineer), in accordance with ORS Chapter 671 (Architects) or ORS Chapter 672 (Engineers) and administrative rules adopted thereunder.

AVOIDABLE DELAYS, mean any delays other than Unavoidable Delays, and include delays that otherwise would be considered Unavoidable Delays but that: (a) Could have been avoided by the exercise of care, prudence, foresight, and diligence on the part of the Contractor or its Subcontractors; (b) Affect only a portion of the Work and do not necessarily prevent or delay the prosecution of other parts of the Work nor the completion of the whole Work within the Contract Time; (c) Do not impact activities on the accepted critical path schedule; and (d) Are associated with the reasonable interference of other contractors employed by the Owner that do not necessarily prevent the completion of the whole Work within the Contract Time.

BIDDER, means a bidder in connection with Instructions to Bidders or a proposer in connection with a Request for Proposals, or Solicitation Document. May also be referenced as "Offeror," "Quoter" or "Proposer" based on the type of Solicitation Document.

CHANGE ORDER, means a written order which, when fully executed by the Parties to the Contract, constitutes a change to the Contract Documents. Change Orders shall be issued in accordance with the changes provisions in Section D and, if applicable, establish a Contract Price or Contract Time adjustment. A Change Order shall not be effective until executed by both parties.

CLAIM, means a demand by Contractor pursuant to Section D.3 for review of the denial of Contractor's initial request for an adjustment of Contract terms, payment of money, extension of Contract Time or other relief, submitted in accordance with the requirements and within the time limits established for review of Claims in these County General Conditions.

CONTRACT, means the written agreement between the Owner and the Contractor comprised of the Contract Documents which describe the Work to be done and the obligations between the parties.

CONTRACT DOCUMENTS, means the Contract, County General Conditions, Supplemental General Conditions if any, Plans, Specifications, the accepted Offer, Solicitation Document and addenda thereto, Instructions to Offerors, and Supplemental Instructions to Offerors.

CONTRACT PERIOD, as set forth in the Contract Documents, means the total period of time beginning with the full execution of a Contract and, if applicable, the issuance of a Notice to Proceed and concluding upon Final Completion.

CONTRACT PRICE, means the total price reflected in the Contract.

CONTRACT TIME, means any incremental period of time allowed under the Contract to complete any portion of the Work as reflected in the Project schedule.

CONTRACTOR, means the Person awarded the Contract for the Work contemplated.

DAYS, are calendar days, including weekdays, weekends and holidays, unless otherwise specified.

DEFECTIVE WORK, means Work that is not completed in accordance with the Specifications or the requirements of the Contract.

DIRECT COSTS, means, unless otherwise provided in the Contract Documents: the cost of materials, including sales tax and the cost of delivery; cost of labor which shall only include the applicable prevailing wage and fringe benefit (if applicable, and if paid to or on behalf of the employee) rate plus a maximum of a twelve percent (12%) markup on the prevailing wage (but not the fringe benefit) to cover Contractor's labor burden including but not limited to social security, Medicare, unemployment insurance, workers' compensation insurance, sick leave pay; substantiated Project cost increases for specific insurance (including, without limitation, Builder's Risk Insurance and Builder's Risk Installation Floater) or bond premiums; rental cost of equipment, and machinery required for execution of the Work; and the additional costs of field personnel directly attributable to the Work; travel expense reimbursement only if specifically authorized and only to the extent allowable under the County Contractor Travel Reimbursement Policy, hereby incorporated by reference.

FINAL COMPLETION, means the final completion of all requirements under the Contract, including Contract Closeout as described in Section K but excluding Warranty Work as described in Section I.2, and the final payment and release of all retainage, if any.

FORCE MAJEURE, means an act, event or occurrence caused by fire, riot, war, acts of God, terrorism, nature, sovereign, or public enemy, strikes, freight embargoes or any other act, event or occurrence that is beyond the control of the party to the Contract who is asserting Force Majeure.

NOTICE TO PROCEED, means the official written notice from the Owner stating that the Contractor is to proceed with the Work defined in the Contract Documents.

OFFER, means a bid in connection with Instructions to Bidders or a proposal in connection with a Request for Proposals, or Solicitation Document to do the work stated in the Solicitation Document at the price quoted. May also be referenced as "Bid," "Quote," or "Proposal" based on the type of Solicitation Document.

OVERHEAD, means those items which may be included in the Contractor's markup (general and administrative expense and profit) and that shall not be charged as Direct Cost of the Work, including without limitation such Overhead expenses as wages or salary of personnel above the level of foreman (i.e., superintendents and project managers), labor rates and fringe benefits above the applicable prevailing wage and fringe benefit (if applicable, and if paid to or on behalf of the employee), Contractor's labor burden for fringe benefit if paid to the employee, expenses of Contractor's offices and supplies at the Project Site (e.g. job trailer) and at Contractor's principal place of business and including expenses of personnel staffing the Project Site office and Contractor's principal place of business, and Commercial General Liability Insurance and Automobile Liability Insurance.

OWNER, means, Clackamas County or any component unit thereof including Clackamas County Development Agency, Clackamas County Service District No. 1, Surface Water Management Agency of Clackamas County, Tri-City Service District, Water Environment Services, North Clackamas Parks and Recreation District, Clackamas County Extension & 4-H Service District, Library Service District of Clackamas County, Enhanced Law Enforcement District, and Clackamas County Service District No. 5. Owner may elect, by written notice to Contractor, to delegate certain duties to more than one agent, including without limitation, to an Architect/Engineer. However, nothing in these County General Conditions is intended to abrogate the separate design professional responsibilities of Architects under ORS Chapter 671 or of Engineers under ORS Chapter 672.

PERSON, means a natural person or entity doing business as a sole proprietorship, a partnership, a joint venture, a corporation, a limited liability company or partnership, a nonprofit, a trust, or any other entity possessing the legal capacity to contract.

PLANS, means the drawings which show the location, type, dimensions, and details of the Work to be done under the Contract.

PRODUCT DATA, means 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.

PROJECT, means the total undertaking to be accomplished for Owner by architects/engineers, contractors, and other others, including planning, study, design, construction, testing, commissioning, start-up, of which the Work to be performed under the Contract Documents is a part.

PROJECT SITE, means the specific real property on which the Work is to be performed, including designated contiguous staging areas, that is identified in the Plans, Specifications and Drawings.

PUNCH LIST, means the list of Work yet to be completed or deficiencies which need to be corrected in order to achieve Final Completion of the Contract.

RECORD DOCUMENT, means the as-built Plans, Specifications, testing and inspection records, product data, samples, manufacturer and distributor/supplier warranties evidencing transfer of ownership to Owner, operational and maintenance manuals, shop drawings, correspondence, certificate(s) of occupancy, and other documents listed in Subsection B.9.1 of these County General Conditions, recording all Services performed.

SAMPLES, means physical examples which illustrate materials, equipment or workmanship and establish standards by which the Work will be judged.

SHOP DRAWINGS, means drawings, diagrams, schedules and other data specially prepared for the Work by the Contractor or a Subcontractor (including any subsubcontractor), manufacturer, supplier, or distributor to illustrate some portion of the Work.

SOLICITATION DOCUMENT, means an Invitation to Bid, Request for Proposals, Request for Quotes, or other written document issued by Owner that outlines the required Specifications necessary to submit an Offer.

SPECIFICATION, means any description of the physical or functional characteristics of the Work, or of the nature of a supply, service or construction item included in the Solicitation Document. Specifications may include a description of any requirement for inspecting, testing or preparing a supply, service or construction item for delivery and the quantities or qualities of materials to be furnished under the Contract. Specifications generally will state the results or products to be obtained and may, on occasion, describe the method and manner of doing the Work to be performed. Specifications may be incorporated by reference and/or may be attached to the Contract.

SUBCONTRACTOR, means a Person having a direct contract with the Contractor, or another Subcontractor of any tier, to perform one or more items of the Work.

SUBSTANTIAL COMPLETION, means the date when the Owner accepts in writing the construction, alteration or repair constituting the Work or any designated portion thereof as having reached that state of completion when it may be used or occupied for its intended purpose. Substantial Completion of facilities with operating systems occurs only after thirty (30) continuous Days of successful, trouble-free operation of the operating systems as provided in Section K.3.2.

SUBSTITUTIONS, means items that in function, performance, reliability, quality, and general configuration are the same or better than the product(s) specified. Substitutions also means the performance of the Work by a labor force other than what is submitted in the Offer.

SUPPLEMENTAL GENERAL CONDITIONS, means those conditions that remove from, add to, or modify these County General Conditions. Public Improvement Supplemental General Conditions may be included in the Solicitation Document or may be a separate attachment to the Contract.

UNAVOIDABLE DELAYS, mean delays other than Avoidable Delays that are: (a) to the extent caused by any actions of the Owner, or any other employee or agent of the Owner, or by a separate contractor employed by the Owner; (b) to the extent caused by any Project Site conditions which differ materially from the conditions that would normally be expected to exist and inherent to the construction activities defined in the Contract Documents; or (c) to the extent caused by Force Majeure acts, or events or occurrences.

WORK, means the furnishing of all materials, equipment, labor, transportation, services, incidentals, those permits and regulatory approvals not provided by the owner necessary to successfully complete any individual item or the entire Contract and the carrying out of duties and obligations imposed by the Contract Documents for the Project.

A.2 SCOPE OF WORK

The Work contemplated under the Contract includes all labor, materials, transportation, equipment and services for, and incidental to, the completion of all work in connection with the Project described in the Contract Documents. The Contractor shall perform all Work necessary so that the Project can be legally occupied and fully used for the intended use as set forth in the Contract Documents.

A.3 INTERPRETATION OF CONTRACT DOCUMENTS

A.3.1 Unless otherwise specifically defined in the Contract Documents, words which have well-known technical meanings or construction industry meanings are used in the Contract Documents in accordance with such recognized meanings. Contract Documents are intended to be complementary. Whatever is called for in one, is interpreted to be called for in all. However, in the event of conflicts or discrepancies among the Contract Documents, interpretations will be based on the following descending order of precedence:

(a) The Contract and any amendments thereto, including Change Orders, with those of later date having precedence over those of an earlier date;
(b) The Supplemental General Conditions;
(c) County General Conditions;
(d) Plans and Specifications;
(e) The Solicitation Document, and any addenda thereto.

A.3.2 In the case of an inconsistency between Plans and Specifications or within either document not clarified by addendum, the better quality or greater quantity of Work shall be provided in accordance with the Owner's interpretation in writing as determined in Owners sole discretion.

A.3.3 If the Contractor finds discrepancies in, or omissions from the Contract Documents, or if the Contractor is in doubt as to their meaning, the Contractor shall at once notify the Owner. Matters concerning and interpretation of requirements of the Contract Documents will be decided by the Owner in the Owner's sole discretion, who may delegate that duty in some instances to the Architect/Engineer. Responses to Contractor's requests for interpretation of Contract Documents will be made in writing by Owner (or the Architect/Engineer) within any time limits agreed upon or otherwise with reasonable promptness. Contractor shall not proceed without direction in writing from the Owner (or Architect/Engineer).

A.3.4 References to standard specifications, manuals, codes of any technical society, organization or association, to the laws or regulations of any governmental authority, whether such reference be specific or by implication, shall mean the latest standard specification, manual, code, laws or regulations in effect in the jurisdiction where the Project Site is located on the first published date of the Solicitation Document, except as may be otherwise specifically stated.

A.4 EXAMINATION OF PLANS, SPECIFICATIONS, AND PROJECT SITE

A.4.1 It is understood that the Contractor, before submitting an Offer, has made a careful examination of the Contract Documents; has become fully informed as to the quality and quantity of materials and the character of the Work required; and has made a careful examination of the location and conditions of the Work and the sources of supply for materials. The Owner will in no case be responsible for any loss or for any unanticipated costs that may be suffered by the Contractor as a result of the Contractor's failure to acquire full information in advance in regard to all conditions pertaining to the Work. No oral agreement or conversation with any officer, agent, or personnel of the Owner, or with the Architect/Engineer either before or after the execution of the Contract, shall affect or modify any of the terms or obligations herein contained. Contractor shall at all times be responsible for all utility locates regardless of the ownership of such utility infrastructure or service.

A.4.2 Should the Plans or Specifications fail to particularly describe the materials, kind of goods, or details of construction of any aspect of the Work, Contractor shall have the duty to make inquiry of the Owner and Architect/Engineer as to what is required prior to performance of the Work. Absent Specifications to the contrary, the materials or processes that would normally be used to produce first quality finished Work shall be considered a part of the Contract requirements.

A.4.3 Any design errors or omissions noted by the Contractor shall be reported promptly to the Owner, including without limitation, any nonconformity with Applicable Laws.

A.4.4 If the Contractor believes that adjustments to cost or Contract Time are involved because of clarifications or instructions issued by the Owner (or Architect/Engineer) in response to the Contractor's notices or requests for information, the Contractor must submit a written request to the Owner, setting forth the nature and specific extent of the request, including all time and cost impacts against the Contract as soon as possible, but no later than thirty (30) Days after receipt by Contractor of the clarifications or instructions issued. If the Owner denies Contractor's request for additional compensation, additional Contract Time, or other relief that Contractor believes results from the clarifications or instructions, the Contractor may proceed to file a Claim under Section D.3, Claims Review Process. If the Contractor fails to perform the obligations of Sections A.4.1 to A.4.3, the Contractor shall pay such costs and damages to the Owner as would have been avoided if the Contractor had performed such obligations.

A.4.5 If the Contractor believes that adjustments to cost or Contract Time are involved because of an Unavoidable Delay caused by differing Project Site conditions, the Contractor shall notify the Owner immediately of differing Project Site conditions before the area has been disturbed. The Owner will investigate the area and make a determination as to whether or not the conditions differ materially from either the conditions stated in the Contract Documents or those which could reasonably be expected in execution of this particular Contract. If Contractor and the Owner agrees that a differing Project Site condition exists, any adjustment to compensation or Contract Time will be determined based on the process set forth in Section D.2.2 for adjustments to or deletions from Work. If the Owner disagrees that a differing Project Site condition exists and denies Contractor's request for additional compensation or Contract Time, Contractor may proceed to file a Claim under Section D.3, Claims Review Process.

A.5 INDEPENDENT CONTRACTOR STATUS

The service or services to be performed under the Contract are those of an independent contractor as defined in ORS 670.600. Contractor represents and warrants that it is not an officer, employee or agent of the Owner as those terms are used in ORS 30.265.

A.6 RETIREMENT SYSTEM STATUS AND TAXES

Contractor represents and warrants that it is not a contributing member of the Public Employees' Retirement System and will be responsible for any federal or state taxes applicable to payment received under the Contract. 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, except as a self-employed individual. Unless the Contractor is subject to backup withholding, Owner will not withhold from such payments any amount(s) to cover Contractor's federal or state tax obligations.

A.7 GOVERNMENT EMPLOYMENT STATUS

A.7.1 If this payment is to be charged against federal funds, Contractor represents and warrants that it is not currently employed by the Federal Government. This does not preclude the Contractor from holding another contract with the Federal Government.

SECTION B
ADMINISTRATION OF THE CONTRACT

B.1 OWNER'S ADMINISTRATION OF THE CONTRACT

B.1.1 The Owner shall administer the Contract as described in the Contract Documents throughout the term of the Contract, including the one-year period for correction of Work. The Owner will act as provided in the Contract Documents, unless modified in writing in accordance with other provisions of the Contract. In performing these tasks, the Owner may rely on the Architect/Engineer or other agents to perform some or all of these tasks.

B.1.2 The Owner may visit the Project 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 Work is being performed in a manner indicating that the Work, when fully completed, will be in accordance with the Contract Documents. The Owner will not

make exhaustive or continuous on-Project Site inspections to check the quality or quantity of the Work. Unless otherwise required in a Change Order, the Owner 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.

B.1.3 Except as otherwise provided in the Contract Documents or when direct communications have been specifically authorized, the Owner and Contractor shall communicate with each other within a reasonable time frame about matters arising out of or relating to the Contract. Communications by and with the Architect/Engineer's consultants shall be through the Architect/Engineer. Communications by and with Subcontractors and material suppliers shall be through the Contractor. Communications by and with separate contractors shall be through the Owner.

B.1.4 Based upon the Architect/Engineer's evaluations of the Contractor's Application for Payment, or unless otherwise stipulated by the Owner, the Architect/Engineer will review and certify the amounts due the Contractor and will issue Certificates for Payment in such amounts.

B.2 CONTRACTOR'S MEANS AND METHODS; MITIGATION OF IMPACTS

B.2.1 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, unless the Contract Documents give other specific instructions concerning these matters. If the Contract Documents give specific instructions concerning construction means, methods, techniques, sequences or procedures, the Contractor shall evaluate the Project Site safety thereof and, except as stated below, shall be fully and solely responsible for the Project Site safety of such means, methods, techniques, sequences or procedures.

B.2.2 The Contractor is responsible to protect and maintain the Work during the course of construction and to mitigate any adverse impacts to the Project, including those caused by authorized changes, which may affect cost, schedule, or quality.

B.2.3 The Contractor is responsible for the actions of all its personnel, laborers, suppliers, agents, and Subcontractors on the Project. The Contractor shall enforce strict discipline and good order among Contractor's employees and other persons carrying out the Work. The Contractor shall not permit employment of persons who are unfit or unskilled for the tasks assigned to them.

B.3 MATERIALS AND WORKMANSHIP

B.3.1 The intent of the Contract Documents is to provide for the construction and completion of every detail of the Work described. All Work shall be performed in a professional manner and, unless the means or methods of performing a task are specified elsewhere in the Contract Documents, Contractor shall employ methods that are generally accepted and used by the industry, in accordance with industry standards.

B.3.2 The Contractor is responsible to perform the Work as required by the Contract Documents. Defective Work shall be corrected at the Contractor's sole expense and within a reasonable time frame.

B.3.3 Work done and materials furnished may be subject to inspection and/or observation and testing by the Owner to determine if they conform to the Contract Documents. Inspection of the Work by the Owner does not relieve the Contractor of responsibility for the Work in accordance with the Contract Documents.

B.3.4 Contractor shall furnish adequate facilities, as required, for the Owner to have safe access to the Work including without limitation walkways, railings, ladders, tunnels, and platforms. Producers, suppliers, and fabricators shall also provide proper facilities and access to their facilities.

B.3.5 The Contractor shall furnish Samples of materials for testing by the Owner and include the cost of the Samples in the Contract Price.

B.4 PERMITS

Contractor shall obtain and pay for all necessary permits, licenses and fees, except for those specifically excluded in the Supplemental General Conditions, as required for the project. Contractor shall be responsible for all violations of the law. Contractor shall give all requisite notices to public authorities.

B.5 COMPLIANCE WITH GOVERNMENT REGULATIONS

B.5.1 Contractor shall comply with Applicable Laws, as amended pertaining to the Work and the Contract. Failure to comply with such requirements shall constitute a breach of Contract and shall be grounds for Contract termination. Without limiting the generality of the foregoing, Contractor expressly agrees to comply with the following, as applicable and as may be amended from time to time: (i) Title VI and VII of Civil Rights Act of 1964, as amended; (ii) Section 503 and 504 of the Rehabilitation Act of 1973, as amended; (iii) the Health Insurance Portability and Accountability Act of 1996; (iv) the Americans with Disabilities Act of 1990, as amended; (v) ORS Chapter 659A; as amended; (vi) all regulations and administrative rules established pursuant to any applicable laws; and (vii) all other applicable requirements of federal, state, county or other local government entity statutes, rules and regulations.

B.5.2 Contractor shall comply with all applicable requirements of federal and state civil rights and rehabilitation statutes, rules and regulations, and

(a) Contractor shall not discriminate against Disadvantaged, Minority, Women or Emerging Small Business enterprises, as those terms are defined in ORS 200.005, or a business enterprise that is owned or controlled by or that employs a disabled veteran, as that term is defined in ORS 408.225, in the awarding of subcontracts.

(b) Contractor shall maintain, in current and valid form, all licenses and certificates required by Applicable Laws or the Contract when performing the Work.

B.5.3 Contractor shall certify that it shall not accept a bid from Subcontractors to perform Work unless such Subcontractors are registered with the Construction Contractors Board in accordance with ORS 701.021 at the time they submit their bids to the Contractor.

B.5.4 Contractor shall certify that each landscape contracting business, as defined in ORS 671.520(2), performing Work under the Contract holds a valid landscape construction professional license issued pursuant to ORS 671.560.

B.5.5 The following notice is applicable to Contractors who perform excavation Work. 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 (877) 668-4001.

B.5.6 Failure to comply with any or all of the requirements of B.5.1 through B.5.5 shall be a material breach of Contract and constitute

grounds for Contract termination. Damages or costs resulting from such noncompliance shall be the responsibility of Contractor.

B.5.7 The Contractor shall include in each subcontract those provisions required under ORS 279C.580.

B.5.8 Contractor shall comply with ORS 652.220, compliance of which is a material element of this Contract and failure to comply is a material breach that entitles County to exercise any rights and remedies available under this Contract including, but not limited to, termination for default.

B.6 SUPERINTENDENCE

Contractor shall keep on the Project Site, during the progress of the Work, a competent superintendent and any necessary assistants who shall be satisfactory to the Owner and who shall represent the Contractor on the Project Site. Directions given to the superintendent by the Owner shall be confirmed in writing to the Contractor.

B.7 INSPECTION

B.7.1 Owner shall have access to the Work at all times.

B.7.2 Inspection of the Work will be made by the Owner at its discretion. The Owner will have authority to reject Work that does not conform to the Contract Documents in the Owner's sole discretion. Any Work found to be not in conformance with the Contract Documents, in the discretion of the Owner, shall be removed and replaced at the Contractor's expense.

B.7.3 Contractor shall make or obtain at the appropriate time all tests, inspections and approvals of portions of the Work required by the Contract Documents or by Applicable Laws or orders of public authorities having jurisdiction. Unless otherwise provided, the Contractor shall make 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. Tests or inspections conducted pursuant to the Contract Documents shall be made promptly to avoid unreasonable delay in the Work. The Contractor shall give the Owner timely notice of when and where tests and inspections are to be made so that the Owner may be present for such procedures. 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 Owner.

B.7.4 As required by the Contract Documents, Work done or material used without required inspection or testing and/or without providing timely notice to the Owner may be ordered removed at the Contractor's expense.

B.7.5 If directed to do so by Owner or other permitting authority any time before the Work is accepted, the Contractor shall uncover portions of the completed Work for inspection. After inspection, the Contractor shall restore such portions of Work to the standard required by the Contract. If the Work uncovered is unacceptable or was done without required testing or inspection or sufficient notice to the Owner, the uncovering and restoration shall be done at the Contractor's expense. If the Work uncovered is acceptable and was done with sufficient notice to the Owner, the uncovering and restoration will be paid for pursuant to a Change Order.

B.7.6 If any testing or inspection reveals 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 Owner's and Architect/Engineer's services and expenses, shall be at the Contractor's expense.

B.7.7 In Owner's sole discretion, it may authorize other interested parties to inspect the Work affecting their interests or property. Their right to inspect shall not make them a party to the Contract and shall not interfere with the rights of the parties of the Contract. Instructions or orders of such parties shall be transmitted to the Contractor, through the Owner.

B.8 SUBCONTRACTS AND ASSIGNMENT

B.8.1 Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound by the terms and conditions of these General Conditions and Supplemental General Conditions, and to assume toward the Contractor all of the obligations and responsibilities which the Contractor assumes toward the Owner thereunder, unless (1) the same are clearly inapplicable to the subcontract at issue because of legal requirements or industry practices, or (2) specific exceptions are requested by Contractor and approved in writing by Owner. Where appropriate, Contractor shall require each Subcontractor to enter into similar agreements with sub-subcontractors at any level.

B.8.2 At Owner's request, Contractor shall submit to Owner prior to their execution either Contractor's form of subcontract, or the subcontract to be executed with any particular Subcontractor. If Owner disapproves such form, Contractor shall not execute the form until the matters disapproved are resolved to Owner's satisfaction. Owner's review, comment upon or approval of any such form shall not relieve Contractor of its obligations under this Agreement or be deemed a waiver of such obligations of Contractor.

B.8.3 Contractor shall not assign, sell, or transfer its rights, or delegate its responsibilities under the Contract, in whole or in part, without the prior written approval of the Owner. No such written approval shall relieve Contractor of any obligations of the Contract, and any transferee shall be considered the agent of the Contractor and bound to perform in accordance with the Contract Documents. Contractor shall remain liable as between the original parties to the Contract as if no assignment had occurred.

B.9 OWNER'S RIGHT TO DO WORK

Owner reserves the right to perform other or additional work at or near the Project Site with other agents than those of the Contractor. If such work takes place within or next to the Project Site, Contractor shall coordinate work with the other contractors or agents, cooperate with all other contractors or forces, carry out the Work in a way that will minimize interference and delay for all agents involved, place and dispose of materials being used so as not to interfere with the operations of another, and join the Work with the work of the others in an acceptable manner and perform it in proper sequence to that of the others. The Owner will resolve any disagreements that may arise between or among Contractor and the other contractors over the method or order of doing all work (including the Work). In case of unavoidable interference, the Owner will establish work priority (including the Work) in the Owner's sole discretion.

B.10 OTHER CONTRACTS

In all cases and at any time, the Owner has the right to execute other contracts related to or unrelated to the Work of the Contract. The Contractor of the Contract shall fully cooperate with any and all other contractors without additional cost to the Owner in the manner described in Section B.13.

B.11 ALLOWANCES

B.11.1 The Contractor shall include in the Contract Price 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.

B.11.2 Unless otherwise provided in the Contract Documents:

(a) when finally reconciled, allowances shall cover the cost of the Contractor's materials and equipment delivered at the Project Site and all required taxes, less applicable trade discounts;

(b) Contractor's costs for unloading and handling at the Project Site, labor, installation costs, Overhead, profit and other expenses contemplated for stated allowance amounts shall be included in the Contract Price but not in the allowances;

(c) whenever costs are more than or less than allowances, the Contract Price 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 Section B.17.2(a) and (ii) changes in Contractor's costs under Section B.17.2(b);

(d) Unless Owner requests otherwise, Contractor shall provide to Owner a proposed fixed price for any allowance work prior to its performance.

B.12 SUBMITTALS, SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

B.12.1 The Contractor shall prepare and keep current, for the Architect's/Engineer's approval (or for the approval of Owner if approval authority has not been delegated to the Architect/Engineer), a schedule and list of submittals which is coordinated with the Contractor's construction schedule and allows the Architect/Engineer reasonable time to review submittals. Owner reserves the right to finally approve the schedule and list of submittals. Submittals include, without limitation, Shop Drawings, Product Data, and Samples.

B.12.2 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 of submittals by the Architect/Engineer 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, or for approval of safety precautions or, unless otherwise specifically stated by the Architect/Engineer, of any construction means, methods, techniques, sequences or procedures, all of which remain the responsibility of the Contractor as required by the Contract Documents. The Architect/Engineer's review of the Contractor's submittals shall not relieve the Contractor of its obligations under the Contract Documents. The Architect/Engineer's approval of a specific item shall not indicate approval of an assembly of which the item is a component. Informational submittals upon which the Architect/Engineer 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 Architect/Engineer without action.

B.12.3 The Contractor shall review for compliance with the Contract Documents, approve and submit to the Architect/Engineer 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 Architect/Engineer without action.

B.12.4 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.

B.12.5 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 Architect/Engineer.

B.12.6 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 the Architect/Engineer's review or approval of Shop Drawings, Product Data, Samples or similar submittals unless the Contractor has specifically informed the Architect/Engineer in writing of such deviation at the time of submittal and (i) the Architect/Engineer has given written approval to the specific deviation as a minor change in the Work, or (ii) a Change Order has been executed by Owner 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 Architect/Engineer's review or approval thereof.

B.12.7 In the event that Owner elects not to have the obligations and duties described under this Section B.18 performed by the Architect/Engineer, or in the event no Architect/Engineer is employed by Owner on the Project, all obligations and duties assigned to the Architect/Engineer hereunder shall be performed by the Owner.

B.13 SUBSTITUTIONS

The Contractor may make Substitutions only with the written consent of the Owner, after evaluation by the Owner and only in accordance with a Change Order. Substitutions shall be subject to the requirements of the Solicitation Document. By making requests for Substitutions, the Contractor represents that the Contractor has personally investigated the proposed substitute product; represents that the Contractor will provide the same warranty for the Substitution that the Contractor would for the product originally specified unless approved otherwise; certifies that the cost data presented is complete and includes all related costs under the Contract including redesign costs, and waives all claims for additional costs related to the Substitution which subsequently become apparent; and will coordinate the installation of the accepted Substitution, making such changes as may be required for the Work to be completed in all respects.

B.14 USE OF PLANS AND SPECIFICATIONS

Plans, Specifications and related Contract Documents furnished to Contractor by Owner or Owner's Architect/Engineer shall be used solely for the performance of the Work under the Contract. Contractor and its Subcontractors and suppliers are authorized to use and reproduce applicable portions of such documents appropriate to the execution of the Work, but shall not claim any ownership or other interest in them beyond the scope of the Contract, and no such interest shall attach. Unless otherwise indicated, all common law, statutory and other reserved rights, in addition to copyrights, are retained by Owner.

SECTION C
WAGES AND LABOR

C.1 PREVAILING WAGE RATES ON PUBLIC WORKS

Contractor shall comply fully with the provisions of ORS 279C.800 through 279C.870. Pursuant to ORS 279C.830(1)(d), Contractor shall pay workers at not less than the specified minimum hourly rate of wage, and shall include that requirement in all subcontracts. If the Work is subject to both the state prevailing wage rate law and the federal Davis-Bacon Act, Contractor shall pay the higher of the applicable state or federal prevailing rate of wage. Contractor shall provide written notice to all workers of the number of hours per day and days per week such workers may be required to work.

C.2 PAYROLL CERTIFICATION AND FEE REQUIREMENTS

C.2.1 In accordance with ORS 279C.845, the Contractor and every Subcontractor shall submit written certified statements to the Owner on the form prescribed by the Commissioner of the Bureau of Labor and Industries ("BOLI"), certifying the hourly rate of wage paid each worker which the Contractor or the Subcontractor has employed on the Project and further certifying that no worker employed on the Project 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 the Contractor or the Subcontractor that the Contractor or Subcontractor has read the certified statement, that the Contractor or Subcontractor knows the contents of the certified statement, and, that to the Contractor's or Subcontractor's best knowledge and belief, the certified statement is true. 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. Certified statements for each week during which the Contractor or Subcontractor has employed a worker on the Project shall be submitted once a month, by the fifth (5^{th}) business day of the following month. The Contractor and Subcontractors shall preserve the certified statements for a period of ten (10) years from the date of completion of the Contract.

C.2.2 Pursuant to ORS 279C.845(7), the Owner shall retain 25 percent of any amount earned by the Contractor on the Project until the Contractor has filed the certified statements required by section C.2.1. The Owner shall pay to the Contractor the amount retained under this subsection within 14 days after the Contractor files the required certified statements, regardless of whether a Subcontractor has failed to file certified statements.

C.2.3 Pursuant to ORS 279C.845(8), the Contractor shall retain 25 percent of any amount earned by a first-tier Subcontractor on this Project until the first-tier Subcontractor has filed with the Owner the certified statements required by C.2.1. Before paying any amount retained under this subsection, the Contractor shall verify that the first-tier Subcontractor has filed the certified statement. Within 14 days after the first-tier Subcontractor files the required certified statement the Contractor shall pay the first-tier Subcontractor any amount retained under this subsection.

C.2.4 In accordance with statutory requirements and administrative rules promulgated by the Commissioner of the Bureau of Labor and Industries, the fee required by ORS 279C.825(1) will be paid by Owner to the Commissioner.

C.3 PROMPT PAYMENT AND CONTRACT CONDITIONS

C.3.1 As a condition to Owner's performance hereunder, the Contractor shall:

C.3.1.1 Make payment promptly, as due, to all persons supplying to Contractor labor or materials for the prosecution of the Work provided for in the Contract.

C.3.1.2 Pay all contributions or amounts due the State Industrial Accident Fund or successor program from such Contractor or Subcontractor incurred in the performance of the Contract.

C.3.1.3 Not permit any lien or claim to be filed or prosecuted against the Owner on account of any labor or material furnished. Contractor will not assign any claims that Contractor has against Owner, or assign any sums due by Owner, to Subcontractors, suppliers, or manufacturers, and will not make any agreement or act in any way to give Subcontractors a claim or standing to make a claim against the Owner.

C.3.1.4 Pay to the Department of Revenue all sums withheld from employees pursuant to ORS 316.167.

C.3.2 If Contractor fails, neglects or refuses to make prompt payment of any claim for labor or services furnished to the Contractor of a Subcontractor by any person in connection with the Project as such claim becomes due, the proper officer(s) representing the Owner may pay the claim and charge the amount of the payment against funds due or to become due Contractor under the Contract. Payment of claims in this manner shall not relieve the Contractor or the Contractor's surety from obligation with respect to any unpaid claims.

C.3.3 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, 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.

C.3.4 If the Contractor or a first-tier subcontractor fails, neglects or refuses to pay a person that provides labor or materials in connection with the Contract within 30 days after receiving payment from the contracting agency or a contractor, the Contractor or first-tier subcontractor owes the person the amount due plus interest charges that begin at the end of the 10-day period within which payment is due under ORS 279C.580 (4) and that end upon final payment, unless payment is subject to a good faith dispute as defined in ORS 279C.580. The rate of interest on the amount due is nine percent per annum. The amount of interest may not be waived.

C.3.5 If the Contractor or a subcontractor fails, neglects or refuses to make payment to a person furnishing labor or materials in connection with the Contract, 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.580.

C.3.6 All employers, including Contractor, that employ subject workers who work under the Contract in the State of Oregon shall comply with ORS 656.017 and provide the required Workers' Compensation coverage, unless such employers are exempt under ORS 656.126. Contractor shall ensure that each of its Subcontractors complies with these requirements.

C.3.7 In accordance with ORS 279C.570, for all subcontracts that exceed $500,000 that the Contractor withholds retainage, the Contractor shall place amounts deducted as retainage into an interest-bearing escrow account. Interest on the retainage amount accrues from the

date the payment request is approved until the date the retainage is paid to the Subcontractor to which it is due.

C.4 PAYMENT FOR MEDICAL CARE

As a condition to Owner's performance hereunder, 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 the Contractor, of all sums of which the Contractor agrees to pay for the services and all moneys and sums that the Contractor collected or deducted from the wages of employees under any law, contract or agreement for the purpose of providing or paying for the services.

C.5 HOURS OF LABOR

As a condition to Owner's performance hereunder, no person shall be employed to perform Work under the Contract for more than ten (10) hours in any one day or forty (40) hours in any one week, except in cases of necessity, emergency or where public policy absolutely requires it. In such instances, Contractor shall pay the employee at least time and a half pay:

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

(b) For all overtime in excess of ten (10) hours a day or forty (40) hours in any one week when the work week is four consecutive Days, Monday through Friday; and

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

This Section C.5 will not apply to Contractor's Work under the Contract to the extent Contractor is currently a party to a collective bargaining agreement with any labor organization.

This Section C.5 shall not excuse Contractor from completion of the Work within the time required under the Contract.

SECTION D
CHANGES IN THE WORK

D.1 CHANGES IN WORK

D.1.1 The terms of the Contract shall not be waived, altered, modified, supplemented or amended in any manner whatsoever, without prior written agreement and then only after any necessary approvals have been obtained. A Change Order is required to modify the Contract, which shall not be effective until its execution by the parties to the Contract and all approvals required by public contracting laws have been obtained.

D.1.2 It is mutually agreed that changes in Plans, quantities, or details of construction may be necessary or desirable during the course of construction. Within the general scope of the Contract, the Owner may at any time, without notice to the sureties and without impairing the Contract, require changes it deems necessary or desirable within the scope of this Project and consistent with this Section D.1. All changes to the Work shall be documented and Change Orders shall be executed under the conditions of the Contract Documents. Such changes may include, but are not limited to:

(a) Modification of specifications and design.
(b) Increases or decreases in quantities.
(c) Increases or decreases to the amount of Work.
(d) Addition or elimination of any Work item.
(e) Change in the duration of the Project.
(f) Acceleration or delay in performance of Work.
(g) Deductive changes.

Deductive changes are those that reduce the scope of the Work, and shall be made by mutual agreement whenever feasible. In cases of suspension or partial termination under Section J, Owner reserves the right to unilaterally impose a deductive change and to self-perform such Work, for which the provisions of Section B.13 (Owner's Right to Do Work) shall then apply. Adjustments in compensation shall be made under Section D.1.3, in which costs for deductive changes shall be based upon a Direct Costs adjustment together with the related percentage markup specified for profit, Overhead and other indirect costs, unless otherwise agreed to by Owner.

D.1.3 The Owner and Contractor agree that adjustments to or deletions from the Work shall be administered and compensated according to the following:

(a) Unit Pricing: Unit pricing may be utilized at the Owner's option when unit prices or solicitation alternates were provided that established the cost for adjustments to Work, and a binding obligation exists under the Contract on the parties covering the terms and conditions of the adjustment to Work.

(b) Fixed Fee: If the Owner elects not to utilize unit pricing, or in the event that unit pricing is not available or appropriate, fixed pricing may be used for adjustments to or deletions from the Work. In fixed pricing, the basis of payments or total price shall be agreed upon in writing between the parties to the Contract, and shall be established before the Work is done whenever feasible. Notwithstanding the foregoing, the mark-ups set forth in Section D.1.3(c) shall be utilized in establishing fixed pricing, and such mark-ups shall not be exceeded. Cost and price data relating to adjustments to or deletions from the Work shall be supplied by Contractor to Owner upon request, but Owner shall be under no obligation to make such requests.

(c) Time and Material: In the event that unit pricing and fixed pricing are not utilized, then adjustments to or deletions from the Work shall be performed on a cost reimbursement basis for Direct Costs. Such Work shall be compensated on the basis of the actual, reasonable and allowable cost of labor, equipment, and material furnished on the Work performed. The Contractor or Subcontractor who performs the Work shall be allowed to add up to ten percent (10%) markup to the Direct Costs as full compensation for profit, Overhead and other indirect costs for Work performed with the Contractor's or Subcontractor's own agents

Each ascending tier Subcontractor or the Contractor that did not perform the Work, will be allowed to add up to five percent (5%) supplemental markup on the Direct Costs of the Work (but not the above allowable markups) covered by a Change Order. No additional markup shall be permitted for any third tier or greater descending Subcontractor.

Example: $20,000 of Direct Costs Work performed by a 2nd Tier Subcontractor

	Markup	Allowed Total Fee Plus Markup
General Contractor	5%	$1,000.00
1st Tier Sub Contractor	5%	$1,000.00
2nd Tier Sub Contractor	10%	$22,000.00

(d) Payments made to the Contractor shall be complete compensation for Overhead, profit, and all costs that were incurred by the Contractor or by other agents furnished by the Contractor, including Subcontractors, for adjustments to or deletions from the Work pursuant to a Change Order. Owner may establish a maximum cost for additional Work under this Section D.1.3, which shall not be exceeded for reimbursement without additional written

authorization from Owner in the form of a Change Order. Contractor shall not be required to complete such additional Work without additional authorization.

D.1.4 Any necessary adjustment of Contract Time that may be required as a result of adjustments to or deletions from the Work must be agreed upon by the parties before the start of the revised Work unless Owner authorizes Contractor to start the revised Work before agreement on Contract Time adjustment.

Contractor shall submit any request for additional compensation (and additional Contract Time if Contractor was authorized to start Work before an adjustment of Contract Time was approved) as soon as possible but no later than thirty (30) Days after receipt of Owner's request for additional Work . If Contractor's request for additional compensation or adjustment of Contract Time is not made within the thirty (30) Day time limit, Contractor's requests pertaining to that additional Work shall be barred. The thirty (30) Day time limit for making requests shall not be extended for any reason, including without limitation Contractor's claimed inability to determine the amount of additional compensation or adjustment of Contract Time, unless an extension is granted in writing by Owner. If the Owner denies Contractor's request for additional compensation or adjustment of Contract Time, Contractor may proceed to file a Claim under Section D.3, Claims Review Process. No other reimbursement, compensation, or payment will be made, except as provided in Section D.1.5 for impact claims.

D.1.5 If any adjustment to Work under Section D.1.3 causes an increase or decrease in the Contractor's cost of, or the Contract Time required for the performance of any other part of the Work under the Contract, Contractor shall submit a written request to the Owner, setting forth the nature and specific extent of the request, including all time and cost impacts against the Contract as soon as possible, but no later than thirty (30) Days after receipt of Owner's request for adjustments to or deletions from the Work by Contractor.

The thirty (30) Day time limit applies to claims of Subcontractors, suppliers, or manufacturers who may be affected by Owner's request for adjustments to or deletions from the Work and who request additional compensation or an extension of Contract Time to perform; Contractor has responsibility for contacting its Subcontractors, suppliers, or manufacturers within the thirty (30) Day time limit, and including their requests with Contractor's requests. If the request involves Work to be completed by Subcontractors, or materials to be furnished by suppliers or manufacturers, such requests shall be submitted to the Contractor in writing with full analysis and justification for the adjustments to compensation and Contract Time requested. The Contractor shall analyze and evaluate the merits of the requests submitted by Subcontractors, suppliers, and manufacturers to Contractor prior to including those requests and Contractor's analysis and evaluation of those requests with Contractor's requests for adjustments to compensation or Contract Time that Contractor submits to the Owner. Failure of Subcontractors, suppliers, manufacturers or others to submit their requests to Contractor for inclusion with Contractor's requests submitted to Owner within the time period and by the means described in this section shall constitute a waiver of these Subcontractor claims. The Owner will not consider direct requests or claims from Subcontractors, suppliers, manufacturers or others not a party to the Contract. The consideration of such requests and claims under this section does not give any Person, not a party to the Contract the right to bring a claim against Owner, whether in this claims process, in litigation, or in any dispute resolution process.

If the Owner denies the Contractor's request for adjustment to compensation or Contract Time, the Contractor may proceed to file a Claim under Section D.3, Claims Review Process.

D.1.6 No request or Claim by the Contractor for additional costs or an adjustment of Contract Time shall be allowed if made after receipt of final payment application under the Contract. Final payment application must be made by Contractor within the time required under Section E.6.4.

D.1.7 It is understood that changes in the Work are inherent in construction of this type. The number of changes, the scope of those changes, and the effect they have on the progress of the original Work cannot be defined at this time. The Contractor agrees that it will work in good faith with Owner to undertake changes, when agreed upon by execution of a Change Order. Each change will be evaluated for extension of Contract Time and increase or decrease in compensation based on its own merit.

D.2 DELAYS

D.2.1 Contractor shall not be entitled to additional compensation or additional Contract Time for Avoidable Delays.

D.2.2 In the event of Unavoidable Delays, Contractor may be entitled to the following:

(a) Contractor may be entitled to additional compensation or additional Contract Time, or both, for Unavoidable Delays described in Section D.2.1.2 (a) and (b).

(b) Contractor may be entitled to additional Contract Time for Unavoidable Delays described in Section D.2.1.2(c) and (d).

In the event of any requests for additional compensation or additional Contract Time, or both, as applicable, arising under this Section D.2.2 for Unavoidable Delays, other than requests for additional compensation or additional Contract Time for differing Project Site conditions for which a review process is established under Section A.4.5, Contractor shall submit a written notification of the delay to the Owner within two (2) Days of the occurrence of the cause of the delay. This written notification shall state the cause of the potential delay, the Project components impacted by the delay, and the anticipated additional Contract Time extension or the additional compensation, or both, as applicable, resulting from the delay. Within seven (7) Days after the cause of the delay has been mitigated, or in no case more than thirty (30) Days after the initial written notification, the Contractor shall submit to the Owner, a complete and detailed request for additional compensation or additional Contract Time, or both, as applicable, resulting from the delay. If the Owner denies Contractor's request for additional compensation or adjustment of Contract Time, the Contractor may proceed to file a Claim under Section D.3, Claims Review Process.

If Contractor does not timely submit the notices required under this Section D.2, Contractor's Claim shall be barred.

D.3 CLAIMS REVIEW PROCESS

D.3.1 All Contractor Claims shall be referred to the Owner for review. Contractor's Claims, including Claims for adjustments to compensation or Contract Time, shall be submitted in writing by Contractor to the Owner within five (5) Days after a denial of Contractor's initial request for an adjustment of Contract terms, payment of money, extension of Contract Time or other relief, provided that such initial request has been submitted in accordance with the requirements and within the time limits established in these County General Conditions. Within thirty (30) Days after the initial Claim, Owner shall receive from Contractor a complete and detailed description of the Claim (the "Detailed Notice") that includes all information required by Section D.3.2. Unless the Claim is made in accordance with these time requirements, it shall be barred.

D.3.2 The Detailed Notice of the Claim shall be submitted in writing by Contractor and shall include all information, records and documentation necessary for the Owner to properly and completely evaluate the claim, including, but not limited to a detailed, factual statement of the basis of the Claim, pertinent dates, Contract provisions which support or allow the Claim, reference to or copies of any documents which support the Claim, the dollar value of the Claim, and the Contract Time adjustment requested for the Claim. If the Claim involves Work to be completed by Subcontractors, the Contractor will analyze and evaluate the merits of the Subcontractor claim prior to forwarding it and that analysis and evaluation to the Owner. The Owner will not consider direct claims from Subcontractors, suppliers, manufacturers, or others not a party to the Contract. Contractor agrees that it will make no agreement, covenant, or assignment, nor will it commit any other act that will permit or assist any Subcontractor, supplier, manufacturer, or other to directly or indirectly make a claim against Owner.

D.3.3 The Owner, through the Architect/Engineer (or other employee or agent assigned by the Owner) will review all Claims and take one or more of the following preliminary actions within ten (10) Days of receipt of the Detailed Notice of a Claim: (1) request additional supporting information from the Contractor; (2) inform the Contractor and Owner in writing of the time required for adequate review and response; (3) reject the Claim in whole or in part and identify the reasons for rejection; (4) recommend approval of all or part of the Claim; (5) arrange a meeting with the Contractor for formal review of the Claim; or (6) propose an alternate resolution.

D.3.4 Once the Engineer or Project Manager determines the Owner is in receipt of a properly submitted claim, the Engineer or Project Manager may arrange a meeting, as agreed by the parties, with the Contractor in order to present the claim for formal review and discussion. A person authorized by the Contractor to execute Change Orders on behalf of the Contractor must be present and attend all claim meetings.

D.3.5 The Owner's decision, through the Architect/Engineer (or other employee or agent assigned by the Owner), shall be final and binding on the Contractor unless appealed by written notice to the Owner within fifteen (15) Days of receipt of the decision. The Contractor must present written documentation supporting the Claim within fifteen (15) Days of the notice of appeal. After receiving the appeal documentation, the Owner, through the appropriate department director, shall review the materials and render a decision within thirty (30) Days after receiving the appeal documents.

D.3.6 If, at any step in the claim decision or review process, the Contractor fails to promptly submit requested information or documentation that the Owner deems necessary to analyze the claim, the Contractor is deemed to have waived its right to further review, and the Claim will not be considered properly filed and preserved.

D.3.7 Both parties agree to exercise their best efforts in good faith to resolve all disputes within sixty (60) Days of the issuance of the appeal in Section D. 3.4 above. If the parties are unable to resolve their issues through mediation or otherwise, either party may seek redress through all available remedies in equity or in law.

D.3.8 Unless otherwise directed by Owner, Contractor shall proceed with the Work while any Claim, or mediation or litigation arising from a Claim, is pending. Regardless of the review period or the final decision of the Owner, the Contractor shall continue to diligently pursue the Work as identified in the Contract Documents. In no case is the Contractor justified or allowed to cease or delay Work, in whole or in part, without a written stop work order from the Owner.

SECTION E
PAYMENTS

E.1 SCHEDULE OF VALUES

The Contractor shall submit, by or before the pre-construction conference (as described in Section H.1.3), a schedule of values ("Schedule of Values") for the Contract Work. This schedule shall provide a breakdown of values for the Contract Work and will be the basis for progress payments. The breakdown shall demonstrate reasonable, identifiable, and measurable components of the Work. Unless objected to by the Owner, this schedule shall be used as the basis for reviewing Contractor's applications for payment. If objected to by Owner, Contractor shall revise the schedule of values and resubmit the same for approval of Owner.

E.2 APPLICATIONS FOR PAYMENT

E.2.1 Owner shall make progress payments on the Contract monthly as Work progresses, in accordance with the requirements of this Section E.2 and ORS 279C.570. Applications for payment shall be based upon estimates of Work completed and the Schedule of Values. As a condition precedent to Owner's obligation to pay, all applications for payment shall be approved by the Owner. A progress payment shall not be considered acceptance or approval of any Work or waiver of any defects therein. Owner shall pay to Contractor interest in accordance with ORS 279C.570 for overdue invoices, not including retainage, due the Contractor. Overdue invoices will be those that have not been paid within the earlier of:

(a) Thirty (30) days after receipt of the invoice; or

(b) Fifteen (15) days after the payment is approved by the County.

Notwithstanding the foregoing, in instances when an application for payment is filled out incorrectly, or when there is any defect or impropriety in any submitted application or when there is a good faith dispute, Owner shall so notify the Contractor within fifteen (15) Days stating the reason or reasons the application for payment is defective or improper or the reasons for the dispute. A defective or improper application for payment, if corrected by the Contractor within seven (7) Days of being notified by the Owner, shall not cause a payment to be made later than specified in this section unless interest is also paid. Payment of interest will be postponed when payment on the principal is delayed because of disagreement between the Owner and the Contractor.

Owner reserves the right, instead of requiring the Contractor to correct or resubmit a defective or improper application for payment, to reject the defective or improper portion of the application for payment and pay the remainder of the application for such amounts which are correct and proper.

Owner, upon written notice to the Contractor, may elect to make payments to the Contractor only by means of Electronic Funds Transfers ("EFT") through Automated Clearing House ("ACH") payments. If Owner makes this election, the Contractor shall arrange for receipt of the EFT/ACH payments.

E.2.2 Contractor shall submit to the Owner an application for each payment and, if required, receipts or other vouchers showing payments for materials and labor including payments to Subcontractors. Contractor shall include in its application for payment a schedule of the percentages of the various parts of the Work completed, based on the Schedule of Values which shall aggregate to the payment application total, and shall include, on the face of each copy thereof, a certificate in substantially the following form:

"I, the undersigned, hereby certify that the above bill is true and correct, and the payment therefore, has not been received.

Signed: _____
Dated: _____"

E.2.3 Generally, applications for payment will be accepted only for materials that have been installed. Under special conditions, applications for payment for stored materials will be accepted at Owner's sole discretion. Such a payment, if made, will be subject to the following conditions:

(a) The request for stored material shall be submitted at least thirty (30) Days in advance of the application for payment on which it appears. Applications for payment shall be entertained for major equipment, components or expenditures only.

(b) The Contractor shall submit applications for payment showing the quantity and cost of the material stored.

(c) The material shall be stored in a bonded warehouse and Owner shall be granted the right to access the material for the purpose of removal or inspection at any time during the Contract Period.

(d) The Contractor shall name the Owner as co-insured on the insurance policy covering the full value of the property while in the care and custody of the Contractor until it is installed. A certificate noting this coverage shall be issued to the Owner.

(e) Payments shall be made for materials and equipment only. The submitted amount in the application for payment shall be reduced by the cost of transportation from the storage site to the Project Site and for the cost of an inspector to verify delivery and condition of the goods at the storage site. The cost of storage and inspection shall be borne solely by the Contractor.

(f) Within sixty (60) Days of the application for payment, the Contractor shall submit evidence of payment covering the material and/or equipment stored and of payment for the storage site.

(g) Payment for stored materials and/or equipment shall in no way indicate acceptance of the materials and/or equipment or waive any rights under the Contract for the rejection of the Work or materials and/or equipment not in conformance with the Contract Documents.

(h) All required documentation shall be submitted with the respective application for payment.

E.2.4 The Owner reserves the right to withhold all or part of a payment, or may nullify in whole or part any payment previously made, to such extent as may be necessary in the Owner's opinion to protect the Owner from loss because of:

(a) Work that is defective and not remedied, or that has been demonstrated or identified as failing to conform with Applicable Laws or the Contract Documents;

(b) third party claims filed or evidence reasonably indicating that such claims will likely be filed unless security acceptable to the Owner is provided by the Contractor;

(c) failure of the Contractor to make payments properly to Subcontractors or for labor, materials or equipment (in which case Owner may issue checks made payable jointly to Contractor and such unpaid persons under this provision, or directly to Subcontractors and suppliers at any level under Section C.3.2);

(d) reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Price;

(e) damage to the Work, Owner or Owner's agent;

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

(g) failure to carry out the Work in accordance with the Contract Documents; or

(h) assessment of liquidated damages, when withholding is made for offset purposes.

E.2.5 Subject to the provisions of the Contract Documents, the amount of each progress payment shall be computed as follows:

(a) Take that portion of the Contract Price properly allocable to completed Work as determined by multiplying the percentage completion of each portion of the Work by the share of the total Contract Price allocated to that portion of the Work in the Schedule of Values, less retainage as provided in Section E.5. Pending final determination of cost to the Owner of changes in the Work, no amounts for changes in the Work can be included in applications for payment until the Contract Price has been adjusted by a Change Order;

(b) Add that portion of the Contract Price properly allocable to materials and equipment delivered and suitably stored at the Project Site for subsequent incorporation in the completed construction (or, if approved in advance by the Owner pursuant to Section E.2.3, suitably stored off the Project Site at a location agreed upon in writing), less retainage as provided in Section E.5;

(c) Subtract the aggregate of previous payments made by the Owner; and

(d) Subtract any amounts for which the Owner has withheld or nullified payment as provided in the Contract Documents.

E.2.6 Contractor's applications for payment shall not include requests for payment for portions of the Work for which the Contractor does not intend to pay to a Subcontractor or material supplier.

E.2.7 The Contractor warrants to Owner 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 payments are received from the Owner shall be free and clear of liens, claims, security interests or encumbrances in favor of the Contractor, Subcontractors, material suppliers, or other persons or entities making a claim by reason of having provided financing, labor, materials and equipment relating to the Work.

E.2.8 If Contractor disputes any determination by Owner with regard to any application for payment, Contractor nevertheless shall continue to expeditiously perform the Work. No payment made hereunder shall be or be construed to be final acceptance or approval of that portion of the Work to which such partial payment relates or shall relieve Contractor of any of its obligations hereunder.

E.3 PAYROLL CERTIFICATION REQUIREMENT

Owner's receipt of payroll certification pursuant to Section C.2 of the Contract shall be a condition precedent to Owner's obligation to pay any progress payments or final payment otherwise due.

E.4 DUAL PAYMENT SOURCES

Contractor shall not be compensated for Work performed under the Contract from any state agency other than the agency that is a party to the Contract.

E.5 RETAINAGE

E.5.1 Retainage shall be withheld and released in accordance with the requirements set forth in Local Contract Review Board Rules or the applicable County standard.

E.5.1.1 Owner may reserve as retainage from any progress payment an amount not to exceed five percent of the payment. As Work progresses, Owner may reduce the amount of retainage on or may eliminate retainage on any remaining monthly Contract payments after fifty (50) percent of the Work under the Contract is completed if, in the Owner's discretion, 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 Contractor's surety; except that when the Work is ninety-seven and a half percent (97.5%) completed in Owner's estimation, the Owner may, at its discretion and without application by the Contractor, reduce the retained amount to hundred (100) percent of the value of the Work remaining to be done. Upon receipt of written application by the Contractor, Owner shall respond in writing within a reasonable time.

E.5.1.2 If retainage is withheld, unless the Contractor requests and the Owner accepts a form of retainage described in options (a) or (b) below, the Owner (except as otherwise provided below for a contract of $500,000 or less), will deposit the retainage in an interest-bearing escrow account as required by ORS 279C.570(2). The Contractor shall execute such documentation and instructions respecting the interest-bearing escrow account as the Owner may require to protect its interests, including but not limited to a provision that no funds may be paid from the account to anyone without the Owner's advance written authorization. For a Contract over $500,000, if the Contractor requests that the Owner deposit the retainage in an interest-bearing account under ORS 279C.560(5), the Owner will use an interest-bearing escrow account as stated above. For a Contract of $500,000 or less, if the Contractor requests that the Owner deposit the retainage in an interest-bearing account under ORS 279C.560(5), the Owner will use an interest-bearing account (in a bank, savings bank, trust company or savings association) as provided under ORS 279C.450(5).

In accordance with the provisions of ORS 279C.560, Local Contract Review Board Rules, or the applicable County standard, unless the Owner finds in writing that accepting bonds, securities or other instruments described in option (a) below or a security bond described in option (b) below poses an extraordinary risk that is not typically associated with the bond, security or instrument, the Owner will approve the Contractor's written request:

a. to be paid amounts which would otherwise have been retained from progress payments where Contractor has deposited acceptable bonds, securities or other instruments of equal value with Owner or in a custodial account or other mutually-agreed account satisfactory to Owner, with an approved bank or trust company to be held in lieu of the cash retainage for the benefit of Owner. Interest or earnings on the bonds, securities or other instruments shall accrue to the Contractor. The Contractor shall execute and provide such documentation and instructions respecting the bonds, securities and other instruments as the Owner may require to protect its interests. To be permissible, the bonds, securities and other instruments must be of a character approved by Owner; or

b. that the Contractor be allowed, with the approval of the Owner, Owner allow Contractor to deposit a surety bond for the benefit of Owner, in a form acceptable to Owner, in lieu of all or a portion of funds retained, or to be retained. Such bond and any proceeds therefrom shall be made subject to all claims and liens in the manner and priority as set forth for retainage under ORS 279C.550 to ORS 279C.625.

When the Owner has accepted the Contractor's election of option (a) or (b), Owner may recover from Contractor any additional costs incurred through such election by reducing Contractor's final payment. Where the Owner has agreed to Contractor's request for option (b), Contractor shall accept like bonds from Subcontractors and suppliers on the Project from which Contractor has required retainages.

E. 5.1.3 The retainage held by Owner shall be included in and paid to the Contractor as part of the final payment of the Contract Price. The Owner shall pay to Contractor interest at the rate of two thirds of one percent per month on the final payment due Contractor, interest to commence forty-five (45) Days after the date which Owner receives Contractor's final approved application for payment and Work under the Contract has been completed and accepted and to run until the date when final payment is tendered to Contractor. The Contractor shall notify Owner in writing when the Contractor considers the Work complete and deliver to Owner its final application for payment and Owner shall, within fifteen (15) Days after receiving the written notice and the application for payment, either accept the Work or notify the Contractor of Work yet to be performed on the Contract. If Owner does not within the time allowed notify the Contractor of Work yet to be performed to fulfill contractual obligations, the interest provided by this subsection shall commence to run forty-five (45) Days after the end of the fifteen (15) Day period.

E.5.1.4 Owner will reduce the amount of the retainage if the Contractor notifies the Owner that the Contractor has deposited in an escrow account with a bank or trust company, in a manner authorized by the Owner, bonds and securities of equal value of a kind approved by the Owner and such bonds and securities have in fact been deposited.

E.5.1.5 Contractor agrees that if Contractor elects to reserve a retainage from any progress payment due to any Subcontractor or supplier, such retainage shall not exceed five percent of the payment, and such retainage withheld from Subcontractors and suppliers shall be subject to the same terms and conditions stated in Subsection E.5 as apply to Owner's retainage from any progress payment due to Contractor.

E.5.1.6 The Contractor shall comply with all applicable legal requirements for withholding and releasing retainage and for prompt payments, including but not limited to those in ORS Chapters 279C and 701, and 49 CFR 26.29.

E.6 FINAL PAYMENT

E.6.1 Upon completion of all the Work under the Contract, the Contractor shall notify the Owner, in writing, that Contractor has completed Contractor's obligations under the Contract and shall prepare its application requesting final payment. The amount of final payment will be the difference between the total amount due the Contractor pursuant to the Contract Documents and the sum of all payments previously made. Upon receipt of such notice and application for payment, the Owner will inspect the Work, and, if acceptable, submit to Contractor a recommendation as to acceptance of the completed Work and the final estimate of the amount due the Contractor. If the Work is not acceptable, Owner will notify Contractor within fifteen (15) Days of Contractor's request for final payment. Upon approval of this final application for payment by the Owner and compliance by the Contractor with

provisions in Section K, and Contractor's satisfaction of other provisions of the Contract Documents as may be applicable, the Owner shall pay to the Contractor all monies due under the provisions of these Contract Documents.

E.6.2 Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Owner (1) 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 thirty (30) Days' prior written notice has been given to the Owner, (2) 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, (3) consent of surety, if any, to final payment and (4), if required by the Owner, other data establishing payment or satisfaction of 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 may furnish a bond satisfactory to the Owner to indemnify the Owner against such lien. 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.

E.6.3 Acceptance of final payment by the Contractor, a Subcontractor or material supplier shall constitute a waiver of claims by that payee except those previously made in writing and identified by that payee as unsettled at the time of final application for payment.

E.6.4 Contractor agrees to submit its final payment application within ninety (90) Days after Substantial Completion, unless written extension is granted by Owner. Contractor shall not delay final payment application for any reason, including without limitation nonpayment of Subcontractors, suppliers, manufacturers or others not a party to the Contract, or lack of resolution of a dispute with Owner or any other person of matters arising out of or relating to the Contract. If Contractor fails to submit its final payment application within ninety (90) Days after Substantial Completion, and Contractor has not obtained written extension by Owner, all requests or Claims for additional costs or an extension of Contract Time shall be barred.

SECTION F
PROJECT SITE CONDITIONS

F.1 USE OF PREMISES

Contractor shall confine equipment, storage of materials and operation of Work to the limits indicated by Contract Documents, Applicable Laws, permits or directions of the Owner. Contractor shall follow the Owner's instructions regarding use of premises, if any.

F.2 PROTECTION OF WORKERS, PROPERTY AND THE PUBLIC

F.2.1 Contractor shall maintain continuous and adequate protection of all of the Work from damage and shall protect the Owner, workers and property from injury or loss arising in connection with the Contract. Contractor shall remedy acceptably to the Owner any damage, injury, or loss, except such as may be directly due to errors in the Contract Documents or caused by authorized representatives or personnel of the Owner. Contractor shall adequately protect adjacent property as provided by law and the Contract Documents.

F.2.2 Contractor shall take all necessary precautions for the safety of all personnel on the Project Site or otherwise engaged in the undertaking of the Work and shall comply with the Contract Documents, best practices and all applicable provisions of federal, state and municipal safety laws and building codes to prevent accidents or injury to persons on, about or adjacent to the premises where the Work is being performed. Contractor shall erect and properly maintain at all times, as required by the conditions and progress of the Work, all necessary safeguards for protection of workers and the public against any hazards created by construction. Contractor shall designate a responsible employee or associate on the Project Site, whose duty shall be the prevention of accidents. The name and position of the person designated shall be reported to the Owner. The Owner has no responsibility for Project Site safety. Project Site safety shall be the responsibility of the Contractor.

F.2.3 Contractor shall not enter upon private property without first obtaining permission from the property owner or its duly authorized representative. Contractor shall be responsible for the preservation of all public and private property along and adjacent to the Work contemplated under the Contract and shall use every precaution necessary to prevent damage thereto. In the event the Contractor damages any property, the Contractor shall at once notify the property owner and make, or arrange to make, full restitution. Contractor shall, immediately and in writing, report to the Owner, all pertinent facts relating to such property damage and the ultimate disposition of the claim for damage.

F.2.4 Contractor shall be responsible for protection of adjacent work areas including impacts brought about by activities, equipment, labor, utilities, vehicles and materials on the Project Site.

F.2.5 Contractor shall at all times direct its activities in such a manner as to minimize adverse effects on the environment. Handling of all materials shall be conducted so no release will occur that may pollute or become hazardous.

F.2.6 In an emergency affecting the safety of life or limb or of the Work or of adjoining property, the Contractor, without special instruction or authorization from the Owner, shall act reasonably to prevent threatened loss or injury, and shall so act, without appeal, if instructed by the Owner. Any compensation claimed by the Contractor on account of emergency work shall be determined in accordance with section D.

F.2.7 Contractor shall comply with all Owner safety rules and regulations, if applicable. Prior to commencement of any Work, Contractor and Subcontractors shall be required to complete an Owner Contractor Safety Orientation and submit all Owner required safety plans.

F.2.8 Contractor shall demonstrate that an employee drug testing program is in place.

F.3 CUTTING AND PATCHING

F.3.1 If applicable, Contractor shall be responsible for coordinating all cutting, fitting, or patching of the Work to make its several parts come together properly and fit to receive or be received by work of other contractors or Subcontractors shown upon, or reasonably implied by, the Contract Documents.

F.3.2 If applicable, Contractor shall be responsible for restoring all cut, fitted, or patched surfaces to an original condition; provided, however, that if a different condition is specified in the Contract Documents, then Contractor shall be responsible for restoring such surfaces to the condition specified in the Contract Documents.

F.4 CLEANING UP

From time to time as may be prudent or ordered by the Owner and, in any event, immediately after completion of the Work, the Contractor shall, at its own expense, clean up and remove all refuse and unused materials of any kind resulting from the Work. If Contractor fails to do so within twenty-four (24) hours after notification by the Owner the work may be

done by others and the cost charged to the Contractor and deducted from payment due the Contractor.

F.5 ENVIRONMENTAL CONTAMINATION

F.5.1. Contractor shall be held responsible for and shall indemnify, defend (with counsel of Owner's choice), and hold harmless Owner from and against any costs, expenses, damages, claims, and causes of action, or any of them, resulting from all spills, releases, discharges, leaks and disposal of environmental pollution, including storage, transportation, and handling during the performance of the Work or Contractor's obligations under the Contract which occur as a result of, or are contributed by, the negligence or actions of Contractor or its personnel, agents, or Subcontractors or any failure to perform in accordance with the Contract Documents (except to the extent otherwise void under ORS 30.140). Nothing in this section F.5.1 shall limit Contractor's responsibility for obtaining insurance coverages required under Section G.3 of the Contract, and Contractor shall take no action that would void or impair such coverages.

F.5.1.1 Contractor agrees to promptly dispose of such spills, releases, discharge or leaks to the satisfaction of Owner and regulatory agencies having jurisdiction in a manner that complies with Applicable Laws. Cleanup shall be at no cost to the Owner and shall be performed by properly qualified and, if applicable, licensed personnel.

F.5.1.2 Unless otherwise approved in the Solicitation Document, Contractor shall obtain the Owner's written consent prior to bringing onto the Project Site any (i) environmental pollutants or (ii) hazardous substances or materials, as the same or reasonably similar terms are used in any Applicable Laws. In any event, Contractor shall provide prior written notice to Owner when hazardous materials are brought on to the Project Site. The Contractor, at all times, shall:

(a) properly handle, use and dispose of all environmental pollutants and hazardous substances or materials on the Project Site, in accordance with all Applicable Laws;

(b) be responsible for any and all spills, releases, discharges, or leaks of (or from) environmental pollutants or hazardous substances or materials which Contractor has brought onto the Project Site; and

(c) promptly clean up and remediate, without cost to the Owner, such spills, releases, discharges, or leaks to the Owner's satisfaction and in compliance with all Applicable Laws.

F.5.2 Contractor shall report all reportable quantity releases, as such releases are defined in Applicable Laws. Upon discovery, regardless of quantity, Contractor must verbally report all releases to the Owner in a prompt manner. A written follow-up report shall be submitted to Owner within 48 hours of the telephonic report. Such written report shall contain, as a minimum:

(a) Description of items released (identity, quantity, manifest numbers, and any and all other documentation required by law).

(b) Whether amount of items released is EPA/DEQ reportable, and, if so, when reported.

(c) Exact time and location of release, including a description of the area involved.

(d) Containment procedures initiated.

(e) Summary of communications about the release between Contractor and State, local or federal officials other than Owner. Any communication to the press will be done by Owner and Contractor will defer to Owner.

(f) Description of cleanup procedures employed or to be employed at the Project Site, including disposal location of spill residue.

(g) Personal injuries, if any, resulting from, or aggravated by, the release.

F.6 ENVIRONMENTAL CLEAN-UP

F.6.1 Unless disposition of environmental pollution is specifically a part of the Contract, or was caused by the Contractor (reference F.5 Environmental Contamination), Contractor shall immediately notify Owner of any hazardous substance(s) which Contractor discovers or encounters during performance of the Work required by the Contract. "Hazardous substance(s)" means any hazardous, toxic and radioactive materials and those substances defined as "hazardous substances," "hazardous materials," "hazardous wastes," "toxic substances," or other similar designations in any federal, state, or local law, regulation, or ordinance, including without limitation asbestos, polychlorinated biphenyl ("PCB"), or petroleum, and any substances, materials or wastes regulated by 40 CFR, Part 261 and defined as hazardous in 40 CFR S 261.3. In addition to notifying Owner of any hazardous substance(s) discovered or encountered, Contractor shall immediately cease working in any particular area of the Project where a hazardous substance(s) has been discovered or encountered if continued work in such area would present a risk or danger to the health or wellbeing of Contractor's or any Subcontractor's work force, property or the environment.

F.6.2 Upon being notified by Contractor of the presence of hazardous substance(s) on the Project Site, not brought on to the Project Site by Contactor, Owner shall arrange for the proper disposition of such hazardous substance(s).

F.7 DEMOLITION

F.7.1 For demolition tasks, if any, the Contractor shall salvage or recycle construction and demolition debris, if feasible and cost-effective.

SECTION G
INDEMNITY, BONDING, AND INSURANCE

G.1 RESPONSIBILITY FOR DAMAGES / INDEMNITY

G.1.1 Contractor shall be responsible for all damage to property, injury to persons, and loss, expense, inconvenience, and delay that may be caused by, or result from, the carrying out of the Work to be done under the Contract, or from any act, omission or neglect of the Contractor, its Subcontractors, employees, guests, visitors, invitees and agents.

G.1.2 To the fullest extent permitted by law, Contractor shall indemnify, defend (with counsel approved by Owner) and hold harmless the Owner and its elected officials, officers, directors, agents, and employees (collectively "Indemnitees") from and against all liabilities, damages, losses, claims, expenses, demands and actions of any nature whatsoever which arise out of, result from or are related to: (a) any damage, injury, loss, expense, inconvenience or delay described in this Section G.1; (b) any accident or occurrence which happens or is alleged to have happened in or about the Project Site or any place where the Work is being performed, or in the vicinity of either, at any time prior to the time the Work is fully completed in all respects; (c) any failure of the Contractor to

observe or perform any duty or obligation under the Contract Documents which is to be observed or performed by the Contractor, or any breach of any agreement, representation or warranty of the Contractor contained in the Contract Documents or in any subcontract; (d) the negligent acts or omissions of the Contractor, a Subcontractor or anyone directly or indirectly employed by them or any one of 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 (except to the extent otherwise void under ORS 30.140); and (e) any lien filed upon the Project or bond claim in connection with the Work. 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 Section G.1.2.

G.1.3 In claims against any person or entity indemnified under Section G.1.2 by an employee of the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, the indemnification obligation under Section G.1.2 shall not be limited 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.

G.2 PERFORMANCE AND PAYMENT SECURITY; PUBLIC WORKS BOND

G.2.1 When the Contract Price is $50,000 or more, the Contractor shall furnish and maintain in effect at all times during the Contract Period a performance bond in a sum equal to the Contract Price and a separate payment bond also in a sum equal to the Contract Price. Contractor shall furnish such bonds even if the Contract Price is less than the above thresholds if otherwise required by the Contract Documents.

G.2.2 Bond forms furnished by the Owner and notarized by Contractor's surety company authorized to do business in Oregon are the only acceptable forms of performance and payment security, unless otherwise specified in the Contract Documents.

G.2.3 Before execution of the Contract, the Contractor shall file with the Construction Contractors Board, and maintain in full force and effect, the separate public works bond required by Oregon Revised Statutes, Chapter 279C.830 and 279C.836, unless otherwise exempt under those provisions. The Contractor shall also include in every subcontract a provision requiring the Subcontractor to have a public works bond filed with the Construction Contractors Board before starting Work, unless otherwise exempt, and shall verify that the Subcontractor has filed a public works bond before permitting any Subcontractor to start Work.

G.3 INSURANCE

G.3.1 Primary Coverage: Insurance carried by Contractor under the Contract shall be the primary coverage. The coverages indicated are minimums unless otherwise specified in the Contract Documents.

G.3.2 Workers' Compensation: All employers, including Contractor, that employ subject workers who work under the Contract in the State of Oregon shall comply with ORS 656.017 and provide the required Workers' Compensation coverage, unless such employers are exempt under ORS 656.126. This shall include Employer's Liability Insurance with coverage limits of not less than the minimum amount required by statute for each accident. Contractors who perform the Work without the assistance or labor of any employee need not obtain such coverage if the Contractor certifies so in writing. Contractor shall ensure that each of its Subcontractors complies with these requirements. The Contractor shall require proof of such Workers' Compensation coverage by receiving and keeping on file a certificate of insurance from each Subcontractor or anyone else directly employed by either the Contractor or its Subcontractors.

G.3.3 Builder's Risk Insurance:

G.3.3.1 Builder's Risk: During the term of the Contract, for new construction the Contractor shall obtain and keep in effect Builder's Risk insurance on an all risk forms, including earthquake and flood, for an amount equal to the full amount of the Contract, plus any changes in values due to modifications, Change Orders and loss of materials added. Such Builder's Risk shall include, in addition to earthquake and flood, theft, vandalism, mischief, collapse, transit, debris removal, and architect's fees "soft costs" associated with delay of Project due to insured peril. Any deductible shall not exceed $50,000 for each loss, except the earthquake and flood deductible which shall not exceed 2 percent of each loss or $50,000, whichever is greater. The deductible shall be paid by Contractor. The policy will include as loss payees Owner, the Contractor and its Subcontractors as their interests may appear.

G.3.3.2 Builder's Risk Installation Floater: For Work other than new construction, Contractor shall obtain and keep in effect during the term of the Contract, a Builder's Risk Installation Floater for coverage of the Contractor's labor, materials and equipment to be used for completion of the Work performed under the Contract. The minimum amount of coverage to be carried shall be equal to the full amount of the Contract. The policy will include as loss payees Owner, the Contractor and its Subcontractors as their interests may appear. Owner may waive this requirement at its sole and absolute discretion.

G.3.3.3 Such insurance shall be maintained until Owner has occupied the facility.

G.3.3.4 A loss insured under the Builder's Risk insurance shall be adjusted by the Owner and made payable to the Owner as loss payee. 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. The Owner shall have power to adjust and settle a loss with insurers.

G.3.4 General Liability Insurance:

G.3.4.1 Commercial General Liability: Upon execution of a Contract, Contractor shall obtain, and keep in effect at Contractor's expense for the term of the Contract, Commercial General Liability Insurance ("CGL") covering bodily injury and property damage in the amount of not less than $1,000,000 per claim and $2,000,000 per occurrence in a form satisfactory to Owner. This insurance shall include personal injury liability, products and completed operations, and contractual liability coverage for the indemnities provided under the Contract (to the extent contractual liability coverage for the indemnity is available in the marketplace), and shall be issued on an occurrence basis written on ISO Form GC 00 01 (12 04 or later) or an equivalent form approved in advance by Owner. The CGL shall provide separation of insured language. The policy or policies obtained by Contractor for purposes of fulfilling the requirements of this section shall be primary insurance with respect to the Owner. Any insurance or self-insurance maintained by the County shall be excess and shall not contribute to it.

G.3.4.2 Automobile Liability: Contractor shall obtain, at Contractor's expense, and keep in effect during the term of the Contract, Automobile Liability Insurance covering owned, and/or hired vehicles, as applicable. The coverage may be written in combination with the Commercial General Liability Insurance. Contractor shall provide proof of insurance of not less than $1,000,000 per claim and $2,000,000 per occurrence. Contractor

and its Subcontractors shall be responsible for ensuring that all non-owned vehicles maintain adequate Automobile Liability insurance while on Project Site.

G.3.4.3 Owner may adjust the insurance amounts required in Section G.3.4.1 and G.3.4.2 based upon institution specific risk assessments through the issuance of Supplemental General Conditions and a Contract.

G.3.4.4 To the extent that the Contract Documents require the Contractor to provide professional design services, design-build, or certifications related to systems, materials, or equipment, the Contractor shall (1) purchase and maintain professional liability/errors-and-omissions insurance with limits of not less than $1,000,000 for each claim and $2,000,000 general annual aggregate and (2) cause those Subcontractors (of any tier) who are providing professional design services including any design-build services to procure and maintain professional liability/errors-and-omissions insurance with limits of not less than $1,000,000 for each claim and $2,000,000 general annual aggregate. This policy shall be for the protection of the Owner, its elected officials, officers, agents and employees against liability for damages because of personal injury, bodily injury, death, or damage to property, including loss of use thereof, and damages because of negligent acts, errors and omissions in any way related to the Contract. The Owner, at its option, may require a complete copy of the above policy.

G.3.4.5 "Tail" Coverage: If any of the required liability insurance is arranged on a "claims made" basis, "tail" coverage will be required at the completion of the Contract for a duration of 36 months or the maximum time period available in the marketplace if less than 36 months. Contractor shall furnish certification of "tail" coverage as described or continuous "claims made" liability coverage for 36 months following Final Completion. Continuous "claims made" coverage will be acceptable in lieu of "tail" coverage, provided its retroactive date is on or before the effective date of the Contract. Owner's receipt of the policy endorsement evidencing such coverage shall be a condition precedent to Owner's obligation to make final payment and to Owner's final acceptance of Work or services and related warranty (if any).

G.3.4.6 Umbrella Liability (if required by Owner through issuance of Supplemental General Conditions): Contractor shall obtain, at Contractor's expense, and keep in effect during the term of the Contract, Umbrella liability Insurance over and above the general liability, automobile liability and workers' compensation coverage if required by Owner in specified limits at time of requirement.

G.3.4.7 Pollution Liability may be required by Owner through issuance of Supplemental General Conditions.

G.3.5 Additional Insured: The general liability insurance coverage, automobile liability, umbrella, and pollution liability if required, shall include the Owner as additional insureds but only with respect to the Contractor's activities to be performed under the Contract. The additional-insured endorsement for CGL insurance must be written on ISO Form CG 20 10 (10 01) and CG 20 37 (10 01), or their equivalent, but shall not use either of the following forms: CG 20 10 (10 93) or CG 20 10 (03 94). Proof of insurance must include a copy of the endorsement showing "Clackamas County, its elected officials, agents, officers, and employees" as scheduled insureds.

If Contractor cannot obtain an insurer to name the Owner as additional insureds, Contractor shall obtain at Contractor's expense, and keep in effect during the term of the Contract, Owners and Contractors Protective Liability Insurance, naming the Owner as additional insureds with not less than a $2,000,000 limit per occurrence. This policy must be kept in effect for 36 months following Final Completion. As evidence of coverage, Contractor shall furnish the actual policy to Owner prior to execution of the Contract.

G.3.6 Notice of Cancellation or Change: If the Contractor receives a non-renewal or cancellation notice from an insurance carrier affording coverage required herein, or receives notice that coverage no longer complies with the insurance requirements herein, Contractor agrees to notify Owner by fax within five (5) business days with a copy of the non-renewal or cancellation notice, or written specifics as to which coverage is no longer in compliance. When notified by Owner, the Contractor agrees to stop Work pursuant to the Contract at Contractor's expense, unless all required insurance remain in effect. Any failure to comply with the reporting provisions of this insurance, except for the potential exhaustion of aggregate limits, shall not affect the coverages provided to the Owner and its institutions, divisions, officers, and employees.

Owner shall have the right, but not the obligation, of prohibiting Contractor from entering the Project Site until a new certificate(s) of insurance is provided to Owner evidencing the replacement coverage. The Contractor agrees that Owner reserves the right to withhold payment to Contractor until evidence of reinstated or replacement coverage is provided to Owner.

G.3.7 Certificate(s) of Insurance/Insurance Carrier Qualification: As evidence of the insurance coverage required by the Contract, the Contractor shall furnish certificate(s) of insurance to the Owner prior to execution of the Contract. The certificate(s) will specify all of the parties who are additional insureds or loss payees for the Contract. A renewal certificate shall be sent to Owner at least 10 days prior to coverage expiration. Insurance coverage required under the Contract shall be obtained from insurance companies or entities acceptable to the Owner and that are eligible to provide such insurance under Oregon law. Eligible insurers include admitted insurers that have been issued a certificate of authority from the Oregon Department of Consumer and Business Services authorizing them to conduct an insurance business and issue policies of insurance in the state of Oregon, and certain non-admitted surplus lines insurers that satisfy the requirements of applicable Oregon law and which are subject to approval by the Owner. The Contractor shall be financially responsible for all deductibles, self-insured retentions and/or self-insurance included hereunder. Any deductible, self-insured retention and/or self-insurance in excess of $50,000 shall be subject to approval by the Owner in writing and shall be a condition precedent to the effectiveness of any Contract.

SECTION H
SCHEDULE OF WORK

H.1 CONTRACT PERIOD

H.1.1 Time is of the essence. The Contractor shall at all times carry on the Work diligently, without delay and punctually fulfill all requirements herein.

H.1.2 Notice to Proceed. Unless otherwise directed in the Contract Documents, Contractor shall commence Work on the Project Site within fifteen (15) Days of the Notice to Proceed. Notwithstanding the Notice to Proceed, Contractor shall not be authorized to proceed with the Work until all initial Contract requirements, including the Contract, performance bond and payment bond, and certificates of insurance, have been fully executed and submitted in a form acceptable to Owner.

H.1.3 Unless otherwise not required in the Construction Documents, Contractor shall participate in a pre-construction conference with the Owner's representative and designated design team. The

purpose of this pre-construction conference is to review the Contractor's proposed Schedule of Values and to review any other Project logistics to be coordinated between the parties.

H.1.4 Unless specifically extended by a Change Order, all Work shall be complete by the date contained in the Contract Documents. The Owner shall have the right to accelerate the completion date of the Work, which may require the use of overtime. Such accelerated Work schedule shall be an acceleration in performance of Work under Section D.1.2(f) and shall be subject to the provisions of Section D.1.

H.1.5 The Owner shall not waive any rights under the Contract by permitting the Contractor to continue or complete in whole or in part the Work after the date described in Section H.1.2 above.

H.2 SCHEDULE

H.2.1 Contractor shall provide, by or before the pre-construction conference, the initial as-planned schedule for review and acceptance by the Owner. The submitted schedule must illustrate Work by Project components, labor trades, and long lead items broken down by building and/or floor where applicable. If Owner shall so elect, Contractor shall provide the schedule in CPM format showing the graphical network of planned activities, including i) a reasonably detailed list of all activities required to complete the Work; ii) the time and duration that each activity will take to completion; and iii) the dependencies between the activities. Schedules lacking adequate detail, or unreasonably detailed, will be rejected. The schedule shall include the following: Notice to Proceed or the date the Work commences, if no Notice to Proceed is issued by Owner, Substantial Completion, and Final Completion. Schedules shall be updated monthly, unless otherwise required by the Contract Documents, and submitted with the monthly application for payment. Acceptance of the Schedule by the Owner does not constitute agreement by the Owner as to the Contractor's sequencing, means, methods, or durations. Any positive difference between the Contractor's scheduled completion and the Contract completion date is float owned by the Owner. Owner reserves the right to negotiate the float if it is deemed to be in Owner's best interest to do so. In no case shall the Contractor make a claim for delays if the Work is completed within the Contract Time but after Contractor's scheduled completion.

H.2.2 All Work shall be completed during normal weekdays (Monday through Friday) between the hours of 7:00 a.m. and 5:00 p.m. unless otherwise specified in the Contract Documents. Unless otherwise specified in the Contract Documents, no Work shall be performed during the following holidays:

- New Year's Day
- Martin Luther King Day
- Memorial Day
- Independence Day
- Labor Day
- Veterans Day
- Thanksgiving Day
- Christmas Day
- President's Day

When a holiday falls on a Sunday, the following Monday shall be recognized as a legal holiday. When a holiday falls on Saturday, the preceding Friday shall be recognized as a legal holiday.

H.3 PARTIAL OCCUPANCY OR USE

The Owner may occupy or use any completed or partially completed portion of the Work at any stage, provided such occupancy or use is consented to 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 reasonably accepted in writing the responsibilities assigned to each of them. Approval by the Contractor to partial occupancy or use shall not be unreasonably withheld. Immediately prior to such partial occupancy or use, the Owner and Contractor shall 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. 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.

SECTION I
CORRECTION OF WORK

I.1 CORRECTION OF WORK BEFORE FINAL PAYMENT

The Contractor warrants to the Owner that 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, and that the Work will conform to the requirements of the Contract Documents. Work failing to conform to these requirements shall be deemed defective. Contractor shall promptly remove from the premises and replace all defective materials and equipment as determined by the Owner, whether incorporated in the Work or not. Removal and replacement shall be without loss or expense to the Owner, and Contractor shall bear the cost of repairing all Work destroyed or damaged by such removal or replacement. Contractor shall be allowed a period of no longer than thirty (30) Days after Substantial Completion for completion of defective (Punch List) work. At the end of the thirty-day period, or earlier if requested by the Contractor, Owner shall arrange for inspection of the Work by the Architect/Engineer. Should the work not be complete, and all corrections made, the costs for all subsequent reinspections shall be borne by the Contractor. If Contractor fails to complete the Punch List work within the thirty (30) Day period, Owner may perform such work and Contractor shall reimburse Owner all costs of the same within ten (10) Days after demand without affecting Contractor's obligations.

I.2 WARRANTY WORK

I.2.1 Neither the final certificate of payment nor any provision of the Contract Documents shall relieve the Contractor from responsibility for Defective Work and, unless a longer period is specified, Contractor shall correct all defects that appear in the Work within a period of one year from the date of issuance of the written notice of Substantial Completion by the Owner except for latent defects which will be remedied by the Contractor at any time they become apparent. The Owner shall give Contractor notice of defects with reasonable promptness. Contractor shall perform such warranty work within a reasonable time after Owner's demand and at Contractors sole expense. If Contractor fails to complete the warranty work within such period as Owner determines reasonable, or at any time in the event of warranty work consisting of emergency repairs, Owner may perform such work and Contractor shall reimburse Owner all costs of the same within ten (10) Days after demand, without affecting Contractor's obligations. The Contractor shall perform the warranty Work by correcting defects within twenty-four (24) hours of notification by Owner, unless otherwise specified in the Contract Documents. Should the Contractor fail to respond within the specified response time, the Owner may, at its option, complete the necessary repairs using another contractor or its agents. If Owner completes the repairs using Owner's agent, Contractor shall pay Owner at the rate of one and one-half (1½) times the standard hourly rate of Owner's agent, plus related overhead and any direct non-salary costs. If Owner completes the repairs using another contractor, Contractor shall pay Owner the amount of Owner's direct costs billed by the other contractor for the work, plus the direct salary costs and related overhead and direct non-salary expenses of Owner's agents who

are required to monitor that contractor's work. Work performed by Owner using Owner's own agents or those of another contractor shall not affect the Contractor's contractual duties under these provisions, including warranty provisions.

I.2.2 Nothing in this Section I.2 provision shall negate guarantees or warranties for periods longer than one year including without limitation, such guarantees or warranties required by other sections of the Contract Documents for specific installations, materials, processes, equipment or fixtures.

I.2.3 In addition to Contractor's warranty, manufacturer's warranties shall pass to the Owner and shall not take effect until such portion of the Work covered by the applicable warranty has been accepted in writing by the Owner.

I.2.4 The one-year period for correction of Work shall be extended with respect to portions of Work performed after Substantial Completion by the period of time between Substantial Completion and the actual performance of the Work, and shall be extended by corrective Work performed by the Contractor pursuant to this Section, as to the Work corrected. The Contractor shall remove from the Project 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.

I.2.5 Nothing contained in this Section I.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 period for correction of Work as described in this Section I.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.

I.2.6 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 Price will be reduced as appropriate and equitable as determined by Owner. Such adjustment shall be effected whether or not final payment has been made.

SECTION J
SUSPENSION AND/OR TERMINATION OF THE WORK

J.1 OWNER'S RIGHT TO SUSPEND THE WORK

J.1.1 The Owner has the authority to suspend portions or all of the Work due to the following causes:

(a) Failure of the Contractor to correct unsafe conditions;

(b) Failure of the Contractor to carry out any provision of the Contract;

(c) Failure of the Contractor to carry out orders;

(d) Conditions, in the opinion of the Owner, which are unsuitable for performing the Work;

(e) Time required to investigate differing Project Site conditions; or

(f) Any reason considered to be in the public interest.

J.1.2 The Owner shall notify Contractor and the Contractor's Surety in writing of the effective date and time of the suspension, and Owner shall notify Contractor and Contractor's surety in writing to resume Work.

J.2 CONTRACTOR'S RESPONSIBILITIES

J.2.1 During the period of the suspension, Contractor is responsible to continue maintenance at the Project just as if the Work were in progress. This includes, but is not limited to, protection of completed Work, maintenance of access, protection of stored materials, temporary facilities, and clean-up.

J.2.2 When the Work is recommenced after the suspension, the Contractor shall replace or renew any Work damaged during the suspension, remove any materials or facilities used as part of temporary maintenance, and complete the Work in every respect as though its prosecution had been continuous and without suspension.

J.3 COMPENSATION FOR SUSPENSION

Depending on the reason for suspension of the Work, the Contractor or the Owner may be due compensation by the other party. If the suspension was required due to acts or omissions of Contractor, the Owner may assess the Contractor actual costs of the suspension in terms of administration, remedial work by the Owner's agents or another contractor to correct the problem associated with the suspension, rent of temporary facilities, and other actual costs related to the suspension, and any liquidated damages arising from the delay. If the suspension was caused by acts or omissions of the Owner, the Contractor may be due compensation which shall be defined using Section D, Changes in Work. If the suspension was required through no fault of the Contractor or the Owner, neither party shall owe the other for the impact.

J.4 OWNER'S RIGHT TO TERMINATE CONTRACT

J.4.1 The Owner may, without prejudice to any other right or remedy, and after giving Contractor seven (7) Days' written notice and an opportunity to cure, terminate the Contract in whole or in part under the following conditions:

(a) If Contractor should, voluntarily or involuntarily, seek protection under the United States Bankruptcy Code and Contractor as debtor-in-possession or the Trustee for the estate fails to assume the Contract within a reasonable time;

(b) If Contractor should make a general assignment for the benefit of Contractor's creditors;

(c) If a receiver should be appointed on account of Contractor's insolvency;

(d) If Contractor should repeatedly refuse or fail to supply an adequate number of skilled workers or proper materials to carry on the Work as required by the Contract Documents, or otherwise fail to perform the Work in a timely manner;

(e) If Contractor should repeatedly fail to make prompt payment to Subcontractors or for material or labor, or should disregard laws, ordinances or the instructions of the Owner;

(f) If Contractor is otherwise in breach of any part of the Contract; or

(g) If Contractor is in violation of Applicable Laws, either in the conduct of its business or in its performance of the Work.

J.4.2 At any time that any of the above occurs, Owner may exercise all rights and remedies available to Owner at law or in equity, and, in addition, Owner may take possession of the premises and of all materials and appliances and finish the Work by whatever method it may deem expedient. In such case, the Contractor shall not be entitled to receive further payment until the Work is completed. If

the Owner's cost of finishing the Work exceeds the unpaid balance of the Contract Price, Contractor shall pay the difference to the Owner.

J.5 TERMINATION FOR CONVENIENCE, NON-APPROPRIATION OF FUNDS, OR FORCE MAJEURE

J.5.1 Owner may terminate the Contract in whole or in part whenever Owner determines: (a) that termination of the Contract is in the best interest of Owner or the public; (b) that the Owner failed to receive funding, appropriations, allocations or other expenditure authority as contemplated by Owner's budget and Owner determines, in its sole determination, and its assessment and ranking of the policy objectives explicit or implicit in Owner's budget, Owner may determine it is necessary to and may terminate the Contract.; or (c) in the event of Force Majeure.

J.5.2 The Owner shall provide the Contractor with seven (7) Days prior written notice of a termination for Owner's or for public convenience. After such notice, the Contractor shall provide the Owner with immediate and peaceful possession of the premises and materials located on and off the premises for which the Contractor received progress payment under Section E. Compensation for Work terminated by the Owner under this provision will be according to Section E. In no circumstance shall Contractor be entitled to lost profits for Work not performed due to termination. If the Contract is terminated for public convenience, neither the Contractor not its Surety shall be relieved of liability for damages or losses suffered by the Owner as a result of defective, unacceptable or unauthorized Work completed or performed.

J.6 ACTION UPON TERMINATION

J.6.1 Upon receiving a notice of termination, and except as directed otherwise by the Owner, Contractor shall immediately cease placing further subcontracts or orders for materials, services, or facilities. In addition, Contractor shall terminate all subcontracts or orders to the extent they relate to the Work terminated and, with the prior written approval of the Owner, settle all outstanding liabilities and termination settlement proposals arising from the termination of subcontracts and orders.

J.6.2 As directed by the Owner, Contractor shall, upon termination, transfer title and deliver to the Owner all Record Documents, information, and other property that, if the Contract had been completed, would have been required to be furnished to the Owner.

J.6.3 Upon Owner's notice of termination pursuant to either Section J.4 or J.5, if Owner shall so elect, Contractor shall assign to the Owner such subcontracts and orders as Owner shall specify. In the event Owner elects to take assignment of any such subcontract or order, Contractor shall take such action and shall execute such documents as Owner shall reasonably require for the effectiveness of such assignment and Contractor shall ensure that no contractual arrangement between it and its subcontractors or suppliers of any tier or sub-tier shall prevent such assignment.

SECTION K
CONTRACT CLOSE OUT

K.1 RECORD DOCUMENTS

As a condition of final payment (refer also to section E.6), Contractor shall comply with the following: Contractor shall provide Record Documents for the entire Project to Owner. Record Documents shall depict the Project as constructed and shall reflect each and every change, modification, and deletion made during the construction. Record Documents are part of the Work and shall be provided prior to the Owner's issuance of final payment. Record Documents include all modifications to the Contract Documents unless otherwise directed.

K.2 OPERATION AND MAINTENANCE MANUALS

As part of the Work, Contractor shall submit two completed operation and maintenance manuals ("O & M Manuals") for review by the Owner prior to submission of any pay request for more than 75% of the Work. Owner's receipt of the O & M Manuals shall be a condition precedent to any payment thereafter due. The O & M Manuals shall contain a complete set of all submittals, all product data as required by the specifications, training information, telephone list and contact information for all consultants, manufacturers, installer and suppliers, manufacturer's printed data, record and shop drawings, schematic diagrams of systems, appropriate equipment indices, warranties and bonds. The Owner shall review and return one O & M Manual for any modifications or adjustments required. Prior to submission of its final pay request, Contractor shall deliver two (2) complete and approved sets of O & M Manuals in paper form and one (1) complete and approved set in electronic form to the Owner and Owner's receipt of the O & M Manuals shall be a condition precedent to Owner's obligation to make final payment.

K.3 COMPLETION NOTICES

K.3.1 Contractor shall provide Owner written notice of both Substantial and Final Completion. The certificate of Substantial Completion shall state the date of Substantial Completion, the responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance, and the time within which the Contractor shall finish all items on the Punch List accompanying the Certificate. Both completion notices must be signed and notarized by the Contractor and signed by the Architect/Engineer (if applicable) and Owner to be valid. The Owner shall provide the final signature on the notices. The notices shall take effect on the date they are signed by the Owner.

K.3.2 Substantial Completion of a facility with operating systems (e.g., mechanical, electrical, HVAC) shall be that degree of completion that has provided a minimum of thirty (30) continuous Days of successful, trouble-free operation, which period shall begin after all performance and acceptance testing has been successfully demonstrated to the Owner. All equipment contained in the Work, plus all other components necessary to enable the Owner to operate the facility in the manner that was intended, shall be complete on the Substantial Completion date. The Contractor may request that a Punch List be prepared by the Owner with submission of the request for the Substantial Completion notice.

K.4 TRAINING

As part of the Work, and prior to submission of the final application for payment, the Contractor shall schedule with the Owner training sessions for all equipment and systems as required by the Contract Documents. Contractor shall schedule training sessions at least two weeks in advance of the date of training to allow Owner to provide its personnel with adequate notice. If assignments arise because of termination under Section J.4, then such assignments shall not relieve Contractor of liability hereunder. The O & M Manual shall be used as a basis for training. In addition to any off-Project Site training required by the Contract Documents, training shall include a formal session conducted at the Project Site after the equipment and/or system is completely installed and operational in its normal operating environment.

K.5 EXTRA MATERIALS

As part of the Work, Contractor shall provide spare parts, extra maintenance materials, and other materials or products in the quantities specified in the Contract Documents prior to final payment. Delivery point for extra materials shall be designated by the Owner.

K.6 ENVIRONMENTAL CLEAN-UP

As part of the Final Completion notice, or as a separate written notice submitted with or before the notice of Final Completion, the Contractor shall notify the Owner that all environmental and pollution clean-up, remediation and closure have been completed in accordance with all Applicable Laws and pursuant to the authority of all agencies having jurisdiction, and Contractor shall provide Owner with any and all documentation related to the same, including but not limited to directives, orders, letters, certificates and permits related to or arising from such environmental pollution. The notice shall reaffirm the indemnification given under Section F.5.1 above. Contractor's completion of its obligations under this Section K.6 and Owner's receipt of documents evidencing such completion shall be a condition precedent to Owner's obligation to make final payment.

K.7 CERTIFICATE OF OCCUPANCY

Owner's receipt of an unconditioned certificate of occupancy from the appropriate state and/or local building officials shall be a condition precedent to Owner's obligation to make final payment, except to the extent failure to obtain an unconditional certificate of occupancy is due to the fault or neglect of Owner.

K.8 OTHER CONTRACTOR RESPONSIBILITIES

The Contractor shall be responsible for returning to the Owner all property of Owner issued to Contractor during construction such as keys, security passes, Project Site admittance badges, and all other pertinent items. Upon notice from Owner, Contractor shall be responsible for notifying the appropriate utility companies to transfer utility charges from the Contractor to the Owner. The utility transfer date shall not be before Substantial Completion and may not be until Final Completion, if the Owner does not take beneficial use of the facility and the Contractor's agents continue with the Work.

The Owner's property is drug free and weapons free areas and the use of tobacco products is only allowed in designated areas. Contractor shall be required to ensure that its employees, Subcontractors and agents shall comply with these requirements.

SECTION L
GENERAL PROVISIONS

L.1 NO THIRD PARTY BENEFICIARIES

Owner and Contractor are the only parties to the Contract and are the only parties entitled to enforce its terms. Nothing in the Contract gives, is intended to give, or shall be construed to give or provide any benefit or right, whether directly, indirectly, or otherwise, to third persons unless such third persons are individually identified by name herein and expressly described as intended beneficiaries of the terms of the Contract.

L.2 SEVERABILITY

If any provision of the Contract is declared by a court to be unenforceable, illegal, or in conflict with any law, the validity of the remaining terms and provisions shall not be affected and the rights and obligations of the parties shall be construed and enforced as if the Contract did not contain the particular provision held to be invalid.

L.3 ACCESS TO RECORDS

L.3.1 Contractor shall keep, at all times on the Project Site, one record copy of the complete Contract Documents, including the Plans, Specifications, addenda, and Change Orders (if any) in good order and marked currently to record field changes and selections made during construction, and one record copy of Shop Drawings, Product Data, Samples and similar submittals, and shall at all times give the Owner access thereto.

L.3.2 Contractor shall retain and the Owner and its duly authorized representatives shall have access, for a period not less than ten (10) years, to all Record Documents, financial and accounting records, and other books, documents, papers and records of Contractor which are pertinent to the Contract, including records pertaining to Overhead and indirect costs, for the purpose of making audit, examination, excerpts and transcripts. If for any reason, any part of the Work or the Contract shall be subject to litigation, Contractor shall retain all such records until all litigation is resolved and Contractor shall continue to provide Owner and/or its agents with full access to such records until such time as all litigation is complete and all periods for appeal have expired and full and final satisfaction of any judgment, order or decree is recorded and Owner receives a record copy of documentation from Contractor.

L.4 WAIVER

Failure of the Owner to enforce any provision of the Contract shall not constitute a waiver or relinquishment by the Owner of the right to such performance in the future nor of the right to enforce any other provision of the Contract.

L.5 SUCCESSORS IN INTEREST

The provisions of the Contract shall be binding upon and shall accrue to the benefit of the parties to the Contract and their respective permitted successors and assigns.

L.6 GOVERNING LAW

The Contract shall be governed by and construed in accordance with the laws of the State of Oregon without giving effect to the conflict of law provisions thereof.

L.7 APPLICABLE LAW

Contractor hereto agrees to comply in all ways with applicable local, state and federal ordinances, statutes, laws and regulations.

L.8 NON-EXCLUSIVE RIGHTS AND REMEDIES

Except as otherwise expressly provided herein, the rights and remedies expressly afforded under the provisions of the Contract shall not be deemed exclusive, and shall be in addition to and cumulative with any and all rights and remedies otherwise available at law or in equity. The exercise by either Party of any one or more of such remedies shall not preclude the exercise by it, at the same or different times, of any other remedies for the same default or breach, or for any other default or breach, by the other Party.

L.9 INTERPRETATION

The titles of the sections of the Contract are inserted for convenience of reference only and shall be disregarded in construing or interpreting any of its provisions.

L.10 DEBT LIMITATION

The Contract is expressly subject to the debt limitation of Oregon counties set forth in Article XI, Section 10, of the Oregon Constitution, and is contingent upon funds being appropriated therefore. Any provisions herein which would conflict with law are deemed inoperative to that extent.

L.11 LITIGATION

Any Claim between Owner and Contractor that arises from or relates to the Contract and that is not resolved through the Claims Review Process in Section D.3 shall be brought and conducted solely and exclusively within the Circuit Court of Clackamas County for the State of Oregon; provided, however, if a Claim must be brought in a federal forum, then it shall be brought and conducted solely and exclusively within the United States District Court for the District of Oregon. In no event shall this section be construed as a waiver by the County of any form of defense or

immunity, whether sovereign immunity, governmental immunity, immunity based on the Eleventh Amendment to the Constitution of the United States or otherwise, from any claim or from the jurisdiction of any court. CONTRACTOR, BY EXECUTION OF THE CONTRACT, HEREBY CONSENTS TO THE IN PERSONAM JURISDICTION OF THE COURTS REFERENCED IN THIS SECTION.

L. 12 SURVIVAL

All warranty, indemnification, and record retention provisions of the Contract, and all of Contractor's other obligations under the Contract that are not fully performed by the time of Final Completion or termination, and all other rights and obligations which by their context are intended to survive, shall survive Final Completion or any termination of the Contract.

L.13 ACCESS TO RECORDS

L.13.1. Contractor shall keep, at all times on the Work site, one record copy of the complete Contract Documents, including the Plans, Specifications, Construction Change Directives and addenda, in good order and marked currently to record field changes and selections made during construction, and one copy of Shop Drawings, Project Data, Samples and similar submittals, and shall at all times give the Owner access thereto.

L.13.2 Contractor shall retain and the Owner and its duly authorized representatives shall have access, for a period not less than ten (10) years, to all Record Documents, financial and accounting records, and other books, documents, papers and records of Contractor which are pertinent to the Contract, including records pertaining to Overhead and indirect costs, for the purpose of making audit, examination, excerpts and transcripts. If for any reason, any part of the Work or this Contract shall be subject to litigation, Contractor shall retain all such records until all litigation is resolved and Contractor shall continue to provide Owner and/or its agents with full access to such records until such time as all litigation is complete and all periods for appeal have expired and full and final satisfaction of any judgment, order or decree is recorded and Owner receives a record copy of documentation from Contractor.

L.14 WAIVER

Failure of the Owner to enforce any provision of this Contract shall not constitute a waiver or relinquishment by the Owner of the right to such performance in the future nor of the right to enforce any other provision of this Contract.

L. 15 NO ATTORNEY FEES.

In the event any arbitration, action or proceeding, including any bankruptcy proceeding, is instituted to enforce any term of this Contract, each party shall be responsible for its own attorneys' fees and expenses.

CLACKAMAS COUNTY
PUBLIC IMPROVEMENT CONTRACT

PERFORMANCE BOND

Bond No.:_____
Solicitation: #2024-65
Project Name: McBrod Corrections Remodel Project

_____(Surety #1)	Bond Amount No. 1:	$_____
_____(Surety #2)*	Bond Amount No. 2:*	$_____
* *If using multiple sureties*	Total Penal Sum of Bond:	$_____

We, _____as Principal, and the above identified Surety(ies), authorized to transact surety business in Oregon, as Surety, hereby jointly and severally bind ourselves, our respective heirs, executors, administrators, successors and assigns firmly by these presents to pay unto Clackamas County, the sum of (Total Penal Sum of Bond) _____ (Provided, that we the Sureties bind ourselves in such sum "jointly and severally" as well as "severally" only for the purpose of allowing a joint action or actions against any or all of us, and for all other purposes each Surety binds itself, jointly and severally with the Principal, for the payment of such sum only as is set forth opposite the name of such Surety); and

WHEREAS, the Principal has entered into a contract with Clackamas County, along with the plans, specifications, terms and conditions of which are contained in the above-referenced Solicitation; and

WHEREAS, the terms and conditions of the contract, together with applicable plans, standard specifications, special provisions, schedule of performance, and schedule of contract prices, are made a part of this Performance Bond by reference, whether or not attached to the contract (all hereafter called "Contract"); and

WHEREAS, the Principal has agreed to perform the Contract in accordance with the terms, conditions, requirements, plans and specifications, and all authorized modifications of the Contract which increase the amount of the work, the amount of the Contract, or constitute an authorized extension of the time for performance, notice of any such modifications hereby being waived by the Surety:

NOW, THEREFORE, THE CONDITION OF THIS BOND IS SUCH that if the Principal herein shall faithfully and truly observe and comply with the terms, conditions and provisions of the Contract, in all respects, and shall well and truly and fully do and perform all matters and things undertaken by Contractor to be performed under the Contract, upon the terms set forth therein, and within the time prescribed therein, or as extended as provided in the Contract, with or without notice to the Sureties, and shall defend, indemnify, and save harmless Clackamas County and its elected officials, officers, employees and agents, against any direct or indirect damages or claim of every kind and description that shall be suffered or claimed to be suffered in connection with or

arising out of the performance of the Contract by the Principal or its subcontractors, and shall in all respects perform said contract according to law, then this obligation is to be void; otherwise, it shall remain in full force and effect for so long as any term of the Contract remains in effect.

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

This bond is given and received under authority of Oregon Revised Statutes Chapter 279C and the Clackamas County Local Contractor Review Board Rules, the provisions of which hereby are incorporated into this bond and made a part hereof.

IN WITNESS WHEREOF, WE HAVE CAUSED THIS INSTRUMENT TO BE EXECUTED AND SEALED BY OUR DULY AUTHORIZED LEGAL REPRESENTATIVES.

Dated this _____ day of _____, 20____.

PRINCIPAL: _____

By: _____
Signature

_____
Official Capacity

Attest: _____
Corporation Secretary

SURETY: _____
[Add signatures for each if using multiple bonds]

BY ATTORNEY-IN-FACT:
[Power-of-Attorney must accompany each bond]

_____
Name

_____
Signature

_____
Address

_____
City State Zip

_____
Phone Fax

CLACKAMAS COUNTY
PUBLIC IMPROVEMENT CONTRACT

PAYMENT BOND

Bond No.: _____
Solicitation: #2024-65
Project Name: McBrod Corrections Remodel Project

_____(Surety #1)	Bond Amount No. 1:	$ _____
_____(Surety #2)*	Bond Amount No. 2:*	$ _____
* *If using multiple sureties*	Total Penal Sum of Bond:	$ _____

We, _____, as Principal, and the above identified Surety(ies), authorized to transact surety business in Oregon, as Surety, hereby jointly and severally bind ourselves, our respective heirs, executors, administrators, successors and assigns firmly by these presents to pay unto Clackamas County, the sum of (Total Penal Sum of Bond) _____ _____ (Provided, that we the Sureties bind ourselves in such sum "jointly and severally" as well as "severally" only for the purpose of allowing a joint action or actions against any or all of us, and for all other purposes each Surety binds itself, jointly and severally with the Principal, for the payment of such sum only as is set forth opposite the name of such Surety); and

WHEREAS, the Principal has entered into a contract with Clackamas County, along with the plans, specifications, terms and conditions of which are contained in above-referenced Solicitation; and

WHEREAS, the terms and conditions of the contract, together with applicable plans, standard specifications, special provisions, schedule of performance, and schedule of contract prices, are made a part of this Payment Bond by reference, whether or not attached to the contract (all hereafter called "Contract"); and

WHEREAS, the Principal has agreed to perform the Contract in accordance with the terms, conditions, requirements, plans and specifications, and schedule of contract prices which are set forth in the Contract and any attachments, and all authorized modifications of the Contract which increase the amount of the work, or the cost of the Contract, or constitute authorized extensions of time for performance of the Contract, notice of any such modifications hereby being waived by the Surety:

NOW, THEREFORE, THE CONDITION OF THIS BOND IS SUCH that if the Principal shall faithfully and truly observe and comply with the terms, conditions and provisions of the Contract, in all respects, and shall well and truly and fully do and perform all matters and things by it undertaken to be performed under said Contract and any duly authorized modifications that are made, upon the terms set forth therein, and within the time prescribed therein, or as extended therein as provided in the Contract, with or without notice to the Sureties, and shall defend, indemnify, and save harmless Clackamas County and its elected officials, officers, employees and agents, against any claim for direct or indirect damages of every kind and description that shall be suffered or claimed to be suffered in connection with or arising out of the performance of the Contract by the Contractor or its subcontractors, and shall promptly pay all persons supplying labor, materials or both to the Principal or its subcontractors for prosecution of the work provided in the Contract; and shall promptly pay all contributions due the State Industrial Accident Fund and the State Unemployment Compensation Fund from the Principal or its subcontractors in connection with the performance of the Contract; and shall pay over to the Oregon Department of Revenue all sums required to be deducted and retained from the wages of employees of the Principal and its subcontractors pursuant to ORS 316.167, and

shall permit no lien nor claim to be filed or prosecuted against Clackamas County on account of any labor or materials furnished; and shall do all things required of the Principal by the laws of this State, then this obligation shall be void; otherwise, it shall remain in full force and effect for so long as any term of the Contract remains in effect.

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

This bond is given and received under authority of Oregon Revised Statutes Chapter 279C and the Clackamas County Local Contractor Review Board Rules, the provisions of which hereby are incorporated into this bond and made a part hereof.

IN WITNESS WHEREOF, WE HAVE CAUSED THIS INSTRUMENT TO BE EXECUTED AND SEALED BY OUR DULY AUTHORIZED LEGAL REPRESENTATIVES:

Dated this _____day of _____, 20____.

PRINCIPAL: _____

By: _____
Signature

_____
Official Capacity

Attest: _____
Corporation Secretary

SURETY: _____
[Add signatures for each if using multiple bonds]

BY ATTORNEY-IN-FACT:
[Power-of-Attorney must accompany each bond]

_____
Name

_____
Signature

_____
Address

_____
City State Zip

_____
Phone Fax

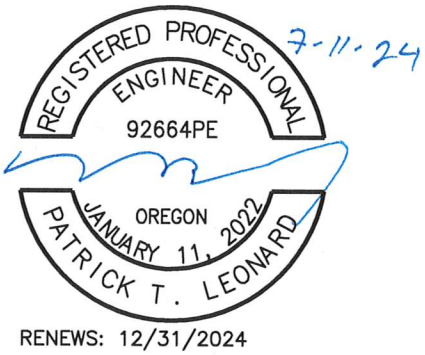
CERTIFICATE OF ENGINEER

MCBROD CRISIS CENTER

CLACKAMAS COUNTY

AUGUST 2024

These bidding and contract documents have been prepared by, or under the direction of, the following registered professional engineer, licensed in accordance with the laws of the State of Oregon to practice in the State of Oregon:



7-11-24

RENEWS: 12/31/2024

Patrick Leonard, PE

PACE Engineers, Inc.
4500 Kruse Way #250
Lake Oswego, OR 97080
PACE Project No. 23843

TABLE OF CONTENTS

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DIVISION 01

GENERAL REQUIREMENTS

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SECTION 01 33 00

SUBMITTAL PROCEDURES

PART 1 – GENERAL

1.01 DESCRIPTION

A. Work included:

1. Submittals covered by these requirements include manufacturers' information, shop drawings, test procedures, test results, samples, requests for substitutions, and miscellaneous work-related submittals. Submittals shall also include, but not be limited to, all mechanical, electrical, and electronic equipment and systems, materials, reinforcing steel, fabricated items, and piping and conduit details. The Contractor shall furnish all drawings, specifications, descriptive data, certificates, samples, tests, methods, schedules, and manufacturer's installation and other instructions as specifically required in the contract documents to demonstrate fully that the materials and equipment to be furnished and the methods of work comply with the provisions and intent of the contract documents.
2. To ensure that the specified products are furnished and installed in accordance with design intent, procedures have been established for advance submittal of design data and for its review and approval or rejection by the Engineer.
3. Submittals should be provided electronically to the Engineer and Owner, in PDF form, via email. Should the contractor decide to submit information in hard copy format, submit the quantity which is required to be returned plus four (4) copies which will be retained by the Engineer.

1.02 PRODUCT HANDLING

A. Make all submittals of shop drawings, samples, request for substitutions, and other items in strict accordance with the provisions of this section of these specifications.

PART 2 – PRODUCTS

2.01 SHOP DRAWINGS

A. Shop Drawing Checking:

1. Checking will be for conformance with the design concept of the project and compliance with the information given in the Contract Documents. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction and for coordination of the work of all trades.

B. Scale Required:

1. Unless otherwise specifically directed by the Engineer, make all shop drawings accurately to a scale sufficiently large to show all pertinent features of the item and its method of connection to the work.

C. Type of Prints Required:

1. Unless otherwise specifically directed by the Engineer, make all shop drawing prints in blue or black line on white background.

D. Number of Prints Required:

1. Submittals should be provided electronically, in PDF form, via email.
2. Should the contractor decide to submit information in hard copy format, submit all shop drawings in the quantity which is required to be returned plus four (4) copies which will be retained by the Engineer.

2.02 SAMPLES

A. Accuracy of Sample:

1. Unless otherwise specifically directed by the Engineer, all samples shall be of the precise article proposed to be furnished.

B. Number of Samples Required:

1. Submit all samples in the quantity which is required to be returned plus one which will be retained by the Engineer.

2.03 COLORS

A. General:

1. Unless the precise color and pattern are specifically described in the contract documents, whenever a choice of color or pattern is available in a specified product, submit accurate color charts and pattern charts to the Engineer for their review and selection.

2.04 SUBSTITUTIONS

A. Engineer's Approval Required:

1. The contract is based on the materials, equipment, and methods described in the contract documents.
2. The Engineer will consider proposals for substitution of materials, equipment, and methods only when such proposals are accompanied by full and complete technical data and all other information required by the Engineer to evaluate the proposed substitution.
3. Do not substitute materials, equipment, or methods unless such substitution has been specifically approved for this work by the Engineer.

B. "Or Equal":

1. Where a specific piece of equipment has been specified by brand name, it is assumed that "or equal" follows the specific brand name.
2. Where the phrase "or equal" or "equal as approved by the Engineer" occurs in the contract documents, do not assume that material, equipment, or methods will be approved as equal by the Engineer unless the item has been specifically approved for this work by the Engineer.
3. The decision of the Engineer shall be final.

C. Availability of Specified Items:

1. Verify prior to bidding that all specified items will be available in time for installation during orderly and timely progress of the work.
2. In the event the specified item or items will not be so available, so notify the Engineer prior to submittal of bids.
3. Costs of delays because of non-availability of specified items, when such delays could have been avoided by the contractor, will be back-charged as necessary and shall not be borne by the Owner.

2.05 SUBMITTALS INFORMATION

A. Shop catalog and other appropriate drawings shall be submitted to the Engineer for review and approval prior to fabrication or ordering of all equipment herein specified. The number of copies of drawings to be submitted shall be determined by the Contractor's requirements, plus four (4) copies of each drawing to be retained by the Engineer.

B. Additional information shall be furnished for all equipment requiring operational and/or maintenance procedures as further specified in OPERATION AND MAINTENANCE INFORMATION.

1. Definitions:
   a. The word "Approved", as used herein, means "Approved by the Engineer."
   b. "For Approval" means "For the Engineer's Approval."
   c. "Selected" means "As selected by the Engineer."
   d. "As Directed" means "As directed by the Engineer."
   e. "Provide" means "furnish and install."
   f. "Where the words "or Approved", "Approval", "or Equal", "approved equivalent" are used, the phrase "or an Approved Equal" shall be substituted.
   g. The Engineer is the sole judge of the quality and suitability of the proposed substitution. "Dimensional Tolerance" means variations in dimensions and size that do not require structural modification, extensive pipe changes, or hampers normal maintenance operations.

PART 3 – EXECUTION

3.01 IDENTIFICATION OF SUBMITTALS

A. Completely identify each submittal and re-submittal by showing at least the following information:

1. Name and address of submitter, plus name and telephone number of the individual who may be contacted for further information.
2. Name of project as it appears on each page of these specifications.
3. Drawing number and specifications section number to which the submittal applies.
4. Whether this is an original submittal or re-submittal.

3.02 COORDINATION OF SUBMITTALS

A. General:

1. The Contractor shall coordinate submittals with the work so that work will not be delayed. They shall coordinate and schedule different categories of submittals, so that one will not be delayed for lack of coordination with another. No extension of time will be allowed because of failure to properly schedule submittals. The Contractor shall not proceed with work related to a submittal until the submittal process is complete. This requires that submittals for review and comment shall be returned to the Contractor stamped "No Exceptions Taken" or "Make Corrections Noted".
2. Prior to submittal for Engineer's review, use all means necessary to fully coordinate all material, including the following procedures:
    a. Determine and verify all field dimensions and conditions, materials, catalog numbers, and similar data.
    b. Coordinate as required with all trades and with all public agencies involved.
    c. Secure all necessary approvals from public agencies and others and signify by stamp, or other means, that they have been secured.
    d. Clearly indicate all deviations from the contract documents.

3.03 TIMING OF SUBMITTALS

A. General:

1. Make all submittals far enough in advance of scheduled dates of installation to provide all required time for reviews, for securing necessary approvals, for possible revision and re-submittals, and for placing orders and securing delivery.

B. Delays:

1. Costs of delays occasioned by tardiness of submittals may be back-charged as necessary and shall not be borne by the Owner.

C. Submittals for Review and Comment:

1. Unless otherwise specified, within fifteen (15) calendar days after receipt of a submittal for review and comment, the Engineer shall review the submittal and return two (2) copies of the marked-up reproducible original. The Engineer will retain the reproducible original. The returned submittal shall indicate one of the following actions:
    a. If the review indicates that the material, equipment, or work method complies with the project manual, submittal copies will be marked, "No Exceptions Taken". In this event, the Contractor may begin to implement the work method or incorporate the material or equipment covered by the submittal.
    b. If the review indicates limited corrections are required, copies will be marked, "Make Corrections Noted". The Contractor may begin implementing the work method or incorporating the material and equipment covered by the submittal in accordance with the noted corrections. Where submittal information will be incorporated in O&M data, a corrected copy shall be provided.

c. If the review reveals that the submittal is insufficient or contains incorrect data, copies will be marked "Amend and Resubmit". Except at their own risk, the Contractor shall not undertake work covered by this submittal until it has been revised, resubmitted, and returned marked either "No Exceptions Taken" or "Make Corrections Noted".

d. If the review indicates that the material, equipment, or work method does not comply with the project manual, copies of the submittal will be marked "Rejected – See Remarks". Submittals with deviations which have not been identified clearly may be rejected. Except at their own risk, the Contractor shall not undertake the work covered by such submittals until a new submittal is made and returned marked either "No Exceptions Taken" or "Make Corrections Noted."

3.04 EFFECT OF REVIEW OF SUBMITTALS

A. Review of the contract drawings, methods of work, or information regarding materials or equipment the Contractor proposes to provide, shall not relieve the Contractor of their responsibility for errors therein and shall not be regarded as an assumption of risks or liability or employee thereof, and the Contractor shall have no claim under the contract on account of the failure, or partial failure, or the method of work, material, or equipment so reviewed. A mark of "No Exceptions Taken" or "Make Corrections Noted" shall mean that the Owner has no objection to the Contractor, upon their own responsibility, using the plan or method of work proposed, or providing the materials or equipment proposed.

END OF SECTION 01 33 00

SECTION 01 45 00

QUALITY CONTROL

PART 1 – GENERAL

1.01 DESCRIPTION

This section covers quality control requirements for this project.

A. Access to Work.

1. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and governmental agencies with jurisdictional interests will have access to the Site and the Work at reasonable times for their observation, inspection, and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's safety procedures and programs so that they may comply therewith as applicable.

B. Tests and Inspections

1. Contractor shall give Owner's Representative minimum two Working Days' notice of readiness of the Work for all required inspections, tests, or approvals and shall cooperate with inspection and testing personnel to facilitate required inspections or tests.

2. Contractor shall employ and pay for the services of an independent testing laboratory to perform all inspections, tests, or approvals required by the Contract Documents including:

   a. For inspections, tests, or approvals covered by Paragraphs 3 below.

   b. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Owner the required certificates of inspection or approval.

   c. As otherwise specifically provided in the Contract Documents.

3. Contractor shall be responsible for arranging and obtaining and shall pay all costs in connection with any inspections, tests, or approvals required for Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work; or acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work. Such inspections, tests, or approvals shall be performed by organizations acceptable to Owner and Engineer.

4. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Owner, Contractor shall, if requested by Owner, uncover such Work for observation.

5. Uncovering Work as provided in Paragraph 4 shall be at Contractor's expense unless Contractor has given Owner timely notice of Contractor's intention to cover

the same and Owner has not acted with reasonable promptness in response to such notice.

1.02 PROVISIONS

The owner reserves the right to complete additional testing at its own expense. In such cases the contractor shall provide safe access for the Owner and its inspectors to adequately inspect the quality of work and the conformance with project specifications. The Owner's inspection shall take precedence over the contractor's 3rd party inspector.

1.03 QUALITY ASSURANCE

A. Submittal for Testing Laboratory Approval.

1. The Contractor shall select a qualified testing laboratory or testing service and shall submit a statement of qualifications from said laboratory or testing service for review and favorable approval by the Owner. Qualifications shall include individual Oregon Department of Transportation certifications for density testing technicians. The submittal shall be made and approved prior to starting any work for which testing is specified.

B. Qualifications of Testing Laboratory.

1. The testing laboratory shall be properly qualified for the services rendered and shall be independently owned and operated. All testing shall be performed under the direct supervision and control of a qualified registered professional engineer employed by the laboratory.

1.04 INSPECTIONS

A. General

1. Material, equipment and workmanship are subject to inspection by Owner and will be rejected when found not to be in conformance with requirements of the Contract Documents.

2. Facilitate Owner, or Owner's representative inspection of the work.

3. Facilitate inspection by Owner and others by maintaining proper facilities and providing safe access to the Work.

4. Notify Owner's representative in a timely manner to allow inspection of work before it is buried.

5. Provide such equipment and facilities as the Owner's representative may require for conducting an independent field test and for collecting and forwarding samples.

6. Uncover, at Contractor's expense, work that is buried, covered, or hidden in any way without sufficient notice for inspection prior to the covering per section 1.01 above.

B. Acceptability of materials, equipment, and workmanship shall be determined by the Engineer or Owner's Representative.

C. Acceptability of materials, equipment, and workmanship shall be determined by the Engineer or Owner's Representative.

D. Remove defective products from the project site immediately, whether in place or not, and re-perform Work at no additional cost to the Owner in conformance with Contract Documents.

1.05 TESTS

A. General

Where the Specifications and/or permits require work to be specifically tested or approved, it shall be tested only in the presence of the Owner or Owner's Representative after timely notice of its readiness for inspection and test and the work after testing shall be covered up only with the consent of the Owner.

The results of any tests made are for the information of the Owner. Regardless of test results, the Contractor is solely responsible for the quality of workmanship and materials and for compliance with the requirements of the Contract Documents.

Except as specifically required under detail materials specifications for testing and inspection, all tests of materials furnished by the Contractor will be made in the presence of the Owner's Representative. The Contractor shall furnish a sample of any material to be incorporated into the work as requested by the Owner without charge.

Where such inspection and testing are to be conducted by an independent laboratory or agency, the sample or samples of materials to be tested shall be selected by such laboratory or agency, or the Owner, and not by the Contractor.

B. Costs of Testing

The Contractor shall be responsible for scheduling the tests and inspections and shall pay for all tests and inspections as specified in Part 3 of this section and as specified in the Contract Documents.

Where test results show that the material or workmanship does not meet the minimum requirements of the Contract Documents, additional tests shall be completed and shall be paid for by the Contractor with no reimbursement by the Owner.

1.06 SUBMITTALS

Laboratory Test or Inspection Reports.

Each test or report shall be signed and certified by the supervising engineer of the testing laboratory. Submit reports in accordance with Section 01 33 00.

PART 2 – PRODUCTS – (NOT USED)

PART 3 – EXECUTION

3.01 FIELD TESTING AND SPECIAL INSPECTION SCHEDULE

The Contractor shall complete field testing and special inspection in accordance with the following schedule and as required by the 2022 Oregon Structural Specialty Code . Additional source material testing shall be completed as necessary to establish the basis of field tests and satisfy all other requirements of the Contract Documents. The frequency

of testing listed in this schedule lists the minimum number of tests per quantity of work completed by the Contractor. The frequency of testing listed in the following table shall be utilized to determine the total number of tests required, not the location of said tests. Contractor shall obtain approval from the Owner for all testing locations.

Proctors for compaction tests shall be updated every 60 days and shall be taken from the same source as the material provided.

Contractor shall provide additional testing as requested by Engineer, Owner's Representative, or the permitting agency at no additional cost to Owner.

All tests shall be as specified, or shall meet the permit agency requirements, whichever is most stringent.

Equipment or Material	Payment Responsibility	Minimum Frequency
Aggregate Base (for concrete placement) Compaction	Contractor	The aggregate base should be compacted to at least 95 percent of the maximum dry density as determined by the standard Proctor test method (ASTM D 698).
Asphalt Pavement	Contractor	See Section 30 12 16
Concrete Compressive Strength	Contractor	See Section 03 30 00
Reinforcing Steel	Contractor	See Section 03 21 00
Welding	Contractor	See Section 05 12 00
Post-Installed Concrete Anchors	Contractor	See Oregon Structural Specialty Code 2022 Table 1705.37.

END OF SECTION 01 45 00

DIVISION 02

EXISTING CONDITIONS

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SECTION 02 00 00

SITE CONDITIONS

PART 1 – GENERAL

1.01 DESCRIPTION

A. This section describes existing information on existing utilities within the construction areas of the Project.

1.02 EXISTING UTILITIES

A. In general, the locations of existing major utilities, whether above ground or underground, are indicated on the Plans. This information has been obtained from survey, prior design drawings, utility maps and from verbal descriptions provided by the various agencies involved. The Owner does not guarantee the accuracy or completeness of this information and it is to be understood that other facilities not shown on the Plans may be encountered during the course of work.

B. The right is reserved by owners of public utilities and franchises to enter upon any street, road, right-of-way, or easement for the purpose of maintaining their property and for making necessary repairs or changes caused by the work.

C. Repairs or changes to existing above ground utilities and underground utility service lines caused by the work shall be paid by the Contractor.

D. Under no circumstances will discrepancies in location or incompleteness in description of existing utilities or improvements, whether they be visible from the surface, buried, or otherwise obscured, be considered as a basis for additional compensation to the Contractor.

E. The location and dimensions of existing structures and facilities in the project area including, but not limited to, structural features, electrical conduits, plumbing, electrical control panels, and equipment, whether shown on the Plans or not, shall be verified by the Contractor prior to commencement of work. Removal and/or relocation of existing structures and facilities are shown on the Plans where obvious conflicts exist between these structures or facilities and the improvements to be constructed under this contract. The Owner and the Engineer do not guarantee that additional conflicts may not exist. The Contractor shall make any relocations of existing structures and facilities as required for proper execution of his work at no cost to the Owner.

F. Where existing utilities interfere with the prosecution of the work, the Contractor shall relocate them in accordance with the requirements of the affected utilities. The Contractor shall also obtain written approval from the respective Utility to the Contractor and Engineer to commence relocation of utilities within the guidelines of each affected Utility.

PART 2 – PRODUCT (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION 02 00 00

SECTION 02 41 00

DEMOLITION

PART 1 – GENERAL

1.01 SUMMARY

A. Demolition includes, but is not limited to, the following:

1. Demolition and removal of selected portions of building(s) and/or structure(s).
2. Salvaging of existing items to be reused or recycled.
    a. Disposal of materials to be removed from the project site.

1.02 REFERENCES

A. Project drawings.

1.03 QUALITY ASSURANCE

A. Pre-Construction Conference: Schedule and administer pre-construction conference to review demolition, removal, proper storage as well as reuse of materials to be salvaged, and proper disposal of materials to be disposed of; as well as safety precautions.

PART 2 – PRODUCT (NOT USED)

PART 3 – EXECUTION

3.01 GENERAL

It shall be the Contractor's responsibility to verify location of existing utilities, surface and subsurface, and to avoid potential conflict and damage. Excess materials that are required to be hauled off-site shall be hauled and disposed of at the Contractor's expense.

3.02 CLEAN UP

A. All dirt, soil, debris, equipment, and excess materials of any nature, not deemed to be salvageable in the opinion of the Owner, shall be removed and disposed of off-site and the project work area shall be left clean to the satisfaction of the Owner.

END OF SECTION 02 41 00

SECTION 02 41 19

SELECTIVE DEMOLITION

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

A. Section Includes:

1. Demolition and removal of selected portions of building or structure.
2. Demolition and removal of selected site elements.
3. Salvage of existing items to be reused or recycled.

B. Related Requirements:

1. Division 31 Section "Site Clearing" for site clearing and removal of above- and below-grade improvements.

1.03 DEFINITIONS

C. Remove: Detach items from existing construction and legally dispose of them off-site unless indicated to be removed and salvaged or removed and reinstalled.

D. Remove and Salvage: Carefully detach from existing construction, in a manner to prevent damage, and deliver to Owner.

E. Remove and Reinstall: Detach items from existing construction, prepare for reuse, and reinstall where indicated.

F. Existing to Remain: Existing items of construction that are not to be permanently removed and that are not otherwise indicated to be removed, removed, and salvaged, or removed and reinstalled.

1.04 MATERIALS OWNERSHIP

G. Unless otherwise indicated, demolition waste becomes property of Contractor.

H. Historic items, relics, antiques, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, and other items of interest or value to Owner that may be uncovered during demolition remain the property of Owner.

1. Carefully salvage in a manner to prevent damage and promptly return to Owner.

1.05 PREINSTALLATION MEETINGS

I. Predemolition Conference: Conduct conference at project site.

1. Inspect and discuss condition of construction to be selectively demolished.
2. Review structural load limitations of existing structure.

3. Review and finalize selective demolition schedule and verify availability of materials, demolition personnel, equipment, and facilities needed to make progress and avoid delays.
4. Review requirements of work performed by other trades that rely on substrates exposed by selective demolition operations.
5. Review areas where existing construction is to remain and requires protection.

1.06 INFORMATIONAL SUBMITTALS

J. Proposed Protection Measures: Submit report, including drawings, that indicates the measures proposed for protecting individuals and property, for environmental protection, for dust control, , for noise control. Indicate proposed locations and construction of barriers.

K. Predemolition Photographs or Video: Submit before Work begins.

L. Statement of Refrigerant Recovery: Signed by refrigerant recovery technician responsible for recovering refrigerant, stating that all refrigerant that was present was recovered and that recovery was performed according to EPA regulations. Include name and address of technician and date refrigerant was recovered.

M. Warranties: Documentation indicated that existing warranties are still in effect after completion of selective demolition.

1.07 CLOSEOUT SUBMITTALS

N. Inventory: Submit a list of items that have been removed and salvaged.

1. Landfill Records: Indicate receipt and acceptance of hazardous wastes by a landfill facility licensed to accept hazardous wastes.

1.08 QUALITY ASSURANCE

O. Refrigerant Recovery Technician Qualifications: Certified by an EPA-approved certification program.

1.09 FIELD CONDITIONS

P. Owner will occupy portions of building immediately adjacent to selective demolition area. Conduct selective demolition so Owner's operations will not be disrupted.

Q. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.

R. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.

S. Hazardous Materials: It is not expected that hazardous materials will be encountered in the Work.

1. If suspected hazardous materials are encountered, do not disturb; immediately notify Architect and Owner. Hazardous materials will be removed by Owner under a separate contract.
2. Do not disturb hazardous materials or items suspected of containing hazardous materials except under procedures specified elsewhere in the Contract Documents.

T. or sale of removed items or materials on-site is not permitted.

U. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.

1. Maintain fire-protection facilities in service during selective demolition operations.

PART 2 – PRODUCTS

2.01 PEFORMANCE REQUIREMENTS

A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.

B. Standards: Comply with ANSI/ASSE A10.6 and NFPA 241.

PART 3 – EXECUTION

3.01 EXAMINATION

A. Verify that utilities have been disconnected and capped before starting selective demolition operations.

B. Review record documents of existing construction provided by Owner. Owner does not guarantee that existing conditions are same as those indicated in record documents.

C. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.

D. When unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate, and measure the nature and extent of conflict. Promptly submit a written report to Architect.

E. Perform an engineering survey of condition of building to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of structure or adjacent structures during selective building demolition operations.

1. Perform surveys as the Work progresses to detect hazards resulting from selective demolition activities.

3.02 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

A. Existing Services/Systems to Remain: Maintain services/systems indicated to remain and protect them against damage.

B. Existing Services/Systems to Be Removed, Relocated, or Abandoned: Locate, identify, disconnect, and seal or cap off indicated utility services and mechanical/electrical systems serving areas to be selectively demolished.

1. Owner will arrange to shut off indicated services/systems when requested by Contractor.

2. Arrange to shut off indicated utilities with utility companies.

3. If services/systems are required to be removed, relocated, or abandoned, provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to other parts of building.

4. Disconnect, demolish, and remove fire-suppression systems, plumbing, and HVAC systems, equipment, and components indicated to be removed.
    a. Piping to Be Removed: Remove portion of piping indicated to be removed and cap or plug remaining piping with same or compatible piping material.
    b. Piping to Be Abandoned in Place: Drain piping and cap or plug piping with same or compatible piping material.
    c. Equipment to Be Removed: Disconnect and cap services and remove equipment.
    d. Equipment to Be Removed and Reinstalled: Disconnect and cap services and remove, clean, and store equipment; when appropriate, reinstall, reconnect, and make equipment operational.
    e. Equipment to Be Removed and Salvaged: Disconnect and cap services and remove equipment and deliver to Owner.
    f. Ducts to Be Removed: Remove portion of ducts indicated to be removed and plug remaining ducts with same or compatible ductwork material.
    g. Ducts to Be Abandoned in Place: Cap or plug ducts with same or compatible ductwork material.

C. Refrigerant: Remove refrigerant from mechanical equipment to be selectively demolished according to 40 CFR 82 and regulations of authorities having jurisdiction.

3.03 PREPARATION

A. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

B. Temporary Facilities: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
    1. Provide protection to ensure safe passage of people around selective demolition area and to and from occupied portions of building.
    2. Provide temporary weather protection, during interval between selective demolition of existing construction on exterior surfaces and new construction, to prevent water leakage and damage to structure and interior areas.
    3. Protect walls, ceilings, floors, and other existing finish work that are to remain or that are exposed during selective demolition operations.
    4. Cover and protect furniture, furnishings, and equipment that have not been removed.

C. Temporary Shoring: Provide and maintain shoring, bracing, and structural supports as required to preserve stability and prevent movement, settlement, or collapse of construction and finishes to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.
    1. Strengthen or add new supports when required during progress of selective demolition.

3.04 SELECTIVE DEMOLITION, GENERAL

A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated on drawings. Use methods required to complete the Work within limitations of governing regulations and as follows:

1. Proceed with selective demolition systematically, from higher to lower level. Complete selective demolition operations above each floor or tier before disturbing supporting members on the next lower level.
2. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering, and chopping, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.
3. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
4. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain fire watch and portable fire-suppression devices during flame-cutting operations.
5. Maintain adequate ventilation when using cutting torches.
6. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
7. Remove structural framing members and lower to ground by method suitable to avoid free fall and to prevent ground impact or dust generation.
8. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
9. Dispose of demolished items and materials promptly.

B. Reuse of Building Elements: Do not demolish building elements beyond what is indicated on Drawings without Architect's approval.

C. Removed and Reinstalled Items:

1. Clean and repair items to functional condition adequate for intended reuse.
2. Pack or crate items after cleaning and repairing. Identify contents of containers.
3. Protect items from damage during transport and storage.
4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, support, and miscellaneous materials necessary to make item functional for use indicated.

D. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Architect, items may be removed to a suitable, protected storage location during selective demolition and cleaned and reinstalled in their original locations after selective demolition operations are complete.

3.05 SELECTIVE DEMOLITION PROCEDURES FOR SPECIFIC MATERIALS

A. Concrete: Demolish in small sections. Using power-driven saw, cut concrete to a depth of at least 3/4 inch at junctures with construction to remain. Dislodge concrete from reinforcement at perimeter of areas being demolished, cut reinforcement, and then remove remainder of concrete. Neatly trim openings to dimensions indicated.

B. Concrete: Demolish in sections. Cut concrete full depth at junctures with construction to remain and at regular intervals using power-driven saw, then remove concrete between saw cuts.

C. Masonry: Demolish in small sections. Cut masonry at junctures with construction to remain, using power-driven saw, then remove masonry between saw cuts.

D. Concrete Slabs-on-Grade: Saw-cut perimeter of area to be demolished, then break up and remove.

E. Resilient Floor Coverings: Remove floor coverings and adhesive according to recommendations in RFCI's "Recommended Work Practices for the Removal of Resilient Floor Coverings.

F. Roofing: Remove no more existing roofing than what can be covered in one day by new roofing so that building interior remains watertight and weathertight. See Division 07 Section Thermoplastic Membrane Roofing for new roofing requirements.

1. Remove existing roof membrane, flashings, copings, and roof accessories.

2. Remove existing roofing system down to substrate.

3.06 DISPOSAL OF DEMOLISHED MATERIALS

A. General: Except for items or materials indicated to be recycled, reused, salvaged, reinstalled, or otherwise indicated to remain Owner's property, remove demolished materials from Project site and legally dispose of them in an EPA-approved landfill.

1. Do not allow demolished materials to accumulate on-site.

2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

3. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.

B. Burning: Do not burn demolished materials.

C. Disposal: Transport demolished materials off Owner's property and legally dispose of them.

3.07 CLEANING

A. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

END OF SECTION 02 41 19

DIVISION 03

CONCRETE

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SECTION 03 10 00

CONCRETE FORMING AND ACCESSORIES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Formwork for cast-in place concrete, with shoring, bracing and anchorage.

B. Openings for other work.

C. Form accessories.

D. Form stripping.

1.02 RELATED SECTIONS

A. Section 03 21 00 – Reinforcing Steel.

B. Section 03 25 10 Expansion and Construction Joints

C. Section 03 30 00 - Cast-In-Place Concrete.

D. Section 03 39 00 – Concrete Curing.

1.03 REFERENCES

A. This section references the latest revision of the following documents. They are a part of this section as specified and modified. In case of conflict between the requirements of this section and those of the listed documents, the requirements of this section shall prevail.

B. ACI 301 - Specifications for Structural Concrete for Buildings; American Concrete Institute International.

C. ACI 318 - Building Code Requirements for Reinforced Concrete and Commentary; American Concrete Institute International.

D. ACI 347R - Guide to Formwork for Concrete; American Concrete Institute International.

E. PS 1 - Construction and Industrial Plywood; National Institute of Standards and Technology (Department of Commerce).

1.04 DESIGN REQUIREMENTS

A. Design, engineer and construct formwork, shoring and bracing to conform to code requirements; resultant concrete to conform to required shape, line, and dimension. Forms may be of wood or metal and shall be built accurately to provide the shape, lines and dimension required for the finished concrete. They shall be strongly braced and tied so as to maintain their position, shape and tightness without building or becoming displaced during the process of placing concrete and be designed to withstand the effects of vibration.

1.05 SUBMITTALS

A. See Section 01 33 00 – Submittal Procedures.

B. Product Data: Provide sample of form ties and/or tapered through-bolts.

C. Shop Drawings: Indicate pertinent dimensions, materials, bracing, and arrangement of joints and ties. For form ties and tapered through-bolts, provide a proposed method of sealing form tie holes; coordinate with details shown.

D. Schedule for form removal.

1.06 QUALITY ASSURANCE

A. Perform work of this section in accordance with ACI 347R, ACI 301, and ACI 318.

B. Conform to applicable code for design, fabrication, erection, and removal of formwork.

1.07 REGULATORY REQUIREMENTS

A. Conform to applicable code for design, fabrication, erection, and removal of formwork.

PART 2 – PRODUCTS

2.01 WOOD FORM MATERIALS

A. Form Materials:

1. Wall Forms and Underside of Slabs and Beams:

a. Materials: Plywood, hard plastic finished plywood, overlaid waterproof particle board, or steel in "new and undamaged" condition, of sufficient strength and surface smoothness to produce specified finish.

2. All Other Forms: Materials as specified for wall forms.

2.02 FORMWORK ACCESSORIES

A. Form Ties:

1. Material: Galvanized Steel.

2. Spreader Inserts:

a. Conical or spherical type.

b. Design to maintain positive contact with forming material.

c. Furnish units that will leave no metal closer than 1-inch to concrete surface when forms, inserts, and tie ends are removed.

3. Wire ties not permitted.

4. Flat bar ties for panel forms, furnish plastic or rubber inserts with minimum 1-inch depth and sufficient dimensions to permit patching of tie hole.

5. Through-Bolts: Tapered minimum 1-inch diameter at smallest end.

6. Elastic Vinyl Plug: Design and size of plug to allow insertion with tool to enable plug to elongate and return to original length, and diameter upon removal forming a watertight seal.

a. Manufacturer and Product: Dayton Superior Co., Miamisburg, OH; Dayton Sure Plug.

B. Form Sealer:

1. Material: Surface sealer will not bond with, stain, or adversely affect concrete surfaces, and will not impair subsequent treatments of concrete surfaces when applied to most forms or form liners. A ready-to-use water-based material formulated to reduce or eliminate surface imperfections, containing no mineral oil or organic solvents. Environmentally safe, meeting local, state, and federal regulations and can be used in clean water treatment plants.

2. Manufacturer and Product: Master Builders, Inc.; Rheofinish.

C. Corners: Chamfered, wood strip type; 3/4 x 3/4-inch size; maximum possible lengths.

D. Nails, Spikes, Lag Bolts, Through Bolts, Anchorages: Sized as required, of sufficient strength and character to maintain formwork in place while placing concrete.

PART 3 – EXECUTION

3.01 EXAMINATION

A. Verify lines, levels, and centers before proceeding with formwork. Ensure that dimensions agree with drawings.

3.02 EARTH FORMS

A. Earth forms are not permitted except for retaining wall as specified on drawings.

3.03 ERECTION - FORMWORK

A. Design formwork in accordance with ACI 301, ACI 347, and ACI 318 to provide the concrete finishes specified in Section 03 30 00, Cast-in-Place Concrete.

B. Limit panel deflection to 1/360 of each component span to achieve tolerances specified.

C. Provide bracing to ensure stability of formwork. Shore or strengthen formwork subject to overstressing by construction loads.

D. Arrange and assemble formwork to permit dismantling and stripping. Do not damage concrete during stripping. Permit removal of remaining principal shores.

E. Align joints and make watertight. Keep form joints to a minimum.

F. Obtain approval before framing openings in structural members that are not indicated on drawings.

G. Provide fillet and chamfer strips on external corners of beams, joists, columns, and walls, unless otherwise shown.

H. Install void forms in accordance with manufacturer's recommendations. Protect forms from moisture or crushing.

I. Coordinate this section with other sections of work that require attachment of components to formwork.

J. If formwork is placed after reinforcement, resulting in insufficient concrete cover over reinforcement, request instructions from Engineer before proceeding.

K. Wall Forms:

1. Do not reuse forms with damaged surfaces.
2. Locate form ties and joints in an uninterrupted pattern for smooth and uniform surface.
3. Inspect form surfaces prior to installation to assure conformance with specified tolerances.

L. Forms for Curbs, Sidewalks, and Driveways:

1. Provide standard steel or wood forms to prevent movement.
2. Set forms to true lines and grades, and securely stake in position.

3.04 APPLICATION - FORM RELEASE AGENT

A. Apply form release agent on formwork in accordance with manufacturer's recommendations.

B. Apply prior to placement of reinforcing steel, anchoring devices, and embedded items.

C. Do not apply form release agent where concrete surfaces will receive special finishes or applied coverings that are affected by agent or will be in contact with potable water unless product is NSF 61 approved. Soak inside surfaces of untreated forms with clean water. Keep surfaces coated prior to placement of concrete.

D. Form release agents used on concrete surfaces which will receive stucco finish must be compatible with plasters or must be removed completely from surface of concrete to receive plaster.

3.05 INSERTS, EMBEDDED PARTS, AND OPENINGS

A. Provide formed openings where required for items to be embedded in passing through concrete work.

B. Locate and set in place items that will be cast directly into concrete.

C. Coordinate with work of other sections in forming and placing openings, slots, regrets, recesses, sleeves, bolts, anchors, other inserts, and components of other work. In cooperation with all trades and other contractors, all inserts and fastening devices such as anchors, hangers, ties, bolts, pipes, conduits, waterstops, nailing strips, etc., shall be properly located and secured in position before concrete is placed. Where pipes pass through the structure, they shall be cast in place unless permission is given by the Engineer to do otherwise. Whenever these requirements interfere with the placement of reinforcing steel as indicated by the Plans, the bars shall be spread and rearranged as directed by the Engineer. All cast-in place pipes will have seep ring centered in the wall or floor.

D. Install accessories in accordance with manufacturer's instructions, so they are straight, level, and plumb. Ensure items are not disturbed during concrete placement.

E. Provide temporary ports or openings in formwork where required to facilitate cleaning and inspection. Locate openings at bottom of forms to allow flushing water to drain.

F. Close temporary openings with tight fitting panels, flush with inside face of forms, and neatly fitted so joints will not be apparent in exposed concrete surfaces.

3.06 FORM CLEANING

A. Thoroughly clean form surfaces in contact with concrete of previous concrete, dirt, and other surface contaminants prior to coating surface.

A. Exposed Wood Forms in Contact with Concrete: Apply form sealer as recommended by the sealer material manufacturer.

B. Steel Forms: Apply form sealer to steel forms as soon as they are cleaned to prevent discoloration of concrete from rust.

C. Clean forms as erection proceeds, to remove foreign matter within forms.

D. Clean formed cavities of debris prior to placing concrete.

1. Flush with water or use compressed air to remove remaining foreign matter. Ensure that water and debris drain to exterior through clean-out ports.

2. During cold weather, remove ice and snow from within forms. Do not use de-icing salts. Do not use water to clean out forms unless formwork and concrete construction proceed within heated enclosure. Use compressed air or other means to remove foreign matter.

3.07 FORMWORK TOLERANCES

A. Construct formwork to maintain tolerances required by ACI 301, ACI 347, and ACI 318 and the following tolerances for finishes specified:

1. Wall Tolerances:

a. Straight Vertical or Horizontal Wall Surface: Flat planes within tolerance specified.

b. Wall Type WI: Plumb within 1/4-inch in 10 feet or within 1-inch from top to bottom for walls over 40 feet high.

1) Depressions in Wall Surface: Maximum 5/16-inch when 10-foot straightedge is placed on high points in all directions.

c. Wall Type WII: Plumb within 1/8-inch in 10 feet or within 1/2-inch from top to bottom for walls over 40 feet high.

1) Depressions in Wall Surface: Maximum 1/8-inch when 10-foot straightedge is placed on high points in all directions.

d. Thicknesses: maximum 1/4-inch minus or 1/2-inch plus from dimensions shown.

2. Slab Tolerances:

a. Exposed Slab Surfaces: Comprise of flat planes as required within tolerances specified.

b. Slab Finish Tolerances and Slope Tolerances: Crowns on floor surface not too high as to prevent 10-foot straightedge from resting on end blocks, nor low spots that allow a block of twice the tolerance in thickness to pass under the supported 10-foot straightedge.

c. Slab Type SI: Steel gage block 5/16-inch thick.

d. Slab Type SII: Steel gage block 1/8-inch thick.

e. Slab Type SI and SII:

1) Finish Slab Elevation: Slope slabs to floor drain and gutter and shall adequately drain regardless of tolerances.

2) Thickness: Maximum 1/4-inch minus or 1/2-inch plus from thickness shown, except where thickness tolerance will not affect slope, drainage, or slab elevation.

3. Beam Tolerances:

a. Exposed Straight Horizontal and Vertical Surfaces: Flat planes within tolerances specified.

b. Beam Type BI:

1) Physical Dimensions: Maximum 1/4-inch minus or 1/2-inch plus from dimension shown.

2) Elevations: Within 1/2-inch plus or minus except where tops of beams become part of finished slab. In this case refer to slab tolerances.

3.08 FIELD QUALITY CONTROL

A. Inspect erected formwork, shoring, and bracing to ensure that work is in accordance with formwork design, and to verify that supports, fastenings, wedges, ties, and items are secure.

B. Do not reuse wood formwork more than 2 times for concrete surfaces to be exposed to view. Do not patch formwork.

3.09 FORM REMOVAL

A. Do not remove forms or bracing until concrete has gained sufficient strength to carry its own weight and imposed loads.

B. Do not remove forms or bracing until concrete has attained 80% of 28-day compressive strength as determined by test cylinders and has gained sufficient strength to carry its own weight and imposed loads. In the determination of the time for removal of forms, falsework and housing, consideration will be given to the weather and other conditions influencing the setting of concrete, curing and materials in the mix. In general, the following period, exclusive of days when the temperature is below 50 degrees F, may be used as a guide for removal of forms subject to the approval of the Engineer, provided the concrete is sufficiently hard to not be damaged by form removal operation, and provided curing and protection operations are maintained. Refer to ACI 318, Chapter 6.

1. Centering under beams: 10 -- 14 days
2. Suspended Slabs: 10 to 14 days
3. Slab on Grade: 24 hours. Seven (7) days between adjoining slab pours.
4. Structural Walls: 24 hours
5. Retaining Walls: 24 hours

6. Footing Stem Wall: 24 hours
7. Footings: 24 hours
8. Columns: 1 -- 7 days
9. Side of beams and other parts: 24 hours

C. Loosen forms carefully. Do not wedge pry bars, hammers, or tools against finish concrete surfaces scheduled for exposure to view.

D. Store removed forms to prevent damage to form materials or to fresh concrete. Discard damaged forms.

END OF SECTION 03 10 00

SECTION 03 21 00

REINFORCEMENT BARS

PART 1 – GENERAL

1.01 SECTION INCLUDES

A. Reinforcing steel for cast-in-place concrete.

B. Supports and accessories for steel reinforcement.

1.02 RELATED SECTIONS

A. Section 03 10 00 - Concrete Forms and Accessories.

B. Section 03 30 00 - Cast-In-Place Concrete.

1.03 REFERENCES

A. This section references the latest revision of the following documents. They are a part of this section as specified and modified. In case of conflict between the requirements of this section and those of the listed documents, the requirements of this section shall prevail.

B. ACI 301 - Specifications for Structural Concrete for Buildings; American Concrete Institute International.

C. ACI 318 - Building Code Requirements For Reinforced Concrete and Commentary; American Concrete Institute International.

D. ACI SP-66 - ACI Detailing Manual; American Concrete Institute International.

E. ASTM A 82 - Standard Specification for Steel Wire, Plain, for Concrete Reinforcement.

F. ASTM A 185 - Standard Specification for Steel Welded Wire Fabric, Plain, for Concrete Reinforcement.

G. ASTM A 704/A 704M - Standard Specification for Welded Steel Plain Bar or Rod Mats for Concrete Reinforcement.

H. AWS D1.4 - Structural Welding Code - Reinforcing Steel; American Welding Society.

I. CRSI (DA4) - Manual of Standard Practice; Concrete Reinforcing Steel Institute.

J. CRSI (P1) - Placing Reinforcing Bars; Concrete Reinforcing Steel Institute.

1.04 SUBMITTALS

A. See Section 01 33 00 for submittal procedures.

B. Shop Drawings: Comply with requirements of ACI SP-66 and CRSI Manual of Standard Practice. Include bar schedules, shapes of bent bars, spacing of bars, and location of splices. Submit four copies to Engineer for review; one copy will be returned with comments.

C. Manufacturer's Certificate: Certify that reinforcing steel and accessories and products supplied for this project meet or exceed specified requirements.

D. Reports: Submit certified copies of mill test report of reinforcement materials analysis.

E. Epoxy Anchors: Submit ICBO reports and manufacturer's installation instructions.

F. Mechanical Threaded Connections:

1. Current International Conference of Building Officials (ICBO) Research Report or equivalent code agency report listing findings to include acceptance, special inspection requirements, and restrictions.

2. Manufacturer's instructions.

3. Verification that device threads have been checked and meet all requirements for thread quality, in accordance with manufacturer's published methods.

1.05 QUALITY ASSURANCE

A. Perform work of this section in accordance with CRSI (DA4), CRSI (P1), ACI 301, ACI SP-66, ACI 318, and ASTM A 184/A 184M.

B. Welders' Certificates: Submit certifications for welders employed on the project, verifying AWS qualification within the previous 12 months.

PART 2 – PRODUCTS

2.01 REINFORCEMENT

A. Reinforcing Steel: ASTM A706 Grade 60 and A615 Grade 60, as specified on the Plans, shall be used. Bars shall be deformed in accordance with ASTM A305. Welded wire fabric shall conform to ASTM A185.

1. Deformed billet-steel bars.

2. Galvanized in accordance with ASTM A 767/A 767M, Class I.

3. Epoxy coated in accordance with ASTM A 775/A 775M.

4. Includes stirrups, ties, and spirals.

B. Welded Steel Wire Fabric: ASTM A 185, plain type.

1. Mesh Size and Wire Gage: As indicated on drawings.

C. Reinforcement Accessories:

1. Tie Wire:

a. Black, soft-annealed 16-gauge wire.

b. Nylon-, epoxy-, or plastic-coated wire.

D. Bar Supports and Spacers:

1. Precast concrete bar supports, cementitious fiber-reinforced bar supports, or all-plastic bar supports and side form spacers meeting the requirements of CRSI Manual of Standard Practice. Do not use other types of supports or spacers.

2. In Beams, Columns, Walls, and Slabs Exposed to View After Stripping: Small rectangular concrete blocks made up of same color and strength as concrete being placed around them or all-plastic bar supports and side form spacers.

3. Precast concrete supports of same strength as concrete for reinforcing in concrete placed on grade.

2.02 FABRICATION

A. Fabricate concrete reinforcing in accordance with ACI SP-66 - ACI Detailing Manual, ACI 318, and ASTM A 184/A 184M.

B. Welding of reinforcement is not permitted.

C. Locate reinforcing splices not indicated on drawings at point of minimum stress.

1. Review locations of splices with Engineer.

D. Bend all bars cold.

PART 3 – EXECUTION

3.01 PLACEMENT

A. Notify the Engineer when reinforcing is ready for inspection and allow sufficient time for inspection prior to placing concrete.

A. Place, support and secure reinforcement against displacement. Do not deviate from required position.

B. All steel reinforcements shall be placed as shown on the drawings, and to the latest methods of practice approved by the Concrete Reinforcing Steel Institute. Where splicing of reinforcing bars is permitted, no less than 38 bar diameters or 12", whichever is greater, shall be overlapped unless provided otherwise in the Plans, or elsewhere in the Specifications. Not more than every third bar may be spliced in any vertical plane. Splices shall be offset against one another a minimum of 38 bar diameters or 24", whichever is greater, unless shown otherwise on the Plans. Reinforcing bars in slabs on ground and in footings shall be supported on precast concrete blocks.

C. Clean metal reinforcement of loose mill scale, oil, earth, and other contaminants.

D. Do not displace or damage vapor barrier.

E. Accommodate placement of formed openings.

F. Maintain concrete cover around reinforcing as follows:

1. Beams:1-1/2 inch
2. Supported Slabs and Joists: 1-1/2 inch.
3. Column Ties: 1-1/2 inch.
4. Walls (exposed to weather or backfill): 2 inches.
5. Footings and Concrete Formed Against Earth: 3 inches.
6. Footings and Concrete Formed Against Backfill: 2 inches.
7. Slabs on Fill: 2 inches.

G. Conform to ACI 318 code for concrete cover over reinforcement.

H. Bundle or space bars, instead of bending where construction access through reinforcing is necessary.

I. Spacing and Positioning: Conform to ACI 318/318R.

J. Location Tolerances: In accordance with CRSI publication, "Placing Reinforcing Bars."

K. Mechanical Splices and Connections:

1. Use only in areas specifically approved in writing by the Engineer.
2. Install as required by manufacturer with threads tightened and in accordance with ICBO Research Report.
3. Maintain minimum edge distance and concrete cover.

L. Tying Deformed Reinforcing Bars:

1. Tie every other intersection on mats made up of Nos. 3, 4, 5, and 6 bars to hold them firmly at required spacing.
2. Bend all noncoated tie wire to prevent tie wire from being closer than 1 inch from the surface of concrete.

M. Reinforcement Around Openings: Place an equivalent area of steel bars or fabric around pipe or opening and extend as shown, on each side sufficiently to develop bond with each bar.

N. Straightening and Rebending: Field bending of reinforcing steel bars is not permitted.

O. Unless permitted by Engineer, do not cut reinforcing bars in the field.

3.02 FIELD QUALITY CONTROL

A. An independent testing agency, as specified in Section 01 45 00, will inspect installed reinforcement for conformance to contract documents before concrete placement.

END OF SECTION 03 21 00

SECTION 03 25 10

EXPANSION AND CONSTRUCTION JOINTS

PART 1 – GENERAL

1.01 DESCRIPTION

This section covers the work necessary to furnish, install and complete expansion and construction joints.

1.02 SUBMITTALS

Furnish shop drawings and manufacturer's technical literature showing that the materials meet all of the requirements specified herein. The OWNER, at their option, may take samples of any materials and have them tested by an independent testing laboratory to verify their compliance with these Specifications. All such costs shall be borne by the OWNER. If any materials should fail to meet these Specifications, all costs for further testing of the replacement material shall be borne by the CONTRACTOR.

1.03 OBSTRUCTIONS

CONTRACTOR shall pay particular attention to removing all obstructions such as concrete, nails, etc., from joints when movements of floor, wall and roof sections can be expected under prestressing, temperature, and other conditions.

PART 2 – PRODUCTS

2.01 JOINT SEALERS

A. Joints not requiring waterstops, or when so indicated on the Drawings, shall be sealed with a mastic joint sealer material of uniform, stiff consistency that does not contain solvents.

B. The mastic shall tenaciously adhere to primed concrete surfaces, shall remain permanently mastic and shall not contaminate potable water.

C. The material shall be of a type that will effectively and permanently seal joints subject to movements in concrete.

D. The mastic joint sealer shall be an acceptable two-part, self-leveling (or gun grade), non-staining, polyurethane elastomeric sealant which cures at ambient temperature. Acceptable sealants shall conform to ASTM C920 or Federal Specification TT-S-00227E.

E. For sloping joints, vertical joints and overhead horizontal joints, only "non-sag" compounds shall be used; all such compounds shall conform to the requirements of ANSI/ASTM C920 Class 12-1/2, or Federal Specification TT-S-0027 E(3), Type II.

F. For plane horizontal joints, the self-leveling compounds which meet the requirements of ANSI/ASTM C920 Class 25, or Federal Specification TT-S-0027 E(3), Type I shall be used. For joints subject to either pedestrian or vehicular traffic, a compound providing non-tracking characteristics, and having a Shore "A" hardness range of 25 to 35, shall be used.

G. Primer materials, if recommended by the sealant manufacturer, shall conform to the printed recommendations of the sealant manufacturer.

H. Acceptable polyurethane materials include but are not limited to: SIKAFLEX-1CSL as manufactured by SIKA CHEMICAL CORP. or approved equal.

2.02 PREFORMED JOINT FILLER

Preformed joint filler material shall be of the preformed non-extruding type joint filler constructed of cellular neoprene sponge rubber or polyurethane of firm texture. Bituminous fiber type will not be permitted. All non-extruding and resilient-type preformed expansion joint fillers shall conform to the requirements and tests set forth in ASTM D1752 for Type I, except as otherwise specified herein.

2.03 BACKING ROD

Backing rod shall be an extruded closed-cell, polyethylene foam rod. The material shall be compatible with the joint sealant material used and shall have a tensile strength of not less than 40 psi and a compression deflection of approximately 25 percent at 8 psi. The rod shall be 1/8-inch larger in diameter than the joint width except that a one-inch diameter rod shall be used for a 3/4-inch wide joint.

2.04 BOND BREAKER

Bond breaker shall be SUPER BOND BREAKER WATER BASE as manufactured by Burke Company, SELECT EMULSION CURE 309, as distributed by Select Products Co., (clear or white pigmented) or equivalent. Fugitive dye may be used in bond breakers if recommended by manufacturer.

PART 3 – EXECUTION

3.01 JOINT SEALERS

A. Joint sealed areas shall be sandblasted or roughened and blown clean of dust and sand with compressed air before the material may be applied.

B. Joints shall be primed (if required) and the sealant shall be applied in accordance with the manufacturer's recommendations.

3.02 CONSTRUCTION JOINTS

A. Construction Joints - Locate and install construction joints, which are not shown on the drawings, so as not to impair the strength and appearance of the structure, as acceptable to the OWNER.

B. Place construction joints perpendicular to the main reinforcement. Continue all reinforcement across construction joints where construction joint location does not coincide with control joint location.

C. Isolation Joints in Slabs-on-Ground - Construct isolation joints where shown on plans in slabs-on-ground at all points of contact between slabs on ground and vertical surfaces, such as column pedestals, foundation walls, grade beams and elsewhere as indicated.

D. Control Joints in Slab-on-Ground - Construct control joints in slabs-on-ground to form panels of patterns as shown. Use inserts 1/4 inch wide x 1/5 to 1/4 of the slab depth,

unless otherwise shown. Form control joints by inserting a premolded hardboard or fiberboard strip into the fresh concrete until the top surface of the strip is flush with the slab surface. After the concrete has cured, remove inserts and clean groove of loose debris. Alternately, control joints may be sawcut into the slab-on-ground as indicated on the Drawings.

END OF SECTION 03 25 10

SECTION 03 30 00

CAST-IN-PLACE CONCRETE

PART 1 – GENERAL

1.01 DESCRIPTION

The extent of concrete work is shown on the drawings. This section covers cast-in -place concrete including framework, shoring for concrete and installation into formwork of items such as anchor bolts, setting plates, bearing plates, anchorages, inserts, reveals, frames, nosings, sleeves and other items to be embedded in concrete.

1.02 SUBMITTALS AND MEETINGS

A. The following shall be submitted:

1. Shop Drawings shall show complete details and arrangement and bending of reinforcing and embedded items. Comply with the ACI 315 "Manual of Standard Practice for Detailing Reinforced Concrete Structures": showing bar schedules, stirrup spacing, diagrams of bent bars and arrangements of concrete reinforcement. Include special reinforcement required and openings through concrete structures.
2. Mix designs.
3. Certification of aggregate compliance with these Contract Documents, and source of supply and location of all materials and cement.
4. The CONTRACTOR shall schedule and attend a Concrete Placement meeting at least one week prior to placing concrete. The meeting shall be attended by the OWNER, ENGINEER, CONTRACTOR, Testing Laboratory Representative, and the Concrete Supplier. The following shall be discussed at the meeting: Safety, Batching and Delivery, Adjustments to Mix; Site Dosing, Placement Rates and Anticipated Schedule of Placing and Finishing, Site Layout –Holding Area; Pump Truck Location; Truck Wash-out Area; Parking area, Equipment – Pumps and Appurtenances; Vibrators; Spare Equipment, Concrete Testing Procedures and Curing.

1.03 QUALITY ASSURANCE

A. Concrete Installer Qualifications -- The Installer must be capable of performing the various items of work as specified. CONTRACTOR shall furnish a statement detailing the Installer's experience on similar work, a list of machinery and equipment available for the proposed work, and a statement of the Installer's ability and experience in performing similar concrete work. The Installer shall have a minimum of five (5) years practical experience and a successful history in the installation of concrete for similar structures. Upon request, the CONTRACTOR shall substantiate this requirement by furnishing a list of references for the Installer which shall include jobs of a similar nature for other municipal or public works projects.

B. Codes and Standards - Comply with the provisions of the following codes, specifications, and standards, except as otherwise shown or specified.

C. American Society for Testing and Materials (ASTM)

1. C31 Making and Curing Concrete Test Specimens in the Field.
2. C33 Specification for Concrete Aggregate.
3. C39 Compressive Strength of Cylindrical Concrete Specimens.
4. C40 Organic Impurities in Fine Aggregate for Concrete.
5. C85 Cement Content of Hardened Portland Cement Concrete.
6. C88 Soundness of Aggregates by use of Sodium Sulfate or Magnesium Sulfate.
7. C94 Standard Specifications for Ready-Mixed Concrete.
8. C131 Resistance to Degradation of Small Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine.
9. C136 Method for Sieve Analysis to Fine and Coarse Aggregate.
10. C143 Slump of Portland Cement Concrete.
11. C150 Standard Specification for Portland Cement.
12. C156 Water Retention by Concrete Curing Materials.
13. C173 Air Content of Freshly Mixed Concrete by the Volumetric Method.
14. C231 Air Content of Freshly Mixed Concrete by the Pressure Method.
15. C233 Standard Method of Testing Air-Entraining Admixtures for Concrete.
16. C260 Standard Specifications for Air-Entraining Admixtures for Concrete.
17. C289 Standard Test Method for Potential Reactivity of Aggregates (Chemical Method).
18. C441 Standard Test Method for Effectiveness of Mineral Admixtures in Preventing Excessive Expansion of Concrete Due to the Alkali-Aggregate Reaction.
19. C457 Microscopical Determination of Air-Void Content and Parameters of the Air-Void System in Hardened Concrete.
20. C494 Standard Specifications for Chemical Admixtures for Concrete.
21. C670 Preparing Precision Statements for Test Methods for Construction Materials.
22. C803 Penetration Resistance of Hardened Concrete.

D. American Concrete Institute (ACI)

1. Specifications for Structural Concrete for Buildings, ACI 301 as supplemented and modified herein.

2. Recommended Practice for Selecting Proportions for Normal and Heavyweight Concrete, ACI 211.1.

E. Forming

1. Submit shop drawings for fabrication and erection of specific finished concrete surfaces as shown or specified. Show the general construction of forms including

jointing, special formed joints or reveals, location and pattern of form tie placement and other items which affect the exposed concrete visually.

2. Forming, shoring, and bracing designs for footings and walls shall be designed by the CONTRACTOR to meet all requirements specified here-in.

3. If requested by the OWNER, drawings and calculations shall be submitted verifying the selection of form ties, horizontal and vertical stiff-backs, or braces for wall panels, forming and form openings, or any other part of forming, shoring, or bracing which may be considered critical by the OWNER.

4. The CONTRACTOR shall be solely responsible for the adequacy of the forming, shoring and bracing design.

5. Any formwork installed by CONTRACTOR shall be solely at CONTRACTOR's risk. The OWNER's review will not lessen or diminish the CONTRACTOR's liability.

1.04 CONCRETE MIX DESIGNS

A. All concrete materials shall be provided by a ready-mix plant, proportioned so as to produce a workable mixture in which the water content will not exceed the maximum specified.

B. Submit Certified Concrete mix design with break history. If the concrete mix designs specified herein have not been used previously by the ready-mix supplier, mix proportions and concrete strength curves for regular cylinder tests, based on the relationship of 7-, 14- and 28-day strengths versus slump values of 2, 4, and 6 inches, all conforming to these Specifications, shall be established by an approved ready-mix supplier or an independent testing laboratory. A laboratory, independent of the ready-mix supplier, shall be required to prepare and test all concrete cylinders.

C. The costs for preparation of mix designs (if required by the OWNER to be performed by an independent testing laboratory) and testing of concrete and materials shall be borne by the OWNER, except when materials do not meet specified requirements, in which case such costs shall be borne by the CONTRACTOR.

D. The exact proportions by weight of all materials entering into the concrete delivered to the jobsite shall conform to the approved mix design unless specifically so directed by the OWNER or Laboratory for improved specified strength or desired density, uniformity and workability.

E. The proportions of such mix design shall be based on a full cubic yard of hardened concrete.

F. Furnish delivery tickets from the ready-mix plant. Tickets shall be signed by a Certified Weighmaster and shall state the weight of aggregates, sand, cement, admixtures and water and the number of cubic yards of concrete furnished. This will be compared against the approved mix design. Delivery tickets must also state the time the batch was mixed, the approved mix number and amount of mix water that can be added onsite without exceeding the water/cement ratio.

G. There shall be no variation in the weights and proportions of materials from the approved mix design.

H. There shall be no variation in the quality and source of materials once they have been approved for the specific mix design.

1.05 READY-MIXED CONCRETE

Ready-mixed concrete shall conform to the requirements of ACI 301 and ASTM C94. In case of conflict, ACI 301 shall govern.

PART 2 – PRODUCTS

2.01 CONCRETE COMPOSITION

Concrete shall be composed of Portland cement, fine aggregate, coarse aggregate, water, and specified additives so proportioned and mixed as to produce a plastic workable mixture in accordance with requirements of this section of the specification and suitable to the specific conditions of placement.

2.02 PORTLAND CEMENT

A. Portland cement shall be from an approved source and shall conform to the requirements of the current ASTM Specification C150, for Type II cement. Only one brand of cement from one manufacturing plant may be used. The use of ground granulated blast furnace slag is not allowed.

B. Certified mill certificates shall be furnished by the cement company with every shipment, giving proof that the above requirements have been met.

C. In addition, the OWNER may conduct, at its own expense, any tests it considers necessary, to insure that the cement furnished meets the specified requirements.

D. Any cement not meeting the Specifications will be rejected.

E. The OWNER may direct the use of Portland cement of a type other than that above specified, in which case it will pay the additional cost, if any, for the cement required over the cost of that specified or shall receive appropriate credit for any cement required of a lesser cost than specified.

2.03 FINE AND COARSE AGGREGATES

A. Aggregates shall conform to ASTM C33 and as herein specified. Provide aggregates from a single source for all exposed concrete.

B. Fine aggregates shall be clean, sharp, natural sand free from loam, clay, lumps, or other deleterious substances and consisting of hard, strong, durable and uncoated particles.

C. Material removable by decantation from fine aggregate shall not exceed five percent (5%) by weight.

D. The moisture content of fine aggregate shall not exceed eight (8%) by weight at the time the aggregate is used for the concrete.

E. Fine aggregate shall be subjected to careful, thorough analysis to determine conformity with all requirements of these specifications.

F. Coarse aggregate shall be washed gravel or crushed stone consisting of hard, tough, durable particles free from adherent coating. Use of pit or bankrun gravel is not permitted.

G. It shall contain no vegetable matter of soft, friable, thin, flat or elongated particles in quantities considered deleterious.

H. A thin, flat or elongated particle is defined as a particle having a maximum dimension in excess of five times its minimum dimension.

I. Aggregate which has disintegrated or weathered badly under exposure conditions similar to those which will be encountered in the work under consideration shall not be used.

J. When crushed stone is used, the crusher shall be equipped with a screening system which will entirely separate the dust from the stone and convey it to a separate bin.

K. The substances designated shall not be present in excess of the following amounts:

1. Soft fragments 5%
2. Clay lumps 1.4%
3. Material removed by decantation 1%

L. When the material removed by decantation consists essentially of crushed dirt, the maximum amount permitted may be raised to one and one-half percent (1-1/2%).

M. The maximum size aggregate shall be 1-inch and the aggregate shall be uniformly well graded from coarse through fine in accordance with the following schedule.

Sieve Size	Percent Passing
1	100
¾	70 - 90
3/8	45 - 65
N0. 4	31 - 47
No. 8	23 - 40
No. 16	17 - 35
No. 30	10 - 23
No. 50	2 - 10
No 100	0 - 3
No. 200	0 - 2

2.04 WATER

Water for mixing shall be clean, fresh and free from injurious amounts of oil, acid, chlorides, sulfates, alkali or organic matter. Water shall conform to ACI 301.

2.05 ADMIXTURES - GENERAL

All admixtures used in any mix design shall be manufactured and supplied by the same admixtures company to insure compatibility.

2.06 RETARDING DENSIFIERS

A. All Class "A" concrete (as defined in 2.9 below) used for wall construction shall also contain DARATARD-17, as manufactured by Grace Construction Products or approved equal in the amounts recommended by the additive manufacturer whenever the air temperature during the pour exceeds 85° F.

B. To be considered as equal, any alternate product offered for consideration shall contain no calcium chloride and shall be compatible with air-entrained cements and air-entraining admixtures conforming to the applicable ASTM, AASHTO, ANSI and Federal specifications.

C. CONTRACTOR shall certify that admixtures do not contain calcium chlorides or other corrosive materials.

2.07 AIR-ENTRAINING AGENTS

A. Unless specifically required by OWNER, Class "A" concrete shall not be air-entrained. All exterior sidewalks or pads shall be air-entrained.

B. Air-entraining agents shall meet ASTM C260, ASTM C233 and ASTM C457.

C. The maximum total volumetric air content of the concrete before placement shall be 6 percent plus or minus one percent as determined by ASTM C173 or ASTM 231.

D. Subject to these Specifications, consideration will be given to the following products: PROTEX "AES," GRACE "DAREX AEA," MASTER BUILDERS "MB-AE90," SIKA CHEMICAL "AER," or approved equal.

2.08 WATER REDUCING ADMIXTURES

A. In addition to air-entrainment, approved water reducing additives, which do not affect the ultimate performance of any steel in any way, may be added to maintain the maximum water content below that specified herein. Water reducing additives shall conform to ASTM C494, Type A or D.

B. The use of water reducing additives shall not permit a reduction in the minimum specified cement content or in the specified amount of air-entrainment.

C. Admixtures shall contain no calcium chloride, tri-ethanolamine or fly ash. All admixtures shall be from the same manufacturer.

D. Superplasticizers, if allowed by the OWNER, shall conform to ASTM C494, Type F or G, batch plant added using second or third generation only.

E. Set control admixtures if allowed by the OWNER, shall conform to ASTM C494, Type B (retarding) or Type C (accelerating).

2.09 PROPORTIONING NORMAL CONCRETE

Unless indicated otherwise on the Drawings, concrete shall be of the following classes, each meeting the mix and compressive strength requirements as specified hereafter, and shall be used as follows:

1.	Class "A"	Subgrade walls, foundation, subgrade slab, Slabs on grade

2. Class "B" Not Used

3. Class "C" Pipe blocks, miscellaneous slabs, sidewalks, electrical panel slabs and appurtenances

At the CONTRACTOR's option, Class "A" concrete may be substituted for Class "B" and "C" concrete. Likewise, Class "B" concrete may be used in lieu of Class "C" concrete. If Class "A" concrete is substituted for Class "B" or Class "C" concrete, such concrete shall be air-entrained if the Class "B" or "C" concrete is required to be air-entrained.

2.10 MEASUREMENT

A. All measurements shall be by weight. However, the CONTRACTOR, at the CONTRACTOR's expense, may increase the cement content at a corresponding reduction in weight of aggregate and sand whenever concerned that the minimum strength and mix ratio requirements under these specifications can not be met. The amount of water to be used shall be the amount necessary to produce a plastic mixture of the specified slump.

B. The slump shall be between three inches and five inches when tested in accordance with ASTM Specifications C143. Variations in the slump range may be allowed by the OWNER if admixtures, such as water reducers or superplasticizers, are utilized in the concrete mix. Regardless of the measured slump, the maximum allowable water-cement ratios as specified here-in, shall be strictly adhered to.

2.11 COMPRESSIVE STRENGTH, WATER AND CEMENT CONTENT

A. Not withstanding what has been stated here-before, and unless shown otherwise on the Drawings, the concrete shall meet the following requirements:

	Class A	Class B	Class C
1. Min. Compressive Strength	4,000 psi	4,000 psi	4,000 psi
2. Max. Water/Cement Ratio	0.47	0.47	0.47
3. Min. Cement Content (94 lb. sack of cement per cubic yard of solid concrete)	7.0 sacks	6.5 sacks	6.0 sacks
4. The cement content is required irrespective of strength. Up to a maximum of 15% of cementatious material may be fly ash in accordance with ASTM C618. All cementitious material must be Portland Cement. The use ground granulated blast furnace slag is not allowed.			
5. The total chloride ion content of hardened concrete shall be less than 0.06 percent by weight of cement.			

2.12 WALL FORMS

A. Full Height Pours: The wall form design shall be such that wall sections can be poured full height without creating horizontal cold joints and without causing snapping of form ties which shall be of sufficient strength and number to prevent spreading of the forms during the placement of concrete, and which shall permit ready removal of the forms without spalling or damaging the concrete.

B. Ties

1. Form ties which remain in the corewall of water-retaining structures shall have waterstops. Cone depth or breakback depth shall be 1-1/2" minimum, unless stainless steel ties are used in which case the metal may be within 1" of any surface.
2. Snap ties, if used, shall not be broken until the concrete has reached the design concrete strength. Snap ties, designed so that the ends must be broken off before the forms can be removed, shall not be used. The use of tie wires as form ties will not be permitted. Fully threaded stub bolts may be used in lieu of smooth ties with waterstops.
3. Taper ties with plastic or rubber plugs of an approved and proven design may also be used. The plugs must be driven into the hole with a steel rod, placed in a cylindrical recess made therefore in the plug. At no time shall plugs be driven on the flat area outside the cylindrical recess. Plugs shall be A-58 SURE PLUG as manufactured by DAYTON SUPERIOR.
4. Ties shall positively secure the wall to the required dimension and hold the wall to that dimension prior to and during concrete placement.

C. Form Size

1. BURKE, ECONOMY, SYMONS, ALUMA, and overlaid plywood complying with U.S. Product Standard PS-1 "B-B High Density Overlaid Concrete Form," Class 1, forms may be used for forming of walls.
2. The height of such wall panels shall not exceed 8 feet unless built-in pouring openings are incorporated in such walls.

D. Form Stiffeners

1. Horizontal walers shall consist of structural steel channels, angles or tubing of adequate size to retain the concrete without deflecting.
2. The walers shall be rolled or welded to the proper radii or offset brackets shall be used for shaping the wall to the dimensions shown on the Drawings and shall be used both for inside and outside wall forms in direct contact with the wall panels and at vertical spacings of no more than 96 inches on center.
3. There shall be at least one such waler within 24 inches of the top and bottom of the wall.
4. The largest dimension of the steel waler shall be in the radial direction.
5. Vertical structural steel or wood members shall be used at a minimum horizontal spacing of 74 inches and shall have sufficient rigidity and strength to insure the proper vertical alignments with the aid of braces under all predictable stress conditions.
6. In lieu of the above, a different system and spacings may be used if it is satisfactorily demonstrated to the OWNER that it will be equally effective.

2.13 FORM OIL

Form oil compounds shall be provided which will not adversely affect finished concrete surfaces by bonding or staining. Selected form coating shall not adversely affect application of curing compounds or future application of bonding or adhesive products.

2.14 CURING COMPOUND

A. All horizontal, screeded and floated surfaces, exposed to drying winds and sunlight, shall be sprayed with ATLAS QUANTUM-CURE as manufactured by Atlas Construction Supply, Inc. (application rate: 200 sf/gallon). Application of the curing compound shall conform to the requirements of 033000-3.11.

B. Alternate curing compounds will be accepted if they are pigmented or colored, such as white, at the time of application. Regardless of the type of curing compound used, CONTRACTOR shall assume complete responsibility for its adequacy.

2.15 VAPOR BARRIER

A. Stego Wrap Class A 10 mils with Tape Joint.

PART 3 – EXECUTION

3.01 CONCRETE QUALITY

A. The required proportions shall be assembled, well mixed, transported, placed, consolidated, finished, and cured as here-in-after specified. Concrete shall be uniformly dense and sound, free from faults, cracks, voids, honeycomb, and other imperfections.

B. If not called for specifically, and unless specified otherwise hereunder, concrete requirements shall follow ACI 301 where applicable.

3.02 MIXING

A. On-site mixing shall not be allowed. Only concrete from ready-mix plants shall be used for this work.

B. Ready-mixed Concrete

1. Provide central-mixed concrete conforming to ASTM C94 except as modified by these Specifications.

2. Limit the haul time of central-mixed concrete so that the specified slump is attained without the onsite addition of water which will cause the mix design water-cement ratio to be exceeded. In no event shall the time exceed 90 minutes from the batch plant to the completion of the pour, unless specifically approved by the OWNER.

3. Use truck-transported, dry-batched concrete or mix on the jobsite when haul time is excessive. Do not retemper partially hardened concrete.

3.03 PROTECTION FROM ABRASION OR FIRE

A. Every reasonable precaution shall be taken to protect finished surfaces from abrasion or other damage. Concrete surfaces or edges likely to be injured during the construction period shall be protected by leaving the forms in place or by erecting

satisfactory covers. No fire shall be permitted in direct contact with concrete at any time.

3.04 PLACEMENT OF CONCRETE

A. Placement shall conform to ACI 304 except as modified by these Specifications.

B. Notify the OWNER of readiness, not just intention, to place concrete in any portion of the work. This notification shall be made a minimum of 48 normal working day hours prior to proposed concrete placing. All forms, steel, anchors, ties, inserts, and other embedded items shall be in place before the CONTRACTOR's notification of readiness is given to the OWNER.

C. Schedule sufficient equipment for continuous concrete placing, program backup equipment, and the actions to be taken in case of an interruption in placing. Provide extra concrete vibrators. Test the concrete vibrators the day before placing concrete.

D. Concrete in walls shall not be placed in layers thicker than 24 inches (vertical dimension) at any one time except that the bottom layer shall be no thicker than 12 inches.

E. Each layer of concrete in walls shall be vibrated thoroughly before the next layer may be placed thereon. Vibrators shall be taken through the top layer down through the full layer thickness below to insure proper integration of the concrete and to avoid the development of cold joints and honeycomb between the layers. In other words, each layer of concrete shall be vibrated at least twice.

F. Each wall footing and wall section shall immediately be preceded with a cement/sand slurry mix consisting of equal parts cement and sand in combination with 4.5 gallons of water per sack of cement. The thickness of the slurry shall be 1 inch average for the wall and columns and 1/2 inch average for the wall and column footings.

G. Unforeseen cold joints in walls shall be roughened and then covered with a pure mixture of cement and water of approximately 1 inch thickness, before the pour may be continued.

H. Horizontal waterstops where shown on the Drawings, shall be lifted up, then the concrete shall be placed under the waterstop, the waterstop shall then be laid down on that concrete, additional concrete shall be placed on top of that waterstop to the approximate finish level of the concrete, where upon the concrete shall be thoroughly vibrated in one continuous motion from one end of the waterstop to the other end without skipping any areas. Visual observation shall be performed by the CONTRACTOR to certify that voids under waterstops do not exist.

I. Cold joints in floors and in wall shall be avoided at all costs. Joints shall be continuously covered with new concrete, and shall be thoroughly integrated through vibration, even if it means that horizontal passes of only 6 inches in width be made until additional concrete and equipment becomes available to permit wider passes in concrete placement.

J. Use mechanical vibration in placing concrete to eliminate rock pockets and voids, to consolidate each layer with that previously placed, to completely embed reinforcing bars and fixtures, and to bring just enough fine material to exposed surfaces to produce a smooth, dense, and even texture. Vibrators shall be of the high-frequency

internal type, and the number in use shall be ample to consolidate the incoming concrete to a proper degree within 15 minutes after it is deposited in the forms. In all cases, at least three (3) operable vibrators shall be available at the site. Use external vibrators for consolidating concrete when the concrete is otherwise inaccessible for adequate consolidating, provided the forms are constructed rigidly enough to resist displacement or damage from external vibration.

K. If avoidable, do not place concrete during rainstorms. Protect concrete placed immediately before rain to prevent rainwater from coming in contact with it. Keep sufficient protective covering on hand at all times for this purpose.

L. Concrete placed for encasement shall not be backfilled until the concrete has reached at least 50% of its 28-day compressive strength confirmed by concrete cylinder tests. The CONTRACTOR may mold and cure additional concrete cylinders as specified here-in to verify that the 50% strength has been achieved, prior to the required 7-day test. The CONTRACTOR shall keep the trench dewatered until that time. The CONTRACTOR may use type III cement (High Early Strength) in lieu of type II cement in the same batch quantities as specified, but there will be no additional reimbursement to the CONTRACTOR for costs incurred using such concrete.

3.05 PUMPING CONCRETE

A. Base pump size on the rate of concrete placement, length of delivery pipe or hose, aggregate size, mix proportions, vertical lifts, and slump of concrete. The minimum inside diameter of pipe or hose shall be based on the maximum aggregate size as follows:

- 1½”-inch maximum aggregate: 4 inches minimum I.D.
- 1”-inch maximum aggregate: 3 inches minimum I.D.

B. Do not use aluminum pipes for delivery of concrete to forms.

C. Before pumping is started, prime the delivery pipe or hose by pumping mortar through the line using 5 gallons of mortar for each 50 feet of delivery line. Do not deposit mortar in the forms.

3.06 GENERAL FORMING

A. Purpose

1. Forms shall be used, whenever necessary, to confine the concrete, to shape the concrete to the required lines and grades, and to obtain a thoroughly compacted dense concrete through proper vibrating. Construct forms complying with ACI 347.

2. The forms shall have sufficient strength and rigidity to hold the concrete and to withstand the necessary pressure, tamping and vibration, without deflection from the prescribed lines.

B. Design

1. The surfaces of all forms in contact with the concrete shall be clean, rigid, tight, and smooth.

2. Openings sufficient in size and number to permit convenient access to properly clean, inspect and place concrete within the forms shall be provided.

3. Exposed sharp edges shall be eliminated from finished concrete work by means of 3/4 inch triangular fillets or chamfer strips placed in the forms.

C. Removal

1. All forms shall be removed before backfilling is placed.

2. Forms shall be so constructed that they can be removed without hammering on, or prying against, the concrete and shall be removed in such a manner as to prevent damage to the concrete and to ensure the complete safety of all parts of the structure.

D. Form-Ties and Seepage

1. Form-ties may be loosened temporarily to permit the removal of bulkheads.

2. All forms, whether prefabricated or custom made, shall be assembled, and connected in such a manner that only minor mortar seepage through the joints will occur during vibration of the concrete, which shall be small enough that no honeycomb areas will develop.

E. Clean and Oil

1. All dirt, chips, sawdust, mud, water, and other foreign matter shall be removed from within the forms or within the excavated areas before any concrete is deposited therein.

2. Forms previously used shall be thoroughly cleaned of all dirt, mortar, and foreign matter before being reused.

3. Before concrete is deposited within the forms, all inside surfaces of steel and plywood form surfaces shall be thoroughly, but not excessively, coated with an approved non-staining bond releasing form oil.

3.07 SURFACE FINISHES

A Smooth Form Finish

Provide as-cast smooth form finish for formed concrete surfaces that are to be exposed to view, or that are to be covered with a coating material applied directly to the concrete, or a covering material bonded to the concrete such as waterproofing, dampproofing, painting or other similar system.

Produce smooth form finish by selecting form material to impart a smooth, hard, uniform texture and arranging them orderly and symmetrically with a minimum of seams. Repair and patch defective areas with all fins or other projections completely removed and smoothed.

Curb finishes: Curbs shall be screeded off accurately to true lines and planes or warped surfaces as indicated or directed. Finish smooth. Arises shall be true and straight or properly eased where curved and neatly rounded with approved tool. Smooth trowel finish with corners rounded to 3/4 inch radius.

B. Wood-Float Finish

1. This requires an integral finish by wood-float after screeding, to compact the surface evenly.

2. Any excess surface water shall be removed before floating and no mortar shall be used for leveling.
3. Apply float finish to monolithic slab surfaces that are to receive trowel finish and other finishes as hereinafter specified, and slab surfaces which are to be covered with membrane or elastic waterproofing, membrane or elastic roofing or sand bed terrazzo, and as otherwise shown on drawings or in schedules.
4. After placing concrete slabs, do not work the surface further until ready for floating. Begin floating when the surface water has disappeared or when the concrete has stiffened sufficiently to permit the operation of a power-driven float, or both. Consolidate the surface with power-driven floats, or by hand-floating if area is small or inaccessible to power units. Check and level the surface plane to a tolerance not exceeding 1/4 inch in 10 feet when tested with a 10 foot straightedge placed on surface at not less than two different angles. Cut down high spots and fill at low spots. Uniformly slope surfaces to drains. Immediately after leveling, refloat the surface to a uniform, smooth, granular texture.

C. Steel Trowel Finish

1. This shall be an integral finish obtained by trowelling with a steel trowel after the surface has been floated and allowed to stand until all water-sheen has disappeared.
2. Final trowelling shall be done after the concrete has hardened sufficiently to prevent drawing moisture and fine materials to the surface and when the concrete is sufficiently hard that no mortar accumulates on the trowel.
3. Cement or mixture of cement and sand, shall not be spread on surfaces to absorb excess water or to stiffen the concrete.
4. Trowelling shall produce a dense, smooth, impervious surface free from defects and blemishes.
5. All finished top surfaces of wall and wall-corbel (if required), column-footings (if required) and floors shall receive a smooth, even, level and hard (so called "burnt") steel trowel finish. The entire wall footing surface, particularly along each side of the circumferential waterstop in the area to receive neoprene pads, shall also receive a hard steel trowel finish.

D. Non-Slip Broom Finish:

1. Apply non-slip broom finish to exterior and interior concrete platforms, steps and ramps and elsewhere as shown on the drawings or in schedules.
2. Immediately after trowel finish, slightly roughen the concrete surface by brooming in the direction perpendicular to the main traffic route. Use fiber-bristle broom unless otherwise directed. Coordinate the required final finish with the OWNER before application.

E. Unformed Surfaces

Unformed surfaces which will not be exposed in the completed work shall be brought to required finished elevations and left true and regular.

F. Screeds

1. Sufficient screeds, unaffected by form deflections under concrete loads, shall be installed to ensure an even concrete surface, true to grade and elevation, without unacceptable local depressions of any sort.
2. Screeds shall be set to the required levels and be approved by the OWNER before any concrete may be placed.

G. Form Tie Holes

1. Tie holes shall be thoroughly sandblasted or roughened. After the taper tie holes have been cleaned, plugs as specified shall be installed. The tie holes shall then be coated with a water insensitive epoxy or an acceptable bonding agent and properly filled through damp-packing with a mortar of dry consistency and a mix of one part of cement to one part sand. The amount of water to be added to the cement-sand mix shall be such that the mortar can be driven into the voids and will compact properly. The outside of the tie hole shall be drypacked no sooner than 7 days after the inside has been drypacked.
2. Embeco or other fast-setting cements/additives shall not be used for damp-packing such cavities.
3. Interior wall surfaces which have been damp-packed shall be covered with an approved 10 mil. thick water insensitive non-sag epoxy coating, which shall conform to the requirements of Section 03 30 00. Finished surfaces shall be free from sand streaks or other voids.

H. Abrasive Blasting

1. The surface of poured concrete wall areas which will receive paint or protective coating shall be abrasive blasted, regardless of the forming method used, by a mechanical etching or shot blast system combined with a vacuum recovery system, or a self-contained waterblasting system.
2. The surface shall be blasted sufficiently to remove all laitance, form oil or other type coatings.
3. The surface shall be cut sufficiently to provide a good mechanical bond between the coating and the concrete wall.

I. Honeycombed areas

1. Unless the removal of one or more defective panels is required by the OWNER, defective surfaces, such as honeycomb, shall be cut out entirely until homogeneous concrete is met, even if it means going through the entire wall or floor slab. Removal of defective areas must be performed in a way as to avoid damage to all embedded items such as reinforcing steel, vertical threadbars, waterstops or any other items.
2. Such areas shall be coated with an approved epoxy or adhesive bonding material, which shall be applied in accordance with the manufacturer's instructions, before damp-packing the area with a mix consisting of one part of Portland cement and two parts of sand and fine gravel, epoxy and sand mix, or any combination of materials and mixes as the situation dictates in the opinion of the OWNER.

3. The water content of the damp-pack material shall be such that a ball of the mix may be squeezed in the hand without bringing free water to the surface.
4. Damp-pack material shall be tamped into place and finished to match adjacent concrete surfaces.
5. Particular care shall be taken that no sagging of the material will occur.
6. The bond between any two layers of damp-pack shall be improved through the use of an approved epoxy bonding agent.
7. Surfaces which have been damp-packed shall be kept continuously damp during, and for a period of not less than seven days after completing the damp-pack operation, by the curing procedure described below in Section 03 30 00 - 3.11.
8. Under no circumstances shall CONTRACTOR apply a plaster coat over the honeycomb areas to conceal the existence of the honeycomb in the concrete.
9. Neither Embeco, calcium chloride nor fast-setting cements/additives shall be used for filling honeycomb areas, nor shall they be mixed with damppack material. CONTRACTOR shall provide certification that any material placed on or in the corewall shall be free of chlorides and other materials corrosive to prestressing steel.
10. Determination of defective areas is at the discretion of the OWNER.

J. Miscellaneous Surfaces

Miscellaneous surfaces that are not covered herein and not specifically designated on the Drawings shall be finished as directed by the OWNER.

K. Schedule of Finishes

Surface Description	Finish Required
Interior Horizontal Slabs	Smooth Steel Trowel Finish
Exterior Horizontal Slabs	Non-Slip Broom Finish
Concrete Walls, not exposed to view	None
Concrete Walls, exposed to view	Smooth formed and grouted cleaned.

3.08 CURING

A. Curing of slab concrete shall be shall be wet type in accordance with Section 5.3.6.4 B of ACI 301 “Specifications for Structural Concrete” and ACI 308R-01

B. The CONTRACTOR shall begin curing immediately after initial concrete set has occurred. Exposed concrete surfaces shall be kept moist during finishing operations prior to initiating specified curing procedures.

C. Curing of the floor slabs shall be made by covering the slab with curing blankets, which incorporate a water-containing felt or burlap element and a white plastic cover, and kept continuously wet for a period of no less than 7 days (168 hours). After removal of curing blankets the slab shall be sprayed with a curing compound as specified herein.

D. All other horizontal, screeded and floated surfaces, exposed to drying winds and sunlight, shall be sprayed with a curing compound as specified herein at an application rate of 200 sf per gallon or more as recommended by the manufacturer.

E. Water for curing shall be clean and free from any elements which might cause staining or discoloration of the concrete.

F. All formed concrete surfaces shall be sprayed with a concrete curing compound as specified herein at an application rate of 200 sf per gallon, or as recommended by the product manufacturer, whichever provides the most coverage. This requirement will be waived if the forms have been left in place for at least 7 days.

3.09 CONCRETE SURFACE REPAIRS

A. Patching Defective Areas

1. Repair and patch defective areas with cement mortar immediately after removal of forms but only when directed by the OWNER.

2. Cut out honeycomb, rock pockets, voids over ½-inch diameter and holes left by tie rods and bolts down to solid concrete but, in no case, to a depth of less than 1 inch. Make edges of cuts perpendicular to the concrete surface. Before placing the cement mortar, thoroughly clean, dampen with water and brush-coat the area to be patched with neat cement grout. Proprietary patching compounds may be used when acceptable to the OWNER.

3. For exposed-to-view surfaces, blend white Portland cement and standard Portland cement so that, when dry, the patching mortar will match the color of the surrounding concrete. Provide test areas at inconspicuous location to verify mixture and color match before proceeding with the patching. Compact mortar in place and strike off slightly higher than the surrounding surface.

4. Fill holes extending through concrete by means of a plunger type gun or other suitable device from the least exposed face, using a flush stop held at the exposed face to ensure complete filling.

B. Repair of Formed Surfaces

1. Repair exposed-to-view formed concrete surfaces that contain defects, which adversely affect the appearance of the finish. Remove and replace the concrete having defective surfaces if the defects cannot be repaired to the satisfaction of the OWNER. Surface defects, as such, include color and texture irregularities, cracks, spalls, air bubbles, honeycomb, rock pockets, and holes left by the rods and bolt; fins and other projections on the surface; and stains and other discolorations that cannot be removed by cleaning.

2. Repair concealed formed concrete surfaces that contain defects that adversely affect the durability of the concrete. If defects cannot be repaired, remove and replace the concrete having defective surfaces. Surface defects, as such, include cracks in excess of 0.01 inch wide, cracks or any width and other surface deficiencies which penetrate to the reinforcement or completely through non-reinforced sections, honeycomb, rock pockets, holes left by tie rods and bolts, and spalls except minor breakage at corners.

C. Repair of Unformed Surfaces

1. Test unformed surfaces, such as monolithic slabs, for smoothness and to verify surface plane to the tolerances specified for each surface and finish. Correct low and high areas as herein specified.
2. Test unformed surfaces sloped to drain for trueness of slope, in addition to smoothness, using a template having the required slope. Correct high and low areas as herein specified.
3. Repair finished unformed surfaces that contain defects, which adversely affect the durability of the concrete. Surface defects, as such, include crazing, cracks in excess of 0.01 inch wide or which penetrate to the reinforcement or completely through non-reinforced sections regardless of width, spalling, popouts, honeycomb, rock pockets and other objectionable conditions.
4. Correct high areas in unformed surfaces by grinding, after the concrete has cured sufficiently so those repairs can be made without damage to adjacent areas.
5. Correct low areas in unformed surfaces during or immediately after completion of surface finishing operations by cutting out the low areas and replacing with fresh concrete. Finish repaired areas to blend into adjacent concrete. Proprietary patching compounds may be used when acceptable to the OWNER.
6. Repair defective areas, except random cracks and single holes not exceeding 1-inch diameter, by cutting out and replacing with fresh concrete. Remove defective areas to sound concrete with clean, square cuts, and expose reinforcing steel with at least 3/4 inch clearance all around. Dampen all concrete surfaces in contact with patching concrete and brush with a neat cement grout coating, or use concrete bonding agent. Place patching concrete before grout takes its initial set. Mix patching concrete of the same material to provide concrete of the same type or class as the original adjacent concrete. Place, compact and finish as required to blend with adjacent finished concrete. Cure in the same manner as adjacent concrete.
7. Repair isolated random cracks and single holes not over 1 inch in diameter by the dry-pack method. Groove the top of cracks and cut out holes to sound concrete and clean off dust, dirt and loose particles. Dampen all cleaned concrete surfaces and brush with a neat cement grout coating. Place dry-pack before the cement grout takes its initial set. Mix dry-pack, consisting of one part Portland cement to 2-1/2 parts fine aggregate passing a No. 16 mesh sieve, using only enough water as required for handling and placing. Compact dry-pack mixture in place and finish to match adjacent concrete. Keep patched areas continuously moist for not less than 72 hours.
8. Repair methods not specified above may be used subject to the acceptance of the OWNER. Alternate repair methods must be submitted and approved by the OWNER prior to installation.

3.10 CONCRETE TESTS

A. Compression tests shall conform to ASTM C39, ASTM C670 and ASTM C803.

B. Proportioning (or chemical analysis) tests shall conform to ASTM C85.

C. Air content: ASTM C231, pressure method; one for each set of compressive strength test specimens. If air content is found to be out of conformance during site concrete testing, air content will be checked for every 9cy truck delivered to the site until 3 consecutive trucks are found to have air content meeting the specification. Testing will then return to rate outlined previously

D. Slump Test: ASTM 143; one test for each concrete load at point of discharge; and one for each set of compressive test specimens.

E. At least one slump test and five test cylinders shall be made, under the supervision of the OWNER, by an approved testing lab for every 40 cubic yards of ready-mixed concrete delivered to the jobsite. Each cylinder shall be coded to identify the date of delivery, the truck number, the location where the concrete has been used and the slump measured upon discharge. For each reservoir wall section, two sets of five cylinders shall be made. When the frequency of testing will provide less than five strength tests for a given class of concrete, conduct testing from at least five randomly selected batches or from each batch if fewer than five are used.

F. The specimens shall be standard test cylinders, six inches in diameter, twelve inches in length, and they shall be prepared in accordance with ASTM Standard C31.

G. Molds for the standard test cylinders shall be furnished at the expense of the OWNER.

H. All costs for making and testing of concrete and materials, by an approved recognized reputable testing laboratory, will be borne by the OWNER.

I. Making and testing of cylinders shall be performed by an approved testing laboratory that normally engages in the preparation of concrete mix designs and testing of concrete materials.

J. A compression test may be made on one cylinder from each group of five after 7 and/or 14 days, at the OWNER's option. A strength test shall be made using two cylinders from each group of five at 28 days for use in evaluating the concrete strength in accordance with the current editions of the IBC and ACI 318.

K. As requested by the OWNER or OWNER's, proportioning tests for each class of concrete delivered to the jobsite, shall be made from test cylinders designated by the OWNER or OWNER's.

L. The method of determining the standard deviation of compressive concrete strengths from previously utilized mix designs having previously recorded test results and the minimum allowable average compressive strengths of mix designs not having any previously recorded test results shall comply with the requirements of the code and commentary sections in the current edition of ACI 318.

M. Any concrete not meeting the minimum specified design strength and any concrete showing a cement content less than the ratio by weight established in the original mix design will be subjected to further testing of concrete cores complying with ASTM C42 taken from the concrete in question. Should these tests confirm that the specified requirements have not been met, the extra costs involved in such testing shall be borne by CONTRACTOR; and the concrete, at the OWNER's option, and at CONTRACTOR's sole expense, may be rejected and must then be removed from the site or may be strengthened with additional shotcrete or concrete as the situation warrants it. Should the core tests indicate that the strength requirement has been met

or if the low strength concrete is deemed acceptable to the OWNER, the extra costs involved in such testing shall still be borne by the CONTRACTOR.

END OF SECTION 03 30 00

SECTION 03 30 10

COLD WEATHER CONCRETING PROCEDURES

PART 1 – GENERAL

1.01 DESCRIPTION

A. This section covers requirements for placement and preparation for cast in place concrete and appurtenances under cold weather conditions as defined below.

B. Defined

Cold weather is defined as a period when for more than 3 successive days the mean daily temperature falls below 40° F or any day when the temperature is expected to fall or falls below freezing.

1.02 SUBMITTALS

Not less than 30 days prior to expected placement of concrete under cold weather conditions, a complete procedure shall be submitted for review covering all aspects of protection of concrete and its ingredients from the detrimental effects of cold weather. Concrete placement during cold weather shall not commence prior to return of the procedure marked "Reviewed".

1.03 PRODUCT DELIVERY, HANDLING AND STORAGE

The concrete temperature, during placement in cold weather, shall not be less than 50° F. Temperature measurements of the concrete as delivered to the jobsite shall confirm this requirement.

PART 2 – PRODUCTS

2.01 MATERIALS

Water and aggregates may be preheated for cold weather placement; however, their temperature shall not exceed 150° F. All methods and equipment for heating of water and aggregate shall be subject to the approval of the OWNER and shall conform to ACI 306 “Cold Weather Concreting” and ACI 306.1 “Standard Specification for Cold Weather Concreting.”

PART 3 – EXECUTION

3.01 CONCRETE PLACEMENT

A. No concrete shall be placed on frozen ground.

B. The ground, against which concrete is to be poured, must be protected against freezing after its preparation, or the concrete placement shall be delayed until the ground has fully thawed out.

C. When temperatures are expected to be below 32° F the night before the concrete is placed, then all reinforcing steel, forms and the ground shall be preheated, for a minimum of 12 hours, under a minimum temperature of 50° F.

D. When temperatures are expected to be below 40° F any time before the concrete has reached a strength of 1000 psi, the concrete must be adequately protected against frost damage by heating blankets, straw, or insulation materials for a minimum of 7 days or until at least 1000 psi concrete strength has been reached. Provide adequate means to maintain the temperature in the area where concrete is being placed at either 70°F for 3 days or 50°F for 5 days after placing. Keep protections in place and intact at least 24 hours after artificial heat is discontinued. The concrete temperature shall at no time fall below 40° F based on recording temperature monitors placed at a maximum of 50 feet on centers, each way, and around the circumference of the floor, wall, roof slab and wall-footing. CONTRACTOR shall provide heat as required to keep the concrete temperature as specified throughout the entire curing period of 7 days.

E. Weather prediction made by the nearest NOAA station, and corrected for the local elevation and environmental conditions, may be used to determine whether cold weather protection shall be required. Thermometers will be used by the OWNER and these readings shall determine whether cold weather protection shall be required and whether cold weather protection is adequate.

F. When combustion type heaters are used to maintain concrete temperatures within an enclosure, the exhaust gases shall be vented from the heater to the outside atmosphere so that the concrete is not exposed to the products of combustion.

G. Protect all concrete work from physical damage or reduced strength which could be caused by frost, freezing actions, or low temperatures, in compliance with the requirements of ACI 306 and as herein specified.

H. When air temperature has fallen to or is expected to fall below 40°F., uniformly heat all water and aggregates before mixing as required to obtain a concrete mixture temperature of not less than 50°F., and not more than 80°F., at point of placement.

I. Do not use frozen materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials. Ascertain that forms, reinforcing steel and adjacent concrete surfaces are entirely free of frost, snow and ice before placing concrete.

END OF SECTION 03 30 10

SECTION 03 30 20

HOT WEATHER CONCRETING PROCEDURES

PART 1 – GENERAL

1.01 GENERAL

A. This section covers requirements for placement and preparation for cast in place concrete and appurtenances under hot weather conditions as defined below.

B. Defined

Hot weather is defined as any combination of high air temperature, low relative humidity and wind velocity tending to impair the quality of fresh or hardened concrete or otherwise resulting in abnormal concrete properties. During hot weather, any or all of the methods specified herein for temperature control of concrete shall be used as required to maintain the concrete temperature below the limits specified.

1.02 SUBMITTALS

Not less than 30 days prior to expected placement of concrete under hot weather conditions, a complete procedure shall be submitted for review covering the aspects of protection of concrete and its ingredients from the detrimental effects of hot weather. Concrete placement during hot weather shall not commence prior to the return of the procedure marked "Reviewed".

1.03 PRODUCT DELIVERY, HANDLING AND STORAGE

A. Aggregate piles, cement bins and batch plant bins shall be shaded from the direct rays of the sun.

B. Aggregate piles shall be cooled by wetting and evaporation. Aggregate wetting shall be performed in such a manner that it will not cause wide variations in moisture content impairing slump uniformity.

1.04 QUALITY ASSURANCE

A. Comply with the provisions of the following codes, specifications, and standards, except as otherwise shown or specified.

- American Concrete Institute - ACI 305 “Hot Weather Concreting.”

PART 2 – PRODUCTS

2.01 MATERIALS

A. Batching and Mixing

1. Concrete mix water shall be refrigerated, or ice shall be added to the mix up to 100 percent of the water requirement. Ice, when introduced into the mixer, shall be in such form that it will be completely melted and dispersed throughout the mix at the completion of the mixing time. Ice may be used provided the water equivalent of the ice is calculated to the total amount of mixing water. The mixing time shall be held to the minimum practicable consistent with producing concrete meeting the specified requirements.

2. All methods and equipment for cooling of water and aggregate shall be subject to the approval of the OWNER and shall conform to ACI 305.

PART 3 – EXECUTION

3.01 TEMPERATURE CONTROL OF CONCRETE

A. General Practices and Measures

The following list of practices and measures, as described in ACI 305, may be used to reduce, or avoid the potential problems of hot weather concreting:

1. Use concrete materials and proportions with satisfactory records in field use under hot weather conditions.
2. Use cool concrete.
3. Use a concrete consistency that permits rapid placement and effective consolidation.
4. Transport, place, consolidate, and finish the concrete with least delay.
5. Plan the job to avoid adverse exposure of the concrete to the environment; schedule placing operations during times of the day or night when weather conditions are favorable.
6. Protect the concrete against moisture loss at all times during placing and during its curing period.

B. Concrete Temperature

The temperature of concrete, as delivered at the time and location of placement, shall not exceed 90o F under any conditions. The temperature of concrete as delivered at the time and location of placement under the following combined ambient conditions, except concrete that will be deposited within wall or column forms, shall not exceed the following temperatures:

Relative humidity		Ambient temperature		Maximum concrete temperature
less than:	80%	greater than:	90°F	100°F
	70%		90°F	95°F
	60%		90°F	90°F
	50%		90°F	85°F
	40%		90°F	80°F
	30%		80°F	75°F
	20%		75°F	70°F

3.02 DELIVERY

Concrete shall be placed in the Construction within 90 minutes after the completion of mixing.

3.03 PREPARATION FOR PLACING

A. Elevated forms and reinforcing steel for beams and similar members shall be cooled by fog spraying and evaporation immediately prior to placing concrete. Forms shall be free of standing water when concrete is placed herein.

B. Cover reinforcing with water-soaked burlap such that the steel temperature does not exceed the ambient air temperature immediately before embedment in concrete.

C. Wet form thoroughly before placing concrete.

3.04 PLACING

A. Concrete shall be placed in shallower layers than under normal weather conditions if necessary to assure coverage of the previous layer while it will respond readily to vibration.

B. Do not use retarding admixtures unless otherwise accepted in mix design. Wet forms thoroughly before placing concrete.

3.05 FINISHING

Fog spray shall be used during finishing operations whenever necessary to avoid surface plastic-shrinkage cracking. Fog spray shall also be used after finishing and before the specified curing is commenced to avoid surface plastic-shrinkage cracking.

3.06 PROTECTION AND CURING

Forms shall be kept covered and continuously moist. Once forms are loosened and during form removal, concrete surfaces shall be protected from drying and shall be kept continuously wet by fog spraying or other approved means.

END OF SECTION

SECTION 03 39 00

CONCRETE CURING

PART 1 – GENERAL

1.01 SECTION INCLUDES

A. Initial and final curing of horizontal and vertical concrete surfaces.

1.02 RELATED SECTIONS

A. Section 03 30 00 - Cast-In-Place Concrete.

1.03 REFERENCES

A. This section references the latest revision of the following documents. They are a part of this section as specified and modified. In case of conflict between the requirements of this section and those of the listed documents, the requirements of this section shall prevail.

B. ACI 301 - Specifications for Structural Concrete for Buildings; American Concrete Institute International.

C. ACI 302.1R - Guide for Concrete Floor and Slab Construction; American Concrete Institute International.

D. ACI 308 - Standard Practice for Curing Concrete; American Concrete Institute International.

E. ASTM C 171 - Standard Specification for Sheet Materials for Curing Concrete.

F. ASTM C 309 - Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete.

G. ASTM D 2103 - Standard Specification for Polyethylene Film and Sheeting.

1.04 SUBMITTALS

A. See Section 01 33 00 for submittal procedures.

B. Product Data: Provide data on curing compounds, moisture-retaining sheet, and polyethylene film, including compatibility of different products and limitations.

1.05 QUALITY ASSURANCE

A. Perform Work in accordance with ACI 301 and ACI 302.1R.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Deliver curing materials in manufacturer's sealed packaging, including application instructions.

PART 2 – PRODUCTS

2.01 MATERIALS

A. Water: Potable, not detrimental to concrete.

PART 3 – EXECUTION

3.01 EXAMINATION

A. Verify that substrate surfaces are ready to be cured.

3.02 EXECUTION - HORIZONTAL SURFACES

A. Cure floor surfaces in accordance with ACI 308.

B. Ponding: Maintain 100 percent coverage of water over floor slab areas, continuously for 7 days.

C. Spraying: Spray water over floor slab areas and maintain wet for 7 days.

D. Absorptive Moisture-Retaining Sheet: Saturate burlap-polyethylene and place burlap-side down over floor slab areas, lapping ends and sides; maintain in place for 7 days.

3.03 EXECUTION - VERTICAL SURFACES

A. Cure surfaces in accordance with ACI 308.

B. Spraying: Spray water over surfaces and maintain wet for 7 days.

3.04 PROTECTION OF FINISHED WORK

A. Do not permit traffic over unprotected floor surface.

END OF SECTION 03 39 00

DIVISION 5

METALS

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SECTION 05 12 00

STRUCTURAL STEEL FRAMING

PART 1 – GENERAL

1.01 DESCRIPTION

A. Provide structural steel work complete as detailed in the Plans and Specifications.

1.02 QUALITY ASSURANCE

A. Fabricator shall specialize in performing the work described herein and shall have a minimum of 5 years experience with documentation verifying the experience. Fabricator shall be certified as an AISC Category II shop as specified in AISC Quality Certification Program Requirements.

B. Erector shall specialize in performing the work described in this Section. Erector shall have a minimum of 5 years documented experience.

C. All welding shall be performed by welders qualified for the type of welding being performed in accordance with AWS D1.1.

D. Structural field welding and high strength bolting shall be performed under continuous or period inspection, as required by Section 01 45 00 – Quality Control. Inspection shall be by a representative of an independent testing laboratory. Cost for the special inspection shall be paid by OWNER. CONTRACTOR shall notify OWNER at least 24 hours in advance of the required inspections.

E. Design any connections not shown on the Drawings in accordance with AISC, "Specifications for the Design, Fabrication and Erection of Structural Steel for Buildings". Such connection designs shall be prepared by a Professional Structural Engineer experienced in design of this work and licensed in the State of Oregon.

1.03 REFERENCE SPECIFICATIONS, CODES, AND STANDARDS: APPLICABLE STANDARDS INCLUDE, BUT ARE NOT LIMITED TO, THE MOST RECENT EDITIONS OF THE FOLLOWING:

A. ASTM A36 - Structural Steel

B. ASTM A53 – Hot-Dipped, Zinc-Coated Welded and Seamless Steel Pipe

C. ASTM A108 – Steel Bars, Carbon, Cold-Finished, Standard Quality

D. ASTM A123 – Zinc (Hot Dipped Galvanized) Coatings on Iron and Steel Products

E. ASTM A153 – Zinc Coating (Hot Dip) on Iron and Steel Hardware

F. ASTM A307 - Carbon Steel Externally Threaded Standard Fasteners

G. ASTM A325 - High Strength Bolts for Structural Steel Joints

H. ASTM A490 - Quenched and Tempered Alloy Steel Bolts for Structural Steel Joints

I. ASTM A500 – Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Round and Shapes

J. ASTM A501 – Hot-Formed Welded and Seamless Carbon Steel Structural Tubing

K. ASTM A502 – Steel Structural Rivets

L. ASTM A572 – High Strength Low Alloy Columbium-Vanadium Steel of Structural Quality

M. ASTM A992

N. AWS A2.0 - Standard Welding Symbols

O. AWS D1.1 - Structural Welding Code

P. AISC - S326 Specification for the Design, Fabrication and Erection of Structural Steel for Buildings

Q. AISC - S302 Code of Standard Practice for Buildings and Bridges

R. Steel Structures Painting Council – SSPC

1.04 SUBMITTALS DURING CONSTRUCTION

A. Provide complete shop drawings as necessary for fabrication of all components of the structure including, but not limited to, the following:

1. Location, type and size of all bolts and welds
2. Design of connections not shown on the Drawings. Design to include all calculations and to be done in accordance with Section 1.02 – Quality Assurance.
3. Welding technique for both shop and field welding
4. Type of finish
5. Coating system
6. Fabrication and erection tolerances

A. Indicate profiles, sizes, spacing, and locations of structural members, openings, attachments, and fasteners.

B. Indicate finishes and welds by standard symbols conforming to AWS.

C. Erection Plan and details showing both the design and the assembly. The erection plan shall include handling procedures, the construction sequence and any temporary bracing or supports required.

D. Certification that the welding processes proposed and the welding operators to perform the work are qualified in accordance with AWS Structural Welding Code D1.1, Section 5, "Qualifications". Include documentation certifying that the welders have satisfactorily passed AWS qualification test within the previous 36 months.

E. Certified test and analyses reports for all materials supplied under this Section. Include the following:

1. Manufacturer's Mill Test Reports certifying that products meet or exceed specified requirements. Indicate structural strength and test analysis for destructive and non-destructive tests.
2. Test reports for filler metals for welding.
3. Mechanical tests for high-strength threaded fasteners and shear connectors.

1.05 DELIVERY, HANDLING AND STORAGE

A. Delivery, handling, and storage of structural steel material shall be in accordance with manufacturer's requirements.

B. Ship, receive and store material in a manner that prevents distortion, bending, rusting, scraping and other damage. Store material in a clean location, with proper drainage. Do not store material in contact with vegetation, soil, or the ground.

C. Any material that is damaged during shipping, delivery, storage, or handling shall be replaced or repaired in a manner approved by the OWNER at no cost to the OWNER.

D. All structural members shall be marked with their weight.

E. Any members that are pre-fitted in the shop and disassembled for shipping shall marked to ensure proper reassembly in the field. Preassemble items in the shop to the greatest extent possible, so as to minimize field splicing and assembly of units at the project site. Disassemble units only to the extent necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation.

PART 2 – PRODUCTS

2.01 MATERIALS

A. Structural steel wide flange members: ASTM A992 (50 ksi)

B. Structural steel plate: A572 Grade 50; channel, and angle members: ASTM A36 (36 ksi)

C. Structural tubing:

1. Cold-formed welded and seamless: ASTM A500, Grade B (46 ksi).
2. Hot-formed welded and seamless: ASTM A501.

D. Pipe: ASTM A53, Grade B, Schedule 40.

E. Bolts, Nuts and Washers - ANSI B18.2.1 and B18.2.2 and the following:

1. Low carbon steel bolts and nuts:
   a. ASTM A307
   b. Galvanize to ASTM A153 for use with galvanized members
2. High strength carbon steel bolts, nuts and washers for structural joints: ASTM 490
3. Stainless Steel Bolts: AISI 316, ASTM A193
4. Round washers not in contact with high strength bolt heads and nuts: ANSI B27.3 Type B
5. Beveled washers
   a. Square, smooth and sloped to contact surfaces of bolt head and nut parallel with contact surface of bolted work.
   b. Make the diameter of the hole 1/16 inch greater than the bolt size for bolts one-inch and smaller diameter, and 1/8 inch greater than the bolt size for bolts larger than one-inch diameter.

B. Castings

1. High strength steel: ASTM A148, metal types as indicated.
2. Mild to medium strength carbon steel: ASTM A27, grade as indicated.

C. Shear Connectors

1. ASTM A108
2. Minimum yield strength 50,000 psi

D. Welding Materials: AWS D1.1; type required for materials being welded.

2.02 GALVANIZING

A. For products that will not be coated and products that are specified as being galvanized after fabrication, comply with the following standards:

1. Products fabricated from rolled, dressed, and forged steel shapes, plates and strip: ASTM A123.
2. Iron and steel hardware: ASTM A153.
3. Hot dip coating on assembled steel products: ASTM A386.
4. Use zinc dust coating meeting requirements of MIL P26915 to touch up galvanizing.

2.03 FABRICATION

A. Fabricate and assemble work in the shop in accordance with AISC Specifications for the Design, Fabrication and Erection of Structural Steel for Buildings, and Specification for Structural Joints using ASTM A325 or A490 Bolts.

1. Straighten rolled material, if necessary, before it is laid out for fabrication. Conform to the mill tolerances provided in ASTM A6; do not damage the material. Sharp kinks and bends will be cause for rejection of the material. Heat shrinking of low-alloy structural steel will not be permitted.
2. Shear, flame cut, and chip material as required. Flame cut edges using a mechanically guided torch or by hand. Grind exposed edges that have been flame-cut by hand to a smooth finish. Remove nicks by grinding to a depth not exceeding 1/16-inch.
3. Fabricate bearing stiffeners and stiffeners that support concentrated loads to provide full bearing on the flanges. Mill or grind bearing surfaces as required.
4. Machine finish all metal bearing surfaces which will be in contact with either preformed fabric, elastomeric bearing pads or grout. Flatten to within 1/8-inch tolerance in 12-inches and to within 3/16-inch, overall.
5. Punch or drill holes for bolts. Drill or ream holes at 1/16-inch greater than the nominal diameter of the bolt.

B. Connections: Use AISC specifications to determine the connections, unless otherwise shown on the Plans.

1. Shop connections may be welded or bolted. Field connections shall be bolted unless otherwise indicated on the Plans.

C. Members shall be free from twists, kinks, buckles, or open joints.

1. Accurately fabricate members and connections such that when assembled, the parts join and bolt without distortion.
2. Coat unlike metals that are in contact with yellow zinc chromate as necessary to prevent corrosion.
3. Plane bearing surfaces to true beds.
4. Furnish steel with 1 prime coat of coating as specified in Division 9.

D. Provide space, access, and time for the OWNER to inspect shop welds before the fabricated steel is painted.

2.04 SHOP ASSEMBLY

A. Clean surfaces in contact with each other before assembly. Removing scale, dirt, burrs and other defects. Remove oil, lacquer and galvanizing from contact surfaces of friction joints.

B. Weld, or bolt with high strength steel bolts, all shop connections, unless otherwise shown. Weld in accordance with requirements of AWS D1.1. Use minimum 1/4-inch continuous welds unless otherwise indicated. Comply with AISC Specification for Structural Joints using ASTM A325 or ASTM A490 bolts when making connections using high strength steel bolts.

C. Shop paint structural steel as specified and in accordance with Division 9. Do not paint the following:

1. Zinc coated surfaces
2. Corrosion resistant steel alloys
3. Surfaces to be imbedded in concrete or mortar
4. Friction-type connections using either welded or high-strength bolts
5. Buried steel piles
6. Steel for temporary construction.

D. Apply a lead-free alkyd primer over a surface prepared in accordance with SSPC SP-3 to: structural steel surfaces not to be painted; contact surfaces; and concealed surfaces.

E. Markings to identify members for erection shall be painted with a contrasting color after the shop coat has dried.

PART 3 – EXECUTION

3.01 INSTALLATION

A. General

1. Field assemble structural steel in accordance with AISC Manual of Steel Construction.
2. Erect steel members true and plumb following match marks.
3. Thoroughly clean surfaces to be joined.

4. Provide templates as required for presetting bolts and other anchors in accurate locations.
5. Clean concrete and steel bearing surfaces, roughen concrete surfaces and set base plates and bearing plates on steel wedges or other adjusting devices. Tighten anchor bolts after supported members have been properly positioned. Cut wedges and shims flush with edge of base or bearing plate. Dry-pack entire area remaining between bearing surfaces and plates.
6. Assemble joints using high strength steel bolts, unless otherwise indicated on the plans. Comply with the AISC "Specifications for Structural Joints using ASTM A325 or A490 Bolts". Field welding is not permitted except where noted on the plans or approved in advance by the OWNER.
7. Field cutting or alteration of structural members without prior written approval of OWNER is strictly prohibited.
8. Provide temporary bracing, as required, during erection, sized to handle loads experienced throughout the construction.

B. Erection

1. Splice members only where indicated on Contract Documents and on shop drawings.
2. Align and adjust members after assembly and before fastening.
3. Provide temporary bracing, as required, and as indicated in the erection plan. Permanently bolt members immediately after alignment is achieved to ensure proper support for the structure as work progresses.

3.02 FIELD COATING

A. Prepare and coat required surfaces as specified in Division 9.

B. Touch-up surfaces where shop coats have been damaged. Remove loose, shop applied coats and clean surface prior to touch-up.

1. Use coatings identical to original shop coats and apply the film thickness originally applied at the shop.

C. Clean field installed bolts, nuts, washers, and adjacent areas and apply paint or coating identical to original shop coats.

3.03 FIELD QUALITY CONTROL AND TESTING

A. Inspect field assembled bolted connections in accordance with AISC Specification for Structural Joints using ASTM A325 or A490 Bolts, Section 6. Use calibrated wrench method.

B. Visual inspection will be performed by OWNER. In addition to visual inspections, OWNER may inspect field welds by a method selected from AWS D1.1.

END OF SECTION 05 12 00

SECTION 05 50 00

METAL FABRICATIONS

PART 1 – GENERAL

1.01 DESCRIPTION

A. The extent of metal fabrications work is shown on the drawings and includes items fabricated from iron, steel, stainless steel and aluminum shapes, plates, bars, sheets, strips, tubes, pipes, and castings which are not a part of structural steel or other metal systems in other sections of these specifications.

B. The types of miscellaneous metal items include but are not limited to the following:

1. Handrails and railings
2. Miscellaneous framing, fabrication and supports
3. Rough hardware
4. Canopies

1.02 REFERENCE SPECIFICATIONS, CODES, AND STANDARDS

A. Codes and Standards -- Comply with the provisions of the following codes, standards, and specifications, except as otherwise shown and specified:

1. AISC -- “Specifications for the Design, Fabrication and Erection of Structural Steel for Buildings,” including “Commentary of the AISC Specifications”
2. AISC -- “Specifications for the Design of Cold-Formed Steel Structural Members”
3. AWS -- “Structural Welding Code”

B. Qualification for Welding Work -- Qualify welding processes and welding operators in accordance with AWS 1.1 “Standard Qualification Procedure”

C. Welding of Aluminum -- Conduct in accordance with Section 10 of the “Specifications for the Design and Construction of Structural Supports for Highway Luminaries,” AASHTO, 1971. Welding method shall be either gas tungsten arc or gas metal arc. Rods shall be 4043.

D. Field Measurements -- Take field measurements prior to preparation of shop drawings and fabrication. Do not delay job progress; allow for trimming and fitting where taking field measurements before fabrication.

E. Shop Assembly -- Preassemble items in the shop to the greatest extent possible, so as to minimize field splicing and assembly of units at the project site. Disassemble units only to the extent necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation.

1.03 SUBMITTALS DURING CONSTRUCTION

A. Manufacturer’s Data -- Miscellaneous Metal, General - For information only, submit copies of manufacturer’s specifications, load tables, dimension diagrams, anchor

details and installation instructions for products to be used in miscellaneous metal work, including paint products.

B. Shop Drawings -- Miscellaneous Metal, General -- Submit copies of shop drawings for the fabrication and erection of all assemblies of miscellaneous metal work which are not completely shown by the manufacturer's data sheets. Include plans, elevations and details of sections and connections and fabricators proposed shop coat paint or galvanizing specifications. Show anchorage and accessory items. Furnish setting drawings, diagrams, templates, instructions, and directions for installation of anchorages, such as concrete inserts, anchor bolts, and miscellaneous items having integral anchors, which are to be embedded in concrete construction.

1.04 DELIVERY, HANDLING AND STORAGE

Delivery, handling, and storage of metal fabrications shall be in accordance with manufacturer's requirements.

PART 2 – PRODUCTS

2.01 GENERAL

For the fabrication of miscellaneous metal work items which will be exposed to view, use only materials which are smooth and free of surface blemishes including pitting, seam marks, roller marks, rolled trade names, roughness and defects which impair strength, durability, and appearance. Remove such blemishes by grinding or by welding and grinding prior to cleaning, treating and application of surface finishes including zinc coatings.

2.02 MATERIALS

A. Steel Plates, Shapes and Bars -- ASTM A 36 or ASTM A 992

B. Steel Plates to be Bent or Cold Formed -- ASTM A 283, Grade C

C. Steel Tubing -- Hot formed, welding, or seamless, ASTM A 500, Grade B

D. Steel Bars and Bar-Size Shapes -- ASTM A 36

E. Cold-Finished Steel Bars -- ASTM A 108, grade as selected by fabricator

F. Cold-Rolled Carbon Steel Sheets -- ASTM A 366

G. Galvanized Carbon Steel Sheets -- ASTM A 653, with ASTM A 525, G 90 zinc coating

H. Gray Iron Castings -- ASTM A 48, Class 30

I. Malleable Iron Castings -- ASTM A 47, grade as selected

J. Steel Pipe -- ASTM A 53; Grade B ; galvanized standard weight (Schedule 40), unless otherwise indicated

K. Structural Aluminum Shapes and Plates -- ASTM B 308, Alloy 6061-T6, Anodic Coating Class I, AA-C22-A41, anodized after fabrication

L. Non-shrink Nonferrous Grout -- CE CRD C588

2.03 ANCHORS

All concrete anchors shall be epoxy anchors unless noted otherwise on drawings. Where shown, the following anchors shall be provided:

A. Epoxy Anchors – Hilti HIT RE-500 V3 adhesive anchor system by Hilti or approved equal.

B. Proprietary products as named on the drawings or approved equal.

2.04 FASTENERS

Provide zinc-coated fasteners with galvanizing complying with ASTM A 153 or stainless steel as noted on drawings and elsewhere in the specifications. Select fasteners for the type, grade and class required for the installation of miscellaneous metal items. Where stainless steel bolts are in contact with dissimilar metals, glass epoxy insulating sleeves and washers shall be used to electrically isolate the bolts. Fasteners to be as follows:

A. Standard Bolts and Nuts -- ASTM A 307, Grade A, regular hexagon head

B. Stainless Steel Bolts, Nuts and Washers -- 316 SS

C. High Strength Bolts -- ASTM A 325, regular hexagon head

D. Lag Bolts -- FS FF-B-561, hex head type

E. Machine Screws -- FS FF-S-92

F. Wood Screws -- FS FF-S-111, flat head carbon steel

G. Plain Washers -- FS FF-W-92, round, general assembly grade carbon steel

H. Lock Washers -- FS FF-W-84, helical spring type carbon steel

I. Toggle Bolts -- Tumble-wing type: FS FF-B-588, type class and style as required

J. Masonry Anchorage Devices -- Expansion shields, FS FF-S-325

2.05 PAINT

A. Metal Primer Paint -- Primer paint selected must be compatible with the required finish coats of paint. Coordinate selection of metal primer with finish paint requirements specified in Division 9 of these specifications. At locations in contact with process water, use only primer approved for potable water use.

B. Galvanizing Repair -- Comply with ASTM - A780, A1. Repair Using Zinc-Based Alloys (heat and stick method).

C. Protection of All Aluminum -- Aluminum materials in contact with concrete, other metals or other masonry materials shall have surfaces coated with one coat of Koppers 654 Epoxy Primer 1 to 2 mils dry film (D.F.), followed by 2 coats of Koppers Bitumastic No. 300-M 6 to 8 mils D.F., or one coat of Porters 7650 Epoxy Primer 1 to 2 mils D.F., followed by 2 coats of Porters Tarset C-200 6 to 8 mils D.F., or equal.

2.06 FABRICATION, GENERAL

A. Workmanship -- Use materials of the size and thicknesses shown or if not shown, of the required size and thickness to produce adequate strength and durability in the finished product for the intended use as approved by the OWNER. Work to the dimensions shown or accepted on shop drawings, using proven details of fabrication and support. Use the type of materials shown or specified for the various components of work.

Form exposed work true to line and level with accurate angles and surfaces and straight sharp edges. Ease exposed edges to a radius of approximately 1/32 inch unless otherwise shown. Form bent-metal corners to the smallest radius possible without causing grain separation or otherwise impairing the work.

B. Weld corners and seams continuously and in accordance with the recommendations of AWS. At exposed connections, grind exposed welds smooth and flush to match and blend with adjoining surfaces.

C. Form exposed connections with hairline joints, which are flush and smooth, using concealed fasteners wherever possible. Use exposed fasteners of the type shown or, if not shown, use Phillips flathead (countersunk) screws or bolts.

1. Provide the anchorage of the type shown, coordinated with the supporting structure and the progress schedule. Fabricate and space anchoring devices to provide adequate support for the intended use of the work.

2. Cut, reinforce, drill and tap miscellaneous metal work indicated to receive finish hardware and similar items of work.

D. Galvanizing -- Provide a zinc coating for galvanizing for all steel using the hot-dip process after fabrication, unless otherwise specified.

ASTM A 153 for galvanizing of iron and steel hardware

ASTM A 123 for galvanizing of rolled, pressed and forged steel shapes, plates, bars and strip 1/8-inch thick and heavier

ASTM A 385 for providing high quality zinc coatings (Hotdip)

ASTM A 386 for galvanizing of assembled steel products

E. Shop Painting (when allowed)

1. Shop paint miscellaneous metal work in accordance with Division 9 and these specifications, except those members or portions of members to be embedded in concrete or masonry, surfaces, and edges to be field welded and galvanized surfaces unless otherwise indicated.

2. Remove scale, rust, and other deleterious materials before the shop coat of paint is applied. Clean off heavy rust and loose mill scale in accordance with SSPC SP-7 “Brush-off Blast Cleaning.” Remove oil, grease and similar contaminates in accordance with SSPC SP-1 “Solvent Cleaning.”

3. Apply one shop coat of metal primer paint to fabricated metal items, except apply two (2) coats of paint to surfaces which are inaccessible after assembly or erection. Change color of second coat to distinguish it from the first.

4. Immediately after surface preparation, brush, or spray on metal primer paint, applied in accordance with the manufacturer’s instructions.

F. Loose Bearing and Leveling Plates -- Provide loose bearing and leveling plates for steel items bearing on masonry or concrete construction, made flat, free from warps or twists, and of required thickness and bearing area. Drill plates to receive anchor bolts and for grouting as required. Galvanize after fabrication.

G. Miscellaneous Steel Trim -- Provide shapes and sizes for profiles shown. Except as otherwise indicated, fabricate units from structural steel shapes and plates and steel bars, with continuously welded joints and smooth exposed edges. Use concealed field splices wherever possible. Provide cutouts, fittings and anchorages as required for coordination of assembly and installation with other work.

2.07 MISCELLANEOUS FRAMING AND SUPPORTS

A. Provide miscellaneous steel framing and supports required to complete the work.

B. Fabricate miscellaneous units to the sizes, shapes and profiles shown or, if not shown, of the required dimensions to receive adjacent grating, plates doors, or other work to be retained by the framing. Except as otherwise shown, fabricate from structural steel shapes and plates and steel bars, of all welded construction using mitered corners, welded brackets and splice plates and a minimum number of joints for field connection. Cut, drill and tap units to receive hardware and similar items to be anchored to the work.

C. Equip units with integrally welded anchors for casting into concrete, bolting to structural steel or building into masonry. Furnish inserts if units must be installed after concrete is placed.

2.08 ROUGH HARDWARE

A. Furnish bent or otherwise custom fabricated bolts, plates, anchors, hangers, dowels and other miscellaneous steel and iron shapes as required for framing and supporting systems. Acceptable manufacturers are Simpson or approved equal.

B. Manufacture or fabricate items of sizes, shapes and dimensions required. Furnish malleable iron washers for heads and nuts which bear on wood structural connections; elsewhere furnish galvanized steel washers.

2.09 MISCELLANEOUS FABRICATIONS

A. Prepare miscellaneous fabrications of the sizes, shapes and profiles shown. Except as otherwise shown, fabricate from structural steel shapes, bars and plates of all welded construction using metered corners, welded brackets and splice plates and a minimum of joints for field connection.

B. Galvanize all miscellaneous fabrications unless otherwise noted.

2.10 NON-SHRINK GROUT

Where required for anchoring, patching, or sealing, grouting, and sealing compounds shall conform to the requirements of Section 03 60 00.

PART 3 – EXECUTION

3.01 PREPARATION

Furnish setting drawings, diagrams, templates, instructions, and directions for the installation of anchorages, such as concrete inserts, anchor bolts and miscellaneous items having integral anchors, which are to be embedded in concrete or masonry construction. Coordinate the delivery of such items to the project site.

3.02 INSTALLATION

A. Fastening to In-Place Construction -- Provide anchorage devices and fasteners where necessary for securing miscellaneous metal items to in-place construction, including threaded fasteners for concrete and masonry inserts, toggle bolts, through-bolts, lag bolts, wood screws and other connectors as required.

B. Cutting, Fitting and Placement

1. Perform cutting, drilling, and fitting required for the installation of the miscellaneous metal items. Set the work accurately in location, alignment, and elevation, plumb, level, true and free of rack, measured from established lines and levels. Provide temporary bracing or anchors in form work for items which are to be built into concrete, masonry of similar construction.

2. Fit exposed connections accurately together to form tight hairline joints. Weld connections, which are not to be left as exposed joints, but cannot be shop welded because of shipping size limitations. Grind joints smooth and touch-up shop paint coat. Do not weld, cut or abrade the surfaces of exterior units which have been hot-dip galvanized after fabrication and are intended for bolted or screwed field connections.

C. Field Welding -- Comply with AWS Code for the procedures of manual shielded metal-arc welding, the appearance and quality of welds made and the methods used in correcting welding work.

D. Touch-up Painting, Pre-painted Items -- Immediately after erection, clean field welds, bolted connections, and abraded areas of the shop paint, and paint all exposed areas with the same material as used for shop painting. Apply by brush or spray to provide a minimum dry film thickness of the original coating thickness.

E. Galvanizing Repair -- Repair any damaged areas by heat and stick method as may be required in accordance with ASTM A 780.

END OF SECTION 05 50 00

SECTION 05 51 00

METAL STAIRS

PART 1 – GENERAL

1.01 SUBMITTALS

A. Product Data: Provide information on all materials used.

B. Shop Drawings: Indicate profiles, sizes, connection attachments, reinforcing, anchorage, size and type of fasteners, and accessories.

1. Indicate welded connections using standard AWS A2.4 welding symbols. Indicate net weld lengths.

C. Fabricator's Qualification Statement: Provide documentation showing steel fabricator is certified under AISC 201.

1.02 QUALITY ASSURANCE

A. Structural Designer Qualifications: Professional Structural Engineer experienced in design of this work and licensed in the State in which the Project is located, or personnel under direct supervision of such an engineer.

PART 2 – PRODUCTS

2.01 METAL STAIRS - GENERAL

A. Metal Stairs: Provide stairs of the design specified, complete with landing platforms, vertical and horizontal supports, railings, and guards, fabricated accurately for anchorage to each other and to building structure.

1. Regulatory Requirements: Provide stairs and railings that comply with most stringent requirements of local, state, and federal regulations; where requirements of Contract Documents exceed those of regulations, comply with Contract Documents.

2. Handrails: Comply with applicable accessibility requirements of ADA Standards.

3. Dimensions: As indicated on drawings.

4. Shop assemble components; disassemble into largest practical sections suitable for transport and access to site.

5. No sharp or rough areas on exposed travel surfaces and surfaces accessible to touch.

6. Separate dissimilar metals using paint or permanent tape.

B. Metal Jointing and Finish Quality Levels:

1. Architectural: All joints as inconspicuous as possible, whether welded or mechanical.

a. Welded Joints: Continuously welded and ground smooth and flush.

b. Mechanical Joints: Butted tight, flush, and hairline; concealed fastenings only.

c. Exposed Edges and Corners: Eased to small uniform radius.

d. Metal Surfaces to be Painted: Sanded or ground smooth, suitable for highest quality gloss finish.

C. Fasteners: Same material or compatible with materials being fastened; type consistent with design and specified quality level.

D. Anchors and Related Components: Same material and finish as item to be anchored, except where specifically indicated otherwise; provide all anchors and fasteners required.

2.02 METAL STAIRS WITH PRECAST CONCRETE TREADS

A. Jointing and Finish Quality Level: Architectural, as defined above.

B. Risers: Closed.

C. Treads: Precast concrete tread with closed riser.

1. Manufacturer: Diamond Design Precast. Comparable manufactures and products will be considered per Substitutions per Division 1 General Requirements.

2. Precast Concrete Tread Thickness: 2 inches, minimum.

3. Precast Concrete Treads:

a. Concrete Strength: 5,000 psi (35 MPa) at 28 days, minimum.

b. Air Content: 4 to 6 percent.

c. Cement Color: Natural gray.

d. Abrasive Strip: Contrasting color, embedded into surface 1/2 inch (12 mm) back of point of nosing.

4. Tread Pan Material: Steel sheet.

5. Tread Pan Thickness: As required by design; 14-gauge, 0.075 inch (1.9 mm) minimum.

D. Risers: Same material and thickness as tread pans.

1. Riser/Nosing Profile: Sloped riser with rounded nosing of minimum radius.

2. Nosing Depth: Not more than 1-1/2-inch (38 mm) overhang.

E. Stringers: Rolled steel channels.

1. Stringer Depth: 12 inches (305 mm).

2. End Closure: Sheet steel of same thickness as risers welded across ends.

F. Railings: Steel pipe railings.

2.03 HANDRAILS AND GUARDS

A. Wall-Mounted Rails: Round pipe or tube rails unless otherwise indicated.

1. Outside Diameter: 1-1/4 inch (32 mm), minimum, to 1-1/2 inches (38 mm), maximum.

2.04 MATERIALS

A. General: Steel Components: All steel components and pieces to be galvanized, unpainted.

B. Steel Sections: ASTM A36/A36M.

C. Steel Tubing: ASTM A500/A500M or ASTM A501/A501M structural tubing, round and shapes as indicated.

D. Steel Plates: ASTM A6/A6M or ASTM A283/A283M.

E. Pipe: ASTM A53/A53M Grade B Schedule 40, galvanized finish.

F. Galvanized Steel Sheet: ASTM A653/A653M, Structural Steel (SS) Grade 33/230 with G40/Z120 coating.

2.05 ACCESSORIES

A. Steel Bolts, Nuts, and Washers: ASTM F3125/F3125M, Type 1, and galvanized to ASTM A153/A153M where connecting galvanized components.

B. Welding Materials: AWS D1.1/D1.1M; type required for materials being welded.

C. Touch-Up Primer for Galvanized Surfaces: SSPC-Paint 20 Type I - Inorganic, and comply with VOC limitations of authorities having jurisdiction.

2.06 SHOP FINISHING

A. Clean surfaces of rust, scale, grease, and foreign matter prior to finishing.

B. Galvanizing: Hot-dip galvanize to minimum requirements of ASTM A123/A123M.

1. Touch up abraded areas after fabrication using specified touch-up primer for galvanized surfaces.

PART 3 – EXECUTION

3.01 INSTALLATION

A. Install components plumb and level, accurately fitted, free from distortion or defects.

B. Provide anchors, plates, angles, hangers, and struts required for connecting stairs to structure.

C. Allow for erection loads, and for sufficient temporary bracing to maintain true alignment until completion of erection and installation of permanent attachments.

D. Provide welded field joints where specifically indicated on drawings. Perform field welding in accordance with AWS D1.1/D1.1M.

E. Other field joints may be either welded or bolted provided the result complies with the limitations specified for jointing quality levels.

F. After erection, prime welds, abrasions, and surfaces not shop-primed or galvanized, except surfaces to be in contact with concrete.

END OF SECTION 05 51 00

DIVISION 6

WOOD, PLASTICS AND COMPOSITES

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SECTION 06 10 00

ROUGH CARPENTRY

PART 1 – GENERAL

1.01 REFERENCE STANDARDS

A. ANSI A208.1 - American National Standard for Particleboard; 2022.

B. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2023.

C. ASTM D3498 - Standard Specification for Adhesives for Field-Gluing Wood Structural Panels (Plywood or Oriented Strand Board) to Wood Based Floor System Framing; 2019a.

D. AWC (WFCM) - Wood Frame Construction Manual for One- and Two-Family Dwellings; 2024.

E. PS 1 - Structural Plywood; 2023.

F. PS 2 - Performance Standard for Wood Structural Panels; 2018.

G. PS 20 - American Softwood Lumber Standard; 2021.

1.02 SUBMITTALS

A. See Section 013000 - Administrative Requirements for submittal procedures.

PART 2 – PRODUCTS

2.01 GENERAL REQUIREMENTS

A. Dimension Lumber: Comply with PS 20 and requirements of specified grading agencies.

1. Species: Douglas Fir-Larch, unless otherwise indicated.

2. 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.

3. 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.

2.02 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.

D. Miscellaneous Framing, Blocking, Nailers, Grounds, and Furring:

a. Lumber: S4S, No. 2 or Standard Grade.

b. Boards: Standard or No. 3.

2.03 CONSTRUCTION PANELS

A. Subfloor/Underlayment Combination: PS 1 or PS 2 type, rated Single Floor.

1. Panel Type: Plywood.

2. Bond Classification: Exposure 1.

3. Span Rating: 48.

4. Performance Category: 1-1/8 PERF CAT.

5. Edges: Tongue and groove.

B. Subflooring: Particleboard, ANSI A208.1, Grade M-2 EXTERIOR GLUE waferboard; 1/2 inch (12.5 mm) thick, square edge.

C. Underlayment: APA Underlayment; plywood, Exposure 2, 1/2 inch (12.5 mm) thick. Fully sanded faces at resilient flooring.

D. Roof Sheathing: PS 2 type, rated Structural I Sheathing.

1. Bond Classification: Exterior.

2. Span Rating: 60.

3. Performance Category: 5/8 PERF CAT.

E. Wall Sheathing: Oriented strand board wood structural panel; PS 2.

1. Grade: Structural 1 Sheathing.

2. Performance Category: 1/2 PERF CAT.

3. Edges: Square.

2.04 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.

B. Subfloor Adhesives: Gap-filling construction adhesive for bonding wood structural panels to wood-based floor system framing; complying with ASTM D3498.

PART 3 – EXECUTION

3.01 INSTALLATION - GENERAL

A. Select material sizes to minimize waste.

B. Reuse scrap to the greatest extent possible; clearly separate scrap for use on site as accessory components, including: shims, bracing, and blocking.

3.02 FRAMING INSTALLATION

A. Set members level, plumb, and true to line. Discard pieces with defects that would lower required strength.

B. Make provisions for temporary construction loads, and provide temporary bracing sufficient to maintain structure in true alignment and safe condition until completion of erection and installation of permanent bracing.

C. Install members full length without splices unless otherwise specifically detailed.

D. 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.

E. Install horizontal spanning members with crown edge up and not less than 1-1/2 inches (38 mm) of bearing at each end.

F. Construct double joist headers at floor and ceiling openings and under wall stud partitions that are parallel to floor joists; use metal joist hangers unless otherwise detailed.

G. Frame wall openings with two or more studs at each jamb; support headers on cripple studs.

3.03 INSTALLATION OF CONSTRUCTION PANELS

A. Subflooring/Underlayment Combination: Glue and nail to framing; staples are not permitted.

B. Subflooring: Glue and nail to framing; staples are not permitted.

C. Underlayment: Secure to subflooring with nails and glue.

D. Place building paper between floor underlayment and subflooring.

E. Roof Sheathing: Secure panels with long dimension perpendicular to framing members, with ends staggered and over firm bearing.

F. Nail panels to framing; staples are not permitted.

END OF SECTION 06 10 00

SECTION 06 17 33

WOOD I-JOISTS

PART 1 – GENERAL

1.01 SECTION INCLUDES

A. Wood I-joists for roof and floor framing.

B. Bridging, bracing, and anchorage.

1.02 RELATED REQUIREMENTS

A. Section 06 10 00 - Rough Carpentry: Installation requirements for miscellaneous framing.

B. Section 061000 - Rough Carpentry: Material requirements for blocking, plates, and miscellaneous framing.

1.03 REFERENCE STANDARDS

A. PS 2 - Performance Standard for Wood Structural Panels; 2018.

1.04 DELIVERY, STORAGE, AND HANDLING

A. Deliver products to site in manufacturer's original packaging with manufacturer's name and product identification intact and legible.

B. Protect products from damage due to weather and breakage.

C. Protect joists from warping or other distortion by stacking in upright position, braced to resist movement, with air circulation under coverings and around stacks.

D. Handle individual joists in the upright position.

PART 2 – PRODUCTS

2.01 MANUFACTURERS

A. Wood I-Joists:

1. Boise Cascade Company.

2. Substitutions: obtain approval from the Engineer.

2.02 MATERIALS

A. Wood I-Joists: Solid lumber top and bottom flanges and oriented strand board (OSB) webs bonded together with structural adhesive, with published span rating to meet project requirements.

1. Span Rating: Established and monitored in accordance with ASTM D5055 by independent inspection agency.

2. Oriented Strand Board: Comply with PS 2.

3. Adhesive: Tested for wet/exterior service in accordance with ASTM D2559.

4. Fabrication Tolerances:

a. Flange Width: Plus/minus 1/32 inch (0.8 mm).

b. Flange Thickness: Minus 1/16 inch (1.6 mm).

c. Joist Depth: Plus 0, minus 1/8 inch (3.2 mm).

5. Marking: Mark each piece with depth, joist spacing, and allowable span for joist spacing.

B. Wood-Based Components:

1. Wood fabricated from old growth timber is not permitted.

C. Joist Bridging: Type, size and spacing recommended by joist manufacturer.

D. Fasteners: Electrogalvanized steel, type to suit application.

PART 3 – EXECUTION (NOT USED)

END OF SECTION 06 17 33

SECTION 06 18 00

GLUED-LAMINATED CONSTRUCTION

PART 1 – GENERAL

1.01 SECTION INCLUDES

A. Glue laminated wood beams and purlins.

1.02 REFERENCE STANDARDS

A. AITC 117 - Standard Specifications for Structural Glued Laminated Timber of Softwood Species; 2010.

1.03 SUBMITTALS

A. See Section 01 33 00 for submittal procedures.

PART 2 – PRODUCTS

2.01 MANUFACTURERS

A. Glued-Laminated Structural Units:
   1. Boise Cascade Company.

B. Architectural Grade Glued-Laminated Columns:
   1. Boise Cascade Company.
   2. Substitutions: obtain approval from Engineer.

2.02 GLUED-LAMINATED UNITS

A. Glued-Laminated Units: Fabricate in accordance with AITC 117 Industrial grade.
   1. Verify dimensions and site conditions prior to fabrication.
   2. Cut and fit members accurately to length to achieve tight joint fit.
   3. Fabricate member with camber built in.
   4. Do not splice or join members in locations other than those indicated without permission.
   5. After end trimming, seal with penetrating sealer in accordance with AITC requirements.

2.03 MATERIALS

2.04 FABRICATION

A. Fabricate glue laminated structural members in accordance with AITC Architectural grade.

PART 3 – EXECUTION (NOT USED)

END OF SECTION 06 18 00

SECTION 06 41 00

ARCHITECTURAL WOOD CASEWORK

PART 1 – GENERAL

1.01 SUBMITTALS

A. Shop Drawings: Indicate materials, component profiles, fastening methods, jointing details, and accessories.

B. Samples: Submit actual sample items of pulls, hinges, shelf standards, and locksets, demonstrating hardware design, quality, and finish.

PART 2 – PRODUCTS

2.01 CABINETS

A. Quality Standard: Custom Grade, in accordance with AWI/AWMAC/WI (AWS), unless noted otherwise.

B. Plastic Laminate Faced Cabinets: Custom grade.

C. Cabinets:

1. Finish - Exposed Exterior Surfaces: High Pressure Decorative Laminate.
2. Finish - Exposed Interior Surfaces: Melamine.
3. Finish - Semi-Exposed Surfaces: Melamine
4. Finish - Concealed Surfaces: Manufacturer's option.
5. Door and Drawer Front Edge Profiles: Square edge with thin applied band.
6. Casework Construction Type: Manufacturer's option.
7. Adjustable Shelf Loading: 40 psf (19.5 gm/sq cm).
    a. Deflection: L/144.
8. Cabinet Style: Flush overlay.
9. Cabinet Doors and Drawer Fronts: Flush style.
10. Drawer Side Construction: Manufacturer's option.

2.02 PANEL CORE MATERIALS

A. Medium Density Fiberboard (MDF): Composite panel composed of cellulosic fibers, additives, and bonding system; cured under heat and pressure; comply with ANSI A208.2.

1. Grade: 115; moisture resistance: MR10.

2.03 THERMALLY FUSED LAMINATE PANELS

A. Thermally Fused Laminate (TFL): Melamine- or polyester-resin-saturated decorative papers; for fusion to composite wood substrates under heat and pressure.

1. Panel Core Substrate: Medium Density Fiberboard (MDF).

2.04 LAMINATE MATERIALS

A. High Pressure Decorative Laminate (HPDL): NEMA LD 3, types as recommended for specific applications.

B. Provide specific types as indicated.

1. Horizontal Surfaces: HGL, 0.039 inch (1.0 mm) nominal thickness, color as selected, finish as indicated.

2. Vertical Surfaces: VGL, 0.020 inch (0.51 mm) nominal thickness, colors as indicated, finish as indicated.

2.05 COUNTERTOPS

A. Countertops: See Section 12 36 00.

2.06 ACCESSORIES

A. Adhesive: Type recommended by fabricator to suit application.

B. Bolts, Nuts, Washers, Lags, Pins, and Screws: Of size and type to suit application; galvanized or chrome-plated finish in concealed locations and stainless steel or chrome-plated finish in exposed locations.

C. Grommets: Standard plastic or rubber grommets for cut-outs, in color to match adjacent surface.

2.07 HARDWARE

A. Hardware: BHMA A156.9, types as recommended by fabricator for quality grade specified.

B. Adjustable Shelf Supports: Standard side-mounted system using recessed metal shelf standards or multiple holes for pin supports and coordinated self rests, polished chrome finish, for nominal 1 inch (25 mm) spacing adjustments.

C. Drawer and Door Pulls: "U" shaped wire pull, steel with satin finish, 4 inch centers ("U" shaped wire pull, steel with satin finish, 100 mm centers).

D. Keyed Cabinet Locks: Keyed cylinder, two keys per lock, master keyed, steel with chrome finish.

E. Drawer Slides:

1. Type: Full extension.

F. Soft-Close, Door and Drawer Dampers.

G. Hinges: European style concealed type, steel with nickel-plated finish.

2.08 FABRICATION

A. Assembly: Shop assemble cabinets for delivery to site in units easily handled and to permit passage through building openings.

B. Edging: Fit shelves, doors, and exposed edges with specified edging. Do not use more than one piece for any single length.

C. Fitting: When necessary to cut and fit on site, provide materials with ample allowance for cutting. Provide matching trim for scribing and site cutting.

D. Plastic Laminate: Apply plastic laminate finish in full uninterrupted sheets consistent with manufactured sizes. Fit corners and joints hairline; secure with concealed fasteners. Slightly bevel arises. Locate counter butt joints minimum 2 feet from sink cut-outs. (Locate counter butt joints minimum 600 mm from sink cut-outs.)

   1. Cap exposed plastic laminate finish edges with material of same finish and pattern.

E. Mechanically fasten back splash to countertops as recommended by laminate manufacturer at 16 inches (400 mm) on center.

F. Provide cutouts for plumbing fixtures. Verify locations of cutouts from on-site dimensions. Prime paint cut edges.

PART 3 – EXECUTION

3.01 INSTALLATION

A. Install work in accordance with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS) requirements for grade indicated.

B. Set and secure custom cabinets in place, assuring that they are rigid, plumb, and level.

C. Use concealed joint fasteners to align and secure adjoining cabinet units.

END OF SECTION 06 41 00

DIVISION 7

THERMAL AND MOISTURE PROTECTION

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SECTION 07 54 00

THERMOPLASTIC MEMBRANE ROOFING

PART 1 – GENERAL

1.01 REFERENCE STANDARDS

A. ASTM C208 - Standard Specification for Cellulosic Fiber Insulating Board; 2022.

B. ASTM D6878/D6878M - Standard Specification for Thermoplastic Polyolefin-Based Sheet Roofing; 2021.

C. ASTM E1980 - Standard Practice for Calculating Solar Reflectance Index of Horizontal and Low-Sloped Opaque Surfaces; 2011 (Reapproved 2019).

D. FM (AG) - FM Approval Guide; Current Edition.

E. NRCA (RM) - The NRCA Roofing Manual; 2024.

F. NRCA (WM) - The NRCA Waterproofing Manual; 2021.

1.02 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for submittal procedures.

B. Product Data: Provide data indicating membrane materials, flashing materials, surfacing, fasteners, and cover board.

C. Shop Drawings: Submit drawings that indicate joint or termination detail conditions and conditions of interface with other materials.

D. Warranty Documentation:

1. Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.

2. Submit installer's written verification that installation complies with warranty conditions for waterproof membrane.

1.03 WARRANTY

A. Material Warranty: Provide membrane manufacturer's warranty agreeing to replace material that shows manufacturing defects within five years after installation.

B. System Warranty: Provide manufacturer's system warranty agreeing to repair or replace roofing that leaks or is damaged due to wind or other natural causes.

1. Warranty Term: 30 years.

2. For repair and replacement include costs of both material and labor in warranty.

PART 2 – PRODUCTS

2.01 ROOFING - UNBALLASTED APPLICATIONS

A. Thermoplastic Membrane Roofing: One ply membrane, spot adheredover cover board.

B. Roofing Assembly Requirements:

1. Solar Reflectance Index (SRI): Minimum of 64 based on three-year aged value; if three-year aged data is not available, minimum of 82 initial value.
    a. Calculate SRI in accordance with ASTM E1980.
    b. Field applied coating may not be used to achieve specified SRI.

C. Acceptable Insulation Types:
1. Insulation is existing. Repair or replace as needed, match existing insulation type.

2.02 Membrane Roofing and Associated Materials

A. Membrane Roofing Materials:
1. TPO: Thermoplastic polyolefin (TPO) complying with ASTM D6878/D6878M, sheet contains reinforcing fabrics or scrims.
    a. Thickness: 80 mil, 0.080 inch (2.0 mm), minimum.
2. Sheet Width: Factory fabricated into widest possible sheets.
3. Color: White.

B. Seaming Materials: As recommended by membrane manufacturer.

C. Membrane Fasteners: As recommended and approved by membrane manufacturer.

D. Flexible Flashing Material: Same material as membrane.

2.03 COVER BOARDS

A. Cover Boards: Coated cellulosic fiberboard complying with ASTM C208.
1. Classifications: Type II, Grade I.
2. Board Thickness: 1/2 inch (12.7 mm).
3. Board Size: 48 by 96 inches (1220 by 2440 mm).

2.04 ACCESSORIES

A. Stack Boots: Prefabricated flexible boot and collar for pipe stacks through membrane; same material as membrane.

B. Cant and Edge Strips: Wood fiberboard, compatible with roofing materials; cants formed to 45 degree angle.

C. Membrane Adhesive: As recommended by membrane manufacturer.

D. Walkway Pads: Suitable for maintenance traffic, contrasting color or otherwise visually distinctive from roof membrane.
1. Composition: Roofing membrane manufacturer's standard.
2. Surface Color: White or Yellow.

PART 3 – EXECUTION

3.01 INSTALLATION, GENERAL

A. Perform work in accordance with manufacturer's instructions, NRCA (RM), and NRCA (WM) applicable requirements.

B. Do not apply roofing membrane during cold or wet weather conditions.

C. Do not apply roofing membrane when ambient temperature is outside the temperature range recommended by manufacturer.

D. Do not apply roofing membrane to damp or frozen deck surface or when precipitation is expected or occurring.

E. Do not expose materials vulnerable to water or sun damage in quantities greater than can be weatherproofed the same day.

3.02 INSTALLATION - UNDER MEMBRANE

A. Cover Boards: Mechanically fasten cover boards in accordance with roofing manufacturer's instructions and FM (AG) Factory Mutual requirements.

B. Lay boards with edges in moderate contact without forcing. Cut insulation to fit neatly to perimeter blocking and around penetrations through roof.

C. Do not install more insulation than can be covered with membrane in same day.

3.03 INSTALLATION - MEMBRANE

A. Roll out membrane, free from wrinkles or tears. Place sheet into place without stretching.

B. Shingle joints on sloped substrate in direction of drainage.

C. Spot Adhered Application: Mechanically fasten adhesion discs to substrate. Install adhesive to discs and bond membrane. Fully adhere one roll before proceeding to adjacent rolls.

D. Overlap edges and ends and seal seams by contact adhesive, minimum 3 inches (76 mm). Seal permanently waterproof. Apply uniform bead of sealant to joint edge.

E. At intersections with vertical surfaces:

1. Extend membrane over cant strips and up a minimum of 6 inches (154 mm) onto vertical surfaces.

2. Fully adhere flexible flashing over membrane and up to reglets.

F. Around roof penetrations, seal flanges and flashings with flexible flashing.

G. Coordinate installation of roof drains and sumps and related flashings.

END OF SECTION 07 54 00

SECTION 07 62 00

SHEET METAL FLASHING AND TRIM

PART 1 – GENERAL

1.01 REFERENCE STANDARDS

A. AAMA 2605 - Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels (with Coil Coating Appendix); 2022.

B. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2023.

C. ASTM C920 - Standard Specification for Elastomeric Joint Sealants; 2018.

D. ASTM D4586/D4586M - Standard Specification for Asphalt Roof Cement, Asbestos-Free; 2007 (Reapproved 2018).

E. CDA A4050 - Copper in Architecture - Handbook; current edition.

F. SMACNA (ASMM) - Architectural Sheet Metal Manual; 2012.

1.02 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for submittal procedures.

B. Shop Drawings: Indicate material profile, jointing pattern, jointing details, fastening methods, flashings, terminations, and installation details.

C. Samples: Submit two samples illustrating metal finish color.

1.03 QUALITY ASSURANCE

A. Perform work in accordance with SMACNA (ASMM) and CDA A4050 requirements and standard details, except as otherwise indicated.

PART 2 – PRODUCTS

2.01 SHEET MATERIALS

A. 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.

2.02 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. Hem exposed edges on underside 1/2 inch (13 mm); miter and seam corners.

D. Form material with flat lock seams, except where otherwise indicated; at moving joints, use sealed lapped, bayonet-type or interlocking hooked seams.

E. Fabricate corners from one piece with minimum 18-inch (450 mm) long legs; seam for rigidity, seal with sealant.

F. Fabricate flashings to allow toe to extend 2 inches (50 mm) over roofing gravel. Return and brake edges.

2.03 COLLECTOR HEADS AND DOWNSPOUTS

A. Downspouts: Rectangular profile.

B. Collector Heads: As indicated on drawings.

C. Accessories:

1. Anchorage Devices: In accordance with SMACNA (ASMM) requirements.

2. Downspout Supports: Brackets.

D. Downspout Extenders: Same material and finish as downspouts.

E. Seal metal joints.

2.04 ACCESSORIES

A. Fasteners: Galvanized steel, with soft neoprene washers.

B. Slip Sheet: Rosin-sized sheathing paper.

C. Primer Type: Zinc chromate.

D. Concealed Sealants: Non-curing butyl sealant.

E. Exposed Sealants: ASTM C920; elastomeric sealant, with minimum movement capability as recommended by manufacturer for substrates to be sealed; color to match adjacent material.

F. Asphalt Roof Cement: ASTM D4586/D4586M, Type I, asbestos-free.

PART 3 – EXECUTION

3.01 INSTALLATION

A. Comply with drawing details.

B. Secure flashings in place using concealed fasteners, and use exposed fasteners only where permitted.

C. Apply plastic cement compound between metal flashings and felt flashings.

D. Fit flashings tight in place; make corners square, surfaces true and straight in planes, and lines accurate to profiles.

E. Secure gutters and downspouts in place with concealed fasteners.

END OF SECTION 07 62 00

SECTION 07 92 00

JOINT SEALANTS

PART 1 – GENERAL

1.01 REFERENCE STANDARDS

A. ASTM C834 - Standard Specification for Latex Sealants; 2017 (Reapproved 2023).

B. ASTM C920 - Standard Specification for Elastomeric Joint Sealants; 2018.

C. ASTM C1193 - Standard Guide for Use of Joint Sealants; 2016 (Reapproved 2023).

D. SCAQMD 1168 - Adhesive and Sealant Applications; 1989, with Amendment (2022).

1.02 SUBMITTALS

A. See Section 013000 - Administrative Requirements for submittal procedures.

B. Product Data: Submit manufacturer's technical datasheets for each product to be used; include 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. Backing material recommended by sealant manufacturer.
4. Substrates that product is known to satisfactorily adhere to and with which it is compatible.
5. Substrates the product should not be used on.
6. .

PART 2 – PRODUCTS

2.01 JOINT SEALANT APPLICATIONS

A. Scope:

1. Exterior Joints:
   a. Seal open joints except open joints indicated on drawings as not sealed.
   b. Seal the following joints:
      1) Wall expansion and control joints.
      2) Joints between doors, windows, and other frames or adjacent construction.
      3) Joints between different exposed materials.
2. Interior Joints:
   a. Do not seal through-penetrations in sound-rated assemblies that are also fire-rated assemblies.
   b. Seal open joints except specific open joints indicated on drawings as not sealed.

B. Exterior Joints: Use non-sag, nonstaining, silicone sealant, unless otherwise indicated.

1. Lap Joints in Sheet Metal Fabrications: Butyl rubber, non-curing.

2. 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. Floor Joints in Wet Areas: Non-sag polyurethane non-traffic-grade sealant suitable for continuous liquid immersion.

3. Joints between Tile in Wet Areas and Floors, Walls, and Ceilings: Mildew-resistant silicone sealant.

D. Interior Wet Areas: Bathrooms, restrooms, and kitchens; fixtures in wet areas include plumbing fixtures, countertops, cabinets, and other similar items.

2.02 JOINT SEALANTS - GENERAL

A. Sealants and Primers: Provide products having lower volatile organic compound (VOC) content than indicated in SCAQMD 1168.

B. Colors: As indicated on drawings.

2.03 NON-SAG 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.

B. Polyurethane Sealant for Continuous Water Immersion: ASTM C920, Grade NS, Uses M and A; single or multicomponent; 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.

C. Acrylic Emulsion Latex: Water-based; ASTM C834, single component, nonstaining, nonbleeding, non-sagging; not intended for exterior use.

1. Color: Standard colors matching finished surfaces, Type OP (opaque).

D. Non-curing Butyl Sealant: Solvent-based, single component, non-sag, non-skinning, nonhardening, nonbleeding; non-vapor permeable; intended for fully concealed applications.

2.04 SELF-LEVELING JOINT SEALANTS

A. Self-Leveling Polyurethane Sealant: ASTM C920, Grade P, Uses M and A; single or multicomponent; explicitly approved by manufacturer for traffic exposure; not expected to withstand continuous water immersion .

1. Movement Capability: Plus and minus 25 percent, minimum.

2.05 ACCESSORIES

A. Sealant Backing Materials, General: Materials placed in joint before applying sealants; assists sealant performance and service life by developing optimum sealant profile and preventing three-sided adhesion; type and size recommended by sealant manufacturer for compatibility with sealant, substrate, and application.

PART 3 – EXECUTION

3.01 INSTALLATION

A. Install this work in accordance with sealant manufacturer's requirements for preparation of surfaces and material installation instructions.

B. Provide joint sealant installations complying with ASTM C1193.

C. Install bond breaker backing tape where backer rod cannot be used.

D. Install sealant free of air pockets, foreign embedded matter, ridges, and sags, and without getting sealant on adjacent surfaces.

E. Do not install sealant when ambient temperature is outside manufacturer's recommended temperature range, or will be outside that range during the entire curing period, unless manufacturer's approval is obtained and instructions are followed.

F. Non-sag Sealants: Tool surface concave, unless otherwise indicated; remove masking tape immediately after tooling sealant surface.

END OF SECTION 07 92 00

DIVISION 8

OPENINGS

08 11 13	Hollow Metal Doors and Frames
08 12 13	Hollow Metal Frames
08 14 16	Flush Wood Doors
08 31 00	Access Doors and Panels
08 71 00	Door Hardware
08 80 00	Glazing

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SECTION 08 11 13

HOLLOW METAL DOORS AND FRAMES

PART 1 – GENERAL

1.01 RELATED REQUIREMENTS

A. A. Section 08 71 00 - Door Hardware.

1.02 REFERENCE STANDARDS

A. ADA Standards - 2010 ADA Standards for Accessible Design; 2010.

B. ANSI/SDI A250.4 - Test Procedure and Acceptance Criteria for Physical Endurance for Steel Doors, Frames and Frame Anchors; 2022.

C. ANSI/SDI A250.8 - Specifications for Standard Steel Doors and Frames (SDI-100); 2023.

D. ANSI/SDI A250.10 - Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames; 2020.

E. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2023.

F. ASTM A1008/A1008M - Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Required Hardness, Solution Hardened, and Bake Hardenable; 2023, with Editorial Revision.

G. ASTM A1011/A1011M - Standard Specification for Steel, Sheet, and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength; 2023.

H. BHMA A156.115 - Hardware Preparation in Steel Doors and Frames; 2016.

I. ICC A117.1 - Accessible and Usable Buildings and Facilities; 2017.

J. NAAMM HMMA 830 - Hardware Selection for Hollow Metal Doors and Frames; 2002.

K. NAAMM HMMA 831 - Hardware Locations for Hollow Metal Doors and Frames; 2011.

1.03 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for submittal procedures.

B. Product Data: Materials and details of design and construction, hardware locations, reinforcement type and locations, anchorage and fastening methods, and finishes; and one copy of referenced standards/guidelines.

C. 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 1 - Standard-duty.
    b. Physical Performance Level C, 250,000 cycles; in accordance with ANSI/SDI A250.4.
    c. Model 1 - Full Flush.
    d. Door Face Metal Thickness: 20 gauge, 0.032 inch (0.8 mm), minimum.
    e. Zinc Coating: A60/ZF180 galvannealed coating; ASTM A653/A653M.
2. Door Core Material: Manufacturers standard core material/construction and in compliance with requirements.
3. 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. Exterior Door Frames: Full profile/continuously welded type.

1. Frame Metal Thickness: 18 gauge, 0.042 inch (1.0 mm), minimum.

2. Frame Finish: Factory primed and field finished.

3. Weatherstripping: Separate, see Section 087100.

2.04 FINISHES

A. Primer: Rust-inhibiting, complying with ANSI/SDI A250.10, door manufacturer's standard.

2.05 ACCESSORIES

A. Door Window Frames: Door window frames with glazing securely fastened within door opening.

1. Size: As indicated on drawings.

2. Frame Material: 18 gauge, 0.0478 inch (1.21 mm), galvanized steel.

3. Glazing: 1/4 inch (6.4 mm) thick, tempered glass, in compliance with requirements of authorities having jurisdiction.

B. Mechanical Fasteners for Concealed Metal-to-Metal Connections: Self-drilling, self-tapping, steel with electroplated zinc finish.

C. Silencers: Resilient rubber, fitted into drilled hole; provide three on strike side of single door, three on center mullion of pairs, and two on head of pairs without center mullions.

D. Temporary Frame Spreaders: Provide for factory- or shop-assembled frames.

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.

C. Install door hardware as specified in Section 087100.

END OF SECTION 08 11 13

SECTION 08 12 13

HOLLOW METAL FRAMES

PART 1 – GENERAL

1.01 RELATED REQUIREMENTS

A. Section 08 71 00 - Door Hardware: Hardware, silencers, and weatherstripping.

1.02 REFERENCE STANDARDS

A. ADA Standards - 2010 ADA Standards for Accessible Design; 2010.

B. ANSI/SDI A250.8 - Specifications for Standard Steel Doors and Frames (SDI-100); 2023.

C. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2023.

D. ASTM A879/A879M - Standard Specification for Steel Sheet, Zinc Coated by the Electrolytic Process for Applications Requiring Designation of the Coating Mass on Each Surface; 2022.

E. ASTM A1008/A1008M - Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Required Hardness, Solution Hardened, and Bake Hardenable; 2023, with Editorial Revision.

F. ASTM A1011/A1011M - Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength; 2023.

G. BHMA A156.115 - Hardware Preparation in Steel Doors and Frames; 2016.

H. ICC A117.1 - Accessible and Usable Buildings and Facilities; 2017.

I. ITS (DIR) - Directory of Listed Products; Current Edition.

J. NAAMM HMMA 830 - Hardware Selection for Hollow Metal Doors and Frames; 2002.

K. NAAMM HMMA 831 - Hardware Locations for Hollow Metal Doors and Frames; 2011.

L. NAAMM HMMA 840 - Guide Specifications For Receipt, Storage and Installation of Hollow Metal Doors and Frames; 2017.

M. NFPA 80 - Standard for Fire Doors and Other Opening Protectives; 2022.

N. NFPA 252 - Standard Methods of Fire Tests of Door Assemblies; 2022.

O. UL (DIR) - Online Certifications Directory; Current Edition.

P. UL 10C - Standard for Positive Pressure Fire Tests of Door Assemblies; Current Edition, Including All Revisions.

1.03 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for submittal procedures.

B. Product Data: Materials and details of design and construction, hardware locations, reinforcement type and locations, anchorage and fastening methods, and finishes; and one copy of referenced grade standard.

C. Shop Drawings: Details of each opening, showing elevations, glazing, frame profiles, and identifying location of different finishes, if any.

D. Samples: Submit one sample of frame metal, 2 by 2 inches (50 by 50 mm), showing factory finishes, colors, and surface textures.

1.04 DELIVERY, STORAGE, AND HANDLING

A. Store in accordance with applicable requirements and in compliance with standards and/or custom guidelines as indicated.

PART 2 – PRODUCTS

2.01 PERFORMANCE REQUIREMENTS

A. Refer to Door and Frame Schedule on drawings for frame sizes, fire ratings, sound ratings, finishing, door hardware to be installed, and other variations, if any.

B. Door Frame Type: Provide hollow metal door frames with applied casings.

1. Interior Doors: Use frames with applied casings.

C. 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.

D. Accessibility: Comply with ICC A117.1 and ADA Standards.

E. Glazed Lights: Non-removable stops on non-secure side; sizes and configurations as indicated on drawings. Style: Manufacturers standard.

F. Hardware Preparations, Selections and Locations: Comply with BHMA A156.115, NAAMM HMMA 830, NAAMM HMMA 831 or ANSI/SDI A250.8 (SDI-100) in accordance with specified requirements.

G. Transom Bars: Fixed, of profile same as jamb and head.

H. Frames for Interior Glazing or Borrowed Lites: Construction and face dimensions to match door frames, and as indicated on drawings.

2.02 HOLLOW METAL DOOR FRAMES WITH APPLIED CASINGS

A. Frame Type: Knockdown, slip-on drywall frames; separate jambs and head with separate snap-on casings both sides; factory-applied finish on exposed surfaces.

1. Product: S-Series and C-Series manufactured by Timely Industries.

2. Frame Material: Cold-rolled steel complying with ASTM A1008/A1008M.

3. Casing Material: Formed steel, TA-8

4. Casing Profile: As indicated.

5. Finish: Factory-applied baked enamel finish, or electrostatically applied water-based paint.

a. Color: As selected from manufacturer's full line.

B. Interior Door Frames, Non-Fire-Rated:

1. Frame Metal Thickness: 20 gauge, minimum.

2. Frames in Wet Areas: Electro-galvanize components prior to finishing in accordance with ASTM A879/A879M, with manufacturer's standard coating thickness.

C. Interior Door Frames, Fire-Rated: Provide smoke gaskets.

1. Frame Metal Thickness: 18 gauge, 0.042 inch (1.0 mm), minimum.

2. Fire Rating: As indicated on Door and Frame Schedule, tested in accordance with UL 10C or NFPA 252 ("positive pressure fire tests").

a. Provide units listed and labeled by testing agency acceptable to authorities having jurisdiction, ITS (DIR), or UL (DIR).

b. Attach fire rating label to each fire rated unit.

2.03 ACCESSORIES

A. Silencers: Resilient rubber, fitted into drilled hole; provide three on strike side of single door, three on center mullion of pairs, and two on head of pairs without center mullions.

PART 3 – EXECUTION

3.01 INSTALLATION

A. Install frames in accordance with manufacturer's instructions and related requirements of specified frame standards or custom guidelines indicated.

B. Install fire rated units in accordance with NFPA 80.

C. Coordinate frame anchor placement with wall construction.

D. Install door hardware as specified in Section 08 71 00.

END OF SECTION 08 12 13

SECTION 08 14 16

FLUSH WOOD DOORS

PART 1 – GENERAL

1.01 RELATED REQUIREMENTS

A. Section 08 80 00 - Glazing.

1.02 REFERENCE STANDARDS

A. ASTM C1048 - Standard Specification for Heat-Strengthened and Fully Tempered Flat Glass; 2018.

B. AWI/AWMAC/WI (AWS) - Architectural Woodwork Standards, 2nd Edition; 2014, with Errata (2016).

C. AWMAC/WI (NAAWS) - North American Architectural Woodwork Standards; 2021, with Errata.

D. NFPA 80 - Standard for Fire Doors and Other Opening Protectives; 2022.

E. UL 10C - Standard for Positive Pressure Fire Tests of Door Assemblies; Current Edition, Including All Revisions.

1.03 SUBMITTALS

A. See Section 013000 - Administrative Requirements for submittal procedures.

B. Product Data: Indicate door core materials and construction; veneer species, type and characteristics.

C. Shop Drawings: Show doors and frames, elevations, sizes, types, swings, undercuts, beveling, blocking for hardware, factory machining, factory finishing, cutouts for glazing and other details.

D. Samples: Submit two samples of door veneer illustrating wood grain, stain color, and sheen.

E. Warranty, executed in Owner's name.

1.04 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section, with not less than three years of documented experience.

B. Woodwork Quality Assurance Program:

1. Provide labels indicating that the installed work complies with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS) requirements for grade or grades specified.

2. Provide designated labels on shop drawings as required by quality assurance program.

3. Provide designated labels on installed products as required by quality assurance program.

4. Submit documentation upon completion of installation that verifies this work is in compliance with specified requirements.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Package, deliver and store doors in accordance with specified quality standard.

B. Accept doors on site in manufacturer's packaging, and inspect for damage.

C. Protect doors with resilient packaging; do not store in damp or wet areas or areas where sunlight might bleach veneer; seal top and bottom edges if stored more than one week, and break seal on site to permit ventilation.

1.06 WARRANTY

A. Manufacturer Warranty: Provide manufacturer's warranty on interior doors for 2 years. Complete forms in Owner's name and register with manufacturer.

1. Include coverage for delamination of veneer, warping beyond specified installation tolerances, defective materials, and telegraphing core construction.

PART 2 – PRODUCTS

2.01 DOORS AND PANELS

A. Doors: See drawings for locations and additional requirements.

1. Quality Standard: Custom Grade, Standard Duty performance, in accordance with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS), unless noted otherwise.

2. Wood Veneer Faced Doors: 5-ply unless otherwise indicated.

B. Interior Doors: 1-3/4 inches (44 mm) thick unless otherwise indicated; flush construction.

1. Provide solid core doors at each location.

2. Fire Rated Doors: Tested to ratings indicated on drawings in accordance with UL 10C - Positive Pressure; Underwriters Laboratories Inc (UL) or Intertek/Warnock Hersey (WHI) labeled without any visible seals when door is open.

3. Wood veneer facing with factory transparent finish.

2.02 DOOR AND PANEL CORES

A. Non-Rated Solid Core: Type particleboard core (PC), plies and faces as indicated.

B. Fire-Rated Doors: Mineral core type, with fire resistant composite core (FD), plies and faces as indicated above; with core blocking as required to provide adequate anchorage of hardware without through-bolting.

2.03 DOOR FACINGS

A. Veneer Facing for Transparent Finish: Natural birch, veneer grade in accordance with quality standard indicated, rotary cut.

1. Vertical Edges: Same species as face veneer.

2.04 DOOR CONSTRUCTION

A. Fabricate doors in accordance with door quality standard specified.

B. Cores Constructed with stiles and rails:

C. Factory machine doors for hardware other than surface-mounted hardware, in accordance with hardware requirements and dimensions.

D. Factory fit doors for frame opening dimensions identified on shop drawings, with edge clearances in accordance with specified quality standard.

E. Provide edge clearances in accordance with the quality standard specified.

2.05 FINISHES - WOOD VENEER DOORS

A. Finish work in accordance with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS), Section 5 - Finishing for grade specified and as follows:

1. Transparent:

a. System - 11, Polyurethane, Catalyzed.

b. Sheen: Satin.

2.06 ACCESSORIES

A. Glazed Openings:

1. Heat-Strengthened and Fully Tempered Glass: ASTM C1048.

B. Glazing Stops: Wood, of same species as door facing, mitered corners; prepared for countersink style tamper proof screws.

PART 3 – EXECUTION

3.01 INSTALLATION

A. Install doors in accordance with manufacturer's instructions and specified quality standard.

1. Install fire-rated doors in accordance with NFPA 80 requirements.

B. Factory-Finished Doors: Do not field cut or trim; if fit or clearance is not correct, replace door.

C. Use machine tools to cut or drill for hardware.

D. Coordinate installation of doors with installation of frames and hardware.

E. Coordinate installation of glazing.

END OF SECTION 08 14 16

SECTION 08 31 00

ACCESS DOORS AND PANELS

PART 1 – GENERAL

1.01 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for submittal procedures.

B. Product Data: Provide sizes, types, finishes, hardware, scheduled locations, and details of adjoining work.

PART 2 – PRODUCTS

2.01 WALL- AND CEILING-MOUNTED ACCESS UNITS

A. Wall- and Ceiling-Mounted Units: Factory-fabricated door and frame, fully assembled units with corner joints welded, filled and ground flush; square and without rack or warp; coordinate requirements with type of installation assembly being used for each unit.

1. Material: Steel.
2. Style: Exposed frame with door surface flush with frame surface.
    a. Gypsum Board Mounting Criteria: Use drywall bead type frame.
3. Door Style: Single thickness with rolled or turned in edges.
4. Frames: 16-gauge, 0.0598-inch (1.52 mm) minimum thickness.
5. Single Steel Sheet Door Panels: 16-gauge, 0,0625-inch (1.6 mm) minimum thickness.
6. Steel Finish: Primed.
7. Hardware:
    a. Hinges for Non-Fire-Rated Units: Concealed, constant force closure spring type.
    b. Latch/Lock: Screwdriver slot for quarter turn cam latch.

PART 3 – EXECUTION

3.01 INSTALLATION

A. Install units in accordance with manufacturer's instructions.

B. Install frames plumb and level in openings, and secure units rigidly in place.

C. Position units to provide convenient access to concealed equipment when necessary.

END OF SECTION 08 31 00

SECTION 08 71 00

DOOR HARDWARE

PART 1 – GENERAL

1.01 REFERENCE STANDARDS

A. NFPA 80 - Standard for Fire Doors and Other Opening Protectives; 2022.

B. NFPA 252 - Standard Methods of Fire Tests of Door Assemblies; 2022.

C. UL (DIR) - Online Certifications Directory; Current Edition.

D. UL 10C - Standard for Positive Pressure Fire Tests of Door Assemblies; Current Edition, Including All Revisions.

1.02 ADMINISTRATIVE REQUIREMENTS

A. Coordinate the manufacture, fabrication, and installation of products that door hardware is installed on.

B. Furnish templates for door and frame preparation to manufacturers and fabricators of products requiring internal reinforcement for door hardware.

C. Keying Requirements Meeting:

1. Attendance Required:

a. Contractor.

b. Owner.

c. Hardware Installer.

2. Agenda:

a. Establish keying requirements.

b. Verify locksets and locking hardware are functionally correct for project requirements.

c. Verify that keying and programming complies with project requirements.

d. Establish keying submittal schedule and update requirements.

3. Incorporate "Keying Requirements Meeting" decisions into keying submittal upon review of door hardware keying system including, but not limited to, the following:

4. 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.

5. Deliver established keying requirements to manufacturers.

1.03 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for submittal procedures.

B. 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.

1.04 WARRANTY

A. Manufacturer's Warranty: Provide warranty against defects in material and workmanship for period indicated. Complete forms in Owner's name and register with manufacturer.

1. Closers: Five years, minimum.
2. Exit Devices: Three years, minimum.
3. Locksets and Cylinders: Three years, minimum.
4. Other Hardware: Two years, minimum.

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 individual items of single type, of same model, and by same manufacturer.

C. Provide door hardware products that comply with the following requirements:

1. Applicable provisions of federal, state, and local codes.
2. Fire-Rated Doors: NFPA 80, listed and labeled by qualified testing agency for fire protection ratings indicated, based on testing at positive pressure in accordance with NFPA 252 or UL 10C.
3. Hardware on Fire-Rated Doors: Listed and classified by UL (DIR) as suitable for application indicated.

2.02 FINISHES

PART 3 – EXECUTION – NOT USED

END OF SECTION 08 71 00

SECTION 08 80 00

GLAZING

PART 1 – GENERAL

1.01 REFERENCE STANDARDS

A. 16 CFR 1201 - Safety Standard for Architectural Glazing Materials; Current Edition.

B. ANSI Z97.1 - American National Standard for Safety Glazing Materials Used in Buildings - Safety Performance Specifications and Methods of Test; 2015 (Reaffirmed 2020).

C. ASTM C864 - Standard Specification for Dense Elastomeric Compression Seal Gaskets, Setting Blocks, and Spacers; 2005 (Reapproved 2019).

D. ASTM E1300 - Standard Practice for Determining Load Resistance of Glass in Buildings; 2016.

E. ASTM E2190 - Standard Specification for Insulating Glass Unit Performance and Evaluation; 2019.

F. NFRC 100 - Procedure for Determining Fenestration Product U-factors; 2023.

G. NFRC 200 - Procedure for Determining Fenestration Product Solar Heat Gain Coefficient and Visible Transmittance at Normal Incidence; 2023.

H. NFRC 300 - Test Method for Determining the Solar Optical Properties of Glazing Materials and Systems; 2023.

1.02 SUBMITTALS

A. See Section 013000 - Administrative Requirements for submittal procedures.

B. Product Data on Insulating Glass Unit Glazing Types: Provide structural, physical and environmental characteristics, size limitations, special handling and installation requirements.

C. Product Data on Glazing Compounds and Accessories: Provide chemical, functional, and environmental characteristics, limitations, special application requirements, and identify available colors.

D. Warranty Documentation: Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.

1.03 WARRANTY

A. Insulating Glass Units: Provide a five (5) year manufacturer warranty to include coverage for seal failure, interpane dusting or misting, including providing products to replace failed units.

PART 2 – PRODUCTS

2.01 PERFORMANCE REQUIREMENTS - EXTERIOR GLAZING ASSEMBLIES

A. Provide type and thickness of exterior glazing assemblies to support assembly dead loads, and to withstand live loads caused by positive and negative wind pressure acting normal to plane of glass.

1. Comply with ASTM E1300 for design load resistance of glass type, thickness, dimensions, and maximum lateral deflection of supported glass.

2. Provide glass edge support system sufficiently stiff to limit the lateral deflection of supported glass edges to less than 1/175 of their lengths under specified design load.

3. Glass thicknesses listed are minimum.

B. Weather-Resistive Barrier Seals: Provide completed assemblies that maintain continuity of building enclosure water-resistive barrier, vapor retarder, and/or air barrier.

1. In conjunction with weather barrier related materials described in other sections, as follows:

C. Thermal and Optical Performance: Provide exterior glazing products with performance properties as indicated. Performance properties are in accordance with manufacturer's published data as determined with the following procedures and/or test methods:

1. Center of Glass U-Value: Comply with NFRC 100 using Lawrence Berkeley National Laboratory (LBNL) WINDOW 6.3 computer program.

2. Center of Glass Solar Heat Gain Coefficient (SHGC): Comply with NFRC 200 using Lawrence Berkeley National Laboratory (LBNL) WINDOW 6.3 computer program.

3. Solar Optical Properties: Comply with NFRC 300 test method.

2.02 GLASS MATERIALS

A. Float Glass: Provide float glass based glazing unless otherwise indicated.

1. Fully Tempered Safety Glass: Complies with ANSI Z97.1 or 16 CFR 1201 criteria for safety glazing used in hazardous locations.

2.03 INSULATING GLASS UNITS

A. Insulating Glass Units: Types as indicated.

1. Durability: Certified by an independent testing agency to comply with ASTM E2190.

2. Warm-Edge Spacers: Low-conductivity thermoplastic with desiccant warm-edge technology design.

a. Spacer Width: As required for specified insulating glass unit.

b. Spacer Height: Manufacturer's standard.

3. Spacer Color: Black.

4. Edge Seal:
    a. Dual-Sealed System: Provide polyisobutylene sealant as primary seal applied between spacer and glass panes, and silicone, polysulfide, or polyurethane sealant as secondary seal applied around perimeter.
    b. Color: Black.
5. Purge interpane space with dry air, hermetically sealed.

B. Insulating Glass Units: Safety glazing.

1. Applications:
    a. Glazed lites in exterior doors.
    b. Glazed sidelights and panels next to doors.
    c. Other locations required by applicable federal, state, and local codes and regulations.
2. Space between lites filled with argon.
3. Glass Type: Same as other vision glazing except use fully tempered float glass for both outboard and inboard lites.
4. Tint: Clear.
5. Total Thickness: 1 inch (25.4 mm).

2.04 ACCESSORIES

A. Setting Blocks: Silicone, with 80 to 90 Shore A durometer hardness; ASTM C864 Option II. Length of 0.1 inch for each square foot (25 mm for each square meter) of glazing or minimum 4 inch (100 mm) by width of glazing rabbet space minus 1/16 inch (1.5 mm) by height to suit glazing method and pane weight and area.

PART 3 – EXECUTION

3.01 INSTALLATION, GENERAL

3.02 INSTALLATION - DRY GLAZING METHOD (GASKET GLAZING)

A. Application - Exterior and/or Interior Glazed: Set glazing infills from either the exterior or the interior of the building.

B. Place setting blocks at 1/4 points with edge block no more than 6 inch (152 mm) from corners.

C. Rest glazing on setting blocks and push against fixed stop with sufficient pressure on gasket to attain full contact.

D. Install removable stops without displacing glazing gasket; exert pressure for full continuous contact.

END OF SECTION 08 80 00

DIVISION 9

FINISHES

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SECTION 09 21 16

GYPSUM BOARD ASSEMBLIES

PART 1 – GENERAL

1.01 REFERENCE STANDARDS

A. ASTM C475/C475M - Standard Specification for Joint Compound and Joint Tape for Finishing Gypsum Board; 2017 (Reapproved 2022).

B. ASTM C665 - Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing; 2023.

C. ASTM C840 - Standard Specification for Application and Finishing of Gypsum Board; 2023.

D. ASTM C1047 - Standard Specification for Accessories for Gypsum Wallboard and Gypsum Veneer Base; 2019.

E. ASTM C1396/C1396M - Standard Specification for Gypsum Board; 2017.

F. ASTM D3273 - Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber; 2021.

G. ASTM E90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements; 2023.

H. ASTM E413 - Classification for Rating Sound Insulation; 2022.

I. GA-216 - Application and Finishing of Gypsum Panel Products; 2021.

1.02 1.02 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for submittal procedures.

B. Product Data:

1. Provide data on gypsum board, accessories, and joint finishing system.

PART 2 – PART 2 PRODUCTS

2.01 GYPSUM BOARD ASSEMBLIES

A. Provide completed assemblies complying with ASTM C840 and GA-216.

1. See PART 3 for finishing requirements.

B. Interior Partitions: Provide completed assemblies with the following characteristics:

1. Acoustic Attenuation: STC of 45-49 calculated in accordance with ASTM E413, based on tests conducted in accordance with ASTM E90.

C. Fire-Resistance-Rated Assemblies: Provide completed assemblies complying with applicable code.

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. Thickness:
   a. Vertical Surfaces: 5/8 inch (16 mm).
   b. Ceilings: 5/8 inch (16 mm).

B. Backing Board For Wet Areas:

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.

C. Backing Board For Non-Wet Areas: Water-resistant gypsum backing board as defined in ASTM C1396/C1396M; sizes to minimum joints in place; ends square cut.

1. Application: Vertical surfaces behind thinset tile, except in wet areas.
2. Mold Resistance: Score of 10, when tested in accordance with ASTM D3273.
3. Type: Regular and Type X, in locations indicated.
4. Type X Thickness: 5/8 inch (16 mm).
5. Regular Board Thickness: 5/8 inch (16 mm).
6. Edges: Tapered.

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: 5/8 inch (16 mm).
3. Edges: Tapered.

2.03 GYPSUM BOARD ACCESSORIES

A. Acoustic Insulation: ASTM C665; preformed mineral-fiber, friction fit type, unfaced; thickness 2 inches (50.8 mm).

B. Acoustic Sealant: Acrylic emulsion latex or water-based elastomeric sealant; do not use solvent-based non-curing butyl sealant.

C. Beads, Joint Accessories, and Other Trim: ASTM C1047, rigid plastic, galvanized steel, or rolled zinc, unless noted otherwise.

D. Joint Materials: ASTM C475/C475M and as recommended by gypsum board manufacturer for project conditions.

PART 3 – PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that project conditions are appropriate for work of this section to commence.

3.02 ACOUSTIC ACCESSORIES INSTALLATION

A. Acoustic Insulation: Place tightly within spaces, around cut openings, behind and around electrical and mechanical items within partitions, and tight to items passing through partitions.

B. Acoustic Sealant: Install in accordance with 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. Fire-Resistance-Rated Construction: Install gypsum board in strict compliance with requirements of assembly listing.

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 1: Fire-resistance-rated wall areas above finished ceilings, whether or not accessible in the completed construction.

C. Tape, fill, and sand exposed joints, edges, and corners to produce smooth surface ready to receive finishes.

1. Feather coats of joint compound so that camber is maximum 1/32 inch (0.8 mm).

END OF SECTION 09 21 16

SECTION 09 30 00

TILING

PART 1 – GENERAL

1.01 REFERENCE STANDARDS

A. ANSI A108.1a - American National Standard Specifications for Installation of Ceramic Tile in the Wet-Set Method, with Portland Cement Mortar; 2017 (Reaffirmed 2022).

B. ANSI A108.1b - American National Standard Specifications for Installation of Ceramic Tile on a Cured Portland Cement Mortar Setting Bed with Dry-Set or Latex-Portland Cement Mortar; 2017.

C. ANSI A108.1c - Contractor's Option: Installation of Ceramic Tile in the Wet-Set Method with Portland Cement Mortar or Installation of Ceramic Tile on a Cured Portland Cement Mortar Setting Bed with Dry-Set or Latex-Portland Cement Mortar; 1999 (Reaffirmed 2021).

D. ANSI A108.2 - American National Standard General Requirements: Materials, Environmental and Workmanship; 2019.

E. ANSI A108.4 - American National Standard Specifications for Installation of Ceramic Tile with Organic Adhesive or Water Cleanable Tile-Setting Epoxy Adhesive; 2019.

F. ANSI A108.5 - American National Standard Specifications for Installation of Ceramic Tile with Dry-Set Portland Cement Mortar or Latex-Portland Cement Mortar; 2021.

G. ANSI A108.6 - American National Standard Specifications for Installation of Ceramic Tile with Chemical Resistant, Water Cleanable Tile-Setting and -Grout Epoxy; 1999 (Reaffirmed 2019).

H. ANSI A108.8 - American National Standard Specifications for Installation of Ceramic Tile with Chemical Resistant Furan Resin Mortar and Grout; 1999 (Reaffirmed 2019).

I. ANSI A108.9 - American National Standard Specifications for Installation of Ceramic Tile with Modified Epoxy Emulsion Mortar/Grout; 1999 (Reaffirmed 2019).

J. ANSI A108.10 - American National Standard Specifications for Installation of Grout in Tilework; 2017 (Reaffirmed 2022).

K. ANSI A108.12 - American National Standard for Installation of Ceramic Tile with EGP (Exterior Glue Plywood) Latex-Portland Cement Mortar; 1999 (Reaffirmed 2019).

L. ANSI A108.13 - American National Standard for Installation of Load Bearing, Bonded, Waterproof Membranes for Thin-Set Ceramic Tile and Dimension Stone; 2005 (Reaffirmed 2021).

M. ANSI A108.19 - American National Standard Specifications for Interior Installation of Gauged Porcelain Tiles and Gauged Porcelain Tile Panels/Slabs by the Thin-Bed Method Bonded with Modified Dry-Set Cement Mortar or Improved Modified Dry-Set Cement Mortar; 2020.

N. ANSI A108.20 - American National Standard Specifications for Exterior Installation of Gauged Porcelain Tiles and Gauged Porcelain Tile Panels/Slabs; 2020.

O. ANSI A118.7 - American National Standard Specifications for High Performance Cement Grouts for Tile Installation; 2019.

P. ANSI A136.1 - American National Standard Specifications for Organic Adhesives for Installation of Ceramic Tile; 2020.

Q. ANSI A137.1 - American National Standard Specifications for Ceramic Tile; 2022.

R. TCNA (HB) - Handbook for Ceramic, Glass, and Stone Tile Installation; 2023.

S. TCNA (HB-GP) - Handbook for Gauged Porcelain Tiles and Gauged Porcelain Tile Panels/Slabs Installation; 2023.

1.02 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for submittal procedures.

B. Product Data: Provide manufacturers' data sheets on tile, mortar, grout, and accessories. Include instructions for using grouts and adhesives.

PART 2 – PART 2 PRODUCTS

2.01 TILE

A. Manufacturers: All products of each type by the same manufacturer.

B. Ceramic Mosaic Tile:

1. Manufacturerf and color(s): As indicated on drawings.

2. Trim Units: Matching bead, cove, and surface bullnose shapes in sizes coordinated with field tile.

C. Glazed Wall Tile:

1. Manufacturer and color(s): As indicated on drawings.

2. Trim Units: Matching bead, bullnose, cove, and base shapes in sizes coordinated with field tile.

2.02 TRIM AND ACCESSORIES

A. Ceramic Trim: Matching bullnose, double bullnose, cove base, and cove ceramic shapes in sizes coordinated with field tile.

1. Manufacturers: Same as for tile.

B. Non-Ceramic Trim: Satin brass anodized extruded aluminum, style and dimensions to suit application, set with tile mortar or adhesive.

2.03 SETTING MATERIALS

A. Provide setting and grout materials from same manufacturer.

B. Organic Adhesive: ANSI A136.1, thinset mastic type.

2.04 GROUTS

A. Provide setting and grout materials from same manufacturer.

B. High Performance Polymer Modified Grout: ANSI A118.7 polymer modified cement grout.

1. Applications: Use this type of grout where indicated and where no other type of grout is indicated.
2. Use sanded grout for joints 1/8 inch (3.2 mm) wide and larger; use unsanded grout for joints less than 1/8 inch (3.2 mm) wide.

2.05 ACCESSORY MATERIALS

PART 3 – EXECUTION

3.01 INSTALLATION - GENERAL

A. Install tile and grout in accordance with applicable requirements of ANSI A108.1a through ANSI A108.20, manufacturer's instructions, and TCNA (HB) or TCNA (HB-GP) recommendations, as applicable.

B. Lay tile to pattern indicated. Do not interrupt tile pattern through openings.

C. Cut and fit tile to penetrations through tile, leaving sealant joint space. Form corners and bases neatly. Align floor joints.

D. Place tile joints uniform in width, subject to variance in tolerance allowed in tile size. Make grout joints without voids, cracks, excess mortar or excess grout, or too little grout.

E. Form internal angles square and external angles bullnosed.

F. Install non-ceramic trim in accordance with manufacturer's instructions.

G. Sound tile after setting. Replace hollow sounding units.

H. Keep control and expansion joints free of mortar, grout, and adhesive.

I. Prior to grouting, allow installation to completely cure; minimum of 48 hours.

J. Grout tile joints unless otherwise indicated. Use standard grout unless otherwise indicated.

K. At changes in plane and tile-to-tile control joints, use tile sealant instead of grout, with either bond breaker tape or backer rod as appropriate to prevent three-sided bonding.

3.02 INSTALLATION - FLOORS - THIN-SET METHODS

A. Over wood substrates, install in accordance with TCNA (HB) Method F142, with standard grout, unless otherwise indicated.

3.03 INSTALLATION - WALL TILE

A. Over gypsum wallboard on wood or metal studs install in accordance with TCNA (HB) Method W223, thin-set with organic adhesive, unless otherwise indicated.

END OF SECTION 09 30 00

SECTION 09 51 00

ACOUSTICAL CEILINGS

PART 1 – GENERAL

1.01 REFERENCE STANDARDS

A. ASTM C635/C635M - Standard Specification for Manufacture, Performance, and Testing of Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings; 2022.

B. ASTM C636/C636M - Standard Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels; 2019.

C. ASTM E580/E580M - Standard Practice for Installation of Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels in Areas Subject to Earthquake Ground Motions; 2022.

1.02 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for submittal procedures.

B. Product Data: Provide data on suspension system components and acoustical units.

1.03 QUALITY ASSURANCE

1.04 FIELD CONDITIONS

A. Maintain uniform temperature of minimum 60°F (16°C), and maximum humidity of 40 percent prior to, during, and after acoustical unit installation.

PART 2 – PRODUCTS

2.01 ACOUSTICAL UNITS

A. Acoustical Panels: Painted mineral fiber, with the following characteristics:

1. Manufacturer: Armstrong World Industries.
2. Product: Ultima High NRC.
3. Size: 24 by 48 inches (610 by 1219 mm).
4. Thickness: 7/8 inch (22 mm).
5. Panel Edge: Angled Tegular 15/16" for interface with PRELUDE XL 15/16" Exposed Tee grid.
6. Suspension System: Exposed grid.

2.02 SUSPENSION SYSTEM(S)

A. Metal Suspension Systems - General: Complying with ASTM C635/C635M; die cut and interlocking components, with perimeter moldings, hold down clips, stabilizer bars, clips, and splices as required.

B. Metal Suspension Systems - General: Complying with ASTM C635/C635M; die cut and interlocking components, with perimeter moldings, hold down clips, stabilizer bars, clips, and splices as required.

C. Exposed Suspension System: Hot-dipped galvanized steel grid with steel cap.

1. Application(s): Seismic.
2. Manufacturer: Armstrong World Industries.
3. Product: PRELUDE XL Exposed Tee
   a. Profile: Tee; 15/16 inch (24 mm) face width.
   b. Finish: Baked enamel.
   c. Color: White.

2.03 ACCESSORIES

A. Support Channels and Hangers: Galvanized steel; size and type to suit application, seismic requirements, and ceiling system flatness requirement specified.

B. Hanger Wire: 12 gauge, 0.08 inch (2 mm) galvanized steel wire.

C. Hold-Down Clips: Manufacturer's standard clips to suit application.

D. Seismic Clips: Manufacturer's standard clips for seismic conditions and to suit application.

E. Perimeter Moldings: Same metal and finish as grid.

1. Size: As required for installation conditions and specified Seismic Design Category.

F. Acoustical Insulation: ASTM C665 friction fit type, unfaced batts.

PART 3 – EXECUTION

3.01 PREPARATION

A. Install after major above-ceiling work is complete.

B. Coordinate the location of hangers with other work.

3.02 INSTALLATION - SUSPENSION SYSTEM

A. Install suspension system in accordance with ASTM C636/C636M, ASTM E580/E580M, and manufacturer's instructions and as supplemented in this section.

B. Rigidly secure system, including integral mechanical and electrical components, for maximum deflection of 1:360.

C. Lay out system to a balanced grid design with edge units no less than 50 percent of acoustical unit size.

D. Perimeter Molding: Install at intersection of ceiling and vertical surfaces and at junctions with other interruptions.

1. Use longest practical lengths.

E. Suspension System, Non-Seismic: Hang suspension system independent of walls, columns, ducts, pipes and conduit. Where carrying members are spliced, avoid visible displacement of face plane of adjacent members.

F. Where ducts or other equipment prevent the regular spacing of hangers, reinforce the nearest affected hangers and related carrying channels to span the extra distance.

G. Do not support components on main runners or cross runners if weight causes total dead load to exceed deflection capability.

H. Support fixture loads using supplementary hangers located within 6 inches (152 mm) of each corner, or support components independently.

I. Do not eccentrically load system or induce rotation of runners.

3.03 INSTALLATION - ACOUSTICAL UNITS

A. Install acoustical units in accordance with manufacturer's instructions.

B. Fit acoustical units in place, free from damaged edges or other defects detrimental to appearance and function.

C. Lay directional patterned units with pattern parallel to longest room axis.

D. Fit border trim neatly against abutting surfaces.

E. Install acoustical units level, in uniform plane, and free from twist, warp, and dents.

F. Cutting Acoustical Units:

1. Make field cut edges of same profile as factory edges.

END OF SECTION 09 51 00

SECTION 09 65 00

RESILIENT FLOORING

PART 1 – GENERAL

1.01 REFERENCE STANDARDS

A. ASTM F970 - Standard Test Method for Measuring Recovery Properties of Floor Coverings after Static Loading; 2022.

B. ASTM F1861 - Standard Specification for Resilient Wall Base; 2021.

C. ASTM F1913 - Standard Specification for Vinyl Sheet Floor Covering Without Backing; 2019.

1.02 SUBMITTALS

A. See Section 013000 - Administrative Requirements for submittal procedures.

B. Product Data: Provide data on specified products, describing physical and performance characteristics; including sizes, patterns and colors available; and installation instructions.

C. Verification Samples: Submit two samples, 2 by 2 inch (50 by 50 mm) in size illustrating color and pattern for each resilient flooring product specified.

PART 2 – PRODUCTS

2.01 SHEET FLOORING

A. Vinyl Sheet Flooring: Homogeneous without backing, with color and pattern throughout full thickness.

1. Minimum Requirements: Comply with ASTM F1913.
2. Thickness: 0.080 inch (2.0 mm) nominal.
3. Sheet Width: 72 inch (1830 mm) minimum.
4. Static Load Resistance: 250 psi (1725 kPa) minimum, when tested as specified in ASTM F970.
5. Seams: Heat welded.
6. Manufacturer, color and type: As indicated on drawings.

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 RESILIENT BASE

A. Resilient Base: ASTM F1861, Type TS, rubber, vulcanized thermoset; style as scheduled.

1. Height: 4 inches (100 mm).
2. Thickness: 0.125 inch (3.2 mm).
3. Finish: Satin.

4. Length: Roll.
5. Color: As indicated on drawings.

2.03 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.

PART 3 – EXECUTION

3.01 INSTALLATION - GENERAL

A. Starting installation constitutes acceptance of subfloor conditions.

B. Install in accordance with manufacturer's written instructions.

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. Seal seams by heat welding where indicated.

3.03 INSTALLATION - RESILIENT BASE

A. Fit joints tightly and make vertical. Maintain minimum dimension of 18 inches (45 mm) between joints.

B. Install base on solid backing. Bond tightly to wall and floor surfaces.

END OF SECTION 09 65 00

SECTION 09 68 13

TILE CARPETING

PART 1 – PART 1 GENERAL

1.01 SUBMITTALS

A. See Section 013000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide data on specified products, describing physical and performance characteristics; sizes, patterns, colors available, and method of installation.

C. Samples: Submit two carpet tiles illustrating color and pattern design for each carpet color selected.

D. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.

1. Extra Carpet Tiles: Quantity equal to 5 percent of total installed of each color and pattern installed.

PART 2 – PRODUCTS

2.01 MATERIALS

A. Walkoff Tile

1. Product: First Step 11 manufactured by Mohawk
2. Tile Size: 24 by 24 inches.
3. Style: QL315

B. Tile Carpeting: Manufactured in one color dye lot.

1. Product: as indicated on the drawings.
2. Tile Size: As indicated on the drawings.

2.02 ACCESSORIES

A. Subfloor Filler: White premix latex; type recommended by flooring material manufacturer.

B. Edge Strips: Embossed aluminum, color as selected by Architect.

C. Carpet Tile Adhesive: Recommended by carpet tile manufacturer; releasable type.

PART 3 – EXECUTION

3.01 INSTALLATION

A. Starting installation constitutes acceptance of subfloor conditions.

B. Install carpet tile in accordance with manufacturer's instructions.

C. Blend carpet from different cartons to ensure minimal variation in color match.

D. Cut carpet tile clean. Fit carpet tight to intersection with vertical surfaces without gaps.

E. Lay carpet tile in quarter turn pattern, with pile direction parallel to next unit.

F. Trim carpet tile neatly at walls and around interruptions.

G. Complete installation of edge strips, concealing exposed edges.

END OF SECTION 09 68 13

SECTION 09 90 00

PAINTING AND COATING

PART 1 – GENERAL

1.01 SECTION INCLUDES

A. Surface preparation.

B. Interior painting and coating systems.

C. Exterior painting and coating systems.

D. Scope:

1. Finish surfaces exposed to view, unless fully factory-finished and unless otherwise indicated, including the following:

a. Exterior:

1) Concrete: Poured-in-place cement.

2) Metal, Miscellaneous: Iron, ornamental iron, structural iron and steel, ferrous metal.

2. Vinyl siding.

a. Interior:

1) Wood: Walls, ceilings, doors, and trim.

2) Drywall: Walls, ceilings, gypsum board, and similar items.

1.02 SUBMITTALS

A. See Section 013000 - Administrative Requirements for submittal procedures.

B. Product Data: Provide complete list of products to be used, with the following information for each:

1. Product characteristics.

2. Surface preparation instructions and recommendations.

3. Primer requirements and finish specification.

4. Storage and handling requirements and recommendations.

5. Application methods.

6. Clean-up information.

PART 2 – PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Basis of Design Products: Subject to compliance with requirements, provide Sherwin-Williams Company (The) products indicated; www.sherwin-williams.com/#sle.

2.02 PAINTINGS AND COATINGS

A. General:

1. Provide factory-mixed coatings unless otherwise indicated.
2. Do not reduce, thin, or dilute coatings or add materials to coatings unless specifically indicated in manufacturer's instructions.

B. Accessory Materials: Provide primers, sealers, cleaning agents, cleaning cloths, sanding materials, and clean-up materials as required for final completion of painted surfaces.

2.03 PAINT SYSTEMS - EXTERIOR

A. Concrete: Poured-in-place cement.

1. Latex Systems:
   a. Flat Finish:
      1) 1st Coat: Sherwin-Williams Loxon Concrete and Masonry Primer Sealer LX02W50: www.sherwin-williams.com.
      2) 2nd and 3rd Coat: Sherwin-Williams A-100 Exterior Latex Flat, A6 Series: www.sherwin-williams.com.

B. Metal, Miscellaneous: Iron, ornamental iron, structural iron and steel, ferrous metal.

1. Alkyd Systems, Water Based:
   a. Semi-Gloss Finish:
      1) 1st Coat: Sherwin-Williams Pro Industrial Pro-Cryl Universal Primer, B66-1310 Series: www.sherwin-williams.com.
      2) 2nd and 3rd Coat: Sherwin-Williams Pro Industrial Water Based Alkyd Urethane Enamel Semi-Gloss, B53-1150 Series: www.sherwin-williams.com.

C. Vinyl Siding:

1. Latex Systems:
   a. Satin Finish:
      1) 1st and 2nd Coat: Sherwin-Williams A-100 Exterior Latex Satin, A82 Series: www.sherwin-williams.com.

2.04 PAINT SYSTEMS - INTERIOR

A. Wood: Walls, ceilings, doors, and trim.

1. Alkyd Systems, Water Based:
   a. Semi-Gloss Finish:
      1) 1st Coat: Sherwin-Williams Premium Wall and Wood Primer, B28W8111: www.sherwin-williams.com.

2) 2nd and 3rd Coat: Sherwin-Williams Pro Industrial Water Based Alkyd Urethane Enamel Semi-Gloss, B53-1150 Series: www.sherwin-williams.com.

B. Drywall: Walls, ceilings, gypsum board, and similar items.

1. Latex Systems:

a. Eg-Shel Finish:

1) 1st Coat: Sherwin-Williams ProMar 200 Zero VOC Interior Latex Primer, B28W2600: www.sherwin-williams.com/#sle.

2) 2nd and 3rd Coat: Sherwin-Williams ProMar 200 Zero VOC Eg-Shel, B20-2600 Series: www.sherwin-williams.com/#sle.

2. Epoxy Systems, Water Based: (Kitchens and Toilet Rooms)

a. Eg-Shel/Low Luster Finish:

1) 1st Coat: Sherwin-Williams ProMar 200 Zero VOC Interior Latex Primer, B28W2600: www.sherwin-williams.com.

2) 2nd and 3rd Coat: Sherwin-Williams Pro Industrial Pre-Catalyzed Waterbased Epoxy, K45 Series: www.sherwin-williams.com.

PART 3 – PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that surfaces are ready to receive work as instructed by the product manufacturer.

B. Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially effect proper application.

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. Remove unfinished louvers, grilles, covers, and access panels on mechanical and electrical components and paint separately.

B. Apply products in accordance with manufacturer's written instructions.

C. Apply coatings at spread rate required to achieve manufacturer's recommended dry film thickness.

3.04 PRIMING

A. Apply primer to all surfaces unless specifically not required by coating manufacturer. Apply in accordance with coating manufacturer's instructions.

B. Primers specified in painting schedules may be omitted on items that are factory primed or factory finished if acceptable to top coat manufacturers.

END OF SECTION 09 90 00

DIVISION 10

SPECIALTIES

10 14 23	Panel Signage
10 26 00	Wall and Door Protection
10 28 00	Toilet, Bath, and Laundry Accessories
10 28 19	Tub and Shower Enclosures
10 44 00	Fire Protection Specialties
10 51 13	Metal Lockers
10 73 16.13	Metal Canopies

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SECTION 10 14 23

PANEL SIGNAGE

PART 1 – GENERAL

1.01 REFERENCE STANDARDS

A. ADA Standards - 2010 ADA Standards for Accessible Design; 2010.

B. ICC A117.1 - Accessible and Usable Buildings and Facilities; 2017.

1.02 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for submittal procedures.

B. Product Data: Manufacturer's product literature for each type of panel sign, indicating styles, font, foreground and background colors, locations, and overall dimensions of each sign.

C. Shop Drawings:

1. Include dimensions, locations, elevations, materials, text and graphic layout, attachment details, and schedules.

D. Verification Samples: Submit samples showing colors, materials, and finishes specified.

PART 2 – PRODUCTS

2.01 REGULATORY REQUIREMENTS

A. Accessibility Requirements: Comply with ADA Standards and ICC A117.1 and applicable building codes, unless otherwise indicated; in the event of conflicting requirements, comply with the most restrictive requirements.

2.02 PANEL SIGNAGE

A. Panel Signage:

1. Application: Room and door signs.
2. Description: Flat signs with engraved panel media, tactile characters.
3. Sign Size: Nominal 4 inches by 6 inches (100 mm by 152 mm).
4. Total Thickness: 1/8 inch (3 mm).
5. Sign Edges: Squared.
6. Letter Edges: Squared.
7. Corners: Radiused.
8. Color and Font, unless otherwise indicated:
   a. Character Font: Helvetica, Arial, or other sans serif font.
   b. Character Case: Upper case only.
   c. Background Color: As scheduled.

d. Character Color: Contrasting color.

9. Material: Laminated colored plastic engraved through face to expose core as background color.
10. Profile: Flat panel without frame.
11. Tactile Letters: Raised 1/32 inch minimum.
12. Braille: Grade II, ADA-compliant.

2.03 SIGNAGE APPLICATIONS

A. Room and Door Signs:

1. Service Rooms: Identify with room names and numbers to be determined later, not those indicated on drawings.
2. Rest Rooms: Identify with pictograms, the names "MEN" and "WOMEN," room numbers to be determined later, and braille.

2.04 ACCESSORIES

A. Tape Adhesive: Double-sided tape, permanent adhesive.

PART 3 – EXECUTION

3.01 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Install with horizontal edges level.

C. Locate panel signs and mount at heights indicated on drawings and in accordance with ADA Standards and ICC A117.1.

END OF SECTION 10 14 23

SECTION 10 26 00

WALL AND DOOR PROTECTION

PART 1 – GENERAL

1.01 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for submittal procedures.

B. Product Data: Indicate physical dimensions, features, wall mounting brackets with mounted measurements, anchorage details, and rough-in measurements.

PART 2 – PRODUCTS

2.01 PRODUCT TYPES

A. Corner Guards - Surface Mounted:

1. Manufacturer: Koroseal Interior Products. Model: Korogard G915
2. Width of Wings: 1 1/2" X 1 1/2."
3. Corner Angle: 90 degrees.
4. Length: One piece, 72-inches.
5. Mounting: Clear adhesive.

2.02 FABRICATION

A. Fabricate components with tight joints, corners, and seams.

PART 3 – EXECUTION

3.01 INSTALLATION

A. Position corner guard 4 inches (102 mm) above finished floor.

END OF SECTION 10 26 00

SECTION 10 28 00

TOILET, BATH, AND LAUNDRY ACCESSORIES

PART 1 – GENERAL

1.01 REFERENCE STANDARDS

A. ASTM A269/A269M - Standard Specification for Seamless and Welded Austenitic Stainless Steel Tubing for General Service; 2022.

B. ASTM A666 - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar; 2023.

C. ASTM C1036 - Standard Specification for Flat Glass; 2021.

D. ASTM C1503 - Standard Specification for Silvered Flat Glass Mirror; 2024.

1.02 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Product Data: Submit data on accessories describing size, finish, details of function, and attachment methods.

PART 2 – PRODUCTS

2.01 MANUFACTURERS

A. Provide products as listed below.

2.02 MATERIALS

A. Accessories - General: Shop assembled, free of dents and scratches and packaged complete with anchors and fittings, steel anchor plates, adapters, and anchor components for installation.

B. Keys: Provide 2 keys for each accessory to Owner.

C. Stainless Steel Sheet: ASTM A666, Type 304.

D. Stainless Steel Tubing: ASTM A269/A269M, Grade TP304 or TP316.

E. Mirror Glass: Annealed float glass, ASTM C1036 Type I, Class 1, Quality Q2, with silvering, protective and physical characteristics complying with ASTM C1503.

2.03 FINISHES

A. Stainless Steel: Satin finish, unless otherwise noted.

2.04 COMMERCIAL TOILET ACCESSORIES

A. Toilet Paper Dispenser: Kleenline Twin Small Core. Model: DS-30088

B. Paper Towel Dispenser: Georgia Pacific PRO PushPaddle. Model: 54338A

C. Soap Dispenser: Waxie Nice Touch Manual, black. Model 9033-12BCE00

D. Mirrors: Stainless steel framed. Bobrick Model: B-166 1830.

1. Annealed Float Glass: Silvering, protective and physical characteristics in compliance with ASTM C1503.
2. Size: 18" x 30."
3. Frame: channel shapes, with mitered and welded and ground corners, and tamperproof hanging system; satin finish.
4. Shelf: Stainless steel; gauge and finish to match mirror frame, turned down edges, welded to frame; 5 inches (125 mm) deep, full width of mirror.

E. Seat Cover Dispenser: Waxie Half-Fold Chrome Plated. Model: 45C

F. Grab Bars: Stainless steel, peened surface.

1. Standard Duty Grab Bars:
   a. Push/Pull Point Load: 250 pound-force (1112 N), minimum.
   b. Dimensions: 1-1/4 inch (32 mm) outside diameter, minimum 0.05 inch (1.3 mm) wall thickness, exposed flange mounting, 1-1/2 inch (38 mm) clearance between wall and inside of grab bar.
   c. Finish: Satin.
   d. Length and Configuration: As indicated on drawings.

G. Clothes Hook. Model: B-223.

1. Mount on backside of each restroom door, and elswhere as indicated on drawings.

H. Sanitary Napkin Disposal Unit: Bobrick Model: B-270.

I. Diaper Changing Station. Bobrick Koala Kare. Model: KB208 Oval Wall Mounted

PART 3 – PART 3 EXECUTION

3.01 INSTALLATION

A. Install accessories in accordance with manufacturers' instructions in locations indicated on drawings.

B. Install plumb and level, securely and rigidly anchored to substrate.

C. Mounting Heights: As required by accessibility regulations, unless otherwise indicated.

END OF SECTION 10 28 00

SECTION 10 28 19

TUB AND SHOWER ENCLOSURES

PART 1 – GENERAL

1.01 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide manufacturer's literature for enclosure.

C. Shop Drawings: Indicate layout, dimensions, identification of components, and interface with adjacent construction.

PART 2 – PRODUCTS

2.01 TUB AND SHOWER SURROUNDS

A. Manufacturer: American Bath Group.

B. Model: Aquatic 16030TRCOL, one-piece shower surround.

1. Dimensions: 60" x 30" x76.75," alcove configuration
2. Accessibility: ADA-ANSI compliant, barrier free, roll-in.
3. Drainage: manufacturer's standard trench drain.
4. Color: White.
5. Accessories.
    a. ADA Compliant stainless steel grab bars: (1) 20" x 1-1/4" dia. grab bar; (1) 30" x 1-1/4" dia. grab bar.
    b. White, L-shaped fold-up seat
    c. Pressure mixing valve
    d. Handheld shower assembly.
    e. Stainless steel grate at trench drain.
    f. Large soap dish (12-1/2" W x 3-1/2" D x 11-1/2 H)
    g. Curtain Rod
    h. Shower Curtain
    i. Brass drain.

PART 3 – EXECUTION

3.01 INSTALLATION

A. Install in accordance with manufacturer's instructions and approved shop drawings.

B. Fit and align tub and shower enclosure level and plumb.

END OF SECTION 10 28 19

SECTION 10 44 00

FIRE PROTECTION SPECIALTIES

PART 1 – GENERAL

1.01 REFERENCE STANDARDS

A. NFPA 10 - Standard for Portable Fire Extinguishers; 2022.

1.02 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide extinguisher operational features.

PART 2 – PRODUCTS

2.01 FIRE EXTINGUISHERS

A. Fire Extinguishers - General: Comply with product requirements of NFPA 10 and applicable codes, whichever is more stringent.

B. Multipurpose Dry Chemical Type Fire Extinguishers: Carbon steel tank, with pressure gauge.

1. Class: A:B:C type.

2. Size: 5 pound (2.27 kg).

2.02 FIRE EXTINGUISHER CABINETS

A. Cabinet Configuration: Semi-recessed type.

1. Exterior nominal dimensions to accommodate specified fire extinguisher type and size.

2. Trim: Flat square edge.

B. Door: 0.036 inch (0.9 mm) metal thickness, reinforced for flatness and rigidity with roller type catch. Hinge doors for 180 degree opening with continuous piano hinge.

C. Door Glazing: Tempered glass, clear, 1/8 inch (3 mm) thick, and set in resilient channel glazing gasket.

D. Finish of Cabinet Exterior Trim and Door: Red enamel.

E. Finish of Cabinet Interior: White colored enamel.

2.03 2.03 ACCESSORIES

A. Extinguisher Brackets: Formed steel, chrome-plated.

PART 3 – PART 3 EXECUTION

3.01 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Install cabinets plumb and level in wall openings, dimension from finished floor to inside bottom of cabinet per ADA requirements.

C. Place extinguishers in cabinets.

END OF SECTION 10 44 00

SECTION 10 51 13

METAL LOCKERS

PART 1 – GENERAL

1.01 REFERENCE STANDARDS

A. ADA Standards - 2010 ADA Standards for Accessible Design; 2010.

B. ASTM A1008/A1008M - Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Required Hardness, Solution Hardened, and Bake Hardenable; 2023, with Editorial Revision.

C. Accessible and Usable Buildings and Facilities; 2017.

1.02 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for submittal procedures.

B. Product Data: Manufacturer's published data on locker construction, sizes, and accessories.

C. Shop Drawings: Indicate locker plan layout, numbering plan and combination lock code.

PART 2 – PRODUCTS

2.01 LOCKER APPLICATIONS

A. Wardrobe Lockers: Metal lockers, free-standing with matching closed base.

1. Width: 12 inches (305 mm).
2. Depth: 12 inches (305 mm).
3. Height: 72 inches (1830 mm).
4. Configuration: Single tier.
5. Fittings: Size and configuration as indicated on drawings.
    a. Hat shelf.
    b. Single shoe shelf.
    c. Hooks: One double prong.
6. Ventilation: Louvers at top and bottom of door panel.
7. Locking: Built-in combination locks.

2.02 METAL LOCKERS

A. Accessibility: Design units indicated on drawings as 'accessible' to comply with ICC A117.1 and ADA Standards.

B. Locker Case Construction:

1. Standard-Duty, Fully Assembled Construction: Made of formed sheet steel; metal edges finished smooth without burrs; baked enamel or powder coat finished inside and out.

a. Locker Body Components: Formed and flanged from steel sheet of the following type and minimum thicknesses:

1) Unperforated Steel Sheet: Commercial Steel (CS), Type B, supplied for exposed applications and complying with ASTM A1008/A1008M and the following:

b. Frames: Formed channel shape, welded and ground flush, welded to body, resilient gaskets and latching for quiet operation.

C. Doors: Channel edge; welded construction, manufacturer's standard stiffeners, grind and finish edges smooth.

1. Door Thickness: 16 gauge, 0.0598 inch (1.52 mm), minimum.

2. Form recess for operating handle and locking device.

D. Latches and Door Handles: Manufacturer's standard.

E. Coat Hooks: Stainless steel or zinc-plated steel.

F. Locks: Locker manufacturer's standard type indicated in Applications article above.

PART 3 – EXECUTION

3.01 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Place and secure on prepared base.

C. Install lockers plumb and square.

D. Install fittings if not factory installed.

E. Replace components that do not operate smoothly.

END OF SECTION 10 51 13

SECTION 10 73 16.13

METAL CANOPIES

PART 1 – GENERAL

1.01 RELATED REQUIREMENTS

A. Section 03 30 00 - Cast-in-Place Concrete: Concrete footings.

1.02 REFERENCE STANDARDS

A. AAMA 2605 - Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels (with Coil Coating Appendix); 2022.

B. ASCE 7 - Minimum Design Loads and Associated Criteria for Buildings and Other Structures; Most Recent Edition Cited by Referring Code or Reference Standard.

C. ASTM B209/B209M - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate; 2021a.

D. AWS D1.1/D1.1M - Structural Welding Code - Steel; 2020, with Errata (2023).

1.03 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for submittal procedures.

B. Product Data: Submit product data sheets, including material descriptions and finishes, and preparation instructions and recommendations.

C. Shop Drawings: Prior to commencement of fabrication, submit detailed shop drawings, showing profiles, sections of components, finishes, and fastening details.

D. D. Design Data: Submit comprehensive structural analysis of design for the specified loads. Stamp and sign calculations by professional engineer.

1.04 WARRANTY

A. Metal Canopies: Correct defective work within a one year period after Date of Substantial Completion.

PART 2 – PRODUCTS

2.01 METAL CANOPIES

A. Product: Helios Canopies manufactured by Architectural Fabrication, Inc., Fort Worth, Texas.

B. Shop Fabricated Aluminum Canopy.

C. Shop Fabricated Aluminum Canopy.

D. Configuration: Layout and dimensions, column layout, canopy clearance, fascia profile, and roof covering design as indicated on drawings.

1. Installation: Face-mounted to building structure.

E. Performance Requirements:

1. Design and fabricate metal canopy system to resist wind, snow, live, and seismic loads without failure, damage, or permanent deflection in accordance with ASCE 7:

2.02 COMPONENTS

A. Structural Aluminum Framing: Alloy and temper 6063-T5, 6063-T6, or 6061-T6.

B. Covering:

1. Aluminum Decking:

a. Interlocking roll-formed aluminum decking modules.

1) Roll-Formed Decking: ASTM B209/B209M, Alloy 5052, 5005, or 6061-T651.

C. Concrete Footings: Refer to Section 03 30 00 for additional requirements.

D. Exposed Gutters and Downspouts: Aluminum with AAMA 2605 organic coating, color to match canopy covering, manufacturer's recommended size for canopy specified.

2.03 SHOP FABRICATION

A. Provide a complete system ready for erection at project site.

B. Shop fabricate to the greatest extent possible; disassemble if necessary for shipping.

C. Weld steel members in accordance with AWS D1.1/D1.1M.

D. Fabricate connections for bolt, nut, and washer connectors.

2.04 FINISHES

A. Aluminum Framing and Decking:

1. Superior Performing Organic Coatings: AAMA 2605, multiple coats, thermally cured, polyvinylidene fluoride system.

PART 3 – EXECUTION

3.01 EXAMINATION

A. Examine substrates and site area for conditions that might prevent satisfactory installation.

B. Verify that foundation, electrical utilities, and placed anchors are in correct position.

C. Verify that bearing surfaces are ready to receive this work.

D. Do not proceed with installation until all conditions are satisfactory.

3.02 INSTALLATION - FRAMING

A. Provide for erection and wind loads. Provide temporary bracing to maintain structure plumb and in alignment until completion of erection and installation.

B. Do not field cut or alter structural members without approval.

C. After erection, prime welds, abrasions, and surfaces not shop primed.

3.03 INSTALLATION - CANOPY COVERING

A. Install in accordance with manufacturer's instructions.

B. Fasten metal decking to metal support members, aligned level and plumb.

C. Install trim and flashing.

D. Separate dissimilar metals using concealed bituminous paint.

E. Touch-up damaged finish coating using material provided by manufacturer to match original coating.

END OF SECTION 10 73 16.13

DIVISION 11

EQUIPMENT

11 30 13 Residential Appliances

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SECTION 11 30 13

RESIDENTIAL APPLIANCES

PART 1 – GENERAL

1.01 REFERENCE STANDARDS

A. ICC (IMC)-2021 - International Mechanical Code; 2021.

B. ICC (IRC)-2021 - International Residential Code for One- and Two-Family Dwellings; 2021.

C. UL 2158A - Clothes Dryer Transition Duct; Current Edition, Including All Revisions.

1.02 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Product Data: Manufacturer's data indicating dimensions, capacity, and operating features of each piece of residential equipment specified.

PART 2 – PRODUCTS

2.01 KITCHEN APPLIANCES

A. Provide Equipment Eligible for Energy Star Rating: Energy Star Rated.

B. Refrigerator:

1. Manufacturer: Whirlpool Corp.
2. Model: WRF555SDF.
3. Exterior finish: Stainless steel.

C. Microwave: Countertop.

1. Manufacturer: Whirlpool Corp.
2. Model: WMC30516H.
3. Exterior Finish: Stainless Steel.

D. Dishwasher: Undercounter.

1. Manufacturer: Whirlpool Corp.
2. Model: WDT550SAPZ
    a. Model: WDT550SAPZ.
3. Finish: Stainless steel .

2.02 LAUNDRY APPLIANCES

A. Provide Equipment Eligible for Energy Star Rating: Energy Star Rated.

B. Clothes Washer: Front-loading.

1. Manufactuer: Whirlpool Corp.Size: Large capacity.
2. Model: WFW560CH.

3. Finish: Painted steel , color white.

C. Clothes Dryer: Electric.

1. Manufacturer: Whirlpool Corp.
2. Model: WED5605MW.
3. Finish: Painted steel , color white.

2.03 ACCESSORIES

A. Dryer Vent Assembly: Comply with ICC (IMC)-2021 and ICC (IRC)-2021.

1. Exhaust Duct: Aluminum ribbon, 4-inch (101.6 mm) diameter, comply with UL 2158A.
   a. Elbows: 26-gauge, 0.018-inch (0.46 mm) aluminized steel; 45-degree angle, nonsectioned curve; 4-inch (101.6 mm) diameter.
   b. Clamps: Stainless steel, 3-1/2 to 4-3/4-inch (88.9 mm to 120.65 mm) diameter range.
2. Wall Termination: 26-gauge, 0.018-inch (0.46 mm) aluminized steel with rain drip edge, rubber magnetic bumpers, angled damper, and removable backing plate; 6-1/2 inches (165.1 mm) wide by 6.45 inches (163.83 mm) tall.
3. Finish for Exposed Metals: White powder coat.

B. Refrigerator

1. Domestic water connection: 1/4" ductile copper pipe with petcock.

PART 3 – EXECUTION

3.01 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Anchor built-in equipment in place.

3.02 ADJUSTING

A. Adjust equipment to provide efficient operation.

3.03 CLEANING

A. Remove packing materials from equipment and properly discard.

B. Wash and clean equipment.

END OF SECTION 11 30 13

DIVISION 12

FURNISHINGS

This page is intentionally left blank.

SECTION 12 21 13

HORIZONTAL LOUVER BLINDS

PART 1 – GENERAL

1.01 REFERENCE STANDARDS

A. WCMA A100.1 - Standard for Safety of Window Covering Products; 2022.

1.02 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide data indicating physical and dimensional characteristics.

C. Shop Drawings: Indicate opening sizes, tolerances required, method of attachment, clearances, and operation.

D. Samples: Submit two samples, illustrating slat materials and finish, cord and wand type and color.

PART 2 – PRODUCTS

2.01 BLINDS WITHOUT SIDE GUIDES

A. Manufacturer:

1. Product: Modern Precious Metals Mini-blinds by Hunter Douglas.

2. Comparable manufactures and products will be considered per Substitutions per Division 1 General Requirements.

B. Description: Horizontal slat louvers hung from full-width headrail with full-width bottom rail.

C. Manual Operation: Control of raising and lowering by cord with full range locking; blade angle adjustable by control wand.

D. Metal Slats: Spring tempered pre-finished aluminum; square slat corners, with manufacturing burrs removed.

1. Width: 1 inch (25 mm).

E. Slat Support: Woven polypropylene cord, ladder configuration.

F. Head Rail: Pre-finished, formed box, with end caps; internally fitted with hardware, pulleys, and bearings for operation; same depth as width of slats.

1. Color: Same as slats.

G. Bottom Rail: Pre-finished, formed; with end caps.

1. Color: Same as headrail.

H. Lift Cord: Braided nylon; continuous loop; complying with WCMA A100.1.

I. Control Wand: Extruded solid plastic; hexagonal shape.

1. Color: Clear.

J. Headrail Attachment: Wall brackets.

2.02 FABRICATION

A. Determine sizes by field measurement.

B. Fabricate blinds to fit within openings with uniform edge clearance of 1/4 inch.

C. At openings requiring multiple blind units, provide separate blind assemblies with space of 3/4 inch between blinds, located at window mullion centers.

PART 3 – EXECUTION

3.01 INSTALLATION

A. Install blinds in accordance with manufacturer's instructions.

B. Secure in place with flush countersunk fasteners.

END OF SECTION 12 21 13

SECTION 12 36 00

COUNTERTOPS

PART 1 – GENERAL

1.01 REFERENCE STANDARDS

A. AWI/AWMAC/WI (AWS) - Architectural Woodwork Standards, 2nd Edition; 2014, with Errata (2016).

B. AWMAC/WI (NAAWS) - North American Architectural Woodwork Standards; 2021, with Errata.

C. ISFA 2-01 - Classification and Standards for Solid Surfacing Material; 2013.

D. NEMA LD 3 - High-Pressure Decorative Laminates; 2005.

1.02 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for submittal procedures.

B. Product Data: Manufacturer's data sheets on each product to be used, including:

1. Preparation instructions and recommendations.

2. Storage and handling requirements and recommendations.

3. Specimen warranty.

C. Test Reports: Chemical resistance testing, showing compliance with specified requirements.

PART 2 – PRODUCTS

2.01 COUNTERTOPS

A. Quality Standard: Custom Grade, in accordance with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS), unless noted otherwise.

B. Solid Surfacing Countertops: Solid surfacing sheet or plastic resin casting self-supporting over structural members.

1. Flat Sheet Thickness: 1/2 inch (12 mm), minimum.

2. Solid Surfacing Sheet and Plastic Resin Castings: Complying with ISFA 2-01 and NEMA LD 3; acrylic or polyester resin, mineral filler, and pigments; homogenous, non-porous and capable of being worked and repaired using standard woodworking tools; no surface coating; color and pattern consistent throughout thickness.

a. Finish on Exposed Surfaces: Semi-gloss, gloss rating of 25 to 50.

b. Color and Pattern: As selected by Architect from manufacturer's full line.

3. Other Components Thickness: 1/2 inch (12 mm), minimum.

4. Exposed Edge Treatment: Built up to minimum 1-1/4 inch (32 mm) thick; square edge.

2.02 ACCESSORIES

A. Fixed Top-Mounted Countertop Support Brackets:

2.03 FABRICATION

A. Fabricate tops in the largest sections practicable, with top surface of joints flush.
   1. Join lengths of tops using best method recommended by manufacturer.
   2. Fabricate to overhang fronts and ends of cabinets 1 inch (25 mm) except where top butts against cabinet or wall.
   3. Prepare all cutouts accurately to size; replace tops having improperly dimensioned or unnecessary cutouts or fixture holes.

B. Provide back/end splash wherever counter edge abuts vertical surface unless otherwise indicated.
   1. Secure to countertop with concealed fasteners and with contact surfaces set in waterproof glue.
   2. Height: 4 inches (102 mm), unless otherwise indicated.

PART 3 – EXECUTION

3.01 INSTALLATION

A. Securely attach countertops to cabinets using concealed fasteners. Make flat surfaces level; shim where required.

B. Seal joint between back/end splashes and vertical surfaces.

END OF SECTION 12 36 00

DIVISION 31

EARTHWORK

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SECTION 31 00 00

EARTHWORK

PART 4 – GENERAL

4.01 DESCRIPTION

Work covered in this section includes general excavation, fill, and backfill work. Earthwork shall meet the specifications of this Section.

4.02 SUBMITTALS

A. Submit results of aggregate sieve analysis and standard proctor tests for all granular material.

B. Submit mix proportions for Controlled Low Strength Material (CLSM). The proposed mix design shall be strength tested in accordance with ASTM D 4832 at 7-, 14- and 28-days age and results submitted to the OWNER. The CONTRACTOR shall submit to the OWNER batch weights of each batch of CLSM used during construction.

C. See Section 01 33 00 for Contractor submittals.

4.03 REFERENCE SPECIFICATIONS, CODES AND STANDARDS

A. Commercial Standards

ASTM C 94	Specification for Ready-Mixed Concrete
ASTM C 403	Test Method for Time of Setting Concrete Mixtures by Penetration Resistance
ASTM D 422	Method for Particle-Size Analysis of Soils
ASTM D 698	Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures, Using 5.5-lb (2.49-kg) Rammer and 12-inch (304.8-mm) Drop (AASHTO T-99)
ASTM D 2487	Classification of Soils for Engineering Purposes
ASTM D 4253	Test Methods for Maximum Index Density and Limit Weight of Soils Using a Vibratory Table
ASTM D 4254	Test Methods for Minimum Index Density and Limit Weight of Soils and Calculation of Relative Density
ASTM D 4832	Preparation and Testing of Controlled Low Strength Material Test Cylinders
ASTM D 6938	Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)

B. Reference Standards

References herein to the “Standard Specifications for Highway Construction” shall mean The Oregon Department of Transportation, Standard Specifications for Highway

Construction. References herein to “AASHTO” shall mean Association of American State Highway Transportation Officials.

4.04 CLASSIFICATION OF EXCAVATION

A. General

All excavation for the site, shall be classified as common excavation. Rock excavation and boulder removal are incidental to this work and will not be measured or paid.

Trench excavation shall be classified as common excavation, boulder removal or rock excavation.

B. Classified Excavation

1. Common Excavation

Common excavation is defined as the excavation of all material not classified as Rock Excavation or Boulder Removal.

2. Rock Excavation

Rock excavation is defined as the removal of rock by systematic and continuous drilling, hammering, breaking, splitting or other approved methods. Blasting will not be allowed. Rock is defined as material including boulders of at least 1-cy, solid bedrock, or ledge rock, which, by actual demonstration, cannot be reasonably excavated with suitable power excavation equipment. Suitable machinery is defined as a track-mounted hydraulic excavator of the 52,800 to 72,500 pound class equipped with a single shank ripper. The OWNER may waive the demonstration if the material encountered is well-defined rock. The term "rock excavation" shall be understood to indicate a method of removal and not a geological formation.

If material which would be classified as rock by the above definition is mechanically removed with equipment of a larger size than specified, it shall be understood that any added costs for the removal of material by this method shall be included in the price for common excavation.

Before the removal of rock by the methods described above will be permitted, the CONTRACTOR shall expose the material by removing the common material above it and then notify the ENGINEER who, with the CONTRACTOR or his representative, will measure the amount of material to be removed.

Use of explosives for excavation of rock is not allowed on this project.

The ENGINEER shall take measurements of the rock to be removed, in place, prior to removal, unless alternative methods of measurement are agreed upon by both the CONTRACTOR AND ENGINEER. The average end area method shall be used in computing rock volume. Excavation limits shall be defined as the actual rock volume removed.

Payment for rock excavation shall be based on the unit price per cubic yard bid for the item "Rock Excavation," as shown on the Bid Schedule, and will be paid in lieu of common excavation.

3. Boulder Removal

Boulders, for the purpose of this specification, shall be defined as masses of igneous, sedimentary or metamorphic material which has one or more dimensions of 36" or greater.

Solid masses other than rock or of lesser dimension shall be considered as cobble or debris and shall be removed as common excavation.

Boulder removal shall consist of the physical removal of boulders as defined above by any means other than those methods defined as "rock excavation."

All boulders removed as defined above will be measured by the ENGINEER in the field at the time of removal. Measurement of the length, width, and depth to the nearest 0.1 foot shall be recorded.

The pay volume shall be the sum of the theoretical volumes of the individual boulders. The theoretical volume for each boulder shall be assumed to be the product of the three recorded dimensions, converted to cubic yards.

Payment for boulder removal shall be based on the unit price per cubic yard bid for the item "Boulder Excavation," as shown on the Bid Schedule, and shall be in addition to payment for common excavation, trench backfill, and surface restoration as defined elsewhere. Payment for both rock excavation and boulder removal will not be paid for the same mass removed.

4.05 QUALITY ASSURANCE

A. Soil Testing -- Soil sampling and testing to be by an independent laboratory approved by the OWNER. The frequency of testing is to be determined by the OWNER. All soil testing shall be paid for by the CONTRACTOR.

B. Compaction Tests -- Maximum density of optimum moisture content by ASTM D698 (AASHTO T-99) and AASHTO T-180. In-place density in accordance with Nuclear Testing Method ASTM D2922 and D3017.

C. Soil Classification -- All imported materials, classification in accordance with ASTM D2487.

D. Allowable Tolerances -- Final grades shall be plus or minus 0.04 foot.

4.06 SITE CONDITIONS

A. Quantity Survey -- CONTRACTOR shall be responsible for calculations of quantities of cut and fill from existing site grades to finish grades established under this contract as indicated on the plans or specified and shall include the cost for all earthwork in the total basic bid.

B. Dust Control -- Must meet Oregon State DEQ and Local requirements. Protect persons and property from damage and discomfort caused by dust. Water as necessary and when directed by OWNER to quell dust.

C. Soil Control -- Soil shall not be permitted to accumulate on surrounding streets or sidewalks. See provisions for erosion control.

D. Existing Underground Utilities -- Protect active utilities encountered and notify persons or agencies owning same. Remove inactive or abandoned utilities from within the project grading limits to a depth at least twelve (12) inches below subgrade established under this contract. All abandoned piping to be plugged as approved by OWNER.

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PART 5 – PRODUCTS

5.01 BEDDING, BACKFILL, AND PIPE ZONE MATERIALS

Class A: Backfill with suitable native excavated material that, in the opinion of the Engineer, meets the characteristics required for specific surface loading or other criteria of the backfill zone. The material shall be free from manmade debris and garbage, organic materials (including vegetative materials and roots) and stones exceeding 2" in diameter.

Class B: Backfill with approved imported ¾" minus granular material consisting of gravel or crushed rock, that may be readily compacted in the trench. Contractor shall submit samples of the material to the Engineer for approval prior to using the material in the work.

Class C: Backfill with clean sand consisting of fine granular material, naturally produced by the disintegration of rock, or produced from crushed gravel, and reasonably free of organic material, mica, clay, and other deleterious substances as approved. The maximum particle size shall be 1/4 inch, with a gradation which allows 90 percent to 100 percent by weight to pass a No. 4 sieve and not more than 5 percent to pass a No. 200 sieve.

Class D: Backfill with approved pit run, well graded from coarse to fine. The maximum dimension shall be 2". Place the material in lifts and mechanically compact to a relative density as shown on the Drawings or specified herein. Remove and dispose of excess material.

Class E: Backfill with controlled low strength material (CLSM). CLSM (or CDF) shall be composed of cement, pozzolans, fine aggregate, water, and admixtures. CLSM shall have a low cement content, be non-segregating, self-consolidating, free-flowing and excavatable material which will result in a hardened, dense, non-settling fill and a compressive strength at 28 days of 100 to 250 psi if not otherwise shown or specified.

GUIDELINES FOR CONTROLLED LOW STRENGTH MATERIAL (CLSM) MIXES

Proportions per Cubic Yard	
Maximum Compressive Strength	100 - 250 psi
Maximum Mixing Water	30 - 50 gals
Cement	30 - 50 lbs
Fly Ash	200 - 350 lbs
Dry Aggregate	2700 - 3200 lbs
(Weights may need adjusting for pumpability)	

NOTE: The weights shown are only an estimate of the amount to be used per cubic yard of CDF. The actual amounts may vary from those shown if approved by the Engineer. The Contractor may submit additional data to be approved by the Engineer.

5.02 TOPSOIL

Top 6 to 12 inches of existing soil containing organic matter. ENGINEER's decision shall be final as to determination of what is of topsoil quality. Topsoil shall be stockpiled on site for later use in landscaping. Care shall be taken in collection of topsoil so as to preserve native seed stocks, which are valuable to restoring native species as part of finish landscaping.

5.03 SPOILS

All excess material not suitable or not required for backfill and grading shall be hauled off site and disposed of. The CONTRACTOR shall make arrangements for disposal of the material at no additional cost to the OWNER. Landfill permit to be obtained by the CONTRACTOR and provided to OWNER prior to commencement of disposal.

PART 6 – EXECUTION

6.01 GENERAL

A. Prior to work in this section, become familiar with site conditions. In the event discrepancies are found, notify the OWNER as to the nature and extent of the differing conditions.

B. Do not allow or cause any work performed or installed to be covered up or enclosed prior to required tests and approvals. Should any work be enclosed or covered up, uncover at CONTRACTOR's expense.

6.02 TOPSOIL STRIPPING AND STOCKPILING

A. Site within clearing limits shall be stripped of topsoil to depths specified in Section 31 10 00, or as shown on the Drawings, to complete work indicated on plans or specified.

B. Topsoil shall be free of sticks, large rocks, clods, and subsoils.

C. Stockpile topsoil at locations approved by OWNER for redistribution as specified. Grade surface of stockpiles remaining over winter months to prevent ponding of water. Cover stockpile to minimize the infiltration of water. See other provisions for erosion control.

6.03 EXCAVATION

A. Excavate material of every nature and description to the lines and grades as indicated on the drawings and/or as required for construction of the facility.

B. Provide and maintain equipment to remove and dispose of water during the course of the work of this section and keep excavations dry and free of frost or ice.

C. Project dewatering is specified elsewhere. Coordinate drainage requirements with this work. Provide temporary drainage ditches as required and regrade as indicated at completion of project.

D. Excavated material not approved for use elsewhere on the site or in excess of that needed to complete the work shall be hauled off site and disposed of at no expense to the OWNER. Unless otherwise shown on the Drawings, a minimum of 12-inches of compacted aggregate shall be placed beneath pavement and slabs, with the aggregate placed atop a geotextile separation fabric.

6.04 ROCK

A. Where the bottom of the excavation encounters ledge rock and/or boulders and large stones which meet the definition of “rock” as described herein, said rock shall be removed to provide 12 inches of clearance on each side and below all structures, pipe and appurtenances.

B. Excavations below subgrade in rock shall be backfilled to subgrade with approved bedding material and thoroughly compacted.

C. No explosives shall be allowed on this project.

6.05 GRADING AND FILLING

A. For areas receiving surface structures or paved areas to be constructed or replaced by the CONTRACTOR or by others, such as railways, roadways, driveways, parking lots, and sidewalks, place clean well-graded gravel fill material (3/4 inch – 0 inch) in 6-inch lifts and compact with vibratory equipment to 95 percent maximum density unless otherwise specified.

6.06 TOPSOIL FILL

A. Scarify prepared subgrade to depth of four inches immediately prior to placing topsoil.

B. Place topsoil in areas to be seeded to depths indicated, minimum depth of six inches. Place loose; do not compact, do not place in wet or muddy conditions.

6.07 CONTROLLED LOW STRENGTH MATERIAL (CLSM)

A. At time of placement, the CLSM must be at least 40 degrees F and ambient air temperature must be at least 34 degrees F and rising. Subgrade on which CLSM is to be placed shall be free of disturbed or soft material, debris, and water.

B. After CLSM is placed, further construction proceeding upon it will be permitted only after initial set is attained, as measured by ASTM C 403. No traffic or construction equipment shall be allowed on CLSM for at least 24 hours after placement.

END OF SECTION 31 00 00

SECTION 31 10 00

SITE CLEARING

PART 7 – GENERAL

7.01 DESCRIPTION

A. This section covers all demolition, clearing and grubbing work necessary to clear, remove, and dispose of all debris and vegetation, such as stumps, trees, logs, roots, shrubs, vines, grass, and weeds within the designated limits indicated on the Drawings or required for completion of work specified elsewhere, to preserve from injury or defacement such objects and vegetation as are designated to remain in place, and to perform final cleaning of the designated area.

B. Clearing is defined as cutting of trees, bushes, vines, and other vegetative growth at or above ground surface and removal from the site all such cut or down vegetation.

C. Grubbing is defined as removal of vegetative growth and natural wooden items remaining at or below ground surface following the clearing operation.

D. Removal of man-made structures, including, but not limited to, concrete slabs, walls, vaults, footings, asphaltic surfaced areas, and graveled areas shall be included in payment for excavation or excavation and backfill, and will not be included in clearing and grubbing.

7.02 SUBMITTALS

Submit to OWNER a copy of written permission of private property owners with copy of fill permit for said private property as may be required for disposal of materials.

7.03 REQUIREMENTS OF REGULATORY AGENCIES

A. **Permits -- Burning on project site will not be permitted**.

B. Protection of Persons and Property -- Meet all federal, state, and local safety requirements for the protection of workers, other persons, and property in the vicinity of the demolition and clearing work and requirements of General Provisions.

7.04 SITE CONDITIONS

A. Existing Conditions -- CONTRACTOR shall determine extent of work requirements and limitations before proceeding with work. Contractor shall review with the Owner the location, limits, and methods to be used prior to commencing work under this section.

B. Protection -- Protect existing site improvements, trees and shrubs to remain to preclude damage during construction. Protect existing trees and shrubs against cutting, breaking or skinning of roots, skinning and bruising of bark, smothering of roots by stockpiling construction materials, excavated materials, excess foot or vehicular traffic and parking of vehicles within drip line. Provide temporary guards, as necessary, to protect trees and vegetation to be left standing. Repairable damage to trees designated to remain shall be made by a professional tree surgeon approved by the OWNER. Cost shall be borne by the CONTRACTOR.

C. Existing Utilities -- Before starting clearing of site work, notify utility agencies; disconnect or arrange for disconnection of utilities (if any) affected by required work. Keep all active utilities intact and in continuous operation.

PART 8 – PRODUCTS

8.01 OWNERSHIP OF EXISTING MATERIALS

All materials, equipment, items, and debris involved, occurring, or resulting from demolition, clearing and grubbing work shall become the property of the CONTRACTOR at the place of origin except as otherwise indicated.

8.02 WOUND PAINT

Emulsified asphalt formulated for use on damaged plant tissues, as approved by the OWNER.

PART 9 – EXECUTION

9.01 WORKMANSHIP

Perform work in accordance with recognized standard and efficient methods. Operators of equipment shall be conscientious and skilled.

9.02 CLEARING AND GRUBBING

A. General - Trees and plants shall be removed as designated within the area of work, and all sod, topsoil, and organic earth shall be removed within designated area.

B. Merchantable Timber – Contractor shall assume ownership, remove, and dispose of all timber and dispose of resulting waste materials as specified.

C. Protection of Existing Vegetation - All trees, shrubbery, and other vegetation not designated for removal shall be protected from damage caused by the work. Tree branches shall be cut as specified in ANSI 260.1-1973, American Standard for Nursery Stock, and removed when directed to provide a balanced appearance of any tree.

D. Clearing - The area above the natural ground surface shall be cleared of all vegetative growth and objectionable materials, and timber growth shall be cut as required.

E. Clearing Borrow and Waste Disposal Areas - Contractor shall clear areas designated as borrow and waste disposal areas to designated limits and dispose of all waste as specified.

F. Grubbing - All stumps shall be completely removed.

On areas to be occupied by embankments, all roots and embedded wood shall be removed to a depth not less than one (1) foot below subgrade or slope surface on which the embankment is to be constructed.

On excavation areas, all roots and embedded wood shall be removed to a depth not less than 8 inches below subgrade or slope surface through which excavation is required.

G. Backfilling and Clean-up - In areas not subject to future excavations, all holes and depressions caused by clearing and grubbing shall be filled and compacted with

material acceptable to the Engineer and area reshaped to conform to adjacent undisturbed topography.

9.03 PRESERVATION AND TRIMMING OF TREES, SHRUBS AND OTHER VEGETATION

The CONTRACTOR shall avoid injury to trees, shrubs, vines, plants, grasses, and other vegetation growing outside of the areas to be cleared and grubbed and those trees and shrubs designated to be preserved. Provide protection for roots and limbs over 1-1/2-inch diameter cut during construction operations. Coat the cut faces with an emulsified asphalt. Temporarily cover exposed roots with wet burlap to prevent roots from drying out; cover with earth as soon as possible.

9.04 LANDSCAPED AREAS

When any portion of the work crosses private property or landscaped areas, the CONTRACTOR shall excavate the topsoil separately and pile it on the opposite side of the trench from the subsoil and shall conduct his work in a manner that will restore original conditions as nearly as practicable.

The CONTRACTOR shall remove and replace any trees, shrubs, plants, sod or other vegetative material. All shrubs or plants shall be balled by experienced workers, carefully handled and watered, and replaced in their original positions without damage. Sod shall be handled in a similar manner. Wherever sod cannot be saved and restored, the ground must be reseeded and cared for until a stand of grass is reestablished. Plants or shrubs killed or destroyed must be paid for by the CONTRACTOR. It is the intent of this paragraph that the CONTRACTOR shall leave the surface and plantings in substantially the same conditions as before the work is undertaken. All costs incurred by the CONTRACTOR shall be absorbed in the unit prices of his bid unless otherwise specified.

9.05 DEMOLITION AND REMOVAL

Remove from the project site all debris, materials, equipment and items found thereon and materials and debris resulting form the work of demolition except as otherwise indicated. All existing improvements designated on the Drawings or specified to be removed including but not limited to structures, pipelines, walls, footings, foundations, slabs, pavements, curbs, fencing, and similar structures occurring above, at, or below existing ground surface shall be included in the demolition work. Unless otherwise specified, any resulting voids shall be thoroughly cracked out for drainage and backfilled with suitable excavated or imported material compacted to the density of the adjacent soil.

9.06 DISPOSAL

A. Removal -- All material resulting from demolition, clearing, and grubbing, logging, and trimming operations shall be removed from the project site and disposed of in a lawful manner. Materials placed on property of private property owners shall be by written permission only.

B. Clean-up -- During the time that the work is in progress, the CONTRACTOR shall make every effort to maintain the site in a neat and orderly condition. All refuse, broken pipe, excess fill material, cribbing and debris shall be removed as soon as practicable. Should the work not be maintained in a satisfactory condition, the OWNER may cause the work to stop until the clean-up of the work has been done to the satisfaction of the OWNER. The work will not be considered complete, or the final payment certificate

issued until all rubbish, unused material, or equipment shall have been removed and the premises left in a condition satisfactory to the OWNER.

END OF SECTION 31 10 00

SECTION 31 25 00

EROSION AND SEDIMENTATION CONTROLS

PART 10 – GENERAL

10.01 SUMMARY

A. Furnish all labor, materials, equipment, and services necessary for the project erosion and sediment control (ESC) as shown on the project construction plans; and tests, reports, and records of inspection as required.

10.02 REFERENCES

A. Project drawings.

B. City of Portland Erosion and Sediment Control Manual

10.03 QUALITY ASSURANCE

A. Pre-Construction Conference: Schedule and administer pre-construction conference to review installation and maintenance of erosion and sediment control measures and safety precautions.

PART 11 – PRODUCTS

11.01 GENERAL

A. All materials shall be in conformance with the requirements shown on the City of Portland Erosion and Sediment Control Manual details.

PART 12 – EXECUTION

12.01 INSTALLATION AND MAINTENANCE

A. The ESC facilities shall be inspected daily by the Contractor and maintained as necessary to ensure their continued functioning.

B. Sediment fences, bio-bags, and straw bale barriers shall be removed when they have served their useful purpose and when approved by the Engineer but not before the upslope area has been permanently stabilized.

C. Contractor shall compact materials in accordance with the approved third party testing company, per Section 01 00 45 Quality Control, or directed by the Engineer.

D. Remove unsuitable soils and replace with suitable soils or as directed by the third party testing company, per Section 01 00 45 Quality Control, or directed by the Engineer..

END OF SECTION 31 25 00

DIVISION 32

EXTERIOR IMPROVEMENTS

SECTION 32 10 00

AGGREGATES

PART 13 – GENERAL

13.01 RELATED DOCUMENTS

A. The other Contract Documents complement the requirements of this section.

B. Other sections of this Specification may relate and impose additional work and/or additional materials upon this section. Contactor to coordinate any cross-referencing of Specification sections.

13.02 SUMMARY

A. This work consists of furnishing and placing one or more courses of aggregate for granular trench backfill, base and/or shoulders on a prepared surface to the lines, grades, thicknesses, and cross sections shown or established.

13.03 RELATED SECTIONS

A. Section 32 12 16 Asphalt Paving

B. Section 32 13 13 Concrete Paving

C. Section 32 14 13 Precast Concrete Unit Paving

13.04 STANDARD SPECIFICATIONS

A. ODOT Standard specifications referenced herein shall be the current edition of the ODOT Standard Specifications, with current updates as of the bidding date, as prepared by the Oregon Department of Transportation.

PART 14 – - PRODUCTS

14.01 MATERIALS

A. Aggregates shall be either 37.5 mm – 0 (1-1/2” -0), 25.0 mm - 0 (1" - 0) or 19.0 mm - 0 (3/4" - 0) as called for on the plans. Use clean, hard, durable aggregates, reasonably well-graded from the maximum size to dust. Aggregates shall conform to ODOT 02630.

B. Washed Crushed Rock – Shall be crushed and evenly graded from 50 mm – 19.0 mm (2” - 3/4”) washed with no fines.

C. Sand shall be clean washed coarse filter grade sand ASTM No. 8 or 9. “Landscapers” or “playground” sand shall not be used.

PART 15 – EXECUTION

15.01 PREPARATION OF FOUNDATION

A. Provide a firm surface on which aggregates are to be placed.

15.02 HAULING AND PLACING

A. Transport the aggregate to the job site, add water to obtain proper moisture content, and place on the prepared surface or material by means acceptable to the Engineer.

B. Do not place shoulder aggregates on the top lift of newly constructed open-graded pavement.

15.03 BASE COURSES

A. Under pavements, place base course on prepared subgrade. Compact to required grades, lines, cross sections, and thickness to not less than 95 percent of maximum dry unit weight according to ASTM D1557.

B. Under Concrete Slabs-on-Grade: Place granular base on prepared subgrade. Compact to required sections and thickness to not less than 95 percent of maximum dry unit weight according to ASTM D1557.

15.04 THICKNESS AND NUMBER OF LAYERS:

A. Base - If the required compacted depth of the base course exceeds 150 mm (6 inches), construct it in two or more layers of nearly equal thickness. The maximum compacted thickness of any one layer shall not exceed 150 mm (6 inches). Place each layer in spreads as wide as practical and to the full width of the course before a succeeding layer is placed.

B. Shoulders - Place shoulder aggregates in a single layer, or two or more layers of nearly equal thickness. The maximum compacted thickness of any one layer shall not exceed 230 mm (9 inches).

15.05 COMPACTING AND SHAPING

A. Compact each layer of material placed in shoulder and base areas by rollers capable of obtaining the required compaction. Compaction shall be not less than 95% of maximum density ad determined by ASTM D 698/D 1557.

B. Apply water for proper compaction as required.

C. Surface Tolerance - The finished surface and the surface of each underlying layer of the aggregate shall parallel the established grade and cross section for the finished surface within 12 mm (1/2 inch). The finished surface of the compacted aggregate base, when tested with a 3.6 m (12 foot) straightedge, shall not vary from the testing edge by more than 12 mm (1/2 inch) at any point. Furnish and operate the straightedge as directed.

15.06 MAINTENANCE

A. Care of the Work - After construction of each layer and completion of base, maintain the layer to specified conditions and prevent or repair segregation, raveling, or rutting, until it is covered with a following layer or until all work is completed.

END OF SECTION 32 10 00

SECTION 32 12 16

ASPHALT PAVING

PART 16 – GENERAL

16.01 SUMMARY

A. Furnish all labor, materials, equipment, and services necessary for the installation of aggregate base, and asphalt concrete pavement, to include mixing, delivery as well as placement as shown on the project drawings; finishing, curing, and sealing; and tests, reports, and records of inspection as required.

B. This Section applies to asphalt concrete for the following:

1. Asphalt Concrete Pavement.

16.02 REFERENCES

A. Project drawings.

16.03 QUALITY ASSURANCE

A. Pre-Pavement Conference: Schedule and administer pre-installation conference to review placement and finishing techniques of asphalt concrete.

16.04 STANDARD SPECIFICATIONS

A. ODOT Standard specifications referenced herein shall be the current edition of the ODOT Standard Specifications, with current updates as of the bidding date, as prepared by the Oregon Department of Transportation.

PART 17 – PRODUCTS

17.01 MATERIALS

A. Asphaltic Concrete (AC) Surface: Minimum 3 inches of level 2, 1/2" dense HMAC, in conformance with ODOT 00744.

PART 18 – EXECUTION

18.01 SUBGRADE FOR SURFACING

A. In preparing the area for surfacing, the Contractor shall:

1. Remove existing pavement.

2. Drain water from all low spots or ruts on disturbed subgrade.

3. Demolition or placement of granular material shall not be conducted during periods of rain or when rain is forecast.

18.02 ASPHALT PAVEMENT

A. Spreading and Finishing: The mixture shall be laid upon the approved surface, spread, and struck off to the grade and elevation established.

B. Compaction: Immediately after the asphalt mixture has been spread, struck off, and surface irregularities adjusted, it shall be thoroughly and uniformly compacted. The

completed course shall be free from ridges, ruts, humps, depressions, objectionable marks, or irregularities and in conformance with the line, grade, and cross-section shown in the drawings. Subgrade, base, and leveling course compaction shall be not less than 95% of maximum density as determined by ASTM D 698.

C. Surface Smoothness: The completed surface shall be uniform texture, smooth, uniform as to crown and grade, and free from defects of any kinds. The complete surface shall not vary more than 1/8" from the lower edge a 10' straight edge.

18.03 WEATHER LIMITATIONS

A. Unless approved by the Project Manager, asphalt concrete shall not be placed when the air temperature is lower than:

1. 50 Degrees F when placed in one lift.
2. 55 degrees F when placed in two lifts.

B. Asphalt concrete shall not be placed on any wet surface, or when weather conditions otherwise prevent the proper handling or finishing of the bituminous mixture.

18.04 FIELD QUALITY CONTROL

A. The Contractor is responsible for project quality control in ensuring that the project is constructed.
per the plans and specifications.

B. The Contractor shall retain a Testing Agency to perform on site observation and testing. The services of the Testing Agency may include, but not limited to, the following:

1. The field density of compacted asphalt concrete shall be determined by a properly calibrated nuclear asphalt testing device.
2. Perform compaction tests at rate of one per 5,000 square feet maximum, for each lift or course of asphalt concrete placed.
3. Testing and inspection of paving shall be conducted in the presence of the Contractor (or representative), and the Project Officer or Designated Facilities Development representative.
4. Certification: Certify in writing that all asphalt concrete paving was installed in accordance with these specifications and the referenced standards.

C. Asphalt Paving Repair: Where testing and inspection indicates non-compliance with specifications, repair or replace all defective asphalt concrete paving, by approved methods, and provide the compaction specified and a finished surface in accordance with the tolerance specified above.

18.05 CLEAN UP

A. All dirt, soil, debris, excess materials of any nature shall be removed and disposed of off site and areas shall present a clean workmanlike appearance.

END OF SECTION 32 12 16

SECTION 32 13 13

CONCRETE PAVING

PART 19 – GENERAL

19.01 SUMMARY

A. Furnish all labor, materials, equipment, and services necessary for exterior concrete paving, including mixing, delivery, and placement; finishing, curing, and sealing; and tests, reports, and records of inspection as required.

B. This Section applies to cement concrete for the following:

1. Concrete Curbs.
2. Concrete Sidewalk

19.02 REFERENCES

A. American Concrete Institute (ACI).

B. Project drawings.

19.03 SUBMITTALS

A. Submit the following in accordance with Division 1 Section "Submittal Procedures.":

1. Product Data: For each type of manufactured material and product indicated.
2. Design Mixes: For each concrete mix. Include alternate mix designs when characteristics of materials, project conditions, weather, test results, or other circumstances warrant adjustments.
3. Material Certificates: Signed by manufacturers, certifying that each of the following materials complies with requirements:
    a. Cementitious materials and aggregates.
    b. Steel reinforcement and reinforcement accessories.
    c. Admixtures.
    d. Bonding agent or adhesive.
    e. Joint fillers and sealants.

19.04 QUALITY ASSURANCE

A. Pre-Installation Conference: Schedule and administer pre-installation conference to review finishing techniques of concrete, use of additives, application of curing compounds, and use of fibrous concrete reinforcement.

PART 20 – PRODUCTS

20.01 MANUFACTURERS

A. Product manufacturers are listed below.

B. Other Manufacturers: Obtain approval from Engineer.

20.02 CONCRETE MATERIALS

A. Cement: ASTM C150, Type I, low alkali for all concrete work.

B. Admixtures:

1. High Range Water Reducing Admixture (Superplasticizer):

a. ASTM C494, Type F. Batch plant added, extend rheoplastic time, maintain setting characteristics similar to normal concrete throughout the recommended dosage range at varying concrete temperatures, reduce water 15% to 40%, and give higher early and ultimate strengths. Use of this product is Contractor's option, except as required by Division 3 Section "Architectural Concrete."

b. Products:

1) "Rheobuild 1000" by Master Builders.

2) "Polyheed" by Master Builders, used at 10 oz./100 lbs. of cementitious material or greater. Dosage of approved mixes can be increased to over 10 oz. and meet the requirements for superplasticizer use.

2. Hot Weather Finishing Aid:

a. Specially formulated material to be sprayed on fresh concrete to prevent rapid drying during hot and windy weather. Sprayed over plastic concrete, finishing aid produces a monomolecular film that holds the water in until the next finishing operation. Product contains a yellow fluorescent color tint to easily identify the areas covered.

b. Products: "Confilm" by Master Builders.

2.1 CONCRETE MIX DESIGN

C. Contractor's Option:

1. Before ordering concrete, submit four copies of previously used and tested design mixes meeting the requirements of ACI 301, using aggregates, admixtures, and cement/fly ash intended for use in this concrete, to Architect for his review and approval for use in this Work.

2. Laboratory designed mix strength used as a basis for selecting proportions of ingredients for concrete exceeds the minimum specified design strength by the amount required by ACI 301, but not less than 500 psi.

D. Manufacturer is fully responsible for the selection of proportions for the concrete mix, ASTM C94 and ACI 301.

E. Mix Design 1:

1. 28 day minimum compressive strength of 4000 psi per ACI 301.

2. ASTM C330 lightweight structural concrete aggregate.

3. 3/4-inch maximum aggregate.

4. 110 lbs./c.f. average air dry unit weight.

5. Maximum 3-inch slump, maximum water/cement 0.44 non-air entrained, 0.35 air entrained.

PART 21 – EXECUTION

21.01 CONCRETE MIXING

A. Ready-Mixed Concrete:

1. Use only ready-mixed concrete obtained from plant approved by the Architect, mixed, and delivered in conformance with the approved design mix. Obtain a delivery ticket for each batch of concrete delivered to the job.

2. Maintain a file of all delivery tickets at the job site, in good order, available for inspection by Architect at all times. Include the following information: Name of ready-mix batch plant; serial number of tickets; date and truck number; Contractor's name; job name, and location (address); and name and type of admixtures.

B. Add all ingredients to the concrete at the batch plant during the mixing time. This includes all cement, fly ash, aggregate, water, admixtures, and fibrous concrete reinforcement. Fly ash limited to 20% replacement of cement.

21.02 COMPACTION

A. Concrete may be placed as flowable concrete at Contractor's option (6-inch to 9-inch slump with admixtures). Flowable concrete requires only 1/4 of the vibration of 3-inch to 4-inch slump concrete.

B. The vibrator shall be either motor-in-head type with 180 cycle generators or 2-1/2 h.p. motor-on-shaft type with length not exceeding 12-feet.

END OF SECTION 32 13 13

SECTION 32 14 13

PRECAST CONCRETE UNIT PAVING

PART 22 – GENERAL

22.01 SUMMARY

A. Furnish all labor, materials, equipment, and services necessary for the installation of base, precast concrete unit pavers (pavers), to include excavation, bedding, compaction, delivery as well as placement of pavers as shown on the project drawings; finishing, curing, and sealing; and tests, reports, and records of inspection as required.

B. This Section applies to precast concrete paving for the following:

1. Sidewalk, walkway, and patio areas designated to be paved with pavers.

22.02 REFERENCES

A. Project drawings.

B. Manufacturer's Installation Guide

22.03 QUALITY ASSURANCE

A. Pre-Pavement Conference: Schedule and administer pre-installation conference to review placement and finishing techniques of pavers.

PART 23 – PRODUCTS

23.01 MATERIALS

A. Pavers: Precast Concrete Unit Pavers as specified on project drawings.

B. Base: Crushed Rock and/or sand as specified on project drawings.

PART 24 – EXECUTION

24.01 SUBGRADE FOR PAVING

A. In preparing the area for paving, the Contractor shall:

1. Remove, immediately before placing paving materials, all brush, weeds, vegetation, grass, and other debris.

2. Dispose of all debris off-site in a legal manner.

3. Drain water from all low spots or ruts.

4. Excavate to the necessary depth to remove all organic or unsuitable material and to a minimum depth of 6-inches below the existing surface where topsoils exist.

24.02 FINISH SURFACE

A. Surface Evenness: The completed surface shall be uniform, uniform, and consistent as to grade, and free from defects of any kinds. The completed surface shall not vary more than 1/8" from the lower edge of a 10' straight edge.

24.03 FIELD QUALITY CONTROL

A. The Contractor is responsible for project quality control in ensuring that the project is constructed per the plans and specifications.

B. The Owner may retain a Testing Agency to perform on-site observation and testing.

C. Paving Repair: Where testing and inspection indicates non-compliance with specifications, repair or replace all defective paving, by approved methods, and provide the compaction specified and a finished surface in accordance with the tolerance specified above.

24.04 CLEAN UP

A. All dirt, soil, debris, excess materials of any nature shall be removed and disposed of off-site and areas shall present a clean workmanlike appearance.

END OF SECTION 32 14 13

SECTION 32 17 23

PAVEMENT MARKINGS

PART 25 – GENERAL

25.01 SECTION INCLUDES

A. Paints for pavement striping.

B. Words and other markings in paint or plastic film.

25.02 REFERENCES

A. AASHTO Standards:

M 237	Epoxy Resin Adhesive for Bonding Traffic Markers to Hardened Concrete
M 248	Ready-Mixed White and Yellow Traffic Paints

B. ASTM Standards:

D 638	Tensile Properties of Plastics
E 303	Measuring Surface Frictional Properties Using the British Pendulum Tester

C. FS Standards:

LS-300	Sheeting and Tape, Reflective: Nonexposed Lens
141	Paint, Varnish, Lacquer and Related Materials, Methods of Inspection, Sampling, and Testing
370	Instrumental Photometric Measurements of Retroflective Materials and Retroreflective Devices

D. DOT Standards:

Manual on Uniform Traffic Control Devices for Streets and Highways (MUTCD).

25.03 SUBMITTALS

A. Primer specifications to be used for tape applications.

B. Manufacturer's affidavit certifying paint products meet or exceed material requirements of this section.

PART 26 – PRODUCTS

26.01 ALKYD RESIN PAINT

A. White or yellow Type F (Fast dry) ready-mixed, AASHTO M 248.

26.02 REFLECTIVE TAPE

A. Type II white or yellow with a Class 1 (pressure-sensitive) adhesive, FS L-S-300.

PART 27 – EXECUTION

27.01 CONSTRUCTION EQUIPMENT

A. Use equipment manufactured for pavement marking. Use workers experienced in operating such equipment.

B. Use equipment capable of applying a strip, or strips with a width tolerance of plus or minus 1/4 inch. Equip machine with an automatic skip control giving a 10 feet long marked segment and a 30 feet long gap within a linear tolerance of six (6) inches over that cycle.

27.02 PREPARATION

A. Broom or flush the surface to remove dirt, loose stones, or other foreign material.

B. Mark roadway between control points established by ENGINEER. ENGINEER will establish points on tangent at least every 100 feet and at 25 feet long intervals on curves. Maintain the line within 1 inch of the established control points. ENGINEER may also designate other pavement striping locations such as stop bars, crosswalks, zebra striping, etc.

C. Markings that adhere to asphalt concrete or Portland cement concrete by either a pressure sensitive precoated adhesive or an epoxy cement shall mold to the pavement contours by traffic action at normal pavement temperatures and shall be ready for traffic immediately after application.

D. Begin pavement painting and marking operations not later than 24 hours after receipt of written order by ENGINEER.

E. Apply striping and markings per MUTCD requirements.

F. Apply all materials in accordance with manufacturer's and ENGINEER' s directions.

27.03 APPLICATION

A. Apply pavement paintings and markings only when pavement surface is dry and air temperature is above 40°F during daylight hours.

B. Do not apply paints and markings when rain is anticipated within 12 hours.

27.04 ALKYD RESIN PAINT STRIPING

A. Adjust pavement striping machine to apply paint at rate recommended by paint manufacturer.

B. Protect the markings until dry by placing approved guarding or warning device wherever necessary. Remove any markings not authorized or smeared or otherwise damaged, or correct as approved by ENGINEER.

27.05 TAPE STRIPING

A. Apply pavement marking tape as indicated or directed. ENGINEER will establish control points.

B. Apply tape only on surfaces that are dry and free of oils, grease, dust, and dirt, and primed at the rate of approximately 1 quart per 60 feet with an approved primer material.

C. Maintain the line on established control points. Apply intermittent pavement marking tape 24 inches long, spaced approximately 100 feet on tangents, and approximately 25 feet on curves unless otherwise directed. The ENGINEER will designate other pavement striping locations such as stop bars, crosswalks, zebra striping, etc.

D. Press down tape immediately after application until it adheres and conforms to pavement surface.

E. Completely remove all tape on sections where tape conflicts with revised traffic lanes before opening new lanes to traffic.

27.06 PAVEMENT MARKING FILMS

A. Use pavement marking films that are capable of being applied to new dense, and open-graded asphalt concrete wearing courses during pav g operation in accordance manufacturer's instructions, and that are capable of conforming to pavement contours through the action of traffic at normal pavement temperatures.

B. Use a pavement marking film that is capable of use for patching worn areas of the same type film.

C. Apply before traffic is allowed on freshly paved surface.

D. Unless indicated otherwise, provide Type C, Class II, polymer film markings in specified widths and shapes. Provide and layout words and marking symbol configurations per MUTCD requirements and as indicated.

E. When indicated, inlay markings in fresh asphalt surface by a compaction roller during the paving operation.

F. Apply all markings in accordance with manufacturer's recommendations.

27.07 WORDS, SYMBOLS AND OTHER MARKINGS

A. Wet sandblast existing or temporary pavement markings that may be confusing. Removal of markings by high-pressure water may be used if approved by ENGINEER.

B. Apply word markings, letters, numerals, and symbols with indicated stencils and templates. In the absence of such information all stencils and templates shall be identical to those currently used by OWNER.

END OF SECTION 32 17 23

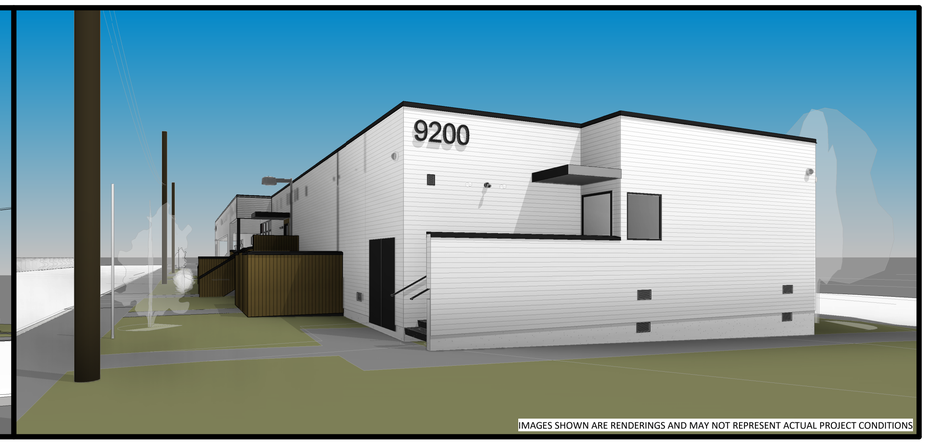
MCBROD CRISIS CENTER

9200 SE MCBROD AVENUE, MILWAUKIE, OR 97222

BIDDING DOCUMENTS

TENANT IMPROVEMENT | AUGUST 01, 2024

ISSUED TO:
OWNER/CLIENT
BIDDERS



IMAGES SHOWN ARE RENDERINGS AND MAY NOT REPRESENT ACTUAL PROJECT CONDITIONS

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MCBROD CRISIS CENTER

ABBREVIATIONS

PL	PROPERTY LINE
CL	CENTERLINE
Ø	DIAMETER OR ROUND
°	DEGREE
AFF	ABOVE FINISHED FLOOR
BD	BOARD
B.O.	BOTTOM OF
CFCI	CONTRACTOR FURNISHED, CONTRACTOR INSTALLED
CJ	CONTROL JOINT
CONC	CONCRETE
CONT	CONTINUOUS, CONTINUE
CPT	CARPET
CT	CERAMIC TILE
DIAM	DIAMETER
DIM,S	DIMENSION(S)
DS	DOWNSPOUT
DW	DISHWASHER
E	EAST
EQ	EQUAL
(E)	EXISTING
FD	FLOOR DRAIN
FF	FINISHED FLOOR
FIN.	FINISH
FLR	FLOOR
FO	FACE OF
FOC	FACE OF CONCRETE
FT	FOOT (FEET)
GA	GAGE, GAUGE
GWB, GYP BD	GYPSUM BOARD
HB	HOSE BIBB
HDG	HOT DIPPED GALVANIZED
HM	HOLLOW METAL
HNYCMB	HONEYCOMB
HVAC	HEATING, VENTILATING & AIR CONDITIONING
HWD	HARDWOOD
ID	INSIDE DIAMETER, IDENTIFY
INSUL	INSULATION
LAV	LAVATORY
LAV	LAVATORY
MAX	MAXIMUM
MATL, MATLS	MATERIAL(S)
MANF	MANUFACTURER
MIN	MINIMUM
N	NORTH
NIC	NOT IN CONTRACT
(N)	NEW
NTS	NOT TO SCALE
O/	OVER
OC	ON CENTER
OD	OUTSIDE DIAMETER
OFOI	OWNER FURNISHED, OWNER INSTALLED
PLWD	PLYWOOD
PSI	POUNDS PER SQUARE INCH
PSF	POUNDS PER SQUARE FOOT
PT	PRESSURE TREATED
PTD.	PAINTED
R	RISER
REF, REFER	REFRIGERATOR
REINF	REINFORCE(D)(ING)
REQ, REQ'D	REQUIRE(D)(MENTS)
RO	ROUGH OPENING
S	SOUTH
SAM	SELF ADHESIVE MEMBRANE
SC	SOLID CORE
SG	SAFETY GLAZING (TEMPERED)
SHTNG	SHEATHING
SIM	SIMILAR
SL	SLOPE
SPECS	SPECIFICATIONS
SS, SST	STAINLESS STEEL
SSD	SEE STRUCTURAL DWGS
ST	STONE, STAINED
TR	TREAD
T&B	TOP AND BOTTOM
T&G	TONGUE AND GROOVE
T.O.	TOP OF
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
VTA	VENT TO AIR
VIF	VERIFY IN FIELD
W/	WITH
W/O	WITHOUT
W	WEST

SYMBOLS

# DRAWING TITLE / DRAWING SCALE	
ROOM / # OR FLR. FIN.	ROOM NAME
X / AXXX	EXTERIOR ELEVATION
A, B, C, D — X / AXXX	DRAWING NUMBER, TYP.; INTERIOR ELEVATION, TYP.; SHEET NUMBER, TYP.
X / AXXX	DETAIL TARGET
X / AXXX	SECTION
#	ASSEMBLY TAG
ELEV. LOCATION	ELEVATION REFERENCE
XX-#	MATERIAL TAG
W#	WINDOW NUMBER
#	REVISION CLOUD + NUMBER
MATERIAL / MATERIAL	MATERIAL CHANGE
4" (UNO), XXX	WALL, WHERE OCCURS; DOOR MARK, SEE SCHEDULE; LINE OF DOOR SWING; DOOR
TYP	KEYNOTE REFERENCE
T.	TEMPERED
N	NORTH
0' 2' 4' 8'	DRAWING SCALE

PROJECT INFORMATION

PROPERTY ADDRESS

9200 SE MCBROD AVENUE
MILWAUKIE, OR 97222

PROJECT DESCRIPTION

THIS PROJECT CONSISTS OF TENANT IMPROVEMENTS FOR AN EXISTING 1-STORY, 5,815 SF BUILDING.

CONSTRUCTION TYPE: TYPE V-B
OCCUPANCY TYPE: B, BUSINESS; R-4
NUMBER OF STORIES: 1
FIRE PROTECTION: NON-SPRINKLERED
FIRE ALARM SYSTEM: EXISTING

OWNER CONTACT

MARCUS GORTON
9200 SE MCBROD AVENUE
MILWAUKIE, OR 97222
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ARCHITECT

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STRUCTURAL/CIVIL ENGINEERING

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MECHANICAL ENGINEERING

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3740 DAVANCI CT, SUITE 100
PEACHTREE CORNERS, GA 30092
T: 770.368.1399

TOM SCHIRMER E: tschirmer@fg-inc.net

PROJECT NOTES

GENERAL NOTES:

1. THESE CONTRACT DOCUMENTS ARE BEING SUBMITTED TO THE CITY OF MILWAUKIE FOR BUILDING PERMIT REVIEW + APPROVAL. THEY CONSIST OF THESE DRAWINGS (ARCHITECTURAL AND STRUCTURAL), AND ENGINEERING CALCULATIONS.
2. PREVIOUS PERMITS INCLUDE:
3. ALL CONSTRUCTION SHALL COMPLY WITH ALL APPLICABLE BUILDING CODES INCLUDING BUT NOT LIMITED TO THE FOLLOWING:
   a. 2022 OREGON STRUCTURAL SPECIALTY CODE (OSSC)
   b. ICC A117.1-2017 ACCESSIBLE AND USABLE BUILDINGS AND FACILITIES
   c. 2021 OREGON ENERGY EFFICIENCY SPECIALTY CODE (OEESC) - MANDATORY 10/01/21
   d. 2019 OREGON ZERO ENERGY READY COMMERCIAL CODE (OZERC) - EXPIRES 09/30/21
   e. 2019 OREGON FIRE CODE (OFC)
   f. 2021 OREGON ELECTRICAL SPECIALTY CODE (OESC)
   g. 2019 OREGON MECHANICAL SPECIALTY CODE (OMSC)
   h. 2021 OREGON PLUMBING SPECIALTY CODE (OPSC)
4. ALL DIMENSIONS ARE FROM FACE OF STUD, UNO.
5. ANY INCONSISTENCIES BETWEEN DRAWINGS AND ACTUAL CONSTRUCTION SHALL BE BROUGHT TO THE ARCHITECT'S ATTENTION PRIOR TO CHANGES.
6. DO NOT SCALE DRAWINGS.
7. ALL PRODUCTS, ASSEMBLIES, SYSTEMS, ETC., SHALL BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS AND INDUSTRY STANDARDS.
8. SUBCONTRACTORS SHALL INSPECT THE JOB SITE AND VERIFY JOB CONDITIONS PRIOR TO COMMENCEMENT OF WORK. STARTING WORK IS ACCEPTANCE OF THE CONDITIONS.
9. THE CONTRACTOR SHALL SCHEDULE A MEETING PRIOR TO THE START OF WORK FOR THE FOLLOWING SCOPES- THE MEETINGS SHALL BE ATTENDED BY THE CONTRACTOR, THE OWNER, THE ARCHITECT, THE ENGINEER (IF NECESSARY) AND THE SUB-CONTRACTOR RESPONSIBLE FOR THE SCOPE OF WORK. MEETINGS SHALL BE HELD ON SITE, AT THE OWNER'S OFFICE, AT THE ARCHITECT'S OFFICE OR A MUTUALLY AGREED UPON LOCATION:
   1. SHEETROCK
   2. HVAC
   3. PLUMBING
   4. ELECTRICAL
10. PROVIDE SAFETY GLAZING AT THE FOLLOWING LOCATIONS:
   a. DOORS: SWINGING
   b. GLAZING WITHIN 2'-0" OF EITHER VERTICAL EDGE OF DOORS IN CLOSED POSITION
   c. GLAZING PANES GREATER THAN 9 SF, WITH HEAD GREATER THAN 3'-0" ABOVE FINISHED FLOOR, AND WITH SILL WITHIN 1'-6" OF FINISHED FLOOR.

SITEWORK NOTES:

1. VERIFY LOCATIONS OF ALL UTILITIES PRIOR TO EXCAVATION.
2. FOUNDATION AREA SHALL BE CLEARED OF ALL VEGETATION, TOPSOIL AND FOREIGN MATERIAL.
3. ALL FOOTINGS AND FOUNDATIONS SHALL BEAR ON FIRM, UNDISTURBED SOIL.
4. SLOPE FINISH GRADE 3" OUT, 12'-0" FROM FOUNDATION.

STRUCTURAL NOTES:

1. SEE STRUCTURAL DRAWINGS FOR STRUCTURAL SPECIAL INSPECTION + OBSERVATION PROGRAM REQUIREMENTS (SSIOP).

MECHANICAL NOTES:

1. EXHAUST VENTS AND FANS- INCLUDING BUT NOT LIMITED TO BATHROOM FANS, UTILITY FANS, RANGE HOOD FANS, AND DRYER VENTS- SHALL BE DIRECT TO EXTERIOR THROUGH SOME METAL DUCTS AND STAINLESS STEEL OR PLASTIC TERMINATIONS.
2. PROVIDE SEISMIC STRAPPING OF APPLIANCES AND WATER HEATERS.

PROJECT LOCATION:
9200 SE MCBROD AVENUE
MILWAUKIE, OR 97222

VICINITY MAP
N.T.S.

DRAWING INDEX

GENERAL/CODE

G000	COVER
G001	GENERAL INFO
G101	CODE ANALYSIS
G501	CODE DETAILS

CIVIL

C1.0	EXISTING CONDITIONS & DEMO PLAN
C2.0	SITE PLAN
C3.0	EC PLAN
C3.1	GRADING DETAIL - WEST
C3.2	GRADING DETAIL - N & E
C6.0	CONSTRUCTION DETAILS

ARCHITECTURAL

A090	SITE PLAN
A101	FLOOR PLANS
A102	ROOF PLAN
A201	REFLECTED CEILING PLAN
A301	EXTERIOR ELEVATIONS
A401	BUILDING SECTIONS
A402	BUILDING SECTIONS
A601	INTERIOR ELEVATIONS AND DETAILS
A602	INTERIOR ELEVATIONS AND DETAILS
A603	INTERIOR ELEVATIONS AND DETAIL
A701	EXTERIOR STAIRS
A702	EXTERIOR STAIRS
A703	EXTERIOR STAIRS
A704	EXTERIOR STAIRS
A801	CASEWORK DETAILS
A901	FINISH & DOOR SCHEDULES

STRUCTURAL

S001	SHEET INDEX
S002	STRUCTURAL NOTES
S003	STRUCTURAL NOTES
S101	STRUCTURAL SITE PLAN
S102	STRUCTURAL PLANS
S103	STRUCTURAL PLANS
S501	STRUCTURAL DETAILS
S502	STRUCTURAL DETAILS
S503	STRUCTURAL DETAILS
S504	STRUCTURAL DETAILS

MECHANICAL

M101	HVAC SPEC'S, SCHEDULES & DETAILS
M201	HVAC FLOOR PLAN & ENERGY COMPLIANCE

PLUMBING

P101	PLUMBING SPECS, SCHEDULES, DETAILS
P201	PLUMBING FLOOR PLAN S W + V
P202	PLUMBING FLOOR PLAN WATER

ELECTRICAL

E001	ELECTRICAL GENERAL NOTES
E101	ELECTRICAL SITE PLAN
E201	EXISTING ELECTRICAL POWER PLAN
E202	NEW ELECTRICAL POWER PLAN
E301	NEW ELECTRICALLIGHTING PLAN
E401	ELECTRICAL ROOF PLAN
E501	ELECTRICAL RISER DIAGRAM AND PANEL SCHEDULE
E502	PANEL SCHEDULE
E601	ELECTRICAL SPECIFICATIONS

DRAWING REVISIONS

NO.	DATED	DESCRIPTION

REGISTERED ARCHITECT 4688 ERIK L. MATTHEWS PORTLAND, OR STATE OF OREGON

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MCBROD CRISIS CENTER
9200 SE MCBROD AVENUE

BIDDING DOCUMENTS
08.01.2024

GENERAL INFO

G001

BUILDING/LIFE SAFETY CODE ANALYSIS

JURISDICTIONAL AUTHORITY: CITY OF MILWAUKIE

APPLICABLE CODES: SEE G001

OCCUPANCY (CHAPTER 3):
GROUND FLOOR R-4 RESIDENTIAL; B, OFFICE

ACCESSORY OCCUPANCIES (SECTION 508.2):
ACCESSORY OCCUPANCIES ARE ANCILLARY TO THE MAIN OCCUPANCY. ACCESSORY OCCUPANCIES SHALL NOT OCCUPY MORE THAN AN AGGREGATE 10% OF THE FLOOR OF THE STORY IN WHICH THEY ARE LOCATED. THE ALLOWABLE BUILDING HEIGHT AND NUMBER OF STORIES OF THE BUILDING SHALL BE IN ACCORDANCE WITH THE MAIN OCCUPANCY. THE ALLOWABLE AREA OF THE BUILDING SHALL BE BASED ON THE MAIN OCCUPANCY OF THE BUILDING.

SEPARATION OF OCCUPANCIES (SECTION 508.2.4):
NO SEPARATION IS REQUIRED BETWEEN ACCESSORY OCCUPANCIES AND THE MAIN OCCUPANCY.

NONSEPARATED OCCUPANCIES (SECTION 508.4):
TABLE 508.4 REQUIRES SEPARATION BETWEEN B AND R OCCUPANCIES IS 2 HOURS IN AN UNSPRINKLERED BUILDING.

CONSTRUCTION TYPE (CHAPTER 6): TYPE V-B

FIRE RESISTIVE REQUIREMENTS (TABLE 601)

STRUCTURAL FRAME	0 HOURS		
EXTERIOR BEARING WALLS	0 HOURS	EXTERIOR NON-BEARING WALLS & PARTITIONS	0 HOURS
INTERIOR BEARING WALLS	0 HOURS	INTERIOR NON-BEARING WALLS & PARTITIONS	0 HOURS
FLOOR CONSTRUCTION	0 HOURS	ROOF CONSTRUCTION	0 HOURS

AUTOMATIC SPRINKLER SYSTEMS (SECTION 903.3.1.1): THIS BUILDING IS NOT SPRINKLERED.

OCCUPANT LOAD (TABLE 1004.5): SEE CODE PLANS THIS DRAWING.

REQUIRED EGRESS WIDTH BASED ON OCCUPANT LOAD (1005.3):
STAIRWAY WIDTH SHALL BE CALCULATED BY MULTIPLYING THE OCCUPANT LOAD BY 0.3 INCHES
THE WIDTH OF OTHER EGRESS COMPONENTS SHALL BE CALCULATED BY MULTIPLYING THE OCCUPANT LOAD BY 0.2 INCHES.

EXIT ACCESS TRAVEL DISTANCE (EATD) (TABLE 1017.2): R-4 & B (WITHOUT SPRINKLERS): 200' MAX ALLOWED

ACCESSIBLE PARKING FACILITIES (SECTION 1106.1):
17 TOTAL PARKING SPACES PROVIDED IN LOT = INCLUDING 1 VAN ACCESSIBLE SPACE REQUIRED & PROVIDED.

ROOF ASSEMBLY FIRE CLASSIFICATION (TABLE 1505.1): CONSTRUCTION TYPE V-B = CLASS C ROOF COVERING IS REQUIRED.

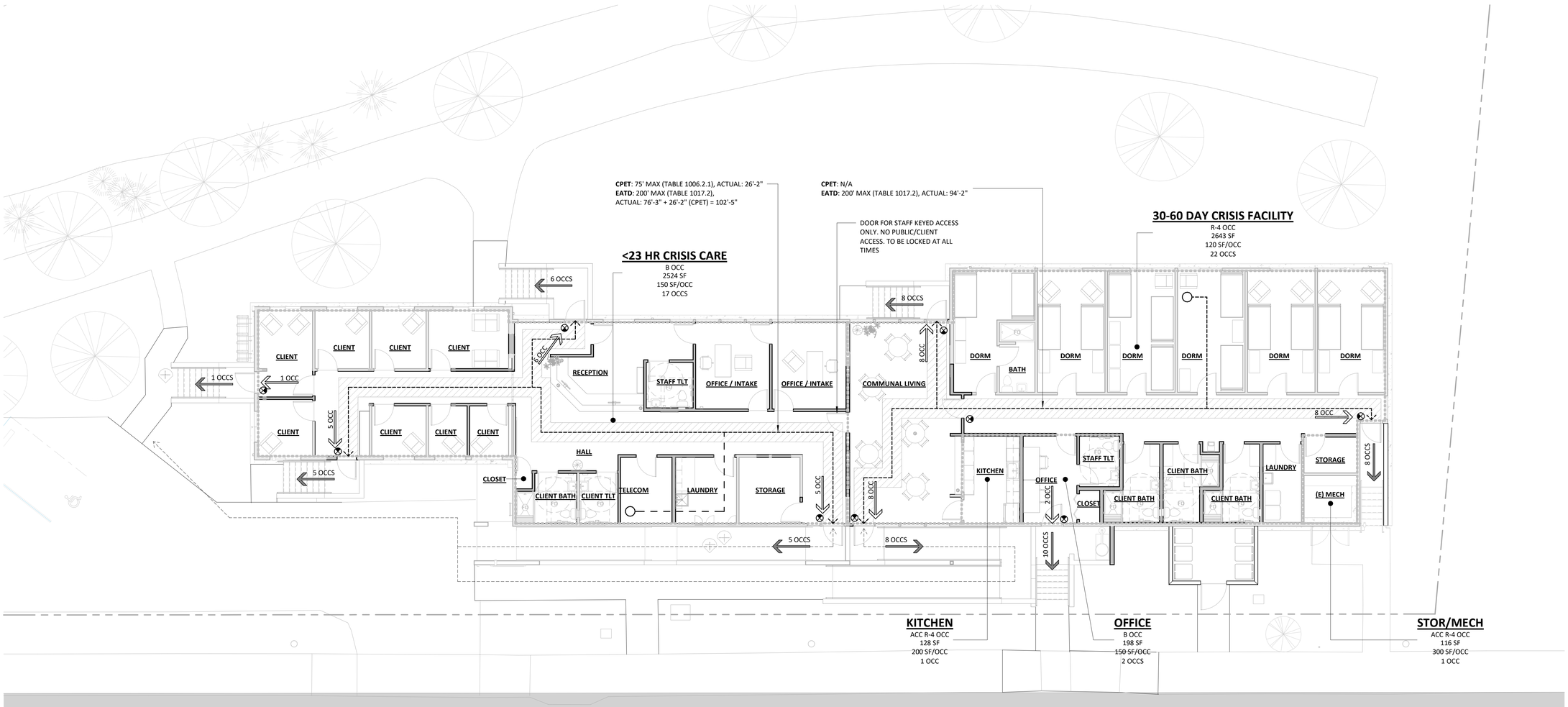
PLUMBING FIXTURES (TABLE 2902.1):
FOR CALCULATIONS INVOLVING MULTIPLE OCCUPANCIES, SUCH FRACTIONAL NUMBERS FOR EACH OCCUPANCY SHALL FIRST BE SUMMED AND THEN ROUNDED UP TO THE NEXT WHOLE NUMBER. FOR THE PURPOSES OF THIS BUILDING, THE TWO SIDES (23 HR CARE AND 30-60 DAY CARE, WILL ALWAYS BE SEPARATE. THE DOOR BETWEEN THE TWO IS FOR STAFF ONLY AND LOCKED AT ALL TIMES.

B, BUSINESS: 19 OCC/2 = 9 MALE, 10 FEMALE. REQ'D W/C = 1 PER 25 OCCS; REQ'D LAV = 1 PER 40 OCCS.
W/C: 10 OCC/25 = 0.40 W/C REQUIRED PER SEX; **2 PUBLIC, 1 STAFF WC PROVIDED - ALL SINGLE-USER**
LAV: 10 OCC/40 = 0.25 LAV REQUIRED PER SEX; **2 PUBLIC, 1 STAFF LAV PROVIDED - ALL SINGLE-USER**

R-4, CONGREGATE LIVING: 24 OCC/2 = 12 MALE, 12 FEMALE. REQ'D W/C = 1 PER 25 OCCS; REQ'D LAV = 1 PER 40 OCCS; REQ'D DRINKING FOUNTAIN = 1 PER 100 OCCS.
W/C: 12 OCC/25 = 0.48 W/C REQUIRED PER SEX; **3 PUBLIC, 1 PRIVATE, 1 STAFF WC PROVIDED - ALL SINGLE-USER**
LAV: 12 OCC/40 = 0.30 LAV REQUIRED PER SEX; **3 PUBLIC, 1 PRIVATE, 1 STAFF LAV PROVIDED - ALL SINGLE-USER**
DF: 24 OCC/100 = 0.24 DF REQUIRED; **1 PROVIDED**

BUILDING AREA + OCC SUMMARY

AREA NAME	OCC GROUP	AREA (NSF)	LOAD FACTOR	# OF OCCUPANTS
<23 HR CRISIS CARE	B OCC	2524 SF	150 SF/OCC	17
STOR/MECH	ACC R-4 OCC	116 SF	300 SF/OCC	1
KITCHEN	ACC R-4 OCC	128 SF	200 SF/OCC	1
OFFICE	B OCC	198 SF	150 SF/OCC	2
30-60 DAY CRISIS FACILITY	R-4 OCC	2643 SF	120 SF/OCC	22
TOTALS		5609 SF		43



2 GROUND LEVEL CODE PLAN
1/8" = 1'-0"

DRAWING NOTES

1. SEE G001 FOR PROJECT DESCRIPTION, PROPERTY DATA, AND CODE REQUIRED SIGNAGE.
2. SEE DWG A901 FOR DOOR SCHEDULE + DOOR HARDWARE NOTES.
3. SEE A100 SERIES FLOOR PLAN DWGS FOR DIMS + ACCESSIBILITY CLEARANCES AT DOORS, FIXTURES, APPLIANCES, ETC.
4. SEE A601 FOR DIMS + ACCESSIBILITY CLEARANCES/REQUIREMENTS FOR TOILETS AND BATHROOMS.

LEGEND

(N) UNRATED WALL
(E) UNRATED WALL
(2) HR. RATED FIRE WALL - (E) TO BE CONVERTED TO 2-HR
PROPERTY LINE
ROOM/SPACE AREA BOUNDARY LINE
OCC. EXIT GROUP
OCC. EXIT DISCHARGE
FEC FIRE EXTINGUISHER MOUNTED WITH HANDLE 15"-48" A.F.F. - FINAL LOCATION TO BE DETERMINED BY FIRE MARSHAL
EXIT SIGN
EXIT ACCESS TRAVEL DISTANCE (EATD) - INCLUDES CPET
COMMON PATH OF EGRESS (CPET)
EGRESS PATH - MIN 36" WIDE SHALL BE CLEAR AND UNOBSTRUCTED AT ALL TIMES. PROVIDE EGRESS LIGHTING ENTIRE WIDTH OF EGRESS PATH, MIN LIGHT LEVEL OF 1 FOOTCANDLE MEASURED AT FLOOR LEVEL. PROVIDE WITH BATTERY BACKUP THAT CAN ILLUMINATE PATH FOR A DURATION OF 90 MINS AFTER A POWER OUTAGE

XXX — ROOM NAME
R-2 OCC. — ROOM OCCUPANCY
XXX SF — TOTAL ROOM SF
200 SF/OCC — OCCUPANT LOAD FACTOR
8 OCC. — TOTAL NO. OCCUPANTS

PUBLIC WAY/ACCESSIBLE ROUTE

DRAWING REVISIONS

NO.	DATED	DESCRIPTION

REGISTERED ARCHITECT
4688
ERIK L. MATTHEWS
PORTLAND, OR
STATE OF OREGON

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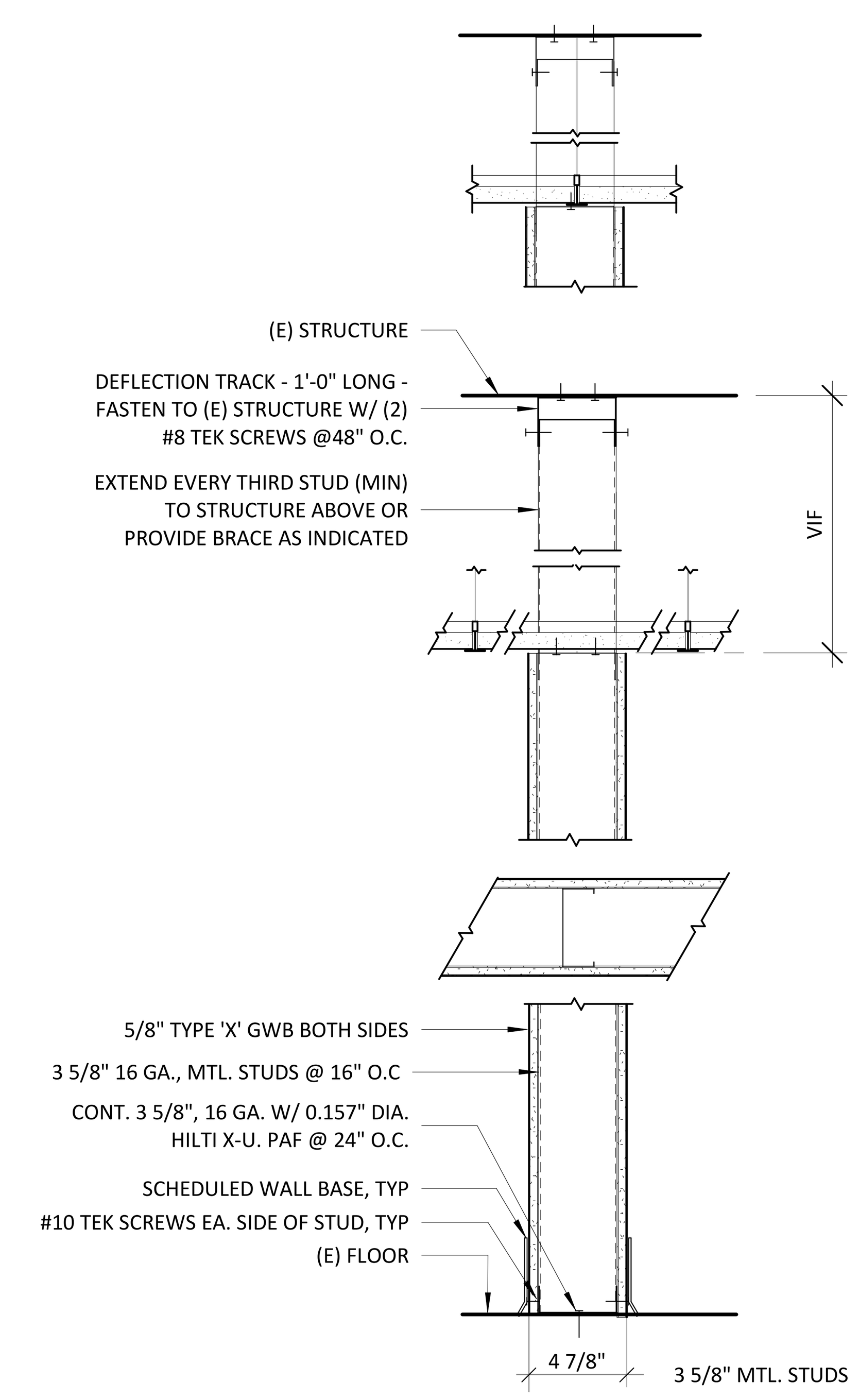
MCBROD CRISIS CENTER
9200 SE MCBROD AVENUE

BIDDING DOCUMENTS
08.01.2024

CODE ANALYSIS

G101



HEAD DETAIL - PAR. TO CEILING GRID

HEAD DETAIL - PERP. TO CEILING GRID

PLAN DETAIL

SILL DETAIL

1 TYP PARTITION
1 1/2" = 1'-0"

WALLS AND INTERIOR PARTITIONS, NONCOMBUSTIBLE

GA FILE NO. WP 1616	GENERIC	2 HOUR FIRE	45 to 49 STC SOUND

GYPSUM WALLBOARD, STEEL STUDS

Fire Design:

Base layer 5/8" type X gypsum wallboard or gypsum veneer base applied parallel to each side of 3-5/8", 18 mil steel studs 24" o.c. with 1" Type S screws 8" o.c. at vertical joints and 12" o.c. at intermediate studs. **Face** layer 5/8" plain or predecorated type X gypsum wallboard or gypsum veneer base applied parallel to each side with laminating compound combed over entire surface. Metal base and top retainer channels.

Joints staggered 24" each layer and side. **(NLB)**

Sound Design:

Sound tested as constructed for fire.

Thickness: 6-1/8" (Fire and Sound)
Approx. Weight: 10 psf (Fire and Sound)
Fire Test: UL R1319-31, 6-2-60, UL Design U411
Sound Test: NGC 2005005, 6-15-05 RAL TL06-115, 4-12-06

STC 47

Airborne Sound Transmission Loss	
Frequency (Hz)	Airborne Sound Transmission Loss (dB)
125	29
160	32
200	33
250	37
315	42
400	45
500	48
630	51
800	53
1000	53
1250	48
1600	45
2000	49
2500	52
3150	54
4000	60

2 TYP 2HR RATED ASSEMBLY
6" = 1'-0"

DRAWING REVISIONS

NO.	DATED	DESCRIPTION

REGISTERED ARCHITECT
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08.01.2024

CODE DETAILS

G501

LEGEND

- WATER VALVE
- HYDRANT
- FDC
- POST INDICATOR VALVE
- WATER BLOW OFF
- WATER METER
- IRR. CONTROL VALVE
- MANHOLES (SS/SD)
- CB (TYPE 2)
- CB
- POWER TRANSFORMER
- P C POWER/COMM. VAULT
- W U WATER/UTILITY VAULT
- POWER MANHOLE
- COMM. MANHOLE
- WATER MANHOLE
- POWER METER
- SURFACE JUNCTION BOX
- SUBSURFACE JUNCTION BOX
- POWER/UTILITY POLE
- POWER/UTILITY POLE W/DROP
- ANCHOR POLE
- GUY ANCHOR
- TRAFFIC SIGNAL POLE
- STREET LIGHT
- LUMINAIRE(DOUBLE)
- LUMINAIRE(SINGLE)
- PEDESTRIAN LIGHT POLE
- AREA LIGHT
- GAS METER
- GAS VALVE
- SIGN
- MAILBOX
- NP NEWS PAPER BOX
- TC TRASH CAN
- ROCKERY
- SPOT ELEVATION
- SIZE & TYPE (CONIFEROUS TREE)
- SIZE & TYPE (DECIDUOUS TREE)
- MAGNETIC NAIL W/ WASHER
- REBAR AND CAP (SET)
- REBAR AND CAP (FOUND)
- TACK AND LEAD
- HUB AND TACK
- CASED MONUMENT
- SURFACE MONUMENT
- SURVEY CONTROL POINT

DEMOLITION LEGEND

ASPHALT PAVEMENT TO BE REMOVED

PAVEMENT TO BE REMOVED

ASPHALT TO BE REMOVED (ROCK BASE TO REMAIN)

JOHNSON CREEK

PROTECT CREEK. (TYP)

COORDINATE WITH ARBORIST WHEN EXCAVATING NEAR ROOTS (TYP)

COORDINATE WITH ARBORIST WHEN EXCAVATING NEAR ROOTS (TYP)

IE 10" CONC=35.99'

REMOVE EXTG ASPHALT SURFACING, ROCK BASE TO REMAIN (TYP)

PROTECT TREE(S) TO REMAIN (TYP)

PROTECT EX BUILDING, STAIRS AND RAMPS TO REMAIN. SEE STRUCTURAL & ARCHITECTURAL PLANS FOR EXTENT OF RENOVATION AND REMOVAL.

REMOVE EXTG PVMT SECTION

PROTECT EXTG. BIKE RACK

REMOVE EXTG STAIRS AND LANDINGS

PROTECT EX LIGHTS (TYP)

COORDINATE RELOCATION OF POWER METER WITH PROVIDER

REMOVE EX STAIRS. SEE ARCHITECTURAL PLANS

PROTECT EX CONC.

PROTECT EXTG LIGHT POLE

PROTECT EX WATER METER

REMOVE EX ASPHALT SURFACING, ROCK BASE TO REMAIN (TYP)

REMOVE EX WHEEL STOPS. COORDINATE REMOVAL OR SALVAGE WITH OWNER. (TYP)

EX. WHEEL STOP (TYP)

SAWCUT AS REQUIRED

PROTECT EX POWER POLES, LIGHTS & GUYS (TYP)

SAWCUT AS REQUIRED

REMOVE EXTG TREE & ROOTS

PROTECT EX SIDEWALK & CURB. (TYP)

SAWCUT AS REQUIRED

SAWCUT AS REQUIRED (TYP)

REMOVE EXTG. DRIVEWAY AND TRASH AREA PVMT. SEE SHEET C3.1 FOR CURB AND SIDEWALK REPLACEMENT

REMOVE EXTG. WALLS

CB 2 RIM=39.90'
IE 10" CONC(E)=36.94'
IE 8" CONC(SW)=36.88'
BOTTOM=36.84'

CB 1 RIM=40.20'
IE 6"(N)=37.46'
IE 4" ORIFICE =37.41'
IE 4"(S)=37.66'
IE 4"(S)=39.20'
IE 6"(W)=37.48'
BOTTOM=36.45'

CB 4 RIM=39.94'
IE 6" PVC(E)=36.95'
IE 8" PVC(W)=37.65'
TOP H2O=37.09'
BOTTOM=35.49'

CB 3 RIM=40.93'
IE 8" CONC(NE)=37.44'
IE 8" CONC(W)=37.39'

CB 5 RIM=40.32'
IE 10" DI(E)=38.13'
IE 6" PVC(W)=38.16'
TOP H2O=37.37'
BOTTOM=36.36'

S.E. McBROD AVENUE

30'

11E29AA00400
9111 SE MCBROD AVE
MCBROD AVE LLC

11E29AA00700
9255 SE MCBROD AVE
ARTHUR GRAHAM B TRUSTEE

CALL BEFORE YOU DIG 811
UNDERGROUND SERVICE (USA)

HORIZ. 0 10 20 40
Scale In Feet

REGISTERED PROFESSIONAL ENGINEER
14061
DIGITALLY SIGNED
OREGON
JULY 26, 1985
ANTHONY R. WELLER

RENEWS: 6/30/24

DRAWING REVISIONS

NO.	DATED	DESCRIPTION
01	03/27/2024	PERMIT DRAWINGS

PACE

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4500 Kruse Way, Suite 250
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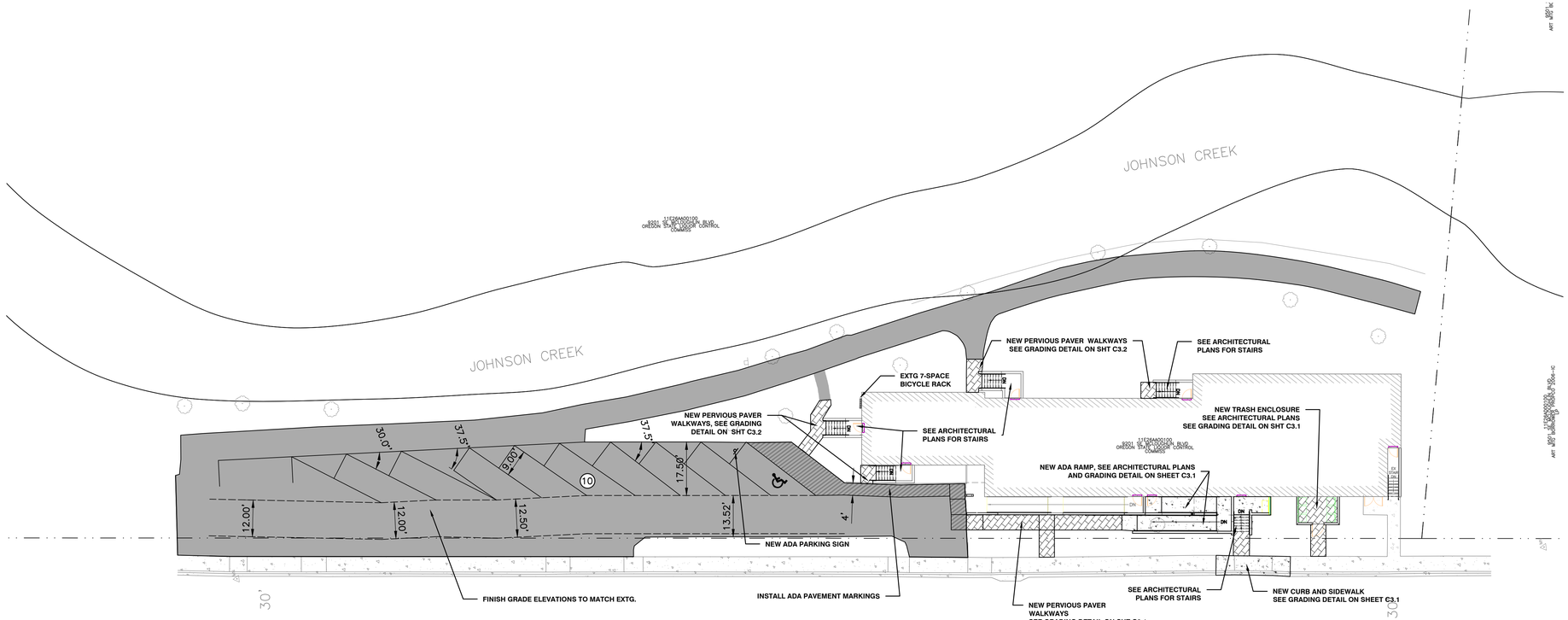
MCBROD CRISIS CENTER
9200 SE MCBROD AVENUE

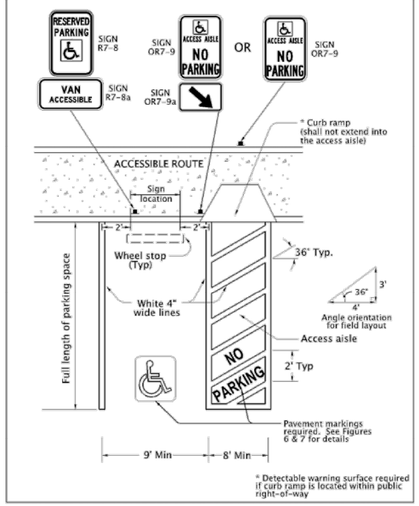
CONSTRUCTION DOCUMENTS

Existing Conditions & Demo Plan

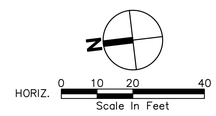
C1.0



MINIMUM STANDARD SINGLE-ACCESSIBLE PARKING SPACE
(VAN-ACCESSIBLE DESIGNATION REQUIRED)

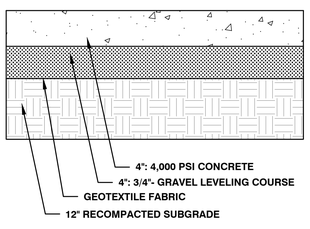


	On-Site	ROW
Total Project Area	29,430 SF	
Impervious Pavement Removal	439 SF	0 SF
New Impervious Pavement	462 SF	0 SF
Modified Impervious Area	289 SF	155 SF
New Pervious Pavement	716 SF	0 SF
Maintenance to Extg. HMAC	11,669 SF	

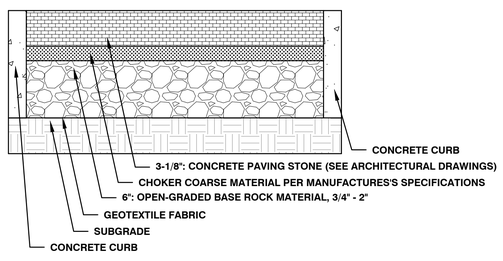


ADA PAVEMENT MARKINGS

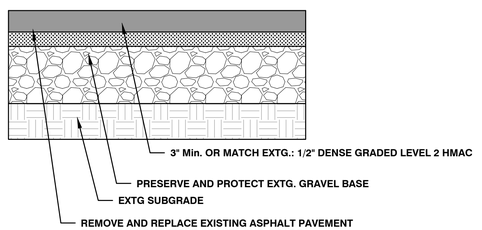
4" CONCRETE SIDEWALK

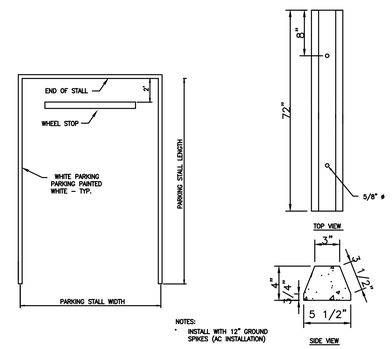


PERVIOUS PAVEMENT/PAVERS



REMOVE AND REPLACE EXTG ASPHLAT PAVEMENT





TYPICAL PARKING STALL & PRECAST WHEEL STOP
NTS

REGISTERED PROFESSIONAL ENGINEER
14061
DIGITALLY SIGNED
OREGON
JULY 29, 1988
ANTHONY R. WELLER
RENEWS: 6/30/24

DRAWING REVISIONS

NO.	DATED	DESCRIPTION
01	03/27/2024	PERMIT DRAWINGS

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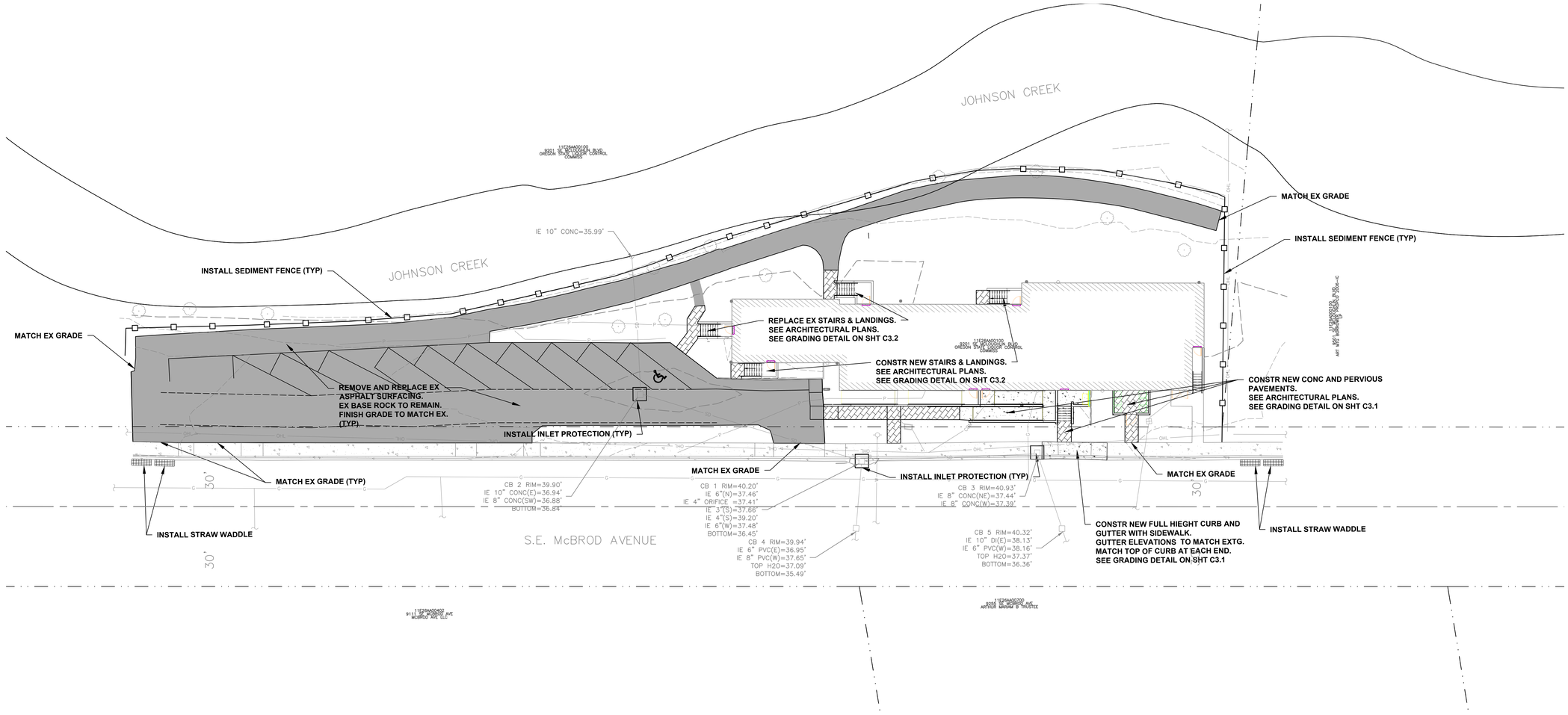
1001 se sandy blvd. portland or 97214
503.544.7210 erik@emarchitecture.net

MCBROD CRISIS CENTER
9200 SE MCBROD AVENUE

CONSTRUCTION DOCUMENTS

Site Plan

C2.0



CITY OF MILWAUKIE

EROSION PREVENTION AND SEDIMENT CONTROL (ECS) NOTES:

1. All erosion prevention measures shall be in place, functional, and approved in accordance with the approved Erosion Prevention and Sediment Control plan prior to commencement of construction activities. All soil disturbing and construction activities shall be conducted in accordance with MMC Chapter 16.28 Erosion Control and any applicable local, state or federal requirements.
2. Alternative sediment controls must provide a discharge that is clean and free of sediment, surfactants, and other pollutants prior to entering the storm system. Approval of alternative sediment controls by the City of Milwaukie Wastewater Division Manager is required prior to installation.
3. Written spill prevention and response procedures shall be developed, maintained, and implemented on the construction site.
4. Dumping or disposal of spoil materials into any stream corridor, wetlands, surface waters or on any public or private property not specified for said purpose is prohibited.
5. Sediment and pollutants shall not be washed into storm sewers, drainage ways, or water bodies. Dry sweeping shall be implemented to clean up construction areas to prevent release of sediments into the storm system.
6. Disposal of sediment laden water into the wastewater system is prohibited, unless prior written approval is received from the City of Milwaukie Wastewater Division Manager. Sediment laden water shall be pumped through an approved sediment control BMP prior to disposal into the wastewater system.
7. Sawcutting slurry and debris shall be vacuumed and removed from all impervious surfaces. Vacuumed sawcutting slurry shall be properly disposed of and not discharged into the storm system.
8. Water tight trucks shall be used to transport saturated soils from the construction site.
9. Temporary stabilization and covering of soil stockpiles shall occur at the end of each work day.
10. All toxic or hazardous materials shall be properly stored, applied, and disposed.
11. An area shall be designated for washing out concrete trucks such that runoff from washing activities are contained and do not leave the site or enter the storm system.
12. Sweepings from exposed aggregate concrete shall not be washed to the street or storm system. Sweepings shall be collected and properly disposed of in the trash.
13. Paving in wet weather when paving chemicals can runoff into the storm system is prohibited.
14. Tracking of dirt and debris onto impervious surfaces, such as streets and parking lots, is prohibited. Impervious surfaces shall be kept free of dirt and debris at all times if it can be spread by traffic or can enter the storm system.
15. Gravel or dirt curb ramps are prohibited. Only wood step style curb ramps are allowed.
16. Upon completion of site restoration and approval from the City of Milwaukie Engineering Director, all temporary erosion control measures may be removed.
17. Drainage from springs or groundwater must be addressed during construction by the contractor. Discharge from groundwater encountered on the site must be clean of sediment or pollutants.
18. Areas subject to wind erosion shall use appropriate dust control measures including the application of a fine spray of water, plastic sheeting, straw mulch, or other approved measures.
19. Dates of implementation of wet weather measures are October 1st to April 30th.
20. Materials shall not be stockpiled on public streets or in the right of way for longer than immediate use.

CALL BEFORE YOU DIG 811
UNDERGROUND SERVICE (USA)

HORIZ. 0 10 20 40
Scale In Feet

REGISTERED PROFESSIONAL ENGINEER
14061
DIGITALLY SIGNED
OREGON
JULY 26, 1985
ANTHONY R. WELLER

RENEWS: 6/30/24

DRAWING REVISIONS

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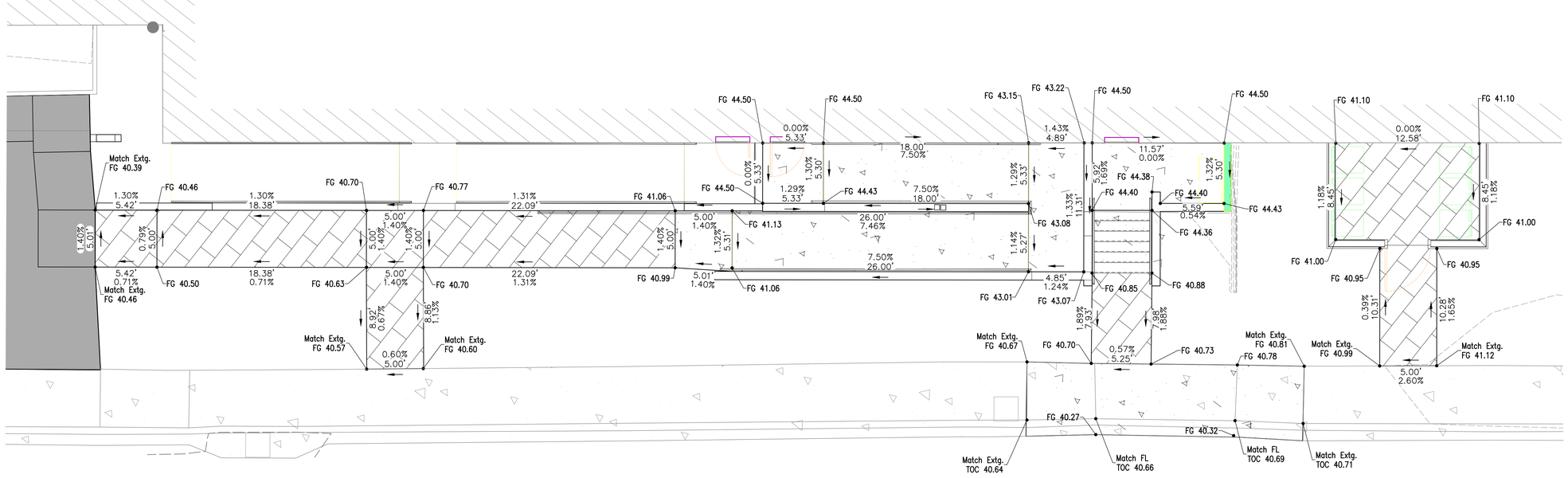
MCBROD CRISIS CENTER
9200 SE MCBROD AVENUE

CONSTRUCTION DOCUMENTS

EC PLAN

C3.0

11E26AA00100
9201 SE MCLOUGHLIN BLVD
OREGON STATE LIQUOR CONTROL
COMMISS



CALL BEFORE YOU DIG 811
UNDERGROUND SERVICE (USA)

HORIZ. 0 2.5 5 10
Scale In Feet

REGISTERED PROFESSIONAL ENGINEER
14061
DIGITALLY SIGNED
OREGON
JULY 26, 1988
ANTHONY R WELLER
RENEWS: 6/30/24

DRAWING REVISIONS

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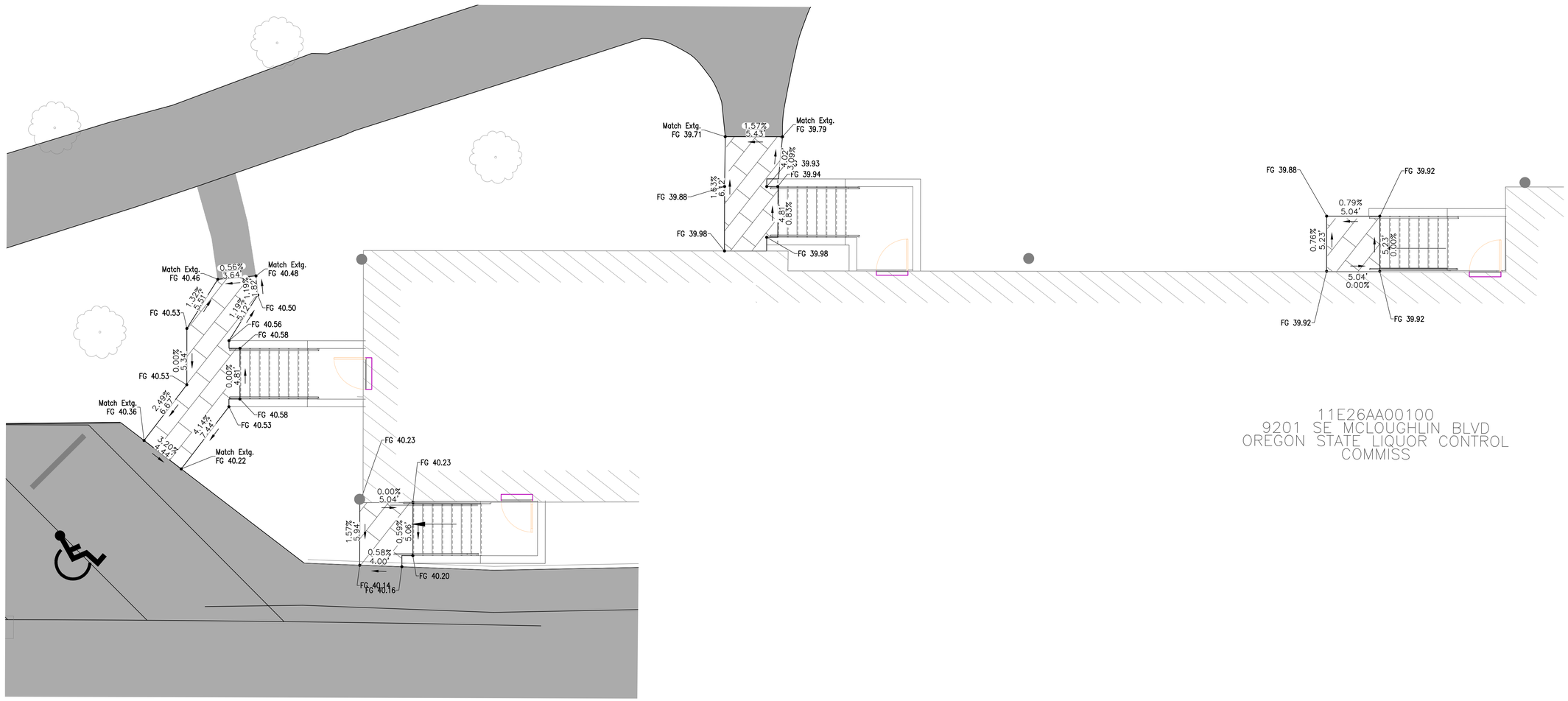
MCBROD CRISIS CENTER
9200 SE MCBROD AVENUE

CONSTRUCTION DOCUMENTS

GRADING DETAIL - WEST

C3.1



11E26AA00100
9201 SE MCLOUGHLIN BLVD
OREGON STATE LIQUOR CONTROL COMMISS

REGISTERED PROFESSIONAL ENGINEER
14061
DIGITALLY SIGNED
OREGON
MAY 26, 1988
ANTHONY R. WELLER

RENEWS: 6/30/24

DRAWING REVISIONS

NO.	DATED	DESCRIPTION
01	03/27/2024	PERMIT DRAWINGS

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MCBROD CRISIS CENTER
9200 SE MCBROD AVENUE

CONSTRUCTION DOCUMENTS

GRADING DETAIL - N & E

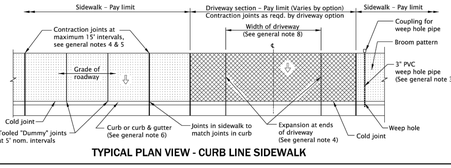
C3.2

CALL BEFORE YOU DIG 811
UNDERGROUND SERVICE (USA)

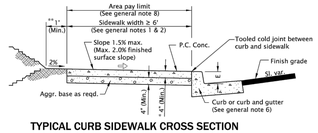
HORIZ. 0 2.5 5 10
Scale In Feet

20-JUL-2020

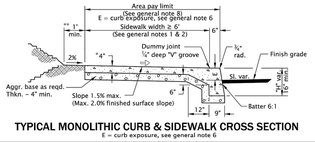
RD720.dgn



TYPICAL PLAN VIEW - CURB LINE SIDEWALK



TYPICAL CURB SIDEWALK CROSS SECTION

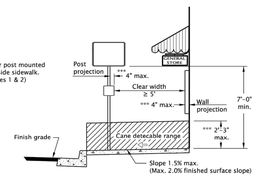


TYPICAL MONOLITHIC CURB & SIDEWALK CROSS SECTION
E = curb exposure, see general note 6

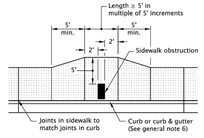
* Min. 4" or as specified in plans. A thickness ≥ 6" if sidewalk is intended as portion of a driveway or mountable curb is used.

** Provide compacted backfill adjacent to curb and sidewalk

*** Objects with base below 2'-3" may protrude any distance as long as the 5' circulation path is maintained. When an object with a base higher than 2'-3" protrudes further than 4" provide a detection below protrusion to delineate edge.



CLEAR CIRCULATION PATH



REQUIRED SIDEWALK WIDENING AROUND OBSTRUCTIONS

GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:

1. Include additional paved or unpaved 2' shy distance to vertical faces higher than 5' such as retaining walls, sound walls, fences and buildings.
2. Curb type and sidewalk width as shown on plans or as directed. On sidewalks 8' and wider, provide a longitudinal joint at the midpoint.
3. Install 3" pvc weep hole pipes in sidewalks where shown on plans, and allowed by jurisdiction. Place contraction joint over top of pipe. See Std. Dwg. RD700 for weep hole details.
4. Provide expansion joints around poles, posts, boxes, at ends of each driveway, and other fixtures which protrude through or against the structures. For sidewalk, monolithic curb & sidewalk, const. expansion joints at 45' maximum spacing. See Std. Dwg. RD722 for expansion joints details.
5. Const. contraction joints at 15' maximum spacing, and at ends of each curb ramp. See Std. Dwg. RD722 for contraction joints details.
6. For curb details, see Std. Dwgs. RD700 & RD701. ODOT standard E=7".
7. Sidewalk details are based on applicable ODOT standards.
8. Fully lowered sidewalk shown; see project plans for the driveway design specified. For driveway details not shown, see Std. Dwgs. RD725, RD730, RD735, RD740, RD745 & RD750.
9. See project plans for details not shown.

LEGEND

- Sidewalk pay limit.
- Driveway pay limit, varies by option, (See general note 8).
- Cross slope 1.5% max. (Max. 2.0% finished surface slope) (Normal sidewalk cross slope)

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

All materials shall be in accordance with the current Oregon Standard Specifications.

OREGON STANDARD DRAWINGS

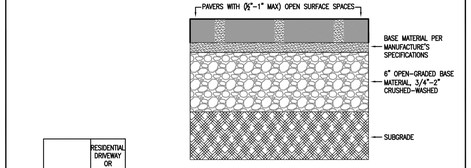
CURB LINE SIDEWALKS

2021

DATE	REVISION DESCRIPTION

CALC. BOOK NO. — N/A — DSR DATE 25-JUN-2019 — **RD720**

Effective Date: June 1, 2023 – November 30, 2024

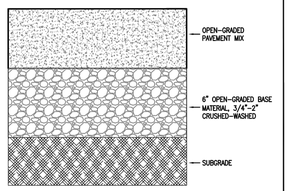


PERMEABLE CONCRETE BLOCK OR "PAVER" SYSTEMS

	RESIDENTIAL DRIVEWAY OR PEDESTRIAN ONLY
CONCRETE	4"
ASPHALT	2 ½"
PAVERS	2 3⅛"
ENGINEERING REQ'D	NO
COMPACTION REQ'D	NO

EXHIBIT 2–B

DESIGN REQUIREMENTS FOR TOP LIFT DEPTH



PERVIOUS (OPEN GRADED) CONCRETE AND ASPHALT SYSTEMS

– DRAWING NOT TO SCALE –

STORMWATER MANAGEMENT TYPICAL DETAILS

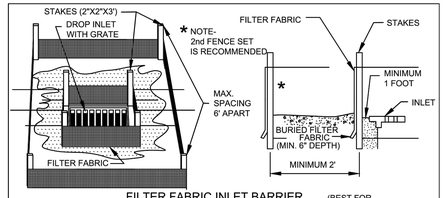
– Simplified Design Approach –

Pervious Pavement

Pedestrian and Residential Driveway Only

Bureau of Environmental Services

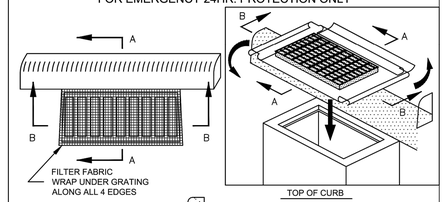
NUMBER SW–110 7–1–16



FILTER FABRIC INLET BARRIER (BEST FOR FIELD INLETS)

DRAWING NOT TO SCALE

FOR EMERGENCY 24HR. PROTECTION ONLY



FABRIC WRAPPED INLET GRATE

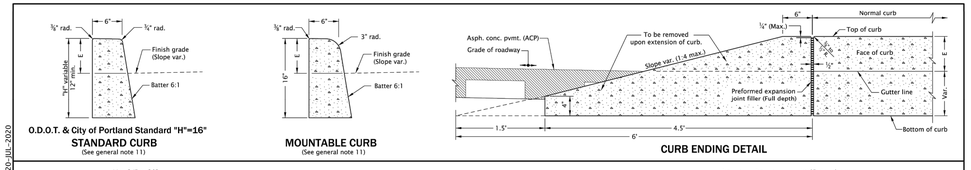
DRAWING NOT TO SCALE

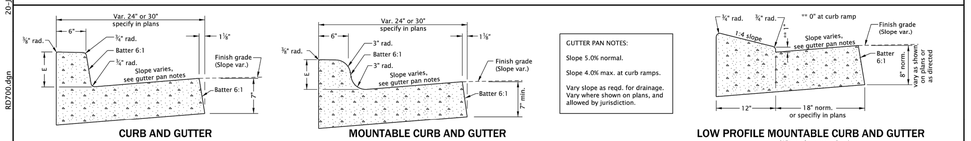
EROSION CONTROL MANUAL

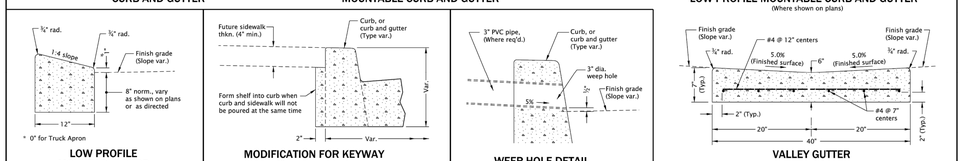
STORM DRAIN INLET PROTECTION

Detail Drawing 3.19-A

FILE DRAFT/INSPECTORS GRAPHICS DRAWING PLOT 1:1







GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:

1. Curb exposure "E" = 6" to 9", as measured vertically from flowline to highest point on curb. Vary as shown on plans or as directed. O.D.O.T standard "E"=7".
2. Const. curb expansion joints at 200' maximum spacing, and at points of tangency, and at ends of each driveways.
3. Const. curb contraction joints at 15' maximum spacing, and at ends of each inlet and curb ramp.
4. Transitions shall be used to connect curbs of different exposures "E". ("E" is the total vertical dimension of those curb surfaces having a slope of 1:1 or steeper). Minimum desirable transition length shall be 20' for each 1" difference in "E".
5. Tops of all curbs shall slope toward the roadway at 1.5% max. (Max. 2.0% finished surface slope), unless otherwise shown, or as directed.
6. Dimensions are nominal, vary to conform with curb machine approved by the engineer.
7. Dimensions adjacent to radii are measured to the point of intersection of curb surfaces.
8. For sidewalk details, and monolithic curb & sidewalk, see Std. Dwgs. RD720 & RD721.
9. For drainage curbs, see Std. Dwg. RD701.
10. For curb ramp details, see Std. Dwgs. RD900 series.
11. On or along state highways, curb and gutter is required at curb ramp.

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

All materials shall be in accordance with the current Oregon Standard Specifications.

OREGON STANDARD DRAWINGS

CURBS

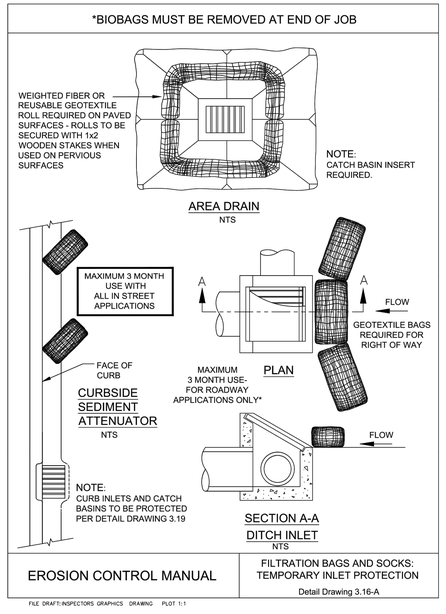
2021

DATE	REVISION DESCRIPTION

CALC. BOOK NO. — N/A — DSR DATE 20-JUL-2020 — **RD700**

Effective Date: June 1, 2023 – November 30, 2024

"BIOBAGS MUST BE REMOVED AT END OF JOB

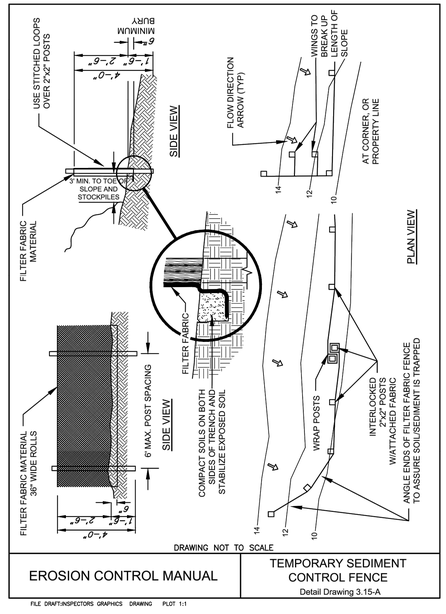


EROSION CONTROL MANUAL

FILTRATION BAGS AND SOCKS: TEMPORARY INLET PROTECTION

Detail Drawing 3.16-A

FILE DRAFT/INSPECTORS GRAPHICS DRAWING PLOT 1:1



EROSION CONTROL MANUAL

TEMPORARY SEDIMENT CONTROL FENCE

Detail Drawing 3.15-A

FILE DRAFT/INSPECTORS GRAPHICS DRAWING PLOT 1:1

REGISTERED PROFESSIONAL ENGINEER
14061
DIGITALLY SIGNED
OREGON
JULY 26, 1985
ANTHONY R. WELLER
RENEWS: 6/30/24

DRAWING REVISIONS

NO.	DATED	DESCRIPTION
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MCBROD CRISIS CENTER
9200 SE MCBROD AVENUE

CONSTRUCTION DOCUMENTS

Construction Details

C6.0

FILE DRAFT/INSPECTORS GRAPHICS DRAWING PLOT 1:1

DRAWING NOTES

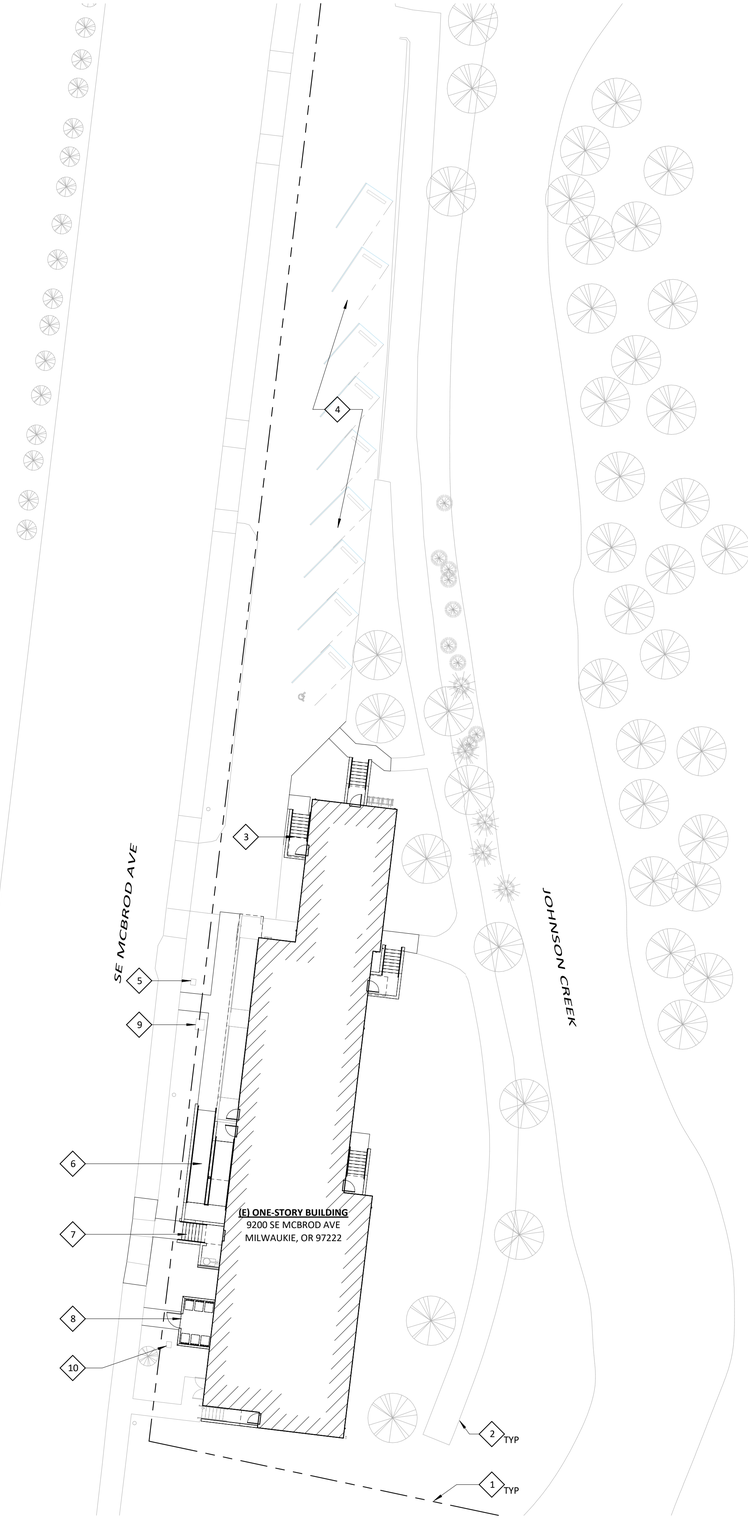
1. SEE CIVIL DRAWINGS FOR INFORMATION ON TOPOGRAPHY, FLOOD PLAIN, IMPERVIOUS SURFACES, ETC.

DRAWING LEGEND

PROPERTY LINE

KEYNOTES

1 PROPERTY LINE, TYP
2 (E) SIDEWALK/PATH
3 (N) STAIR AND ENTRANCE, SEE A700 SERIES
4 (E) PARKING TO BE RESURFACED - SEE CIVIL DRAWINGS
5 (E) FIRE HYDRANT
6 (N) RAMP, SEE A700 SERIES
7 (N) STAIR TO (E) DOOR
8 (N) WASTE+RECYCLING ENCLOSURE AND ACCESS FOR ROLL CART WASTE RECEPTACLES
9 (E) LOW VOLTAGE
10 (E) WATER METER



1 SITE PLAN
1" = 20'-0"

N

DRAWING REVISIONS

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MCBROD CRISIS CENTER
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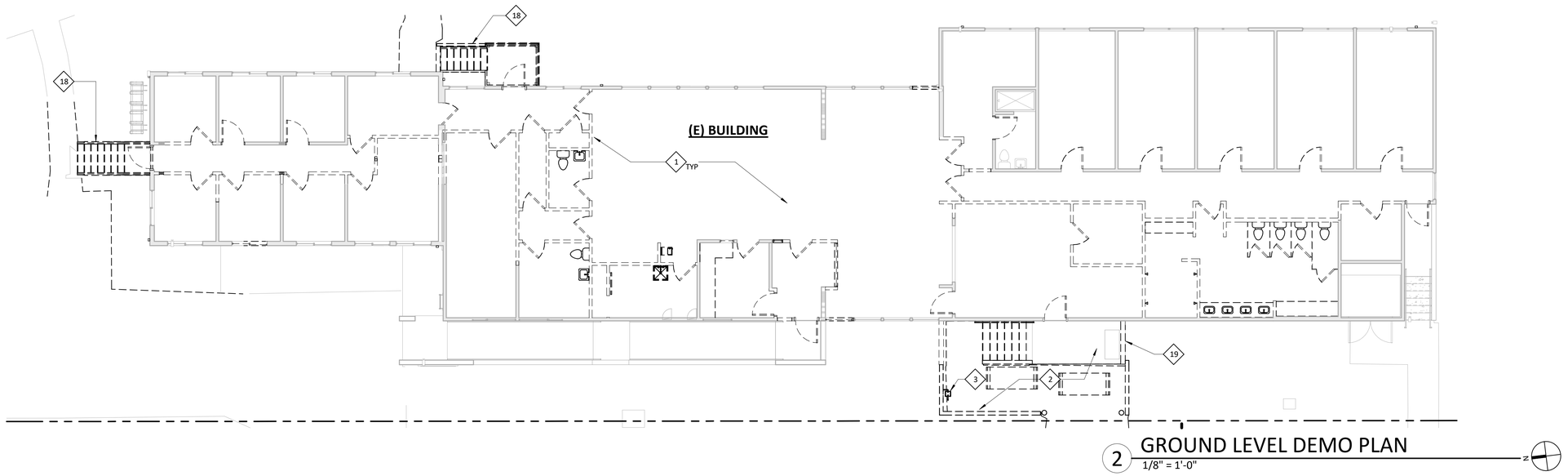
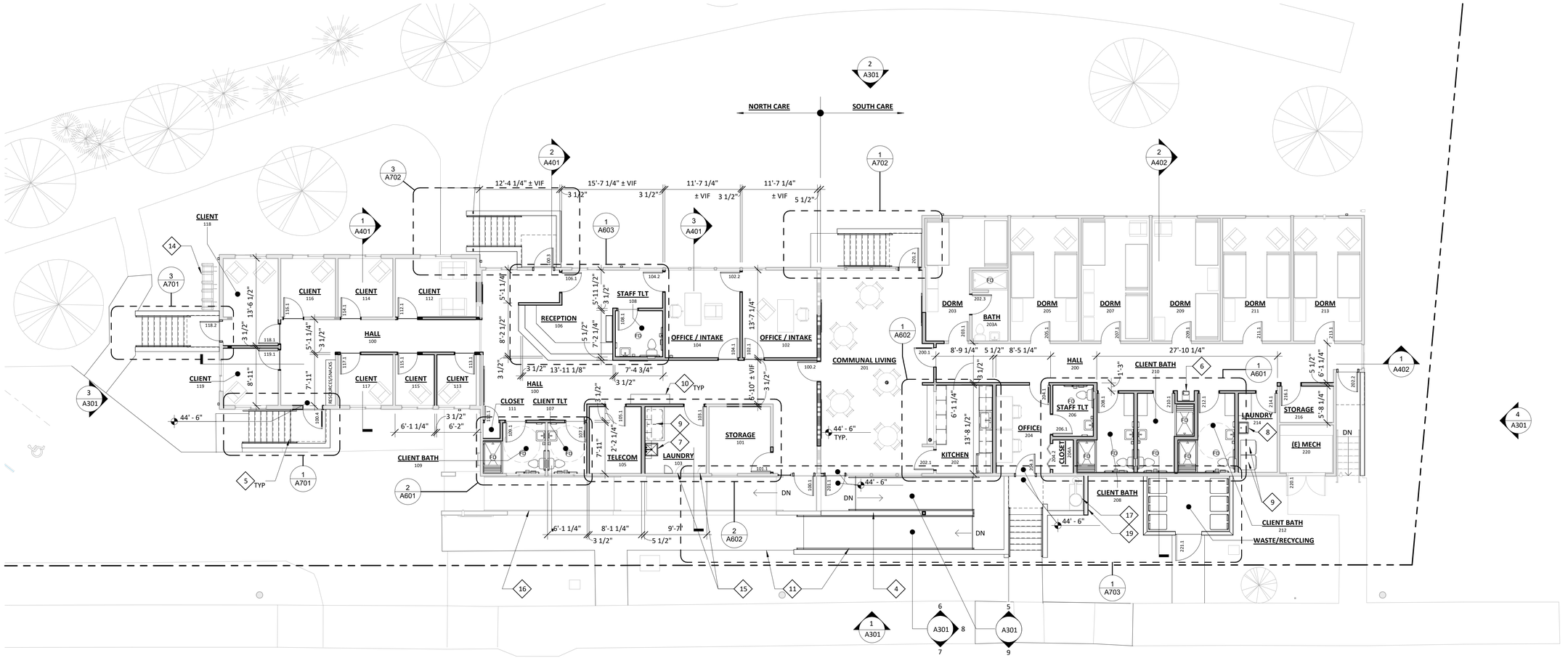
BIDDING DOCUMENTS
08.01.2024

SITE PLAN

A090



2 GROUND LEVEL DEMO PLAN
1/8" = 1'-0"



1 GROUND LEVEL FLOOR PLAN
1/8" = 1'-0"

DRAWING NOTES

1. SEE A601 FOR DIMS + ACCESSIBILITY CLEARANCES/REQUIREMENTS FOR TOILETS AND BATHROOMS.
2. SEE A901 FOR ROOM, DOOR, AND WINDOW SCHEDULES

DRAWING LEGEND

- TYP (N) UNRATED WALL
- TYP (E) UNRATED WALL
- (2) HR. RATED FIRE WALL - (E) TO BE CONVERTED TO 2-HR
- PROPERTY LINE
- (E) TO BE REMOVED

KEYNOTES

1 WALLS, DOORS, AND FIXTURES TO BE REMOVED, TYP
2 REMOVE (E) WASTE FACILITIES, RELOCATE
3 RELOCATE (E) GAS METER
4 (N) MAIN EXIT RAMP
5 (N) EXTERIOR EXIT STAIR - SEE A700
6 (N) DRINKING FOUNTAIN
7 MOP SINK
8 UTILITY SINK
9 WASHER/DRYER
10 CASEWORK/SHELVING BY OWNER
11 (N) EXTERIOR RAMP - SEE CIVIL DRAWINGS
14 (E) BIKE RACK
15 (E) ELECTRICAL PANELS
16 (E) ACCESSIBLE RAMP AND LANDING
17 (E) EMERGENCY GENERATOR
18 (E) CONC. STEM WALLS BELOW STAIR TO BE REMOVED
19 REMOVE AND REPLACE SIDING TO MATCH T+G GAUARD RAIL

DRAWING REVISIONS

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MCBROD CRISIS CENTER
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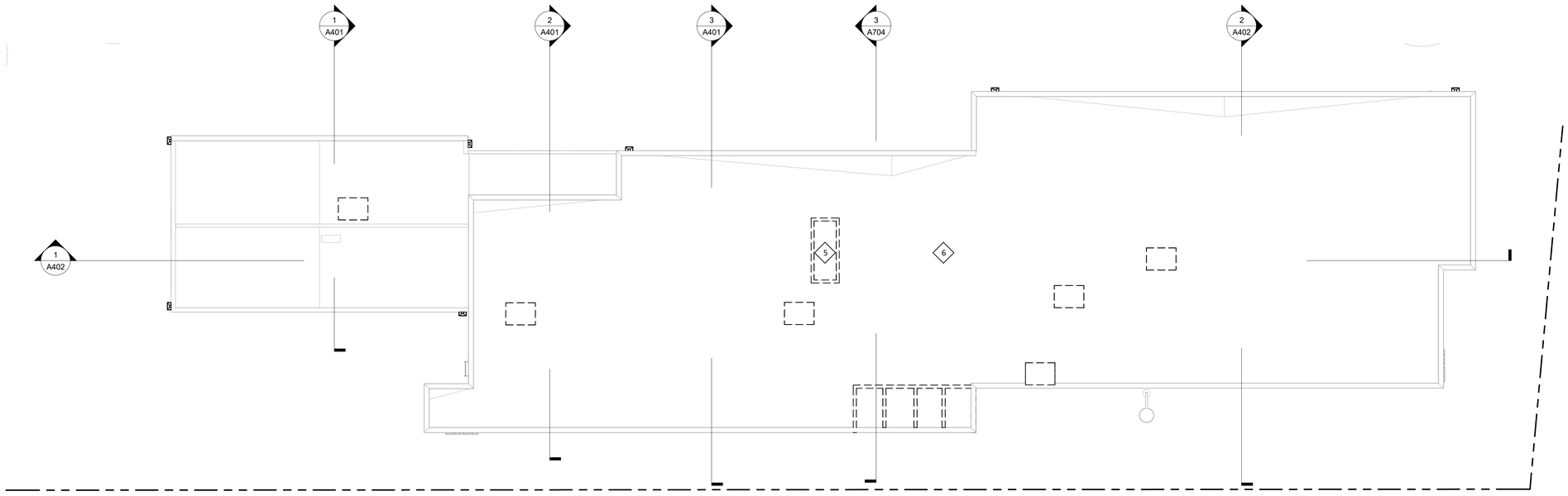
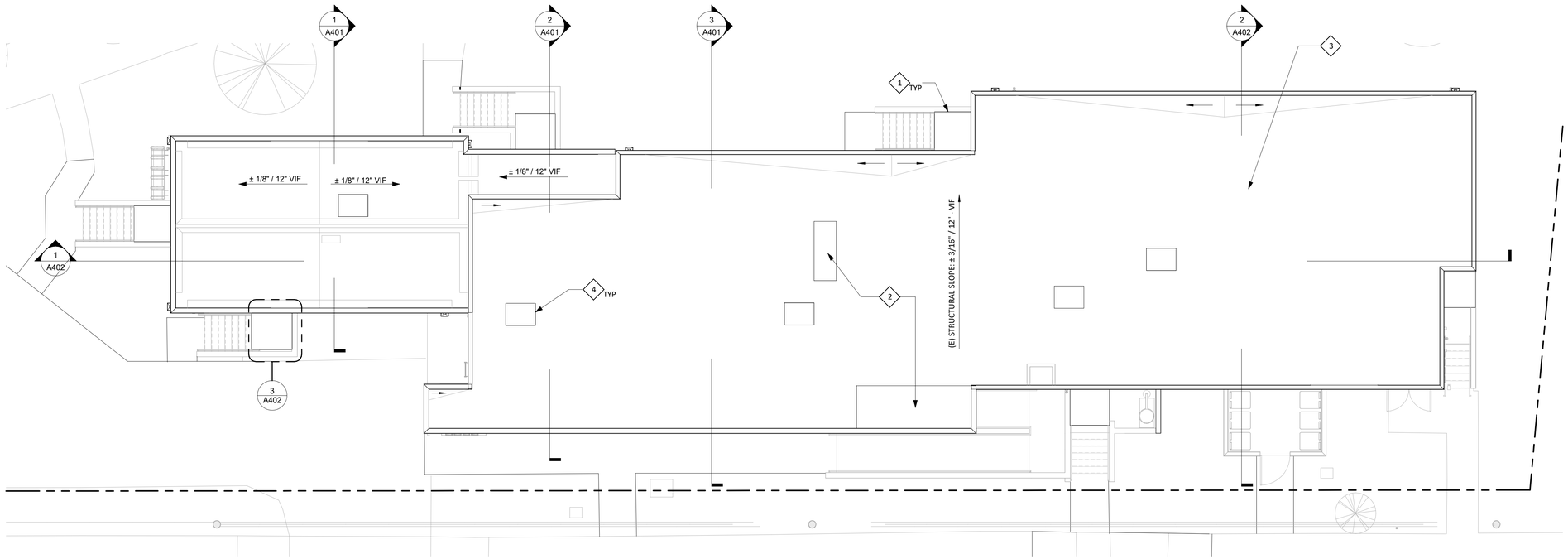
BIDDING DOCUMENTS
08.01.2024

FLOOR PLANS

A101



2 ROOF PLAN - DEMO
1/8" = 1'-0"



1 ROOF PLAN
1/8" = 1'-0"

DRAWING NOTES

1. SEE A601 FOR DIMS + ACCESSIBILITY CLEARANCES/REQUIREMENTS FOR TOILETS AND BATHROOMS.
2. SEE A901 FOR ROOM, DOOR, AND WINDOW SCHEDULES

KEYNOTES ◇#

1 (N) PRE FABRICATED CANOPY - SEE A501 FOR DETAILS
2 (N) ROOF CONSTRUCTION, SEE STRUCTURAL FOR FRAMING, ETC.
3 (N) ROOF SYSTEM OVER (E) ROOF/CEILING ASSEMBLY
4 (N) HVAC, SEE MECHANICAL
5 (E) SKYLIGHT TO BE REMOVED
6 (E) ROOF SYSTEM TO BE REMOVED AND PREPPED FOR (N) ROOF SYSTEM

DRAWING REVISIONS

NO.	DATED	DESCRIPTION

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1001 se sandy blvd, portland or 97214
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MCBROD CRISIS CENTER
9200 SE MCBROD AVENUE

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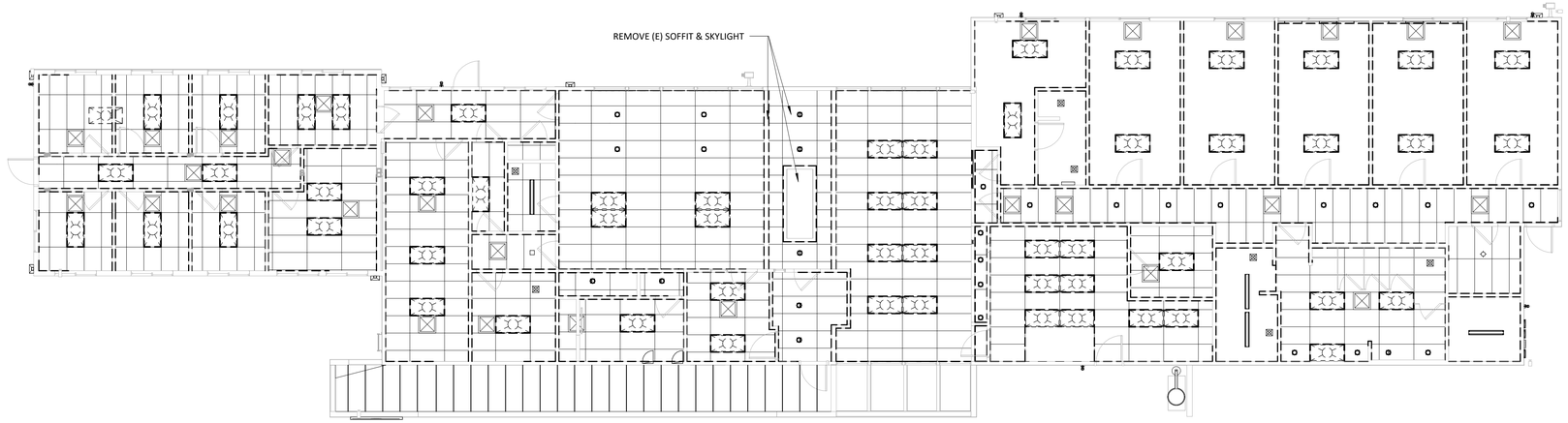
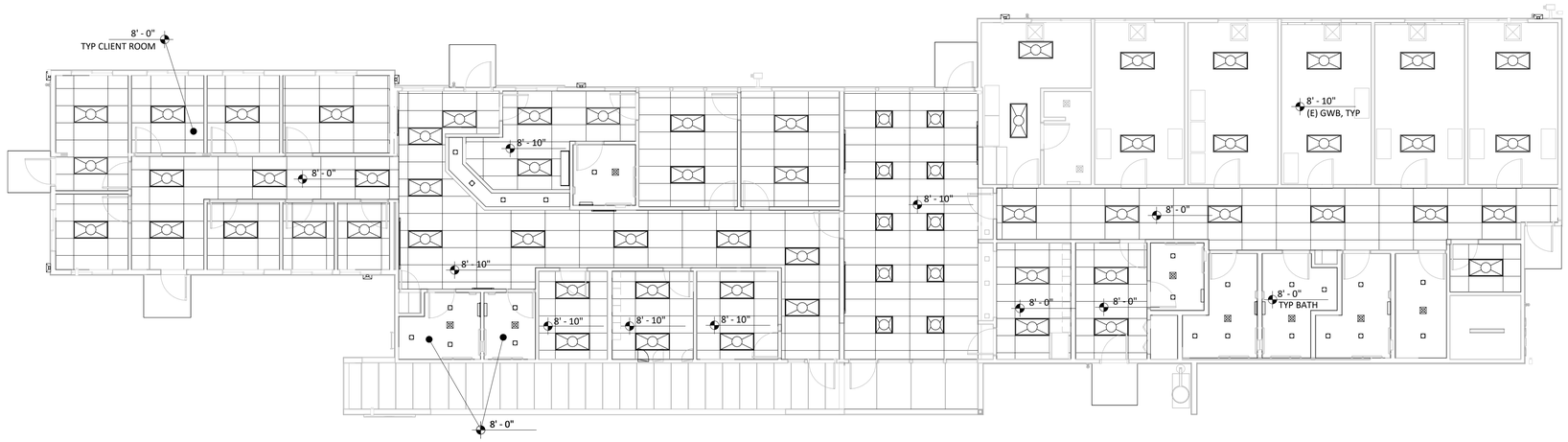
08.01.2024

ROOF PLAN

A102



2 GROUND FLOOR DEMO RCP
1/8" = 1'-0"



1 REFLECTED CEILING PLAN
1/8" = 1'-0"

DRAWING NOTES

1. OUTLETS TO BE 15" MIN AFF UNO
2. SWITCHES TO BE AT 48" MAX
3. SEE ELECTRICAL DRAWINGS FOR MORE INFORMATION
4. ALL NEW FIXTURES TO BE LED OR ACCEPT LED LAMPS

DRAWING LEGEND

- DUPLEX ELECTRICAL OUTLET
- GFI GROUND FAULT INTERRUPT
- TELEPHONE OUTLET
- $ SWITCH, SINGLE POLE
- $M SWITCH, MOTION SENSOR
- EXHAUST FAN / LIGHT COMBO
- BATHROOM VANITY LIGHT
- RECESSED DOWN LIGHT - 5" DIAMETER
- TROFFER CEILING FIXTURE - 2' X 4'
- TROFFER CEILING FIXTURE - 2' X 2'
- WALL MOUNTED OUTDOOR SCONCE
- S/C SMOKE/CARBON MONOXIDE DETECTOR/ALARM
- CHANGE IN CEILING PLANE

DRAWING REVISIONS

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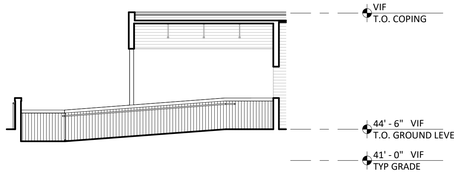
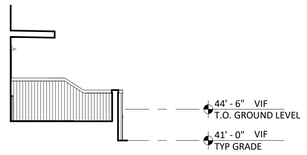
REFLECTED CEILING PLAN

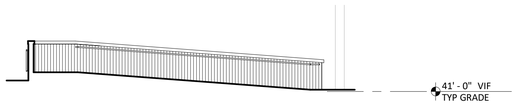
A201



9 EXTERIOR ELEVATION
1/8" = 1'-0"

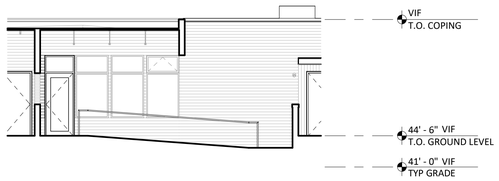


8 EXTERIOR ELEVATION
1/8" = 1'-0"

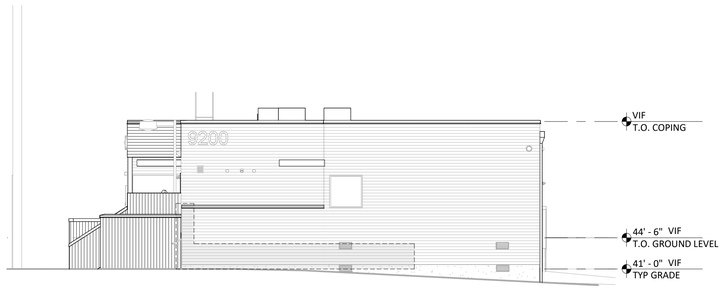


7 EXTERIOR ELEVATION
1/8" = 1'-0"

6 EXTERIOR ELEVATION
1/8" = 1'-0"

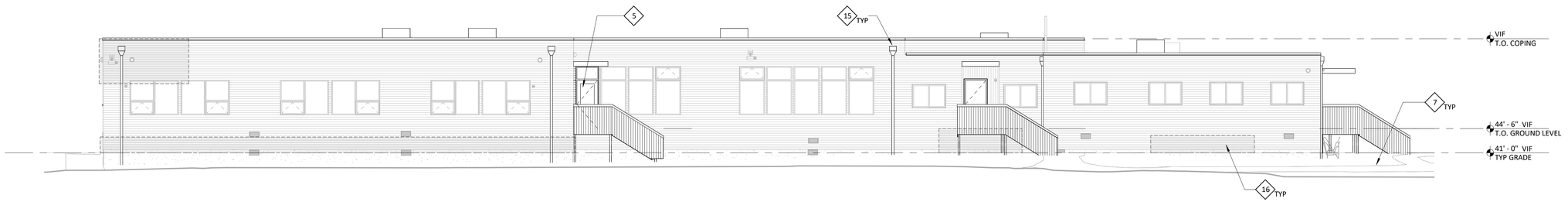


5 EXTERIOR ELEVATION
1/8" = 1'-0"

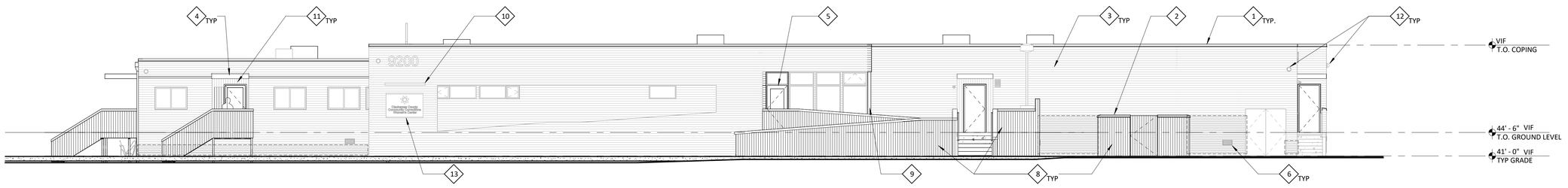


4 SOUTH ELEVATION
1/8" = 1'-0"

3 NORTH ELEVATION
1/8" = 1'-0"



2 EAST ELEVATION
1/8" = 1'-0"



1 WEST ELEVATION
1/8" = 1'-0"

DRAWING NOTES

1. SEE A901 FOR FINISHES + MATERIALS

KEYNOTES

1	(N) PRE FINISHED METAL COPING
2	(N) TRASH ENCLOSURE
3	(E) VINYL SIDING - CLEAN AND REPAIR AS NEEDED
4	(N) METAL CANOPY
5	(N) DOOR IN (E) WINDOW OPENING
6	(E) FOUNDATION VENT, TYP.
7	(E) GRADE
8	(N) VERTICAL T+G CEDAR SIDING, 4"
9	(E) COLUMN WITH (N) METAL PRE FINISHED TRIM
10	(E) EXT. LIGHT FIXTURE
11	(N) CEDIAR T&G SIDING AROUND DOOR OPENING
12	(E) SECURITY CAMERA, TYP
13	(E) WALL PLAQUE
14	(E) ROOF ACCESS LADDER
15	(E) SCUPPER AND DOWNSPOUT
16	AREAS OF (E) SIDING REQUIRING REPAIR/REPLACEMENT

DRAWING REVISIONS

NO.	DATED	DESCRIPTION

REGISTERED ARCHITECT
4688
ERIK L. MATTHEWS
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MCBROD CRISIS CENTER
9200 SE MCBROD AVENUE

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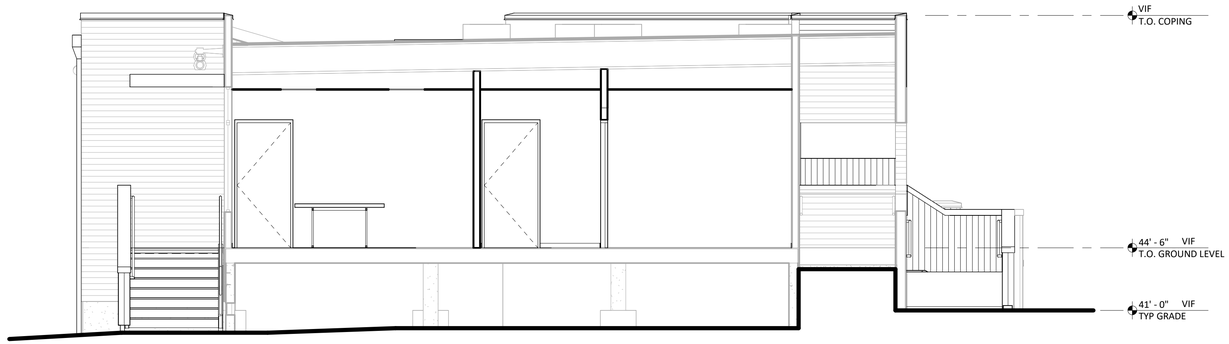
08.01.2024

EXTERIOR ELEVATIONS

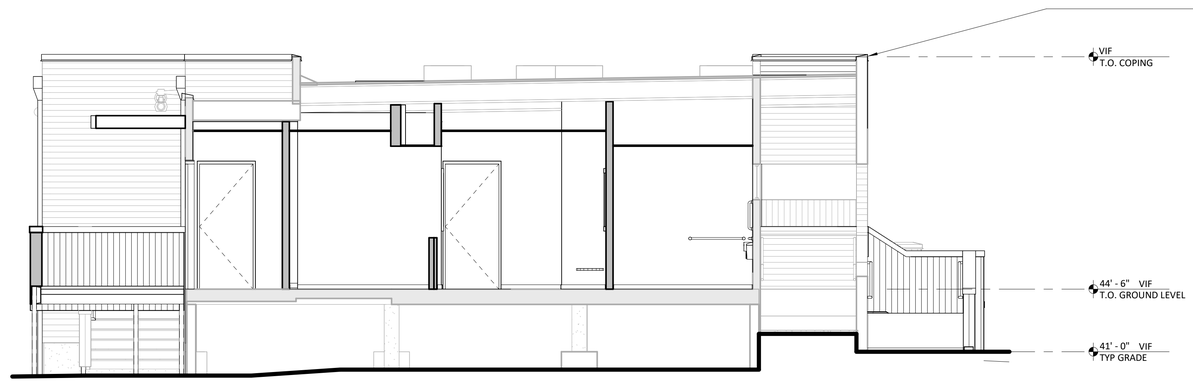
A301

DRAWING NOTES

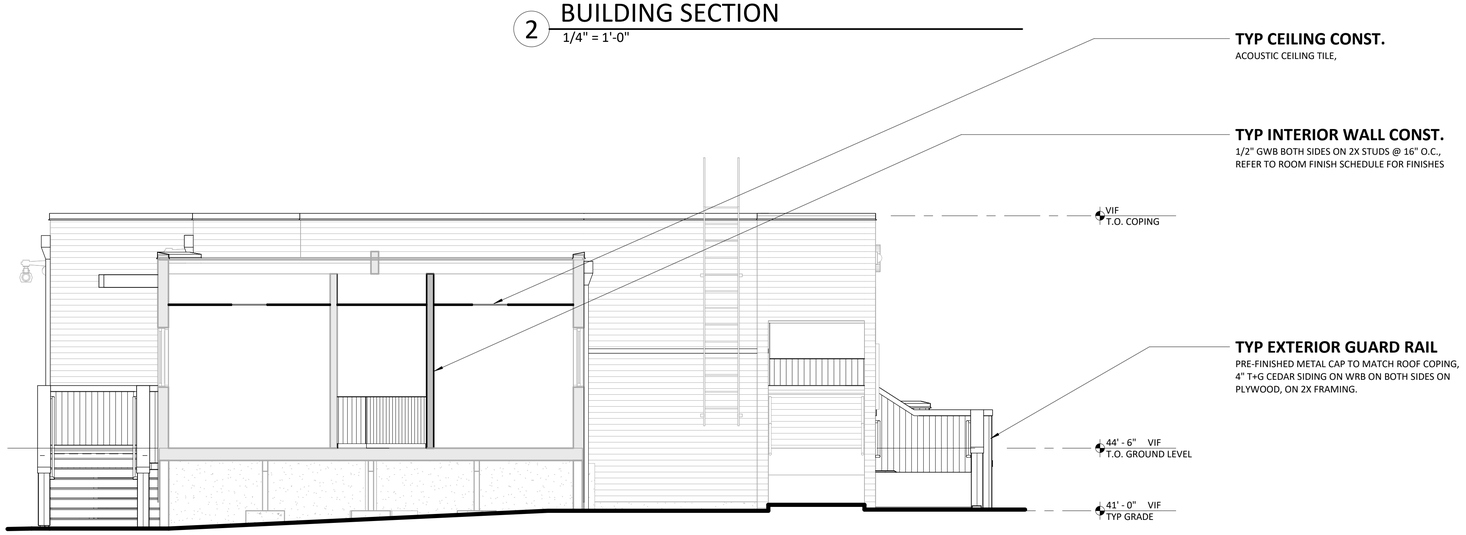
1. REFER TO PLAN DRAWING SERIES A100 AND SECTION DRAWING SERIES A400 FOR TYPICAL ASSEMBLIES (WALLS, FLOORS, AND CEILINGS).
2. REFER TO DWG G101 FOR CODE ANALYSIS.
3. REFER TO STRUCTURAL DRAWINGS FOR SIZE AND SPACING OF ALL FRAMING MEMBERS.
4. REFER TO DRAWING SERIES A900 FOR INTERIOR AND EXTERIOR FINISHES.



3 BUILDING SECTION
1/4" = 1'-0"



2 BUILDING SECTION
1/4" = 1'-0"



1 BUILDING SECTION
1/4" = 1'-0"

DRAWING REVISIONS

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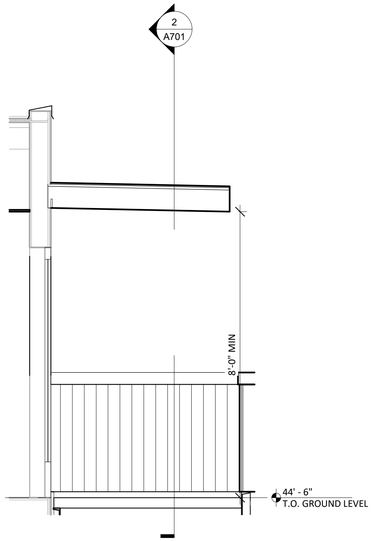
BUILDING SECTIONS

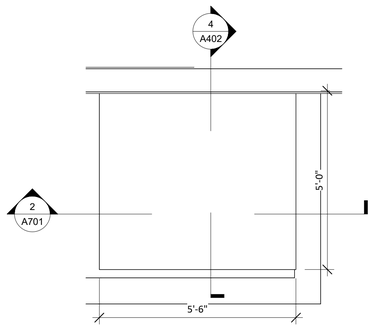
A401

DRAWING NOTES

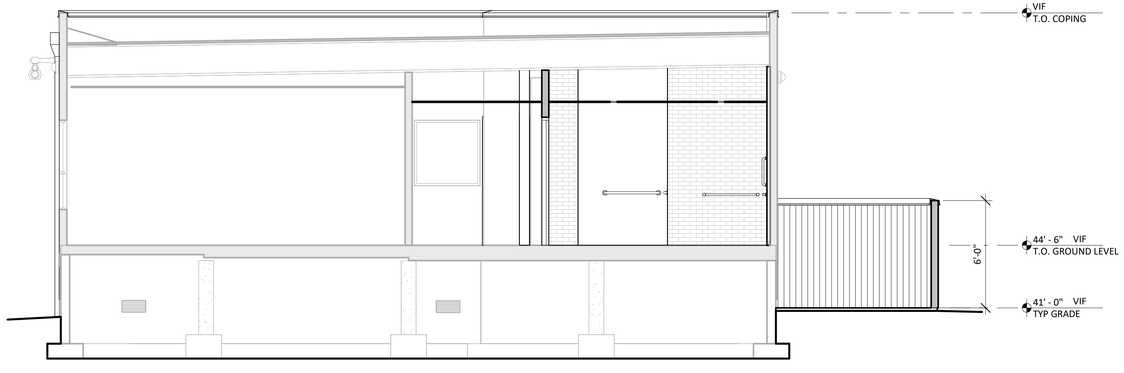
1. REFER TO PLAN DRAWING SERIES A100 AND SECTION DRAWING SERIES A400 FOR TYPICAL ASSEMBLIES (WALLS, FLOORS, AND CEILINGS).
2. REFER TO DWG G101 FOR CODE ANALYSIS.
3. REFER TO STRUCTURAL DRAWINGS FOR SIZE AND SPACING OF ALL FRAMING MEMBERS.
4. REFER TO DRAWING SERIES A900 FOR INTERIOR AND EXTERIOR FINISHES.



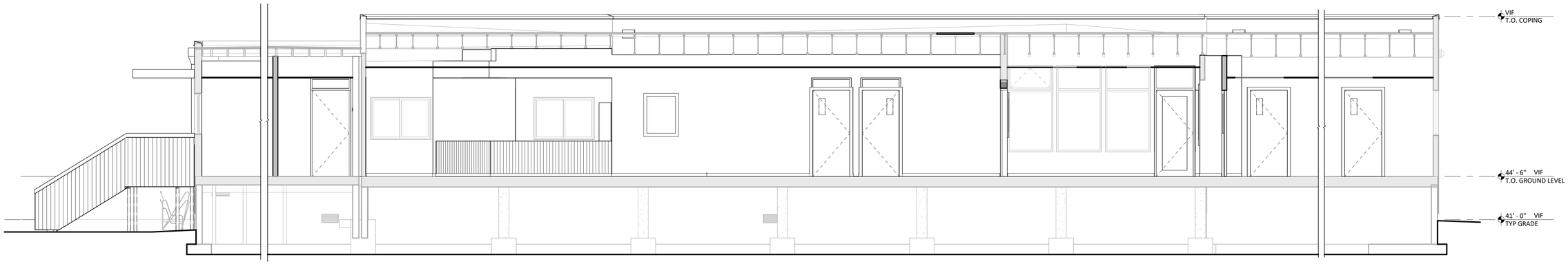
4 TYP ENTRY CANOPY - SECTION
1/2" = 1'-0"



3 TYP ENTRY CANOPY
1/2" = 1'-0"



2 BUILDING SECTION
1/4" = 1'-0"



1 BUILDING SECTION
1/4" = 1'-0"

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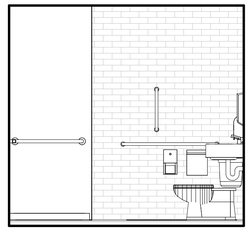
BUILDING SECTIONS

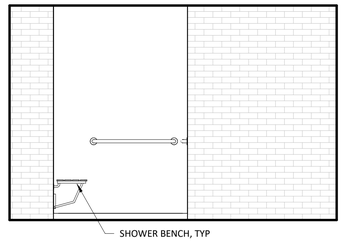
A402

DRAWING NOTES

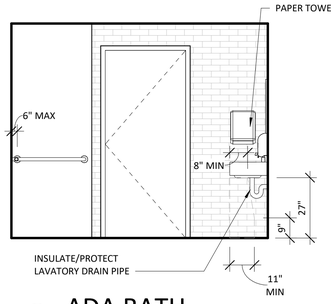
1. SEE SHEET A801 FOR CASEWORK CONSTRUCTION DETAILS
2. THERE SHALL BE NO SHARP OR ABRASIVE SURFACES UNDER SINKS
3. SEE A601 FOR TYP TOILET/BATH ADA CLEARANCES AND REQUIREMENTS



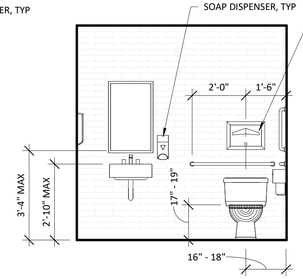
12 ADA BATH
3/8" = 1'-0"



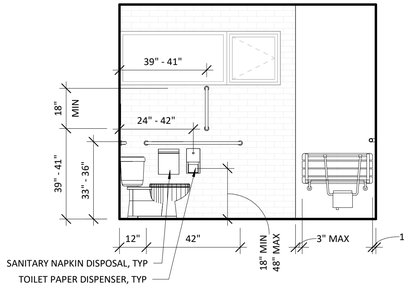
11 ADA BATH
3/8" = 1'-0"



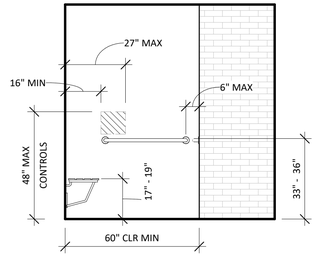
10 ADA BATH
3/8" = 1'-0"



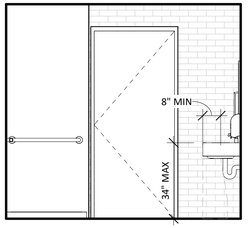
9 ADA BATH
3/8" = 1'-0"



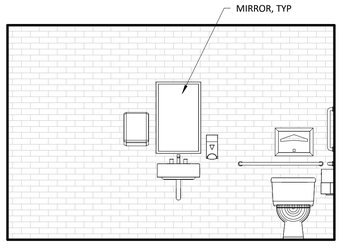
8 ADA BATH
3/8" = 1'-0"



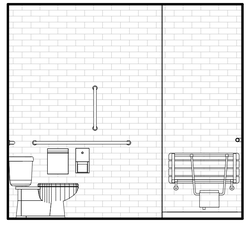
7 ADA BATH
3/8" = 1'-0"



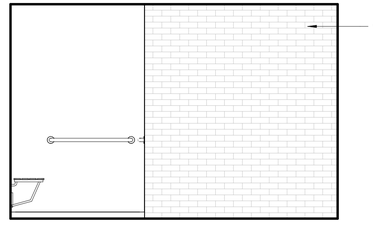
6 ADA BATH
3/8" = 1'-0"



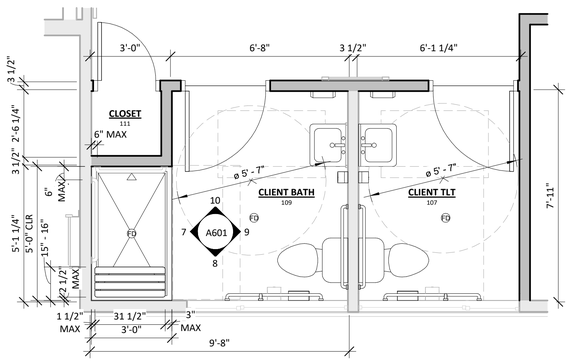
5 ADA BATH
3/8" = 1'-0"



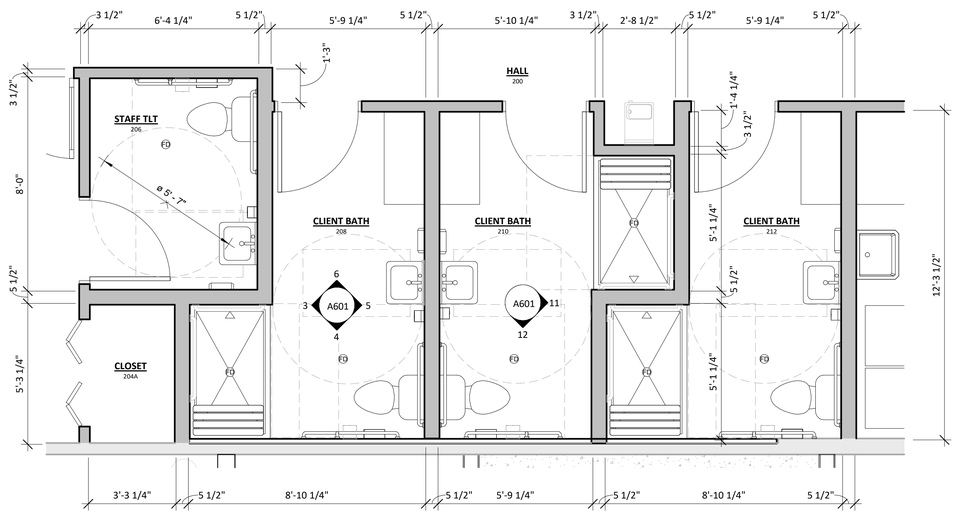
4 ADA BATH
3/8" = 1'-0"



3 ADA BATH
3/8" = 1'-0"



2 FLOOR PLANS - ADA TOILETS
3/8" = 1'-0"



1 FLOOR PLANS - ADA TOILETS
3/8" = 1'-0"

DRAWING REVISIONS

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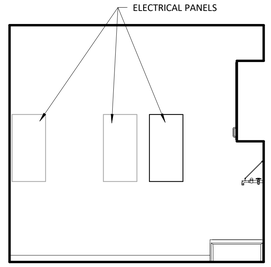
INTERIOR ELEVATIONS AND DETAILS

A601

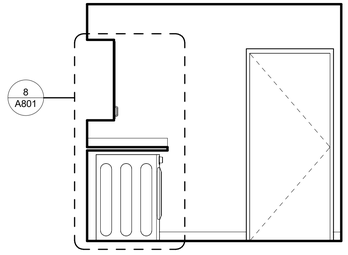
DRAWING NOTES

1. SEE SHEET A801 FOR CASEWORK CONSTRUCTION DETAILS
2. THERE SHALL BE NO SHARP OR ABRASIVE SURFACES UNDER SINKS
3. SEE A601 FOR TYP TOILET/BATH ADA CLEARANCES AND REQUIREMENTS

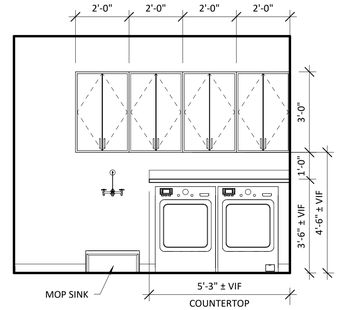


10 LAUNDRY
3/8" = 1'-0"

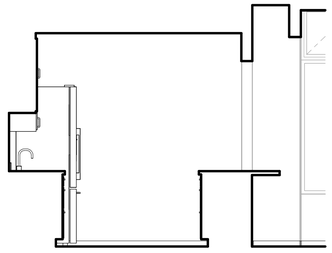
9 LAUNDRY
3/8" = 1'-0"



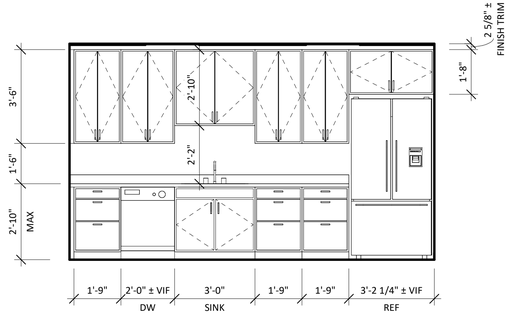
8 LAUNDRY
3/8" = 1'-0"



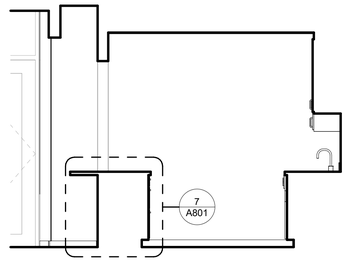
7 LAUNDRY
3/8" = 1'-0"



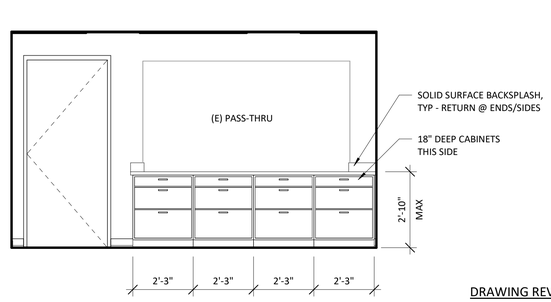
6 KITCHEN
3/8" = 1'-0"



5 KITCHEN
3/8" = 1'-0"



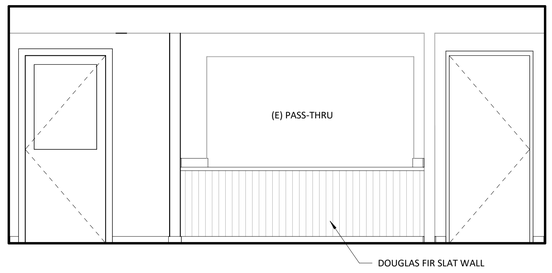
4 KITCHEN
3/8" = 1'-0"



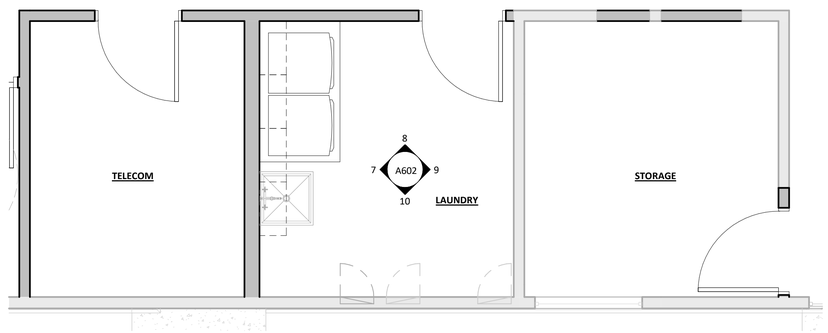
3 KITCHEN
3/8" = 1'-0"

DRAWING REVISIONS

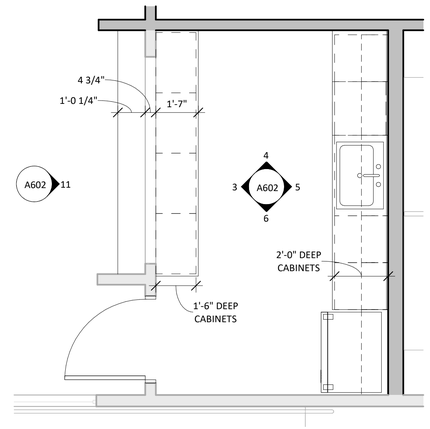
NO.	DATED	DESCRIPTION



11 KITCHEN - COMMUNAL SIDE
3/8" = 1'-0"



2 ENLARGED FLOOR PLAN - LAUNDRY
3/8" = 1'-0"



1 ENLARGED FLOOR PLAN - KITCHEN
3/8" = 1'-0"

REGISTERED ARCHITECT
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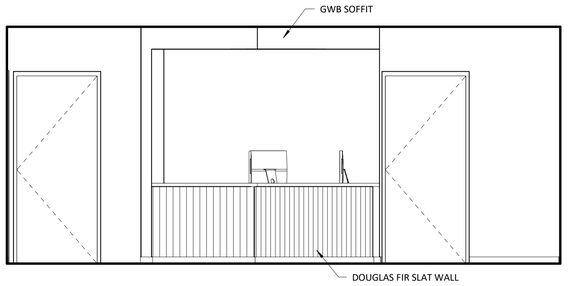
INTERIOR ELEVATIONS AND DETAILS

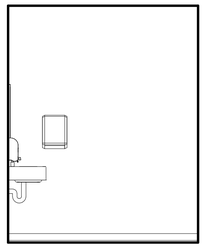
A602

DRAWING NOTES

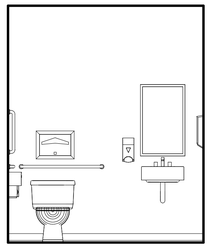
1. SEE SHEET A801 FOR CASEWORK CONSTRUCTION DETAILS
2. THERE SHALL BE NO SHARP OR ABRASIVE SURFACES UNDER SINKS
3. SEE A601 FOR TYP TOILET/BATH ADA CLEARANCES AND REQUIREMENTS



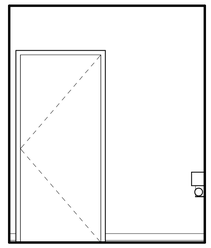
6 INTERIOR ELEVATION
3/8" = 1'-0"



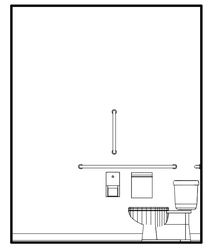
7 ADA TOILET
3/8" = 1'-0"



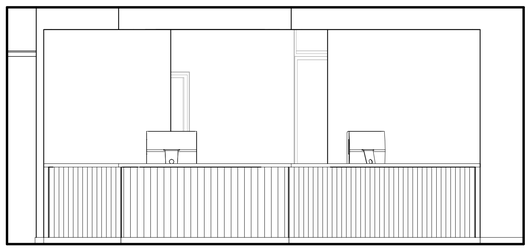
8 ADA TOILET
3/8" = 1'-0"



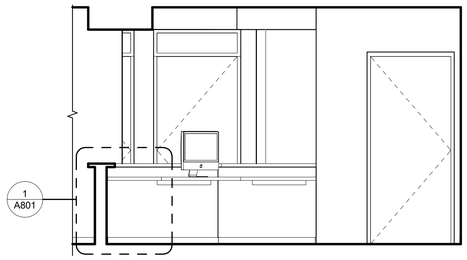
9 ADA TOILET
3/8" = 1'-0"



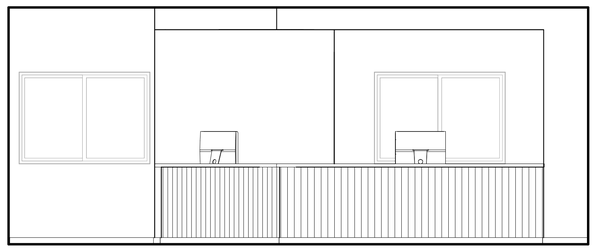
10 ADA TOILET
3/8" = 1'-0"



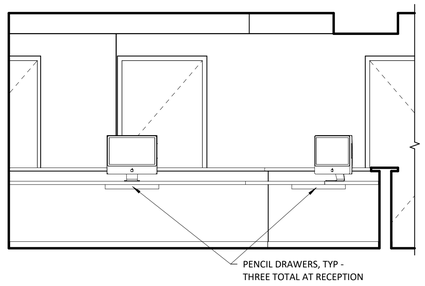
5 INTERIOR ELEVATION
3/8" = 1'-0"



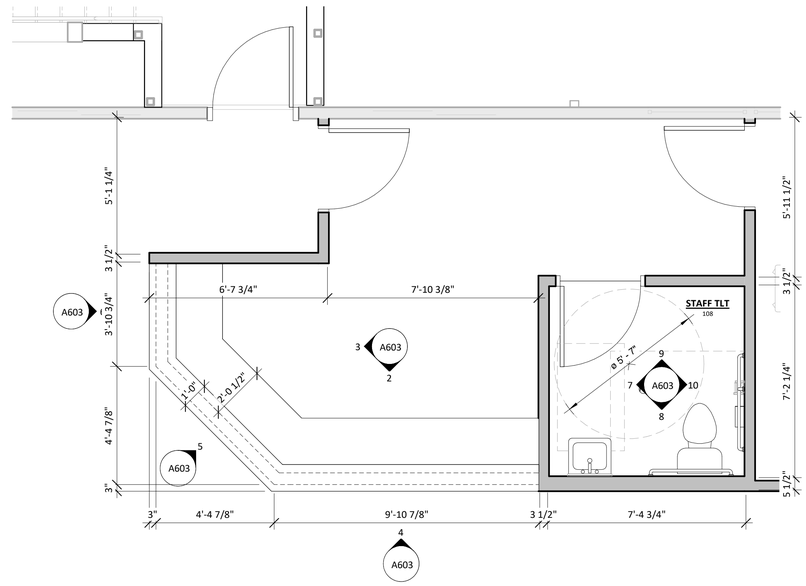
3 INTERIOR ELEVATION
3/8" = 1'-0"



4 INTERIOR ELEVATION
3/8" = 1'-0"



2 INTERIOR ELEVATION
3/8" = 1'-0"



1 FLOOR PLANS - RECEPTION
3/8" = 1'-0"

DRAWING REVISIONS

NO.	DATED	DESCRIPTION

REGISTERED ARCHITECT
4688
ERIK L. MATTHEWS
PORTLAND, OR
STATE OF OREGON

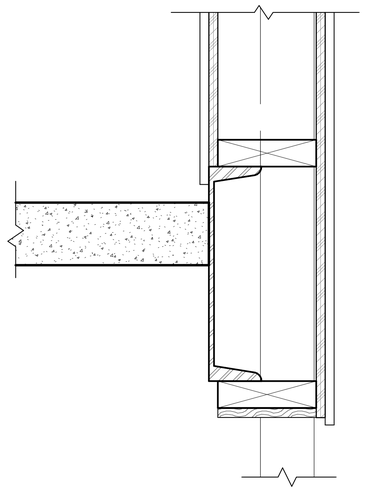
em esign
architecture and planning
1001 se sandy blvd, portland or 97214
503.544.7210 erik@emarchitecture.net

MCBROD CRISIS CENTER
9200 SE MCBROD AVENUE

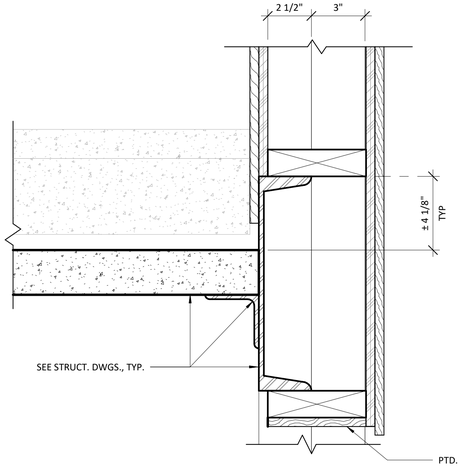
BIDDING DOCUMENTS
08.01.2024

INTERIOR ELEVATIONS AND DETAIL

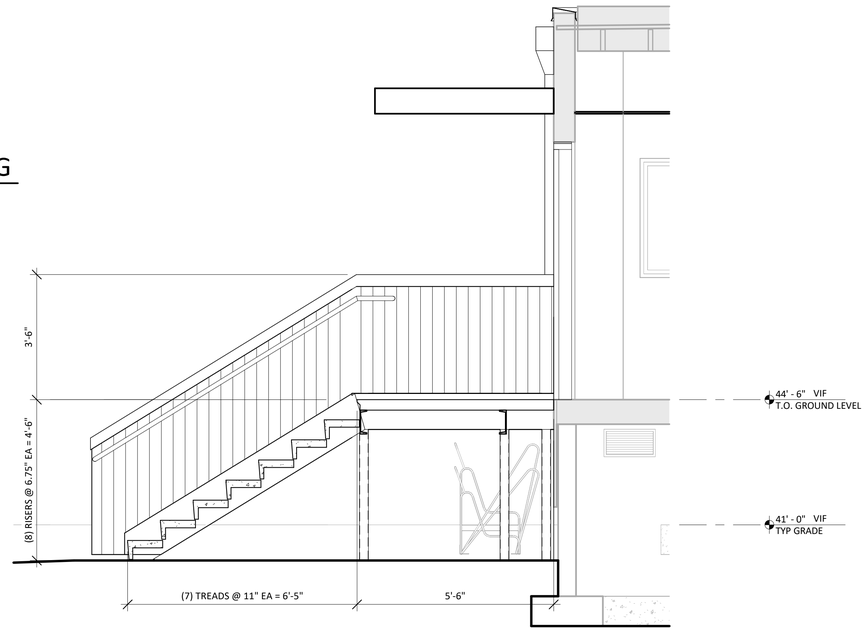
A603



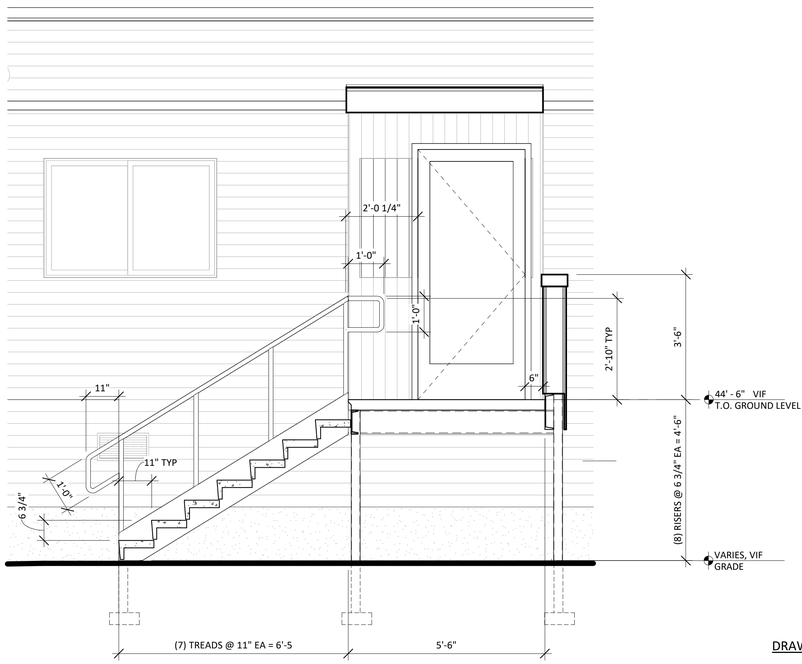
7 SECTION DETAIL - GUARDRAIL @ LANDING
3" = 1'-0"



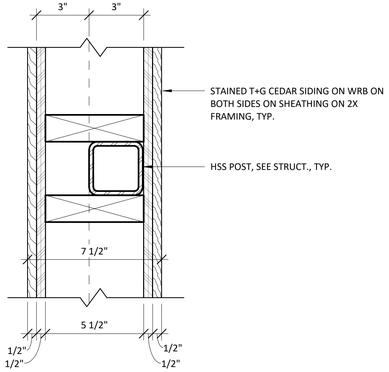
6 SECTION DETAIL - STAIR + GAURD RAIL
3" = 1'-0"



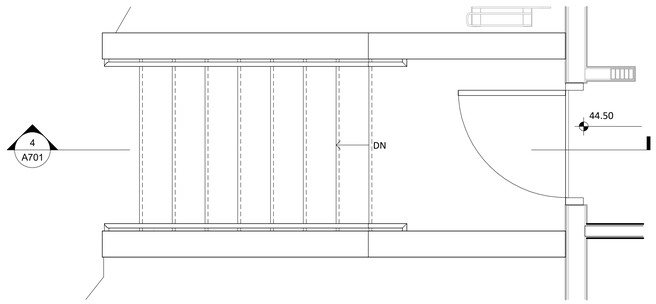
4 SECTION - EXT. STAIR
1/2" = 1'-0"



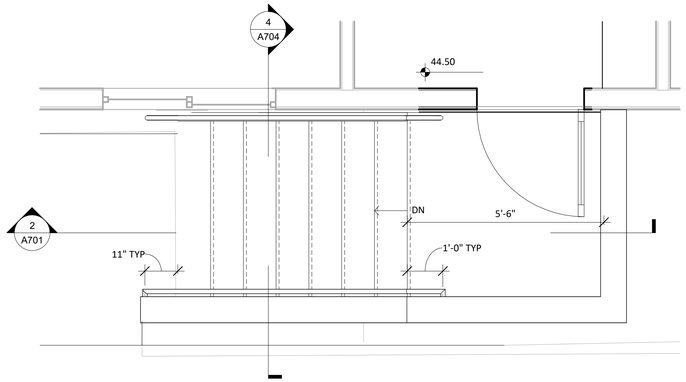
2 SECTION - EXT. STAIR
1/2" = 1'-0"



5 PLAN DETAIL - GAURD RAIL
3" = 1'-0"



3 GROUND LEVEL - EXT. STAIR
1/2" = 1'-0"



1 GROUND LEVEL - EXT. STAIR
1/2" = 1'-0"

DRAWING REVISIONS

NO.	DATED	DESCRIPTION

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1001 se sandy blvd, portland or 97214
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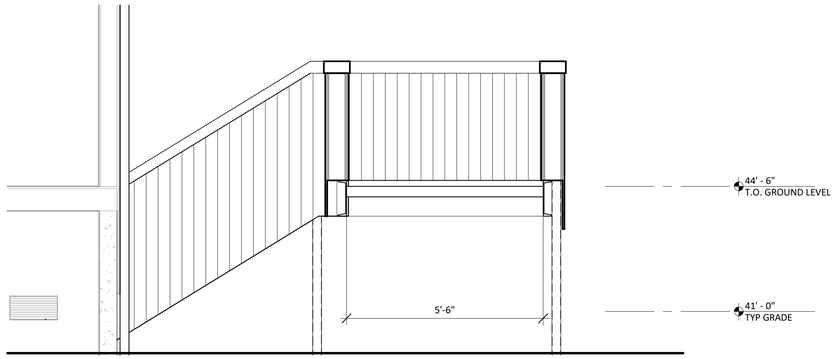
MCBROD CRISIS CENTER
9200 SE MCBROD AVENUE

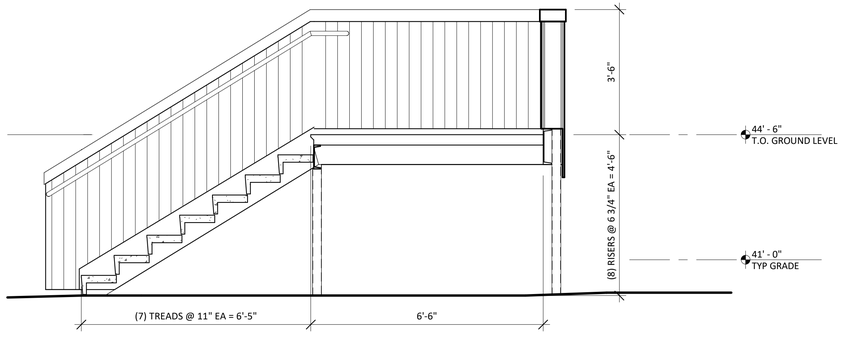
BIDDING DOCUMENTS
08.01.2024

EXTERIOR STAIRS

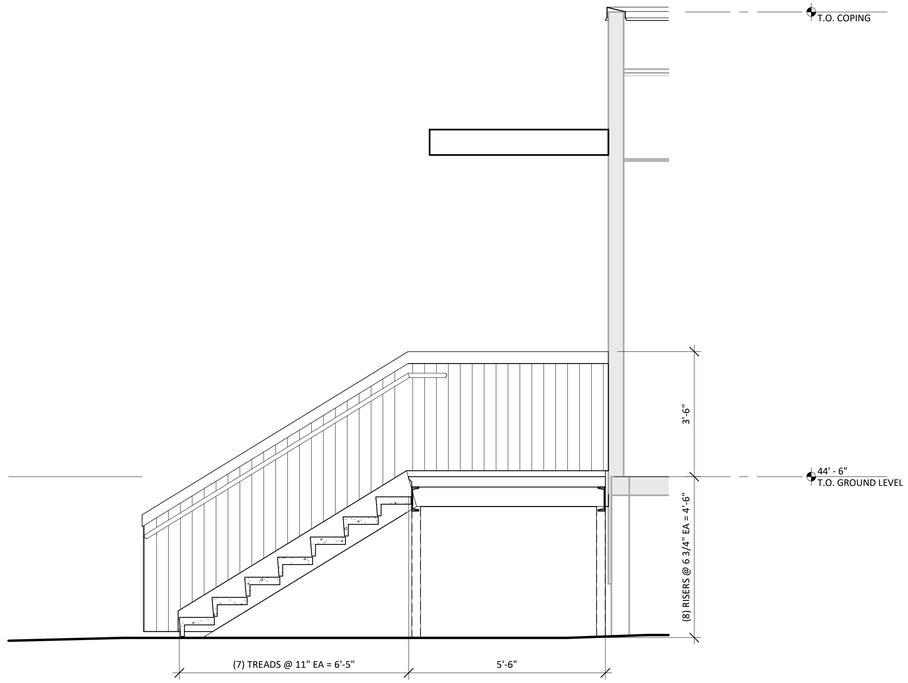
A701



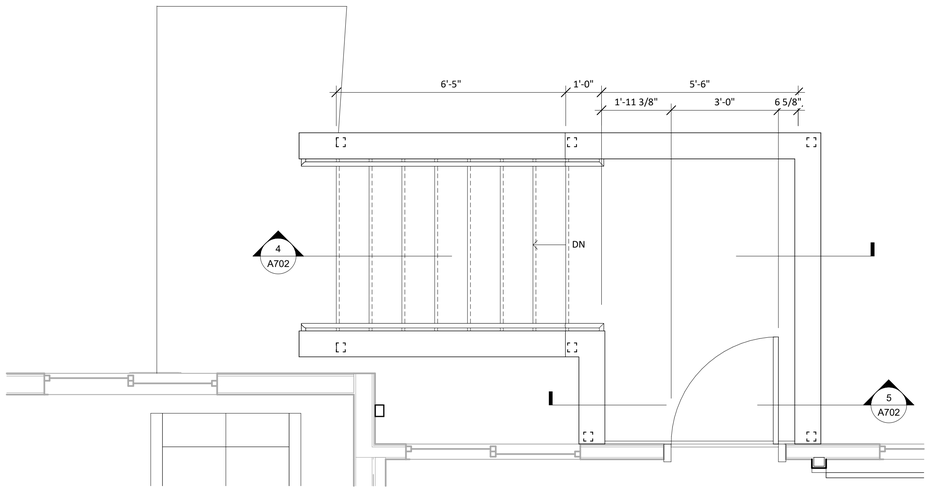
5 SECTION - EXT. STAIR
1/2" = 1'-0"



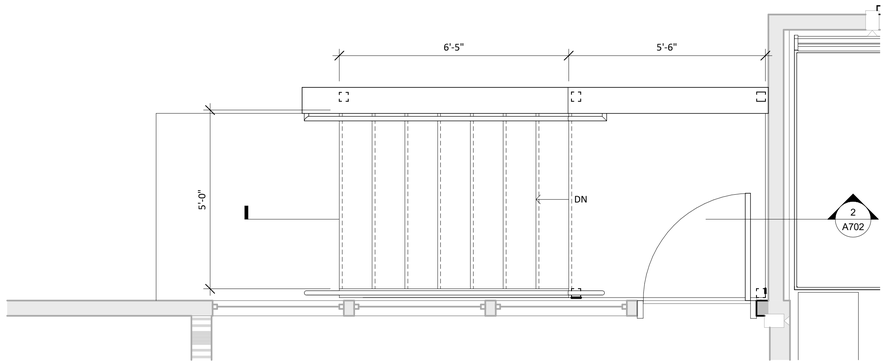
4 SECTION - EXT. STAIR
1/2" = 1'-0"



2 SECTION - EXT. STAIR
1/2" = 1'-0"



3 GROUND LEVEL - EXT. STAIR
1/2" = 1'-0"



1 GROUND LEVEL - EXT. STAIR
1/2" = 1'-0"

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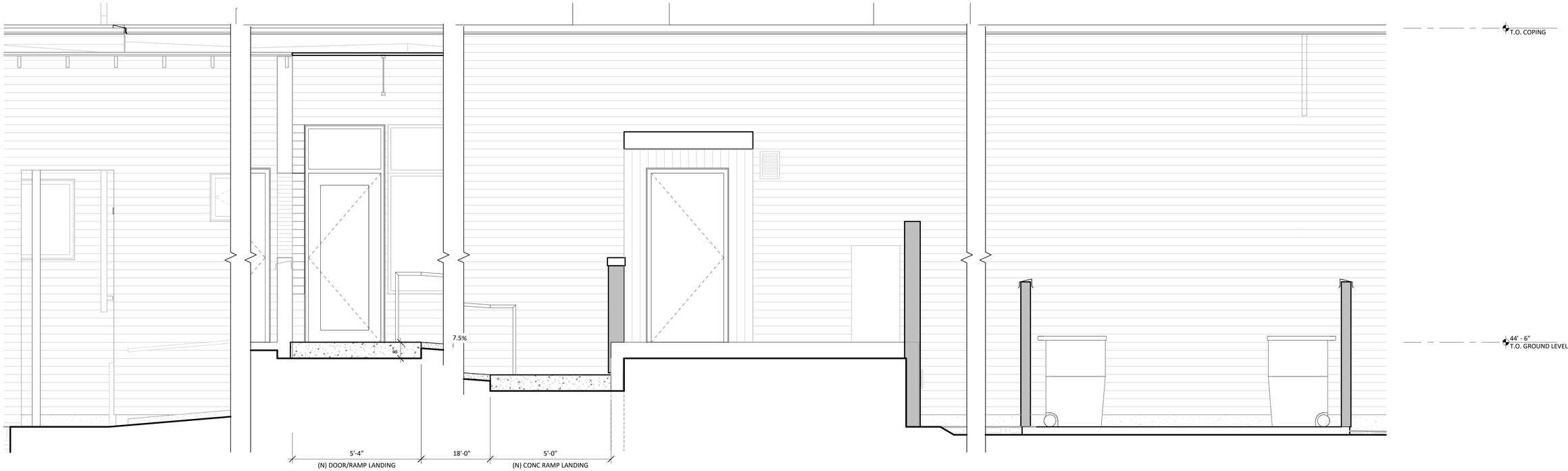
MCBROD CRISIS CENTER
9200 SE MCBROD AVENUE

BIDDING DOCUMENTS
08.01.2024

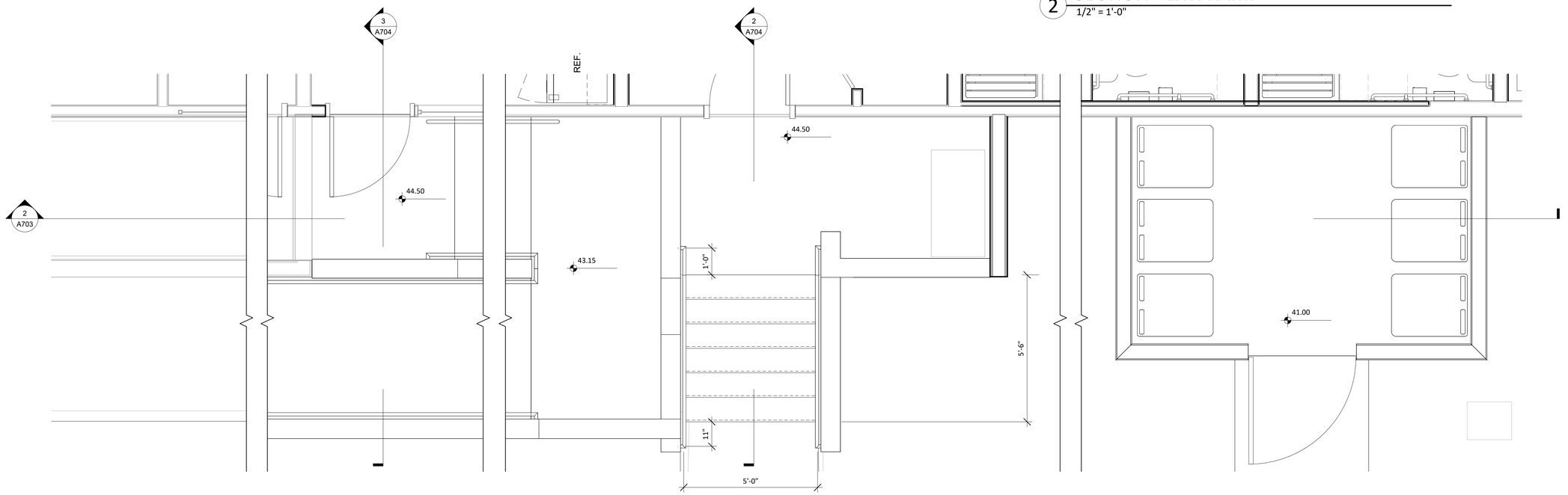
EXTERIOR STAIRS

A702



2 SECTION - EXT. RAMP

1/2" = 1'-0"



1 GROUND LEVEL - EXT. STAIR

1/2" = 1'-0"

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1001 se sandy blvd, portland or 97214
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MCBROD CRISIS CENTER
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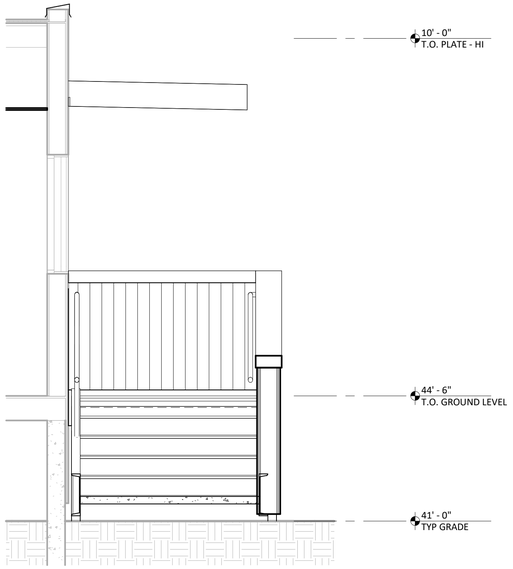
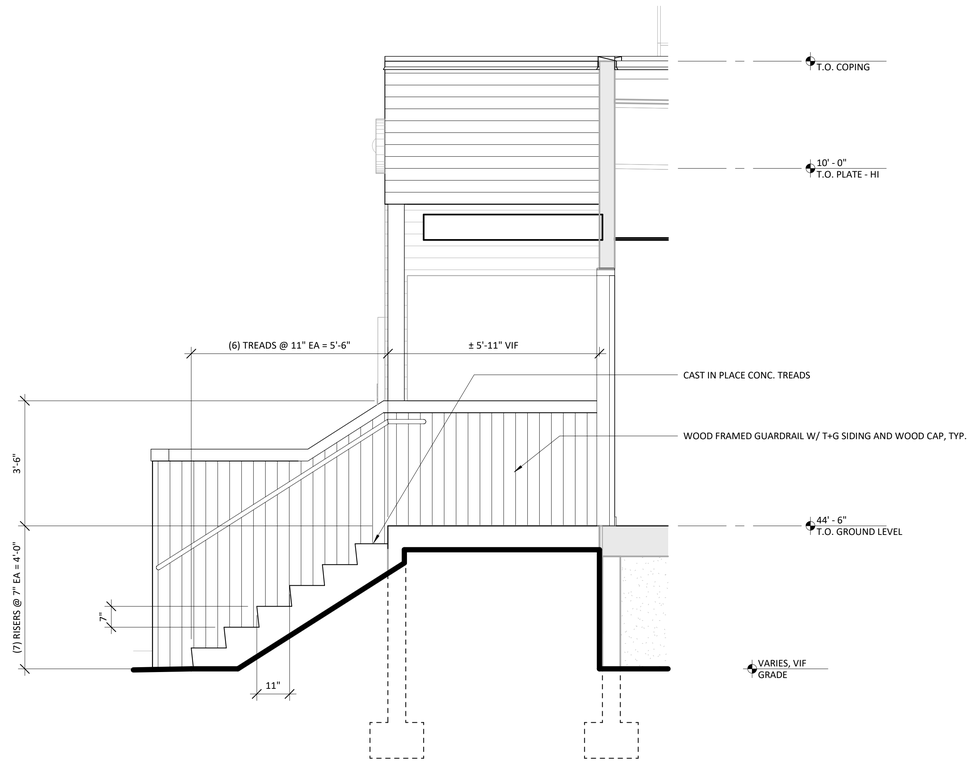
BIDDING DOCUMENTS
08.01.2024

EXTERIOR STAIRS

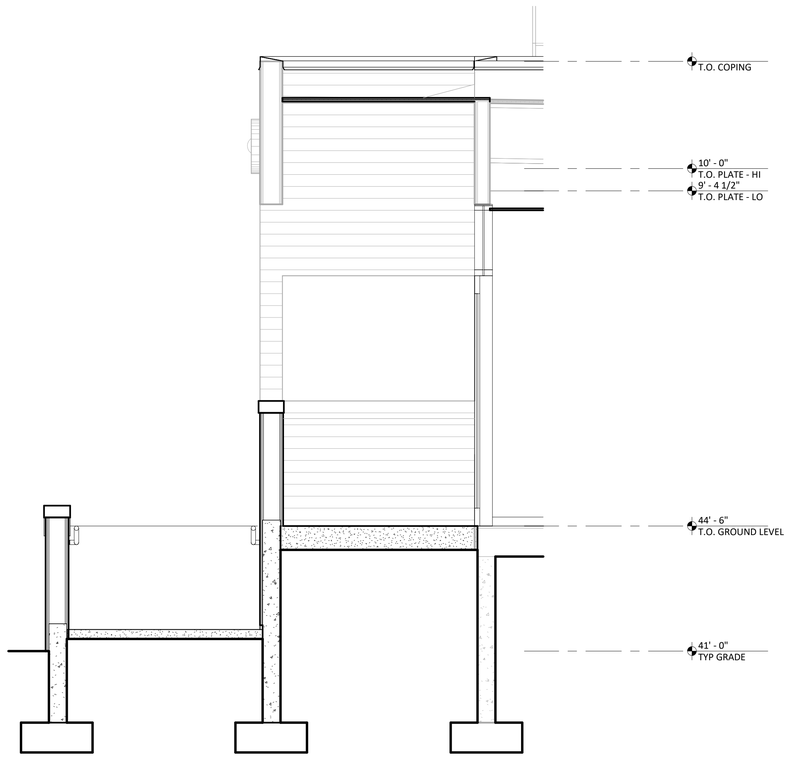
A703



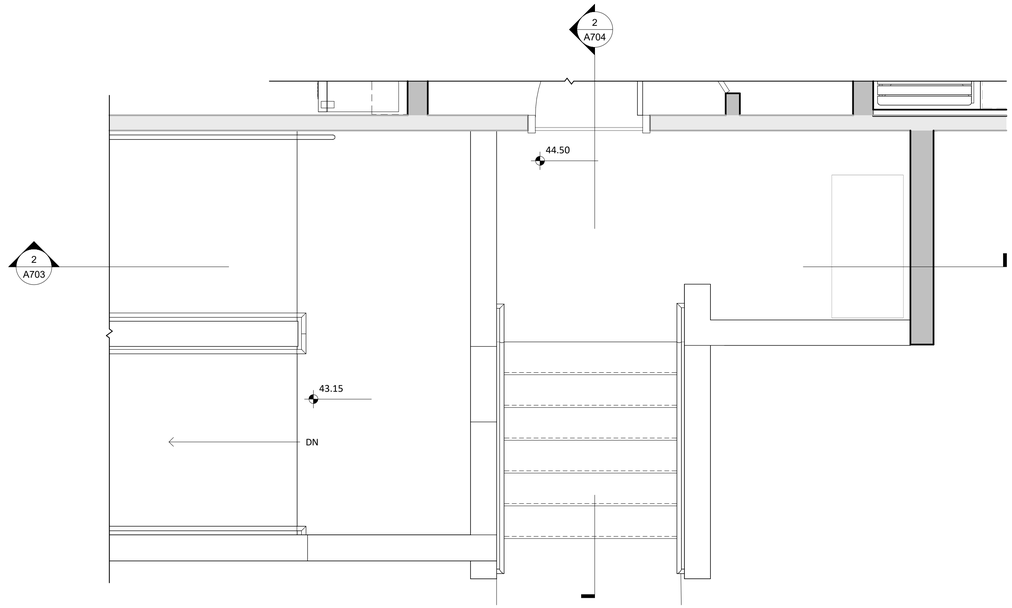
4 SECTION - EXT. STAIR
1/2" = 1'-0"



2 SECTION - EXT. STAIR
1/2" = 1'-0"



3 SECTION - EXT. STAIR
1/2" = 1'-0"



1 GROUND LEVEL - EXT. STAIR
1/2" = 1'-0"

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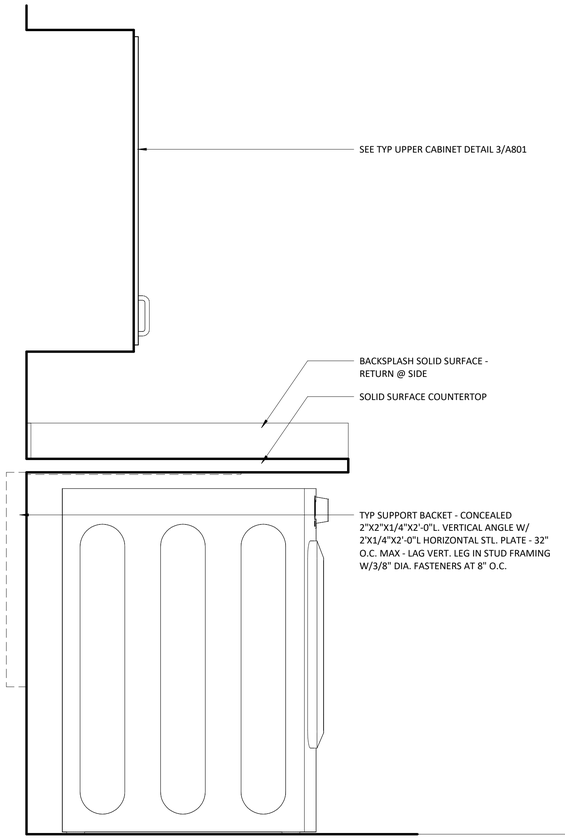
MCBROD CRISIS CENTER
9200 SE MCBROD AVENUE

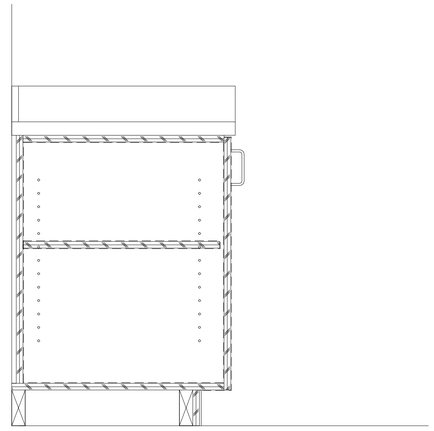
BIDDING DOCUMENTS
08.01.2024

EXTERIOR STAIRS

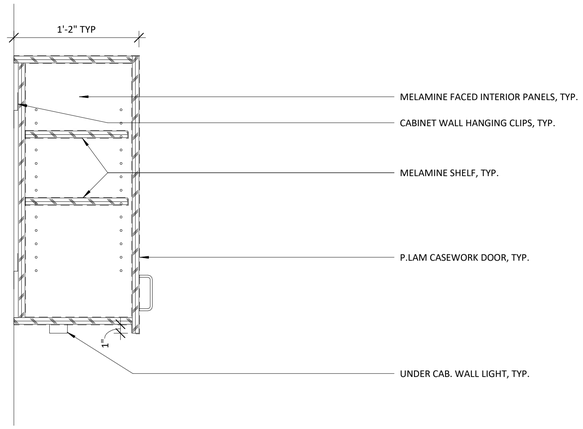
A704



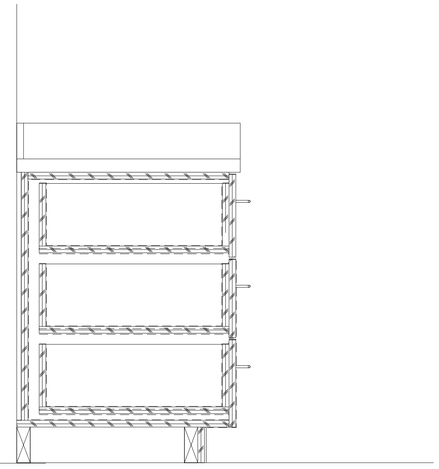
8 LAUNDRY CABINETS - SECTION
1 1/2" = 1'-0"



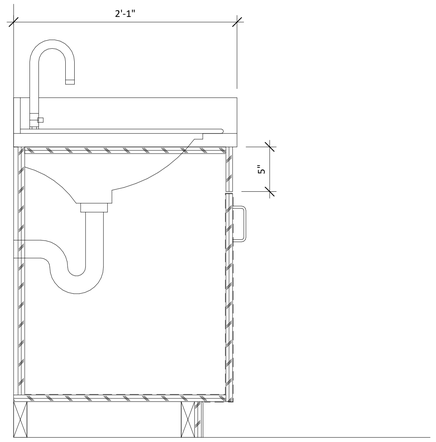
6 BASE CABINET - FULL DOOR
1 1/2" = 1'-0"



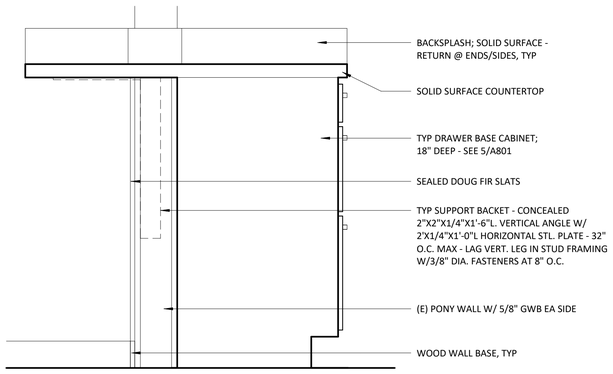
3 UPPER CABINET - DOOR
1 1/2" = 1'-0"



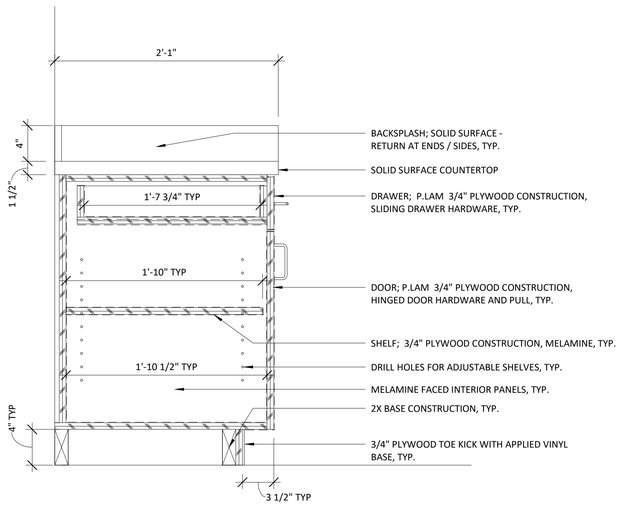
5 BASE CABINET - DRAWERS
1 1/2" = 1'-0"



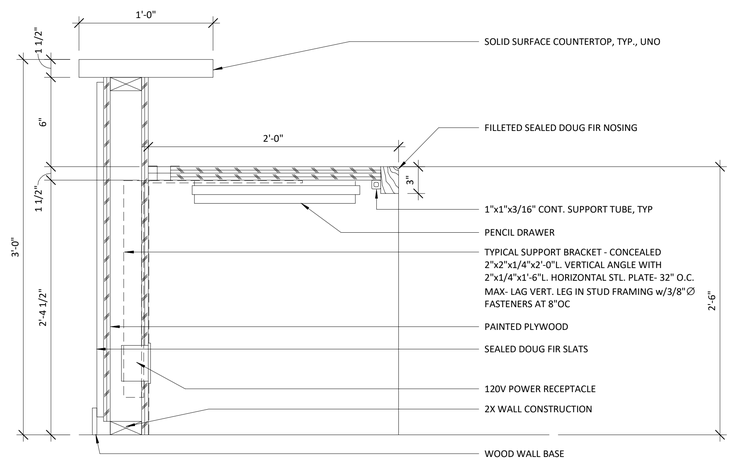
2 BASE CABINET - UNDER SINK
1 1/2" = 1'-0"



7 KITCHEN SERVICE COUNTER SECTION
1 1/2" = 1'-0"



4 BASE CABINET - DRAWER/DOOR COMBO
1 1/2" = 1'-0"



1 RECEPTION DESK - SECTION DETAIL
1 1/2" = 1'-0"

DRAWING REVISIONS

NO.	DATED	DESCRIPTION

em esign
architecture and planning
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MCBROD CRISIS CENTER
9200 SE MCBROD AVENUE

BIDDING DOCUMENTS
08.01.2024

CASEWORK DETAILS

A801

ROOM FINISH SCHEDULE

NUMBER	NAME	FLOOR MATERIAL	FLOOR FINISH	BASE MATERIAL	BASE FINISH	NORTH WALL MATERIAL	NORTH WALL FINISH	EAST WALL MATERIAL	EAST WALL FINISH	SOUTH WALL MATERIAL	SOUTH WALL FINISH	WEST WALL MATERIAL	WEST WALL FINISH	CEILING MATERIAL	CEILING FINISH	REMARKS
100	HALL	CPT	-	WB	-	GWB	PT	GWB	PT	GWB	PT	GWB	PT	ACT	-	
101	STORAGE	VNL	-	WB	-	GWB	PT	GWB	PT	(E)	PT	(E)	PT	ACT	-	
102	OFFICE / INTAKE	CPT	-	WB	-	(E)	PT	GWB	PT	GWB	PT	GWB	PT	ACT	-	
103	LAUNDRY	VNL	-	WB	-	GWB	PT	(E)	PT	(E)	PT	GWB	PT	ACT	-	
104	OFFICE / INTAKE	CPT	-	WB	-	(E)	PT	GWB	PT	GWB	PT	GWB	PT	ACT	-	
105	TELECOM	VNL	-	WB	-	GWB	PT	GWB	PT	(E)	PT	GWB	PT	ACT	-	
106	RECEPTION	CPT	-	WB	-	GWB	PT	GWB	PT	GWB	PT	GWB	PT	ACT	-	
107	CLIENT TLT	TI	-	TI	-	GWB	PT	GWB	PT	GWB	PT	GWB	PT	GWB	PT	
108	STAFF TLT	TI	-	TI	-	GWB	PT	GWB	PT	GWB	PT	GWB	PT	GWB	PT	
109	CLIENT BATH	TI	-	TI	-	TI	-	TI	-	TI	-	TI	-	GWB	PT	
111	CLOSET	CPT	-	WB	-	GWB	PT	GWB	PT	GWB	PT	(E)	PT	ACT	-	
112	CLIENT	CPT	-	WB	-	(E)	PT	GWB	PT	GWB	PT	(E)	PT	ACT	-	
113	CLIENT	CPT	-	WB	-	GWB	PT	(E)	PT	(E)	PT	GWB	PT	ACT	-	
114	CLIENT	CPT	-	WB	-	(E)	PT	(E)	PT	(E)	PT	(E)	PT	ACT	-	
115	CLIENT	CPT	-	WB	-	GWB	PT	GWB	PT	(E)	PT	(E)	PT	ACT	-	
116	CLIENT	CPT	-	WB	-	(E)	PT	(E)	PT	(E)	PT	(E)	PT	ACT	-	
117	CLIENT	CPT	-	WB	-	GWB	PT	(E)	PT	(E)	PT	(E)	PT	ACT	-	
118	CLIENT	CPT	-	WB	-	(E)	PT	GWB	PT	GWB	PT	(E)	PT	ACT	-	
119	CLIENT	CPT	-	WB	-	GWB	PT	GWB	PT	(E)	PT	(E)	PT	ACT	-	
200	HALL	CPT	-	WB	-	GWB	PT	(E)	PT	GWB	PT	GWB	PT	ACT	-	
201	COMMUNAL LIVING	CPT	-	WB	-	GWB	PT	GWB	PT	GWB	PT	GWB	PT	ACT	-	
202	KITCHEN	VNL	-	WB	-	GWB	PT	GWB	PT	(E)	PT	(E)	PT	ACT	-	
203	DORM	CPT	-	WB	-	(E)	PT	(E)	PT	GWB	PT	GWB	PT	(E)	PT	
203A	BATH	TI	-	TI	-	TI	-	TI	-	TI	-	TI	-	(E)	PT	REPLACE (E) TILE
204	OFFICE	CPT	-	WB	-	GWB	PT	GWB	PT	(E)	PT	GWB	PT	ACT	-	
204A	CLOSET	CPT	-	WB	-	GWB	PT	GWB	PT	(E)	PT	GWB	PT	ACT	-	
205	DORM	CPT	-	WB	-	(E)	PT	(E)	PT	(E)	PT	(E)	PT	(E)	PT	
206	STAFF TLT	TI	-	TI	-	GWB	PT	GWB	PT	GWB	PT	GWB	PT	GWB	PT	
207	DORM	CPT	-	WB	-	(E)	PT	(E)	PT	(E)	PT	(E)	PT	(E)	PT	
208	CLIENT BATH	TI	-	TI	-	TI	-	TI	-	TI	-	TI	-	GWB	PT	
209	DORM	CPT	-	WB	-	(E)	PT	(E)	PT	(E)	PT	(E)	PT	(E)	PT	
210	CLIENT BATH	TI	-	TI	-	TI	-	TI	-	TI	-	TI	-	GWB	PT	
211	DORM	CPT	-	WB	-	(E)	PT	(E)	PT	(E)	PT	(E)	PT	(E)	PT	
212	CLIENT BATH	TI	-	TI	-	TI	-	TI	-	TI	-	TI	-	GWB	PT	
213	DORM	CPT	-	WB	-	(E)	PT	(E)	PT	(E)	PT	(E)	PT	(E)	PT	
214	LAUNDRY	VNL	-	WB	-	GWB	PT	GWB	PT	(E)	PT	GWB	PT	ACT	-	
216	STORAGE	VNL	-	WB	-	GWB	PT	GWB	PT	(E)	PT	(E)	PT	ACT	-	
220	(E) MECH	(E)	-	-	-	(E)	(E)	(E)	(E)	(E)	(E)	(E)	(E)	(E)	(E)	

DOOR SCHEDULE

PHASE	MARK	WIDTH	HEIGHT	DOOR TYPE	DOOR CORE	DOOR MATERIAL	DOOR FINISH	FRAME MATERIAL	FRAME TYPE	FRAME FINISH	FIRE RATING	HARDWARE GROUP	DOOR SCHEDULE NOTES
(N)	100.1	3' - 0"	7' - 0"	F	INSUL	WD	CC	HM	A	PT		06	
(N)	100.2	3' - 0"	7' - 0"	F	SC	WD	CC	MTL		PT	2 HR	05	
(N)	100.3	3' - 0"	7' - 0"	F	INSUL	WD	CC	HM		PT		01	
(N)	100.4	3' - 0"	7' - 0"	FG	INSUL	WD	CC	HM		PT		01	
(N)	101.1	3' - 0"	7' - 0"	F	SC	WD	CC	WD		PT		02	
(N)	102.1	3' - 0"	7' - 0"	N	SC	WD	CC	WD		PT		02	
(N)	102.2	3' - 0"	7' - 0"	F	SC	WD	CC	WD		PT		04	
(N)	103.1	3' - 0"	7' - 0"	F	SC	WD	CC	WD		PT		04	
(N)	104.1	3' - 0"	7' - 0"	N	SC	WD	CC	WD		PT		02	
(N)	104.2	3' - 0"	7' - 0"	F	SC	WD	CC	WD		PT		04	
(N)	105.1	3' - 0"	7' - 0"	F	SC	WD	CC	WD		PT		02	
(N)	106.1	3' - 0"	7' - 0"	F	SC	WD	CC	WD		PT		02	
(N)	107.1	3' - 0"	7' - 0"	F	SC	WD	CC	WD		PT		03	
(N)	108.1	3' - 0"	7' - 0"	F	SC	WD	CC	WD		PT		03	
(N)	109.1	3' - 0"	7' - 0"	F	SC	WD	CC	WD		PT		03	
(N)	111.1	2' - 2"	7' - 0"	F	SC	WD	CC	HM		PT		02	
(N)	112.1	3' - 0"	7' - 0"	F	SC	WD	CC	WD		PT		04	
(N)	113.1	3' - 0"	7' - 0"	F	SC	WD	CC	WD		PT		04	
(N)	114.1	3' - 0"	7' - 0"	F	SC	WD	CC	WD		PT		04	
(N)	115.1	3' - 0"	7' - 0"	F	SC	WD	CC	WD		PT		04	
(N)	116.1	3' - 0"	7' - 0"	F	SC	WD	CC	WD		PT		04	
(N)	117.1	3' - 0"	7' - 0"	F	SC	WD	CC	WD		PT		04	
(N)	118.1	3' - 0"	7' - 0"	F	SC	WD	CC	WD		PT		04	
(N)	118.2	3' - 0"	7' - 0"	F	INSUL	WD	CC	HM		PT		07	
(N)	119.1	3' - 0"	7' - 0"	F	SC	WD	CC	WD		PT		04	
(N)	200.1	3' - 0"	7' - 0"	V	SC	WD	CC	MTL		PT		04	
(N)	201.1	3' - 0"	7' - 0"	F	INSUL	WD	CC	MTL		PT		01	
(N)	201.2	3' - 0"	7' - 0"	F	(N)	WD	CC	MTL		PT		01	
(N)	202.1	3' - 0"	7' - 0"	F	SC	WD	CC	WD		PT		02	
(N)	202.2	3' - 0"	7' - 0"	F	SC	WD	CC	(E)		PT		06	
(N)	202.3	3' - 0"	7' - 0"	F	SC	WD	CC	WD		PT		03	
(N)	203.1	3' - 0"	7' - 0"	N	SC	WD	CC	WD	A	PT	-	04	
(N)	204.1	3' - 0"	7' - 0"	V	(N)	WD	CC	MTL		PT		02	
(N)	204.2	4' - 0"	7' - 0"	F	(N)	WD	CC	MTL		PT		04	
(N)	204.3	3' - 0"	7' - 0"	F	INSUL	WD	CC	HM		PT		07	5.
(N)	205.1	3' - 0"	7' - 0"	N	SC	WD	CC	WD	A	PT	-	04	
(N)	206.1	3' - 0"	7' - 0"	F	SC	WD	CC	MTL		PT		03	
(N)	207.1	3' - 0"	7' - 0"	N	SC	WD	CC	WD	A	PT	-	04	
(N)	208.1	3' - 0"	7' - 0"	F	SC	WD	CC	MTL		PT		03	
(N)	209.1	3' - 0"	7' - 0"	N	SC	WD	CC	WD	A	PT	-	04	
(N)	210.1	3' - 0"	7' - 0"	F	(N)	WD	CC	MTL		PT		03	
(N)	211.1	3' - 0"	7' - 0"	N	SC	WD	CC	WD	A	PT	-	04	
(N)	212.1	3' - 0"	7' - 0"	F	(N)	WD	CC	MTL		PT		03	
(N)	213.1	3' - 0"	7' - 0"	N	SC	WD	CC	WD	A	PT	-	04	
(N)	214.1	3' - 0"	7' - 0"	F	(N)	WD	CC	MTL		PT		04	
(N)	216.1	3' - 0"	7' - 0"	F	(N)	WD	CC	MTL		PT		02	
(E)	220.1	6' - 0"	7' - 0"	GG	(E)	(E)	(E)	(E)		PT		07	
(N)	221.1	4' - 0"	6' - 0"	F	(N)	WD	CC	MTL		PT		08	

ROOM FINISH SCHEDULE LEGEND/KEY

WALLS:

GWB	GYPSUM WALLBOARD, FINISH TBD
PT	PAINTED
TI	TILE

FLOORS:

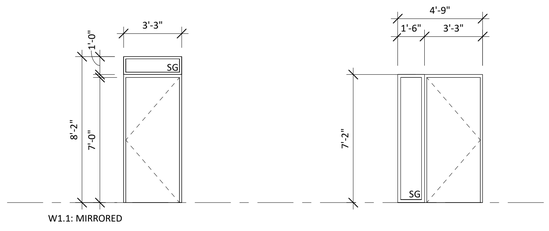
CONC	SEALED CONCRETE
VNL	SHEET VINYL FLOORING
CPT	CARPET TILES
TI	TILE
WB	RUBBER WALL BASE - COLOR TBD

CEILINGS:

GWB	GYPSUM WALLBOARD, FINISH TBD
ACT	ACOUSTICAL CEILING TILE

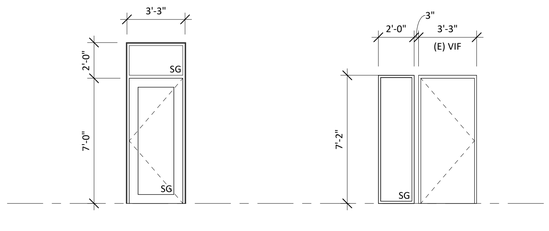
FINISHES AND MATERIAL NOTES

1. SEE INTERIOR ELEVATIONS, FLOOR PLANS, AND REFLECTED CEILING PLANS WHERE MULTIPLE FINISHES OCCUR
2. PROVIDE SAMPLE DRAWDOWNS OF ALL PAINT COLORS AND FINISHES FOR REVIEW AND APPROVAL PRIOR TO PAINTING
3. ALL INTERIOR WALL AND CEILING FINISHES SHALL COMPLY WITH CLASS C FLAME SPREAD INDEX 76-200; SMOKE-DEVELOPED INDEX 0-450.



W1 ELEVATION
1/4" = 1'-0"

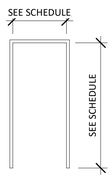
W2 ELEVATION
1/4" = 1'-0"



W3 ELEVATION
1/4" = 1'-0"

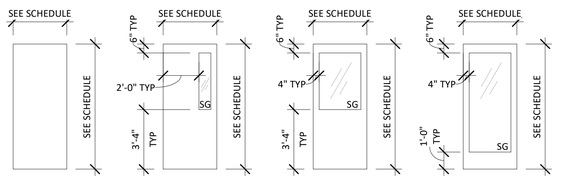
W4 ELEVATION
1/4" = 1'-0"

FRAME TYPES



A

DOOR TYPES



F N V FG

DOOR SCHEDULE ABBREVIATIONS

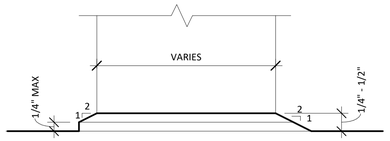
AL	ALUMINUM
CA	CLEAR ANODIZED
C	CLEAR COAT
CITG	CLEAR INSULATED TEMPERED GLASS
CTG	CLEAR TEMPERED GLASS
CR	CARD READER
CUST	CUSTOM
CVG	CLEAR VERTICAL GRAIN DOUGLAS FIR
FF	FACTORY FINISH
F	FLUSH
FBG	FIBERGLASS
FG	FULL GLAZED
G	GLAZED
GALV	GALVANIZED
HM	HOLLOW METAL
INS	INSULATED
N	FLUSH W/ NARROW LITE GLAZING
NR	NON-RATED
OD	OVERHEAD DOOR
ODG	GLAZED OVERHEAD DOOR
OHR	OVERHEAD ROLLING DOOR
P	PAINT
PL	PLASTIC LAMINATE
PR	PAIR
SC	SOLID CORE
SG	SAFETY GLAZING (TEMPERED)
SST	STAINLESS STEEL
STL	STEEL
V	FLUSH W/ VIEW GLAZING
WC	WOOD CLAD
WD	WOOD
60	1 HR RATED SIDE HINGED SELF-CLOSING DOORS

DOOR SCHEDULE NOTES

1. SPECIES OF WOOD DOORS SHALL BE CVG DOUGLAS FIR, UNO.
2. COORDINATE KEYPADS AND OTHER ELECTRONIC ENTRY WITH OWNER AS REQUESTED
3. REUSE EXISTING DOOR AND HARDWARE
4. PAIR OF BIFOLD DOORS
5. EXISTING DOOR AND HARDWARE
6. REPLACE 180 DEGREE HARDWARE WITH STANDARD 90 DEGREE.

GENERAL DOOR + HARDWARE NOTES

1. PER 2022 OSSC 1010.2.1 UNLATCHING: THE UNLATCHING OF ANY DOOR OR LEAF FOR EGRESS SHALL REQUIRE NOT MORE THAN ONE MOTION IN A SINGLE LINEAR OR ROTATIONAL DIRECTION TO RELEASE ALL LATCHING AND ALL LOCKING DEVICES.
2. PER 2022 OSSC 1010.1.3 FORCES TO UNLACH AND OPEN DOORS: THE FORCES TO UNLATCH DOORS SHALL COMPLY WITH THE FOLLOWING
   1. WHERE DOOR HARDWARE OPERATES BY PUSH OR PULL, THE OPERATIONAL FORCE TO UNLATCH THE DOOR SHALL NOT EXCEED 15 POUNDS
   2. WHERE DOOR HARDWARE OPERATES BY ROTATION, THE OPERATIONAL FORCE TO UNLATCH THE DOOR SHALL NOT EXCEED 28 INCH-POUNDS
3. PROVIDE FLOOR STOPS FOR ALL DOORS. DO NOT MOUNT FLOOR STOPS WHERE THEY WILL IMPEDE TRAFFIC. WHERE FLOOR STOPS ARE NOT FEASIBLE, PROVIDE WALL STOPS. OVERHEAD STOPS ARE ACCEPTABLE WHERE NEITHER FLOOR OR WALL STOPS ARE APPROPRIATE.
4. AT EXTERIOR DOORS PROVIDE CONTINUOUS WEATHER-STRIP GASKETING; APPLY TO HEAD, JAMB, AND MEETING STILES (WHERE OCCURS), FORMING SEAL BETWEEN DOOR AND FRAME
5. ALL EXTERIOR DOORS SHALL HAVE CLOSERS.
6. COORDINATE OPENINGS WITH ELECTRONIC KEY CARD/FOB ACCESS WITH THE OWNER.
7. PROVIDE LEVER HANDLES ON ALL SIDE HINGED DOORS (AT MAIN LEVEL)
8. PER ICC A117-2009, 404.2.6 DOOR HARDWARE: HANDLES, PULLS, LATCHES, LOCKS, AND OTHER OPERABLE PARTS ON ACCESSIBLE DOORS SHALL HAVE A SHAPE THAT IS EASY TO GRASP WITH ONE HAND AND DOES NOT REQUIRE TIGHT GRASPING, PINCHING, OR TWISTING OF THE WRIST TO OPERATE. OPERABLE PARTS OF SUCH HARDWARE SHALL BE 34" MINIMUM AND 48" MAXIMUM ABOVE THE FLOOR. WHERE SLIDING DOORS ARE IN THE FULLY OPEN POSITION, OPERATING HARDWARE SHALL BE EXPOSED AND USABLE FROM BOTH SIDES. EXCEPTION: LOCKS USED ONLY FOR SECURITY PURPOSES AND NOT USED FOR NORMAL OPERATION SHALL NOT BE REQUIRED TO COMPLY WITH SECTION 404.2.6.



1 TYP THRESHOLD DETAIL
6" = 1'-0"

DOOR HARDWARE GROUPS

01: EXTERIOR - PANIC HARDWARE
- EGRESS AND ACCESS COMPLIANT
- PANIC BAR AND HARDWARE
- KICKPLATE
- HINGES
- CLOSER
- THRESHOLD (ADA COMPLIANT)
- FLOOR STOP
- PERIMETER WEATHER SEALS AND BOTTOM GASKET/SWEEP

02: INTERIOR - KEYED SELF-RELEASING
- EGRESS AND ACCESS COMPLIANT
- KEYED LOCK- OUTSIDE LEVER IS LOCKED/UNLOCKED BY KEY FROM EXTERIOR, INSIDE LEVER IS ALWAYS UNLOCKED.
- LEVER HANDLE (ADA + ICC A117.1-2017 COMPLIANT)
- KICKPLATE
- HINGES
- CLOSER

03: INTERIOR - PRIVACY
- EGRESS AND ACCESS COMPLIANT
- PRIVACY LOCK
- LEVER HANDLE (ADA + ICC A117.1-2017 COMPLIANT)
- KICKPLATE
- HINGES
- CLOSER

04: INTERIOR - PASSAGE
- EGRESS AND ACCESS COMPLIANT
- LEVER HANDLE (ADA + ICC A117.1-2017 COMPLIANT)
- KICKPLATE
- HINGES
- CLOSER

05: INTERIOR - LOCKED (STAFF PASSAGE ONLY)
- EGRESS AND ACCESS COMPLIANT
- KEYED LOCK BOTH SIDES, AUTO-LOCKED AT ALL TIMES
- LEVER HANDLE (ADA + ICC A117.1-2017 COMPLIANT)
- KICKPLATE
- HINGES
- CLOSER

06: EXISTING - PANIC HARDWARE
- NO CHANGES PROPOSED
- EXISTING KEYED LOCK EXTERIOR
- EXISTING PANIC BAR/HARDWARE INTERIOR
- EXISTING CLOSER

07: EXISTING - KEYED LOCK
- NO CHANGES PROPOSED
- EXISTING KEYED LOCK EXTERIOR
- EXISTING LEVER HANDLE INTERIOR
- EXISTING CLOSER

08: WASTE ENCLOSURE GATE

DRAWING REVISIONS

NO.	DATED	DESCRIPTION

REGISTERED ARCHITECT
4688
ERIK L. MATTHEWS
PORTLAND, OR
STATE OF OREGON

em esign
architecture and planning
1001 se sandy blvd, portland or 97214
503.544.7210 erik@emarchitecture.net

MCBROD CRISIS CENTER
9200 SE MCBROD AVENUE

BIDDING DOCUMENTS
08.01.2024

FINISH & DOOR SCHEDULES

A901

MCBROD CRISIS CENTER

9200 SE MCBROD AVENUE
MILWAUKIE, OR 97222

SHEET INDEX					
SHEET NUMBER	SHEET NAME	ISSUE DATE	REVISION	REVISION DATE	REVISION DESCRIPTION
S001	SHEET INDEX	08-01-2024	0	08-01-2024	ISSUED FOR BID
S002	STRUCTURAL NOTES	08-01-2024	0	08-01-2024	ISSUED FOR BID
S003	STRUCTURAL NOTES	08-01-2024	0	08-01-2024	ISSUED FOR BID
S101	STRUCTURAL SITE PLAN	08-01-2024	0	08-01-2024	ISSUED FOR BID
S102	STRUCTURAL PLANS	08-01-2024	0	08-01-2024	ISSUED FOR BID
S103	STRUCTURAL PLANS	08-01-2024	0	08-01-2024	ISSUED FOR BID
S501	STRUCTURAL DETAILS	08-01-2024	0	08-01-2024	ISSUED FOR BID
S502	STRUCTURAL DETAILS	08-01-2024	0	08-01-2024	ISSUED FOR BID
S503	STRUCTURAL DETAILS	08-01-2024	0	08-01-2024	ISSUED FOR BID
S504	STRUCTURAL DETAILS	08-01-2024	0	08-01-2024	ISSUED FOR BID

(E)	EXISTING
(N)	NEW
AB	ANCHOR BOLT
ABT	ABOUT
AC	ASPHALTIC CONCRETE
ACI	AMERICAN CONCRETE INSTITUTE
ADDL	ADDITIONAL
ALT	ALTERNATE
APPRX	APPROXIMATE
ARCH	ARCHITECTURAL
B TO B	BACK TO BACK
BLDG	BUILDING
BLK	BLOCK
BLKG	BLOCKING
BM	BEAM
BOF	BOTTOM OF FOOTING
BOP	BOTTOM OF PIPE
BOT	BOTTOM
BP	BASE PLATE
BRCG	BRACING
BRG	BEARING
BRKT	BRACKET
BTWN	BETWEEN
CB	CATCH BASIN
CH PL	CHECKER PLATE
CJ	CONTROL JOINT
CJP	COMPLETE JOINT PENETRATION
CL	CENTERLINE
CLR	CLEAR
CO	CLEANOUT
COL	COLUMN
CONC	CONCRETE
CONN	CONNECTION
CONST	CONSTRUCTION
CONT	CONTINUOUS, CONTINUITY
CONTD	CONTINUED
CSK	COUNTERSINK
Db	BAR DIAMETER
DBL	DOUBLE
DEG	DEGREES
DET	DETAIL
DIA	DIAMETER
DIM	DIMENSION
DWG	DRAWING
DWL	DOWEL
EA	EACH
EF	EACH FACE
ELECT	ELECTRICAL
ELEV	ELEVATION
EQUIP	EQUIPMENT
ETC	ET CETERA
EW	EACH WAY
EXIST	EXISTING
EXP	EXPANSION
F'c	COMPRESSIVE STRENGTH OF CONCRETE, PSI
F'm	COMPRESSIVE STRENGTH OF MASONRY, PSI
F's	TENSILE STRENGTH OF STEEL, PSI
FCO	FLOOR CLEANOUT
FD	FLOOR DRAIN
FDN	FOUNDATION
FF	FAR FACE
FIN	FINISH
FL EL	FLOW ELEVATION
FLG	FLANGE
FLR	FLOOR
FOS	FACE OF STEEL
FS	FAR SIDE
FT	FOOT OR FEET
FT-K	FOOT KIPS
FTG	FOOTING
GA	GAUGE
GALV	GALVANIZED
GLB	GLULAM BEAM
GRD	GRADE
HCA	HEADED CONCRETE ANCHOR
HDG	HOT DIPPED GALVANIZED
HGR	HANGER
HORIZ	HORIZONTAL
HP	HIGH POINT
HR	HANDRAIL
HS	HIGH STRENGTH
HSB	HIGH STRENGTH BOLT
HSS	HOLLOW STRUCTURAL SECTION
HT	HEIGHT
IBC	INTERNATIONAL BUILDING CODE
ID	INSIDE DIAMETER
IE	INVERT ELEVATION
IN	INCH OR INCHES
INS	INSULATION
JT	JOINT
K	KIPS
KSI	KIPS PER SQUARE INCH
LAT	LATERAL
LBS	POUNDS
LG	LONG
LL	LIVE LOAD
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LONGIT	LONGITUDINAL
LP	LOW POINT
LT	LIGHT
LVF	LOW VELOCITY FASTENER
MANUF	MANUFACTURER
MAX	MAXIMUM
MB	MACHINE BOLT
MECH	MECHANICAL
MEZZ	MEZZANINE
MH	MANHOLE
MIN	MINIMUM
MISC	MISCELLANEOUS
MO	MASONRY OPENING
NF	NEAR FACE
NIC	NOT IN CONTRACT
NO	NUMBER
NOM	NOMINAL
NS	NEAR SIDE
NTS	NOT TO SCALE
O TO O	OUT TO OUT
OC	ON CENTER
OD	OUTSIDE DIAMETER
OH	OPPOSITE HAND
OPG	OPENING
OPP	OPPOSITE
PCF	POUNDS PER CUBIC FOOT
PJF	PREMOLDED JOINT FILLER
PL	PLATE
PLCS	PLACES
PROJ	PROJECTION
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PT	PRESSURE TREATED
R	RADIUS
REF	REFERENCE
REINF	REINFORCING
REQ	REQUIREMENT
REQD	REQUIRED
RET W	RETAINING WALL
REV	REVISION
SC	SLIP CRITICAL
SCH	SCHEDULE
SECT	SECTION
SEL S	SELECT STRUCTURAL
SHT	SHEET
SIM	SIMILAR
SLH	SHORT LEG HORIZONTAL
SLV	SHORT LEG VERTICAL
SOG	SLAB ON GRADE
SPA	SPACES OR SPACING
SPECS	SPECIFICATIONS
SQ	SQUARE
SS	STAINLESS STEEL
STD	STANDARD
STIFF	STIFFENER
STL	STEEL
STRUCT	STRUCTURAL
SYMM	SYMMETRICAL
T & B	TOP & BOTTOM
THD	THREAD
TOC	TOP OF CONCRETE
TOS	TOP OF STEEL
TS	TUBE STEEL
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
VERT	VERTICAL
VIF	VERIFY IN FIELD
W/	WITH
W/O	WITHOUT
WP	WORK POINT
WS	WATERSTOP
WT	WEIGHT

DRAWING REVISIONS

NO.	DATED	DESCRIPTION
0	08-01-2024	ISSUED FOR BID

PACE

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503.544.7210 erik@emarchitecture.net

MCBROD CRISIS CENTER
9200 SE MCBROD AVENUE

BIDDING DOCUMENTS
07.11.2024

SHEET INDEX

S001

GENERAL STRUCTURAL NOTES

GENERAL:

1. IF ERRORS, DISCREPANCIES, OR OMISSIONS ARE DISCOVERED IN THE DRAWINGS OR THESE NOTES OR IF ANY DISCREPANCIES ARE FOUND BETWEEN DRAWINGS AND SITE CONDITIONS, THE CONTRACTOR SHALL IMMEDIATELY REPORT THE ERRORS, DISCREPANCIES, OR OMISSIONS TO THE ENGINEER WHO SHALL RESPOND IN WRITING. ANY WORK DONE BY THE CONTRACTOR AFTER DISCOVERY OF SUCH DISCREPANCY SHALL BE DONE AT THE CONTRACTOR'S RISK.
2. STRUCTURAL DRAWINGS INDICATE INFORMATION SUFFICIENT TO CONVEY DESIGN INTENT. STRUCTURAL DRAWINGS REPRESENT THE FINISHED STRUCTURE. UNLESS OTHERWISE SHOWN, THEY DO NOT INDICATE METHOD OF CONSTRUCTION.
3. THE CONTRACTOR IS RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES AS REQUIRED FOR THE WORK.
4. THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN AND CONSTRUCTION OF ALL ERECTION BRACING, FORM WORK, AND TEMPORARY SHORING REQUIRED FOR THE WORK.
5. THE CONTRACTOR SHALL PROVIDE ADEQUATE EXCAVATION PROCEDURES, SHORING, BRACING, AND ERECTION PROCEDURES COMPLYING WITH NATIONAL, STATE, AND LOCAL SAFETY ORDINANCES. CONTRACTOR IS RESPONSIBLE FOR MEETING ALL SAFETY REQUIREMENTS FOR THE PROJECT.
6. OBSERVATION VISITS TO SITE BY FIELD REPRESENTATIVES OF STRUCTURAL ENGINEER DO NOT INCLUDE REVIEW OF CONSTRUCTION MEANS AND METHODS OR SPECIAL AND CONTINUOUS INSPECTIONS. OBSERVATIONS ARE SOLELY FOR THE PURPOSE OF DETERMINING IF CONTRACTOR UNDERSTANDS DESIGN INTENT CONVEYED IN STRUCTURAL DRAWINGS. OBSERVATIONS DO NOT GUARANTEE CONTRACTOR'S PERFORMANCE AND ARE NOT TO BE CONSTRUED AS SUPERVISION OR INSPECTION OF CONSTRUCTION.
7. MODIFICATIONS OR SUBSTITUTIONS MAY BE CONSIDERED PROVIDED A WRITTEN REQUEST, SUBJECT TO REVIEW, IS SUBMITTED TO STRUCTURAL ENGINEER PRIOR TO ITS USE, INSTALLATION IN THE FIELD, OR INCLUSION ON ANY SHOP DRAWING. COSTS ASSOCIATED WITH REVIEW, APPROVAL, AND INSTALLATION SHALL BE BORNE BY CONTRACTOR.
8. ALL ABBREVIATIONS OF REFERENCED STANDARDS ARE PER IBC CHAPTER 35.

DESIGN CODES:

1. PERFORM CONSTRUCTION AND WORKMANSHIP IN COMPLIANCE WITH CONTRACT DOCUMENTS AND THE FOLLOWING CODES:
   A. 2022 OREGON STRUCTURAL SPECIALTY CODE BASED ON THE 2021 IBC
   B. ASCE 7-16 MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES
   C. 2018 NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION
   D. ACI 318-19 BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE
   E. AISC 360-16 SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS
2. ALL REFERENCE TO OTHER CODES AND STANDARDS (ACI, ASTM, ETC.) SHALL BE FOR THE LATEST OR MOST CURRENT EDITION AVAILABLE.
3. DESIGN CRITERIA:

A. GENERAL:		
RISK CATEGORY:		II
B. LIVE LOADS:		
ROOF LIVE LOAD:		20 PSF
FLOOR LIVE LOAD:		100 PSF
C. SUPERIMPOSED DEAD LOAD:		
MEP:		10 PSF
CONCENTRATED LOAD:		PER DWGS
D. SNOW LOADS:		
GROUND SNOW LOAD:		9 PSF
ROOF SNOW LOAD:		6.3 PSF
MINIMUM SNOW LOAD:		20 PSF
E. WIND DESIGN DATA:		
BASIC WIND SPEED	Vult =	97 MPH
WIND EXPOSURE		C
RISK CATEGORY:		II
F. EARTHQUAKE DESIGN DATA:		
SEISMIC IMPORTANCE FACTOR:	Ie =	1.0
RESPONSE MODIFICATION FACTOR (WOOD SHEAR WALLS):	RSHEAR =	6.5
MAPPED SPECTRAL RESPONSE ACCELERATION PARAMETERS:	Ss =	0.888g
	S1 =	0.392g
DESIGN SPECTRAL RESPONSE ACCELERATION PARAMETERS:	SDS =	0.71g
	SD1 =	0.392
SEISMIC DESIGN CATEGORY:		D
G. SOIL DATA (PER GEOTECHNICAL REPORT BY NORTHWEST TESTING LABORATORY DATED 06.15.1979)		
ALLOWABLE BEARING PRESSURE:	σ	1500 PSF*
SITE CLASS:		C

*SITE CLASS ESTIMATED BASED ON ALLOWABLE BEARING PRESSURE PROVIDED BY GEOTECHNICAL REPORT OF 8000 PSF. MAXIMUM ALLOWABLE BEARING PRESSURE USED FOR DESIGN IS 1500 PSF

SHOP DRAWINGS:

1. SHOP DRAWING SUBMITTAL REQUIREMENTS:
   A. CONTRACTOR SHALL REVIEW THE SUBMITTALS FOR COMPLETENESS AND COMPLIANCE WITH CONTRACT DOCUMENTS AND STAMP SHOP DRAWINGS DOCUMENTING THIS REVIEW PRIOR TO SUBMISSION.
   B. SUBMIT SHOP DRAWINGS TO STRUCTURAL ENGINEER FOR REVIEW. DO NOT COMMENCE FABRICATION UNTIL REVIEW PROCESS IS COMPLETED.
   C. WHEN AN ENGINEER IS REQUIRED TO SIGN AND STAMP SHOP DRAWINGS AND CALCULATIONS, THE SEAL SHALL INDICATE THAT THE ENGINEER IS REGISTERED IN THE STATE OF OREGON.
   D. SHOP DRAWINGS ARE NOT A PART OF THE STRUCTURAL DRAWINGS, AND REVIEW IS FOR GENERAL CONFORMANCE WITH DESIGN INTENT ONLY. STRUCTURAL ENGINEER'S REVIEW DOES NOT CONSTITUTE AN AUTHORIZATION TO DEVIATE FROM THE STRUCTURAL DRAWINGS OR THE BUILDING CODE.
   E. SHOP DRAWINGS WILL BE REJECTED FOR INCOMPLETENESS, LACK OF COORDINATION WITH OTHER PORTIONS OF CONTRACT DOCUMENTS, LACK OF CALCULATIONS (IF REQUIRED), OR WHERE MODIFICATIONS OR SUBSTITUTIONS ARE INDICATED WITHOUT PRIOR REVIEW.
   F. SUBMIT SHOP DRAWINGS AND CALCULATIONS TO GOVERNING CODE AUTHORITY WHEN SPECIFICALLY INDICATED OR REQUESTED.
   G. MAINTAIN A COPY OF ALL SHOP DRAWINGS ACCEPTED BY STRUCTURAL ENGINEER AT SITE DURING CONSTRUCTION PERIOD.
   H. STRUCTURAL ENGINEER REQUIRES 5 WORKING DAYS AFTER RECEIPT OF SHOP DRAWINGS AND CALCULATIONS FOR PROCESSING.
2. SUBMIT SHOP DRAWINGS TO ENGINEER FOR THE FOLLOWING:
   A. CONCRETE MIX DESIGN
   B. REINFORCING STEEL
   C. CONCRETE SLAB PLACEMENT SCHEDULE
   D. STRUCTURAL AND MISCELLANEOUS STEEL INCLUDING WELD INSERTS AND ANCHORS
   E. PRE-ENGINEERED WOOD TRUSSES
   F. PRE-ENGINEERED WOOD I-JOISTS
   G. GLUED LAMINATED TIMBER BEAMS
   H. LAMINATED VENEER LUMBER (LVL)
   I. METAL CANOPIES
   J. PRECAST CONCRETE STAIRS
3. REINFORCING STEEL SHOP DRAWINGS SHALL INDICATE REINFORCING PLACEMENT, INCLUDING SPLICE LOCATIONS AND LENGTHS. PROMPTLY NOTIFY STRUCTURAL ENGINEER PRIOR TO DEVELOPING REINFORCING STEEL SHOP DRAWINGS IF INSUFFICIENT CLEAR DISTANCES BETWEEN REINFORCING STEEL OR OTHER CONGESTION IS ENCOUNTERED. PREPARE SHOP DRAWINGS IN COMPLIANCE WITH ACI 315, PART B.
4. SUBMIT CONCRETE DESIGN MIX DATA FOR EACH TYPE AND COMPRESSIVE STRENGTH OF CONCRETE REQUIRED TO STRUCTURAL ENGINEER. BASE DESIGN MIX ON FIELD EXPERIENCE OR TRIAL MIXTURES, OR BOTH, AS STIPULATED IN ACI 318.

STRUCTURAL OBSERVATION:

1. STRUCTURAL OBSERVATION IS REQUIRED FOR THE STRUCTURAL SYSTEM IN ACCORDANCE WITH IBC SECTION 1704.5. STRUCTURAL OBSERVATION IS THE VISUAL OBSERVATION OF THE ELEMENTS AND CONNECTIONS OF THE STRUCTURAL SYSTEM AT SIGNIFICANT CONSTRUCTION STAGES AND THE COMPLETED STRUCTURE FOR GENERAL CONFORMANCE TO THE APPROVED PLANS AND SPECIFICATIONS. STRUCTURAL OBSERVATION DOES NOT WAIVE THE RESPONSIBILITY FOR THE INSPECTIONS REQUIRED OF THE BUILDING INSPECTOR OR THE SPECIAL INSPECTOR.
2. THE OWNER SHALL EMPLOY A REGISTERED DESIGN PROFESSIONAL TO PERFORM THE STRUCTURAL OBSERVATION. THE STRUCTURAL ENGINEER SHALL BE REGISTERED OR LICENSED IN THE STATE OF OREGON.
3. THE OWNER OR OWNER'S REPRESENTATIVE SHALL COORDINATE AND CALL FOR A MEETING BETWEEN THE STRUCTURAL ENGINEER RESPONSIBLE FOR THE STRUCTURAL DESIGN, STRUCTURAL OBSERVER, CONTRACTOR, AFFECTED SUBCONTRACTORS, AND DEPUTY INSPECTORS. THE PURPOSE OF THE MEETING SHALL BE TO IDENTIFY THE MAJOR STRUCTURAL ELEMENTS AND CONNECTIONS THAT AFFECT THE VERTICAL AND LATERAL LOAD SYSTEMS OF THE STRUCTURE AND TO REVIEW SCHEDULING OF THE REQUIRED OBSERVATIONS. A RECORD OF THE MEETING SHALL BE INCLUDED IN THE FIRST OBSERVATION REPORT SUBMITTED TO THE BUILDING INSPECTOR.
4. THE STRUCTURAL OBSERVER SHALL PERFORM SITE VISITS AT THOSE STEPS IN THE PROGRESS OF THE WORK THAT ALLOW FOR CORRECTION OF DEFICIENCIES WITHOUT SUBSTANTIAL EFFORT OR UNCOVERING OF THE WORK INVOLVED. AT A MINIMUM, THE FOLLOWING SIGNIFICANT CONSTRUCTION STAGES REQUIRE A SITE VISIT AND AN OBSERVATION REPORT FROM THE STRUCTURAL OBSERVER:

CONSTRUCTION STAGE	ELEMENTS/CONNECTIONS TO BE OBSERVED
A. FOUNDATIONS:	BASE MATERIAL COMPACTION. FOLLOWING PLACEMENT OF REINFORCING STEEL, EMBEDDED PLATES AND ANCHOR BOLTS, ETC.
B. STRUCTURAL STEEL:	FOLLOWING FABRICATION AND AT 30% STAGE OF STEEL ERECTION
C. DIAPHRAGM AND SHEARWALL NAILING	AT 95% STAGE OF INSTALLATION AND FASTENING.

5. THE STRUCTURAL OBSERVER SHALL PREPARE A REPORT FOR EACH SIGNIFICANT STAGE OF CONSTRUCTION OBSERVED. COPIES OF THE REPORT SHALL ALSO BE GIVEN TO THE OWNER, CONTRACTOR, AND BUILDING DEPARTMENT.
6. A FINAL, STAMPED OBSERVATION REPORT MUST BE SUBMITTED TO THE BUILDING OFFICIAL, OWNER, AND STRUCTURAL ENGINEER THAT STATES THAT THE SITE VISITS HAVE BEEN MADE, THAT ALL REPORTED DEFICIENCIES HAVE, TO THE BEST OF THE STRUCTURAL OBSERVER'S KNOWLEDGE, BEEN CORRECTED, AND THAT THE STRUCTURAL SYSTEM IN GENERAL CONFORMS TO THE APPROVED PLANS AND SPECIFICATIONS.

SPECIAL INSPECTION

1. THE TESTING LABORATORY SHALL SUBMIT REPORTS INDICATING RESULTS AND OBSERVATIONS OF TESTS AND INSPECTIONS AND STATING COMPLIANCE OR NONCOMPLIANCE WITH CONTRACT DOCUMENTS TO STRUCTURAL ENGINEER AND TO GOVERNING CODE AUTHORITY. CONTRACTOR SHALL REIMBURSE OWNER FOR COSTS RELATED TO TESTS AND INSPECTIONS OF UNIDENTIFIABLE MATERIALS OR MATERIALS FURNISHED WITHOUT CERTIFIED LABORATORY TEST REPORTS, MATERIALS FOUND DEFICIENT AFTER INITIAL TESTS AND INSPECTIONS, OR MATERIALS REPLACING DEFICIENT MATERIALS.
2. PROVIDE CEMENT, AGGREGATES, REINFORCING STEEL, STRUCTURAL STEEL, HIGH-STRENGTH BOLTS, ETC., FROM IDENTIFIABLE TESTED STOCK. SUBMIT CERTIFIED LABORATORY TEST REPORTS TO STRUCTURAL ENGINEER AND TO GOVERNING CODE AUTHORITY. IF MATERIALS CANNOT BE IDENTIFIED OR IF CERTIFIED LABORATORY TEST REPORTS CANNOT BE MADE AVAILABLE, TESTING LABORATORY WILL PERFORM TESTS TO DETERMINE CONFORMANCE WITH CONTRACT DOCUMENTS AS DIRECTED BY STRUCTURAL ENGINEER.
3. TESTING LABORATORY SHALL PROVIDE SPECIAL INSPECTION, COMPLYING WITH IBC SECTION 1701 (UNO), FOR THE FOLLOWING:
   A. FOUNDATION PREPARATION
   B. REINFORCING STEEL PLACEMENT
   C. EMBEDDED BOLTS & PLATES
   D. CONCRETE SAMPLING & STRENGTH TESTING
   E. SHOP & FIELD WELDING
   F. HIGH-STRENGTH BOLT INSTALLATION
   G. POST-INSTALLED CONCRETE ANCHORS
   H. DIAPHRAGM AND SHEARWALL NAILING

FOUNDATIONS:

1. FOOTING ELEVATIONS ARE AS SHOWN ON DRAWINGS.
2. BRING TO REQUIRED SUBGRADE WITH COMPACTED 3/4"-0" CRUSHED ROCK FILL. PLACE A 12" MINIMUM LAYER UNDER ALL CONCRETE FOOTINGS.
3. PLACE FILL IN 6" LIFTS COMPACTED TO 95% MAXIMUM DRY DENSITY.
4. ALL EXTERIOR FOOTINGS SHALL HAVE MINIMUM DEPTH OF 1'-6" BELOW LOWEST ADJACENT FINAL FINISH FLOOR OR GRADE.
5. CONTRACTOR SHALL BRACE OR PROTECT ALL BUILDING AND PIT WALLS BELOW GRADE FROM LATERAL LOADS UNTIL ATTACHING FLOORS ARE COMPLETELY IN PLACE AND HAVE ATTAINED FULL DESIGN STRENGTH. CONTRACTOR SHALL PROVIDE FOR THE DESIGN, PERMITS AND INSTALLATION OF SUCH BRACING. RETAINING WALLS SHALL HAVE ATTAINED FULL DESIGN STRENGTH PRIOR TO BEING BACKFILLED.
6. CONTRACTOR SHALL PROVIDE FOR THE DESIGN AND INSTALLATION OF ALL CRIBBING, SHEATHING AND SHORING REQUIRED TO SAFELY RETAIN ALL EARTH BANKS.
7. ALL WALKWAYS AND OTHER EXTERIOR SLABS ON GRADE MAY NOT BE SHOWN ON THE STRUCTURAL PLANS. USE 4" THICK CONCRETE SLABS UNLESS SHOWN OTHERWISE.
8. CONTRACTOR SHALL PROVIDE FOR DE-WATERING OF EXCAVATIONS FROM SURFACE WATER, GROUND WATER OR SEEPAGE.

CONCRETE (CAST IN PLACE):

1. ALL CONCRETE WORK TO CONFORM TO IBC CHAPTER 19.
2. PROVIDE NORMAL WEIGHT AGGREGATES OF NATURAL SAND AND ROCK COMPLYING WITH ASTM C33 (AGGREGATE SIZE).
3. PROVIDE PORTLAND CEMENT CONFORMING TO ASTM C150, TYPE II.
4. ALL CONCRETE SHALL BE NORMAL WEIGHT (145 PCF) AND SHALL DEVELOP A MINIMUM 28 DAY LABORATORY CURED, COMPRESSIVE CYLINDER STRENGTH OF:
   - 4,000 PSI FOR FOUNDATIONS,STEMWALLS AND INTERIOR SLABS ON GRADE
5. SAMPLES FOR STRENGTH TESTS OF EACH CLASS OF CONCRETE PLACED EACH DAY SHALL BE TAKEN NOT LESS THAN ONCE A DAY, NOR LESS THAN ONCE FOR EACH 50 CUBIC YARDS OF CONCRETE, NOR LESS THAN EACH 5000 SQUARE FEET OF SURFACE AREA FOR SLABS OR WALLS. FREQUENCY OF TESTING MAY BE CHANGED AT THE DISCRETION OF THE ENGINEER. SAMPLES AS IDENTIFIED IN THESE SPECIFICATIONS SHALL CONSIST OF A MINIMUM OF (5) CAST CYLINDERS: (1) TO BE CURED UNDER JOB CONDITIONS AND (4) IN AN APPROVED COMMERCIAL LABORATORY. CYLINDERS SHALL BE TESTED FOR COMPRESSIVE STRENGTH AS FOLLOWS:
   - (2) LAB CURED AT 7 DAYS
   - (2) LAB CURED AT 28 DAYS
   - (1) FIELD CURED AT 28 DAYS

   SLUMP, AIR ENTRAINMENT, LOCATION IN STRUCTURE, ETC. SHALL BE MEASURED AND RECORDED FOR EACH SET OF CYLINDERS, PER ASTM STANDARDS.
6. CONCRETE CYLINDER AND TESTING SHALL CONFORM TO ASTM STANDARDS.
7. CONCRETE, FORMS, MIXING, PLACING, AND CURING SHALL CONFORM TO THE ACI MANUAL OF CONCRETE PRACTICE, LATEST EDITION, AND SPECIFICATIONS.
8. CONCRETE SLUMP NOT TO EXCEED 4 (± 1) INCHES. FOR SLAB ON GRADE AND WALLS, SLUMP NOT TO EXCEED 4 (+0, -1) INCHES.
9. HORIZONTAL CONCRETE EXPOSED TO WEATHER SHALL CONTAIN MINIMUM 4% AIR ENTRAINMENT.
10. CONCRETE SHALL BE PLACED IN ONE CONTINUOUS OPERATION.
11. SIZE AND LOCATION OF SLEEVES THRU FLOORS OR WALLS FOR MECHANICAL OR ELECTRICAL ACCESS SHALL BE APPROVED BY THE ENGINEER PRIOR TO PLACING CONCRETE.
12. DO NOT USE CONCRETE OR GROUT CONTAINING CHLORIDES.
13. DO NOT EMBED CONDUITS, PIPES, OR SLEEVES IN STRUCTURAL CONCRETE EXCEPT WHERE SPECIFICALLY DETAILED OR ACCEPTED BY STRUCTURAL ENGINEER. LOCATE ELECTRICAL CONDUIT 3" APART MINIMUM AND WITHIN MIDDLE THIRD OF MEMBER.
14. MAINTAIN CONCRETE ABOVE 50 DEGREES FAHRENHEIT AND IN A MOIST CONDITION FOR A MINIMUM OF 7 DAYS AFTER PLACEMENT UNLESS OTHERWISE ACCEPTED BY STRUCTURAL ENGINEER.
15. ALL ANCHOR BOLTS IN CONCRETE SHALL CONFORM TO ASTM SPECIFICATION F1554 GR36 UNO AND SHALL BE OF THE SIZE AND GRADE INDICATED ON THE DRAWINGS.
16. FORM EXPOSED CORNERS OF WALLS WITH 3/4-INCH CHAMFERS UNLESS DETAILED OTHERWISE.
17. BASE PLATES AND ANCHOR BOLTS BELOW GRADE SHALL BE COVERED WITH A MINIMUM OF 3" OF CONCRETE.
18. APPROVED BONDING AGENT MANUFACTURERS AS FOLLOWS:
   - SIKA
   - EUCLID
   - W.R. MEADOWS
   - ALTERNATIVE MANUFACTURERS TO BE SENT TO STRUCTURAL ENGINEER FOR APPROVAL
19. SUBMIT SHOP DRAWINGS TO STRUCTURAL ENGINEER INDICATING LOCATIONS OF CONCRETE CONSTRUCTION JOINTS FOR REVIEW PRIOR TO PLACING CONCRETE. LOCATE JOINTS TO MINIMIZE EFFECTS OF SHRINKAGE. JOINT LOCATIONS SHALL ALSO BE PLACED AT POINTS OF LOW STRESS AND SHALL CONFORM TO ACI 318.

NON-SHRINK GROUT:

1. CONFORM WITH ASTM C1107 AND CRD-C621 CORPS OF ENGINEERS "SPECIFICATIONS FOR NON-SHRINK GROUT".
2. SPECIFIED 28 DAY COMPRESSIVE STRENGTH: 5,000 PSI
3. DO NOT PRE-GROUT PLATES.

REINFORCING STEEL:

1. REINFORCING BARS SHALL BE NEW BILLET STEEL AND SHALL CONFORM TO ASTM A615, GRADE 60 UNO.
2. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A-185
3. ALL WELDED REINFORCING STEEL, METAL INSERTS, AND CONNECTIONS SHALL CONFORM TO ACI AND CRSI STANDARDS.
4. ALL WELDING OF REINFORCING STEEL SHALL COMPLY WITH AWS D1.4. IF WELDING OF REINFORCING STEEL OTHER THAN A706 IS DESIRED, SUBMIT PROPOSED PROCEDURE, INDICATING CONFORMANCE TO CODE AND REQUIREMENTS OF GOVERNING CODE AUTHORITY, TO STRUCTURAL ENGINEER FOR ACCEPTANCE AND TO GOVERNING CODE AUTHORITY FOR APPROVAL PRIOR TO EXECUTION. WELDERS SHALL BE CERTIFIED AS REQUIRED BY GOVERNING CODE AUTHORITY.
5. NO TACK WELDING OF REINFORCING STEEL IS PERMITTED WITHOUT PRIOR REVIEW BY STRUCTURAL ENGINEER.
6. SECURELY TIE ANCHOR BOLTS, REINFORCING STEEL, INSERTS, ETC., IN PLACE PRIOR TO POURING CONCRETE OR GROUT. BARS ADJACENT TO EARTH SHALL BE SUPPORTED BY CEMENT MORTAR CUBES.
7. ALL REINFORCING BAR BENDS SHALL BE MADE COLD. BARS SHALL NOT BE RE-BENT.
8. REINFORCEMENT SHALL BE DETAILED, FABRICATED, AND PLACED IN ACCORDANCE WITH ACI CODE 318 AND ACI MANUAL 315 UNO. ALL REINFORCEMENT SHALL BE FREE OF LOOSE MILL AND RUST SCALE, OIL, DIRT, AND COATINGS OF ANY MANNER THAT WILL REDUCE BOND. ALL REINFORCEMENT SHALL BE CONTINUOUS WITH ADEQUATE LAPS AS SPECIFIED HEREIN.
9. DOWELS BETWEEN FOOTINGS AND WALLS SHALL BE THE SAME GRADE, SIZE AND SPACING AS THE VERTICAL REINFORCING, RESPECTIVELY, UNO.
10. CHAIRS OR SPACERS FOR REINFORCING SHALL BE PLASTIC OR PLASTIC COATED WHEN RESTING ON EXPOSED SURFACES.
11. NO BARS PARTIALLY EMBEDDED IN HARDENED CONCRETE SHALL BE FIELD BENT UNLESS SPECIFICALLY SO DETAILED AND REVIEWED BY THE STRUCTURAL ENGINEER.
12. REINFORCING LAP SPLICES (INCHES) SHALL CONFORM WITH ACI 318 "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE", AS SHOWN BELOW, UNO ON DRAWINGS.

	3,000 PSI		4,000 PSI		5,000 PSI	
BAR SIZE	TOP BARS	OTHER BARS	TOP BARS	OTHER BARS	TOP BARS	OTHER BARS
#3	28"	22"	24"	19"	22"	17"
#4	37"	29"	32"	25"	29"	22"
#5	47"	36"	40"	31"	36"	28"
#6	56"	43"	48"	37"	43"	33"
#7	81"	63"	70"	54"	63"	49"
#8	93"	72"	80"	62"	72"	55"
#9	105"	81"	91"	70"	81"	63"
#10	118"	91"	102"	79"	91"	70"
#11	131"	101"	113"	87"	101"	78"

LAP SPICE NOTES:
   A. TOP BARS ARE DEFINED AS HORIZONTAL BARS PLACED SUCH THAT MORE THAN 12" OF CONCRETE IS PLACED BELOW THE BARS.
   B. SPLICE LENGTH BASIS: CLASS B, CASE 1 SPLICE, WITH CENTER-TO-CENTER BAR SPACING OF GREATER THAN (3) BAR DIAMETERS.
   C. INCREASE SPLICE LENGTHS BY 50% IF CLEAR DISTANCES ARE LESS THAN 2 BAR DIAMETERS, BUT NEVER LESS THAN MINIMUM CLEAR DISTANCES INDICATED BELOW.

13. MAINTAIN THE FOLLOWING MINIMUM CLEAR DISTANCES BETWEEN REINFORCING STEEL AND FACE OF CONCRETE UNO:
   A. CONCRETE CAST AGAINST AND PERMANENTLY IN CONTACT WITH GROUND: 3"
   B. CONCRETE EXPOSED TO WEATHER OR IN CONTACT WITH GROUND: 2"
   C. CONCRETE NOT EXPOSED TO EARTH OR WEATHER:
      - SLABS, WALLS, AND JOISTS, #11 AND SMALLER 3/4"
      - BEAMS, COLUMNS, PEDESTALS AND TENSION TIES 1-1/2"
14. PLACE (2) #5 BARS x OPENING DIMENSION PLUS 4'-0" EACH SIDE OF ALL OPENINGS AND (2) #5 x 4'-0" DIAGONAL BARS AT EACH CORNER OF ALL SLAB OPENINGS GREATER THAN 1'-6".

ANCHORS IN CONCRETE

1. INSTALL ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.
2. INSTALL WITH IBC SPECIAL INSPECTION ACCORDING TO SPECIAL INSPECTION PROGRAM.
3. ALL ANCHORS SHALL BE ICC/ICBO APPROVED
4. PROVIDE STAINLESS STEEL OR HOT-DIPPED GALVANIZED ANCHORS INSTALLED OUTDOORS OR EXPOSED TO WEATHER
5. ADHESIVE ANCHORS, WHERE SPECIFIED ON THE DRAWINGS, SHALL CONFORM TO THE FOLLOWING:
   - CONCRETE EPOXY ANCHORS: HILTI HIT-RE 500-V3 (ESR-3814)
6. DRILLING SHALL BE PERFORMED WITH A ROTARY HAMMER DRILL AND CARBIDE TIPPED DRILL BIT IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS AND THE APPLICABLE ICC EVALUATION REPORT.
7. BORE HOLE CLEANING PROCEDURES MUST COMPLY WITH THE MANUFACTURER'S INSTRUCTIONS AND THE APPLICABLE ICC EVALUATION REPORT IN ORDER TO PRODUCE A DRY, DUST-FREE HOLE.
8. INJECTION OF ADHESIVE SHALL BE PERFORMED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND THE APPLICABLE ICC EVALUATION REPORT IN ORDER TO PRODUCE AN AIR-VOID FREE INJECTION.
9. SPECIAL CONDITIONS SUCH AS WATER SATURATED CONCRETE, WATER-FILLED HOLES, UNDERWATER AND OVERHEAD INSTALLATIONS MUST BE APPROVED BY THE ENGINEER OF RECORD AND COMPLY WITH THE APPLICABLE ICC-ES REPORT.
10. STEEL ANCHORING ELEMENTS SHALL BE THE SIZE AND GRADE SHOWN ON THE DRAWINGS AND MUST BE CLEAN, DRY AND FREE OF ANY OIL OR CONTAMINANTS.
11. SUBSTITUTIONS FOR ANCHOR SYSTEMS MUST BE APPROVED BY THE STRUCTURAL ENGINEER OF RECORD PRIOR TO INSTALLATION AND SHALL HAVE A VALID ICC-ES EVALUATION IN ACCORDANCE WITH THE APPLICABLE BUILDING CODE.
12. ALL ANCHOR EMBED DEPTHS SPECIFIED ON THESE DRAWINGS ARE EFFECTIVE EMBEDMENT DEPTHS. ADDITIONAL ANCHOR LENGTH AND OR HOLE DEPTH SHALL BE PROVIDED AS REQUIRED BY THE ANCHOR MANUFACTURER AND ASSOCIATED CODE APPROVALS.

STRUCTURAL STEEL (MATERIAL & FABRICATION):

1. STRUCTURAL STEEL DETAILING, FABRICATION AND ERECTION SHALL CONFORM TO THE BUILDING CODE AND AISC STANDARDS USING LOADS AS DEFINED IN AISC-360 SECTION B3-3 "DESIGN FOR STRENGTH USING LOAD AND RESISTANCE FACTOR DESIGN (LRFD)".
2. STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING, UNO:

WIDE FLANGE SHAPES	ASTM A992	GRADE 50
PLATES AND BARS	ASTM A36	GRADE 36
CHANNELS AND ANGLES	ASTM A36	GRADE 36
HOLLOW ROUND SECTIONS	ASTM A500-B	GRADE 42
HOLLOW RECTANGULAR SECTIONS	ASTM A500-B	GRADE 46
ROUND PIPE	ASTM A53-B	GRADE 35
ANCHOR RODS EMBEDDED IN CONCRETE	ASTM F-1554	GRADE 36
CONNECTION BOLTS	A325-N-STD	
OPEN CHANNEL STRUT	ASTM A653	GRADE 33

3. FABRICATE AND ERECT STRUCTURAL STEEL IN COMPLIANCE WITH THE LATEST REVISION OF AISC 360 "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS" AND IBC CHAPTER 22.
4. AISC QUALITY CERTIFIED LICENSED FABRICATOR IS REQUIRED FOR ALL STRUCTURAL STEEL.
5. FILL ALL STRUT FITTINGS WITH 1/2" DIA A307 BOLTS.
6. VERIFY ALL MATERIAL FINISHES WITH OWNER.
7. HEADED STUD CONNECTORS (WHS) SHALL CONFORM TO AWS D1.1 SECTION 7 AND SHALL BE FABRICATED FROM COLD DRAWN STEEL CONFORMING TO ASTM A-108 WITH A MINIMUM TENSILE STRENGTH OF 65KSI. STUD WELDING, INSPECTION AND TESTING SHALL CONFORM TO AWS REQUIREMENTS.
8. ALL STEEL EXPOSED TO WEATHER, MOISTURE, SOIL, OR AS NOTED SHALL BE HOT DIP GALVANIZED PER ASTM A123 UNO. BY ARCHITECTURAL DRAWINGS AND SPECIFICATIONS.
9. WHERE SPECIFIED, GALVANIZED STEEL SHALL CONFORM TO ASTM A123 WITH MINIMUM COATING THICKNESS GRADE 60. VENT HOLES ARE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE INDICATED ON THE SHOP DRAWINGS.
10. HIGH-STRENGTH BOLTS:
   A. ALL BOLTS SHALL BE INSTALLED AS PRETENSIONED HIGH-STRENGTH BOLTS COMPLYING WITH ASTM A325N UNLESS NOTED OTHERWISE.
   B. MINIMUM PRETENSION OF HIGH-STRENGTH BOLTS SHALL COMPLY WITH TABLE 8.1 OF "SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS" (RCSC 2009).
   C. VERIFICATION OF MINIMUM PRETENSION OF HIGH-STRENGTH BOLTED CONNECTIONS TO COMPLY WITH ONE OF THE FOLLOWING METHODS PER RCSC 2009, SECTION 8.2:
      i. TURN-OF-NUT PRETENSIONING
      ii. CALIBRATED-WRENCH PRETENSIONING
      iii. DIRECT-TENSION-INDICATOR PRETENSIONING
   D. INSPECTION OF HIGH-STRENGTH BOLTED CONNECTIONS TO COMPLY WITH SPECIFICATIONS SECTION N5.6 AND AISC 341 CHAPTER J.
   E. INSPECTION OF SLIP-CRITICAL CONNECTIONS TO COMPLY WITH RCSC 2009 SECTION 9.3.

STRUCTURAL STEEL (WELDING):

1. BASIC REQUIREMENTS
   A. WELD STRUCTURAL STEEL IN COMPLIANCE WITH ANSI/AWS D1.1 AND AISC SPECIFICATION, CHAPTER J.
   B. WELDERS SHALL BE CERTIFIED AS REQUIRED IN THE PLANS AND BY GOVERNING CODE AUTHORITY.
   C. WELDING SHALL BE DONE BY ELECTRIC ARC PROCESS USING LOW-HYDROGEN ELECTRODES WHOSE SPECIFIED TENSILE STRENGTH IS NOT LESS THAN 70 KSI UNO, AND 80 KSI FOR ALL ASTM 913 STEEL.
   D. WELDING MAY BE PERFORMED USING SUBMERGED ARC PROCESS WITH AUTOMATIC WELDING (SAW-1).
   E. SUBMIT ALL PRE-QUALIFIED JOINT WELDING PROCEDURES FOR REVIEW.
   F. SHOP WELDS MUST BE PERFORMED IN AN AISC CERTIFIED FABRICATOR'S SHOP.
   G. UNLESS A LARGER SIZE FILLET WELD IS INDICATED, PROVIDE MINIMUM SIZE OF WELD PER AISC SPECIFICATION, SECTION J2 AND TABLE J2.4.
2. PROJECT WELDING REQUIREMENTS
   A. THE PROJECT WELDING REQUIREMENTS SHALL APPLY TO ALL SHOP AND FIELD WELDS.
   B. THE INSPECTOR SHALL VERIFY COMPLIANCE WITH THE APPROVED PROJECT WELDING REQUIREMENTS. ANY DEVIATION OR LACK OF COMPLIANCE WITH THE APPROVED REQUIREMENTS SHALL BE REPORTED IMMEDIATELY TO THE STRUCTURAL ENGINEER AND CONTRACTOR.
   C. ALL FULL PENETRATION WELDS SHALL BE INSPECTED BY ULTRASONIC OR OTHER APPROVED NON-DESTRUCTIVE TESTING PROCEDURES. RESULTS OF TESTS SHALL BE SUBMITTED IN REPORT FORM TO THE ENGINEER.
   D. IN ADDITION TO REQUIREMENTS DESCRIBED ELSEWHERE IN THE CONTRACT DOCUMENTS, THE APPROVED PROJECT WELDING REQUIREMENTS SHALL, AT A MINIMUM, CONSIST OF THE FOLLOWING (REFER TO AWS D1.1):
      i. WELDING PROCEDURE SPECIFICATION (WPS) FOR EACH WELD AND POSITION AS REQUIRED BY AWS D1.1.
      ii. SUPPLEMENTAL WELDING PROCEDURE.
      iii. SHOP DRAWINGS THAT REFERENCE THE APPROPRIATE WPS FOR EACH WELD REQUIRED FOR EACH CONNECTION AND REQUIRED SUPPLEMENTAL WELDING PROCEDURE.
      iv. WELDER PERFORMANCE QUALIFICATIONS APPROVED BY THE DEPUTY INSPECTOR.
      v. QUALIFICATION BY TESTING OF ANY WELDING PROCEDURE THAT IS NOT PRE-QUALIFIED PER AWS D1.1.

7-11-24

REGISTERED PROFESSIONAL ENGINEER
92664PE
OREGON
JANUARY 11, 2022
PATRICK T. LEONARD
RENEWS: 12/31/2024

DRAWING REVISIONS

NO.	DATED	DESCRIPTION
0	08-01-2024	ISSUED FOR BID

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BIDDING DOCUMENTS
07.11.2024

STRUCTURAL NOTES

S002

GENERAL STRUCTURAL NOTES

SAWN FRAMING LUMBER:

1. ALL SAWN LUMBER SHALL BE DOUGLAS FIR, S4S, GRADED IN ACCORDANCE WITH WCLIB RULES # 16, OF THE FOLLOWING GRADES UNO:
   - STUDS, JOISTS, PLATES, HEADERS, BLOCKING — DF-L NO. 2
   - 4x BEAMS — DF-L NO. 2
   - 6x BEAMS, POSTS — DF-L NO. 2
2. ALL 2x LUMBER SHALL BE S-DRY, UNLESS NOTED OTHERWISE.
3. DOUBLE ALL JOISTS UNDER ALL PARALLEL PARTITIONS.
4. ALL WOOD IN PERMANENT CONTACT WITH CONCRETE TO BE PRESSURE TREATED. TREAT ALL CUT ENDS.

PLYWOOD SHEATHING:

1. ALL PLYWOOD SHEATHING SHALL BE PLYWOOD, APA GRADE TRADEMARKED C-D WITH EXTERIOR GLUE AND PANEL IDENTIFICATION INDEX SHALL BE AS FOLLOWS UNO:
   - ROOF SHEATHING — 23/32" INDEX 48/24
   - WALLS — 15/32" INDEX 24/16
2. FLOOR AND ROOF PLYWOOD SHALL BE INSTALLED WITH FACE GRAIN PERPENDICULAR TO SUPPORTS AND END JOINTS SHALL BE STAGGERED.
3. BLOCK ALL SHEATHING WITH 2 x 4 BLOCKING AT ALL EDGES UNO.

NAILING & FASTENERS:

1. NAILING INDICATED ON PLANS AND DETAILS ARE COMMON NAILS. MINIMUM FRAMING SHALL CONFORM TO IBC TABLE 2304.9.1. 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. PLYWOOD NAILING SHALL BE AS FOLLOWS:
   - ROOF SHEATHING — 10D NAILS AT 6" OC AT PANEL EDGES, 12" OC AT INTERMEDIATE SUPPORTS UNO.
   - FLOOR SHEATHING — 10D NAILS AT 6" OC AT PANEL EDGES, 12" OC AT INTERMEDIATE SUPPORTS UNO.
   - WALL SHEATHING — 10D NAILS AT 6" OC AT PANEL EDGES, 12" OC AT INTERMEDIATE SUPPORTS UNO.
   - BLOCK ALL UNSUPPORTED SHEATHING EDGES IN ROOF DIAPHRAGMS AND SHEAR WALLS.
4. ALL BOLTED CONNECTIONS SHALL BE MADE WITH MACHINE BOLTS CONFORMING TO ASTM A307. ALL BOLTS AND LAGS SHALL BE INSTALLED WITH STANDARD WROUGHT WASHERS, UNLESS NOTED OTHERWISE. PRE-DRILL FOR ALL LAG BOLTS.
5. JOIST HANGERS, HOLD DOWNS, AND OTHER FRAMING ACCESSORIES ARE REFERRED TO ON PLANS BY PARTICULAR TYPE AS MANUFACTURED BY SIMPSON STRONG-TIE COMPANY - SAN LEANDRO, CA. EQUIVALENT ALTERNATE FITTINGS, HARDWARE, AND MANUFACTURER IS ACCEPTABLE UPON PRIOR APPROVAL OF THE ENGINEER. ALL HARDWARE IS TO BE FASTENED PER MANUFACTURER'S SPECIFICATIONS UNLESS NOTED OTHERWISE.
6. EPOXY ANCHOR BOLTS INDICATED ON DRAWINGS SHALL BE AS MANUFACTURED BY HILTI CO. OR APPROVED EQUAL. ALL APPROVED EQUALS MUST BE APPROVED BY THE ENGINEER UPON REVIEW OF DOCUMENTATION PROVIDED BY THE CONTRACTOR SHOWING THE PROPOSED MANUFACTURER'S VALUES ALONG WITH THE VALUES OF THE ORIGINALLY SPECIFIED MANUFACTURER. DEPTH OF EMBEDMENT SHALL BE AS CALLED FOR ON THE DRAWINGS.
7. SILLS AT WALLS SHALL BE BOLTED TO CONCRETE WITH 5/8" DIAMETER x 10" LONG ANCHOR BOLTS OR 5/8" DIAMETER EPOXY ANCHOR BOLTS AT 4'-0" O.C. MAXIMUM UNLESS NOTED OTHERWISE AND WITHIN 1'-0" OF SILL PLATE ENDS, CORNERS, OR SPLICES. UNLESS DETAILED OTHERWISE, USE 3"x3"x1/4" STEEL PLATE WASHERS AT ALL BOLTS IN SEISMIC DESIGN CATEGORY C OR D.

STRUCTURAL COMPOSITE LUMBER

1. ALL STRUCTURAL COMPOSITE LUMBER (SCL) SHALL BE VERSA-LAM 2.0 3100 (BEAMS) OR VERSA-LAM 1.7 2650 (COLUMNS) LAMINATED VENEER LUMBER (LVL) AS MANUFACTURED BY BOISE-CASCADE OR AN APPROVED EQUIVALENT.

2. INSTALLATION OF LVL's SHALL BE IN ACCORDANCE WITH MANUFACTURERS RECOMMENDED PROCEDURES. DO NOT DRILL OR CUT ANY STRUCTURAL HEADER OR BEAM WITHOUT APPROVAL OF ARCHITECT/ENGINEER.

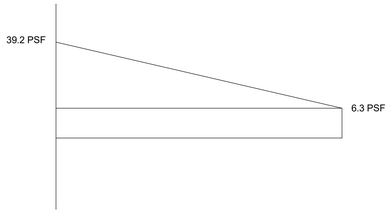
DEFERRED SUBMITTALS

1. CONTRACTOR SHALL SUBMIT DESIGNS, SHOP DRAWINGS, AND CALCULATIONS BEARING THE STAMP OF A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF OREGON TO THE ENGINEER OF RECORD FOR REVIEW OF THE FOLLOWING ITEMS:

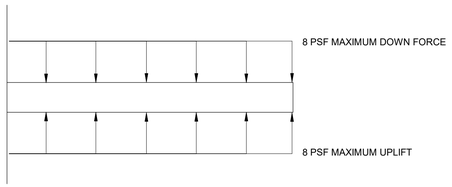
   A. METAL CANOPIES AT ENTRANCES.

   - SEE ARCHITECTURAL DRAWINGS.
   - DESIGN FOR SNOW AND WIND LOADS SHOWN.
   - DEADLOAD ALLOWANCE FOR CANOPY SELF WEIGHT IS 10 PSF.

   B. PRECAST CONCRETE STAIRS
   - DESIGN FOR STAIR LOADS PER OSSC 2022 TABLE 1607.1



CANOPY DESIGN SNOW LOAD



CANOPY DESIGN WIND LOAD (ASD)

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92664PE
OREGON
JANUARY 11, 2022
PATRICK T. LEONARD
RENEWS: 12/31/2024

DRAWING REVISIONS

NO.	DATED	DESCRIPTION
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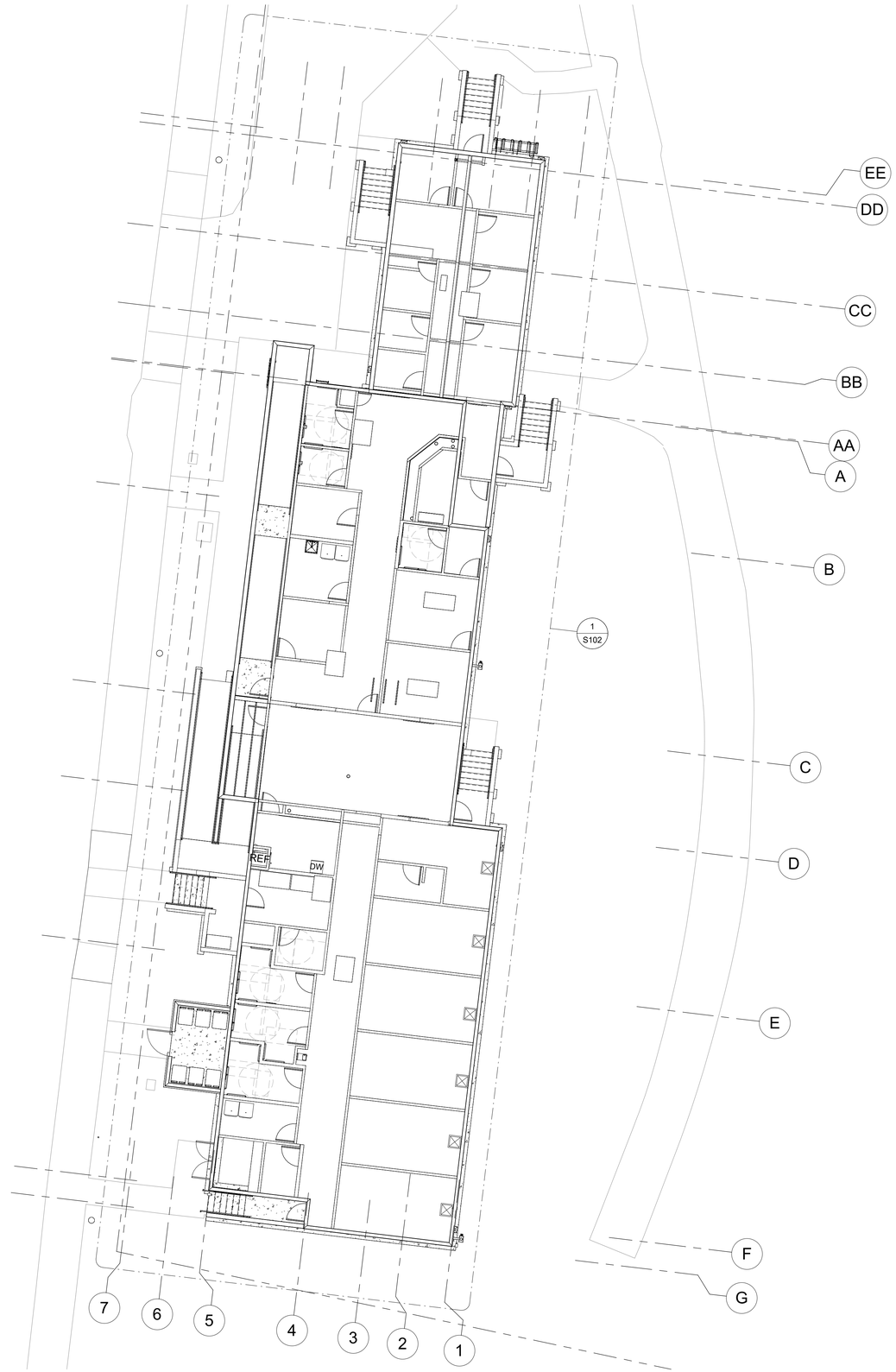
07.11.2024

STRUCTURAL NOTES

S003



N

1 S101 OVERALL PLAN
1" = 10'-0"

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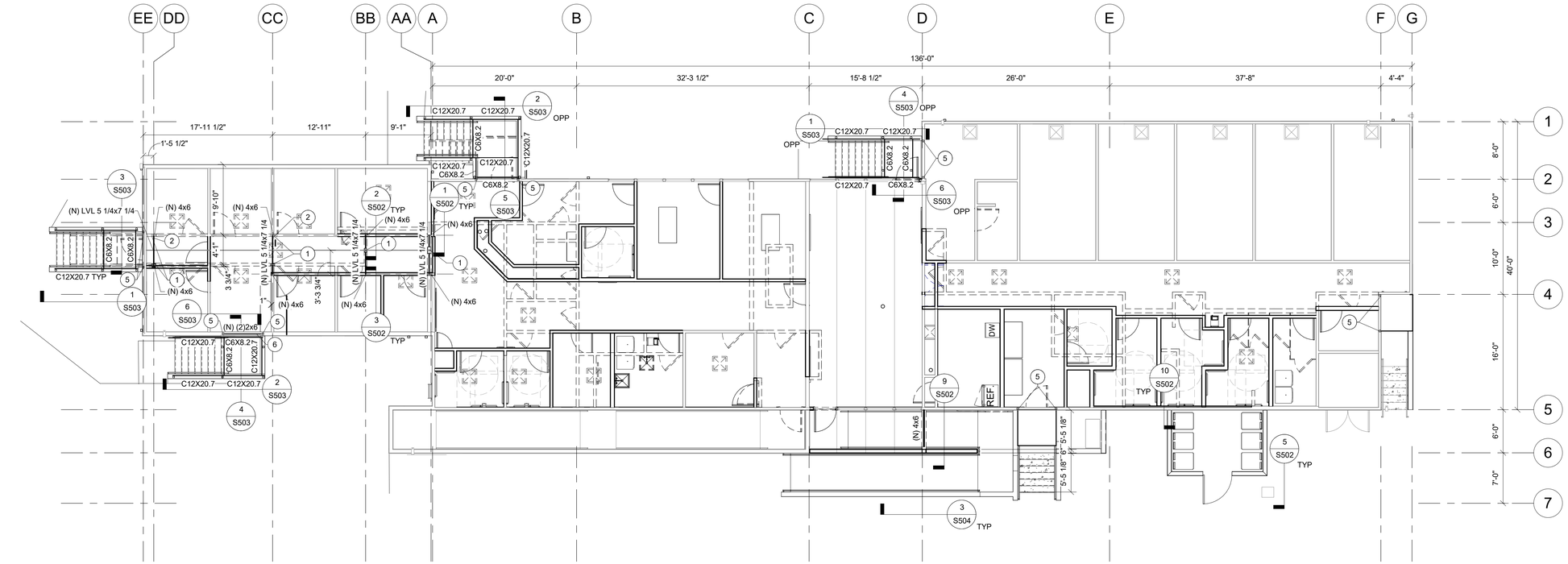
STRUCTURAL SITE PLAN

S101



N

2 S102 FIRST FLOOR PLAN
1/8" = 1'-0"

KEYNOTES

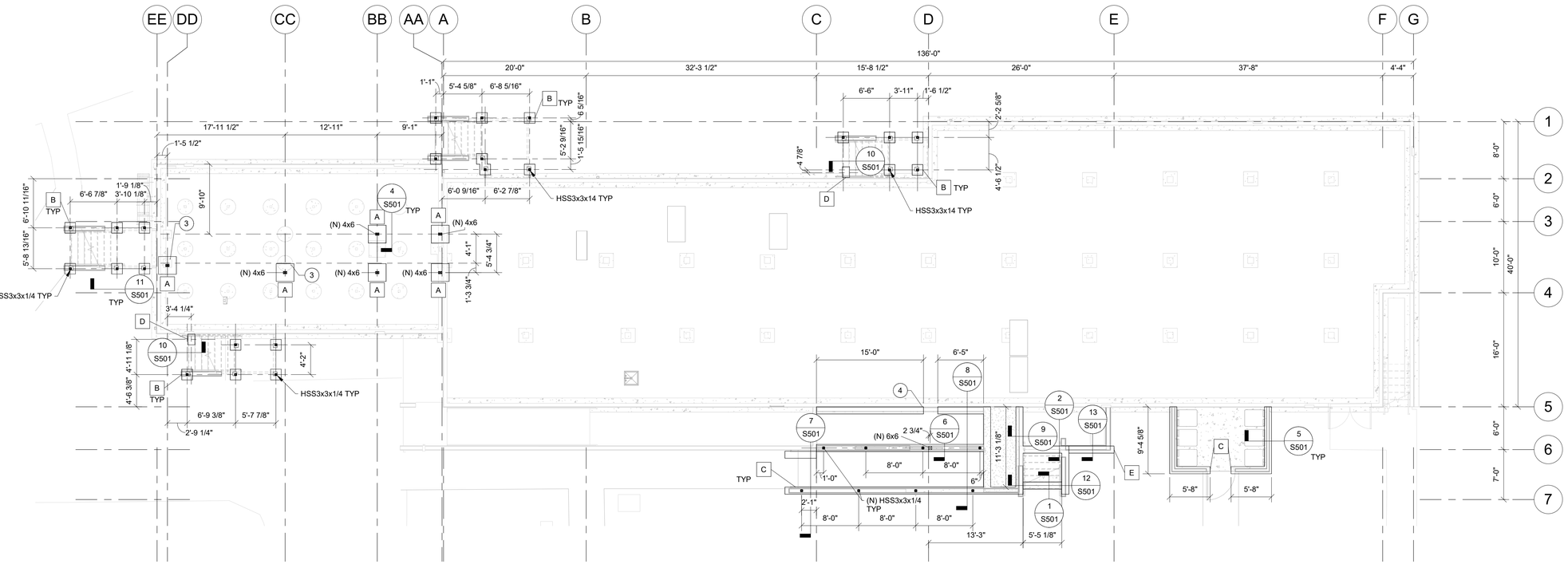
1 DEMO EXISTING COLUMN
2 DEMO EXISTING BEAM
3 DEMO EXISTING FOOTING
4 INTERRUPT CONTINUOUS FOOTING AT EXISTING FOOTING
5 HSS3x3x1/4 CANOPY SUPPORT COLUMN. SEE DETAIL 11/S502. COORDINATE FINAL LOCATION WITH CANOPY SUPPLIER.
6 REPLACE EXISTING HEADER WITH NEW HEADER AT NEW ELEVATION FOR NEW DOOR. SEE DETAIL 1/S504

DRAWING LEGEND

X DENOTES FOOTING TYPE SEE SCHEDULE

FOOTING SCHEDULE						
	SIZE			STEEL REINFORCEMENT		
TYPE	WIDTH	LENGTH	THICKNESS	LONGITUDINAL	TRANSVERSE	COMMENTS
A	2'-6"	2'-6"	1'-8"	#5 @ 12" OC	#5 @ 12" OC	SEE DETAIL 4/S501
B	1'-6"	1'-6"	8"	#4@12" OC	#4@12" OC	SEE DETAIL 11/S501
C	1'-0"	CONTINUOUS	8"	#4@12" OC	#4@12" OC	
D	1'-0"	1'-6"	1'-8"	#5 @ 12" OC	#5 @ 12" OC	SEE DETAIL 10/S501
E	1'-0"	CONTINUOUS	REQ	#5 @ 12" OC	#5 @ 12" OC	SEE DETAIL 13/S501

NOTE:
BOTTOM OF ALL FOOTINGS TO BE PLACED 18" BELOW GRADE MINIMUM.



N

1 S102 FOUNDATION PLAN
1/8" = 1'-0"

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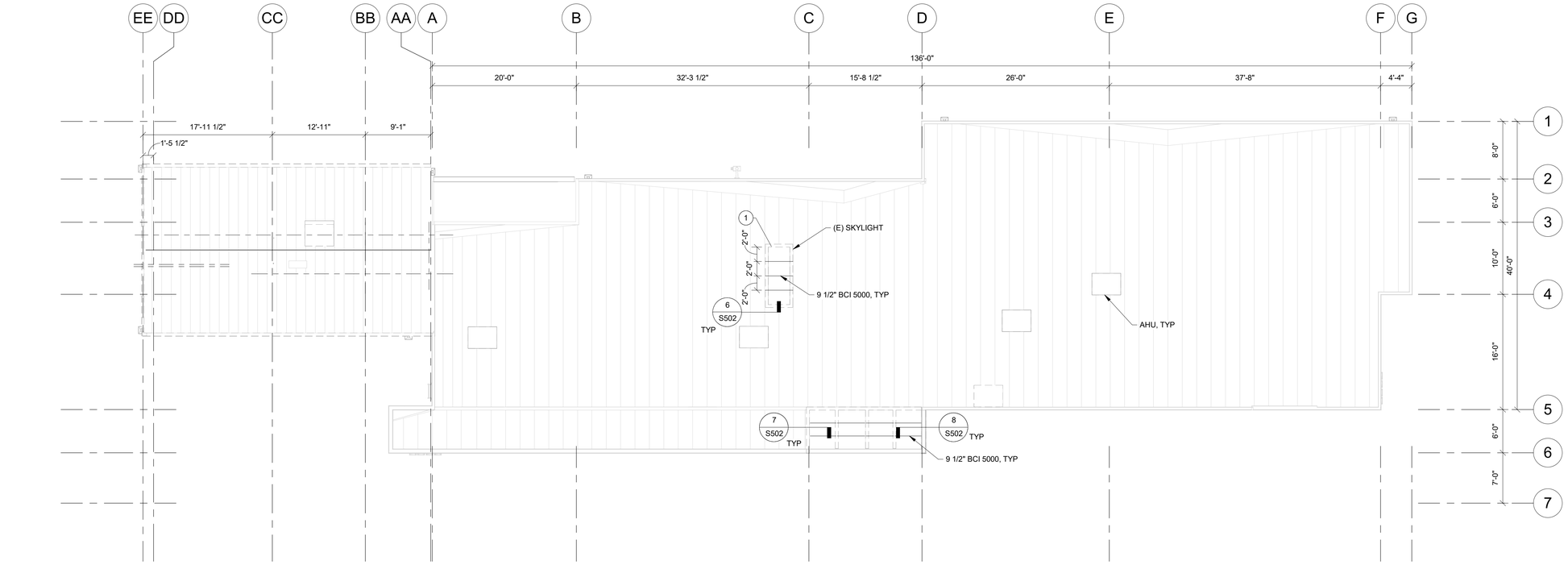
STRUCTURAL PLANS

S102



N

1 S103 ROOF FRAMING PLAN
1/8" = 1'-0"

KEYNOTES

1 DEMO EXISTING SKYLIGHT. PROVIDE INFILL FRAMING AS SHOWN. MATCH (E) ROOF SHEATHING.

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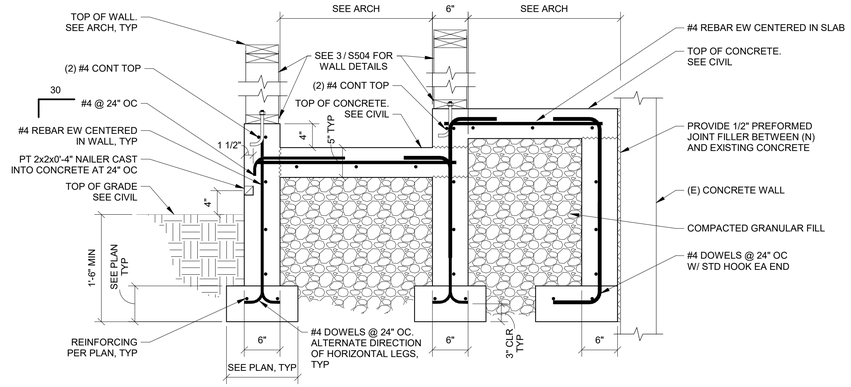
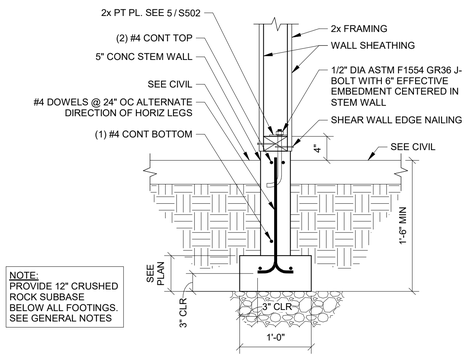
STRUCTURAL PLANS

S103



NOTE:
PROVIDE 12" CRUSHED ROCK SUBBASE BELOW ALL FOOTINGS. SEE GENERAL NOTES

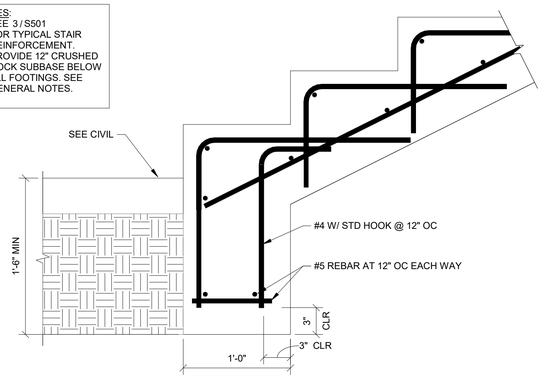
8 S501 ADA RAMP 2
1" = 1'-0"



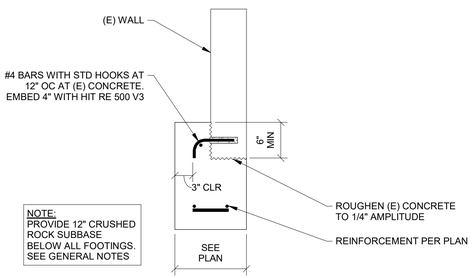
NOTE:
PROVIDE 12" CRUSHED ROCK SUBBASE BELOW ALL FOOTINGS. SEE GENERAL NOTES

5 S501 TRASH ENCLOSURE WALL FOUNDATION
1" = 1'-0"

NOTES:
1. SEE 3 / S501 FOR TYPICAL STAIR REINFORCEMENT.
2. PROVIDE 12" CRUSHED ROCK SUBBASE BELOW ALL FOOTINGS. SEE GENERAL NOTES.

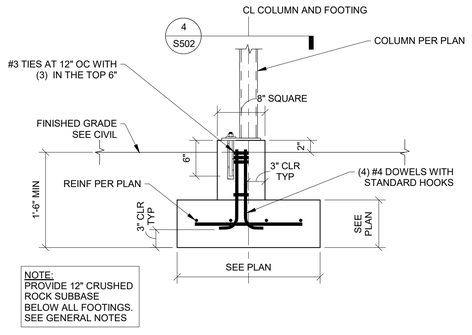


1 S501 STAIR TO BOTTOM LANDING CONNECTION DETAIL
1 1/2" = 1'-0"



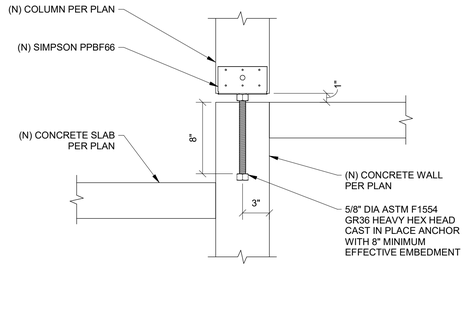
NOTE:
PROVIDE 12" CRUSHED ROCK SUBBASE BELOW ALL FOOTINGS. SEE GENERAL NOTES

13 S501 NEW FOOTING AT EXISTING WALL
1" = 1'-0"



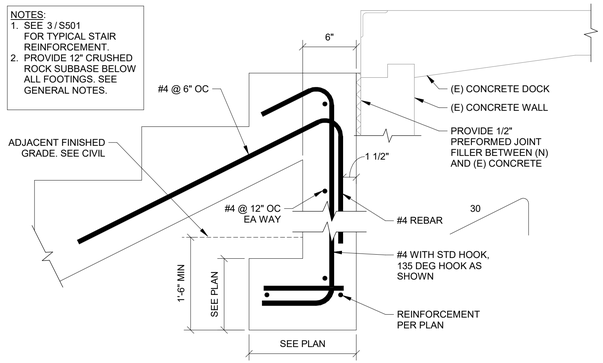
NOTE:
PROVIDE 12" CRUSHED ROCK SUBBASE BELOW ALL FOOTINGS. SEE GENERAL NOTES

11 S501 HSS COLUMN FOOTING
1" = 1'-0"

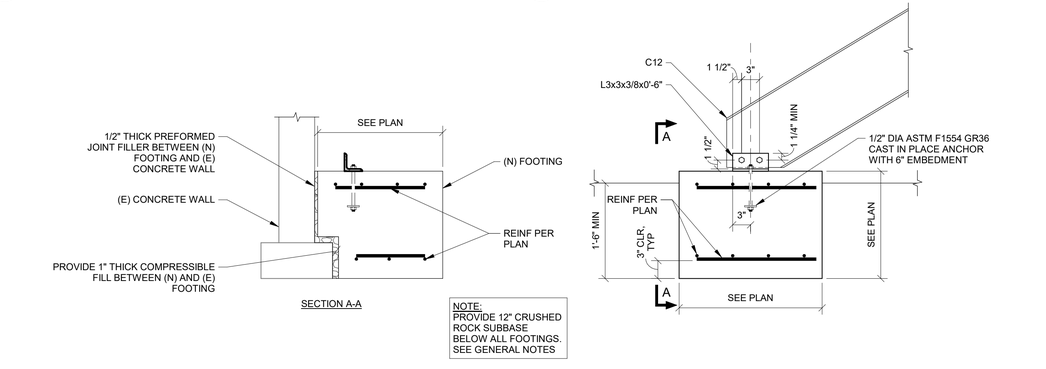


6 S501 POST BASE TO CONCRETE CONNECTION
1 1/2" = 1'-0"

NOTES:
1. SEE 3 / S501 FOR TYPICAL STAIR REINFORCEMENT.
2. PROVIDE 12" CRUSHED ROCK SUBBASE BELOW ALL FOOTINGS. SEE GENERAL NOTES.

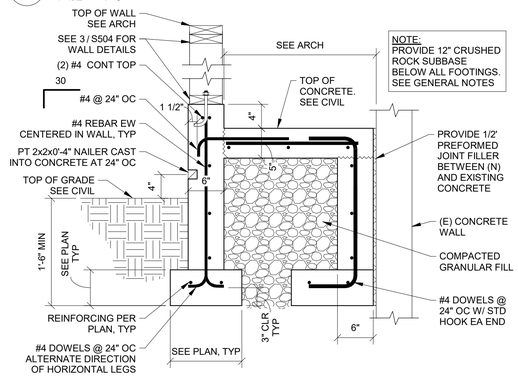


2 S501 STAIR TO TOP LANDING CONNECTION DETAIL
1 1/2" = 1'-0"

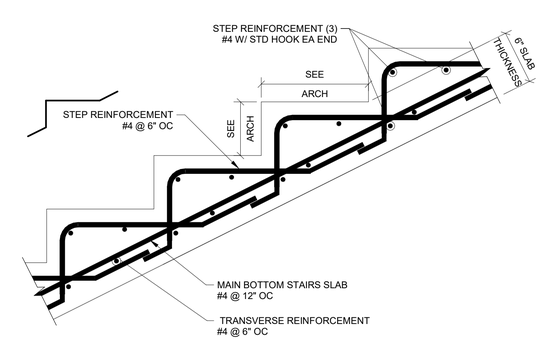


NOTE:
PROVIDE 12" CRUSHED ROCK SUBBASE BELOW ALL FOOTINGS. SEE GENERAL NOTES

12 S501 STAIR CONNECTION AT WALL
1" = 1'-0"



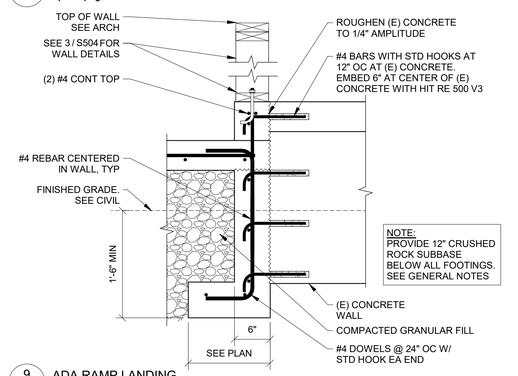
7 S501 ADA RAMP 1
1" = 1'-0"



3 S501 STAIR REINFORCEMENT DETAIL
1 1/2" = 1'-0"

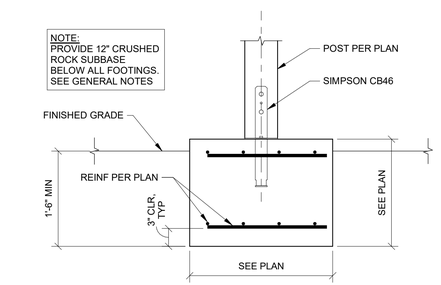
NOTES:
1. SEE 3 / S501 FOR TYPICAL STAIR REINFORCEMENT.
2. PROVIDE 12" CRUSHED ROCK SUBBASE BELOW ALL FOOTINGS. SEE GENERAL NOTES.

10 S501 STAIR STRINGER FOUNDATION
1" = 1'-0"



9 S501 ADA RAMP LANDING
1" = 1'-0"

NOTE:
PROVIDE 12" CRUSHED ROCK SUBBASE BELOW ALL FOOTINGS. SEE GENERAL NOTES



4 S501 COLUMN FOOTING
1" = 1'-0"

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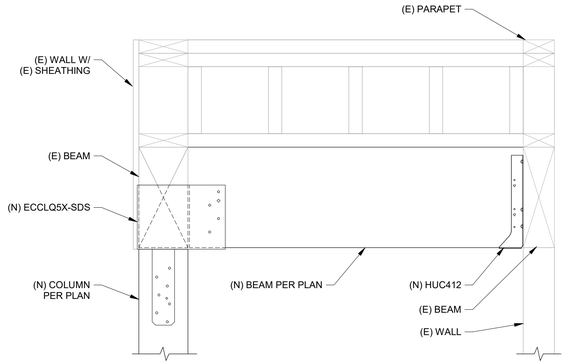
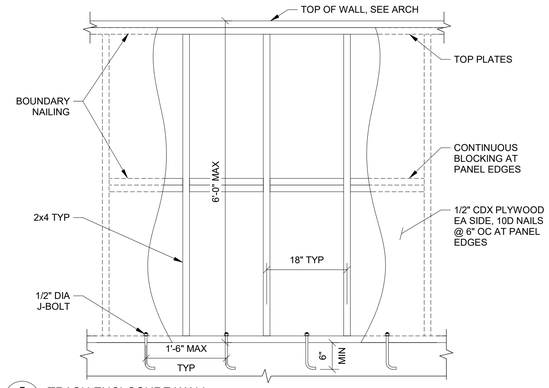
STRUCTURAL DETAILS

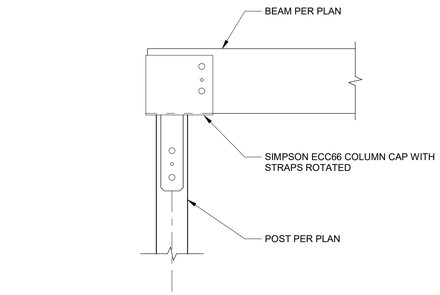
S501



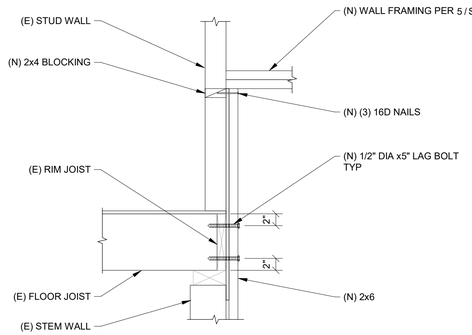
9 S502 BEAM AND POST CONNECTIONS AT TRELLIS
1 1/2" = 1'-0"



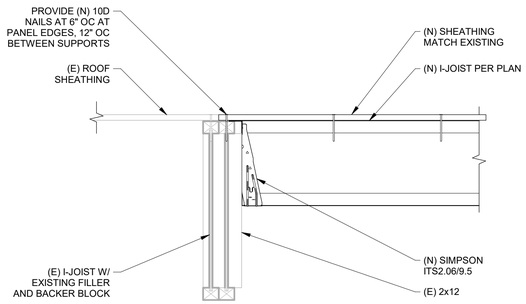
5 S502 TRASH ENCLOSURE WALL
3/4" = 1'-0"



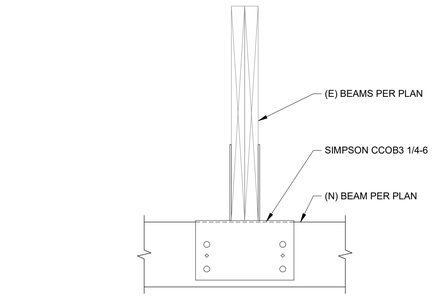
1 S502 BEAM TO POST CONNECTION
1 1/2" = 1'-0"



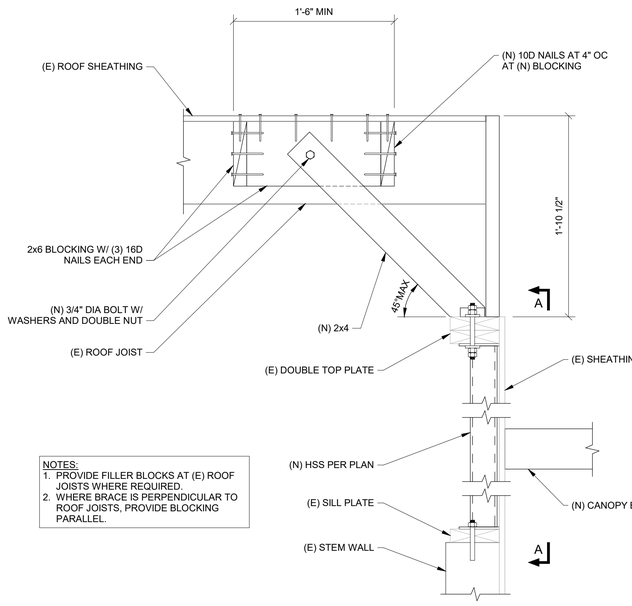
10 S502 TRASH ENCLOSURE WALL AT BUILDING
1" = 1'-0"



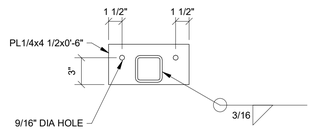
6 S502 INFILL FRAMING AT SKYLIGHT
1 1/2" = 1'-0"



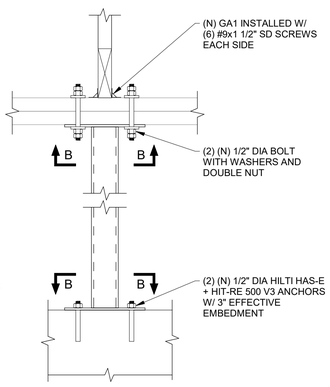
2 S502 BEAM TO BEAM CONNECTION
1 1/2" = 1'-0"



NOTES:
1. PROVIDE FILLER BLOCKS AT (E) ROOF JOISTS WHERE REQUIRED.
2. WHERE BRACE IS PERPENDICULAR TO ROOF JOISTS, PROVIDE BLOCKING PARALLEL.

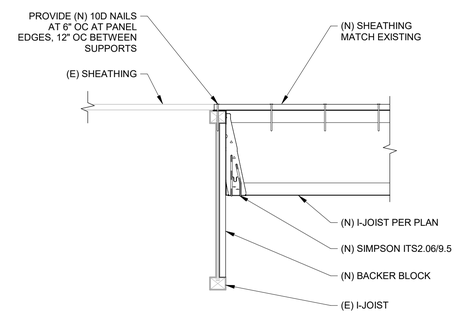


SECTION B-B

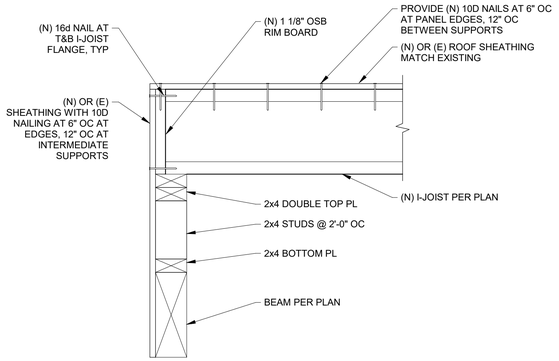


SECTION A-A

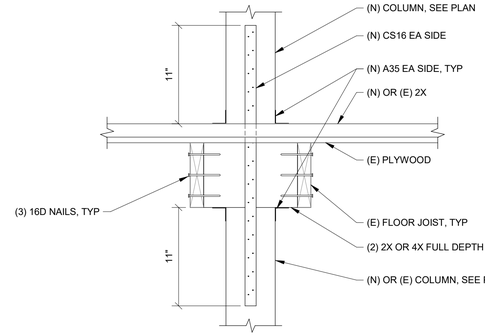
11 S502 CANOPY SUPPORT COLUMN CONNECTIONS
1 1/2" = 1'-0"



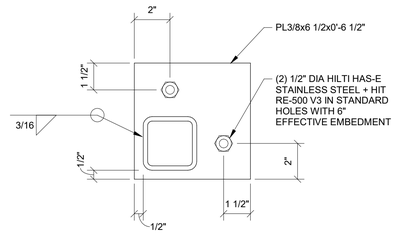
7 S502 INFILL FRAMING AT TRELLIS
1 1/2" = 1'-0"



8 S502 I-JOIST BEARING AT BEAM
1 1/2" = 1'-0"



3 S502 COLUMN CONNECTION AT FLOOR
1 1/2" = 1'-0"



4 S502 STAIR BASEPLATE
3" = 1'-0"

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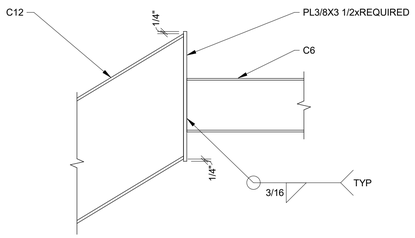
503.544.7210 erik@emarchitecture.net

MCBROD CRISIS CENTER
9200 SE MCBROD AVENUE

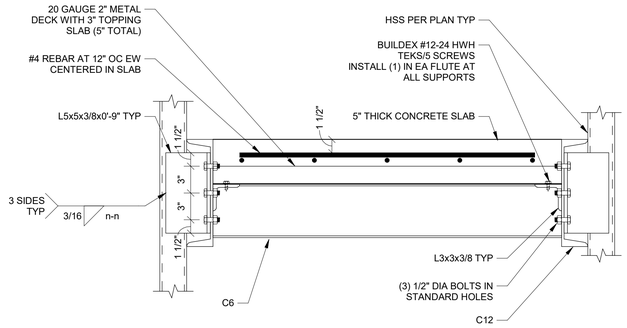
BIDDING DOCUMENTS
07.11.2024

STRUCTURAL DETAILS

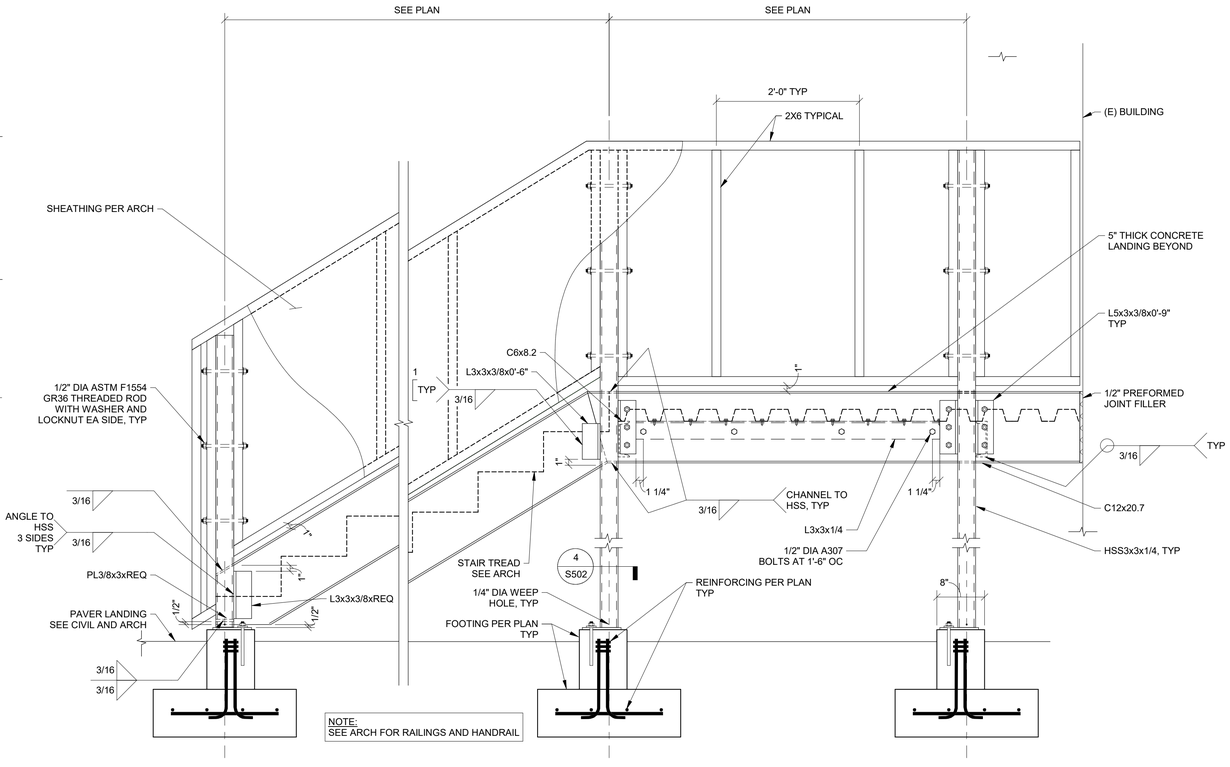
S502



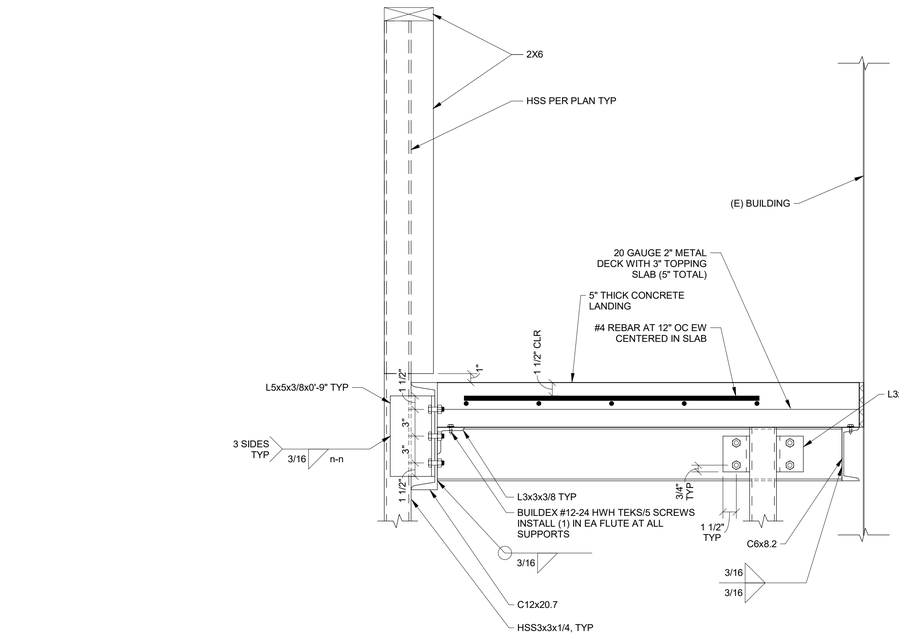
6 S503 C12 STRINGER TO C6 CONNECTION
1 1/2" = 1'-0"



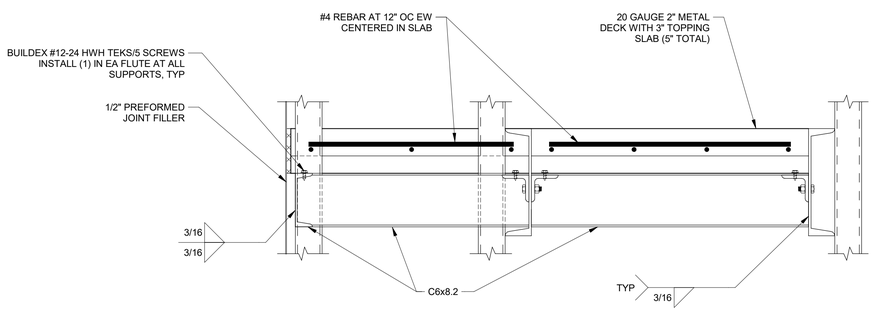
3 S503 NORTH STAIR SECTION
1 1/2" = 1'-0"



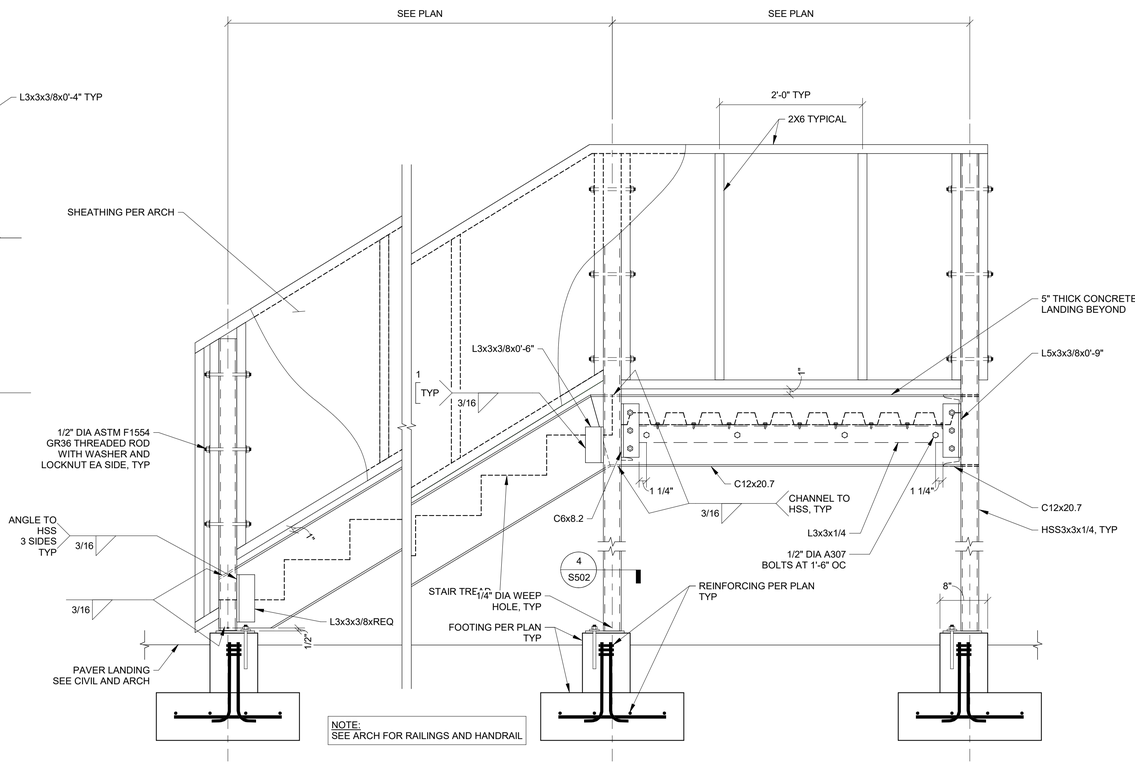
1 S503 NORTH, WEST STAIR ELEVATION
1" = 1'-0"



4 S503 NORTHWEST, EAST STAIR SECTION
1 1/2" = 1'-0"



5 S503 NORTHWEST STAIR SECTION
1 1/2" = 1'-0"



2 S503 NORTHEAST, NORTHWEST STAIR ELEVATION
1" = 1'-0"

REGISTERED PROFESSIONAL ENGINEER
92664PE
OREGON
JANUARY 11, 2022
PATRICK T. LEONARD
7-11-24
RENEWS: 12/31/2024

DRAWING REVISIONS

NO.	DATED	DESCRIPTION
0	08-01-2024	ISSUED FOR BID

PACE
PACE Engineers
4500 Kruse Way, Suite 250
Lake Oswego, OR 97035
p. 503.597.3222
www.paceengrs.com

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MCBROD CRISIS CENTER
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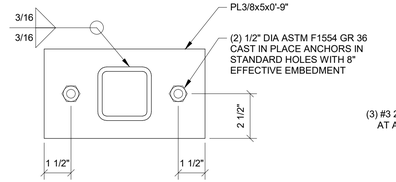
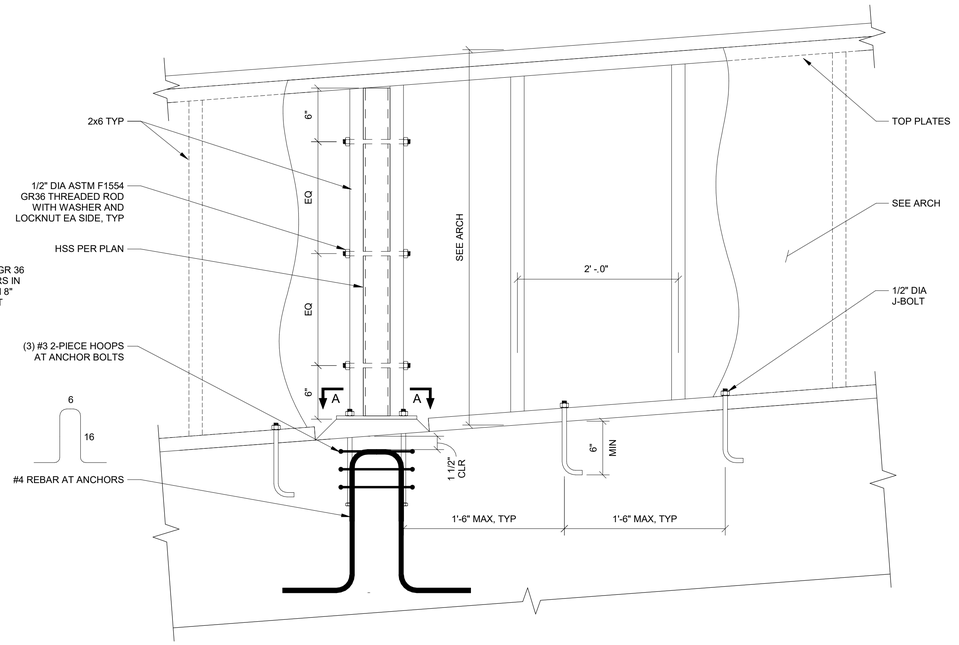
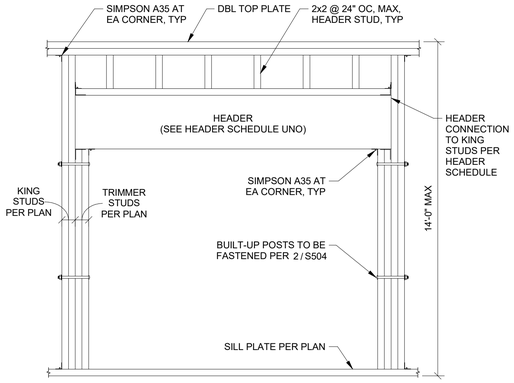


SECTION A-A
SCALE: 3" = 1'-0"

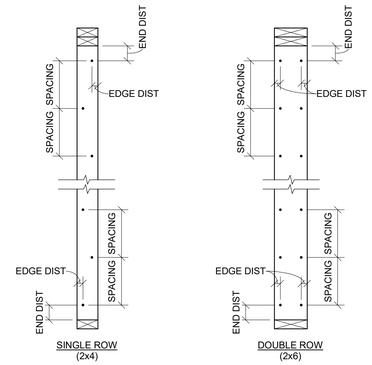


3 S504 TYPICAL WALL AT RAMP
1 1/2" = 1'-0"



HEADER SCHEDULE				
OPEN WIDTH	TRIMMER STUDS	KING STUDS	HEADER	HEADER CONN TO KING STUDS
UP TO 5'-6"	(2) 2x6	2x6	(2) 2x6	(4) 16D NAILS EA SIDE, TOENAIL

1 S504 TYPICAL FRAMING
3/4" = 1'-0"



BUILT-UP MEMBER	FASTENER SIZE	FASTENER SPACING	FASTENER END DIST	FASTENER EDGE DIST	ROWS OF FASTENERS
(2) 2x4	0.148" x 3" NAIL	8"	2.5"	1" - 1.5"	1
(2) 2x6	0.148" x 4 1/2" NAIL	8"	2.5"	1" - 1.5"	2
(4) OR MORE 2x6	1/2" DIA BOLT	9"	4"	1.25"	2

NOTES:
1. PLYWOOD SHEATHING OR GYP BOARD FASTENERS SHALL BE STAGGERED TO EACH STUD IN BUILT-UP MEMBER
2. NAILS & SCREWS SHALL BE STAGGERED EACH SIDE OF BUILT-UP MEMBER
3. BOLTS SHALL HAVE STANDARD PLATE WASHERS BETWEEN WOOD AND BOLT HEAD AND NUT HEAD
4. NUTS TO BE TIGHTENED TO ENSURE ALL WOOD LAMS ARE IN CONTACT
5. 1/4" DIA SDS SCREWS OF SAME LENGTH MAY BE SUBSTITUTED FOR NAILS W/ 9" SPACING & 4" END DIST.
6. WHEN BOLTS ARE REQUIRED, COUNTERSINK MINIMUM DISTANCE REQUIRED TO PROVIDE FLUSH INSTALLATION AT INSIDE OF ROUGH OPENING.

2 S504 BUILT-UP WOOD POSTS
1" = 1'-0"

DRAWING REVISIONS

NO.	DATED	DESCRIPTION
0	08-01-2024	ISSUED FOR BID

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4500 Kruse Way, Suite 250
Lake Oswego, OR 97035
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07.11.2024

STRUCTURAL DETAILS

S504

PACKAGED GAS FIRED ROOFTOP HVAC UNIT SCHEDULE

ITEM	CFM	ESP IN WC	OA CFM	COOLING						NATURAL GAS HEATING			ELECTRICAL				OPER WT LBS	MANUFACTURER AND MODEL NUMBER	NOTES
				TOTAL MBH	SENS MBH	EAT DB °F	EAT WB °F	COND OAT °F	SEER2	INPUT MBH	OUTPUT MBH	AFUE	FAN HP	VOLT/ø	UNIT MCA	UNIT MOCP			
RTU-1	1000	.50	100	28.6	22.2	80.0	67.0	95.0	14.5	40.0	33.0	80%	.50	208/3	15.2	20	320	CARRIER 48VL-C300405	1, 2
RTU-2	1600	.60	300	49.9	37.8	80.0	67.0	95.0	17.4	110.0	88.0	80%	1.0	208/3	24	30	555	CARRIER 48GCEJ05M1-5--F	1, 2, 3
RTU-3	1950	.60	400	61.8	46.8	80.0	67.0	95.0	17.4	110.0	88.0	80%	1.5	208/3	36	50	600	CARRIER 48GCEK06M1-5--F	1, 2, 3, 4
RTU-4	1600	.60	160	49.9	37.8	80.0	67.0	95.0	17.4	110.0	88.0	80%	1.0	208/3	24	30	555	CARRIER 48GCEJ05M1-5--F	1, 2, 3

NOTES:
1. PROVIDE UNIT WITH ROOF CURB ADAPTER TO ALLOW USE OF EXISTING ROOF CURB OF EXISTING RTU REMOVED.
2. PROVIDE FACTORY ELECTRONIC SEVEN DAY PROGRAMMABLE THERMOSTAT.
3. PROVIDE WITH COMPARATIVE ECONOMIZER HOOD WITH MINIMUM SETTING TO ENSURE OUTSIDE AIR VOLUME DELIVERY AS SCHEDULED.
4. PROVIDE SMOKE DETECTORS IN SUPPLY DUCT.

DIFFUSER, GRILLE & REGISTER SCHEDULE

ITEM	TYPE	SERVICE	FACE SIZE INCHES	DUCT SIZE INCHES	FRAME	PD IN WC	MAX NC	DAMPER OPERATOR	MATERIAL	BASIS OF DESIGN MANUFACTURER AND MODEL NO.	NOTES
S-1	CEILING DIFFUSER	SUPPLY	24x24	AS NOTED	LAY-IN	0.10	30	OBD	STEEL	TITUS TMSA	1, 2
S-2	CEILING DIFFUSER	SUPPLY	12x12	AS NOTED	FLANGE	0.10	30	OBD	STEEL	TITUS TMSA	1, 2
S-3	CEILING DIFFUSER	SUPPLY	24x24	AS NOTED	FLANGE	0.10	30	OBD	STEEL	TITUS TMSA	1, 2
R-1	CEILING GRILLE	RETURN	AS NOTED	AS NOTED	FLANGE	0.10	25	–	ALUMINUM	TITUS 50F	3

NOTES:
1. COLOR TO BE BAKED ON OFF WHITE ENAMEL.
2. CONNECT DIFFUSER WITH FLEXIBLE DUCT CONNECTOR AND PROVIDE INSULATED BACK.
3. PROVIDE GRILLE WITH 1/2"x1/2"x1" DEEP GRID

FAN SCHEDULE

ITEM	TYPE	SERVICE	CFM	ESP IN WC	DRIVE TYPE	SONES	RPM	HP	VOLT/ø	MANUFACTURER AND MODEL NUMBER	NOTES
EF-1	CEILING	CLIENT BATH 109	150	0.25	DIRECT	2.0	1100	66w	120/1	COOK GC-186	1, 2, 3
EF-2	CEILING	CLIENT TLT 107	100	0.25	DIRECT	2.0	1160	39w	120/1	COOK GC-168	1, 2, 3
EF-3	CEILING	CLIENT TLT 107	100	0.25	DIRECT	2.0	1160	39w	120/1	COOK GC-168	1, 2, 3
EF-4	CEILING	(E)BATH 203A	150	0.25	DIRECT	2.0	1100	66w	120/1	COOK GC-186	1, 2, 3
EF-5	CEILING	CLIENT TLT 107	100	0.25	DIRECT	2.0	1160	39w	120/1	COOK GC-168	1, 2, 3
EF-6	CEILING	CLIENT BATH 208	150	0.25	DIRECT	2.0	1100	66w	120/1	COOK GC-186	1, 2, 3
EF-7	CEILING	CLIENT BATH 210	150	0.25	DIRECT	2.0	1100	66w	120/1	COOK GC-186	1, 2, 3
EF-8	CEILING	CLIENT BATH 212	150	0.25	DIRECT	2.0	1100	66w	120/1	COOK GC-186	1, 2, 3

1. PROVIDE SPEED CONTROLLER MOUNTED ON STRUCTURE NEAR FAN.
2. PROVIDE CEILING MOUNTING KIT WITH STEEL GRILLE.
3. CONTROL FAN WITH WALL SWITCH IN ROOM SERVED. SEE ELECTRICAL PLANS.

HVAC LEGEND:

- SUPPLY AIR GRILLES (DUCT SIDE AND BOTTOM)
- SUPPLY AIR DIFFUSER WITH FLEX DUCT AND BELLMOUTH SPIN-IN WITH MANUAL DAMPER
- RETURN OR EXHAUST AIR GRILLES (DUCT SIDE AND BOTTOM)
- RETURN AIR GRILLE (OPEN TO PLENUM)
- RETURN OR EXHAUST AIR GRILLE (SHOWN WITH DUCT)
- 24/12 RECTANGULAR DUCT (24" WIDE BY 12" DEEP)
- 8"ø ROUND DUCT (8" DIAMETER)
- EXISTING DUCTWORK
- EXISTING EQUIPMENT
- SECTION THROUGH RETURN OR EXHAUST DUCTWORK
- SECTION THROUGH SUPPLY DUCTWORK
- DUCT ELBOW (WITH TURNING VANES)
- DUCT TEE (WITH DIVIDER AND TURNING VANES)
- ROUND ELECTRONIC CONTROL DAMPER
- AIRFLOW – SUPPLY
- AIRFLOW – RETURN, EXHAUST OR TRANSFER
- DUCT LINER (FOR SOUND ATTENUATION)
- FLEXIBLE CONNECTION
- M MOTOR OPERATED DAMPER
- FS FIRE SUPPRESSION DAMPER
- FIRE DAMPER AND ACCESS DOOR
- MANUAL VOLUME DAMPER
- SPLITTER DAMPER
- T THERMOSTAT
- A 200 DIFFUSER AND GRILLE DESIGNATION (DIFFUSER A, 200 CFM)

COMcheck Software Version COMcheckWeb

Mechanical Compliance Certificate

Project Information

Energy Code: 90.1 (2019) Standard
Project Title: McBrod Crises Center
Location: Milwaukie, Oregon
Climate Zone: 4c
Project Type: Alteration

Construction Site:
9200 SE McBrod Ave
Milwaukie, Oregon 97222

Owner/Agent:
F9 Productions
825 Crisman Dr
Longmont, Colorado 80501
303 775-7406

Designer/Contractor:
David Geissinger
Foresite Group, LLC
3575 Ringsby Ct, Suite 315
Denver, Colorado 80216
(770) 368-1399
dgeissinger@fg-inc.net

Mechanical Systems List

Quantity System Type & Description

1 RTU-1
Heating: 1 each - Central Furnace, Gas, Capacity = 40 kBtu/h
Proposed Efficiency = 80.00% Et, Required Efficiency: 80.00 % Et (or 80% AFUE)
Cooling: 1 each - Single Package DX Unit, Capacity = 28 kBtu/h, Air-Cooled Condenser
Proposed Efficiency = 14.50 SEER2, Required Efficiency = 13.40 SEER2
Proposed Part Load Efficiency = 0.00 , Required Part Load Efficiency = 0.00
Fan System: FAN SYSTEM 1 -- Compliance (Motor nameplate HP and fan efficiency method) : Passes

Fans:
FAN 1 Supply, Constant Volume, 1000 CFM, 0.5 motor nameplate hp, 0.00 fan energy index , fan exception: Part of code listed equipment

SYSTEM VERIFICATION REQUIRED.

1 RTU-2
Heating: 1 each - Central Furnace, Gas, Capacity = 110 kBtu/h
Proposed Efficiency = 80.00% Et, Required Efficiency: 80.00 % Et (or 80% AFUE)
Cooling: 1 each - Single Package DX Unit, Capacity = 49 kBtu/h, Air-Cooled Condenser
Proposed Efficiency = 17.40 SEER2, Required Efficiency = 13.40 SEER2
Proposed Part Load Efficiency = 0.00 , Required Part Load Efficiency = 0.00
Fan System: FAN SYSTEM 2 -- Compliance (Motor nameplate HP and fan efficiency method) : Passes

Fans:
FAN 2 Supply, Constant Volume, 1600 CFM, 1.0 motor nameplate hp, 0.00 fan energy index , fan exception: Part of code listed equipment

SYSTEM VERIFICATION REQUIRED.

1 RTU-3
Heating: 1 each - Central Furnace, Gas, Capacity = 110 kBtu/h
Proposed Efficiency = 80.00% Et, Required Efficiency: 80.00 % Et (or 80% AFUE)
Cooling: 1 each - Single Package DX Unit, Capacity = 61 kBtu/h, Air-Cooled Condenser, Air Economizer
Proposed Efficiency = 17.40 SEER2, Required Efficiency = 13.40 SEER2
Proposed Part Load Efficiency = 0.00 , Required Part Load Efficiency = 0.00
Fan System: FAN SYSTEM 3 -- Compliance (Motor nameplate HP and fan efficiency method) : Passes

Fans:
FAN 3 Supply, Constant Volume, 1950 CFM, 1.5 motor nameplate hp, 1.00 fan energy index , fan exception: Single fan <= 5HP

Quantity System Type & Description

SYSTEM VERIFICATION REQUIRED.

1 RTU-4
Heating: 1 each - Central Furnace, Gas, Capacity = 110 kBtu/h
Proposed Efficiency = 80.00% Et, Required Efficiency: 80.00 % Et (or 80% AFUE)
Cooling: 1 each - Single Package DX Unit, Capacity = 49 kBtu/h, Air-Cooled Condenser
Proposed Efficiency = 17.40 SEER2, Required Efficiency = 13.40 SEER2
Proposed Part Load Efficiency = 0.00 , Required Part Load Efficiency = 0.00
Fan System: FAN SYSTEM 4 -- Compliance (Motor nameplate HP and fan efficiency method) : Passes

Fans:
FAN 4 Supply, Constant Volume, 1600 CFM, 1.0 motor nameplate hp, 0.00 fan energy index , fan exception: Part of code listed equipment

SYSTEM VERIFICATION REQUIRED.

Mechanical Compliance Statement

Compliance Statement: The proposed mechanical alteration project represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed mechanical systems have been designed to meet the 90.1 (2019) Standard requirements in COMcheck Version COMcheckWeb and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

David R Geissinger - Senior Designer (Name - Title) | Signature | 05/16/2024 (Date)

ENGINEER:
FORESITE group
Foresite Group, LLC
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Corvallis, OR 97333
o | 770.368.1399
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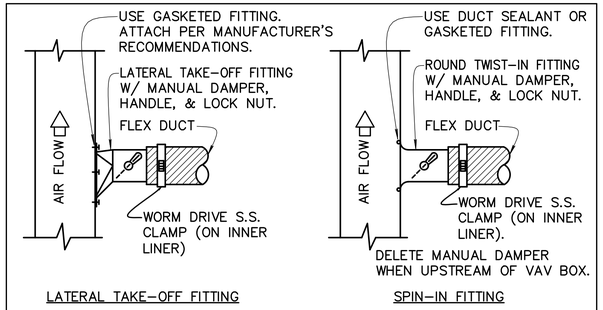
MCBROD CRISIS CENTER
9200 SE MCBROD AVENUE
PRELIMINARY DRAWINGS

SEAL:
REGISTERED PROFESSIONAL ENGINEER
105022PE
OREGON
JUNE 30, 2026
THOMAS JOHN SCHIRMER

REVISIONS | DATE

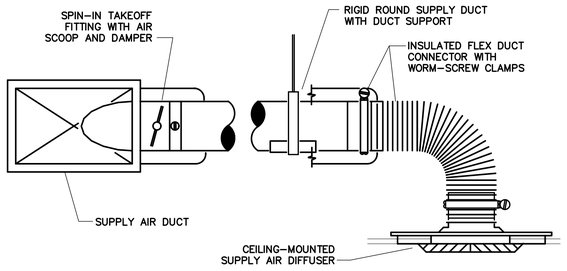
PROJECT MANAGER: TS
DRAWING BY: DRG
JURISDICTION:
DATE: 04.30.2024
SCALE:
TITLE: HVAC SCHEDULES & COMCHECK

SHEET NUMBER: M101
COMMENTS:
JOB/FILE NUMBER: 00.2179.001



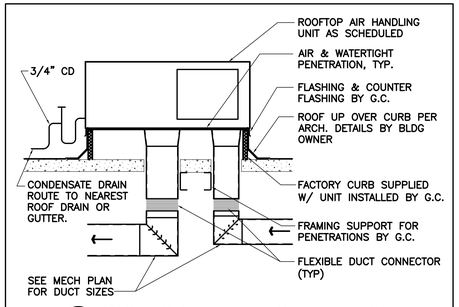
ROUND DUCT TAKE-OFF FITTINGS

NO SCALE



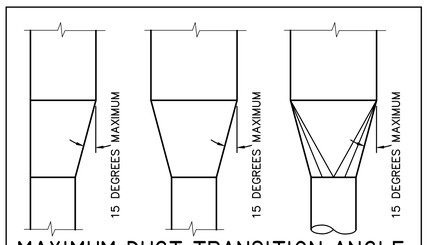
TYPICAL DIFFUSER CONNECTION DETAIL

NO SCALE



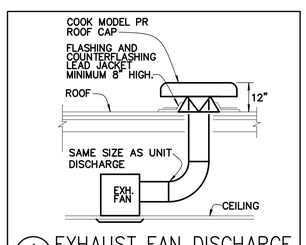
2 / M1.1 ROOFTOP UNIT INSTALLATION

NO SCALE



MAXIMUM DUCT TRANSITION ANGLE

NO SCALE



1 / M1.1 EXHAUST FAN DISCHARGE

NO SCALE

HVAC SPECIFICATIONS

GENERAL

SCOPE
THE INTENT OF THE SPECIFICATION AND THE DRAWINGS IS TO PROVIDE A COMPLETE AND FULLY OPERATIONAL MECHANICAL SYSTEM. THE MECHANICAL CONTRACTOR SHALL FURNISH AND INSTALL ALL LABOR, MATERIAL AND EQUIPMENT NECESSARY TO COMPLETE THE MECHANICAL WORK.

SITE EXAMINATION
THE MECHANICAL CONTRACTOR SHALL THOROUGHLY EXAMINE ALL AREAS WHERE EQUIPMENT, DUCTWORK, AND PIPING WILL BE INSTALLED AND WILL REPORT ANY CONDITION THAT, IN HIS OPINION, PREVENTS THE PROPER INSTALLATION OF THE MECHANICAL WORK.

STANDARDS
EQUIPMENT AND MATERIALS SHALL CONFORM WITH APPROPRIATE PROVISIONS OF ARI, ASME, ASTM, UL, NEMA, ANSI, SMACNA, ASHRAE, NFPA, AS APPLICABLE TO EACH INDIVIDUAL UNIT OR ASSEMBLY.

CODES
ALL WORK SHALL BE PERFORMED IN STRICT ACCORDANCE WITH ALL APPLICABLE STATE AND LOCAL CODES AND ORDINANCES. IN CASE OF CONFLICT BETWEEN THE DRAWINGS/SPECIFICATIONS AND THE CODES AND ORDINANCES, THE HIGHEST STANDARD SHALL APPLY. THE MECHANICAL CONTRACTOR SHALL SATISFY CODE REQUIREMENTS AS A MINIMUM STANDARD WITHOUT ANY EXTRA COST TO THE PROJECT.

PERMITS AND FEES
THE MECHANICAL CONTRACTOR SHALL PROCURE AND PAY FOR ALL PERMITS, FEES AND INSPECTIONS NECESSARY TO COMPLETE THE MECHANICAL WORK.

WARRANTY
THE MECHANICAL CONTRACTOR SHALL UNCONDITIONALLY WARRANT ALL WORK TO BE FREE OF DEFECTS IN MATERIAL AND WORKMANSHIP FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF FINAL ACCEPTANCE BY THE OWNER AND WILL REPAIR OR REPLACE ANY DEFECTIVE WORK PROMPTLY AND WITHOUT CHARGE AND RESTORE ANY OTHER EXISTING WORK DAMAGED IN THE COURSE OF REPAIRING DEFECTIVE MATERIALS AND WORKMANSHIP.

AIR HANDLING EQUIPMENT & MATERIALS

PACKAGED ROOFTOP HVAC SYSTEMS
INSTALL NEW PACKAGED ROOFTOP HVAC UNITS WITH NATURAL GAS HEATING AS SHOWN AND NOTED ON THE DRAWINGS. INSTALL NEW UNITS WITH PERFORMANCE REQUIREMENTS AS SCHEDULED. PROVIDE ALL ACCESSORIES AND OTHER COMPONENTS REQUIRED FOR A COMPLETE AND OPERATIONAL INSTALLATION. ADJUST SYSTEM OPERATION TO MEET THE PERFORMANCE REQUIREMENTS SHOWN ON THE DRAWINGS. PROVIDE COMPLETE CONTROLS PACKAGE INCLUDING, BUT NOT LIMITED TO, NEW ELECTRONIC PROGRAMMABLE THERMOSTATS.

FILTERS
PROVIDE THREE (3) SETS OF PLEATED DISPOSABLE FILTERS. USE ONE SET UNTIL COMPLETION OF CONSTRUCTION. INSTALL ONE SET AT COMPLETION OF CONSTRUCTION AND DELIVER ONE SET OF FILTERS TO THE OWNER. FILTERS TO BE FARR, OR SIMILAR.

AIR HANDLING EQUIPMENT & MATERIALS (CONT'D)

EXHAUST FANS
FANS SHALL BE OF CONFIGURATION SHOWN AND SCHEDULED ON THE DRAWINGS AND PROVIDE THE AIR PERFORMANCE AS SCHEDULED. FANS SHALL BE U.L. LISTED AND SHALL BE AMCA CERTIFIED FOR SOUND AND AIR PERFORMANCE.

FANS SHALL EXCEED U.L. REQUIREMENTS FOR SMOKE AND HEAT GENERATION. FANS SHALL BE PROVIDED WITH ALUMINUM BACKDRAFT DAMPER IN DISCHARGE. THE INLET BOX SHALL BE MINIMUM 22 GAUGE GALV. STEEL. MOTOR SHALL BE ISOLATION MOUNTED. FAN WHEELS SHALL BE CENTRIFUGAL FORWARD CURVED TYPE AND SHALL BE BALANCED IN ACCORDANCE WITH AMCA STANDARD 204-96.

MOTORS SHALL BE OPEN DRIP PROOF TYPE WITH PERMANENTLY LUBRICATED BEARINGS. FAN SHALL BE MANUFACTURED BY GREENHECK, COOK OR APPROVED EQUAL.

DUCTWORK & ACCESSORIES

SHEETMETAL DUCTWORK
UNLESS NOTED OTHERWISE, ALL DUCTWORK TO BE RIGID SHEETMETAL CONSTRUCTED FROM GALVANIZED SHEET STEEL IN ACCORDANCE WITH SMACNA LOW VELOCITY DUCT CONSTRUCTION STANDARDS. ALL EXPOSED DUCTWORK TO BE ROUND, SPIRAL, OR RECTANGULAR LOCK-SEAM TYPE, AS SHOWN ON HVAC PLAN SHEETS.

ASSEMBLE AND INSTALL DUCTWORK IN ACCORDANCE WITH RECOGNIZED INDUSTRY PRACTICE FOR ACHIEVING AIR TIGHT (LESS THAN 5% LEAKAGE) AND NOISELESS (NO OBJECTIONABLE NOISE) SYSTEMS, CAPABLE OF PERFORMING EACH INDICATED SERVICE. FURNISH ALL REQUIRED DAMPERS, TRANSITIONS, CONNECTIONS TO AIR TERMINALS, AND OTHER ACCESSORIES NECESSARY FOR A COMPLETE OPERATING SYSTEM. NO VARIATION OF DUCT CONFIGURATION OR SIZES WILL BE PERMITTED EXCEPT BY PERMISSION FROM THE ENGINEER.

DUCT SEALANT
SEAL ALL LONGITUDINAL AND TRANSVERSE JOINTS WITH A NON-HARDENING, NON-MIGRATING MASTIC OR LIQUID ELASTIC SEALANT OF A TYPE RECOMMENDED BY THE MANUFACTURER FOR SEALING JOINTS AND SEAMS IN SHEET METAL DUCTWORK. COVER ALL FIELD JOINTS, JOINTS AROUND SPIN-IN FITTINGS AND FASTENING SCREWS WITH MASTIC. SUPPORTS PROVIDE HOT-DIPPED GALVANIZED STEEL, FASTENERS, ANCHORS. RODS, STRAPS, TRIM, AND ANGLES FOR SUPPORT OF DUCTWORK.

DAMPERS
PROVIDE OPPOSED-BLADE, MULTI-LEAF VOLUME CONTROL DAMPERS WHERE INDICATED ON DRAWINGS AND AT POINTS ON LOW PRESSURE SUPPLY, RETURN AND EXHAUST DUCTS WHERE BRANCHES ARE TAKEN FROM LARGER DUCTS. PROVIDE UL LISTED FIRE DAMPERS WHERE REQUIRED AND IN ACCORDANCE WITH NFPA AND LOCAL CODES. PROVIDE CONVENIENTLY LOCATED ACCESS DOORS OF AMPLE SIZE AND QUANTITY FOR SERVICING THE DAMPERS.

DUCTWORK & ACCESSORIES (CONT'D)

GRILLES, REGISTERS & DIFFUSERS
GRILLES, REGISTERS AND DIFFUSERS SHALL BE TITUS MODELS AS SCHEDULED, OR APPROVED EQUIVALENT, AND SHALL BE FURNISHED BY THE MECHANICAL CONTRACTOR. DIFFUSERS SHALL BE INSTALLED AS INDICATED ON THE DRAWINGS AND SCHEDULES. THE MECHANICAL CONTRACTOR SHALL PROVIDE ALL MISCELLANEOUS ITEMS NECESSARY FOR A COMPLETE AND PROPER INSTALLATION IN THE TYPE OF CEILING AND WALLS USED IN THIS PROJECT.

THERMAL INSULATION
PROVIDE EXTERNAL THERMAL INSULATION WITH AN INTEGRAL VAPOR BARRIER FACING OF SUFFICIENT THICKNESS TO MEET LOCAL ENERGY CODE REQUIREMENTS. PROVIDE INSULATION ON EXHAUST AND OUTSIDE AIR DUCTS, AND ON CONCEALED PORTIONS OF SUPPLY AND RETURN AIR DUCTS. DO NOT INSULATE EXPOSED DUCTWORK AND PORTIONS OF DUCTWORK THAT ARE INTERNALLY LINED. THERMAL INSULATION SHALL COMPLY WITH AN NFPA FLAME SPREAD OF 25 OR LESS, AND SMOKE DEVELOPED RATING NO GREATER THAN 50.

ACOUSTICAL DUCT LINER
UNLESS OTHERWISE INDICATED ON THE PLANS, PROVIDE 1" GLASS FIBER ACOUSTICAL DUCT LINER ON SUPPLY AND RETURN DUCTWORK WITHIN 10 FEET OF THE DISCHARGE AND INTAKE OF AIR HANDLING UNITS. INCREASE DUCT SIZED INDICATED ON PLANS 2" IN EACH DIMENSION TO ACCOMMODATE LINER.

CONTROLS & OPERATION

CONTROL WIRING
THE MECHANICAL CONTRACTOR SHALL PROVIDE ALL CONTROL WIRING IN CONDUIT NECESSARY FOR THE COMPLETE AND PROPER OPERATING TEMPERATURE CONTROL SYSTEM.

THERMOSTAT
THERMOSTATS SHALL BE MANUFACTURERS STANDARD PROGRAMMABLE WITH SWITCHING SUBBASE FOR INSTALLATION BY THE MECHANICAL CONTRACTOR. ONE THERMOSTAT SHALL BE PROVIDED FOR EACH AIR CONDITIONING SYSTEM. MOUNT THERMOSTATS AT 60" ABOVE FINISHED FLOOR IN LOCATIONS AS SHOWN. MECHANICAL CONTRACTOR SHALL PROVIDE ALL THERMOSTATS UNLESS NOTED OTHERWISE.

TESTING, ADJUSTING & BALANCING

TESTING, ADJUSTING, BALANCING
MECHANICAL CONTRACTOR SHALL OBTAIN THE SERVICES OF AN INDEPENDENT NEBB OR AABC CERTIFIED AIR BALANCE CONTRACTOR TO ACCURATELY BALANCE THE AIR SYSTEMS TO PROVIDE AIR QUALITIES INDICATED ON THE DRAWINGS AND IN THIS SPECIFICATION. OPERATE AUTOMATIC CONTROLS SYSTEM AND VERIFY SET POINTS DURING BALANCING. SUBMIT TWO (2) COPIES OF THE BALANCE REPORT TO THE ENGINEER FOR APPROVAL. INCLUDE A COPY OF THE BALANCE REPORT AS APPROVED BY THE ENGINEER WITH APPLICATION FOR FINAL CONTRACT PAYMENT.

ENGINEER:
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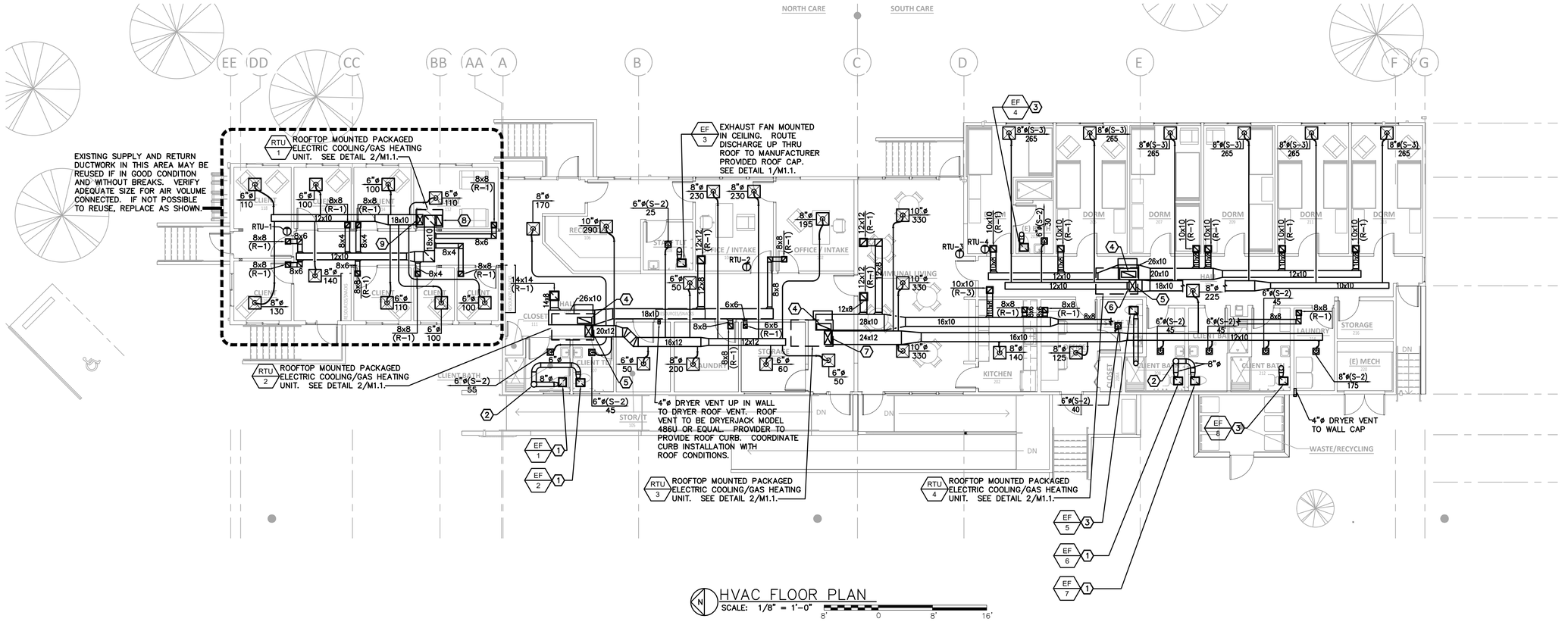
PRELIMINARY DRAWINGS

SEAL:
REGISTERED PROFESSIONAL ENGINEER
105022PE
OREGON
JUNE 30, 2026
THOMAS JOHN SCHIRMER

REVISIONS	DATE

PROJECT MANAGER:	TS
DRAWING BY:	DRG
JURISDICTION:	
DATE:	04.30.2024
SCALE:	
TITLE:	HVAC SPEC'S & DETAILS
SHEET NUMBER:	M102
COMMENTS:	
JOB/FILE NUMBER:	00.2179.001



HVAC FLOOR PLAN
SCALE: 1/8" = 1'-0"

GENERAL NOTES:

1. DRAWINGS ARE DIAGRAMMATIC IN NATURE AND MAY NOT SHOW ALL STRUCTURAL MEMBERS, ARCHITECTURAL ELEMENTS. LIGHTING LAYOUTS, OR ALL OFFSETS, FITTINGS, AND OTHER ACCESSORIES REQUIRED FOR A COMPLETE INSTALLATION. CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS, AND ACCESSORIES REQUIRED FOR THE INSTALLATION OF A COMPLETE WORKING SYSTEM TO THE SATISFACTION OF THE OWNER.
2. COORDINATE THE MECHANICAL WORK WITH THE WORK OF OTHER TRADES AND EXISTING CONDITIONS.
3. COMPLY WITH ALL LOCAL CODES AND ORDINANCES.
4. CONTRACTOR TO FIELD VERIFY EXISTING CONDITIONS PRIOR TO START OF WORK AND INFORM ARCHITECT/ENGINEER OF ANY DISCREPANCIES.
5. CONNECT NEW DUCTWORK TO HVAC UNITS IN LOCATIONS SHOWN AND IN ACCORDANCE WITH UNIT MANUFACTURER'S INSTALLATION INSTRUCTIONS. LOCATE UNIT DUCTWORK TO INSURE ADEQUATE SERVICE CLEARANCES PER MANUFACTURER'S RECOMMENDATIONS AND IN ACCORDANCE WITH CODE REQUIREMENTS.
6. INSTALL NEW DUCTWORK AS SHOWN. ALL SHEET METAL DUCTWORK SHALL BE FABRICATED AND INSTALLED IN ACCORDANCE WITH CURRENT SMACNA DUCT CONSTRUCTION STANDARDS. DUCTWORK SHALL BE FABRICATED IN ACCORDANCE WITH REQUIREMENTS OF THE 1 IN. WG PRESSURE CLASSIFICATION.
7. ALL OUTSIDE AIR DUCTWORK AND ALL DUCTWORK INSTALLED ABOVE INSULATED CEILINGS SHALL BE INSULATED WITH 2" THICK FIBERGLASS DUCTWRAP INSULATION WITH VAPOR BARRIER COATING. INSTALLATION SHALL BE COMPLETE FOR ALL DUCTWORK SYSTEMS UNLESS SPECIFICALLY EXCLUDED. INSULATION INSTALLATION SHALL BE IN ACCORDANCE WITH THE BEST PRACTICES OF THE TRADE SUCH THAT ALL VAPOR BARRIERS SHALL BE SECURE AND NO LOOSE JOINTS OR PATCHES EXIST IN THE FINISHED PRODUCT.
8. NO FLEXIBLE DUCT SHALL BE UTILIZED IN RETURN AIR, OUTSIDE AIR, OR EXHAUST AIR SYSTEMS. MAXIMUM LENGTH OF FLEXIBLE DUCT IN SUPPLY AIR SYSTEM SHALL NOT EXCEED 5 FEET.
9. PROVIDE SINGLE BLADE DAMPER AND SPIN-IN FITTING AT TAKE-OFFS FOR SUPPLY AIR SYSTEMS.
10. AFTER COMPLETION OF NEW MECHANICAL SYSTEMS INSTALLATION, ADJUST ALL THERMOSTATS AND AIR HANDLING UNITS TO ATTAIN THE PERFORMANCE VALUES SCHEDULED. TEST, ADJUST AND BALANCE ALL AIR OUTLET DEVICES TO CFM VALUES SHOWN WITHOUT CREATING OBJECTIONABLE NOISE OR DRAFTS. PRIOR TO FINAL PROJECT CLOSE-OUT, SUBMIT FOUR COPIES OF FINAL TEST AND BALANCE REPORT TO ARCHITECT AND ENGINEER FOR RECORD.

KEY NOTES:

1. EXHAUST FAN MOUNTED IN CEILING. ROUTE DISCHARGE, SIZE AS NOTED, TO ROOF CAP. SEE DETAIL 1/M1.1.
2. 10"ø UP TO FAN MANUFACTURER SUPPLIED ROOF CAP.
3. EXHAUST FAN MOUNTED IN CEILING. ROUTE DISCHARGE UP THRU ROOF TO MANUFACTURER PROVIDED ROOF CAP. SEE DETAIL 1/M1.1.
4. RETURN AIR DUCT FULL SIZE OF UNIT INLET FROM UNIT TO R.A. DUCT.
5. 20x12 S.A. DUCT DOWN FROM RTU. TRANSITION FROM UNIT DISCHARGE SIZE TO TO DUCT SIZE IN DROP.
6. 45° TAP BRANCH CONNECTION WITH DAMPER.
7. 24x12 S.A. DUCT DOWN FROM RTU. TRANSITION FROM UNIT DISCHARGE SIZE TO TO DUCT SIZE IN DROP.
8. 18x10 R.A. DUCT UP TO RTU. TRANSITION FROM DUCT SIZE TO UNIT INLET SIZE IN RISE.
9. 18x10 S.A. DUCT DOWN FROM RTU. TRANSITION FROM UNIT DISCHARGE SIZE TO TO DUCT SIZE IN DROP.

ENGINEER:

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MCBROD CRISIS CENTER
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PRELIMINARY DRAWINGS

SEAL:
REGISTERED PROFESSIONAL ENGINEER
105022PE
OREGON
JUNE 30, 2026
THOMAS JOHN SCHIMMER

REVISIONS	DATE

PROJECT MANAGER:	TS
DRAWING BY:	DRG
JURISDICTION:	
DATE:	04.30.2024
SCALE:	

TITLE:
HVAC FLOOR PLAN &
ENERGY COMPLIANCE

SHEET NUMBER:
M201

COMMENTS:

JOB/FILE NUMBER:
00.2179.001

PLUMBING SPECIFICATIONS:

SECTION 15010 – GENERAL PROVISIONS

1.01 SCOPE OF WORK
WORK SHALL CONSIST OF FURNISHING ALL LABOR AND MATERIALS NECESSARY FOR THE INSTALLATION OF COMPLETE AND OPERATING MECHANICAL SYSTEMS.

1.02 EXAMINATION OF PREMISES
VISIT THE PREMISES BEFORE SUBMITTING BID AS NO EXTRAS WILL BE ALLOWED FOR LACK OF KNOWLEDGE OF EXISTING CONDITIONS. REPORT ANY DISCREPANCIES BETWEEN THE DRAWINGS AND SITE CONDITIONS TO THE OWNER PRIOR TO BID.

1.03 CODES AND STANDARDS
COMPLY WITH ALL APPLICABLE CODES, LAWS, INDUSTRY STANDARDS AND UTILITY COMPANY REGULATIONS.

1.04 EQUIPMENT FURNISHED BY OWNER
NONE

1.05 PERMITS, FEES AND NOTICES
PAY FOR ALL PERMITS, FEES, LICENSES AND INSPECTIONS FOR THIS DIVISION. DO NOT INCLUDE THE COST OF THE "PLANT INVESTMENT FEE" FOR SEWER AND WATER OR GAS APPLICATION FEE CHARGED BY THE UTILITY COMPANY.

1.06 DRAWINGS
ENGINEERING DRAWINGS ARE DIAGRAMMATIC IN NATURE AND ARE NOT INTENDED TO BE SCALED FOR DIMENSIONS. INSTALL THE SYSTEMS COMPLETE IN THE SPACE PROVIDED WITHOUT EXTRA CHARGES TO THE OWNER.

1.07 SUBSTITUTIONS AND APPROVALS
A. SOME MATERIALS ARE SPECIFIED BY MANUFACTURER'S NAME. MATERIALS OF EQUIVALENT QUALITY MAY BE USED IF EQUIVALENT.

B. BIDDER'S CHOICE
MATERIALS OR EQUIPMENT LISTED BY SEVERAL MANUFACTURER'S NAMES ARE INTENDED TO BE BIDDER'S CHOICE, AND ANY OF THE LISTED MANUFACTURER'S MAY BE BID WITHOUT SOLICITING PRIOR APPROVAL.

C. PERFORMANCE SPECIFICATION. WHEN ANY ITEM IS SPECIFIED BY REQUIREMENT TO MEET A PERFORMANCE, INDUSTRY OR REGULATING BODY STANDARD OR IS SPECIFIED BY A GENERIC SPEC, (NO MANUFACTURER'S NAME LISTED) NOT PRIOR APPROVAL BY THE CONSULTING MECHANICAL ENGINEER IS NEEDED UNLESS SPECIFICALLY CALLED FOR IN THESE SPECIFICATIONS.

D. CONTRACTOR TO BE RESPONSIBLE FOR ANY CHANGES AND COSTS TO ACCOMMODATE ANY EQUIPMENT SUBSTITUTIONS.

1.08 INSTALLATION AND ARRANGEMENT
INSTALL ALL WORK TO PERMIT REMOVAL OF COILS, SHAFTS AND WHEELS, FILTERS, AND ALL OTHER PARTS WHICH MIGHT REQUIRE PERIODIC REPLACEMENT OR MAINTENANCE.

1.09 PROTECTION OF WORK AND PROPERTY
BE RESPONSIBLE FOR THE PROTECTION OF EXISTING FACILITIES WHETHER OR NOT SUCH FACILITY IS TO BE REMOVED OR RELOCATED. MOVE OR REMOVE ANY FACILITY SO AS NOT TO CAUSE INTERRUPTION OF THE WORK OR OWNER'S OPERATION.

1.10 WARRANTY
A. ALL MATERIALS AND EQUIPMENT SHALL BE NEW UNLESS OTHERWISE SPECIFIED. GUARANTEE ALL WORKMANSHIP, MATERIAL AND EQUIPMENT AND REPLACE ANY FOUND DEFECTIVE WITHOUT COST TO THE OWNER, FOR ONE YEAR AFTER FINAL ACCEPTANCE, AS DEFINED IN GENERAL CONDITIONS.

B. EACH WARRANTY FOR LONGER THAN THE ONE YEAR DESCRIBED ABOVE (THAT COMES WITH EQUIPMENT USED ON THE JOB) SHALL BE PASSED ONTO THE OWNER WITH DATES OF START AND END OF WARRANTY.

1.11 PROJECT RECORD DRAWINGS
PROVIDE THE ARCHITECT WITH ONE CLEAN SET OF PLANS AND SPECIFICATIONS CORRECTED UP-TO-DATE AS JOB PROGRESSES.

END OF SECTION

SECTION 15190 – IDENTIFICATION

1.01 REFERENCES
A. COMPLY WITH ANSI A13.1 – SCHEME FOR THE IDENTIFICATION OF PIPING SYSTEMS.

2.01 MATERIALS
A. PIPE MARKERS: IDENTIFY THE CONTENTS OF THE VARIOUS PIPING SYSTEMS. FLOW ARROWS SHALL CLEARLY INDICATE THE DIRECTION OF FLOW. UTILIZE EITHER OF THE FOLLOWING METHODS:
1. PRESSURE SENSITIVE MARKERS: BRADLEY TYPE B-350 OR B-946, SETON, MSI, CRAFTMARK OR EQUIVALENT FLEXIBLE FILM IDENTIFICATION MARKERS AND TAPE, WITH LEGEND SIZE, COLOR CODING, AND MARKER LENGTH PER ANSI A13.1.
2. STENCILED MARKINGS: OF SIZE AND COLOR PER ANSI A13.1, USING CLEAR CUT STENCILS AND OIL BASE PAINT.

B. TAGS: ALUMINUM OR BRASS 1-1/2 INCH DIAMETER WITH EDGES GROUND SMOOTH AND COLOR CODED TO MATCH PIPING SYSTEM IDENTIFICATION. PUNCH EACH TAG TO RECEIVE TIE WIRES. EVENLY SPACE AND STAMP LETTERS (1/4 INCH HIGH) AND NUMBERS (7/16 INCH HIGH) INTO THE METAL

C. LABELS: WHITE PLASTIC LAMINATE WITH BLACK ENGRAVING, FASTENED WITH BRASS SCREWS. PRESSURE-SENSITIVE EMBOSSED LABELS (DYMO TYPE) ARE NOT ACCEPTABLE. PROVIDE OF UNIFORM SIZE. LABEL ALL EQUIPMENT UNLESS A MANUFACTURER'S LABEL IS FIRMLY ATTACHED.

2.02 STENCILS
A. STENCILS OR PRESSURE SENSITIVE MARKERS
1. CONFORM TO THE FOLLOWING SCHEDULE:

OUTSIDE DIAMETER OF PIPE OR PIPE INSULATION	LENGTH OF COLOR FIELD	MINIMUM SIZE LETTER
1/2"	8"	3/8"
3/4" THROUGH 1-1/4"	8"	1/2"
1-1/2" AND 2"	8"	3/4"
2-1/2" THROUGH 6"	12"	1-1/4"

3.01 PIPING IDENTIFICATION
A. IDENTIFY PIPING IN CRAWLSPACES, ABOVE CEILINGS, ETC. AS WELL AS EXPOSED TO VIEW EXCEPT PIPING IN FINISHED AREAS. PROVIDE IDENTIFYING MARKINGS AT VALVES, FITTINGS, AND EQUIPMENT, AT TERMINAL POINTS, AT EACH BRANCH AND RISER TAKE-OFF, ON PIPES THAT LEAD TO AND FROM UNDERGROUND AREAS, AND AT BOTH SIDES OF PIPING PASSING THROUGH WALLS, CEILINGS, AND FLOORS. IN ADDITION, PROVIDE IDENTIFYING MARKINGS AT 20 FEET O.C. FOR EXPOSED PIPING AND CONCEALED PIPING.

B. FOR PIPES UNDER 1/2" O.D. COLOR CODED IDENTIFICATION TAGS SHALL BE SECURELY FASTENED AT ALL REQUIRED LOCATIONS. TAGS SHALL BE 1-1/2 INCHES IN DIAMETER.

C. IDENTIFICATION OF ALL PIPING SYSTEMS SHALL CONFORM TO THE DESIGNATIONS IN THE LEGEND ON THE DRAWINGS.

D. APPLY DIRECTIONAL FLOW ARROWS ADJACENT TO EACH PIPE MARK.

END OF SECTION

SECTION 15250 – INSULATION

1.01 PIPING AND EQUIPMENT
A. DOMESTIC COLD WATER PIPE, VALVES AND FITTINGS.
1. INSULATE WITH U.L. APPROVED, FLAME RESISTANT, WHITE VAPOR BARRIER JACKETED, GLASS FIBER SNAP-ON INSULATION 1" THICK. INSULATE VALVES AND FITTINGS WITH GLASS FIBER BLANKET INSULATION AND PREMOLDED PVC COVERS (COVERS TO BE U.L. 25/50 RATED). WHERE THE USE OF PVC COVERS IN PLENUMS, ETC., IS RESTRICTED BY VARIOUS LOCAL CODES VALVES AND FITTINGS SHALL BE INSULATED BY WRAPPING WITH BLANKET INSULATION. COVER BLANKETS TO SAME DEPTH AS THE PIPE INSULATION WITH INSULATING CEMENT, TROWELED SMOOTH. IT IS THE CONTRACTOR'S AND MANUFACTURER'S RESPONSIBILITY TO ASSURE THEMSELVES THAT THE CODE AUTHORITY WILL APPROVE ANY PRODUCT TO BE INSTALLED ON THE PROJECT.

B. DOMESTIC HOT WATER PIPING AND FITTINGS.
1. ALL HOT WATER SUPPLY LINES AND CIRCULATING WATER LINES INSULATE WITH U.L. APPROVED, FRAME RESISTANT, WHITE ALL SERVICE JACKETED, GLASS FIBER SNAP-ON PIPE INSULATION 1" THICK. INSULATE FITTINGS WITH GLASS FIBER BLANKET INSULATION AND PREMOLDED PVC COVERS.

C. HANDICAPPED FIXTURES
1. INSULATION OF PIPES UNDER HANDICAPPED LAVATORIES: INSULATE ANGLE STOP ASSEMBLIES AND DRAIN LINES WITH FOAM INSERT COVERED WITH 1/8" MINIMUM ABRASIVE RESISTANT EXTERIOR COVER WITH FASTENERS LOCATED OUT OF SIGHT, BROCAR TRAP WRAP KIT 500R AND 500HS, OR EQUIVALENT.

END OF SECTION

SECTION 15400 – PLUMBING

1.01 WATER PIPING
A. PIPING (INSIDE BUILDING)
1. NON-BURIED LINES, TYPE "L" COPPER WATER TUBE, WROUGHT COPPER FITTINGS AND 96-4 (TIN/SILVER) OR CANFIELD 100% WATERSAFE (SILVER-TIN COPPER) SOLDER.

2. VALVES AND SPECIALTIES

GATE VALVES:	BRONZE, CLASS 125, 200 LB. W.O.G.
BALL VALVES:	BRONZE, FULL PORT, 400 LB. W.O.G.
GLOBE VALVES:	BRONZE, CLASS 125, 200 LB. W.O.G.
SWING CHECK VALVES:	BRONZE, CLASS 125, 200 LB. W.O.G.
DIELECTRIC UNIONS:	FURNISH AND INSTALL A DIELECTRIC UNION AT ALL CONNECTIONS WHERE FERROUS MATERIAL IS CONNECTED TO NON-FERROUS MATERIAL.
STRAINERS:	250 LB. SEMI-STEEL OR CAST IRON "Y" TYPE W/STAINLESS STEEL SCREEN.
PRESSURE TEMP. TAPS:	UNIVERSAL CONTROLS CORPORATION #45-PT-N.SISCO BNO-500 1/2 NPT, NORDEL CORE.

3. CPVC PIPING MAY BE UTILIZED IF ACCEPTABLE BY LOCAL CODE AUTHORITY. CPVC SHALL BE SCHEDULE 40 AND SHALL BE MANUFACTURED FROM A TYPE IV, GRADE I CHLORINATED POLYVINYL CHLORIDE COMPOUND WITH A MINIMUM CELL CLASSIFICATION OF 23447 PER ASTM D1784. THE PIPE SHALL HAVE A FLAME SPREAD RATING OF LESS THAN 25 AND A SMOKE DEVELOPMENT RATING OF LESS THAN 50.

1.02 WASTE AND VENT PIPING
A. MATERIALS; WASTE AND VENT PIPING (INSIDE BUILDING)
1. WASTE LINES ABOVE GROUND; STD. WT., C.I. SOIL PIPE AND FITTINGS OR HUBLESS, C.I. SOIL PIPE AND FITTINGS. UP THRU 2-1/2" MAY BE STD. WTG., GALV. STEEL PIPE W/BLACK, C.I. DRAINAGE FITTINGS.

2. VENT LINES ABOVE GROUND; STD. WT., C.I. SOIL PIPE AND FITTINGS, HUBLESS C.I. SOIL PIPE AND FITTING OR, STD. WT., GALV. STEEL PIPE W/150 LB., GALV. MALL. IRON FITTINGS FOR LINES 1-1/2" AND OVER, FOR LINES 1-1/4" AND LESS, BLACK, C.I. 125 LB. SWP FITTINGS.

3. ALL WASTE AND VENT PIPING ABOVE GRADE MAY BE DWV COPPER PIPE AND FITTINGS USING SOLDER SPECIFIED ABOVE FOR WATER PIPING.

4. WASTE AND VENT PIPING MAY BE PVC DWV PIPE WITH SOLVENT WELD DWV FITTINGS IF ACCEPTABLE TO THE PLUMBING INSPECTION AUTHORITY HAVING JURISDICTION. PROVIDE WRITTEN CONFIRMATION OF LOCAL AUTHORITY ACCEPTANCE PRIOR TO INSTALLING NEW WORK. PVC PIPING INSTALLATION SHALL BE PERFORMED IN STRICT CONFORMANCE WITH THE MANUFACTURER'S REQUIREMENTS FOR COUPLING PREPARATION AND INSTALLATION CONDITIONS.

1.03 FIXTURES AND EQUIPMENT
A. FIXTURES
1. INSTALL FIXTURES AND/OR ROUGH-IN ACCORDING TO THE SPECIFICATIONS.

2. SECURE FIXTURES TO WALLS AND FLOOR OR COUNTERTOPS IN ACCORDANCE WITH MANUFACTURER'S ROUGHING-IN AND SETTING REQUIREMENTS AND FORM A RIGID INSTALLATION.

3. ALL PIPE AT THE FIXTURES WHICH MAY BE EXPOSED TO VIEW SHALL BE BRASS CHROME FINISH, FINISHED WITH CHROME ESCUTCHEONS WHERE THEY PROJECT FROM WALLS AND FLOORS.

4. STOP VALVES SHALL BE FURNISHED AND INSTALLED AT ALL FIXTURES, FOR ALL EQUIPMENT AND AT ROUGH-IN LOCATIONS.

5. FURNISH AND INSTALL AIR GAP FITTING ON DISHWASHER WASTE.

6. ALL PLUMBING TRIM, VALVES, ETC. TO MEET APPLICABLE WATER CONSERVATION CODE.

1.04 GAS PIPING MATERIALS
A. PIPE AND FITTINGS: SCHEDULE 40, ASTM-A53 BLACK STEEL PIPE.
1. ABOVE GRADE PIPING; 2 INCHES AND SMALLER, USE 150 LB. MALLEABLE IRON FITTINGS AND THREADED JOINTS IN EXPOSED LOCATIONS AND STANDARD WEIGHT SOCKET WELD FITTINGS AND WELDED JOINTS IN INACCESSIBLE LOCATIONS.

2. BELOW GRADE PIPING; USE 150 LB. FORGED STEEL FITTINGS AND WELDED JOINTS. PROVIDE CATHODIC PROTECTION AS REQUIRED. PIPING SHALL BE PROVIDED WITH A FACTORY APPLIED COATING OF EITHER FUSION BONDED EPOXY OR TAPE WRAP. FACTORY COATING MUST BE ACCEPTABLE TO THE UTILITY COMPANY.

B. VALVES

1. LUBRICATED PLUG VALVES
CLASS 125, 175 LB. W.O.G. CAST IRON, SCREWED OR FLANGED WITH LOW FRICTION COATED PLUG.

2. NON-LUBRICATED PLUG VALVES
CLASS 150, 175 LB. W.O.G. SEMI STEEL, SCREWED OR FLANGED, DEZUNIK 425, RS49, KEYSTONE 1512 OR 1522, OR RESUN FIG. R-1430 OR R-1431.

C. TESTS AND ADJUSTMENTS

1. PRESSURE TEST ENTIRE GAS PIPING SYSTEM IN ACCORDANCE WITH THE REQUIREMENTS OF NFPA 54 AND THE LOCAL FUEL GAS CODE. AFTER PRESSURE TEST, PURGE LINES PER NFPA 54 INSTRUCTIONS.

END OF SECTION

FIXTURE SPECIFICATIONS:

MAXIMUM HOT WATER SUPPLY TEMPERATURE OUTSIDE OF KITCHEN=110°F, PROVIDE TEMPERING DEVICE.

FLOOR DRAIN (FD):

FIXTURE: ZURN COMPANY SERIES ZN-415-P, COATED CAST IRON FLOOR DRAIN, 1/2" TRAP PRIMER CONNECTION, TWO-PIECE BODY, DOUBLE DRAINAGE FLANGE, INVERTIBLE NON-PUNCTURING FLASHING COLLAR, WEEPHOLES, BOTTOM OUTLET INSIDE CAULK CONNECTION, ADJUSTABLE ROUND SUPER-FLO STAINER, FLASHING CLAMP WITH 24"x24" 4LB. LEAD FLASHING FOR FLOOR DRAINS INSTALLED ABOVE SLAB ON GRADE.

STRAINER: ZURN COMPANY "TYPE B", 5" DIAMETER NICKEL BRONZE FINISH.

WASTE: SIZE AS NOTED ON DRAWINGS, CAST IRON P-TRAP UNDER FLOOR.

TRAP GUARD (TG):

FIXTURE: PROVIDE EACH FLOOR DRAIN WITH PROSET TRAP GUARD SIZED APPROXIMATE FOR ASSOCIATED FLOOR DRAIN.

WC (WATER CLOSET): ADA
(FLOOR MOUNTED – FLUSH TANK)

FIXTURE:	ZURN Z5551-K PRESSURE ASSIST – 1.6 GPF
SEAT:	ZURN Z5955SS-EL
SUPPLY:	BRASSCRAFT CR3912

L-1 (LAVATORY:) ADA
(WALL HUNG)

FIXTURE:	ZURN Z5344
FAUCET:	ZURN ZZ81104-3M (0.5 GPM)
DRAIN:	ZURN Z8746-PC
P-TRAP:	ZURN Z8700 SERIES
SUPPLIES:	ZURN Z8800 SERIES
COVERS:	ZURN Z8946-3-NT

S-1 (SINGLE COMPARTMENT SINK:)
(COUNTERTOP)

FIXTURE:	JUST SL-ADA-2131-A501-J
FAUCET:	DELTA 710WF-HDF
DRAIN:	JUST J-ADA-35
P-TRAP:	PVC MASTER TRAP
SUPPLIES:	BRASSCRAFT SR3912

SHR (SHOWER:)

FAUCET:	ZURN Z7301-SS-MT-S9

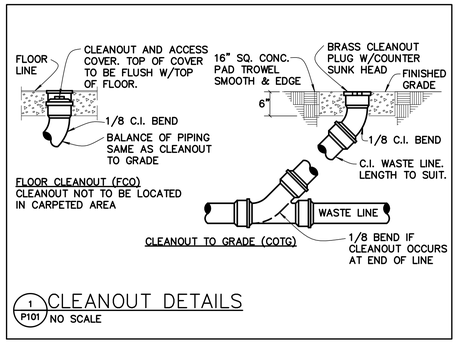
SS (UTILITY SINK:)
(FLOOR MOUNTED)

FIXTURE:	MUSTEE MODEL 19CF
FAUCET:	INCLUDED WITH SINK KIT
DRAIN:	INCLUDED WITH SINK KIT
P-TRAP:	PVC MASTER TRAP
SUPPLIES:	BRASSCRAFT SR3912

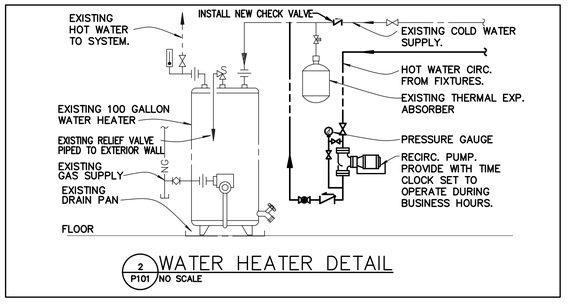
MS (FLOOR MOUNTED MOP SINK:)

FIXTURE:	MUSTEE MODEL 63M, 24"x24"x10" FLOOR MOP SINK KIT, FIBERGLASS, WHITE, WITH SERVICE FAUCET

END OF SECTION



1 P101 CLEANOUT DETAILS
NO SCALE



2 P101 WATER HEATER DETAIL
NO SCALE

GENERAL NOTES:

1. PLUMBING CONTRACTOR SHALL FIELD COORDINATE WITH ELECTRICAL CONTRACTOR FOR ALL POWER REQUIREMENTS.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFICATION OF ALL EXISTING CONDITIONS PRIOR TO SUBMITTING THEIR BID. NO ADDITIONAL COMPENSATION WILL BE MADE FOR ANY EXTRAS DUE TO CONTRACTOR'S FAILURE TO VISIT THE JOBSITE AND/OR PREDETERMINE. ANY DISCREPANCIES SHALL BE IMMEDIATELY REPORTED TO THE ENGINEER FOR RESOLUTION.
3. PROVIDE SHUT-OFF VALVES ABOVE ACCESSIBLE CEILING SPACE ON ALL BRANCH LINES AND PRIOR TO DROPS BELOW FLOOR, TYPICAL.
4. REFER TO OTHER DRAWINGS FOR DETAILS EQUIPMENT CONNECTIONS, FIXTURE SCHEDULE, ETC.
5. CONTRACTOR TO VERIFY LOCATIONS OF ALL UTILITIES ON SITE.
6. CONTRACTOR IS TO PROVIDE COMPLETE CONNECTIONS TO OWNER FURNISHED EQUIPMENT.
7. CONTRACTOR TO COORDINATE THE LOCATION OF ALL CEILING DEVICES WITH REFLECTED CEILING PLAN AND STRUCTURE PRIOR TO BEGINNING WORK.
8. PLUMBING DRAWINGS ARE DIAGRAMMATIC AND DO NOT NECESSARILY INDICATE EVERY REQUIRED OFFSET, FITTING, ETC. DRAWINGS ARE NOT TO BE SCALED FOR DIMENSIONS. TAKE ALL DIMENSIONS FROM ARCHITECTURAL DRAWINGS, CERTIFIED EQUIPMENT DRAWINGS AND FROM THE STRUCTURE ITSELF BEFORE FABRICATING ANY WORK. VERIFY ALL SPACE REQUIREMENTS COORDINATING WITH OTHER TRADES, AND INSTALL THE SYSTEMS IN THE SPACE PROVIDED WITHOUT EXTRA CHARGES TO THE OWNER.
9. THE OWNER AND ENGINEER ARE NOT RESPONSIBLE FOR THE CONTRACTOR'S SAFETY PRECAUTIONS OR TO MEANS, METHODS, TECHNIQUES, CONSTRUCTION SEQUENCES, OR PROCEDURES REQUIRED TO PERFORM HIS WORK.
10. ALL WORK SHALL BE INSTALLED IN ACCORDANCE WITH ALL APPLICABLE STATE CODES, LOCAL CODES AND OWNER'S STANDARDS INDICATED BY THE CONSTRUCTION DOCUMENTS.
11. ALL EXISTING PIPING AND APPURTANCES TO REMAIN UNLESS SPECIFICALLY NOTED TO BE REMOVED OR RENOVATED.

PLUMBING LEGEND

GATE VALVE	CW COLD WATER
PLUG OR BALANCING VALVE	HW HOT WATER
SAFETY RELIEF VALVE	HWC HOT WATER CIRCULATING
BALL VALVE	CA COMPRESSED AIR
PRESSURE REDUCING VALVE	VAC VACUUM
TEMPERATURE CONTROL VALVE, 2-WAY	FCW FILTERED COLD WATER
PIPE CAP	G GAS
(CO) PIPE CLEANOUT	V PLUMBING VENT PIPE
(WCO) WALL CLEANOUT	W WASTE PIPE
(FCO) FLOOR CLEANOUT	D DRAIN
FLOOR DRAIN WITH TRAP PRIMER	POINT OF PIPE CONNECTION NEW TO EXISTING

NOTE
ALL SYMBOLS SHOWN ON LEGEND ARE NOT NECESSARILY USED ON THIS PROJECT.

ABBREVIATIONS

A/C	ABOVE CEILING	COND.	CONDENSATE
AFF	ABOVE FINISH FLOOR	CW	COLD WATER
AD	AREA DRAIN	DP	DRAIN PIPE
B/F	BELOW FLOOR	NG	NATURAL GAS
B/G	BELOW GRADE	SAN	SANITARY DRAINAGE PIPE
B/S	BELOW SLAB	GV	GATE VALVE
BV	BALANCING VALVE	VS	VENT STACK

FIXTURE UNIT SCHEDULE

MARK	FIXTURE TYPE	MINIMUM CONNECTION SIZE CW	HW	W	REMARKS	NOTES
WC	WATER CLOSET (ADA)	1/2"	–	4"	15" SEAT HEIGHT	–
L-1	LAVATORY (ADA)	1/2"	1/2"	1-1/4"	WALL HUNG	1,3
S-1	SINGLE COMP. SINK	1/2"	1/2"	1-1/2"	COUNTERTOP	2,3
SHR	SHOWER (ADA)	1/2"	1/2"	3"	–	1,3
SS	SERVICE SINK	1/2"	1/2"	2"	–	1,3
MS	MOP SINK	1/2"	1/2"	3"	–	3,4

NOTES:
1. ALL MATERIALS AND INSTALLATION SHALL BE IN ACCORDANCE WITH A.D.A. REQUIREMENTS.
2. SEE ARCHITECTURAL DRAWINGS FOR HEIGHT OF COUNTERTOP.
3. MAXIMUM HOT WATER SUPPLY TEMP.=110°F.
4. FAUCET SHALL BE MOUNTED 36" A.F.F. OR THE LOWEST PART OF THE FAUCET TO BE 30" A.F.F.

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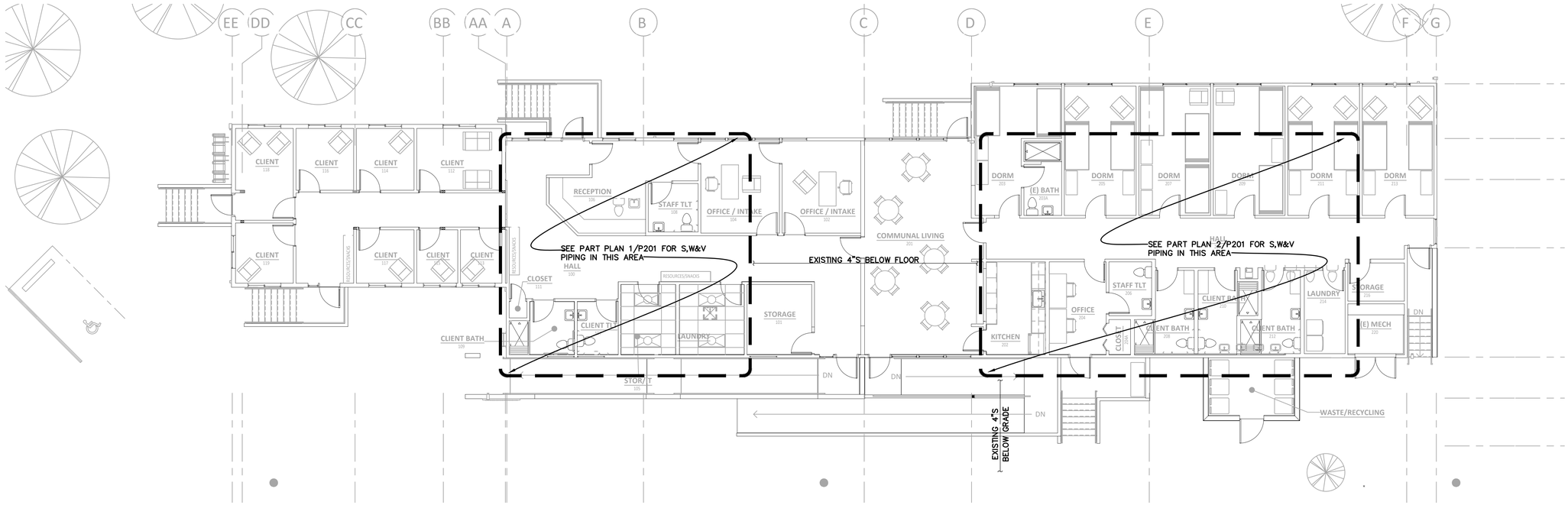
PRELIMINARY DRAWINGS

SEAL:
REGISTERED PROFESSIONAL ENGINEER
105022PE
OREGON
JUNE 30, 2026
THOMAS JOHN SCHIRMER

REVISIONS DATE

PROJECT MANAGER: TS
DRAWING BY: DRG
JURISDICTION:
DATE: 04.30.2024
SCALE:
TITLE:
PLUMBING SPEC'S, SCHEDULES & DETAILS

SHEET NUMBER:
P101
COMMENTS:
JOB/FILE NUMBER: 00.2179.001



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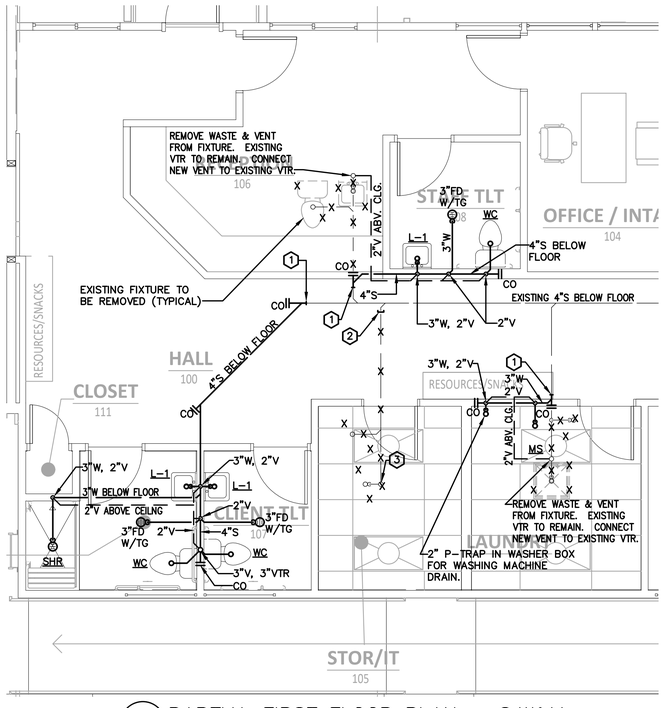
PLUMBING FLOOR PLAN – S,W&V

SCALE: 1/8" = 1'–0"

8' 0 8' 16'



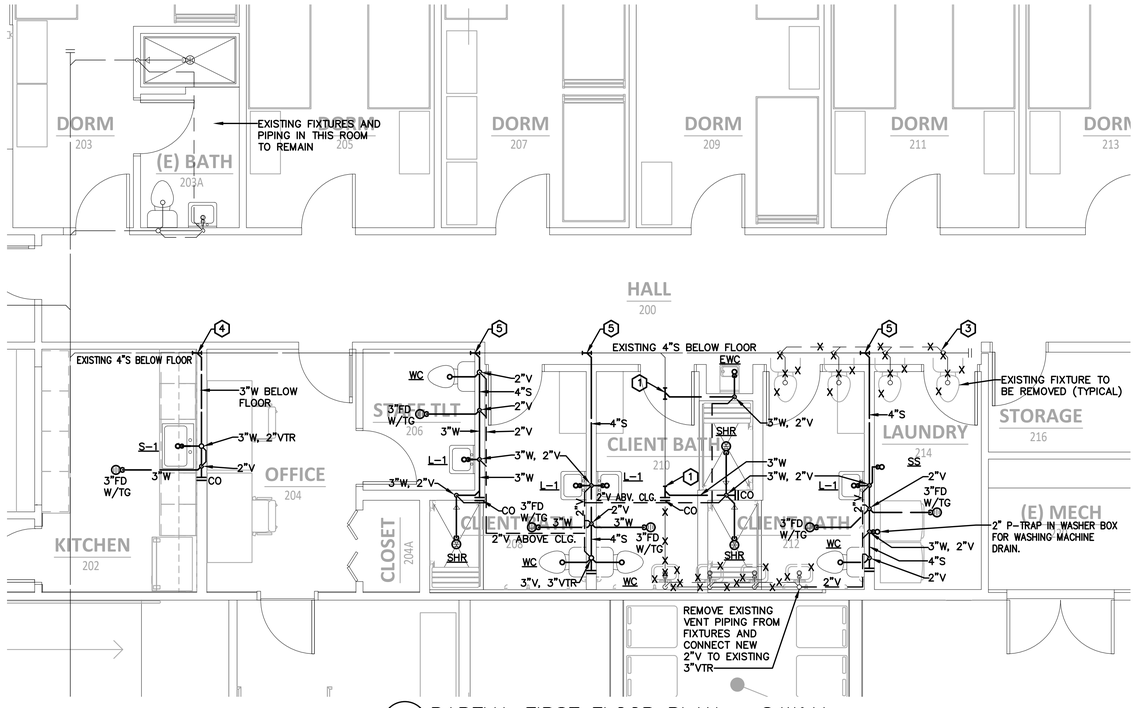
1 P201 PARTIAL FIRST FLOOR PLAN – S,W&V

SCALE: 1/4" = 1'–0"

4' 0 4' 8'

KEY NOTES:

1. REMOVE EXISTING SANITARY PIPING UPSTREAM OF THIS POINT AND EXTEND AS SHOWN.
2. REMOVE EXISTING SANITARY PIPING UPSTREAM OF THIS POINT AND CAP BELOW FLOOR.
3. REMOVE EXISTING ASSOCIATED VENT PIPING AND EXISTING VTR.
4. CONNECT NEW 3"W TO EXISTING WASTE PIPING BELOW FLOOR AND EXTEND AS SHOWN.
5. CONNECT NEW 4"S TO EXISTING SANITARY PIPING BELOW FLOOR.



2 P201 PARTIAL FIRST FLOOR PLAN – S,W&V

SCALE: 1/4" = 1'–0"

4' 0 4' 8'

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THOMAS JOHN SCHIRMER

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PROJECT MANAGER:	TS
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SCALE:	

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PLUMBING FLOOR PLAN - S,W&V

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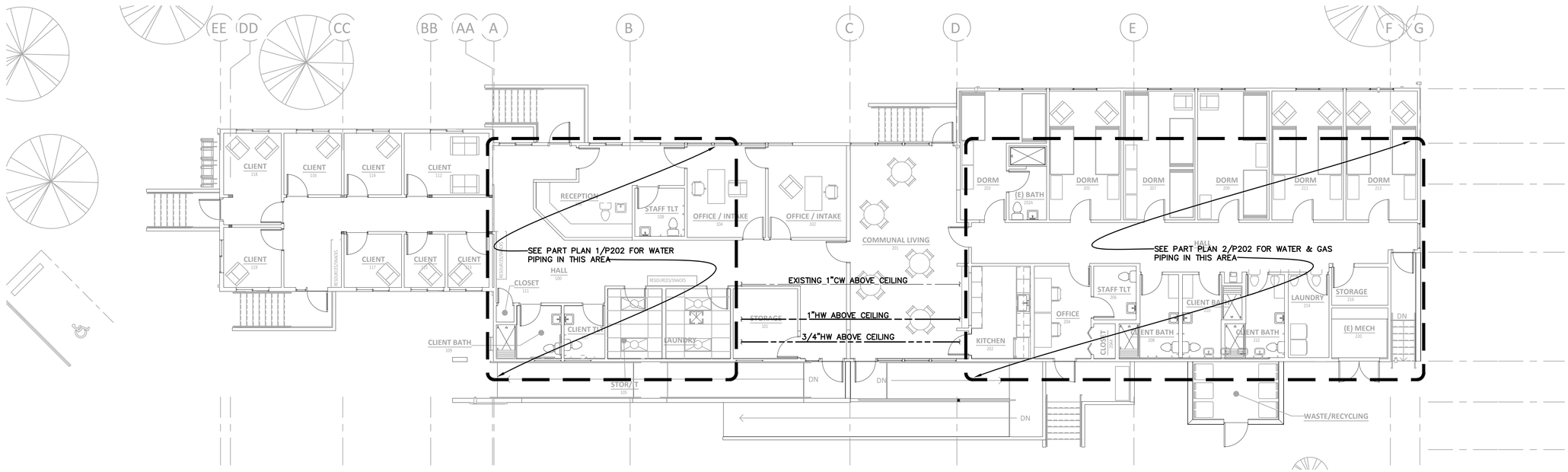


N

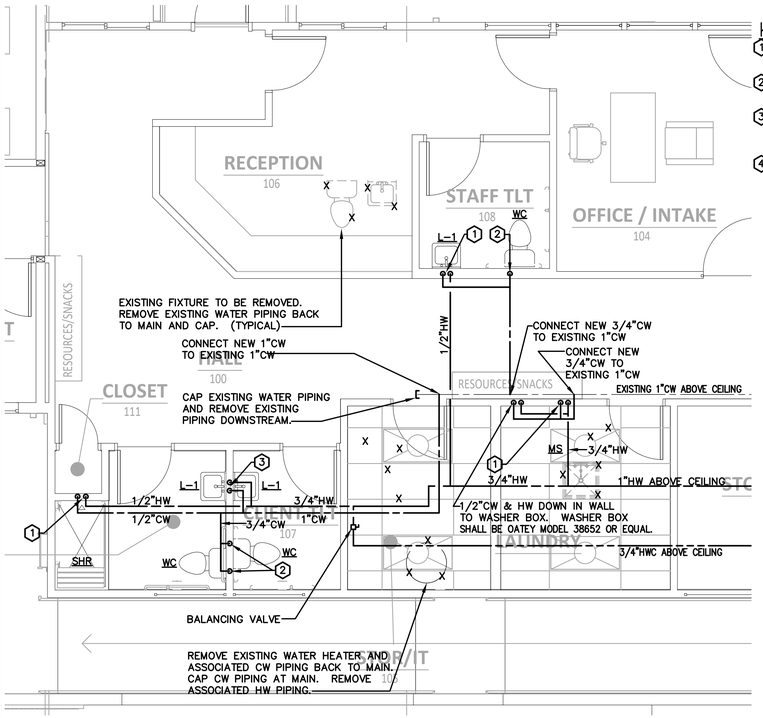
PLUMBING FLOOR PLAN – WATER & GAS

SCALE: 1/8" = 1'-0"

8' 0 8' 16'

KEY NOTES:

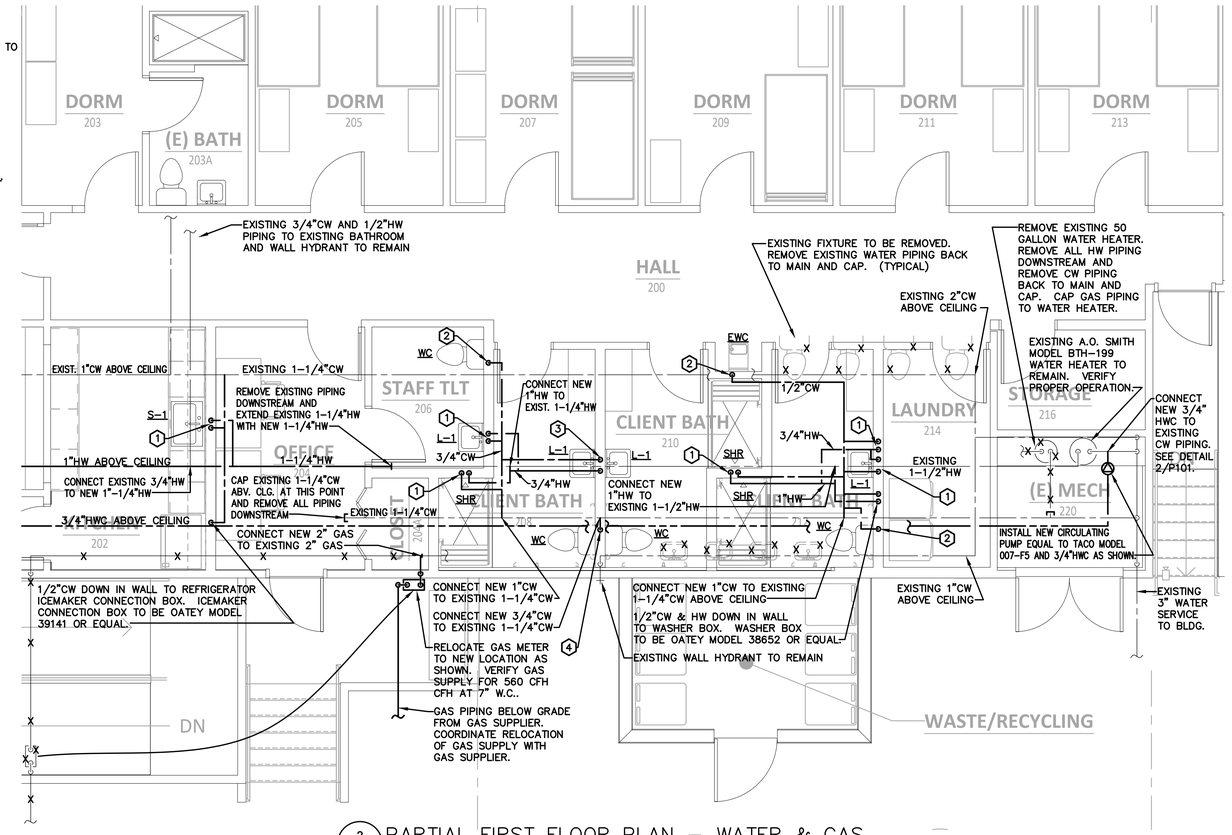
1. 1/2"CW & HW DOWN IN WALL TO FIXTURE.
2. 1/2"CW DOWN IN WALL TO FIXTURE.
3. 3/4"CW & HW DOWN IN WALL WITH 1/2"HW & CW TO EACH FIXTURE L-1.
4. 3/4"CW DOWN IN WALL WITH 1/2"CW TO EACH FIXTURE WC.



1/P202 PARTIAL FIRST FLOOR PLAN – WATER

SCALE: 1/4" = 1'-0"

4' 0 4' 8'



2/P202 PARTIAL FIRST FLOOR PLAN – WATER & GAS

SCALE: 1/4" = 1'-0"

4' 0 4' 8'

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DATE:	04.30.2024
SCALE:	

TITLE:

PLUMBING FLOOR PLANS - WATER & GAS

SHEET NUMBER:

P202

COMMENTS:

JOB/FILE NUMBER:

00.2179.001

ELECTRICAL LEGEND

NOTE: ALL SYMBOLS SHOWN ON LEGEND ARE NOT NECESSARILY USED.

LIGHTING

- DOWNLIGHT
- WALL MOUNTED LUMINAIRE, AS NOTED
- 2X4 RECESSED MOUNTED LUMINAIRE
- 2X2 RECESSED MOUNTED LUMINAIRE
- CEILING OR WALL MOUNTED LUMINAIRE
- (K) PORCELAIN KEYLESS
- SURFACE MOUNTED LUMINAIRE
- RECESS MOUNTED LUMINAIRE
- RECESS MOUNTED LUMINAIRE WITH MODULAR WIRING CONNECTOR
- STRIP LUMINAIRE
- TRACK LIGHT, AS NOTED OR SCHEDULED
- DIRECTIONAL ACCENT OR WALL-WASH LUMINAIRE
- RECESSED KNEE LUMINAIRE
- BOLLARD
- CEILING OR WALL MOUNTED EXIT SIGN, INSTALL FACES AS INDICATED BY SHADING
- EMERGENCY LIGHT AS NOTED AS NOTED

POWER

- STRAIGHT BLADE DUPLEX RECEPTACLE
  - SUBSCRIPTS:
    - USB = USB CHARGING
    - HGT = HOSPITAL GRADE TAMPER RESISTANT
    - GFI = GROUND FAULT INTERRUPTER
    - SS = SURGE SUPPRESSION
    - AC = 6" ABOVE COUNTER
- STRAIGHT BLADE DOUBLE DUPLEX RECEPT. (QUADRUPLEX)
- STRAIGHT BLADE SINGLE RECEPTACLE
- STRAIGHT BLADE DUPLEX RECEPT. HALF-SWITCHED
- STRAIGHT BLADE DUPLEX RECEPT. ON EMERGENCY CIRCUIT
- OUTLET WITH SPECIAL DEVICE, AS NOTED
- WALL MOUNTED OUTLET WITH SPECIAL DEVICE, AS NOTED
- FLOOR MOUNTED POWER BOX, AS NOTED
- FLOOR MOUNTED COMBINATION OUTLET BOX, AS NOTED
- POKE THROUGH, AS NOTED
- PEDESTAL OUTLET, AS NOTED
- J JUNCTION BOX AS NOTED
- J OUTLET BOX
- J WALL MOUNTED OUTLET BOX
- D ABOVE CEILING POWER DISTRIBUTION BOX
- SURFACE RACEWAY, AS NOTED
- C CLOCK HANGER OUTLET
- TELE-POWER POLE
- PB PULL BOX
- M CONNECTION TO MOTOR
- MAGNETIC MOTOR STARTER
  - SUBSCRIPTS:
    - MS = MULTISPEED
    - SSRV = SOLID-STATE, REDUCED VOLTAGE
    - VF = VARIABLE FREQUENCY
- N SAFETY DISCONNECT SWITCH
- F FUSED DISCONNECT SWITCH
- COMBINATION DISCONNECT AND STARTER
- ENCLOSED CIRCUIT BREAKER, MOLDED-CASE, THERMAL-MAGNETIC
  - SUBSCRIPTS:
    - AT = ADJUSTABLE TRIP
    - EAT = ELECTRONIC ADJUSTABLE TRIP
    - CL = CURRENT LIMITING
    - IF = INTEGRALLY FUSED
    - GFCI = GROUND FAULT CIRCUIT INTERRUPTER
    - ST = SHUNT TRIP
    - KI = KEY INTERLOCK
    - ZSI = ZONE-SELECTIVE INTERLOCKING
- CONNECTION TO PRE-WIRED EQUIPMENT
- BREAKER PANEL
- MCC MOTOR CONTROL CENTER
- SS TRANSIENT VOLTAGE SURGE SUPPRESSOR
- T TRANSFORMER
- G ENGINE GENERATOR

CIRCUITING

- CONDUIT RUN
- CIRCUIT HOMERUN TO PANEL OR CABINET, NO. OF ARROWS INDICATE NO. OF CIRCUITS
- CIRCUIT TURNED UP
- CIRCUIT TURNED DOWN
- CONDUIT STUB-OUT - CAP & MARK
- CIRCUIT IN FLEXIBLE CONDUIT
- SEALOFF

SWITCHING

- S WALL MOUNTED SWITCH
  - SUBSCRIPTS:
    - 2 = DOUBLE POLE
    - 3 = 3-WAY
    - 4 = 4-WAY
    - D = DIMMER
    - K = KEY-OPERATED
    - O = SWITCH MOUNTED OCCUPANCY SENSOR
    - P = PILOT LIGHT
    - T = TIME SWITCH
    - LV = LOW VOLTAGE
    - DS = DOOR SWITCH

SCHEMATIC WIRING GRAPHICS

- M METER
- GROUND CONNECTION AS NOTED
- FUSED DISCONNECT SWITCH
- FUSES
- MAGNETIC MOTOR STARTER
  - SUBSCRIPTS:
    - MS = MULTISPEED
    - SSRV = SOLID-STATE, REDUCED VOLTAGE
    - VF = VARIABLE FREQUENCY
- ENCLOSED CIRCUIT BREAKER, MOLDED-CASE, THERMAL-MAGNETIC
  - SUBSCRIPTS:
    - AT = ADJUSTABLE TRIP
    - EAT = ELECTRONIC ADJUSTABLE TRIP
    - CL = CURRENT LIMITING
    - IF = INTEGRALLY FUSED
    - GFCI = GROUND FAULT CIRCUIT INTERRUPTER
    - ST = SHUNT TRIP
    - KI = KEY INTERLOCK
    - ZSI = ZONE-SELECTIVE INTERLOCKING
- POWER TRANSFORMER
- CURRENT TRANSFORMER
- A AMMETER
- V VOLT METER
- TRANSFER SWITCH
- GF GROUND FAULT PROTECTION
- G GENERATOR
- 3 MOTOR, NUMBER INDICATES HORSEPOWER

FIRE ALARM SYSTEM

- FACP FIRE ALARM CONTROL PANEL
- FAGP FIRE ALARM GRAPHIC PANEL
- FAAP FIRE ALARM ANNUNCIATOR PANEL
- F MANUAL PULL STATION
- FIRE ALARM STROBE
- F GENERAL ALARM COMBINATION HORN/STROBE
- H FIRE ALARM HORN
- F F CEILING OR WALL MOUNTED DETECTOR
  - SUBSCRIPTS:
    - I = IONIZATION
    - T = THERMAL, FIXED AND RATE-OF-RISE
    - TF = THERMAL, FIXED
    - T165° = 165°F THERMAL, FIXED AND RATE-OF-RISE
    - TF165° = 165°F THERMAL, FIXED
    - P = PHOTOELECTRIC
    - PT = COMBINATION PHOTOELECTRIC AND THERMAL
- F SMOKE DETECTOR IN VENTILATING DUCT
- FAD FAN SHUT-DOWN CONNECTION
- F MAG. DOOR HOLDER
- F SPRINKLER SYSTEM FLOW SWITCH
- T SPRINKLER SYSTEM TAMPER SWITCH
- F FIREFIGHTERS TELEPHONE JACK
- L F LIFE SAFETY SPEAKER
- L LIFE SAFETY SPEAKER WITH STROBE
- P REMOTE PILOT LIGHT
- P/T REMOTE PILOT LIGHT WITH TEST SWITCH
- M MONITOR MODULE
- M CONTROL MODULE
- D DAMPER CONNECTION

COMMUNICATION SYSTEM

- FLOOR MOUNTED TELEPHONE AND/OR DATA OUTLET BOX, AS NOTED
- WALL MOUNTED TELEPHONE OUTLET
- WALL MOUNTED DATA OUTLET
- WALL MOUNTED COMBINATION TELEPHONE/DATA OUTLET BOX
- P PAY PHONE
- TELEPHONE TERMINAL BOARD - TTB
- S S CEILING OR WALL MOUNTED SPEAKER
- V VOLUME CONTROL
- M M FLOOR OR WALL MOUNTED MICROPHONE OUTLET
- C CALL-IN SWITCH
- S T TIME-TONE UNIT
- C CEILING OR WALL MOUNTED CLOCK
- B PROGRAM BELL
- B BUZZER
- I HOUSE PHONE/INTERCOM
- I M MASTER INTERCOM STATION
- TV TELEVISION OUTLET
- CC CLOSED CIRCUIT TV OUTLET
- A AMPLIFIER

NOTATIONS

1 - UPPER CASE LETTER AT LUMINAIRES (F1, I1, ETC.) INDICATES LUMINAIRE TYPE. (F1) = TYPE F1 LUMINAIRES IN AREA INDICATED.

2 - LOWER CASE LETTER AT LUMINAIRES AND SWITCHES (a, b, ETC.) INDICATE ASSOCIATED UNITS FOR SWITCHING.

3 - SHADING WITHIN LUMINAIRE DENOTES UNIT ON EMERGENCY (EM) CIRCUIT.

4 - "NL" WITHIN LUMINAIRES DENOTES UNIT ON NIGHT LIGHT CIRCUIT.

5 - PLUS (+) SIGN WITH DIMENSION AT OUTLET INDICATES HEIGHT ABOVE FINISHED FLOOR OR GRADE TO CENTERLINE OF OUTLET.

ABBREVIATIONS

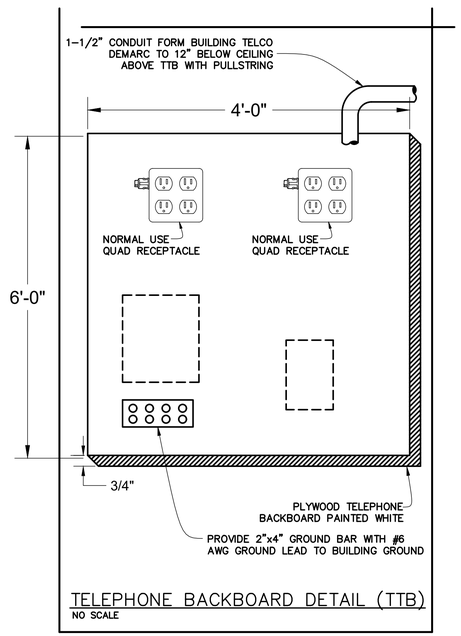
NOTE: ALL ABBREVIATIONS SHOWN ARE NOT NECESSARILY USED.

AC	- ABOVE COUNTER
AFC	- ABOVE FINISHED CEILING
AFF	- ABOVE FINISHED FLOOR
AFG	- ABOVE FINISHED GRADE
AIC	- AMPS INTERRUPTING CURRENT
AL	- ALUMINUM
BFG	- BELOW FINISHED GRADE
CB	- CIRCUIT BREAKER
CR	- CORROSION RESISTANT
CPT	- CONTROL POWER TRANSFORMER
CT	- CURRENT TRANSFORMER
CU	- COPPER
ELR	- END OF LINE RESISTOR
EM	- EMERGENCY
ES	- EMERGENCY STOP
ETM	- ELAPSED TIME METER
EWC	- ELECTRIC WATER COOLER
FLA	- FULL LOAD AMPS
FVNR	- FULL VOLTAGE, NON-REVERSING
FVR	- FULL VOLTAGE, REVERSING
FWE	- FURNISHED WITH EQUIPMENT
GFI	- GROUND FAULT INTERRUPTER
GRC	- GALVANIZED RIGID CONDUIT
HOA	- HAND-OFF-AUTOMATIC
HP	- HORSEPOWER
IG	- ISOLATED GROUND
LC	- LIGHTING CONTACTOR
LOR	- LOCAL-OFF-REMOTE
LS	- LEVEL SWITCH
LT	- LET THROUGH
MCA	- MINIMUM CIRCUIT AMPS
MCB	- MAIN CIRCUIT BREAKER
MCC	- MOTOR CONTROL CENTER
MCCB	- MOLDED CASE CIRCUIT BREAKER
MCP	- MOTOR CIRCUIT PROTECTION
MLO	- MAIN LUGS ONLY
NC	- NORMALLY CLOSED
NIC	- NOT IN CONTRACT
NL	- NIGHT LIGHT
NO	- NORMALLY OPEN
NTS	- NOT TO SCALE
OC	- OVER CURRENT
OL	- OVERLOAD
PT	- POTENTIAL TRANSFORMER
RVNR	- REDUCED VOLTAGE, NON-REVERSING
SC	- SHORT CIRCUIT
SR	- SAFE OR STOP/RUN
TTB	- TELEPHONE TERMINAL BOARD
UG	- UNDERGROUND
VFD	- VARIABLE FREQUENCY DRIVE
WG	- WIREGUARD
WP	- WEATHERPROOF
XFMR	- TRANSFORMER
XP	- EXPLOSION PROOF
ZS	- LIMIT OR POSITION SWITCH

THESE DRAWINGS ARE DIAGRAMMATIC - REFER TO ARCHITECTURAL DRAWINGS FOR EXACT DIMENSIONS. BRANCH CIRCUITING CONVENTION - #12 AWG PER PHASE AND NEUTRAL (WHERE REQUIRED) AND 20 AMPERE CIRCUIT BREAKER, UNLESS OTHERWISE NOTED. PROVIDE QUANTITY AND SIZE SWITCH CONDUCTORS AS REQUIRED TO MAKE SYSTEM OPERATIONAL.

GENERAL NOTES (FOR ALL ELECTRICAL SHEETS)

1. COORDINATE LOCATION OF LUMINAIRES WITH ARCHITECTURAL REFLECTED CEILING PLANS.
2. PROVDE (1) 3/4"C. WITH CAT6 CABLE FROM EACH TELEPHONE, DATA OR COMMUNICATION OUTLET SHOWN, ALL TERMINATIONS ARE TO BE COMPLETED BY THE GENERAL CONTRACTOR AND PUNCHED DOWN TO 24 PORT PATCH PANEL ON TELCO BACKBOARD.
3. COORDINATE EXACT EQUIPMENT LOCATIONS WITH OWNER PRIOR TO ROUGH-INS.
4. COORDINATE LOCATION OF ALL OUTLETS WITH ARCHITECTURAL ELEVATIONS, CASEWORK SHOP DRAWINGS AND EQUIPMENT INSTALLATION DRAWINGS.
5. ANY ITEMS DAMAGED BY THE CONTRACTOR SHALL BE REPLACED BY THE CONTRACTOR.
6. ALL 120V BRANCH CIRCUITS SHALL BE 3-WIRE (PHASE,NEUTRAL,GROUND).
7. CONTRACTOR SHALL NOT ROUTE ANY CONDUIT WITHIN STRUCTURAL OR TOPPING SLABS OF FLOORS UNLESS NOTED TO DO SO.
8. REFER TO ARCHITECTURAL PLANS, ELEVATIONS AND DIAGRAMS FOR LOCATIONS OF FLOOR DEVICES AND WALL DEVICES. LOCATION WILL INDICATE VERTICAL AND/ OR HORIZONTAL MOUNTING. IF DEVICES ARE NOT NOTED OTHERWISE THEY SHALL BE MOUNTED LONG AXIS VERTICAL AT +16" TO CENTER.
9. INFORMATION ON THE DRAWINGS HAS BEEN ASCERTAINED FROM INFORMATION PROVIDED BY OTHERS. THIS INFORMATION IS AS ACCURATE AS CONDITIONS WOULD ALLOW. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VISIT THE SITE, PRIOR TO BID, AND FAMILIARIZE HIMSELF WITH THE EXTENT OF REMODEL WORK REQUIRED. NO EXTRAS WILL BE ALLOWED FOR ALTERATIONS OF A FORESEEABLE NATURE REQUIRED TO ACHIEVE THE END RESULT AS INDICATED BY CONTRACT DOCUMENTS.
10. ALL NEW WIRING REQUIRED IN REMODELED AREAS SHALL BE FISHED THROUGH EXISTING WALLS OR CONCEALED IN NEW WALLS OR ABOVE CEILINGS. SURFACE MOUNTED CONDUIT SHALL NOT BE USED IN ANY FINISHED AREAS.
11. MAINTAIN CIRCUIT CONTINUITY FOR ALL EXISTING ITEMS THAT ARE REMAINING OR BEING RELOCATED.
12. WHERE EXISTING DEVICES, SWITCHES, MOTOR CONNECTIONS, ETC. ARE TO BE REMOVED FROM WALLS WHICH ARE REMAINING, WALLS SHALL BE PATCHED TO MATCH ORIGINAL FINISH, AFTER CONDUCTORS HAVE BEEN REMOVED. BLANK COVERPLATES OVER EXISTING BOXES ARE NOT ACCEPTABLE.
13. IF EXISTING CONDUITS ARE ROUTED IN CONCRETE FLOOR SLABS, CONCRETE WALLS OR CONCRETE CEILINGS, THEY SHALL BE CUT BACK TO WITHIN CONCRETE AND FILLED WITH GROUT TO ACHIEVE A SMOOTH AND EVEN FINISH FLUSH WITH CONCRETE SURFACE AFTER CONDUCTORS HAVE BEEN REMOVED.
14. IF AREA ABOVE ACCESSIBLE CEILINGS ARE USED AS HVAC FREE RETURN PLENUM. ALL MATERIALS EXPOSED ABOVE CEILINGS (WITHIN PLENUM) SHALL EITHER BE NON-COMBUSTIBLE -or- SHALL HAVE A FLAME SPREAD INDEX OF NOT MORE THAN 25 AND A SMOKE DEVELOPED INDEX OF NOT MORE THAN 50 AS DETERMINED IN ACCORDANCE WITH ASTM E 84 (EXCEPT FOR TESTED AND LABELED WIRING, FIRE SPRINKLER PIPING, PNEUMATIC TUBING, AND ELECTRICAL EQUIPMENT).
15. ELECTRICAL OUTLET OR SWITCH BOXES ARE NOT TO BE PERMITTED ADJACENT TO EACH OTHER IN RATED FIREWALL CONSTRUCTION. THE BOXES MUST BE SPACED A MINIMUM OF 2'-0" LATERALLY APART OR PROVIDED WITH FIRE PUTTY PADS EQUIVALENT TO THE FIREWALL RATING. SEE ARCHITECTURAL PLANS FOR LOCATIONS AND RATINGS OF FIRE WALLS.
16. FIRE ALARM, IF REQUIRED, SHALL BE PROVIDED BY CONTRACTOR IN THE FORM OF SHOP DRAWING BY NICET LEVEL II OR ABOVE FOR REVIEW BY ENGINEER.



TELEPHONE BACKBOARD DETAIL (TTB)
NO SCALE

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REVISIONS | DATE

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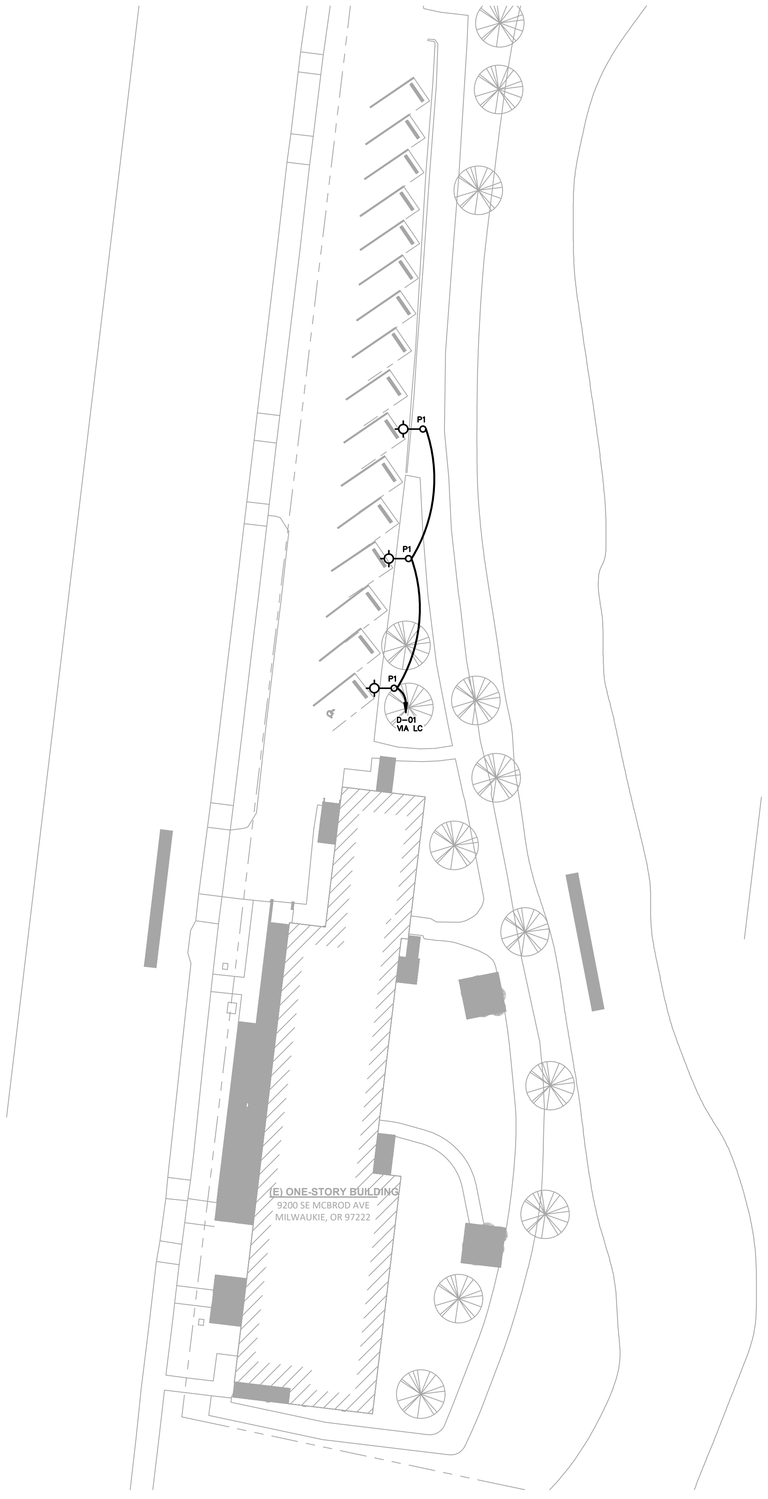
SCALE:

TITLE:
ELECTRICAL LEGEND, SYMBOLS AND GENERAL NOTES

SHEET NUMBER:
E001

COMMENTS:

JOB/FILE NUMBER:
00.2179.001



ELECTRICAL SITE PLAN

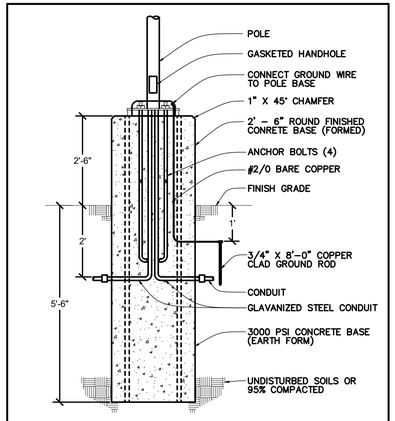
SCALE: 1" = 20'-0"

20' 0 20' 40'

LUMINAIRE SCHEDULE

TYPE	DESCRIPTION	VOLT	MOUNTING	MANUFACTURER, CAT. NUMBER	REMARKS
P1	POLE LIGHT	UNV	25'-0" A.F.G.	LITHONIA: RSX2LED 40K R4 MVOLT SPA / DDBXB / 25 FT SSS POLE 4 INCH DDBXB	

NOTES: .



POLE FOUNDATION DETAIL

ENGINEER:

FORESITE group

Foresite Group, LLC
257 SW Madison Ave
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503.544.7210 erik@emarchitecture.net

MCBROD CRISIS CENTER
9200 SE MCBROD AVENUE

PRELIMINARY DRAWINGS

SEAL:

REGISTERED PROFESSIONAL ENGINEER
105022PE
OREGON
JUNE 30, 2026
THOMAS JOHN SCHIRMER

REVISIONS	DATE

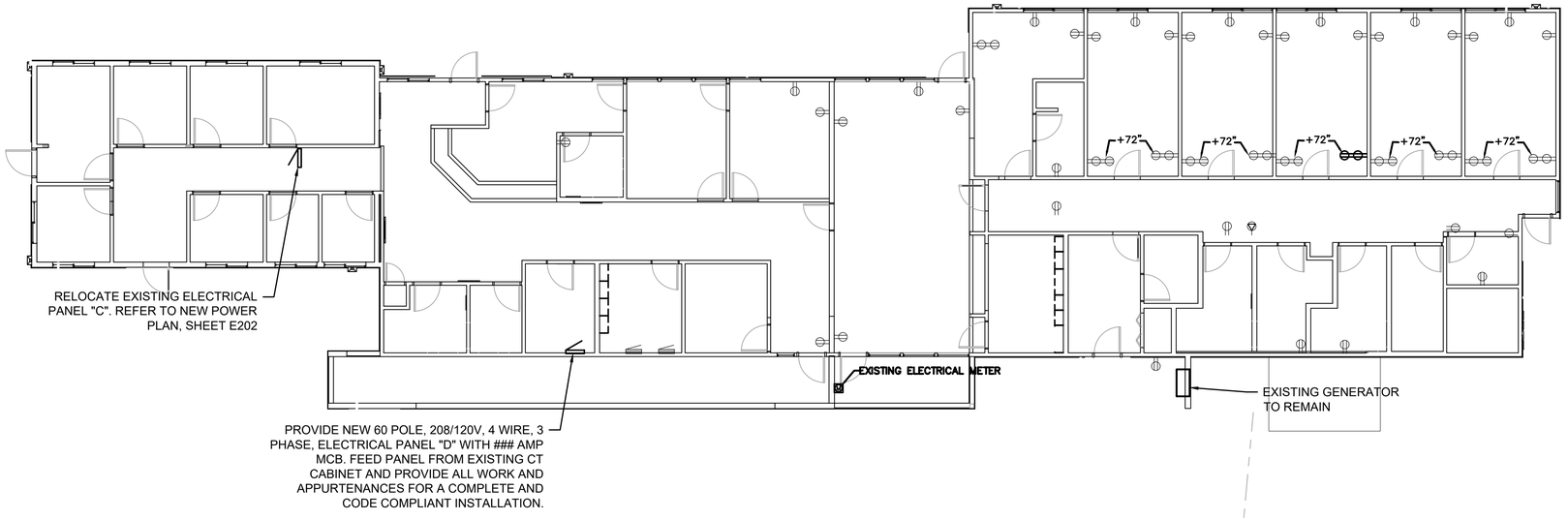
PROJECT MANAGER:	TS
DRAWING BY:	DRG
JURISDICTION:	
DATE:	04.30.2024
SCALE:	

TITLE: ELECTRICAL SITE PLAN

SHEET NUMBER:
E101

COMMENTS:

JOB/FILE NUMBER:
00.2179.001



EXISTING ELECTRICAL POWER PLAN

SCALE: 1/8" = 1'-0"

8' 0 8' 16'

GENERAL NOTES:

1. NOT ALL EXISTING RECEPTACLES OR OTHER DEVICES ARE SHOWN. CONTRACTOR SHALL REPLACE EXISTING DEVICES TO PROVIDE ALL NEW RECEPTACLES, LIGHT SWITCHES AND ALL DEVICE COVER PLATES (WALL PLATES) REFER TO OTHER NOTES HEREIN FOR DEVICE COLORS.

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MCBROD CRISIS CENTER
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PRELIMINARY DRAWINGS

SEAL:

REGISTERED PROFESSIONAL ENGINEER
105022PE
OREGON
JUNE 30, 2026
THOMAS JOHN SCHIRMER

REVISIONS	DATE

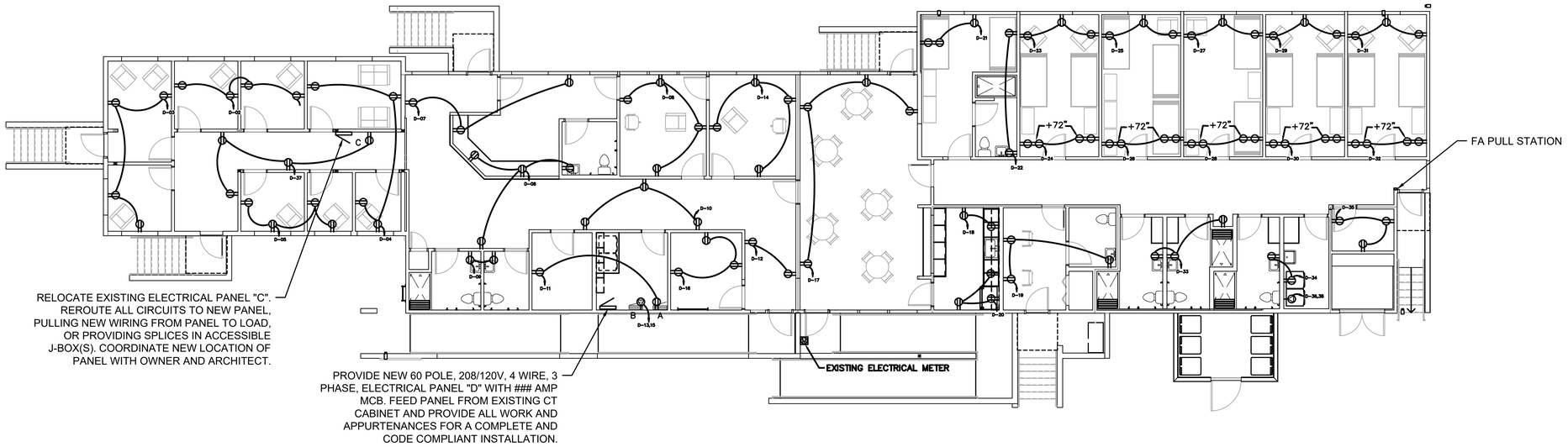
PROJECT MANAGER:	TS
DRAWING BY:	DRG
JURISDICTION:	
DATE:	04.30.2024
SCALE:	

TITLE:
EXISTING ELECTRICAL POWER PLAN

SHEET NUMBER:
E201

COMMENTS:

JOB/FILE NUMBER:
00.2179.001



NEW ELECTRICAL POWER PLAN

SCALE: 1/8" = 1'-0"

8' 0 8' 16'

ENGINEER:

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MCBROD CRISIS CENTER
9200 SE MCBROD AVENUE

PRELIMINARY DRAWINGS

SEAL:

REGISTERED PROFESSIONAL ENGINEER
105022PE
OREGON
JUNE 30, 2026
THOMAS JOHN SCHRIMER

REVISIONS	DATE

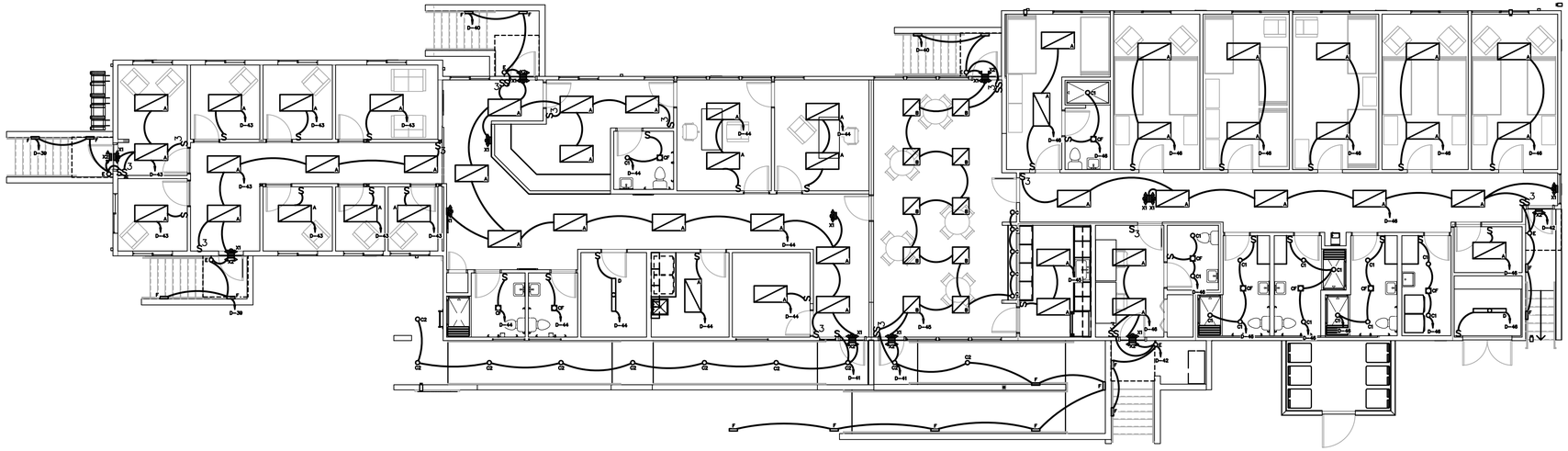
PROJECT MANAGER:	TS
DRAWING BY:	DRG
JURISDICTION:	
DATE:	04.30.2024
SCALE:	

TITLE:
NEW ELECTRICAL POWER PLAN

SHEET NUMBER:
E202

COMMENTS:

JOB/FILE NUMBER:
00.2179.001



NEW ELECTRICAL LIGHTING PLAN

SCALE: 1/8" = 1'-0"

8' 0 8' 16'

LUMINAIRE SCHEDULE

TYPE	DESCRIPTION	VOLT	MOUNTING	MANUFACTURER, CAT. NUMBER	NOTES
A	LED 4' FLAT PANEL	120-1	GRID	COLUMBIA: LCAT24-35 ML G EDU	1.
B	LED 2' FLAT PANEL	120-1	GRID	COLUMBIA: LCAT22-35 ML G EDU	1.
C	DOWNLIGHT	120-1	SURFACE MOUNTED	LITHONIA: LBR6 AL02 35K AR LSS MWD 120 UGZ	1.
C1	DOWNLIGHT (WET LOCATION)	120-1	SURFACE MOUNTED	LITHONIA: LBR6 AL02 35K AR LSS MWD 120 UGZ WL	1.
C2	DOWNLIGHT EXTERIOR (WET LOCATION)	120-1	SURFACE MOUNTED	LITHONIA: LBR6 AL02 40K AR LSS MWD 120 UGZ WL	1.
CF	FAN AND SHOWER LIGHT	120-1	SURFACE MOUNTED	BROAN: 678	1.
D	STRIP LIGHT	120-1	SURFACE MOUNTED	CSS: CSSL48 4000LM MVOLT 40K 80CRI	1.
E	EXTERIOR DOOR LIGHT	120-1	SURFACE MOUNTED	GARDCO: GCM-A03-840-T2M-UNV	1.
F	EXTERIOR STEP LIGHT	120-1	SURFACE MOUNTED	HADCO: RSC2-AK5DG2	1.
X1	EXIT SIGN / EMERGENCY LIGHT COMBINATION	120-1	SURFACE MOUNTED	COMPASS: CCRRC	1.
X2	EMERGENCY LIGHT (OUTDOOR)	120-1	SURFACE MOUNTED	COMPASS: CUSO4DB-ND	1.

NOTES: 1. COORDINATE EXACT FIXTURE TYPE AND FEATURES WITH OWNER PRIOR TO INSTALL.

COMcheck Software Version COMcheckWeb

Interior Lighting Compliance Certificate

Project Information

Energy Code: 90.1 (2019) Standard
Project Title: McBrod Crises Center
Project Type: Alteration

Construction Site:
9200 SE McBrod Ave
Milwaukie, Oregon 97222

Owner/Agent:
F9 Productions
825 Crisman Dr
Longmont, Colorado 80501
303 775-7406

Designer/Contractor:
David Geissinger
Foresite Group, LLC
3575 Ringsby Ct. Suite 315
Denver, Colorado 80216
(770) 368-1399
dgeissinger@fg-inc.net

Allowed Interior Lighting Power

A Area Category	B Floor Area (ft2)	C Allowed Watts / ft2	D Allowed Watts
1-Living Quarters (Dormitory)	3164	0.53	1677
2-Office/Intake (Office)	2646	0.64	1693
		Total Allowed Watts =	3370

Proposed Interior Lighting Power

A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast	B Lamps/ Fixture	C # of Fixture	D Fixture Watt.	E (C X D)
Living Quarters (Dormitory, 3164 sq.ft.)				
LED: A: 2X4 TROFFER: LED Panel 33W:	2	23	24	559
LED: B: 2X2 TROFFER: LED Panel 19W:	2	10	16	164
LED: C: DOWNLIGHT: LED A Lamp 13W:	1	5	13	65
LED: C1: DOWNLIGHT WL: LED A Lamp 13W:	1	14	13	182
LED: CF: FAN & SHOWER: Other:	1	6	105	630
LED: D: STRIP LIGHT: LED Linear 33W:	1	1	35	35
LED: X1: EXIT/E. LIGHT: Other:	2	6	10	60
Office/Intake (Office, 2646 sq.ft.)				
LED: A: 2X4 TROFFER: LED Panel 33W:	2	31	24	753
LED: C1: DOWNLIGHT WL: LED A Lamp 13W:	1	1	13	13
LED: CF: FAN & SHOWER: Other:	1	3	105	315
LED: D: STRIP LIGHT: LED Linear 33W:	1	1	35	35
LED: X1: EXIT/E. LIGHT: Other:	2	6	10	60
		Total Proposed Watts =		2872

Interior Lighting PASSES

Interior Lighting Compliance Statement

Compliance Statement: The proposed interior lighting alteration project represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed interior lighting systems have been designed to meet the 90.1 (2019) Standard requirements in COMcheck Version COMcheckWeb and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Name - Title Signature Date

ENGINEER:

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MCBROD CRISIS CENTER
9200 SE MCBROD AVENUE

PRELIMINARY DRAWINGS

SEAL:

REGISTERED PROFESSIONAL ENGINEER
105022PE
OREGON
JUNE 30, 2026
THOMAS JOHN SCHIRMER

REVISIONS DATE

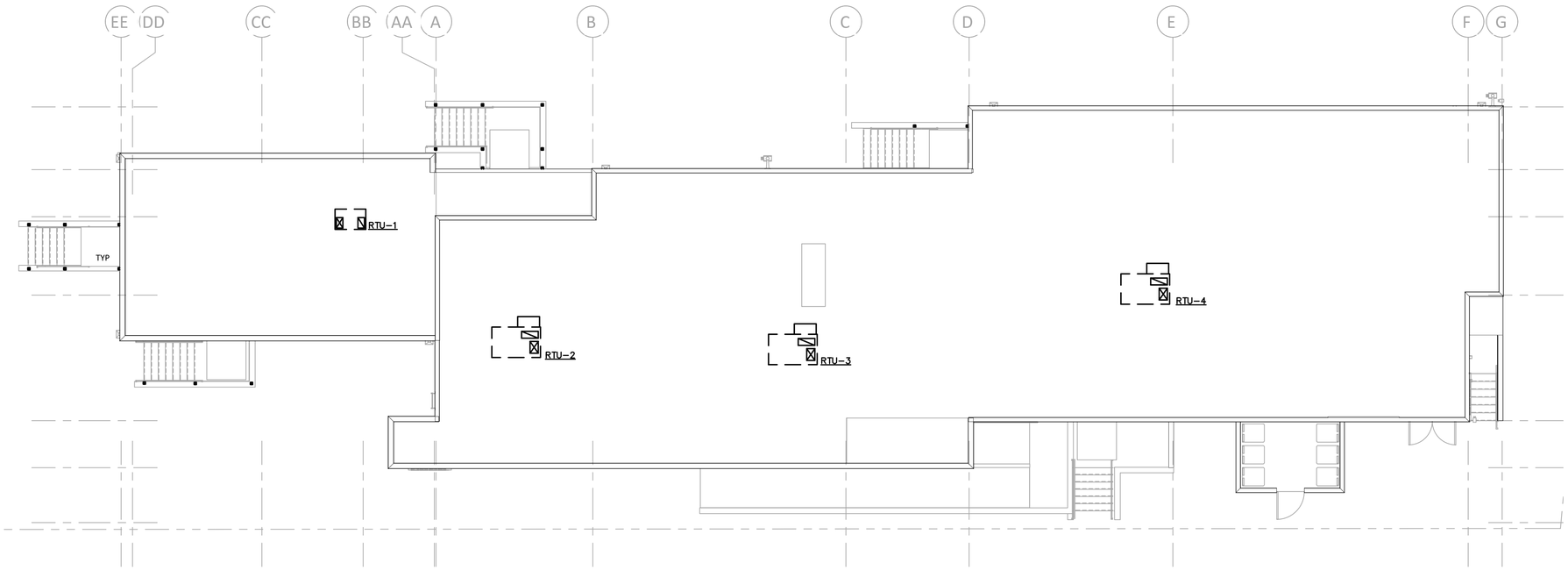
PROJECT MANAGER: TS
DRAWING BY: DRG
JURISDICTION:
DATE: 04.30.2024
SCALE:

TITLE: NEW ELECTRICAL LIGHTING PLAN

SHEET NUMBER: E301

COMMENTS:

JOB/FILE NUMBER: 00.2179.001



ELECTRICAL ROOF PLAN
SCALE: 1/8" = 1'-0"
8' 0 8' 16'

GENERAL NOTES:

1. IF ELECTRICAL RECEPTACLES ARE NOT ALREADY LOCATED ON THE ROOF WITHIN 25' OF EACH UNIT, PROVIDE NEW WP, GFI 120V RECEPTACLE(S) WITH WATERPROOF-IN-USE COVERS, AS REQUIRED. ALL RECEPTACLES ON ROOF MAY SHARE ONE DEDICATED CIRCUIT.

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MCBROD CRISIS CENTER
9200 SE MCBROD AVENUE

PRELIMINARY DRAWINGS

SEAL:
REGISTERED PROFESSIONAL ENGINEER
105022PE
OREGON
JUNE 30, 2026
THOMAS JOHN SCHIRMER

REVISIONS	DATE

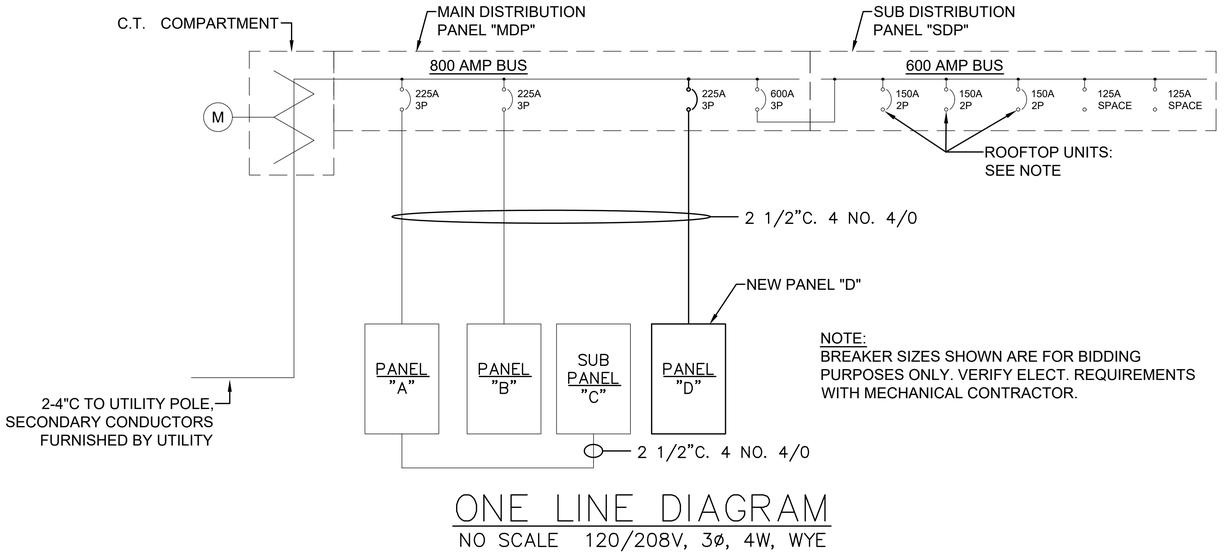
PROJECT MANAGER:	TS
DRAWING BY:	DRG
JURISDICTION:	
DATE:	04.30.2024
SCALE:	

TITLE:
ELECTRICAL ROOF PLAN

SHEET NUMBER:
E401

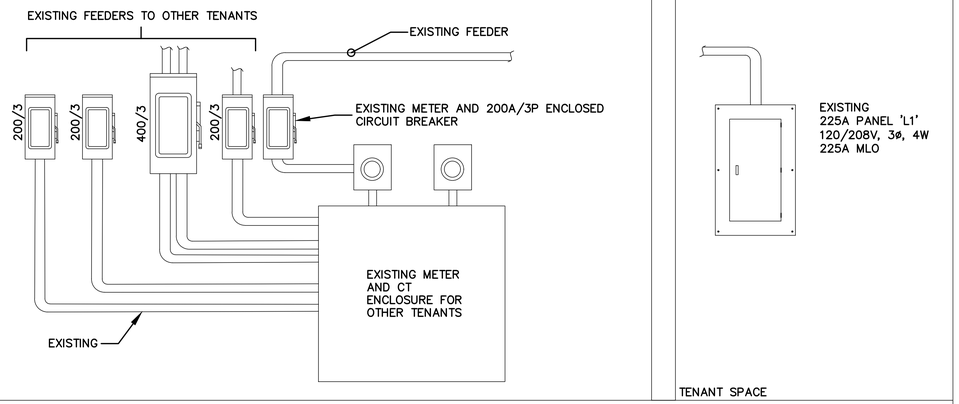
COMMENTS:

JOB/FILE NUMBER:
00.2179.001



ONE LINE DIAGRAM

NO SCALE 120/208V, 3ø, 4W, WYE



EXISTING ELECTRICAL RISER DIAGRAM

NO SCALE 208/120V, 3ø, 4W

ENGINEER:

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MCBROD CRISIS CENTER
9200 SE MCBROD AVENUE

PRELIMINARY DRAWINGS

SEAL:

REGISTERED PROFESSIONAL ENGINEER
105022PE
OREGON
JUNE 30, 2026
THOMAS JOHN SCHIRMER

REVISIONS DATE

PROJECT MANAGER:	TS
DRAWING BY:	DRG
JURISDICTION:	
DATE:	04.30.2024
SCALE:	

TITLE:
ELECTRICAL RISER DIAGRAM AND PANEL SCHEDULE

SHEET NUMBER:
E501

COMMENTS:

JOB/FILE NUMBER:
00.2179.001

TAG: PANEL A (EXISTING)			LOCATION					ENTRY: TOP or BOTTOM	AIC: XX,000	
MAINS: 225A MLO or MCB								FEED THRU LUGS: NONE	SPD: YES or NO	
SERVICE: 208/120V,3PH,4W								* = GFI CIRCUIT BREAKER	TRIM: SURFACE,	
CKT	C/B	LOAD	kVA	A PHASE	B PHASE	C PHASE	kVA	LOAD	C/B	CKT
1	60/3	HVAC #3	4.8	4.8				SPARE	30/1	2
3	-		4.8		6.9		2.1	HVAC #2	30/2	4
5	-		4.8			6.9	2.1		-	6
7	40/3	HVAC #4	3.1	4.2			1.1		20/1	8
9	-		3.1		4.2		1.1		20/1	10
11	-		3.1			4.2	1.1		20/1	12
13	20/1		1.1	2.2			1.1	FA	20/1	14
15	20/1	LEAVE OFF (REMOVE)	1.1		2.2		1.1	OUT LIBRARY RELAY	20/1	16
17	70/2	PANEL C - SUB PANEL	4.9			6.0	1.1		20/1	18
19	-	PANEL NORTH ADDITION	4.9	6.0			1.1		20/1	20
21	20/1		1.1		5.3		4.2	DISHWASHER	60/2	22
23	20/1		1.1			5.3	4.2		60/2	24
25	20/1		1.1	2.4			1.3	DO NOT TURN ON	20/2	26
27		SPACE			1.3		1.3		20/2	28
29		SPACE				0.0		SPACE		30
			39.0	19.6	19.9	22.4	22.9			
		CONNECTED kVA TOTAL:	61.9					CONNECTED AMPS TOTAL:	171.82	
		DEMAND kVA TOTAL:	0.0					DEMAND AMPS TOTAL:	0.00	

TAG: PANEL B (EXISTING)			LOCATION					ENTRY: TOP or BOTTOM	AIC: XX,000	
MAINS: 225A MLO or MCB								FEED THRU LUGS: NONE	SPD: YES or NO	
SERVICE: 208/120V,3PH,4W								* = GFI CIRCUIT BREAKER	TRIM: SURFACE,	
CKT	C/B	LOAD	kVA	A PHASE	B PHASE	C PHASE	kVA	LOAD	C/B	CKT
1	20/1		1.1	2.2			1.1		20/1	2
3	20/1		1.1		2.2		1.1		20/1	4
5	20/1		1.1			2.2	1.1		20/1	6
7	20/1		1.1	2.2			1.1		20/1	8
9	20/1		1.1		2.2		1.1		20/1	10
11	20/1		1.1			2.2	1.1		20/1	12
13	20/1		1.1	2.2			1.1		20/1	14
15	20/1		1.1		2.2		1.1		20/1	16
17	20/1		1.1			2.2	1.1		20/1	18
19	20/1*		1.1	2.4			1.3		20/2	20
21	20/2		1.3		2.6		1.3		-	22
23	-		1.3			2.4	1.1		20/1*	24
25	30/3		2.4	3.5			1.1		20/1	26
27	-		2.4		3.5		1.1		20/1	28
29	-		2.4			3.5	1.1		20/1	30
31	20/1		1.1	2.2			1.1		20/1	32
33	20/1		1.1		2.2		1.1		20/1	34
35	20/1		1.1			2.2	1.1		20/1	36
37	20/1		1.1	2.2			1.1		20/1	38
39	20/1		1.1		2.2		1.1		20/1	40
41	20/1		1.1			2.2	1.1		20/1	42
			27.4	16.9	17.1	16.9	23.5			
		CONNECTED kVA TOTAL:	50.9					CONNECTED AMPS TOTAL:	122.45	
		DEMAND kVA TOTAL:	0.0					DEMAND AMPS TOTAL:	0.00	

TAG: PANEL C (EXISTING)			LOCATION					ENTRY: TOP or BOTTOM	AIC: XX,000	
MAINS: 70A MLO or MCB								FEED THRU LUGS: NONE	SPD: YES or NO	
SERVICE: 208/120V,3PH,4W								* = GFI CIRCUIT BREAKER	TRIM: SURFACE, F	
CKT	C/B	LOAD	kVA	A PHASE	B PHASE	C PHASE	kVA	LOAD	C/B	CKT
1				0.0						2
3					0.0					4
5						0.0				6
7				0.0						8
9					0.0					10
11						0.0				12
			0.0	0.0	0.0	0.0	0.0			
		CONNECTED kVA TOTAL:	0.0					CONNECTED AMPS TOTAL:	0.00	
		DEMAND kVA TOTAL:	0.0					DEMAND AMPS TOTAL:	0.00	

TAG: PANEL D (NEW)			LOCATION					ENTRY: TBD	AIC: XX,000	
MAINS: 225A MCB								FEED THRU LUGS: NONE	SPD: YES or NO	
SERVICE: 208/120V,3PH,4W								* = GFI CIRCUIT BREAKER	TRIM: SURFACE	
CKT	C/B	LOAD	kVA	A PHASE	B PHASE	C PHASE	kVA	LOAD	C/B	CKT
1	20/1	PARKING LOT LIGHTS	0.3	1.1			0.8	RECP 114, 116	20/1	2
3	20/1	RECP 118, 119	0.8		1.6		0.8	RECP 112, 113	20/1	4
5	20/1	RECP 115, 117	0.8			1.6	0.8	RECP HALL 1 100, 108	20/1	6
7	20/1	RECP RECEPTION 106	0.6	1.4			0.8	RECP 104	20/1	8
9	20/1	RECP 109, 107	0.4		1.0		0.6	RECP HALL 2 100	20/1	10
11	20/1	RECP 103	0.4			0.8	0.4	RECP HALL 3 100	20/1	12
13	20/2	RECP 240 RM 103	1.1	1.9			0.8	RECP 102	20/1	14
15			1.1		1.7		0.6	RECP 101	20/1	16
17	20/1	RECP 201	0.8			1.2	0.4	RECP KITCH 1 202	20/1	18
19	20/1	RECP 204, 206	0.6	1.2			0.6	RECP KITCH 2 202	20/1	20
21	20/1	RECP 203	0.6		1.0		0.4	RECP 203A	20/1	22
23	20/1	RECP 205	0.8			1.4	0.6	RECP 205A	20/1	24
25	20/1	RECP 207	0.8	1.4			0.6	RECP 207A	20/1	26
27	20/1	RECP 209	0.8		1.4		0.6	RECP 209A	20/1	28
29	20/1	RECP 211	0.8			1.4	0.6	RECP 211A	20/1	30
31	20/1	RECP 213	0.8	1.4			0.6	RECP 213A	20/1	32
33	20/1	RECP 208, 210	0.6		1.0		0.4	RECP 212, 214	20/1	34
35	20/1	RECP 216	0.6			1.7	1.1	RECP 240 RM 214	20/2	36
37	20/1	RECP HALLWAY	0.8	1.9			1.1			38
39	20/1	EXT LIGHTS 1,2	0.3		0.6		0.3	EXT LIGHTS 3,4	20/1	40
41	20/1	EXT LIGHTS 5,6	0.6			0.9	0.3	EXT LIGHTS 7,8	20/1	42
43	20/1	LIGHTS WEST	0.5	1.4			0.9	LIGHTS CENTER	20/1	44
45	20/1	LIGHTS DINING	0.6		2.0		1.4	LIGHTS EAST	20/1	46
47	-	-				0.0		-	-	48
49	-	-		0.0				-	-	50
51	-	-			0.0			-	-	52
53	-	-				0.0		-	-	54
55	-	-		0.0				-	-	56
57	-	-			0.0			-	-	58
59	-	-				0.0		-	-	60
			15.5	11.7	10.3	9.0	15.5			
		CONNECTED kVA TOTAL:	31.0					CONNECTED AMPS TOTAL:	86.05	
		DEMAND kVA TOTAL:	0.0					DEMAND AMPS TOTAL:	0.00	

ENGINEER:

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MCBROD CRISIS CENTER
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PRELIMINARY DRAWINGS

SEAL:

REGISTERED PROFESSIONAL ENGINEER
105022PE
OREGON
JUNE 30, 2026
THOMAS JOHN SCHRIMER

REVISIONS DATE

PROJECT MANAGER: TS
DRAWING BY: DRG
JURISDICTION:
DATE: 04.30.2024
SCALE:
TITLE:

PANEL SCHEDULE

SHEET NUMBER:

E502

COMMENTS:

JOB/FILE NUMBER: 00.2179.001

ELECTRICAL SPECIFICATIONS
SECTION 16000

PART 1 GENERAL

1.1 CODES AND REQUIREMENTS
A. All electrical work shall comply with the requirements of the applicable edition of the National Electrical Code, Local Building Code and as specified herein whichever is more strict.

B. The contractor shall comply with the requirements of the General Conditions, Supplemental General Conditions of the project specifications, all Contract Documents, and any base building specifications and building criteria included in this project.

C. Visit the premises before submitting bid as no extras will be allowed for lack of knowledge of existing conditions.

D. Drawings are diagrammatic in nature. Take all dimensions from Architectural drawings, certified equipment drawings, and from the structure itself before fabricating any work.

E. The drawings indicate the location, type and sizes of various utilities within the site where known. Any relocation or remodeling required must be approved by the Architect before proceeding. Investigate all utilities such as electric and telephone and make arrangements with the proper authority to pay for any charges associated with connecting those utilities. Pay for all permits, fees, inspections etc.

F. Good workmanship and appearance are considered equal to proper operation.

G. Provide all core drilling, channeling, cutting, patching, trenching and backfill as required for installation of electrical equipment. Seal holes, fireproofing where necessary, and refinish all repair work to original condition where damaged by electrical work.

H. Make provisions for safe delivery and secure storage of all materials.

I. Provide the Architect with a complete set of plans and specifications corrected to as-built conditions at the completion of the job.

1.2 WARRANTY
The electrical contractor shall provide for the owner a one-year (from the date of final acceptance) warranty of all electrical equipment and systems provided under this contract except for incandescent or fluorescent lamps. All defective equipment or materials which appear during the warranty period shall be replaced or repaired by the electrical contractor in a timely fashion.

PART 2 PRODUCTS

2.1 EQUIPMENT
A. The contractor shall provide all equipment and accessories necessary whether specifically stated or not to make the required electrical systems complete and operational.

B. All equipment provided shall be new except as otherwise stated on the drawings. All equipment provided shall be U.L. listed when such standards exist for the type of equipment furnished and acceptable for installation by the Local Building Authority.

2.2 CONDUCTORS
A. Minimum size #12 AWG except for control circuits which may be #14 or signal circuits which shall be as indicated. All conductors shall be copper except where noted. Increase conductor size as necessary to limit branch circuit voltage drop to 3% and feeder voltage drop to 2%.

B. Splices for #8 and smaller conductors – wire or wing nuts.

C. Feeders and other wiring No. 4 AWG and larger, type THWN.

D. Other wiring No. 6 and smaller, type THWN.

E. Wiring in high temperature areas shall be rated 105° C and be a type accepted by local code.

F. Color Coding: Wiring for control systems to be installed in conjunction with mechanical and miscellaneous equipment shall be color coded in accordance with the wiring diagrams furnished with the equipment. Branch circuit wiring, including circuits to motors, and all feeders shall be coded by line or phase as follows:

Wire No. 2 AWG and smaller shall be factory color coded. Wire No. 1 AWG and larger may be color coded by field painting or color taping of six inch (6") length of exposed ends.

120/208 Volts	277/480 Volts
A = Black	A = Brown
B = Red	B = Orange
C = Blue	C = Yellow
Neutral = White	Neutral = Gray
Ground = Green	Ground = Green w/yellow stripes
Switch Travelers = Pink	Switch Travelers = Purple

2.3 OUTLETS
A. 4" square or octagonal, zinc coated sheet steel boxes.

B. Provide 3/8" no-bolt fixture studs.

C. Provide covers set to come flush with finish walls.

D. Utility or sectional switch boxes only where permitted.

2.4 DEVICES
A. All device colors shall be white. Verify with owner.
1. Specification grade receptacles, equal to Hubbell 5262 series.

2. A.C. quiet operating type switches equal to Hubbell 122* series, rated 20A, 277V.

B. Device plates shall be nylon, color to match devices.

C. Mount devices in accordance with the following schedule except where otherwise noted on the drawings:
1. Convenience Receptacles – Long Axis Vertical 1'6" A.F.F.*
2. Light Switches – Latch Side of Door 4'0" A.F.F.
3. Telephone/Data Outlets 1'6" A.F.F.*
* Except in areas with counters, baseboard heaters or in areas of block or brick construction.

2.5 LIGHTING FIXTURES
A. Provide all new lighting fixtures complete with lamps, drivers, reflectors, plaster frames, louvers, stem hangers, etc., and as described on the drawings.

B. Exit lights shall conform with local code requirements.

C. Mount all fixtures at position and height to clear ducts, etc.

D. Mount all outlets at position and height to clear ducts, etc. minimum unpenetrated thickness shall be 0.035 inch.

2.6 BRANCH CIRCUIT PANELBOARDS
A. Provide dead-front, circuit breaker type panels, with the size and number of branches indicated. Breakers shall be thermal magnetic type employing quick-make and quick-break mechanisms for manual operation as well as automatic operation. Automatic tripping shall be indicated by the breaker handle assuming a distinctive position from the manual "on" and "off". Multiple breakers shall have a common trip. Tie handles will not be permitted.

B. Panelboards having branch circuit breaker sizes 15A to 100A shall be equal to:
1. ABB/General Electric "AL" or "AQ" for 120/240V or 208/120V systems.
2. ABB/General Electric "AE" for 480/277V systems.

C. Panelboards having more than two (2) branch circuit breakers rated in excess of 100A shall be equal to ABB/General Electric "AD" or Spectra Series.

D. All busses shall be copper.

E. All spaces shall be fully equipped.

F. Panelboards shall have a grounding lug for the equipment grounding system.

G. Circuit breakers shall have a minimum interrupting capacity as follows:

120/208 volts: 22,000 amperes.
In addition, upstream fuses shall be selected to provide a series rating of 100,000 amperes with downstream circuit breakers.

H. Panelboards shall be a minimum twenty inches (20") wide (box).

I. Panelboards used as service equipment shall be equipped with grounding bar, bonding jumper and UL service entrance label.

J. The above panelboard designations are ABB/General Electric; however equal products by Eaton/Cutler-Hammer, Siemens or Square D are acceptable.

2.7 SAFETY AND DISCONNECT SWITCHES
A. Provide enclosed, fusible or non-fusible safety switches where indicated and herein specified. Safety switches shall bear the UL label and each enclosure shall be the NEMA type suitable for the surrounding area and conditions (Ex. Nema 1 – Indoor, Nema 3R – Outdoor). Switches shall be minimum heavy duty, horsepower rated, and shall have quick-make and quick-break mechanisms. Switches used on motor circuits shall have adequate horsepower ratings for the motors served.

1. Safety switches employed as motor disconnect devices for two (2) or more loads shall be of the fusible type for rejection type fuses.

2. Heavy duty industrial type safety switches shall be used for 480 volt application and shall be horsepower rated with quick-make, quick-break mechanisms and interlocked covers.

3. Switches shall be as manufactured by ABB/General Electric, Eaton/Cutler-Hammer, Siemens or Square-D or as accepted, and all switches provided shall be by the same manufacturer.

2.8 FUSES
A. Fuses shall be as manufactured by Bussmann unless noted otherwise on the drawings.

B. Fuses for application at under 600 volts, and rated at 600 amps or less, shall be as follows:
1. For all fuses in the main service, equipment, except for motor circuits, provide current limiting, 200,000 rms amperes symmetrical interrupting capacity, rejection type, Bussmann Limitron or as accepted.

2. For all other fuses, provide rejection type with 200,000 rms amperes symmetrical interrupting capacity, Bussmann "Fusetron", or as accepted.

C. Control Fuses shall be Bussmann one-time nonrenewable fuses.

2.9 DRY TYPE TRANSFORMERS (IF APPLICABLE)
A. Transformers shall be as manufactured by ABB/General Electric, Eaton/Cutler-Hammer, Hevi Duty, Siemens, Square-D or equal.

B. Dry Type Transformers: ANSI/NEMA ST 20; factory-assembled, air cooled dry type transformers; ratings as shown on the Drawings.

C. Insulation system and average winding temperature rise for rated KVA as follows:

Rating	Class	Rise (degree C)
1 – 15	185	115
16 – 500	220	115

D. Case temperature shall not exceed 35 degrees C rise above ambient at its warmest point.

E. Winding Taps, Transformers Less than 15 KVA: Two 5% below rated voltage, full capacity taps on primary winding.

F. Winding Taps, Transformers 15 KVA and Larger: ANSI/NEMA ST 20.

G. Sound Level: ANSI/NEMA ST 20.

H. Basic Impulse Level: 10 KV for transformers less than 300 KVA, 30 KV for transformers 300 KVA and larger.

I. Ground core and coil assembly to enclosure by means of a visible flexible copper grounding strap.

J. Mounting: Transformers 75 KVA and less shall be suitable for wall, floor or trapeze mounting; transformers larger than 75 KVA shall be suitable for floor or trapeze mounting.

K. Coil Conductors: Continuous winding with terminations brazed or welded.

L. Enclosure: ANSI/NEMA ST 20; Type 1 for indoor application, Type 3R for outdoor or wet location application. Provide lifting eyes or brackets.

M. Isolate core and coil from enclosure using vibration-absorbing mounts.

N. Nameplates: Include transformer connection data and overload capacity based on rated allowable temperature rise.

PART 3 EXECUTION

3.1 CONDUIT/RACEWAYS
A. All conductors shall be enclosed by conduit sized in accordance with Chapter 9 of the National Electrical Code. Minimum 1/2" except for factory furnished lighting fixture flexible conduit may be 3/8". Follow the following schedule unless otherwise specified in the drawings. Exception: armored cable assemblies such as MC type cable may be used where allowed by NEC.
1. Rigid metal conduit (RMC) and intermediate metal conduit (IMC) shall be utilized for above and below grade applications in accordance with articles 344 AND 342 of the National Electrical Code. All couplings shall be threaded.

2. Rigid nonmetallic conduit (PVC) Schedule 40 shall be permitted for below grade or concrete cast in place applications above grade. All elbow transitions to above grade or stub-out of floor slab shall be asphalt coated rigid conduit. Provide equipment grounding conductor for all runs of rigid nonmetallic conduit.

3. Electrical metallic tubing (EMT) shall be utilized for all dry, above grade or above floor applications in accordance with article 358 of the National Electrical Code. Couplings shall be steel, set screw type or compression type, with screws set to maximum depth or nut made up wrench-tight respectively.

4. Flexible metal conduit shall be utilized for all connections to vibrating equipment such as motors (minimum of 2'-0" – maximum of 6'-0"), connection to lay-in type light fixtures or in remodel areas specifically noted for "fishing" in existing walls or non-accessible ceilings.

5. Surface metallic raceways shall be used only in areas specifically noted and of size and type specified on the drawings.

B. All exposed conduit (including conduit installed in ceiling plenums) shall be routed parallel or perpendicular with the building walls. Support conduit and cables as required by the National Electrical Code.

C. Provide expansion type fittings for all conduits which cross expansion joints.

3.2 GROUNDING
Service equipment, conduit systems, supports, cabinets, equipment, transformers, fixtures, the grounded circuit conductor, etc. shall be properly grounded in accordance with the latest issue of the National Electrical Code. Provide all bonding jumpers, wire, grounding bushings, clamps, etc as required for complete grounding. Route ground conductors to provide the shortest and most direct path to the ground electrode system. Ground connections shall have clean contact surfaces, tinned and sweated while bolting. Install all ground conductors in conduit. Make readily accessible connections to a continuous, metallic, underground cold water piping system at the point where it enters the building. If this is not practicable, connect to a cold water pipe and provide a meter jumper. Make connections to the water pipe that grounds the conduit enclosing the conductor as well as the conductor. Bond the service equipment to a separate grounding electrode per Code requirements. Provide intersystem bonding termination where required.

3.3 PANELBOARDS
A. Install panelboards such that the highest operating handle is not more than six feet seven inches (6'-7") from the finished floor.

B. Field check all panelboard loading and reconnect circuits as required to provide balanced phase and line loads.

C. Fill out circuit directory card. Note spare circuits in pencil.

3.4 MECHANICAL EQUIPMENT WIRING AND CONNECTIONS
A. Mechanical equipment motors and controls furnished with mechanical equipment.

B. Provide feeder circuits to mechanical equipment and make all connections.

C. Provide safety switches and/or thermal overload switches as required.

D. Provide all power (line voltage) wiring for mechanical equipment and make all connections except for temperature control equipment, which will be wired by mechanical contractor.

E. Furnish, set in place, and wire, except as indicated, all heating, ventilating, air conditioning, plumbing, fire protection, motors and controls in accordance with the following schedule. Carefully coordinate with work performed under the Mechanical Division of these specifications.

F. Heater units in all motor starters shall be sized for approximately one hundred fifteen percent (115%) of full load motor current. Check and coordinate all thermal protective devices with the equipment they protect.

1. Provide for each motor, one-half (1/2) horsepower and below, a horsepower rated disconnect switch and thermal overload protection unless integrally provided with the motor. Thermal overload switches for single phase motors shall be Allen-Bradley Bulletin 600 or acceptable. Size heater units for approximately one hundred fifteen percent (115%) of full load motor current.

2. Miscellaneous Equipment: Where outlets are indicated for miscellaneous equipment requiring electric power or control, provide wire, conduit, etc., and make all connections, unless otherwise indicated. Refer to the Mechanical Specifications and Plans covering sprinkler systems, motor interlocks, switching, etc. Provide wiring, conduit, outlets and provide final electrical connections to all equipment.

3.6 DRY TYPE TRANSFORMER INSTALLATION
A. Set transformer plumb and level, on 4 in. high concrete housekeeping pad for floor mounted units, on strut assemblies for wall or ceiling mounted units.

B. Use flexible conduit 2 ft minimum length, for connections to transformer case. Make conduit connections to side panel of enclosure.

C. Mount transformers on vibration isolation pads suitable for isolating the transformer noise from the building structure.

D. Provide seismic restraints where installed in seismic zones.

3.7 TELEPHONE/DATA SYSTEM
A. Provide conduits and outlets as indicated. Provide Cat6 cable from wall box to Telco Backboard.

B. Outlets shall consist of 4" square box with plaster ring and cover plate with configurable knockouts for RJ11, RJ45, etc. Plates shall match finish of other cover plates. Wiring and jacks shall be provided by contractor.

3.8 SPECIAL SYSTEMS
Provide all special systems as specified on the drawings including all required accessories to make the system complete and operational. All special systems shall be installed and connected in accordance with the manufacturer's specifications. Provide instructional demonstration for the owner prior to final acceptance.

3.10 GFCI OUTLETS IN OTHER THAN DWELLING UNITS
All single-phase receptacles rated 150V to ground or less, 50A or less and three-phase receptacles rated 150V to ground or less, 100A or less installed in areas listed in NEC Article 210.8(B) shall have GFCI protection for personnel.

3.11 ADJUSTABLE OVERCURRENT PROTECTIVE DEVICES
Where new circuit breakers with field adjustable settings are supplied or significant changes are made to existing distribution equipment equipped with adjustable settings, a coordination study shall be conducted to determine the proper trip and delay values. The Contractor, equipment supplier or licensed third party may conduct the study. All data required for the study shall be provided to the study preparer by the Contractor and/or equipment supplier.

END OF SECTION

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MCBROD CRISIS CENTER
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PRELIMINARY DRAWINGS

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REGISTERED PROFESSIONAL ENGINEER
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JUNE 30, 2026
THOMAS JOHN SCHIRMER

REVISIONS DATE

PROJECT MANAGER: TS
DRAWING BY: DRG
JURISDICTION:
DATE: 04.30.2024
SCALE:
TITLE: ELECTRICAL SPECIFICATIONS

SHEET NUMBER:
E601

COMMENTS:

JOB/FILE NUMBER:
00.2179.001

PACKAGED GAS FIRED ROOFTOP HVAC UNIT SCHEDULE

ITEM	CFM	ESP IN WC	OA CFM	COOLING						NATURAL GAS HEATING			ELECTRICAL				OPER WT LBS	MANUFACTURER AND MODEL NUMBER	NOTES
				TOTAL MBH	SENS MBH	EAT DB °F	EAT WB °F	COND OAT °F	SEER2	INPUT MBH	OUTPUT MBH	AFUE	FAN HP	VOLT/ø	UNIT MCA	UNIT MOCP			
RTU-1	1000	.50	100	28.6	22.2	80.0	67.0	95.0	14.5	40.0	33.0	80%	.50	208/3	15.2	20	320	CARRIER 48VL-C300405	1, 2
RTU-2	1600	.60	300	49.9	37.8	80.0	67.0	95.0	17.4	110.0	88.0	80%	1.0	208/3	24	30	555	CARRIER 48GCEJ05M1-5--F	1, 2, 3
RTU-3	1950	.60	400	61.8	46.8	80.0	67.0	95.0	17.4	110.0	88.0	80%	1.5	208/3	36	50	600	CARRIER 48GCEK06M1-5--F	1, 2, 3, 4
RTU-4	1600	.60	160	49.9	37.8	80.0	67.0	95.0	17.4	110.0	88.0	80%	1.0	208/3	24	30	555	CARRIER 48GCEJ05M1-5--F	1, 2, 3

NOTES:
1. PROVIDE UNIT WITH ROOF CURB ADAPTER TO ALLOW USE OF EXISTING ROOF CURB OF EXISTING RTU REMOVED.
2. PROVIDE FACTORY ELECTRONIC SEVEN DAY PROGRAMMABLE THERMOSTAT.
3. PROVIDE WITH COMPARATIVE ECONOMIZER HOOD WITH MINIMUM SETTING TO ENSURE OUTSIDE AIR VOLUME DELIVERY AS SCHEDULED.
4. PROVIDE SMOKE DETECTORS IN SUPPLY DUCT.

DIFFUSER, GRILLE & REGISTER SCHEDULE

ITEM	TYPE	SERVICE	FACE SIZE INCHES	DUCT SIZE INCHES	FRAME	PD IN WC	MAX NC	DAMPER OPERATOR	MATERIAL	BASIS OF DESIGN MANUFACTURER AND MODEL NO.	NOTES
S-1	CEILING DIFFUSER	SUPPLY	24x24	AS NOTED	LAY-IN	0.10	30	OBD	STEEL	TITUS TMSA	1, 2
S-2	CEILING DIFFUSER	SUPPLY	12x12	AS NOTED	FLANGE	0.10	30	OBD	STEEL	TITUS TMSA	1, 2
S-3	CEILING DIFFUSER	SUPPLY	24x24	AS NOTED	FLANGE	0.10	30	OBD	STEEL	TITUS TMSA	1, 2
R-1	CEILING GRILLE	RETURN	AS NOTED	AS NOTED	FLANGE	0.10	25	–	ALUMINUM	TITUS 50F	3

NOTES:
1. COLOR TO BE BAKED ON OFF WHITE ENAMEL.
2. CONNECT DIFFUSER WITH FLEXIBLE DUCT CONNECTOR AND PROVIDE INSULATED BACK.
3. PROVIDE GRILLE WITH 1/2"x1/2"x1" DEEP GRID

FAN SCHEDULE

ITEM	TYPE	SERVICE	CFM	ESP IN WC	DRIVE TYPE	SONES	RPM	HP	VOLT/ø	MANUFACTURER AND MODEL NUMBER	NOTES
EF-1	CEILING	CLIENT BATH 109	150	0.25	DIRECT	2.0	1100	66w	120/1	COOK GC-186	1, 2, 3
EF-2	CEILING	CLIENT TLT 107	100	0.25	DIRECT	2.0	1160	39w	120/1	COOK GC-168	1, 2, 3
EF-3	CEILING	CLIENT TLT 107	100	0.25	DIRECT	2.0	1160	39w	120/1	COOK GC-168	1, 2, 3
EF-4	CEILING	(E)BATH 203A	150	0.25	DIRECT	2.0	1100	66w	120/1	COOK GC-186	1, 2, 3
EF-5	CEILING	CLIENT TLT 107	100	0.25	DIRECT	2.0	1160	39w	120/1	COOK GC-168	1, 2, 3
EF-6	CEILING	CLIENT BATH 208	150	0.25	DIRECT	2.0	1100	66w	120/1	COOK GC-186	1, 2, 3
EF-7	CEILING	CLIENT BATH 210	150	0.25	DIRECT	2.0	1100	66w	120/1	COOK GC-186	1, 2, 3
EF-8	CEILING	CLIENT BATH 212	150	0.25	DIRECT	2.0	1100	66w	120/1	COOK GC-186	1, 2, 3

1. PROVIDE SPEED CONTROLLER MOUNTED ON STRUCTURE NEAR FAN.
2. PROVIDE CEILING MOUNTING KIT WITH STEEL GRILLE.
3. CONTROL FAN WITH WALL SWITCH IN ROOM SERVED. SEE ELECTRICAL PLANS.

HVAC LEGEND:

- SUPPLY AIR GRILLES (DUCT SIDE AND BOTTOM)
- SUPPLY AIR DIFFUSER WITH FLEX DUCT AND BELLMOUTH SPIN-IN WITH MANUAL DAMPER
- RETURN OR EXHAUST AIR GRILLES (DUCT SIDE AND BOTTOM)
- RETURN AIR GRILLE (OPEN TO PLENUM)
- RETURN OR EXHAUST AIR GRILLE (SHOWN WITH DUCT)
- 24/12 RECTANGULAR DUCT (24" WIDE BY 12" DEEP)
- 8"ø ROUND DUCT (8" DIAMETER)
- EXISTING DUCTWORK
- EXISTING EQUIPMENT
- SECTION THROUGH RETURN OR EXHAUST DUCTWORK
- SECTION THROUGH SUPPLY DUCTWORK
- DUCT ELBOW (WITH TURNING VANES)
- DUCT TEE (WITH DIVIDER AND TURNING VANES)
- ROUND ELECTRONIC CONTROL DAMPER
- AIRFLOW – SUPPLY
- AIRFLOW – RETURN, EXHAUST OR TRANSFER
- DUCT LINER (FOR SOUND ATTENUATION)
- FLEXIBLE CONNECTION
- M MOTOR OPERATED DAMPER
- FS FIRE SUPPRESSION DAMPER
- FIRE DAMPER AND ACCESS DOOR
- MANUAL VOLUME DAMPER
- SPLITTER DAMPER
- T THERMOSTAT
- A 200 DIFFUSER AND GRILLE DESIGNATION (DIFFUSER A, 200 CFM)

COMcheck Software Version COMcheckWeb

Mechanical Compliance Certificate

Project Information

Energy Code: 90.1 (2019) Standard
Project Title: McBrod Crises Center
Location: Milwaukie, Oregon
Climate Zone: 4c
Project Type: Alteration

Construction Site:
9200 SE McBrod Ave
Milwaukie, Oregon 97222

Owner/Agent:
F9 Productions
825 Crisman Dr
Longmont, Colorado 80501
303 775-7406

Designer/Contractor:
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Foresite Group, LLC
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(770) 368-1399
dgeissinger@fg-inc.net

Mechanical Systems List

Quantity System Type & Description

1 RTU-1
Heating: 1 each - Central Furnace, Gas, Capacity = 40 kBtu/h
Proposed Efficiency = 80.00% Et, Required Efficiency: 80.00 % Et (or 80% AFUE)
Cooling: 1 each - Single Package DX Unit, Capacity = 28 kBtu/h, Air-Cooled Condenser
Proposed Efficiency = 14.50 SEER2, Required Efficiency = 13.40 SEER2
Proposed Part Load Efficiency = 0.00 , Required Part Load Efficiency = 0.00
Fan System: FAN SYSTEM 1 -- Compliance (Motor nameplate HP and fan efficiency method) : Passes

Fans:
FAN 1 Supply, Constant Volume, 1000 CFM, 0.5 motor nameplate hp, 0.00 fan energy index , fan exception: Part of code listed equipment

SYSTEM VERIFICATION REQUIRED.

1 RTU-2
Heating: 1 each - Central Furnace, Gas, Capacity = 110 kBtu/h
Proposed Efficiency = 80.00% Et, Required Efficiency: 80.00 % Et (or 80% AFUE)
Cooling: 1 each - Single Package DX Unit, Capacity = 49 kBtu/h, Air-Cooled Condenser
Proposed Efficiency = 17.40 SEER2, Required Efficiency = 13.40 SEER2
Proposed Part Load Efficiency = 0.00 , Required Part Load Efficiency = 0.00
Fan System: FAN SYSTEM 2 -- Compliance (Motor nameplate HP and fan efficiency method) : Passes

Fans:
FAN 2 Supply, Constant Volume, 1600 CFM, 1.0 motor nameplate hp, 0.00 fan energy index , fan exception: Part of code listed equipment

SYSTEM VERIFICATION REQUIRED.

1 RTU-3
Heating: 1 each - Central Furnace, Gas, Capacity = 110 kBtu/h
Proposed Efficiency = 80.00% Et, Required Efficiency: 80.00 % Et (or 80% AFUE)
Cooling: 1 each - Single Package DX Unit, Capacity = 61 kBtu/h, Air-Cooled Condenser, Air Economizer
Proposed Efficiency = 17.40 SEER2, Required Efficiency = 13.40 SEER2
Proposed Part Load Efficiency = 0.00 , Required Part Load Efficiency = 0.00
Fan System: FAN SYSTEM 3 -- Compliance (Motor nameplate HP and fan efficiency method) : Passes

Fans:
FAN 3 Supply, Constant Volume, 1950 CFM, 1.5 motor nameplate hp, 1.00 fan energy index , fan exception: Single fan <= 5HP

Quantity System Type & Description

SYSTEM VERIFICATION REQUIRED.

1 RTU-4
Heating: 1 each - Central Furnace, Gas, Capacity = 110 kBtu/h
Proposed Efficiency = 80.00% Et, Required Efficiency: 80.00 % Et (or 80% AFUE)
Cooling: 1 each - Single Package DX Unit, Capacity = 49 kBtu/h, Air-Cooled Condenser
Proposed Efficiency = 17.40 SEER2, Required Efficiency = 13.40 SEER2
Proposed Part Load Efficiency = 0.00 , Required Part Load Efficiency = 0.00
Fan System: FAN SYSTEM 4 -- Compliance (Motor nameplate HP and fan efficiency method) : Passes

Fans:
FAN 4 Supply, Constant Volume, 1600 CFM, 1.0 motor nameplate hp, 0.00 fan energy index , fan exception: Part of code listed equipment

SYSTEM VERIFICATION REQUIRED.

Mechanical Compliance Statement

Compliance Statement: The proposed mechanical alteration project represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed mechanical systems have been designed to meet the 90.1 (2019) Standard requirements in COMcheck Version COMcheckWeb and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

David R Geissinger - Senior Designer (Name - Title) | Signature | 05/16/2024 (Date)

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PRELIMINARY DRAWINGS

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REGISTERED PROFESSIONAL ENGINEER
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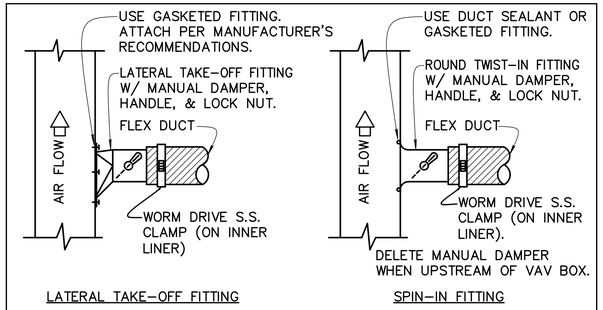
JUNE 30, 2026
THOMAS JOHN SCHIRMER

REVISIONS | DATE

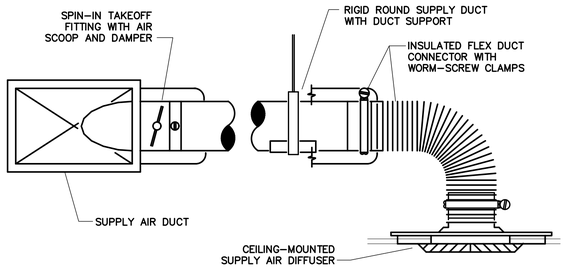
PROJECT MANAGER: TS
DRAWING BY: DRG
JURISDICTION:
DATE: 04.30.2024
SCALE:
TITLE: HVAC SCHEDULES & COMCHECK

SHEET NUMBER: M101
COMMENTS:
JOB/FILE NUMBER: 00.2179.001



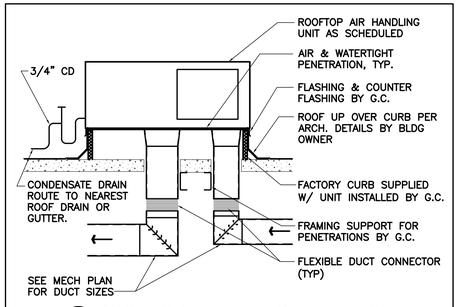
ROUND DUCT TAKE-OFF FITTINGS

NO SCALE



TYPICAL DIFFUSER CONNECTION DETAIL

NO SCALE



2 / M1.1 ROOFTOP UNIT INSTALLATION

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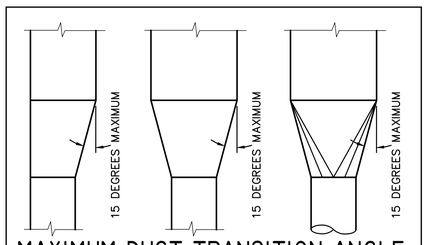
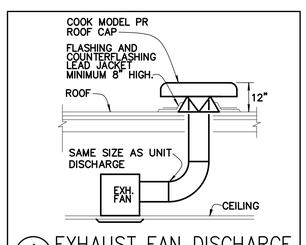


MAXIMUM DUCT TRANSITION ANGLE

NO SCALE



1 / M1.1 EXHAUST FAN DISCHARGE

NO SCALE

HVAC SPECIFICATIONS

GENERAL

SCOPE
THE INTENT OF THE SPECIFICATION AND THE DRAWINGS IS TO PROVIDE A COMPLETE AND FULLY OPERATIONAL MECHANICAL SYSTEM. THE MECHANICAL CONTRACTOR SHALL FURNISH AND INSTALL ALL LABOR, MATERIAL AND EQUIPMENT NECESSARY TO COMPLETE THE MECHANICAL WORK.

SITE EXAMINATION
THE MECHANICAL CONTRACTOR SHALL THOROUGHLY EXAMINE ALL AREAS WHERE EQUIPMENT, DUCTWORK, AND PIPING WILL BE INSTALLED AND WILL REPORT ANY CONDITION THAT, IN HIS OPINION, PREVENTS THE PROPER INSTALLATION OF THE MECHANICAL WORK.

STANDARDS
EQUIPMENT AND MATERIALS SHALL CONFORM WITH APPROPRIATE PROVISIONS OF ARI, ASME, ASTM, UL, NEMA, ANSI, SMACNA, ASHRAE, NFPA, AS APPLICABLE TO EACH INDIVIDUAL UNIT OR ASSEMBLY.

CODES
ALL WORK SHALL BE PERFORMED IN STRICT ACCORDANCE WITH ALL APPLICABLE STATE AND LOCAL CODES AND ORDINANCES. IN CASE OF CONFLICT BETWEEN THE DRAWINGS/SPECIFICATIONS AND THE CODES AND ORDINANCES, THE HIGHEST STANDARD SHALL APPLY. THE MECHANICAL CONTRACTOR SHALL SATISFY CODE REQUIREMENTS AS A MINIMUM STANDARD WITHOUT ANY EXTRA COST TO THE PROJECT.

PERMITS AND FEES
THE MECHANICAL CONTRACTOR SHALL PROCURE AND PAY FOR ALL PERMITS, FEES AND INSPECTIONS NECESSARY TO COMPLETE THE MECHANICAL WORK.

WARRANTY
THE MECHANICAL CONTRACTOR SHALL UNCONDITIONALLY WARRANT ALL WORK TO BE FREE OF DEFECTS IN MATERIAL AND WORKMANSHIP FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF FINAL ACCEPTANCE BY THE OWNER AND WILL REPAIR OR REPLACE ANY DEFECTIVE WORK PROMPTLY AND WITHOUT CHARGE AND RESTORE ANY OTHER EXISTING WORK DAMAGED IN THE COURSE OF REPAIRING DEFECTIVE MATERIALS AND WORKMANSHIP.

AIR HANDLING EQUIPMENT & MATERIALS

PACKAGED ROOFTOP HVAC SYSTEMS
INSTALL NEW PACKAGED ROOFTOP HVAC UNITS WITH NATURAL GAS HEATING AS SHOWN AND NOTED ON THE DRAWINGS. INSTALL NEW UNITS WITH PERFORMANCE REQUIREMENTS AS SCHEDULED. PROVIDE ALL ACCESSORIES AND OTHER COMPONENTS REQUIRED FOR A COMPLETE AND OPERATIONAL INSTALLATION. ADJUST SYSTEM OPERATION TO MEET THE PERFORMANCE REQUIREMENTS SHOWN ON THE DRAWINGS. PROVIDE COMPLETE CONTROLS PACKAGE INCLUDING, BUT NOT LIMITED TO, NEW ELECTRONIC PROGRAMMABLE THERMOSTATS.

FILTERS
PROVIDE THREE (3) SETS OF PLEATED DISPOSABLE FILTERS. USE ONE SET UNTIL COMPLETION OF CONSTRUCTION. INSTALL ONE SET AT COMPLETION OF CONSTRUCTION AND DELIVER ONE SET OF FILTERS TO THE OWNER. FILTERS TO BE FARR, OR SIMILAR.

AIR HANDLING EQUIPMENT & MATERIALS (CONT'D)

EXHAUST FANS
FANS SHALL BE OF CONFIGURATION SHOWN AND SCHEDULED ON THE DRAWINGS AND PROVIDE THE AIR PERFORMANCE AS SCHEDULED. FANS SHALL BE U.L. LISTED AND SHALL BE AMCA CERTIFIED FOR SOUND AND AIR PERFORMANCE.

FANS SHALL EXCEED U.L. REQUIREMENTS FOR SMOKE AND HEAT GENERATION. FANS SHALL BE PROVIDED WITH ALUMINUM BACKDRAFT DAMPER IN DISCHARGE. THE INLET BOX SHALL BE MINIMUM 22 GAUGE GALV. STEEL. MOTOR SHALL BE ISOLATION MOUNTED. FAN WHEELS SHALL BE CENTRIFUGAL FORWARD CURVED TYPE AND SHALL BE BALANCED IN ACCORDANCE WITH AMCA STANDARD 204-96.

MOTORS SHALL BE OPEN DRIP PROOF TYPE WITH PERMANENTLY LUBRICATED BEARINGS. FAN SHALL BE MANUFACTURED BY GREENHECK, COOK OR APPROVED EQUAL.

DUCTWORK & ACCESSORIES

SHEETMETAL DUCTWORK
UNLESS NOTED OTHERWISE, ALL DUCTWORK TO BE RIGID SHEETMETAL CONSTRUCTED FROM GALVANIZED SHEET STEEL IN ACCORDANCE WITH SMACNA LOW VELOCITY DUCT CONSTRUCTION STANDARDS. ALL EXPOSED DUCTWORK TO BE ROUND, SPIRAL, OR RECTANGULAR LOCK-SEAM TYPE, AS SHOWN ON HVAC PLAN SHEETS.

ASSEMBLE AND INSTALL DUCTWORK IN ACCORDANCE WITH RECOGNIZED INDUSTRY PRACTICE FOR ACHIEVING AIR TIGHT (LESS THAN 5% LEAKAGE) AND NOISELESS (NO OBJECTIONABLE NOISE) SYSTEMS, CAPABLE OF PERFORMING EACH INDICATED SERVICE. FURNISH ALL REQUIRED DAMPERS, TRANSITIONS, CONNECTIONS TO AIR TERMINALS, AND OTHER ACCESSORIES NECESSARY FOR A COMPLETE OPERATING SYSTEM. NO VARIATION OF DUCT CONFIGURATION OR SIZES WILL BE PERMITTED EXCEPT BY PERMISSION FROM THE ENGINEER.

DUCT SEALANT
SEAL ALL LONGITUDINAL AND TRANSVERSE JOINTS WITH A NON-HARDENING, NON-MIGRATING MASTIC OR LIQUID ELASTIC SEALANT OF A TYPE RECOMMENDED BY THE MANUFACTURER FOR SEALING JOINTS AND SEAMS IN SHEET METAL DUCTWORK. COVER ALL FIELD JOINTS, JOINTS AROUND SPIN-IN FITTINGS AND FASTENING SCREWS WITH MASTIC. SUPPORTS PROVIDE HOT-DIPPED GALVANIZED STEEL, FASTENERS, ANCHORS. RODS, STRAPS, TRIM, AND ANGLES FOR SUPPORT OF DUCTWORK.

DAMPERS
PROVIDE OPPOSED-BLADE, MULTI-LEAF VOLUME CONTROL DAMPERS WHERE INDICATED ON DRAWINGS AND AT POINTS ON LOW PRESSURE SUPPLY, RETURN AND EXHAUST DUCTS WHERE BRANCHES ARE TAKEN FROM LARGER DUCTS. PROVIDE UL LISTED FIRE DAMPERS WHERE REQUIRED AND IN ACCORDANCE WITH NFPA AND LOCAL CODES. PROVIDE CONVENIENTLY LOCATED ACCESS DOORS OF AMPLE SIZE AND QUANTITY FOR SERVICING THE DAMPERS.

DUCTWORK & ACCESSORIES (CONT'D)

GRILLES, REGISTERS & DIFFUSERS
GRILLES, REGISTERS AND DIFFUSERS SHALL BE TITUS MODELS AS SCHEDULED, OR APPROVED EQUIVALENT, AND SHALL BE FURNISHED BY THE MECHANICAL CONTRACTOR. DIFFUSERS SHALL BE INSTALLED AS INDICATED ON THE DRAWINGS AND SCHEDULES. THE MECHANICAL CONTRACTOR SHALL PROVIDE ALL MISCELLANEOUS ITEMS NECESSARY FOR A COMPLETE AND PROPER INSTALLATION IN THE TYPE OF CEILING AND WALLS USED IN THIS PROJECT.

THERMAL INSULATION
PROVIDE EXTERNAL THERMAL INSULATION WITH AN INTEGRAL VAPOR BARRIER FACING OF SUFFICIENT THICKNESS TO MEET LOCAL ENERGY CODE REQUIREMENTS. PROVIDE INSULATION ON EXHAUST AND OUTSIDE AIR DUCTS, AND ON CONCEALED PORTIONS OF SUPPLY AND RETURN AIR DUCTS. DO NOT INSULATE EXPOSED DUCTWORK AND PORTIONS OF DUCTWORK THAT ARE INTERNALLY LINED. THERMAL INSULATION SHALL COMPLY WITH AN NFPA FLAME SPREAD OF 25 OR LESS, AND SMOKE DEVELOPED RATING NO GREATER THAN 50.

ACOUSTICAL DUCT LINER
UNLESS OTHERWISE INDICATED ON THE PLANS, PROVIDE 1" GLASS FIBER ACOUSTICAL DUCT LINER ON SUPPLY AND RETURN DUCTWORK WITHIN 10 FEET OF THE DISCHARGE AND INTAKE OF AIR HANDLING UNITS. INCREASE DUCT SIZED INDICATED ON PLANS 2" IN EACH DIMENSION TO ACCOMMODATE LINER.

CONTROLS & OPERATION

CONTROL WIRING
THE MECHANICAL CONTRACTOR SHALL PROVIDE ALL CONTROL WIRING IN CONDUIT NECESSARY FOR THE COMPLETE AND PROPER OPERATING TEMPERATURE CONTROL SYSTEM.

THERMOSTAT
THERMOSTATS SHALL BE MANUFACTURERS STANDARD PROGRAMMABLE WITH SWITCHING SUBBASE FOR INSTALLATION BY THE MECHANICAL CONTRACTOR. ONE THERMOSTAT SHALL BE PROVIDED FOR EACH AIR CONDITIONING SYSTEM. MOUNT THERMOSTATS AT 60" ABOVE FINISHED FLOOR IN LOCATIONS AS SHOWN. MECHANICAL CONTRACTOR SHALL PROVIDE ALL THERMOSTATS UNLESS NOTED OTHERWISE.

TESTING, ADJUSTING & BALANCING

TESTING, ADJUSTING, BALANCING
MECHANICAL CONTRACTOR SHALL OBTAIN THE SERVICES OF AN INDEPENDENT NEBB OR AABC CERTIFIED AIR BALANCE CONTRACTOR TO ACCURATELY BALANCE THE AIR SYSTEMS TO PROVIDE AIR QUALITIES INDICATED ON THE DRAWINGS AND IN THIS SPECIFICATION. OPERATE AUTOMATIC CONTROLS SYSTEM AND VERIFY SET POINTS DURING BALANCING. SUBMIT TWO (2) COPIES OF THE BALANCE REPORT TO THE ENGINEER FOR APPROVAL. INCLUDE A COPY OF THE BALANCE REPORT AS APPROVED BY THE ENGINEER WITH APPLICATION FOR FINAL CONTRACT PAYMENT.

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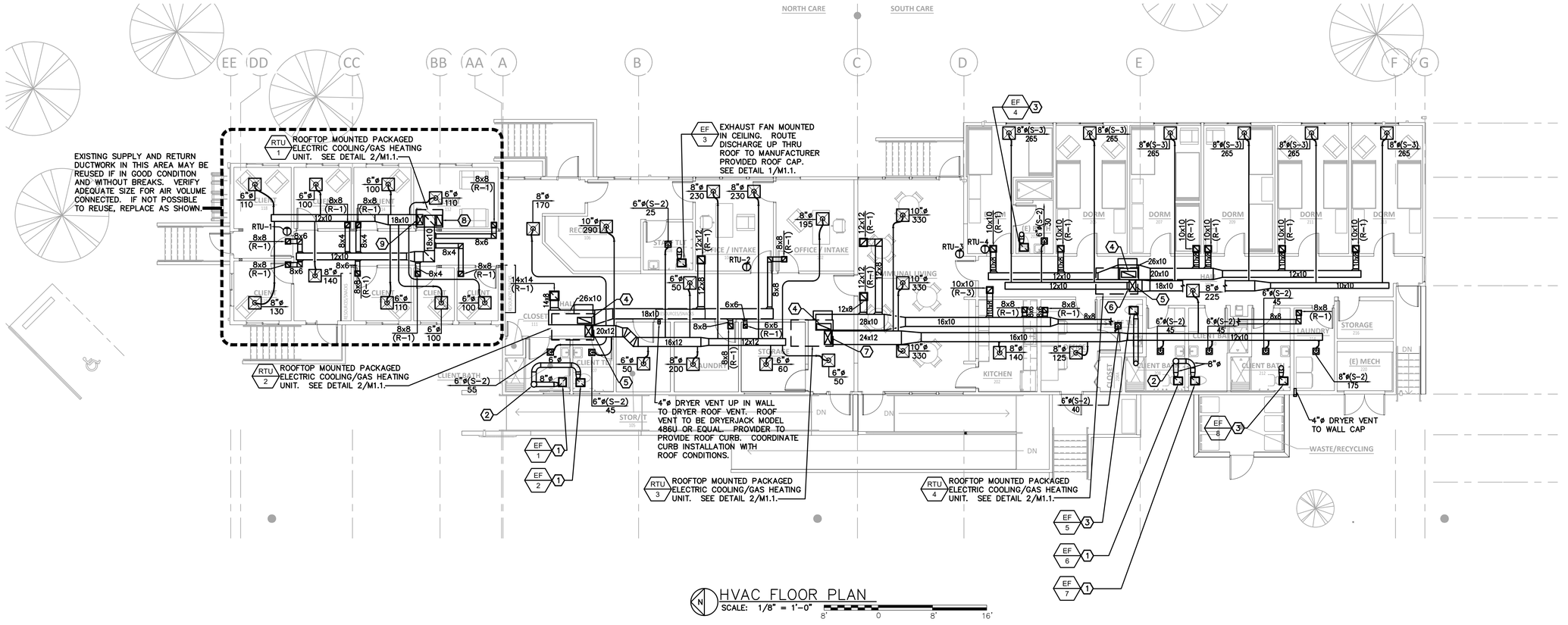
PRELIMINARY DRAWINGS

SEAL:
REGISTERED PROFESSIONAL ENGINEER
105022PE
OREGON
JUNE 30, 2026
THOMAS JOHN SCHIRMER

REVISIONS	DATE

PROJECT MANAGER:	TS
DRAWING BY:	DRG
JURISDICTION:	
DATE:	04.30.2024
SCALE:	
TITLE:	HVAC SPEC'S & DETAILS
SHEET NUMBER:	M102
COMMENTS:	
JOB/FILE NUMBER:	00.2179.001



HVAC FLOOR PLAN
SCALE: 1/8" = 1'-0"

GENERAL NOTES:

1. DRAWINGS ARE DIAGRAMMATIC IN NATURE AND MAY NOT SHOW ALL STRUCTURAL MEMBERS, ARCHITECTURAL ELEMENTS. LIGHTING LAYOUTS, OR ALL OFFSETS, FITTINGS, AND OTHER ACCESSORIES REQUIRED FOR A COMPLETE INSTALLATION. CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS, AND ACCESSORIES REQUIRED FOR THE INSTALLATION OF A COMPLETE WORKING SYSTEM TO THE SATISFACTION OF THE OWNER.
2. COORDINATE THE MECHANICAL WORK WITH THE WORK OF OTHER TRADES AND EXISTING CONDITIONS.
3. COMPLY WITH ALL LOCAL CODES AND ORDINANCES.
4. CONTRACTOR TO FIELD VERIFY EXISTING CONDITIONS PRIOR TO START OF WORK AND INFORM ARCHITECT/ENGINEER OF ANY DISCREPANCIES.
5. CONNECT NEW DUCTWORK TO HVAC UNITS IN LOCATIONS SHOWN AND IN ACCORDANCE WITH UNIT MANUFACTURER'S INSTALLATION INSTRUCTIONS. LOCATE UNIT DUCTWORK TO INSURE ADEQUATE SERVICE CLEARANCES PER MANUFACTURER'S RECOMMENDATIONS AND IN ACCORDANCE WITH CODE REQUIREMENTS.
6. INSTALL NEW DUCTWORK AS SHOWN. ALL SHEET METAL DUCTWORK SHALL BE FABRICATED AND INSTALLED IN ACCORDANCE WITH CURRENT SMACNA DUCT CONSTRUCTION STANDARDS. DUCTWORK SHALL BE FABRICATED IN ACCORDANCE WITH REQUIREMENTS OF THE 1 IN. WG PRESSURE CLASSIFICATION.
7. ALL OUTSIDE AIR DUCTWORK AND ALL DUCTWORK INSTALLED ABOVE INSULATED CEILINGS SHALL BE INSULATED WITH 2" THICK FIBERGLASS DUCTWRAP INSULATION WITH VAPOR BARRIER COATING. INSTALLATION SHALL BE COMPLETE FOR ALL DUCTWORK SYSTEMS UNLESS SPECIFICALLY EXCLUDED. INSULATION INSTALLATION SHALL BE IN ACCORDANCE WITH THE BEST PRACTICES OF THE TRADE SUCH THAT ALL VAPOR BARRIERS SHALL BE SECURE AND NO LOOSE JOINTS OR PATCHES EXIST IN THE FINISHED PRODUCT.
8. NO FLEXIBLE DUCT SHALL BE UTILIZED IN RETURN AIR, OUTSIDE AIR, OR EXHAUST AIR SYSTEMS. MAXIMUM LENGTH OF FLEXIBLE DUCT IN SUPPLY AIR SYSTEM SHALL NOT EXCEED 5 FEET.
9. PROVIDE SINGLE BLADE DAMPER AND SPIN-IN FITTING AT TAKE-OFFS FOR SUPPLY AIR SYSTEMS.
10. AFTER COMPLETION OF NEW MECHANICAL SYSTEMS INSTALLATION, ADJUST ALL THERMOSTATS AND AIR HANDLING UNITS TO ATTAIN THE PERFORMANCE VALUES SCHEDULED. TEST, ADJUST AND BALANCE ALL AIR OUTLET DEVICES TO CFM VALUES SHOWN WITHOUT CREATING OBJECTIONABLE NOISE OR DRAFTS. PRIOR TO FINAL PROJECT CLOSE-OUT, SUBMIT FOUR COPIES OF FINAL TEST AND BALANCE REPORT TO ARCHITECT AND ENGINEER FOR RECORD.

KEY NOTES:

1. EXHAUST FAN MOUNTED IN CEILING. ROUTE DISCHARGE, SIZE AS NOTED, TO ROOF CAP. SEE DETAIL 1/M1.1.
2. 10"ø UP TO FAN MANUFACTURER SUPPLIED ROOF CAP.
3. EXHAUST FAN MOUNTED IN CEILING. ROUTE DISCHARGE UP THRU ROOF TO MANUFACTURER PROVIDED ROOF CAP. SEE DETAIL 1/M1.1.
4. RETURN AIR DUCT FULL SIZE OF UNIT INLET FROM UNIT TO R.A. DUCT.
5. 20x12 S.A. DUCT DOWN FROM RTU. TRANSITION FROM UNIT DISCHARGE SIZE TO TO DUCT SIZE IN DROP.
6. 45° TAP BRANCH CONNECTION WITH DAMPER.
7. 24x12 S.A. DUCT DOWN FROM RTU. TRANSITION FROM UNIT DISCHARGE SIZE TO TO DUCT SIZE IN DROP.
8. 18x10 R.A. DUCT UP TO RTU. TRANSITION FROM DUCT SIZE TO UNIT INLET SIZE IN RISE.
9. 18x10 S.A. DUCT DOWN FROM RTU. TRANSITION FROM UNIT DISCHARGE SIZE TO TO DUCT SIZE IN DROP.

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PRELIMINARY DRAWINGS

SEAL:
REGISTERED PROFESSIONAL ENGINEER
105022PE
OREGON
JUNE 30, 2026
THOMAS JOHN SCHIMMER

REVISIONS	DATE

PROJECT MANAGER:	TS
DRAWING BY:	DRG
JURISDICTION:	
DATE:	04.30.2024
SCALE:	

TITLE:
HVAC FLOOR PLAN &
ENERGY COMPLIANCE

SHEET NUMBER:
M201

COMMENTS:

JOB/FILE NUMBER:
00.2179.001

PLUMBING SPECIFICATIONS:

SECTION 15010 – GENERAL PROVISIONS

1.01 SCOPE OF WORK
WORK SHALL CONSIST OF FURNISHING ALL LABOR AND MATERIALS NECESSARY FOR THE INSTALLATION OF COMPLETE AND OPERATING MECHANICAL SYSTEMS.

1.02 EXAMINATION OF PREMISES
VISIT THE PREMISES BEFORE SUBMITTING BID AS NO EXTRAS WILL BE ALLOWED FOR LACK OF KNOWLEDGE OF EXISTING CONDITIONS. REPORT ANY DISCREPANCIES BETWEEN THE DRAWINGS AND SITE CONDITIONS TO THE OWNER PRIOR TO BID.

1.03 CODES AND STANDARDS
COMPLY WITH ALL APPLICABLE CODES, LAWS, INDUSTRY STANDARDS AND UTILITY COMPANY REGULATIONS.

1.04 EQUIPMENT FURNISHED BY OWNER
NONE

1.05 PERMITS, FEES AND NOTICES
PAY FOR ALL PERMITS, FEES, LICENSES AND INSPECTIONS FOR THIS DIVISION. DO NOT INCLUDE THE COST OF THE "PLANT INVESTMENT FEE" FOR SEWER AND WATER OR GAS APPLICATION FEE CHARGED BY THE UTILITY COMPANY.

1.06 DRAWINGS
ENGINEERING DRAWINGS ARE DIAGRAMMATIC IN NATURE AND ARE NOT INTENDED TO BE SCALED FOR DIMENSIONS. INSTALL THE SYSTEMS COMPLETE IN THE SPACE PROVIDED WITHOUT EXTRA CHARGES TO THE OWNER.

1.07 SUBSTITUTIONS AND APPROVALS
A. SOME MATERIALS ARE SPECIFIED BY MANUFACTURER'S NAME. MATERIALS OF EQUIVALENT QUALITY MAY BE USED IF EQUIVALENT.

B. BIDDER'S CHOICE
MATERIALS OR EQUIPMENT LISTED BY SEVERAL MANUFACTURER'S NAMES ARE INTENDED TO BE BIDDER'S CHOICE, AND ANY OF THE LISTED MANUFACTURER'S MAY BE BID WITHOUT SOLICITING PRIOR APPROVAL.

C. PERFORMANCE SPECIFICATION. WHEN ANY ITEM IS SPECIFIED BY REQUIREMENT TO MEET A PERFORMANCE, INDUSTRY OR REGULATING BODY STANDARD OR IS SPECIFIED BY A GENERIC SPEC, (NO MANUFACTURER'S NAME LISTED) NOT PRIOR APPROVAL BY THE CONSULTING MECHANICAL ENGINEER IS NEEDED UNLESS SPECIFICALLY CALLED FOR IN THESE SPECIFICATIONS.

D. CONTRACTOR TO BE RESPONSIBLE FOR ANY CHANGES AND COSTS TO ACCOMMODATE ANY EQUIPMENT SUBSTITUTIONS.

1.08 INSTALLATION AND ARRANGEMENT
INSTALL ALL WORK TO PERMIT REMOVAL OF COILS, SHAFTS AND WHEELS, FILTERS, AND ALL OTHER PARTS WHICH MIGHT REQUIRE PERIODIC REPLACEMENT OR MAINTENANCE.

1.09 PROTECTION OF WORK AND PROPERTY
BE RESPONSIBLE FOR THE PROTECTION OF EXISTING FACILITIES WHETHER OR NOT SUCH FACILITY IS TO BE REMOVED OR RELOCATED. MOVE OR REMOVE ANY FACILITY SO AS NOT TO CAUSE INTERRUPTION OF THE WORK OR OWNER'S OPERATION.

1.10 WARRANTY
A. ALL MATERIALS AND EQUIPMENT SHALL BE NEW UNLESS OTHERWISE SPECIFIED. GUARANTEE ALL WORKMANSHIP, MATERIAL AND EQUIPMENT AND REPLACE ANY FOUND DEFECTIVE WITHOUT COST TO THE OWNER, FOR ONE YEAR AFTER FINAL ACCEPTANCE, AS DEFINED IN GENERAL CONDITIONS.

B. EACH WARRANTY FOR LONGER THAN THE ONE YEAR DESCRIBED ABOVE (THAT COMES WITH EQUIPMENT USED ON THE JOB) SHALL BE PASSED ONTO THE OWNER WITH DATES OF START AND END OF WARRANTY.

1.11 PROJECT RECORD DRAWINGS
PROVIDE THE ARCHITECT WITH ONE CLEAN SET OF PLANS AND SPECIFICATIONS CORRECTED UP-TO-DATE AS JOB PROGRESSES.

END OF SECTION

SECTION 15190 – IDENTIFICATION

1.01 REFERENCES
A. COMPLY WITH ANSI A13.1 – SCHEME FOR THE IDENTIFICATION OF PIPING SYSTEMS.

2.01 MATERIALS
A. PIPE MARKERS: IDENTIFY THE CONTENTS OF THE VARIOUS PIPING SYSTEMS. FLOW ARROWS SHALL CLEARLY INDICATE THE DIRECTION OF FLOW. UTILIZE EITHER OF THE FOLLOWING METHODS:
1. PRESSURE SENSITIVE MARKERS: BRADLEY TYPE B-350 OR B-946, SETON, MSI, CRAFTMARK OR EQUIVALENT FLEXIBLE FILM IDENTIFICATION MARKERS AND TAPE, WITH LEGEND SIZE, COLOR CODING, AND MARKER LENGTH PER ANSI A13.1.
2. STENCILED MARKINGS: OF SIZE AND COLOR PER ANSI A13.1, USING CLEAR CUT STENCILS AND OIL BASE PAINT.

B. TAGS: ALUMINUM OR BRASS 1-1/2 INCH DIAMETER WITH EDGES GROUND SMOOTH AND COLOR CODED TO MATCH PIPING SYSTEM IDENTIFICATION. PUNCH EACH TAG TO RECEIVE TIE WIRES. EVENLY SPACE AND STAMP LETTERS (1/4 INCH HIGH) AND NUMBERS (7/16 INCH HIGH) INTO THE METAL

C. LABELS: WHITE PLASTIC LAMINATE WITH BLACK ENGRAVING, FASTENED WITH BRASS SCREWS. PRESSURE-SENSITIVE EMBOSSED LABELS (DYMO TYPE) ARE NOT ACCEPTABLE. PROVIDE OF UNIFORM SIZE. LABEL ALL EQUIPMENT UNLESS A MANUFACTURER'S LABEL IS FIRMLY ATTACHED.

2.02 STENCILS
A. STENCILS OR PRESSURE SENSITIVE MARKERS
1. CONFORM TO THE FOLLOWING SCHEDULE:

OUTSIDE DIAMETER OF PIPE OR PIPE INSULATION	LENGTH OF COLOR FIELD	MINIMUM SIZE LETTER
1/2"	8"	3/8"
3/4" THROUGH 1-1/4"	8"	1/2"
1-1/2" AND 2"	8"	3/4"
2-1/2" THROUGH 6"	12"	1-1/4"

3.01 PIPING IDENTIFICATION
A. IDENTIFY PIPING IN CRAWLSPACES, ABOVE CEILINGS, ETC. AS WELL AS EXPOSED TO VIEW EXCEPT PIPING IN FINISHED AREAS. PROVIDE IDENTIFYING MARKINGS AT VALVES, FITTINGS, AND EQUIPMENT, AT TERMINAL POINTS, AT EACH BRANCH AND RISER TAKE-OFF, ON PIPES THAT LEAD TO AND FROM UNDERGROUND AREAS, AND AT BOTH SIDES OF PIPING PASSING THROUGH WALLS, CEILINGS, AND FLOORS. IN ADDITION, PROVIDE IDENTIFYING MARKINGS AT 20 FEET O.C. FOR EXPOSED PIPING AND CONCEALED PIPING.

B. FOR PIPES UNDER 1/2" O.D. COLOR CODED IDENTIFICATION TAGS SHALL BE SECURELY FASTENED AT ALL REQUIRED LOCATIONS. TAGS SHALL BE 1-1/2 INCHES IN DIAMETER.

C. IDENTIFICATION OF ALL PIPING SYSTEMS SHALL CONFORM TO THE DESIGNATIONS IN THE LEGEND ON THE DRAWINGS.

D. APPLY DIRECTIONAL FLOW ARROWS ADJACENT TO EACH PIPE MARK.

END OF SECTION

SECTION 15250 – INSULATION

1.01 PIPING AND EQUIPMENT
A. DOMESTIC COLD WATER PIPE, VALVES AND FITTINGS.
1. INSULATE WITH U.L. APPROVED, FLAME RESISTANT, WHITE VAPOR BARRIER JACKETED, GLASS FIBER SNAP-ON INSULATION 1" THICK. INSULATE VALVES AND FITTINGS WITH GLASS FIBER BLANKET INSULATION AND PREMOLDED PVC COVERS (COVERS TO BE U.L. 25/50 RATED). WHERE THE USE OF PVC COVERS IN PLENUMS, ETC., IS RESTRICTED BY VARIOUS LOCAL CODES VALVES AND FITTINGS SHALL BE INSULATED BY WRAPPING WITH BLANKET INSULATION. COVER BLANKETS TO SAME DEPTH AS THE PIPE INSULATION WITH INSULATING CEMENT, TROWELED SMOOTH. IT IS THE CONTRACTOR'S AND MANUFACTURER'S RESPONSIBILITY TO ASSURE THEMSELVES THAT THE CODE AUTHORITY WILL APPROVE ANY PRODUCT TO BE INSTALLED ON THE PROJECT.

B. DOMESTIC HOT WATER PIPING AND FITTINGS.
1. ALL HOT WATER SUPPLY LINES AND CIRCULATING WATER LINES INSULATE WITH U.L. APPROVED, FRAME RESISTANT, WHITE ALL SERVICE JACKETED, GLASS FIBER SNAP-ON PIPE INSULATION 1" THICK. INSULATE FITTINGS WITH GLASS FIBER BLANKET INSULATION AND PREMOLDED PVC COVERS.

C. HANDICAPPED FIXTURES
1. INSULATION OF PIPES UNDER HANDICAPPED LAVATORIES: INSULATE ANGLE STOP ASSEMBLIES AND DRAIN LINES WITH FOAM INSERT COVERED WITH 1/8" MINIMUM ABRASIVE RESISTANT EXTERIOR COVER WITH FASTENERS LOCATED OUT OF SIGHT, BROCAR TRAP WRAP KIT 500R AND 500HS, OR EQUIVALENT.

END OF SECTION

SECTION 15400 – PLUMBING

1.01 WATER PIPING
A. PIPING (INSIDE BUILDING)
1. NON-BURIED LINES, TYPE "L" COPPER WATER TUBE, WROUGHT COPPER FITTINGS AND 96-4 (TIN/SILVER) OR CANFIELD 100% WATERSAFE (SILVER-TIN COPPER) SOLDER.

2. VALVES AND SPECIALTIES

GATE VALVES:	BRONZE, CLASS 125, 200 LB. W.O.G.
BALL VALVES:	BRONZE, FULL PORT, 400 LB. W.O.G.
GLOBE VALVES:	BRONZE, CLASS 125, 200 LB. W.O.G.
SWING CHECK VALVES:	BRONZE, CLASS 125, 200 LB. W.O.G.
DIELECTRIC UNIONS:	FURNISH AND INSTALL A DIELECTRIC UNION AT ALL CONNECTIONS WHERE FERROUS MATERIAL IS CONNECTED TO NON-FERROUS MATERIAL.
STRAINERS:	250 LB. SEMI-STEEL OR CAST IRON "Y" TYPE W/STAINLESS STEEL SCREEN.
PRESSURE TEMP. TAPS:	UNIVERSAL CONTROLS CORPORATION #45-PT-N.SISCO BNO-500 1/2 NPT, NORDEL CORE.

3. CPVC PIPING MAY BE UTILIZED IF ACCEPTABLE BY LOCAL CODE AUTHORITY. CPVC SHALL BE SCHEDULE 40 AND SHALL BE MANUFACTURED FROM A TYPE IV, GRADE I CHLORINATED POLYVINYL CHLORIDE COMPOUND WITH A MINIMUM CELL CLASSIFICATION OF 23447 PER ASTM D1784. THE PIPE SHALL HAVE A FLAME SPREAD RATING OF LESS THAN 25 AND A SMOKE DEVELOPMENT RATING OF LESS THAN 50.

1.02 WASTE AND VENT PIPING
A. MATERIALS; WASTE AND VENT PIPING (INSIDE BUILDING)
1. WASTE LINES ABOVE GROUND; STD. WT., C.I. SOIL PIPE AND FITTINGS OR HUBLESS, C.I. SOIL PIPE AND FITTINGS. UP THRU 2-1/2" MAY BE STD. WTG., GALV. STEEL PIPE W/BLACK, C.I. DRAINAGE FITTINGS.

2. VENT LINES ABOVE GROUND; STD. WT., C.I. SOIL PIPE AND FITTINGS, HUBLESS C.I. SOIL PIPE AND FITTING OR, STD. WT., GALV. STEEL PIPE W/150 LB., GALV. MALL. IRON FITTINGS FOR LINES 1-1/2" AND OVER, FOR LINES 1-1/4" AND LESS, BLACK, C.I. 125 LB. SWP FITTINGS.

3. ALL WASTE AND VENT PIPING ABOVE GRADE MAY BE DWV COPPER PIPE AND FITTINGS USING SOLDER SPECIFIED ABOVE FOR WATER PIPING.

4. WASTE AND VENT PIPING MAY BE PVC DWV PIPE WITH SOLVENT WELD DWV FITTINGS IF ACCEPTABLE TO THE PLUMBING INSPECTION AUTHORITY HAVING JURISDICTION. PROVIDE WRITTEN CONFIRMATION OF LOCAL AUTHORITY ACCEPTANCE PRIOR TO INSTALLING NEW WORK. PVC PIPING INSTALLATION SHALL BE PERFORMED IN STRICT CONFORMANCE WITH THE MANUFACTURER'S REQUIREMENTS FOR COUPLING PREPARATION AND INSTALLATION CONDITIONS.

1.03 FIXTURES AND EQUIPMENT
A. FIXTURES
1. INSTALL FIXTURES AND/OR ROUGH-IN ACCORDING TO THE SPECIFICATIONS.

2. SECURE FIXTURES TO WALLS AND FLOOR OR COUNTERTOPS IN ACCORDANCE WITH MANUFACTURER'S ROUGHING-IN AND SETTING REQUIREMENTS AND FORM A RIGID INSTALLATION.

3. ALL PIPE AT THE FIXTURES WHICH MAY BE EXPOSED TO VIEW SHALL BE BRASS CHROME FINISH, FINISHED WITH CHROME ESCUTCHEONS WHERE THEY PROJECT FROM WALLS AND FLOORS.

4. STOP VALVES SHALL BE FURNISHED AND INSTALLED AT ALL FIXTURES, FOR ALL EQUIPMENT AND AT ROUGH-IN LOCATIONS.

5. FURNISH AND INSTALL AIR GAP FITTING ON DISHWASHER WASTE.

6. ALL PLUMBING TRIM, VALVES, ETC. TO MEET APPLICABLE WATER CONSERVATION CODE.

1.04 GAS PIPING MATERIALS
A. PIPE AND FITTINGS: SCHEDULE 40, ASTM-A53 BLACK STEEL PIPE.
1. ABOVE GRADE PIPING; 2 INCHES AND SMALLER, USE 150 LB. MALLEABLE IRON FITTINGS AND THREADED JOINTS IN EXPOSED LOCATIONS AND STANDARD WEIGHT SOCKET WELD FITTINGS AND WELDED JOINTS IN INACCESSIBLE LOCATIONS.

2. BELOW GRADE PIPING; USE 150 LB. FORGED STEEL FITTINGS AND WELDED JOINTS. PROVIDE CATHODIC PROTECTION AS REQUIRED. PIPING SHALL BE PROVIDED WITH A FACTORY APPLIED COATING OF EITHER FUSION BONDED EPOXY OR TAPE WRAP. FACTORY COATING MUST BE ACCEPTABLE TO THE UTILITY COMPANY.

B. VALVES

1. LUBRICATED PLUG VALVES
CLASS 125, 175 LB. W.O.G. CAST IRON, SCREWED OR FLANGED WITH LOW FRICTION COATED PLUG.

2. NON-LUBRICATED PLUG VALVES
CLASS 150, 175 LB. W.O.G. SEMI STEEL, SCREWED OR FLANGED, DEZUNIK 425, RS49, KEYSTONE 1512 OR 1522, OR RESUN FIG. R-1430 OR R-1431.

C. TESTS AND ADJUSTMENTS

1. PRESSURE TEST ENTIRE GAS PIPING SYSTEM IN ACCORDANCE WITH THE REQUIREMENTS OF NFPA 54 AND THE LOCAL FUEL GAS CODE. AFTER PRESSURE TEST, PURGE LINES PER NFPA 54 INSTRUCTIONS.

END OF SECTION

FIXTURE SPECIFICATIONS:

MAXIMUM HOT WATER SUPPLY TEMPERATURE OUTSIDE OF KITCHEN=110°F, PROVIDE TEMPERING DEVICE.

FLOOR DRAIN (FD):

FIXTURE: ZURN COMPANY SERIES ZN-415-P, COATED CAST IRON FLOOR DRAIN, 1/2" TRAP PRIMER CONNECTION, TWO-PIECE BODY, DOUBLE DRAINAGE FLANGE, INVERTIBLE NON-PUNCTURING FLASHING COLLAR, WEEPHOLES, BOTTOM OUTLET INSIDE CAULK CONNECTION, ADJUSTABLE ROUND SUPER-FLO STAINER, FLASHING CLAMP WITH 24"x24" 4LB. LEAD FLASHING FOR FLOOR DRAINS INSTALLED ABOVE SLAB ON GRADE.

STRAINER: ZURN COMPANY "TYPE B", 5" DIAMETER NICKEL BRONZE FINISH.

WASTE: SIZE AS NOTED ON DRAWINGS, CAST IRON P-TRAP UNDER FLOOR.

TRAP GUARD (TG):

FIXTURE: PROVIDE EACH FLOOR DRAIN WITH PROSET TRAP GUARD SIZED APPROXIMATE FOR ASSOCIATED FLOOR DRAIN.

WC (WATER CLOSET): ADA
(FLOOR MOUNTED – FLUSH TANK)

FIXTURE:	ZURN Z5551-K PRESSURE ASSIST – 1.6 GPF
SEAT:	ZURN Z5955SS-EL
SUPPLY:	BRASSCRAFT CR3912

L-1 (LAVATORY:) ADA
(WALL HUNG)

FIXTURE:	ZURN Z5344
FAUCET:	ZURN ZZ81104-3M (0.5 GPM)
DRAIN:	ZURN Z8746-PC
P-TRAP:	ZURN Z8700 SERIES
SUPPLIES:	ZURN Z8800 SERIES
COVERS:	ZURN Z8946-3-NT

S-1 (SINGLE COMPARTMENT SINK:)
(COUNTERTOP)

FIXTURE:	JUST SL-ADA-2131-A501-J
FAUCET:	DELTA 710WF-HDF
DRAIN:	JUST J-ADA-35
P-TRAP:	PVC MASTER TRAP
SUPPLIES:	BRASSCRAFT SR3912

SHR (SHOWER:)

FAUCET:	ZURN Z7301-SS-MT-S9

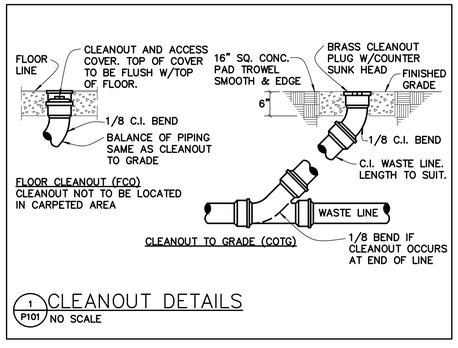
SS (UTILITY SINK:)
(FLOOR MOUNTED)

FIXTURE:	MUSTEE MODEL 19CF
FAUCET:	INCLUDED WITH SINK KIT
DRAIN:	INCLUDED WITH SINK KIT
P-TRAP:	PVC MASTER TRAP
SUPPLIES:	BRASSCRAFT SR3912

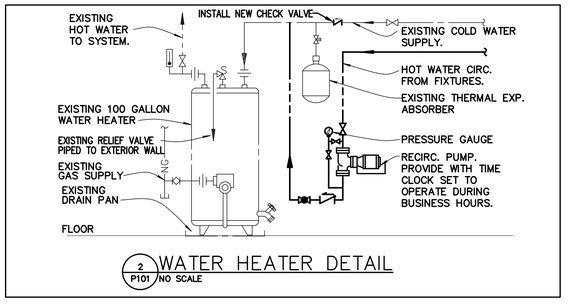
MS (FLOOR MOUNTED MOP SINK:)

FIXTURE:	MUSTEE MODEL 63M, 24"x24"x10" FLOOR MOP SINK KIT, FIBERGLASS, WHITE, WITH SERVICE FAUCET

END OF SECTION



1 P101 CLEANOUT DETAILS
NO SCALE



2 P101 WATER HEATER DETAIL
NO SCALE

GENERAL NOTES:

1. PLUMBING CONTRACTOR SHALL FIELD COORDINATE WITH ELECTRICAL CONTRACTOR FOR ALL POWER REQUIREMENTS.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFICATION OF ALL EXISTING CONDITIONS PRIOR TO SUBMITTING THEIR BID. NO ADDITIONAL COMPENSATION WILL BE MADE FOR ANY EXTRAS DUE TO CONTRACTOR'S FAILURE TO VISIT THE JOBSITE AND/OR PREDETERMINE. ANY DISCREPANCIES SHALL BE IMMEDIATELY REPORTED TO THE ENGINEER FOR RESOLUTION.
3. PROVIDE SHUT-OFF VALVES ABOVE ACCESSIBLE CEILING SPACE ON ALL BRANCH LINES AND PRIOR TO DROPS BELOW FLOOR, TYPICAL.
4. REFER TO OTHER DRAWINGS FOR DETAILS EQUIPMENT CONNECTIONS, FIXTURE SCHEDULE, ETC.
5. CONTRACTOR TO VERIFY LOCATIONS OF ALL UTILITIES ON SITE.
6. CONTRACTOR IS TO PROVIDE COMPLETE CONNECTIONS TO OWNER FURNISHED EQUIPMENT.
7. CONTRACTOR TO COORDINATE THE LOCATION OF ALL CEILING DEVICES WITH REFLECTED CEILING PLAN AND STRUCTURE PRIOR TO BEGINNING WORK.
8. PLUMBING DRAWINGS ARE DIAGRAMMATIC AND DO NOT NECESSARILY INDICATE EVERY REQUIRED OFFSET, FITTING, ETC. DRAWINGS ARE NOT TO BE SCALED FOR DIMENSIONS. TAKE ALL DIMENSIONS FROM ARCHITECTURAL DRAWINGS, CERTIFIED EQUIPMENT DRAWINGS AND FROM THE STRUCTURE ITSELF BEFORE FABRICATING ANY WORK. VERIFY ALL SPACE REQUIREMENTS COORDINATING WITH OTHER TRADES, AND INSTALL THE SYSTEMS IN THE SPACE PROVIDED WITHOUT EXTRA CHARGES TO THE OWNER.
9. THE OWNER AND ENGINEER ARE NOT RESPONSIBLE FOR THE CONTRACTOR'S SAFETY PRECAUTIONS OR TO MEANS, METHODS, TECHNIQUES, CONSTRUCTION SEQUENCES, OR PROCEDURES REQUIRED TO PERFORM HIS WORK.
10. ALL WORK SHALL BE INSTALLED IN ACCORDANCE WITH ALL APPLICABLE STATE CODES, LOCAL CODES AND OWNER'S STANDARDS INDICATED BY THE CONSTRUCTION DOCUMENTS.
11. ALL EXISTING PIPING AND APPURTANCES TO REMAIN UNLESS SPECIFICALLY NOTED TO BE REMOVED OR RENOVATED.

PLUMBING LEGEND

GATE VALVE	CW COLD WATER
PLUG OR BALANCING VALVE	HW HOT WATER
SAFETY RELIEF VALVE	HWC HOT WATER CIRCULATING
BALL VALVE	CA COMPRESSED AIR
PRESSURE REDUCING VALVE	VAC VACUUM
TEMPERATURE CONTROL VALVE, 2-WAY	FCW FILTERED COLD WATER
PIPE CAP	G GAS
(CO) PIPE CLEANOUT	V PLUMBING VENT PIPE
(WCO) WALL CLEANOUT	W WASTE PIPE
(FCO) FLOOR CLEANOUT	D DRAIN
FLOOR DRAIN WITH TRAP PRIMER	POINT OF PIPE CONNECTION NEW TO EXISTING

NOTE
ALL SYMBOLS SHOWN ON LEGEND ARE NOT NECESSARILY USED ON THIS PROJECT.

ABBREVIATIONS

A/C	ABOVE CEILING	COND.	CONDENSATE
AFF	ABOVE FINISH FLOOR	CW	COLD WATER
AD	AREA DRAIN	DP	DRAIN PIPE
B/F	BELOW FLOOR	NG	NATURAL GAS
B/G	BELOW GRADE	SAN	SANITARY DRAINAGE PIPE
B/S	BELOW SLAB	GV	GATE VALVE
BV	BALANCING VALVE	VS	VENT STACK

FIXTURE UNIT SCHEDULE

MARK	FIXTURE TYPE	MINIMUM CONNECTION SIZE CW	HW	W	REMARKS	NOTES
WC	WATER CLOSET (ADA)	1/2"	–	4"	15" SEAT HEIGHT	–
L-1	LAVATORY (ADA)	1/2"	1/2"	1-1/4"	WALL HUNG	1,3
S-1	SINGLE COMP. SINK	1/2"	1/2"	1-1/2"	COUNTERTOP	2,3
SHR	SHOWER (ADA)	1/2"	1/2"	3"	–	1,3
SS	SERVICE SINK	1/2"	1/2"	2"	–	1,3
MS	MOP SINK	1/2"	1/2"	3"	–	3,4

NOTES:
1. ALL MATERIALS AND INSTALLATION SHALL BE IN ACCORDANCE WITH A.D.A. REQUIREMENTS.
2. SEE ARCHITECTURAL DRAWINGS FOR HEIGHT OF COUNTERTOP.
3. MAXIMUM HOT WATER SUPPLY TEMP.=110°F.
4. FAUCET SHALL BE MOUNTED 36" A.F.F. OR THE LOWEST PART OF THE FAUCET TO BE 30" A.F.F.

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MCBROD CRISIS CENTER
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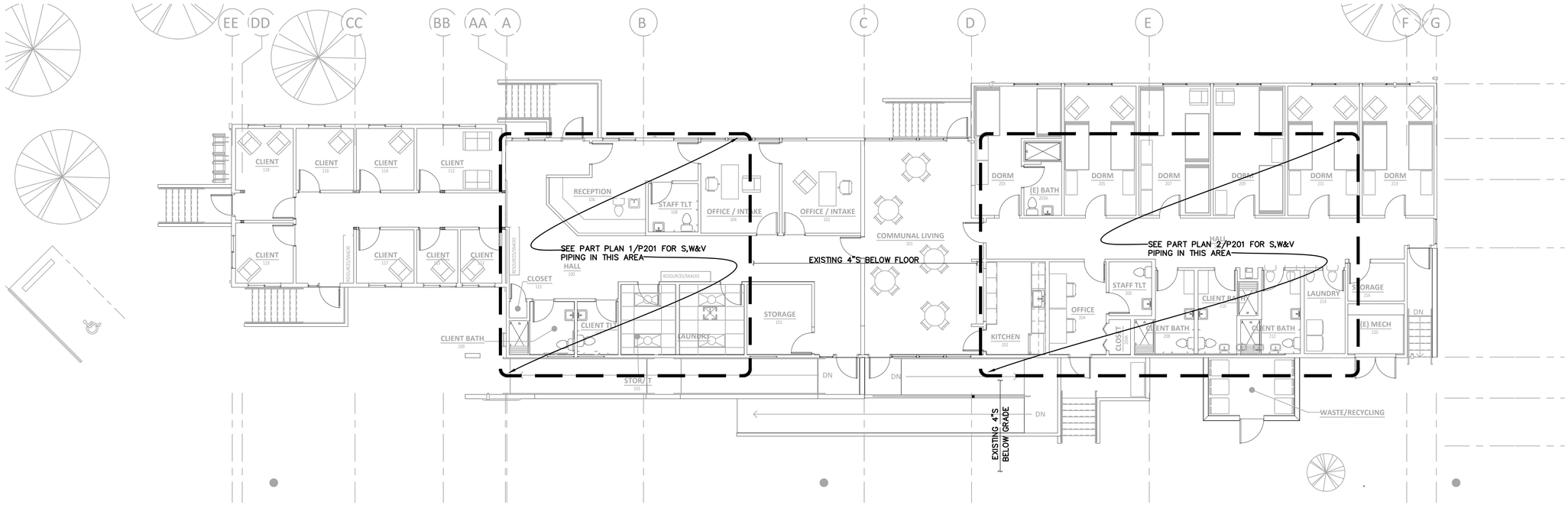
PRELIMINARY DRAWINGS

SEAL:
REGISTERED PROFESSIONAL ENGINEER
105022PE
OREGON
JUNE 30, 2026
THOMAS JOHN SCHIRMER

REVISIONS DATE

PROJECT MANAGER: TS
DRAWING BY: DRG
JURISDICTION:
DATE: 04.30.2024
SCALE:
TITLE:
PLUMBING SPEC'S, SCHEDULES & DETAILS

SHEET NUMBER:
P101
COMMENTS:
JOB/FILE NUMBER: 00.2179.001

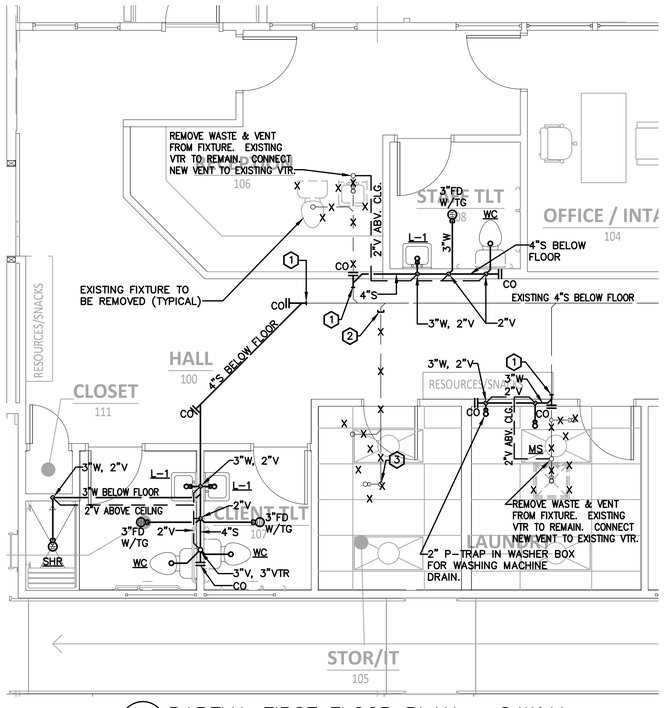


N

PLUMBING FLOOR PLAN – S,W&V

SCALE: 1/8" = 1'–0"

8' 0 8' 16'



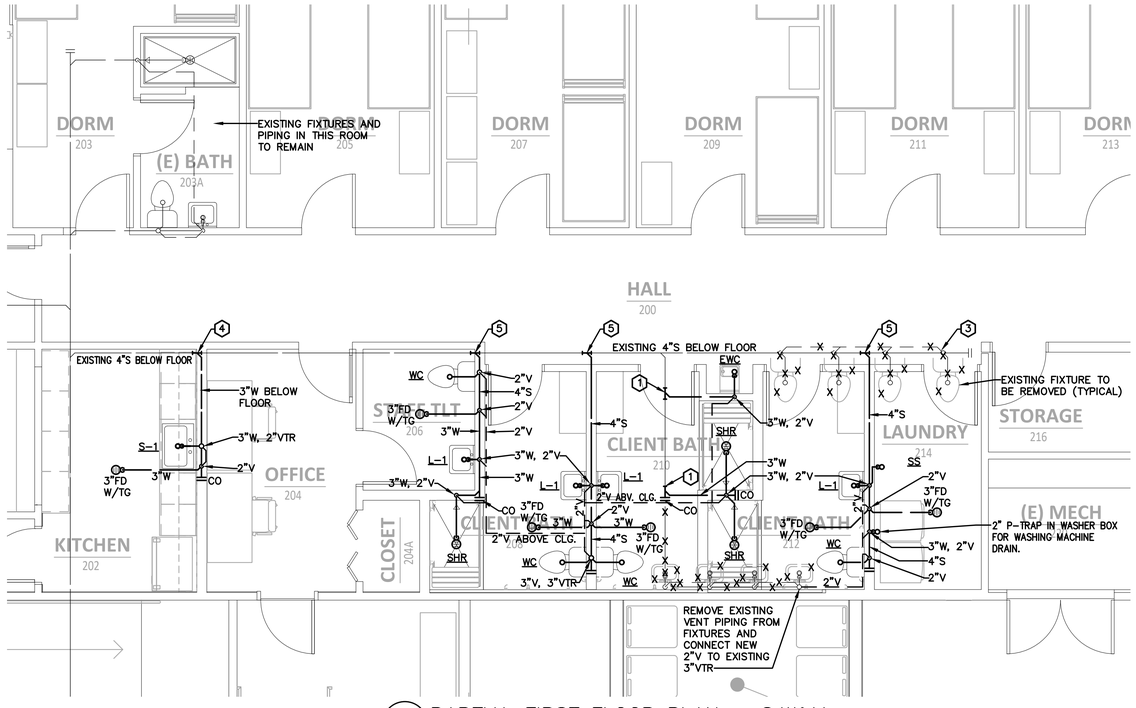
1 P201 PARTIAL FIRST FLOOR PLAN – S,W&V

SCALE: 1/4" = 1'–0"

4' 0 4' 8'

KEY NOTES:

1. REMOVE EXISTING SANITARY PIPING UPSTREAM OF THIS POINT AND EXTEND AS SHOWN.
2. REMOVE EXISTING SANITARY PIPING UPSTREAM OF THIS POINT AND CAP BELOW FLOOR.
3. REMOVE EXISTING ASSOCIATED VENT PIPING AND EXISTING VTR.
4. CONNECT NEW 3"W TO EXISTING WASTE PIPING BELOW FLOOR AND EXTEND AS SHOWN.
5. CONNECT NEW 4"S TO EXISTING SANITARY PIPING BELOW FLOOR.



2 P201 PARTIAL FIRST FLOOR PLAN – S,W&V

SCALE: 1/4" = 1'–0"

4' 0 4' 8'

ENGINEER:

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MCBROD CRISIS CENTER
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PRELIMINARY DRAWINGS

SEAL:

REGISTERED PROFESSIONAL ENGINEER
105022PE
OREGON
JUNE 30, 2026
THOMAS JOHN SCHIRMER

REVISIONS	DATE

PROJECT MANAGER:	TS
DRAWING BY:	DRG
JURISDICTION:	
DATE:	04.30.2024
SCALE:	

TITLE:

PLUMBING FLOOR PLAN - S,W&V

SHEET NUMBER:

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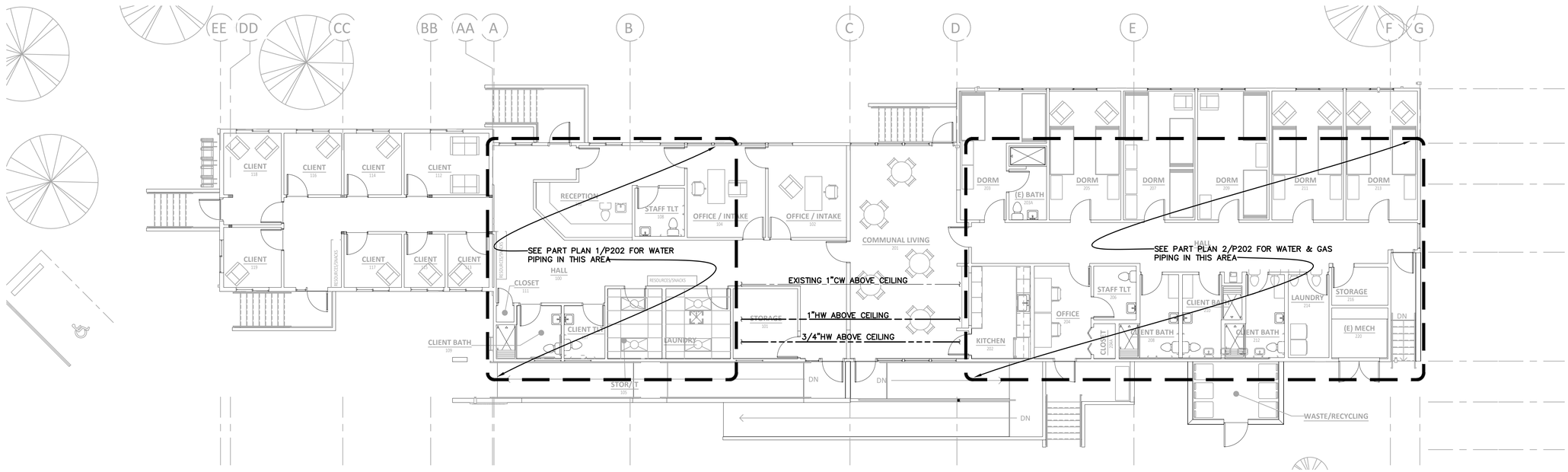


N

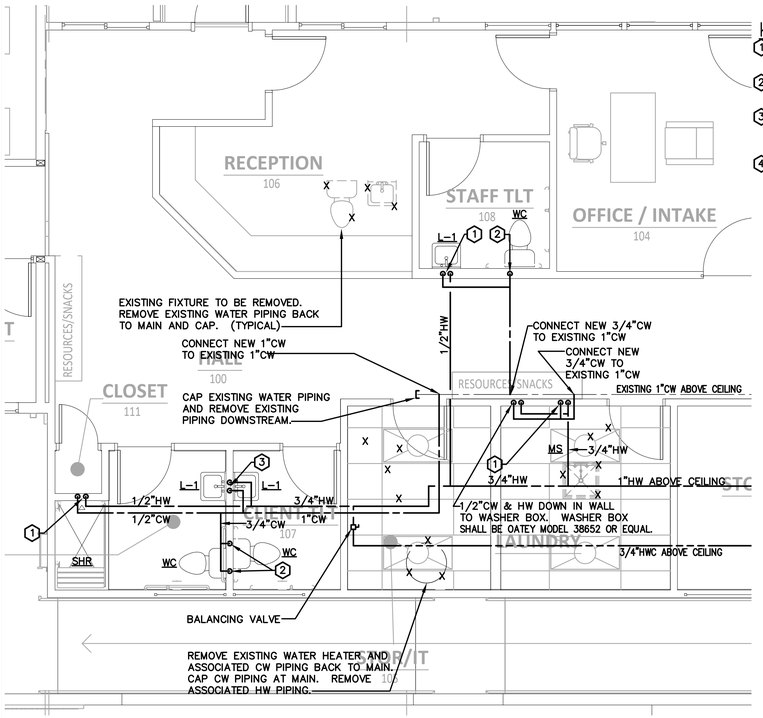
PLUMBING FLOOR PLAN – WATER & GAS

SCALE: 1/8" = 1'-0"

8' 0 8' 16'

KEY NOTES:

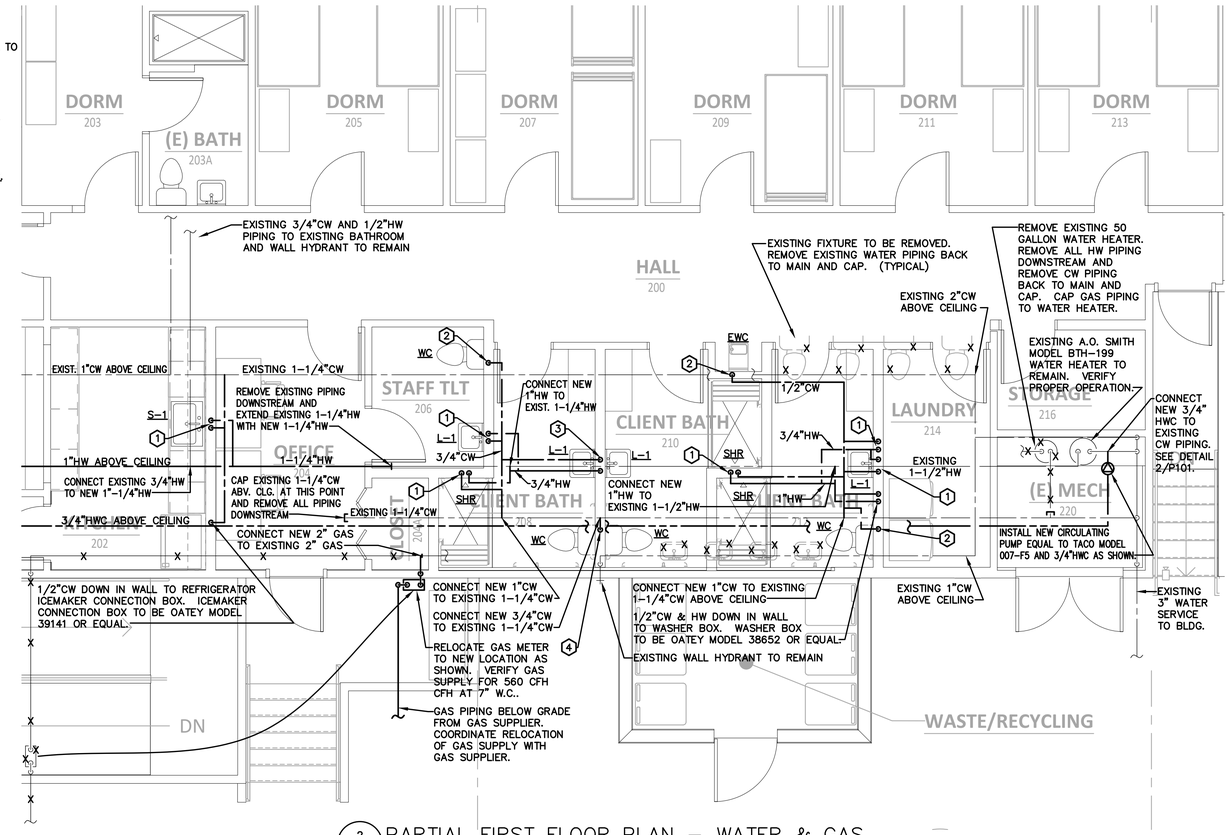
1. 1/2"CW & HW DOWN IN WALL TO FIXTURE.
2. 1/2"CW DOWN IN WALL TO FIXTURE.
3. 3/4"CW & HW DOWN IN WALL WITH 1/2"HW & CW TO EACH FIXTURE L-1.
4. 3/4"CW DOWN IN WALL WITH 1/2"CW TO EACH FIXTURE WC.



1/P202 PARTIAL FIRST FLOOR PLAN – WATER

SCALE: 1/4" = 1'-0"

4' 0 4' 8'



2/P202 PARTIAL FIRST FLOOR PLAN – WATER & GAS

SCALE: 1/4" = 1'-0"

4' 0 4' 8'

ENGINEER:

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THOMAS JOHN SCHIRMER

REVISIONS	DATE

PROJECT MANAGER:	TS
DRAWING BY:	DRG
JURISDICTION:	
DATE:	04.30.2024
SCALE:	

TITLE:

PLUMBING FLOOR PLANS - WATER & GAS

SHEET NUMBER:

P202

COMMENTS:

JOB/FILE NUMBER:

00.2179.001

ELECTRICAL LEGEND

NOTE: ALL SYMBOLS SHOWN ON LEGEND ARE NOT NECESSARILY USED.

LIGHTING

- DOWNLIGHT
- WALL MOUNTED LUMINAIRE, AS NOTED
- 2X4 RECESSED MOUNTED LUMINAIRE
- 2X2 RECESSED MOUNTED LUMINAIRE
- CEILING OR WALL MOUNTED LUMINAIRE
- (K) PORCELAIN KEYLESS
- SURFACE MOUNTED LUMINAIRE
- RECESS MOUNTED LUMINAIRE
- RECESS MOUNTED LUMINAIRE WITH MODULAR WIRING CONNECTOR
- STRIP LUMINAIRE
- TRACK LIGHT, AS NOTED OR SCHEDULED
- DIRECTIONAL ACCENT OR WALL-WASH LUMINAIRE
- RECESSED KNEE LUMINAIRE
- BOLLARD
- CEILING OR WALL MOUNTED EXIT SIGN, INSTALL FACES AS INDICATED BY SHADING
- EMERGENCY LIGHT AS NOTED AS NOTED

POWER

- STRAIGHT BLADE DUPLEX RECEPTACLE
  - SUBSCRIPTS:
    - USB = USB CHARGING
    - HGT = HOSPITAL GRADE TAMPER RESISTANT
    - GFI = GROUND FAULT INTERRUPTER
    - SS = SURGE SUPPRESSION
    - AC = 6" ABOVE COUNTER
- STRAIGHT BLADE DOUBLE DUPLEX RECEPT. (QUADRUPLEX)
- STRAIGHT BLADE SINGLE RECEPTACLE
- STRAIGHT BLADE DUPLEX RECEPT. HALF-SWITCHED
- STRAIGHT BLADE DUPLEX RECEPT. ON EMERGENCY CIRCUIT
- OUTLET WITH SPECIAL DEVICE, AS NOTED
- WALL MOUNTED OUTLET WITH SPECIAL DEVICE, AS NOTED
- FLOOR MOUNTED POWER BOX, AS NOTED
- FLOOR MOUNTED COMBINATION OUTLET BOX, AS NOTED
- POKE THROUGH, AS NOTED
- PEDESTAL OUTLET, AS NOTED
- J JUNCTION BOX AS NOTED
- J OUTLET BOX
- J WALL MOUNTED OUTLET BOX
- D ABOVE CEILING POWER DISTRIBUTION BOX
- SURFACE RACEWAY, AS NOTED
- C CLOCK HANGER OUTLET
- TELE-POWER POLE
- PB PULL BOX
- M CONNECTION TO MOTOR
- MAGNETIC MOTOR STARTER
  - SUBSCRIPTS:
    - MS = MULTISPEED
    - SSRV = SOLID-STATE, REDUCED VOLTAGE
    - VF = VARIABLE FREQUENCY
- N SAFETY DISCONNECT SWITCH
- F FUSED DISCONNECT SWITCH
- COMBINATION DISCONNECT AND STARTER
- ENCLOSED CIRCUIT BREAKER, MOLDED-CASE, THERMAL-MAGNETIC
  - SUBSCRIPTS:
    - AT = ADJUSTABLE TRIP
    - EAT = ELECTRONIC ADJUSTABLE TRIP
    - CL = CURRENT LIMITING
    - IF = INTEGRALLY FUSED
    - GFCI = GROUND FAULT CIRCUIT INTERRUPTER
    - ST = SHUNT TRIP
    - KI = KEY INTERLOCK
    - ZSI = ZONE-SELECTIVE INTERLOCKING
- CONNECTION TO PRE-WIRED EQUIPMENT
- BREAKER PANEL
- MCC MOTOR CONTROL CENTER
- SS TRANSIENT VOLTAGE SURGE SUPPRESSOR
- T TRANSFORMER
- G ENGINE GENERATOR

CIRCUITING

- CONDUIT RUN
- CIRCUIT HOMERUN TO PANEL OR CABINET, NO. OF ARROWS INDICATE NO. OF CIRCUITS
- CIRCUIT TURNED UP
- CIRCUIT TURNED DOWN
- CONDUIT STUB-OUT - CAP & MARK
- CIRCUIT IN FLEXIBLE CONDUIT
- SEALOFF

SWITCHING

- S WALL MOUNTED SWITCH
  - SUBSCRIPTS:
    - 2 = DOUBLE POLE
    - 3 = 3-WAY
    - 4 = 4-WAY
    - D = DIMMER
    - K = KEY-OPERATED
    - O = SWITCH MOUNTED OCCUPANCY SENSOR
    - P = PILOT LIGHT
    - T = TIME SWITCH
    - LV = LOW VOLTAGE
    - DS = DOOR SWITCH

SCHEMATIC WIRING GRAPHICS

- M METER
- GROUND CONNECTION AS NOTED
- FUSED DISCONNECT SWITCH
- FUSES
- MAGNETIC MOTOR STARTER
  - SUBSCRIPTS:
    - MS = MULTISPEED
    - SSRV = SOLID-STATE, REDUCED VOLTAGE
    - VF = VARIABLE FREQUENCY
- ENCLOSED CIRCUIT BREAKER, MOLDED-CASE, THERMAL-MAGNETIC
  - SUBSCRIPTS:
    - AT = ADJUSTABLE TRIP
    - EAT = ELECTRONIC ADJUSTABLE TRIP
    - CL = CURRENT LIMITING
    - IF = INTEGRALLY FUSED
    - GFCI = GROUND FAULT CIRCUIT INTERRUPTER
    - ST = SHUNT TRIP
    - KI = KEY INTERLOCK
    - ZSI = ZONE-SELECTIVE INTERLOCKING
- POWER TRANSFORMER
- CURRENT TRANSFORMER
- A AMMETER
- V VOLT METER
- TRANSFER SWITCH
- GF GROUND FAULT PROTECTION
- G GENERATOR
- 3 MOTOR, NUMBER INDICATES HORSEPOWER

FIRE ALARM SYSTEM

- FACP FIRE ALARM CONTROL PANEL
- FAGP FIRE ALARM GRAPHIC PANEL
- FAAP FIRE ALARM ANNUNCIATOR PANEL
- F MANUAL PULL STATION
- FIRE ALARM STROBE
- F GENERAL ALARM COMBINATION HORN/STROBE
- H FIRE ALARM HORN
- F F CEILING OR WALL MOUNTED DETECTOR
  - SUBSCRIPTS:
    - I = IONIZATION
    - T = THERMAL, FIXED AND RATE-OF-RISE
    - TF = THERMAL, FIXED
    - T165° = 165°F THERMAL, FIXED AND RATE-OF-RISE
    - TF165° = 165°F THERMAL, FIXED
    - P = PHOTOELECTRIC
    - PT = COMBINATION PHOTOELECTRIC AND THERMAL
- F SMOKE DETECTOR IN VENTILATING DUCT
- FAD FAN SHUT-DOWN CONNECTION
- F MAG. DOOR HOLDER
- F SPRINKLER SYSTEM FLOW SWITCH
- T SPRINKLER SYSTEM TAMPER SWITCH
- F FIREFIGHTERS TELEPHONE JACK
- L F LIFE SAFETY SPEAKER
- L LIFE SAFETY SPEAKER WITH STROBE
- P REMOTE PILOT LIGHT
- P/T REMOTE PILOT LIGHT WITH TEST SWITCH
- M MONITOR MODULE
- M CONTROL MODULE
- D DAMPER CONNECTION

COMMUNICATION SYSTEM

- FLOOR MOUNTED TELEPHONE AND/OR DATA OUTLET BOX, AS NOTED
- WALL MOUNTED TELEPHONE OUTLET
- WALL MOUNTED DATA OUTLET
- WALL MOUNTED COMBINATION TELEPHONE/DATA OUTLET BOX
- P PAY PHONE
- TELEPHONE TERMINAL BOARD - TTB
- S S CEILING OR WALL MOUNTED SPEAKER
- V VOLUME CONTROL
- M M FLOOR OR WALL MOUNTED MICROPHONE OUTLET
- C CALL-IN SWITCH
- S T TIME-TONE UNIT
- C CEILING OR WALL MOUNTED CLOCK
- B PROGRAM BELL
- B BUZZER
- I HOUSE PHONE/INTERCOM
- I M MASTER INTERCOM STATION
- TV TELEVISION OUTLET
- CC CLOSED CIRCUIT TV OUTLET
- A AMPLIFIER

NOTATIONS

1 - UPPER CASE LETTER AT LUMINAIRES (F1, I1, ETC.) INDICATES LUMINAIRE TYPE. (F1) = TYPE F1 LUMINAIRES IN AREA INDICATED.

2 - LOWER CASE LETTER AT LUMINAIRES AND SWITCHES (a, b, ETC.) INDICATE ASSOCIATED UNITS FOR SWITCHING.

3 - SHADING WITHIN LUMINAIRE DENOTES UNIT ON EMERGENCY (EM) CIRCUIT.

4 - "NL" WITHIN LUMINAIRES DENOTES UNIT ON NIGHT LIGHT CIRCUIT.

5 - PLUS (+) SIGN WITH DIMENSION AT OUTLET INDICATES HEIGHT ABOVE FINISHED FLOOR OR GRADE TO CENTERLINE OF OUTLET.

ABBREVIATIONS

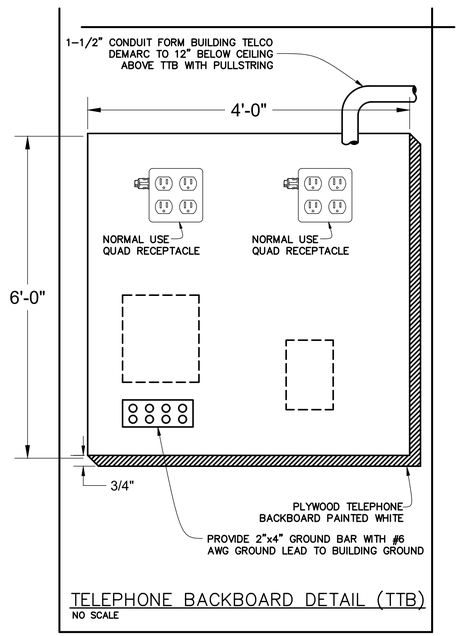
NOTE: ALL ABBREVIATIONS SHOWN ARE NOT NECESSARILY USED.

AC	- ABOVE COUNTER
AFC	- ABOVE FINISHED CEILING
AFF	- ABOVE FINISHED FLOOR
AFG	- ABOVE FINISHED GRADE
AIC	- AMPS INTERRUPTING CURRENT
AL	- ALUMINUM
BFG	- BELOW FINISHED GRADE
CB	- CIRCUIT BREAKER
CR	- CORROSION RESISTANT
CPT	- CONTROL POWER TRANSFORMER
CT	- CURRENT TRANSFORMER
CU	- COPPER
ELR	- END OF LINE RESISTOR
EM	- EMERGENCY
ES	- EMERGENCY STOP
ETM	- ELAPSED TIME METER
EWC	- ELECTRIC WATER COOLER
FLA	- FULL LOAD AMPS
FVNR	- FULL VOLTAGE, NON-REVERSING
FVR	- FULL VOLTAGE, REVERSING
FWE	- FURNISHED WITH EQUIPMENT
GFI	- GROUND FAULT INTERRUPTER
GRC	- GALVANIZED RIGID CONDUIT
HOA	- HAND-OFF-AUTOMATIC
HP	- HORSEPOWER
IG	- ISOLATED GROUND
LC	- LIGHTING CONTACTOR
LOR	- LOCAL-OFF-REMOTE
LS	- LEVEL SWITCH
LT	- LET THROUGH
MCA	- MINIMUM CIRCUIT AMPS
MCB	- MAIN CIRCUIT BREAKER
MCC	- MOTOR CONTROL CENTER
MCCB	- MOLDED CASE CIRCUIT BREAKER
MCP	- MOTOR CIRCUIT PROTECTION
MLO	- MAIN LUGS ONLY
NC	- NORMALLY CLOSED
NIC	- NOT IN CONTRACT
NL	- NIGHT LIGHT
NO	- NORMALLY OPEN
NTS	- NOT TO SCALE
OC	- OVER CURRENT
OL	- OVERLOAD
PT	- POTENTIAL TRANSFORMER
RVNR	- REDUCED VOLTAGE, NON-REVERSING
SC	- SHORT CIRCUIT
SR	- SAFE OR STOP/RUN
TTB	- TELEPHONE TERMINAL BOARD
UG	- UNDERGROUND
VFD	- VARIABLE FREQUENCY DRIVE
WG	- WIREGUARD
WP	- WEATHERPROOF
XFMR	- TRANSFORMER
XP	- EXPLOSION PROOF
ZS	- LIMIT OR POSITION SWITCH

THESE DRAWINGS ARE DIAGRAMMATIC - REFER TO ARCHITECTURAL DRAWINGS FOR EXACT DIMENSIONS. BRANCH CIRCUITING CONVENTION - #12 AWG PER PHASE AND NEUTRAL (WHERE REQUIRED) AND 20 AMPERE CIRCUIT BREAKER, UNLESS OTHERWISE NOTED. PROVIDE QUANTITY AND SIZE SWITCH CONDUCTORS AS REQUIRED TO MAKE SYSTEM OPERATIONAL.

GENERAL NOTES (FOR ALL ELECTRICAL SHEETS)

1. COORDINATE LOCATION OF LUMINAIRES WITH ARCHITECTURAL REFLECTED CEILING PLANS.
2. PROVDE (1) 3/4"C. WITH CAT6 CABLE FROM EACH TELEPHONE, DATA OR COMMUNICATION OUTLET SHOWN, ALL TERMINATIONS ARE TO BE COMPLETED BY THE GENERAL CONTRACTOR AND PUNCHED DOWN TO 24 PORT PATCH PANEL ON TELCO BACKBOARD.
3. COORDINATE EXACT EQUIPMENT LOCATIONS WITH OWNER PRIOR TO ROUGH-INS.
4. COORDINATE LOCATION OF ALL OUTLETS WITH ARCHITECTURAL ELEVATIONS, CASEWORK SHOP DRAWINGS AND EQUIPMENT INSTALLATION DRAWINGS.
5. ANY ITEMS DAMAGED BY THE CONTRACTOR SHALL BE REPLACED BY THE CONTRACTOR.
6. ALL 120V BRANCH CIRCUITS SHALL BE 3-WIRE (PHASE,NEUTRAL,GROUND).
7. CONTRACTOR SHALL NOT ROUTE ANY CONDUIT WITHIN STRUCTURAL OR TOPPING SLABS OF FLOORS UNLESS NOTED TO DO SO.
8. REFER TO ARCHITECTURAL PLANS, ELEVATIONS AND DIAGRAMS FOR LOCATIONS OF FLOOR DEVICES AND WALL DEVICES. LOCATION WILL INDICATE VERTICAL AND/ OR HORIZONTAL MOUNTING. IF DEVICES ARE NOT NOTED OTHERWISE THEY SHALL BE MOUNTED LONG AXIS VERTICAL AT +16" TO CENTER.
9. INFORMATION ON THE DRAWINGS HAS BEEN ASCERTAINED FROM INFORMATION PROVIDED BY OTHERS. THIS INFORMATION IS AS ACCURATE AS CONDITIONS WOULD ALLOW. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VISIT THE SITE, PRIOR TO BID, AND FAMILIARIZE HIMSELF WITH THE EXTENT OF REMODEL WORK REQUIRED. NO EXTRAS WILL BE ALLOWED FOR ALTERATIONS OF A FORESEEABLE NATURE REQUIRED TO ACHIEVE THE END RESULT AS INDICATED BY CONTRACT DOCUMENTS.
10. ALL NEW WIRING REQUIRED IN REMODELED AREAS SHALL BE FISHED THROUGH EXISTING WALLS OR CONCEALED IN NEW WALLS OR ABOVE CEILINGS. SURFACE MOUNTED CONDUIT SHALL NOT BE USED IN ANY FINISHED AREAS.
11. MAINTAIN CIRCUIT CONTINUITY FOR ALL EXISTING ITEMS THAT ARE REMAINING OR BEING RELOCATED.
12. WHERE EXISTING DEVICES, SWITCHES, MOTOR CONNECTIONS, ETC. ARE TO BE REMOVED FROM WALLS WHICH ARE REMAINING, WALLS SHALL BE PATCHED TO MATCH ORIGINAL FINISH, AFTER CONDUCTORS HAVE BEEN REMOVED. BLANK COVERPLATES OVER EXISTING BOXES ARE NOT ACCEPTABLE.
13. IF EXISTING CONDUITS ARE ROUTED IN CONCRETE FLOOR SLABS, CONCRETE WALLS OR CONCRETE CEILINGS, THEY SHALL BE CUT BACK TO WITHIN CONCRETE AND FILLED WITH GROUT TO ACHIEVE A SMOOTH AND EVEN FINISH FLUSH WITH CONCRETE SURFACE AFTER CONDUCTORS HAVE BEEN REMOVED.
14. IF AREA ABOVE ACCESSIBLE CEILINGS ARE USED AS HVAC FREE RETURN PLENUM. ALL MATERIALS EXPOSED ABOVE CEILINGS (WITHIN PLENUM) SHALL EITHER BE NON-COMBUSTIBLE -or- SHALL HAVE A FLAME SPREAD INDEX OF NOT MORE THAN 25 AND A SMOKE DEVELOPED INDEX OF NOT MORE THAN 50 AS DETERMINED IN ACCORDANCE WITH ASTM E 84 (EXCEPT FOR TESTED AND LABELED WIRING, FIRE SPRINKLER PIPING, PNEUMATIC TUBING, AND ELECTRICAL EQUIPMENT).
15. ELECTRICAL OUTLET OR SWITCH BOXES ARE NOT TO BE PERMITTED ADJACENT TO EACH OTHER IN RATED FIREWALL CONSTRUCTION. THE BOXES MUST BE SPACED A MINIMUM OF 2'-0" LATERALLY APART OR PROVIDED WITH FIRE PUTTY PADS EQUIVALENT TO THE FIREWALL RATING. SEE ARCHITECTURAL PLANS FOR LOCATIONS AND RATINGS OF FIRE WALLS.
16. FIRE ALARM, IF REQUIRED, SHALL BE PROVIDED BY CONTRACTOR IN THE FORM OF SHOP DRAWING BY NICET LEVEL II OR ABOVE FOR REVIEW BY ENGINEER.



TELEPHONE BACKBOARD DETAIL (TTB)
NO SCALE

ENGINEER:

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MCBROD CRISIS CENTER
9200 SE MCBROD AVENUE

PRELIMINARY DRAWINGS

SEAL:
REGISTERED PROFESSIONAL ENGINEER
105022PE
OREGON
JUNE 30, 2026
THOMAS JOHN SCHIRMER

REVISIONS | DATE

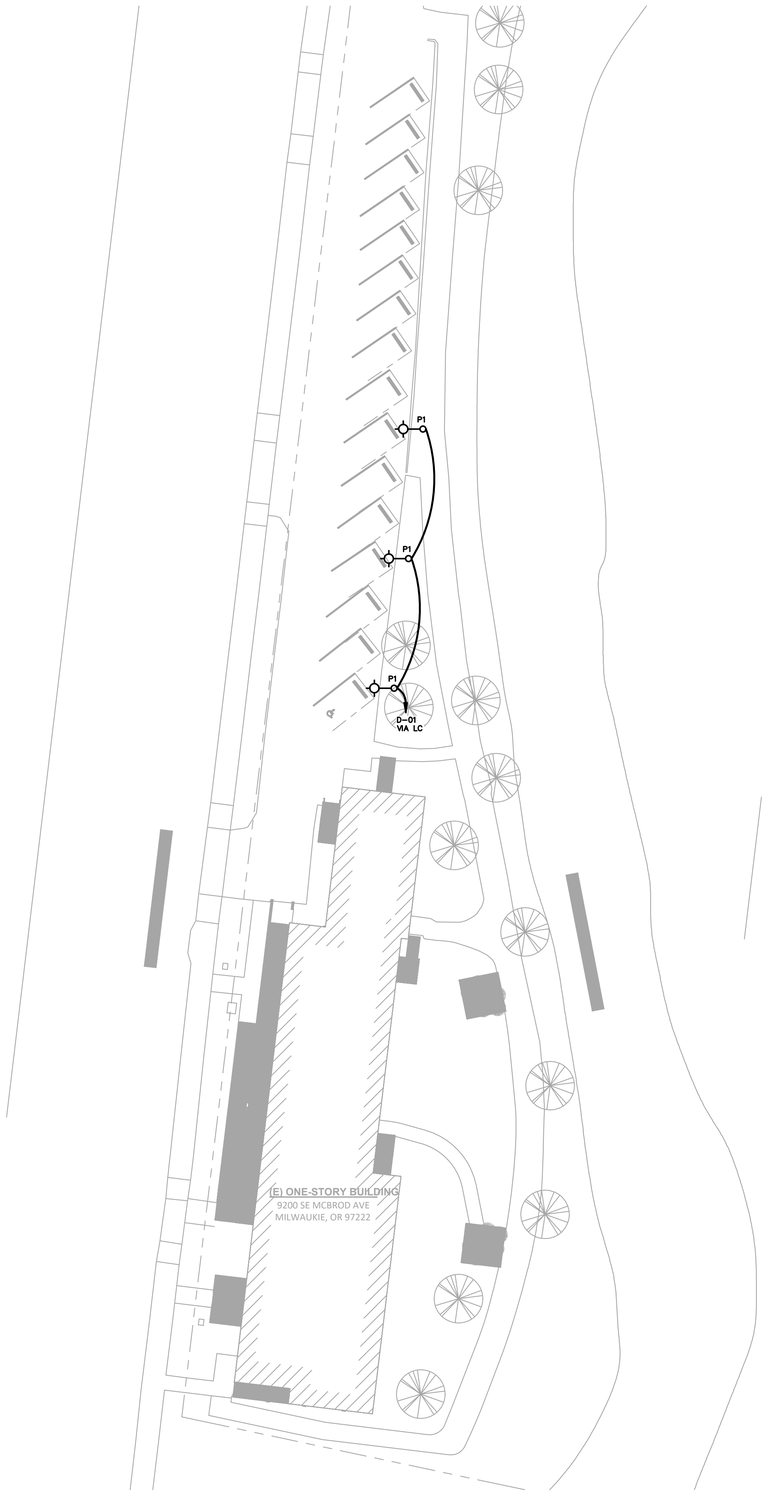
PROJECT MANAGER: TS
DRAWING BY: DRG
JURISDICTION:
DATE: 04.30.2024
SCALE:

TITLE:
ELECTRICAL LEGEND, SYMBOLS AND GENERAL NOTES

SHEET NUMBER:
E001

COMMENTS:

JOB/FILE NUMBER:
00.2179.001



ELECTRICAL SITE PLAN

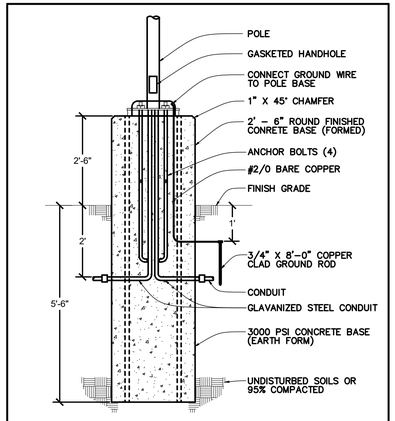
SCALE: 1" = 20'-0"

20' 0 20' 40'

LUMINAIRE SCHEDULE

TYPE	DESCRIPTION	VOLT	MOUNTING	MANUFACTURER, CAT. NUMBER	REMARKS
P1	POLE LIGHT	UNV	25'-0" A.F.G.	LITHONIA: RSX2LED 40K R4 MVOLT SPA / DDBXB / 25 FT SSS POLE 4 INCH DDBXB	

NOTES: .



POLE FOUNDATION DETAIL

ENGINEER:

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MCBROD CRISIS CENTER
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PRELIMINARY DRAWINGS

SEAL:

REGISTERED PROFESSIONAL ENGINEER
105022PE
OREGON
JUNE 30, 2026
THOMAS JOHN SCHIRMER

REVISIONS	DATE

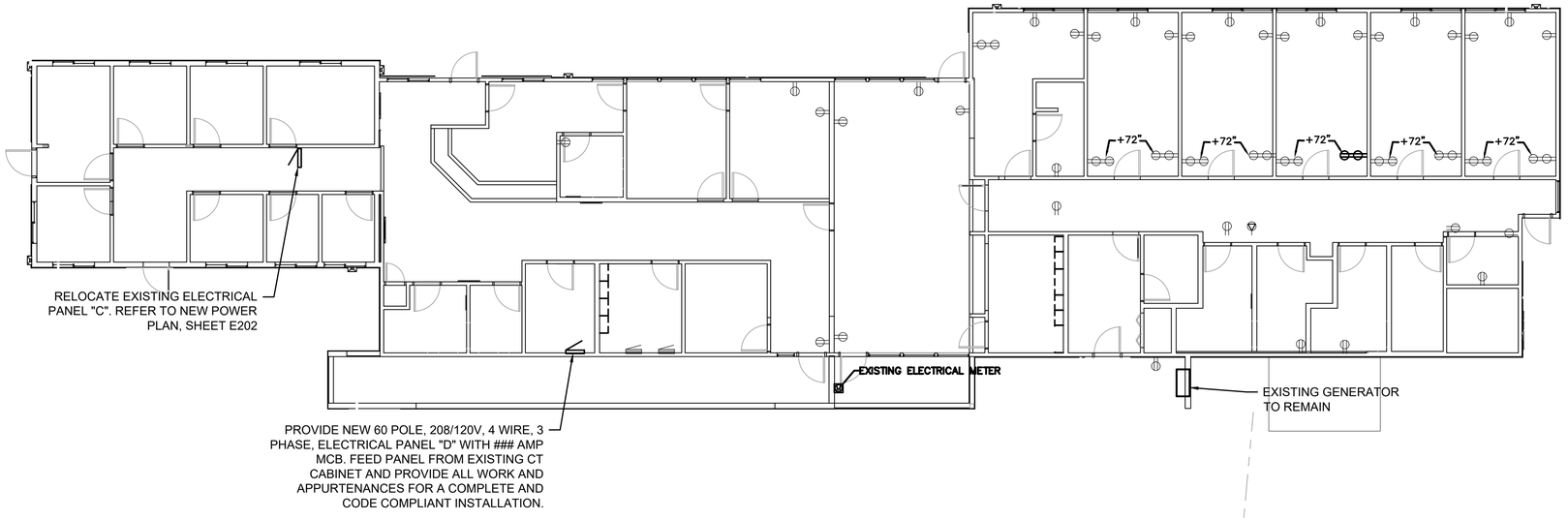
PROJECT MANAGER:	TS
DRAWING BY:	DRG
JURISDICTION:	
DATE:	04.30.2024
SCALE:	

TITLE: ELECTRICAL SITE PLAN

SHEET NUMBER:
E101

COMMENTS:

JOB/FILE NUMBER:
00.2179.001



EXISTING ELECTRICAL POWER PLAN

SCALE: 1/8" = 1'-0"

8' 0 8' 16'

GENERAL NOTES:

1. NOT ALL EXISTING RECEPTACLES OR OTHER DEVICES ARE SHOWN. CONTRACTOR SHALL REPLACE EXISTING DEVICES TO PROVIDE ALL NEW RECEPTACLES, LIGHT SWITCHES AND ALL DEVICE COVER PLATES (WALL PLATES) REFER TO OTHER NOTES HEREIN FOR DEVICE COLORS.

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MCBROD CRISIS CENTER
9200 SE MCBROD AVENUE

PRELIMINARY DRAWINGS

SEAL:

REGISTERED PROFESSIONAL ENGINEER
105022PE
OREGON
JUNE 30, 2026
THOMAS JOHN SCHIRMER

REVISIONS	DATE

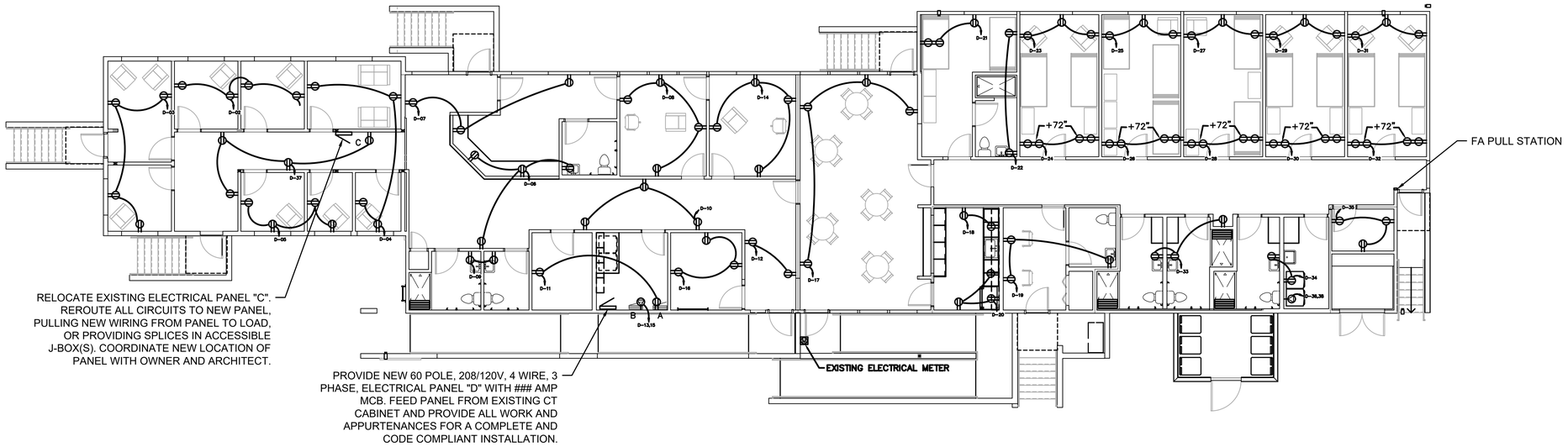
PROJECT MANAGER:	TS
DRAWING BY:	DRG
JURISDICTION:	
DATE:	04.30.2024
SCALE:	

TITLE:
EXISTING ELECTRICAL POWER PLAN

SHEET NUMBER:
E201

COMMENTS:

JOB/FILE NUMBER:
00.2179.001



NEW ELECTRICAL POWER PLAN

SCALE: 1/8" = 1'-0"

8' 0 8' 16'

ENGINEER:

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MCBROD CRISIS CENTER
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PRELIMINARY DRAWINGS

SEAL:

REGISTERED PROFESSIONAL ENGINEER
105022PE
OREGON
JUNE 30, 2026
THOMAS JOHN SCHRIMER

REVISIONS	DATE

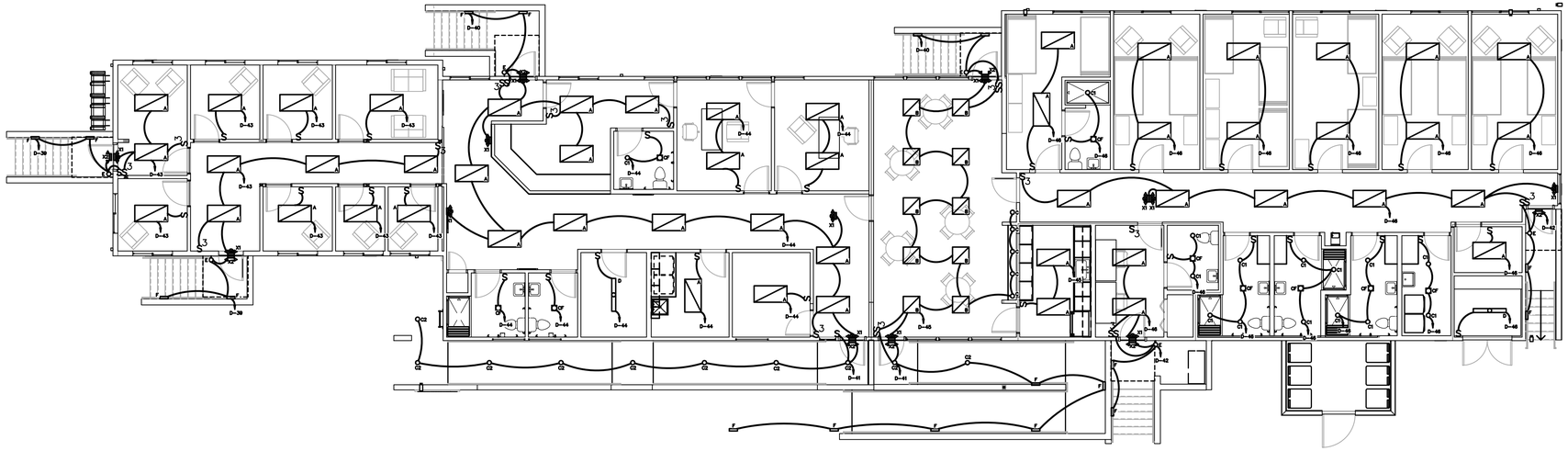
PROJECT MANAGER:	TS
DRAWING BY:	DRG
JURISDICTION:	
DATE:	04.30.2024
SCALE:	

TITLE:
NEW ELECTRICAL POWER PLAN

SHEET NUMBER:
E202

COMMENTS:

JOB/FILE NUMBER:
00.2179.001



NEW ELECTRICAL LIGHTING PLAN

SCALE: 1/8" = 1'-0"

8' 0 8' 16'

LUMINAIRE SCHEDULE

TYPE	DESCRIPTION	VOLT	MOUNTING	MANUFACTURER, CAT. NUMBER	NOTES
A	LED 4' FLAT PANEL	120-1	GRID	COLUMBIA: LCAT24-35 ML G EDU	1.
B	LED 2' FLAT PANEL	120-1	GRID	COLUMBIA: LCAT22-35 ML G EDU	1.
C	DOWNLIGHT	120-1	SURFACE MOUNTED	LITHONIA: LBR6 AL02 35K AR LSS MWD 120 UGZ	1.
C1	DOWNLIGHT (WET LOCATION)	120-1	SURFACE MOUNTED	LITHONIA: LBR6 AL02 35K AR LSS MWD 120 UGZ WL	1.
C2	DOWNLIGHT EXTERIOR (WET LOCATION)	120-1	SURFACE MOUNTED	LITHONIA: LBR6 AL02 40K AR LSS MWD 120 UGZ WL	1.
CF	FAN AND SHOWER LIGHT	120-1	SURFACE MOUNTED	BROAN: 678	1.
D	STRIP LIGHT	120-1	SURFACE MOUNTED	CSS: CSSL48 4000LM MVOLT 40K 80CRI	1.
E	EXTERIOR DOOR LIGHT	120-1	SURFACE MOUNTED	GARDCO: GCM-A03-840-T2M-UNV	1.
F	EXTERIOR STEP LIGHT	120-1	SURFACE MOUNTED	HADCO: RSC2-AK5DG2	1.
X1	EXIT SIGN / EMERGENCY LIGHT COMBINATION	120-1	SURFACE MOUNTED	COMPASS: CCRRC	1.
X2	EMERGENCY LIGHT (OUTDOOR)	120-1	SURFACE MOUNTED	COMPASS: CUSO4DB-ND	1.

NOTES: 1. COORDINATE EXACT FIXTURE TYPE AND FEATURES WITH OWNER PRIOR TO INSTALL.

COMcheck Software Version COMcheckWeb

Interior Lighting Compliance Certificate

Project Information

Energy Code: 90.1 (2019) Standard
Project Title: McBrod Crises Center
Project Type: Alteration

Construction Site:
9200 SE McBrod Ave
Milwaukie, Oregon 97222

Owner/Agent:
F9 Productions
825 Crisman Dr
Longmont, Colorado 80501
303 775-7406

Designer/Contractor:
David Geissinger
Foresite Group, LLC
3575 Ringsby Ct. Suite 315
Denver, Colorado 80216
(770) 368-1399
dgeissinger@fg-inc.net

Allowed Interior Lighting Power

A Area Category	B Floor Area (ft2)	C Allowed Watts / ft2	D Allowed Watts
1-Living Quarters (Dormitory)	3164	0.53	1677
2-Office/Intake (Office)	2646	0.64	1693
		Total Allowed Watts =	3370

Proposed Interior Lighting Power

A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast	B Lamps/ Fixture	C # of Fixture	D Fixture Watt.	E (C X D)
Living Quarters (Dormitory, 3164 sq.ft.)				
LED: A: 2X4 TROFFER: LED Panel 33W:	2	23	24	559
LED: B: 2X2 TROFFER: LED Panel 19W:	2	10	16	164
LED: C: DOWNLIGHT: LED A Lamp 13W:	1	5	13	65
LED: C1: DOWNLIGHT WL: LED A Lamp 13W:	1	14	13	182
LED: CF: FAN & SHOWER: Other:	1	6	105	630
LED: D: STRIP LIGHT: LED Linear 33W:	1	1	35	35
LED: X1: EXIT/E. LIGHT: Other:	2	6	10	60
Office/Intake (Office, 2646 sq.ft.)				
LED: A: 2X4 TROFFER: LED Panel 33W:	2	31	24	753
LED: C1: DOWNLIGHT WL: LED A Lamp 13W:	1	1	13	13
LED: CF: FAN & SHOWER: Other:	1	3	105	315
LED: D: STRIP LIGHT: LED Linear 33W:	1	1	35	35
LED: X1: EXIT/E. LIGHT: Other:	2	6	10	60
		Total Proposed Watts =		2872

Interior Lighting PASSES

Interior Lighting Compliance Statement

Compliance Statement: The proposed interior lighting alteration project represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed interior lighting systems have been designed to meet the 90.1 (2019) Standard requirements in COMcheck Version COMcheckWeb and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Name - Title Signature Date

ENGINEER:

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MCBROD CRISIS CENTER
9200 SE MCBROD AVENUE

PRELIMINARY DRAWINGS

SEAL:

REGISTERED PROFESSIONAL ENGINEER
105022PE
OREGON
JUNE 30, 2026
THOMAS JOHN SCHIRMER

REVISIONS DATE

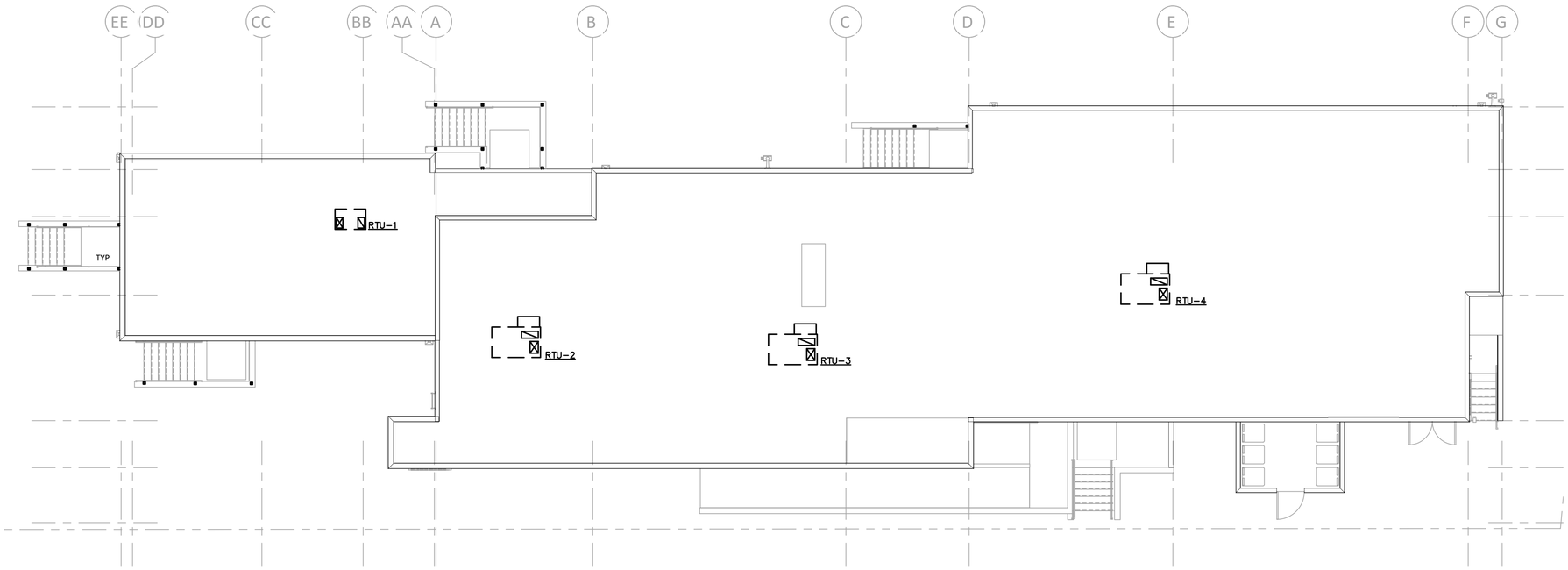
PROJECT MANAGER: TS
DRAWING BY: DRG
JURISDICTION:
DATE: 04.30.2024
SCALE:

TITLE: NEW ELECTRICAL LIGHTING PLAN

SHEET NUMBER: E301

COMMENTS:

JOB/FILE NUMBER: 00.2179.001



ELECTRICAL ROOF PLAN
SCALE: 1/8" = 1'-0"
8' 0 8' 16'

GENERAL NOTES:

1. IF ELECTRICAL RECEPTACLES ARE NOT ALREADY LOCATED ON THE ROOF WITHIN 25' OF EACH UNIT, PROVIDE NEW WP, GFI 120V RECEPTACLE(S) WITH WATERPROOF-IN-USE COVERS, AS REQUIRED. ALL RECEPTACLES ON ROOF MAY SHARE ONE DEDICATED CIRCUIT.

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MCBROD CRISIS CENTER
9200 SE MCBROD AVENUE

PRELIMINARY DRAWINGS

SEAL:
REGISTERED PROFESSIONAL ENGINEER
105022PE
OREGON
JUNE 30, 2026
THOMAS JOHN SCHIRMER

REVISIONS	DATE

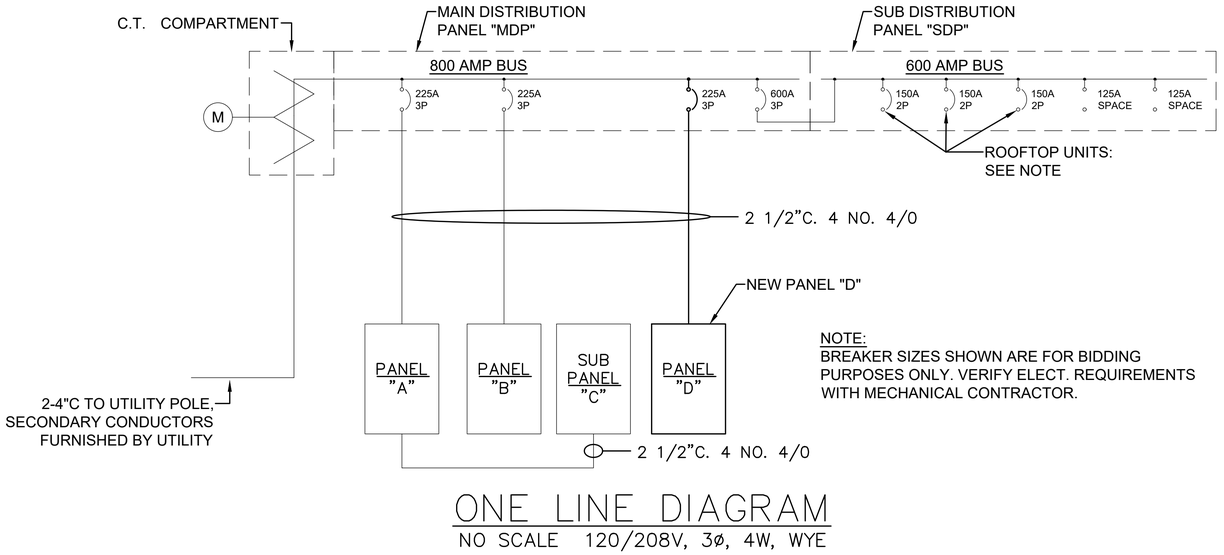
PROJECT MANAGER:	TS
DRAWING BY:	DRG
JURISDICTION:	
DATE:	04.30.2024
SCALE:	

TITLE:
ELECTRICAL ROOF PLAN

SHEET NUMBER:
E401

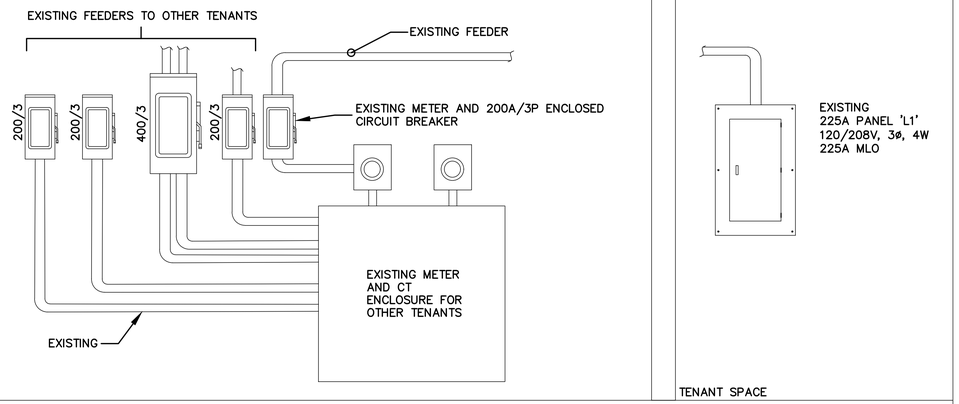
COMMENTS:

JOB/FILE NUMBER:
00.2179.001



ONE LINE DIAGRAM

NO SCALE 120/208V, 3ø, 4W, WYE



EXISTING ELECTRICAL RISER DIAGRAM

NO SCALE 208/120V, 3ø, 4W

ENGINEER:

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MCBROD CRISIS CENTER
9200 SE MCBROD AVENUE

PRELIMINARY DRAWINGS

SEAL:

REGISTERED PROFESSIONAL ENGINEER
105022PE
OREGON
JUNE 30, 2026
THOMAS JOHN SCHIRMER

REVISIONS DATE

PROJECT MANAGER:	TS
DRAWING BY:	DRG
JURISDICTION:	
DATE:	04.30.2024
SCALE:	

TITLE:
ELECTRICAL RISER DIAGRAM AND PANEL SCHEDULE

SHEET NUMBER:
E501

COMMENTS:

JOB/FILE NUMBER:
00.2179.001

TAG: PANEL A (EXISTING)			LOCATION					ENTRY: TOP or BOTTOM	AIC: XX,000	
MAINS: 225A MLO or MCB								FEED THRU LUGS: NONE	SPD: YES or NO	
SERVICE: 208/120V,3PH,4W								* = GFI CIRCUIT BREAKER	TRIM: SURFACE,	
CKT	C/B	LOAD	kVA	A PHASE	B PHASE	C PHASE	kVA	LOAD	C/B	CKT
1	60/3	HVAC #3	4.8	4.8				SPARE	30/1	2
3	-		4.8		6.9		2.1	HVAC #2	30/2	4
5	-		4.8			6.9	2.1		-	6
7	40/3	HVAC #4	3.1	4.2			1.1		20/1	8
9	-		3.1		4.2		1.1		20/1	10
11	-		3.1			4.2	1.1		20/1	12
13	20/1		1.1	2.2			1.1	FA	20/1	14
15	20/1	LEAVE OFF (REMOVE)	1.1		2.2		1.1	OUT LIBRARY RELAY	20/1	16
17	70/2	PANEL C - SUB PANEL	4.9			6.0	1.1		20/1	18
19	-	PANEL NORTH ADDITION	4.9	6.0			1.1		20/1	20
21	20/1		1.1		5.3		4.2	DISHWASHER	60/2	22
23	20/1		1.1			5.3	4.2		60/2	24
25	20/1		1.1	2.4			1.3	DO NOT TURN ON	20/2	26
27		SPACE			1.3		1.3		20/2	28
29		SPACE				0.0		SPACE		30
			39.0	19.6	19.9	22.4	22.9			
		CONNECTED kVA TOTAL:	61.9					CONNECTED AMPS TOTAL:	171.82	
		DEMAND kVA TOTAL:	0.0					DEMAND AMPS TOTAL:	0.00	

TAG: PANEL B (EXISTING)			LOCATION					ENTRY: TOP or BOTTOM	AIC: XX,000	
MAINS: 225A MLO or MCB								FEED THRU LUGS: NONE	SPD: YES or NO	
SERVICE: 208/120V,3PH,4W								* = GFI CIRCUIT BREAKER	TRIM: SURFACE,	
CKT	C/B	LOAD	kVA	A PHASE	B PHASE	C PHASE	kVA	LOAD	C/B	CKT
1	20/1		1.1	2.2			1.1		20/1	2
3	20/1		1.1		2.2		1.1		20/1	4
5	20/1		1.1			2.2	1.1		20/1	6
7	20/1		1.1	2.2			1.1		20/1	8
9	20/1		1.1		2.2		1.1		20/1	10
11	20/1		1.1			2.2	1.1		20/1	12
13	20/1		1.1	2.2			1.1		20/1	14
15	20/1		1.1		2.2		1.1		20/1	16
17	20/1		1.1			2.2	1.1		20/1	18
19	20/1*		1.1	2.4			1.3		20/2	20
21	20/2		1.3		2.6		1.3		-	22
23	-		1.3			2.4	1.1		20/1*	24
25	30/3		2.4	3.5			1.1		20/1	26
27	-		2.4		3.5		1.1		20/1	28
29	-		2.4			3.5	1.1		20/1	30
31	20/1		1.1	2.2			1.1		20/1	32
33	20/1		1.1		2.2		1.1		20/1	34
35	20/1		1.1			2.2	1.1		20/1	36
37	20/1		1.1	2.2			1.1		20/1	38
39	20/1		1.1		2.2		1.1		20/1	40
41	20/1		1.1			2.2	1.1		20/1	42
			27.4	16.9	17.1	16.9	23.5			
		CONNECTED kVA TOTAL:	50.9					CONNECTED AMPS TOTAL:	122.45	
		DEMAND kVA TOTAL:	0.0					DEMAND AMPS TOTAL:	0.00	

TAG: PANEL C (EXISTING)			LOCATION					ENTRY: TOP or BOTTOM	AIC: XX,000	
MAINS: 70A MLO or MCB								FEED THRU LUGS: NONE	SPD: YES or NO	
SERVICE: 208/120V,3PH,4W								* = GFI CIRCUIT BREAKER	TRIM: SURFACE, F	
CKT	C/B	LOAD	kVA	A PHASE	B PHASE	C PHASE	kVA	LOAD	C/B	CKT
1				0.0						2
3					0.0					4
5						0.0				6
7				0.0						8
9					0.0					10
11						0.0				12
			0.0	0.0	0.0	0.0	0.0			
		CONNECTED kVA TOTAL:	0.0					CONNECTED AMPS TOTAL:	0.00	
		DEMAND kVA TOTAL:	0.0					DEMAND AMPS TOTAL:	0.00	

TAG: PANEL D (NEW)			LOCATION					ENTRY: TBD	AIC: XX,000	
MAINS: 225A MCB								FEED THRU LUGS: NONE	SPD: YES or NO	
SERVICE: 208/120V,3PH,4W								* = GFI CIRCUIT BREAKER	TRIM: SURFACE	
CKT	C/B	LOAD	kVA	A PHASE	B PHASE	C PHASE	kVA	LOAD	C/B	CKT
1	20/1	PARKING LOT LIGHTS	0.3	1.1			0.8	RECP 114, 116	20/1	2
3	20/1	RECP 118, 119	0.8		1.6		0.8	RECP 112, 113	20/1	4
5	20/1	RECP 115, 117	0.8			1.6	0.8	RECP HALL 1 100, 108	20/1	6
7	20/1	RECP RECEPTION 106	0.6	1.4			0.8	RECP 104	20/1	8
9	20/1	RECP 109, 107	0.4		1.0		0.6	RECP HALL 2 100	20/1	10
11	20/1	RECP 103	0.4			0.8	0.4	RECP HALL 3 100	20/1	12
13	20/2	RECP 240 RM 103	1.1	1.9			0.8	RECP 102	20/1	14
15			1.1		1.7		0.6	RECP 101	20/1	16
17	20/1	RECP 201	0.8			1.2	0.4	RECP KITCH 1 202	20/1	18
19	20/1	RECP 204, 206	0.6	1.2			0.6	RECP KITCH 2 202	20/1	20
21	20/1	RECP 203	0.6		1.0		0.4	RECP 203A	20/1	22
23	20/1	RECP 205	0.8			1.4	0.6	RECP 205A	20/1	24
25	20/1	RECP 207	0.8	1.4			0.6	RECP 207A	20/1	26
27	20/1	RECP 209	0.8		1.4		0.6	RECP 209A	20/1	28
29	20/1	RECP 211	0.8			1.4	0.6	RECP 211A	20/1	30
31	20/1	RECP 213	0.8	1.4			0.6	RECP 213A	20/1	32
33	20/1	RECP 208, 210	0.6		1.0		0.4	RECP 212, 214	20/1	34
35	20/1	RECP 216	0.6			1.7	1.1	RECP 240 RM 214	20/2	36
37	20/1	RECP HALLWAY	0.8	1.9			1.1			38
39	20/1	EXT LIGHTS 1,2	0.3		0.6		0.3	EXT LIGHTS 3,4	20/1	40
41	20/1	EXT LIGHTS 5,6	0.6			0.9	0.3	EXT LIGHTS 7,8	20/1	42
43	20/1	LIGHTS WEST	0.5	1.4			0.9	LIGHTS CENTER	20/1	44
45	20/1	LIGHTS DINING	0.6		2.0		1.4	LIGHTS EAST	20/1	46
47	-	-				0.0		-	-	48
49	-	-		0.0				-	-	50
51	-	-			0.0			-	-	52
53	-	-				0.0		-	-	54
55	-	-		0.0				-	-	56
57	-	-			0.0			-	-	58
59	-	-				0.0		-	-	60
			15.5	11.7	10.3	9.0	15.5			
		CONNECTED kVA TOTAL:	31.0					CONNECTED AMPS TOTAL:	86.05	
		DEMAND kVA TOTAL:	0.0					DEMAND AMPS TOTAL:	0.00	

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THOMAS JOHN SCHRIMER

REVISIONS DATE

PROJECT MANAGER: TS
DRAWING BY: DRG
JURISDICTION:
DATE: 04.30.2024
SCALE:
TITLE:

PANEL SCHEDULE

SHEET NUMBER:

E502

COMMENTS:

JOB/FILE NUMBER: 00.2179.001

ELECTRICAL SPECIFICATIONS
SECTION 16000

PART 1 GENERAL

1.1 CODES AND REQUIREMENTS
A. All electrical work shall comply with the requirements of the applicable edition of the National Electrical Code, Local Building Code and as specified herein whichever is more strict.

B. The contractor shall comply with the requirements of the General Conditions, Supplemental General Conditions of the project specifications, all Contract Documents, and any base building specifications and building criteria included in this project.

C. Visit the premises before submitting bid as no extras will be allowed for lack of knowledge of existing conditions.

D. Drawings are diagrammatic in nature. Take all dimensions from Architectural drawings, certified equipment drawings, and from the structure itself before fabricating any work.

E. The drawings indicate the location, type and sizes of various utilities within the site where known. Any relocation or remodeling required must be approved by the Architect before proceeding. Investigate all utilities such as electric and telephone and make arrangements with the proper authority to pay for any charges associated with connecting those utilities. Pay for all permits, fees, inspections etc.

F. Good workmanship and appearance are considered equal to proper operation.

G. Provide all core drilling, channeling, cutting, patching, trenching and backfill as required for installation of electrical equipment. Seal holes, fireproofing where necessary, and refinish all repair work to original condition where damaged by electrical work.

H. Make provisions for safe delivery and secure storage of all materials.

I. Provide the Architect with a complete set of plans and specifications corrected to as-built conditions at the completion of the job.

1.2 WARRANTY
The electrical contractor shall provide for the owner a one-year (from the date of final acceptance) warranty of all electrical equipment and systems provided under this contract except for incandescent or fluorescent lamps. All defective equipment or materials which appear during the warranty period shall be replaced or repaired by the electrical contractor in a timely fashion.

PART 2 PRODUCTS

2.1 EQUIPMENT
A. The contractor shall provide all equipment and accessories necessary whether specifically stated or not to make the required electrical systems complete and operational.

B. All equipment provided shall be new except as otherwise stated on the drawings. All equipment provided shall be U.L. listed when such standards exist for the type of equipment furnished and acceptable for installation by the Local Building Authority.

2.2 CONDUCTORS
A. Minimum size #12 AWG except for control circuits which may be #14 or signal circuits which shall be as indicated. All conductors shall be copper except where noted. Increase conductor size as necessary to limit branch circuit voltage drop to 3% and feeder voltage drop to 2%.

B. Splices for #8 and smaller conductors – wire or wing nuts.

C. Feeders and other wiring No. 4 AWG and larger, type THWN.

D. Other wiring No. 6 and smaller, type THWN.

E. Wiring in high temperature areas shall be rated 105° C and be a type accepted by local code.

F. Color Coding: Wiring for control systems to be installed in conjunction with mechanical and miscellaneous equipment shall be color coded in accordance with the wiring diagrams furnished with the equipment. Branch circuit wiring, including circuits to motors, and all feeders shall be coded by line or phase as follows:

Wire No. 2 AWG and smaller shall be factory color coded. Wire No. 1 AWG and larger may be color coded by field painting or color taping of six inch (6") length of exposed ends.

120/208 Volts	277/480 Volts
A = Black	A = Brown
B = Red	B = Orange
C = Blue	C = Yellow
Neutral = White	Neutral = Gray
Ground = Green	Ground = Green w/yellow stripes
Switch Travelers = Pink	Switch Travelers = Purple

2.3 OUTLETS
A. 4" square or octagonal, zinc coated sheet steel boxes.

B. Provide 3/8" no-bolt fixture studs.

C. Provide covers set to come flush with finish walls.

D. Utility or sectional switch boxes only where permitted.

2.4 DEVICES
A. All device colors shall be white. Verify with owner.
1. Specification grade receptacles, equal to Hubbell 5262 series.

2. A.C. quiet operating type switches equal to Hubbell 122* series, rated 20A, 277V.

B. Device plates shall be nylon, color to match devices.

C. Mount devices in accordance with the following schedule except where otherwise noted on the drawings:
1. Convenience Receptacles – Long Axis Vertical 1'6" A.F.F.*
2. Light Switches – Latch Side of Door 4'0" A.F.F.
3. Telephone/Data Outlets 1'6" A.F.F.*
* Except in areas with counters, baseboard heaters or in areas of block or brick construction.

2.5 LIGHTING FIXTURES
A. Provide all new lighting fixtures complete with lamps, drivers, reflectors, plaster frames, louvers, stem hangers, etc., and as described on the drawings.

B. Exit lights shall conform with local code requirements.

C. Mount all fixtures at position and height to clear ducts, etc.

D. Mount all outlets at position and height to clear ducts, etc. minimum unpenetrated thickness shall be 0.035 inch.

2.6 BRANCH CIRCUIT PANELBOARDS
A. Provide dead-front, circuit breaker type panels, with the size and number of branches indicated. Breakers shall be thermal magnetic type employing quick-make and quick-break mechanisms for manual operation as well as automatic operation. Automatic tripping shall be indicated by the breaker handle assuming a distinctive position from the manual "on" and "off". Multiple breakers shall have a common trip. Tie handles will not be permitted.

B. Panelboards having branch circuit breaker sizes 15A to 100A shall be equal to:
1. ABB/General Electric "AL" or "AQ" for 120/240V or 208/120V systems.
2. ABB/General Electric "AE" for 480/277V systems.

C. Panelboards having more than two (2) branch circuit breakers rated in excess of 100A shall be equal to ABB/General Electric "AD" or Spectra Series.

D. All busses shall be copper.

E. All spaces shall be fully equipped.

F. Panelboards shall have a grounding lug for the equipment grounding system.

G. Circuit breakers shall have a minimum interrupting capacity as follows:

120/208 volts: 22,000 amperes.
In addition, upstream fuses shall be selected to provide a series rating of 100,000 amperes with downstream circuit breakers.

H. Panelboards shall be a minimum twenty inches (20") wide (box).

I. Panelboards used as service equipment shall be equipped with grounding bar, bonding jumper and UL service entrance label.

J. The above panelboard designations are ABB/General Electric; however equal products by Eaton/Cutler-Hammer, Siemens or Square D are acceptable.

2.7 SAFETY AND DISCONNECT SWITCHES
A. Provide enclosed, fusible or non-fusible safety switches where indicated and herein specified. Safety switches shall bear the UL label and each enclosure shall be the NEMA type suitable for the surrounding area and conditions (Ex. Nema 1 – Indoor, Nema 3R – Outdoor). Switches shall be minimum heavy duty, horsepower rated, and shall have quick-make and quick-break mechanisms. Switches used on motor circuits shall have adequate horsepower ratings for the motors served.

1. Safety switches employed as motor disconnect devices for two (2) or more loads shall be of the fusible type for rejection type fuses.

2. Heavy duty industrial type safety switches shall be used for 480 volt application and shall be horsepower rated with quick-make, quick-break mechanisms and interlocked covers.

3. Switches shall be as manufactured by ABB/General Electric, Eaton/Cutler-Hammer, Siemens or Square-D or as accepted, and all switches provided shall be by the same manufacturer.

2.8 FUSES
A. Fuses shall be as manufactured by Bussmann unless noted otherwise on the drawings.

B. Fuses for application at under 600 volts, and rated at 600 amps or less, shall be as follows:
1. For all fuses in the main service, equipment, except for motor circuits, provide current limiting, 200,000 rms amperes symmetrical interrupting capacity, rejection type, Bussmann Limitron or as accepted.

2. For all other fuses, provide rejection type with 200,000 rms amperes symmetrical interrupting capacity, Bussmann "Fusetron", or as accepted.

C. Control Fuses shall be Bussmann one-time nonrenewable fuses.

2.9 DRY TYPE TRANSFORMERS (IF APPLICABLE)
A. Transformers shall be as manufactured by ABB/General Electric, Eaton/Cutler-Hammer, Hevi Duty, Siemens, Square-D or equal.

B. Dry Type Transformers: ANSI/NEMA ST 20; factory-assembled, air cooled dry type transformers; ratings as shown on the Drawings.

C. Insulation system and average winding temperature rise for rated KVA as follows:

Rating	Class	Rise (degree C)
1 – 15	185	115
16 – 500	220	115

D. Case temperature shall not exceed 35 degrees C rise above ambient at its warmest point.

E. Winding Taps, Transformers Less than 15 KVA: Two 5% below rated voltage, full capacity taps on primary winding.

F. Winding Taps, Transformers 15 KVA and Larger: ANSI/NEMA ST 20.

G. Sound Level: ANSI/NEMA ST 20.

H. Basic Impulse Level: 10 KV for transformers less than 300 KVA, 30 KV for transformers 300 KVA and larger.

I. Ground core and coil assembly to enclosure by means of a visible flexible copper grounding strap.

J. Mounting: Transformers 75 KVA and less shall be suitable for wall, floor or trapeze mounting; transformers larger than 75 KVA shall be suitable for floor or trapeze mounting.

K. Coil Conductors: Continuous winding with terminations brazed or welded.

L. Enclosure: ANSI/NEMA ST 20; Type 1 for indoor application, Type 3R for outdoor or wet location application. Provide lifting eyes or brackets.

M. Isolate core and coil from enclosure using vibration-absorbing mounts.

N. Nameplates: Include transformer connection data and overload capacity based on rated allowable temperature rise.

PART 3 EXECUTION

3.1 CONDUIT/RACEWAYS
A. All conductors shall be enclosed by conduit sized in accordance with Chapter 9 of the National Electrical Code. Minimum 1/2" except for factory furnished lighting fixture flexible conduit may be 3/8". Follow the following schedule unless otherwise specified in the drawings. Exception: armored cable assemblies such as MC type cable may be used where allowed by NEC.
1. Rigid metal conduit (RMC) and intermediate metal conduit (IMC) shall be utilized for above and below grade applications in accordance with articles 344 AND 342 of the National Electrical Code. All couplings shall be threaded.

2. Rigid nonmetallic conduit (PVC) Schedule 40 shall be permitted for below grade or concrete cast in place applications above grade. All elbow transitions to above grade or stub-out of floor slab shall be asphalt coated rigid conduit. Provide equipment grounding conductor for all runs of rigid nonmetallic conduit.

3. Electrical metallic tubing (EMT) shall be utilized for all dry, above grade or above floor applications in accordance with article 358 of the National Electrical Code. Couplings shall be steel, set screw type or compression type, with screws set to maximum depth or nut made up wrench-tight respectively.

4. Flexible metal conduit shall be utilized for all connections to vibrating equipment such as motors (minimum of 2'-0" – maximum of 6'-0"), connection to lay-in type light fixtures or in remodel areas specifically noted for "fishing" in existing walls or non-accessible ceilings.

5. Surface metallic raceways shall be used only in areas specifically noted and of size and type specified on the drawings.

B. All exposed conduit (including conduit installed in ceiling plenums) shall be routed parallel or perpendicular with the building walls. Support conduit and cables as required by the National Electrical Code.

C. Provide expansion type fittings for all conduits which cross expansion joints.

3.2 GROUNDING
Service equipment, conduit systems, supports, cabinets, equipment, transformers, fixtures, the grounded circuit conductor, etc. shall be properly grounded in accordance with the latest issue of the National Electrical Code. Provide all bonding jumpers, wire, grounding bushings, clamps, etc as required for complete grounding. Route ground conductors to provide the shortest and most direct path to the ground electrode system. Ground connections shall have clean contact surfaces, tinned and sweated while bolting. Install all ground conductors in conduit. Make readily accessible connections to a continuous, metallic, underground cold water piping system at the point where it enters the building. If this is not practicable, connect to a cold water pipe and provide a meter jumper. Make connections to the water pipe that grounds the conduit enclosing the conductor as well as the conductor. Bond the service equipment to a separate grounding electrode per Code requirements. Provide intersystem bonding termination where required.

3.3 PANELBOARDS
A. Install panelboards such that the highest operating handle is not more than six feet seven inches (6'-7") from the finished floor.

B. Field check all panelboard loading and reconnect circuits as required to provide balanced phase and line loads.

C. Fill out circuit directory card. Note spare circuits in pencil.

3.4 MECHANICAL EQUIPMENT WIRING AND CONNECTIONS
A. Mechanical equipment motors and controls furnished with mechanical equipment.

B. Provide feeder circuits to mechanical equipment and make all connections.

C. Provide safety switches and/or thermal overload switches as required.

D. Provide all power (line voltage) wiring for mechanical equipment and make all connections except for temperature control equipment, which will be wired by mechanical contractor.

E. Furnish, set in place, and wire, except as indicated, all heating, ventilating, air conditioning, plumbing, fire protection, motors and controls in accordance with the following schedule. Carefully coordinate with work performed under the Mechanical Division of these specifications.

F. Heater units in all motor starters shall be sized for approximately one hundred fifteen percent (115%) of full load motor current. Check and coordinate all thermal protective devices with the equipment they protect.

1. Provide for each motor, one-half (1/2) horsepower and below, a horsepower rated disconnect switch and thermal overload protection unless integrally provided with the motor. Thermal overload switches for single phase motors shall be Allen-Bradley Bulletin 600 or acceptable. Size heater units for approximately one hundred fifteen percent (115%) of full load motor current.

2. Miscellaneous Equipment: Where outlets are indicated for miscellaneous equipment requiring electric power or control, provide wire, conduit, etc., and make all connections, unless otherwise indicated. Refer to the Mechanical Specifications and Plans covering sprinkler systems, motor interlocks, switching, etc. Provide wiring, conduit, outlets and provide final electrical connections to all equipment.

3.6 DRY TYPE TRANSFORMER INSTALLATION
A. Set transformer plumb and level, on 4 in. high concrete housekeeping pad for floor mounted units, on strut assemblies for wall or ceiling mounted units.

B. Use flexible conduit 2 ft minimum length, for connections to transformer case. Make conduit connections to side panel of enclosure.

C. Mount transformers on vibration isolation pads suitable for isolating the transformer noise from the building structure.

D. Provide seismic restraints where installed in seismic zones.

3.7 TELEPHONE/DATA SYSTEM
A. Provide conduits and outlets as indicated. Provide Cat6 cable from wall box to Telco Backboard.

B. Outlets shall consist of 4" square box with plaster ring and cover plate with configurable knockouts for RJ11, RJ45, etc. Plates shall match finish of other cover plates. Wiring and jacks shall be provided by contractor.

3.8 SPECIAL SYSTEMS
Provide all special systems as specified on the drawings including all required accessories to make the system complete and operational. All special systems shall be installed and connected in accordance with the manufacturer's specifications. Provide instructional demonstration for the owner prior to final acceptance.

3.10 GFCI OUTLETS IN OTHER THAN DWELLING UNITS
All single-phase receptacles rated 150V to ground or less, 50A or less and three-phase receptacles rated 150V to ground or less, 100A or less installed in areas listed in NEC Article 210.8(B) shall have GFCI protection for personnel.

3.11 ADJUSTABLE OVERCURRENT PROTECTIVE DEVICES
Where new circuit breakers with field adjustable settings are supplied or significant changes are made to existing distribution equipment equipped with adjustable settings, a coordination study shall be conducted to determine the proper trip and delay values. The Contractor, equipment supplier or licensed third party may conduct the study. All data required for the study shall be provided to the study preparer by the Contractor and/or equipment supplier.

END OF SECTION

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JUNE 30, 2026
THOMAS JOHN SCHIRMER

REVISIONS DATE

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DRAWING BY: DRG
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SCALE:
TITLE: ELECTRICAL SPECIFICATIONS

SHEET NUMBER:
E601

COMMENTS:

JOB/FILE NUMBER:
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