



REQUEST FOR PROPOSALS

Benton County Fairgrounds Storage Building

110 SW 53rd Street

CORVALLIS, OREGON

Benton County Board of Commissioners

Pat Malone, Commissioner

Nancy Wyse, Commissioner

Xanthippe Augerot, Commissioner

Friday, December 22nd, 2023

Tomi Douglas

Natural Areas Parks & Events Director

This Project was funded in part by the Oregon State Lottery and administered by the Oregon Business Development Department. These laws, rules, regulations, and orders are incorporated by reference in this Contract to the extent required by law.

ORS 280.518

Benton County Fairgrounds Storage Building

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ADVERTISEMENT FOR BIDS

Benton County invites bids for the design and construction of a turnkey pole storage building located at 110 53rd Street Corvallis, Oregon (Project).

BRIEF DESCRIPTION OF WORK TO BE PERFORMED

This Project was funded in part by the Oregon State Lottery and administered by the Oregon Business Development Department. These laws, rules, regulations, and orders are incorporated by reference in this Contract to the extent required by law. (ORS 280.518)

The proposed work generally consists of furnishing all labor, equipment, materials, and supervision for the construction of a turnkey pole building per Contract Documents.

Plans, specifications, and bid documents will be available on **Friday, December 22nd, 2023** in the office of the Natural Areas Parks and Events (NAPE) Department, 360 SW Avery Avenue, Corvallis, Oregon at no cost or viewed at <https://www.co.benton.or.us/rfps>. Bidders shall be responsible for checking the aforementioned website for any Addendums or clarifications to the bid documents.

The Benton County Standard Provisions are posted on the Public Works Department page <https://www.co.benton.or.us/publicworks/page/information-and-standard-drawings/> and will be part of the final signed contract documents.

To be considered for award the following conditions must be met:

- 1) Bidders must prequalify in accordance with ORS 279C.430 and provisions of public contracting rules as adopted by Benton County at least two days prior to the date of the bid opening.
- 2) Bidders must be prequalified for the following work classes:
 - a) BuildingsPrequalification can be met by bidder submitting Oregon Department of Transportation prequalification or providing two (2) to three (3) examples of similar construction projects completed.
- 3) The Bid Proposal must be submitted on the prescribed form and shall contain a statement by the bidder that the bid complies with the provisions of ORS 279C.800 to 279C.870, and contain a statement as to whether the bidder is a resident bidder as defined in ORS 279A.120.

- 4) The Contractor must be registered with the Oregon Construction Contractors Board (CCB) and shall have the appropriate license necessary to perform the work under this bid, or the State Landscape Contractors Board in order for their bid to be considered on construction contracts. No bid or proposal for a public improvement contract shall be received or considered unless the bidders are licensed by the CCB.
- 5) The Bid Proposal must be accompanied by cash, cashier's check, certified check or bid bond payable to Benton County, Corvallis, Oregon, in an amount not less than ten percent (10%) of the total bid amount.
- 6) The CONTRACTOR shall, within two working hours of the date and time of the deadline when the bids are due to the COUNTY, submit to the COUNTY a disclosure of any first-tier subcontractor that will be furnishing labor or materials in connection with the public improvement and whose contract value is equal to or greater than:
 - a) Five percent of the total project bid or \$15,000, whichever is larger; or
 - b) \$350,000, regardless of the percentage of the total project bid.

The disclosure of first-tier subcontractors shall include:

- a) The name and address of each subcontractor;
 - b) The registration number assigned to the subcontractor by the Oregon Construction Contractors Board if the subcontractor is required to have a certificate of registration issued by the board;
 - c) The category of work that each subcontractor will perform; and the amount of the contract of the subcontractor.
- 7) Each bidder must identify whether they are a resident bidder as defined in ORD 279A.120.
 - 8) **Return the entire contract and proposal documents.** Bid must be in writing, sealed, marked plainly as FAIRGROUNDS STORAGE BUILDING₂, and received by Shane Galloway – Project Manager, Ari Annachi – Administrative Assistant, or Jennifer Ficek – Administrative Manager, Benton County Department of Natural Areas Parks and Events at 360 SW Avery Avenue, Corvallis, Oregon, 97333 by **2:00 p.m. PST local time on January 25th, 2024**, at which time the bids will be publicly opened and read.

All bidders must submit a list of their first-tier subcontractors no later than 4:00 p.m. local time that same day.

Bids submitted after the date and time specified above shall not be accepted.

Benton County may reject any bid not in compliance with all prescribed bidding procedures and requirements and may reject for good cause any or all bids upon finding of the County that it is in the public interest to do so.

Benton County reserves the right to reject any or all bids, to postpone the award of the contract for a period not to exceed thirty (30) days, and to accept that proposal which is in the best interest of the County.

Dated this 22nd day of December, 2023

Benton County, Oregon

DocuSigned by:
By Tomi Douglas
BF22F0196E224E3...

Director of Natural Areas Parks and Events

PUBLISH: December 21st, 2023, Gazette Times and December 22nd, 2023 Daily Journal of Commerce

BIDDER'S INSTRUCTIONS CHECKLIST

Bidder's attention is called to the following forms which must be executed in full as required:

- A. **BID FORM(S)**: Each bidder shall complete the bid form(s). Prices must be shown in the spaces provided and must be expressed in both words and figures. Where conflict occurs, written or typed words shall prevail.
- B. **BID BOND**: This form is to be executed by bidder and bidder's Surety. The amount of cash, certified check, cashier's check, irrevocable letter of credit or Bid Bond shall not be less than 10% (ten percent) of the total Bid amount.
- C. **FIRST-TIER SUBCONTRACTOR DISCLOSURE FORM**: When the contract value is greater the \$100,000, this form must be submitted by the bid submission deadline or within two working hours of such submission deadline. If no subcontractors will be used, the bidder must indicate "NONE" on the disclosure form. Failure to submit this form will result in the bid becoming non-responsive and such bid will not be considered for award.
- D. **DRUG TESTING PROGRAM CERTIFICATION FORM**: This form must be submitted with the bid to demonstrate that bidder has an employee drug and alcohol testing program in place and will continue to keep the program in place throughout the duration of performing the Contract awarded.

The following forms are to be executed after the Contract is awarded:

- A. **CONSTRUCTION CONTRACT**: This agreement is to be executed by the successful bidder.
- B. **PERFORMANCE AND PAYMENT BOND**: Bonds are to be executed by the successful bidder and bidder's Surety Company and submitted at the time of the Contract is executed.
- C. **PUBLIC WORKS WAGE CERTIFICATION Form**: This form is to be completed in accordance with state law and submitted with the every request for payment.
- D. **CERTIFICATES OF INSURANCE**: Certificates are to be executed by the successful bidder and bidder's insurance companies and submitted at the time the Contract is executed.
- E. **Other Bond**: If project is over \$100,000, CONTRACTORS AND SUB-CONTRACTORS shall file a \$30,000 Public Works Bond with the Construction Contractor's Board.

BID PROPOSAL

Benton County Natural Areas Parks & Events
110 SW 53rd Street
Corvallis, Oregon

The undersigned, hereinafter called the bidder, declares that the only persons or parties interested in the proposal are those named herein, that the proposal is in all respects fair and without fraud, that it is made without collusion with any official or employee of the County, and that the proposal is made without any connection or collusion with any person making another proposal on this Contract.

The bidder further declares that he has carefully examined the Contract documents for the construction of the proposed improvements; that he has personally inspected the site; that he has satisfied himself as to the quantities of materials, items of equipment, and conditions of work involved, including the fact that the description of the work and materials as included herein is brief and is intended only to indicate the general nature of such items and to identify the said quantities with the detailed requirements of the Contract documents; and that this proposal is made according to the provisions and under the terms of the Contract documents, which documents are hereby made a part of this proposal.

The bidder agrees that if this proposal is accepted, they will, within seven (7) calendar days after notification of acceptance, execute the Contract with the County in the form of Contract provided by the County, and will, at the time of execution of the Contract, deliver to the County the performance bond and insurance certificates required by the Contract. The Contractor further agrees, to the extent of this proposal, to furnish all necessary labor, equipment and tools to meet the requirements of this Contract, within seven calendar days of receiving formal written notice to proceed from the County.

The bidder further agrees to complete construction of all work in all respects as set forth in the Special Provisions and certifies that all provisions of Oregon Law (ORS 279C.840), relating to prevailing wage rates, and all other applicable provisions of ORS 279A, B and C are incorporated in and shall be complied with in making this proposal. Contractor shall ensure all employees are paid not less than the specified minimum hourly rate of wage if the project is subject to the prevailing wage rate law. Contractor certifies that it is not disqualified or debarred from entering into this contract under ORS 279B.130, 279C.440 and/or any applicable Federal compliance requirements in accordance with 2 CFR part 180.

In the event the bidder is awarded the Contract and shall fail to complete the work within the time limit or extended time limit agreed upon, as more particularly set forth in the Contract documents, liquidated damages shall be paid to the County at the rate of Four Hundred dollars (\$400.00) per day until the work shall have been finished, as provided by the Contract documents. It is agreed that the said sum is a fair measure of the amount of damage the County will sustain in case the work is not completed in a timely fashion. Sundays and legal holidays shall be excluded in determining days in default.

The bidder further proposes to accept as full payment for the work proposed herein the amount computed under the provisions of the Contract documents and based on the following unit price amounts, it being expressly understood that the unit prices are independent of the exact quantities involved, that they represent a true measure of the labor and material required to perform the work, including all allowance for overhead and profit for each type and unit of work called for in these Contract documents.

It is agreed that if the bidder is awarded the Contract for the work herein proposed and shall fail or refuse to execute the Contract and furnish the specified performance bond within seven (7) calendar days after receipt of notification of acceptance of his proposal, then, in that event, the bid security in the sum of _____ Dollars (\$ _____) deposited herewith according to the conditions of the Advertisement for Bids and Instructions to Bidders, shall be retained by the County as liquidated damages; and it is agreed that the said sum is a fair measure of the amount of damage the County will sustain in case the bidder shall fail or refuse to enter into the Contract for the said work and to furnish the performance bond as specified in the Contract documents. Bid security in the form of cash or a certified check shall be subject to the same requirements as a bid bond.

If the bidder is awarded a construction contract on the proposal, the surety who will provide the performance bond will be:

_____ whose address is:

(Site Address)

_____, _____, _____
City, State, Zip

The name of the bidder who has submitted this proposal is doing business at:

(Site Address)

_____, _____, _____
City, State, Zip

_____, _____, _____
(Mailing Address) City, State, Zip

the latter which is the address to which all communications concerned with this proposal and with the Contract shall be sent.

The names of the principal officers of the corporation submitting this proposal, or of the partnership or of all persons interested in this proposal as principals, are as follows:

(If sole proprietor or partnership)

In witness hereto the undersigned has set his (its) hand this _____ day
of _____, 20_____.

Signature of Bidder

Title

(If corporation)

In witness whereof, the undersigned corporation has caused this instrument to be executed and its
seal affixed by its duly authorized officers

this _____ day of _____, 20_____.

Name of Corporation

By

Title

Attest: _____
Secretary

Contractor's Proposal

CONTRACTOR'S PROPOSAL

ITEM NO.	ITEM	DESCRIPTION OF ITEM	TOTAL PRICE (in figures)
1.	Lump Sum (NTE)	Design and construction of turnkey pole building	_____
			_____ dollars
			(written in words)
			Total _____

FIRST-TIER SUBCONTRACTOR DISCLOSURE FORM

PROJECT NAME & NUMBER: Fairgrounds Storage Building

BID SUBMITTAL DEADLINE: 2:00 P.M. **DATE:** January 25th, 2024

DISCLOSURE FORM SUBMITTAL DEADLINE: 4:00 P.M. **DATE:** January 25th, 2024

This form must be submitted no later than 4:00 p.m. on the same day the bids are due in the County Public Works Office/ Natural Areas Parks and Events Office 360 SW Avery Ave. Corvallis, Oregon 97333 Any and all bids received after the bid submittal deadline, or for which this First-Tier Subcontractor Disclosure Form has not been received by 4:00 p.m. will not be considered and will be returned to the bidder.

List below the name, address, subcontract dollar value, category of work, Construction Contractor Board (CCB) registration or State Landscape Contractors Board (SLCB) license number if applicable, contact name and telephone number of each subcontractor that will be furnishing labor or materials with dollar value equal to or greater than:

- a) 5% of the total Contract price, but at least \$15,000 (including all alternates); or
- b) \$350,000 regardless of the percentage of the total Contract price.

Note: You must enter "NONE", sign and submit the form if there are no subcontractors that need to be disclosed. (Attach additional sheets if needed.)

Firm Name	CCB/SLBC Number/Work Type
Address	Category of work
City, State, Zip	Subcontract Amount

Firm Name	CCB/SLBC Number/Work Type
Address	Category of work
City, State, Zip	Subcontract Amount

NOTE: FAILURE TO SUBMIT THIS FORM BY THE 4:00 P.M. DISCLOSURE DEADLINE WILL RESULT IN A BID BECOMING NON-RESPONSIVE AND SUCH BID WILL NOT BE CONSIDERED FOR AWARD.

Form Submitted By (Bidder Name): _____

Form Received in the County Public Works Office:

Time: _____ Date: _____ By: _____

Note: Unless otherwise stated in the original Invitation to Bid, this form shall not be faxed. It is the responsibility of the Bidder to ensure timely receipt of the Form by the NAPE Office.

**EMPLOYEE DRUG TESTING PROGRAM
CERTIFICATION FORM**

BIDDER'S NAME: _____

PROJECT NAME & NUMBER: Fairgrounds Storage Building

ORS 279C.505(2) provides that every public improvement contract contain a condition that the Contractor shall demonstrate that an employee drug testing program is in place. The County's award of the Contract for which this certificate is required is conditioned, in part, upon the Bidder's demonstration of compliance with the provisions of ORS 279C.505. If the Bidder named above is awarded the Contract, this certificate shall become a part of, and shall constitute a continuing representation and warranty under, the Contract.

To induce the County to award the Contract to the Bidder, the undersigned, as the duly authorized representative of the Bidder, hereby represents and warrants, on behalf of the above named Bidder:

1. The Bidder has and enforces, and all times during the term of the Contract will have and enforce, a written employee drug testing;
2. A copy of the Bidder's current written employee drug testing policy will be available for inspection by the County at any time upon the County's request; and
3. The Bidder understands and agrees that its representations and warranties herein will become a continuing part of the Contract and that breach of any of the foregoing will be sufficient grounds for disqualification under 279C.440(2)(d).
4. The Contractor has provided each employee with a copy of the drug testing policy.

The County shall not be liable, either directly or indirectly, in any dispute arising out of the substance or procedure of Bidder/Contractor's drug testing program. Nothing in this drug testing provision shall be construed as requiring Bidder/Contractor to violate any legal, including constitutional, rights of any employee, including but not limited to, selection of which employees to test and the manner of such testing. The County shall not be liable for Bidder/Contractor's negligence in establishing or implementing, or failure to establish or implement, a drug testing policy, or for any damage or injury caused by Bidder/Contractor's employees acting under the influence of drugs while performing work covered by the Contract. These are Bidder/Contractor's sole responsibilities.

In Witness Whereof, the Bidder has caused this document to be executed by its duly authorized representative on the date shown below.

Signature: _____

Printed Name, Title: _____

Date: _____

BID BOND

KNOW ALL MEN BY THESE PRESENTS: That we, _____
of _____ (hereinafter called the principal),
as principal, and _____
(hereinafter called the surety), are held and firmly bound unto:

Benton County, Oregon (hereinafter called the obligee) in the penal sum of
_____ Dollars (\$_____) for the payment of which
the principal and the surety bind themselves, their heirs, executors, administrators, successors and
assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that WHEREAS, the principal has submitted or is about
to submit a proposal to the obligee on a Contract for:

NOW, THEREFORE, if the said Contract be timely awarded to the principal and the principal shall,
within such time as may be specified, enter into the Contract in writing, and give bond, if bond is
required, with surety acceptable to the obligee for the faithful performance of the said Contract, then
this obligation shall be void; otherwise to remain in full force and effect.

Signed and sealed this _____ day of _____, 20____.

(Seal)
Principal

Witness Title

Surety

By _____
Attorney-in-Fact

Section C
Contract Agreement

BENTON COUNTY CONSTRUCTION CONTRACT

In consideration of the covenants set forth below _____
_____ referred to as CONTRACTOR and BENTON COUNTY, OREGON, a political subdivision of the State of Oregon, acting by and through its Public Works Contracting Officer, hereinafter referred to as COUNTY, mutually contract as follows:

I) CONTRACTOR agrees and covenants with COUNTY that he will furnish all tools, equipment, labor, and material necessary to perform and complete in a good and workmanlike manner the following work: Designing and constructing approximately 2,960 sq. ft. pole building with concrete floors located at the selected site within the Benton County Fairgrounds located at 110 SW 53rd Street, Corvallis, OR 97333.

CONTRACTOR agrees to complete the work by July 1st, 2024.

- II) That the advertisement for bid, the signed bid proposal, the bid unit price schedules, the bid proposal bond, the fully executed Contract, the fully executed performance bond, the Benton County Standard Provisions, the Oregon Standard Specifications for Constructions, the Oregon Commercial and Specialty Building Code, the Special Provisions, and the plans are hereby referred to and by reference made a part of this Contract. All work shall be done according to the terms, conditions and requirements of said Contract Documents.
- III) COUNTY agrees to pay CONTRACTOR as outlined in the attached bid proposal. Retainage shall be an amount equal to 5% of said progress payment until the work has been completed. If the project is over \$500,000, the CONTRACTOR shall fill out and submit Section E: Form of Retainage, in accordance with ORS 279C.560 and HB 2415, directing the COUNTY on how to manage the retainage. The Form of Retainage shall be submitted at the time the Contract is executed.
- IV) This writing is intended both as the final expression of the agreement between the parties with respect to the included terms and as a complete and exclusive statement of the terms of the agreement. No modification of this agreement shall be effective unless and until it is made in writing and signed by both parties.
- V) CONTRACTOR shall comply with all applicable federal, state and local laws, rules and regulations on nondiscrimination in employment because of race, color, ancestry, national origin, religion, sex, marital status, age, medical condition, disability, sexual orientation, gender identity or source of income. Contractor certifies that it is not disqualified or debarred from entering into this contract under ORS 279B.130, 279C.440 and/or any applicable Federal compliance requirements in accordance with 2 CFR part 180.

- VI) Background Checks: In order to perform work in **secure** areas in COUNTY buildings, CONTRACTOR and their sub contractors will need to submit to a criminal background check and have a Criminal Justice Information System (CJIS) clearance (which requires an online test). This process shall be coordinated with the Project Manager. In addition, CONTRACTOR will notify COUNTY when any employee is no longer in compliance with the security provisions of this background certification.
- VII) CONFLICT OF INTEREST: CONTRACTOR covenants that it presently has no interest and shall not acquire any interest, direct or indirect, which would conflict in any manner or degree with the performance of its services. The CONTRACTOR further covenants that in the performance of this contract no person having any such interest shall be employed.
- VIII) INSURANCE: The CONTRACTOR as specified in the Benton County Standard Provisions and any subcontractors shall maintain insurance acceptable to the COUNTY (Section E) in full force and effect throughout the term of this contract. Workers' Compensation Insurance: If CONTRACTOR employs one or more workers as defined in ORS 656.027 and such workers are subject to ORS 656.001 to 656.794, CONTRACTOR shall maintain currently valid workers' compensation insurance covering all such workers. CONTRACTOR shall maintain this insurance throughout the period of this contract.
- IX) CONTRACTOR shall abide by the provisions of ORS 279A, B and C, incorporated by this reference. It is expressly understood that this contract in all things shall be governed by the laws of the State of Oregon.
- a) Status of Contractor: The parties intend that CONTRACTOR, in performing the services specified in this Contract, shall act as an independent contractor and shall have the control of the work and the manner in which it is performed. CONTRACTOR is not to be considered an agent or employee of the COUNTY and is not entitled to participate in any pension plan, insurance, bonus, or similar benefits COUNTY provides its employees.
 - b) CONTRACTOR will not be eligible for any federal social security, state worker's compensation, unemployment insurance, or Public Employees Retirement System benefits from this contract payment, except as a self-employed individual.
 - c) If this payment is to be charged against Federal funds, CONTRACTOR certifies that he is not currently employed by the Federal government and the amount charged does not exceed his normal charge for the type of service provided.
 - d) COUNTY will report the total amount of all payments to CONTRACTOR, including any expenses, in accordance with Federal Internal Revenue Service and State of Oregon Department of Revenue regulations. CONTRACTOR shall be responsible for any Federal or State taxes applicable to amounts paid under this contract.
- X) The CONTRACTOR shall:

- a) Make payment promptly, as due, to all persons supplying to such CONTRACTOR labor or material for the prosecution of the work provided for in this contract.
 - b) Pay all contributions or amounts due the Industrial Accident Fund incurred in the performance of this contract.
 - c) Not permit any lien or claim to be filed or prosecuted against the state, county, school district, municipality, Municipal Corporation, or subdivision thereof, on account of any labor or material furnished.
 - d) Pay to the Department of Revenue all sums withheld from employees pursuant to ORS 316.167.
 - e) Demonstrate that an employee drug testing program is in place and shall remain in place for the duration of this contract.
 - f) Ensure that no person shall be employed 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 the public policy absolutely requires it, and in such cases, the employee shall be paid at least time and a half pay:
 - i) 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
 - ii) 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; or
 - iii) For all work performed on Saturday and on any legal holiday specified in ORS 279C.540.
 - g) If this contract is subject to the prevailing wage rate law per ORS 279C.836, and where the project is over \$100,000 the Contractor and SUB-CONTRACTORS must file a \$30,000 Public Works Bond with the Construction Contractor's Board to be used exclusively for unpaid wages determined to be due by BOLI, unless the project meets other exclusions identified in this section or ORS 279C.836. Contractor shall verify Public Works Bond filing for any subcontractors prior to starting work on the project.
- XI) In the event CONTRACTOR or first-tier subcontractor fails, neglects or refuses to make payment to a person furnishing labor or materials in connection with this public improvement contract within 30 days after receipt of payment from COUNTY or a contractor, the CONTRACTOR or first-tier subcontractor shall owe the person the amount due plus interest charges commencing at the end of the 10-day period that payment is due under ORS 279C.580(3) and ending upon final payment, unless payment is subject to a good faith dispute as defined in ORS 279C.580. The rate of interest charged to the CONTRACTOR or first-tier subcontractor on the amount due shall equal three times the discount rate on 90-day commercial paper in effect at the Federal Reserve Bank in the Federal

Reserve district that includes Oregon on the date that is 30 days after the date when payment was received from COUNTY or from the contractor, but the rate of interest shall not exceed 30 percent. The amount of interest may not be waived. If the CONTRACTOR or a subcontractor fails, neglects or refuses to make payment to a person furnishing labor or materials in connection with this 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.

CONTRACTOR

BENTON COUNTY

Principal

By _____

Tomi Douglas
Director of Natural Areas Parks and Events &
Contracting Officer

Name Title

Date

Date

Employer I.D. Number or
Social Security Number

Approved as to Form:

Contractor's Board Number

County Counsel

Date

CONTRACTOR - SIGN THE FOLLOWING AFFIDAVIT IF YOU ARE AN OWNER/OPERATOR BUSINESS.

AFFIDAVIT OF OWNER/OPERATOR BUSINESS

CONTRACTOR declares that s/he does not currently employ, and will not employ any individuals for work under this contract during the term this contract is in force.

Principal

Date

SPECIAL PROVISIONS

SCOPE OF PROJECT AND GENERAL INFORMATION

Scope of Project and Location

The Benton County Fairgrounds is a county government facility which manages the operations of the Event Center and produces the annual Benton County Fair & Rodeo.

Covering 29 acres, the Event Center offers facilities for public or private rental and operates the Benton Oaks RV Park. The Event Center plays host to many of the community's favorite annual events, including The Pastega Christmas Light Display and Annual County Fair and Rodeo.

The mission of the Benton County Fairgrounds is to operate a special events center in a rural setting:

- Producing an exceptional annual County Fair and other community events,
- Benefiting all Benton County residents, especially youth and families,
- Showcasing agriculture and natural resources,
- Enhancing economic growth in Benton County,
- Increasing the value of the Fairgrounds as a community asset,
- While efficiently generating revenue to staff and maintain the facility.

The project consists of the final design, permitting, and complete erection of a pole building of approximately 2,960 sq. ft. delivered to county, turnkey.

The general scope of work: Construct in its entirety a pole building at the county fairgrounds, at the site selected, based on preliminary engineers' drawings supplied. Contractor to supply turnkey building ready for occupancy.

All Respondents must be registered and licensed with the Oregon Construction Contractors Board prior to submitting an RFP. Failure to be licensed may cause the County to reject the Request for Proposal as non-responsive.

The selected Contractor shall meet the highest applicable industry or business standards in providing the goods and services.

Construction (structural) drawings for the work to be performed are included in this RFP and may also be reviewed at 110 SW 53rd Street, Corvallis, OR 97321.

For questions regarding this RFP, please contact one of the below listed Benton County Natural Areas, Parks and Events (NAPE) representatives:

- Jesse Ott, Deputy Director jesse.ott@bentoncountyor.gov
- Shane Galloway, Project Manager shane.galloway@bentoncountyor.gov 541 760-3741
- Leanna Buck, Administrative Specialist leanna.buck@bentoncountyor.gov 541 766-6521

Pre-bid (Mandatory)

A mandatory pre-bid walkthrough will be held **Wednesday January 10th, 2024 at 9:00AM PST** at the Benton County Fairgrounds, Maintenance Shop Building "B"
110 SW 53rd Street
Corvallis, OR 97333

Sub-contractors

Sub-contractors may attend pre-construction conference.

Award

Award will be made to the lowest qualified bid for the project.

Payment

Payment for the various items of work shall be made at the Contract unit prices or adjusted unit prices as set forth herein. Such payment shall constitute full compensation for all labor, tools, equipment, materials, and cleanup required for a complete operating project. All incidental items of work for a complete project for which pay items do not appear shall be included in the prices bid for the various other items to which they are incidental.

COUNTY and/or CONTRACTOR shall withhold 25% of amounts owed if certified payrolls are not submitted as required by BOLI.

Prevailing Wages

Prevailing wage rates are incorporated in this bid document by reference. Find those rates at: http://www.oregon.gov/BOLI/WHD/PWR/pwr_book.shtml. At final contract signing, applicable rates on bid opening date will be included.

Completion Date

All work and demobilization shall be completed by **July 1st, 2024**.

Notification of Construction Schedule

The Contractor shall notify the County of the date construction will begin at least five (5) days prior to that date. The Contractor shall also notify the County at least 48 hours prior to the re-commencement of construction after any temporary work halt.

Permits

CONTRACTOR shall be responsible for all permits.

Traffic Control

Traffic protection is the sole responsibility of the Contractor and shall be in accordance with MUTCD. The Contractor shall submit a signing plan prior to starting work.

The Contractor shall provide and maintain flaggers, barricades, and signs throughout the course of the project, as necessary, to warn the public at all times on right of way and easements affected by work operations.

Schedule Summary

- RFP Published – Friday, December 22nd, 2023
- Mandatory Pre-Bid Walkthrough –9:00AM (PST) Wednesday, January 10th, 2024
 - 110 SW 53rd Street, Corvallis, OR 97333
- RFP Bids Due/Opened – 2:00PM (PST) Thursday, January 25th, 2024
 - First-Tier Subcontractors Forms Due – 4:00PM (PST) Thursday, January 25th, 2024

TECHNICAL SPECIFICATIONS

All work performed by the contractor shall conform to Oregon Commercial and Specialty Building Code respectively and any applicable provisions in the Oregon Standard Construction Specifications.

Building should include:

- three (3) 120/240volt exterior outlet boxes on South wall evenly spaced - California Standard CS6364 50 Amp 125/250-Volt 4-Prong Locking Male Outlet and;
- six (6) dedicated golf cart charging outlets -120volt 20amp, single duplex outlets. Identified as such at supply and termination points.

EXHIBIT A – CERTIFICATION OF INSURANCE REQUIREMENTS

Contractor shall at all times maintain in force at Contractor’s expense for insurance noted below.

Workers’ Compensation insurance in compliance with ORS 656.017, which requires subject employers to provide workers’ compensation coverage in accordance with ORS Chapter 656 or CCB (Construction Contractors Board) for all subject workers. Contractor and all subcontractors of Contractor with one or more employees must have this insurance unless exempt under ORS 656.027. **Employer’s Liability Insurance with coverage limits of not less than \$1,000,000 must be included.** THIS COVERAGE IS REQUIRED. If Contractor does not have coverage, and claims to be exempt, Contractor must indicate exemption within their Bid/Proposal submittal letter with qualified reasons for exemption, see ORS 656.027. Out-of-state Contractors with one or more employees working in Oregon in relation to this contract must have Workers’ Compensation coverage from a state with extraterritorial reciprocity, or they must obtain Oregon specific Workers’ Compensation coverage ORS 656.126.

Professional Liability insurance covering any damages caused by error, omission or any negligent acts of the Contractor, its subcontractors, agents, officers, or employees’ performance under this Contract. **Combined single limit per occurrence shall not be less than \$2,000,000. Annual aggregate limit shall not be less than \$2,000,000.**

- If this box is checked, the limits shall be \$1,000,000 per occurrence and \$1,000,000 in annual aggregate.
- Required by County Not Required by County

Commercial General Liability insurance with coverage satisfactory to the County on an occurrence basis. **Combined single limit shall not be less than \$2,000,000 per occurrence for Bodily Injury and Property Damage and annual aggregate limit for each shall not be less than \$2,000,000.** Coverage may be written in combination with Automobile Liability Insurance (with separate limits). **Annual aggregate must be on a “per project basis”.**

- If this box is checked, the limits shall be \$1,000,000 per occurrence and \$2,000,000 in annual aggregate.
 - If this box is checked, the limits shall be \$5,000,000 per occurrence and \$5,000,000 in annual aggregate.
 - Required by County Not Required by County
-
-

Automobile Liability covering all owned, non-owned, or hired vehicles. If there are no owned autos this coverage may be written in combination with the Commercial General Liability Insurance (with separate limits). **Combined single limit per accident shall not be less than \$2,000,000.**

- If this box is checked, the limits shall be \$1,000,000 per accident.
 - If this box is checked, the limits shall be \$5,000,000 per accident.
 - Required by County Not Required by County
-

Property of Others in Transit (Cargo) covering all County owned property / equipment being hauled by contractor. **Limit per occurrence shall not be less than \$100,000.**

- Required by County Not Required by County
-

Coverage must be provided by an insurance company authorized to do business in Oregon or rated by A.M. Best's Insurance Rating of no less than A-VII or County approval. Contractor's coverage will be primary in the event of loss. Contractor shall furnish a current Certificate of Insurance to the County. Contractor is also responsible to provide renewal Certificates of Insurance upon expiration of any of the required insurance coverage.

Contractor shall immediately notify the County of any change in insurance coverage. The certificate shall also state the deductible or retention level. The County must be listed as an Additional Insured by endorsement of any General Liability Policy on a primary and non-contributory basis. Such coverage will specifically include products and completed operations coverage.

The Certificate shall state the following in the description of operations: "Additional Insured Form (include the number) attached. The form is subject to policy terms, conditions and exclusions". A copy of the additional insured endorsement shall be attached to the certificate of insurance. If requested complete copies of insurance policies shall be provided to the County.

Certificate holder should be: Benton County Natural Areas Parks and Events Department, 360 SW Avery Avenue, Corvallis OR 97333.

Certificates of Insurance can be e-mailed to Public Works, bccontracts@bentoncountyor.gov

Contractor's Acceptance: see attached signature page Completed at County by: Vance M. Croney

FORM OF RETAINAGE

(FOR PROJECTS OVER \$500,000)

BIDDER'S NAME: _____

PROJECT NAME: _____

County Project Number: _____

As of January 1, 2020, Oregon Law provides three options for managing retainage for construction projects over \$500,000 in value. As contractor for the above-named project, which is over \$500,000 in value, your firm may choose to either:

_____ (a) Deposit a bond, or securities or other instruments with the County or in a bank or trust company, and have no retainage withheld, as described in ORS 279C.560(4),

_____ (b) Have the County place the retainage as it is earned in an interest-bearing bank account, at no cost to you, and after completion you will receive all of the interest earned along with your retainage, pursuant to ORS 279C.560(5), or

_____ (c) Have the County place the retainage as it is earned in an interest-bearing escrow account, where you will be responsible for the costs of the escrow, and will receive the interest along with your retainage, *with the amount reduced by the fees charged by the escrow agent.*

If you do not choose option (a) or (b), then the default method required by the law under HB 2415 (2019) will be that the retainage goes into an escrow account as described in (c). You should be aware, however, that under option (c) it is possible that the escrow fees to be deducted could be as much as or greater than the interest earned on the retainage. There is no charge or deduction for option (a) or (b).

Please indicate the method your firm prefers for the retainage on this project by marking in the space provided next to the preferred option, and return this form to the County.

Signature: _____

Printed Name, Title: _____

Date: _____

PERFORMANCE AND PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS: That we, _____

as principal, and _____

duly authorized to transact surety business in Oregon, as surety, are jointly and severally held and bound unto Benton County in the sum of:

for the payment of which we jointly and severally bind ourselves, our heirs, executors, administrators and assigns or successors and assigns, firmly by these presents.

THE CONDITION OF THIS BOND IS SUCH

That, whereas the said principal herein has made and entered into a certain Contract, a copy of which is attached hereto, with Benton County, which Contract, together with the applicable Contract documents is by this reference made a part hereof, whereby the said principal agrees to perform certain work and to assume certain obligations, which things he agrees to do in accordance with the certain terms, conditions, requirements, plans and specifications set out in said Contract.

NOW, THEREFORE, if the principal herein shall faithfully and truly observe and comply with the terms, conditions, and provisions of the said Contract, in all respects, and shall well and truly and fully do and perform all matters and things by him undertaken to be performed under said Contract, upon the terms set forth therein, and within the time prescribed therein, or as extended as provided in the applicable Contract documents, and shall indemnify and save harmless Benton County, the Benton County Board of Commissioners, and members thereof, its officers, employees, and agents, against any 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 said Contract by the said Contractor or his subcontractors; and shall make payment promptly, as due, to all subcontractors and to all persons supplying to the Contractor or his subcontractors equipment, supplies, labor or materials for the prosecution of the work or any part thereof, provided for in said Contract, and shall pay all contributions or amounts due the State Industrial Accident Fund and the State Unemployment Compensation Trust Fund from the Contractor or his subcontractors incurred in the performance of said Contract, and pay all sums of money withheld from the Contractor's employees and payable to the State Tax Commission pursuant to ORS 316; and shall pay all other just debts, dues and demands incurred in the performance of the said Contract and shall pay Benton County, such damages as may accrue to the County under said Contract and shall in all respects perform said Contract according to law, then this obligation is to be void, otherwise to remain in full force and effect.

Witness our hands this _____ day of _____, 20_____.

Principal

By: _____

Title: _____

Surety attorney-in-fact

By: _____

Title: _____

Principal

By: _____

Title: _____

STANDARD PROVISIONS:

<https://www.co.benton.or.us/publicworks/page/information-and-standard-drawings>

PREVAILING WAGE RATES:

http://www.oregon.gov/BOLI/WHD/PWR/pwr_book.shtml

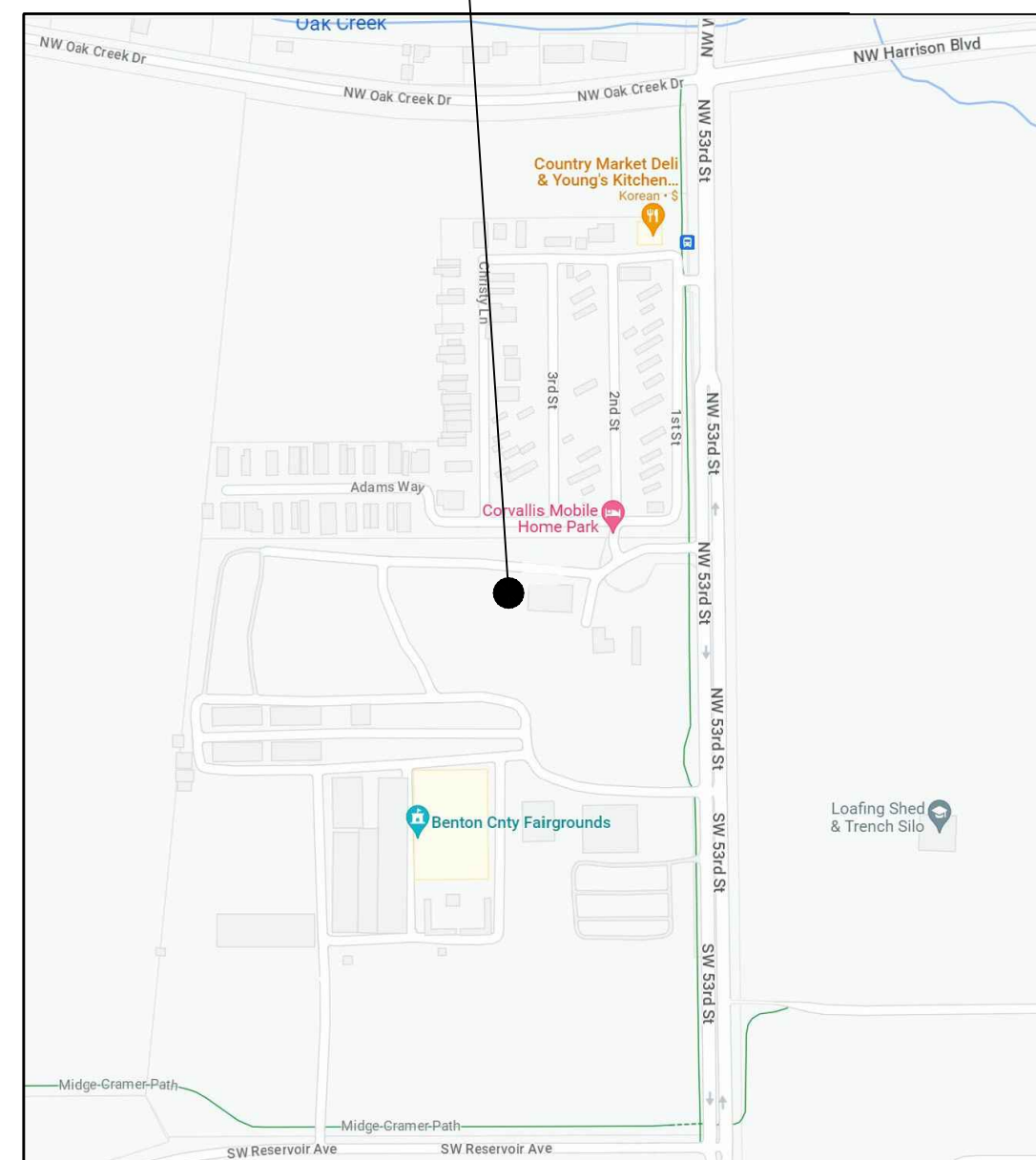
CONSTRUCTION DRAWINGS: ATTACHED

A NEW STORAGE POLE BUILDING AT BENTON COUNTY FAIRGROUNDS 110 SW 53rd ST CORVALLIS, OR 97333

DESIGN INFORMATION

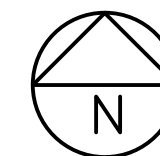
- ALL WORK SHALL COMPLY WITH THE STATE OF OREGON 2022 EDITION OF THE OREGON STRUCTURAL SPECIALTY CODE 2010 ASCE 7-16; 2018 NATIONAL DESIGN SPECIFICATION; 2015 SDPWS
- FLOOR LIVE LOAD: 40 P.S.F.
- ROOF LIVE LOAD: 25 P.S.F.
- SNOW LOAD:
 - FLAT-ROOF SNOW LOAD, Pf: 9.0 P.S.F. SEAO WEB SITE MODELED ELEVATION: 285 FT GOOGLE EARTH ELEV: 268 FT
 - SNOW EXPOSURE FACTOR, Ce: 1.0
 - TERRAIN CATEGORY: C
 - EXPOSURE: PARITALLY
 - SNOW LOAD IMPORTANCE FACTOR, I: 1.0
 - THERMAL FACTOR, Ct: 1.0
 - DRIFT SURCHARGE LOAD, Pd: WHERE SUM OF Pd & Pf EXCEEDS 20 PSF: NA
 - DRIFT WIDTH, w: NA
- WIND DESIGN DATA:
 - ULTIMATE DESIGN WIND SPEED, Vult: 96 M.P.H. (3-SEC GUST)
 - NOMINAL DESIGN WIND SPEED, Vnom: 74 M.P.H.
 - RISK CATEGORY (2022 OSSC, 1604.5): II
 - WIND EXPOSURE: C
 - APPLICABLE INTERNAL PRESS. COEFF.: 0.18± PSF
 - DESIGN WIND PRESS. FOR C&C: 18 PSF
- EARTHQUAKE DESIGN DATA:
 - RISK CATEGORY: II
 - SEISMIC IMPORTANCE FACTOR, Ie: 1.0
 - MAPPED SPECTRAL RESPONSE ACCELERATIONS:
 - Ss: 0.904 g
 - S1: 0.478 g
 - SITE CLASS: D
 - DESIGN SPECTRAL RESPONSE COEFFICIENTS:
 - SDS: 0.686 g
 - SD1: 0.860 g
 - SEISMIC DESIGN CATEGORY: D
 - SEISMIC FORCE RESISTING SYSTEM: CANTILEVERED COLUMN SYSTEMS TIMBER FRAMES
 - DESIGN BASE SHEAR, V (SEISMIC): 20.13 KIPS, N/S; 18.56 KIPS, E/W
 - SEISMIC RESPONSE COEFF. Cs: 0.4572
 - RESPONSE MODIFICATION FACTOR, R: 1 1/2
 - ANALYSIS PROCEDURE: EQUIVALENT LATERAL FORCE (ELF)
- GEOTECHNICAL INFORMATION:
 - DESIGN LOAD BEARING VALUE: 1500 P.S.F. (ASSUMED)
- FLOOD DESIGN DATA:
 - FIRM MAP NUMBER: MAP NO.: 41003C0180F EFFECTIVE DATE: 6/2/2011
 - ZONE: ZONE X, AREA DETERMINED TO BE OUTSIDE THE 100- AND 500-YEAR FLOODPLAINS.
- SPECIAL LOADS: NONE.
- PHOTOVOLTAIC PANEL SYSTEM LOAD: NA
- ROOF RAIN INTENSITY, i: NA IN/HR
- SPECIAL INSPECTIONS (SEISMIC): NA
- ZONING: P - PUBLIC ZONE

PROJECT LOCATION
110 SW 53rd ST
CORVALLIS, OR 97333



VICINITY PLAN

SCALE: NTS



PROJECT DESIGN

PROJECT ENGINEER: WILLIAM E. BARLOW, P.E. 541-609-8777
P.O. BOX 43
PHILOMATH, OR 97370

PROJECT MANAGER: SHANE GALLOWAY 541-760-3741
1200 SW AVERY PARK DR.
CORVALLIS, OR 97333

SITE LOCATION

TAX MAP/LOT: 11 5 32D/300
BENTON COUNTY
LATITUDE: 44.568220
LONGITUDE: -123.313783

SQUARE FOOTAGE

STORAGE AREA: 2912 SQ FT
INTERIOR OFFICE: 288 SQ FT
POLE BLDG TOTAL AREA: 3200 SQ FT

CODE ANALYSIS

FOR DETAILED ANALYSIS SEE SHEET A/S8.0

OCCUPANCY	INTERIOR OFFICE AND STORAGE AREA B AND S-1
CONSTRUCTION TYPE	V, B
AUTOMATIC SPRINKLER	NOT REQUIRED
BUILDING HEIGHT	EXISTING: 18'-0" ROOF MEAN HEIGHT
BUILDING WIDTH & LENGTH	40'x76'
NUMBER OF STORIES	1

PROJECT DESCRIPTION

THE PROJECT IS TO CONSTRUCT A 76'x40' POLE BUILDING WITH 14' WALLS AND A 4:12 PITCH ROOF. THE BUILDING IS TO HAVE WOOD GIRTS, EXCEPT AT THE OFFICE, WOOD STUDS, THE BUILDING SURFACE IS TO BE COVERED WITH METAL SIDING AND METAL ROOFING.

THE BUILDING IS PLANNED TO STORE AGRICULTURAL TRACTORS, TEMPORARY FENCING, TRAFFIC SIGNAGE, BARRICADES, LAWN MOWERS, GOLF CARTS AND FORK LIFTS.

STORAGE OF HAZADAROUS MATERIAL IS PLANNED TO BE A MAXIMUM OF 20 GALLONS OR LESS FOR GASOLINE AND/OR A MAXIMUM OF 20 GALLONS OR LESS OF DIESEL FUEL.

INDEX TO DRAWINGS

- T1.0 TITLE SHEET
- C1.0 SITE PLAN
- C1.1 ENLARGED PARTIAL SITE PLAN
- N1.0 STRUCTURAL GENERAL NOTES
- S1.0 NORTH & WEST ELEVATIONS
- S1.1 SOUTH & EAST ELEVATIONS
- S2.0 MAIN FLOOR PLAN AND STORAGE DECK AND DETAILS
- S3.0 FOUNDATION PLAN
- S4.0 ROOF FRAMING PLAN
- S5.0 TRANSVERSE SECTION
- S5.1 TRANSVERSE SECTION
- S6.0 DETAILS
- S6.1 DETAILS
- S7.0 ENLARGED RESTROOM PLAN
- S8.0 CODE ANALYSIS AND EGRESS PLAN

NOTE

- THE CONTRACTOR SHALL ENSURE THAT CONSTRUCTION MEANS AND METHODS, INCLUDING LOADING AND BRACING, SHALL NOT EXCEED THE CAPACITY OF STRUCTURAL MEMBERS.

REVISIONS	BY

A NEW STORAGE POLE BUILDING
 4920 SW 3rd ST.
 CORVALLIS, OR 97333
 TITLE SHEET

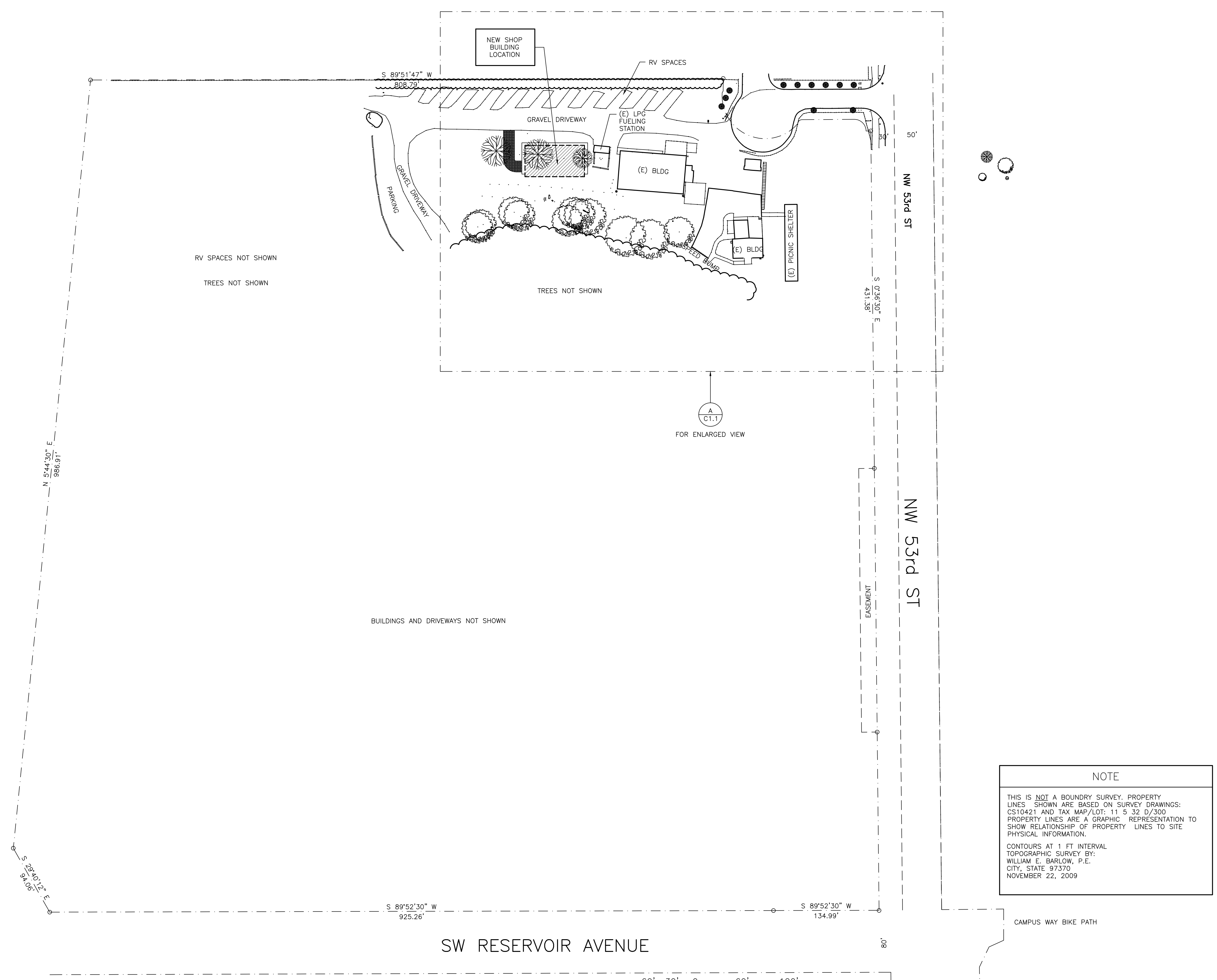


CIVIL ENGINEERING DESIGN
 Design for the Human Environment
 WILLIAM E. BARLOW, P.E.
 P.O. BOX 2023
 CORVALLIS, OR 97339
 541-929-8111
 www.civilengdesign.com

DATE: 11.20.2023
 SCALE: AS SHOWN
 DRAWN: WEB

SHEET

T0.0



RV SPACES NOT SHOWN
TREES NOT SHOWN

BUILDINGS AND DRIVEWAYS NOT SHOWN

NOTE

THIS IS NOT A BOUNDARY SURVEY. PROPERTY LINES SHOWN ARE BASED ON SURVEY DRAWINGS: CS10421 AND TAX MAP/LOT: 11 5 32 D/300. PROPERTY LINES ARE A GRAPHIC REPRESENTATION TO SHOW RELATIONSHIP OF PROPERTY LINES TO SITE PHYSICAL INFORMATION.

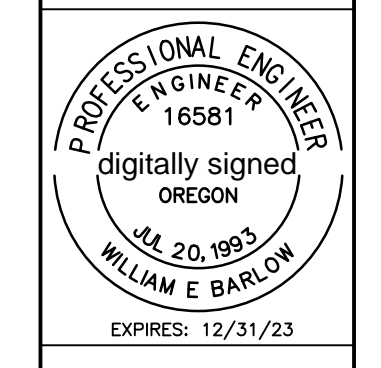
CONTOURS AT 1 FT INTERVAL
TOPOGRAPHIC SURVEY BY:
WILLIAM E. BARLOW, P.E.
CITY, STATE 97370
NOVEMBER 22, 2009

A SITE PLAN
SCALE: 1" = 60'



REVISIONS	BY

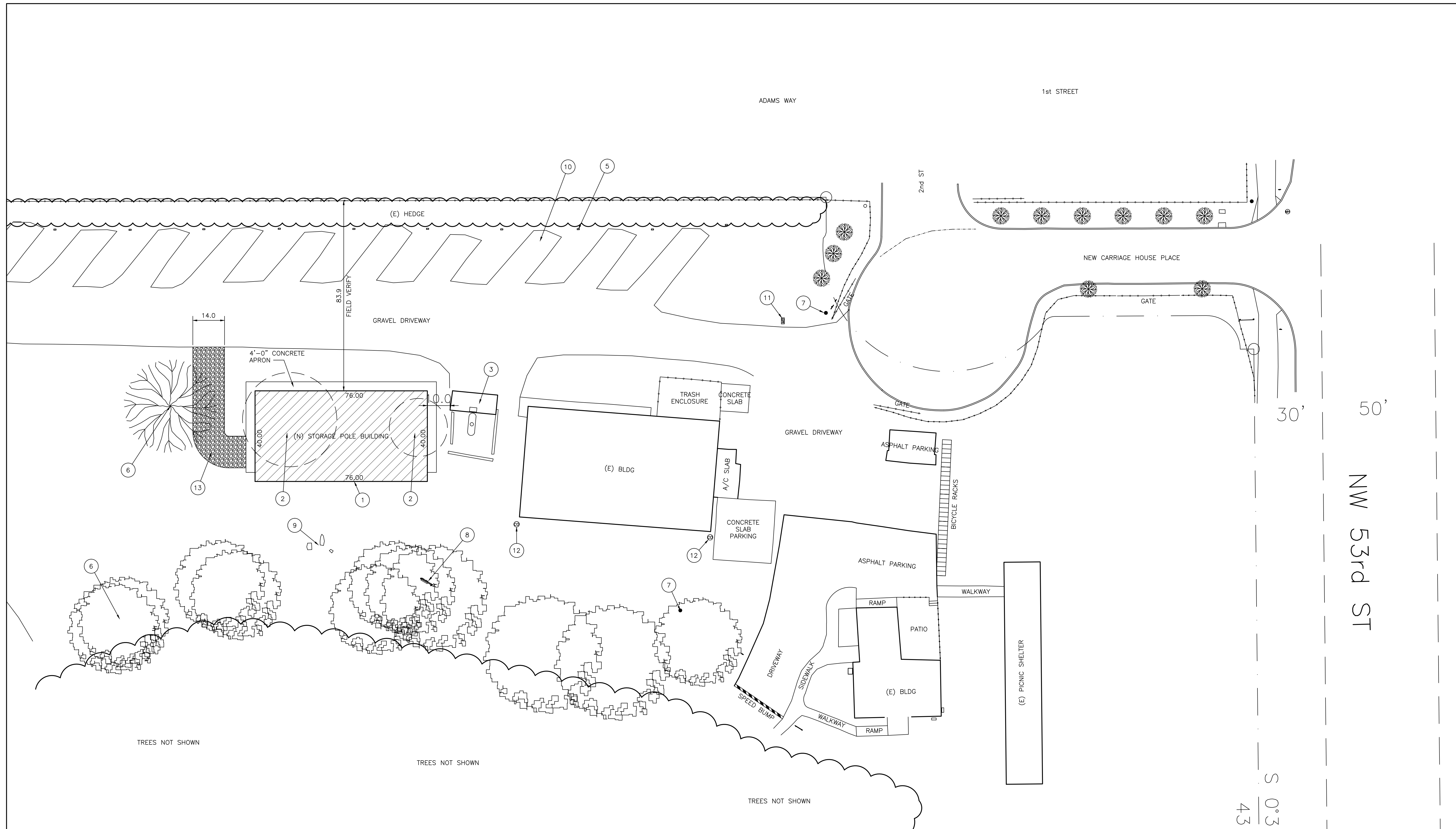
A NEW STORAGE POLE BUILDING
4920 SW 3rd ST.
CORVALLIS, OR 97333
SITE PLAN



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DATE 11.20.2023
SCALE AS SHOWN
DRAWN WEB
SHEET

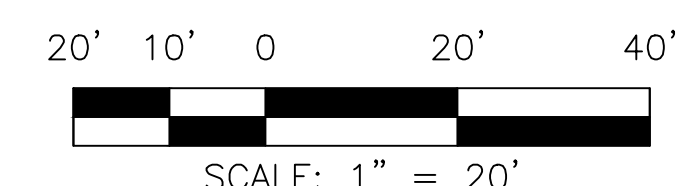
C1.0



TREES NOT SHOWN

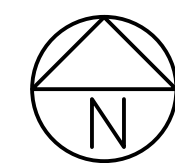
TREES NOT SHOWN

TREES NOT SHOWN



A ENLARGED PARTIAL SITE PLAN

SCALE: 1" = 20'



KEYNOTES	
1	NEW SHOP BUILDING FOOT PRINT
2	REMOVE (E) TREE
3	(E) LPG FUELING STATION TO REMAIN
4	(N) LOCATION OF CANOPY AND LPG TANK AND CONTROLS SEE A/C1.1
5	(E) RV SERVICE PEDISTAL (ELEC. & WATER) TYPICAL
6	(E) TREE TO REMAIN
7	(E) LIGHT POLE
8	(E) ELECTRICAL PANELS AND METER (TYPICAL)
9	(E) CONCRETE PIECES
10	(E) RV PARKING SPACE (TYPICAL)
11	(E) MAIL BOX
12	CLEANOUT
13	6" 3/4-MINUS COMPACTED GRAVEL

S 0°36'30" E
431.38'

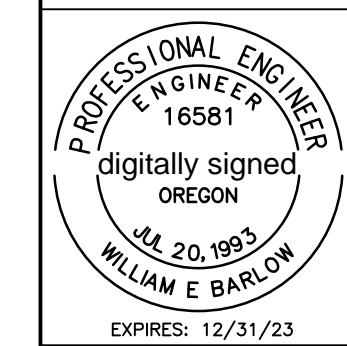
NW 53rd ST

50'

30'

REVISIONS	BY

A NEW STORAGE POLE BUILDING
4920 SW 3rd ST.
CORVALLIS, OR 97333
ENLARGED PARTIAL SITE PLAN



CIVIL ENGINEERING DESIGN
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DATE 11.20.2023
SCALE AS SHOWN
DRAWN WEB
SHEET

C1.1

STRUCTURAL AND GENERAL NOTES

GENERAL

1. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS BEFORE CONSTRUCTION. THE ENGINEER SHALL BE NOTIFIED OF ANY DISCREPANCIES OR INCONSISTENCIES.
2. DO NOT SCALE DRAWINGS. COORDINATE DIMENSIONS WITH "S" DESIGN DRAWINGS. COORDINATE CONSTRUCTION WITH ALL TRADES.
3. ALL WORK SHALL CONFORM TO THE MINIMUM STANDARDS OF THE 2014 OREGON STRUCTURAL SPECIALTY CODE AS AMENDED AND ADOPTED BY THE STATE OF OREGON.
4. METHODS, PROCEDURES, AND SEQUENCES OF CONSTRUCTION ARE THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO MAINTAIN AND ENSURE THE INTEGRITY OF THE STRUCTURE AT ALL STAGES OF CONSTRUCTION.
5. THE STRUCTURAL DRAWINGS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE METHOD OF CONSTRUCTION. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY TO PROTECT THE STRUCTURE, WORKERS, AND VISITORS DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT NOT LIMITED TO BRACING, SHORING FOR CONSTRUCTION LOADS, ETC. VISITS TO THE SITE BY THE PROJECT ENGINEER OR HIS AGENT OR REPRESENTATIVE, SHALL NOT INCLUDE REVIEW OF THE ABOVE ITEMS.
6. OPENINGS, POCKETS, ETC. SHALL NOT BE PLACED IN STRUCTURAL ELEMENTS UNLESS SPECIFICALLY DETAILED OR APPROVED BY THE PROJECT ENGINEER WHOSE NAME AND SEAL (STAMP) APPEAR ON THESE STRUCTURAL DRAWINGS.
7. CONSTRUCTION LOAD (MATERIAL AND EQUIPMENT) SHALL NOT EXCEED THE DESIGN LIVE LOAD PER SQUARE FOOT. PROVIDE ADEQUATE SHORING AND/OR BRACING WHERE THE STRUCTURE HAS NOT ATTAINED DESIGN STRENGTH.
8. WHEN A DETAIL IS IDENTIFIED AS TYPICAL, THE CONTRACTOR SHALL APPLY THIS DETAIL IN ESTIMATING AND CONSTRUCTION TO EVERY LIKE CONDITION WHETHER OR NOT THE REFERENCE IS MADE IN EVERY INSTANCE.

MECHANICAL

1. MECHANICAL DESIGN AND MATERIAL BY OTHERS.

ELECTRICAL

1. ELECTRICAL DESIGN AND MATERIAL BY OTHERS.

FOUNDATION

1. FOUNDATION SOIL BEARING PRESSURE ASSUMED TO BE 1500 PSI.
2. THE CONTRACTOR SHALL PROVIDE FOR DE-WATERING OF EXCAVATIONS FOR EITHER SURFACE, GROUND, OR SEEPAGE WATER.
3. ANY ABANDONED MATERIALS, FOOTINGS, UTILITIES, ETC., THAT INTERFERE WITH NEW CONSTRUCTION SHALL BE REMOVED.
4. THE CONTRACTOR SHALL PROVIDE FOR DESIGN AND INSTALLATION OF ALL CRIBBING, SHEATHING, AND SHORING REQUIRED TO SAFELY RETAIN THE EARTH BANKS.

NAILS

1. NAILS INTO TREATED WOOD SHALL BE HOT DIPPED GALVANIZED.

WOOD POSTS

1. PRESSURE TREATED (PT) POSTS, DF-L NO. 2 OR BETTER TREATED WOOD OPTIONS
 - 1.1 MICRONIZED COPPER AZOLE
 - 1.2 CHROMATED COPPER ARSENATE (VERIFY)
 - 1.3 COPPER AZOLE
 - 1.4 OTHER APPROVED BY PROJECT ENGINEER

WEATHER PROTECTION

1. FLASHING SHALL BE INSTALLED IN SUCH A MANNER SO AS TO PREVENT MOISTURE ENTERING THE WALLS AND ROOF THROUGH JOINTS IN COPINGS, THROUGH MOISTURE PERMEABLE MATERIALS, AND AT VERTICAL WALLS AND ROOF INTERSECTIONS AND OTHER PENETRATIONS THROUGH THE WALL AND ROOF PLANES.
2. METAL FLASHING SHALL BE CORROSION RESISTANT WITH A THICKNESS OF NOT LESS THAN 0.019 INCHES.
3. CORROSION-RESISTIVE FLASHING SHALL BE PROVIDED IN THE EXTERIOR WALL ENVELOPE IN SUCH A MANNER AS TO PREVENT ENTRY OF WATER INTO THE WALL OR PENETRATIONS OF WATER TO THE BUILDING STRUCTURAL FRAMING COMPONENTS. THE FLASHING SHALL EXTEND TO THE SURFACE OF THE EXTERIOR WALL FINISH AND SHALL BE INSTALL TO PREVENT WATER FROM REENTERING THE EXTERIOR WALL ENVELOPE.

CONCRETE AND REINFORCEMENT

1. CONCRETE MIXES SHALL BE DESIGNED BY A QUALIFIED TESTING LABORATORY AND REVIEWED BY THE PROJECT ENGINEER. MAXIMUM COARSE AGGREGATE SIZE IS 3/4 INCH. MIX DESIGNS SHALL BE SIGNED BY AN ENGINEER LICENSED IN THE STATE OF THE OREGON.
2. AGGREGATE FOR NORMAL WEIGHT CONCRETE SHALL CONFORM TO ASTM C33. PORTLAND CEMENT SHALL BE TYPE I OR TYPE II AND SHALL CONFORM TO ASTM C150.
3. ADMIXTURES MAY BE USED WITH PRIOR APPROVAL OF THE PROJECT ENGINEER. ADMIXTURES USED TO INCREASE THE WORKABILITY OF THE CONCRETE SHALL NOT BE CONSIDERED TO REDUCE THE SPECIFIED MINIMUM CEMENT CONTENT. CALCIUM CHLORIDE SHALL NOT BE USED.
4. COMPRESSIVE STRENGTHS OF CONCRETE AT 28 DAYS SHALL BE AS FOLLOWS:
 - 4.1 FOOTINGS 3000 PSI
 - 4.2 BUILDING SLAB 4000 PSI
5. MIXING, TRANSPORTING, AND PLACING OF CONCRETE SHALL CONFORM TO ACI 304R. ALL CONCRETE SURFACES AGAINST WHICH CONCRETE IS TO BE PLACED SHALL BE THOROUGHLY CLEANED. LAITANCE AND STANDING WATER SHALL BE REMOVED.
6. ALL REINFORCING BARS, ANCHOR BOLTS, AND OTHER CONCRETE CONNECTORS SHALL BE WELL SECURED IN POSITION PRIOR TO PLACING CONCRETE. PROVIDE CONCRETE PROTECTION AS REQUIRED AND NECESSARY.
7. BAR SUPPORTS FOR FLOOR SLAB
 - 7.1 REINFORCEMENT SHALL BE SUPPORTED AND RIGIDLY FASTENED BEFORE CONCRETE IS PLACED.
 - 7.2 BAR SUPPORTS MAY BE METAL, CONCRETE, FIBER-REINFORCED CONCRETE, PLASTIC, OR OTHER APPROVED MATERIAL.
 - 7.3 CLASS 3 BAR SUPPORTS MINIMUM
8. CONCRETE COVER PROTECTION FOR REINFORCEMENT BAR SHALL BE AS FOLLOWS: (SEE ACI 318-99 FOR CONDITIONS NOT NOTED.)
 - 8.1 CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH 3"
 - 8.2 CONCRETE EXPOSED TO EARTH OR WEATHER 1 1/2"
9. REINFORCING STEEL (REBAR) FOR CONCRETE SHALL BE DEFORMED, GRADE 60 (fy=60000 PSI YIELD STRENGTH)
11. DETAILING OF CONCRETE REINFORCEMENT BARS AND ACCESSORIES SHALL CONFORM TO THE RECOMMENDATIONS OF THE AMERICAN CONCRETE INSTITUTE (ACI) DETAILING MANUAL, ACI COMMITTEE 315.
12. GROUT SHALL BE NON-SHINKABLE GROUT CONFORMING TO ASTM C827 AND SHALL HAVE A SPECIFIED COMPRESSIVE STRENGTH AT 28 DAYS OF 5000 psi. PREGROUTING OF BASE PLATES WILL NOT BE PERMITTED.
13. PROVIDE SLEEVES FOR PLUMBING AND ELECTRICAL OPENINGS IN CONCRETE BEFORE PLACING. CORING IN CONCRETE IS NOT PERMITTED EXCEPT AS SHOWN. NOTIFY THE PROJECT ENGINEER IN ADVANCE OF CONDITIONS NOT SHOWN ON THE DRAWINGS.
14. STEEL WELDED WIRE FABRIC (WWF)
 - 14.1 ASTM A185, PLAIN TYPE IN ROLLS, PLAN FINISH. PROVIDE 6"x6"-W2.1xW2.1 WWF, GRADE 65 MIN. (65000 PSI YIELD)
15. BAR AND WELDED WIRE FABRIC SUPPORTS
 - 15.1 PROVIDE ALL SPACERS, CHAIRS (HCM), TIES AND OTHER DEVICES NECESSARY TO PLACE, SPACE, SUPPORT AND MAINTAIN REBAR AND WWF IN LOCATIONS IN ACCORDANCE WITH ACI 315.
 - 15.2 CONFORM TO "BAR SUPPORT SPECIFICATION," CRSI MANUAL OF STANDARD PRACTICE, CHAPTER 3, LATEST EDITION, AND BE OF THE FOLLOWING TYPES:
 - 15.2.1 SUPPORT REINFORCING IN FOOTINGS WITH PRECAST CONCRETE BLOCKS.
 - 15.2.2 SUPPORT FOR WWF IN SLABS WITH PRECAST CONCRETE BLOCKS OR METAL CHAIRS OF ACI TYPE HCM, CLASS 3.

STEEL ROOFING & SIDING

- 1A. BRUCE & DANA, INC.
2204 SIMPSON ST., S.E.
SALEM, OR 97301
503-364-5274
800-653-5144
 - OR
 - 1B. LEGACY METALWORKS
795 S. 2ND ST., HARRISBURG, OR 97446
541-632-4260
 - OR
 - 1C. OTHER SUPPLIER/MANUFACTURER APPROVED BY PROJECT ENGINEER OR APPROVED BY OWNER
2. PROVIDE VAPOR BARRIER BETWEEN THE METAL CLADDING (SIDING) AND THE WOOD SUPPORTS, SUCH AS 15# FELT. INSTALL VAPOR BARRIER PER MANUFACTURER'S INSTRUCTIONS.

WOOD TRUSSES

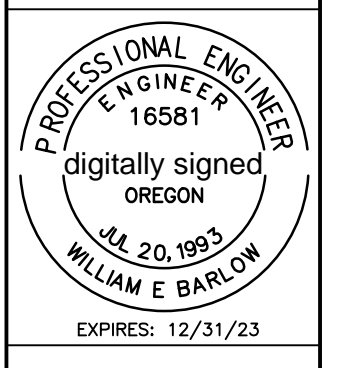
RELCO ROOF & FLOOR INC
30153 SUBSTATION DR
HARRISBURG, OR 97446
(541) 995-6311

- 1.01 WORK INCLUDED
 1. FABRICATE, SUPPLY AND ERECT WOOD TRUSSES AS SHOWN ON THE DRAWINGS AND AS SPECIFIED. WORK TO INCLUDE ANCHORAGE, BLOCKING, CURBING, MISCELLANEOUS FRAMING AND BRACING.
- 1.02 DEFINITIONS
 - A. TRUSS: THE TERMS "TRUSS" AND "WOOD TRUSS COMPONENT" REFER TO OPEN WEB LOAD CARRYING ASSEMBLIES SUITABLE FOR SUPPORT OF ROOF DECKS OR FLOORS IN BUILDINGS.
 - B. MANUFACTURER: A MANUFACTURER WHO IS REGULARLY ENGAGED IN DESIGN AND FABRICATION OF WOOD TRUSS COMPONENTS.
 - C. TRUSS INSTALLER: BUILDER, CONTRACTOR OR SUB-CONTRACTOR WHO IS RESPONSIBLE FOR THE FIELD STORAGE, HANDLING AND INSTALLATION OF TRUSSES.
- 1.03 TRUSS DESIGN
 - A. TRUSSES SHALL BE DESIGNED IN ACCORDANCE WITH THESE SPECIFICATIONS AND WHERE ANY APPLICABLE DESIGN FEATURE IS NOT SPECIFIED HEREIN, DESIGN SHALL BE IN ACCORDANCE WITH APPLICABLE PROVISIONS OF LATEST EDITION OF NATIONAL DESIGN SPECIFICATIONS FOR WOOD CONSTRUCTION (NDS) AMERICAN FOREST AND PAPER ASSOCIATION (AFPA), AND DESIGN SPECIFICATIONS FOR METAL PLATE CONNECTED WOOD TRUSSES (ANSI/TPI 1), TRUSS PLATE INSTITUTE (TPI), AND CODE OF JURISDICTION.
 - B. MANUFACTURER SHALL FURNISH DESIGN DRAWINGS BEARING SEAL AND REGISTRATION NUMBER OF A CIVIL OR STRUCTURAL ENGINEER LICENSED IN STATE WHERE TRUSSES ARE TO BE INSTALLED. DRAWINGS SHALL BE APPROVED BY ARCHITECT PRIOR TO FABRICATION.
 - C. TRUSS DESIGN DRAWINGS SHALL INCLUDE AS MINIMUM INFORMATION:
 1. SPAN, DEPTH OR SLOPE AND SPACING OF TRUSSES;
 2. REQUIRED BEARING WIDTH;
 3. DESIGN LOADS, AS APPLICABLE: A. TOP CHORD LIVE LOAD; B. TOP CHORD DEAD LOAD; C. BOTTOM CHORD LIVE LOAD; D. BOTTOM CHORD DEAD LOAD; E. CONCENTRATED LOADS AND THEIR POINTS OF APPLICATION; AND F. WIND AND SEISMIC CRITERIA;
 4. ADJUSTMENT TO LUMBER AND PLATE DESIGN LOADS FOR CONDITION OF USE;
 5. REACTIVE FORCES, THEIR POINTS OF OCCURRENCE AND DIRECTION;
 6. ALPINE/LUMBERMATE/CLARY PLATE TYPE, GAGE, SIZE AND LOCATION OF PLATE AT EACH JOINT;
 7. LUMBER SIZE, SPECIES AND GRADE FOR EACH MEMBER;
 8. LOCATION OF ANY REQUIRED CONTINUOUS LATER BRACING;
 9. CALCULATED DEFLECTION RATIO AND/OR MAXIMUM DEFLECTION FOR LIVE AND TOTAL LOAD;
 10. MAXIMUM AXIAL COMPRESSIVE FORCES IN TRUSS MEMBERS;
 11. LOCATION OF JOINTS;
 12. CONNECTION REQUIREMENTS FOR:
 - A. TRUSS TO TRUSS GIRDERS;
 - B. TRUSS PLY TO PLY; AND
 - C. FIELD SPLICES.
- 2.01 MATERIALS
 - A. LUMBER
 1. LUMBER USED FOR TRUSS MEMBERS SHALL BE IN ACCORDANCE WITH PUBLISHED VALUES OF LUMBER RULES WRITING AGENCIES APPROVED BY BOARD OF REVIEW OF AMERICAN LUMBER STANDARDS COMMITTEE. LUMBER SHALL BE IDENTIFIED BY GRADE MARK OF A LUMBER INSPECTION BUREAU OR AGENCY APPROVED BY THAT BOARD, AND SHALL BE AS SHOWN ON DESIGN DRAWINGS.
 2. MOISTURE CONTENT OF LUMBER SHALL BE NO LESS THAN 7 PERCENT NOR GREATER THAN 19 PERCENT AT TIME OF FABRICATION.
 3. ADJUSTMENT OF VALUES FOR DURATION OF LOAD OR CONDITIONS OF USE SHALL BE IN ACCORDANCE WITH NATIONAL DESIGN SPECIFICATIONS FOR WOOD CONSTRUCTION (NDS).
 4. FIRE RETARDANT TREATED LUMBER, IF APPLICABLE, SHALL MEET SPECIFICATIONS OF TRUSS DESIGN AND ANSI/TPI 1-1995, PAR 9.1.5 AND SHALL BE RE-DRIED AFTER TREATMENT IN ACCORDANCE WITH AWPA STANDARD C20. ALLOWABLE VALUES MUST BE ADJUSTED IN ACCORDANCE WITH NDS PAR 2.3.6. LUMBER TREATER SHALL SUPPLY CERTIFICATE OF COMPLIANCE.
 - B. METAL CONNECTOR PLATES:
 1. METAL CONNECTOR PLATES SHALL BE MANUFACTURED BY ALPINE/LUMBERMATE/CLARY OR PROJECT ENGINEER APPROVED METAL CONNECTOR AND SHALL BE NOT LESS THAN .036 INCHES IN THICKNESS (20 GAGE) AND SHALL MEET OR EXCEED ASTM A653-94 GRADE 37, AND SHALL BE HOT DIPPED GALVANIZED ACCORDING TO ASTM A653-94. COATING DESIGNATION G60. WORKING STRESSES IN STEEL ARE TO BE APPLIED TO EFFECTIVE RATIOS FOR PLATES AS DETERMINED BY TEST IN ACCORDANCE WITH APPENDIX E AND F OF ANSI/TPI 1-1995.
 2. IN HIGHLY CORROSIVE ENVIRONMENTS, SPECIAL APPLIED COATINGS OR STAINLESS STEEL MAY BE REQUIRED.
 3. AT THE REQUEST OF ARCHITECT, ALPINE/LUMBERMATE/CLARY SHALL FURNISH A CERTIFIED RECORD THAT MATERIALS COMPLY WITH STEEL SPECIFICATIONS.
- 2.02 TRUSS FABRICATION
 1. TRUSSES SHALL BE FABRICATED IN A PROPERLY EQUIPPED MANUFACTURING FACILITY OF A PERMANENT NATURE. TRUSSES SHALL BE MANUFACTURED BY EXPERIENCED WORKMEN, USING PRECISION CUTTING, JIGGING AND PRESSING EQUIPMENT MEETING REQUIREMENTS OF ANSI/TPI 1-1995, SECTION 4. TRUSS MEMBERS SHALL BE ACCURATELY CUT TO LENGTH ANGLE AND TRUE TO LINE TO ASSURE PROPER FITTING JOINTS WITHIN TOLERANCES SET FORTH IN ANSI/TPI 1-1995, SECTION 4, AND PROPER FIT WITH OTHER WORK.
- 3.01 HANDLING, INSTALLATION AND BRACING OF ROOF AND FLOOR TRUSSES
 1. TRUSS DELIVERY SHALL BE SCHEDULED REASONABLY NEAR THE SCHEDULED TIME OF ERECTION.
 2. TRUSSES SHALL BE HANDLED DURING FABRICATION, DELIVERY AND AT JOB SITE SO AS NOT TO BE SUBJECTED TO EXCESSIVE BENDING.
 3. TRUSSES SHALL BE UNLOADED ON SMOOTH GROUND TO AVOID LATERAL STRAIN. TRUSSES SHALL BE PROTECTED FROM DAMAGE THAT MIGHT RESULT FROM ON-SITE ACTIVITIES AND ENVIRONMENTAL CONDITIONS. PREVENT TOPPLING WHEN BANDING IS REMOVED.
 4. UPON ARRIVAL AND DURING THE UNLOADING PROCESS, TRUSSES SHALL BE INSPECTED FOR DAMAGE.
 5. HANDLE DURING INSTALLATION IN ACCORDANCE WITH HANDLING, INSTALLING AND BRACING WOOD TRUSSES (HIB-91), TPI, AND ANSI/TPI 1-1995. INSTALLATION SHALL BE CONSISTENT WITH GOOD WORKMANSHIP AND GOOD BUILDING PRACTICES AND SHALL BE RESPONSIBILITY OF TRUSS INSTALLER.
 6. APPARENT DAMAGE TO TRUSSES, IF ANY, SHALL BE REPORTED TO MANUFACTURER PRIOR TO INSTALLATION.
 7. TRUSSES SHALL BE SET AND SECURED LEVEL AND PLUMB, AND IN CORRECT LOCATION. TRUSSES SHALL BE HELD IN CORRECT ALIGNMENT UNTIL SPECIFIED PERMANENT BRACING IS INSTALLED.
 8. CUTTING AND ALTERING OF TRUSSES IS NOT PERMITTED.
 9. CONCENTRATED LOADS SHALL NOT BE PLACED ATOP TRUSSES UNTIL ALL SPECIFIED BRACING HAS BEEN INSTALLED AND DECKING IS PERMANENTLY NAILED IN PLACE. SPECIFICALLY AVOID STACKING FULL BUNDLES OF DECKING OR OTHER HEAVY MATERIALS ONTO UNSHEATHED TRUSSES.
 10. ERECTION BRACING IS ALWAYS REQUIRED. PROFESSIONAL ADVICE SHOULD ALWAYS BE SOUGHT TO PREVENT TOPPLING OR "DOMINOING" (CASCADING COLLAPSE) OF TRUSSES DURING INSTALLATION.
 11. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING AND FURNISHING THE MATERIALS USED FOR INSTALLATION AND PERMANENT BRACING.

ABBREVIATIONS			
(N)	NEW	UNO	UNLESS NOTED OTHERWISE
(E)	EXISTING	PT	PRESSURE TREATED
DO	DITTO (SAME)	CONC.	CONCRETE
TPI	TRUSS PLATE INSTITUTE (tpinst.org)	TYP.	TYPICAL
OH	OVER HANG (EAVE)	MB	MACHINE BOLT
		STD.	STANDARD

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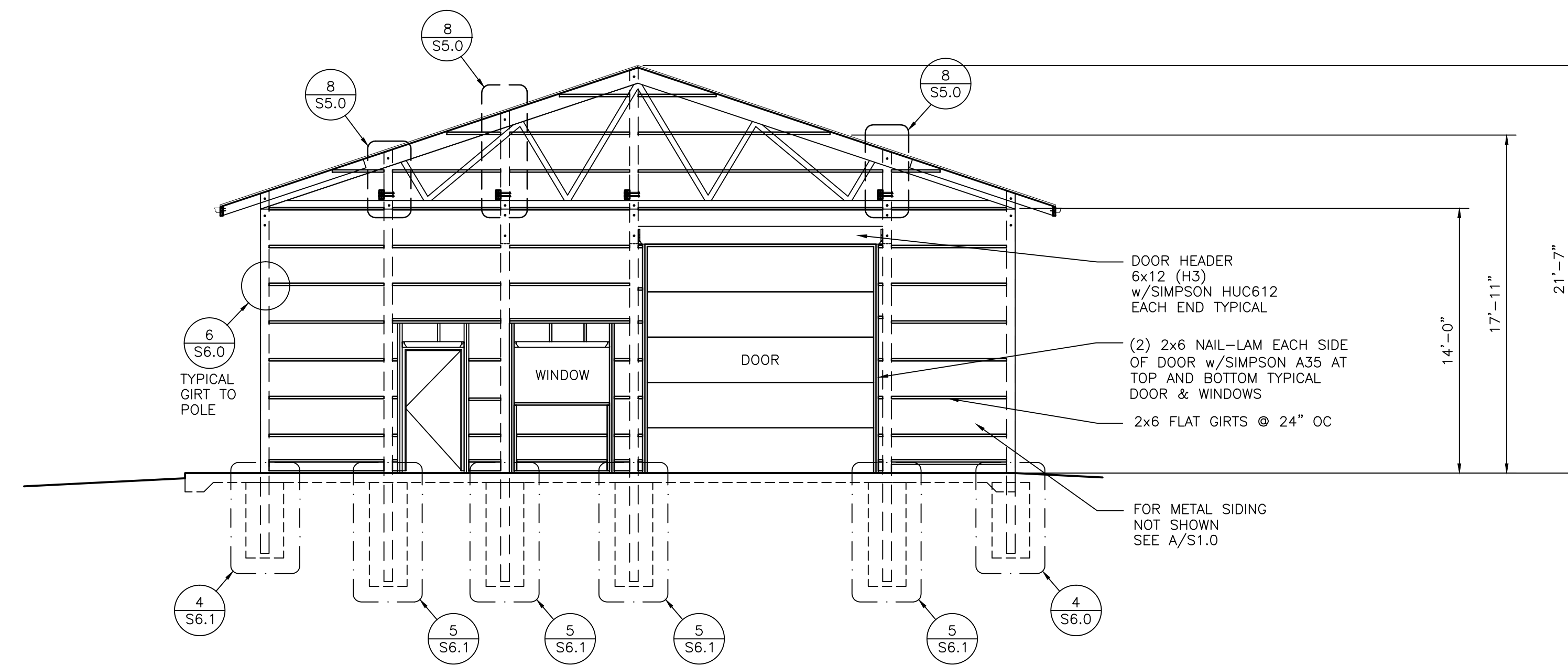
A NEW STORAGE POLE BUILDING
 4920 SW 3rd ST.
 CORVALLIS, OR 97333
STRUCTURAL AND GENERAL NOTES



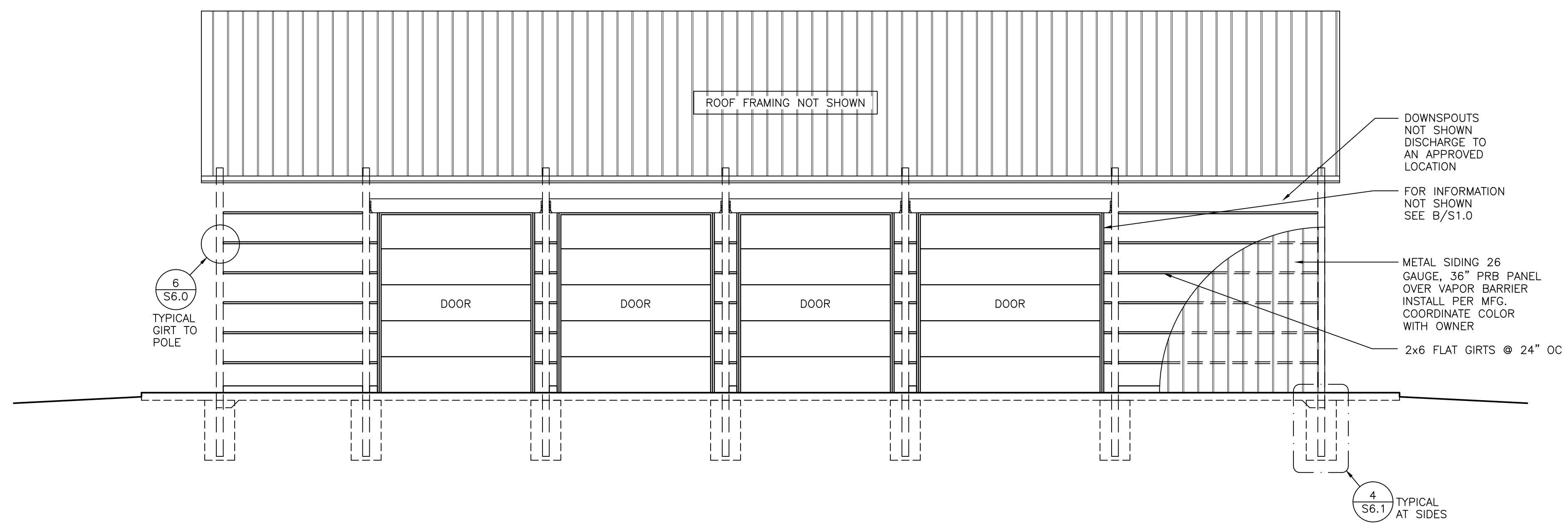
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DATE	11.20.2023
SCALE	AS SHOWN
DRAWN	WEB
SHEET	

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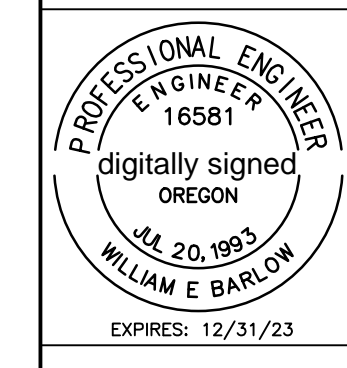
B WEST ELEVATION
SCALE: 3/16"=1'-0"



A NORTH ELEVATION
SCALE: 3/16"=1'-0"

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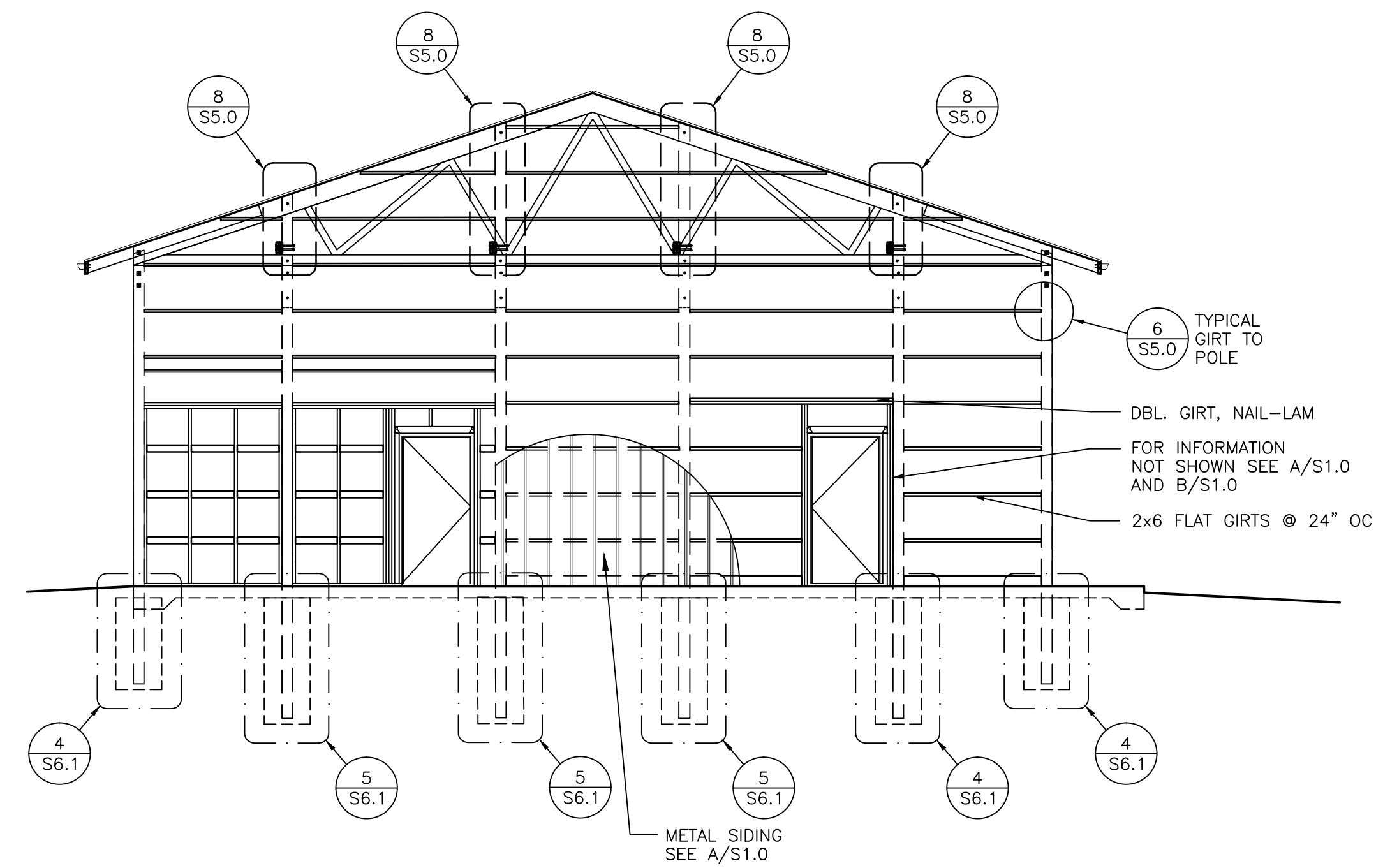
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NORTH AND WEST ELEVATIONS



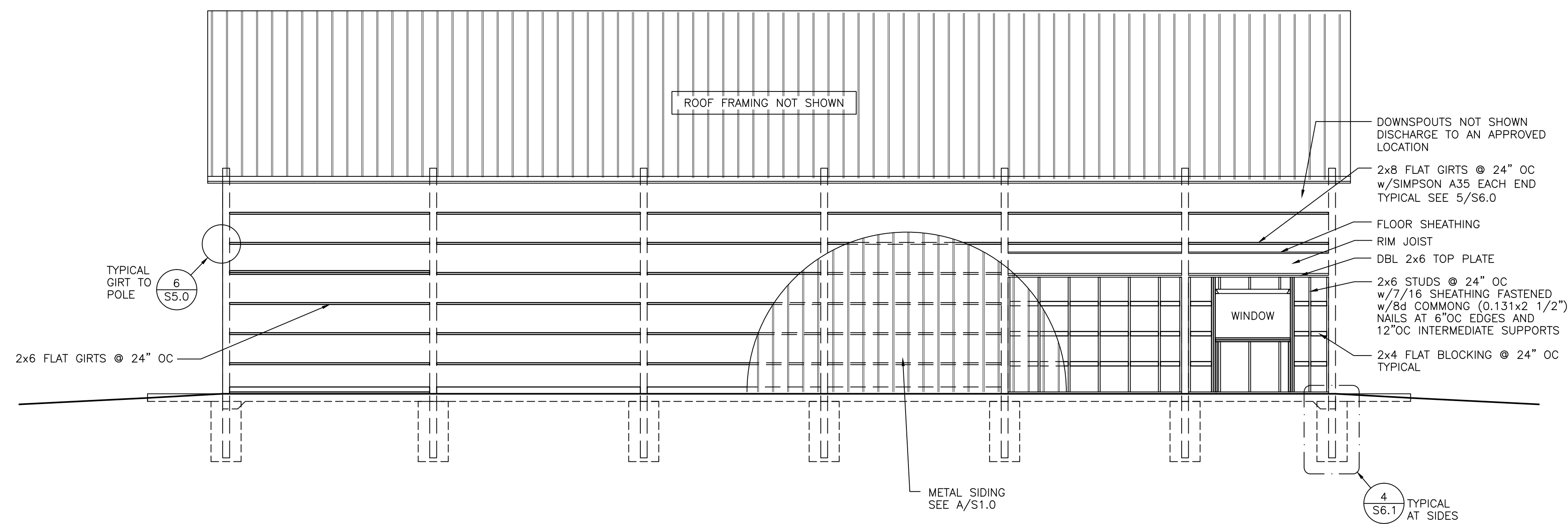
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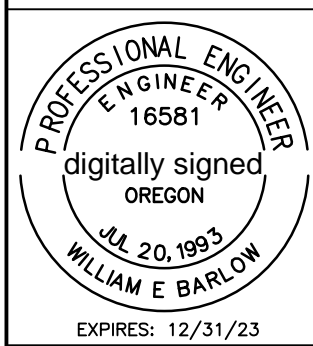
B EAST ELEVATION
SCALE: 3/16"=1'-0"



A SOUTH ELEVATION
SCALE: 3/16"=1'-0"

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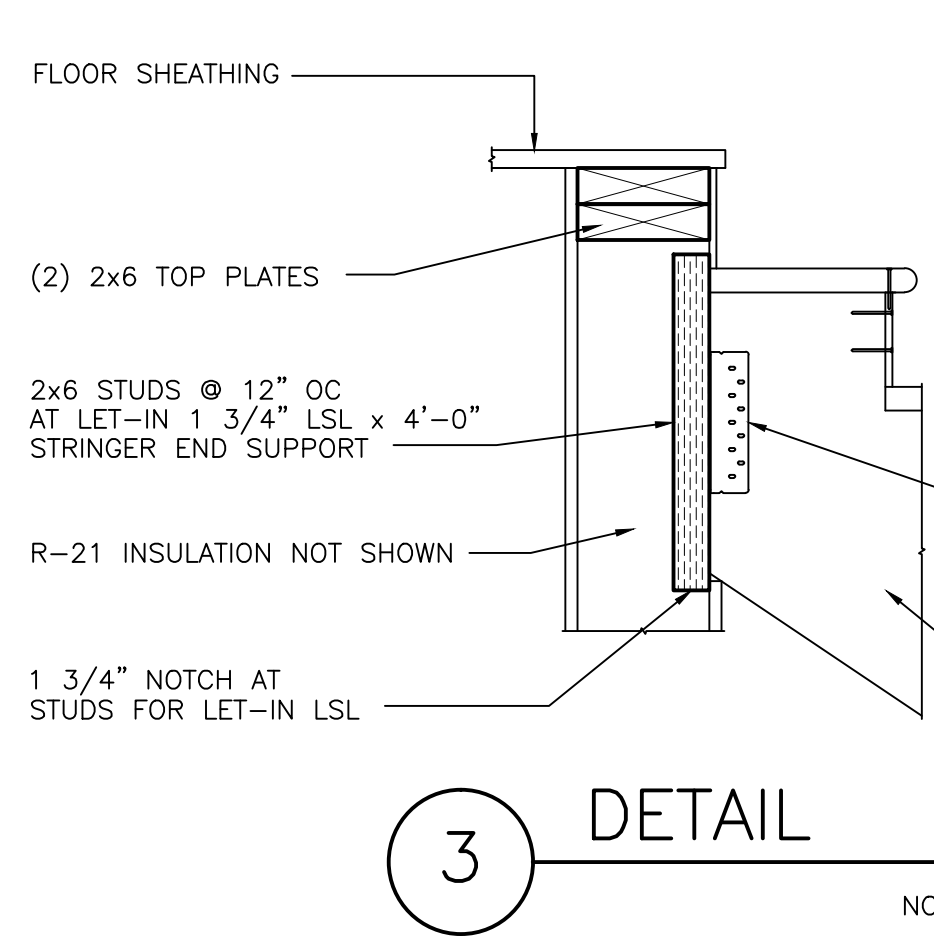
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SOUTH AND EAST ELEVATIONS



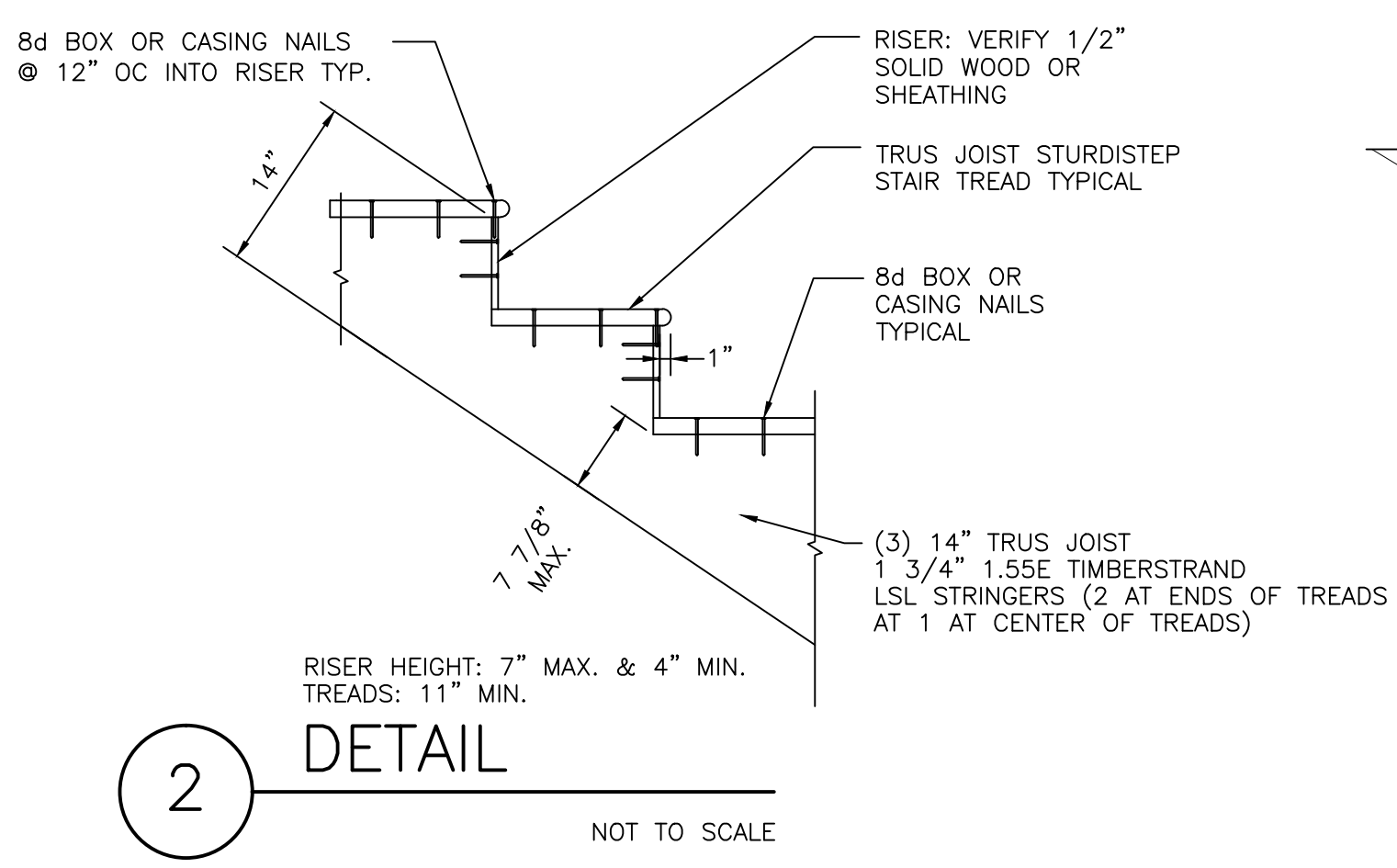
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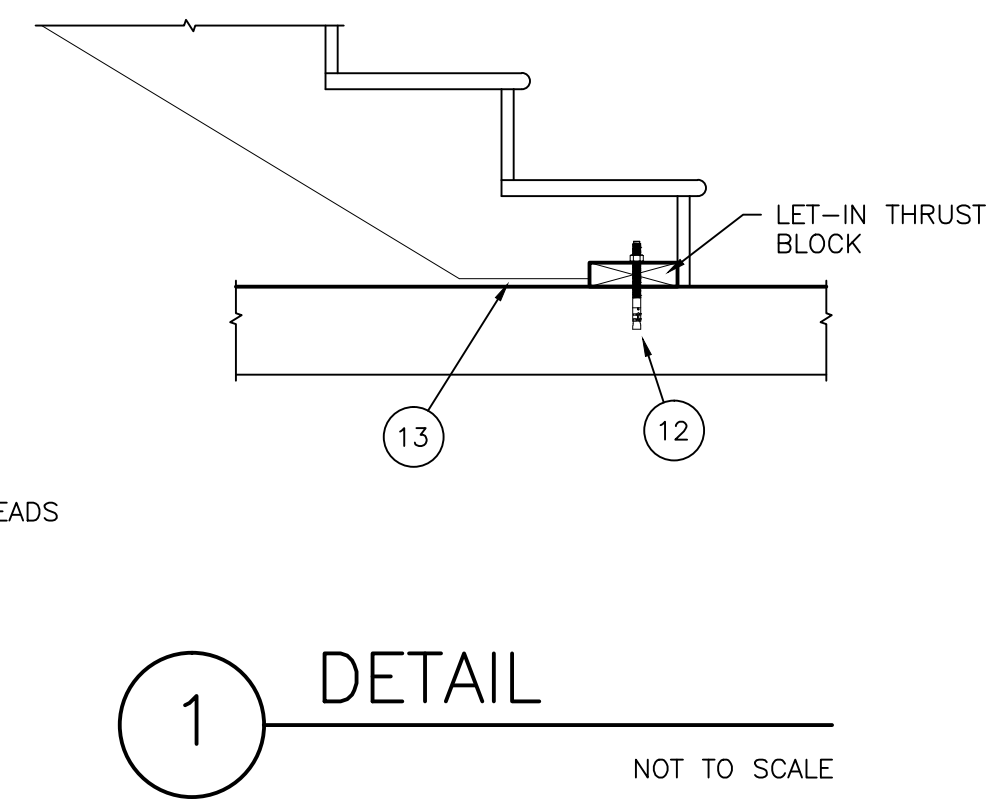
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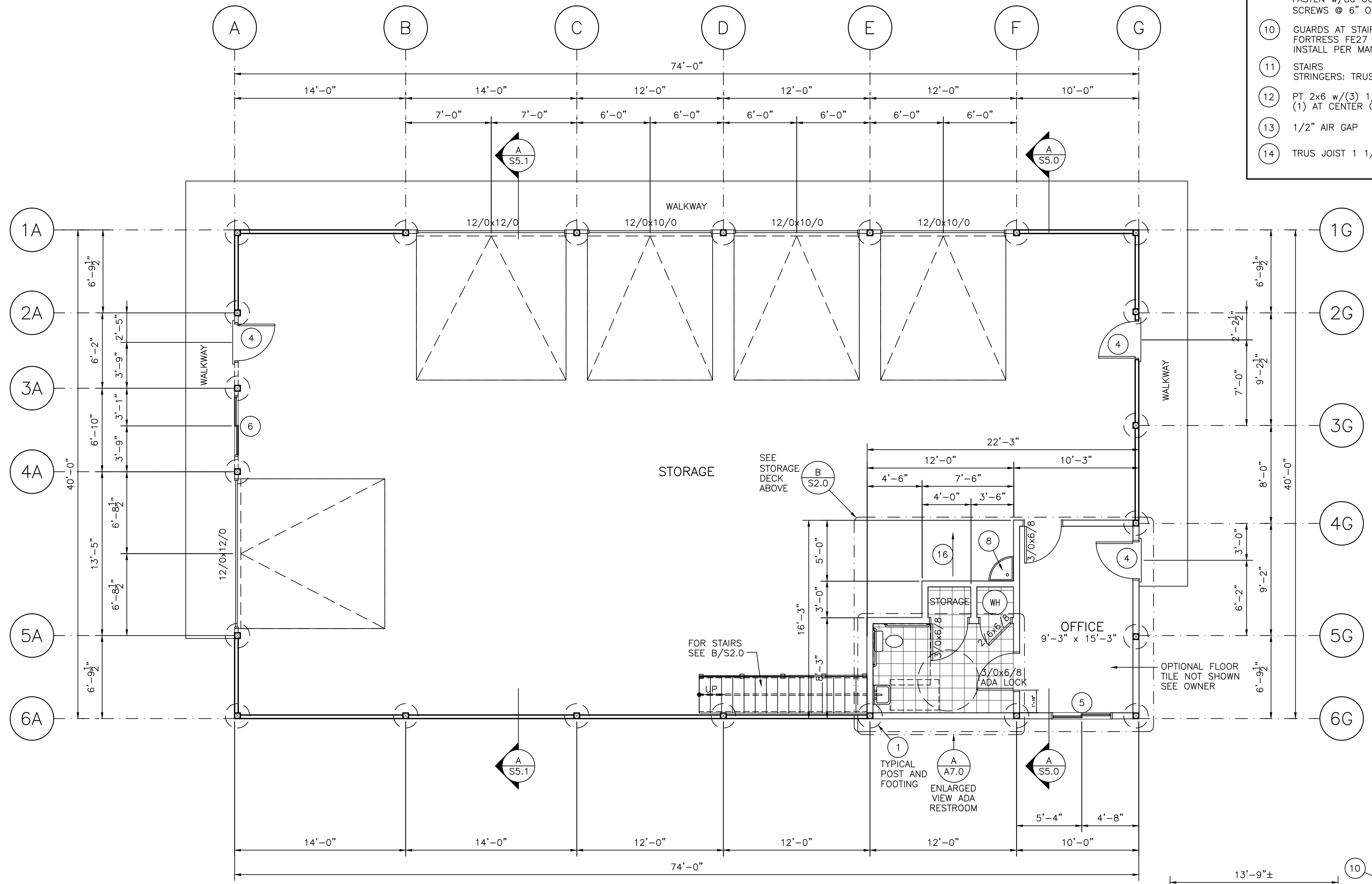


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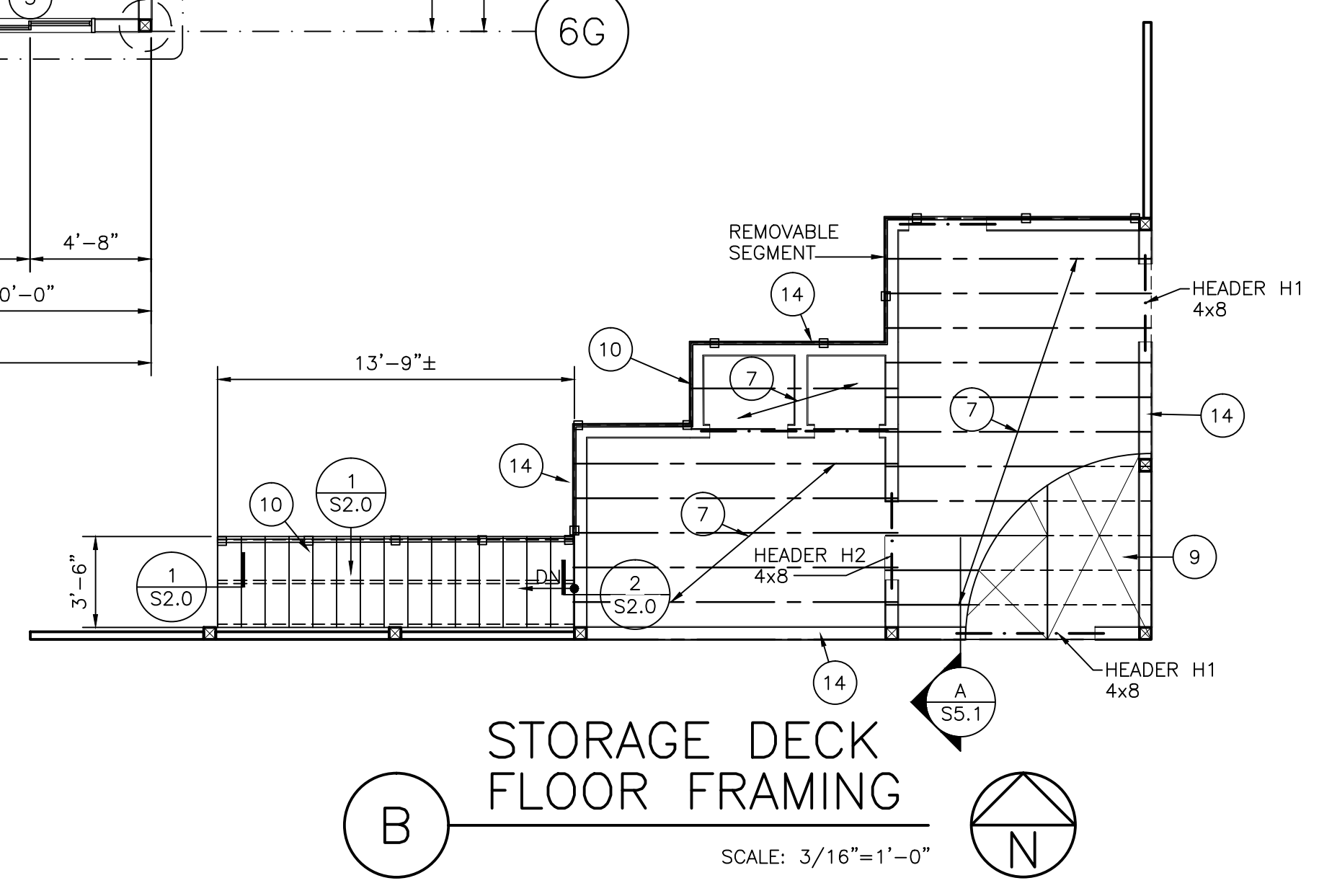


1 DETAIL
NOT TO SCALE

- ### KEY NOTES
- 1 P.T. 6x6 POST, EMBEDDED IN 2'0"x48" DEEP FOOTING w/REBAR CAGE SEE 1/S6.0
 - 2 FOR CONCRETE SLAB, SEE FOUNDATION PLAN, A/S3.0
 - 3 P.T. 2x6 SKIRT BOARD ON EDGE SEE 1/S4.0
 - 4 COMMERCIAL STEEL DOOR 3/0x6/8 PREHUNG w/HARDWARE SCHLAGE COMMERCIAL KEYED ALIKE ENTRY DOOR KNOB, EXTERIOR LEVER HANDLE INSIDE
 - 5 5'-0"x3'-0" VINYL SLIDING WINDOW
 - 6 5'-0"x3'-0" VINYL SLIDING WINDOW TEMPERED GLASS
 - 7 I-JOIST LEVEL TRUS JOIST TJI 110x16" @ 16" OC FULL-DEPTH TJI BLOCKING EACH END OF JOISTS TYPICAL
 - 8 FLOOR MOP SINK
 - 9 1 1/8" T&G APA RATED STURD-I-FLOOR APPLY ONLY ADHESIVES CONFORMING TO APA SPECIFICATION AFG-01 OR ASTM D3498 AND APPLY IN ACCORDANCE WITH THE ADHESIVE MANUFACTURER'S INSTRUCTIONS. FASTEN w/8d COMMON (2 1/2"x0.131") NAILS OR SIMPSON 2 1/2" HCKWSV212S SCREWS @ 6" OC EDGES AND 12" OC INTERMEDIATE SUPPORTS
 - 10 GUARDS AT STAIRS AND STORAGE DECK FORTRESS FE27 PLUS STEEL RAILING TYPICAL INSTALL PER MANUFACTURER'S INSTRUCTIONS
 - 11 STAIRS STRINGERS: TRUS JOIST 1 3/4"x14" 1.55E TIMBERSTRAND LSL
 - 12 PT 2x6 w/(3) 1/2"x5 1/2" SIMPSON STRONG BOLTS (1) AT CENTER OF LET-IN THRUST BLOCKING & (1) 6" FROM EACH END
 - 13 1/2" AIR GAP
 - 14 TRUS JOIST 1 1/8"x16" TJ RIM BOARD TYPICAL



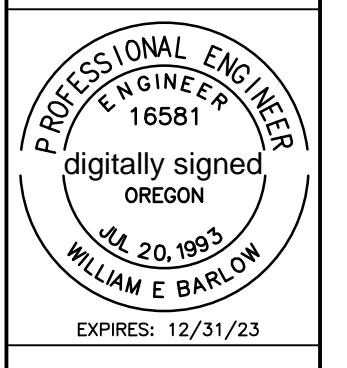
A MAIN FLOOR PLAN
SCALE: 3/16"=1'-0"



B STORAGE DECK FLOOR FRAMING
SCALE: 3/16"=1'-0"

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A NEW STORAGE POLE BUILDING
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MAIN FLOOR PLAN AND STORAGE DECK AND DETAILS



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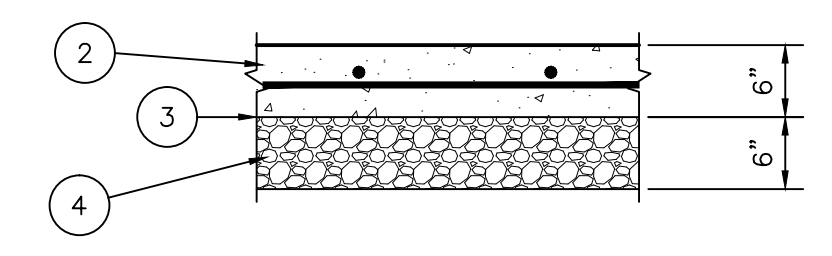
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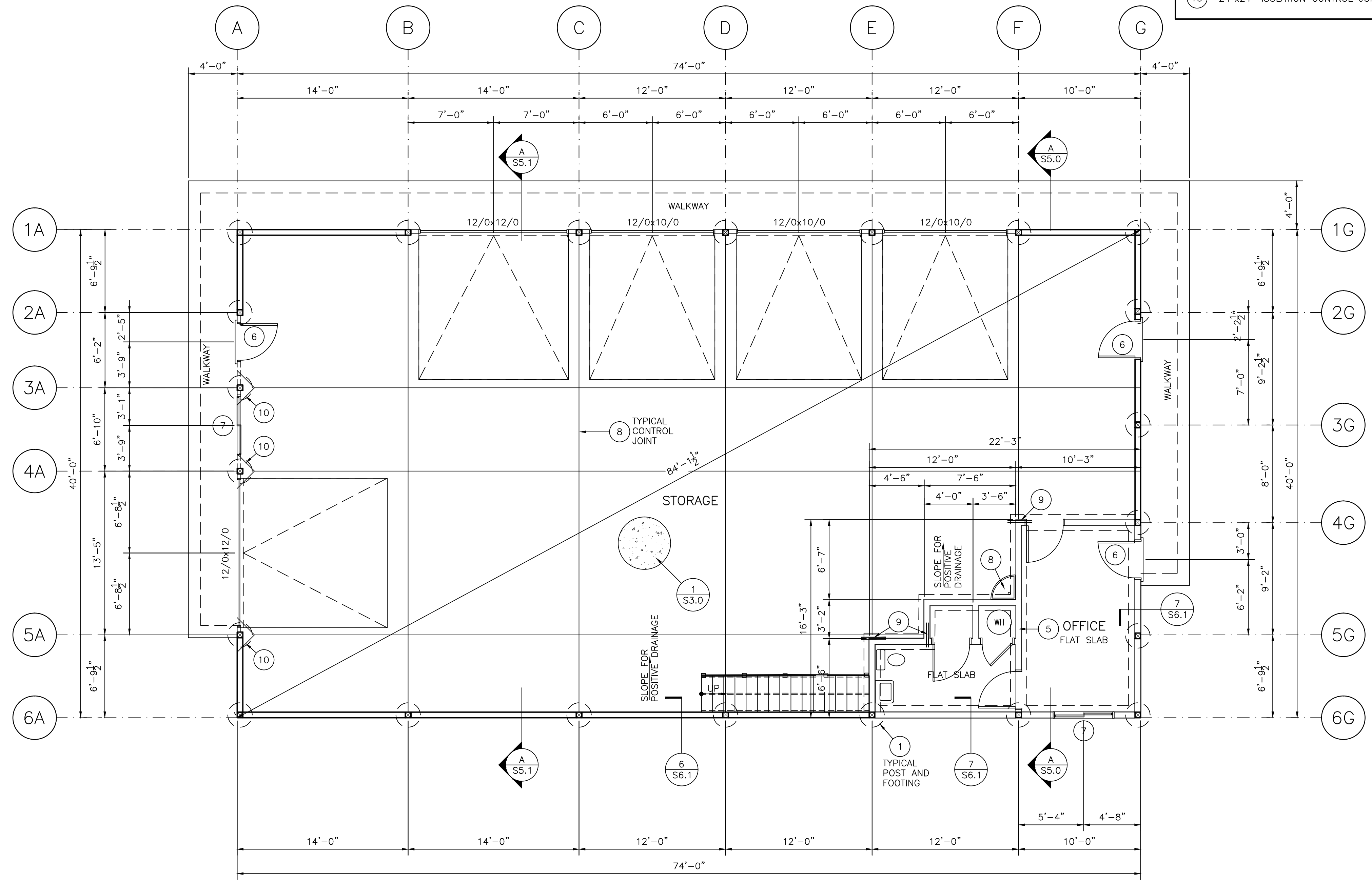
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KEY NOTES

- 1 P.T. 6x6 POST, EMBEDDED IN 24"x6"x48" DEEP FOOTING w/REBAR CAGE SEE 1/S6.0
- 2 CONCRETE SLAB w/#3 REBAR @ 16" OC EACH WAY CENTERED IN SLAB ON CHAIRS OR WIRE DOBIES
- 3 6-MIL BLACK POLYETHYLENE MOISTURE BARRIER
- 4 3/4" COMPACTED GRAVEL (CRUSHED QUARRY ROCK)
- 5 INTERIOR WALL FOOTINGS CONSTRUCT 6" STEM WALL FOR CURB SEE 1/S6.1
- 6 3/0x6/8 STEEL DOOR. KEYED ALIKE WITH OTHER EXTERIOR DOORS
- 7 5/0x3/0 SLIDER. VINYL
- 8 CONTROL JOINTS SHALL BE FORMED BY SAW CUTTING, d=1.5"; BY TOOLING, R=1/8" EACH SIDE OR JOINT; A JOINT WITH A GROOVING TOOL, R=1/8"; OR BY INSERTING A PLASTIC STRIP INTO THE CONCRETE DURING FINISHING (ZIP-STRIP) d=1.5".
- 9 (2) #4x24" REBAR AT END OF CONTROL JOINT (NO CONTROL JOINTS THROUGH OFFICE AREA)
- 10 24"x24" ISOLATION CONTROL JOINT

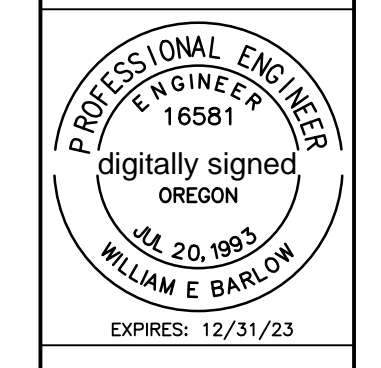


1 DETAIL
NOT TO SCALE



A FOUNDATION PLAN
SCALE: 3/16"=1'-0"
N

A NEW STORAGE POLE BUILDING
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FOUNDATION PLAN



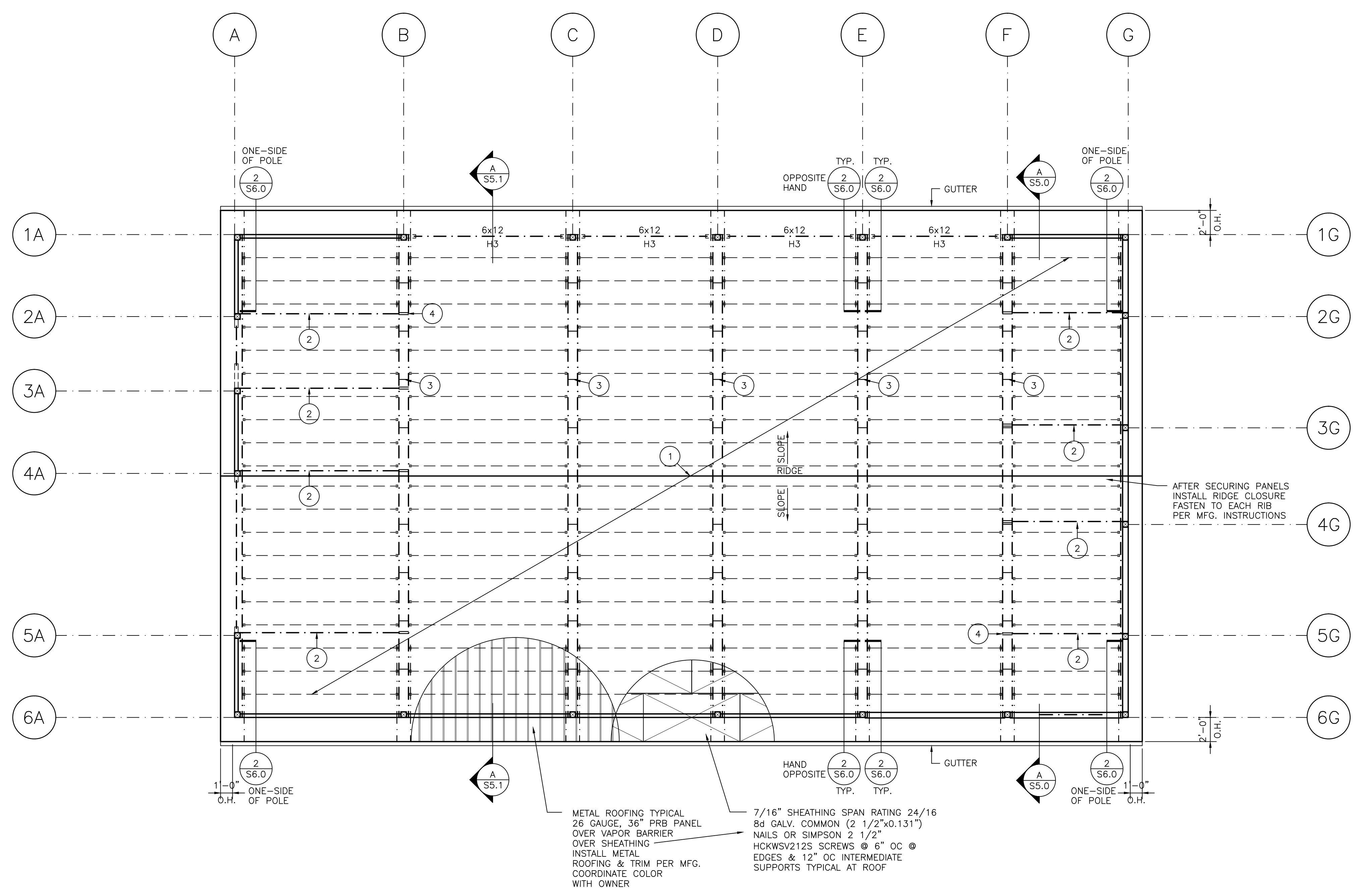
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SCALE AS SHOWN
DRAWN WEB
SHEET

S3.0

KEY NOTES

- ① 2x10 PURLINS @ 24" OC w/SIMPSON HU210TF EACH END TYPICAL SEE 5/S6.0
- ② BRACE SEE 8/S6.0
- ③ 2x10 BLOCKING @ 48" OC TYPICAL AT TRUSS PAIRS SEE 5/S6.0
- ④ (2) 2x10 BLOCKING @ BRACE. TYPICAL



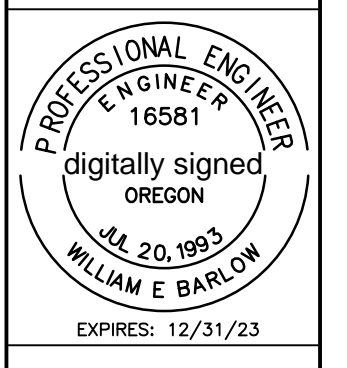
METAL ROOFING TYPICAL
26 GAUGE, 36" PRB PANEL
OVER VAPOR BARRIER
OVER SHEATHING
INSTALL METAL
ROOFING & TRIM PER MFG.
COORDINATE COLOR
WITH OWNER

7/16" SHEATHING SPAN RATING 24/16
8d GALV. COMMON (2 1/2"x0.131")
NAILS OR SIMPSON 2 1/2"
HCKWSV212S SCREWS @ 6" OC @
EDGES & 12" OC INTERMEDIATE
SUPPORTS TYPICAL AT ROOF

A ROOF FRAMING PLAN 
SCALE: 3/16"=1'-0"

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ROOF FRAMING PLAN



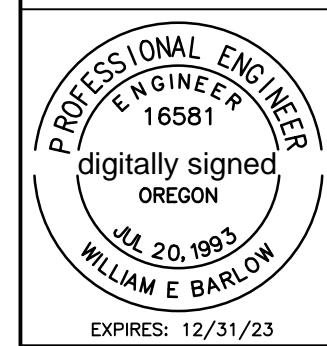
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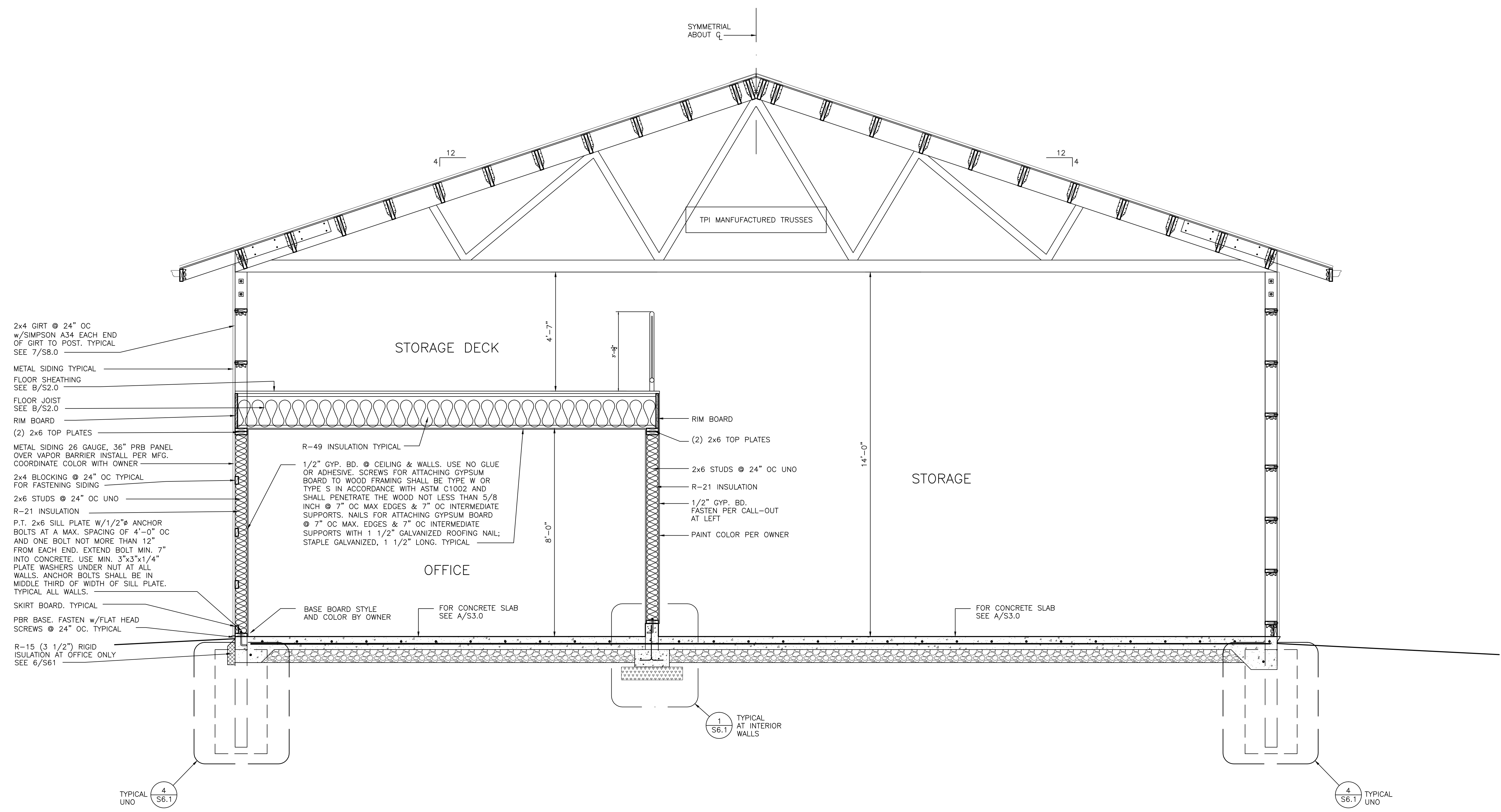
A NEW STORAGE POLE BUILDING
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TRANSVERSE SECTION



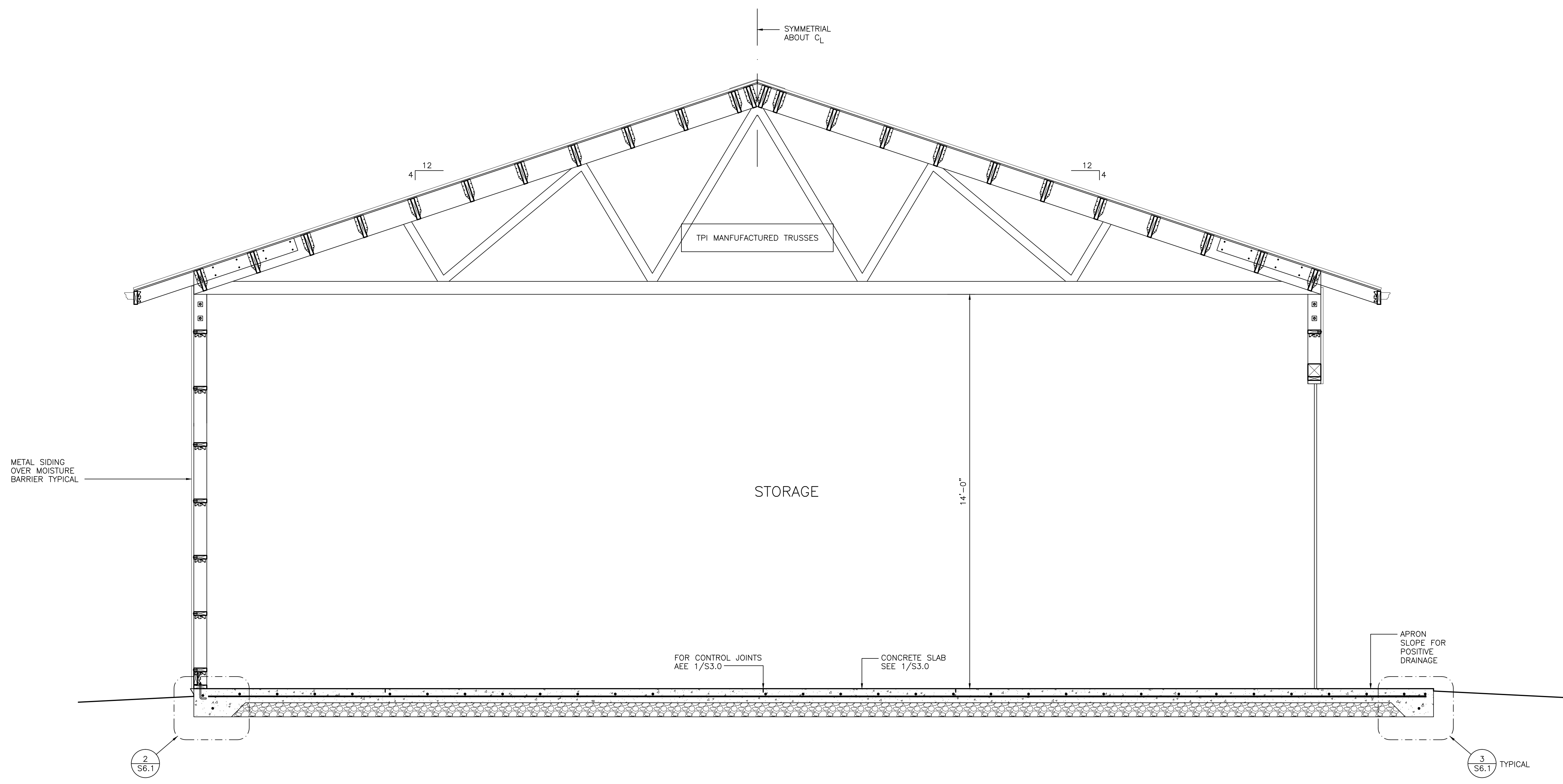
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 SCALE AS SHOWN
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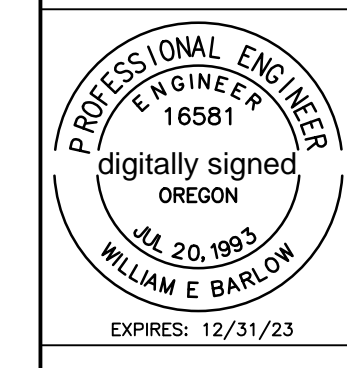
A **TRANSVERSE SECTION**
 SCALE: 1/2"=1'-0"



A TRANSVERSE SECTION
SCALE: 1/2"=1'-0"

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A NEW STORAGE POLE BUILDING
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TRANSVERSE SECTION



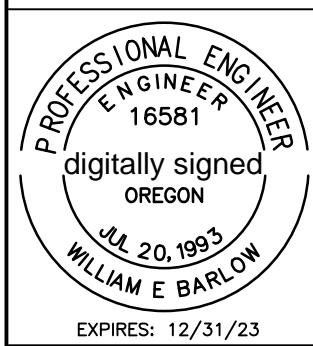
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SHEET
S5.1

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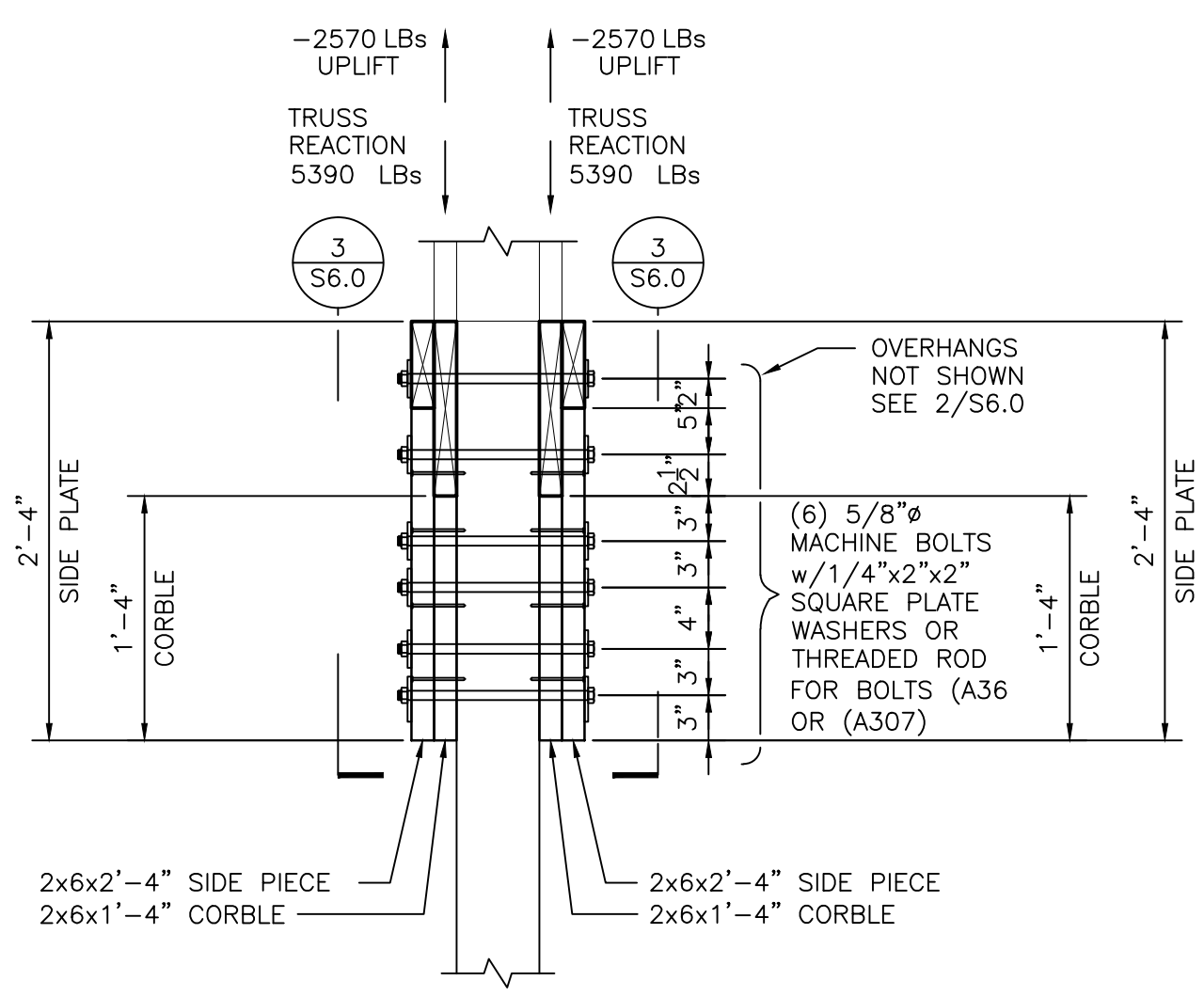
A NEW STORAGE POLE BUILDING
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DETAILS



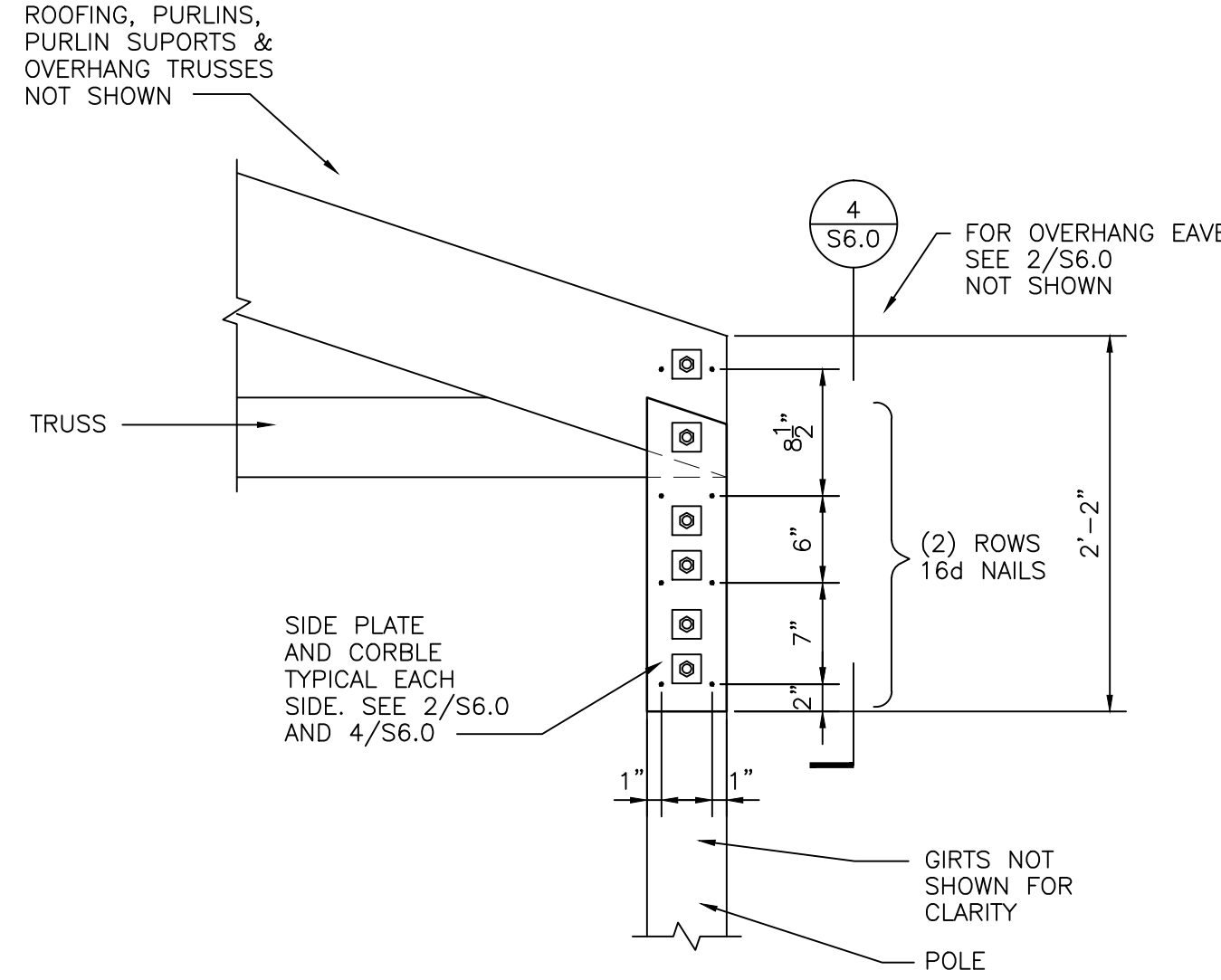
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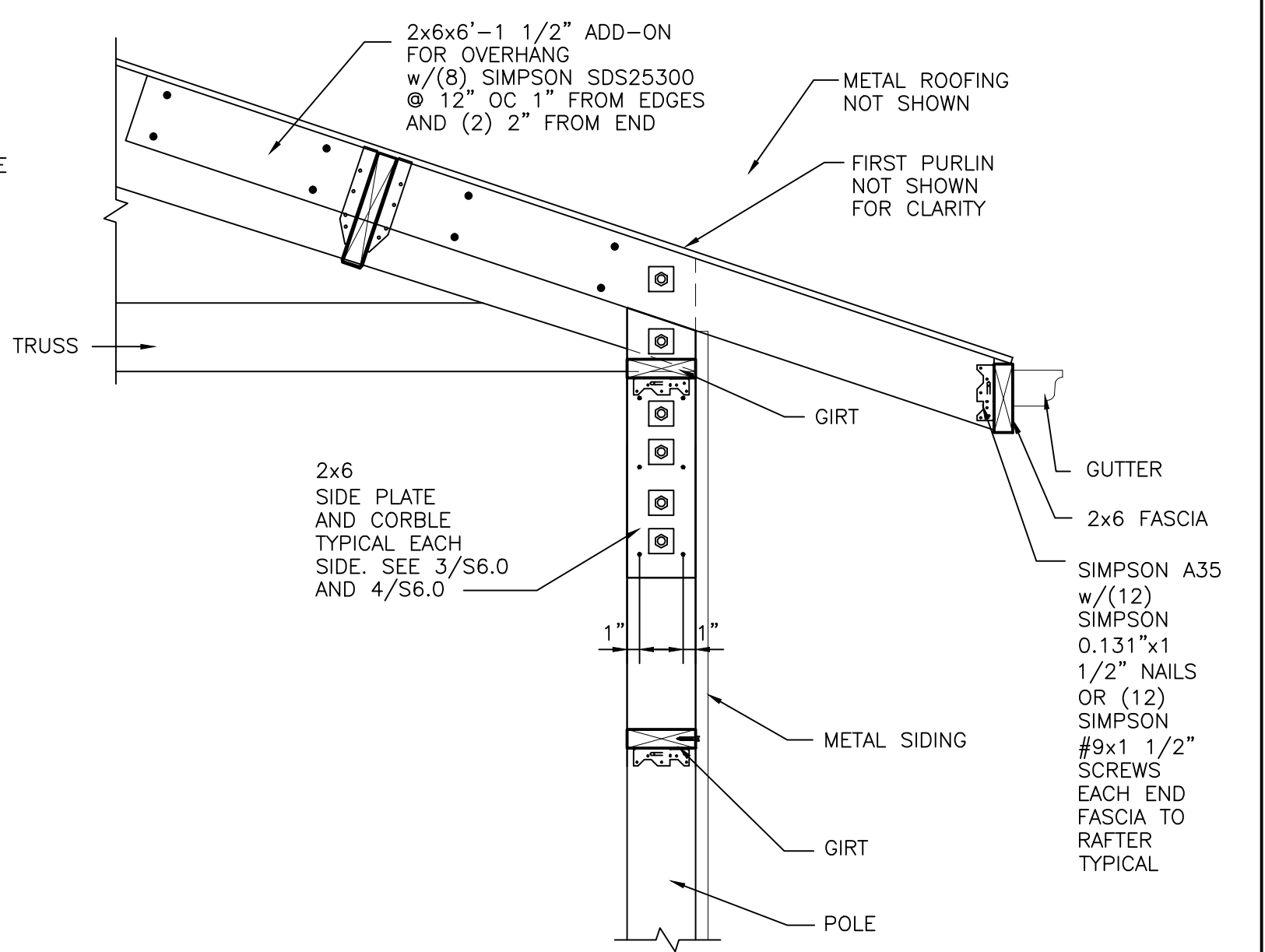
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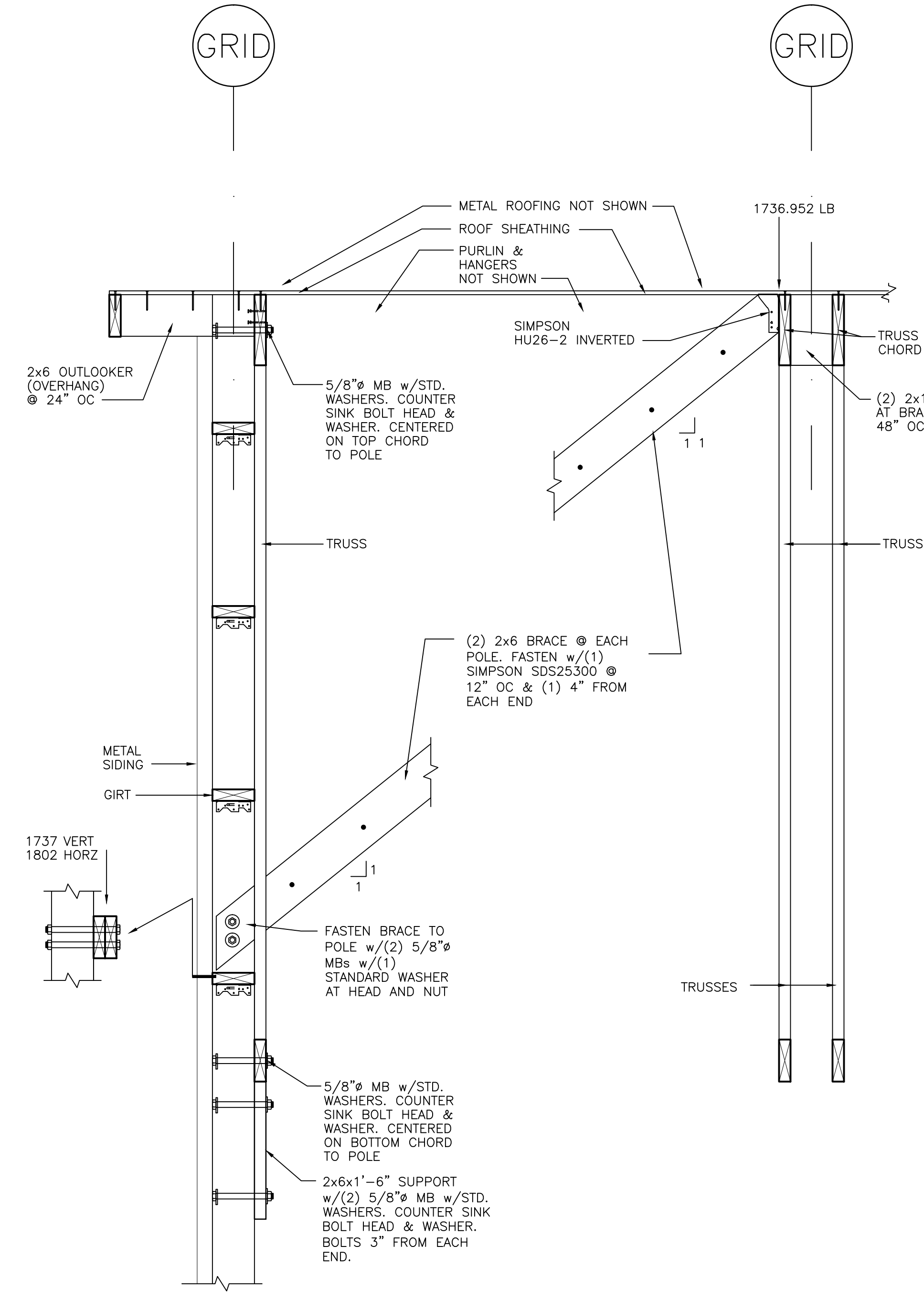
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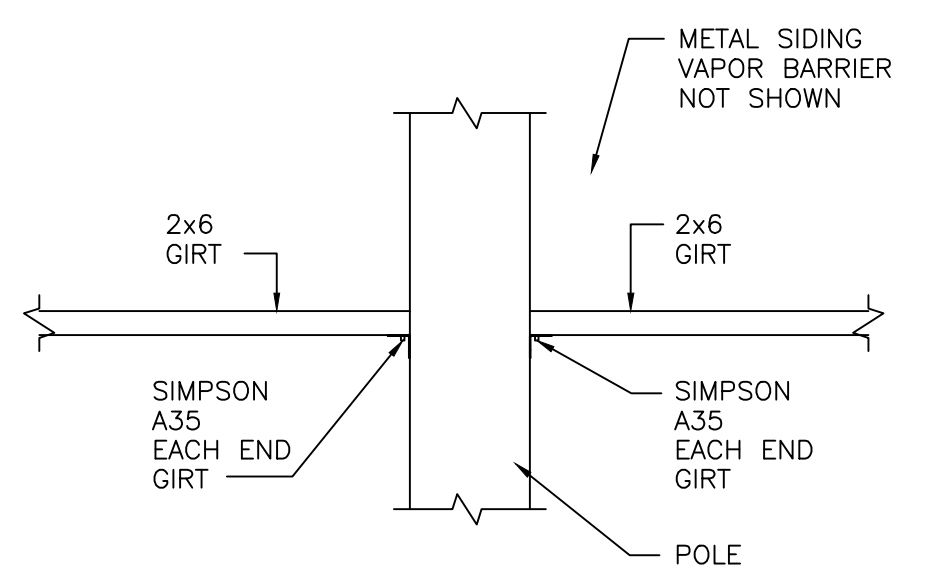
3 DETAIL
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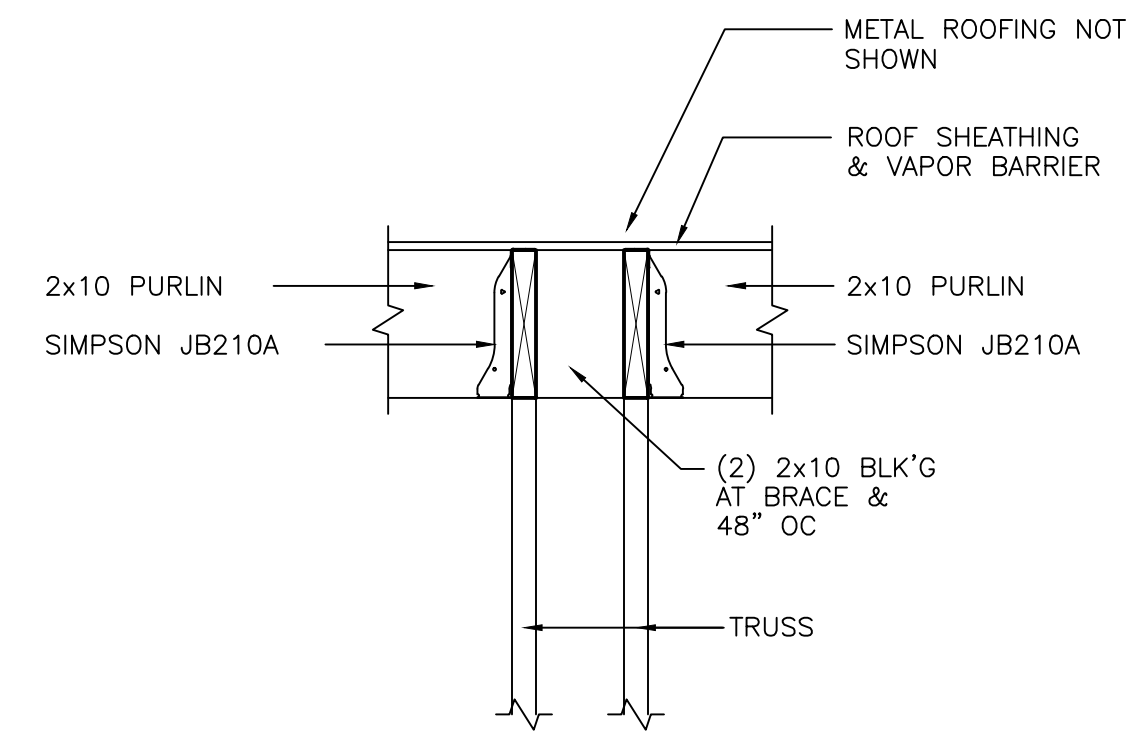
2 DETAIL
 SCALE: 1"=1'-0"



8 BRACE
 SCALE: 1"=1'-0"



6 DETAIL
 SCALE: 1"=1'-0"

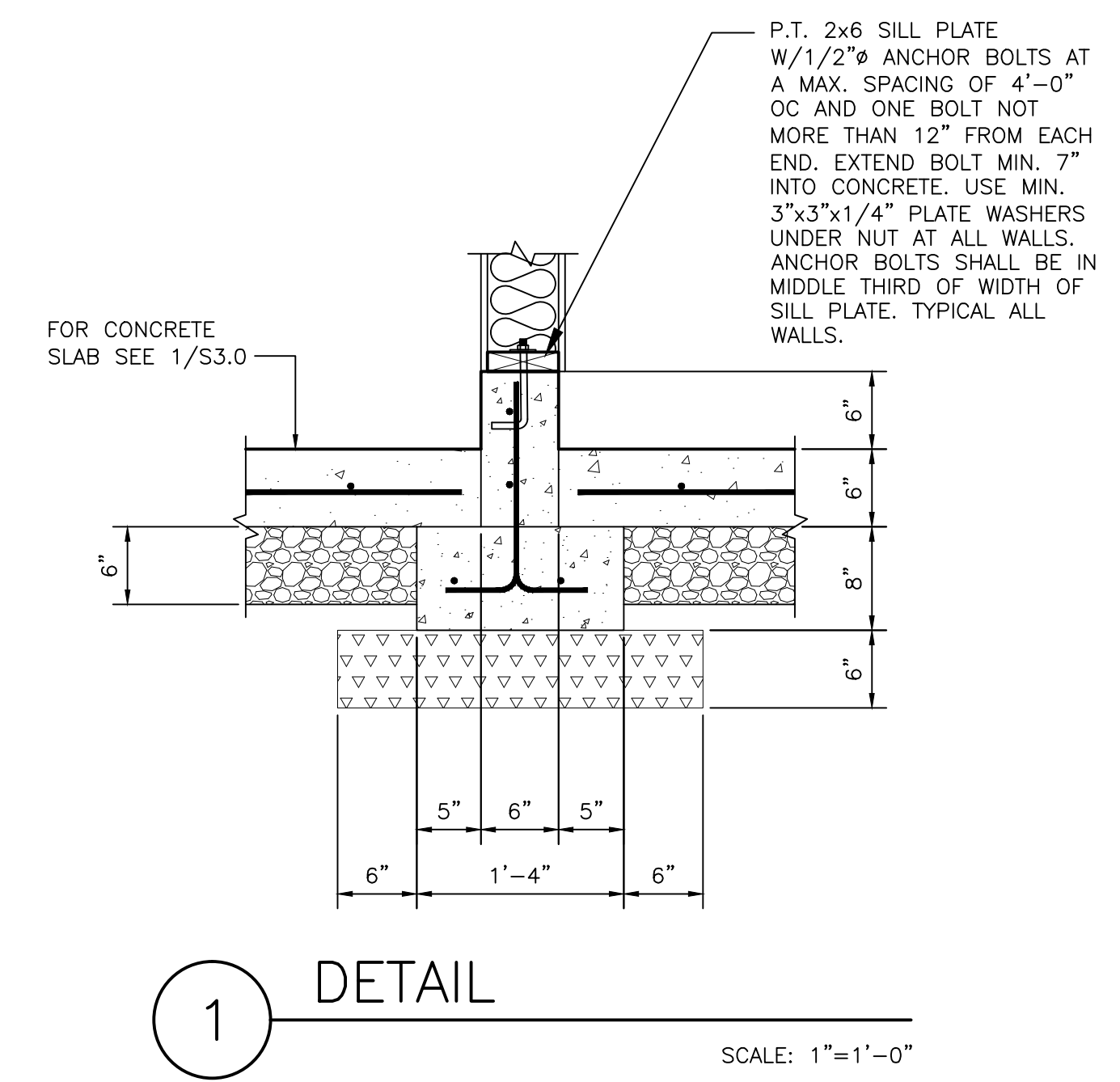
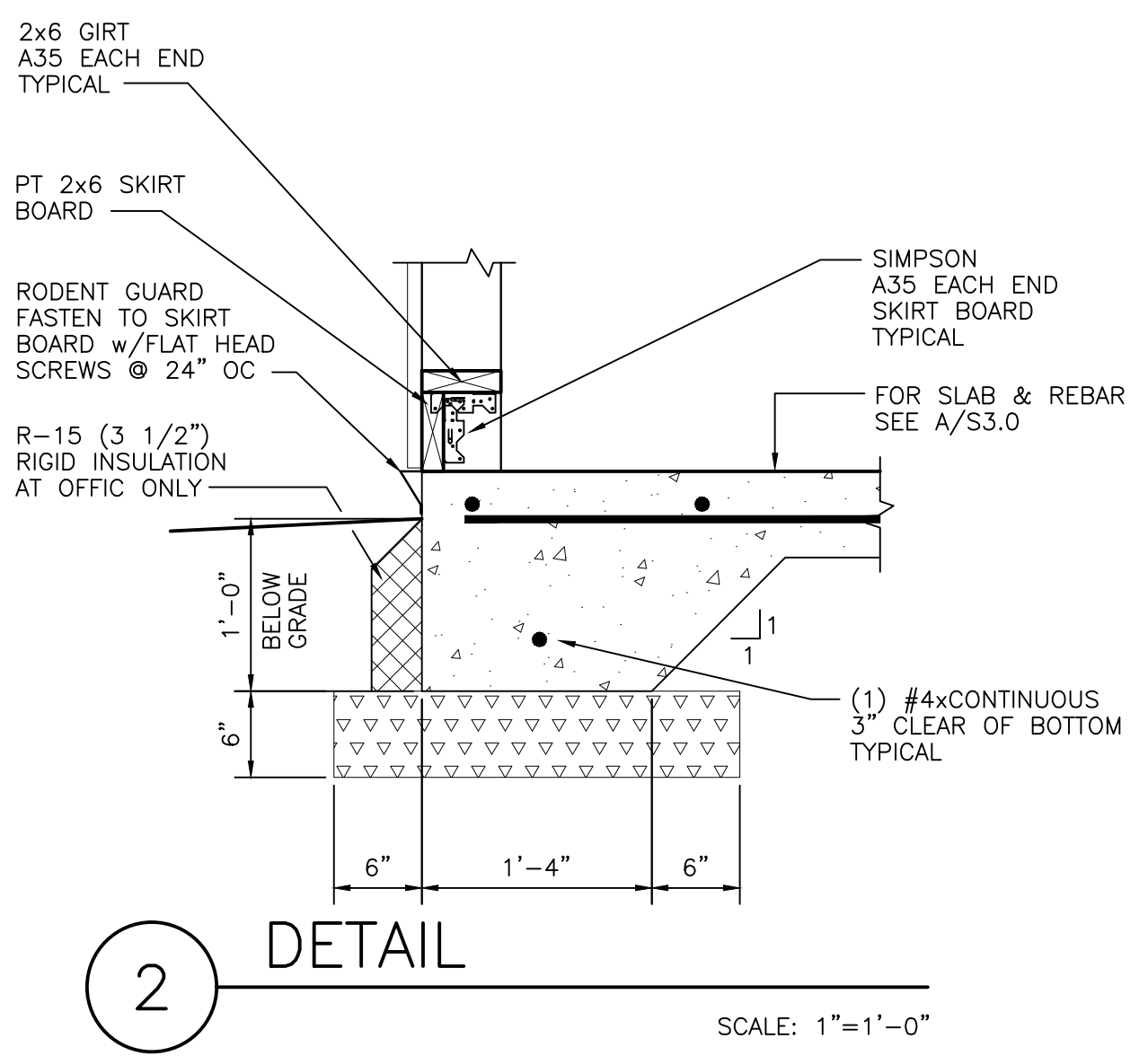
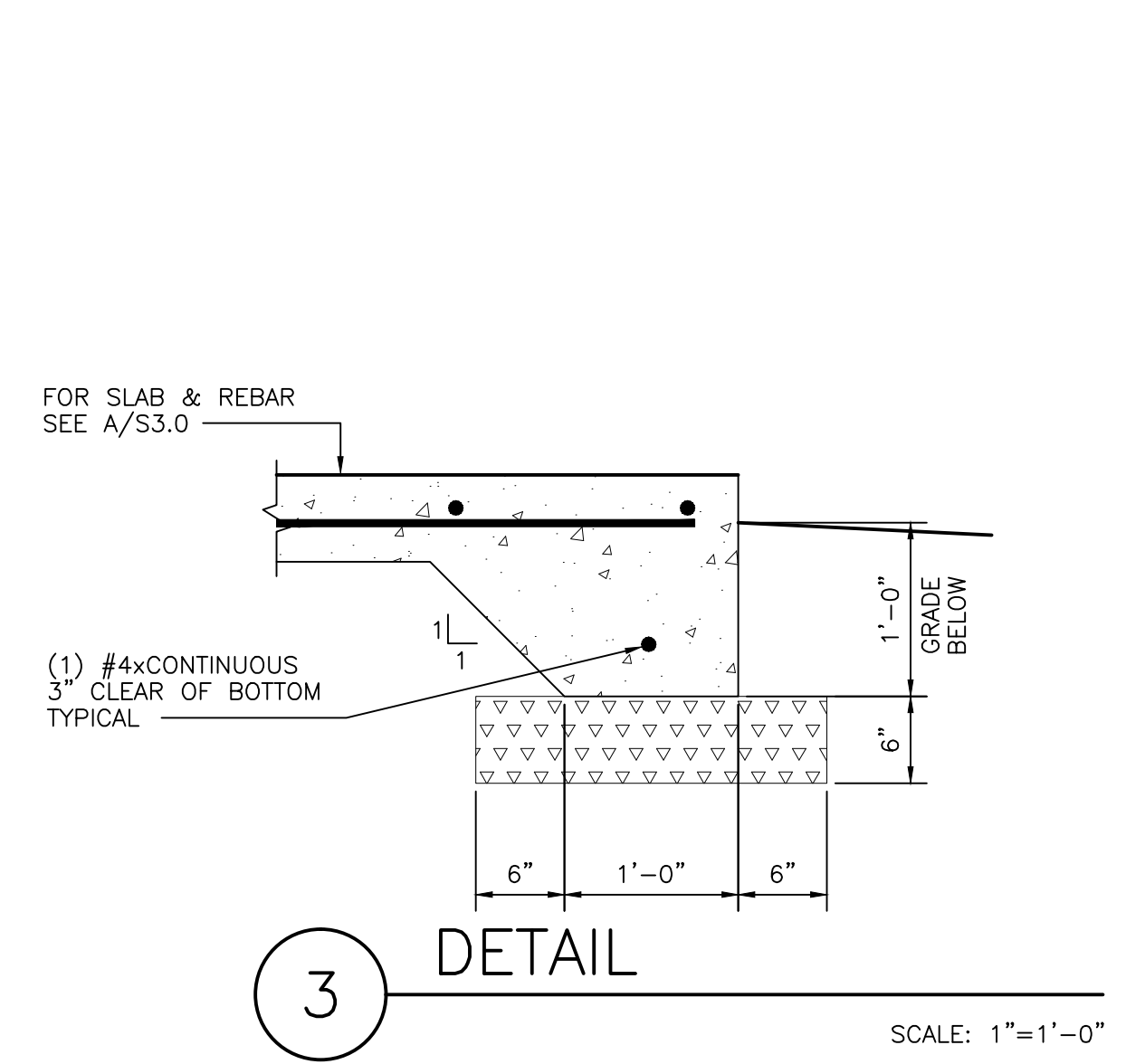
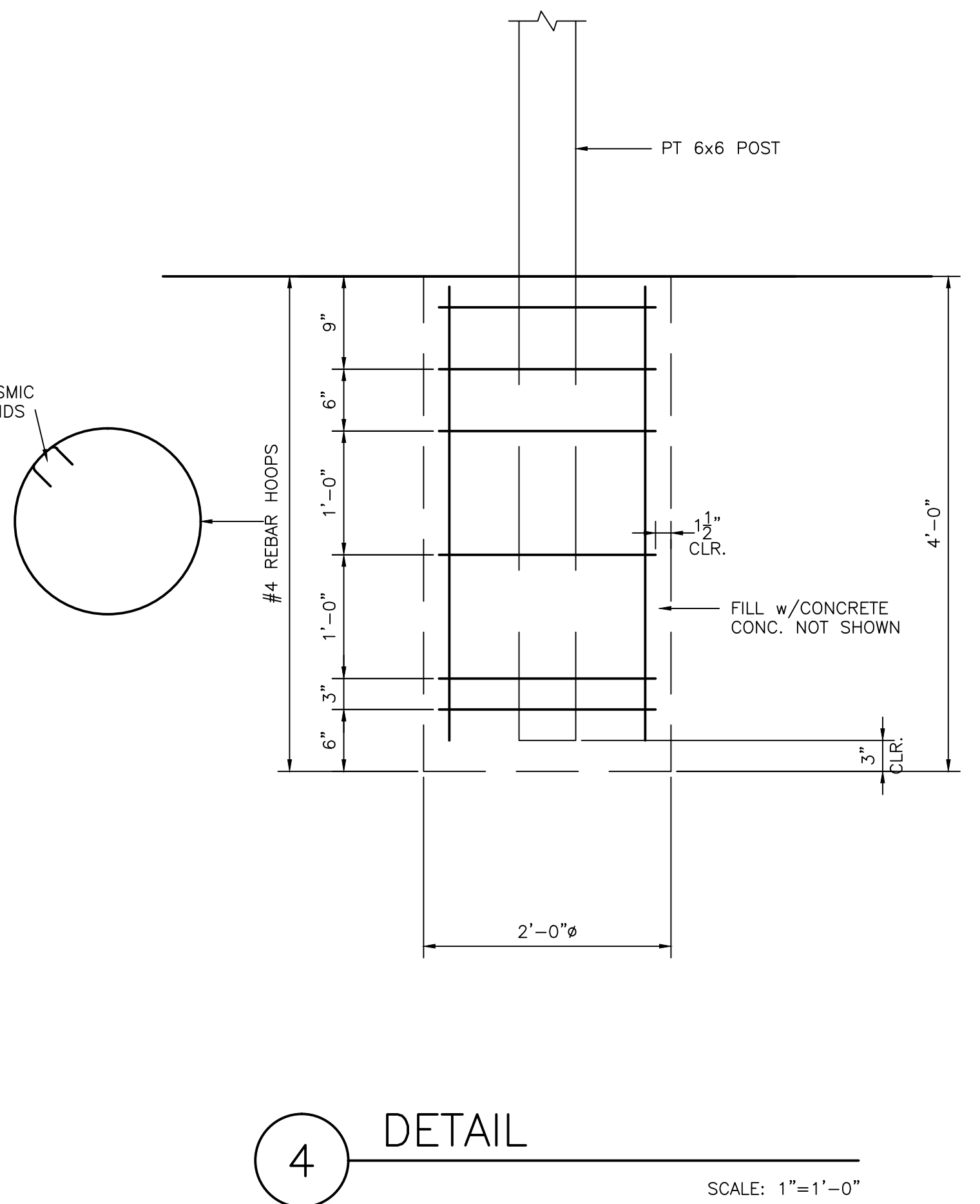
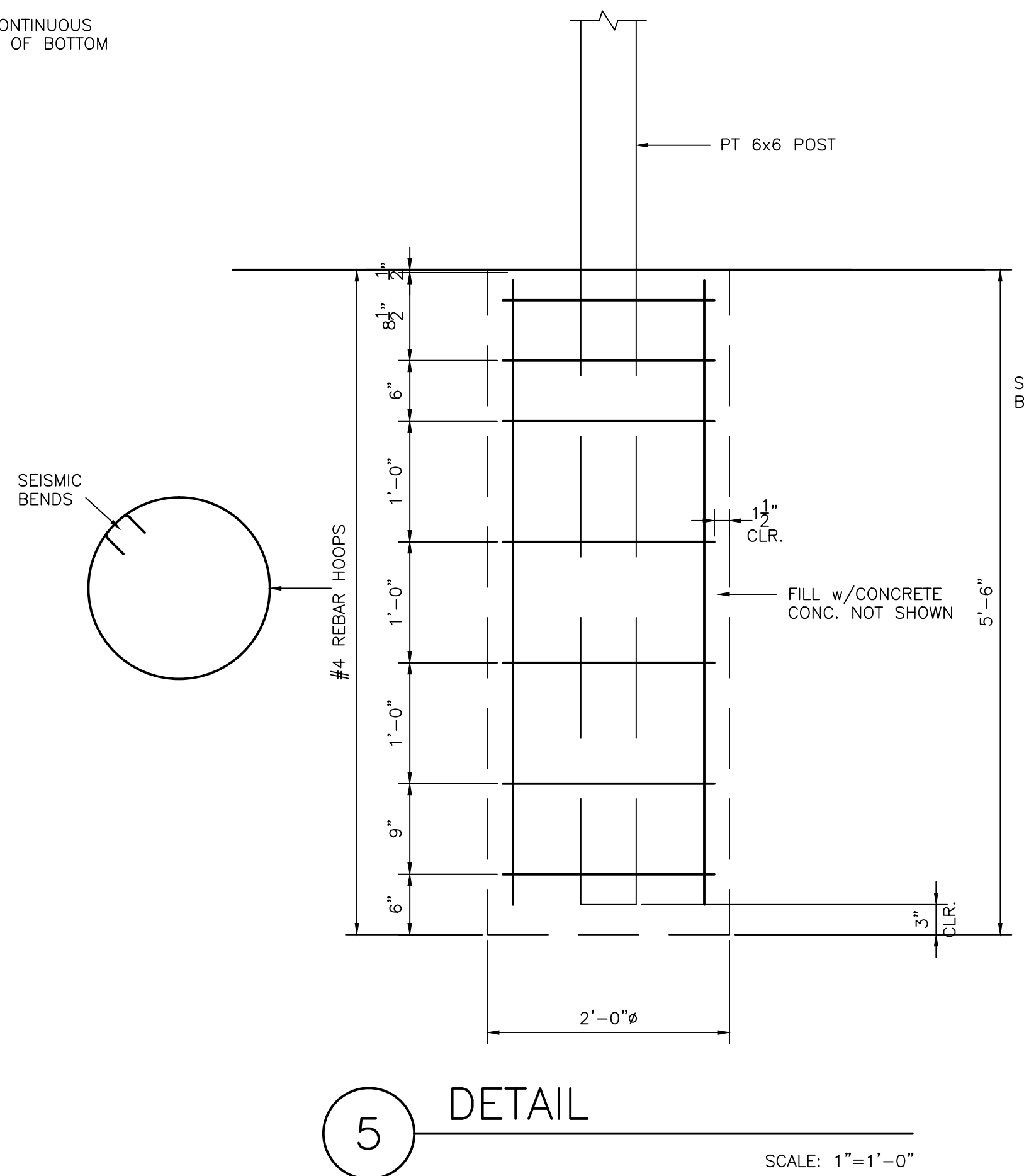
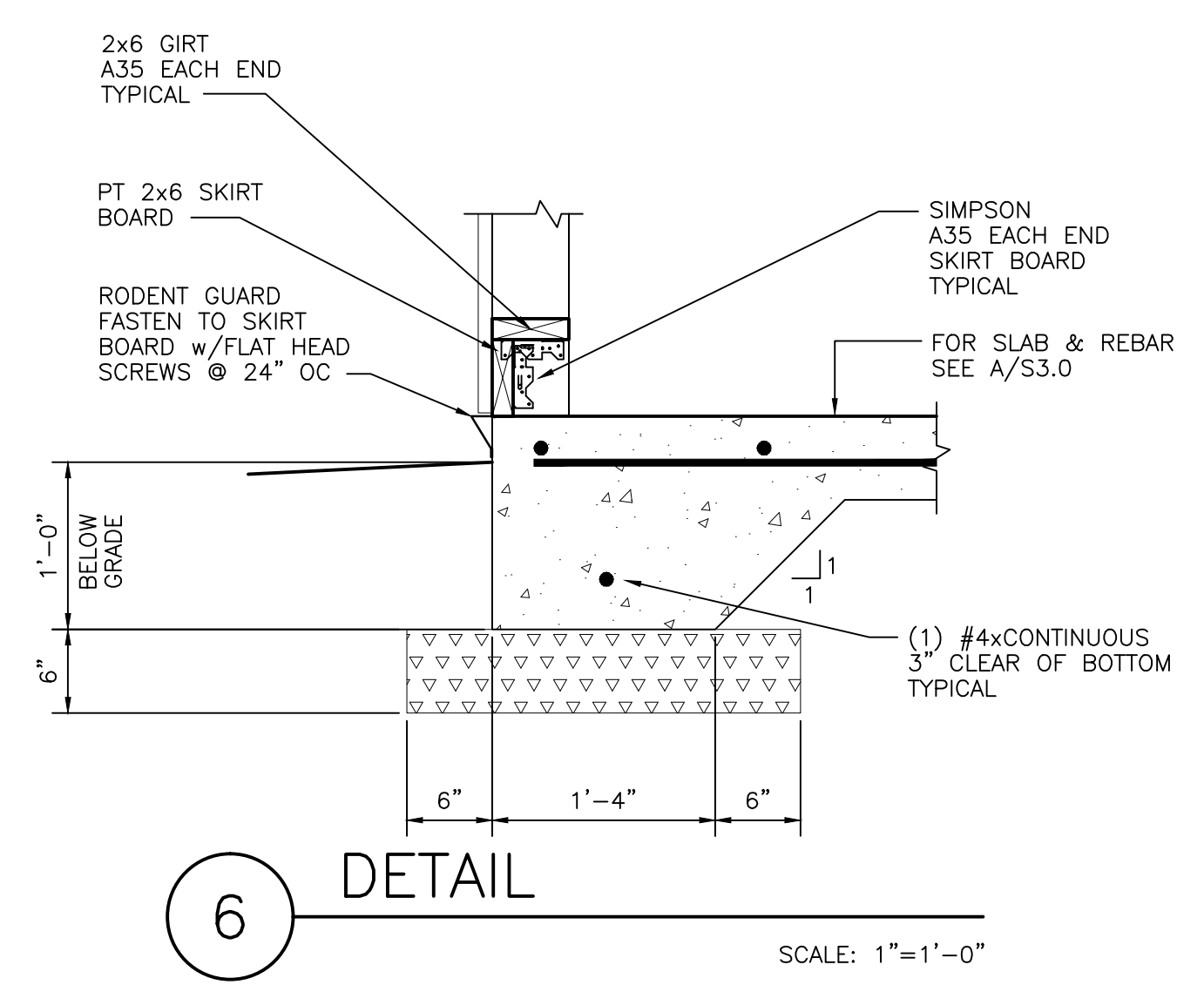
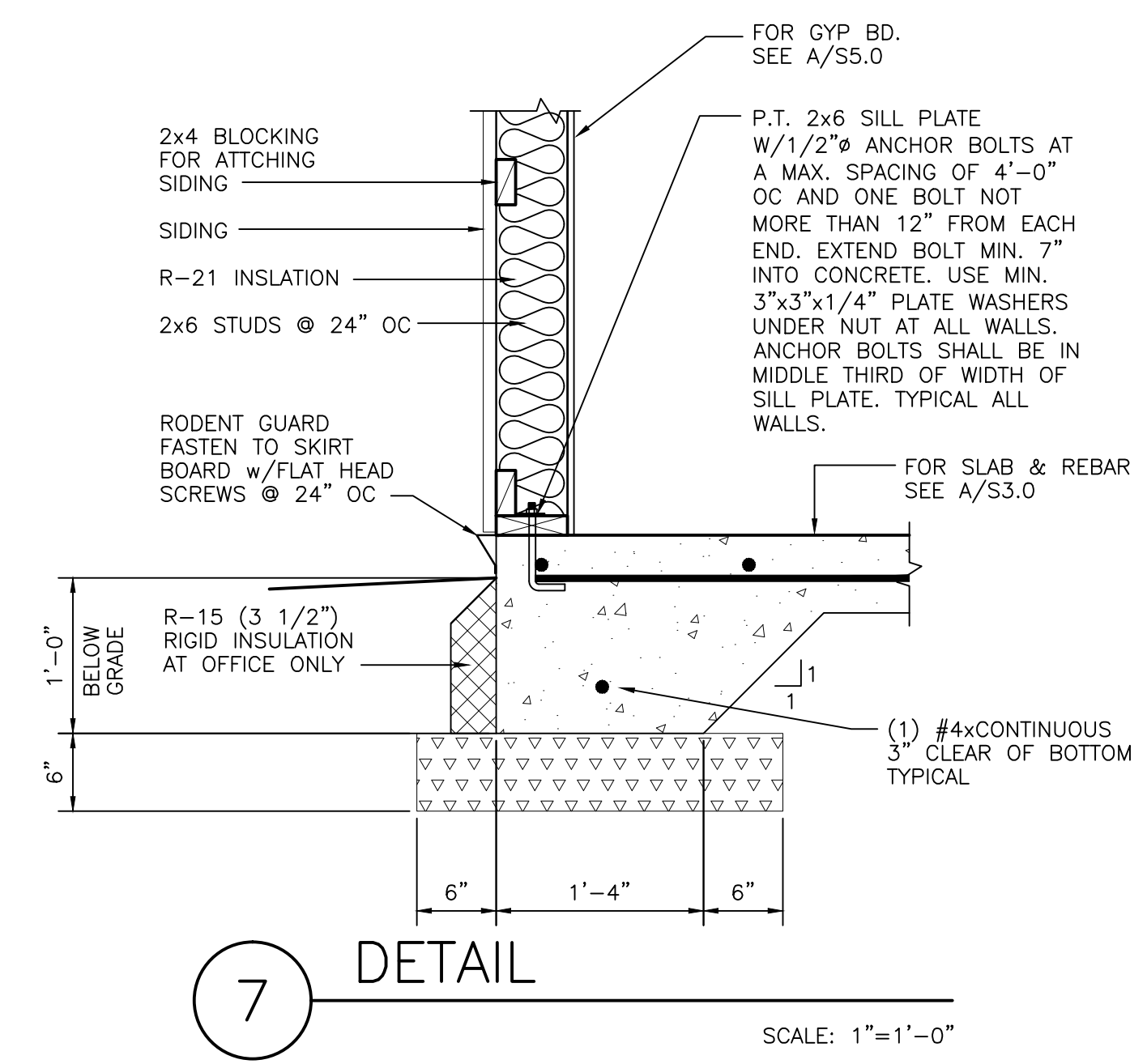


5 DETAIL
 SCALE: 1"=1'-0"

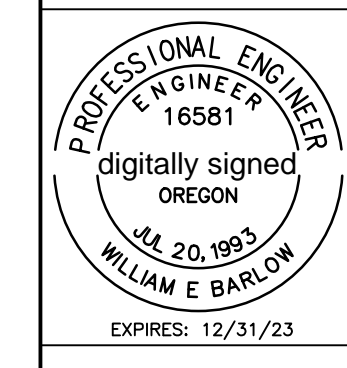
7 NOT USED
 SCALE: 1"=1'-0"

1 NOT USED
 SCALE: 1"=1'-0"

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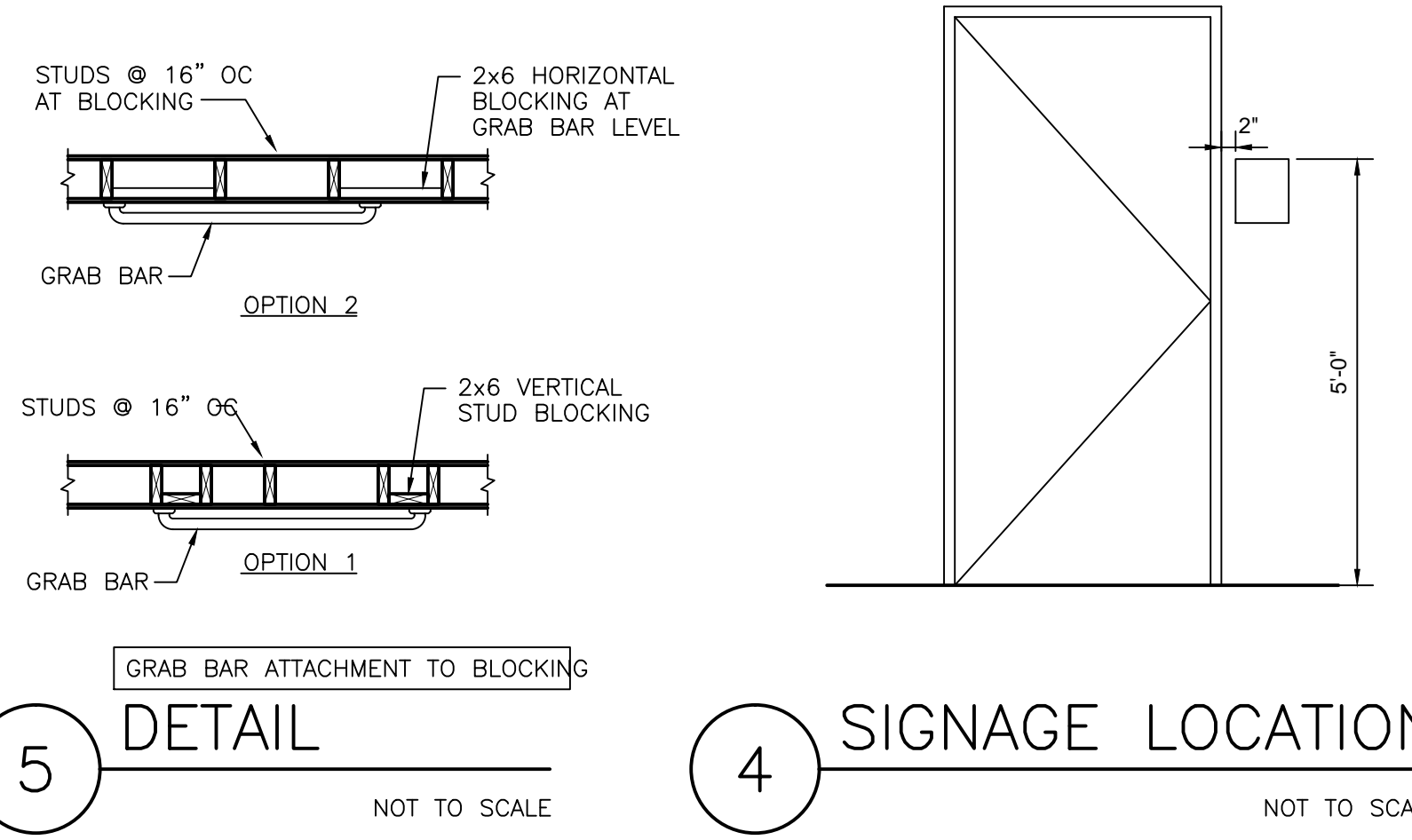
A NEW STORAGE POLE BUILDING
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 CORVALLIS, OR 97333
DETAILS



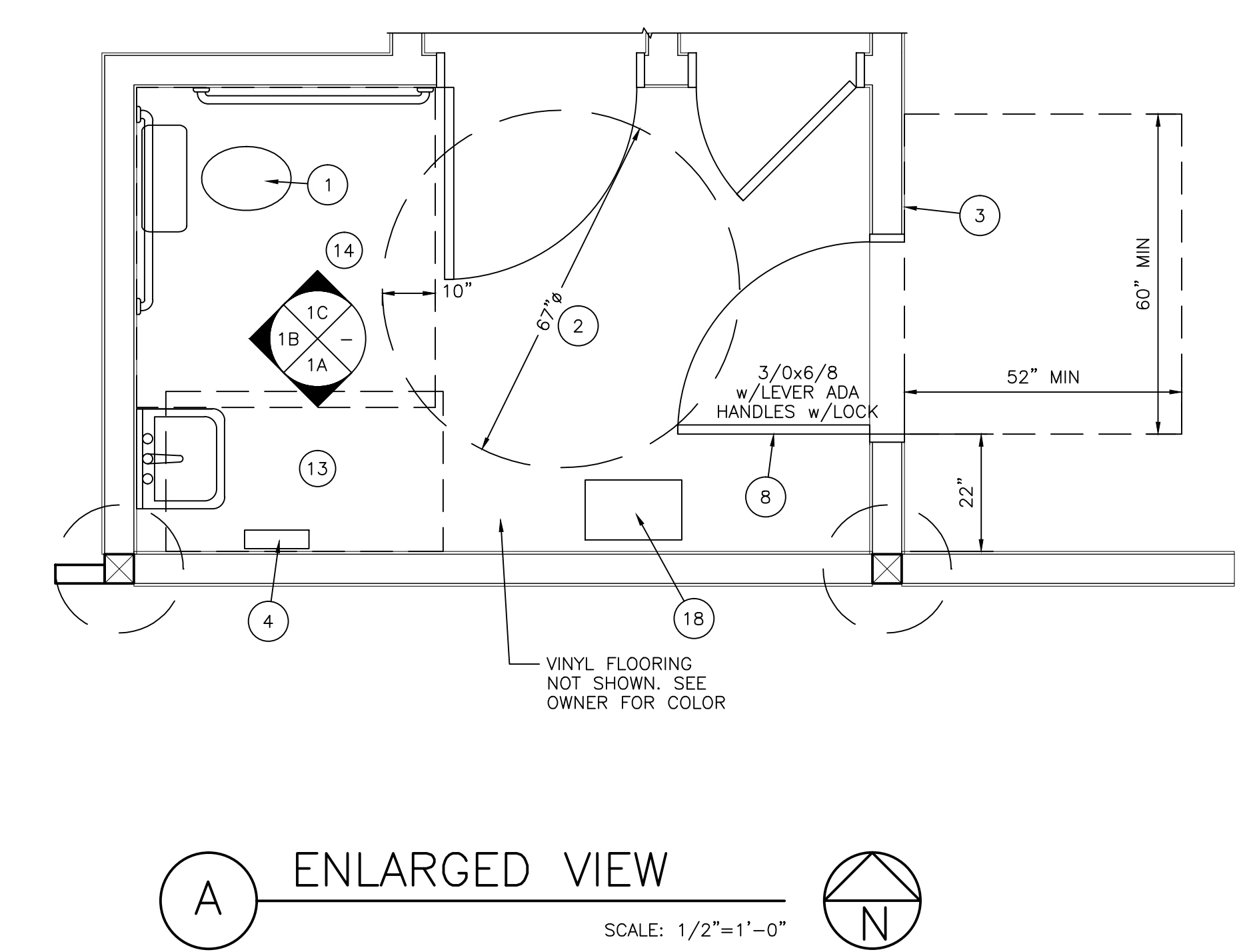
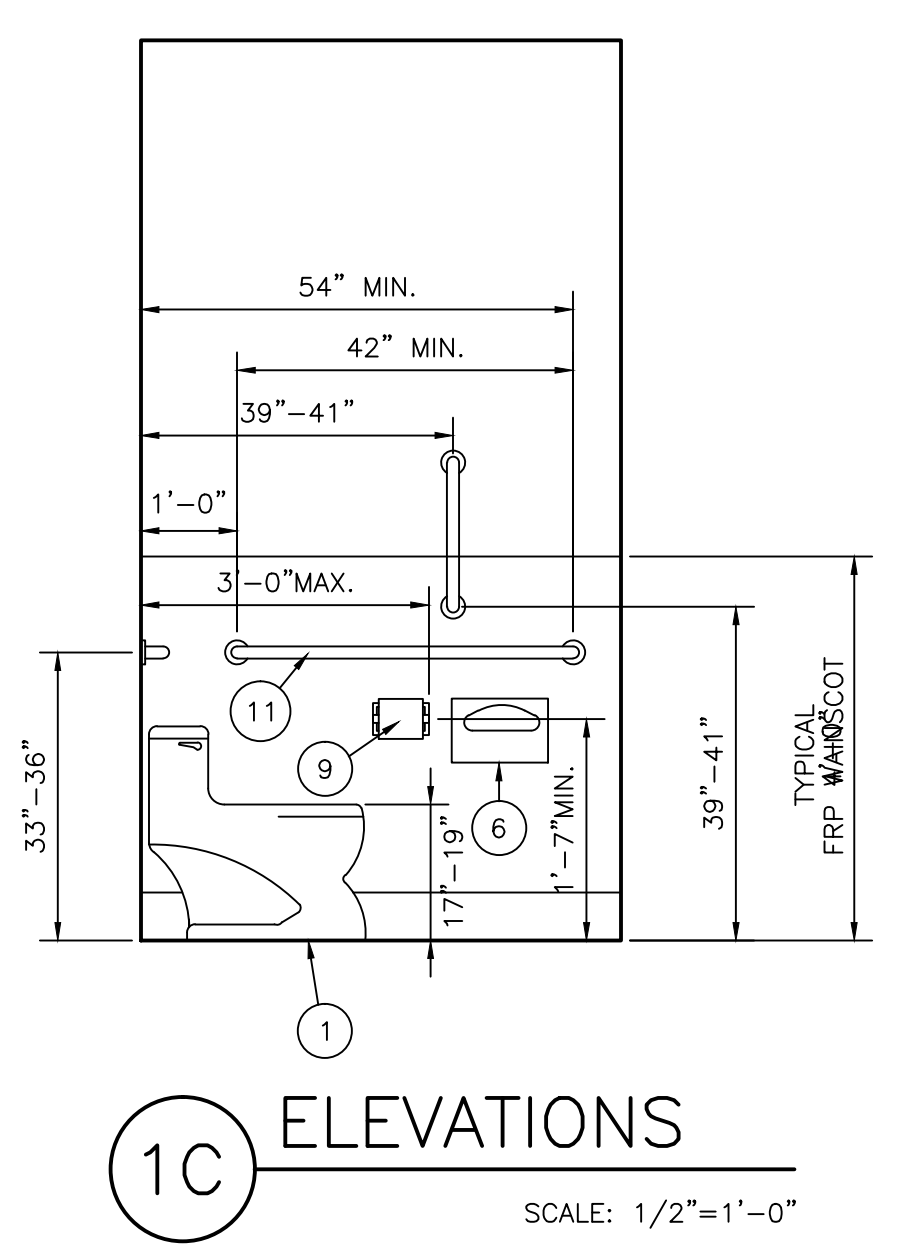
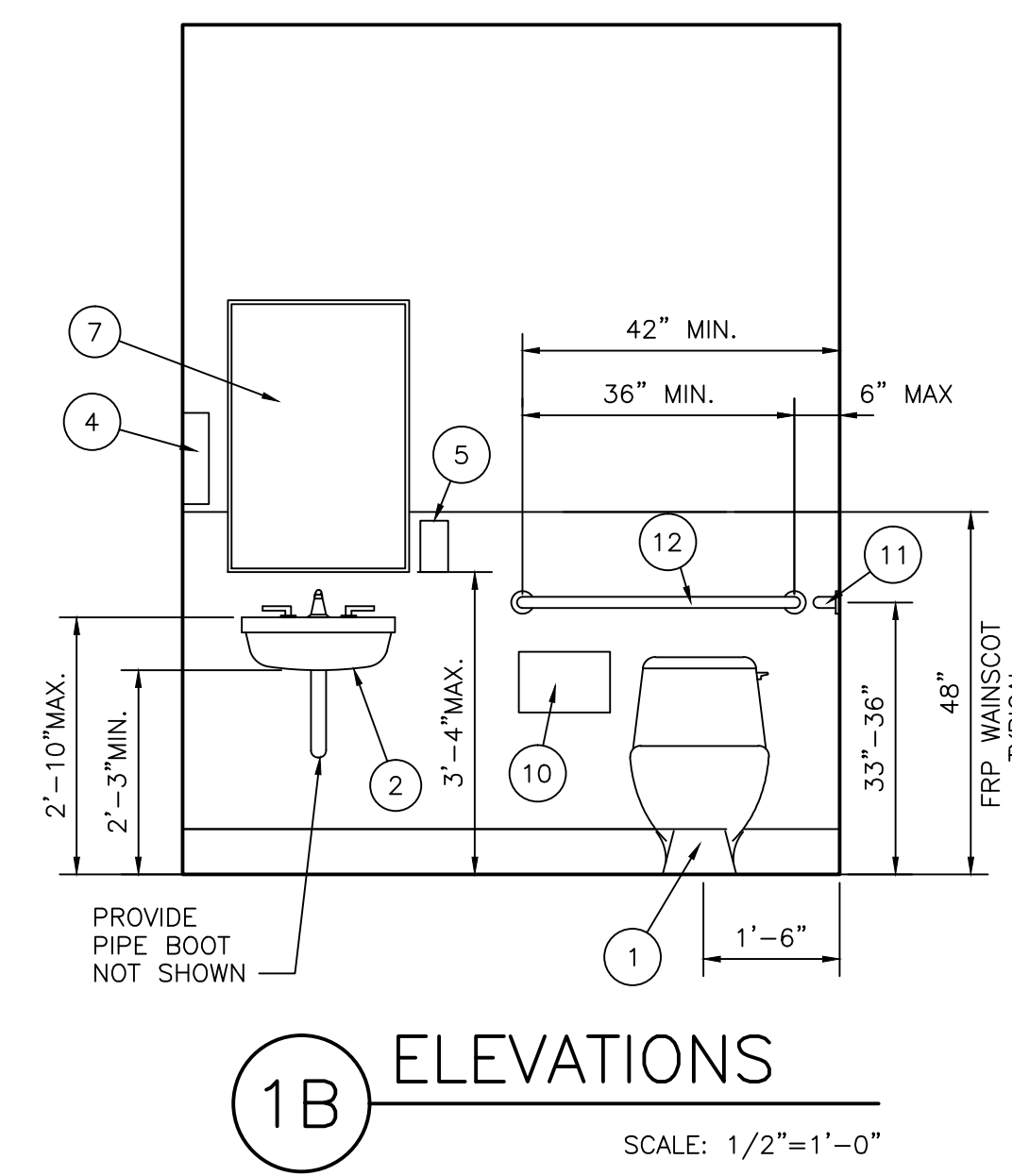
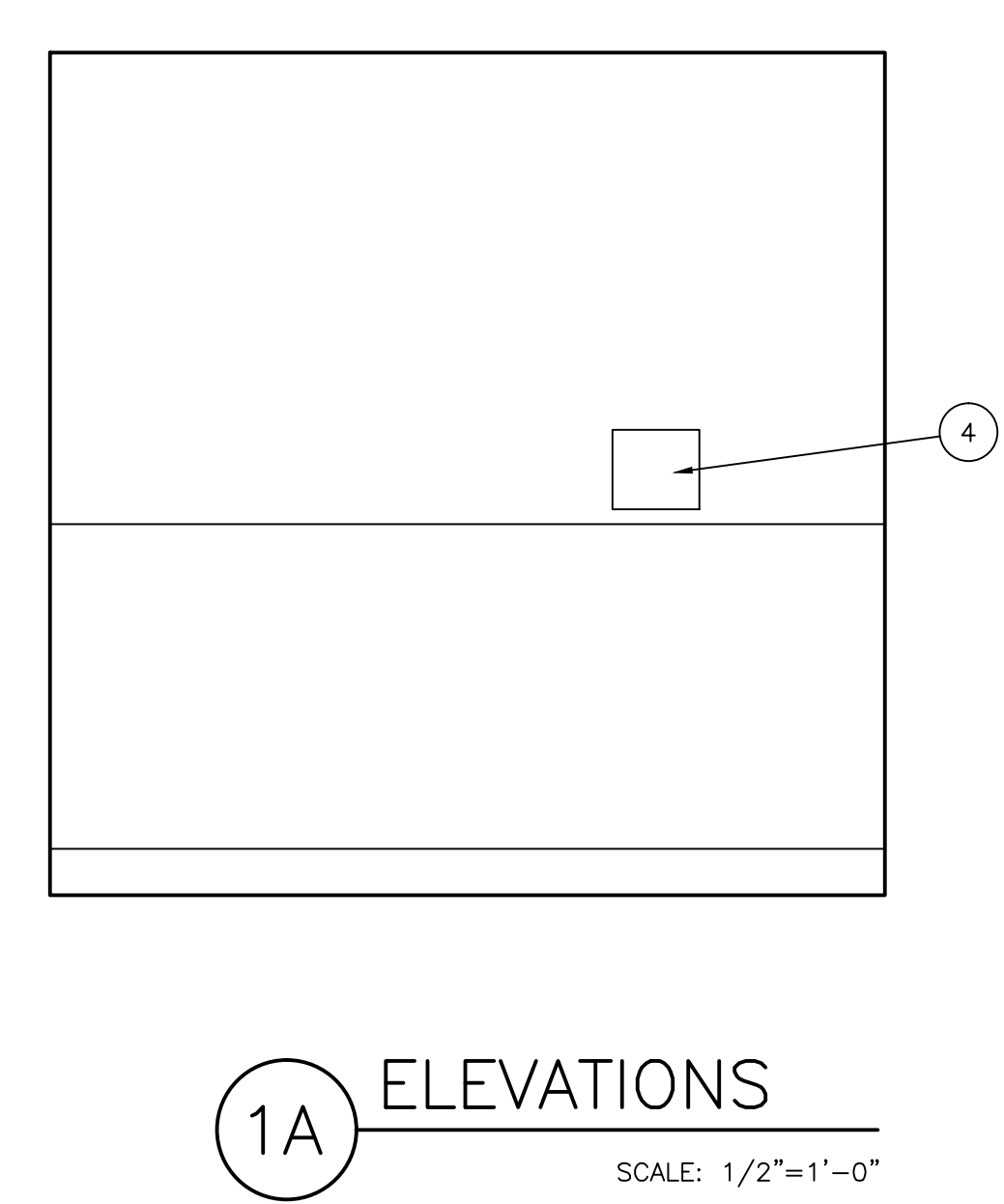
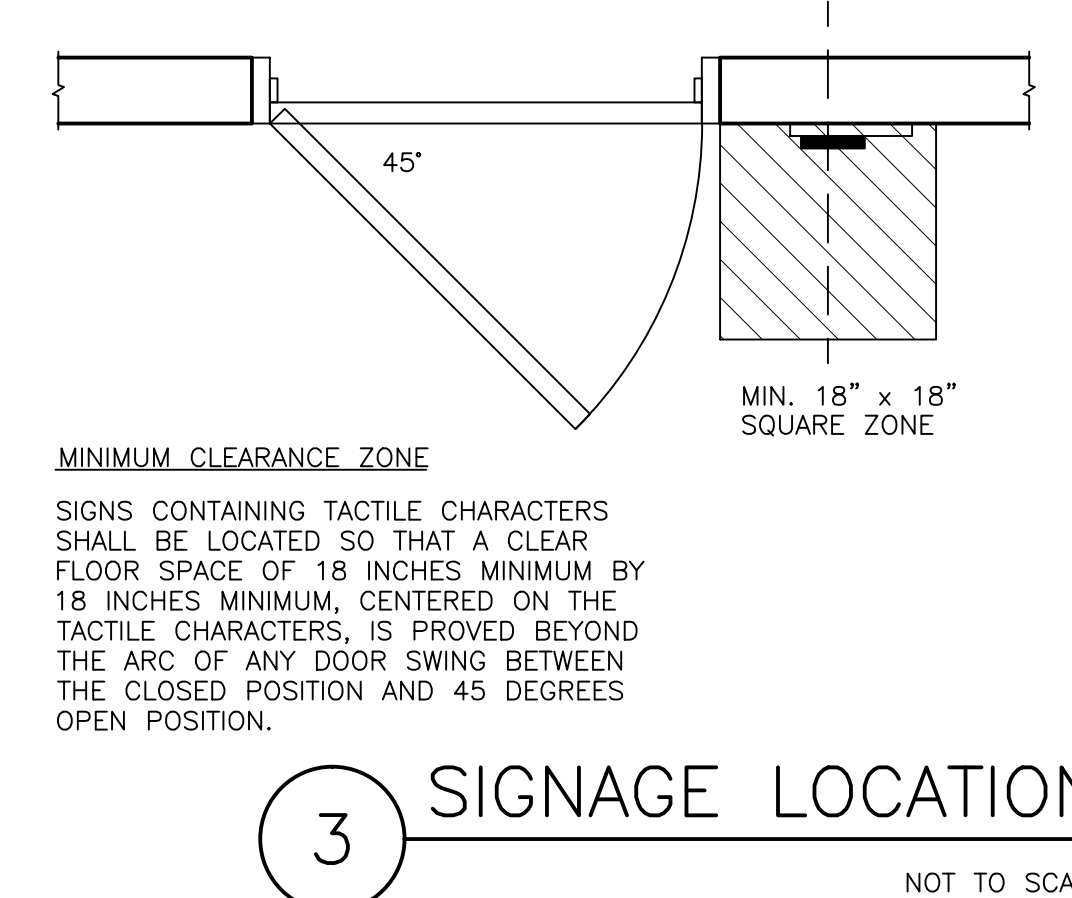
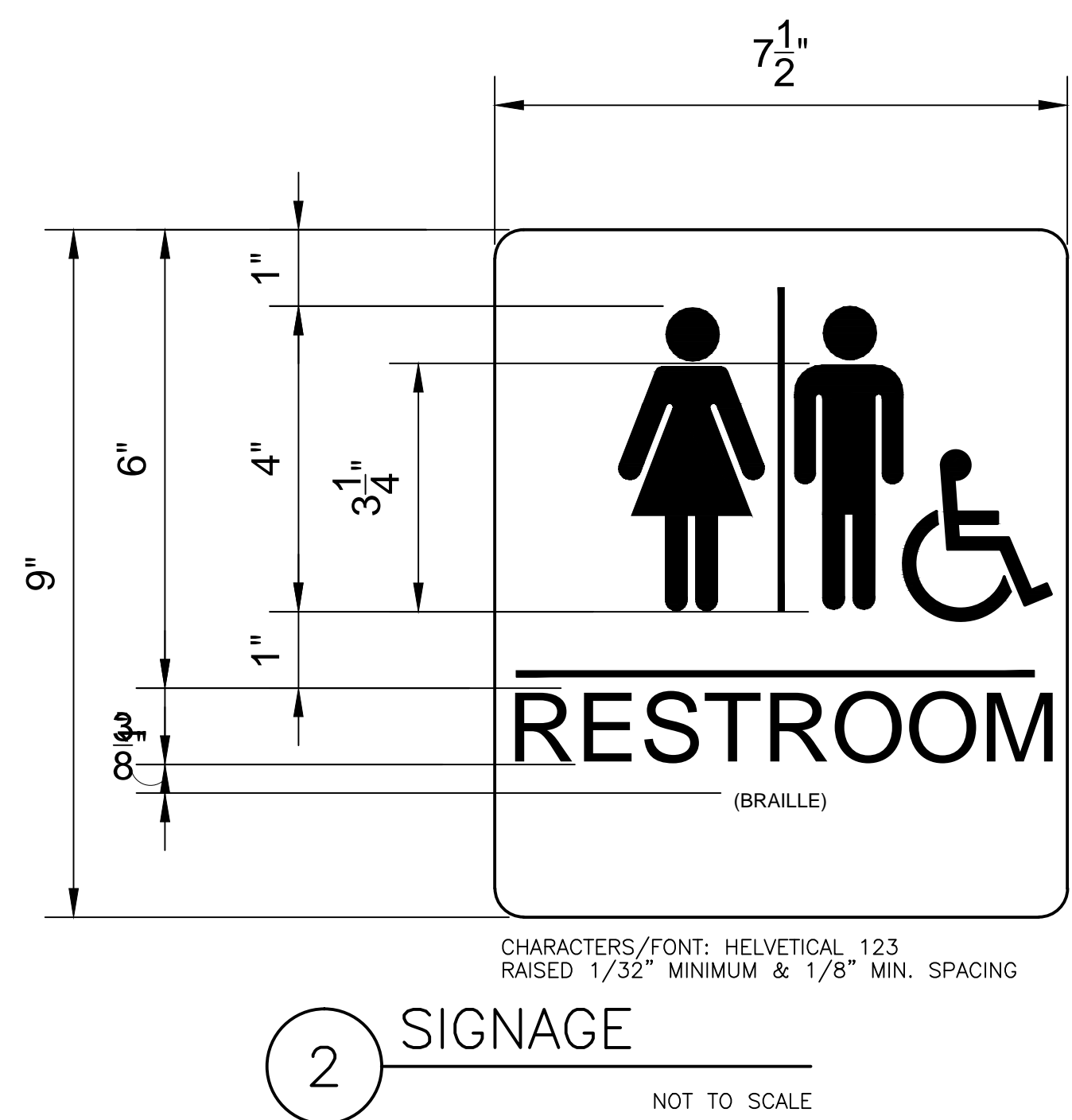
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DATE 11.20.2023
 SCALE AS SHOWN
 DRAWN WEB
 SHEET

S6.1



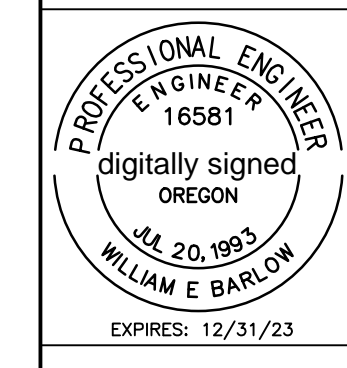
RESTROOM KEY NOTES	
NOTES: 1. COORDINATE BRAND/MANUFACTURE OF TOILET ROOM ACCESSORIES AND FLOORING 2. FOR PAINT AND COLOR SEE PROJECT MANAGER	
1	WATER CLOSET ADA APPROVED (WALL HUNG OR FLOOR MOUNTED)
2	67" RADIUS CIRCULAR TURNING SPACE
3	SIGNAGE SEE 2, 3, &4/57.0
4	TOWEL DISPENSER
5	SOAP DISPENSER
6	SEAT COVER DISPENSER
7	MIRROR
8	COAT HOOK NOT HIGHER THAN 48" ABOVE FLOOR.
9	TOILET PAPER HOLDER
10	SANITARY NAPKIN WASTE RECEPTACLE
11	42" GRAB BAR FOR ATTACHMENT SEE 5/A7.0
12	36" GRAB BAR FOR ATTACHMENT SEE 5/A7.0
13	30"x52" CLEAR SPACE
14	60"x56" CLEAR SPACE
15	FOR EXHAUST FAN & LIGHTS SEE ELECTRICAL
18	TRASH RECEPTACLE
19	FLOOR FINISH MATERIAL SHALL HAVE A SMOOTH, HARD NONABSORBENT SURFACE. THE INTERSECTION OF FLOORS AND WALLS SMOOTH, HARD, NONABSORBENT VERTICAL BASE THAT EXTENDS UPWARD ONTO THE WALLS NOT LESS THAN 4 INCHES.



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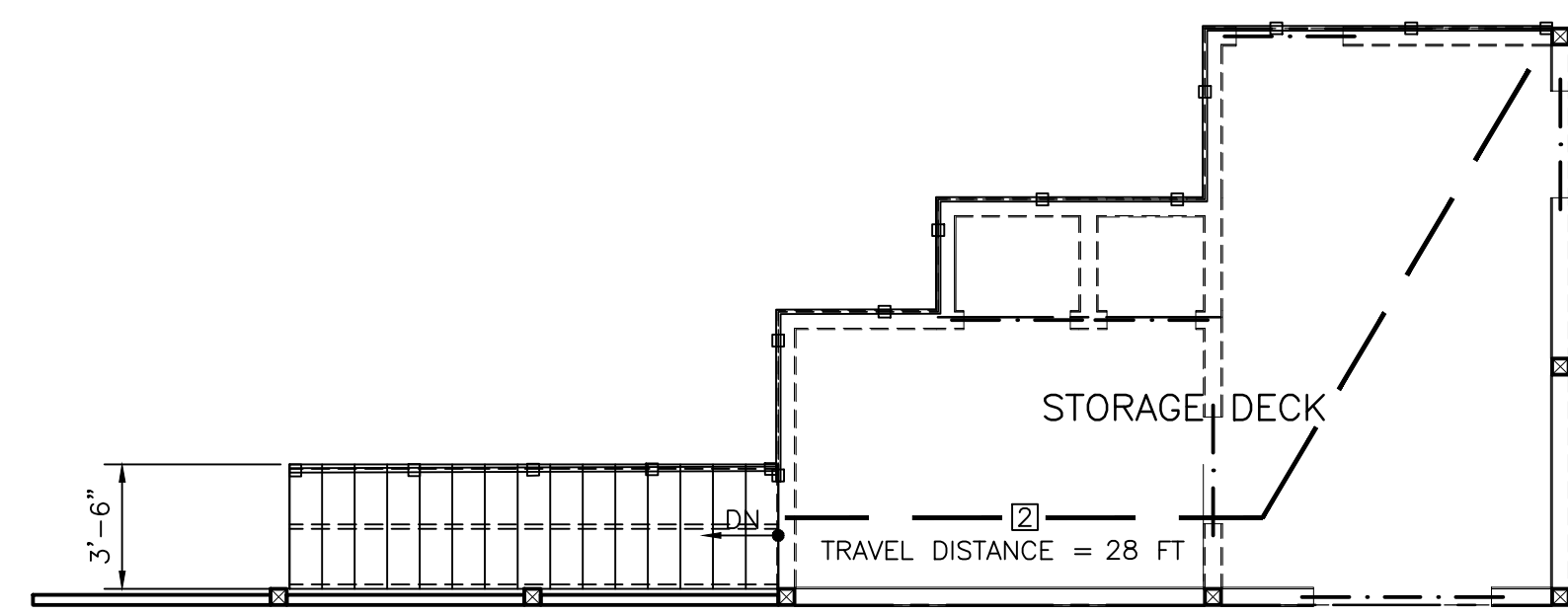
ENLARGED RESTROOM PLAN



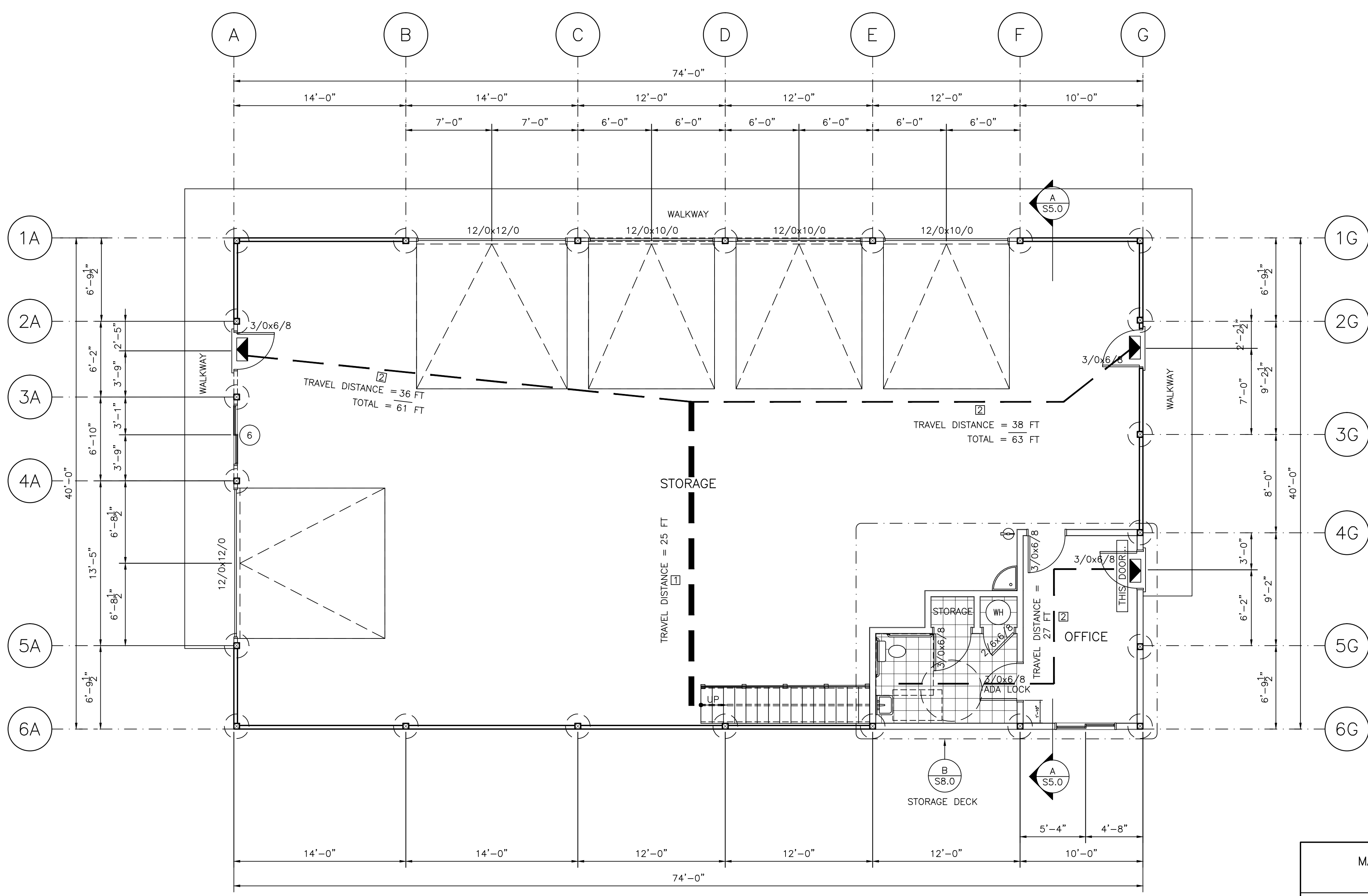
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SCALE AS SHOWN
DRAWN WEB
SHEET

S7.0



B STORAGE DECK
SCALE: 3/16"=1'-0"



A EGRESS PLAN
SCALE: 3/16"=1'-0"

MAXIMUM QUANTITIES OF HAZARDOUS MATERIAL TO BE STORED

STORAGE AREA:
STORAGE OF HAZARDOUS MATERIAL IS PLANNED TO BE A MAXIMUM OF 20 GALLONS FOR GASOLINE AND A MAXIMUM OF 20 GALLONS OF DIESEL FUEL.

STORAGE DECK AREA:
NONE PLANNED

SYMBOL LEGEND

	WALL MOUNTED FIRE EXTINGUISHER (BASIC MIN. RATING: 20B)
	ILLUMINATED EXIT SIGN ELECTRICALLY POWERED, SELF- LUMINOUS OR PHOTOLUMINESCENT LABELED IN ACCORDANCE WITH UL 924 AND INSTALLED PER MANUFACTURER'S INSTRUCTIONS. EXIT SIGN SHALL BE ILLUMINATED AT ALL TIMES.
	COMMON PATH OF EGRESS TRAVEL
	EXIT ACCESS
	SIGN: THIS DOOR TO REMAIN UNLOCKED WHEN BUILDING IS OCCUPIED LETTERS 1" HIGH ON CONTRASTING BACKGROUND

CODE REVIEW DATA			
CODE REVIEW			
1.	2014 OREGON STRUCTURAL SPECIALTY CODE		
2.	2010 OREGON ENERGY EFFICIENCY SPECIALTY CODE		
3.	MECHANICAL, ELECTRICAL, PLUMBING, COMMUNICATIONS, SECURITY, ETC., BY OTHERS		
BUILDING INFORMATION			
OCCUPANCY	B AND S-1		
CONSTRUCTION TYPE	V, B		
AUTOMATIC SPRINKLER	NOT REQUIRED		
BUILDING HEIGHT	EXISTING: 18'-0" ROOF MEAN HEIGHT		
NUMBER OF STORIES	1		
GROUP B: NO FIRE ALARM OR DETECTION SYSTEM REQUIRED (2014 OFC: 907.2.7) NO AUTOMATIC SPRINKLER SYSTEM REQUIRED (2014 OFC: 903) GROUP S-1: NO FIRE ALARM OR DETECTION SYSTEM REQUIRED (2014 OFC: 907) NO AUTOMATIC SPRINKLER SYSTEM REQUIRED (2014 OFC: 903.2.9)			
BUILDING AREA (OCCUPANCY CALCULATIONS)			
FUNCTION OF SPACE	AREA (GSF)	AREA PER OCCUPANT	OCCUPANT LOAD
STORAGE	2599 SQ. FT.	300 GROSS	9
STORAGE DECK	279 SQ. FT.	300 GROSS	1
BUSINESS (OFFICE)	224 SQ. FT.	100 GROSS	3
EGRESS CAPACITY TABULATION (ECT)			
OCCUPANCY	OCCUPANT LOAD	EGRESS WIDTH REQUIRED	EGRESS WIDTH PROVIDED
B	3	36"	36"
STORAGE	9	36"	36"
STORAGE DECK	4	36"	36"
MEASUREMENT OF MEANS OF EGRESS			
	COMMON PATH OF EGRESS TRAVEL	MAX. 200'	ACTUAL: SEE PLAN OSSC 2014: TABLE 1014.3
	EXIT ACCESS TRAVEL DISTANCE	MAX. 250'	SEE PLAN TABLE 1016.2
	MAXIMUM DEAD END CORRIDOR LENGTH	-	-
	MINIMUM CORRIDOR WIDTH	-	-
	MINIMUM CLEAR OPENING OF EXIT DOOR	SEE ECT ABOVE	SEE ECT ABOVE 1008.1.1

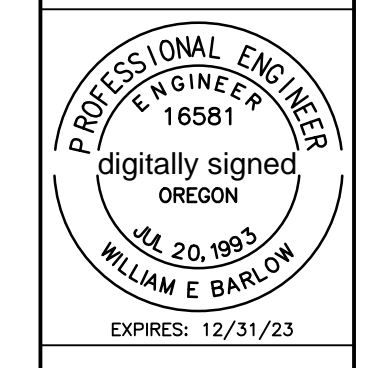
NOTES

- THE MEANS OF EGRESS SHALL BE ILLUMINATED AT ALL TIMES THE SPACE SERVED BY MEANS OF EGRESS IS OCCUPIED.
 - IN THE EVENT OF POWER FAILURE AN EMERGENCY ELECTRICAL SYSTEM SHALL AUTOMATICALLY ILLUMINATE EXIT ACCESS AREAS. POWER DURATION SHALL BE NOT LESS THAN 90 MINUTES.
- 2.1. THE LOCKING DEVICE IS READILY DISTINGUISHABLE AS LOCKED;
 - A READILY VISIBLE DURABLE SIGN IS POSTED ON THE EGRESS SIDE ON OR ADJACENT TO THE DOOR STATING: THIS DOOR TO REMAIN UNLOCKED WHEN BUILDING IS OCCUPIED. THE SIGN SHALL BE IN LETTERS 1 INCH (25 MM) HIGH ON A CONTRASTING BACKGROUND; AND
- 2.3. THE USE OF THE KEY-OPERATED LOCKING DEVICE IS REVOKABLE BY THE BUILDING OFFICIAL FOR DUE CAUSE.

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CODE ANALYSIS AND EGRESS PLAN



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DATE: 11.20.2023
SCALE: AS SHOWN
DRAWN: WEB
SHEET: **S8.0**

STRUCTURAL CALCULATIONS

Project

A NEW STORAGE POLE BUILDING
AT
BENTON COUNTY FAIRGROUNDS
110 SW 53rd ST
CORVALLIS, OR 97333

Client

Shane Galloway,
Maintenance Manager, Benton County
Natural Areas Parks and Events Department
Office, 110 SW 53rd St.
Corvallis OR 97333
Work Cell 541 760-3741
Main Office 541 766-6025
Shane.Galloway@bentoncountyor.gov

*



EXPIRES: 12/31/23

*

by

Civil Engineering Design

William E. Barlow, P.E.
P.O. Box 43
Philomath, OR 97370
541-609-8777

November 20, 2023

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A NEW STORAGE POLE BUILDING AT BENTON COUNTY FAIR GROUNDS 110 SW 53rd ST CORVALLIS, OR 97333

LATERAL FORCE RESISTING SYSTEM DESIGN NOTES

2022 EDITION OF THE OREGON STRUCTURAL SPECIALTY CODE & ASCE 7-16

SEISMIC

EARTHQUAKE DESIGN DATA:

RISK CATEGORY	II
SEISMIC IMPORTANCE FACTOR, I _e :	1.0
MAPPED SPECTRAL RESPONSE ACCELERATIONS:	
S _s :	0.904 g
S ₁ :	0.478 g
SITE CLASS:	D
DESIGN SPECTRAL RESPONSE COEFFICIENTS:	
SDS:	0.686 g
SD1:	0.860 g
SEISMIC DESIGN CATEGORY:	D
SEISMIC FORCE RESISTING SYSTEM:	CANTILEVERED COLUMN SYSTEMS TIMBER FRAMES
DESIGN BASE SHEAR, V (SEISMIC):	20.13 KIPS, N/S; 18.56 KIPS, E/W
SEISMIC RESPONSE COEFF. C _s :	0.4572
RESPONSE MODIFICATION FACTOR, R:	1 1/2
ANALYSIS PROCEDURE:	EQUIVALENT LATERAL FORCE (ELF)

WIND

WIND DESIGN DATA:

ULTIMATE DESIGN WIND SPEED, V _{ult} :	96 M.P.H. (3-SEC GUST)
NOMINAL DESIGN WIND SPEED, V _{asd} :	74 M.P.H
RISK CATEGORY (2022 OSSC, 1604.5):	II
WIND EXPOSURE:	C
APPLICABLE INTERNAL PRESS. COEFF.:	0.18± PSF
DESIGN WIND PRESS. FOR C&C:	18 PSF

SNOW

ROOF SLOPE:	18.45 DEG. (4:12)
IMPORTANCE FACTOR, I _g =	1.0
GROUND SNOW LOAD, P _g =	9 P.S.F.
http://snowload.seao.org/lookup.html	
MIN. SNOW LOAD, P _m :	20 P.S.F.
RAIN ON SNOW:	0 P.S.F.
EXPOSURE:	C
C _e :	1.0
ROOFING MATERIAL:	UNOBSTRUCTED SLIPPERY
C _t :	1.0
C _s :	1.0
FLAT ROOF SLOW LOAD:	CONSTANT: 0.7
P _f =0.7*C _e *C _t *I _g *P _g =	6.30 P.S.F.
MIN. SNOW LOAD, P _m =	20 P.S.F. USE: 25 P.S.F. (CONSERVATIVE)
SLOPED ROOF, P _s :	
P _s =C _s *P _f =	6.30 P.S.F.
GROUND SNOW LOAD, g=	CONSTANTS: 0.13 14
g=0.13*P _g +14=	15.17 P.S.F.
DEPTH GROUND SNOW LOAD, h _g =	CONSTANTS:
h _g =P _g /g=	0.60 FT FOR DECKS, BALCONIES, ETC. WHOSE HT ABOVE GROUND SURFACE IS LESS THAN h _g USE P _m
	25.28 P.S.F.

ABBREVIATIONS

(N) NEW	UNO UNLESS NOTED OTHERWISE
(E) EXISTING	PT PRESSURE TREATED
DO DITTO (SAME)	CONC. CONCRETE
TPI TRUSS PLATE INSTITUTE (tpinst.org)	TYP. TYPICAL
OH OVER HANG (EAVE)	

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 TUALATIN, OR
LATERAL FORCE RESISTING SYSTEM DESIGN NOTES

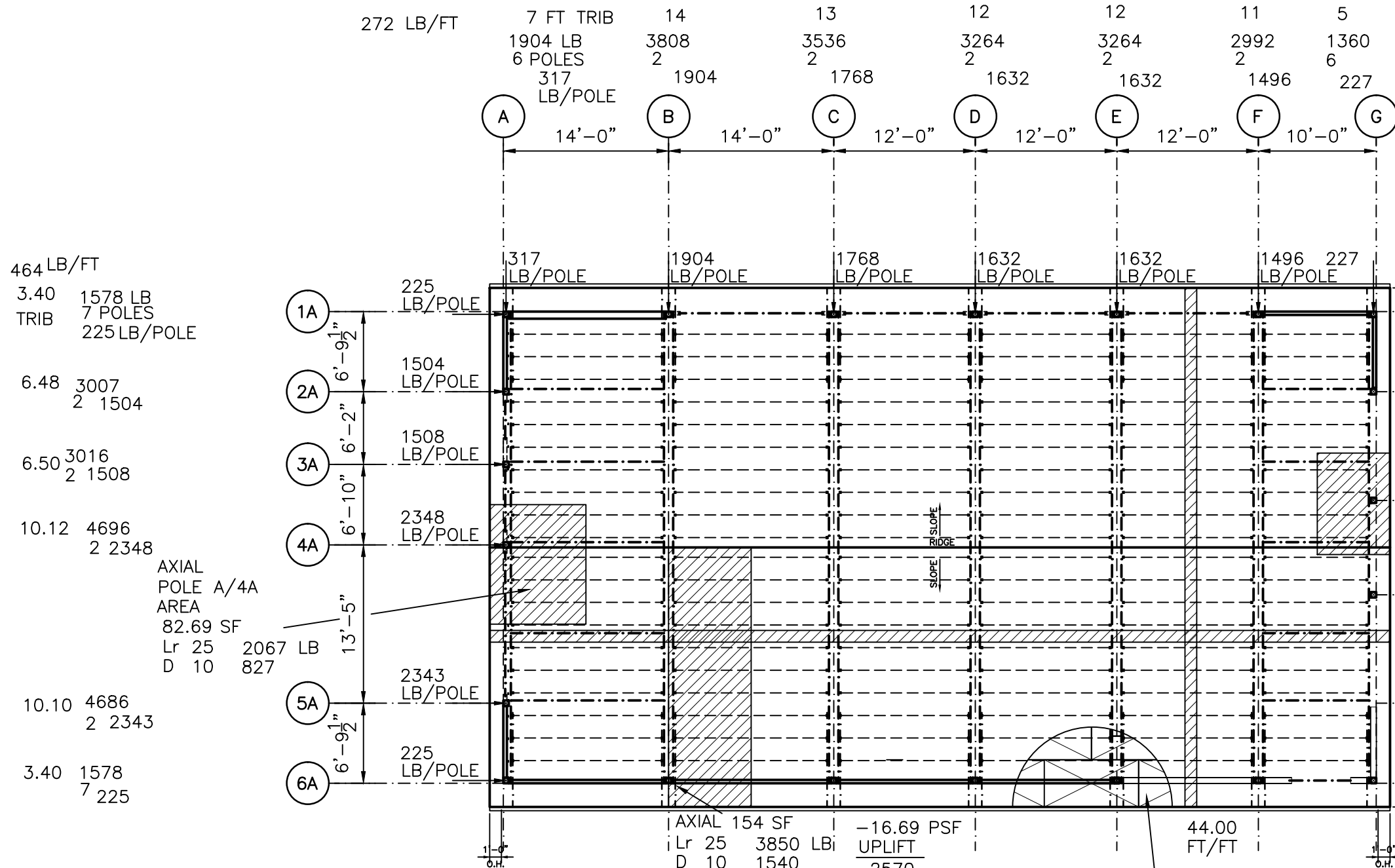
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SCALE	AS SHOWN
DRAWN	WEB
SHEET	

SC1.0

Page 2 of 33

ROOF DEAD LOADS	
METAL ROOFING	1 LB/FT ²
1/2" ROOF SHEATHING	2
TRUSSES	2
MECH/ELEC	3
MISC CEILING	2
TOTAL	10 LB/FT²



464 LB/FT
3.40 1578 LB
TRIB 7 POLES
225 LB/POLE

6.48 3007
2 1504

6.50 3016
2 1508

10.12 4696
2 2348

10.10 4686
2 2343

3.40 1578
7 225

AXIAL
POLE A/4A
AREA
82.69 SF
Lr 25 2067 LB
D 10 827

w = 464 LB/FT
Bns = 464 * 8.62
8.62 4000
TRIB 2 POLES
Bns = 2000 LB/POLE

V = (BASE SHEAR)
* 40 FT = 18560
1000
LB = 18.56 KIPS

1/2 WALL HT
(SHEET SC2.2)
1' STRIP
A = 11.47 FT²
Dw = 11 LB/FT²
126 LB/FT
2 WALLS
252 LB/FT

8.17 w = 272 LB/FT
TRIB Ans = 272 * 8.17
2222
6 POLES
Ans = 370 LB/POLE

14.00 w = 272 LB/FT
TRIB Bns = 272 * 14.00
3808
2 POLES
Bns = 1904 LB/POLE

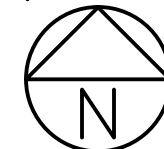
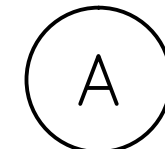
V = (BASE SHEAR)
* 74 FT = 20128
1000
LB = 20.13 KIPS

7/16" SHEATHING SPAN
RATING 24/16 8d GALV.
COMMON (2 1/2"x0.131")
NAILS OR SIMPSON 2
1/2" HCKWSV212S
SCREWS @ 6" OC @
EDGES & 12" OC
INTERMEDIATE SUPPORTS
TYPICAL AT ROOF

1/2 WALL HT
(SHEET SC2.1)
1' STRIP
A = 7.00 FT²
Dw = 11 LB/FT²
77 LB/FT
2 WALLS
154 LB/FT

ROOF N-S
1' STRIP
A = 44.00 FT/FT
D = 10 LB/FT²
440 LB/FT
154
W = 594 LB/FT
V = Cs(W)
Cs = 0.4572
V = 272 LB/FT

SEISMIC & GRAVITY (VERT.) ROOF PLAN



SCALE: 3/32" = 1'-0"

SEISMIC LATERAL CALCULATIONS
ASCE 7-16
SECTION 12.8 EQUIVALENT LATERAL
FORCE PROCEDURE (ELF), p. 101

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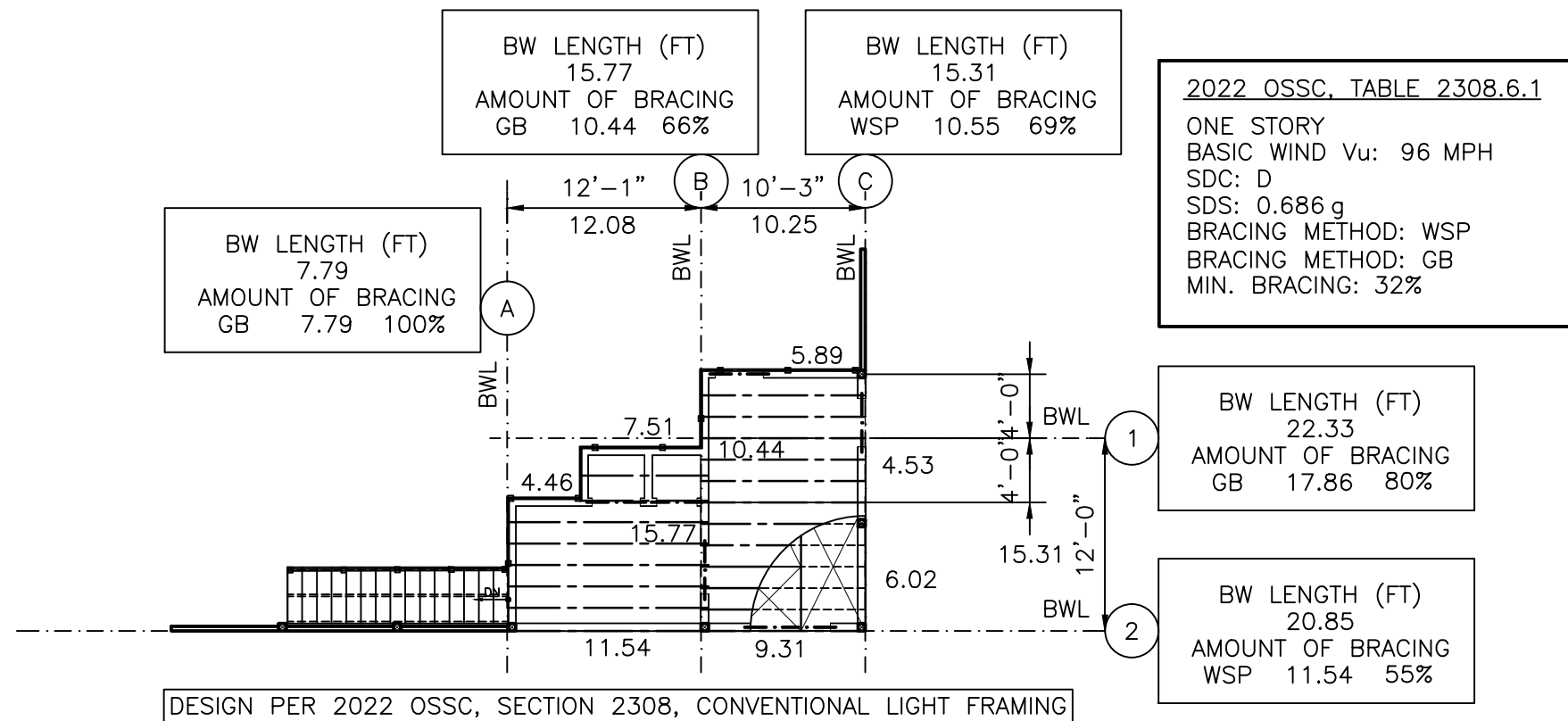
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SEISMIC & GRAVITY (VERT.) ROOF PLAN

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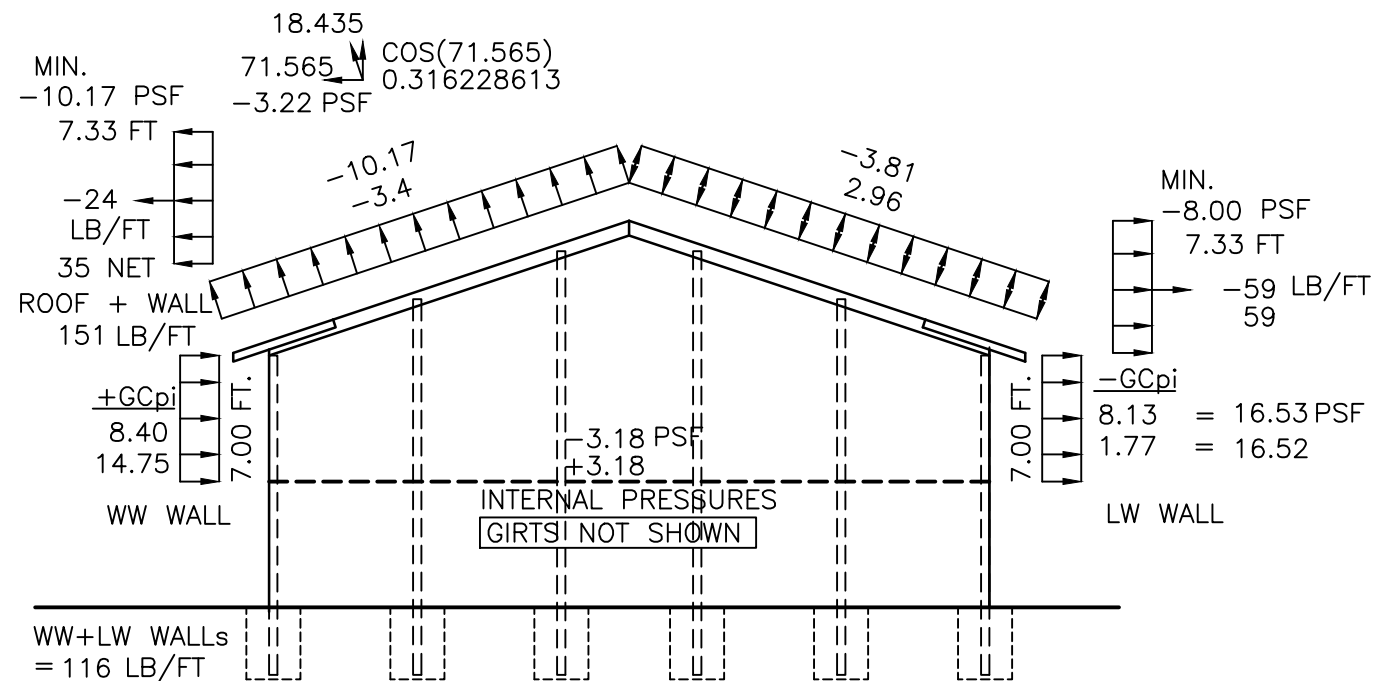
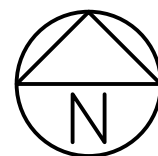
DATE	11.20.2023
SCALE	AS SHOWN
DRAWN	WEB
SHEET	

SC2.0



DESIGN PER 2022 OSSC, SECTION 2308, CONVENTIONAL LIGHT FRAMING

B OFFICE LATERAL DESIGN
 SCALE: 3/32"=1'-0"



A EAST ELEV
 SCALE: 3/32"=1'-0"

WIND PRESSURES

NORMAL TO RIDGE

WINDWARD WALL

h= (FT)	+GCpi	-GCpi
0.00	8.40	14.75
15.00	8.40	14.75
20.00	9.12	15.48
21.69	9.33	15.69
he: 14	8.40	14.75
h: 17.79	8.83	15.19

MIN. 16 PSF * WALL AREA
 & 8 PSF * ROOF AREA PROJECTED
 ONTO A VERTICAL PLANE NORMAL
 TO THE ASSUMED WIND DIRECTION

LEEWARD

+GCpi	-GCpi
-10.86	-4.33

SIDE WALLS

+GCpi	-GCpi
-13.68	-7.33

ROOF

+GCpi	-GCpi
-10.17	-3.81
-3.4	2.96
-11.71	-5.36

SEISMIC CONTROLS!

WIND LATERAL: ASCE-7-16, CH. 27,
 DIRECTIONAL PROCEDURE PART 1,
 p. 273

2022 OSSC
 TABLE 1609.3
 RISK CATEGORY: II
 BENTON COUNTY
 BASIC DESIGN WIND SPEED: 96 MPH

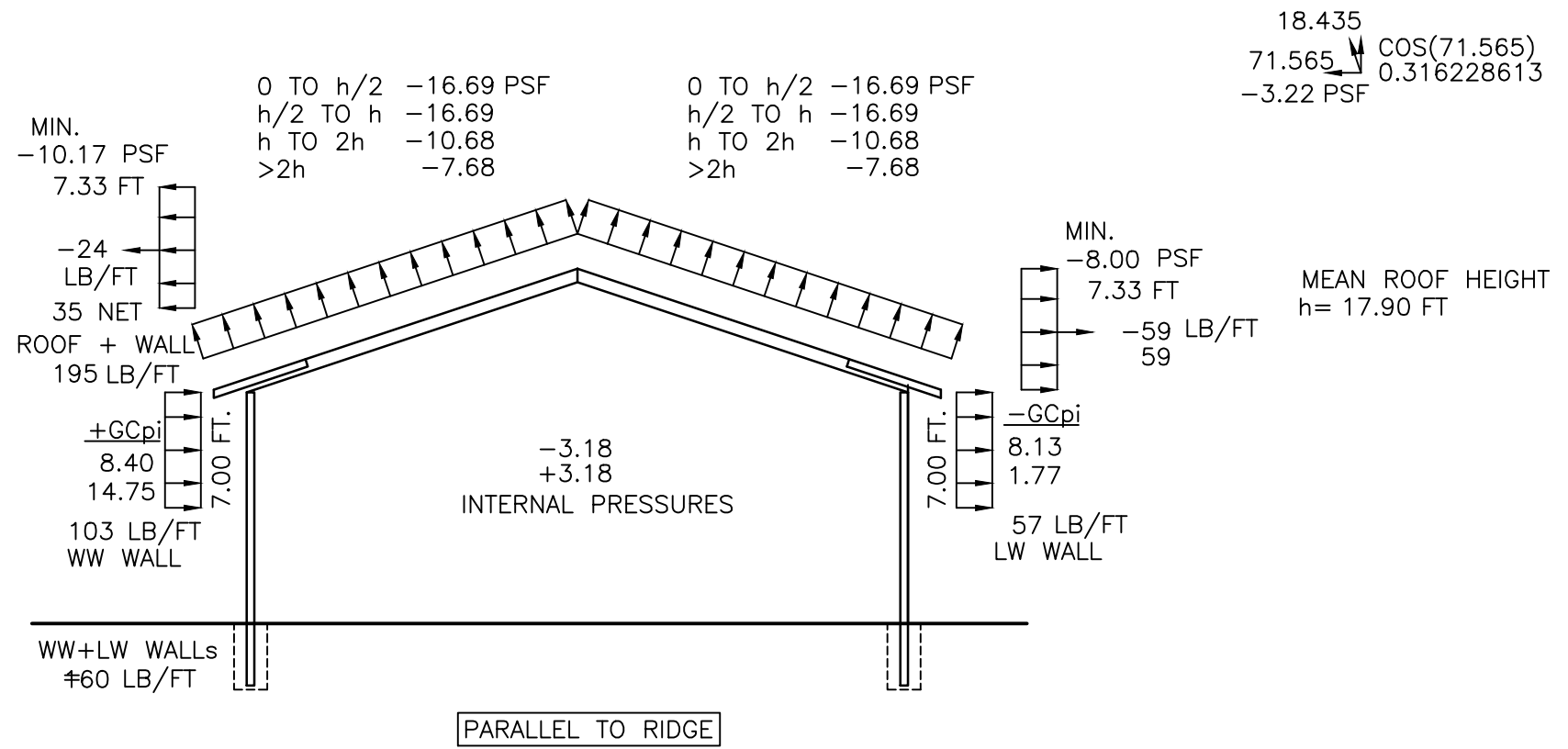
NOTE: ENCLOSURE CLASSIFICATION:
 PARTIALLY OPEN
 SAME INTERNAL PRESSURE
 COEFFICIENTS AS ENCLOSED.

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 TUALATIN, OR
WIND EAST ELEVATION

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DATE 11.20.2023
 SCALE AS SHOWN
 DRAWN WEB
 SHEET

SC3.0



B TRANSVERSE SECT.
SCALE: 3/32" = 1'-0"

WIND PRESSURES
Page 4 of 33

PARALLEL TO RIDGE

WINDWARD WALL

h = (FT)	+GCpi	-GCpi
0.00	8.40	14.75
15.00	8.40	14.75
20.00	9.12	15.48
21.69	9.33	15.69
he: 14	8.40	14.75
h: 17.79	8.83	15.19

MIN. 16 PSF * WALL AREA
& 8 PSF * ROOF AREA PROJECTED
ONTO A VERTICAL PLANE NORMAL
TO THE ASSUMED WIND DIRECTION

LEEWARD

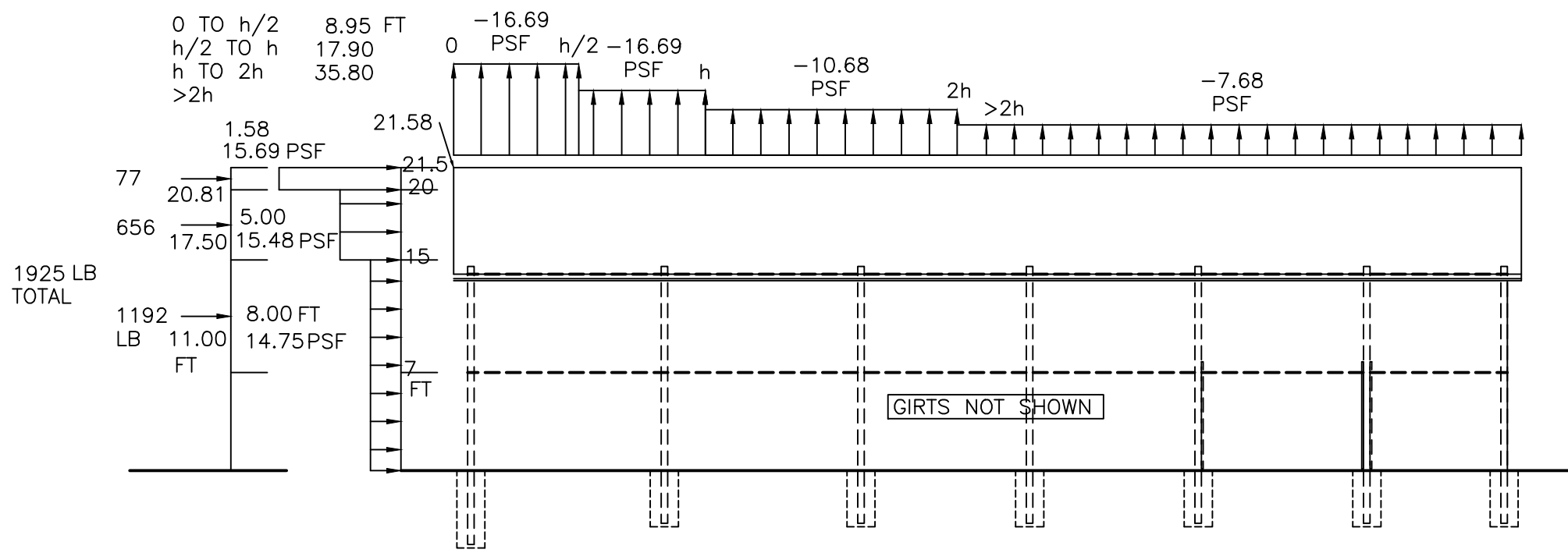
+GCpi	-GCpi
-8.13	-1.77

SIDE WALLS
< NORMAL TO RIDGE

+GCpi	-GCpi
-13.68	-7.33

ROOF

	+GCpi	-GCpi
0 TO h/2 ROOF (ZONE 1), 1	-16.69	-10.33
ROOF (ZONE 1), 2	-5.88	0.48
h/2 TO h ROOF (ZONE 2), 1	-16.69	-10.33
ROOF (ZONE 2), 2	-5.88	0.48
h TO 2h ROOF (ZONE 3), 1	-10.68	-4.33
ROOF (ZONE 3), 2	-5.88	0.48
>2h ROOF (ZONE 4), 1	-7.68	-1.32
ROOF (ZONE 4), 2	-5.88	0.48



A SOUTH ELEV
SCALE: 3/32" = 1'-0"

SEISMIC CONTROLS!

WIND LATERAL: ASCE-7-16, CH. 27,
DIRECTIONAL PROCEDURE, PART 1.
p. 273

2022 OSSC
TABLE 1609.3
RISK CATEGORY: II
BENTON COUNTY
BASIC DESIGN WIND SPEED: 96 MPH

NOTE: ENCLOSURE CLASSIFICATION:
PARTIALLY OPEN
SAME INTERNAL PRESSURE
COEFFICIENTS AS ENCLOSED.

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A NEW STORAGE POLE BUILDING
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TUALATIN, OR

WIND SOUTH ELEV. & TRANSVERSE SECT.

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SC3.1

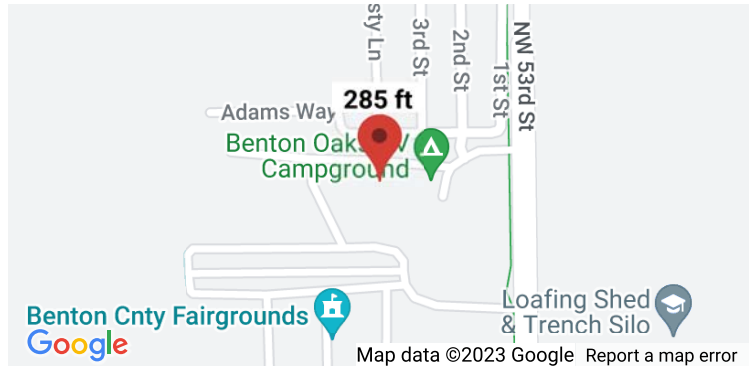
⚠ This is a beta release of the new ATC Hazards by Location website. Please [contact us with feedback](#).

i The ATC Hazards by Location website will not be updated to support ASCE 7-22. [Find out why.](#)

ATC Hazards by Location

Search Information

Coordinates: 44.56822, -123.313783
Elevation: 285 ft
Timestamp: 2023-11-15T16:32:05.343Z
Hazard Type: Seismic
Reference Document: ASCE7-16
Risk Category: II
Site Class: D



Basic Parameters

Name	Value	Description
S_S	0.904	MCE_R ground motion (period=0.2s)
S_1	0.478	MCE_R ground motion (period=1.0s)
S_{MS}	1.029	Site-modified spectral acceleration value
S_{M1}	* null	Site-modified spectral acceleration value
S_{DS}	0.686	Numeric seismic design value at 0.2s SA
S_{D1}	* null	Numeric seismic design value at 1.0s SA

* See Section 11.4.8

Additional Information

Name	Value	Description
SDC	* null	Seismic design category
F_a	1.138	Site amplification factor at 0.2s
F_v	* null	Site amplification factor at 1.0s
CR_S	0.868	Coefficient of risk (0.2s)
CR_1	0.861	Coefficient of risk (1.0s)
PGA	0.43	MCE_G peak ground acceleration
F_{PGA}	1.17	Site amplification factor at PGA
PGA_M	0.503	Site modified peak ground acceleration
T_L	16	Long-period transition period (s)

SsRT	0.904	Probabilistic risk-targeted ground motion (0.2s)
SsUH	1.041	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	1.5	Factored deterministic acceleration value (0.2s)
S1RT	0.478	Probabilistic risk-targeted ground motion (1.0s)
S1UH	0.555	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	0.787	Factored deterministic acceleration value (1.0s)
PGAd	0.676	Factored deterministic acceleration value (PGA)

* See Section 11.4.8

The results indicated here DO NOT reflect any state or local amendments to the values or any delineation lines made during the building code adoption process. Users should confirm any output obtained from this tool with the local Authority Having Jurisdiction before proceeding with design.

Please note that the ATC Hazards by Location website will not be updated to support ASCE 7-22. [Find out why.](#)

Disclaimer

Hazard loads are provided by the U.S. Geological Survey [Seismic Design Web Services](#).

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Exposure Classification

ASCE 7-16, 26.12, p. 270

Project: 110 SW 53rd ST
 Date: 11.14.2023

Building Dimensions

Length, L= 74.00 ft
 Width, W= 40.00 ft
 Average Roof Height, H= 18.00 ft

Wall 1:
 Length 1= 74.00 ft
 Height 1= 14.00 ft
 Wall 1 Area= 1036.00 ft²

Opening 1:
 width = 12.00 ft
 height = 12.00 ft
 Area 1 = 144.00 ft²

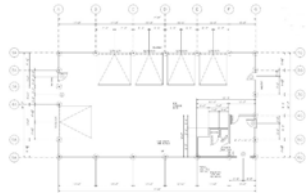
Opening 4:
 width = 12.00 ft
 height = 10.00 ft
 Area 4 = 120.00 ft²

$A_o = 504.00 \text{ ft}^2$
 $A_g = 1036.00 \text{ ft}^2$
 $A_o/A_g = 0.49 \text{ ft}^2$
 $0.01A_g = 10.36 \text{ ft}^2$
 $A_o > 0.01A_g$
 $A_{o1} = 219.00 \text{ ft}^2$
 $A_g = 2156.00 \text{ ft}^2$
 $A_{o1}/A_{g1} = 0.1 < 0.2?$
 $1.1 * A_{o1} = 240.9$

A_o = Total area of openings in a wall that receives positive external pressure, in ft²
 A_g = gross area of that wall which A_o is identified, in ft²
 If > 0.8, then OPEN
 4.00 ft² is lesser
 Sum of the areas of openings in the building envelope (walls and roof) not including A_o , in ft²
 Sum of the gross surface areas of the building envelope (walls and roof) not including A_g , in ft²

1.1 * Sum of the areas of openings in the building envelope (walls and roof) not including A_o , in ft²
 YES

Input	Result



Opening 2:
 width = 12.00 ft
 height = 10.00 ft
 Area 2 = 120.00 ft²

Opening 3:
 width = 12.00 ft
 height = 10.00 ft
 Area 3 = 120.00 ft²

Opening 5:
 width = ft
 height = ft
 Area 5 = 0.00 ft²

Opening 6:
 width = ft
 height = ft
 Area 6 = 0.00 ft²

Wall 2:
 Length 2= 40.00 ft
 Height 2= 14.00 ft
 Wall 2 Area= 560.00 ft²

Opening 1:
 width = 3.00 ft
 height = 6.67 ft
 Area 1 = 20.00 ft²

Opening 4:
 width = ft
 height = ft
 Area 4 = 0.00 ft²

$A_o = 164.00 \text{ ft}^2$
 $A_g = 560.00 \text{ ft}^2$
 $A_o/A_g = 0.29 \text{ ft}^2$
 $0.01A_g = 5.60 \text{ ft}^2$
 $A_o > 0.01A_g$
 $A_{o1} = 763.01 \text{ ft}^2$
 $A_g = 2632.00 \text{ ft}^2$
 $A_{o1}/A_{g1} = 0.3 < 0.2?$
 $1.1 * A_{o1} = 839.3$

A_o = Total area of openings in a wall that receives positive external pressure, in ft²
 A_g = gross area of that wall which A_o is identified, in ft²
 If > 0.8, then OPEN
 4.00 ft² is lesser
 Sum of the areas of openings in the building envelope (walls and roof) not including A_o , in ft²
 Sum of the gross surface areas of the building envelope (walls and roof) not including A_g , in ft²

1.1 * Sum of the areas of openings in the building envelope (walls and roof) not including A_o , in ft²
 NO

Opening 2:
 width = 12.00 ft
 height = 12.00 ft
 Area 2 = 144.00 ft²

Opening 3:
 width = ft
 height = ft
 Area 3 = 0.00 ft²

Opening 5:
 width = ft
 height = ft
 Area 5 = 0.00 ft²

Opening 6:
 width = ft
 height = ft
 Area 6 = 0.00 ft²

Exposure Classification

ASCE 7-16, 26.12, p. 270

Input	
Result	

Project: 110 SW 53rd ST
Date: 11.14.2023

Wall 3:
Length 3= 74.00 ft
Height 3= 14.00 ft
Wall 3 Area= 1036.00 ft²

Opening 1:
width = 5.00 ft
height = 3.00 ft
Area 1 = 15.00 ft²

Opening 2:
width = ft
height = ft
Area 2 = 0.00 ft²

Opening 3:
width = ft
height = ft
Area 3 = 0.00 ft²

Opening 4:
width = ft
height = ft
Area 4 = 0.00 ft²

Opening 5:
width = ft
height = ft
Area 5 = 0.00 ft²

Opening 6:
width = ft
height = ft
Area 6 = 0.00 ft²

$A_o = 15.00 \text{ ft}^2$
 $A_g = 1036.00 \text{ ft}^2$
 $A_o/A_g = 0.01$
 $0.01A_g = 10.36 \text{ ft}^2$
 $A_{oi} = 4.00 \text{ ft}^2$
 $A_{oi}/A_{og} = 708.00 \text{ ft}^2$
 $A_g = 2156.00 \text{ ft}^2$
 $A_{oi}/A_{og} = 0.3 < 0.27$
 $1.1 \cdot A_{oi} = 778.8$

A_o = Total area of openings in a wall that receives positive external pressure, in ft²
 A_g = gross area of that wall which A_o is identified, in ft²
If > 0.8, then OPEN
4.00 ft² is lesser
Sum of the areas of openings in the building envelope (walls and roof) not including A_o , in ft²
Sum of the gross surface areas of the building envelope (walls and roof) not including A_g , in ft²
NO
1.1 * Sum of the areas of openings in the building envelope (walls and roof) not including A_o , in ft²

Wall 4:
Length 4= 40.00 ft
Height 4= 14.00 ft
Wall 4 Area= 560.00 ft²

Opening 1:
width = 3.00 ft
height = 6.67 ft
Area 1 = 20.00 ft²

Opening 2:
width = 3.00 ft
height = 6.67 ft
Area 2 = 20.00 ft²

Opening 3:
width = ft
height = ft
Area 3 = 0.00 ft²

Opening 4:
width = ft
height = ft
Area 4 = 0.00 ft²

Opening 5:
width = ft
height = ft
Area 5 = 0.00 ft²

Opening 6:
width = ft
height = ft
Area 6 = 0.00 ft²

$A_o = 40.00 \text{ ft}^2$
 $A_g = 560.00 \text{ ft}^2$
 $A_o/A_g = 0.07$
 $0.01A_g = 5.60 \text{ ft}^2$
 $A_{oi} = 4.00 \text{ ft}^2$
 $A_{oi}/A_{og} = 683.00 \text{ ft}^2$
 $A_g = 2632.00 \text{ ft}^2$
 $A_{oi}/A_{og} = 0.26 < 0.27$
 $1.1 \cdot A_{oi} = 751.3$

A_o = Total area of openings in a wall that receives positive external pressure, in ft²
 A_g = gross area of that wall which A_o is identified, in ft²
If > 0.8, then OPEN
4.00 ft² is lesser
Sum of the areas of openings in the building envelope (walls and roof) not including A_o , in ft²
Sum of the gross surface areas of the building envelope (walls and roof) not including A_g , in ft²
NO
1.1 * Sum of the areas of openings in the building envelope (walls and roof) not including A_o , in ft²

Roof Openings 0.00 ft²

Summary

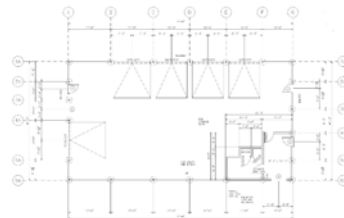
	Side 1	Side 2	Side 3	Side 4
A_o	504.00	164.00	15.00	40.00 ft ²
Smaller of 4 ft ² or 0.01 A_g	4.00	4.00	4.00	4.00 ft ²
A_g	1036.00	560.00	1036.00	560.00 ft ²
0.8 A_g	828.80	448.00	828.80	448.00 ft ²
A_{oi}/A_{og}	0.49	0.29	0.01	0.07 ft ²
A_{oi}	219.00	763.01	708.00	683.00 ft ²
A_g	2156.00	2632.00	2156.00	2632.00 ft ²
A_{oi}/A_{og}	0.10	0.29	0.33	0.26 ft ²
$A_{oi}/A_{og} < 0.27$	NO	NO	NO	NO
1.1 A_{oi}	240.90	839.31	778.80	751.30 ft ²

Building Enclosure Classification:

(1) ENCLOSED:	NO	NO	NO	NO	For each wall, if A_{oi} (smaller of 0.01 A_g or 4 ft ²) & $A_{oi}/A_{og} \leq 0.2$ then Enclosed
(2) OPEN:	NO	NO	NO	NO	For each wall, if $A_{oi} > 0.8A_g$ then Open
(3) PARTIALLY ENCLOSED:	NO	NO	NO	NO	In a wall, if $A_{oi} > ($ smaller of 1.1 A_{oi} or 4 ft ²) & $A_{oi}/A_{og} \leq 0.2$ then Partially Enclosed
(4) PARTIALLY OPEN:	YES	YES	YES	YES	A building that does not comply with the requirements for open, partially enclosed, or enclosed buildings.

	GCpi	GCpi	GCpi	GCpi
(1) ENCLOSED:	NA	NA	NA	NA
(2) OPEN:	NA	NA	NA	NA
(3) PARTIALLY ENCLOSED:	NA	NA	NA	NA
(4) PARTIALLY OPEN:	+/- 0.18	+/- 0.18	+/- 0.18	+/- 0.18

Use: **PARTIALLY OPEN** GCpi +/- 0.18

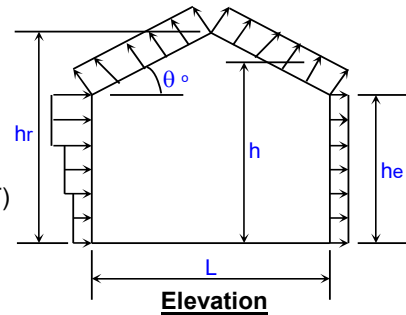
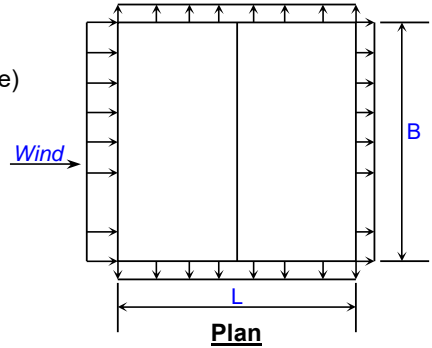


WIND LOADING ANALYSIS - Main Wind-Force Resisting System
Per ASCE 7-16 Code for Enclosed or Partially Enclosed Buildings
Using Direction Procedure (Ch. 27, Part 1) for Buildings of Any Height

Job Name:	110 SW 53rd St	Subject:	MWFRS	Date:	11,14,2023
Job Number:	23024	Originator:	WEB	Checker:	WEB

Input Data:

Wind Direction =	Normal	(Normal or Parallel to building ridge)
Wind Speed, V =	96	mph (2022 OSSC)
Risk Category =	II	(2022 OSSC)
Exposure Category =	C	(Sect. 26.7)
Roof Pitch =	4	:12
Ridge Height, hr =	21.69	ft. (hr >= he)
Eave Height, he =	14.00	ft. (he <= hr)
Building Width, L =	40.00	ft. (Normal to Building Ridge)
Building Length, B =	74.00	ft. (Parallel to Building Ridge)
Roof Type =	Gable	(Gable or Monoslope)
Topo. Factor, Kzt =	1.00	(Sect. 26.8 & Table 26.8-1)
Direct. Factor, Kd =	0.85	(Table 26.6-1)
Enclosure Classification =	Partially Open	(Table 26.13-1)
Hurricane Region?	N	
Damping Ratio, β =	0.050	(Suggested Range = 0.010-0.070)
Period Coef., Ct =	0.0200	(Suggested Range = 0.020-0.035) (Assume: T = Ct*h^(3/4), and f = 1/T)



L = 40 ft.
B = 74 ft.

Resulting Parameters and Coefficients:

Roof Angle, θ =	18.43	deg.	
Mean Roof Ht., h =	17.85	ft. (h = (hr+he)/2, for roof angle >10 deg.)	
Windward Wall Cp =	0.80	(Fig. 27.3-1)	
Leeward Wall Cp =	-0.50	(Fig. 27.3-1)	
Side Walls Cp =	-0.70	(Fig. 27.3-1)	
Windward Roof Cp =	-0.47	(Fig. 27.3-1)	(Condition #1)
Windward Roof Cp =	-0.01	(Fig. 27.3-1)	(Condition #2)
Leeward Roof Cp =	-0.57	(Fig. 27.3-1)	
+GCpi Coef. =	0.18	(Table 26.13-1) (positive internal pressure)	Internal Press. = qh*+/-GCpi
-GCpi Coef. =	-0.18	(Table 26.13-1) (negative internal pressure)	3.18 -3.18

If z <= 15 then: Kz = 2.01*(15/zg)^(2/α), If z > 15 then: Kz = 2.01*(z/zg)^(2/α) (Table 27.3-1)
 α = 9.50 zg = 900 (Table 26.9-1)
 Kh = 0.88 (Kh = Kz evaluated at z = h)

Velocity Pressure: qz = 0.00256*Kz*Kzt*Kd*V^2*1 (Eq. 26.10-1)

qh =	17.66	psf	qh = 0.00256*Kh*Kzt*Kd*V^2 (qz evaluated at z = h)
Ratio h/L =	0.446		freq., f = 5.759 hz. (f >= 1, Rigid structure)
Gust Factor, G =	0.850	(Sect. 26.9)	

Design Net External Wind Pressures (Sect. 27.4):

p = qz*G*Cp - qi*(+/-GCpi) for windward wall (psf), where: qi = qh (Eq. 27.3-1)
 p = qh*G*Cp - qi*(+/-GCpi) for leeward wall, sidewalls, and roof (psf), where: qi = qh (Eq. 27.3-1)

Determination of Gust Effect Factor, G:

Is Building Flexible? $f \geq 1$ Hz.

1: Simplified Method for Rigid Building

G =

Parameters Used in Both Item #2 and Item #3 Calculations (from Table 26.9-1):

α^A =	<input type="text" value="0.105"/>
b^A =	<input type="text" value="1.00"/>
$\alpha(\bar{b})$ =	<input type="text" value="0.154"/>
$b(\bar{b})$ =	<input type="text" value="0.65"/>
c =	<input type="text" value="0.20"/>
l =	<input type="text" value="500"/> ft.
$\varepsilon(\bar{b})$ =	<input type="text" value="0.200"/>
z(min) =	<input type="text" value="15"/> ft.

Calculated Parameters Used in Both Rigid and/or Flexible Building Calculations:

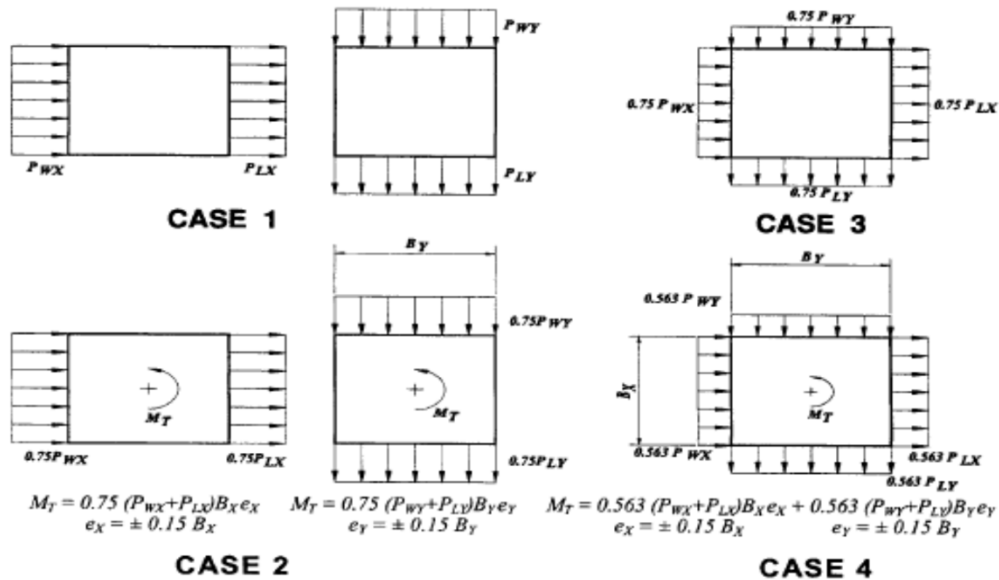
z(bar) =	<input type="text" value="15.00"/>	= 0.6*h , but not < z(min) , ft. Table 26.9-1
lz(bar) =	<input type="text" value="0.228"/>	= $c*(33/z(\bar{b}))^{1/6}$, Eq. 26.9-7
Lz(bar) =	<input type="text" value="427.06"/>	= $l*(z(\bar{b})/33)^{\varepsilon(\bar{b})}$, Eq. 26.9-9
gq =	<input type="text" value="3.4"/>	(3.4, per Sect. 26.9.4)
gv =	<input type="text" value="3.4"/>	(3.4, per Sect. 26.9.4)
gr =	<input type="text" value="4.588"/>	= $(2*(LN(3600*f))^{1/2} + 0.577)/(2*LN(3600*f))^{1/2}$, Eq. 26.9-11
Q =	<input type="text" value="0.898"/>	= $(1/(1+0.63*((B+h)/Lz(\bar{b}))^{0.63}))^{1/2}$, Eq. 26.9-8

2: Calculation of G for Rigid Building

G = = $0.925*((1+1.7*gq*lz(\bar{b})*Q)/(1+1.7*gv*lz(\bar{b})))$, Eq. 26.9-6

3: Calculation of Gf for Flexible Building

β =	<input type="text" value="0.050"/>	Damping Ratio
Ct =	<input type="text" value="0.020"/>	Period Coefficient
T =	<input type="text" value="0.174"/>	= $Ct*h^{3/4}$, sec. (Approximate fundamental period)
f =	<input type="text" value="5.759"/>	= 1/T , Hz. (Natural Frequency)
V(fps) =	<input type="text" value="N.A."/>	= $V(\text{mph})*(88/60)$, ft./sec.
V(bar,zbar) =	<input type="text" value="N.A."/>	= $b(\bar{b})*z(\bar{b})/33^{\alpha(\bar{b})}*V*(88/60)$, ft./sec. , Eq. 26.9-16
N1 =	<input type="text" value="N.A."/>	= $f*Lz(\bar{b})/V(\bar{b},z\bar{b})$, Eq. 26.9-14
Rn =	<input type="text" value="N.A."/>	= $7.47*N1/(1+10.3*N1^{5/3})$, Eq. 26.9-13
ηh =	<input type="text" value="N.A."/>	= $4.6*f*h/V(\bar{b},z\bar{b})$
Rh =	<input type="text" value="N.A."/>	= $(1/\eta h) - 1/(2*\eta h^2)*(1 - e^{-2*\eta h})$ for $\eta h > 0$, or = 1 for $\eta h = 0$, Eq. 26.9-15a, b
ηb =	<input type="text" value="N.A."/>	= $4.6*f*B/V(\bar{b},z\bar{b})$
RB =	<input type="text" value="N.A."/>	= $(1/\eta b) - 1/(2*\eta b^2)*(1 - e^{-2*\eta b})$ for $\eta b > 0$, or = 1 for $\eta b = 0$, Eq. 26.9-15a, b
ηd =	<input type="text" value="N.A."/>	= $15.4*f*L/V(\bar{b},z\bar{b})$
RL =	<input type="text" value="N.A."/>	= $(1/\eta d) - 1/(2*\eta d^2)*(1 - e^{-2*\eta d})$ for $\eta d > 0$, or = 1 for $\eta d = 0$, Eq. 26.9-15a, b
R =	<input type="text" value="N.A."/>	= $((1/\beta)*Rn*Rh*RB*(0.53+0.47*RL))^{1/2}$, Eq. 26.9-12
Gf =	<input type="text" value="N.A."/>	= $0.925*(1+1.7*lz(\bar{b})*(gq^2*Q^2+gr^2*R^2)^{1/2})/(1+1.7*gv*lz(\bar{b}))$, Eq. 26.9-10
Use: G =	<input type="text" value="0.850"/>	

Figure 27.4-1 - Design Wind Load Cases of MWFRS for Buildings of All Heights

- Case 1:** Full design wind pressure acting on the projected area perpendicular to each principal axis of the structure, considered separately along each principal axis.
- Case 2:** Three quarters of the design wind pressure acting on the projected area perpendicular to each principal axis of the structure in conjunction with a torsional moment as shown, considered separately for each principal axis.
- Case 3:** Wind pressure as defined in Case 1, but considered to act simultaneously at 75% of the specified value.
- Case 4:** Wind pressure as defined in Case 2, but considered to act simultaneously at 75% of the specified value.

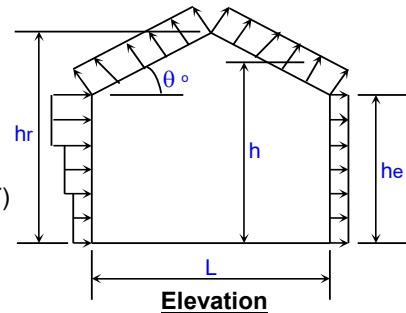
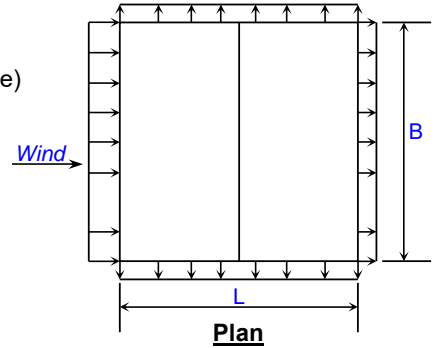
- Notes:**
- Design wind pressures for windward (Pw) and leeward (PL) faces shall be determined in accordance with the provisions of Section 27.4.1 and 27.4.2 as applicable for buildings of all heights.
 - Above diagrams show plan views of building.
 - Notation:
 - P_{wx}, P_{wy} = Windward face pressure acting in the X, Y principal axis, respectively.
 - P_{Lx}, P_{Ly} = Leeward face pressure acting in the X, Y principal axis, respectively.
 - e (e_x, e_y) = Eccentricity for the X, Y principal axis of the structure, respectively.
 - M_T = Torsional moment per unit height acting about a vertical axis of the building.

WIND LOADING ANALYSIS - Main Wind-Force Resisting System
Per ASCE 7-16 Code for Enclosed or Partially Enclosed Buildings
Using Direction Procedure (Ch. 27, Part 1) for Buildings of Any Height

Job Name:	110 SW 53rd St	Subject:	MWFRS	Date:	11,14,2023
Job Number:	23024	Originator:	WEB	Checker:	WEB

Input Data:

Wind Direction =	Parallel	(Normal or Parallel to building ridge)
Wind Speed, V =	96	mph (2022 OSSC)
Risk Category =	II	(2022 OSSC)
Exposure Category =	C	(Sect. 26.7)
Roof Pitch =	4	:12
Ridge Height, hr =	21.69	ft. (hr >= he)
Eave Height, he =	14.00	ft. (he <= hr)
Building Width, L =	40.00	ft. (Normal to Building Ridge)
Building Length, B =	74.00	ft. (Parallel to Building Ridge)
Roof Type =	Gable	(Gable or Monoslope)
Topo. Factor, Kzt =	1.00	(Sect. 26.8 & Table 26.8-1)
Direct. Factor, Kd =	0.85	(Table 26.6-1)
Enclosure Classification =	Partially Open	(Table 26.13-1)
Hurricane Region?	N	
Damping Ratio, β =	0.050	(Suggested Range = 0.010-0.070)
Period Coef., Ct =	0.0200	(Suggested Range = 0.020-0.035) (Assume: T = Ct*h^(3/4), and f = 1/T)



L = 74 ft.
B = 40 ft.

Resulting Parameters and Coefficients:

Roof Angle, θ =	18.43	deg.		
Mean Roof Ht., h =	17.85	ft. (h = (hr+he)/2, for roof angle >10 deg.)		
Windward Wall Cp =	0.80	(Fig. 27.3-1)		
Leeward Wall Cp =	-0.33	(Fig. 27.3-1)		
Side Walls Cp =	-0.70	(Fig. 27.3-1)		
Roof Cp (zone #1) =	-0.90	-0.18	(Fig. 27.3-1)	(zone #1 for 0 to h/2)
Roof Cp (zone #2) =	-0.90	-0.18	(Fig. 27.3-1)	(zone #2 for h/2 to h)
Roof Cp (zone #3) =	-0.50	-0.18	(Fig. 27.3-1)	(zone #3 for h to 2*h)
Roof Cp (zone #4) =	-0.30	-0.18	(Fig. 27.3-1)	(zone #4 for > 2*h)
+GCpi Coef. =	0.18	(Table 26.13-1) (positive internal pressure)	Internal Press. = qh*+/-GCpi	
-GCpi Coef. =	-0.18	(Table 26.13-1) (negative internal pressure)	3.18	-3.18

If z <= 15 then: Kz = 2.01*(15/zg)^(2/α), If z > 15 then: Kz = 2.01*(z/zg)^(2/α) (Table 27.3-1)

α =	9.50	zg =	900	(Table 26.9-1)
Kh =	0.88	(Kh = Kz evaluated at z = h)		

Velocity Pressure: qz = 0.00256*Kz*Kzt*Kd*V^2*1 (Eq. 26.10-1)

qh =	17.66	psf	qh = 0.00256*Kh*Kzt*Kd*V^2 (qz evaluated at z = h)	
Ratio h/L =	0.241	freq., f =	5.759	hz. (f >= 1, Rigid structure)
Gust Factor, G =	0.850	(Sect. 26.9)		

Design Net External Wind Pressures (Sect. 27.4):

p = qz*G*Cp - qi*(+/-GCpi) for windward wall (psf), where: qi = qh (Eq. 27.3-1)
 p = qh*G*Cp - qi*(+/-GCpi) for leeward wall, sidewalls, and roof (psf), where: qi = qh (Eq. 27.3-1)

Determination of Gust Effect Factor, G:

Is Building Flexible? $f \geq 1$ Hz.

1: Simplified Method for Rigid Building

G =

Parameters Used in Both Item #2 and Item #3 Calculations (from Table 26.9-1):

α^A =	<input type="text" value="0.105"/>
b^A =	<input type="text" value="1.00"/>
$\alpha(\bar{b})$ =	<input type="text" value="0.154"/>
$b(\bar{b})$ =	<input type="text" value="0.65"/>
c =	<input type="text" value="0.20"/>
l =	<input type="text" value="500"/> ft.
$\varepsilon(\bar{b})$ =	<input type="text" value="0.200"/>
z(min) =	<input type="text" value="15"/> ft.

Calculated Parameters Used in Both Rigid and/or Flexible Building Calculations:

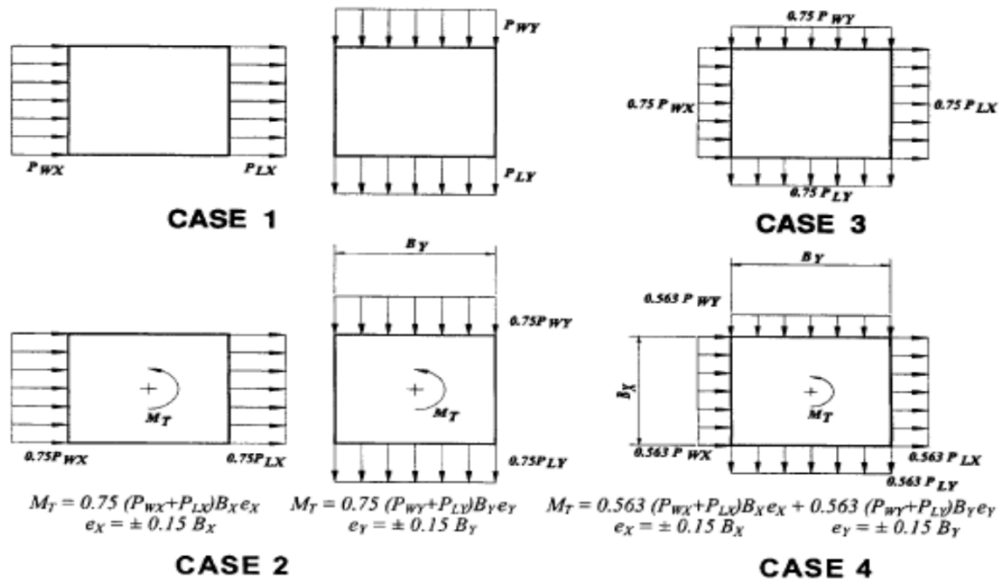
z(bar) =	<input type="text" value="15.00"/>	= 0.6*h , but not < z(min) , ft. Table 26.9-1
lz(bar) =	<input type="text" value="0.228"/>	= $c*(33/z(\bar{b}))^{1/6}$, Eq. 26.9-7
Lz(bar) =	<input type="text" value="427.06"/>	= $l*(z(\bar{b})/33)^{\varepsilon(\bar{b})}$, Eq. 26.9-9
gq =	<input type="text" value="3.4"/>	(3.4, per Sect. 26.9.4)
gv =	<input type="text" value="3.4"/>	(3.4, per Sect. 26.9.4)
gr =	<input type="text" value="4.588"/>	= $(2*(LN(3600*f))^{1/2} + 0.577)/(2*LN(3600*f))^{1/2}$, Eq. 26.9-11
Q =	<input type="text" value="0.921"/>	= $(1/(1+0.63*((B+h)/Lz(\bar{b}))^{0.63}))^{1/2}$, Eq. 26.9-8

2: Calculation of G for Rigid Building

G = = $0.925*((1+1.7*gq*lz(\bar{b})*Q)/(1+1.7*gv*lz(\bar{b})))$, Eq. 26.9-6

3: Calculation of Gf for Flexible Building

β =	<input type="text" value="0.050"/>	Damping Ratio
Ct =	<input type="text" value="0.020"/>	Period Coefficient
T =	<input type="text" value="0.174"/>	= $Ct*h^{3/4}$, sec. (Approximate fundamental period)
f =	<input type="text" value="5.759"/>	= 1/T , Hz. (Natural Frequency)
V(fps) =	<input type="text" value="N.A."/>	= $V(\text{mph})*(88/60)$, ft./sec.
V(bar,zbar) =	<input type="text" value="N.A."/>	= $b(\bar{b})*z(\bar{b})/33^{\alpha(\bar{b})}*V*(88/60)$, ft./sec. , Eq. 26.9-16
N1 =	<input type="text" value="N.A."/>	= $f*Lz(\bar{b})/V(\bar{b},z\bar{b})$, Eq. 26.9-14
Rn =	<input type="text" value="N.A."/>	= $7.47*N1/(1+10.3*N1^{5/3})$, Eq. 26.9-13
ηh =	<input type="text" value="N.A."/>	= $4.6*f*h/V(\bar{b},z\bar{b})$
Rh =	<input type="text" value="N.A."/>	= $(1/\eta h) - 1/(2*\eta h^2)*(1 - e^{-2*\eta h})$ for $\eta h > 0$, or = 1 for $\eta h = 0$,Eq. 26.9-15a, b
ηb =	<input type="text" value="N.A."/>	= $4.6*f*B/V(\bar{b},z\bar{b})$
RB =	<input type="text" value="N.A."/>	= $(1/\eta b) - 1/(2*\eta b^2)*(1 - e^{-2*\eta b})$ for $\eta b > 0$, or = 1 for $\eta b = 0$,Eq. 26.9-15a, b
ηd =	<input type="text" value="N.A."/>	= $15.4*f*L/V(\bar{b},z\bar{b})$
RL =	<input type="text" value="N.A."/>	= $(1/\eta d) - 1/(2*\eta d^2)*(1 - e^{-2*\eta d})$ for $\eta d > 0$, or = 1 for $\eta d = 0$,Eq. 26.9-15a, b
R =	<input type="text" value="N.A."/>	= $((1/\beta)*Rn*Rh*RB*(0.53+0.47*RL))^{1/2}$, Eq. 26.9-12
Gf =	<input type="text" value="N.A."/>	= $0.925*(1+1.7*lz(\bar{b})*(gq^2*Q^2+gr^2*R^2)^{1/2})/(1+1.7*gv*lz(\bar{b}))$,
Use: G =	<input type="text" value="0.850"/>	Eq. 26.9-10

Figure 27.4-1 - Design Wind Load Cases of MWFRS for Buildings of All Heights

- Case 1:** Full design wind pressure acting on the projected area perpendicular to each principal axis of the structure, considered separately along each principal axis.
- Case 2:** Three quarters of the design wind pressure acting on the projected area perpendicular to each principal axis of the structure in conjunction with a torsional moment as shown, considered separately for each principal axis.
- Case 3:** Wind pressure as defined in Case 1, but considered to act simultaneously at 75% of the specified value.
- Case 4:** Wind pressure as defined in Case 2, but considered to act simultaneously at 75% of the specified value.

- Notes:**
1. Design wind pressures for windward (Pw) and leeward (PL) faces shall be determined in accordance with the provisions of Section 27.4.1 and 27.4.2 as applicable for buildings of all heights.
 2. Above diagrams show plan views of building.
 3. Notation:
 - Pwx, Pwy = Windward face pressure acting in the X, Y principal axis, respectively.
 - PLx, PLY = Leeward face pressure acting in the X, Y principal axis, respectively.
 - e (ex, ey) = Eccentricity for the X, Y principal axis of the structure, respectively.
 - MT = Torsional moment per unit height acting about a vertical axis of the building.

Net Design Wind Pressure, p_{net30} , in lb/ft^2 , for Exposure B at $h = 30$ ft, $V = 95-130$ mph

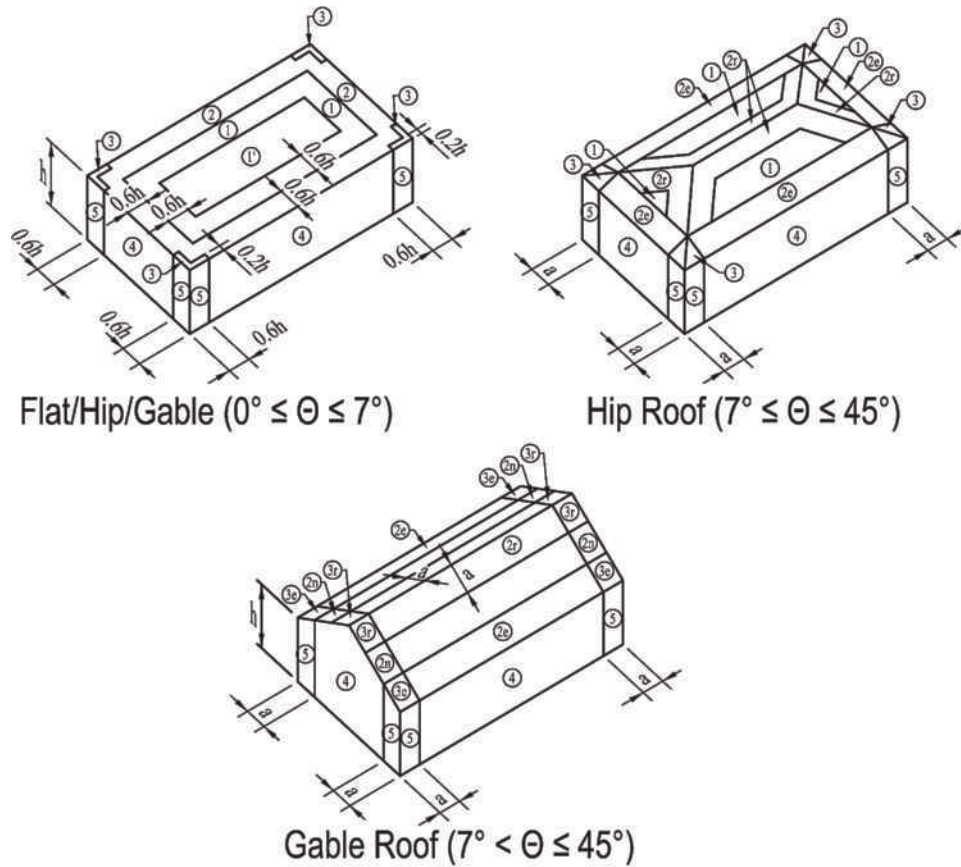
	Zone	Effective Wind Area (ft^2)	Basic Wind Speed (mph)													
			95		100		105		110		115		120		130	
Walls	4	10	16.2	-17.6	18.0	-19.5	19.8	-21.5	21.8	-23.6	23.8	-25.8	25.9	-28.1	30.4	-33.0
	4	20	15.5	-16.9	17.2	-18.7	18.9	-20.6	20.8	-22.6	22.7	-24.7	24.7	-26.9	29.0	-31.6
	4	50	14.5	-15.9	16.1	-17.6	17.8	-19.4	19.5	-21.3	21.3	-23.3	23.2	-25.4	27.2	-29.8
	4	100	13.8	-15.2	15.3	-16.8	16.9	-18.5	18.5	-20.4	20.2	-22.2	22.0	-24.2	25.9	-28.4
	5	10	16.2	-21.7	18.0	-24.1	19.8	-26.6	21.8	-29.1	23.8	-31.9	25.9	-34.7	30.4	-40.7
	5	20	15.5	-20.3	17.2	-22.5	18.9	-24.8	20.8	-27.2	22.7	-29.7	24.7	-32.4	29.0	-38.0
	5	50	14.5	-18.3	16.1	-20.3	17.8	-22.4	19.5	-24.6	21.3	-26.9	23.2	-29.3	27.2	-34.3
	5	100	13.8	-16.9	15.3	-18.7	16.9	-20.6	18.5	-22.6	20.2	-24.7	22.0	-26.9	25.9	-31.6
Flat/Hip/Gable Roof 0 to 7 Degrees	1	10	6.6	-25.9	7.3	-28.7	8.1	-31.6	8.9	-34.7	9.7	-37.9	10.5	-41.3	12.4	-48.4
	1	20	6.2	-24.2	6.9	-26.8	7.6	-29.5	8.3	-32.4	9.1	-35.4	9.9	-38.5	11.6	-45.2
	1	50	5.6	-21.9	6.3	-24.3	6.9	-26.8	7.6	-29.4	8.3	-32.1	9.0	-34.9	10.6	-41.0
	1	100	5.2	-20.2	5.8	-22.4	6.4	-24.7	7.0	-27.1	7.7	-29.6	8.3	-32.2	9.8	-37.8
	1'	10	6.6	-14.9	7.3	-16.5	8.1	-18.2	8.9	-19.9	9.7	-21.8	10.5	-23.7	12.4	-27.8
	1'	20	6.2	-14.9	6.9	-16.5	7.6	-18.2	8.3	-19.9	9.1	-21.8	9.9	-23.7	11.6	-27.8
	1'	50	5.6	-14.9	6.3	-16.5	6.9	-18.2	7.6	-19.9	8.3	-21.8	9.0	-23.7	10.6	-27.8
	1'	100	5.2	-14.9	5.8	-16.5	6.4	-18.2	7.0	-19.9	7.7	-21.8	8.3	-23.7	9.8	-27.8
	2	10	6.6	-34.1	7.3	-37.8	8.1	-41.7	8.9	-45.7	9.7	-50.0	10.5	-54.4	12.4	-63.9
	2	20	6.2	-31.9	6.9	-35.4	7.6	-39.0	8.3	-42.8	9.1	-46.8	9.9	-50.9	11.6	-59.8
	2	50	5.6	-29.0	6.3	-32.2	6.9	-35.5	7.6	-38.9	8.3	-42.5	9.0	-46.3	10.6	-54.4
	2	100	5.2	-26.8	5.8	-29.7	6.4	-32.8	7.0	-36.0	7.7	-39.3	8.3	-42.8	9.8	-50.2
	3	10	6.6	-46.5	7.3	-51.5	8.1	-56.8	8.9	-62.3	9.7	-68.1	10.5	-74.2	12.4	-87.1
	3	20	6.2	-42.1	6.9	-46.7	7.6	-51.4	8.3	-56.5	9.1	-61.7	9.9	-67.2	11.6	-78.9
	3	50	5.6	-36.3	6.3	-40.2	6.9	-44.4	7.6	-48.7	8.3	-53.2	9.0	-57.9	10.6	-68.0
	3	100	5.2	-31.9	5.8	-35.4	6.4	-39.0	7.0	-42.8	7.7	-46.8	8.3	-50.9	9.8	-59.8
Gable Roof > 7 to 20 Degrees	1	10	9.8	-30.0	10.9	-33.2	12.0	-36.6	13.2	-40.2	14.4	-44.0	15.7	-47.9	18.4	-56.2
	1	20	8.9	-30.0	9.8	-33.2	10.8	-36.6	11.9	-40.2	13.0	-44.0	14.1	-47.9	16.6	-56.2
	1	50	7.6	-18.2	8.4	-20.2	9.3	-22.3	10.2	-24.5	11.1	-26.7	12.1	-29.1	14.2	-34.2
	1	100	6.6	-9.4	7.3	-10.4	8.1	-11.4	8.9	-12.5	9.7	-13.7	10.5	-14.9	12.4	-17.5
	2e	10	9.8	-30.0	10.9	-33.2	12.0	-36.6	13.2	-40.2	14.4	-44.0	15.7	-47.9	18.4	-56.2
	2e	20	8.9	-30.0	9.8	-33.2	10.8	-36.6	11.9	-40.2	13.0	-44.0	14.1	-47.9	16.6	-56.2
	2e	50	7.6	-18.2	8.4	-20.2	9.3	-22.3	10.2	-24.5	11.1	-26.7	12.1	-29.1	14.2	-34.2
	2e	100	6.6	-9.4	7.3	-10.4	8.1	-11.4	8.9	-12.5	9.7	-13.7	10.5	-14.9	12.4	-17.5
	2n	10	9.8	-43.8	10.9	-48.5	12.0	-53.4	13.2	-58.7	14.4	-64.1	15.7	-69.8	18.4	-81.9
	2n	20	8.9	-37.8	9.8	-41.9	10.8	-46.2	11.9	-50.7	13.0	-55.4	14.1	-60.4	16.6	-70.8
	2n	50	7.6	-30.0	8.4	-33.2	9.3	-36.6	10.2	-40.2	11.1	-44.0	12.1	-47.9	14.2	-56.2
	2n	100	6.6	-24.1	7.3	-26.7	8.1	-29.4	8.9	-32.3	9.7	-35.3	10.5	-38.4	12.4	-45.1
	2r	10	9.8	-43.8	10.9	-48.5	12.0	-53.4	13.2	-58.7	14.4	-64.1	15.7	-69.8	18.4	-81.9
	2r	20	8.9	-37.8	9.8	-41.9	10.8	-46.2	11.9	-50.7	13.0	-55.4	14.1	-60.4	16.6	-70.8
	2r	50	7.6	-30.0	8.4	-33.2	9.3	-36.6	10.2	-40.2	11.1	-44.0	12.1	-47.9	14.2	-56.2
	2r	100	6.6	-24.1	7.3	-26.7	8.1	-29.4	8.9	-32.3	9.7	-35.3	10.5	-38.4	12.4	-45.1
	3e	10	9.8	-43.8	10.9	-48.5	12.0	-53.4	13.2	-58.7	14.4	-64.1	15.7	-69.8	18.4	-81.9
	3e	20	8.9	-37.8	9.8	-41.9	10.8	-46.2	11.9	-50.7	13.0	-55.4	14.1	-60.4	16.6	-70.8
	3e	50	7.6	-30.0	8.4	-33.2	9.3	-36.6	10.2	-40.2	11.1	-44.0	12.1	-47.9	14.2	-56.2
	3e	100	6.6	-24.1	7.3	-26.7	8.1	-29.4	8.9	-32.3	9.7	-35.3	10.5	-38.4	12.4	-45.1
3r	10	9.8	-52.0	10.9	-57.6	12.0	-63.5	13.2	-69.7	14.4	-76.2	15.7	-83.0	18.4	-97.4	
3r	20	8.9	-44.6	9.8	-49.4	10.8	-54.4	11.9	-59.7	13.0	-65.3	14.1	-71.1	16.6	-83.4	
3r	50	7.6	-34.7	8.4	-38.4	9.3	-42.4	10.2	-46.5	11.1	-50.8	12.1	-55.4	14.2	-65.0	
3r	100	6.6	-27.2	7.3	-30.2	8.1	-33.3	8.9	-36.5	9.7	-39.9	10.5	-43.5	12.4	-51.0	

Notes: Plus and minus signs signify pressures acting toward and away from the surfaces, respectively. For effective wind areas between those given above, the load may be interpolated; otherwise, use the load associated with the lower effective area. Gray shading indicates that the final value, including all permitted reductions, used in the design shall not be less than that required by Section 30.2.2.

Metric conversions: 1.0 ft = 0.3048 m; 1.0 ft^2 = 0.0929 m^2 ; 1.0 lb/ft^2 = 0.0479 kN/m^2 .

FIGURE 30.4-1 (Continued). Components and Cladding, Part 2 [$h \leq 60$ ft ($h \leq 18.3$ m)]: Design Wind Pressures for Enclosed Buildings—Walls and Roofs

continues

Diagrams**Notation**

a = 10% of least horizontal dimension or $0.4h$, whichever is smaller, but not less than either 4% of least horizontal dimension or 3 ft (0.9 m).

Exception: For buildings with $\theta = 0^\circ$ to 7° and a least horizontal dimension greater than 300 ft (90 m), dimension a shall be limited to a maximum of $0.8h$.

h = Mean roof height, in ft (m), except that eave height shall be used for roof angles $< 10^\circ$.

θ = Angle of plane of roof from horizontal, in degrees.

Notes

1. Pressures shown are applied normal to the surface, for Exposure B, at $h = 30$ ft (9.1 m). Adjust to other conditions using Eq. (30.4-1).
2. Plus and minus signs signify pressures acting toward and away from the surfaces, respectively.
3. For hip roofs with $\theta \leq 25^\circ$, Zone 3 shall be treated as Zone 2e and 2r.
4. For effective wind areas between those given, values may be interpolated; otherwise use the value associated with the lower effective wind area.
5. If overhangs exist, the lesser horizontal dimension of the building shall not include any overhang dimension, but the edge distance, a , shall be measured from the outside edge of the overhang.

FIGURE 30.4-1 Components and Cladding, Part 2 [$h \leq 60$ ft ($h \leq 18.3$ m)]: Design Wind Pressures for Enclosed Buildings—Walls and Roofs

continues

GIRT WIND LOAD

ASCE 7-16, PART 1: LOW-RISE BUILDINGS, CHAPTER 30, WIND LOADS: COMPONENTS AND CLADDING

Project: Storage Building
 Date: 11.18.2023

ASCE 7-16
 Table C30.3-1 Walls for Building..., p. 783

Girt Area, A =	65.38	$10 < A < 500 \text{ ft}^2$	Building Dimensions	
			L =	74 ft
Positive	Cpi		W =	40 ft
Zones 4 and 5	0.86		h =	17.9 ft
Negative			a =	
Zone 4	-0.96		10% least	4.00 ft
			0.4h	7.16
Negative			4% W	1.6
Zone 5	-1.11			3
	qh =	14.75 lb/ft ²		
	Cpi = +0.18	0.18		
	Cpi = -0.18	-0.18		

$q_h = q_h(G_{cpi} - C_{pi} + / - 0.18)$ Part 1: Low Rise Buildings, EQ (30.3-1)

	Cpi = +0.18	Cpi = -0.18	30.2.2 Minimum Design Wind Pressure
Zone 4 pos.	9.97	15.28	Not less than a net pressure of 16 lb/ft² acting in either direction normal to the surface
Zone 4 neg.	-16.76	-11.45	
Zone 5 pos.	9.97	15.28	
Zone 5 neg.	-19.06	-13.75	

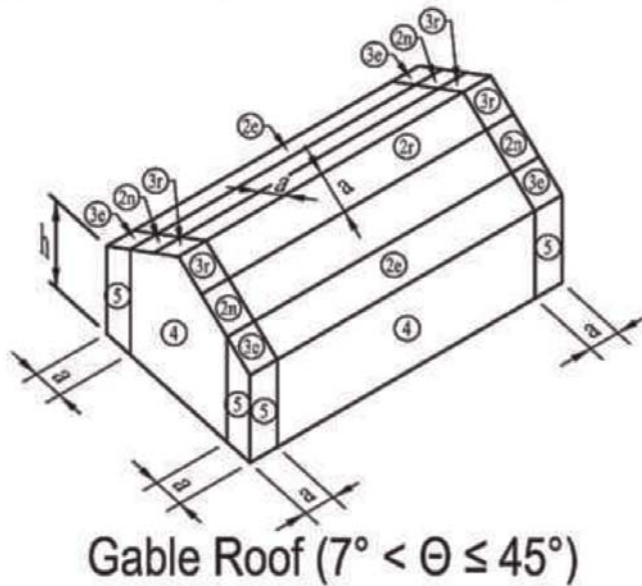


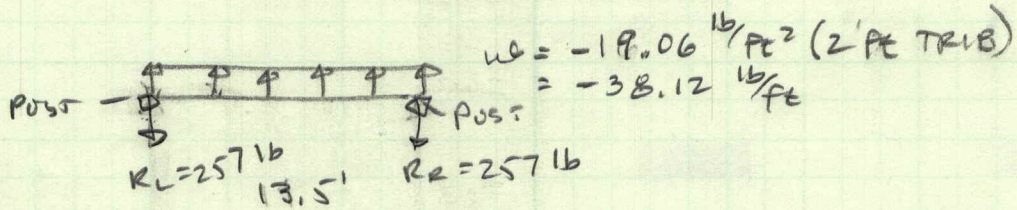
FIGURE 30.4-1, P 351

CED

110 SW 53RD ST

11-18-23

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WALL GIRTS (C & C)

$$M = \frac{wL^2}{8} = \frac{38.12 (13.5')^2}{8}$$

$$= 868.4 \text{ ft-lb} (12 \text{ in/ft})$$

$$= 10421 \text{ in-lb}$$

$$S = \frac{M}{F_b} = \frac{10421 \text{ in-lb}}{900 \frac{\text{lb}}{\text{in}^2} (1.6 C_D)} \quad \text{NDS TABLE 4A, p. 34}$$

$$= 7.74 \text{ in}^3$$

$$2 \times 6 \quad S = 7.56 \text{ in}^3$$

USE: $2 \times 6 \# 2 \text{ D.F @ } 24" \text{ OC GIRTS}$

USE: SIMPSON A35 EACH END 2x6 GIRT
 W/(12) 0.131 x 1 1/2 SIMPSON NAILS OR (12)
 SIMPSON (SD11/2) #9 x 1 1/2" SCREWS

Project: Benton-Co_Storage-Bldg

William E. Barlow, P.E.

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Location: FJ1

Floor Joist

Floor Joist [2021 International Building Code(2018 NDS)

10.25 FT @ 16 O.C.

TJI 110 / 16 - iLevel Trus Joist

Section Adequate By: 43.7%

Controlling Factor: End Reaction

StruCalc Version 11.1.8.0

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of

DEFLECTIONS

Center

Live Load	0.11	IN L/1154
Dead Load	0.01	in
Total Load	0.12	IN L/1030
Live Load Deflection Criteria: L/480 Total Load Deflection Criteria: L/360		

REACTIONS

A B

Live Load	854 lb	854 lb
Dead Load	103 lb	103 lb
Total Load	957 lb	957 lb
Bearing Length	3.50 in	3.50 in
Web Stiffeners	No	No

SUPPORT LOADS

A B

Live Load	641 plf	641 plf
Dead Load	77 plf	77 plf
Total Load	718 plf	718 plf

I-JOIST PROPERTIES

TJI 110 / 16 - iLevel Trus Joist

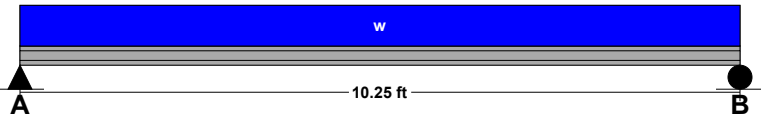
	Base Values	Adjusted
Moment Cap:	Mcap = 4280 ft-lb	Mcap' = 4280 ft-lb
	<i>Cd = 1.00</i>	
Shear Stress:	Vcap = 2145 lb	Vcap' = 2145 lb
	<i>Cd = 1.00</i>	
Reaction A:	Rcap = 1375 lb	Rcap' = 1375 lb
Reaction B:	Rcap = 1375 lb	Rcap' = 1375 lb
E.I.:	EI = 535 lb-in ²	EI' = 535 lb-in ²

Controlling Moment: 2451 ft-lb
5.12 Ft from left support of span 3 (Right Span)
Created by combining all dead and live loads.

Controlling Shear: -957 lb
10.0 Ft from left support of span 2 (Center Span)
Created by combining all dead and live loads.

Comparisons with required sections:	Req'd	Provided
E.I.:	223	535
Moment:	2451 ft-lb	4280 ft-lb
Shear:	-957 lb	2145 lb

LOADING DIAGRAM



JOIST DATA

Center

Span Length	10.25 ft
Unbraced Length-Top	0 ft
Unbraced Length-Bottom	0 ft
Floor sheathing applied to top of joists-top of joists fully braced.	
Floor Duration Factor	1.00

JOIST LOADING

Uniform Floor Loading

Center

Live Load	LL = 125 psf
Dead Load	DL = 15 psf
Total Load	TL = 140 psf
TL Adj. For Joist Spacing wT =	186.7 plf

Project: Benton-Co_Storage-Bldg

Location: FTG_B/6A

Footing

Footing [2021 International Building Code(ACI 318-14)

Footing Size: 3.0 FT Round Diameter X 36.00 IN Deep

Reinforcement: #4 Bars @ 2.54 IN. O.C. E/W / (11) min.

Section Footing Design Adequate

William E. Barlow, P.E.

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page

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of

StruCalc Version 11.1.8.0

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FOOTING PROPERTIES

Allowable Soil Bearing Pressure:	Qs = 1500 psf
Concrete Compressive Strength:	F'c = 3000 psi
Reinforcing Steel Yield Strength:	Fy = 60000 psi
Concrete Reinforcement Cover:	c = 3 in

FOOTING SIZE

Diameter:	Dia. = 3 ft
Effective Depth to Top Layer of Steel:	d = 32.25 in

COLUMN AND BASEPLATE SIZE

Column Type:	Wood
Column Width:	m = 5.5 in
Column Depth:	n = 5.5 in

FOOTING CALCULATIONS**Bearing Calculations:**

Ultimate Bearing Pressure:	Qu = 763 psf
Effective Allowable Soil Bearing Pressure:	Qe = 1050 psf
Required Footing Area:	Areq = 5.13 sf
Area Provided:	A = 7.07 sf

Baseplate Bearing:

Bearing Required:	Bear = 8008 lb
Allowable Bearing:	Bear-A = 100279 lb

Beam Shear Calculations (One Way Shear):

Beam Shear:	Vu1 = 0 lb
Allowable Beam Shear:	Vc1 = 84534 lb

Punching Shear Calculations (Two Way Shear):

Critical Perimeter:	Bo = 0 in
Punching Shear:	Vu2 = 0 lb
Allowable Punching Shear (ACI 11-35):	vc2-a = 0 lb
Allowable Punching Shear (ACI 11-36):	vc2-b = 0 lb
Allowable Punching Shear (ACI 11-37):	vc2-c = 0 lb
Controlling Allowable Punching Shear:	vc2 = 0 lb

Bending Calculations:

Factored Moment:	Mu = 31936 in-lb
Nominal Moment Strength:	Mn = 3668480 in-lb

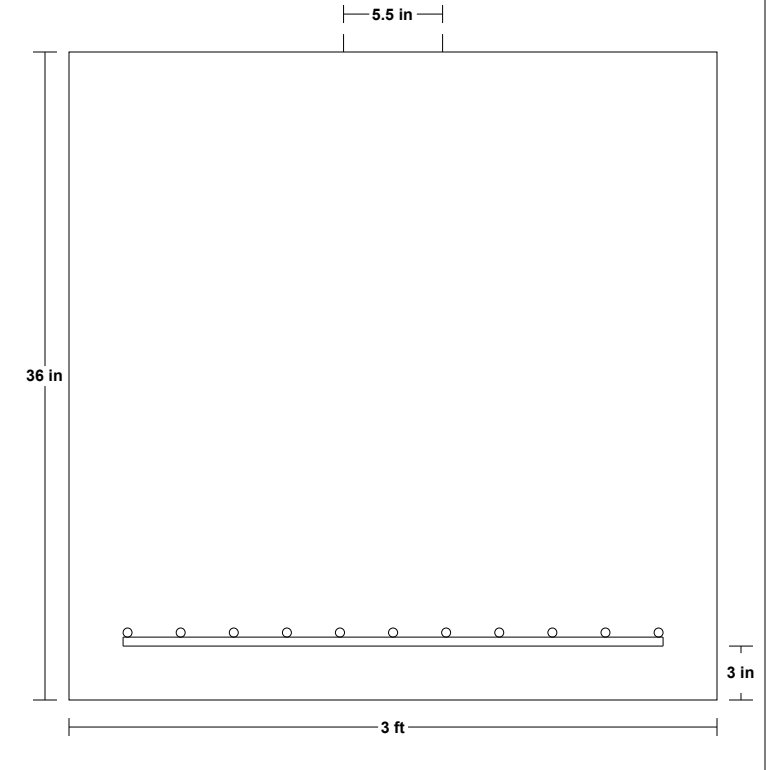
Reinforcement Calculations:

Concrete Compressive Block Depth:	a = 1.59 in
Steel Required Based on Moment:	As(1) = 0.02 in ²
Min. Code Req'd Reinf. Flex. Members (ACI-150.1):	As(2) = 2.07 in ²
Controlling Reinforcing Steel:	As-reqd = 2.07 in ²
Selected Reinforcement:	#4's @ 2.5 in. o.c. e/w (11) Min.
Reinforcement Area Provided:	As = 2.16 in ²

Development Length Calculations:

Development Length Required:	Ld = 15 in
Development Length Supplied:	Ld-sup = 12.95 in

Note: Plain concrete adequate for bending,
therefore adequate development length not required.

LOADING DIAGRAM**FOOTING LOADING**

Live Load:	PL = 3850 lb
Dead Load:	PD = 1540 lb
Total Load:	PT = 5390 lb
Ultimate Factored Load:	Pu = 8008 lb
Footing plus soil above footing weight:	Wt = 2050 lb

Project: Benton-Co_Storage-Bldg

Location: FTG_G/3G

Footing

Footing [2021 International Building Code(ACI 318-14)

Footing Size: 3.0 FT Round Diameter X 36.00 IN Deep

Reinforcement: #4 Bars @ 2.54 IN. O.C. E/W / (11) min.

Section Footing Design Adequate

William E. Barlow, P.E.

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FOOTING PROPERTIES

Allowable Soil Bearing Pressure:	Qs = 1500 psf
Concrete Compressive Strength:	F'c = 3000 psi
Reinforcing Steel Yield Strength:	Fy = 60000 psi
Concrete Reinforcement Cover:	c = 3 in

FOOTING SIZE

Diameter:	Dia. = 3 ft
Effective Depth to Top Layer of Steel:	d = 32.25 in

COLUMN AND BASEPLATE SIZE

Column Type:	Wood
Column Width:	m = 5.5 in
Column Depth:	n = 5.5 in

FOOTING CALCULATIONS**Bearing Calculations:**

Ultimate Bearing Pressure:	Qu = 263 psf
Effective Allowable Soil Bearing Pressure:	Qe = 1050 psf
Required Footing Area:	Areq = 1.77 sf
Area Provided:	A = 7.07 sf

Baseplate Bearing:

Bearing Required:	Bear = 2758 lb
Allowable Bearing:	Bear-A = 100279 lb

Beam Shear Calculations (One Way Shear):

Beam Shear:	Vu1 = 0 lb
Allowable Beam Shear:	Vc1 = 84534 lb

Punching Shear Calculations (Two Way Shear):

Critical Perimeter:	Bo = 0 in
Punching Shear:	Vu2 = 0 lb
Allowable Punching Shear (ACI 11-35):	vc2-a = 0 lb
Allowable Punching Shear (ACI 11-36):	vc2-b = 0 lb
Allowable Punching Shear (ACI 11-37):	vc2-c = 0 lb
Controlling Allowable Punching Shear:	vc2 = 0 lb

Bending Calculations:

Factored Moment:	Mu = 10997 in-lb
Nominal Moment Strength:	Mn = 3668480 in-lb

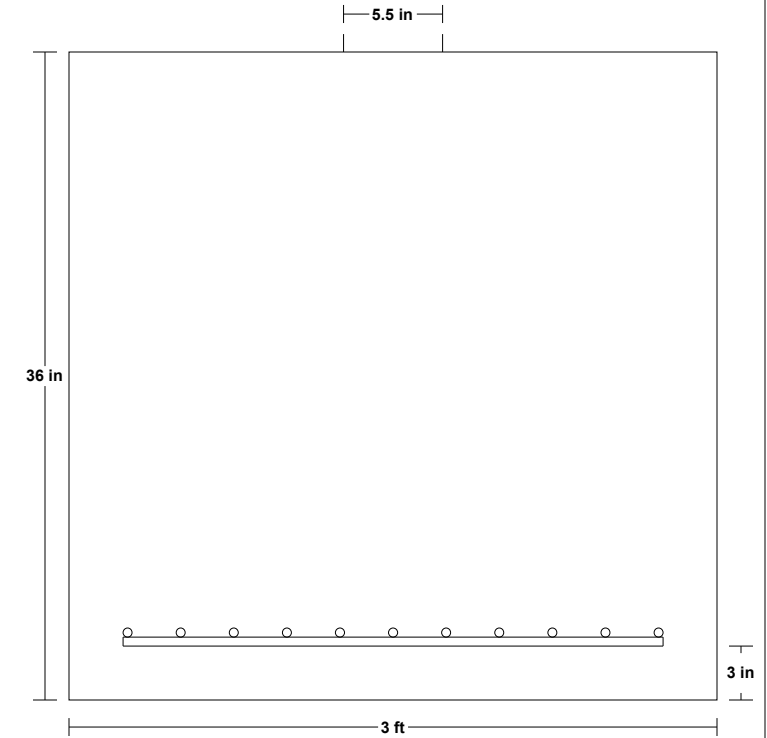
Reinforcement Calculations:

Concrete Compressive Block Depth:	a = 1.59 in
Steel Required Based on Moment:	As(1) = 0.01 in ²
Min. Code Req'd Reinf. Flex. Members (ACI-150.1):	As(2) = 2.07 in ²
Controlling Reinforcing Steel:	As-reqd = 2.07 in ²
Selected Reinforcement:	#4's @ 2.5 in. o.c. e/w (11) Min.
Reinforcement Area Provided:	As = 2.16 in ²

Development Length Calculations:

Development Length Required:	Ld = 15 in
Development Length Supplied:	Ld-sup = 12.95 in

Note: Plain concrete adequate for bending,
therefore adequate development length not required.

LOADING DIAGRAM**FOOTING LOADING**

Live Load:	PL = 1326 lb
Dead Load:	PD = 530 lb
Total Load:	PT = 1856 lb
Ultimate Factored Load:	Pu = 2758 lb
Footing plus soil above footing weight:	Wt = 2050 lb

Project: Benton-Co_Storage-Bldg

Location: H1

Multi-Loaded Multi-Span Beam

Multi-Loaded Multi-Span Beam [2021 International Building Code(2018 NDS)

3.5 IN x 7.25 IN x 3.67 FT

#2 - Douglas-Fir-Larch - Dry Use

Section Adequate By: 130.0%

Controlling Factor: Shear

William E. Barlow, P.E.

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DEFLECTIONS

Center

Live Load	0.01	IN L/3003
Dead Load	0.00	in
Total Load	0.02	IN L/2660
Live Load Deflection Criteria: L/360		Total Load Deflection Criteria: L/240

REACTIONS

A

B

Live Load	1173 lb	1173 lb
Dead Load	151 lb	151 lb
Total Load	1324 lb	1324 lb
Bearing Length	0.61 in	0.61 in

BEAM DATA

Center

Span Length	3.67 ft
Unbraced Length-Top	0 ft
Unbraced Length-Bottom	3.67 ft
Live Load Duration Factor	1.00
Notch Depth	0.00

MATERIAL PROPERTIES

#2 - Douglas-Fir-Larch

	Base Values	Adjusted
Bending Stress:	Fb = 900 psi Cd=1.00 CF=1.30	Fb' = 1170 psi
Shear Stress:	Fv = 180 psi Cd=1.00	Fv' = 180 psi
Modulus of Elasticity:	E = 1600 ksi	E' = 1600 ksi
Comp. \perp to Grain:	Fc - \perp = 625 psi	Fc - \perp ' = 625 psi

Controlling Moment: 1215 ft-lb

1.84 Ft from left support of span 2 (Center Span)

Created by combining all dead loads and live loads on span(s) 2

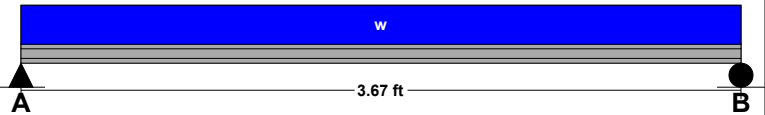
Controlling Shear: -1324 lb

4.0 Ft from left support of span 2 (Center Span)

Created by combining all dead loads and live loads on span(s) 2

Comparisons with required sections:

	Req'd	Provided
Section Modulus:	12.46 in ³	30.66 in ³
Area (Shear):	11.03 in ²	25.38 in ²
Moment of Inertia (deflection):	13.32 in ⁴	111.15 in ⁴
Moment:	1215 ft-lb	2989 ft-lb
Shear:	-1324 lb	3045 lb

LOADING DIAGRAM**UNIFORM LOADS**

Center

Uniform Live Load	639 plf
Uniform Dead Load	77 plf
Beam Self Weight	6 plf
Total Uniform Load	722 plf

Project: Benton-Co_Storage-Bldg

William E. Barlow, P.E.

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Location: H2

Multi-Loaded Multi-Span Beam

Multi-Loaded Multi-Span Beam [2021 International Building Code(2018 NDS)

3.5 IN x 7.25 IN x 3.67 FT

#2 - Douglas-Fir-Larch - Dry Use

Section Adequate By: 8.2%

Controlling Factor: Shear

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DEFLECTIONS

Center

Live Load	0.03	IN L/1407
Dead Load	0.00	in
Total Load	0.04	IN L/1251
Live Load Deflection Criteria: L/360 Total Load Deflection Criteria: L/240		

REACTIONS

A B

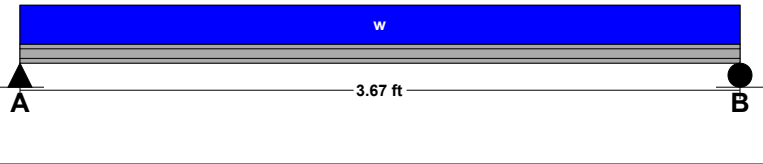
Live Load	2503 lb	2503 lb
Dead Load	311 lb	311 lb
Total Load	2814 lb	2814 lb
Bearing Length	1.29 in	1.29 in

BEAM DATA

Center

Span Length	3.67 ft
Unbraced Length-Top	0 ft
Unbraced Length-Bottom	3.67 ft
Live Load Duration Factor	1.00
Notch Depth	0.00

LOADING DIAGRAM



MATERIAL PROPERTIES

#2 - Douglas-Fir-Larch

	Base Values	Adjusted
Bending Stress:	Fb = 900 psi Cd=1.00 CF=1.30	Fb' = 1170 psi
Shear Stress:	Fv = 180 psi Cd=1.00	Fv' = 180 psi
Modulus of Elasticity:	E = 1600 ksi	E' = 1600 ksi
Comp. ⊥ to Grain:	Fc - ⊥ = 625 psi	Fc - ⊥' = 625 psi

UNIFORM LOADS

Center

Uniform Live Load	1364 plf
Uniform Dead Load	164 plf
Beam Self Weight	6 plf
Total Uniform Load	1534 plf

Controlling Moment:

2582 ft-lb

1.84 Ft from left support of span 2 (Center Span)

Created by combining all dead loads and live loads on span(s) 2

Controlling Shear:

2814 lb

At left support of span 2 (Center Span)

Created by combining all dead loads and live loads on span(s) 2

Comparisons with required sections:

	Req'd	Provided
Section Modulus:	26.48 in3	30.66 in3
Area (Shear):	23.45 in2	25.38 in2
Moment of Inertia (deflection):	28.44 in4	111.15 in4
Moment:	2582 ft-lb	2989 ft-lb
Shear:	2814 lb	3045 lb

Project: Benton-Co_Storage-Bldg

Location: H3

Multi-Loaded Multi-Span Beam

Multi-Loaded Multi-Span Beam [2021 International Building Code(2018 NDS)

5.5 IN x 11.5 IN x 13.54 FT

#2 - Douglas-Fir-Larch - Dry Use

Section Adequate By: 229.3%

Controlling Factor: Moment

William E. Barlow, P.E.

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DEFLECTIONS

Center

Live Load	0.06	IN L/2562
Dead Load	0.05	in
Total Load	0.11	IN L/1446
Live Load Deflection Criteria:	L/240	Total Load Deflection Criteria: L/180

REACTIONS

A

B

Live Load	515	lb	515	lb
Dead Load	397	lb	397	lb
Total Load	912	lb	912	lb
Bearing Length	0.27	in	0.27	in

BEAM DATA

Center

Span Length	13.54	ft
Unbraced Length-Top	0	ft
Unbraced Length-Bottom	13.54	ft
Live Load Duration Factor	1.15	
Notch Depth	0.00	

MATERIAL PROPERTIES

#2 - Douglas-Fir-Larch

	Base Values	Adjusted
Bending Stress:	Fb = 875 psi Cd=1.15 CF=1.00	Fb' = 1006 psi
Shear Stress:	Fv = 170 psi Cd=1.15	Fv' = 196 psi
Modulus of Elasticity:	E = 1300 ksi	E' = 1300 ksi
Comp. \perp to Grain:	Fc - \perp = 625 psi	Fc - \perp ' = 625 psi

Controlling Moment: 3087 ft-lb

6.77 Ft from left support of span 2 (Center Span)

Created by combining all dead loads and live loads on span(s) 2

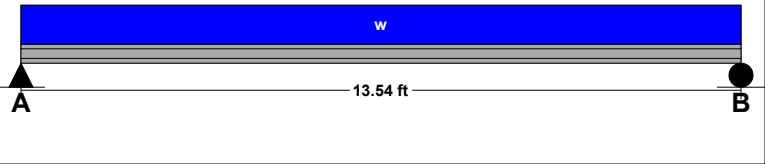
Controlling Shear: 912 lb

At left support of span 2 (Center Span)

Created by combining all dead loads and live loads on span(s) 2

Comparisons with required sections:

	Req'd	Provided
Section Modulus:	36.82 in ³	121.23 in ³
Area (Shear):	7 in ²	63.25 in ²
Moment of Inertia (deflection):	86.8 in ⁴	697.07 in ⁴
Moment:	3087 ft-lb	10166 ft-lb
Shear:	912 lb	8244 lb

LOADING DIAGRAM**UNIFORM LOADS**

Center

Uniform Live Load	76	plf
Uniform Dead Load	45	plf
Beam Self Weight	14	plf
Total Uniform Load	135	plf

Company : William E. Barlow, P.E.
 Designer : WEB
 Job Number : 23024

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 Nov 19, 2023
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 Checked By: WEB

Storage Bldg, Pole A-4A

Wood Material Properties

	Label	Species	Grade	Cm	Emod	Nu	Therm (\1E...	Dens[lb/ft^3]
1	DF-#2	Douglas Fir-Larch	No.2		1	.3	.3	35

Wood Section Sets

	Label	Shape	Type	Design List	Material	Design Rules	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	POLE	6X6	Column	Posts	DF-#2	Typical	30.25	76.255	76.255	128.871
2	BRACE	2-2X6B	VBrace	Rectangular Double	DF-#2	Typical	16.5	12.375	41.594	32.615

Design Size and Code Check Parameters

	Label	Max Depth[in]	Min Depth[in]	Max Width[in]	Min Width[in]	Max Bending Chk	Max Shear Chk
1	Typical					1	1

Wood Design Parameters

	Label	Shape	Length[...]	le2[ft]	le1[ft]	le-bend to...	le-bend bo...	Kyy	Kzz	CV	Cr	y sway	z sway
1	M1	POLE	14.43										
2	M2	POLE	7.38										
3	M3	BRACE	10.437										

Member Point Loads (BLC 3 : SEISMIC)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[ft,%]
1	M2	X	2000	1.5

Joint Reactions (By Combination)

	LC	Joint Label	X [lb]	Y [lb]	Z [lb]	MX [lb-ft]	MY [lb-ft]	MZ [lb-ft]
1	1	N1	60.305	4630.952	0	NC	NC	NC
2	1	N3	-258.257	0	0	0	0	0
3	1	N4	-1802.048	-1736.952	0	0	0	0
4	1	Totals:	-2000	2894	0			
5	1	COG (ft):	X: 0	Y: 21.81	Z: 0			

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distribut..	Area(Memb...	Surface...
1	AXIAL Lr	LL				1				
2	AXIAL D	DL				1				
3	SEISMIC	ELX+Y					1			

Load Combinations

	Description	SolvePD...	SR...	BLC Factor	BLC Factor	BLC Factor	BLC Factor	BLC Factor	BLC Factor	BLC Factor	BLC Factor
1	Lr+D+S	Yes	Y	+	1	1	2	1	3	1	

Joint Deflections

	LC	Joint Label	X [in]	Y [in]	Z [in]	X Rotation [rad]	Y Rotation [rad]	Z Rotation [rad]
1	1	N1	0	0	0	0	0	0
2	1	N2	.037	-.02	0	0	0	-3.399e-3
3	1	N3	0	-.027	0	0	0	3.626e-3
4	1	N4	0	0	0	0	0	2.179e-3

Company : William E. Barlow, P.E.
 Designer : WEB
 Job Number : 23024

Storage Bldg, Pole A-4A

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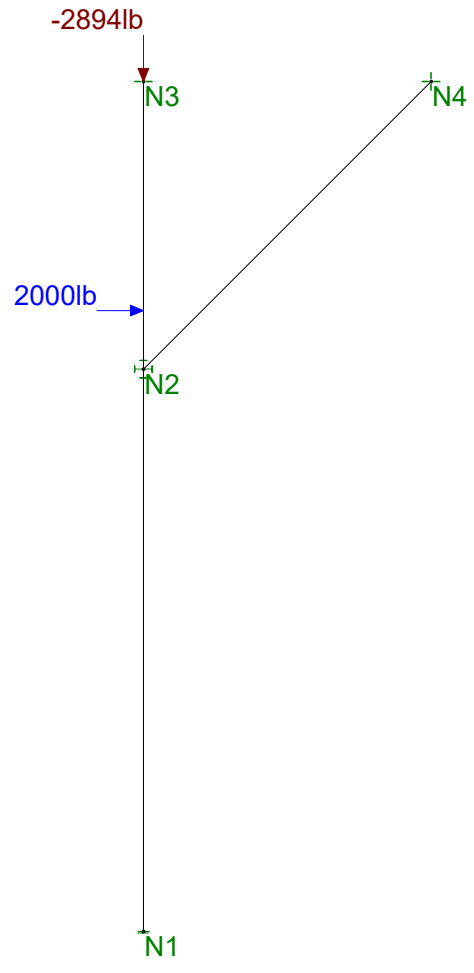
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 Checked By: WEB

Member Section Stresses

LC	Member Label	Sec	Axial[psi]	y Shear[psi]	z Shear[psi]	y top Bendin...	y bot Bendin...	z top Bendin...	z bot Bendin...	
1	1	M1	1	153.089	-2.912	0	113.173	-113.173	0	0
2			2	153.089	-2.912	0	21.502	-21.502	0	0
3			3	153.089	-2.912	0	-70.168	70.168	0	0
4			4	153.089	-2.912	0	-161.839	161.839	0	0
5			5	153.089	-2.912	0	-253.509	253.509	0	0
6	1	M2	1	95.669	86.271	0	-467.266	467.266	0	0
7			2	95.669	-12.902	0	623.255	-623.255	0	0
8			3	95.669	-12.902	0	415.503	-415.503	0	0
9			4	95.669	-12.902	0	207.752	-207.752	0	0
10			5	95.669	-12.902	0	0	0	0	0
11	1	M3	1	151.664	-4.302	0	391.887	-391.887	0	0
12			2	151.664	-4.302	0	293.915	-293.915	0	0
13			3	151.664	-4.302	0	195.944	-195.944	0	0
14			4	151.664	-4.302	0	97.972	-97.972	0	0
15			5	151.664	-4.302	0	0	0	0	0

Member Wood Code Checks

LC	Member	Shape	UC Max	Loc[ft]	Shear ...	Loc[ft]	Dir	Fc'[psi]	Ft'[psi]	Fb1'[psi]	Fb2'[psi]	Fv'[psi]	RB	CL	CP	Eqn
1	1	M1	.764	14.43	.017	0	y	333.26	475	750	750	170	5.611	1	.476	3.9-3
2	1	M2	.961	1.537	.507	0	y	615.05	475	750	750	170	4.013	1	.879	3.9-3
3	1	M3	.989	0	.024	0	y	198.174	747.5	1161.57	1345.5	180	8.749	.993	.133	3.9-3



Loads: LC 1, Lr+D+S

William E. Barlow, P.E.	Storage Bldg, Pole A-4A	1
WEB		Nov 19, 2023 at 3:33 PM
23024		Benton-Co.r3d

P.O. Box 43
 Philomath, OR 97370
 541-609-8777

Pole Footing Embedded in Soil

Project File: Benton-Co.ec6

LIC#: KW-06015332, Build:20.23.09.30

William E. Barlow, P.E.

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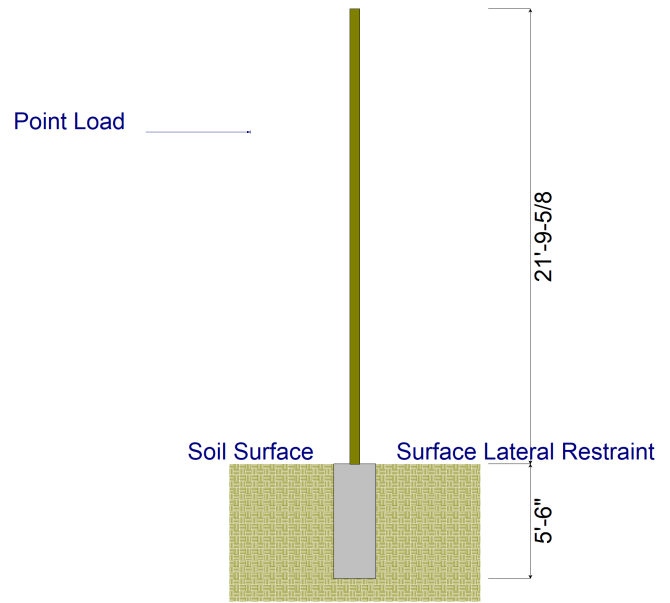
DESCRIPTION: POLE FOOTING A/4A

Code References

Calculations per IBC 2018 1807.3, CBC 2019, ASCE 7-16
 Load Combinations Used : IBC 2021

General Information

Pole Footing Shape	Circular
Pole Footing Diameter	24.0 in
Calculate Min. Depth for Allowable Pressures	
Lateral Restraint at Ground Surface	
Allow Passive	250.0 pcf
Max Passive	1,500.0 psf



Controlling Values	
Governing Load Combination	D+0.60W
Lateral Load	1.155 k
Moment	18.376 k-ft
Restraint @ Ground Surface	
Pressure at Depth	
Actual	1,290.88 psf
Allowable	1,375.0 psf
Surface Restraint Force	8,254.84 lbs
Minimum Required Depth	5.50 ft
Footing Base Area	3.142 ft ²
Maximum Soil Pressure	0.9212 ksf

Applied Loads

Lateral Concentrated Load (k)	Lateral Distributed Loads (k)	Applied Moment (kft)	Vertical Load (k)
D : Dead Load	k/ft	k-ft	0.8270 k
Lr : Roof Live	k/ft	k-ft	2.067 k
L : Live	k/ft	k-ft	k
S : Snow	k/ft	k-ft	k
W : Wind	1.925 k	k-ft	k
E : Earthquake	0.0 k	k-ft	k
H : Lateral Earth	k	k-ft	k
Load distance above ground surface	TOP of Load above ground surface		
15.910 ft	21.80	ft	
	BOTTOM of Load above ground surface	ft	

Load Combination Results

Load Combination	Forces @ Ground Surface		Required Depth - (ft)	Pressure at Depth		Soil Increase Factor
	Loads - (k)	Moments - (ft-k)		Actual - (psf)	Allow - (psf)	
D Only	0.000	0.000	0.13	0.0	31.3	1.000
+D+Lr	0.000	0.000	0.13	0.0	31.3	1.000
+D+0.750Lr	0.000	0.000	0.13	0.0	31.3	1.000
+D+0.60W	1.155	18.376	5.50	1,290.9	1,375.0	1.000
+D+0.750Lr+0.450W	0.866	13.782	5.00	1,171.5	1,250.0	1.000
+D+0.450W	0.866	13.782	5.00	1,171.5	1,250.0	1.000
+0.60D+0.60W	1.155	18.376	5.50	1,290.9	1,375.0	1.000
+0.60D	0.000	0.000	0.13	0.0	31.3	1.000

Project: Benton-Co_Storage-Bldg

Location: PURLIN

Multi-Loaded Multi-Span Beam

Multi-Loaded Multi-Span Beam [2021 International Building Code(2018 NDS)

1.5 IN x 9.25 IN x 13.54 FT

#2 - Douglas-Fir-Larch - Dry Use

Section Adequate By: 6.7%

Controlling Factor: Moment

William E. Barlow, P.E.

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DEFLECTIONS

Center

Live Load 0.24 IN L/680

Dead Load 0.16 in

Total Load 0.40 IN L/410

Live Load Deflection Criteria: L/240 Total Load Deflection Criteria: L/180

REACTIONS

A

B

Live Load 339 lb 339 lb

Dead Load 223 lb 223 lb

Total Load 562 lb 562 lb

Bearing Length 0.60 in 0.60 in

BEAM DATA

Center

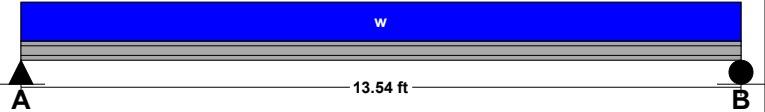
Span Length 13.54 ft

Unbraced Length-Top 0 ft

Unbraced Length-Bottom 13.54 ft

Live Load Duration Factor 1.15

Notch Depth 0.00

LOADING DIAGRAM**MATERIAL PROPERTIES**

#2 - Douglas-Fir-Larch

	Base Values	Adjusted
Bending Stress:	Fb = 900 psi Cd=1.15 CF=1.10	Fb' = 1139 psi
Shear Stress:	Fv = 180 psi Cd=1.15	Fv' = 207 psi
Modulus of Elasticity:	E = 1600 ksi	E' = 1600 ksi
Comp. \perp to Grain:	Fc - \perp = 625 psi	Fc - \perp ' = 625 psi

UNIFORM LOADS

Center

Uniform Live Load	50 plf
Uniform Dead Load	30 plf
Beam Self Weight	3 plf
Total Uniform Load	83 plf

Controlling Moment: 1902 ft-lb

6.77 Ft from left support of span 2 (Center Span)

Created by combining all dead loads and live loads on span(s) 2

Controlling Shear: 562 lb

At left support of span 2 (Center Span)

Created by combining all dead loads and live loads on span(s) 2

Comparisons with required sections:	Req'd	Provided
Section Modulus:	20.05 in ³	21.39 in ³
Area (Shear):	4.07 in ²	13.88 in ²
Moment of Inertia (deflection):	43.46 in ⁴	98.93 in ⁴
Moment:	1902 ft-lb	2029 ft-lb
Shear:	562 lb	1915 lb

Project: Benton-Co_Storage-Bldg

Location: STAIR STRINGER

Multi-Loaded Multi-Span Beam

Multi-Loaded Multi-Span Beam [2021 International Building Code(2018 NDS)

1.75 IN x 14.0 IN x 13.75 FT (Actual 16.4 FT)

1.55E Timberstrand LSL - iLevel Trus Joist

Section Adequate By: 2.9%

Controlling Factor: Deflection

William E. Barlow, P.E.

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Saturday/10/28/2023 4:11:55 PM

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DEFLECTIONS

Center

Live Load 0.40 IN L/494

Dead Load 0.07 in

Total Load 0.47 IN L/417

Live Load Deflection Criteria: L/480 Total Load Deflection Criteria: L/360

REACTIONS

A

B

Live Load 1487 lb 1487 lb

Dead Load 275 lb 275 lb

Total Load 1762 lb 1762 lb

Bearing Length 1.12 in 1.12 in

BEAM DATA

Center

Span Length 13.75 ft

Unbraced Length-Top 0 ft

Unbraced Length-Bottom 13.75 ft

Beam End Elevation Difference 8.9 ft

Live Load Duration Factor 1.00

Notch Depth 0.00

MATERIAL PROPERTIES

1.55E Timberstrand LSL - iLevel Trus Joist

Base Values

Adjusted

Bending Stress: Fb = 2325 psi Fb' = 2292 psi

Cd=1.00 CF=0.99

Shear Stress: Fv = 525 psi Fv' = 525 psi

Cd=1.00

Modulus of Elasticity: E = 1550 ksi E' = 1550 ksi

Comp. \perp to Grain: Fc - \perp = 900 psi Fc - \perp ' = 900 psi**Controlling Moment:** 6057 ft-lb

6.875 Ft from left support of span 2 (Center Span)

Created by combining all dead loads and live loads on span(s) 2

Controlling Shear: -1479 lb

13.432 Ft from left support of span 2 (Center Span)

Created by combining all dead loads and live loads on span(s) 2

Comparisons with required sections:

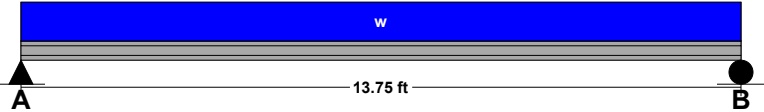
Req'd

Provided

Section Modulus: 31.71 in³ 57.17 in³Area (Shear): 4.23 in² 24.5 in²Moment of Inertia (deflection): 388.77 in⁴ 400.17 in⁴

Moment: 6057 ft-lb 10920 ft-lb

Shear: -1479 lb 8575 lb

LOADING DIAGRAM**UNIFORM LOADS**

Center

Uniform Live Load 216 plf

Uniform Dead Load 26 plf

Beam Self Weight 8 plf

Total Uniform Load 250 plf

STANDARD PROVISIONS



**Benton
County**

OREGON

PUBLIC WORKS DEPARTMENT

Revised 2017

BENTON COUNTY STANDARD PROVISIONS

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ABBREVIATIONS

AASHTO	----- American Association of State Highway and Transportation Officials
ACI	----- American Concrete Institute
AGC	----- Associated General Contractors of America
AIA	----- American Institute of Architects
AISC	----- American Institute of Steel Construction
AISI	----- American Iron and Steel Institute
ANSI	----- American National Standards Institute
APWA	----- American Public Works Association
ASCE	----- American Society of Civil Engineers
ASME	----- American Society of Mechanical Engineers
ASTM	----- American Society for Testing and Materials
AWPA	----- American Wood Preservers Association
AWS	----- American Welding Society
AWWA	----- American Water Works Association
DEQ	----- Department of Environmental Quality
EPA	----- Environmental Protection Agency
FHWA	----- Federal Highway Administration
ITE	----- Institute of Traffic Engineers
MUTCD	----- Manual on Uniform Traffic Control Devices
NEC	----- National Electrical Code
ORS	----- Oregon Revised Statutes
OSHA	----- Occupation Safety and Health Administration
ODOT	----- Oregon Department of Transportation
PCA	----- Portland Cement Association
SAE	----- Society of American Automotive Engineers
UBC	----- Uniform Building Code
UL	----- Underwriter's Laboratories, Inc.
WWPA	----- Western Wood Products Association

DEFINITIONS

Acts of God

A natural phenomenon of such catastrophic proportions or intensity as would reasonably prevent performance.

Advertisement

The public announcement (**notice to contractors**) inviting bids for work to be performed or materials to be furnished.

Approved Equal

A product, component or process whose use in or on a particular project is specified as a standard for comparison purposes only. The "equal" product, component or process shall be the same or better than that named in function, performance, reliability, quality and general configuration.

Bid Bond

The approved security furnished by the contractor in the form of a cashier's check or the surety bond for bid guarantee.

Bidder

An Entity that submits a Bid in response to an invitation to bid.

Change Order

A written order approved by the County and issued by the Engineer or Project Manager to the Contractor, covering changes in the plans, specifications, or quantities within the scope of the Contract.

Contract

The written agreement between the county and contractor including without limitation all contract documents, describing the work to be completed and defining the rights and obligations of the county and contractor.

Contract Documents

The written agreement covering the performance of the work, the advertisement calling for bids, the proposal, instruction to bidders, Drug and Alcohol Policies, First Tier designations, plans, all specifications, addenda, permits, Contract, Contract bonds, Change Orders in the course of work, and any approved revisions made during the performance of the work to any of the above listed documents.

Contract Bid Item

A specific unit of work for which a price or basis of payment is provided in the Contract.

Contractor

The Entity awarded and entered into the Contract with the county pursuant to the solicitation.

Days

Days shall be defined as calendar days, including week days, weekends and holidays.

Electronic transmission

Written communication sent either by facsimile (FAX) or electronic mail.

Engineer

The County Engineer or an authorized representative.

Entity

Any of the following with legal capacity to enter into a contract: individual, corporation, business trust, estate, trust, partnership, limited liability company, association, joint venture, government agency, public corporation, or other legal or commercial organization.

Extra Work

New and unforeseen items of work will be classed as extra work when they cannot be covered by any of the various items for which there is a bid price or by combinations of such items.

Inspector

The authorized representative of the Engineer or Project Manager entrusted with making detailed inspections of the work or materials.

Notice to Proceed

A written notice to the Contractor from the Engineer or Project Manager authorizing the contractor to begin performance of the work and the date for final completion of the Contract.

ODOT Standard Specifications

The latest edition of the standard specifications document published by the State of Oregon entitled "Oregon Standard Specifications for Construction."

Performance Bond

The approved security furnished by the contractor or the contractor's surety as a guaranty of the contractor's performance of the contract.

Plans

The official plans, profiles, cross section, elevations, details and other working, supplementary and detail drawings, or reproductions thereof, signed by the Engineer or Architect, approved by the Project Manager, which show the location, character, dimensions and details of the work to be performed. Plans are a part of the Contract documents, regardless of the method of binding.

Proposal

The offer of the bidder to perform work at the unit prices quoted, submitted on the County's official proposal form, properly signed and guaranteed.

Specified

As used herein the word specified, or as specified, means as required by the Contract documents.

Standard Plans or Drawings

Details of structures, devices, or instructions adopted by the County as a standard and referred to in the Contract documents by title or number.

Standard Provisions

The current edition of the “Benton County Standard Provisions” published by Benton County Public Works Department, including the Oregon Standard Specifications for Construction.

Station

A distance measured horizontally along a surveyed centerline.

Subcontractor

An Entity with whom the Contractor contracts to perform a portion of the work.

Surety

The Entity that issues the bond.

Unit Price

A Contract item of work providing for payment based on a specified unit of measurement. For example: Lump sum, linear foot or cubic yard.

Utility

A line, facility, or system for producing, transmitting, or distributing communications, power, electricity, heat, gas, oil, water, steam, waste, and storm water not connected with roadway drainage, or any other similar commodity which directly or indirectly serves the public. The term may also mean the utility company, district, or cooperative owning and operating such facilities, including any wholly-owned or controlled subsidiary.

Work

That which is proposed to be constructed or performed under the Contract including the furnishing of all material, labor, supervision, tools, machinery and appurtenances necessary to complete the Contract.

STANDARD CONTRACT PROVISIONS

I. PROPOSAL REQUIREMENTS AND CONDITIONS

- A. Proposal Forms: The bidder shall submit their proposal on the form furnished to them. Proposals submitted on forms other than the one issued to the bidder will be disregarded. All proposals shall give the prices proposed, both in writing and figures, and shall be signed by the bidder. The bidder shall fill out all blanks in the proposal form as therein required. Written amounts shall govern in cases of discrepancy between the amounts stated in writing and the amounts stated in figures. In the case of discrepancy between unit prices and totals, the unit prices shall prevail.
- B. Modification of Proposal: Any bid may be modified at any time prior to the scheduled time for the opening of proposals, provided that an electronic transmission or written request is received by the Engineer or Project Manager prior to the scheduled opening. The request shall not reveal any bid price but shall state only the modification, so that the final prices and terms shall not be known until the proposal is opened.
- C. Withdrawal of Proposal: Any bid may be withdrawn at any time prior to, and not after, the hour fixed in the public notice for the opening of bids, provided that a request in writing or electronic transmission, executed by the bidder or their duly authorized representative, for the withdrawal of such bid is filed with the Engineer or Project Manager. The withdrawal of a proposal shall not prejudice the right of a bidder to file a new bid.
- D. Proposal Guarantee: Each proposal shall be accompanied by cashier's check, or bid surety bond made payable to Benton County in the amount equal to ten percent (10%) of the total amount of the proposal submitted. This amount shall be given as a guarantee that, if awarded the Contract, the successful bidder will execute the Contract and furnish a properly executed performance bond in the full amount of the Contract price within fifteen (15) days after notification that the bid has been accepted. The County reserves the right to retain the bid security of the three lowest bidders until successful bidder has signed and delivered the Contract and furnished a one hundred percent (100%) performance bond or other satisfactory assurance that the work under the Contract will be completed without any direct or indirect damage or liability to the County. Bid security of all except the three lowest bidders will be returned promptly after the canvas of bids. Bid security of the three lowest will be returned five (5) days after the Contract has been executed or other disposition has been made.
- E. Amount of Work to be Done: The quantities given in the bid document are approximate only, being given as a basis for the comparison of bids, and the County does not, expressly or by implication, agree that the actual amount of work will correspond therewith, but reserves the right to increase or decrease the amount of

any class or portion of the work, or to omit portions of the work, as may be deemed necessary or as directed by the Engineer or Project Manager.

- F. Examination of Plans, Specifications, Special Provisions and Site of Work: The bidder shall examine carefully the site of the work contemplated and the proposal, plans, specifications, and contract forms. It will be assumed that the bidder has investigated and is satisfied as to the conditions to be encountered, as to the character, quality and quantities of work to be performed and materials to be furnished, and as to the requirements of these specifications, the special provisions, standard specifications, and the Contract. Bidders must satisfy themselves through their own investigations as to the conditions to be encountered.
- G. Interpretation of Contract Document: Any person contemplating the submission of a proposal and being in doubt as to the meaning or intent of said Contract documents should request of the Engineer or Project Manager, in writing, an interpretation thereof. Any interpretation or change in said Contract documents will be made only in writing, and a copy of such interpretation or change will be mailed, sent by electronic transmission or delivered to each person receiving a set of the documents. The County will not be responsible for any other explanation or interpretations of said documents.
- H. Familiarity with Laws and Regulations: Each bidder is responsible for all local, State and Federal laws and regulations relative to the execution of the work, the employment of labor, protection of public health, the protection of private property, right-of-way and access to the work, fire protection regulations and all other similar requirements. Bids will include a statement that provisions required by ORS 279C.830 will be complied with. The contractor shall indemnify, defend, and hold harmless the County and its representatives from liability arising from or related to the violation of terms and conditions of its contract and laws by those engaged in any phase of the work.
- I. Disqualification of Bidders: The bid(s) of a disqualified bidder may be rejected. Any of the following reasons is sufficient to disqualify a bidder:
1. More than one bid proposal is submitted for the same work by an Entity under the same or different name(s).
 2. Evidence of collusion among Bidders. Participants in collusion will be found not responsible, and may be subject to criminal prosecution.
 3. Any of the grounds for disqualification cited in ORS 270C.440.
 4. A bidder may be disqualified if the bidder has not been pre-qualified as required by ORS Chapter 279B or C.
 5. A bidder will be disqualified if they have:
 6. Been declared ineligible by the Commissioner of the Bureau of Labor and Industries (BOLI) under ORS 279C.860
 7. Not been registered (licensed) by the Oregon Construction Contractors Board (CCB) or been licensed by the State Landscape Contractors Board before submitting a bid (ORS 279C.365(1)(k), ORS 701.021, ORS 701.026, and ORS 671.530). The Bidder's registration number and expiration date shall be shown on the Bid Form, if requested. Failure to furnish the

- registration number, if requested, will render the Bid non-responsive and subject to rejection. (Not required on Federal-Aid projects.); or
8. Been determined by the CCB under ORS 701.227 not to be qualified to hold or participate in a public contract for a public improvement.

II. AWARD AND EXECUTION OF CONTRACT

- A. Award of Contract: The County reserves the right to accept or reject any or all proposals and to waive any informalities or irregularities in any proposal. The Contract award will be made by the County on the basis of that proposal, which in its sole and absolute judgment will best serve the interests at Benton County. The award of the Contract, if it is awarded, will be made within thirty (30) calendar days after the date of the bid opening.
- B. Execution of Contract: The Contract shall be signed by the successful bidder and returned, together with the Contract bonds, within fifteen (15) days, after the bidder has received notice that the Contract has been awarded.
- C. Failure to Execute Contract: Failure to execute a Contract and file acceptable bonds as provided herewith within fifteen (15) days, after the bidder has received notice that the Contract has been awarded, shall be just cause for the annulment of the award and the forfeiture of the proposal guaranty. If the successful bidder refuses or fails to execute the Contract, the County may award the Contract to the second lowest responsible bidder. If the second lowest responsible bidder refuses or fails to execute the Contract, the County may award the Contract to the third lowest responsible bidder. On the failure or refusal of the second or third lowest responsible bidder, to whom any such contract is so awarded, to execute the same, such bidders' guarantees shall be likewise forfeited to the County.
- D. Performance Bond: The successful bidder shall file with the County at the time of execution of the Contract, a performance and payment bond for the full amount of the Contract price. The surety company issuing the bond shall be authorized to do business in the State of Oregon. The Attorney-in-Fact (Resident Agent) who executes the performance and payment bond in behalf of the surety company, must attach a copy of his power-of-attorney as evidence of his authority. A notary shall acknowledge the power as of the date of execution of the surety bond, which it covers.

III. SCOPE OF WORK

- A. **Intent of Contract**: The intent of the Contract is to provide for the construction and completion of the work described. The Contractor shall furnish all labor, materials, equipment, tools, transportation and incidentals required to complete the work in accordance with the plans, specifications and terms of the Contract. The Contractor shall perform all work in accordance with the lines, grades, typical cross sections, dimensions and other details shown on the plans or as modified by written orders of the Engineer or Project Manager and all other work determined by the Engineer or Project Manager as necessary for the proper performance and completion of the project.
- B. **Inconsistencies and Omissions**: Where inconsistencies exist between the special provisions and any other part of these documents, the special provisions shall govern. Any discrepancies, omissions or errors found in the Contract documents or differences between the site conditions and those indicated in the Contract documents shall be reported to the County immediately. The County will correct, in writing, such omissions or errors within a reasonable time.

Order of precedence: The Engineer or Project Manager will resolve any discrepancies between the County Standard Provisions and other documents in the following order of precedence:

1. County Special Provisions/Specifications
 2. Change orders
 3. County prepared and stamped drawings specifically applicable to the project and bearing the project title.
 4. County standard drawings
 5. Benton County Standard Provisions
 6. Oregon Standard Specifications for Construction
- C. **Alterations**: The County, without invalidating the contract, may order extra work or make changes by altering, adding to, or deducting from the work. All such work shall be executed under the conditions of the original Contract, except that claim for extension of time and payment for extra work caused thereby shall be adjusted at the time of ordering such change. If work is deleted by change orders, the amount of the contract shall be adjusted at the time of ordering such change.

Contractor further expressly waives any and all right or remedy by way of restitution and quantum meruit for any and all extra work performed by Contractor without prior written authorization by county.

In giving instructions, the Engineer or Project Manager may order minor changes in the work not involving extra cost and not inconsistent with the purpose of the work; but otherwise, except in an emergency endangering life or property, extra work or deductions from the work shall be performed only in pursuance of a written order from the County, signed or countersigned by the Engineer or Project Manager, or a written order from the Engineer or Project Manager stating that the County has

authorized the deduction, extra work, or change; and no claim for additional payment shall be valid unless so ordered.

If the work is reduced by alternations, such action shall not constitute a claim for damages based on loss of anticipated profits.

- D. Extra Work: The Contractor shall do extra work and furnish materials and equipment; therefore, as may be required in writing by the Engineer or Project Manager, but the Contractor shall do no extra work except upon written order from the Engineer or Project Manager, and in the absence of such written order the Contractor shall not be entitled to payment for such extra work. All bills for extra work shall be filed in writing with the Engineer or Project Manager. For such extra work the Contractor shall receive compensation at the prices agreed upon in writing or on a time and material basis.
- E. Contract Documents: The County will furnish to the Contractor, upon request and free of charge, three (3) copies of the Contract documents and three (3) sets of full-scale plans. The Contractor shall keep one copy of the documents and one set of plans on the job site in good order available to the Engineer or Project Manager.
- F. Detours: The Contractor shall construct and maintain detours including signing and traffic controls for the use of public traffic as provided in these specifications, or as shown on the plans or as directed by the Engineer or Project Manager.

At all street crossings, existing driveways, water gate valves, and fire hydrants, the Contractor shall make provisions for trench crossings for free access either by means of backfill or temporary bridges, as the Engineer or Project Manager may direct. Means shall also be provided whereby all storm and wastewater can flow uninterrupted in gutters or drainage channels. The Contractor shall provide notice to the appropriate parties contained in the County's Emergency Notification list regarding any delays or closures resulting from the Contractor's work. Detours used exclusively by the Contractor for hauling materials and equipment will be constructed and maintained by the Contractor at their expense.

The failure or refusal of the Contractor to construct and maintain detours at the proper time shall be sufficient cause for closing down the work until such detours are in satisfactory condition for the use of public traffic, or the County may provide, maintain, or remove the detour and deduct the costs thereof from any payment due the Contractor.

- G. Final Cleaning Up: Before acceptance and final payment, the Contractor shall clean the roadway, worksites and all ground occupied by the Contractor-in connection with the work, of all rubbish, excess materials, false work, temporary structures, and equipment and all parts of the work shall be left in a neat and presentable condition.

IV. CONTROL OF WORK

- A. Authority of the Engineer and/or Project Manager: The Engineer or Project Manager shall be the County's representative during the construction and observe the work in progress on behalf of the County. The Engineer or Project Manager has authority to stop the work whenever such stoppage may be necessary to insure the proper execution of the Contract. The Engineer or Project Manager shall also have authority to reject all work and materials, which do not conform to the Contract. To prevent disputes and litigation, the Engineer or Project Manager will, within a reasonable time after their presentation, make decisions, in writing, on all claims of the County or Contractor and on all other matters relating to the execution and progress of the work or the interpretation of the Contract documents. The Engineer or Project Manager's written estimates and decisions shall be a condition precedent to any right to receive additional money under the Contract.
- B. Agency's Representatives: Representatives may be assigned to various portions of the work by the Engineer or Project Manager. It is understood that such representatives shall have the power, in the absence of the Engineer or Project Manager, to issue instructions and make decisions within the limitations of the authority of the Engineer or Project Manager. The authority of such representatives shall, however, be limited to the particular portion or phase of the work to which they are assigned and by the particular duties assigned to them.

Inspectors will not be authorized to revoke, alter, enlarge or relax the provisions of the Contract or approve or accept any portion of the work. The inspector will have authority to reject defective material and to suspend work that is being improperly done.

- C. Inspection: The Engineer or Project Manager shall at all times have access to the work during its construction, and shall be furnished with every reasonable facility for ascertaining that the materials used and employed, and the workmanship, are in accordance with the requirements and intention of these specifications. All work done and all materials furnished shall be subject to the Engineer or Project Manager's inspection and approval. In the event the Contractor elects to work on a Saturday, Sunday or Legal Holiday, the Contractor shall notify the Engineer or Project Manager in advance in order that inspection may be performed. The Contractor shall pay County's expense of providing such special inspection on a Saturday, Sunday or Legal Holiday.

The inspection of the work shall not relieve the Contractor of any of their obligations to fulfill the Contract as prescribed, and defective work shall be made good and unsuitable materials may be rejected, notwithstanding that such defective work and materials have been previously overlooked by the Engineer or Project Manager and accepted or estimated for payment.

- D. Plans: The approved plans shall be supplemented by such working drawings as are necessary to control the work adequately. All authorized alterations affecting the

requirements and information given on the approved plans shall be in writing. No changes shall be made of any plan or drawing after the same has been approved by the Engineer, except by Engineer or Project Manager's direction.

Working drawings for any structure shall consist of such detailed plans as may be required for the prosecution of the work, and are not included in the plans furnished by the Engineer or Project Manager. Working drawings shall be approved by the Engineer or Project Manager before any work involving these plans is performed. These plans will be subject to approval insofar as the details affect the character of the finished work, but other details of design will be left to the Contractor, who shall be responsible for the successful construction of the work.

It is expressly understood, however, that approval by the Engineer or Project Manager of the Contractor's working drawings does not relieve the Contractor of any responsibility for accuracy of dimensions and details, or for mutual agreement of dimensions and details. It is mutually agreed that the Contractor shall be responsible for agreement and conformity of his working drawings with the approved plans and specifications.

Full compensation for furnishing all working drawings shall be considered as included in the prices paid for the various Contract items of work, and no additional allowance will be made therefore.

- E. Conformity with Plans and Allowable Deviations: Finished surfaces in all cases shall conform to the lines, grades, cross-sections, and dimensions shown on the approved plans. Deviations from the approved plans and working drawings, as may be required by the conditions of construction, will in all cases be determined by the Engineer or Project Manager and authorized in writing.
- F. Coordination of Plans, Specifications, and Special Provisions: These Standard Provisions, the plans, special provisions, and all supplementary documents are essential parts of the Contract, and a requirement occurring in one is binding as though occurring in all. They are intended to be cooperative, to describe and provide for a complete work. In the case of a conflict between one or more of these documents, the order of precedence among the documents shall be (1) change orders, (2) special provisions, (3) County plans, (4) specifications exclusive of special provisions, and (5) standard specifications and (6) Oregon Standard Specifications for Construction; (7) all other contract documents not listed above.
- G. Interpretation of Plans and Specifications: Should it appear that the work to be done or any of the matters relative thereto are not sufficiently detailed or explained in these specifications and the special provisions, the Contractor shall apply to the Engineer or Project Manager for such further explanations as may be necessary. These clarifications shall conform to the same as part of the Contract, so far as may be consistent with the original specifications; and in the event of any doubt or questions arising respecting the true meaning of the specifications, reference shall be made to the Engineer or Project Manager, whose decision thereon shall be final. In

the event of any discrepancy between any drawings and the figures written thereon, the figures shall be taken as correct.

- H. Lines and Grades: Lines and grades shall be furnished by the Engineer or Project Manager unless stated otherwise. The Contractor shall give the Engineer or Project Manager no less than 48 hours notice of the time and place where lines and grades will be needed. All stakes, marks, etc., shall be carefully preserved by the Contractor, and in cases of their careless or unnecessary destruction or removal by the Contractor or their employees, such stakes, marks, etc., shall be replaced by the Engineer or Project Manager at the Contractor's expense. The Contractor shall be responsible for the transfer of the lines and grades as set by the Engineer or Project Manager to the finished work.
- I. Responsibility of the Contractor: The Contractor shall assume all responsibility for the work. The Contractor shall do all the work and furnish all labor, materials, equipment, tools and machines necessary for the performance and completion of the project in accordance with the Contract.

The Contractor agrees that they are fully responsible to the County for the acts and omissions of their subcontractors and of persons either directly or indirectly employed by them as they are for the acts and omissions of persons directly employed by them. Nothing contained in the Contract shall create any contractual relations between subcontractors and the County.

The County reserves the right to Contract for and perform other or additional work on or near the work under the Contract. Contractors working on the same project shall coordinate with each other as directed.

- J. Equipment: Equipment not suitable to produce the quality of work required will not be permitted to operate on the project.
- K. Existing Utilities: The locations of the existing major utilities are indicated on the drawings. Lines such as water, gas and sewer services may not be indicated. It shall be the sole responsibility of the Contractor to determine the exact location and depth of all major utilities shown on the plans and all minor lines, whether indicated or not as per ORS 757.557.

The Contractor shall notify utilities in accordance with the Oregon Utility Notification Center prior to commencing work, in order to give the utilities a reasonable opportunity to establish the location of facilities on site.

The Contractor shall cooperate with the owner of any utility facilities in removal, replacement, and relocation operations in order that services provided by those parties will not be unnecessarily interrupted.

- L. Protection of Survey Monuments: The Contractor shall not disturb permanent survey monuments, stakes, or bench marks without the consent of the Engineer or Project Manager. The Contractor shall notify the Engineer or Project Manager and bear the

expense of replacing any that may be disturbed without permission. Replacement shall be done by a registered land surveyor in the State of Oregon.

- M. Removal of Defective and Unauthorized Work: Work which has been rejected, shall be remedied or removed and replaced by the Contractor in an acceptable manner and no compensation will be allowed for such removal or replacement.

Any work beyond what is shown on the plans or established by the written authority of the Engineer or Project Manager will be considered unauthorized and will not be paid. Work so done may be ordered removed at the Contractor's expense. Failure on the part of the Contractor to comply with any order of the Engineer or Project Manager under these provisions, shall give the County the authority to have defective work remedied or removed and replaced at the Contractor's expense.

At the County's discretion, any defective work that is minor in nature and does not negatively impact the project, may be left in place; however, it shall not be eligible for compensation and may require deduction(s) in compensation.

- N. Maintenance of Work During Construction: The Contractor is responsible for all maintenance of the project site during construction unless otherwise stipulated in the contract documents.

All costs of maintenance work during construction shall be included in the unit price bid on the various pay items. The Contractor will not be paid an additional amount for maintenance work, unless otherwise specified.

If the Contractor, at any time, fails to comply with these provisions, the Engineer or Project Manager will immediately notify the Contractor of such noncompliance. If the Contractor fails to remedy unsatisfactory maintenance within twenty-four (24) hours, after receipt of such notice, the County may immediately proceed to maintain the project and the entire cost of this maintenance will be deducted from monies due or to become due the Contractor at the rate of 200 percent of the County's actual force account costs.

- O. Dust Control: At all times during construction and until final completion and acceptance of the work, the Contractor shall prevent an air-borne dust nuisance by watering or other acceptable method as required by the Engineer or Project Manager, to treat the work site. The Contractor shall perform such treatment within two (2) hours after notification by the Engineer or Project Manager that the air-borne nuisance exists. If the Contractor fails to abate the nuisance within two hours, the County may order that the treatment of the site be done by others and all expenses incurred in the performance of this treatment shall be charged to the Contractor.
- P. Final Inspection: The Engineer or Project Manager will not make the final inspection until the work has been completed and the final clean up performed. Any defective work or material that may be discovered by the County before the final acceptance of work, or before final payment has been made, or during the guarantee period, shall follow the provisions stipulated in Section IV. Paragraph M. of Defective and Unauthorized Work. Failure on the part of the Engineer or Project

Manager to condemn or reject bad or inferior work or materials shall not be construed to imply acceptance of such work or materials.

V. CONTROL OF MATERIAL

- A. Source of Supply and Quality of Materials: All materials shall be new and of a quality equal to that specified, unless otherwise approved by County. At the option of the Engineer or Project Manager the source of supply of each of the materials shall be approved by County before the delivery is started.
- B. Defective Materials: All materials not conforming to the requirements of these specifications shall be considered as defective and, whether in place or not, shall be rejected. They shall be removed immediately from the site of the work, unless otherwise permitted by the Engineer or Project Manager. Upon failure on the part of the Contractor to comply immediately with any order of the Engineer or Project Manager made under these provisions, the County shall have authority to remove and replace defective material and to deduct the cost of the removal and replacement from any monies due or to become due the Contractor.
- C. Samples and Tests: Materials furnished by the Contractor may be tested by the County or its authorized representative, in accordance with commonly recognized standards of national organizations. The Contractor shall furnish, without charge, such samples of all materials as are requested by the Engineer or Project Manager. No material shall be used until it has been approved the Engineer or Project Manager. Samples will be secured and tested whenever necessary to determine the quality of material. Samples for testing local sources of material shall be taken by or in the presence of the Engineer or Project Manager. Promptly after the approval of the Contract, the Contractor shall notify the Engineer or Project Manager of the proposed sources of supply of all materials to be furnished by Contractor.

Where the specifications require work to be specially tested or approved, it shall not be tested or covered up without timely notice to County, of its readiness for inspection, and without the approval of County. Should any work be covered up without such notice and approval, it must, if required by the County, be uncovered for examination at the Contractor's expense.

- D. Trade Name and Alternatives: For convenience in designation on the plans or in the specifications, certain equipment, methods, or materials may be designated under a trade name, name of a manufacturer and/or catalogue information. The use of alternative equipment, methods, or material which is of equal quality and meets specifications will be permitted, subject to the approval of the Engineer and Project Manager, in accordance with the following requirement:

The burden of proof shall be on the Contractor to provide documentation as to the comparative quality and suitability of alternative equipment, methods, or materials.

VI. LEGAL RELATIONS AND RESPONSIBILITY

- A. Laws to be Observed: Contractor, their employees, subcontractors and agents, shall comply with and keep fully informed of all federal, state and local laws, regulations, ordinances and orders which pertain to this contract. It is Contractor's responsibility to know which laws, regulations, ordinances and orders are applicable to this contract. Contractor shall protect and indemnify the County, the Engineer, and all of their officers and agents against any claim or liability arising from or based on the violation of any such law, regulation, ordinance or order, whether by Contractor or their employees. If any discrepancy or inconsistency is discovered in the drawings, specifications, or Contract for the work in relation to any such law, ordinance, regulation order or decree, the Contractor shall immediately report the same to the Engineer or Project Manager in writing.

The Contractor's attention is specifically directed to Chapters 279, 279A, B and C of the Oregon Revised Statutes, as amended which are incorporated by reference as a part of the Contract documents.

Pursuant to ORS 279C.505 Contractor shall:

1. Make payment promptly, as due, to all persons supplying to the Contractor labor or material for the performance of the work provided for in the contract.
2. Pay all contributions or amounts due the Workers Compensation Fund from such contractor or subcontractor incurred in the performance of the contract.
3. Not permit any lien or claim to be filed or prosecuted against the state, county, school district, municipality, municipal corporation or subdivision thereof, on account of any labor or material furnished.
4. Pay to the Department of Revenue all sums withheld from employees pursuant to ORS 316.167.

If Contractor fails, neglects or refuses to pay promptly any entity's claim for labor or services that the entity provides to the Contractor or a subcontractor in connection with this contract as the claim becomes due, County may pay the amount of the claim to the person that provides the labor or services and charge the amount of the payment against funds due or to become due Contractor pursuant to this contract.

1. Contractor shall employ no person for more than ten hours in any one day, or 40 hours in any one week, except in cases of necessity, emergency, or where the public policy absolutely requires otherwise, and in such cases the contractor shall pay the employee at least time and a half pay for all overtime as specified in ORS 279C.520, as amended.
2. Contractor shall promptly, as due, make payment to any person, co-partnership, association or corporation, furnishing medical, surgical and

hospital care, services or other needed care and attention, incident to sickness or injury, to the employees of such contractor, of all sums which the Contractor agrees to pay for the services and all moneys and sums which 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.

- B. Permits and Licenses: All permits, licenses, and inspection fees necessary for the prosecution and completion of the work shall be secured and paid for by the contractor unless otherwise specified.
- C. Assignment: Assignment of funds due or to become due under the Contract to the Contractor will not be permitted unless:
1. The assignment request is made on the form provided by the County
 2. The Contractor secures the written consent of the Contractor's Surety to the assignment; and
 3. The Engineer or Project Manager approves the assignment.
- D. Subcontracting: The Contractor shall be held responsible for the sub-Contractor's work, which shall be subject to the provisions of the Contract and specifications.
1. Contractor shall comply with ORS 279C.370 First-tier subcontractor disclosure. This shall be identify the work to be subcontracted, the name of subcontractor and the description of each portion of the work to be subcontracted.
 2. Contractor may substitute a first-tier subcontractor under the provisions of ORS 279C.585, as amended.
 3. Where a portion of the work, which has been subcontracted by the Contractor, is not being prosecuted in a manner satisfactory to the county, the subcontractor shall be removed immediately on the requisition of the Engineer or Project Manager and shall not again be employed on the work.
- E. Other Contracts: The County shall have the right to let other Contracts be coordinated with this Contract. The Contractor shall cooperate with such other Contractors. Any matter of dispute shall be decided by the Engineer or Project Manager.
- F. Contractor's Responsibility for Worksite: Until the formal acceptance of the work by the County, the Contractor shall be responsible for the work and worksite and shall bear the risk of injury or damage to any part thereof by the action of the elements or from any other cause, including but not limited to vandalism, whether or not arising from the execution of the work. The contractor shall rebuild, repair, restore, and make good all injuries or damages to any portion of the work occasioned by any of the above causes before its completion and acceptance and shall bear the expense thereof except for such injuries or damages as are directly and proximately caused by

the County, its employees or agents. During periods of suspension of the work, the Contractor shall continue to be responsible for protecting and repairing the work.

G. Insurance:

1. The Contractor and its subcontractors shall maintain insurance acceptable to the County in full force and effect throughout the term of this contract.
2. It is agreed that any insurance maintained by County shall apply in excess of, and not contribute with, insurance provided by Contractor. The policy or policies of insurance maintained by the Contractor and its subcontractors shall provide limits and coverages as specified in the contract.
3. Contractor agrees to deposit with the County, at the time the executed contract, Certificates of Insurance of Binders of Insurance if the policy is new or has expired, sufficient to satisfy the County that the insurance provisions of the contract have been complied with and to keep such insurance in effect and the certificates and/or binders thereof on deposit with the County during the entire term of this contract. Such certificates and/or binders must be delivered prior to commencement of the work.
4. The procuring of such required insurance shall not be constructed to limit Contractor's liability hereunder. Notwithstanding said insurance, Contractor shall be obligated for the total amount of any damage, injury or loss caused by negligence or neglect connected with this contract.

H. Patents: The contractor shall assume all costs arising from the use of patented materials, equipment devices, or processes used on or incorporated in the work, and agrees to indemnify and hold harmless the County, the Engineer or Project Manager, and their duly authorized representatives, from all lawsuits, or actions of every nature for, or on account of the use of any patented materials, equipment, devices or processes.

I. Taxes and Charges: The Contractor agrees to withhold and pay any and all State or Federal taxes, Social Security charges, amounts due to the Workers Compensation Fund, any and all charges, fees, or sums connected with the work.

J. Wage Rates: The minimum wage rates applicable to the work are prescribed under the provisions of ORS 279C.800 through 279C.870 and laws amendatory thereto. The Contractor and all subcontractors shall file a copy of the Contractor's wage certification with the County and State and provide to County prior to each pay request. Copies of the current prevailing wage rates may be obtained from the Bureau of Labor of the State of Oregon (BOLI) and will be bound in the final contract documents.

K. Payment of Obligations: The Contractor shall promptly make payment for labor, materials, supplies, and provisions at such times that they become due and payable. The Contractor shall not permit any lien or claim to be filed or prosecuted against the County on account of any labor or material furnished.

Neither the final payment nor any part of the retained percentage shall become due until the Contractor has submitted to the County a signed Certification of Work

Completion and Acceptance form, satisfactory to the County, stating that so far as the Contractor has knowledge or information, all accounts for materials, labor, and incidentals in connection with the work have been paid in full.

- L. Public Safety and Convenience: The Contractor shall conduct the project with proper regard for the safety and convenience of the public. When the project involves use of public ways, the Contractor shall provide flaggers when needed or directed and shall maintain a means of access to all public and private properties.
1. Private residential driveways shall be closed only with approval of the Engineer, the Project Manager or specific permission of the property owner. The Contractor shall not interfere with normal operation of public transit vehicles unless otherwise authorized. The Contractor shall not obstruct or interfere with travel over any public street or sidewalk without approval. Where detours are necessary, they shall be maintained with a good surface and be clearly marked. The Contractor shall assure the safety of the public from open trenches and excavations with approved barricading techniques, which can be seen from a reasonable distance. At night where allowed, the Contractor shall mark all open work and obstructions by approved barricading and lighting means. The Contractor shall install and maintain all necessary signs, lights, flares, barricades, railings, ramps, stairs, bridges and facilities. The Contractor shall observe all safety instructions received from the Engineer, Project Manager or, governmental authorities but following of such instructions shall not relieve the Contractor from the responsibility or liability for accidents to workers or damage or injury to person or property.
 2. Emergency traffic such as police, fire and disaster units shall be provided reasonable access to and through the work area at all times.
 3. The Contractor shall be liable for any damages, which may result from failure to provide such reasonable access or failure to notify the appropriate authority.
- M. Personal Safety: The Contractor shall be responsible for conditions of the job site, including safety of all persons and property during performance of the work. Safety provisions shall conform to the applicable Federal, State, and local laws, ordinances and codes. The County reserves the right to stop work if a potential serious safety violation is observed. The duty of the Engineer or Project Manager to conduct construction reviews of the Contractor's performance is not intended to include a review of the adequacy of the Contractor's safety measures in or near the construction site.
- N. Protection of Property: The Contractor shall continuously maintain adequate protection of all their work from damages and shall protect the County's property and the property of others from injury or loss arising in connection with this Contract. Contractor shall make good any such damage, injury, or loss, except as may be directly due to errors in the Contract documents or caused by agents or employees of the County. He shall adequately protect adjacent property as provided by the law and in the Contract documents.

In an emergency affecting the safety of life or of the work or of adjoining property, the Contractor, without special instruction or authorization from the Engineer or

Project Manager, is hereby permitted to act, at their discretion, to prevent such threatened loss or injury; and they shall so act, without appeal if so instructed or authorized. Any compensation claimed by the Contractor on account of emergency work shall be determined by agreement or arbitration.

- O. Indemnity: The Contractor shall hold-harmless, indemnify, and defend Benton County, its officers, agents and employees from any and all liability, actions, claims, losses, damages, or other costs including attorney's fees and witness costs (at both trial and appeal level, whether or not a trial or appeal ever takes place) that may be asserted by any person or entity arising from, during or in connection with the performance of the work described in this Contract, except liability arising out of the sole negligence of the County and its employees. Such indemnification shall also cover claims brought against Benton County under state or federal workers compensation laws. If any aspect of this indemnity shall be found to be illegal or invalid for any reason whatsoever, such illegality or invalidity shall not affect the validity of the remainder of this indemnification.

- P. Disposal of Materials: When any materials, including excess of unsuitable excavated earth or other roadway materials are to be disposed of outside the limits of the work, the Contractor shall first obtain permission in writing from the property owner of whose property the disposal is to be made and shall file a copy of such permission with the Engineer or Project Manager. Material shall also be placed in accordance with a County approved excavation and grading plan for each site to be utilized.

- Q. Guarantee and Correction of Defective Work: All work contained herein, shall be guaranteed for a period of one (1) year against defects in materials and workmanship that become evident within one (1) year after the date of the written notice from the Engineer or Project Manager recommending final acceptance of the entire project by the County. The Contractor also agrees to make, at their expense, repairs or replacements of any materials, systems or equipment in which the appearance of defects might cause future failures. Notwithstanding that the appearance of such defects at the time of discovery, have no effect on the operation of the equipment, systems, or claims of any kind arising from damage due to said defects. The Contractor shall make all repairs and replacements promptly upon receipt of written orders from the County. If the Contractor fails to make the repairs and replacements promptly, the County may do the work, and the Contractor shall be liable for the cost thereof.

The Contractor shall extend to the County, or cause to be extended to the County, all equipment, systems and material guarantees provided by manufacturers or suppliers that exceed the above one (1) year guarantee period.

VII. Prosecution and Progress

- A. **Preconstruction Conference**: A preconstruction conference will be scheduled by the County prior to commencement of any work. The meeting is to include, but not necessarily be limited to, representatives of the County, Engineer, Project Manager, Contractor, subcontractors and affected utility companies.
- B. **Construction Schedules**: At the preconstruction conference, the Contractor shall furnish the Engineer or Project Manager schedules of the expected progress of the work under the Contract. In the event the work performed does not correspond to the schedule, the Contractor shall submit a revised schedule when requested by the Engineer or Project Manager.
- C. **Progress of the Work**: The Contractor shall begin work within fifteen (15) days after the County has awarded the Contract unless otherwise notified and shall diligently prosecute the same to completion within the time limits provided in the Contract documents and specifications.

Should the Contractor begin work in advance of receiving notice that the Contract has been approved as provided above, any work performed by the Contractor in advance of the said date of approval shall be considered as having been done by them at their own risk unless said Contract is so approved.

- D. **Contract Time**: The Contract time, unless otherwise specified, will begin on the fifteenth day following the award of the Contract by the County. All work shall be completed within the number of calendar days specified, prior to a fixed completion date, as applicable. Calendar days shall be defined as every day of the year subject to the following exclusions:
1. Acts of God.
 2. Epidemics, quarantine restrictions, strikes, labor disputes, freight embargos and acts of the public enemy.
 3. Periods when the work is temporarily suspended upon written order of the Engineer or Project Manager.
- E. **Temporary Suspension of Work**: The Engineer or Project Manager shall have the authority to suspend the work wholly or in part, for such period as deemed necessary, due to unsafe conditions, unsuitable weather, or other conditions as are considered unfavorable for the suitable prosecution of the work, or for such time as deemed necessary, due to the failure on the part of the Contractor to carry out orders given, or to perform any provision of the Contract. The Contractor shall immediately comply with the written order of the Engineer or Project Manager to suspend the work wholly or in part. The work shall be resumed when conditions are favorable and methods are corrected, as ordered or approved in writing by the County.
- F. **Delays and Extensions**: The County may grant extensions of time to the extent it finds reasonable and justified when the delay is due solely to causes beyond the

control of the Contractor and subcontractors and without any fault, negligence or participation by them.

Causes, which will be given consideration for an extension of Contract time, include, but are not limited to, the following:

1. Errors, changes or omissions in the plans, and/or specifications.
2. Failure of the County, its representatives and its other Contractors to act promptly in carrying out obligations and duties.
3. Failure of the County to submit the Contract and bond to the Contractor for execution.
4. Performance of extra work.
5. Court orders enjoining the prosecution of the project.
6. An act of the County not authorized by the Contract or permitted by law.

The County will not consider an extension of Contract time based on shortage or inadequacy of labor and equipment, negligence or fault of the Contractor, and other deficiencies, which are within the Contractor's control or responsibility.

If, in the judgment of the Engineer or Project Manager, insufficient force is being employed, or inadequate equipment and methods are used, or if progress is for any reason unduly delayed, the Engineer or Project Manager may instruct the Contractor in writing to increase the force or equipment, or adopt improved methods to expedite the work, and the Contractor shall heed and follow such instruction. Conformity to the Engineer or Project Manager's instructions shall not relieve the Contractor of any responsibilities under this Contract.

An extension of Contract time will be considered only if the Contractor has given written notice to the County of the cause of delay, and makes claim for such extension prior to the Contract completion date. The decision by the County of the term of any extension or denial thereof shall be final.

- G. Liquidated Damages: Should the contractor fail to complete the work, or any part thereof, in the time agreed upon in the Contract or within such extra time as may have been allowed for delays by extensions granted as provided in the Contract, then the Contractor shall reimburse the County for the additional expense and damage for every day, Sundays and legal holidays excluded, that the Contract remains uncompleted after the date of completion provided by the Contract. It is agreed that the amount of such additional expense and damage incurred by reason of failure to complete the work is the per diem rate stipulated in the Contract. The said amounts are hereby agreed upon as liquidated damages for the loss to the County on account of expense due to the employment of engineers, inspectors, and other employees after the expiration of the time for completion and on account of the value of the operation of the works dependent thereon. It is expressly understood and agreed that this amount is not to be considered in the nature of a penalty, but as liquidated damages which have accrued against the Contractor; and the County is authorized to deduct the amount of such damages from any monies due the Contractor for work performed or material furnished under this Contract; and the Contractor and their sureties shall be liable for any excess.

Payment of liquidated damages shall not release the Contractor from obligations in respect to the fulfillment of the entire Contract, nor shall the payment of such liquidated damages constitute a waiver of the County's right to collect any additional damages which may be sustained by failure of the Contractor to carry out the terms of the Contract.

- H. Conflicts, Errors and Omissions: The Contractor shall check and compare all plans prior to construction and notify the Engineer or Project Manager of any discrepancies or omissions in order to permit correction by the County. The Contractor shall immediately notify the Engineer or Project Manager of any hidden or unnoticed conditions encountered during the course of the work.
- I. Character of Workers: If any subcontractor or person employed by the Contractor shall fail or refuse to carry out the directions of the Engineer or Project Manager, appear to the County to be incompetent, act in a disorderly or improper manner, they shall be discharged immediately on the requisition of the Engineer or Project Manager. Such person shall not again be employed on the work.
- J. County's Right to do Work: If the Contractor should neglect to perform the work properly, the County shall notify the Contractor of the condition and take over and made good the deficiencies and deduct the cost thereof from the payments then or thereafter due the Contractor.
- K. County's Right to Terminate Contract: If the Contractor declares bankruptcy or if they make a general assignment for the benefit of their creditors; or if a receiver should be appointed on account of Contractor's insolvency; or if, except in cases for which extension of time is provided, the Contractor should persistently or repeatedly refuse or should fail to supply enough properly skilled workers, proper equipment, or proper materials, or if Contractor should fail to make prompt payment to subcontractors, material vendors or for labor; or persistently disregard laws, ordinances, or the instructions of the Engineer or Project Manager; or otherwise be guilty of a substantial violation of any provisions of the Contract documents or any laws or ordinance, then the County, upon the certification of the Engineer or Project Manager that sufficient cause exists to justify such action, may, without prejudice to any other right or remedy, terminate the employment of the Contractor and take possession of the premises and of all materials, tools, and appliances thereon and finish the work by whatever method the County may deem expedient. In such case, the Contractor shall not be entitled to receive further payment until the work is finished. If the expense of completing the Contract, including compensation for additional engineering, managerial, and administrative services, shall exceed such unpaid balance, the Contractor shall pay the difference to the County. The expense incurred by the County, as herein provided, and the damage incurred through the Contractor's default shall be certified by the Engineer or Project Manager.

The County reserves the right to terminate the Contract without recourse by the Contractor when the County judges it to be in its best interest. The work completed to date will be paid for at the Contract prices contained herein. The Contractor shall not be entitled to any additional compensation.

- L. Cleaning Up: Cleaning up shall be a continual process from the start of the work to final acceptance of the project. The Contractor shall, at all times, at their own expense, keep property, structure site, right of way, adjacent property, and the surfaces of streets, and roads on which work is in progress free from accumulations of waste material and rubbish caused by employees or by the work. Accumulations of waste materials that might constitute a fire hazard or public nuisance will not be permitted. Spill from the Contractor's or sub-contractor's vehicles and or equipment shall be promptly cleaned up. Upon completion of the construction, the Contractor shall, at their own expense, and to the satisfaction of the Engineer or Project Manager, remove all temporary structures, rubbish, and waste materials resulting from the Contractor's operations.

VIII. MEASUREMENT AND PAYMENT

- A. Measurement of Quantities: All work to be paid for at a Contract price per unit of measurement shall be measured by the Engineer or Project Manager in accordance with United States Standard Measures. Quantities for payment shall be based upon those given in the Contract and any written notice to the Contractor by the County changing or revising same to conform to any increase or reduction in the actual work required.

The quantities in the proposal and bid schedule are approximate only and prepared for the comparison of bids, and the County does not guarantee that the total amount of work will correspond with those quantities. . Payment will be made to the Contractor only for actual quantities of work performed and accepted and materials furnished in accordance with the Contract.

- B. Scope of Payment: The contractor shall accept the compensation as provided, in full payment for furnishing all materials, labor, tools and equipment necessary to the completed work and for performing all work agreed to under the Contract; Neither the payment for any estimate nor of any retained percentage shall relieve the Contractor of any obligation to make good any defective work or materials.
- C. Payment and Compensation for Altered Quantities: When alterations in plans for quantities of work are ordered and performed, the Contractor shall accept payment in full at the contract unit price for the actual quantities of work done, except as otherwise provided in paragraphs of these specifications. No allowance will be made in any case for loss of anticipated profits. Increased or decreased work involving supplemental agreements will be paid for as stipulated in such agreements.
- D. Extra Work & Force Account Work: When work is ordered by the Engineer or Project Manager, which cannot be classified under any of the items for which unit prices are established, it shall be paid for as extra work at the rate agreed to in writing between the Contractor and the County or such work may be done on a force account basis where the Contractor shall receive the actual cost of all labor, material and equipment furnished by them as shown by daily itemized reports of force account work done. To the actual costs above, amounts equal to a percentage of the actual costs will be allowed as follows.

Labor.....22 percent

Materials.....17 percent

Equipment.....17 percent

- E. Partial Payment: So long as the work contracted for is prosecuted in accordance with the provisions of this Contract, the Contractor will within the last five (5) days of each calendar month, submit a pay estimate with the proportionate value of the work done and of material furnished or delivered upon the site of the work up to the

25th of that month. The Contractor's estimate of work accomplished will be evaluated and verified by the County for payment submittal.

The amount of said estimate, after deducting five percent (5%) and all previous payments, shall be due and payable to the Contractor not more than fifteen (15) days after the last day of said month. The five percent (5%) deducted shall be withheld by the county to insure faithful completion of the work under the terms of the Contract documents and to provide a fund for the payment of any claims, which may accrue against the County because of some act or omission on the part of the Contractor.

Nothing contained in this article shall be construed to affect the right, hereby reserved, to reject the whole or any part of the aforesaid work, should such work be later found not to comply with any of the provisions of the Contract documents. Payments that have been made are subject to review and correction on the final estimate.

- F. Final Payment: The Contractor shall notify the County when work is considered completed and the Engineer or Project Manager shall within fifteen (15) days, after receiving the notice, schedule a final inspection with the Contractor to determine whether there is work yet to be performed. After completion and acceptance by the County, the Contractor shall submit final payment request along with a signed Certification of Work of Completion that stipulates a release and waiver of all claims against the County arising from the contract and satisfactory evidence that all amounts due for labor, materials and other obligations have been settled. The Engineer or Project Manager within 30 days will evaluate the final pay request and authorize payment. The County shall pay the entire sum found to be due after deducting all previous payments and release all retainage due.