

**STAFF REPORT
FOR THE PLANNING COMMISSION**

FILE NUMBER: MISC-20-06

HEARING DATE: August 5, 2020

REQUEST: One-Year Temporary Use Permit at 4515 Cedaroak Drive (Cedaroak Primary School) for temporary portable classroom to meet new state-mandated COVID-19 social distancing regulations for schools.

APPROVAL CRITERIA: Community Development Code (CDC) (CDC) Chapter 11: R-10, Single-Family Residential Detached; Chapter 35: Temporary Structures and Uses; Chapter 99, Procedures for Decision-Making: Quasi-Judicial.

STAFF REPORT PREPARED BY: Chris Myers, Associate Planner

Planning Manager's Initials DSW

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GENERAL INFORMATION

**APPLICANT/
OWNER:**

West Linn-Wilsonville School District
Remo Douglas
2755 SW Borland Road
Tualatin, OR 97062

CONSULTANT:

3J Consulting
9600 SW Nimbus, Suite 100
Beaverton, OR 97008

SITE LOCATION:

4515 Cedaroak Drive

SITE SIZE:

11.2 acres

LEGAL

DESCRIPTION:

Tax Lot 1800 of Clackamas County Assessor's Map 21E 24BA

COMP PLAN

DESIGNATION:

Low Density Residential

ZONING:

R-10 Single-Family Residential Detached
(10,000 sq. ft. min. lot size)

APPROVAL

CRITERIA:

Community Development Code (CDC) (CDC) Chapter 11: R-10, Single-Family Residential Detached; Chapter 35: Temporary Structures and Uses; Chapter 99, Procedures for Decision-Making: Quasi-Judicial.

120-DAY RULE:

The application became complete on July 16, 2020. The 120-day period therefore ends on November 13, 2020.

PUBLIC NOTICE:

Notice was mailed to property owners within 500 feet of the subject property and to all neighborhood associations on July 16, 2020. A sign was placed on the property on July 24, 2020. The notice was also posted on the City's website on July 16, 2020 and published in the West Linn Tidings on July 23, 2020. Therefore, public notice requirements of CDC Chapter 99 have been met.

EXECUTIVE SUMMARY

This application is a request for a one year temporary use permit at 4515 Cedaroak Drive (Cedaroak Primary School) for a temporary portable classroom to meet new state mandated Covid-19 social distancing regulations for schools. The structure is 28 foot x 64 foot and will be served by a small ramp and sidewalk. The structure will be placed on a newly installed gravel pad and be connected to electrical and communication services. No plumbing will be needed for the temporary structure. Placement of the structure will be on the east side of the campus near the soccer fields. All setbacks within the Community Development Code will be met. Access to the site will not be altered and parking will not be disrupted or changed with the placement of the portable classroom as no additional staff will be needed.

Public comments:

One public comment was submitted in support of the application. Please see Exhibit PC-2.

Recommendation

Staff recommends approval of application MISC-20-06, based on: 1) the findings submitted by the applicant, which are incorporated by this reference, 2) supplementary staff findings included in the Addendum below, and 3) the addition of conditions of approval below. With these findings, the applicable approval criteria are met. The conditions are as follows:

- 1. Site Plan. With the exception of modifications required by these conditions, the project shall conform to Plan Sheets A001 and A002 found in Exhibit PC-1.**
- 2. Engineering Standards. All public improvements and facilities associated with the approved site design, including but not limited to street improvements, driveway approaches, curb cuts, utilities, grading, onsite and offsite stormwater, street lighting, easements, easement locations, and connections for future extension of utilities are subject to conformance with the City Municipal Code and Community Development Code. These must be designed, constructed, and completed prior to issuance of Certificate of Occupancy by the Building Official.**

ADDENDUM
APPROVAL CRITERIA AND FINDINGS
MISC-20-06

This decision adopts the findings for approval contained within the applicant’s submittal, with the following exceptions and additions:

Chapter 11: SINGLE-FAMILY RESIDENTIAL DETACHED, R-10

11.050 USES AND DEVELOPMENT PERMITTED UNDER PRESCRIBED CONDITIONS

The following uses are allowed in this zone under prescribed conditions.

(...)

3. Temporary uses, subject to the provisions of Chapter 35 CDC.

(...)

Staff Finding 1: The applicant is proposing an allowed temporary use. All provisions of Chapter 35 are addressed in this staff report.

The criterion is met.

11.060 CONDITIONAL USES

The following are conditional uses which may be allowed in this zoning district subject to the provisions of Chapter 60 CDC, Conditional Uses.

(...)

7. Schools.

(...)

Staff Finding 2: The Cedaroak Primary School is a pre-existing conditional use in the R-10 zone. The Cedaroak Primary School was built in 1958 under Clackamas County jurisdiction. No change in its use is proposed.

The criterion is met.

11.070 DIMENSIONAL REQUIREMENTS, USES PERMITTED OUTRIGHT AND USES PERMITTED UNDER PRESCRIBED CONDITIONS

Except as may be otherwise provided by the provisions of this code, the following are the requirements for uses within this zone:

1. The minimum lot size shall be 10,000 square feet for a single-family detached unit.

2. The minimum front lot line length or the minimum lot width at the front lot line shall be 35 feet.

3. The average minimum lot width shall be 50 feet.

4. Repealed by Ord. 1622.

5. Except as specified in CDC 25.070(C)(1) through (4) for the Willamette Historic District, the minimum yard dimensions or minimum building setback area from the lot line shall be:

a. For the front yard, 20 feet; except for steeply sloped lots where the provisions of CDC 41.010 shall apply.

- b. For an interior side yard, seven and one-half feet.
- c. For a side yard abutting a street, 15 feet.
- d. For a rear yard, 20 feet.
- 6. The maximum building height shall be 35 feet, except for steeply sloped lots in which case the provisions of Chapter [41](#) CDC shall apply.
- 7. The maximum lot coverage shall be 35 percent.
- 8. The minimum width of an accessway to a lot which does not abut a street or a flag lot shall be 15 feet.
- 9. The maximum floor area ratio shall be 0.45. Type I and II lands shall not be counted toward lot area when determining allowable floor area ratio, except that a minimum floor area ratio of 0.30 shall be allowed regardless of the classification of lands within the property. That 30 percent shall be based upon the entire property including Type I and II lands. Existing residences in excess of this standard may be replaced to their prior dimensions when damaged without the requirement that the homeowner obtain a non-conforming structures permit under Chapter [66](#) CDC.
- 10. The sidewall provisions of Chapter 43 shall apply.

Staff Finding 3: The applicant proposes no changes to approved lot sizes or dimensions. The temporary structure will be setback 29.5 feet from the front lot line and well over 100 feet from any other lot line. The temporary structure will be approximately 15 feet in height. Lot coverage is approximately 21 percent and floor-to-area ratio is approximately 17 percent. All accessways remain the same. The criteria are met.

Chapter 35: Temporary Structures and Uses

35.030 TEMPORARY USE STANDARDS

A. Temporary uses shall be approved if they meet the following standards:

- 1. Sites accommodating a temporary use shall be appropriate for the proposed use, as determined by the approval authority with consideration of the following:
 - a. The proposed site shall have adequate parking and circulation space consistent with Chapter [46](#) CDC, Off-Street Parking, Loading and Reservoir Areas; safe ingress and egress consistent with Chapter [48](#) CDC, Access, Egress and Circulation; and adequate line of sight and vision clearance per Chapter [42](#) CDC, Clear Vision Areas.

Staff Finding 4: The proposed temporary portable classroom will be an extension of the school and is therefore an appropriate use on the site. The addition of the temporary portable classroom will have no impact on parking or circulation as there will not be any additional staff or students due to the placement of the temporary portable classroom. The criteria are met.

- a. The proposed site shall have a paved or graveled surface sufficient to avoid dust generation and mud tracking from anticipated traffic or erosion control measures, consistent with Clackamas County Erosion Prevention and Sediment Control Planning and Design Manual, rev. 2008, and shall be used to keep any mud, sediment and dust on site.

Staff Finding 5: The temporary portable classroom will be placed on a new gravel pad with a newly constructed concrete sidewalk and aluminum ramp leading to the classroom. Mud, sediment, and dust shall be controlled through the construction process as required. The criteria are met.

b. The proposed use shall conform to all applicable requirements of Chapter [27](#) CDC, Flood Management Areas; Chapter [28](#) CDC, Willamette and Tualatin River Protection; Chapter [32](#) CDC, Water Resource Area Protection; and other City regulations.

Staff Finding 6: The proposed use is not in a flood management area, within the Willamette or Tualatin River Protection Area, or within a Water Resource Area, environmental zone or hazard area. The criteria do not apply.

c. The proposed temporary use shall not be materially detrimental to the public welfare, or injurious to the property or improvements in the immediate vicinity.

Staff Finding 7: The proposed temporary portable classroom is an extension of the current primary school use and is required to meet state-mandated COVID-19 social distancing regulations. There is no impact to the public welfare or surrounding properties from approving the proposal. The criteria is met.

2. The approval authority may require that structures and trailers allowed as temporary uses for more than 60 days be screened from the view of occupants of any abutting residential and commercial structures, consistent with Chapter [44](#) CDC, unless the applicant demonstrates that such screening is not needed.

Staff Finding 8: The temporary use is expected to be for one year in order to comply with the state mandated social distancing criteria for schools during the Covid-19 pandemic. The temporary portable classroom will be placed on the existing Cedaroak Primary School campus property and is in keeping with the overall look and feel of the school. It is common practice to place temporary portable classrooms on school properties without the need for screening. The criteria are met.

3. Drop boxes, trailers, or structures that serve a similar function are allowed, consistent with subsection A of this section, for registered nonprofit, religious or benevolent groups, orders or associations, when they are proposed to be located in General Commercial, Office Business Center, Campus Industrial, General Industrial, or Neighborhood Commercial districts. Drop boxes and structures serving a similar function, not including trailers, shall not exceed seven feet in height or have a footprint of more than 25 square feet on a single site. Their color shall be limited to earth tones.

Staff Finding 9: The applicant does not propose any drop boxes or trailers. The criteria does not apply.

4. *The property owner has authorized the proposed temporary use in writing.*

Staff Finding 10: The property owner has authorized and signed the application form. The criteria are met.

35.050 DURATION OF TEMPORARY USES

Temporary uses may be allowed for no more than one year, with one additional renewal for no greater duration than the original approval, except as follows:

A. Construction trailers and associated parking and staging areas beyond the site approved for the associated development may be allowed for the duration of active construction projects.

B. Drop boxes, structures serving a similar function, and trailers authorized under CDC 35.030(A) will be allowed indefinitely, but they will be revoked if they are unused or abandoned for a period of 60 days or if material is not contained by the drop box or trailer and allowed to accumulate outside of the drop box, structure, or trailer.

Upon revocation of the approval, the applicant shall be responsible for removing the drop box, structure, or trailer unless it is abandoned; in that case, removal shall be the responsibility of the property owner.

Staff Finding 11: The school district is proposing a one-year temporary portable classroom. If additional time is needed, the school district will follow the appropriate procedures for a renewal application. The criteria are met.

Chapter 99: Procedures for Decision-Making: Quasi-Judicial

99.030 APPLICATION PROCESS: WHO MAY APPLY, PRE-APPLICATION CONFERENCE, REQUIREMENTS, REFUSAL OF APPLICATION, FEES

(...)

B. Pre-application conferences.

2. Subject to subsection (B)(3) of this section, the following applications are exempt from subsection (B)(1) of this section, Pre-Application Conference:

(...)

d. Temporary use permits;

(...)

Staff Finding 12: The applicant is applying for a one year temporary use permit. Temporary use permits are exempt from a Pre-Application Conference. The criterion is met.

99.038 NEIGHBORHOOD CONTACT REQUIRED FOR CERTAIN APPLICATIONS

Prior to submittal of an application for any subdivision, conditional use permit, multi-family project, planned unit development of four or more lots, non-residential buildings over 1,500 square feet, or a zone change that requires a Comprehensive Plan amendment, the applicant shall contact and discuss the proposed development with any affected neighborhood as provided in this section. (...)

Staff Finding 13: The application is for a temporary use permit. Neighborhood contact is not required.

The criteria are met.

99.080 NOTICE

Notice shall be given in the following ways:

A. Class A Notice. Notice of proposed action or a development application pursuant to CDC 99.060 shall be given by the Director in the following manner:

- 1. At least 20 days prior to the scheduled hearing date notice shall be sent by mail to:*
 - a. The applicant or the applicant's agent, and the property owner of record on the most recent property tax assessment roll where such property is located.*
 - b. All property owners of record on the most recent property tax assessment roll where such property is located within 500 feet of the site.*
 - c. Any affected governmental agency which has entered into an intergovernmental agreement with the City which includes provision for such notice; plus, where applicable, the Oregon Department of Transportation, Tri-Met, neighboring local jurisdictions, Clackamas County Department of Transportation and Development, and Metro.*
 - d. The affected recognized neighborhood association or citizens advisory committee.*
 - e. For a hearing on appeal or review, all parties and persons with standing described in CDC 99.140 to an appeal or petition for review.*

Staff Finding 14: The application requires a Class A notice per Staff Finding 20. Notice was mailed on July 16, 2020 to: the applicant, all property owners of record within 500 feet, the West Linn Wilsonville School District, all West Linn neighborhood associations, and the applicant's consultant.

The criteria are met.

2. At least 10 days prior to the hearing or meeting date, notice shall be given in a newspaper of general circulation in the City. An affidavit of publication shall be made part of the administrative record.

a. Decisions pursuant to CDC 99.060(A), Planning Director authority, are exempt from the requirements of this subsection.

Staff Finding 15: Notice was published in the West Linn Tidings on July 23, 2020. An affidavit of publication can be found in Exhibit PC-3.

The criteria are met.

3. At least 10 days prior to the hearing or meeting date, the Planning Director shall cause a sign to be placed on the property which is the subject of the decision or, if the property does not have frontage on a public street, adjacent to the nearest public street frontage in plain view and shall state, "This property is the subject of a land use decision," with the type of use or request indicated. If the application is not located adjacent to a through street, then an additional sign shall be posted on the nearest through street.

**Staff Finding 16: A sign was posted at the main entry to the Cedaroak Primary School property on July 24, 2020.
The criterion is met.**

4. At least 10 days but no more than 40 days prior to hearing of a proposed zone change for manufactured home parks, notice shall be given to the respective manufactured home park residents.

**Staff Finding 17: The application is not related to a manufactured home park.
The criterion does not apply**

5. The Director shall cause an affidavit of mailing of notice and posting of notice to be filed and made part of the administrative record.

**Staff Finding 18: The affidavit of mailing of notice has been produced and can be found in Exhibit PC-3.
The criterion is met.**

6. At the conclusion of the land use action the signs shall be removed.

**Staff Finding 19: The land use action signs will be removed after the conclusion of the application for a temporary use permit.
The criterion is met.**

E. Table of notices. The following notice summary identifies the appropriate type of notice for the various land use applications of CDC 99.060.

Temporary Use Permit: 60 days or less; 60-day extension Over 60 days, up to 1 year	No Notice A
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**Staff Finding 20: The applicant has applied for a one year temporary use permit and therefore a Type A notice has been utilized. Please see Staff Findings 14 to 19.
The criteria are met**

EXHIBIT PC-1 APPLICANT SUBMITTAL

DEVELOPMENT REVIEW APPLICATION

For Office Use Only

STAFF CONTACT <i>Chris Myers</i>	PROJECT NO(S). <i>MISC-20-06</i>	PRE-APPLICATION NO. <i>N/A</i>
NON-REFUNDABLE FEE(S) <i>\$3500.00</i>	REFUNDABLE DEPOSIT(S) <i>- 0 -</i>	TOTAL <i>\$3500.00</i>

Type of Review (Please check all that apply):

- | | | |
|--|---|--|
| <input type="checkbox"/> Annexation (ANX) | <input type="checkbox"/> Historic Review | <input type="checkbox"/> Subdivision (SUB) |
| <input type="checkbox"/> Appeal and Review (AP) | <input type="checkbox"/> Legislative Plan or Change | <input checked="" type="checkbox"/> Temporary Uses |
| <input type="checkbox"/> Conditional Use (CUP) | <input type="checkbox"/> Lot Line Adjustment (LLA) | <input type="checkbox"/> Time Extension |
| <input type="checkbox"/> Design Review (DR) | <input type="checkbox"/> Minor Partition (MIP) (Preliminary Plat or Plan) | <input type="checkbox"/> Variance (VAR) |
| <input type="checkbox"/> Easement Vacation | <input type="checkbox"/> Non-Conforming Lots, Uses & Structures | <input type="checkbox"/> Water Resource Area Protection/Single Lot (WAP) |
| <input type="checkbox"/> Extraterritorial Ext. of Utilities | <input type="checkbox"/> Planned Unit Development (PUD) | <input type="checkbox"/> Water Resource Area Protection/Wetland (WAP) |
| <input type="checkbox"/> Final Plat or Plan (FP) | <input type="checkbox"/> Pre-Application Conference (PA) | <input type="checkbox"/> Willamette & Tualatin River Greenway (WRG) |
| <input type="checkbox"/> Flood Management Area | <input type="checkbox"/> Street Vacation | <input type="checkbox"/> Zone Change |
| <input type="checkbox"/> Hillside Protection & Erosion Control | | |

Home Occupation, Pre-Application, Sidewalk Use, Sign Review Permit, and Temporary Sign Permit applications require different or additional application forms, available on the City website or at City Hall.

Site Location/Address: <i>4515 CEDAROAK DRIVE</i>	Assessor's Map No.: <i>21E24ba</i>
	Tax Lot(s): <i>1800</i>
	Total Land Area: <i>11.2 Acres +/-</i>

Brief Description of Proposal: *ONE-YEAR TEMPORARY USE PERMIT AT 4515 CEDAROAK DRIVE (CEDAROAK PRIMARY SCHOOL) FOR A TEMPORARY PORTABLE CLASSROOM TO MEET NEW STATE-MANDATED COVID-19 SOCIAL DISTANCING REGULATIONS FOR SCHOOLS.*

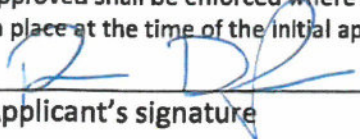
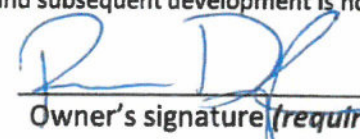
Applicant Name: <i>REMO DOUGLAS</i> <small>(please print)</small>	Phone: <i>503 673-7975</i>
Address: <i>2755 BORLAND ROAD</i>	Email: <i>douglasr@wlwv.k12.or.us</i>
City State Zip: <i>TUALATIN, OR 97062</i>	

Owner Name (required): <i>REMO DOUGLAS</i> <small>(please print)</small>	Phone: <i>503-673-7975</i>
Address: <i>2755 BORLAND ROAD</i>	Email: <i>douglasr@wlwv.k12.or.us</i>
City State Zip: <i>TUALATIN, OR 97062</i>	

Consultant Name: <i>ANDREW TULL, 3J CONSULTING, INC</i> <small>(please print)</small>	Phone: <i>503-545-1907</i>
Address: <i>9600 SW NIMBUS, SUITE 100</i>	Email: <i>Andrew.tull@3j-consulting.com</i>
City State Zip: <i>BEAVERTON, OR 97008</i>	

1. All application fees are non-refundable (excluding deposit). Any overruns to deposit will result in additional billing.
2. The owner/applicant or their representative should be present at all public hearings.
3. A decision may be reversed on appeal. No permit will be in effect until the appeal period has expired.
4. One complete hard-copy set of application materials must be submitted with this application.
One complete digital set of application materials must also be submitted electronically in PDF format.
If large sets of plans are required in application please submit one set.

The undersigned property owner(s) hereby authorizes the filing of this application, and authorizes on site review by authorized staff. I hereby agree to comply with all code requirements applicable to my application. Acceptance of this application does not infer a complete submittal. All amendments to the Community Development Code and to other regulations adopted after the application is approved shall be enforced where applicable. Approved applications and subsequent development is not vested under the provisions in place at the time of the initial application.

 _____ Applicant's signature	7/15/2020 _____ Date	 _____ Owner's signature (required)	7/15/2020 _____ Date
--	----------------------------	---	----------------------------

July 15, 2020

Darren Wyss
Associate Planner
City of West Linn
22500 Salamo Road
West Linn, Oregon

Cedaroak Park Primary School
Temporary Portable

Dear Darren,

This application has been prepared on behalf of the West Linn-Wilsonville School District in order to request the placement of a temporary classroom at the Cedar Oak Park Primary School. The proposed structure will provide a temporary classroom at the school to help achieve the State of Oregon's mandatory COVID-19 social distancing standards. The District has submitted this application under the City's standards for Temporary Structures and Uses.

The site is located at 4515 Cedaroak Drive within the City of West Linn. The property is zoned R-10 and is home to the existing Cedaroak Park Primary School. The proposed structure will be a 28x64 foot temporary portable classroom which will be served by a small ramp and sidewalk. Attached herewith are preliminary site plans for the proposed structure and a land use application. The applicable standards for Chapter 35 have been addressed below.

Chapter 35 - TEMPORARY STRUCTURES AND USES

35.010 APPLICABILITY

Notwithstanding the limitations of use established by this code, the approval authority can authorize temporary uses consistent with the provisions of this chapter.

35.030 TEMPORARY USE STANDARDS

A. Temporary uses shall be approved if they meet the following standards:

1. Sites accommodating a temporary use shall be appropriate for the proposed use, as determined by the approval authority with consideration of the following:
 - a. The proposed site shall have adequate parking and circulation space consistent with Chapter 46 CDC, Off-Street Parking, Loading and Reservoir Areas; safe ingress and egress consistent with Chapter 48 CDC, Access, Egress and Circulation; and adequate line of sight and vision clearance per Chapter 42 CDC, Clear Vision Areas.



Applicant's Findings: The District proposes to place a single portable classroom on the site. No changes to site access, parking or vehicular circulation have been proposed as part of this application.

b. The proposed site shall have a paved or graveled surface sufficient to avoid dust generation and mud tracking from anticipated traffic or erosion control measures, consistent with Clackamas County Erosion Prevention and Sediment Control Planning and Design Manual, rev. 2008, and shall be used to keep any mud, sediment and dust on site.

Applicant's Findings: The portable classroom will be placed on site using best management practices which will comply with the Clackamas County Erosion Prevention and Sediment Control Planning and Design Manual. The building will be served by a new aluminum ramp and sidewalk. The generation of dust and mud from traffic will be controlled on site during the construction period.

c. The proposed use shall conform to all applicable requirements of Chapter 27 CDC, Flood Management Areas; Chapter 28 CDC, Willamette and Tualatin River Protection; Chapter 32 CDC, Water Resource Area Protection; and other City regulations.

Applicant's Findings: The site is not affected by the Flood plain or the Willamette or Tualatin Rivers. The site does contain a stream an associated Water Resource Protection Area however the street and the associated buffer is on the north side of the property, well away from the proposed portable classroom. Chapters 27, 28, and 32 of the City's Community Development Code do not apply to this project.

d. The proposed temporary use shall not be materially detrimental to the public welfare, or injurious to the property or improvements in the immediate vicinity.

Applicant's Findings: The District has proposed to place the portable classroom on site in order to comply with State-mandated social distancing requirements. The proposed improvement is a benefit to the public. No public detriment or injury to the property or to other properties within the immediate vicinity are anticipated.

2. The approval authority may require that structures and trailers allowed as temporary uses for more than 60 days be screened from the view of occupants of any abutting residential and commercial structures, consistent with Chapter 44 CDC, unless the applicant demonstrates that such screening is not needed.

Applicant's Findings: The proposed structure is a modular classroom which will be placed on the site of the existing Cedaroak Park Primary School. The District considers this to be a



temporary placement, anticipating only a single year of use. The proposal is in response to the State-mandated social distancing requirements for schools.

Modular classrooms are commonly placed on existing school sites without the need for screening.

3. Drop boxes, trailers, or structures that serve a similar function are allowed, consistent with subsection A of this section, for registered nonprofit, religious or benevolent groups, orders or associations, when they are proposed to be located in General Commercial, Office Business Center, Campus Industrial, General Industrial, or Neighborhood Commercial districts.

Drop boxes and structures serving a similar function, not including trailers, shall not exceed seven feet in height or have a footprint of more than 25 square feet on a single site. Their color shall be limited to earth tones.

Applicant's Findings: No drop boxes, trailer or structures are proposed within any of the zones listed. This section does not apply to the application.

4. The property owner has authorized the proposed temporary use in writing.

Applicant's Findings: The District has provided a signed land use application authorizing the proposed temporary use.

B. The approval authority may attach conditions to any temporary use approval as needed to achieve compliance with the applicable standards of this section or otherwise protect public health, safety, and welfare.

Applicant's Findings: The District understands that the City's Planning Commission may impose conditions upon this application however, no unique conditions are anticipated or required.

35.050 DURATION OF TEMPORARY USES

Temporary uses may be allowed for no more than one year, with one additional renewal for no greater duration than the original approval, except as follows:

A. Construction trailers and associated parking and staging areas beyond the site approved for the associated development may be allowed for the duration of active construction projects.

B. Drop boxes, structures serving a similar function, and trailers authorized under CDC 35.030(A) will be allowed indefinitely, but they will be revoked if they are unused or abandoned for a period of



60 days or if material is not contained by the drop box or trailer and allowed to accumulate outside of the drop box, structure, or trailer.

Upon revocation of the approval, the applicant shall be responsible for removing the drop box, structure, or trailer unless it is abandoned; in that case, removal shall be the responsibility of the property owner.

Applicant's Findings: The District proposes to place the structure on site for a single year. If additional time is needed, the District will apply for a renewal of this application.

We trust that this application will be well received by the City. Please feel free to give me a call if you have any questions or need any additional clarification.

Sincerely,



Andrew Tull
Principal Planner
3J Consulting, Inc.

copy: Mr. Remo Douglas, West Linn-Wilsonville School District
Mr. Adam Neil, West Linn-Wilsonville School District
File

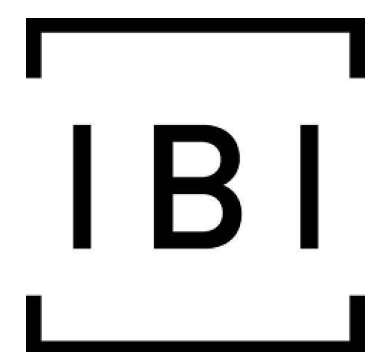


WEST LINN - WILSONVILLE SCHOOL DISTRICT 2020 PORTABLES CEDAROAK PARK PRIMARY SCHOOL

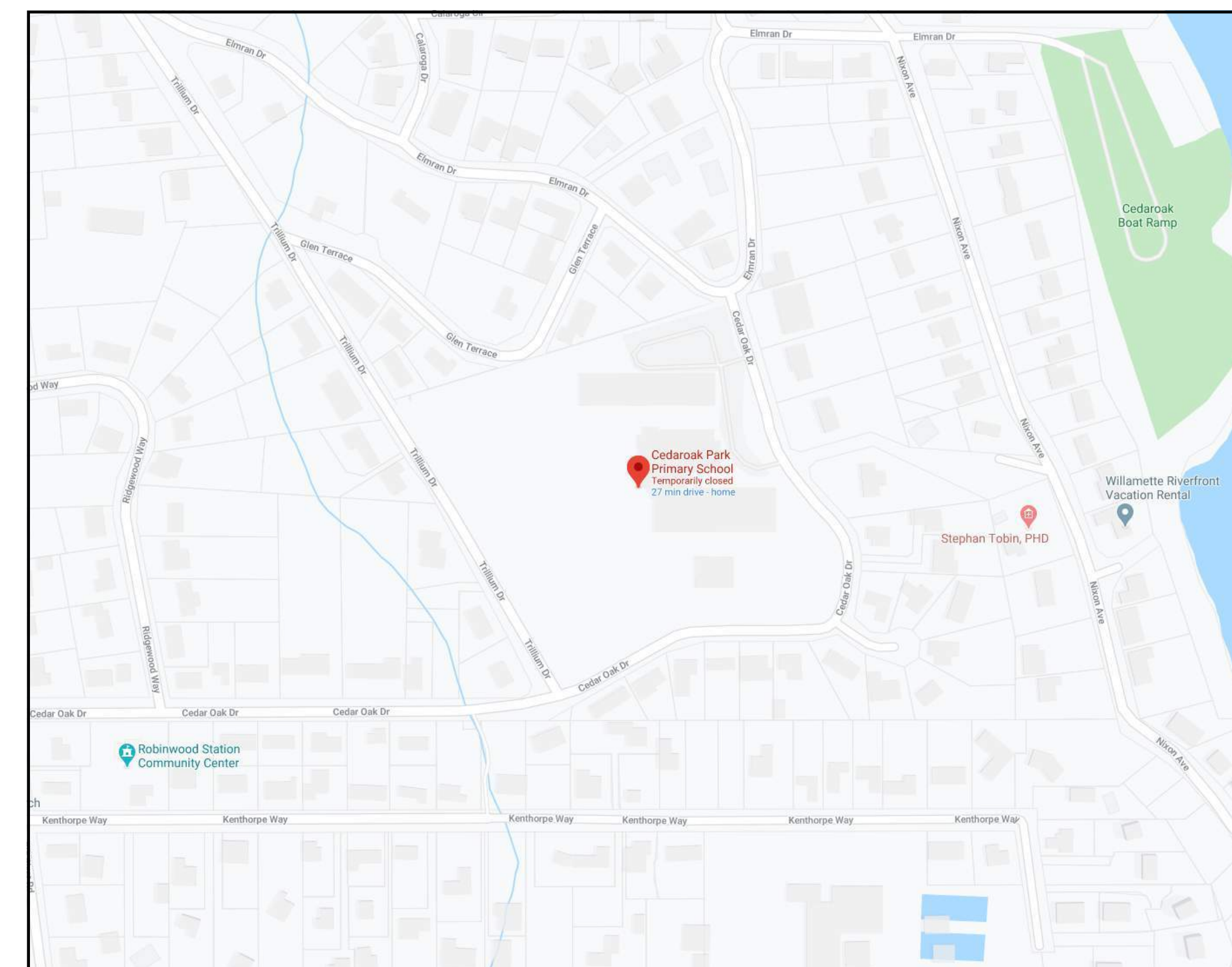
LAND USE SUBMITTAL JUNE 30, 2020

DRAWING LIST


- A001 Site Plan
- A002 Plan, Elevations & Section

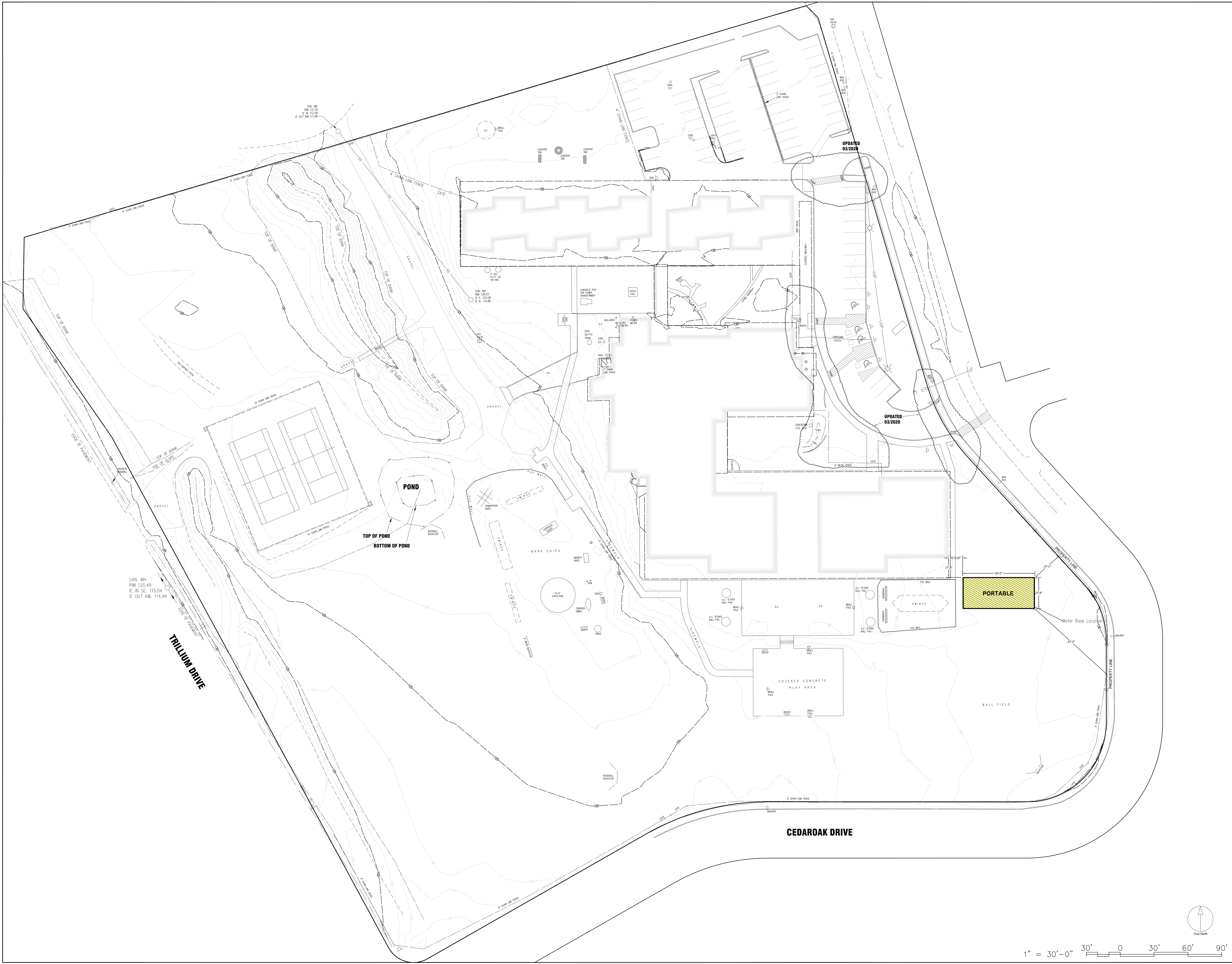


IBI GROUP
907 SW Harvey Milk Street
Portland OR 97205 USA
PHONE: 503-226-6950



VICINITY MAP

CLIENT West Linn - Wilsonville School District 3J 2755 SW Borland Road West Linn, OR 97062	
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No.	DESCRIPTION DATE
CONSULTANTS	
SEAL	
PRIME CONSULTANT	
 IBI GROUP 907 SW Harvey Milk Street Portland OR 97205 USA tel 503 226 6950 fax 503 273 9192 ibigroup.com	
PROJECT	
WLWV 2020 PORTABLES CEDAROAK PARK PRIMARY SCHOOL	
PROJECT NO:	
DRAWN BY:	CHECKED BY:
PROJECT MGR:	APPROVED BY:
SHEET TITLE	
COVER SHEET	
SHEET NUMBER	ISSUE



CLIENT
 West Linn - Wilsonville
 School District 3J

2755 SW Borland Road
 West Linn, OR 97062

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ISSUES		
NO.	DESCRIPTION	DATE

CONSULTANTS

SEAL

PRIME CONSULTANT
IBI GROUP
 907 SW Harvey Milk Street
 Portland, OR 97205 USA
 tel 503 226 6950 fax 503 273 9192
 ibigroup.com

PROJECT
 WLWV 2020 PORTABLES
 CEDAROAK PARK
 PRIMARY SCHOOL

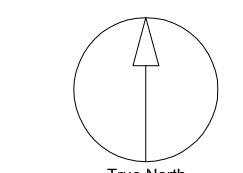
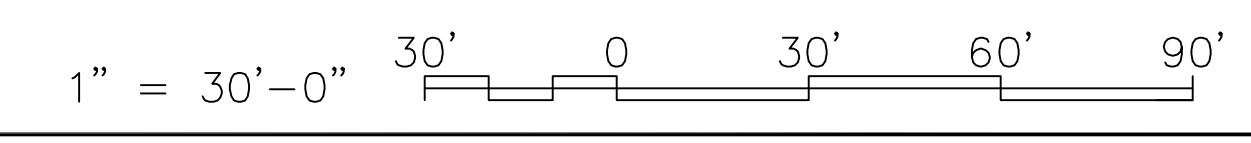
PROJECT NO:

DRAWN BY:	CHECKED BY:
PROJECT MGR:	APPROVED BY:

SHEET TITLE
 SITE PLAN

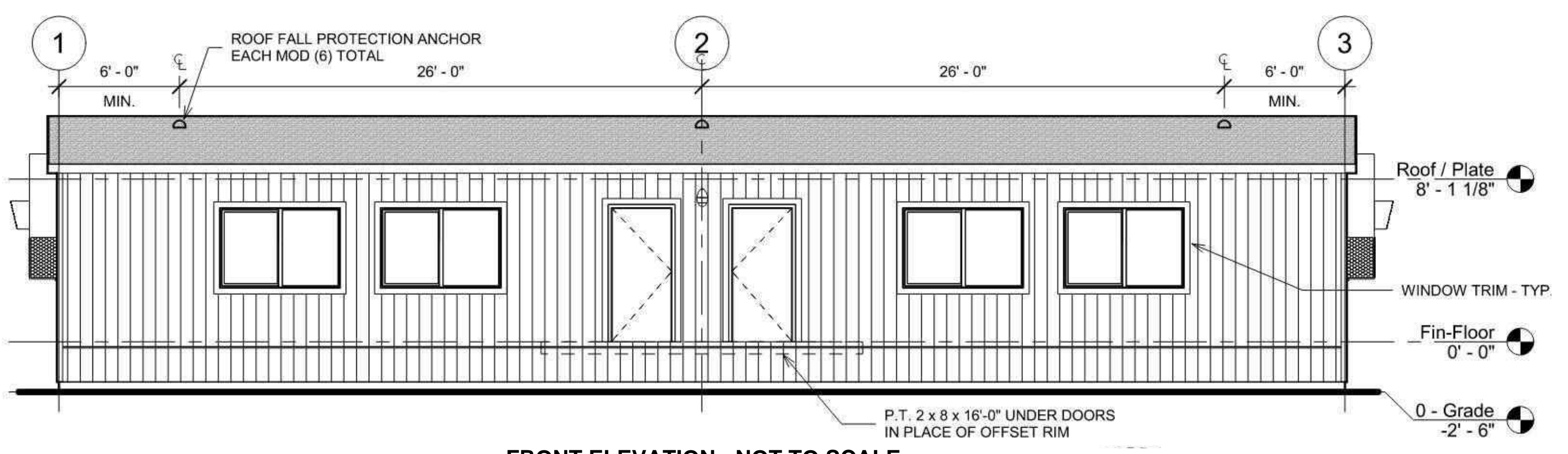
SHEET NUMBER
A001

ISSUE

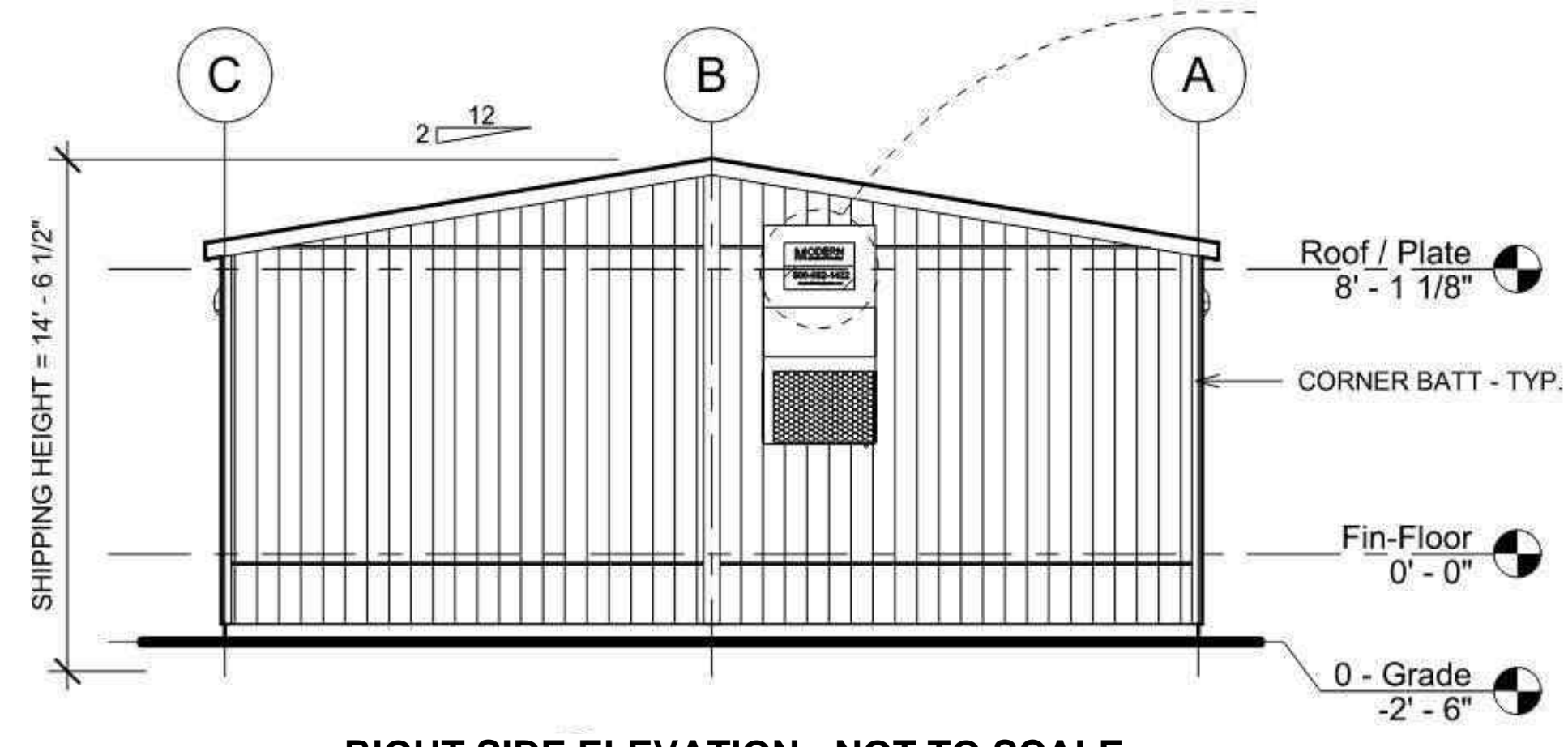


File Location: J:\24722_2019\Drawings\5 Drawings\WLVW 2020 Portables\CedarOak Park Topo 2020.dwg
 Last Sheet: June 24, 2020, by emily.bubberg
 Plotted: Monday, June 29, 2020 4:14:52 PM by Emily Bubberg

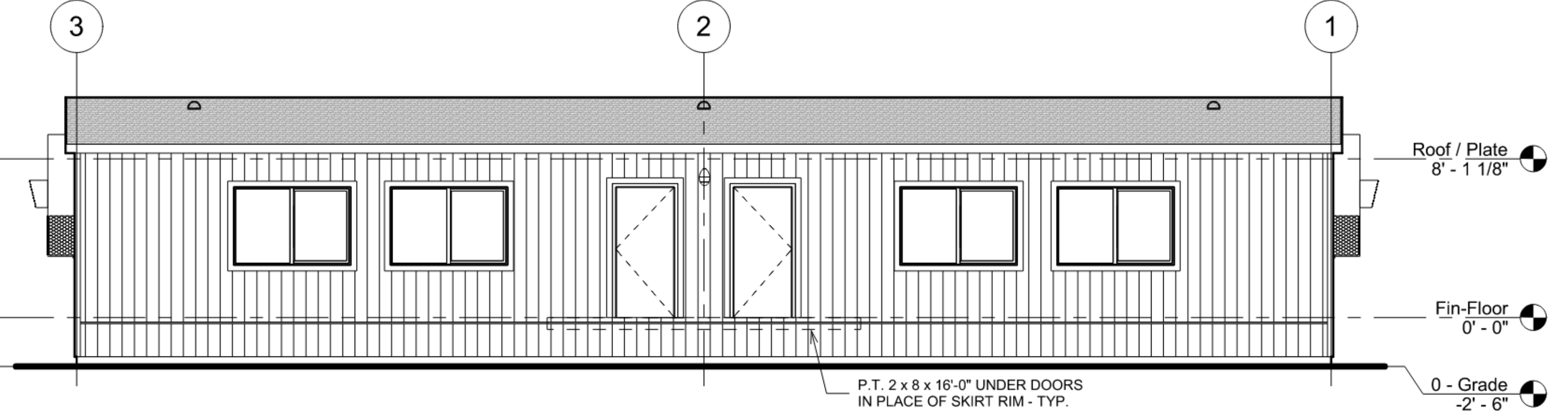
CLIENT West Linn - Wilsonville School District 3J		
2755 SW Borland Road West Linn, OR 97062		
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CONSULTANTS		
SEAL		
PRIME CONSULTANT IBI GROUP 907 SW Harvey Milk Street Portland, OR 97205 USA tel 503 226 6950 fax 503 273 9192 ibigroup.com		
PROJECT WLWV 2020 PORTABLES CEDAR OAK PARK PRIMARY SCHOOL		
PROJECT NO:		
DRAWN BY:	CHECKED BY:	
PROJECT MGR:	APPROVED BY:	
SHEET TITLE PLAN, ELEVATIONS, AND SECTION		
SHEET NUMBER A002	ISSUE	



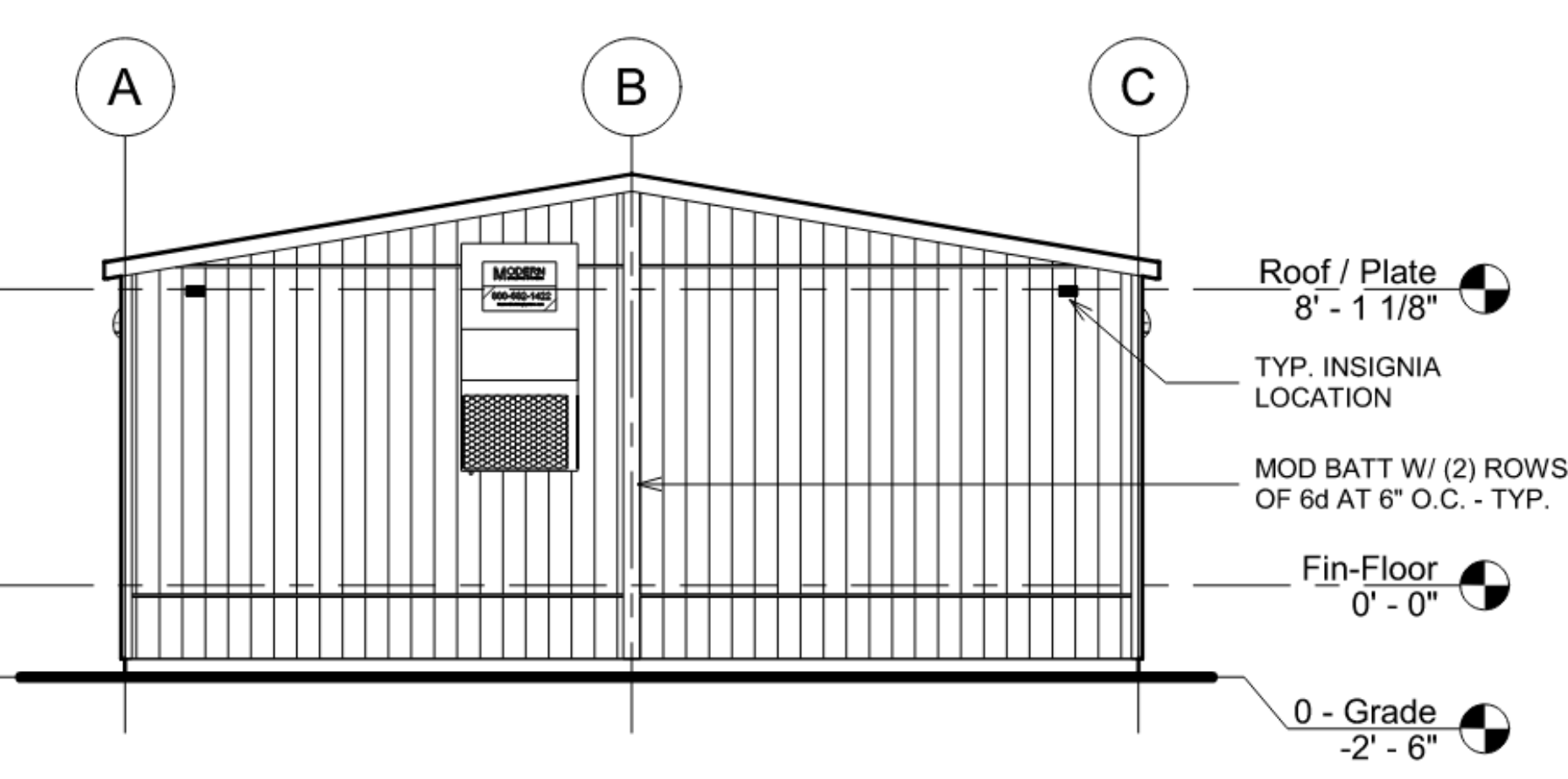
FRONT ELEVATION - NOT TO SCALE



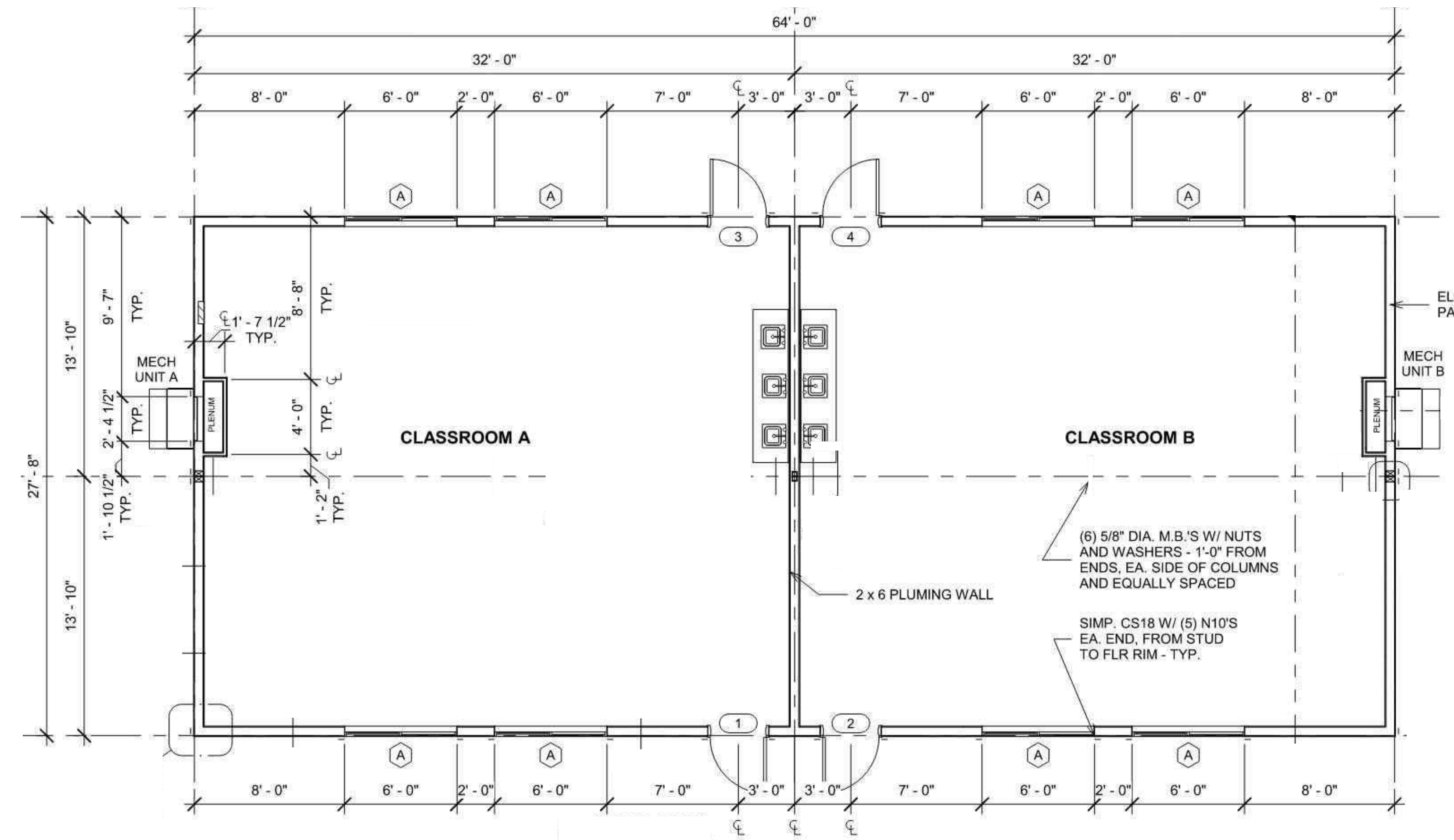
RIGHT SIDE ELEVATION - NOT TO SCALE



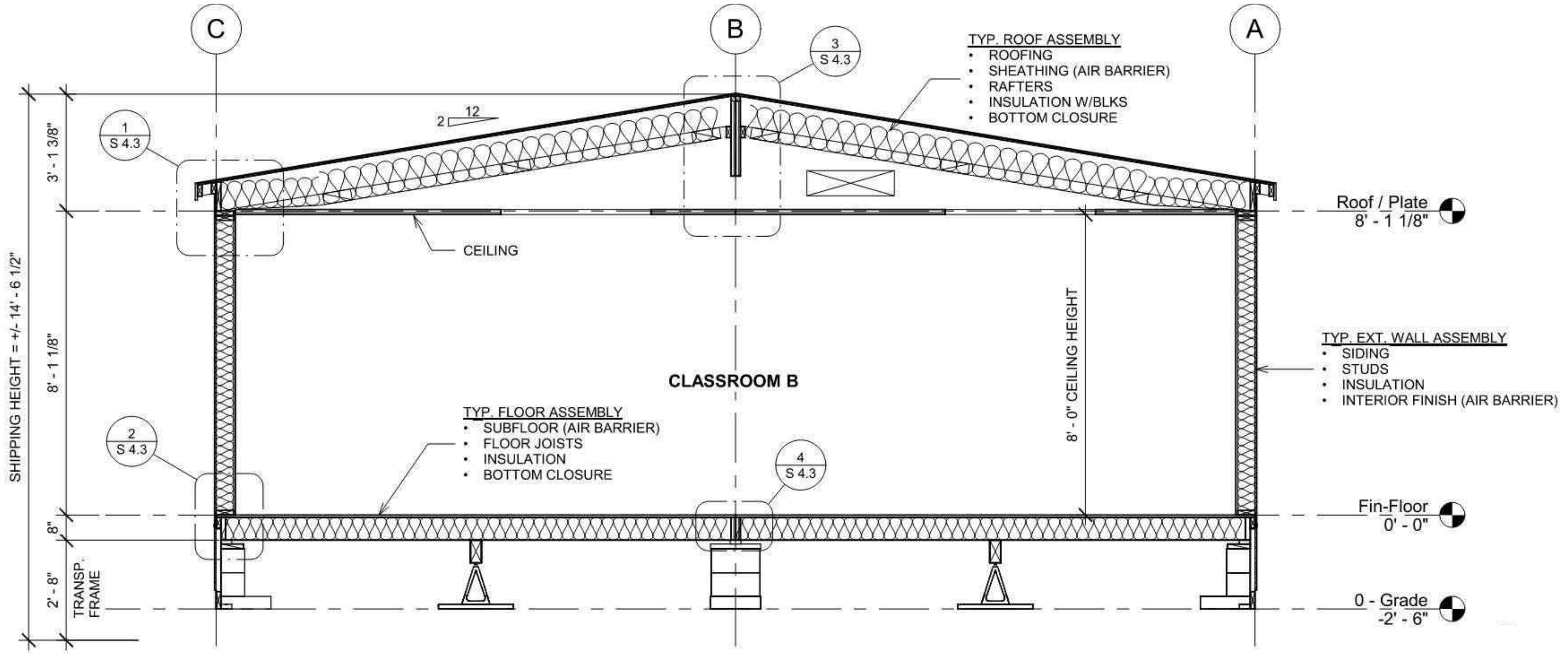
REAR ELEVATION - NOT TO SCALE



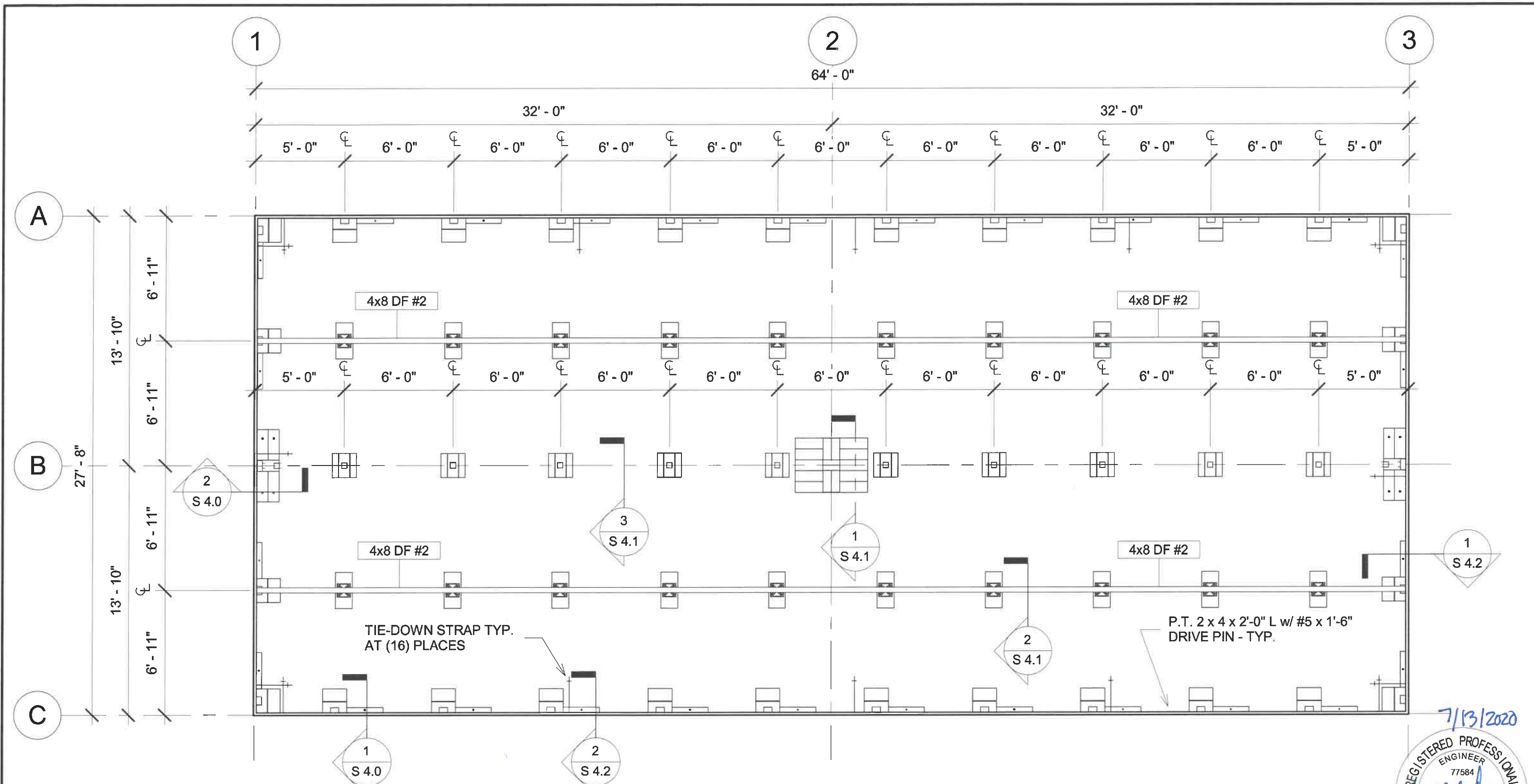
LEFT SIDE ELEVATION - NOT TO SCALE



FLOOR PLAN - NOT TO SCALE



BUILDING SECTION - NOT TO SCALE

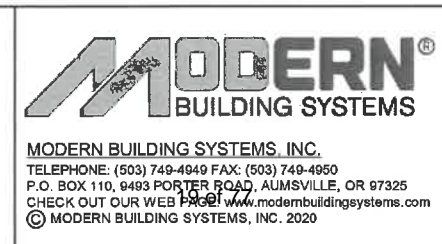


1 FOUNDATION PLAN
3/16" = 1'-0"



REV.	DESCRIPTION	DATE	BY

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SHEET	FOUNDATION PLAN
PROJ.	28' x 64' MODULAR FOUNDATION WEST LINN - WILSONVILLE SD
ADDRESS	4515 S CEDAR OAK DR., WEST LINN, OR 97068

JOB#	L.U. 2508-2509
SHEET #	S 1.0
DATE	7/13/20

DRW TS

FOUNDATION NOTES

1. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS. THIS STRUCTURE SHALL BE ADEQUATELY BRACED FOR WIND OR EARTHQUAKE FORCES AND TEMPORARY FORCES DURING SETTING AND ERECTION UNTIL ALL UNITS HAVE BEEN PERMANENTLY ATTACHED THERETO. REMOVE ORGANIC / SOD UNDER ALL BEARING PADS.

2. DESIGN LOADS:

ROOF DEAD LOAD	12 PSF
ROOF SNOW LOAD	25 PSF
FLOOR DEAD LOAD	10 PSF
FLOOR LIVE LOAD	50 PSF
WIND LOAD	Lambda = 1.0 Vult = 140 MPH (Vasd = 108 MPH) 3 SECOND GUST - EXP. B
SEISMIC	BEARING WALL SYSTEM: $S_s = 1.500$, $F_a = 1.200$ $S_{DS} = 1.000$, (PER ASCE 7-16, SEC. 12.8.1.3) RISK CATEGORY II $I_e = 1.0$, SEISMIC DESIGN CATEGORY D, SITE CLASS D
ALLOWABLE BEARING CAPACITY	1800 PSF AT GRAVEL

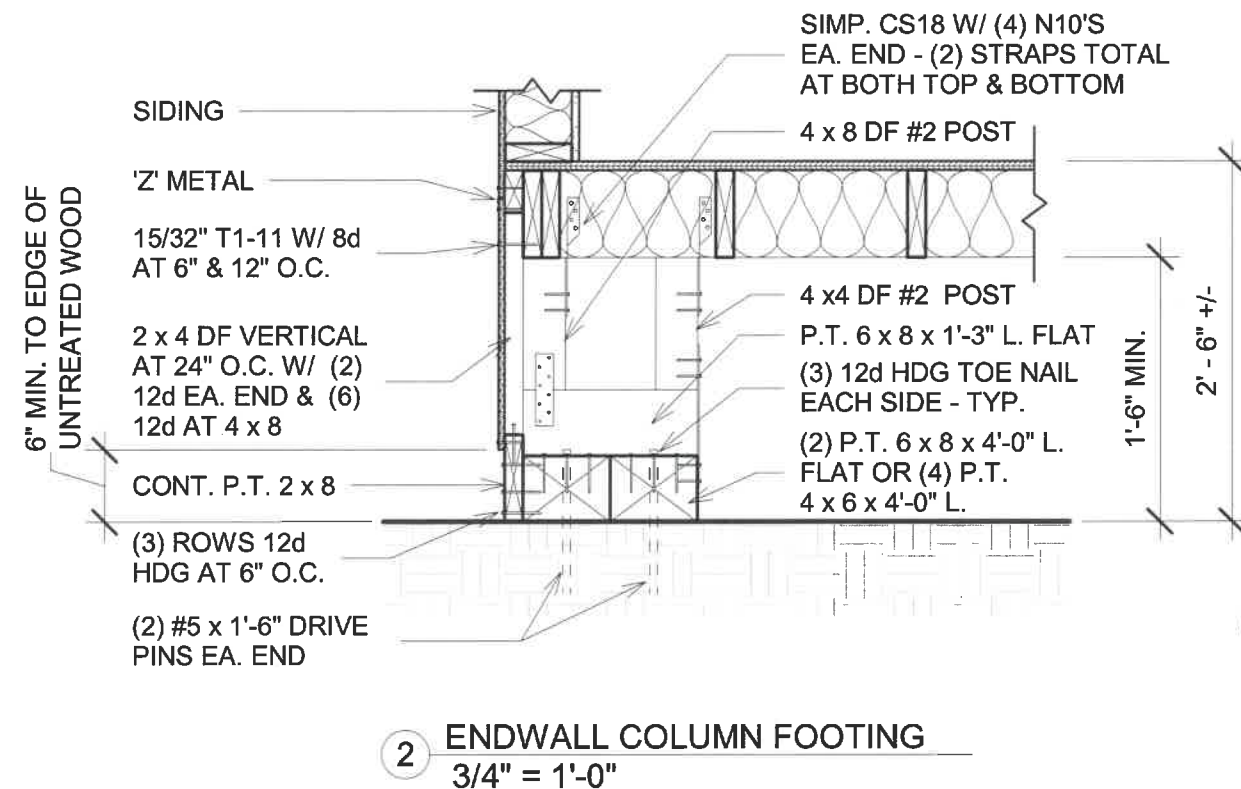
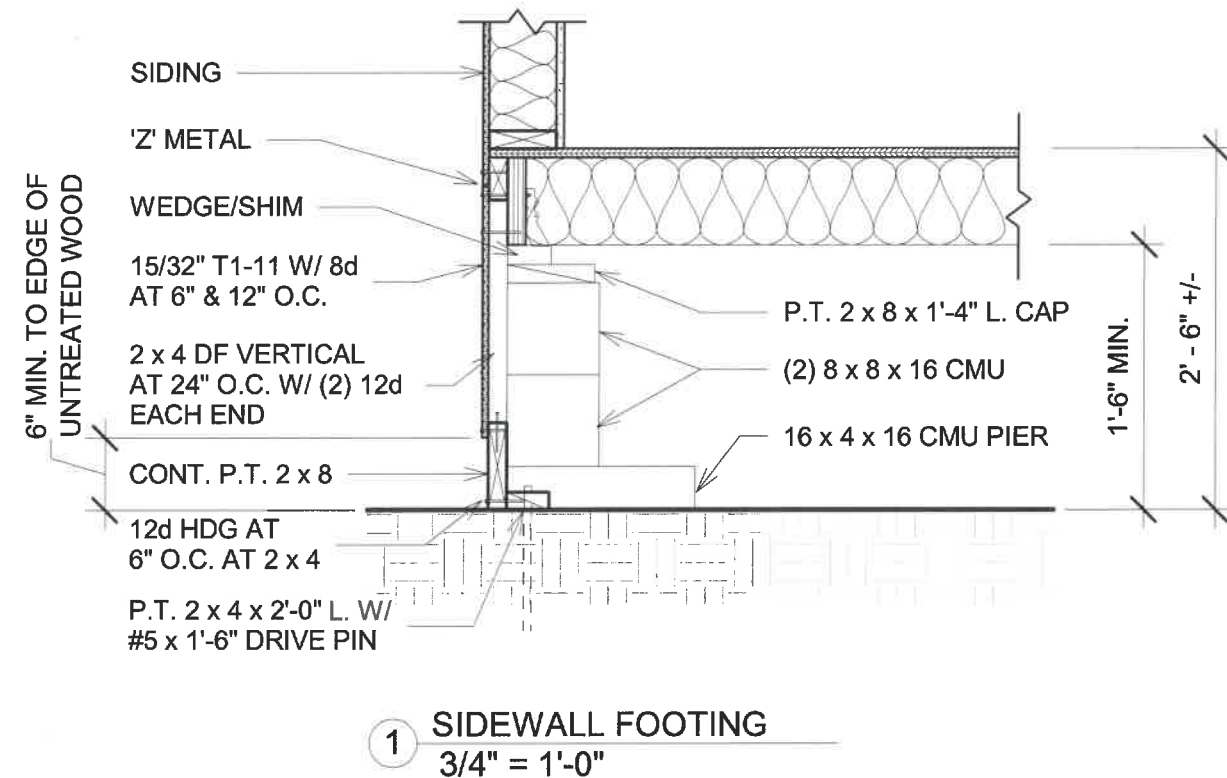
3. EXCEPT AS NOTED, DIMENSION LUMBER FOR FOUNDATION SHALL BE HEM-FIR, NO. 2 AND BETTER. TREATED LUMBER SHALL BE ACQ PRESSURE TREATED IN ACCORDANCE WITH AWPA STANDARD U1, USE CATEGORY UC4A, TO A MINIMUM RETENTION OF 0.40 PCF. AT PIECES IN CONTACT WITH GROUND, SAWN END GRAIN SHALL BE FIELD TREATED WITH 2% MIN. CONCENTRATION COPPER NAPHTHENATE. TREATED PLATE STOCK SHALL BE GOOD QUALITY AND SHALL NOT CONTAIN EXCESSIVE SPLITS, CHECKS OR WANE. 2 x 4 FRAMING SHALL BE HEM-FIR, STANDARD OR BETTER, TREATED 2 x 4 FRAMING SHALL MEET THE REQUIREMENTS SPECIFIED ABOVE.

4. ALL FASTENERS TO BE HOT DIPPED GALVANIZED (HDG) OR EQUAL AT P.T. MEMBERS.

5. VENT CRAWL SPACE w/ (6) 15" SQ. METAL VENTS (MODERN STANDARD). INSTALL 6 MIL. VAPOR BARRIER ON GROUND IN ENTIRE CRAWL SPACE. LAP VAPOR BARRIER JOINTS MIN 12". (VAPOR BARRIER NOT REQUIRED AT ASPHALT OR CONCRETE IF OCCURS)

6. CONNECT STORM WATER FROM ROOF GUTTERS AND DOWNSPOUTS AND DIRECT AWAY FROM BUILDING PAD TO AN APPROVED DRAINAGE SYSTEM.

7. FOUNDATION PLANS AND DETAILS ARE NOT REVIEWED BY BCD OR L&I, EXCEPT FOR THE SUITABILITY OF THE DESIGN TO SUPPORT THE MODULAR BUILDING. APPROVAL AND INSPECTION OF THE FOUNDATION SYSTEM IS THE JURISDICTION OF THE LOCAL BUILDING OFFICIAL.



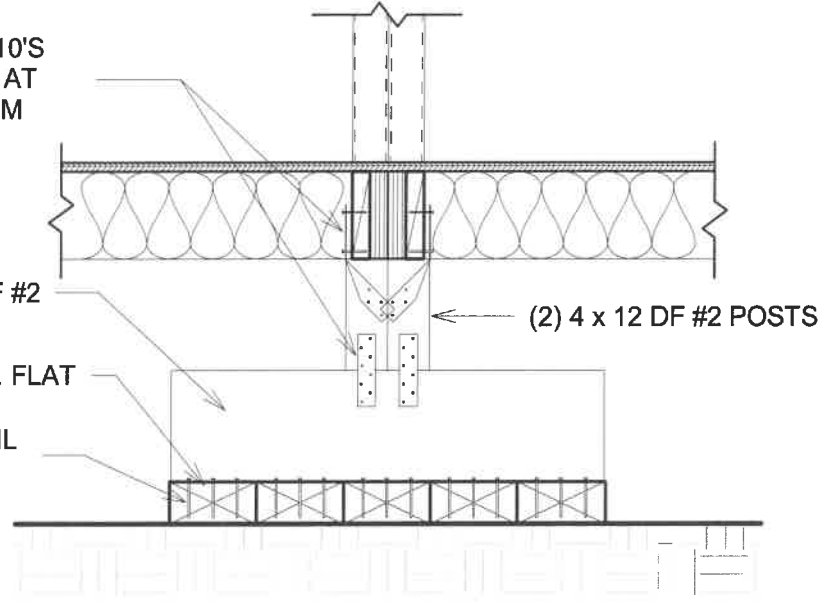
REV.	DESCRIPTION	DATE	BY		SHEET	FOUNDATION NOTES & DETAILS	JOB# L.U. 2508-2509	
				<p>REUSE OF DOCUMENTS THIS DOCUMENT AND THE IDEAS AND DESIGNS INCORPORATED HEREIN ARE THE PROPERTY OF MODERN BUILDING SYSTEMS INC. AND ARE NOT TO BE USED IN WHOLE OR IN PART FOR ANY OTHER USE OR PROJECT WITHOUT WRITTEN AUTHORIZATION.</p>		<p>MODERN BUILDING SYSTEMS</p> <p>MODERN BUILDING SYSTEMS, INC. TELEPHONE: (503) 749-4949 FAX: (503) 749-4650 P.O. BOX 110, 9493 PORTER ROAD, AUMSVILLE, OR 97325 CHECK OUT OUR WEBSITE: www.modernbuildingsystems.com © MODERN BUILDING SYSTEMS, INC. 2020</p>	<p>PROJ. 28' x 64' MODULAR FOUNDATION WEST LINN - WILSONVILLE SD</p>	<p>SHEET # S 4.0</p>
					<p>ADDRESS 4515 S CEDAR OAK DR., WEST LINN, OR 97068</p>	<p>DRW SR</p>	<p>DATE 7/13/20</p>	

SIMP. CS18 W/ (4) N10'S
EA. END - (4) TOTAL AT
BOTH TOP & BOTTOM

(2) 6 x 10 x 3'-0" L. DF #2

(5) P.T. 4 x 8 x 4'-0" L. FLAT

(3) 12d HDG TOE NAIL
EACH SIDE - TYP.



① **COLUMN FOOTING**
3/4" = 1'-0"

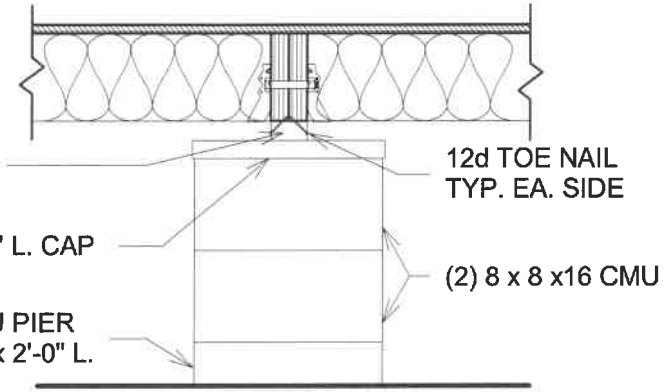
WEDGE/ SHIM

P.T. 2 x 8 x 1'-4" L. CAP

16 x 4 x 16 CMU PIER
OR P.T. 2 x 12 x 2'-0" L.

12d TOE NAIL
TYP. EA. SIDE

(2) 8 x 8 x 16 CMU



③ **MARRIAGE LINE FOOTING**
3/4" = 1'-0"

12d TOE NAIL EA. SIDE

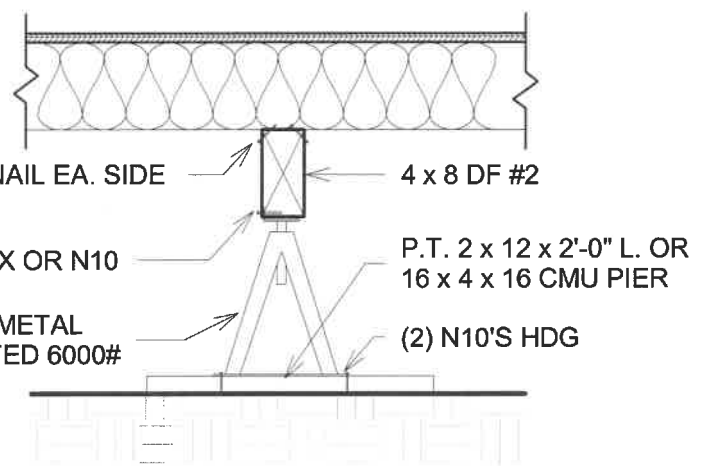
4 x 8 DF #2

6d DUPLEX OR N10

P.T. 2 x 12 x 2'-0" L. OR
16 x 4 x 16 CMU PIER

PRE-FAB METAL
PIER, RATED 6000#

(2) N10'S HDG



② **MID-SPAN FOOTING**
3/4" = 1'-0"

(2) 12d TOE NAIL EA. SIDE

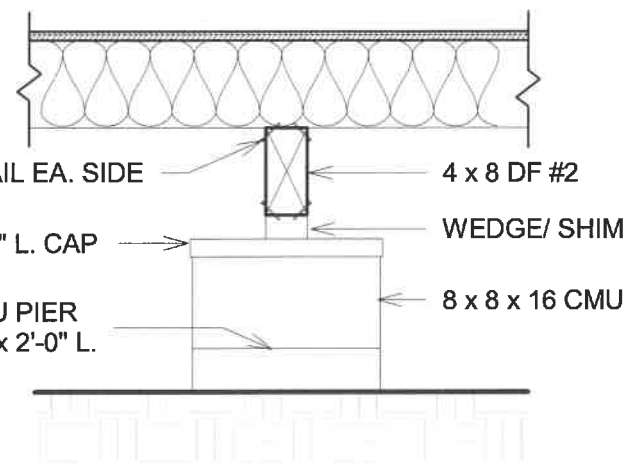
4 x 8 DF #2

P.T. 2 x 8 x 1'-4" L. CAP

WEDGE/ SHIM

16 x 4 x 16 CMU PIER
OR P.T. 2 x 12 x 2'-0" L.

8 x 8 x 16 CMU



④ **MID-SPAN FOOTING - ALTERNATE**
3/4" = 1'-0"



REV.	DESCRIPTION	DATE	BY

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SHEET **FOUNDATION DETAILS**

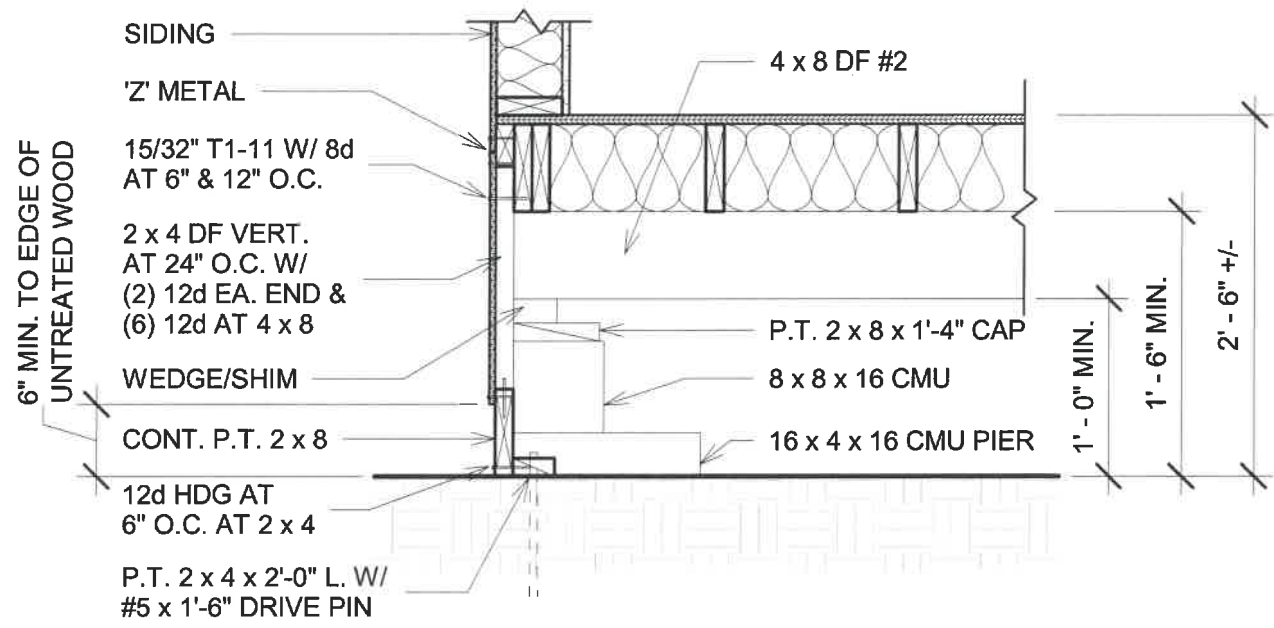
PROJ. **28' x 64' MODULAR FOUNDATION
WEST LINN - WILSONVILLE SD**

ADDRESS **4515 S CEDAR OAK DR., WEST LINN, OR 97068**

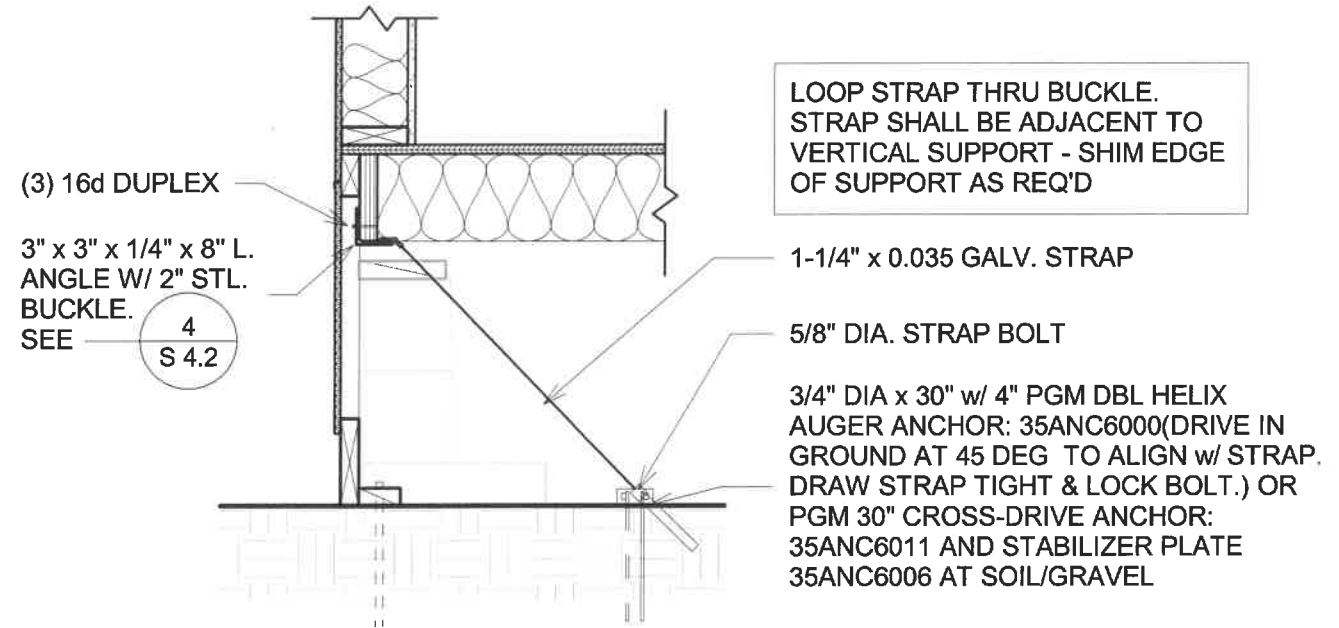
JOB# **L.U. 2508-2509**

SHEET #
S 4.1

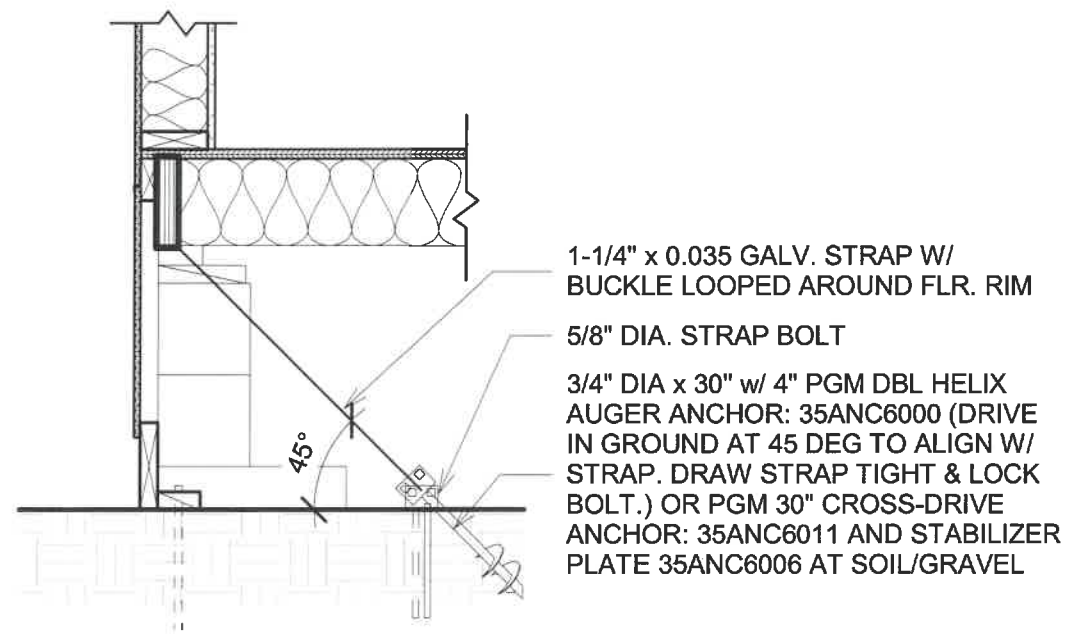
DATE **7/13/20**



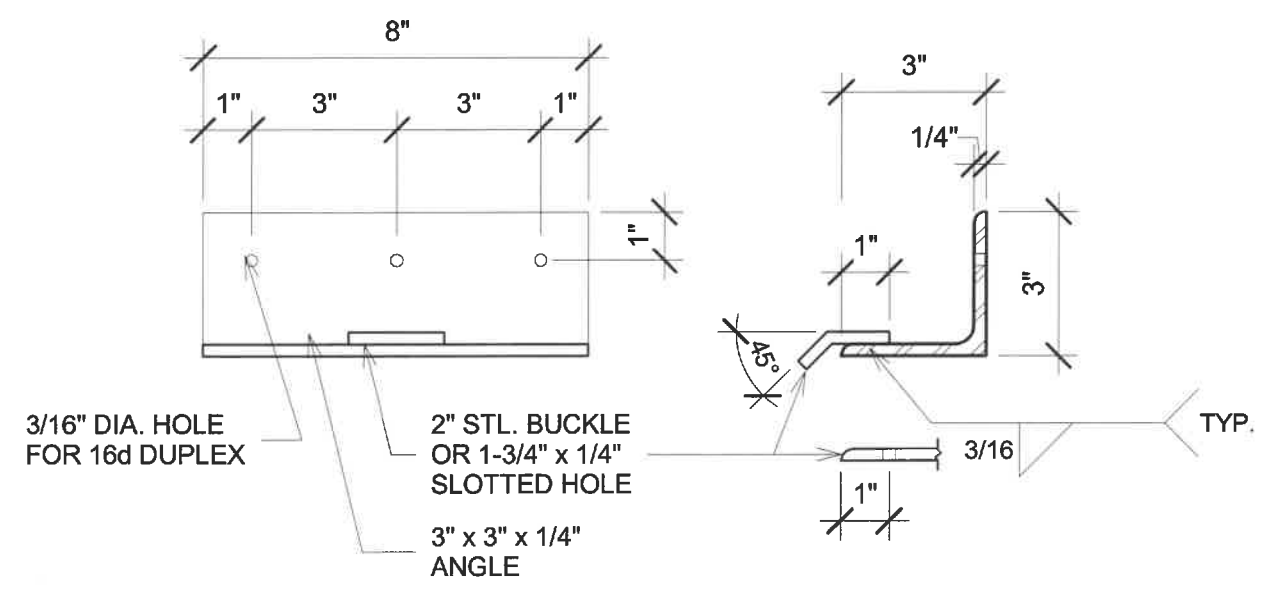
1 ENDWALL FOOTING AT BEAM
3/4" = 1'-0"



3 RETRO-FIT TIE-DOWN STRAP
3/4" = 1'-0"



2 TIE-DOWN STRAP
3/4" = 1'-0"

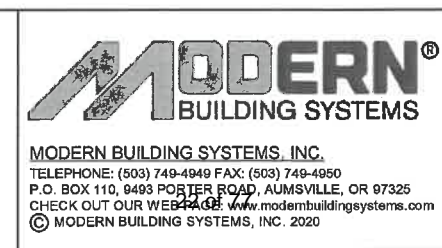


4 STEEL ANGLE & BUCKLE
3" = 1'-0"



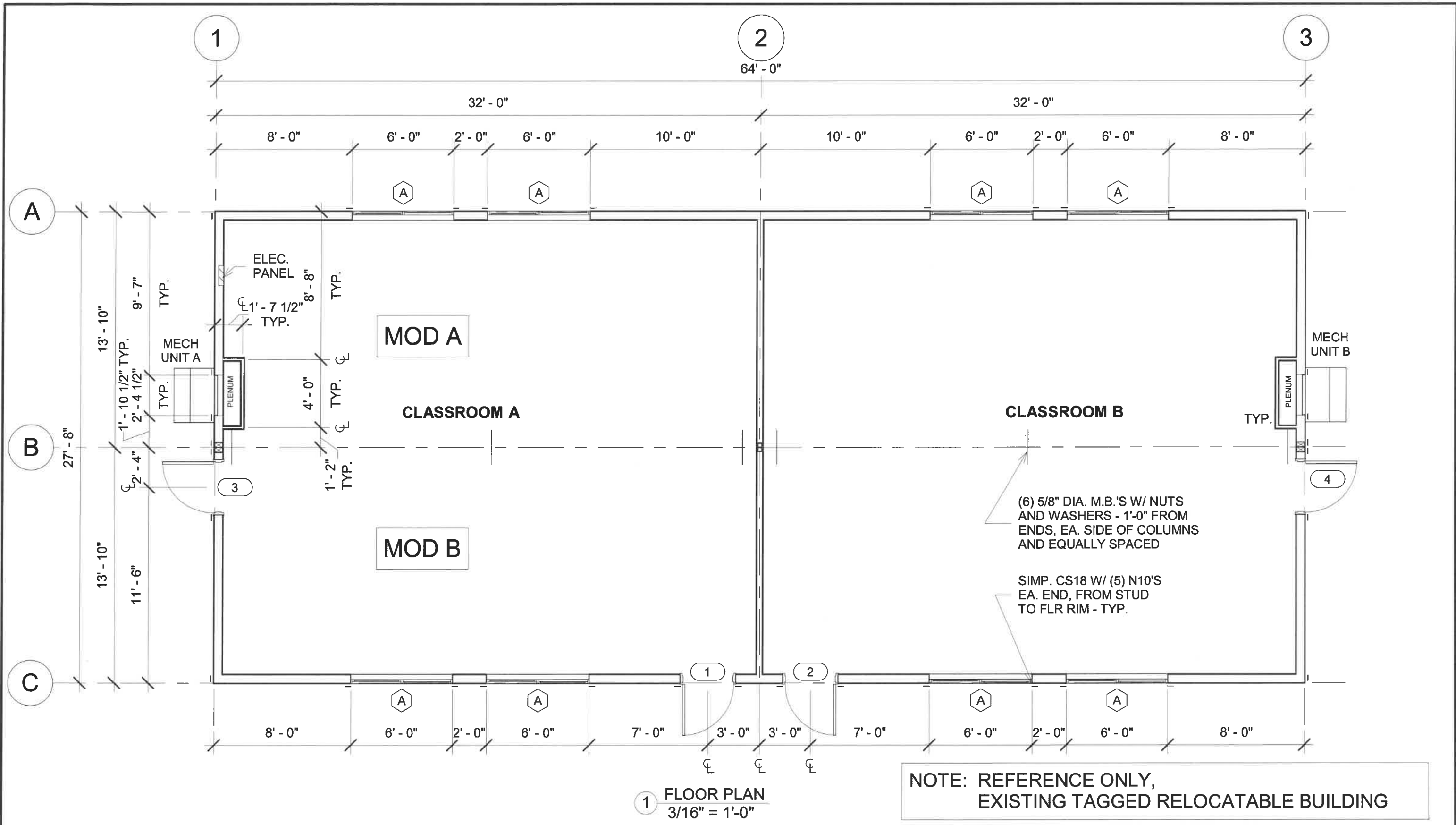
REV.	DESCRIPTION	DATE	BY

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SHEET	FOUNDATION DETAILS	JOB# L.U. 2508-2509
PROJ.	28' x 64' MODULAR FOUNDATION WEST LINN - WILSONVILLE SD	SHEET # S 4.2
ADDRESS	4515 S CEDAR OAK DR., WEST LINN, OR 97068	DATE 7/13/20

DRW TS



1 FLOOR PLAN
3/16" = 1'-0"

NOTE: REFERENCE ONLY,
EXISTING TAGGED RELOCATABLE BUILDING

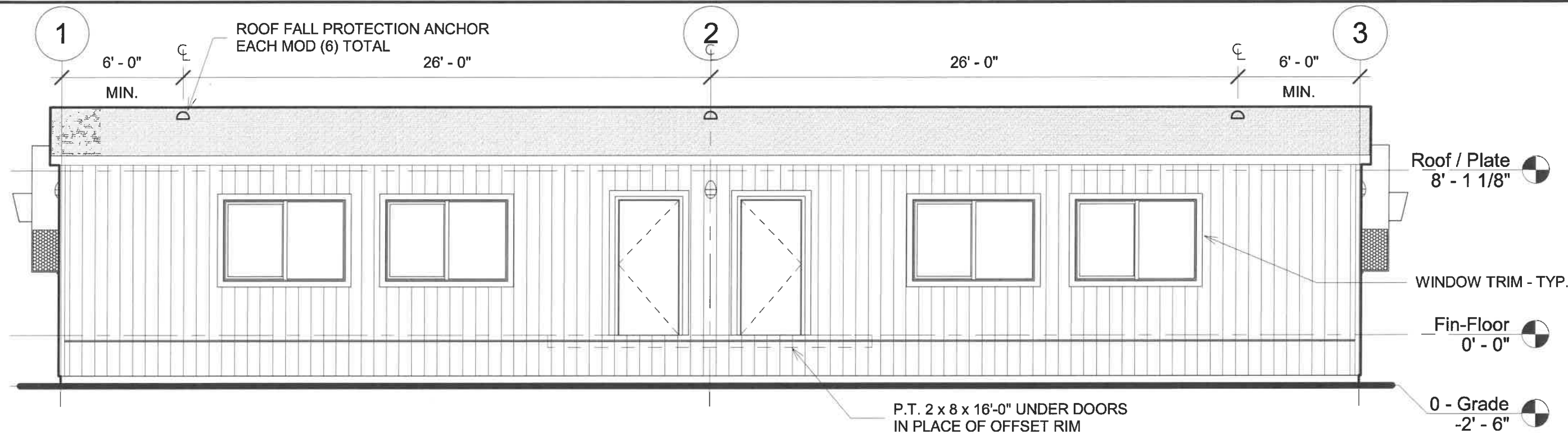
REV.	DESCRIPTION	DATE	BY

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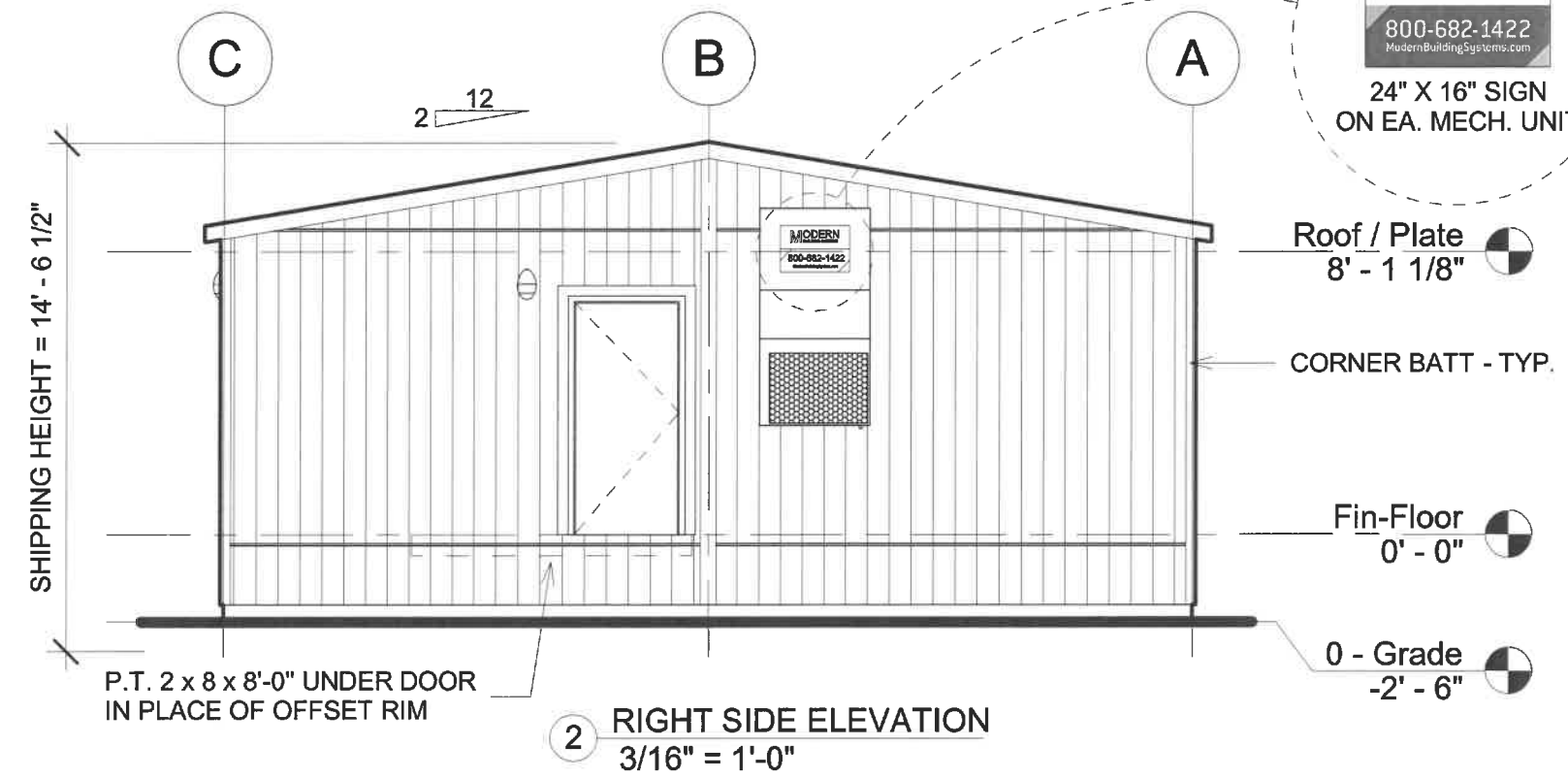


SHEET	FLOOR PLAN
PROJ.	28' x 64' MODULAR FOUNDATION WEST LINN - WILSONVILLE SD
ADDRESS	4515 S CEDAR OAK DR., WEST LINN, OR 97068

JOB#	L.U. 2508-2509
SHEET #	A 1.0
DATE	7/13/20



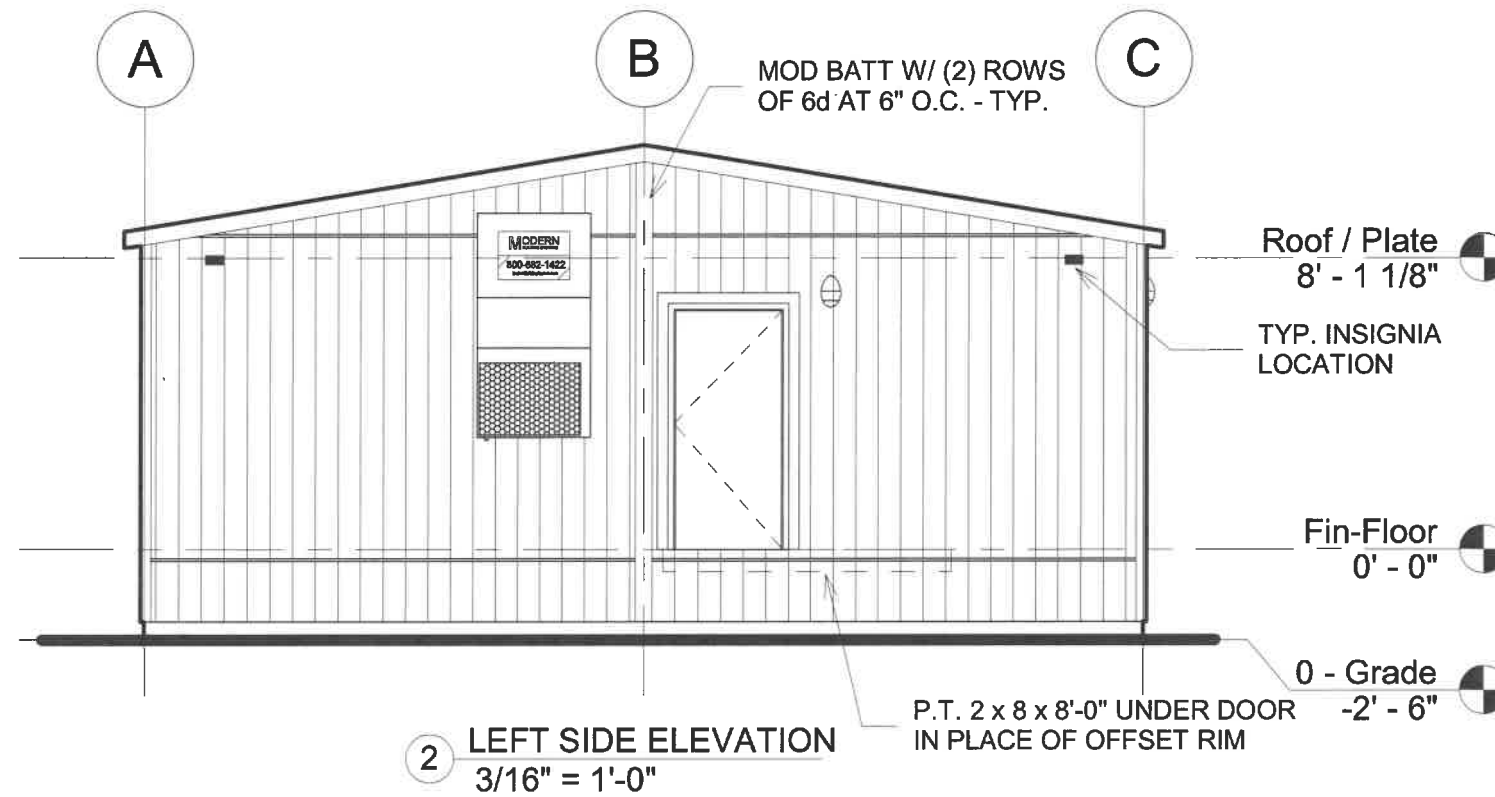
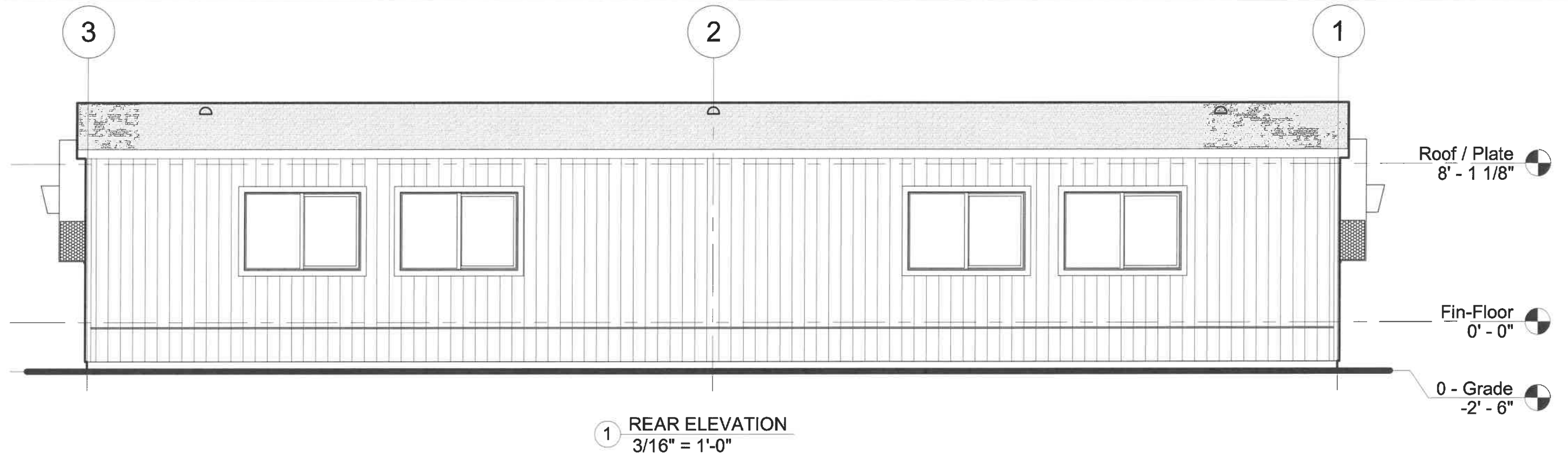
1 FRONT ELEVATION
3/16" = 1'-0"



2 RIGHT SIDE ELEVATION
3/16" = 1'-0"

NOTE: REFERENCE ONLY,
EXISTING TAGGED RELOCATABLE
BUILDING

REV.	DESCRIPTION	DATE	BY		SHEET	JOB#
				<p>REUSE OF DOCUMENTS THIS DOCUMENT AND THE IDEAS AND DESIGNS INCORPORATED HEREIN ARE THE PROPERTY OF MODERN BUILDING SYSTEMS INC. AND ARE NOT TO BE USED IN WHOLE OR IN PART FOR ANY OTHER USE OR PROJECT WITHOUT WRITTEN AUTHORIZATION.</p> <p>MODERN BUILDING SYSTEMS <small>MODERN BUILDING SYSTEMS, INC. TELEPHONE: (503) 749-4949 FAX: (503) 749-4950 P.O. BOX 110, 9493 PORTER ROAD, AUMSVILLE, OR 97325 CHECK OUT OUR WEB 24/7 www.modernbuildingsystems.com © MODERN BUILDING SYSTEMS, INC. 2020</small></p>	EXTERIOR ELEVATIONS	L.U. 2508-2509
					PROJ. 28' x 64' MODULAR FOUNDATION	SHEET #
					WEST LINN - WILSONVILLE SD	A 2.0
				ADDRESS 4515 S CEDAR OAK DR., WEST LINN, OR 97068	DRW TS	DATE 7/13/20



NOTE: REFERENCE ONLY, EXISTING TAGGED RELOCATABLE BUILDING

REV.	DESCRIPTION	DATE	BY		SHEET	EXTERIOR ELEVATIONS	JOB#	L.U. 2508-2509	
				REUSE OF DOCUMENTS THIS DOCUMENT AND THE IDEAS AND DESIGNS INCORPORATED HEREIN ARE THE PROPERTY OF MODERN BUILDING SYSTEMS INC. AND ARE NOT TO BE USED IN WHOLE OR IN PART FOR ANY OTHER USE OR PROJECT WITHOUT WRITTEN AUTHORIZATION.	PROJ.	28' x 64' MODULAR FOUNDATION WEST LINN - WILSONVILLE SD		SHEET # A 2.1	
				MODERN BUILDING SYSTEMS MODERN BUILDING SYSTEMS, INC. TELEPHONE: (503) 749-4949 FAX: (503) 749-4950 P.O. BOX 110, 9493 PORTER ROAD, AUMSVILLE, OR 97325 CHECK OUT OUR WEB 2508-2509 WWW.MODERNBUILDINGSYSTEMS.COM © MODERN BUILDING SYSTEMS, INC. 2020	ADDRESS	4515 S CEDAR OAK DR., WEST LINN, OR 97068	DRW	TS	DATE 7/13/20

LU 2508-2509



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JOB #28x64 Modular Generic Fdn

SHEET NO 1 OF

CALCULATED BY MCL DATE 7/9/2020

CHECKED BY DATE

SCALE

STRUCTURAL FOUNDATION CALCULATIONS (PER 2018 IBC) FOR
28' X 64' MODULAR

MATERIAL SUMMARY

MS-1

FOUNDATION ANALYSIS

FDN-1 --> FDN-8

LOADING ANALYSIS

L-1 --> L-6



EXPIRES: 12/31/2020



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JOB #28x64 Modular Generic Fdn

SHEET NO MS-1	OF MS-1
CALCULATED BY MCL	DATE 7/9/2020
CHECKED BY	DATE
SCALE	

**MATERIAL SUMMARY FOR
28' X 64' MODULAR**

FOUNDATION:

TYP EXT FTG	USE	USE +/- 16 in. SQ. PADS OR 2 x 12 x 24 in. P.T. PADS AT 6' O.C.	SEE FDN-1
TYP INTERIOR FTG	USE	USE +/- 16 in. SQ. PADS OR 2 x 12 x 24 in P.T. PADS AT 6' O.C.	SEE FDN-1
ENDWALL COLUMN FTG	USE	(2) (FLAT) P.T. HF #2, 6 x 8 x 4 ' L	SEE FDN-3,5
CNTR COLUMN FTG	USE	(5) (FLAT) P.T. HF #2, 4 x 8 x 4 ' L	SEE FDN-3,6
CNTR COLUMN FTG POST	USE	(2) DF #2, 6 x 10 x 3 ' L	SEE FDN-3,7
BLDG SIDE ANCHORS	USE	USE MIN (5) HOLD DOWNS AT EA SIDEWALL	SEE FDN-4
BLDG END ANCHORS	USE	USE MIN (3) HOLD DOWNS AT EA ENDWALL	SEE FDN-4



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JOB # 28x64 Modular Generic Fdn

SHEET NO FDN-1	OF FDN-①
CALCULATED BY MCL	7/9/2020
CHECKED BY	DATE

FOUNDATION DESIGN

BUILDING LENGTH (L) = 64.00 '
 BUILDING WIDTH (B) = 27.67 '
 FRAME RAIL OFFSET = N/A
 FLOOR TRIB WIDTH = 6.92 '
 ROOF OVERHANG = 1.00 '
 ROOF TRIB WIDTH = 7.92 '
 WALL PLATE HEIGHT = 8.00 ' (ABOVE F.F.)
 TRANSVERSE WIND/SEIS. = 10309 #
 LONGIT. WIND/SEIS. = 5294 #
 WIND UPLIFT = 27099 #
 SNOW LOAD = 25 psf
 BUILDING WEIGHT = 44032 # (No Snow)
 F.F. HEIGHT = 2.50 ' (ABOVE GRADE)
 AVG. ROOF HEIGHT = 13.00 ' (ABOVE GRADE)
 PIER PAD AREA = 1.78 ft²

AT EXTERIOR FTG

LOAD TO SKIRTWALL = 0 plf

DL = 7.92'(12 psf)+8'(10 psf)+6.92'/2(10 psf) = 210 plf

LL = 6.92' / 2 X 65 psf = 225 plf

SL = 7.92' X 25 psf = 198 plf

D + L = 434 plf

D + S = 407 plf

D + 0.75L + 0.75S = 527 plf

CONTROLS

PIER SPACING = 6.00 '

q = (527plf - 0plf) X (6') / 1.78 ft² = 1775 psf

∴ OK on GRAVEL

USE +/- 16 in. SQ. PADS OR 2 x 12 x 24 in. P.T. PADS AT 6' O.C.

AT INTERIOR FTG

DL = 6.92' (10 psf) = 69 plf

LL = 6.92' (65 psf) = 449 plf

D + L = 519 plf

CONTROLS

PIER SPACING = 6.00 '

q = 519plf X (6') / 1.78 ft² = 1748 psf

∴ OK on GRAVEL

USE +/- 16 in. SQ. PADS OR 2 x 12 x 24 in P.T. PADS AT 6' O.C.



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JOB # 28x64 Modular Generic Fdn

SHEET NO FDN-2	OF FDN-8
CALCULATED BY MCL	7/9/2020
CHECKED BY	DATE
SCALE	

AT ENDWALL COLUMN FTG

COLUMN DL = 2202 #
 COLUMN SL = 4149 #
 DL = [3' (10 psf) + 10.5' (10 psf)] X 6.92' = 934 #
 LL = 3' (65 psf) X 6.92' = 1348 #

 D + L = 4484 #
 D + S = 7285 # **CONTROLS**
 D + 0.75L + 0.75S = 7259 #
 <9000# Therefore OK. (See FDN- 3,5)

AT MIDSPAN COLUMN FTG

COLUMN DL = 7338 #
 COLUMN SL = 13830 #
 DL = 6.92' (10 psf) (6') = 415 #
 LL = 6.92' (65 psf) (6') = 2697 #

 D + L = 10450 #
 D + S = 21583 # **CONTROLS**
 D + 0.75L + 0.75S = 20148 #
 <21600# Therefore OK. (See FDN- 3,6,7)



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JOB # 28x64 Modular Generic Fdn

SHEET NO FDN-3	OF FDN-8
CALCULATED BY MCL	7/9/2020
CHECKED BY	DATE
SCALE	

@ ENDWALL COLUMN FOOTING

TRY 2 (FLAT) P.T. HF #2, 6 x 8 x 4.00' L
 Width (b) each = 0.63'

Pmax = 1800psf X 2 X 0.63' X 4' = 9000 #

DL % = 43%
 SL % = 57%

W_{DL} = 1800psf X 0.63' X 0.43 = 484 plf
 W_{SL} = 1800psf X 0.63' X 0.57 = 641 plf

@ MIDSPAN COLUMN FOOTING

TRY 5 (FLAT) P.T. HF #2, 4 x 8 x 4.00' L
 Width (b) each = 0.60'

Pmax = 1800psf X 5 X 0.6' X 4' = 21600 #

DL % = 36%
 SL % = 64%

W_{DL} = 1800psf X 0.6' X 0.36 = 388 plf
 W_{SL} = 1800psf X 0.6' X 0.64 = 692 plf

@ MIDSPAN INTERMEDIATE POST

TRY 2 DF #2, 6 x 10 x 3.00' L
 Width (b) each = 0.46'

W_{DL} = 1800psf X 4' X 0.36 / 2 MEMBERS = 1293 plf
 W_{SL} = 1800psf X 4' X 0.64 / 2 MEMBERS = 2307 plf



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JOB # 28x64 Modular Generic Fdn

SHEET NO FDN-4	OF FDN- 8
CALCULATED BY MCL	7/9/2020
CHECKED BY	DATE
SCALE	

MOD TRANSVERSE LOADING ANCHORAGE

N =	10309# /2094# =	5 ANCHORS
Mot =	$10309\# / 2 \times 13' + 10309\# / 2 \times 2.5' + 27099\# \times 27.67' / 2 =$	455 k-ft
Mr =	$44032\# \times 27.67' / 2 =$	609 k-ft
w/ ANCHORS =	$5 \times 2094\# \times 27.67' =$	290 k-ft
TOTAL =	$(609\text{k-ft} \times 0.6) + 290\text{k-ft} =$ > 455k-ft therefore OK	655 k-ft

MIN NUMBER = 5 ANCHORS

USE MIN (5) HOLD DOWNS AT EA SIDEWALL

MOD LONGITUDINAL LOADING ANCHORAGE

N =	5294# /2094# =	3 ANCHORS
Mot =	$5294\# / 2 \times 13' + 5294\# / 2 \times 2.5' + 27099\# \times 64' / 2 =$	908 k-ft
Mr =	$44032\# \times 64' / 2 =$	1409 k-ft
w/ ANCHORS =	$3 \times 2094\# \times 64' =$	402 k-ft
TOTAL =	$(1409\text{k-ft} \times 0.6) + 402\text{k-ft} =$ > 908k-ft therefore OK	1247 k-ft

MIN NUMBER = 3

USE MIN (3) HOLD DOWNS AT EA ENDWALL

MOBILE UNIT CONNECTION TO CHASSIS

(TRANSVERSE LOADING)	$T = 455 \text{ k-ft} - (0.6) \times 609 \text{ k-ft} / 27.67 \text{ ft} / 2 =$	1614 #	
		PER STRAP	
	PER NAIL VALUE (SIMP C-2017 PG 302)	211 #	DF
		N= 12 NAILS	12
	N/A		(MIN)

Wood Beam

File: LU 2508-2509 28x64 Modular Generic Fdn Gravel Struct Calcs.ec6
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Lic. #: KW-06009251

MODERN BUILDING SYSTEMS

DESCRIPTION: ENDWALL COLUMN FTG - LU 2508-2509 & Generic

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : IBC 2018

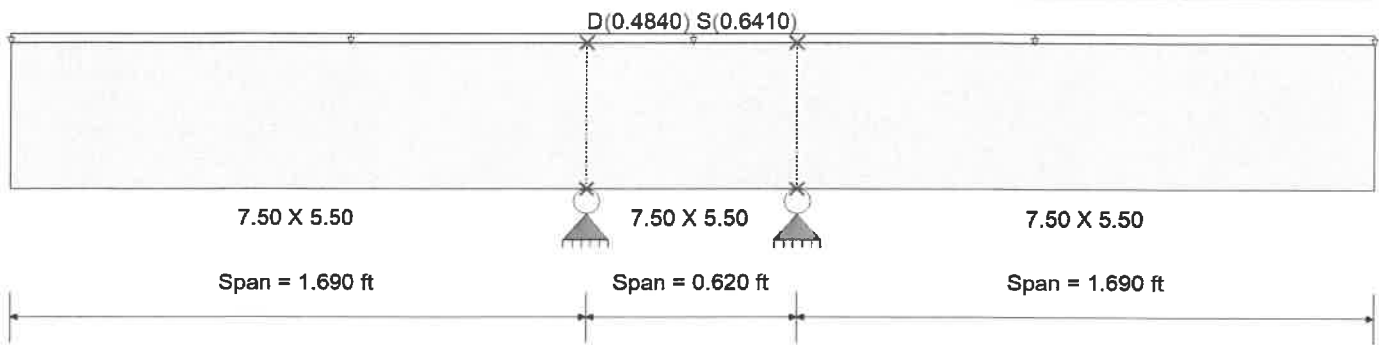
Material Properties

Analysis Method : Allowable Stress Design
Load Combination IBC 2018

Wood Species : Hem Fir
Wood Grade : No.2

Beam Bracing : Completely Unbraced

Fb +	675.0 psi	E : Modulus of Elasticity	
Fb -	675.0 psi	Ebend- xx	1,100.0ksi
Fc - Prll	500.0 psi	Eminbend - xx	400.0ksi
Fc - Perp	405.0 psi		
Fv	95.0 psi		
Ft	350.0 psi	Density	27.70pcf



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Loads on all spans...

Uniform Load on ALL spans : D = 0.4840, S = 0.6410 k/ft

DESIGN SUMMARY

				Design OK	
Maximum Bending Stress Ratio	=	0.657 : 1	Maximum Shear Stress Ratio	=	0.461 : 1
Section used for this span	=	7.50 X 5.50	Section used for this span	=	7.50 X 5.50
	=	509.85psi		=	50.41 psi
	=	776.25psi		=	109.25 psi
Load Combination	=	+D+S	Load Combination	=	+D+S
Location of maximum on span	=	1.690ft	Location of maximum on span	=	1.232 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1
Maximum Deflection					
Max Downward Transient Deflection		0.017 in	Ratio =	2388	>=360
Max Upward Transient Deflection		0.000 in	Ratio =	0	<360
Max Downward Total Deflection		0.030 in	Ratio =	1360	>=240
Max Upward Total Deflection		-0.001 in	Ratio =	6519	>=240

Vertical Reactions

Support notation : Far left is #1

Values in KIPS

Load Combination	Support 1	Support 2	Support 3	Support 4
Overall MAXimum		2.250	2.250	
Overall MINimum		1.282	1.282	
D Only		0.968	0.968	
+D+S		2.250	2.250	
+D+0.750S		1.930	1.930	
+0.60D		0.581	0.581	
S Only		1.282	1.282	

Wood Beam

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MODERN BUILDING SYSTEMS

DESCRIPTION: CNTR COLUMN FTG - LU 2508-2509 & Generic

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : IBC 2018

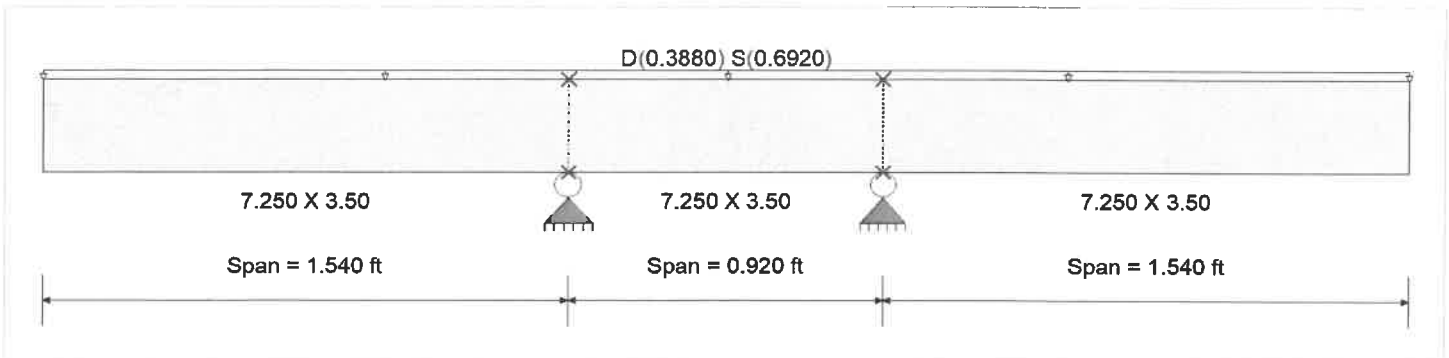
Material Properties

Analysis Method : Allowable Stress Design
Load Combination IBC 2018

Wood Species : Hem Fir
Wood Grade : No.2

Beam Bracing : Completely Unbraced

Fb +	1,160.0 psi	E : Modulus of Elasticity	
Fb -	1,160.0 psi	Ebend- xx	1,300.0 ksi
Fc - Prll	1,300.0 psi	Eminbend - xx	470.0 ksi
Fc - Perp	405.0 psi		
Fv	95.0 psi		
Ft	525.0 psi	Density	27.70 pcf



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Loads on all spans...

Uniform Load on ALL spans : D = 0.3880, S = 0.6920 k/ft

DESIGN SUMMARY

				Design OK	
Maximum Bending Stress Ratio	=	0.778 : 1	Maximum Shear Stress Ratio	=	0.731 : 1
Section used for this span	=	7.250 X 3.50	Section used for this span	=	7.250 X 3.50
	=	1,038.23psi		=	79.90 psi
	=	1,334.00psi		=	109.25 psi
Load Combination	=	+D+S	Load Combination	=	+D+S
Location of maximum on span	=	1.540ft	Location of maximum on span	=	0.920ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 2
Maximum Deflection					
Max Downward Transient Deflection		0.053 in	Ratio =		696 >=360
Max Upward Transient Deflection		-0.004 in	Ratio =		2659 >=360
Max Downward Total Deflection		0.083 in	Ratio =		446 >=240
Max Upward Total Deflection		-0.006 in	Ratio =		1703 >=240

Vertical Reactions

Support notation : Far left is #1

Values in KIPS

Load Combination	Support 1	Support 2	Support 3	Support 4
Overall MAXimum		2.160	2.160	
Overall MINimum		1.384	1.384	
D Only		0.776	0.776	
+D+S		2.160	2.160	
+D+0.750S		1.814	1.814	
+0.60D		0.466	0.466	
S Only		1.384	1.384	

Wood Beam

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MODERN BUILDING SYSTEMS

Lic. #: KW-06009251

DESCRIPTION: CNTR COLUMN FTG INTERMEDIATE POST- LU 2508-2509 & Generic

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16

Load Combination Set : IBC 2018

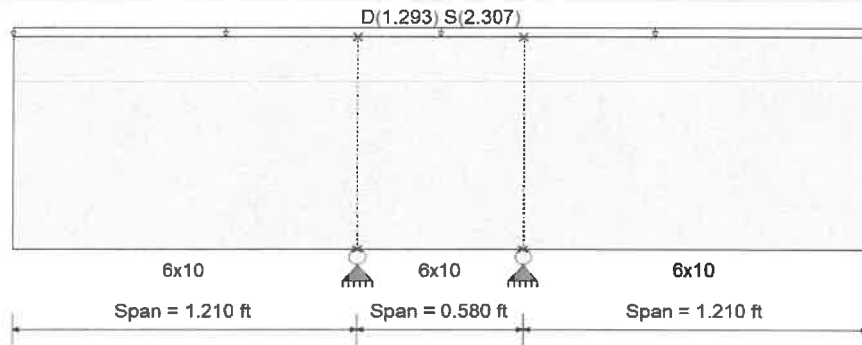
Material Properties

Analysis Method : Allowable Stress Design
Load Combination IBC 2018

Wood Species : Douglas Fir - Larch
Wood Grade : No.2

Beam Bracing : Completely Unbraced

Fb +	875.0 psi	E : Modulus of Elasticity	
Fb -	875.0 psi	Ebend- xx	1,300.0 ksi
Fc - Pll	600.0 psi	Eminbend - xx	470.0 ksi
Fc - Perp	625.0 psi		
Fv	95.0 psi		
Ft	425.0 psi	Density	32.210 pcf



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Loads on all spans...

Uniform Load on ALL spans : D = 1.293, S = 2.307 k/ft

DESIGN SUMMARY

				Design OK			
Maximum Bending Stress Ratio	=	0.380	1	Maximum Shear Stress Ratio	=	0.750	1
Section used for this span	=	6x10		Section used for this span	=	6x10	
	=	382.27psi			=	81.97 psi	
	=	1,005.39psi			=	109.25 psi	
Load Combination	=	+D+S		Load Combination	=	+D+S	
Location of maximum on span	=	1.210ft		Location of maximum on span	=	0.793 ft	
Span # where maximum occurs	=	Span # 1		Span # where maximum occurs	=	Span # 1	
Maximum Deflection							
Max Downward Transient Deflection		0.004 in	Ratio =	7216	>=	360	
Max Upward Transient Deflection		0.000 in	Ratio =	0	<	360	
Max Downward Total Deflection		0.006 in	Ratio =	4624	>=	240	
Max Upward Total Deflection		-0.000 in	Ratio =	19369	>=	240	

Vertical Reactions

Support notation : Far left is #1

Values in KIPS

Load Combination	Support 1	Support 2	Support 3	Support 4
Overall MAXimum		5.400	5.400	
Overall MINimum		3.461	3.461	
D Only		1.940	1.940	
+D+S		5.400	5.400	
+D+0.750S		4.535	4.535	
+0.60D		1.164	1.164	
S Only		3.461	3.461	

Wood Beam

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MODERN BUILDING SYSTEMS

DESCRIPTION: (2) LVL RIDGE BEAM - LU 2508-2509 & GENERIC

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : IBC 2018

Material Properties

Analysis Method : Allowable Stress Design
Load Combination IBC 2018

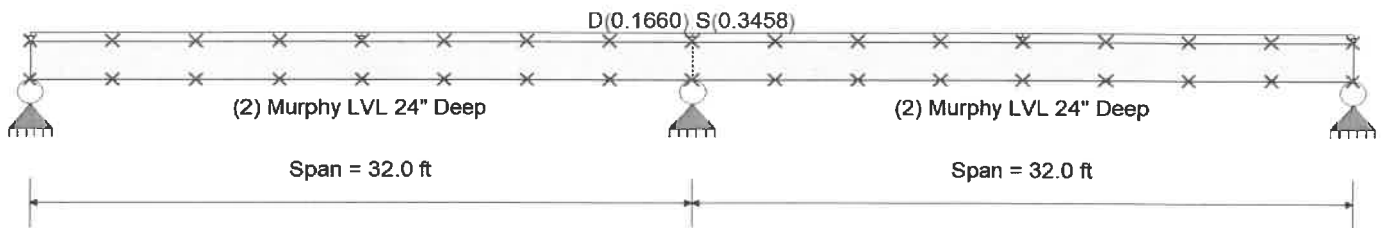
Wood Species : Murphy LVL 3100Fb-2.0E x 24" Deep
Wood Grade : Manufactured

Beam Bracing : Beam bracing is defined as a set spacing over all spans

Fb +	2,736.0 psi	E : Modulus of Elasticity	
Fb -	2,736.0 psi	Ebend- xx	2,000.0 ksi
Fc - Prll	3,200.0 psi	Eminbend - xx	1,800.0 ksi
Fc - Perp	750.0 psi		
Fv	290.0 psi		
Ft	2,100.0 psi	Density	35.0pcf

Unbraced Lengths

First Brace starts at ft from Left-Most support
Regular spacing of lateral supports on length of beam = 4.0 ft



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loads
Loads on all spans...

Uniform Load on ALL spans : D = 0.0120, S = 0.0250 ksf, Tributary Width = 13.830 ft

DESIGN SUMMARY

Maximum Bending Stress Ratio	=	0.924	1	Maximum Shear Stress Ratio	=	0.597	: 1
Section used for this span		(2) Murphy LVL 24" D		Section used for this span		(2) Murphy LVL 24" D	
	=	2,822.45 psi			=	199.26 psi	
	=	3,053.25 psi			=	333.50 psi	
Load Combination		+D+S		Load Combination		+D+S	
Location of maximum on span	=	32.000ft		Location of maximum on span	=	30.074 ft	
Span # where maximum occurs	=	Span # 1		Span # where maximum occurs	=	Span # 1	
Maximum Deflection							
Max Downward Transient Deflection		0.494 in	Ratio =	777	>=	360	
Max Upward Transient Deflection		0.000 in	Ratio =	0	<	360	
Max Downward Total Deflection		0.756 in	Ratio =	507	>=	240	
Max Upward Total Deflection		0.000 in	Ratio =	0	<	240	

Design OK

Vertical Reactions

Support notation : Far left is #1

Values in KIPS

Load Combination	Support 1	Support 2	Support 3
Overall MAXimum	6.351	21.168	6.351
Overall MINimum	4.149	13.830	4.149
D Only	2.202	7.338	2.202
+D+S	6.351	21.168	6.351
+D+0.750S	5.313	17.711	5.313
+0.60D	1.321	4.403	1.321
S Only	4.149	13.830	4.149

} RXT'S ONLY



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JOB # 28x64 Modular Generic Fdn

SHEET NO L-1 OF L-6

CALCULATED BY MCL **DATE** 7/10/2020

CHECKED BY _____ **DATE** _____

SCALE _____

WIND ANALYSIS FOR ENCLOSED SIMPLE DIAPHRAGM LOW-RISE BUILDINGS - BASED ON IBC 2018 / ASCE 7-16 CHAPTER 28, PART 2

INPUT DATA

Risk Category =	RC	II		(Table 1.5-1)
Basic Wind Speed =	Vult	140	Vasd =108	mph (3 sec gust)(Fig 26.5-1)
Exposure Category =	EC	B		(Sec. 26.7)
Topographic Factor =	Kzt	1.00		(Sec. 26.8 & 26.8-1)
Adjustment Factor =	Lambda	1.00		(Sec 28.6-1)
Building Length =	L	64.00	ft	
Building width =	B	27.67	ft	8:34:44 AM
Building Height to Eave =	he	11.00	ft	
Building Height to Ridge =	hr	15.00	ft	
Eave Overhang	oh	1.00	ft	
Building End Zone =	a	3.00	ft	
Roof Pitch =	RP	2.0	:12	
Approx. Roof Angle =	RA	10	degrees	(Ref. Fig. 28.6-1)

OUTPUT

Wind Pressure, ps30 (Fig. 28.6-1)

Horizontal	A-ps30	35.10	psf
Horizontal	B-ps30	-14.50	psf
Horizontal	C-ps30	23.30	psf
Horizontal	D-ps30	-8.50	psf
Vertical	E-ps30	-37.30	psf
Vertical	F-ps30	-22.80	psf
Vertical	G-ps30	-26.00	psf
Vertical	H-ps30	-17.50	psf
O.H.	Eoh-ps30	-52.30	psf
O.H.	Goh-ps30	-40.90	psf



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JOB # 28x64 Modular Generic Fdn			
SHEET NO	L-2	OF	L-6
CALCULATED BY	MCL	DATE	7/10/2020
CHECKED BY	DATE		
SCALE			

Wind Pressure, ps

ps = Lambda * Kzt * ps30

				Min Loading
Horizontal	A-ps	35.10	psf	16.00
Horizontal	B-ps	-14.50	psf	8.00
Horizontal	C-ps	23.30	psf	16.00
Horizontal	D-ps	-8.50	psf	8.00
Vertical	E-ps	-37.30	psf	0.00
Vertical	F-ps	-22.80	psf	0.00
Vertical	G-ps	-26.00	psf	0.00
Vertical	H-ps	-17.50	psf	0.00
O.H.	Eoh-ps	-52.30	psf	
O.H.	Goh-ps	-40.90	psf	

CASE A - Transverse Wind

			Min Loading
	A-tw	2317 lbs	1056 lbs
Set to 0	B-tw	-348 lbs	192 lbs
	C-tw	14865 lbs	10208 lbs
Set to 0	D-tw	<u>-1972 lbs</u>	<u>1856 lbs</u>
Total		<u>17182 lbs (SD)</u>	<u>13312 lbs</u>
Convert to ASD x		0.6	0.6
Total Force on building side L =		<u>10309 lbs (ASD)</u>	<u>7987 lbs</u>

CASE B - Longitudinal Wind

	A-lw	1211 lbs	552 lbs
	C-lw	<u>7612 lbs</u>	<u>5227 lbs</u>
Total		<u>8823 lbs (SD)</u>	<u>5779 lbs</u>
Convert to ASD x		0.6	0.6
Total Force on building end B =		<u>5294 lbs (ASD)</u>	<u>3468 lbs</u>

CASE A - Transverse Uplift

w/ gable end OH uplift	E-up	-3612 lbs
w/ gable end OH uplift	F-up	-2208 lbs
w/ gable end OH uplift	G-up	-21223 lbs
w/ gable end OH uplift	H-up	-14285 lbs
sidewall eaves OH uplift	Eoh-up	-451 lbs
sidewall eaves OH uplift	Goh-up	<u>-3387 lbs</u>
Total		<u>-45166 lbs (SD)</u>
Convert to ASD x		0.6
Total Uplift Force =		<u>-27099 lbs (ASD)</u>



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JOB #28x64 Modular Generic Fdn

SHEET NO	L-3	OF	L-6
CALCULATED BY	MCL	DATE	7/9/2020
CHECKED BY		DATE	
SCALE			

28' x 64' MODULAR

SEISMIC per IBC 2018 / ASCE 7-16, Sec. 12.8 Equivalent Lateral Force Procedure

ASCE 7-16 Table 1.5-1	Risk Category	II	
ASCE 7-16 Table 1.5-2	Seismic Importance Factor	Ie =	1.00
ASCE 7-16 Table 12.2-1	Response Modification Factor	R =	6.50
ASCE 7-16 11.4.3	Site Class		D
USGS Data	Short Spectral Response Accel.	Ss =	1.500
ASCE 7-16 Table 11.4-1 & Sec 11.4.4	Site Coefficient	Fa =	1.200
ASCE 7-16 Eqn. 11.4-1	Sms = Ss * Fa	Sms =	1.800
ASCE 7-16 Eqn 11.4-3	Sds = 2/3 * Sms	Sds =	1.200
ASCE 7-16 Sec. 12.8.1.3		Sds Max =	1.000
USGS Data	Long Spectral Response Accel.	S1 =	0.600
ASCE 7-16 Table 11.4-2	Site Coefficient	Fv =	1.700
ASCE 7-16 Eqn. 11.4-2	Sm1 = S1 * Fv	Sm1 =	1.020
ASCE 7-16 Eqn 11.4-4	Sd1 = 2/3 * Sm1	Sd1 =	0.680
Short Period Transition Sec 11.4.6	Ts = Sd1 / Sds	Ts =	0.680
Building Period Eqn. 12.8-7	Ta = Ct*hn^(x)= 0.02*13'^0.75	Ta =	0.137
ACSE 7-16 Sec. 11.4.8	Check Ta <= 1.5*Ts, 0.137<=1.02		OK
ASCE 7-16 Eqn. 12.8-2	Cs = Sds/(R/Ie)= 1.000/(6.50/1.00)	Cs =	0.154
ASCE 7-16 Eqn. 12.8-3	Csmax: Not checked (conservative)		
ASCE 7-16 Eqn. 12.8-5	Csmin = 0.044*Sds*Ie >= 0.01	Csmin =	0.044
ASCE 7-16 Eqn. 12.8-6	If S1 > 0.6 Csmin = 0.5*S1/(R/Ie)	Csmin =	N/A
ASCE 7-16 Table 11.6-1	Seismic Design Cat.		D
Base Shear			
ASCE 7-16 Eqn 12.8-1	V = Cs * W * 0.7	V =	0.108 W
ASCE 7-16 Eqn 12.8-5	V = Csmin * W * 0.7	Vmin =	0.031 W
IBC 2018 1605.3.1	Note: 0.7 converts to ASD		



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SHEET NO	L-4	OF	L-6
CALCULATED BY	MCL	DATE	7/9/2020
CHECKED BY		DATE	
SCALE			

Building Weight Estimate

Roof (psf)		Exterior Wall (psf)	
Comp	2.5	15/32 T1-11	1.7
7/16 Shtg	1.5	2x6 @ 16	1.7
2x10 @24	1.9	R-21U	1.3
R-38L	1.8	5/8 Gyp	2.8
Drp Grd	1.8		0
	0		0
	0		0
Total	9.5		7.5

Interior Wall (psf)		Floor (psf)	
5/8 Gyp	2.8	Misc	1.0
2x4 @ 16	1.1	23/32 Shtg	2.5
5/8 Gyp	2.8	2x8 @ 16	2.2
	0		
	0	R-30U	1.6
	0		0
	0		0
Total	6.7		7.3



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JOB #28x64 Modular Generic Fdn

SHEET NO L-5	OF	L-6
CALCULATED BY	MCL	DATE 7/9/2020
CHECKED BY		DATE
SCALE		

Building Weight (con't)

No Snow	29.67'	66.00'	0.0 psf	=	0	lbs
Roof =	29.67'	66.00'	9.5 psf	=	18603	lbs
Ext. Wall =	8.00'	183.34'	7.5 psf	=	11000	lbs
Int. Wall =	8.00'	28.00'	6.7 psf	=	1501	lbs
Floor =	27.67'	64.00'	7.3 psf	=	12927	lbs
Chassis =				=	0	lbs
				=	0	lbs

Total **W= 44032 lbs**

Wr = Total DL tributary to roof 24854 lbs
W1 = Total DL tributary to floor 19178 lbs

Story	Height	Weight		Story Force - k Fx= wx*hx/ (Σ wx*hx)*V	Fx Coef = V*hx/(Σ wx*hx)	Story Shear (Vx)
	(hx)	(wx)	(wx*hx)			
R	11.00'	24.85 k	273 k-ft	4.03 k	0.162	4.03 k
1	2.50'	19.18 k	48 k-ft	0.71 k	0.037	4.74 k
Grade	0.00'					
Sum (Σ)		44.03 k	321 k-ft	V= 4.74 k	= Base Shear	

Shear Value Comparison	OK
------------------------	----

L-6 OF L-6

Search Information

Address: 4515 Cedar Oak Dr, West Linn, OR 97068, USA
Coordinates: 45.3888147, -122.6340361
Elevation: 126 ft
Timestamp: 2020-07-10T16:13:36.396Z
Hazard Type: Seismic
Reference Document: ASCE7-16
Risk Category: II
Site Class: D-default



Basic Parameters

Name	Value	Description
S _S	0.858	MCE _R ground motion (period=0.2s)
S ₁	0.383	MCE _R ground motion (period=1.0s) $\leq 0.600 \therefore \underline{OK}$
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 $\leq 1.000 \therefore \underline{OK}$
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	1.2	Site amplification factor at 0.2s
F _v	* null	Site amplification factor at 1.0s
CR _S	0.892	Coefficient of risk (0.2s)
CR ₁	0.868	Coefficient of risk (1.0s)
PGA	0.386	MCE _G peak ground acceleration
F _{PGA}	1.214	Site amplification factor at PGA
PGA _M	0.469	Site modified peak ground acceleration
T _L	16	Long-period transition period (s)
SsRT	0.858	Probabilistic risk-targeted ground motion (0.2s)
SsUH	0.961	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	1.5	Factored deterministic acceleration value (0.2s)
S1RT	0.383	Probabilistic risk-targeted ground motion (1.0s)
S1UH	0.441	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	0.6	Factored deterministic acceleration value (1.0s)
PGAd	0.5	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.

**ULTIMATE FRICTION FACTORS AND
ADHESION FOR DISSIMILAR MATERIALS
(NAVFAC DM 7.2, Table 1, p7.2-63)**

Interface Materials	Friction factor	Friction angle, degrees
Mass concrete on the following foundation materials:		
Clean sound rock	0.70	35
Clean gravel, gravel-sand mixtures, coarse sand	0.55 to 0.60	29 to 31
Clean fine to medium sand, silty medium to coarse sand, silty or clayey gravel	0.45 to 0.55	24 to 29
Clean fine sand, silty or clayey fine to medium sand	0.35 to .045	19 to 24
Fine sandy silt, non-plastic silt	0.30 to 0.35	17 to 19
Very stiff and hard residual or pre-consolidated clay	0.40 to 0.50	22 to 26
Medium stiff and stiff clay and silty clay (Masonry on foundation materials has same friction factors.)	0.30 to 0.35	17 to 19
Steel sheet piles against the following soils:		
Clean gravel, gravel-sand mixtures, well-graded rock fill with spalls	0.40	22
Clean sand, silty sand-gravel mixture, single size hard rock fill	0.30	17
Silty sand, gravel or sand mixed with silt or clay	0.25	14
Fine sandy silt, non-plastic silt	0.20	11
Formed concrete or concrete sheet piling against the following soils:		
Clean gravel, gravel-sand mixtures, well-graded rock fill with spalls	0.40 to 0.50	22 to 26
Clean sand, silty sand-gravel mixture, single size hard rock fill	0.30 to 0.40	17 to 22
Silty sand, gravel or sand mixed with silt or clay	0.30	17
Fine sandy silt, non-plastic silt	0.25	14
Various structural materials:		
Masonry on masonry, igneous and metamorphic rocks:		
Dressed soft rock on dressed soft rock	0.70	35
Dressed hard rock on dressed soft rock	0.65	33
Dressed hard rock on dressed hard rock	0.55	29
Masonry on wood (cross grain)	0.50	26
Steel on steel at sheet pile interlocks	0.30	17
Interface Materials (Cohesion)		Adhesion C_a (psf)
Very soft cohesive soil (0 - 250 psf)		0 - 250
Soft cohesive soil (250 - 500 psf)		250 - 500
Medium stiff cohesive soil (500 - 1000 psf)		500 - 750
Stiff cohesive soil (1000 - 2000 psf)		750 - 950
Very stiff cohesive soil (2000 - 4000 psf)		950 - 1,300

PGM Inc
TIE DOWNS
 ENGINEERED TIE DOWN SYSTEM

GENERAL NOTES

CO

DESIGN LOADS:

DESIGN LOADS:

- * WIND _____ 15 PSF (70 MPH EXPOSURE "C") CAC T-25 and COMPLIES WITH 2018 IBC Vult = 115 MPH Exp C
 - * SOIL BEARING _____ 1000 PSF
 - * TIE DOWN STRAP _____ 3150# WORKING LOAD
 - * SEISMIC ZONE _____ 4 CAC T-25 AND 2015 IBC $S_s=1.5$ $F_a=1.4$ $S_{DS}=1.41$ Site Class D
- TIE DOWN STRAPS TO BE MIN. 1 1/4" WIDE x 0.035 THICKNESS ZINC PLATED AND MEET ASTM D-3953-97 ALT. STRAP; 1 1/4" WIDE X 0.029" THICK ZINC PLATED F'ult' =5400 LBS
- * EARTH AUGERS _____ 2962 # (TESTED TO 4750# MIN.)
 - * CROSS DRIVES _____ 2962 # (TESTED TO 4750# MIN.)
 - * CONCRETE SLAB ANCHORS _____ 2882 # (CALCULATED)

1. THE CHARTS SHOW THE REQUIRED NUMBER OF TIE DOWNS ON THE SIDES AND ENDS OF THE MANUFACTURED HOME.
2. COMBINATIONS OF THE DIFFERENT TYPES OF TIE DOWNS CAN BE USED.
3. FOR ALL TIE DOWN INSTALLATIONS, THE MANUFACTURED HOME CHASSIS MEMBERS ARE SHOWN AS "I" BEAMS, (FOR ILLUSTRATION PURPOSE ONLY) CHASSIS BEAMS
4. SIDE TIE DOWNS ARE REQUIRED ALONG THE OUTSIDE CHASSIS BEAMS. END TIE DOWNS ARE REQUIRED AT EACH END OF EACH TRANSPORTABLE SECTION OF THE MANUFACTURED HOME.
5. END TIE DOWNS CAN BE LOCATED WITHIN 18" OF EITHER SIDE OF CHASSIS BEAM



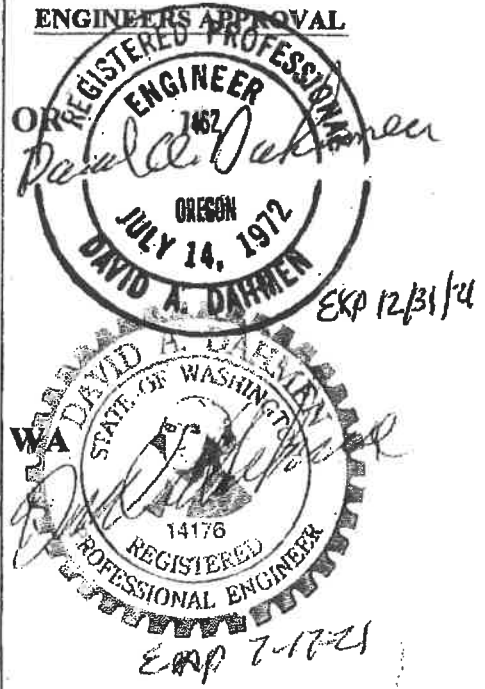
6. THE SIZES, TYPES, LENGTHS, ECT, OF MATERIALS SHOWN HEREON ARE MINIMUM, LARGER, LONGER, HEAVIER MATERIALS SUPPLIED BY SAC INDUSTRIES, INC. MAY BE USED AT THE SAME SPACING AND LOCATION SHOWN.
7. ALL PARTS ARE COATED WITH RUST RESISTANT INDUSTRIAL SHOP PRIMER

STATE APPROVAL

PGM Inc
 21822 Old Hwy 99
 Centralia, WA 98532
 888-265-8981

CA

PACIFIC CONSULTING ENGINEERS
 9739 North Vista Drive
 Kingman, AZ 86401
 PH 916-296-7376



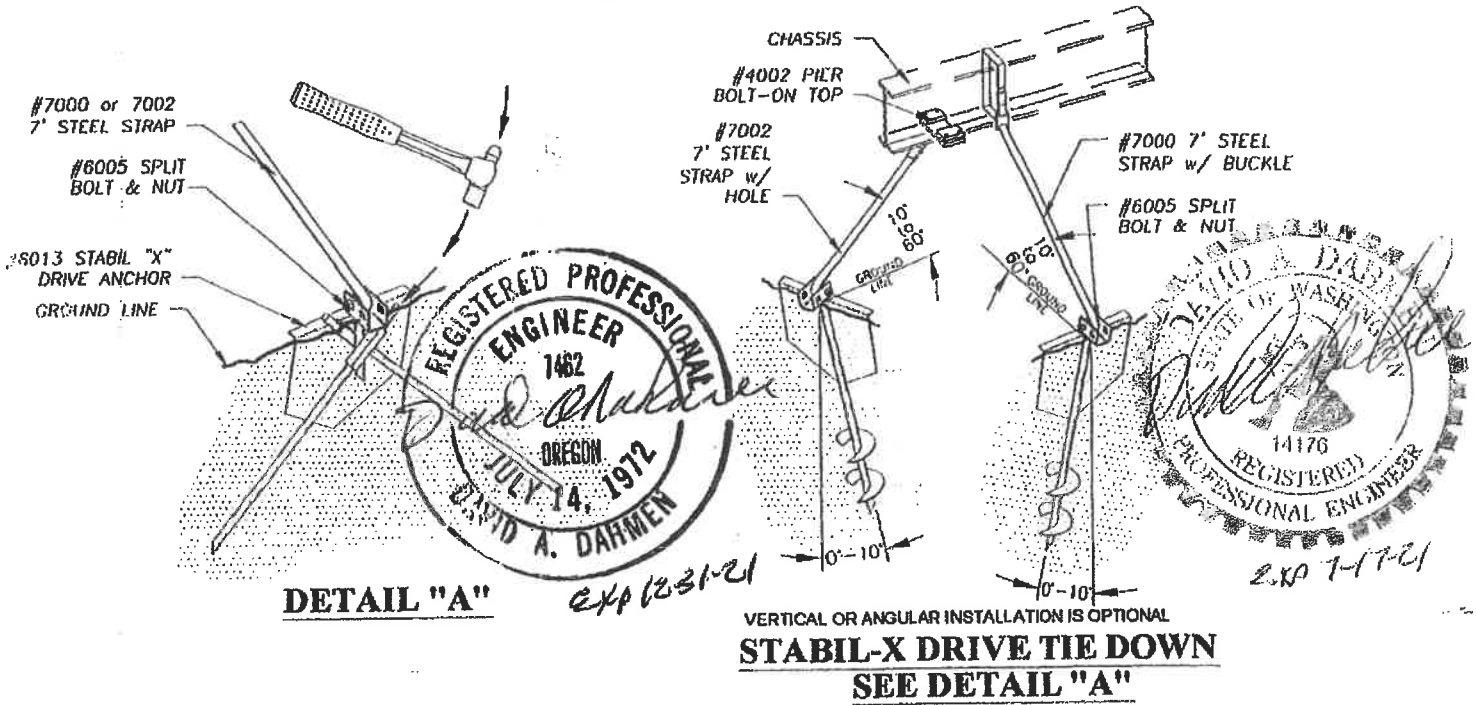
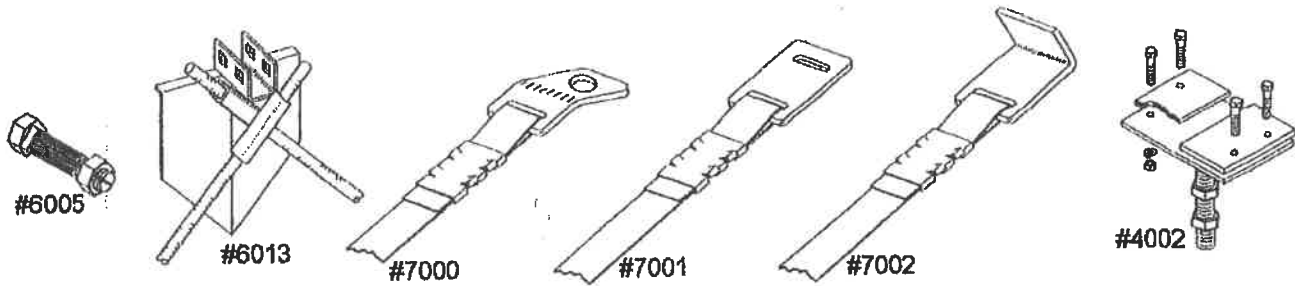
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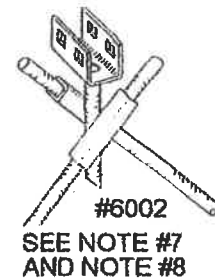
NV

SAC IND. STABIL-X DRIVE TIE DOWN ANCHORS



INSTALLATION INSTRUCTIONS

1. **CONTRACTORS WARNING: CHECK FIRST FOR UNDERGROUND UTILITIES.**
2. DRIVE STABILIZER PLATE INTO GROUND.
3. DRIVE CROSS RODS THROUGH HEAD TUBES INTO SOIL AS SHOWN.
4. ATTACH STRAPS TO CHASSIS BEAM IN MANNER SHOWN.
5. IF ANGLE OF SIDE STRAP IS GREATER THEN 60°, STRAP CONNECTION CAN BE MADE FROM ANCHOR TO OPPOSITE CHASSIS BEAM.
6. INSERT STRAP THROUGH SPLIT BOLT. CUT OFF EXCESS STRAP AND TIGHTEN BOLT UNTIL STRAP IS SNUG.
7. #6002 ANCHOR CAN BE USED WHERE HARD OR ROCKY SOIL OCCURS. IF THE GROUND SURFACE IS OTHER THAN ROCKY SOIL OR MINIMUM 2" ASPHALT, USE STABIL-X ANCHOR OR ENCASE ANCHOR WITH 12"x12"x12" CUBE OF CONCRETE.
8. WHEN #6002 ANCHOR IS USED FOR ANY REQUIRED ANCHOR - (2) ANCHORS MUST BE USED AT THAT LOCATION.



EARTH AUGERS				CROSS DRIVE ANCHORS				CONCRETE SLAB ANCHORS			
MAX. LENGTH OF MFG'D HOME	36'	54'	72'	MAX. LENGTH OF MFG'D HOME	36'	54'	72'	MAX. LENGTH OF MFG'D HOME	36'	54'	72'
MIN. NO. OF SIDE TIE DOWNS	2	3	4	MIN. NO. OF SIDE TIE DOWNS	2	3	4	MIN. NO. OF SIDE TIE DOWNS	2	3	4

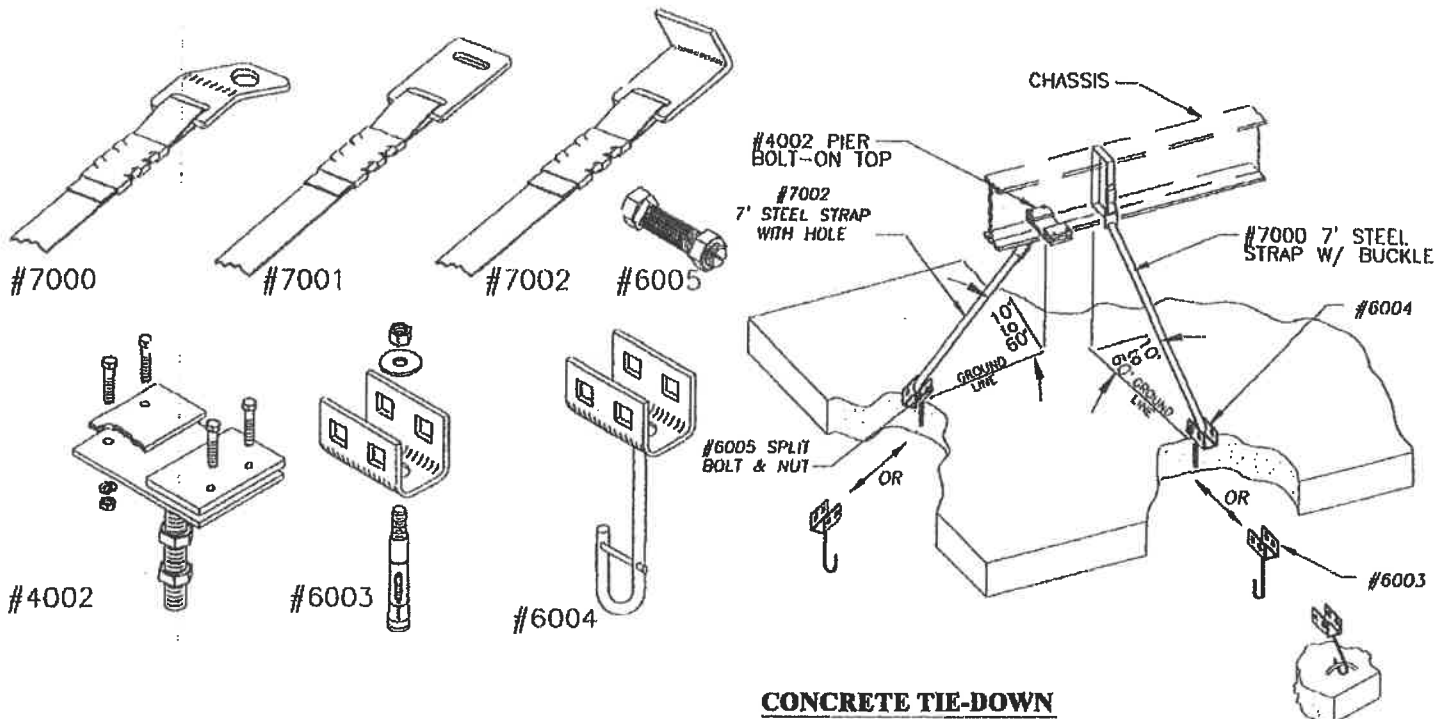
NOTE:

SIDE TIE-DOWNS: MUST BE WITHIN 24" OF THE END OF THE CHASSIS BEAM.

END TIE-DOWNS: CAN BE LOCATED WITHIN 24" OF EITHER SIDE OF CHASSIS BEAM ONE TIE-DOWN IS MANDATORY AT EACH END OF "I" BEAM (SEE PAGE #1 GENERAL NOTE #5).

IF SIDE WALL TIE-DOWN GROUND ANCHOR LOCATION IS SUCH THAT THE ANGLE BETWEEN THE GROUND AND STRAP EXCEEDS 60°, CONNECT THE TIE STRAP TO THE INSIDE CHASSIS BEAM ON DOUBLE AND TRIPLE WIDES AND THE OPPOSITE CHASSIS BEAM ON SINGLE WIDES. 44 of 77

SAC IND. CONCRETE TIE DOWN ANCHORS



CONCRETE TIE-DOWN

ALTERNATE CONNECTION

INSTALLATION INSTRUCTIONS

NEW CONCRETE - #6004

1. PLACE CONCRETE ANCHOR INTO WET CONCRETE, AND ALLOW TO PROPERLY CURE.
2. ALTERNATE CONNECTION REQUIRES #5 REBAR PROPERLY EMBEDDED IN CONCRETE

EXISTING CONCRETE - #6003

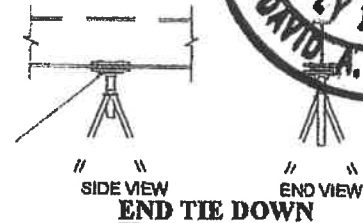
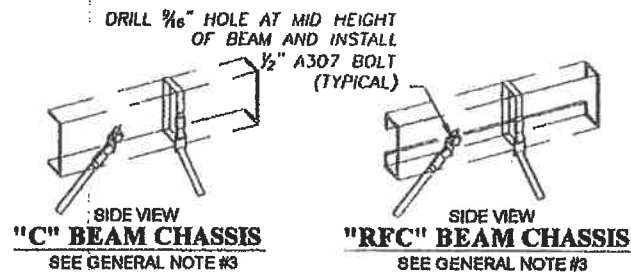
1. CONCRETE MUST BE A MINIMUM 3½" THICK AND IN GOOD CONDITION.
2. MINIMUM SLAB AREA OF EACH ANCHOR IS 28 SQUARE FEET.
3. DRILL PROPER SIZE HOLE IN SLAB, A MINIMUM OF 12" FROM ANY SIDE.
4. EXPANSION BOLT IS 5/8" x 3½" WITH MINIMUM 2¾" EMBEDMENT AND 6,180 POUNDS PULL OUT, 7,160 POUNDS SHEAR.

CHASSIS CONNECTION

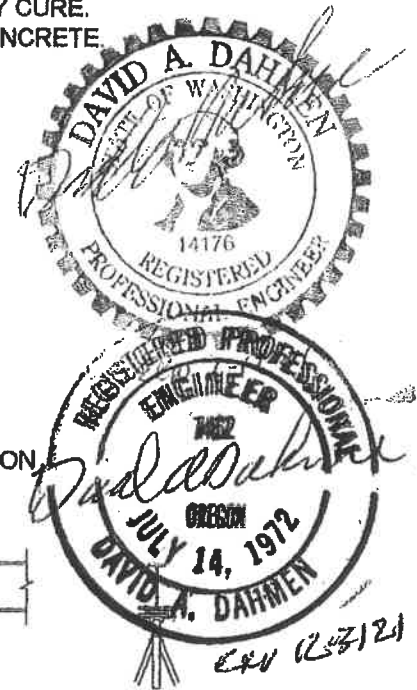
1. ATTACH STRAPS TO CHASSIS BEAM IN MANNER SHOWN.
2. IF ANGLE OF SIDE STRAP IS GREATER THAN 60°, STRAP CONNECTION CAN BE MADE FROM ANCHOR TO OPPOSITE CHASSIS BEAM.
3. INSERT STRAP THROUGH SPLIT BOLT, CUT OFF EXCESS STRAP AND TIGHTEN BOLT UNTIL STRAP IS SNUG.

NOTE: SIDE TIE DOWNS ARE REQUIRED ALONG THE OUTSIDE CHASSIS BEAMS. END TIE DOWNS ARE REQUIRED AT EACH END OF EACH TRANSPORTABLE SECTION OF THE MANUFACTURED HOME.

NOTE: A COMBINATION OF DIFFERENT TYPES OF TIE DOWNS CAN BE USED.



NOTE: END TIE DOWN CAN BE LOCATED WITHIN 18" OF EITHER SIDE OF CHASSIS BEAM AXIS.



CONTRACTORS CERTIFICATION

I CERTIFY THAT I HAVE INSTALLED THE SAC IND., INC. ANCHORING SYSTEM AS PER THE INSTALLATION INSTRUCTIONS. I HAVE MADE NO MODIFICATIONS TO THE ANCHORING SYSTEM OR THE BUILDING STRUCTURE.

COMPANY NAME: _____ CONTRACTORS LIC. # _____

PGM Inc.

Soil Class	Soil Description	Test Probe Values (in lbs.)	Recommended PGM Part	PGM part description
1	Hard Rock or Rocky	N/A	# 6011 or # 6002	Cross Drive Anchor W/ 30" Rods Cross Drive Anchor W/ 30" Rods
2	Very Dense and or Cemented Sands, Coarse Gravel, Cobbles and Clays	550+	# 6000 # 6006 # 6013	30" Auger Anchor W/2 4" Helix 12" Stabilizer Plate Stabil X - Drive
3	Medium Dense Coarse Sands, Sandy Gravels, Very Very Stiff Silts & Clays	351 to 550	Available Upon Request	
4a	Loose to Medium Dense Sands, Firm to Stiff Clays & Silts, Alluvial Fill	276 to 350	Available Upon Request	
4b	Very Loose Sands, Firm Clays & Silts Alluvial Fill	175 to 275	Available Upon Request	

Please Note : Each State, County or Municipality may require a specific anchor from the groups shown above for each soil classification.

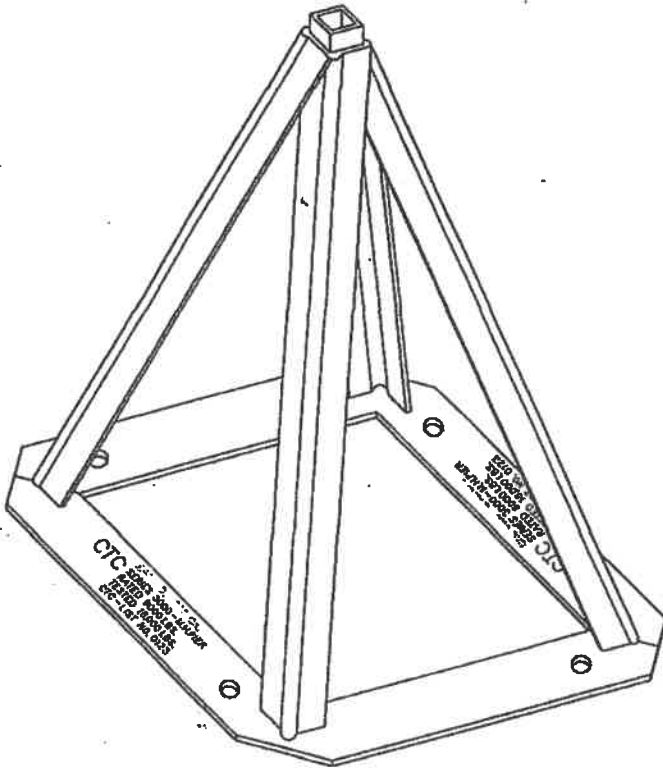
Check local and stata regulations first.

PGM Inc
STEEL PIERS
ADJUSTABLE STEEL PIERS & TOPS

GENERAL NOTES

DESIGN LOADS:

- * STEEL PIERS ----- 6,000 LB. RATED LOAD CAPACITY
 18,000 LB. MINIMUM TESTED LOAD CAPACITY
- * STEEL PIERS SHALL BE COATED WITH RUST RESISTANT COATING AND SHALL
 BE LISTED AND LABELED FOR THE FOLLOWING LOAD:
 VERTICAL=6,000 POUNDS MAXIMUM



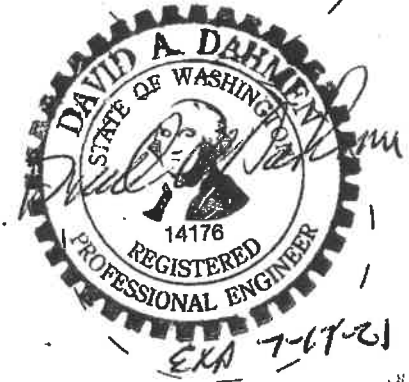
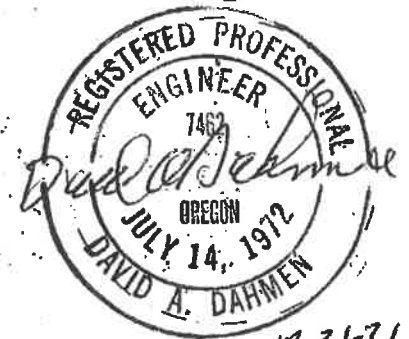
STATE APPROVAL

PGM Inc
 21822 Old Hwy 99
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ENGINEER APPROVAL

CA

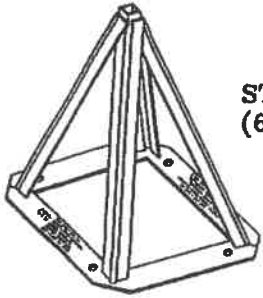




PGM Inc SYSTEM SET

BOLT-ON TOP

(TYPICAL)



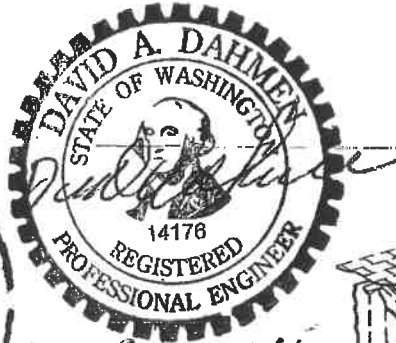
STEEL PIER
(6,000 LB RATED)

NOTES

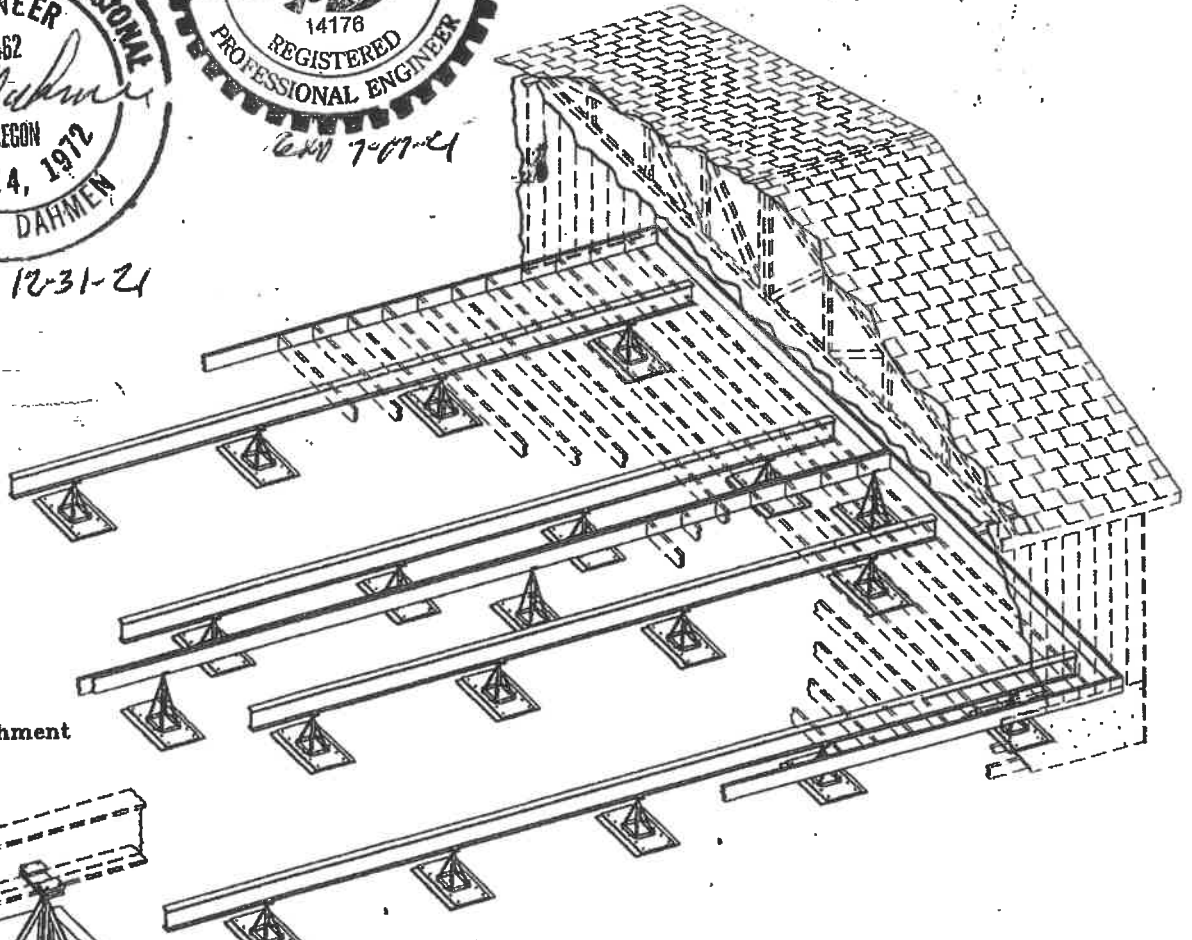
CHECK MANUFACTURED HOME SET UP INSTRUCTIONS
FOR LOADS AND LOCATIONS.



EXD 12-31-21



EXD 7-07-21



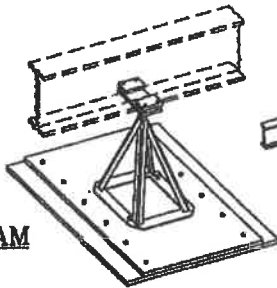
• STATE APPROVED
Tested-Listed-Labeled
Stamped in Base Plate

• 6,000 LB. RATED
3-1 Safety Factor

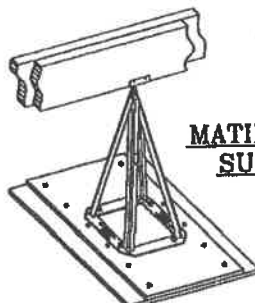
• HOLES PRE-PUNCHED
In base for easy attachment
to pad or footing

BASE PADS ARE SHOWN FOR
ILLUSTRATION ONLY AND ARE
NOT A PART OF THE PIER APPROVAL

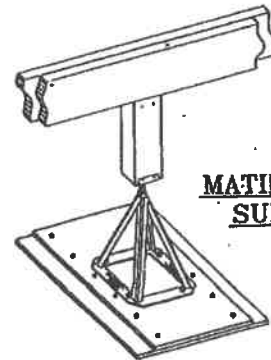
CHASSIS BEAM
SUPPORT



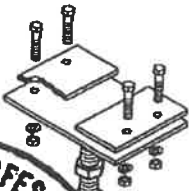
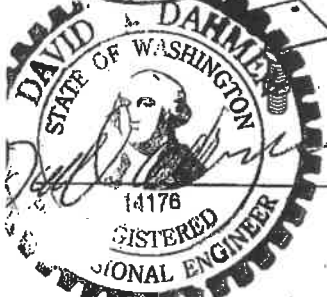
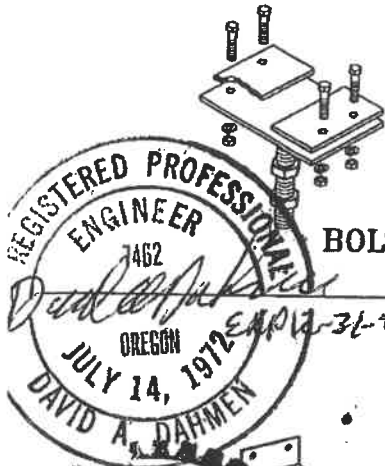
MATING LINE
SUPPORT



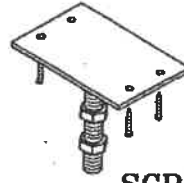
MATING LINE
SUPPORT



ADJUSTABLE STEEL TOPS



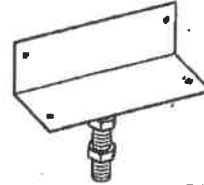
BOLT ON TOP
#4002



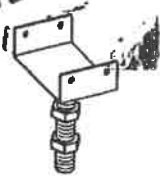
SCREW ON TOP
#4006



"L" TOP
#4003



ANGLE TOP
#4005



5" SADDLE TOP
#4000

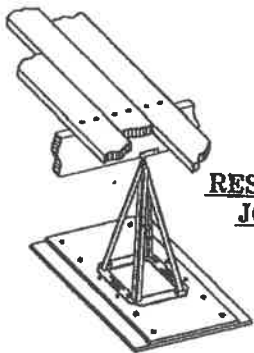


11" SADDLE TOP
#4001

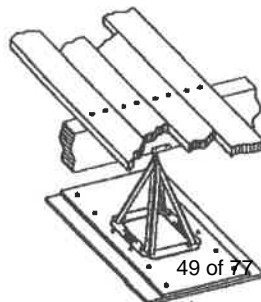


INSTALLATION INSTRUCTIONS

- #4000 - PLACE SADDLE TOP FLUSH AGAINST MAIN CHASSIS BEAM AND OR MATING LINE - MAXIMUM HEIGHT ADJUSTMENT OF TOP IS 2".
- #4001 - 11" SADDLE CAN TO BE USED ON MATING LINE SUPPORTS, PORCHES AND DECKS - ATTACH TOP OF PIER WITH 2nd 3/4" NUT - MAXIMUM HEIGHT ADJUSTMENT OF TOP IS 8".
- #4002 - ATTACH BOLT ON TOP TO "I" BEAM WITH (4) 3/8" BOLTS AND NUTS - WITH 2nd 3/4" NUT, ATTACH BOLT ON TOP TO PIER - MAXIMUM HEIGHT ADJUSTMENT OF TOP IS 2".
- #4003 - PLACE "L" TOP FLUSH AGAINST MAIN BEAM - ALTERNATE "L" TOP DIRECTION EVERY OTHER PIER - MAXIMUM HEIGHT ADJUSTMENT OF TOP IS 2".
- #4005 - PLACE ANGLE TOP FLUSH AGAINST MAIN BEAM ("C" BEAM or "RFC" BEAM) - MAXIMUM HEIGHT ADJUSTMENT OF TOP IS 2".
- #4006 - ATTACH SCREW ON TOP TO MAIN CHASSIS BEAM WITH (4) #12 SMS TEK SCREWS. WHEN USED AT MATING LINE AND OR PERIMETER, ATTACH WITH NAILS OR SCREWS. MAXIMUM HEIGHT ADJUSTMENT OF TOP IS 2".



**RESIDENTIAL FLOOR
JOINT SUPPORT**

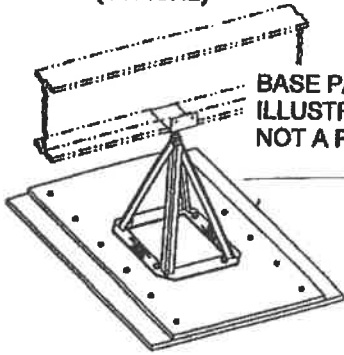


**DECK
SUPPORT**

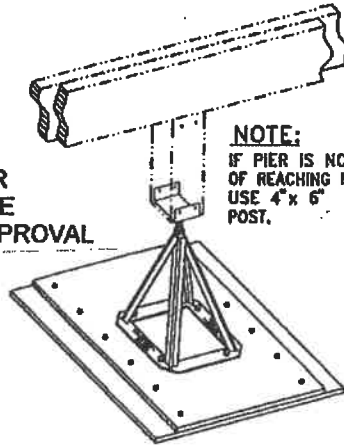
BASE PADS ARE SHOWN FOR ILLUSTRATION ONLY AND ARE NOT A PART OF THE PIER APPROVAL

ADJUSTABLE STEEL PIERS

CHASSIS BEAM SUPPORT (TYPICAL)

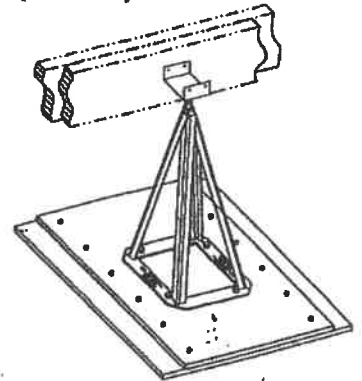


BASE PADS ARE SHOWN FOR ILLUSTRATION ONLY AND ARE NOT A PART OF THE PIER APPROVAL



NOTE:
IF PIER IS NOT CAPABLE OF REACHING RIDGE BEAM, USE 4" x 6" WOOD POST.

MATING LINE SUPPORT (TYPICAL)



INSTALLATION INSTRUCTIONS

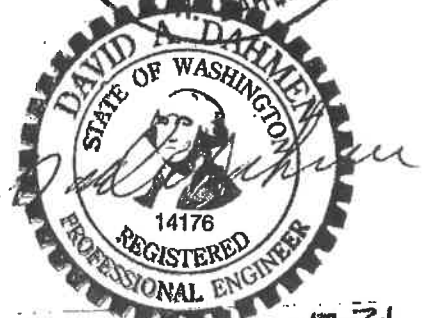
1. PREPARE A LEVEL SURFACE AT THE LOCATION OF EACH PIER TO INSURE A FULL CONTACT FOR THE FOOTING PAD. USE THE APPROPRIATE SIZE PAD FOR THE LOAD REQUIRED. REFER TO THE MANUFACTURERS SET UP MANUAL FOR SPECIFIC LOADS AND FOOTING SIZES.
2. SELECT THE APPROPRIATE SIZE PIERS FOR THE INSTALLATION BY DETERMINING THE PIER HEIGHT AT EACH SUPPORT LOCATION. MEASURE FROM THE TOP OF THE PAD TO THE BOTTOM OF THE CHASSIS BEAM TO INSURE THAT HEIGHT IS NO GREATER THAN 32".
3. SELECT THE APPROPRIATE TOP FOR THE CHASSIS BEAM OR MATING LINE. THE MAXIMUM ADJUSTMENT ON THE THREADED ROD ADJUSTER FOR CHASSIS BEAM SUPPORT IS 2". WHEN MORE HEIGHT IS NEEDED USE THE NEXT TALLER SIZE SUPPORT PIER.
4. PLACE THE PIER SUPPORT IN THE CENTER OF THE SUPPORT PAD. WHERE REQUIRED BY LOCAL CODE, ATTACH THE SUPPORT PIER TO THE PAD USING APPROPRIATE FASTENERS. CAREFULLY ALIGN THE SUPPORT PIER AND TOP UNDER THE CHASSIS BEAM OR MATING LINE AND TIGHTEN UNTIL SNUG PLUS 1/2 TURN.
5. REPEAT THIS INSTALLATION PROCEDURE WITH EACH SUPPORT PIER. AFTER ALL THE SUPPORT PIERS HAVE BEEN INSTALLED, AND THE HOME SET UP HAS BEEN COMPLETED PER THE MANUFACTURERS SET UP INSTRUCTIONS, YOU MAY THEN REMOVE THE SAFETY BLOCKING OF OTHER DEVICES USED TO LEVEL THE CHASSIS.

LABORATORY TESTING REPORT

PART No.	STAND SIZE	SAMPLE #1	SAMPLE #2	SAMPLE #3
3008	8"	23,100 Lbs.	24,600 Lbs.	23,200 Lbs.
3010	10"	25,130 Lbs.	25,950 Lbs.	24,320 Lbs.
3012	12"	27,200 Lbs.	26,500 Lbs.	26,300 Lbs.
3014	14"	27,700 Lbs.	28,175 Lbs.	26,175 Lbs.
3016	16"	28,250 Lbs.	27,700 Lbs.	23,400 Lbs.
3018	18"	26,400 Lbs.	33,300 Lbs.	25,500 Lbs.
3020	20"	24,950 Lbs.	25,000 Lbs.	23,225 Lbs.
3022	22"	20,500 Lbs.	22,400 Lbs.	24,200 Lbs.
3024	24"	22,225 Lbs.	21,650 Lbs.	23,000 Lbs.
3026	26"	22,250 Lbs.	21,500 Lbs.	19,700 Lbs.
3028	28"	20,550 Lbs.	23,720 Lbs.	21,310 Lbs.
3030	30"	22,950 Lbs.	26,550 Lbs.	21,500 Lbs.
3032	32"	21,200	22,000	21,900
3034	34"	20,900	21,200	21,000
3036	36"	20,500	19,900	19,800

PIER IDENTIFICATION STAMP

PGM Inc-Centralia, WA
SERIES 3000-M H PIER
RATED 6,000 LBS.
TESTED 18,000 LBS
C.T.C. LIST NO. 0123

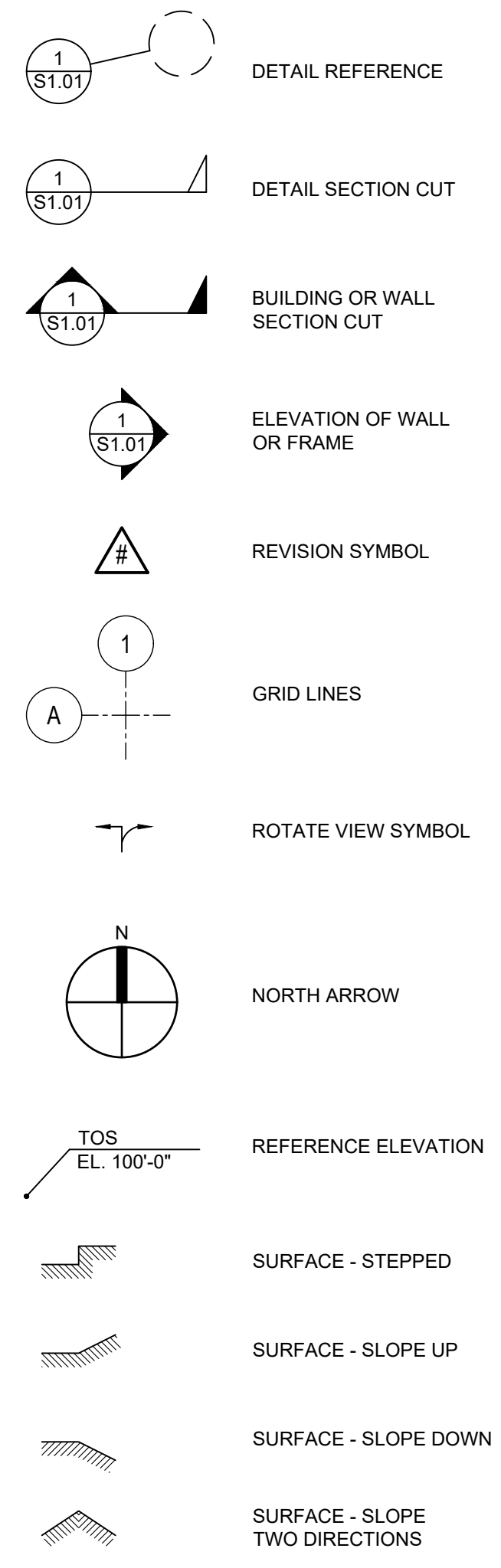


Handwritten signature and initials

STRUCTURAL ABBREVIATIONS

AB	ANCHOR BOLT
ADDL	ADDITIONAL
AFF	ABOVE FINISH FLOOR
ALT	ALTERNATE
ARCH	ARCHITECTURAL
ATR	ALL THREAD ROD
BLDG	BUILDING
BLKG	BLOCKING
BM	BEAM
BN	BOUNDARY NAIL
BOF	BOTTOM OF FOOTING
BOT	BOTTOM
BRNG	BEARING
BSMT	BASEMENT
BTWN	BETWEEN
C	CAMBER
CIP	CAST IN PLACE
CJ	CONTROL OR CONSTRUCTION JOINT
CJP	COMPLETE JOINT PENETRATION
CL	CENTERLINE
CLG	CEILING
CLR	CLEAR
CMU	CONCRETE MASONRY UNIT
COL	COLUMN
CONC	CONCRETE
CONN	CONNECTION
CONST	CONSTRUCTION
CONT	CONTINUOUS
DBA	DEFORMED BAR ANCHOR
DBL	DOUBLE
DFL	DOUGLAS FIR-LARCH
DIA	DIAMETER
DIAG	DIAGONAL
DIST	DISTANCE
DL	DEAD LOAD
DN	DOWN
DTL	DETAIL
DWG	DRAWING
(E)	EXISTING
EA	EACH
EF	EACH FACE
EL	ELEVATION
EN	EDGE NAIL
EOR	ENGINEER OF RECORD
EQ	EQUAL
EW	EACH WAY
EXT	EXTERIOR
FF	FINISH FLOOR
FN	FIELD NAIL
FLR	FLOOR
FDN	FOUNDATION
FT	FEET
FTG	FOOTING
GA	GAUGE
GALV	GALVANIZED
GLB	GLUE LAMINATED BEAM
GWB	GYPSUM WALL BOARD
HDG	HOT-DIP GALVANIZED
HDR	HEADER
HF	HEM-FIR
HT	HEIGHT
HORIZ	HORIZONTAL
HSA	HEADED STUD ANCHOR
HSS	HOLLOW STRUCTURAL SECTION
ID	INSIDE DIAMETER
IN	INCH
INT	INTERIOR
JST	JOIST
JT	JOINT
K	KIP(S)
KSI	KIPS PER SQUARE INCH
L	ANGLE
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LONG	LONGITUDINAL
LVL	LAMINATED VENEER LUMBER
LWC	LIGHT WEIGHT CONCRETE
MAX	MAXIMUM
MIN	MINIMUM
MIR	MIRROR
NIC	NOT IN CONTRACT
NOM	NOMINAL
NTE	NOT TO EXCEED
NTS	NOT TO SCALE
(N)	NEW
OC	ON CENTER
OD	OUTSIDE DIAMETER
OPP	OPPOSITE
OWJ	OPEN WEB JOIST
PAF	POWDER ACTUATED FASTENER
PERP	PERPENDICULAR
PJP	PARTIAL JOINT PENETRATION
PL	PLATE
PSI	POUNDS PER SQUARE INCH
PSF	POUNDS PER SQUARE FOOT
PT	PRESSURE TREATED
QTY	QUANTITY
RAD	RADIUS
REF	REFERENCE
REINF	REINFORCING
REQD	REQUIRED
REV	REVISED, REVISION
SC	SLIP CRITICAL
SHT	SHEET
SHT'G	SHEATHING
SIM	SIMILAR
SMS	SHEET METAL SCREW
SOG	SLAB ON GRADE
SQ	SQUARE
SS	STAINLESS STEEL
STD	STANDARD
STL	STEEL
T&B	TOP AND BOTTOM
T&G	TONGUE AND GROOVE
TOC	TOP OF CONCRETE
TOS	TOP OF STEEL
TOF	TOP OF FOOTING
TOW	TOP OF WALL
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
VERT	VERTICAL
VIF	VERIFY IN FIELD
WI	WITH
W/O	WITHOUT
WF	WIDE FLANGE
WP	WORK POINT
WWR	WELDED WIRE REINFORCING

STRUCTURAL DRAWING SYMBOLS



STRUCTURAL NOTES:

GENERAL

THE CONTRACTOR IS RESPONSIBLE FOR VERIFICATION AND CORRELATION OF ALL ITEMS AND WORK NECESSARY FOR COMPLETION OF THE PROJECT AS INDICATED BY THE CONTRACT DOCUMENTS. SHOULD ANY QUESTION ARISE REGARDING THE CONTRACT DOCUMENTS OR SITE CONDITIONS, THE CONTRACTOR SHALL REQUEST INTERPRETATION AND CLARIFICATION FROM THE ENGINEER BEFORE BEGINNING THE PROJECT. THE ABSENCE OF SUCH REQUEST SHALL SIGNIFY THAT THE CONTRACTOR HAS REVIEWED AND FAMILIARIZED HIMSELF WITH ALL ASPECTS OF THE PROJECT AND HAS COMPLETE COMPREHENSION THEREOF. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONFORMANCE TO ALL SAFETY REGULATIONS DURING CONSTRUCTION.

THE CONTRACT DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISHED STRUCTURE. UNLESS OTHERWISE SPECIFICALLY NOTED, THEY DO NOT INDICATE THE METHOD OF CONSTRUCTION OR CONSTRUCTION LOADS. ONLY THE CONTRACTOR SHALL PROVIDE ALL METHODS, DIRECTION AND RELATED EQUIPMENT NECESSARY TO PROTECT THE STRUCTURE, WORKMEN AND OTHER PERSONS AND PROPERTY DURING CONSTRUCTION. THE CONTRACTOR SHALL, AT HIS OWN EXPENSE, ENGAGE PROPERLY QUALIFIED PERSONS TO DETERMINE WHERE AND HOW TEMPORARY PRECAUTIONARY MEASURES SHALL BE USED AND INSPECT SAME IN THE FIELD. ANY MATERIAL NOT AS SPECIFIED OR IMPROPER MATERIAL INSTALLATION OR WORKMANSHIP SHALL BE REMOVED AND REPLACED WITH SPECIFIED MATERIAL IN A WORKMANLIKE MANNER AT THE CONTRACTOR'S EXPENSE.

THESE PLANS, SPECIFICATIONS, ENGINEERING AND DESIGN WORK ARE INTENDED SOLELY FOR THE PROJECT SPECIFIED HEREIN. MILLER CONSULTING ENGINEERS DISCLAIMS ALL LIABILITY IF THESE PLANS AND SPECIFICATIONS OR THE DESIGN, ADVICE AND INSTRUCTIONS ATTENDANT THERETO ARE USED ON ANY PROJECT OR AT ANY LOCATION OTHER THAN THE PROJECT AND LOCATION SPECIFIED HEREIN. OBSERVATION VISITS TO THE JOB SITE AND SPECIAL INSPECTIONS ARE NOT PART OF THE STRUCTURAL ENGINEER'S RESPONSIBILITY UNLESS THE CONTRACT DOCUMENTS SPECIFY OTHERWISE.

NON STRUCTURAL PORTIONS OF PROJECT, INCLUDING BUT NOT LIMITED TO PLUMBING, FIRE SUPPRESSION, ELECTRICAL, MECHANICAL, LAND USE, SITE PLANNING, EROSION CONTROL FLASHING AND WATER-PROOFING ARE BEYOND THE SCOPE OF THESE DRAWINGS AND ARE PROVIDED BY OTHERS.

BUILDING CODE
ALL PHASES OF THE WORK SHALL CONFORM TO THE 2019 OREGON STRUCTURAL SPECIALTY CODE, BASED ON THE 2018 INTERNATIONAL BUILDING CODE, INCLUDING ALL REFERENCE STANDARDS, UNLESS NOTED OTHERWISE.

DESIGN LOADS

THE FOLLOWING ARE THE DESIGN REQUIREMENTS:

STRUCTURAL DESIGN CRITERIA	
RISK CATEGORY	II
DESIGN LOADS	
FLOOR DEAD	5 PSF
FLOOR LIVE	100 PSF
SEISMIC DESIGN DATA	
IMPORTANCE FACTOR	IE = 1.0
SPECTRAL RESPONSE ACCELERATIONS	SS = 0.746, S1 = 0.378
SITE CLASS	D
SPECTRAL RESPONSE COEFFICIENTS	SDS = 0.598
SEISMIC DESIGN CATEGORY	D
BASIC SEISMIC FORCE RESISTING SYSTEM	EGRESS RAMPS
SEISMIC RESPONSE COEFFICIENT	Fp = 0.48*W
RESPONSE MODIFICATION FACTOR	ap = 1.0, Rp = 2.5
ANALYSIS PROCEDURE USED	ASCE 7-10 EQUIVALENT LATERAL FORCE

ALUMINUM

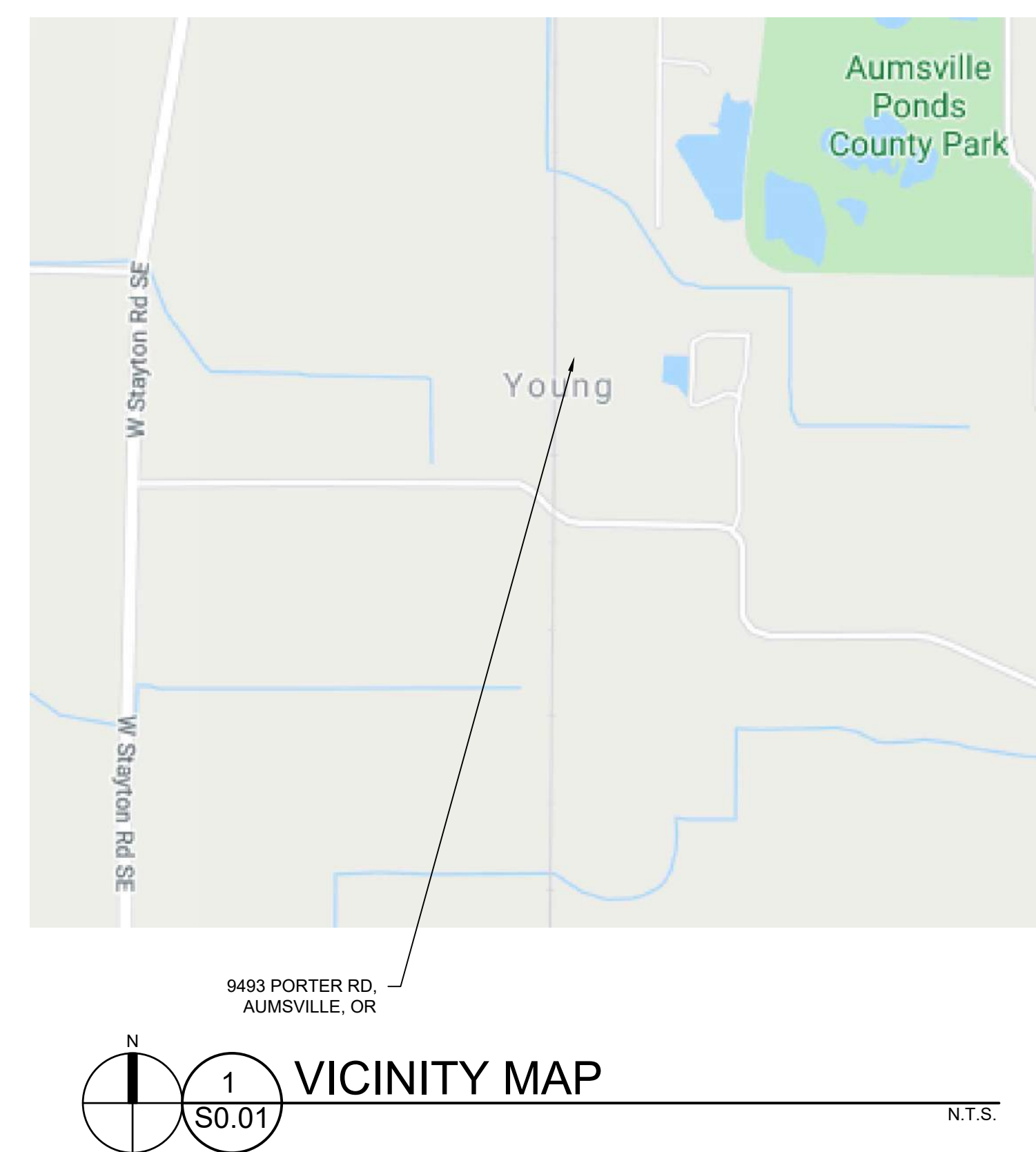
ALL STRUCTURAL ALUMINUM SHAPES AND PLATES TO BE 6061-T6 UNLESS NOTED OTHERWISE. ALL WELDS TO USE 4043 ALUMINUM FILLER ALLOY. A PROTECTIVE BARRIER SHALL BE PROVIDED BETWEEN ALL STEEL AND ALUMINUM TO PREVENT CORROSION. ALL WELDING TO CONFORM TO AMERICAN WELDING SOCIETY (AWS) D1.2. WELD LENGTHS SHOWN ARE EFFECTIVE AS SPECIFIED PER THE ALUMINUM DESIGN MANUAL. WELDING SHALL BE BY AWS CERTIFIED WELDERS FOR WELD TYPES SPECIFIED. WHERE WELD LENGTHS ARE NOT SHOWN, THE WELD SHALL BE FULL LENGTH OF MEMBERS BEING JOINED. ALL BUTT WELDS SHALL BE FULL PENETRATION WELDS UNLESS NOTED OTHERWISE ON STRUCTURAL DRAWINGS. ALL WELDS TO RECEIVE THE SAME FINISH COAT AS THE MEMBER BEING WELDED. ALL BOLTS IN CONTACT WITH ALUMINUM TO BE TYPE 304 STAINLESS STEEL WITH MATCHING NUTS. NUTS SHALL BE TIGHTENED TO A SNUG TIGHT CONDITION.

SPECIAL INSPECTION REQUIREMENTS: CONTINUOUS PERIODIC

ALUMINUM				
MATERIAL VERIFICATION OF STRUCTURAL ALUMINUM	1704.15		X	CERTIFIED MILL TEST REPORTS
MATERIAL VERIFICATION OF BOLTS			X	MANUFACTURER'S CERTIFIED TEST REPORTS
MATERIAL VERIFICATION OF WELD FILLER METALS			X	MANUFACTURER'S CERTIFIED TEST REPORTS
VERIFYING USE OF PROPER WPS'S			X	COPY OF WELDING PROCEDURE SPECIFICATIONS
VERIFYING WELDER QUALIFICATIONS			X	COPY OF QUALIFICATION CARDS
COMPLETE AND PARTIAL JOINT PENETRATION GROOVE WELDS		AWS D1.2 SECTION 5	X	ALL WELDS VISUALLY INSPECTED PER AWS 1.2, 5.5
MULTIPASS FILLET WELDS			X	
SINGLE PASS FILLET WELDS			X	

GENERAL RAMP NOTES:

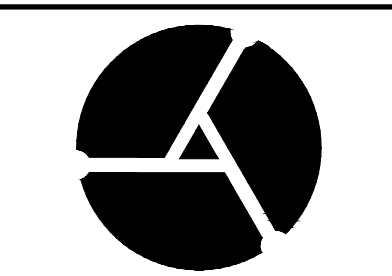
- THESE PLANS AND SPECIFICATIONS ARE NOT VALID FOR ANY OTHER ACCESS SYSTEMS, ONLY THOSE ACCESS SYSTEMS PRODUCED BY MAG ENTERPRISES LLC.
- THE RAMP SYSTEM, STAIRS AND LANDINGS HAVE BEEN DESIGNED TO MEET IBC AND ICC/ANSI A117.1 2012 REQUIREMENTS FOR ACCESSIBLE FACILITIES. THE DESIGN LOADING CRITERIA IS 100 PSF LIVE LOAD.
- THE MODULAR ALUMINUM RAMP SYSTEM SHALL BE A RIGID, FREE SPAN DESIGN, AND SHALL CONFORM TO THE CURRENT EDITION OF THE ALUMINUM ASSOCIATION SPECIFICATIONS AND GUIDELINES FOR ALUMINUM STRUCTURES.
- ALL COMPONENTS TO BE MANUFACTURED USING 6061-T6 ALUMINUM ALLOY, WITH A MILL FINISH.
- INSTALLATION CONTRACTORS SHALL BE RESPONSIBLE FOR COMPLYING WITH ACI (OSHA AND STATE LABOR AND INDUSTRIES STANDARDS AND REQUIREMENTS), CONTRACTORS SHALL ASSUME FULL RESPONSIBILITY FOR THE CONDITION OF THE STRUCTURES TO BE ACCESSED USING THE RAMP AND RELATED SYSTEMS.
- WELDING SHALL BE IN ACCORDANCE WITH ANSII/AWS GAS METAL ARCH WELDING PROCESS BY EXPERIENCED OPERATORS.
- LANDING, RAMP, AND STAIR WALKING SURFACES TO BE THRU FLOW POLYPROPYLENE INTERLOCKING PANELS, AS PER MANUFACTURER'S SPECIFICATIONS. TESTING MEETS OR EXCEEDS STANDARDS FOR DISTRIBUTED /CONCENTRATED LOAD, IZOD IMPACT, COEFFICIENT OF FRICTION AND SLIP RESISTANCE. DRAINAGE OPENINGS TO COMPLY WITH ANSI A117.1, 302.3 OPENING (CURRENT APPLICABLE EDITION)
- ADJUSTABLE LEG AND LEVELING FEET ARE ASSUMED TO BE PLACED ON SUITABLE FIRM BEARING MATERIAL ATOP UNDISTURBED SOIL.
- STANDARD RAMP AND LANDING GUARDRAILS TO BE 42 INCH MINIMUM HEIGHT CAPABLE OF SUPPORTING AND ATTACHING REMOVABLE PICKET, WHEN THRESHOLD HEIGHTS EXCEED 30" ABOVE GRADE.
- GUARDRAILS SHALL BE DESIGNED AND CONSTRUCTED FOR A LOAD OF 50 PLF APPLIED VERTICALLY DOWNWARD AT THE TOP OF THE GUARDRAIL.
- HANDRAILS SHALL BE DESIGNED AND CONSTRUCTED FOR A LOAD OF 50 PLF APPLIED IN ANY DIRECTION.
- GUARDRAILS WITH ATTACHED PICKETS SHALL BE CONSTRUCTED SO THAT A 4(FOUR) INCH SPHERE CAN NOT PASS THROUGH ANY OPENING IN THE RAIL.
- ALL SURFACES AND WELDING JOINTS SHALL BE SMOOTH AND FREE FROM SHARP OR JAGGED EDGES.
- ALL DESIGNS SHOWN HEREIN ARE SUBJECT TO CHANGE PENDING FIELD VERIFICATION OF EXISTING CONDITIONS.



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www.miller-se.com

30' ADA RAMP
NORTHWEST ACCESS PRODUCTS
9493 PORTER RD SE
AUMSVILLE, OR

DRAWN BY: ALB
CHECKED BY: KMM
PROJECT NO: 200378
ISSUE DATE: 04.02.2020

REV.	DATE	DESCRIPTION

SHEET CONTENT
STRUCTURAL NOTES
SPECIAL INSPECTION

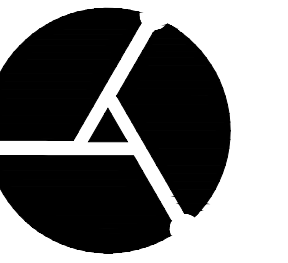
SHEET
S0.01

STRUCTURAL DRAWING INDEX

S0.01:	STRUCTURAL NOTES VICINITY MAP
S1.01:	RAMP PLAN RAMP ELEVATION
S8.01:	RAMP PLAN/SECTION LANDING PLAN/ SECTION GUARDRAIL ELEVATION/DETAIL RAMP ENTRANCE DETAIL
S8.02:	DETAILS



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30' ADA RAMP
NORTHWEST ACCESS PRODUCTS

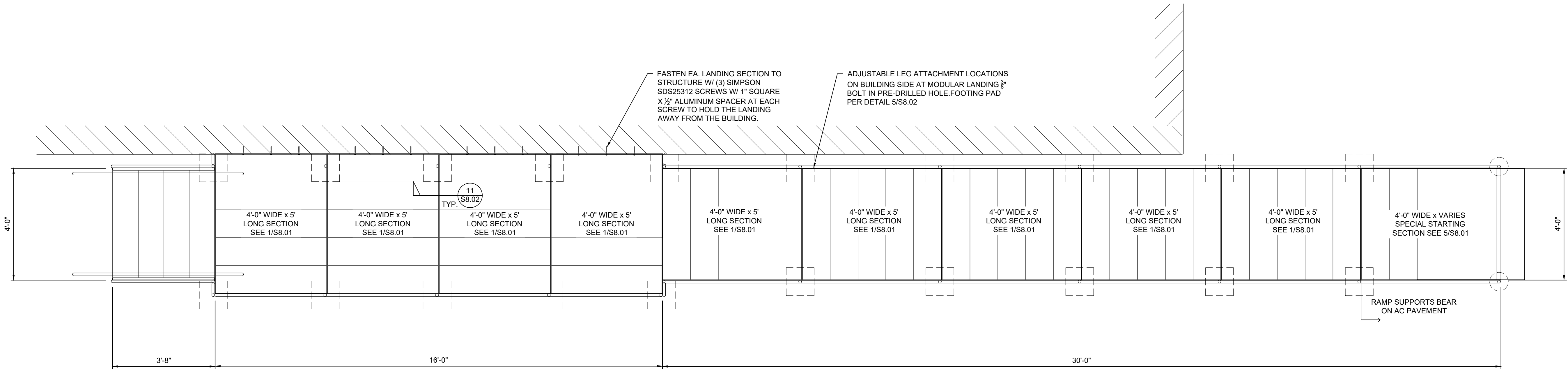
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AINSVILLE, OR

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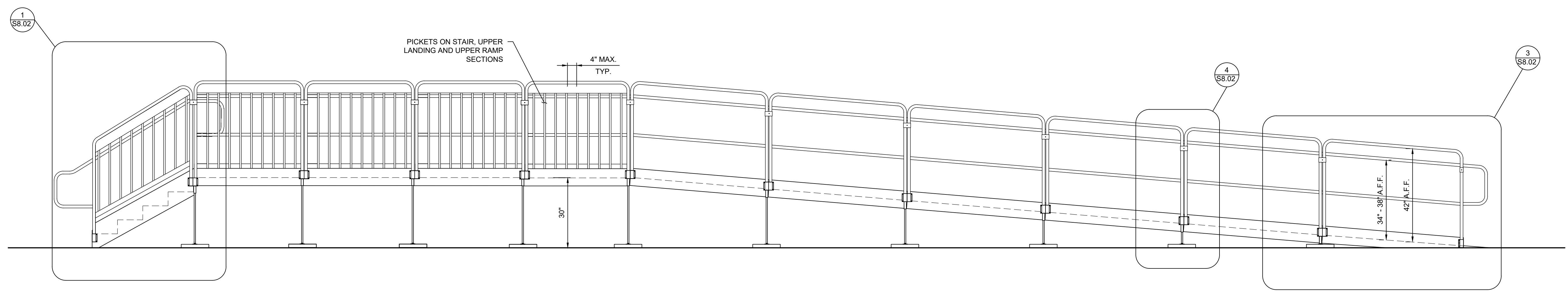
SHEET CONTENT
PLAN AND ELEVATION

SHEET
S1.01



1 TYPICAL 30' RAMP PLAN
S1.01

1/2" = 1'-0"



2 TYPICAL 30' RAMP ELEVATION
S1.01

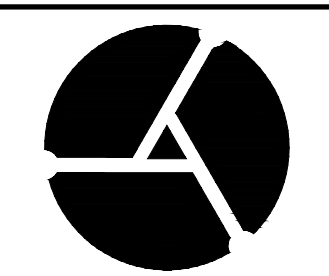
1/2" = 1'-0"

LINE IS 2 INCHES AT FULL SCALE
(IF NOT 2" - SCALE ACCORDINGLY)

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30' ADA RAMP
NORTHWEST ACCESS PRODUCTS

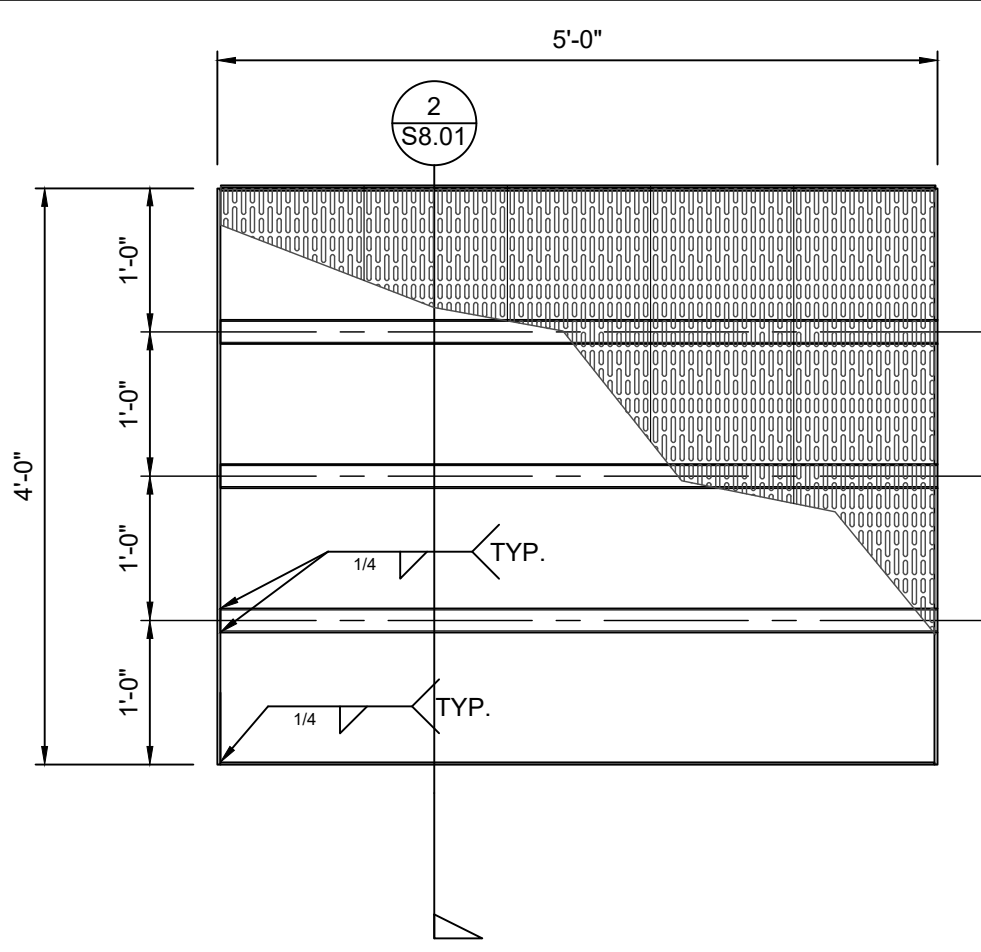
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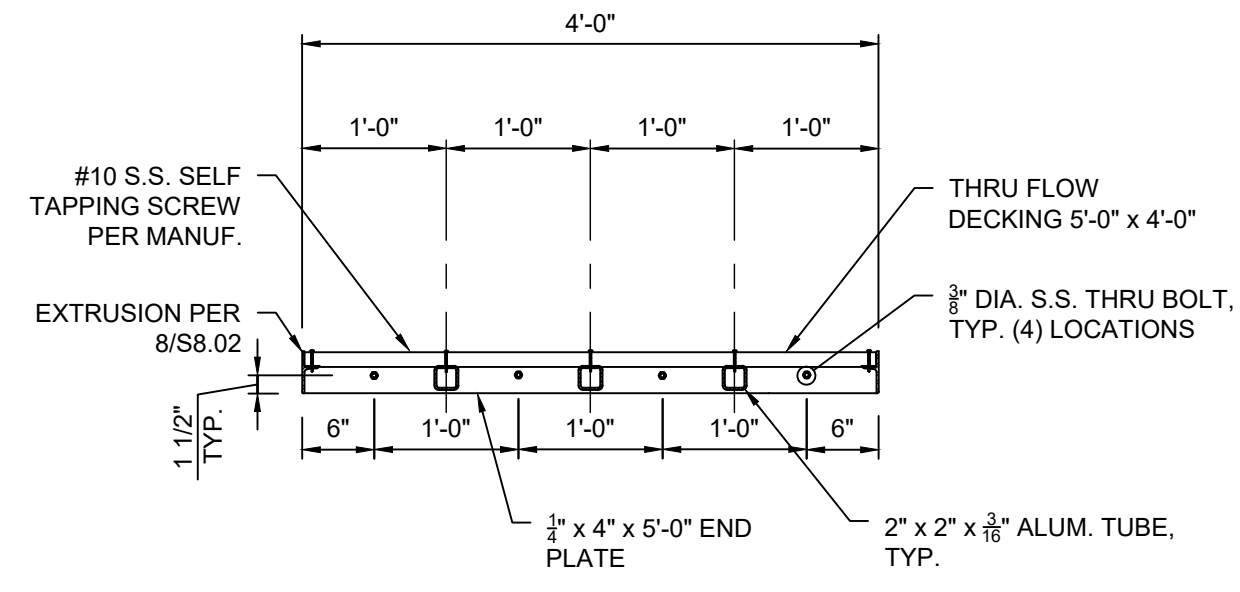
REV.	DATE	DESCRIPTION

SHEET CONTENT
PANEL PLAN/SECTION
RAMP DETAIL
PICKET ELEVATION
PICKET DETAIL

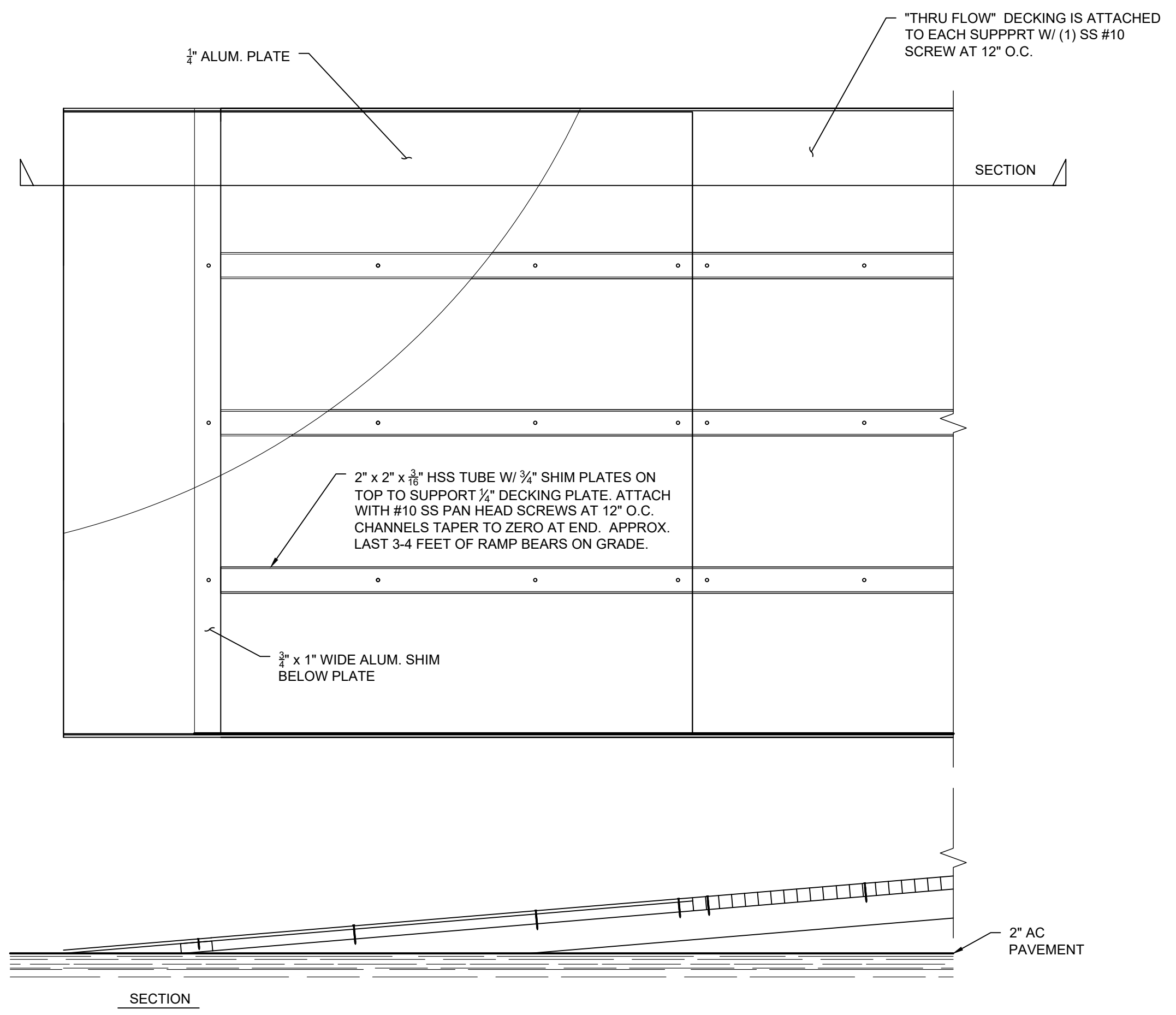
SHEET
S8.01



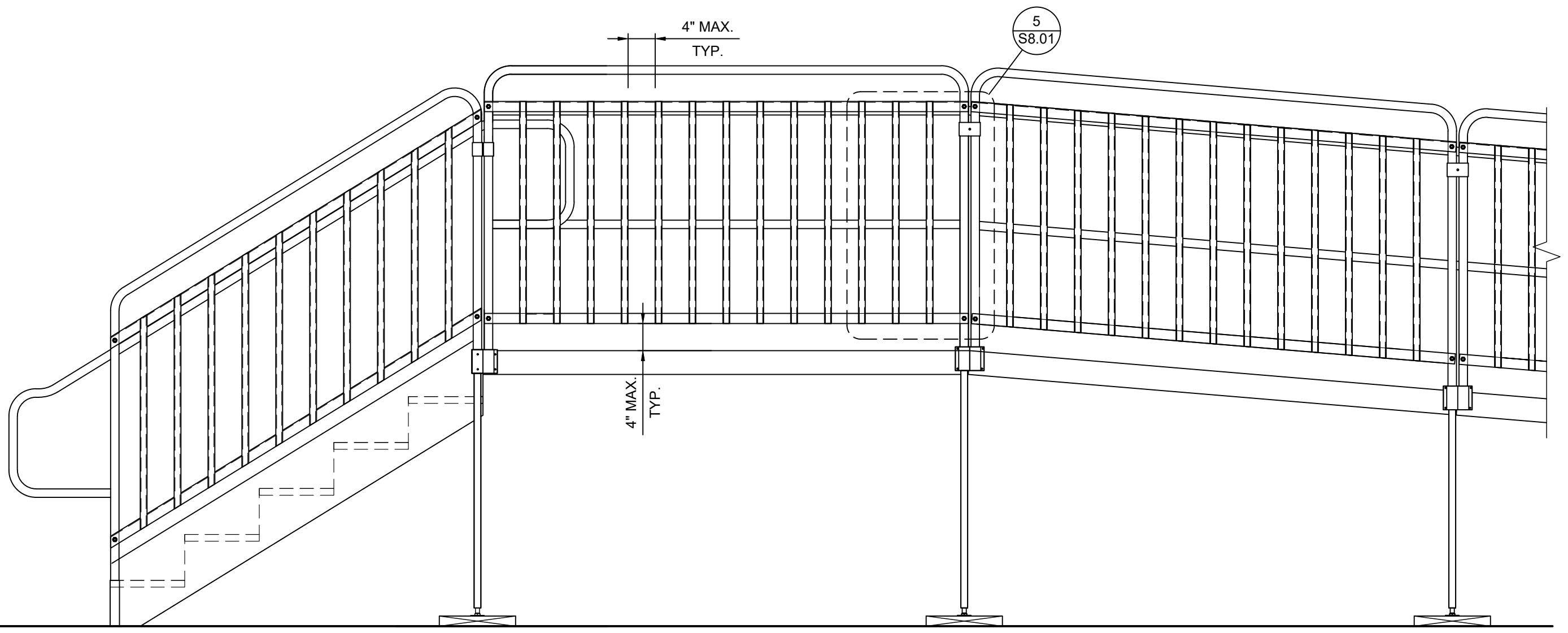
1 4'-0" x 5'-0" PANEL PLAN
S8.01 3/4" = 1'-0"



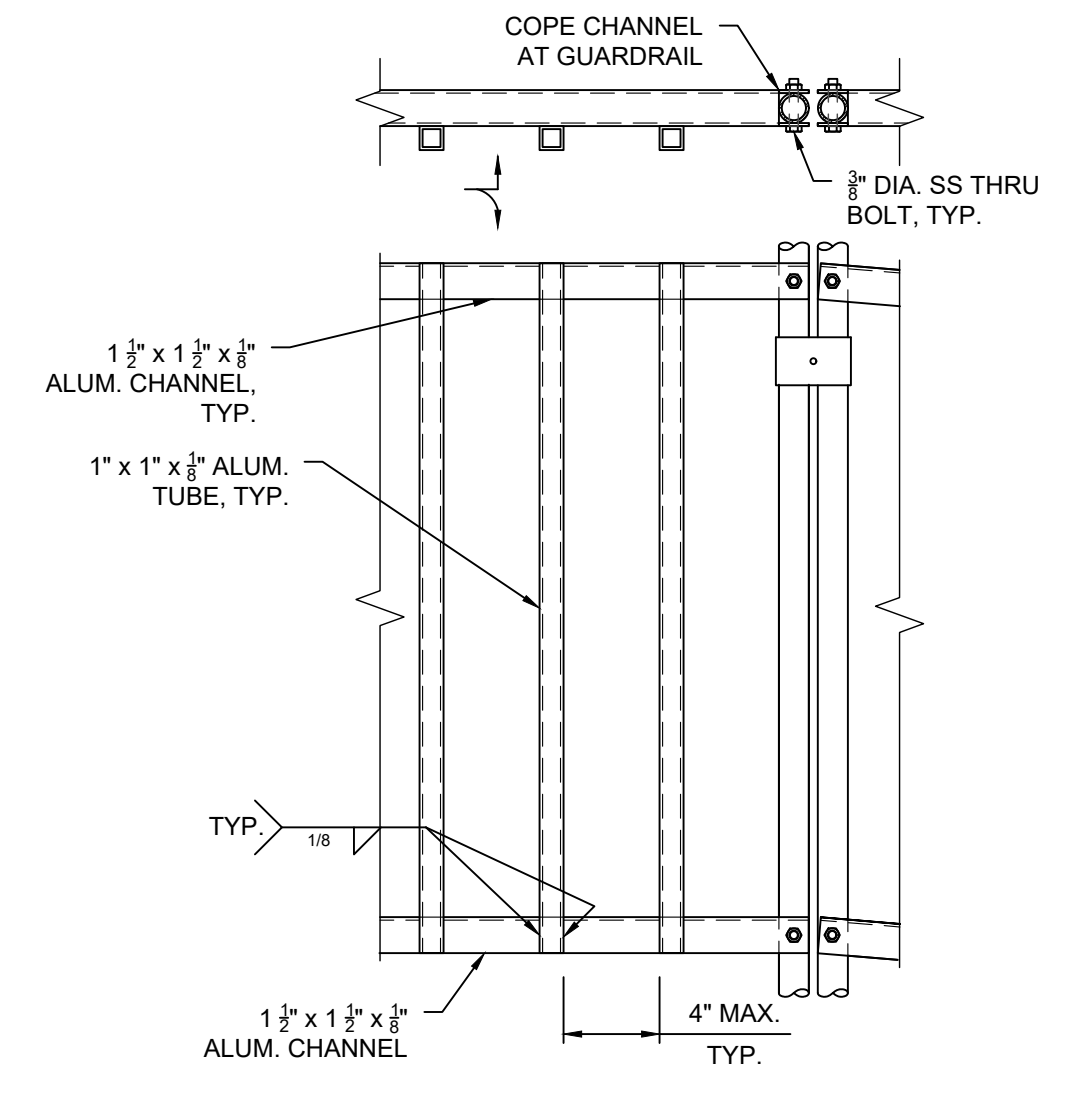
2 4'-0" x 5'-0" PANEL SECTION
S8.01 3/4" = 1'-0"



3 RAMP ENTRANCE DETAIL
S8.01 1 1/2" = 1'-0"

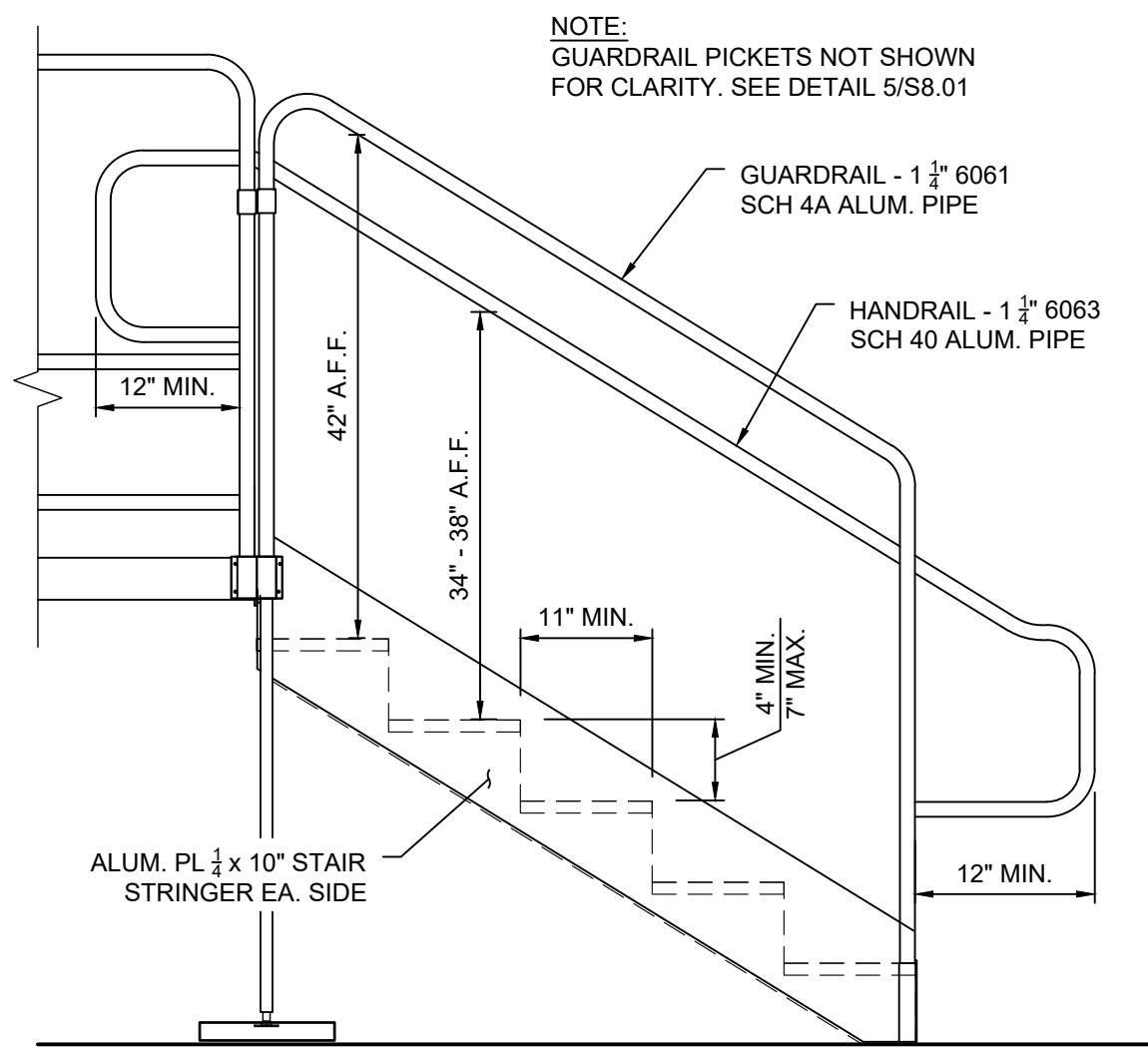


4 TYPICAL GUARDRAIL PICKET ELEVATION
S8.01 3/4" = 1'-0"

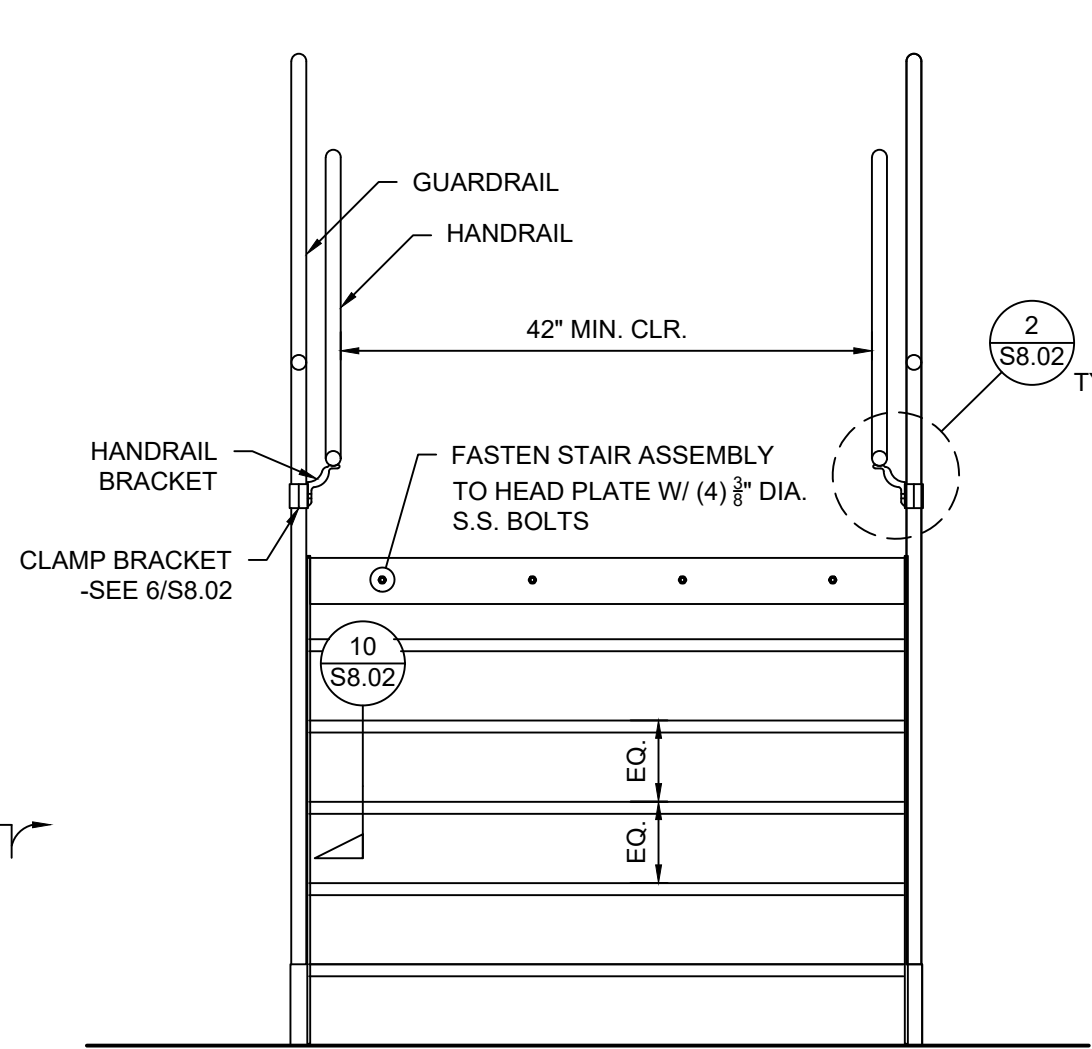


5 PICKET DETAIL
S8.01 1 1/2" = 1'-0"

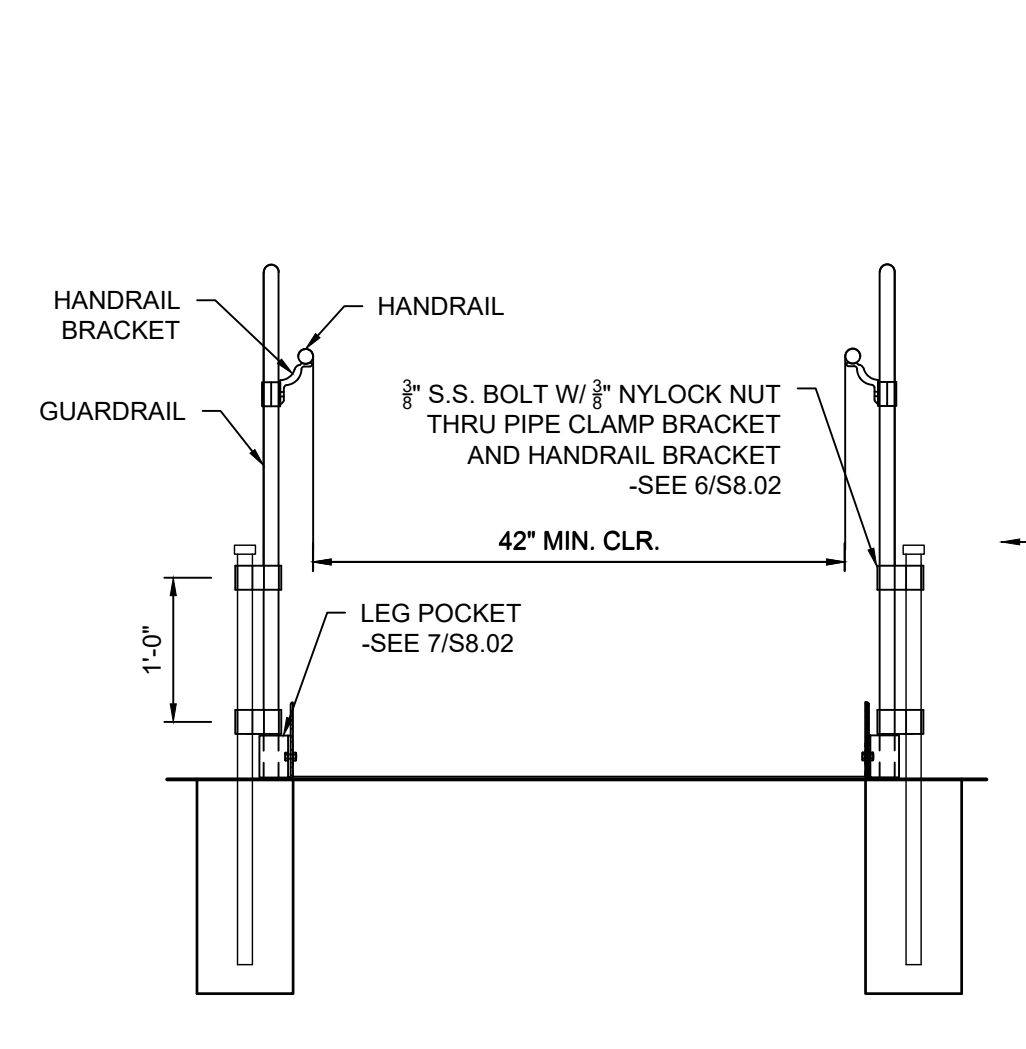
LINE IS 2 INCHES
AT FULL SCALE
(IF NOT 2" - SCALE ACCORDINGLY)



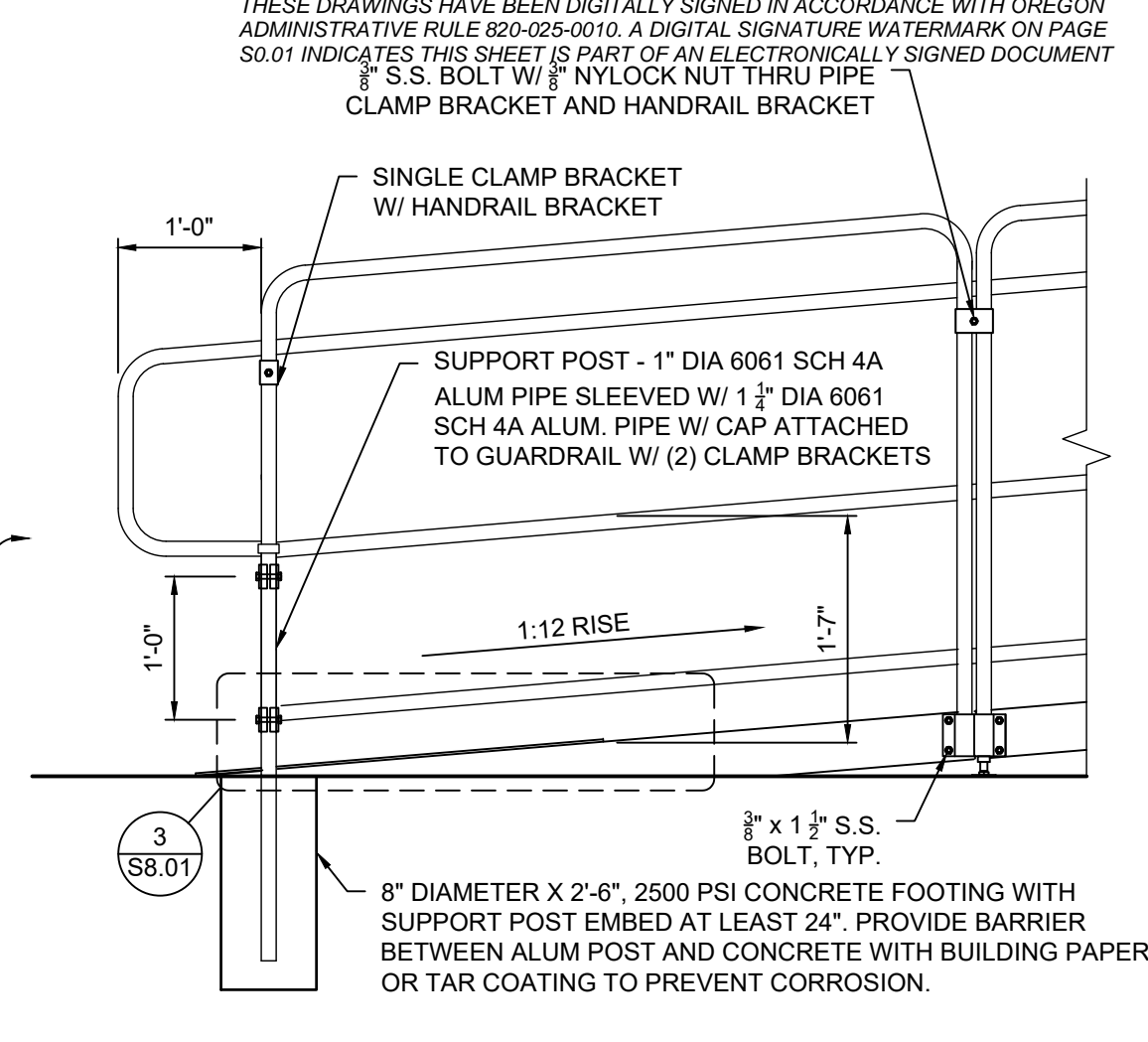
1 STAIR ELEVATION
S8.02



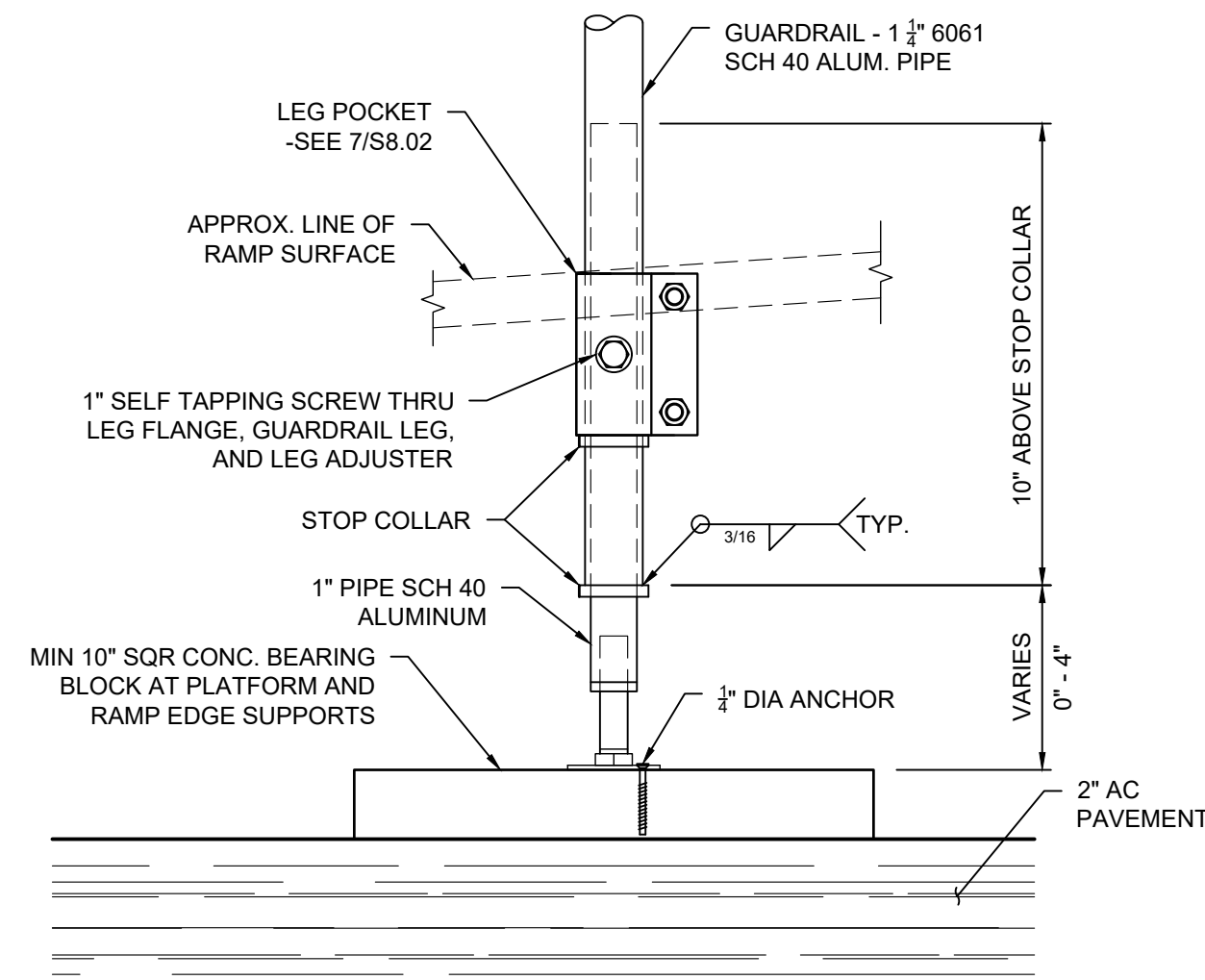
2 HANDRAIL BRACKET
S8.02



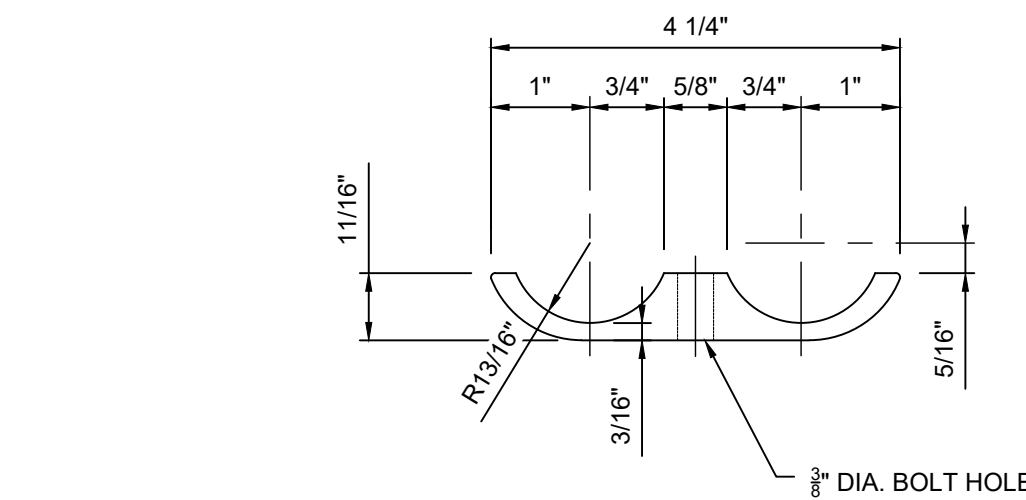
3 RAMP ENTRANCE SECTION
S8.02



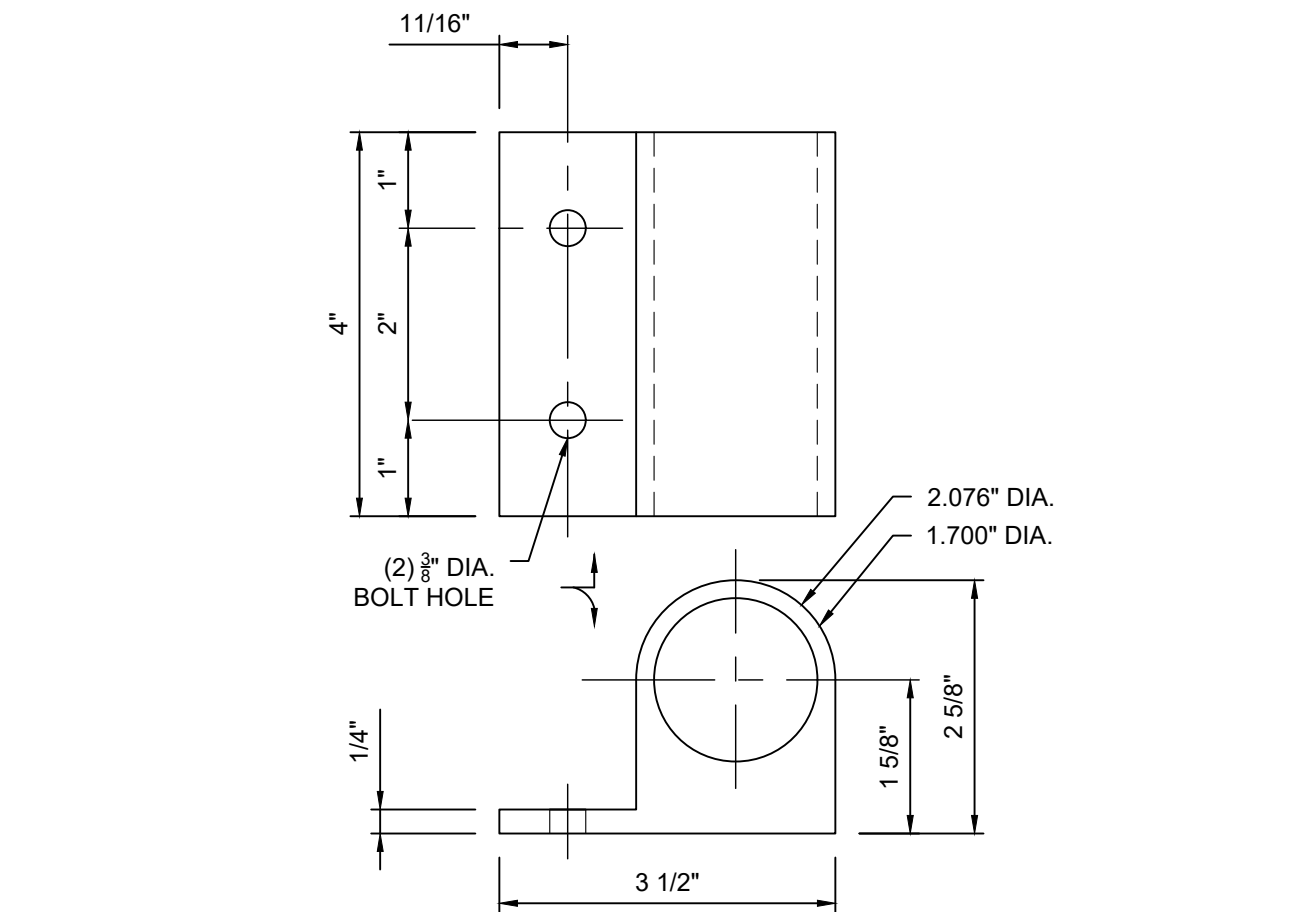
4 TYPICAL RAMP SECTION
S8.02



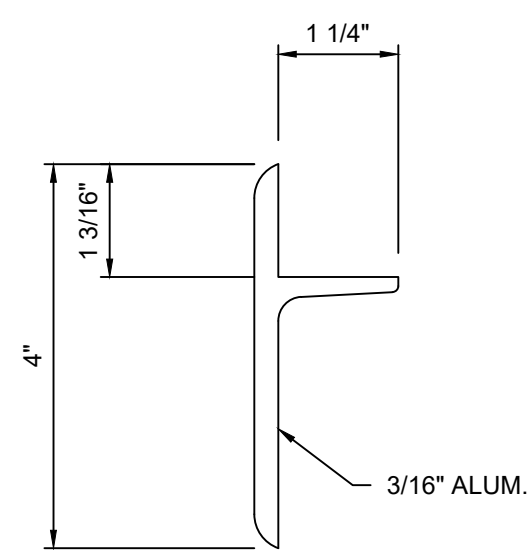
5 ADJUSTABLE LEG DETAIL
S8.02



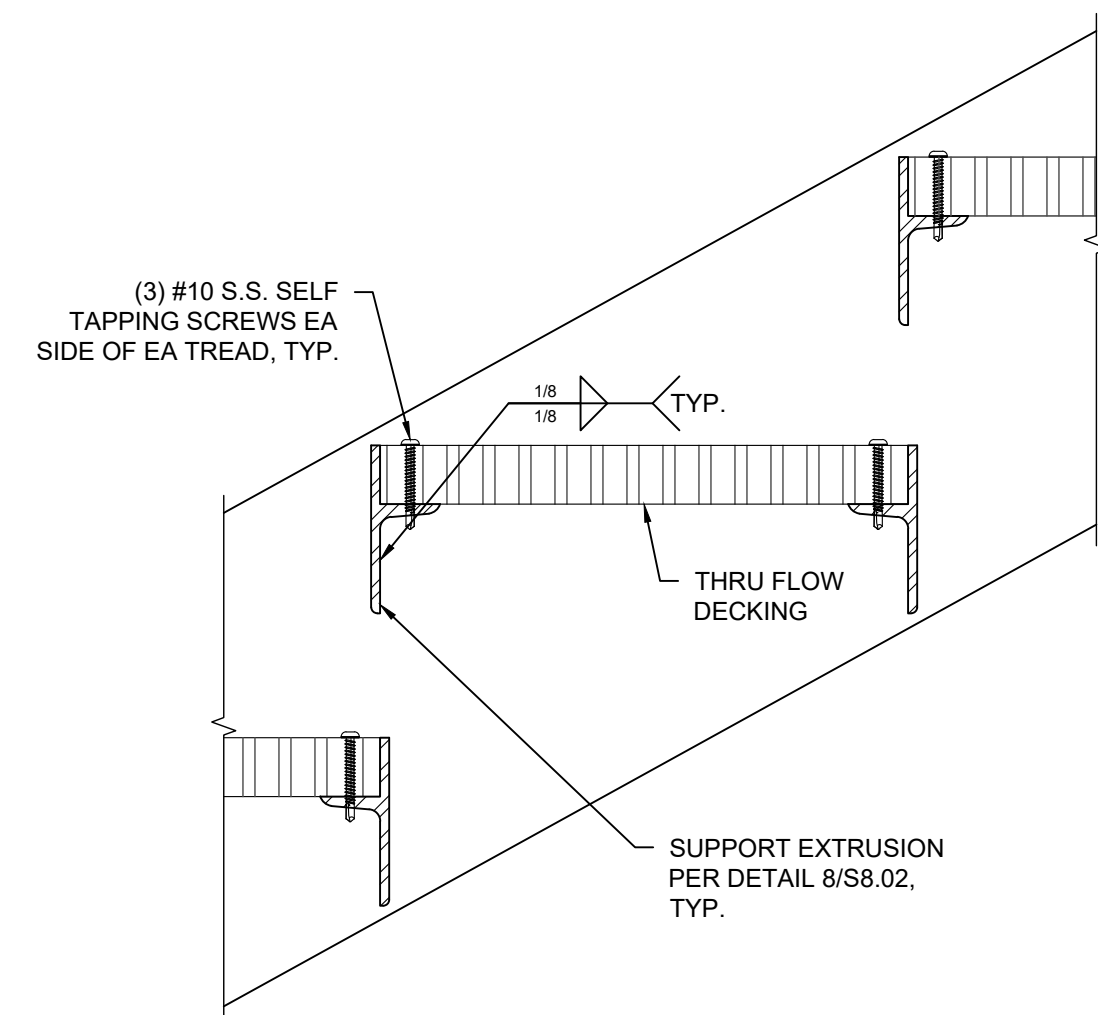
6 PIPE CLAMP BRACKET
S8.02



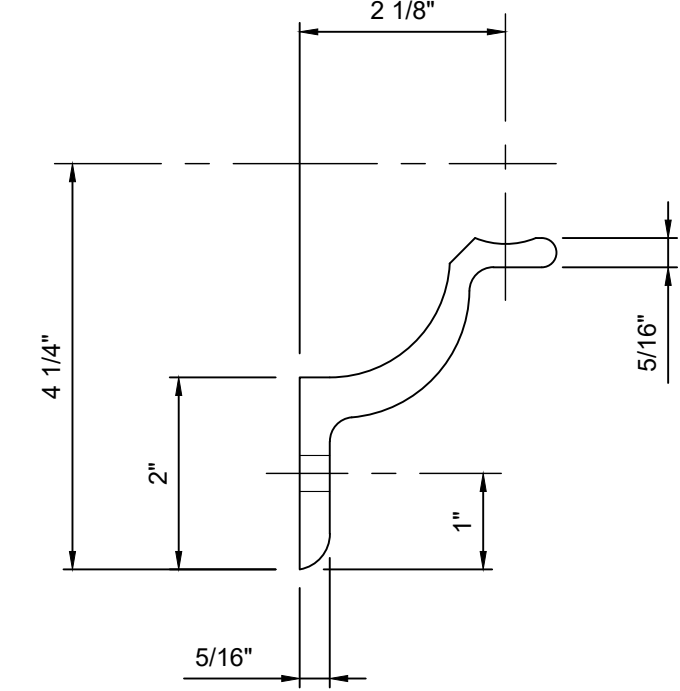
7 LEG POCKET
S8.02



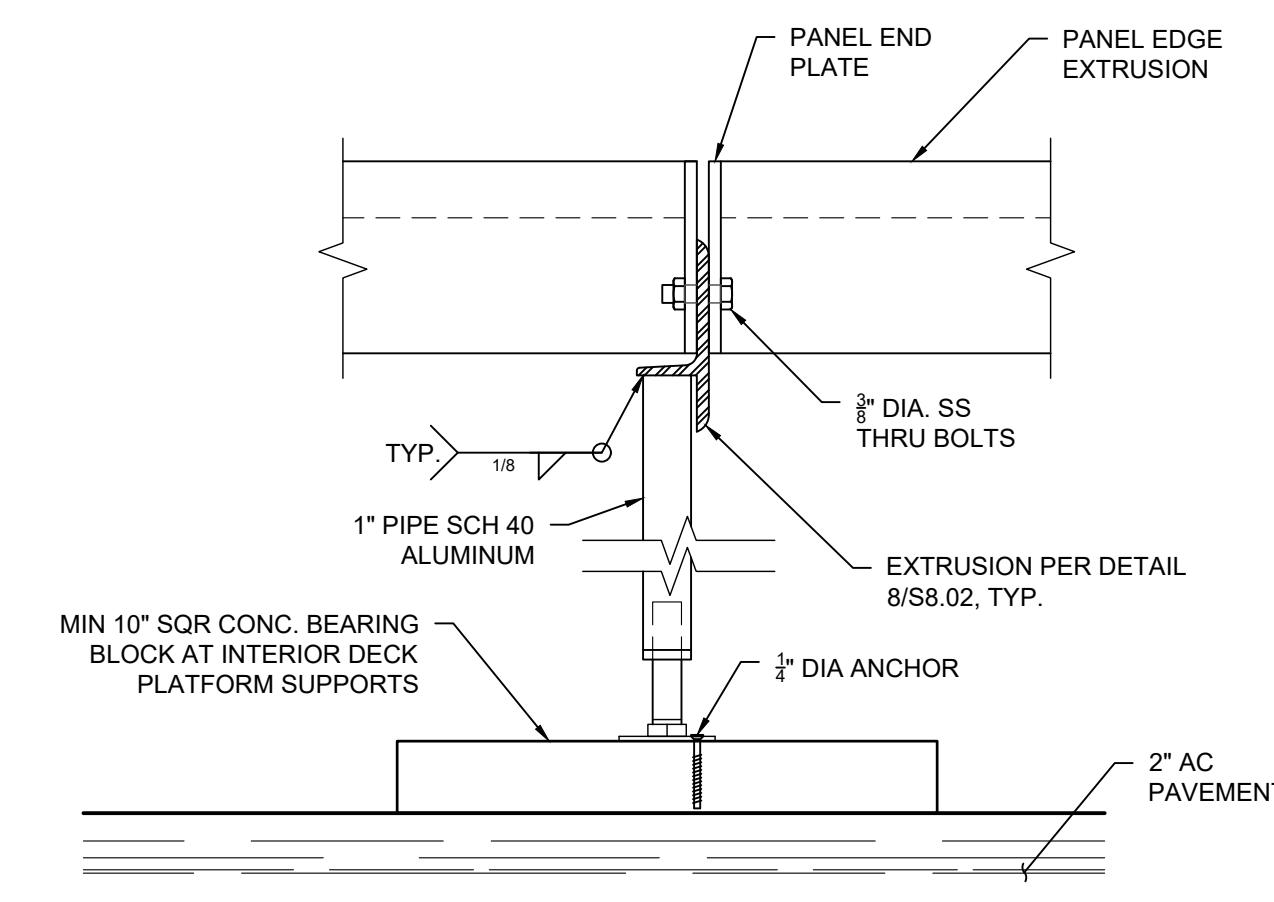
8 ALUMINUM EXTRUSION
S8.02



9 STAIR TREAD CONNECTION
S8.02



10 HANDRAIL BRACKET EXTRUSION
S8.02



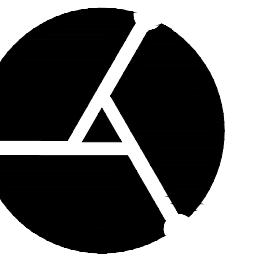
11 PLATFORM SUPPORT CONNECTION
S8.02

LINE IS 2 INCHES
AT FULL SCALE
(IF NOT 2\"/>

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3/8\"/>



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30' ADA RAMP
NORTHWEST ACCESS PRODUCTS
9493 PORTER RD SE
ALUMSVILLE, OR

DRAWN BY: ALB
CHECKED BY: KMM
PROJECT NO: 200378
ISSUE DATE: 04.02.2020

REV.	DATE	DESCRIPTION

SHEET CONTENT
DETAILS

SHEET
S8.02



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STRUCTURAL CALCULATIONS

**30' ADA Ramp
9493 Porter Road SE, Aumsville OR
Northwest Access Products**

**April 2, 2020
Project No. 200378**

13 pages

Principal Checked: KMM



EXPIRES: 12 - 31 - 2021

***** LIMITATIONS *****

Miller Consulting Engineers, Inc. was retained in a limited capacity for this project. This design is based upon information provided by the client, who is solely responsible for accuracy of same. No responsibility and or liability is assumed by or is to be assigned to the engineer for items beyond that shown on these sheets.

Building Code: 2019 Oregon Structural Specialty Code
Soils Report: No **Soils Report by:** N/A **Dated:** N/A
Soil Bearing: 1500 PSF **Retaining Walls:** No
Equivalent Fluid Pressure (active): N/A PCF **Passive bearing:** N/A PCF **Friction:** N/A
Structural System: Component
Vertical System: Aluminum Framing **Lateral Sys:** Aluminum Framing

Basic Design Loads:	Element	Floor			
	Load Type	Dead			
	Value (PSF)	5			
	Load Type	Live			
	Value (PSF)	100			
	Deflection Criteria	L/360			

Lateral Design Parameters:
Wind Design: ASCE 7-16 **Exposure:** B **Wind Speed (3 sec Gust):** 98 MPH

Importance Factors $I_w =$ 1.00 (ice) $I_E =$ 1.00 (seismic) $I_s =$ 1.00 (snow) $I_l =$ 1.00 (ice) **Risk Cat:** II

Seismic Design

Seismic design parameters are based on published values from the USGS web site.

Latitude: 44.824896
 Longitude: -122.865102
 2% PE in 50 years, 0.2 sec SA = Ss
 2% PE in 50 years, 1.0 sec SA = S1

(Site class B parameters are indicated on this page, for actual site class used in design, refer to seismic design summary)

Design Summary:

The attached calculations are for the design of a new 30' ADA ramp and platform with stairs. The ramp will be constructed with aluminum and supported by concrete footing pads at grade.



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Project Name 30' ADA Ramp **Project #** 200378
Location 9493 Porter Road SE, Aumsville OR
Client Northwest Access Products
By ALB **Ck'd** ~~56 of 77~~ **56 of 77** **Date** 4/2/20 **Page** 56 of 73



30' ADA Ramp

9493 Porter Rd SE, Aumsville, OR 97325, USA

Latitude, Longitude: 44.8248959, -122.8651024



Date	4/2/2020, 4:27:24 PM
Design Code Reference Document	ASCE7-16
Risk Category	II
Site Class	D - Default (See Section 11.4.3)

Type	Value	Description
S_S	0.746	MCE_R ground motion. (for 0.2 second period)
S_1	0.378	MCE_R ground motion. (for 1.0s period)
S_{MS}	0.897	Site-modified spectral acceleration value
S_{M1}	null -See Section 11.4.8	Site-modified spectral acceleration value
S_{DS}	0.598	Numeric seismic design value at 0.2 second SA
S_{D1}	null -See Section 11.4.8	Numeric seismic design value at 1.0 second SA

Type	Value	Description
SDC	null -See Section 11.4.8	Seismic design category
F_a	1.203	Site amplification factor at 0.2 second
F_v	null -See Section 11.4.8	Site amplification factor at 1.0 second
PGA	0.344	MCE_G peak ground acceleration
F_{PGA}	1.256	Site amplification factor at PGA
PGA_M	0.432	Site modified peak ground acceleration
T_L	16	Long-period transition period in seconds
S_{sRT}	0.746	Probabilistic risk-targeted ground motion. (0.2 second)
S_{sUH}	0.847	Factored uniform-hazard (2% probability of exceedance in 50 years) spectral acceleration
S_{sD}	1.5	Factored deterministic acceleration value. (0.2 second)
S_{1RT}	0.378	Probabilistic risk-targeted ground motion. (1.0 second)
S_{1UH}	0.44	Factored uniform-hazard (2% probability of exceedance in 50 years) spectral acceleration.
S_{1D}	0.6	Factored deterministic acceleration value. (1.0 second)
PGA_d	0.5	Factored deterministic acceleration value. (Peak Ground Acceleration)
C_{RS}	0.881	Mapped value of the risk coefficient at short periods
C_{R1}	0.859	Mapped value of the risk coefficient at a period of 1 s

ASCE 7-16: SEISMIC DESIGN FORCE, SECTION 13.3

Elements of Structures, Nonstructural Components, and Equipment Supported by Structures

Site Class:	D (default)	Section 20.3, Table 20.3-1
Seismic Design Category:	D	Section 11.6
Risk Category:	II	Table 1.5-1
$S_s =$	150.00%	Figure 22-1 → INCREASED S_s VALUE USED AT CLIENTS REQUEST WHICH IS CONSERVATIVE
$S_1 =$	37.80%	Figure 22-2
$F_a =$	1.20	Table 11.4-1 (Linear interpolation is used)
$F_v =$	1.92	Table 11.4-2 (Linear interpolation is used)
$S_{MS} =$	1.50	Eqn. 11.4-1
$S_{M1} =$	0.727	Eqn. 11.4-2
$S_{DS} =$	1.000	Eqn. 11.4-3
$S_{D1} =$	0.484	Eqn. 11.4-4
$I_p =$	1.00	Section 13.1.3
$a_p =$	1.0	Table 13.6-1
$R_p =$	2.5	Table 13.6-1
$z =$	2.5	ft, Component attachment elevation w/ respect to grade
$h =$	2.5	ft, Structure roof elevation with respect to grade
$F_p =$	0.480	* W_p Eqn. 13.3-1
OR	1.600	* W_p Eqn. 13.3-2
Not less than	0.300	* W_p Eqn. 13.3-3

$F_p =$	0.480	* W_p
$0.2S_{DS}W_p =$	0.200	* W_p

Sec. 13.3.1.2



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Project Name 30' ADA Ramp Project # 200378

Location 9493 Porter Road SE, Aumsville OR

Client Northwest Access Products

By ALB Ck'd KMM Date 4/2/20 Page 58 of 77

RAILING DESIGN

DESIGN LOADS: 50 PSF OR 200 LBS POINT LOAD

TOP AND BOTTOM RAIL

$$\text{MAX SPAN} = 5'-0''$$

$$M_{\text{MAX}} = (200 \text{ LBS})(4') / (4) \\ = 200 \text{ FT-LBS}$$

TRY 1 1/4" Ø SCH 40 ALUM PIPE

$$I = 0.184 \text{ IN}^4$$

$$S = 0.222 \text{ IN}^3$$

$$f_b = (200 \text{ FT-LBS})(12 \text{ IN/FT}) / (0.222 \text{ IN}^3) \\ = 10,811 \text{ PSF} < 18,000 \text{ PSF OK}$$

USE 1 1/4" Ø SCH 40 6061-T6 ALUM RAIL

RAILING POST

$$\text{HEIGHT} = 3'-6''$$

$$M_{\text{MAX}} = (200 \text{ LBS})(3.5') \\ = 700 \text{ FT-LBS}$$

TRY 1 1/4" Ø SCH 40 ALUM PIPE W/ 1" Ø SCH 40 ALUM PIPE

$$\text{COMBINED: } I = (0.184 \text{ IN}^4) + (0.083 \text{ IN}^4) \\ = 0.267 \text{ IN}^4$$

$$1" \text{ Ø PIPE: } I = 0.083 \text{ IN}^4$$

$$S = 0.126 \text{ IN}^3$$

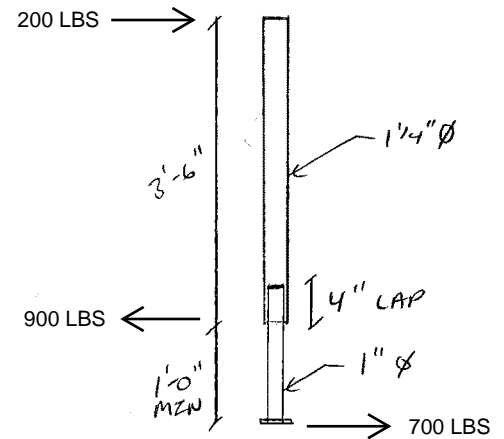
$$1 1/4" \text{ Ø PIPE: } M = (700 \text{ FT-LBS})(12 \text{ IN/FT})(0.184 \text{ IN}^4) / (0.267 \text{ IN}^4) \\ = 5,789 \text{ IN-LBS}$$

$$f_b = (5,789 \text{ IN-LBS}) / (0.222 \text{ IN}^3) \\ = 26,076 \text{ PSF} \approx 25,000 \text{ PSF} \rightarrow \text{WITHIN 5\% OK}$$

$$1" \text{ Ø PIPE: } M = (700 \text{ FT-LBS})(12 \text{ IN/FT})(0.083 \text{ IN}^4) / (0.267 \text{ IN}^4) \\ = 2,611 \text{ IN-LBS}$$

$$f_b = (2,611 \text{ IN-LBS}) / (0.126 \text{ IN}^3) \\ = 20,724 \text{ PSF} < 25,000 \text{ PSF}$$

USE 1" Ø SCH 40 6061-T6 ALUM PIPE SLEEVED INSIDE 1 1/4" Ø 6061-T6 ALUM PIPE



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Location 9493 Porter Road SE, Aumsville OR

Client Northwest Access Products

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POST BRACKET CONNECTION

CHECK PLATE:

$$\text{FORCE IN BRACKET} = (200 \text{ LBS})(54") / (12") / (2 \text{ BRACKETS})$$

$$= 450 \text{ LBS}$$

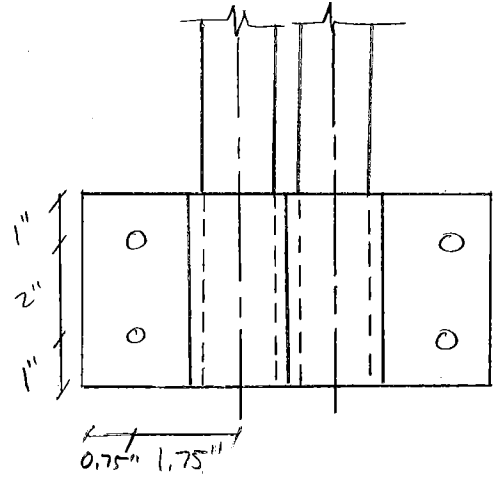
$$M_{\text{BRACKET}} = (450 \text{ LBS})(1.75")$$

$$= 787.5 \text{ IN-LBS}$$

$$f_b = \frac{(787.5 \text{ IN-LBS})}{(0.25")^2 (4") / (6)}$$

$$= 18,900 \text{ PSF} < 21,000 \text{ PSF OK}$$

USE 1/4" THICK 6061-T6 ALUM PLATE



CHECK BOLTS:

$$T = (450 \text{ LBS}) / (2 \text{ BOLTS}) (2.25") / (0.75")$$

$$= 675 \text{ LBS / BOLT}$$

$$V = (105 \text{ PSF})(2')(5') / (2 \text{ BOLTS})$$

$$= 525 \text{ LBS / BOLT}$$

$$T_{\text{ALLOW}} = (0.11 \text{ IN}^2)(65,000 \text{ PSF})$$

$$= 7,150 \text{ LBS}$$

$$V_{\text{ALLOW}} = (0.11 \text{ IN}^2)(20,000 \text{ PSF})$$

$$= 2,200 \text{ LBS}$$

$$\frac{(675 \text{ LBS})}{(7,150 \text{ LBS})} + \frac{(525 \text{ LBS})}{(2,200 \text{ LBS})} = 0.33 < 1.0 \text{ OK}$$

USE 3/8" Ø SS BOLTS



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RAMP / PLATFORM DESIGN

CHECK SUPPORT RAZLS:

TRY 2" x 2" x 3/16 ALUM TUBE

$$I = 0.641 \text{ IN}^4$$

$$S = 0.641 \text{ IN}^3$$

CHECK BENDING:

$$M_{\max} = (105 \text{ PSF})(1')(5')^2 / (8) \\ = 238 \text{ FT-LBS}$$

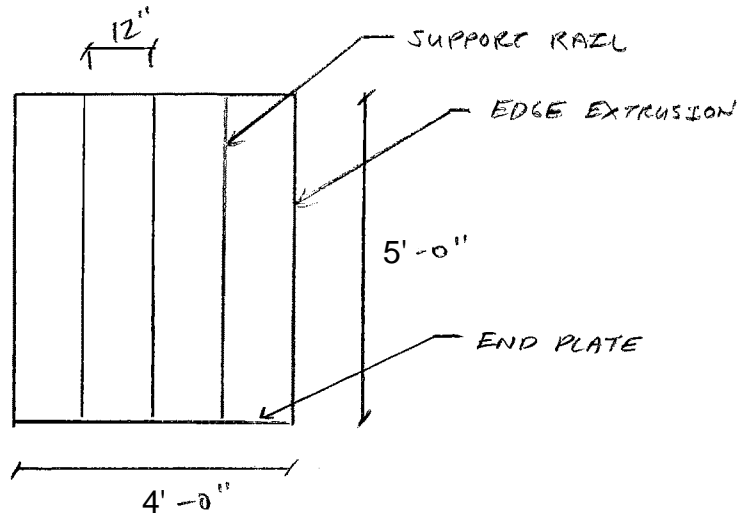
$$f_b = (238 \text{ FT-LBS})(12 \text{ IN/FT}) / (0.641 \text{ IN}^3) \\ = 6,143 \text{ PSI} < 21,000 \text{ PSI OK}$$

CHECK SHEAR:

$$V_{\max} = (105 \text{ PSF})(1' \text{ O.C.})(5') / (2) \\ = 263 \text{ LBS}$$

$$f_v = (263 \text{ LBS}) / (2) / (3/16") / (2") \\ = 350 \text{ PSI} < 12,000 \text{ PSI}$$

USE 2" x 2" x 3/16" 6061-T6 ALUM TUBES



$$\text{LOAD} = (100 \text{ PSF LL}) + (5 \text{ PSF DL}) \\ = 105 \text{ PSF} \\ \text{OR } 300 \text{ LB POINT LOAD}$$

$$\Delta = \frac{(105 \text{ PLF})(12)(60")^4}{(384)(10,000,000)(0.641 \text{ IN}^4)} = 0.05" \Rightarrow L/1303$$

SEE NEXT PAGE FOR WELD CONNECTION TO END PLATE

CHECK EDGE EXTRUSIONS:

TRY 3/16" THICK ALUM SHAPE

$$I = 1.2598 \text{ IN}^4$$

$$Y = 1.8519 \text{ IN}$$

CHECK BENDING:

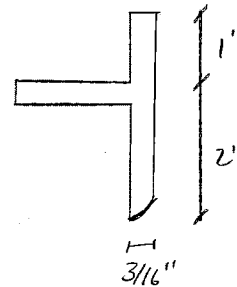
$$M_{\max} = (300 \text{ LBS})(5') / (4) \\ = 375 \text{ FT-LBS}$$

$$f_b = (375 \text{ FT-LBS})(12 \text{ IN/FT}) / ((1.2598 \text{ IN}^4) / (1.8519 \text{ IN})) \\ = 6,615 \text{ PSI} < 21,000 \text{ PSI OK}$$

CHECK SHEAR:

$$V_{\max} = (105 \text{ PSF})(0.5')(5') / (2) \\ = 131 \text{ LBS}$$

$$f_v = (131 \text{ LBS}) / (3") / (3/16") \\ = 233 \text{ PSI} < 12,000 \text{ PSI OK}$$



USE 3/16" THICK 6061-T6 ALUM SHAPE

SEE NEXT PAGE FOR WELD CONNECTION TO END PLATE



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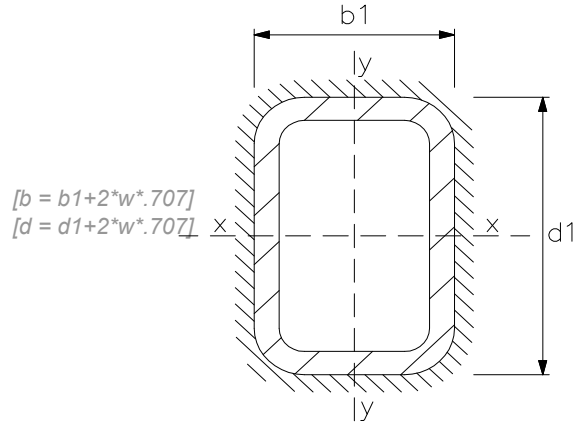
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By ALB Ck'd 6/16/17 Date 4/2/20 Page 66 of 73
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Fillet Weld Section Properties

HSS MEMBER (weld all around)

Vy =	263	lb (asd)	
Mx =		ft-lb (asd)	
Vx =		lb (asd)	
My =		ft-lb (asd)	
Weld size (w) =	0.2500	in	= 1/4 " fillet weld
Width (b1) =	2	in	Width of hss member
Depth (d1) =	2	in	Depth of hss member
b =	2.35	in	Outer width of weld
d =	2.35	in	Outer depth of weld
Atotal =	1.52	in ²	= 2.35*2.35-2*2
Ay =	0.7	in ²	
Ix =	1.10	in ⁴	
Sx =	0.94	in ³	
Ax =	0.7	in ²	
Iy =	1.10	in ⁴	
Sy =	0.94	in ³	
F _w /Ω =	5897	psi	=(11,500 psi)/(1.95)
Vcy =	4128	lb	= 5897*0.7
Mcx =	462	ft-lb	= 5897*0.94/12
Vcx =	4128	lb	= 5897*0.7
Mcy =	462	ft-lb	= 5897*0.94/12
Capacity =	0.06		< 1.00 OK

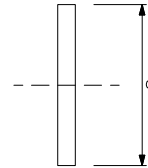


Use 0.25" fillet weld

LINE (weld on one side)

V =	131	lb (asd)	
M =		ft-lb (asd)	
Weld size (w) =	0.2500	in	= 1/4 " fillet weld
Length of weld (d) =	3	in	
t =	0.18	in	Effective throat
A =	0.54	in ²	= 0.18*3
I =	0.41	in ⁴	= 0.18*3 ³ /12
S =	0.27	in ³	= 0.41/(3/2)
F _w /Ω =	5897	psi	=(11,500 psi)/(1.95)
Vc =	6369	lb	= 5897*0.54*2
Mc =	265	ft-lb	= 5897*0.27/12*2
Capacity =	0.02		< 1.00 OK

$[t = .707*w]$



Use 0.25" fillet weld



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CHECK END PLATE

TRY 4" x 1/4" ALUM PLATE

$$Z = (1/4") (4")^3 / (12)$$

$$= 1.33 \text{ IN}^4$$

$$S = (1/4") (4")^2 / (6)$$

$$= 0.67 \text{ IN}^3$$

CHECK BENDING:

$$M_{\text{MAX}} = (105 \text{ PSF})(6/2)(4')^2 / (8)$$

$$= 630 \text{ FT-LBS}$$

$$f_b = (630 \text{ FT-LBS})(12 \text{ IN/FT}) / (0.67 \text{ IN}^3)$$

$$= 11,284 \text{ PSZ} < 28,000 \text{ PSZ} \text{ OK}$$

CHECK SHEAR:

$$V_{\text{MAX}} = (105 \text{ PSF})(6/2)(4') / (2)$$

$$= 630 \text{ LBS}$$

$$f_v = (630 \text{ LBS}) / (0.25") / (4")$$

$$= 630 \text{ PSZ} < 12,000 \text{ PSZ} \text{ OK}$$

USE 4" TALL x 1/4" THICK 6061-T6 ALUM END PLATE

STAIR DESIGN

STAIR SPAN = 6'-0"
STAIR WIDTH = 4'-0"

TREAD SUPPORT DESIGN:

TRY 3/16 THICK ALUM SHAPES

CHECK BENDING:

$$M_{\text{MAX}} = (300 \text{ LBS})(4') / (4)$$

$$= 300 \text{ FT-LBS}$$

$$f_b = (300 \text{ FT-LBS})(12 \text{ IN/FT}) / (0.68 \text{ IN}^3)$$

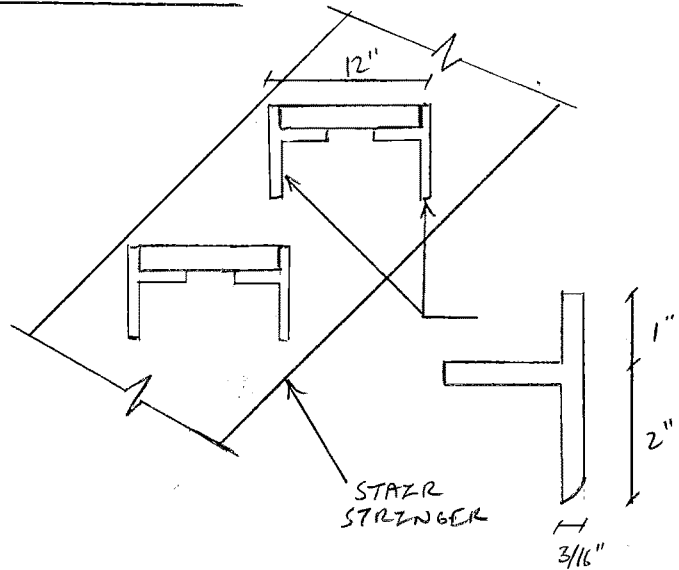
$$= 5,294 \text{ PSZ} < 21,000 \text{ PSZ}$$

CHECK SHEAR:

$$V_{\text{MAX}} = (300 \text{ LBS}) / (2)$$

$$= 150 \text{ LBS}$$

$$f_v = (150 \text{ LBS}) / (3") / (3/16") = 267 \text{ PSZ} < 12,000 \text{ PSZ}$$



USE 3/16" THICK 6061-T6 ALUM TREAD SUPPORTS

$$Z = 1.2598 \text{ IN}^4$$

$$S = 1.8519 \text{ IN}^3$$

$$S = 0.68 \text{ IN}^3$$



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STAIR STRINGER DESIGN

TRY 10" TALL X 1/4" THICK ALUM PLATE

CHECK BENDING:

$$M_{max} = (105 \text{ PSF})(2')(6')^2 / (8)$$

$$= 945 \text{ FT-LBS}$$

$$f_b = (945 \text{ FT-LBS})(12 \text{ IN/FT}) / (4.17 \text{ IN}^3)$$

$$= 2,722 \text{ PSZ} < 28,000 \text{ PSZ} \text{ OK}$$

$$I = (1/4")(10")^3 / (12)$$

$$= 20.83 \text{ IN}^4$$

$$S = (1/4")(10")^2 / (6)$$

$$= 4.17 \text{ IN}^3$$

CHECK SHEAR:

$$V_{max} = (105 \text{ PSF})(2')(6') / (2)$$

$$= 630 \text{ LBS}$$

$$f_v = (630 \text{ LBS}) / (0.25") / (10")$$

$$= 252 \text{ PSZ} < 12,000 \text{ PSZ} \text{ OK}$$

USE 10" TALL X 1/4" THICK 6061-T6 ALUM PLATE

PLATFORM / RAMP / STAIR CORR

$$V_{max} = (105 \text{ PSF})(4')(6') / (2)$$

$$= 1260 \text{ LBS}$$

$$V_{bolt} = (1260 \text{ LBS}) / (4 \text{ BOLTS})$$

$$= 315 \text{ LBS/BOLT}$$

$$V_{allow} = (0.11 \text{ IN}^2)(20,000 \text{ PSZ})$$

$$= 2,200 \text{ LBS} > 315 \text{ LBS}$$

USE (4) 3/8" Ø SS BOLTS AT PANEL AND STAIR JOINT CONNECTIONS



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HANDRAIL BRACKET:

LOAD = (200 LBS) (2 1/8") / (1") = 425 LBS < 2,200 LBS

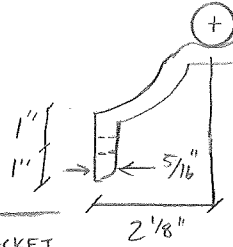
USE 3/8" Ø SS THROUGH BOLT

CHECK BENDING:

M = (200 LBS) (2 1/8") = 425 IN-LB

f_b = $\frac{(425 \text{ IN-LB})}{\left(\frac{(5/16)^2 (3^3)}{6}\right)}$ = 17,409 PSI < 21,000 PSI

USE 5/16" x 1/2" BRACKET



CLAMP BRACKET:

LOAD = 200 LBS < 2,200 LBS

USE 3/8" Ø SS THROUGH BOLT

CHECK BENDING:

M = (200 LBS) (1 1/8") = 225 LB-IN

f_b = $\frac{(225)}{\left(\frac{(5/16)^2 (3^3)}{6}\right)}$ = 12,800 PSI < 21,000 PSI

USE 3/16" x 3" BRACKET



FLAT PLATE AT ENTRY RAMP

LOAD = 300 LB

M = $\frac{PL}{4} = \frac{(300 \text{ LB})(16")}{4} = 1200 \text{ IN-LBS}$

S = $\frac{(0.25")^3 (12")}{(6)} = 0.125 \text{ IN}^3$

f_b = $\frac{(1200 \text{ IN-LBS})}{(0.125 \text{ IN}^3)} = 9,600 \text{ PSI} < 28,000 \text{ PSI OK}$

USE 1/4" x 4' x 5' PLATE FOR SMOOTH TRANSITION TO FIRST RAMP

BASE CONNECTION DESIGN

200 LB POINT LOAD (CONTROLS OVER SEISMIC) (NO JL REQUIRED)

END SUPPORT POST TO BE EMBEDDED IN 8" Ø x 2'-6" DEEP FOOTING TO PROVIDE FIXITY AT END OF RAIL ⇒ SEE PG 10 FOR DESIGN

PLATFORM FOOTING:

TYPICAL FOOTING:

P = (2') (5') (105 PSF) = 1050 LBS

AREA REQUIRED = 1050 LBS / 1500 PSF

= 0.7 SQR FT - 10' x 10' BEARING AREA REQUIRED

CHECK LATERAL: 700 LBS (SEE PG 3) < (1050 LBS) (μ = 0.6) (1.3) = 819 LBS

OK NO SLIDING

USE MIN 10" SQR CONC BEARING BLOCK AT RAMP AND LANDING PLATFORMS SUPPORT LOCATIONS AND MIN 14" SQR CONC BEARING BLOCK AT INTERIOR DECK PLATFORM SUPPORT LOCATIONS



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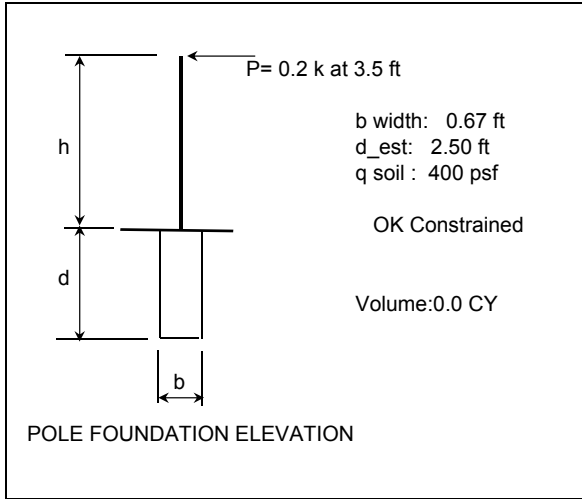
EMBEDDED POLE DESIGN

P	0.2	k
h	3.5	ft
q	400	psf/ft
b	0.67	ft
d _{est}	2.50	ft

Applied lateral force, kips
 distance from ground surface to P, ft
 allowable soil-brg Table 1806.2, psf/ft
 dia. or diagonal dimension of a 0.47 post, ft
 ESTIMATED embedment, ft 2.50 for pressure

Constrained Condition

S₃ 1000 psf $q \cdot d_{est}$
 d² 4.4 $4.25 \cdot P \cdot 1000 \cdot h / (S_3 \cdot b)$
 d 2.11 ft depth of embedment, ft
 OK Constrained



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RAMP AND STAIR SUPPORT DESIGN

(1" SCH 40 PIPE)

$$\text{LOAD} = (105 \text{ PSF}) (4') (5') / (2) = 1,050 \text{ LBS}$$

USE 1" SCH 40 PIPE W/ 6061-T6 ALUM

SEE NEXT PAGE FOR DESIGN

THROUGH BOLT FOR ADJUSTABLE LEGS:

$$P = 525 \text{ LBS}$$

$$3/4" \text{ BOLT CAPACITY} = 2,200 \text{ LBS} > 525 \text{ LBS OK}$$



USE 3/8" ϕ SS THROUGH BOLT FOR ADJUSTABLE SUPPORT LEGS

LATERAL LOADING

DEAD LOAD:

$$\text{PIPE LEGS} = (4) (1.2 \text{ LBS}) = 4.8 \text{ LBS}$$

$$\text{PLATFORM} = (5 \text{ PSF}) (4') (5') = 100 \text{ LBS}$$

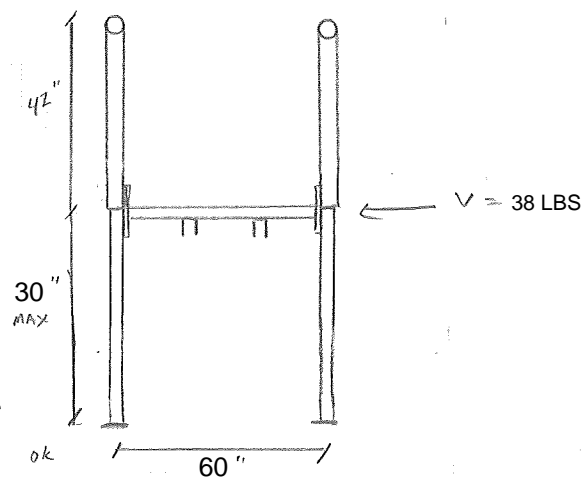
$$\text{RAILING} = (2) (16 \text{ LBS}) = 32 \text{ LBS}$$

$$\text{TOTAL WEIGHT} = 137 \text{ LBS}$$

$$\text{SEISMIC FORCE} = (0.48)(137 \text{ LBS})(0.7)$$

$$V = 46 \text{ LBS}$$

SEE PAGE 3 FOR SEISMIC DESIGN COEF.



GLOBAL OVERTURNING

$$M_{OT} = (46 \text{ LBS}) (30") = 1,380 \text{ IN-LBS}$$

$$M_R = (0.6)(137 \text{ LBS}) (60"/2) = 2,466 \text{ IN-LBS OK}$$

$$FOS = \frac{2,466}{1,380} = 1.8 > 1.5 \text{ OK}$$

CHECK BENDING OF SUPPORT POST:

$$P = (46 \text{ LBS}) / (2) = 23 \text{ LBS}$$

$$M = (23 \text{ LBS}) (30") = 690 \text{ IN-LBS}$$

$$f_b = \frac{(690 \text{ IN-LBS})}{0.126 \text{ IN}^2} = 5,476 \text{ PSI} < 25,000 \text{ PSI OK}$$



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MOUNT ARM

Aluminum Tube Design:

Section Properties:

outside dia. = 1.32 in
 t = 0.133 in
 Scx = 0.134 in³
 Scy = 0.134 in³
 A = 0.50 in²
 ae_y = 0.50 in
 ae_x = 0.50 in
 rx = 0.42 in³ = SQRT(0.088/0.5)
 ry = 0.42 in³ = SQRT(0.088/0.5)
 Ix = 0.088 in⁴
 Iy = 0.088 in⁴
 J = 0.176 in⁴
 Rb = 0.594 in = (1.32-0.133)/2

Material Properties:

Aluminum Grade: 6063-T5

Weld Filler Alloy: 4043

reaction does not occur within 1" from welded area

E = 10100 ksi
 Fcy = 16 ksi
 Fty = 16 ksi
 Ftu = 30 ksi
 Fy = 16 ksi
 Weld shear cap. = 5641 psi (based on base metal strength)
 ny = 1.65
 nu = 1.95
 na = 1.20
 Cb = 1
 k1 = 0.35
 k2 = 2.27
 kt = 1

Btb =	28.80	ksi
Dtb =	1.51	
Ctb =	95.17	
Bs =	11.32	ksi
Ds =	0.04	
Cs =	122.46	
Bc =	17.35	ksi
Dc =	0.07	
Cc =	98.92	
Bp =	19.54	ksi
Dp =	0.09	
Bt =	19.20	ksi
Dt =	0.53	
Ct =	999.00	

Compression:

P = 1050 lb
 Lb = 30 in
 k = 1

Slenderness, Rb/t = 4.5
 Fc = 9272 psi, from 3.4.10

b = 1.054 in
 Slenderness, kL/r = 71.4
 Fc = 6263 psi, from 3.4.7

Fc = 6263 psi (controls)
 fc = 2100 psi = 1050/0.5
 33.53%

Compression in Column Elements: (3.4.10)

Slenderness Limitations: (Rb/t)

S1	S2
0	999

Stresses, psi:

Rb/t < S1	S1 < Rb/t < S2	S2 < Rb/t
N/A	9272	N/A

Compression in Columns: (3.4.7)

Slenderness Limitations: (kL/r)

S1	S2
0	99

Stresses, psi:

kL/r < S1	S1 < kL/r < S2	S2 < kL/r
N/A	6263	N/A

Use 6063-T5 1.32" dia. x 0.133" thick aluminum pipe



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EXHIBIT PC-2 PUBLIC COMMENT

City of West Linn -

Darren Wyss / Planning Manager, and
Planning Commission.

in regards to Misc. 20-06- / 8-5-2020 meeting.

In light of the current Covid-19 conditions, this request is the reasonable practical "New Normal" to profess timely the academics education of our children while safe-guarding the classrooms health as well.

I get that we live in great anxieties over this serious pendeemonium ravaging the USA with pandemic force but our children must be educated:

- we have good creditable teachers;
- we have responsible parents;
- we are committed to give scholar education to all our children, now.

This request is a valid solution to our "New Normal".

Let me tell you a real History: I was born, grew up and schooled in France into Nazi occupation/typhoid/dipteria/food shortage and without today's facilities (tech). Our curriculum studies were much heavier than those provided to our students here today, at any grade levels. When I think that I was taught algebra at age 10; I'd say our children do need their education now! etc! -

I appreciate and praise this request and those who presented this plan.

Thank you to those concerned people.

As we speak of this request, it should be extended toward all grade level classes as necessary and needed!

Thank you. Alice Richmond

PCNA. Pres / July 29, 2020.

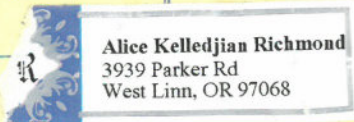


EXHIBIT PC-3 AFFIDAVIT AND NOTICE PACKET

AFFIDAVIT OF NOTICE

We, the undersigned do hereby certify that, in the interest of the party (parties) initiating a proposed land use, the following took place on the dates indicated below:

GENERAL

File No. MISC-20-06 Applicant's Name West Linn-Wilsonville School District

Development Name Cedaroak Elementary Temporary Use

Scheduled Meeting/Decision Date August 5, 2020 at 6:30

NOTICE: Notices were sent at least 20 days prior to the scheduled hearing, meeting, or decision date per Section 99.080 of the Community Development Code. (check below)

TYPE A X

A.	The applicant	7/16/2020	(signed) <u>J Schwoder</u>
B.	Property owners with 500 ft	7/16/2020	(signed) <u>JS</u>
C.	WLWL School Board	7/16/2020	(signed) <u>JS</u>
E.	All Neighborhood Assns.	7/16/2020	(signed) <u>JS</u>
F.	Andrew Tull, Consultant	7/16/2020	(signed) <u>JS</u>

At least 10 days prior to the scheduled hearing or meeting, notice was published/posted:

Tidings (published date)	7/23/2020	(signed) <u>JS</u>
City's website (posted date)	7/15/2020	(signed) <u>JS</u>

SIGN

At least 10 days prior to the scheduled hearing, meeting or decision date, a sign was posted on the property per Section 99.080 of the Community Development Code.

(date) 7/24/2020 (signed) [Signature]

STAFF REPORT mailed to applicant, City Council/Planning Commission and any other applicable parties 10 days prior to the scheduled hearing.

(date) 7/24/2020 (signed) [Signature]

FINAL DECISION notice mailed to applicant, all other parties with standing, and, if zone change, the County surveyor's office.

(date) _____ (signed) _____

**CITY OF WEST LINN
NOTICE OF UPCOMING
PLANNING COMMISSION HEARING
FILE NO. MISC-20-06**

The West Linn Planning Commission will hold a virtual public hearing on **Wednesday, August 5, 2020 at 6:30 pm** to consider a request for a one-year Temporary Use Permit at 4515 Cedaroak Drive (Cedaroak Primary School) for a temporary portable classroom to meet new state-mandated COVID-19 social distancing regulations for schools.

The Planning Commission decision for this application will be based upon the applicable criteria found in Chapters 11, 35, and 99 of the Community Development Code (CDC). The approval criteria from the CDC are available for review at:

<https://www.codepublishing.com/OR/WestLinn/#!/WestLinnCDC/WestLinnCDCNT.html>

At the hearing, comments must relate specifically to the applicable criteria.

You have received this notice because County records indicate that you own property within 500 feet of this property (Tax Lot 1800 of Clackamas County Assessor Map 21E 24BA) or as otherwise required by Chapter 99 of the CDC.

The materials for this application are available for inspection at no cost at City Hall and on the City website: <https://westlinnoregon.gov/planning/4515-cedaroak-drive-temporary-use-portable-classroom>. Alternatively, copies may be obtained for a minimal charge per page.

Anyone wishing to present written testimony for consideration on this matter shall submit all material before 12:00 pm on August 5, 2020. Persons interested in party status should submit their letter and any concerns about the proposal by the comment deadline. Written comments may be submitted to dwyss@westlinnoregon.gov or askthepec@westlinnoregon.gov.

To speak during the meeting, complete the form located at <https://westlinnoregon.gov/citycouncil/meeting-request-speak-signup> by **12:00 pm on August 5, 2020**. Instructions on how to access the virtual meeting will be emailed before the meeting. If you do not have email, you can access the meeting by phone. Please call 503-742-6013 for assistance. For further information, please contact Darren Wyss, Acting Planning Manager, 22500 Salamo Rd., West Linn, OR 97068, (503)742-6064, dwyss@westlinnoregon.gov.

Any appeals of this decision must be filed with the Planning Department within 14 days of the final decision date. **It is important to submit all testimony in response to this notice.** Failure to raise an issue at the meeting or in writing, or failure to provide sufficient specificity to afford the decision-maker an opportunity to respond to the issue, precludes raising the issue later on appeal or before the Land Use Board of Appeals.

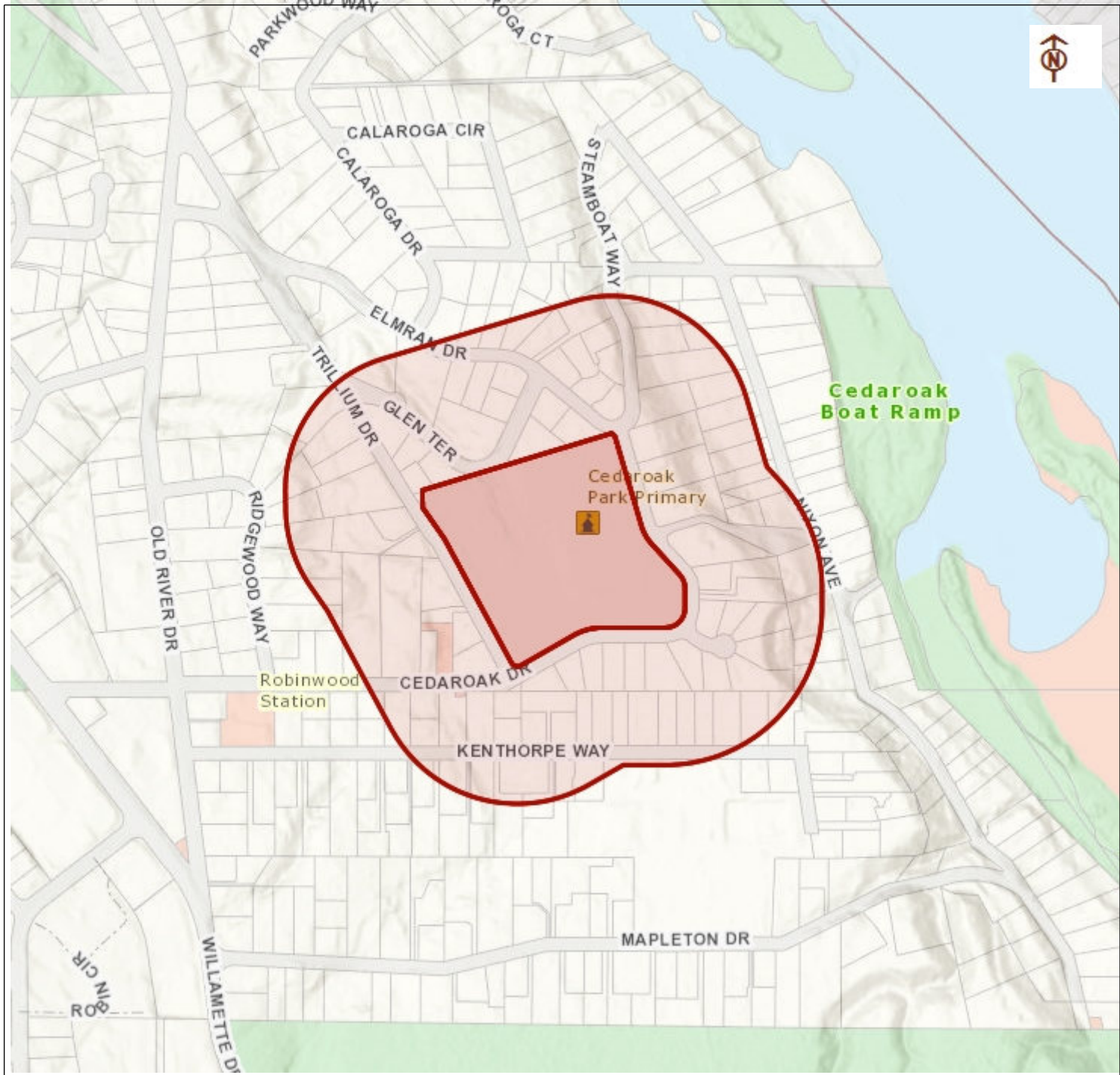


**NOTICE OF UPCOMING
PLANNING COMMISSION DECISION**

**PROJECT # MISC-20-06
MAIL: 07/16/2020 TIDINGS: 7/23/20**

CITIZEN CONTACT INFORMATION

To lessen the bulk of agenda packets and land use application notice, and to address the concerns of some City residents about testimony contact information and online application packets containing their names and addresses as a reflection of the mailing notice area, this sheet substitutes for the photocopy of the testimony forms and/or mailing labels. A copy is available upon request.



Legend

- City Limit
- Parks and Open Space
- City Owned Property

0 0.11 0.23 Miles



1: 9,028



Notes

This map was automatically generated using Geocortex Essentials.

EXHIBIT PC-4 COMPLETENESS LETTER



CITY OF
West Linn

July 16, 2020

Remo Douglas
WL-WV School District
2775 SW Borland Rd.
Tualatin, OR 97062

SUBJECT: MISC-20-06 application for a one-year Temporary Use Permit at 4515 Cedaroak Drive (Cedaroak Primary School) for a temporary portable classroom to meet new state-mandated COVID-19 social distancing regulations for schools.

Mr. Douglas:

Your application submitted on July 15, 2020 has been deemed **complete**. The city has 120 days to exhaust all local review; that period ends November 13, 2020.

Please be aware that a determination of a complete application does not guarantee a recommendation of approval from staff for your proposal as submitted – it signals that staff believes you have provided the necessary information for the Planning Commission to render a decision on your proposal.

The public notice will be prepared and mailed for a public hearing before the West Linn Planning Commission on **August 5, 2020**.

Please contact me at 503-742-6062, or by email at cmyers@westlinnoregon.gov if you have any questions or comments.

Sincerely,

Chris Myers

Chris Myers
Associate Planner