



City of Tualatin

www.tualatinoregon.gov

"NECESSARY PARTIES"
MARKED BELOW

NOTICE OF APPLICATION SUBMITTAL

- ANNEXATION CONDITIONAL USE PERMIT PLAN TEXT AMENDMENT
 ARCHITECTURAL REVIEW PLAN MAP AMENDMENT OTHER:

CASE/FILE: AR-15-0020 (Community Development Dept.: Planning Division)

PROPOSAL	To install a modular classroom building on a disturbed but undeveloped portion of the Horizon Community Church campus, toward the southeast corner of the tax lot, southeast of the main and largest building, and adjacent to two other modular classroom buildings.
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PROPERTY	Name of Application	HORIZON COMMUNITY CHURCH MODULAR CLASSROOM			
	<input type="checkbox"/> n/a Street Address	23370 SW Boones Ferry Rd			
	Tax Map and Lot No(s).	2S1 35D 000106			
	Planning District	Institutional (IN)	Overlays <input type="checkbox"/>	NRPO <input type="checkbox"/>	Flood Plain <input type="checkbox"/>
	Previous Applications	AR-12-03	Additional Applications: none	CIO CIO 6	

DATES	Receipt of application	7/28/2015	Deemed Complete	8/07/2015	CONTACT	Name: Colin Cortes
	Notice of application submittal			8/11/2015		Title: Assistant Planner
	Project Status / Development Review meeting			8/20/2015		E-mail: ccortes@ci.tualatin.or.us
	Comments due for staff report			8/25/2015		Phone: 503-691-3024
	Public meeting: <input type="checkbox"/> ARB <input type="checkbox"/> TPC <input checked="" type="checkbox"/> n/a					Notes: You may view the application materials through this City web page: www.tualatinoregon.gov/projects
	City Council (CC)			<input checked="" type="checkbox"/> n/a		

City Staff

- City Manager
- Building Official
- Chief of Police
- City Attorney
- City Engineer
- Community Dev. Director
- Community Services Director
- Economic Dev. liaison
- Engineering Associate*
- Finance Director
- GIS technician(s)
- IS Manager
- Operations Director*
- Parks and Recreation Coordinator
- Planning Manager
- Street/Sewer Supervisor
- Water Supervisor

Neighboring Cities

- Durham
- King City Planning Commission
- Lake Oswego
- Rivergrove PC
- Sherwood Planning Dept.
- Tigard Community Dev. Dept.
- Wilsonville Planning Div.

*Paper Copies

Counties

- Clackamas County Dept. of Transportation and Dev.
- Washington County Dept. of Land Use and Transportation (AR's)
- Washington County LRP (Annexations)

Regional Government

- Metro

School Districts

- Lake Oswego School Dist. 7J
- Sherwood SD 88J
- Tigard-Tualatin SD 23J (TTSD)
- West Linn-Wilsonville SD 3J

State Agencies

- Oregon Dept. of Aviation
- Oregon Dept. of Land Conservation and Development (DLCD) (via proprietary notice)
- Oregon Dept. of State Lands: Wetlands Program
- Oregon Dept. of Transportation (ODOT) Region 1
- ODOT Maintenance Dist. 2A

- ODOT Rail Div.

Utilities

- Republic Services
- Clean Water Services (CWS)
- Comcast [cable]*
- Frontier Communications [phone]
- Northwest Natural [gas]
- Portland General Electric (PGE)
- TriMet
- Tualatin Valley Fire & Rescue (TVF&R)
- United States Postal Service (USPS) (Washington; 18850 SW Teton Ave)
- USPS (Clackamas)
- Washington County Consolidated Communications Agency (WCCCA)

Additional Parties

- Tualatin Citizen Involvement Organization (CIO)
-

- 1.032: *Burden of Proof*
- 31.071 *Architectural Review Procedure*
- 31.074 *Architectural Review Application Review Process*
- 31.077 *Quasi-Judicial Evidentiary Hearing Procedures*
- Metro Code 3.09.045 *Annexation Review Criteria*
- 32.030 *Criteria for Review of Conditional Uses*
- 33.020 *Conditions for Granting a Variance that is not a Sign or a Wireless Communication Facility*
- 33.022 *Criteria for Granting a Sign Variance*
- 33.024 *Criteria for Granting a Minor Variance*
- 33.025 *Criteria for Granting a Variance*
- 34.200 *Tree Cutting on Private Property without Architectural Review, Subdivision or Partition Approval, or Tree Removal Permit Prohibited*
- 34.210 *Application for Architectural Review, Subdivision or Partition Review, or Permit*
- 34.230 *Criteria (tree removal)*
- 35.060 *Conditions for Granting Reinstatement of Nonconforming Use*
- 36.160 *Subdivision Plan Approval*
- 36.230 *Review Process (partitioning)*
- 36.330 *Review Process (property line adjustment)*
- 37.030 *Criteria for Review (IMP)*
- 40.030 *Conditional Uses Permitted (RL)*
- 40.060 *Lot Size for Conditional Uses (RL)*
- 40.080 *Setback Requirements for Conditional Uses (RL)*
- 41.030 *Conditional Uses Permitted (RML)*
- 41.050 *Lot Size for Conditional Uses (RML)*
- 41.070 *Setback Requirements for Conditional Uses (RML)*
- 42.030 *Conditional Uses Permitted (RMH)*
- 42.050 *Lot Size for Conditional Uses (RMH)*
- 42.070 *Setback Requirements for Conditional Uses (RMH)*
- 43.030 *Conditional Uses Permitted (RH)*
- 43.060 *Lot Size for Conditional Uses (RH)*
- 43.090 *Setback Requirements for Conditional Uses (RH)*
- 44.030 *Conditional Uses Permitted (RH-HR)*
- 44.050 *Lot Size for Conditional Uses (RH-HR)*
- 44.070 *Setback Requirements for Conditional Uses (RH-HR)*
- 49.030 *Conditional Uses (IN)*
- 49.040 *Lot Size for Permitted and Conditional Uses (IN)*
- 49.060 *Setback Requirements for Conditional Uses (IN)*
- 50.020 *Permitted Uses (CO)*
- 50.030 *Central Urban Renewal Plan – Additional Permitted Uses and Conditional Uses (CO)*
- 50.040 *Conditional Uses (CO)*
- 52.030 *Conditional Uses (CR)*
- 53.050 *Conditional Uses (CC)*
- 53.055 *Central Urban Renewal Area – Conditional Uses (CC)*
- 54.030 *Conditional Uses (CG)*
- 56.030 *Conditional Uses (MC)*
- 56.045 *Lot Size for Conditional Uses (MC)*
- 57.030 *Conditional Uses (MUCOD)*
- 60.040 *Conditional Uses (ML)*
- 60.041 *Restrictions on Conditional Uses (ML)*
- 61.030 *Conditional Uses (MG)*
- 61.031 *Restrictions on Conditional Uses (MG)*
- 62.030 *Conditional Uses (MP)*
- 62.031 *Restrictions on Conditional Uses (MP)*
- 64.030 *Conditional Uses (MBP)*
- 64.050 *Lot Size for Permitted and Conditional Uses (MBP)*
- 64.065 *Setback Requirements for Conditional Uses (MBP)*
- 68.030 *Criteria for Designation of a Landmark*
- 68.060 *Demolition Criteria*
- 68.070 *Relocation Criteria*
- 68.100 *Alteration and New Construction Criteria*
- 68.110 *Alteration and New Construction Approval Process*
- 73.130 *Standards*
- 73.160 *Standards*
- 73.190 *Standards – Single-Family and Multi-Family Uses*
- 73.220 *Standards*
- 73.227 *Standards*
- 73.230 *Landscaping Standards*
- 73.300 *Landscape Standards – Multi-Family Uses*
- 73.310 *Landscape Standards – Commercial, Industrial, Public and Semi-Public Uses*
- 73.320 *Off-Street Parking Lot Landscaping Standards*
- 73.470 *Standards*
- 73.500 *Standards*



City of Tualatin

www.tualatinoregon.gov

CITY OF TUALATIN
RECEIVED

JUL 28 2015

COMMUNITY DEVELOPMENT
PLANNING DIVISION

APPLICATION FOR ARCHITECTURAL REVIEW

Direct Communication to:			
Name: SCOTT PLATT		Title: Facilities Director	
Company Name: Horizon Community Church			
Current address: 23370 SW Boones Ferry Rd			
City: Tualatin		State: OR	ZIP Code: 97062
Phone: 503 729 0173	Fax: 503 691 9677	Email: splatt@horizonlife.org	
Applicant			
Name: SCOTT PLATT		Company Name: Horizon Community Church	
Address: 23370 SW Boones Ferry Rd PO Box 2690			
City: Tualatin		State: OR	ZIP Code: 97062
Phone: 503 612 6688	Fax: 503 691 9677	Email: splatt@horizonlife.org	
Applicant's Signature:		Date: 7/24/15	
Property Owner			
Name: Horizon Community Church			
Address: # 23370 SW Boones Ferry Rd			
City: Tualatin		State: OR	ZIP Code: 97062
Phone: 503 612 6688	Fax: 503 691 9677	Email: splatt@horizonlife.org	
Property Owner's Signature:		Date:	
(Note: Letter of authorization is required if not signed by owner)			
Architect			
Name: Kenneth A Rasmussen / modern Building Systems Inc			
Address: 9493 Porter Rd			
City: Amnsville		State: OR	ZIP Code: 97325
Phone: 503 749 4949	Fax: 503 749 4950	Email: krasmussen@modernbuilding systems.com	
Landscape Architect			
Name:			
Address: N/A			
City:		State:	ZIP Code:
Phone:	Fax:	Email:	
Engineer			
Name: Kenneth A Rasmussen / modern Building Systems Inc			
Address: 9493 Porter Rd			
City: Amnsville		State: OR	ZIP Code: 97325
Phone: 503 749 4949	Fax: 503 749 4950	Email: krasmussen@modernbuilding systems.com	
Project			
Project Title: modular #4			
Address: 23370 SW Boones Ferry Rd			
City: Tualatin		State: OR	ZIP Code: 97062
Brief Project Description: modular classroom			
Proposed Use: classroom			

GENERAL INFORMATION	
Site Address:	23370 SW Boones ferry Rd
Assessor's Map and Tax Lot #:	25135 D0 0106
Planning District:	
Parcel Size:	38.5 acres
Property Owner:	Horizon Community Church
Applicant:	
Proposed Use:	modular classroom

ARCHITECTURAL REVIEW DETAILS	
<input type="checkbox"/> Residential <input type="checkbox"/> Commercial <input type="checkbox"/> Industrial	
Number of parking spaces:	
Square footage of building(s):	
Square footage of landscaping:	
Square footage of paving:	
Proposed density (for residential):	

<p>For City Personnel to complete:</p> <p>Staff contact person:</p>
--

Value of Improvements:

\$79,000-

AS THE PERSON RESPONSIBLE FOR THIS APPLICATION, I HEREBY ACKNOWLEDGE THAT I HAVE READ THIS APPLICATION AND STATE THAT THE INFORMATION ABOVE, ON THE FACT SHEET, AND THE SURROUNDING PERTY OWNER MAILING LIST IS CORRECT. I AGREE TO COMPLY WITH ALL APPLICABLE CITY AND COUNTY ORDINANCES AND STATE LAWS REGARDING BUILDING CONSTRUCTION AND LAND USE.

Applicant's Signature:



Date:

7/28/15

Office Use

Case No:

AR-15-0020

Date Received:

7/28/15

Received by:

CC

Fee: Complete Review (\$115-\$5040):

\$990.00

Receipt No:

29850

Application Complete as of:

ARB hearing date (if applicable):

Posting Verification:

6 copies of drawings (folded)

1 reproducible 8 1/2" X 11" vicinity map

1 reproducible 8 1/2" X 11" site. grading. LS. Public Facilities plan

Neighborhood/Developer meeting materials



administrative offices
po box 2690
23370 sw boones ferry road
tualatin, or 97062
503.612.6688
www.horizoncommunity.church

Date: 07/24/2015

To: City Of Tualatin

From: Horizon Community Church

RE: Tree preservation plan, site grading and utilities at 23370 SW Boones Ferry Rd

- 1) There are No trees to be removed as a result of the modular building installation.
- 2) There is an existing gravel pad the size of the modular building so no site grading will be necessary.
- 3) All utilities are existing in ground, stubbed to the site area.
- 4) Landscaping will consist of 6' grass buffer at building.

Regards,

Scott Platt, Facilities Director

ARCHITECTURAL REVIEW CERTIFICATION OF SIGN POSTING



The applicant shall provide and post a sign pursuant to Tualatin Development Code (TDC) 31.064(2). Additionally, the 18" x 24" sign must contain the application number, and the block around the word "NOTICE" must remain primary yellow composed of the RGB color values Red 255, Green 255, and Blue 0. Additionally, the potential applicant must provide a flier (or flyer) box on or near the sign and fill the box with brochures reiterating the meeting info and summarizing info about the potential project, including mention of anticipated land use application(s). Staff has a Microsoft PowerPoint 2007 template of this sign design available through the Planning Division homepage at <www.tualatinoregon.gov/planning/land-use-application-sign-templates>.

NOTE: For larger projects, the Community Development Department may require the posting of additional signs in conspicuous locations.

As the applicant for the _____ project, I hereby certify that on this day, 2 sign(s) was/were posted on the subject property in accordance with the requirements of the Tualatin Development Code and the Community Development Department - Planning Division.

Applicant's Name: Horizon Community Church
(PLEASE PRINT)

Applicant's Signature: [Handwritten Signature]

Date: 7/28/15

Property Description
Project No. 1892-01
May 4, 2006
Annexation to the City of Tualatin
Page 1 of 3



Renewal 12/31/2007

PROPERTY DESCRIPTION

A tract of land located in southwest $\frac{1}{4}$ and southeast $\frac{1}{4}$ of Section 35, Township 2 South, Range 1 West, Willamette Meridian, Washington County, Oregon, more particularly described as follows:

Beginning at the northwest corner of the southeast $\frac{1}{4}$ of said Section 35;

Thence along the northerly line of said southeast $\frac{1}{4}$, North $89^{\circ}41'31''$ East a distance of 30.00 feet to a point on the Tualatin City Limits line;

Thence along said City Limits line and parallel with and 30.00 feet easterly of the centerline of SW Boones Ferry Road, when measured at right angles there from, South $00^{\circ}05'17''$ East a distance of 330.00 feet, more or less, to a point on the northerly line of that property conveyed to Paul J. Dionne and Norma F. Dionne by Warranty Deed recorded June 6, 1986 as Document No. 86-023829, Deed Records of Washington County, Oregon;

Thence along the northerly line of said Dionne property and the Tualatin City Limits line North $89^{\circ}41'31''$ East a distance of 10.00 feet to the northeast corner of that property dedicated to the public by Dedication Deed recorded October 11, 1984 as Document No. 84-040292, Deed Records of Washington County, Oregon, said point on the easterly right-of-way line of SW Boones Ferry Road;

Thence departing the Tualatin City Limits Line and along the easterly line of that property dedicated by said Document No. 84-040292, being also the easterly right-of-way line of SW Boones Ferry Road, South $00^{\circ}05'17''$ East a distance of 165.00 feet to the southeast corner of that property dedicated by said Document No. 84-040292, said point being also on the northerly line of that property conveyed to Diane M. Yackey and Tod C. Gannett, wife and husband, by Deed recorded May 31, 2002 as Document No. 2002-062462, Deed Records of Washington County, Oregon;

Thence along the northerly line of said Yackey property South $89^{\circ}41'31''$ West a distance of 10.00 feet to a point on the easterly right-of-way line of SW Boones Ferry Road that is 30.00 feet from the centerline thereof when measured at right-angles.

Thence along said easterly right-of-way line South $00^{\circ}05'17''$ East a distance of 181.44 feet, more or less, to a point on the southerly line of said Yackey property;

Thence departing said easterly right-of-way line and along the southerly line of said Yackey property North $89^{\circ}38'45''$ East a distance of 264.00 feet to the southwest corner of that property conveyed to Grace Community Church Non-Profit Corporation by Warranty Deed recorded October 7, 2005 as Document No. 2005-124105, and re-recorded May 3, 2006 as Document No. 2006-052495, Deed Records of Washington County, Oregon;

Property Description

Project No. 1892-01

May 4, 2006

Annexation to the City of Tualatin

Page 2 of 3

Thence along the westerly line of said Grace Community Church property North $00^{\circ}05'17''$ West a distance of 661.23 feet to the most easterly southeast corner of that property conveyed to the public by Warranty Deed of Dedication recorded September 6, 1974 in Book 991, Page 609, Deed Records of Washington County, Oregon, said point being also on the Tualatin City Limits line;

Thence continuing along the westerly line of said Grace Community Church property and the Tualatin City Limits Line North $00^{\circ}05'17''$ West a distance of 15.00 feet to the northwest corner of said Grace Community Church property, said point being on the southerly right-of-way line of SW Norwood Road and the northerly line of said southeast $\frac{1}{4}$;

Thence along said southerly right-of-way line and the Tualatin City Limits line North $89^{\circ}41'31''$ East a distance of 85.00 feet, more or less, to the northwest corner of that property conveyed to Tom K. Williams by Warranty Deed recorded August 22, 1989 as Document No. 89-038984, Deed Records of Washington County, Oregon;

Thence departing the Tualatin City Limits line and along the westerly line of said Williams property South $00^{\circ}05'17''$ East a distance of 215.00 feet to a point;

Thence along the southwesterly line of said Williams property South $53^{\circ}03'42''$ East a distance of 77.67 feet to the most southerly southwest corner thereof;

Thence along the southerly line of said Williams property North $89^{\circ}41'40''$ East a distance of 110.00 feet to the southeast corner thereof, being also a point on the westerly line of Parcel II of that property conveyed to Grace Community Church of the Assemblies of God, Inc. by Warranty Deed recorded June 12, 2001 as Document No. 2001-055727, Deed Records of Washington County, Oregon;

Thence along the westerly line of said Parcel II, North $00^{\circ}05'17''$ West a distance of 262.00 feet to the northwest corner thereof, said point being on said southerly right-of-way line and the Tualatin City Limits line;

Thence along the northerly line of said Parcel II and the Tualatin City Limits line North $89^{\circ}41'31''$ East a distance of 748.98 feet, more or less, to the northeast corner thereof;

Thence departing the Tualatin City Limits line along the easterly line of said Parcel II and the southerly extension thereof South $00^{\circ}09'07''$ East a distance of 1647.78 feet to a point on the northerly line of that property conveyed to Kimball Hill Homes Oregon, Inc. by Warranty Deed recorded October 3, 2005 as Document No. 2005-121808, Deed Records of Washington County, Oregon;

Thence along the northerly line of said Parcel I South $89^{\circ}36'05''$ West a distance of 1365.65 feet, more or less, to a point on the easterly right-of-way line of SW Boones Ferry Road;

Thence North $72^{\circ}53'43''$ West a distance of 60.00 feet to a point on the westerly right-of-way line of SW Boones Ferry Road 30.00 feet from the centerline thereof, when measured at right angles;

Thence along said westerly right-of-way line North $17^{\circ}06'17''$ East a distance of 176.90 feet to a point;

Thence continuing along said westerly right-of-way line 260.91 feet through the arc of a 869.50 foot radius curve to the left, said curve having a central angle of $17^{\circ}11'34''$, a chord bearing of North $08^{\circ}30'30''$ East and a chord length of 259.93 feet to a point;

Thence continuing along said westerly right-of-way line North $00^{\circ}05'17''$ West a distance of 1206.33 feet, more or less to the northerly line of the southwest $\frac{1}{4}$ of said Section 35;

Thence along the northerly line of said southwest $\frac{1}{4}$, North $89^{\circ}41'31''$ East a distance of 30.00 feet to the Point of Beginning.

EXCEPTING THEREFROM a tract of land located in the southwest and southeast $\frac{1}{4}$ of Section 35, Township 2 South, Range 1 West, Willamette Meridian, Washington County, Oregon, being that portion of the property conveyed to Thomas J. Re and Kathryn S. Re, Husband and Wife by Warranty Deed recorded September 15, 2003 as Document No. 2003-156709, Deed Records of Washington County, Oregon, lying easterly of the easterly right-of-way line of SW Boones Ferry Road and more particularly described as follows:

Commencing at the northwest corner of said southeast $\frac{1}{4}$; thence along the westerly line of said southeast $\frac{1}{4}$, South $00^{\circ}05'17''$ East a distance of 1024.86 feet, more or less to the northwest corner of said Re property; thence along the northerly line of said Re property North $89^{\circ}36'07''$ East a distance of 30.00 feet to a point on said easterly right-of-way line and the Point of Beginning.

Thence continuing along the northerly line of said Re property North $89^{\circ}36'07''$ East a distance of 349.92 feet, more or less, to the northeast corner thereof;

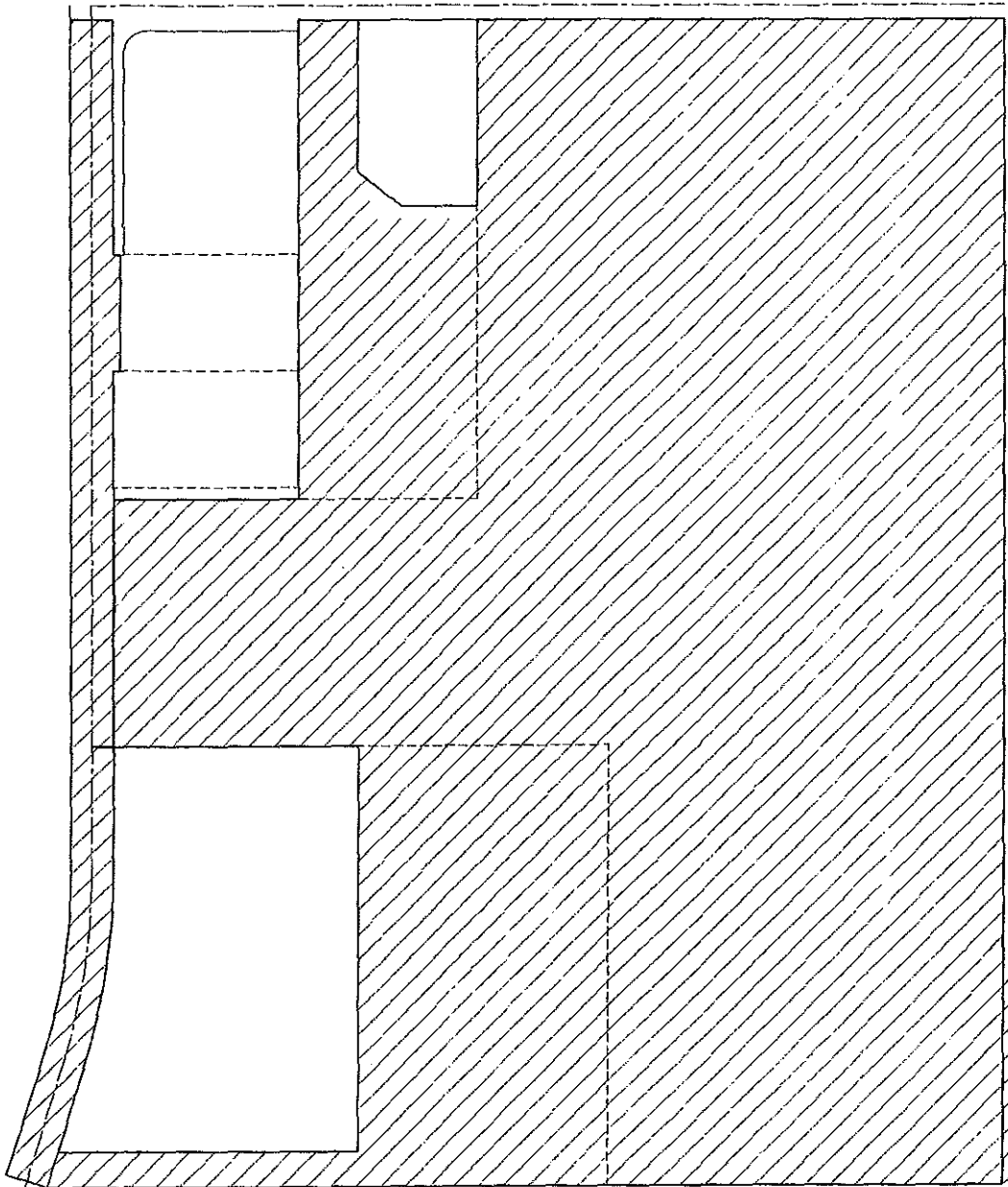
Thence along the easterly line of said Re property South $00^{\circ}06'08''$ East a distance of 574.95 feet, more or less, to the southeast corner thereof;

Thence along the southerly line of said Re property South $89^{\circ}36'05''$ West a distance of 428.38 feet, more or less, to its intersection with said easterly right-of-way line;

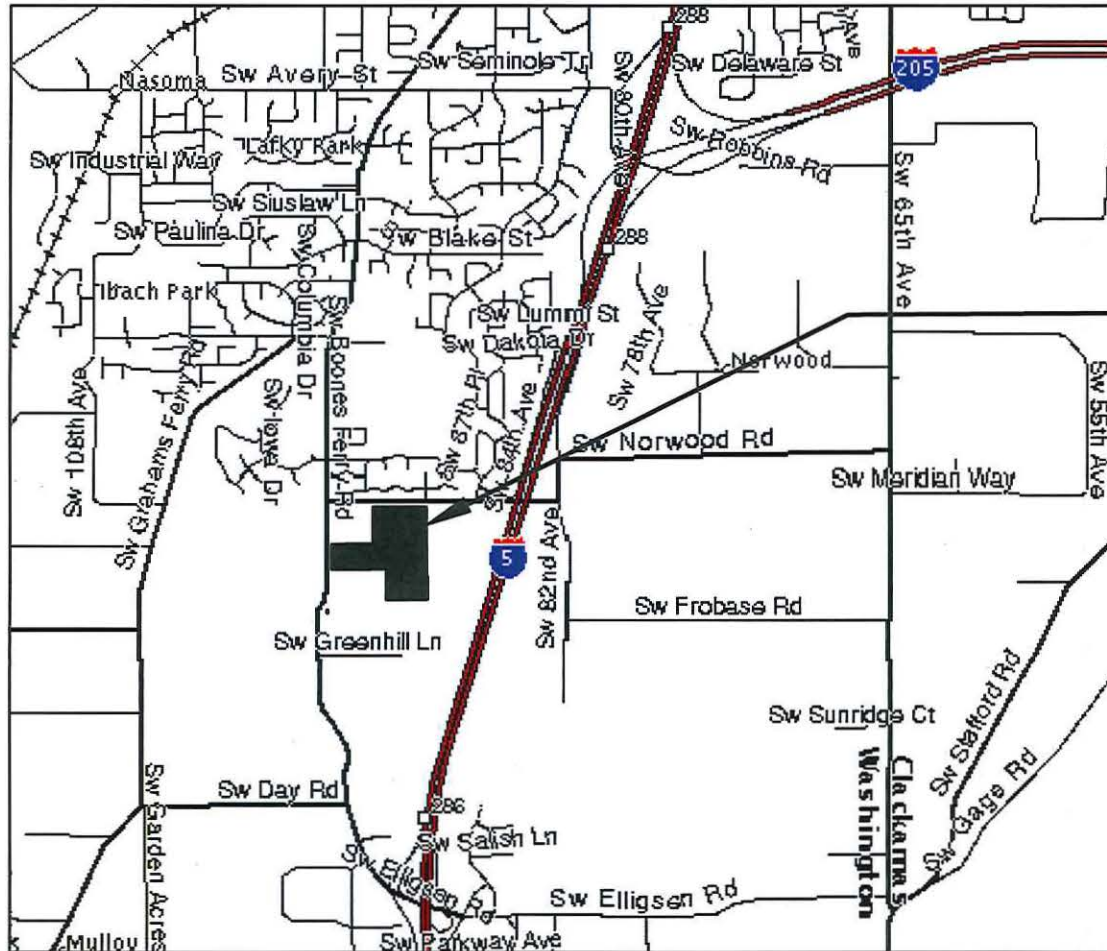
Thence along said easterly right-of-way line North $17^{\circ}06'17''$ East a distance of 124.44 feet to a point;

Thence continuing along said easterly right-of-way line 278.92 feet through the arc of a 329.50 foot radius circular curve to the left, said curve having a central angle of $17^{\circ}11'34''$, a chord bearing of North $08^{\circ}30'30''$ East and a chord length of 277.87 feet to a point;

Thence continuing along said easterly right-of-way line North $00^{\circ}05'17''$ West a distance of 181.75 feet to the point of beginning.



VICINITY MAP



**SITE
LOCATION**



10295 SW Ridder Road, Wilsonville, OR 97070
O: 503.404-2135 F: 503.682-9004 republicservices.com

July 28, 2015

Scott Platt

Re: Horizon School Modular Building

Dear Scott;

Thank you, for sending me the site plans for the additional modular buildings that will be placed on the Horizon Campus in Tualatin.

My Company: Republic Services of Clackamas & Washington Counties has the franchise agreement to service this area with the City of Tualatin. We provide complete Commercial waste removal services and recycling services as needed on a weekly basis for this location.

I do not see any interference of where the buildings are going to be placed that will affect your garbage & recycling services.

Thanks for your help and concerns for our services prior to this project being developed.

Sincerely,

A handwritten signature in cursive script that reads "Frank J. Lonergan".

Frank J. Lonergan
Operations Manager
Republic Services Inc.



Clean Water Services File Number

15-002341

Sensitive Area Pre-Screening Site Assessment

1. Jurisdiction: ~~Washington County~~ City of Tualatin

2. Property Information (example 1S234AB01400)

Tax lot ID(s): 25135D
Tax Lots ~~106, 110, 300, 302~~

OR Site Address: 23370 SW DOONES FRY RD.

City, State, Zip: TUAL, OR 97062
Nearest Cross Street: Norwood Street

3. Owner Information

Name: Horizon Community Church
Company: _____
Address: PO BOX 2690
City, State, Zip: TUALATIN OR 97062
Phone/Fax: 503 612 6688
E-Mail: _____

4. Development Activity (check all that apply)

- Addition to Single Family Residence (rooms, deck, garage)
- Lot Line Adjustment Minor Land Partition
- Residential Condominium Commercial Condominium
- Residential Subdivision Commercial Subdivision
- Single Lot Commercial Multi Lot Commercial

Other Modular Classroom on existing Gravel Pad

5. Applicant Information

Name: SCOTT PLATT
Company: Horizon Community Church
Address: PO BOX 2690
City, State, Zip: TUALATIN OR 97062
Phone/Fax: 503-729-0173
E-Mail: Splatt@horizonlife.org

6. Will the project involve any off-site work? Yes No Unknown

Location and description of off-site work _____

7. Additional comments or information that may be needed to understand your project We had previous CWS approval in 2007 for this project but didn't have funds to complete

This application does NOT replace Grading and Erosion Control Permits, Connection Permits, Building Permits, Site Development Permits, DEQ 1200-C Permit or other permits as issued by the Department of Environmental Quality, Department of State Lands and/or Department of the Army COE. All required permits and approvals must be obtained and completed under applicable local, state, and federal law.

By signing this form, the Owner or Owner's authorized agent or representative, acknowledges and agrees that employees of Clean Water Services have authority to enter the project site at all reasonable times for the purpose of inspecting project site conditions and gathering information related to the project site. I certify that I am familiar with the information contained in this document, and to the best of my knowledge and belief, this information is true, complete, and accurate.

Print/Type Name SCOTT PLATT Print/Type Title Facilities Director

Signature [Signature] Date 7/21/15

FOR DISTRICT USE ONLY

Sensitive areas potentially exist on site or within 200' of the site. **THE APPLICANT MUST PERFORM A SITE ASSESSMENT PRIOR TO ISSUANCE OF A SERVICE PROVIDER LETTER.** If Sensitive Areas exist on the site or within 200 feet on adjacent properties, a Natural Resources Assessment Report may also be required.

Based on review of the submitted materials and best available information Sensitive areas do not appear to exist on site or within 200' of the site. This Sensitive Area Pre-Screening Site Assessment does NOT eliminate the need to evaluate and protect water quality sensitive areas if they are subsequently discovered. This document will serve as your Service Provider letter as required by Resolution and Order 07-20, Section 3.02.1. All required permits and approvals must be obtained and completed under applicable local, State, and federal law.

Based on review of the submitted materials and best available information the above referenced project will not significantly impact the existing or potentially sensitive area(s) found near the site. This Sensitive Area Pre-Screening Site Assessment does NOT eliminate the need to evaluate and protect additional water quality sensitive areas if they are subsequently discovered. This document will serve as your Service Provider letter as required by Resolution and Order 07-20, Section 3.02.1. All required permits and approvals must be obtained and completed under applicable local, state and federal law.

This Service Provider Letter is not valid unless _____ CWS approved site plan(s) are attached.

The proposed activity does not meet the definition of development or the lot was platted after 9/9/95 ORS 92.040(2). NO SITE ASSESSMENT OR SERVICE PROVIDER LETTER IS REQUIRED.

Reviewed by Laurie Harris Date 07/22/15

Once complete, email to: SPLReview@cleanwaterservices.org • Fax: (503) 681-4439
OR mail to: SPL Review, Clean Water Services, 2550 SW Hillsboro Highway, Hillsboro, Oregon 97123

EXHIBIT B



administrative offices
po box 2690
23370 sw boones ferry road
tualatin, or 97062
503.612.6688
www.horizoncommunity.church

June 23, 2015

Horizon Community Church
23370 SW Boones Ferry Rd
Tualatin, Oregon 97062

RE: Adding one Modular Classroom at 23370 SW Boones Ferry Rd

Dear Property Owner:

You are cordially invited to attend a meeting on July 9, 2015 at 5pm at Horizon Community Church, 23370 SW Boones Ferry Rd., Room 200. This meeting shall be held to discuss a proposed project located at 23370 SW Boones Ferry Rd, cross street Norwood Rd. The proposal is to install a 28'x64' modular classroom with a restroom at SE corner of property behind the existing buildings.

The purpose of this meeting is to provide a means for the applicant and surrounding property owners to meet and discuss this proposal and identify any issues regarding this proposal.

Regards,

Scott Platt
Horizon Community Church
503-692-9312

A decorative border at the bottom of the page, consisting of a repeating pattern of interlocking geometric shapes in various shades of gray and black.

one church | many locations

**NEIGHBORHOOD/DEVELOPER MEETING
AFFIDAVIT OF MAILING**

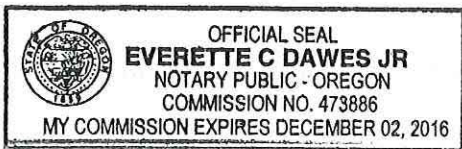
STATE OF OREGON)
) SS
COUNTY OF WASHINGTON)


I, SCOTT PLATT, being first duly sworn, depose and say:

That on the 25th day of June, 2015, I served upon the persons shown on Exhibit "A," attached hereto and by this reference incorporated herein, a copy of the Notice of Neighborhood/Developer meeting marked Exhibit "B," attached hereto and by this reference incorporated herein, by mailing to them a true and correct copy of the original hereof. I further certify that the addresses shown on said Exhibit "A" are their regular addresses as determined from the books and records of the Washington County and/or Clackamas County Departments of Assessment and Taxation Tax Rolls, and that said envelopes were placed in the United States Mail with postage fully prepared thereon.

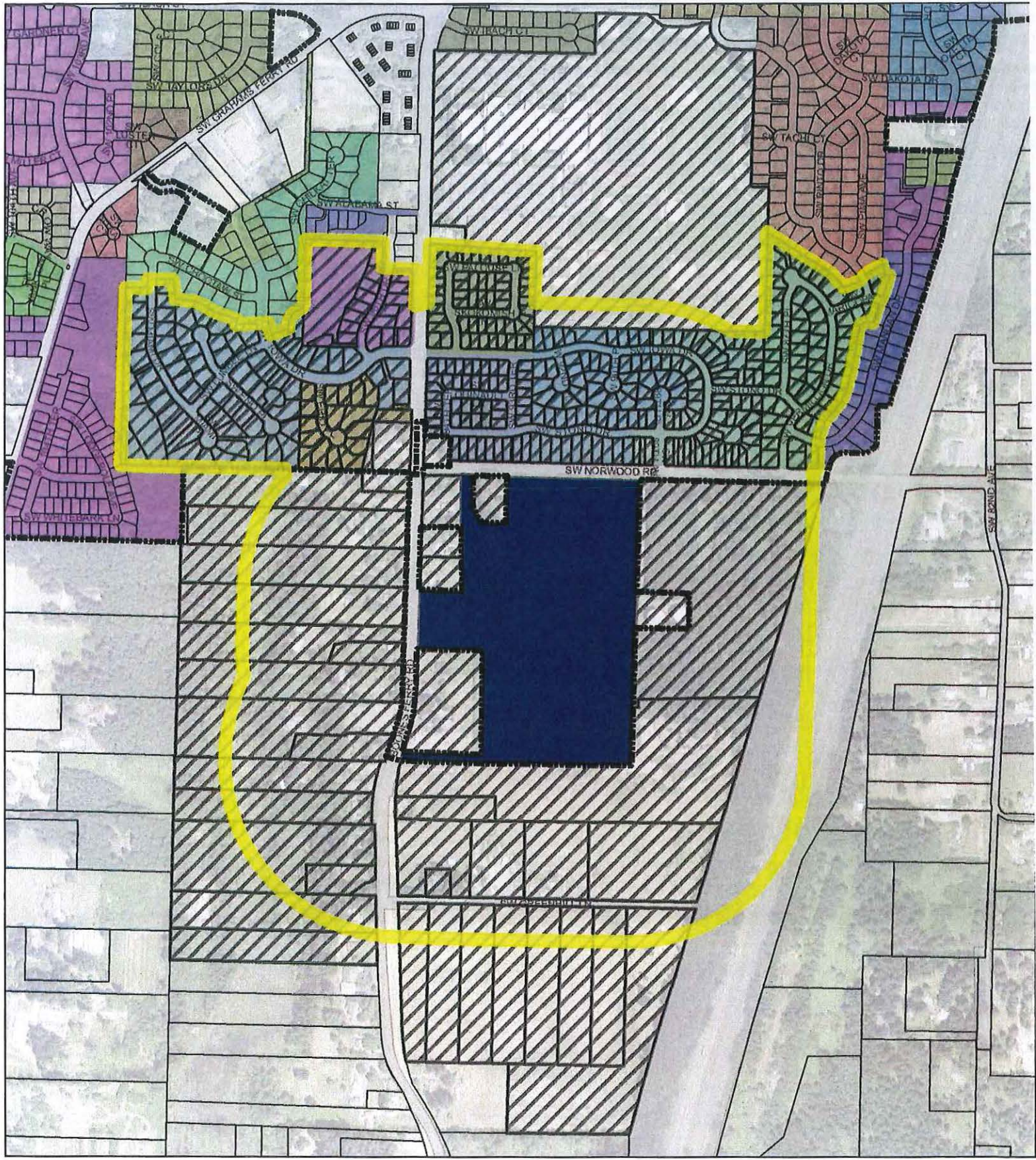

Signature

SUBSCRIBED AND SWORN to before me this 25th day of June, 2015.





Notary Public for Oregon
My commission expires: 12/2/16

RE: _____



 1000' Buffer

 1000' Buffer with Subdivisions

 Selected Taxlots



AR-15-0020

To lessen the bulk of the notice of application and to address privacy concerns, this sheet substitutes for the photocopy of the mailing labels. A copy is available upon request.







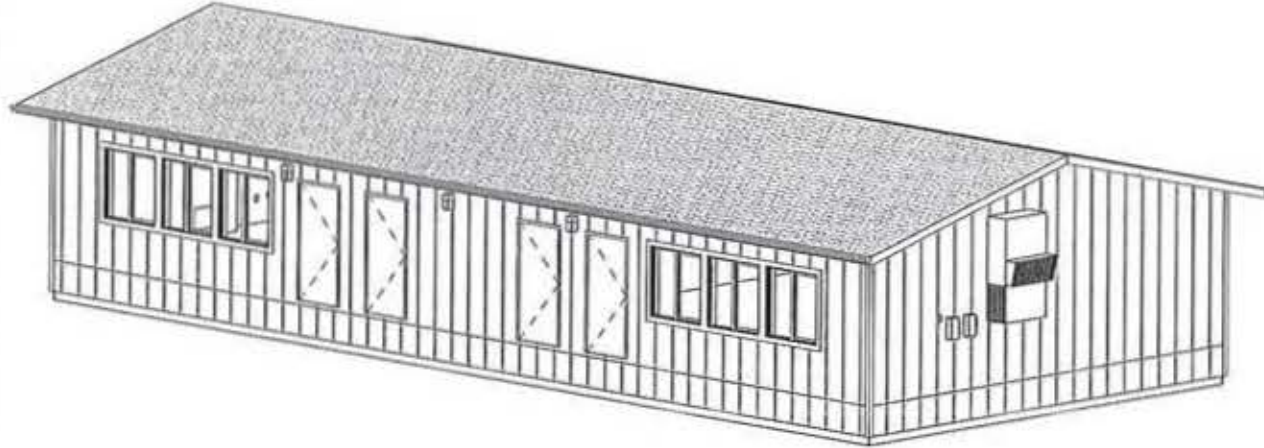






HORIZON CHRISTIAN

28' x 64' MODULAR CLASSROOM



SHEET INDEX

SHT. NO.	SHEET NAME	Current Rev.	Rev Issued By	Checked By
A 0.0	COVER SHEET			KR
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A 1.0	FLOOR PLAN			KR
A 1.1	REFLECTED CEILING PLAN			KR
A 1.2	ROOF PLAN (NOT USED)			
A 2.0	EXTERIOR ELEVATIONS			KR
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S 1.0	FOUNDATION PLAN			KR
S 2.0	FRAMING PLAN (NOT USED)			
S 3.0	BUILDING SECTIONS			KR
S 4.0	FOUNDATION NOTES & DETAILS			KR
S 4.1	FOUNDATION DETAILS			KR
S 4.2	FOUNDATION DETAILS			KR
S 4.3	DETAILS			KR
S 4.4	DETAILS			KR
S 4.5	DETAILS			KR
E 0.1	ELECTRICAL LEGEND & NOTES			KR
E 1.0	ELECTRICAL PLAN			KR
E 2.0	LIGHTING PLAN			KR
E 3.0	ELEC. PANELS & LOAD CALCS.			KR
M 0.1	HVAC NOTES & LEGEND			KR
M 1.0	HVAC PLAN			KR
P 1.0	PLUMBING NOTES & ISOMETRICS			KR



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						PROJ.	28' x 64' MODULAR CLASSROOM HORIZON CHRISTIAN	SHEET #	A 0.0		
						ADDRESS	23370 SW BOONES FERRY RD, TUALATIN, OR 97062	DRW	SR	DATE	4/17/15

GENERAL NOTES

1. THE TERM IBC SHALL APPLY TO THE CURRENT EDITION OF THE INTERNATIONAL BUILDING CODE AS AMENDED BY THE STATES OF OREGON AND WASHINGTON. FOR PROJECTS IN ALL OTHER STATES IT SHALL APPLY TO THE CURRENT EDITION OF THE UBC OR IBC AS ADOPTED BY THAT STATE.
2. ALL CONTROLS AND HARDWARE SHALL BE ACCESSIBLE TO PERSONS WITH DISABILITIES.
3. LOCAL JURISDICTION TO DETERMINE COMPLIANCE WITH CHAPTER 29 (WITH REGARD TO ADJACENT FACILITIES) IN ACCORDANCE WITH THEIR CURRENTLY ADOPTED EDITION OF THE UBC OR IBC.
4. WHERE REQUIRED, PORTABLE FIRE EXTINGUISHERS SHALL BE INSTALLED IN ACCORDANCE WITH SECTION 906 OF THE 2012 INTERNATIONAL FIRE CODE.
5. PER WAC 296-150F-0605 REQUIRES TOILET FACILITIES LOCATED IN AN ADJACENT FACILITY TO BE NOTED ON THE PLAN SUBMITTAL AND THAT THE REQUIREMENTS OF ICC CHAPTER 29, SECTION 2092, TABLE 2902.1 OF THE STATE BUILDING CODE MUST BE VERIFIED BY THE LOCAL JURISDICTION BUILDING OFFICIAL AND SHOWN ON THE NLEA.
6. THIS SET OF PLANS PREPARED AND SUBMITTED FOR APPROVAL UNDER THE FOLLOWING CODES:

	<u>OREGON</u>	<u>WASHINGTON</u>
BUILDING	2014 OSSC	2012 IBC/WAC 51-50
MECHANICAL	2014 OMSC	2012 IMC/WAC 51-52
PLUMBING	2014 OPSC	2012 UPC/WAC 51-56
ENERGY	2014 OEESC	2012 WSEC/WAC 51-11C
ELECTRICAL	2014 OESC	2011 NEC

DESIGN CRITERIA

<u>GENERAL:</u>	
CONSTRUCTION TYPE	VB (NON-SPRINKLERED)
OCCUPANCY GROUP	E
OCCUPANCY LOAD	80
DISTANCE TO PROPERTY LINE OR ASSUMED PROPERTY LINE	FRONT: 10' MIN. REAR: 10' MIN. LEFT: 10' MIN. RIGHT: 10' MIN.
<u>ELECTRICAL:</u>	
ELECTRICAL SERVICE LOAD	225 AMP 1 PH. 52.2 KVA
<u>MECHANICAL:</u>	
VENTILATION OCCUPANCY LOAD	56
CLIMATE ZONE	4C/5B
HEATING	SPV/HP
AIR-CONDITIONING	YES
<u>PLUMBING:</u>	
PLUMBING OCCUPANCY LOAD	40
QUANTITY OF PLUMBING FIXTURES	OR = 5 / WA = 4
<u>STRUCTURAL:</u>	
ROOF SNOW LOAD	30 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: Ss = 0.940, Fa = 1.124 Sds = 0.704, RISK CATEGORY II Ie = 1.0, SEISMIC DESIGN CATEGORY D, SITE CLASS D



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						PROJ. 28' x 64' MODULAR CLASSROOM HORIZON CHRISTIAN	SHEET # A 0.1
						ADDRESS 23370 SW BOONES FERRY RD, TUALATIN, OR 97062	DRW SR DATE 4/17/15

ENERGY CODE NOTES

1. ALL BUILDING THERMAL ENVELOPE INSULATION SHALL BE MARKED IN ACCORDANCE WITH OEESC 303.1.1 AND WSEC C303.1.1 AND INSTALLED PER OEESC 303.1.2 AND WSEC C303.1.2
2. BLOWN-IN INSULATION SHALL BE INSTALLED AND CERTIFIED PER OEESC 303.1.1.1 AND WSEC C303.1.1.1
3. ALL AIR BARRIER MATERIALS SHALL BE ASTM E2178 RATED OR AS LISTED IN OEESC 502.4.1.2.1 AND WSEC C402.4.1.2.1
4. AIR BARRIER COMPLIANCE OPTIONS:
CONTINUOUS AIR BARRIER FOR THE OPAQUE BUILDING ENVELOPE SHALL COMPLY WITH OEESC 502.4.1.2.1

AIR BARRIER TESTING AND REPORTING TO BE CONDUCTED PER WSEC C402.4.1.2.3 FOR THE STATE OF WASHINGTON
5. PENETRATIONS OF THE AIR BARRIER SHALL BE CAULKED, GASKETED OR SEALED PER OEESC 502.4.2 AND WSEC C402.4.2
6. ALL FENESTRATION ASSEMBLIES SHALL BE LABELED BY THE MANUFACTURER PER OEESC 303.1.3 & 502.4.3 AND WSEC C303.1.3 & C402.4.3
7. AIR ECONOMIZER SHALL BE CAPABLE OF PROVIDING 100% OUTSIDE AIR PER OEESC 503.3.1 AND WSEC C403.3.1.1.1
8. ECONOMIZER HIGH-LIMIT SHUTOFF CONTROL IS ELECTRONIC ENTHALPY PER MANUFACTURER'S SPECIFICATIONS AND WSEC C403.3.1.1.3
9. MECHANICAL VENTILATION SYSTEM SHALL HAVE THE CAPABILITY TO REDUCE THE OUTSIDE AIR SUPPLY TO THE MINIMUM REQUIRED PER OEESC 503.2.5 AND WSEC C403.2.5
10. OUTSIDE AIR AND EXHAUST AIR DAMPERS SHALL BE RATED PER OEESC 502.4.4 & 503.2.4.5 AND WSEC C402.4.5.2 & C403.2.4.4

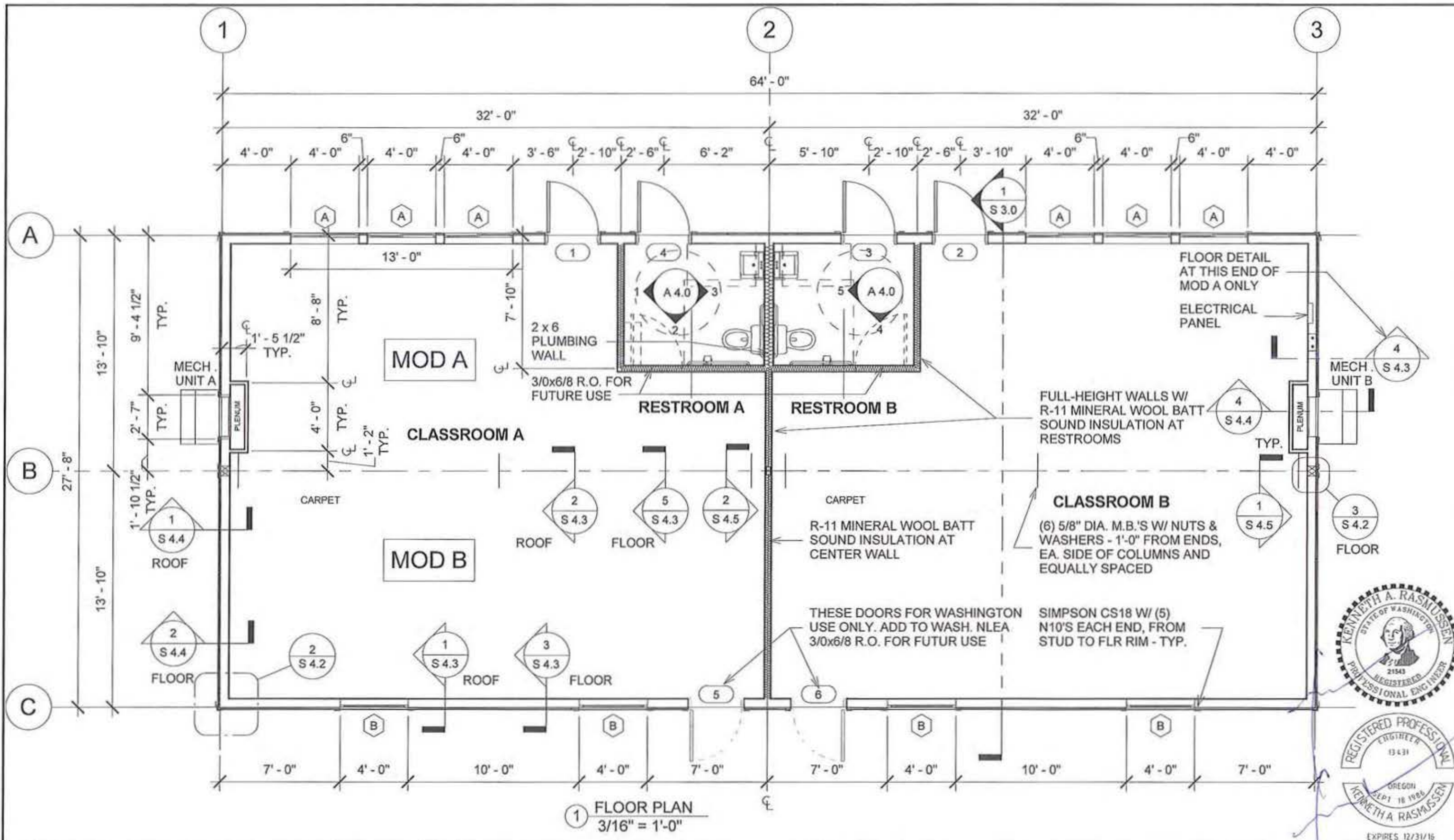
SYSTEM COMMISSIONING NOTES

1. PRIOR TO CONSTRUCTION, A COMMISSIONING PLAN SHALL BE DEVELOPED PER WSEC C408.1.1. THE COMMISSIONING PLAN SHALL BE USED DURING CONSTRUCTION TO INSURE PROPER INSTALLATION, TESTING AND BALANCING OF BUILDING SYSTEMS AS FOLLOWS:

MECHANICAL SYSTEM PER WSEC C408.2	REQUIRED
LIGHTING AND CONTROLS PER WSEC C408.3	REQUIRED
SERVICE WATER HEATING PER WSEC C408.4	NOT REQUIRED (EXCEPTION #1)
ENERGY METERING PER WSEC C408.5	NOT REQUIRED (PER C409.1)
2. UPON COMPLETION OF CONSTRUCTION, A PRELIMINARY COMMISSIONING REPORT SHALL BE COMPLETED AND CERTIFIED AND PROVIDED TO THE BUILDING OWNER PER WSEC C408.1.2.
3. OPERATING AND MAINTENANCE MANUALS FOR ALL COMMISSIONED BUILDING SYSTEMS SHALL BE PROVIDED TO THE BUILDING OWNER PER OEESC 503.2.9.3 AND WSEC C408.1.3.2.
4. DOCUMENTS, MANUALS AND REPORTS REQUIRED BY WSEC C408.1.3 SHALL BE PROVIDED TO THE BUILDING OWNER WITHIN 90 DAYS OF RECEIVING THE CERTIFICATE OF OCCUPANCY.
5. A FINAL COMMISSIONING REPORT SHALL BE PROVIDED TO THE BUILDING OWNER PER WSEC C408.1.3.4.
6. THE BUILDING OWNER SHALL BE TRAINED IN PROPER OPERATION AND MAINTENANCE OF ALL COMMISSIONED BUILDING SYSTEMS PER WSEC C408.1.4.



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						PROJ. 28' x 64' MODULAR CLASSROOM HORIZON CHRISTIAN	SHEET # A 0.2
						ADDRESS 23370 SW BOONES FERRY RD, TUALATIN, OR 97062	DRW SR DATE 4/17/15



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



REV.	DESCRIPTION	DATE	BY	SHEET FLOOR PLAN		JOB# 2015-AR-34
				PROJ. 28' x 64' MODULAR CLASSROOM HORIZON CHRISTIAN		SHEET # A 1.0
				ADDRESS 23370 SW BOONES FERRY RD, TUALATIN, OR 97062		DATE 4/17/15
				DRW SR		

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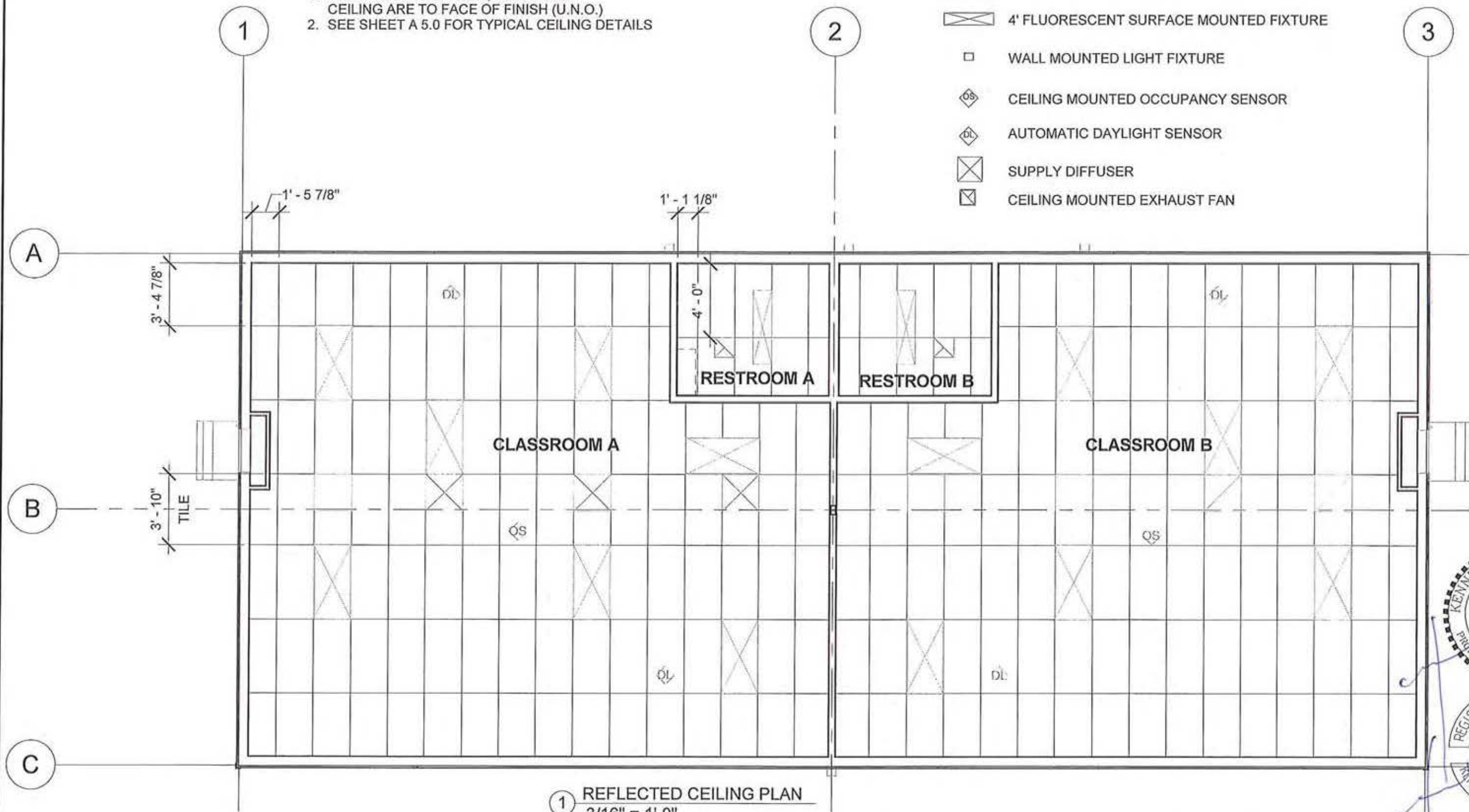
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REFLECTED CEILING PLAN NOTES

1. DIMENSIONS TO FLOOR, WALLS AND CEILING ARE TO FACE OF FINISH (U.N.O.)
2. SEE SHEET A 5.0 FOR TYPICAL CEILING DETAILS

REFLECTED CEILING SYMBOL LEGEND

-  2' x 4' FLUORESCENT LAY-IN FIXTURE
-  4' FLUORESCENT SURFACE MOUNTED FIXTURE
-  WALL MOUNTED LIGHT FIXTURE
-  CEILING MOUNTED OCCUPANCY SENSOR
-  AUTOMATIC DAYLIGHT SENSOR
-  SUPPLY DIFFUSER
-  CEILING MOUNTED EXHAUST FAN

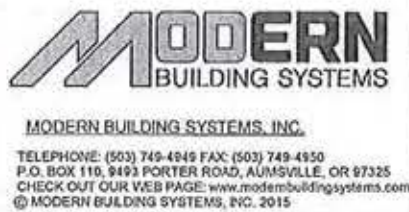


1 REFLECTED CEILING PLAN
3/16" = 1'-0"

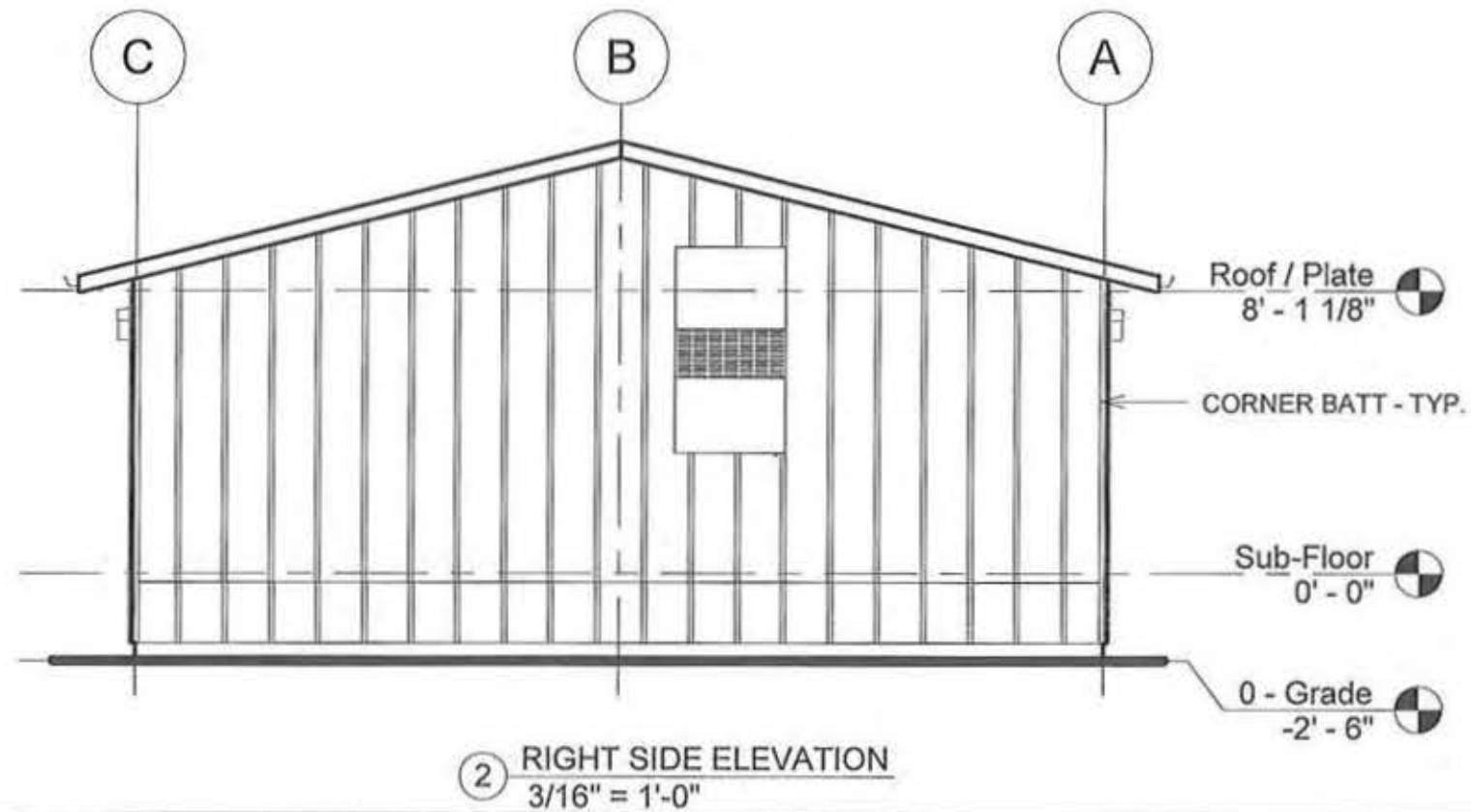
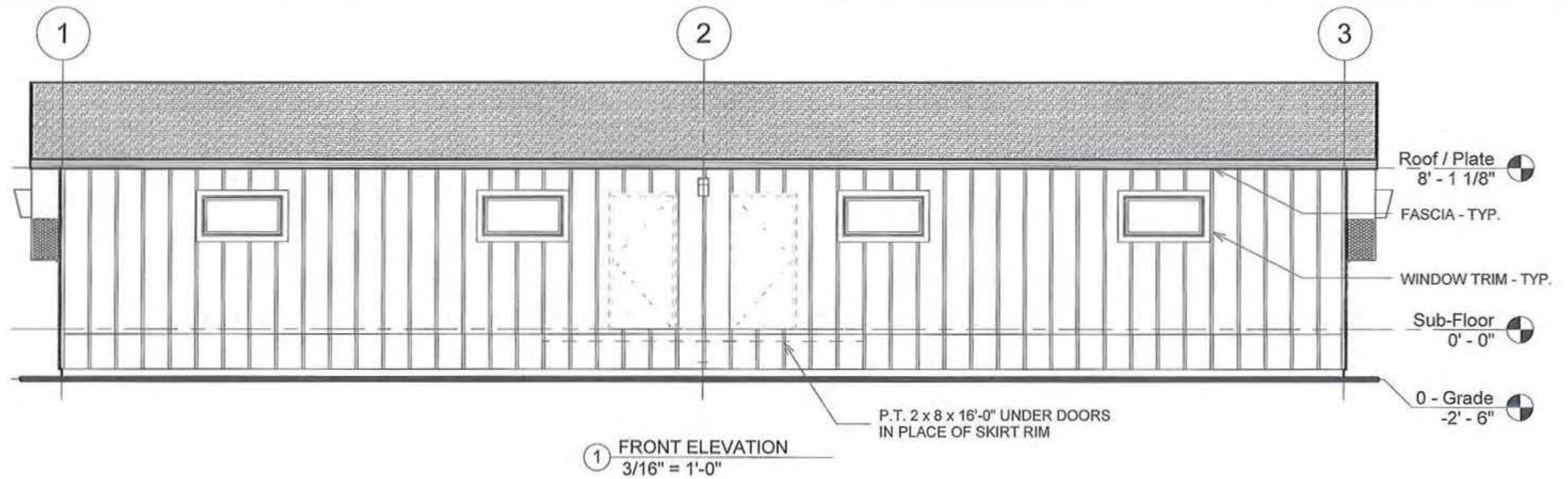


REV.	DESCRIPTION	DATE	BY	SHEET REFLECTED CEILING PLAN		JOB# 2015-AR-34
				PROJ. 28' x 64' MODULAR CLASSROOM HORIZON CHRISTIAN <td>SHEET # A 1.1</td>		SHEET # A 1.1
				ADDRESS 23370 SW BOONES FERRY RD, TUALATIN, OR 97062		DATE 4/17/15

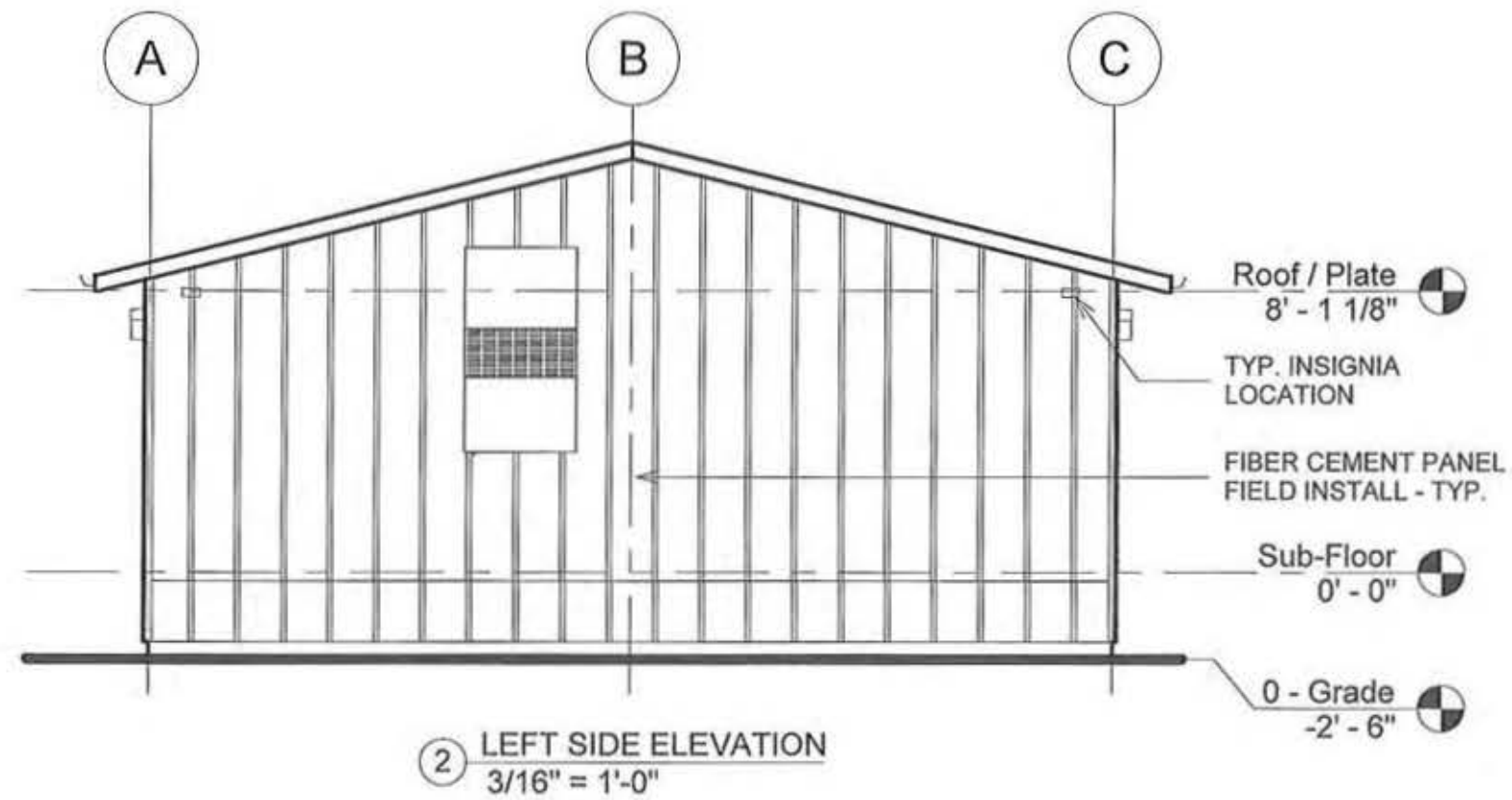
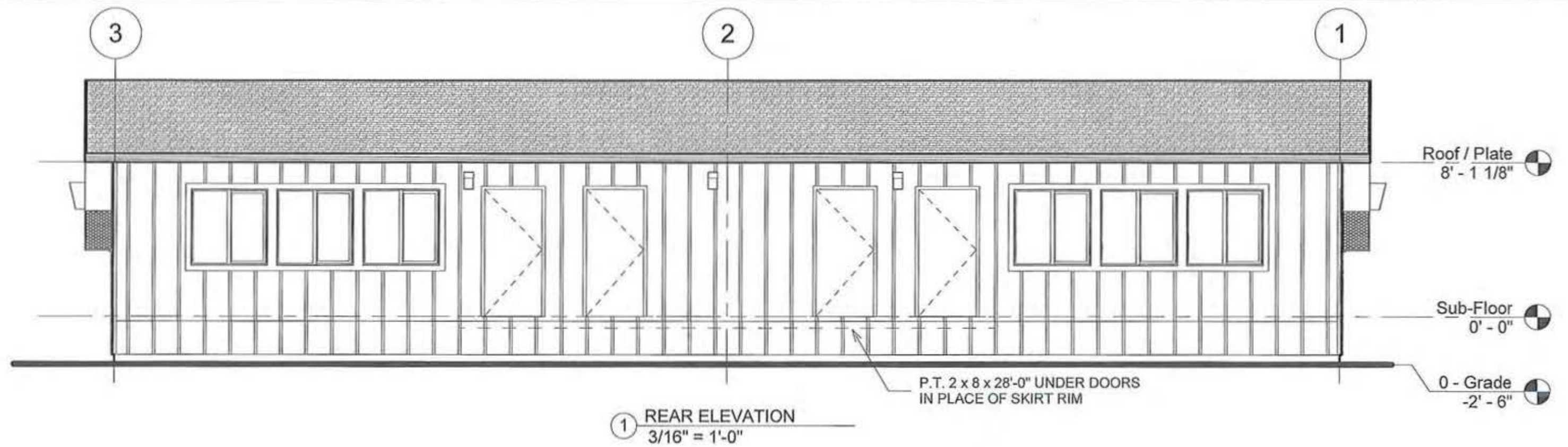
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DRW SR



REV.	DESCRIPTION	DATE	BY			SHEET	EXTERIOR ELEVATIONS	JOB#	2015-AR-34
				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.	MODERN BUILDING SYSTEMS	PROJ.	28' x 64' MODULAR CLASSROOM HORIZON CHRISTIAN	SHEET #	A 2.0
				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 PAGE: www.modernbuildingsystems.com © MODERN BUILDING SYSTEMS, INC. 2015		ADDRESS	23370 SW BOONES FERRY RD, TUALATIN, OR 97062	DRW	SR
								DATE	4/17/15



REV.	DESCRIPTION	DATE	BY		SHEET	JOB#
				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 PAGE: www.modernbuildingsystems.com © MODERN BUILDING SYSTEMS, INC. 2015	EXTERIOR ELEVATIONS	2015-AR-34
					PROJ. 28' x 64' MODULAR CLASSROOM HORIZON CHRISTIAN ADDRESS 23370 SW BOONES FERRY RD, TUALATIN, OR 97062	SHEET # A 2.1
					DRW SR	DATE 4/17/15

FLOOR CONSTRUCTION

FINISH: ARMSTRONG CORLON AT RESTROOM,
MANNINGTON GAMETIME CARPET AT BALANCE

BASE: 6" VINYL AT RESTROOM, 4" VINYL AT BALANCE

UNDERLAYMENT: 3/8" CCP UNDER VINYL & VCT

SUBFLOOR: 23/32" APA RATED SHEATHING
(ACTS AS 1 PERM MAX. VAPOR BARRIER)
(ACTS AS AIR BARRIER)

JOISTS: 2 x 8 DF #2 AT 16" O.C., DBL 2 x 8 AT ENDS.

RIM JOISTS: MURPHY LVL 3100 Fb - 2.0E, 1.5" W x 7-1/4" D
(ESR-1387 & ESR-2913)

OFFSET RIMS: 2 x 4

INSULATION: R-30 U (2 LAYERS R-15 FIBERGLASS BATTS)

BOTTOM CLOSURE: FS-25

EXTERIOR WALL CONSTRUCTION

PLATE HEIGHT: 8'-1 1/8"

FINISH: HARDI-PANEL SIDING W/ BATTS AT 16" O.C.
OVER 30# FELT OR BARRIER WRAP

SHEATHING: 7/16 O.S.B.

STUDS: 2 x 6 HF STUD GRADE AT 16" O.C.

INSULATION: R-21 U (FIBERGLASS BATTS)
HEADERS TO BE (2) 2x W/ MIN. R-10 INSULATION
BETWEEN. SEE DOOR & WINDOW SCHEDULE FOR SIZE.

INTERIOR FINISH: 5/8" VINYL COVERED GYPSUM BOARD
(ACTS AS 1 PERM MAX. VAPOR BARRIER)
(ACTS AS AIR BARRIER)
F.R.P. OVER WATER RESISTANT GYP. BD.
AT RESTROOMS

SKIRT: MATCH SIDING

INTERIOR WALL CONSTRUCTION

PLATE HEIGHT: 8'-1 1/8", FULL HEIGHT AT CENTER WALL

STUDS: 2 x 4 HF STD GRADE AT 16" O.C. (U.N.O.)

INTERIOR FINISH: 5/8" VINYL COVERED GYPSUM BOARD
FULL HEIGHT F.R.P. OVER WATER RESISTANT GYP. BD.
AT RESTROOMS

INSULATION: R-11 MINERAL WOOL BATT AT CENTER WALL

CEILING NOTES

CEILING HEIGHT: NOMINAL 8'-0" (U.N.O.)

SUSPENDED T-GRID W/ ACOUSTIC TILE
(REF: MFR'S INSTALLATION DATA)

INSTALL SUSPENDED CEILING PER IBC, ASTM
C635, C636, ESR-1308 AND 401 DATED 10/09

ATTACH LIGHT FIXTURES TO CEILING GRID
W/ (4) #6 x 1" STSM SCREWS

ATTACH HVAC DIFFUSERS TO CEILING GRID
W/ (4) #6 x 1" STSM SCREWS

LIGHT FIXTURES SHALL BE INDEPENDENTLY SUPPORTED
BY 12 GA. WIRES AT OPPOSITE CORNERS

ROOF CONSTRUCTION

FIBERGLASS COMP. SHINGLES OVER (2) LAYERS
15# FELT (MIN. CLASS B), (6) STAPLES

SHEATHING: 7/16" O.S.B. (24/16)
(ACTS AS AIR BARRIER)

FRAMING: 2 x 10 HF #2 AT 24" O.C.

BEAMS: (2) MURPHY LVL 3100 Fb - 2.0E, 1.5" W x 24" D
LAMINATED VENEER LUMBER (ESR-1387 & ESR-2913)

INSULATION: R-42 (CELLULOSE) W/ FS-25
(ACTS AS 1 PERM MAX. VAPOR BARRIER)

OVERHANG: 18"

ROOF PITCH: 3 IN 12

EXTERIOR NOTES

CORNER BATTS: 1 x 4

FASCIA: 1 x 6

BARGE: 1 x 6

GUTTERS: 5" K-LINE (PREFINISHED)

DOWNSPOUTS: 2" x 3" RECT. (PREFINISHED)

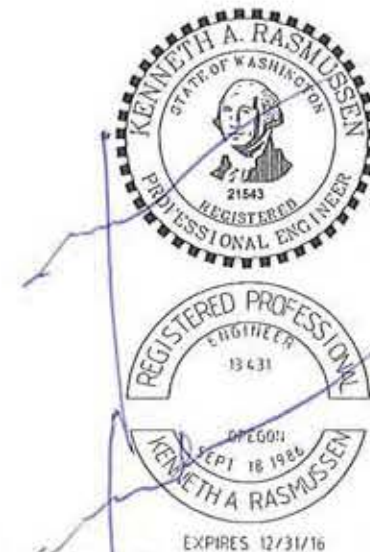
FASTENING/SCHEDULE
MINIMUM NUMBER OF NAILS FOR WOOD MEMBERS
(EXCEPT AS NOTED ON DRAWINGS)

	CONNECTION	NO. / SPACING
FLOOR	RIM JOIST TO FLOOR JOIST	3 PER JOIST
	JOIST TO JOIST BLOCKING	2 ROWS AT 12" O.C. 2 EACH END
WALL	STUDS TO PLATES - END NAIL	2 EACH END AT 2 x 4
	STUDS TO PLATES - END NAIL BLOCKING	3 EACH END AT 2 x 6
	JAMB STUD TO 4x HEADER	2 EACH END
	JAMB STUD TO 2x HEADER	MIN. 4 EACH END
ROOF	STUD TO STUD (CRIPPLE, ETC.)	MIN. 2 EACH END
	UPPER TOP PLATE TO LOWER TOP PLATE	8" O.C.
	BOTTOM PLATE TO FLOOR	2 EACH SIDE OF STUD
	RIM JOIST TO RAFTER	2 EACH SIDE OF STUD
ROOF	RIM JOIST TO TRUSS	3 PER RAFTER
	RAFTER TO RAFTER	MIN. 2 PER TRUSS
	BLOCKING	2 ROWS AT 12" O.C.
	2 x 4 LEDGER	2 EACH END
	2x BRACE TO RAFTER	2 ROWS AT 6" O.C. 4 AT RAFTER

NOTE: ALL FASTENERS ARE 12d (.131)

STANDARD SHEATHING FASTENING - U.N.O.
FROM ESR-1539 JULY 2011

	SPACING	TYPE	MIN. LENGTH
FLOOR SHEATHING (UNBLOCKED)			
23/32" CDX OR O.S.B. OR STURDI - FLOOR T&G	6" EDGE 8" FIELD	8d (.113) RING SHANK	2-3/8"
FLOOR UNDERLAYMENT (GLUE & STAGGER JOINTS)			
3/8" CCP	8" EDGE 8" FIELD	#7 SCREWS	1-5/8"
SHEATHING (ALL EDGES SUPPORTED)			
7/16 O.S.B.	4" EDGE 8" FIELD	15 GA. STAPLE MIN. 7/16" CROWN	2"
ROOF SHEATHING (UNBLOCKED)			
7/16" O.S.B.	4" EDGE 8" FIELD	15 GA. STAPLE MIN. 7/16" CROWN	2"



REV.	DESCRIPTION	DATE	BY

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SHEET	FINISH NOTES	JOB#	2015-AR-34
PROJ.	28' x 64' MODULAR CLASSROOM HORIZON CHRISTIAN	SHEET #	A 3.1
ADDRESS	23370 SW BOONES FERRY RD, TUALATIN, OR 97062	DRW	SR
		DATE	4/17/15

DOOR SCHEDULE

Mark	Width	Height	Thickness	Swing	Core	Lite Size	Lite Glass	Face	Door Finish	Frame Type	Frame Finish	Throat	R.O. Type	Hdw Group	Fire Rating	Door Header	U-Value	Remarks
1	3'-0"	6'-8"	1 3/4"	LHOS	HM	-	-	MTL	PT	HM	PT	6 5/8"	G	1	-	(2) 2 x 8 DF #2	.22	EXIT ONLY
2	3'-0"	6'-8"	1 3/4"	LHOS	HM	-	-	MTL	PT	HM	PT	6 5/8"	G	1	-	(2) 2 x 8 DF #2	.22	EXIT ONLY
3	3'-0"	6'-8"	1 3/4"	LHOS	HM	-	-	MTL	PT	HM	PT	6 5/8"	G	2	-	(2) 2 x 8 DF #2	.22	EXIT ONLY
4	3'-0"	6'-8"	1 3/4"	LHOS	HM	-	-	MTL	PT	HM	PT	6 5/8"	G	2	-	(2) 2 x 8 DF #2	.22	EXIT ONLY
5	3'-0"	6'-8"	1 3/4"	RHOS	HM	-	-	MTL	PT	HM	PT	6 5/8"	G	1	-	(2) 2 x 8 DF #2	.22	FOR WA ONLY
6	3'-0"	6'-8"	1 3/4"	LHOS	HM	-	-	MTL	PT	HM	PT	6 5/8"	G	1	-	(2) 2 x 8 DF #2	.22	FOR WA ONLY

NOTES:

1. CAULK AND SEAL ALL EXTERIOR DOORS
2. ALL EXIT DOORS SHALL BE OPENABLE FROM THE INSIDE WITHOUT THE USE OF A KEY OR SPECIAL KNOWLEDGE OR EFFORT (U.N.O.)
3. ALL DOOR LEADS 4-1/2" U.N.O.
4. ALL DOORS TO HAVE A OPENING FORCE NOT EXCEED 5 POUNDS

WINDOW SCHEDULE

Mark	Count	Width	Height	Type	Frame	Glass	SHGC	U-VAL	Air Leakage	Ext. Trim	Int. Trim	Window Header	Comments
A	6	4'-0"	4'-0"	XO	VINYL	DUAL / LOW E / TMP	0.30	0.34	.18 CFM/SF	1x4	VWS	(2) 2 x 8 DF #2	MINI BLINDS
B	4	4'-0"	2'-0"	XO	VINYL	DUAL / LOW E	0.30	0.34	.18 CFM/SF	1x4	VWS	(2) 2 x 8 DF #2	MINI BLINDS

NOTES:

1. CAULK AND SEAL ALL EXTERIOR WINDOWS

HARDWARE SCHEDULE

GROUP #1	GROUP #2	GROUP #3	GROUP #4	GROUP #5	GROUP #6	GROUP #7
1-1/2 PAIR BUTTS PANIC/PULL (VON DURPIN 99NL) CLOSER WEATHER-STRIP DOOR BOTTOM 1/2" MAX. ACCESSIBLE THRESHOLD	1-1/2 PAIR BUTTS PULL/PUSH PLATE (INDICATOR LOCK/THUMB NON INTERIOR) WEATHER-STRIP DOOR BOTTOM 1/2" MAX. ACCESSIBLE THRESHOLD					

ABBREVIATIONS

AL ALUMINUM	CLR CLEAR	HB HARDBOARD	LHR LEFT HAND REV.	RHR RIGHT HAND REV.	TTP TAPE, TEXTURE, PT
AFF ABOVE FIN. FLR.	CS CAULK & SEAL	HC HOLLOW CORE	MTL METAL	SC SOLID CORE	VWS VINYL WRAP SURR.
AO ALPINE OK	FGL FIBERGLASS	HM HOLLOW METAL	NRW NARROW (LITE)	SF STOREFRONT	WD WOOD
BA BRONZE ANODIZED	FP FACTORY PRIMED	INS INSULATED	PF PREFINISHED	STN STAIN	WLD WELDED
BV BOTTOM VENT	FPT FIELD PAINTED	KD KNOCK DOWN	PT PAINT	TIM TIMELY FRAME	
CDR CEDAR		LH LEFT HAND	RH RIGHT HAND	TMP TEMPERED	



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						PROJ.	28' x 64' MODULAR CLASSROOM HORIZON CHRISTIAN		SHEET #	A 3.2		
						ADDRESS	23370 SW BOONES FERRY RD, TUALATIN, OR 97062		DRW	SR	DATE	4/17/15

DOOR ROUGH OPENING SCHEDULE

EXTERIOR DOORS

A	METAL DOOR W/ HOLLOW METAL FRAME (WELDED)		
	R.O. WIDTH	CALL SIZE + 4-1/2"	
	R.O. HEIGHT	CALL SIZE + 2-1/8"	
B	DBL. METAL DOORS W/ HOLLOW METAL FRAME (WELDED)		
	R.O. WIDTH	CALL SIZE + 4-1/2"	
	R.O. HEIGHT	CALL SIZE + 2-1/8"	
C	STOREFRONT DOOR		
	R.O. WIDTH	CALL SIZE + 4-1/2"	
	R.O. HEIGHT	CALL SIZE + 2-1/8"	
D	TIMELY SPLIT MEDIA DOOR		
	R.O. WIDTH	CALL SIZE + 1-1/4"	
	R.O. HEIGHT	CALL SIZE + 1"	
E1	METAL DOOR W/ WOOD FRAME (PEASE & STANLEY) (INSWING)		
	R.O. WIDTH	CALL SIZE + 2"	
	R.O. HEIGHT	CALL SIZE + 2"	
E2	METAL DOOR W/ WOOD FRAME (PEASE & STANLEY) (OUTSWING)		
	R.O. WIDTH	CALL SIZE + 2"	
	R.O. HEIGHT	CALL SIZE + 1-9/16"	
F	STOCKER DOOR		
	R.O. WIDTH	CALL SIZE + 2-1/4"	
	R.O. HEIGHT	CALL SIZE + 1-3/8"	
G	METAL DOOR W/ HOLLOW METAL FRAME (KNOCK-DOWN)		
	R.O. WIDTH	CALL SIZE + 2"	
	R.O. HEIGHT	CALL SIZE + 1"	

INTERIOR DOORS

1	HOLLOW / SOLID WOOD DOOR W/ WOOD FRAME		
	R.O. WIDTH	CALL SIZE + 2"	
	R.O. HEIGHT	CALL SIZE + 2-1/8"	
2	TIMELY FRAME		
	R.O. WIDTH	CALL SIZE + 1-1/4"	
	R.O. HEIGHT	CALL SIZE + 1"	
3	POCKET DOOR		
	R.O. WIDTH	2 x CALL SIZE + 2"	
	R.O. HEIGHT	CALL SIZE + 4"	
4	BI-PASS DOOR		
	R.O. WIDTH	CALL SIZE	
	R.O. HEIGHT	CALL SIZE + 2-1/8"	
5	BI-FOLD DOOR		
	R.O. WIDTH	CALL SIZE	
	R.O. HEIGHT	CALL SIZE + 5/8"	

NOTE: ALL TRIMMER HEIGHTS = R.O. CALL SIZE MINUS 1-1/2"

PROJECT DATA LIST

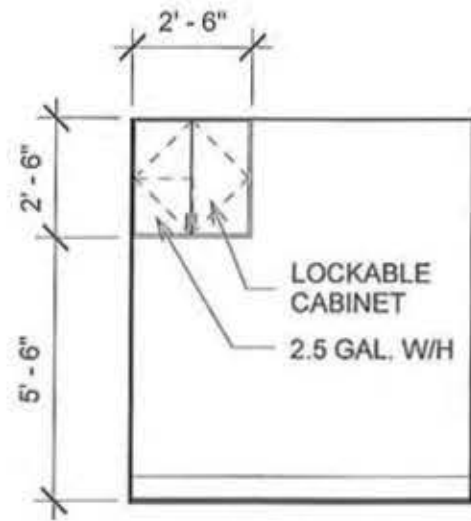
BUILDING SQ. FOOTAGE: 1770 S.F.
 EXT. WALL LIN. FOOTAGE: 184 L.F.
 INT. WALL LIN. FOOTAGE: 60 L.F.
 PROJECTED ROOF AREA: 2118 S.F.

OCCUPANT LOAD CALCULATION

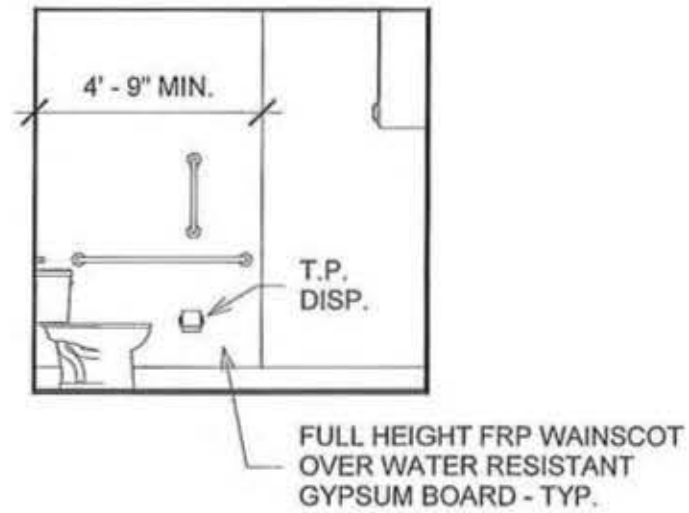
CLASSROOM A: (794 S.F.) / (20) = 40
 CLASSROOM B: (794 S.F.) / (20) = 40
 RESTROOMS: (132 S.F.) = 0
 TOTAL: = 80



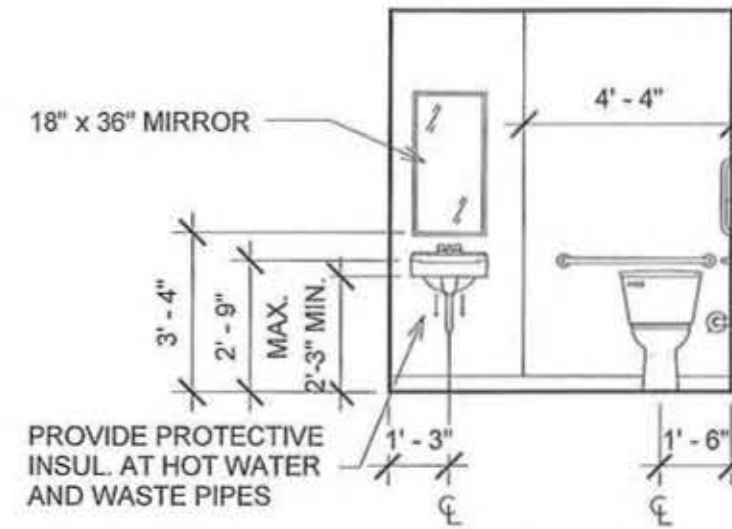
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						PROJ.	28' x 64' MODULAR CLASSROOM HORIZON CHRISTIAN	SHEET #	A 3.3		
						ADDRESS	23370 SW BOONES FERRY RD, TUALATIN, OR 97062	DRW	SR	DATE	4/17/15



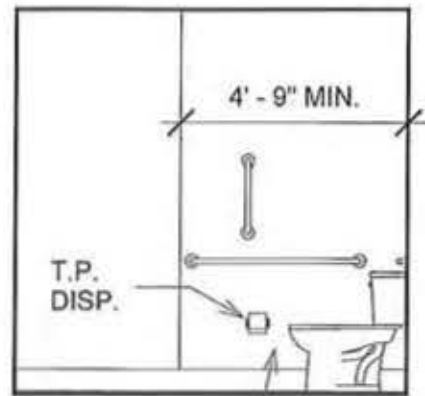
① RESTROOM A - FRONT WALL
1/4" = 1'-0"



② RESTROOM A - SIDE WALL
1/4" = 1'-0"

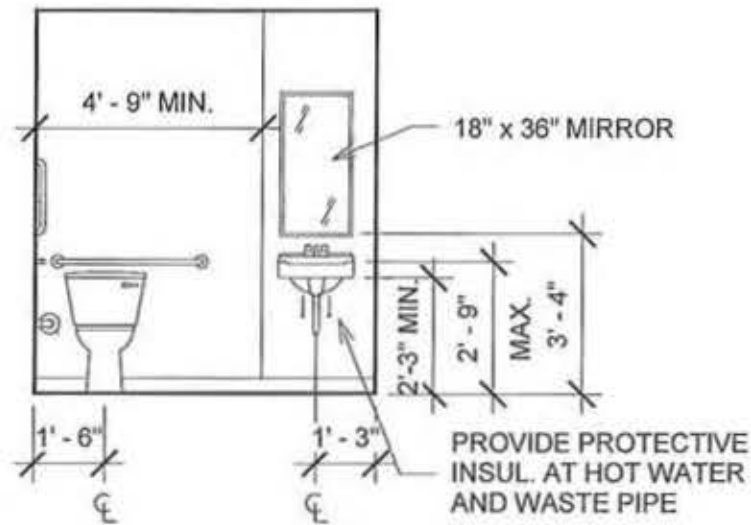


③ RESTROOM A - BACK WALL
1/4" = 1'-0"



FULL HEIGHT FRP WAINSCOT OVER WATER RESISTANT GYPSUM BOARD - TYP.

④ RESTROOM B - SIDE WALL
1/4" = 1'-0"



⑤ RESTROOM B - BACK WALL
1/4" = 1'-0"

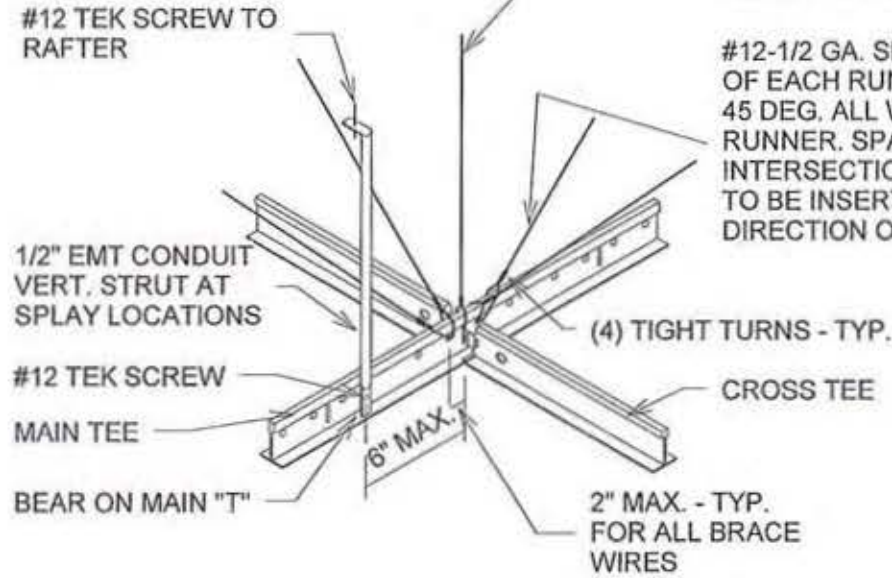
INTERIOR ELEVATION NOTES

1. DIMENSIONS TO FLOOR, WALLS AND CEILING ARE TO FACE OF FINISH (U.N.O.)
2. PROVIDE WOOD BLOCKING FOR ALL ACCESSORIES MOUNTED IN GYPSUM BOARD PARTITIONS. MAINTAIN INTEGRITY OF FIRE RATING WHERE ACCESSORIES ARE IN RATED WALLS.
3. SEE DETAILS FOR ADA RESTROOM ACCESSORIES AND MOUNTING HEIGHTS.

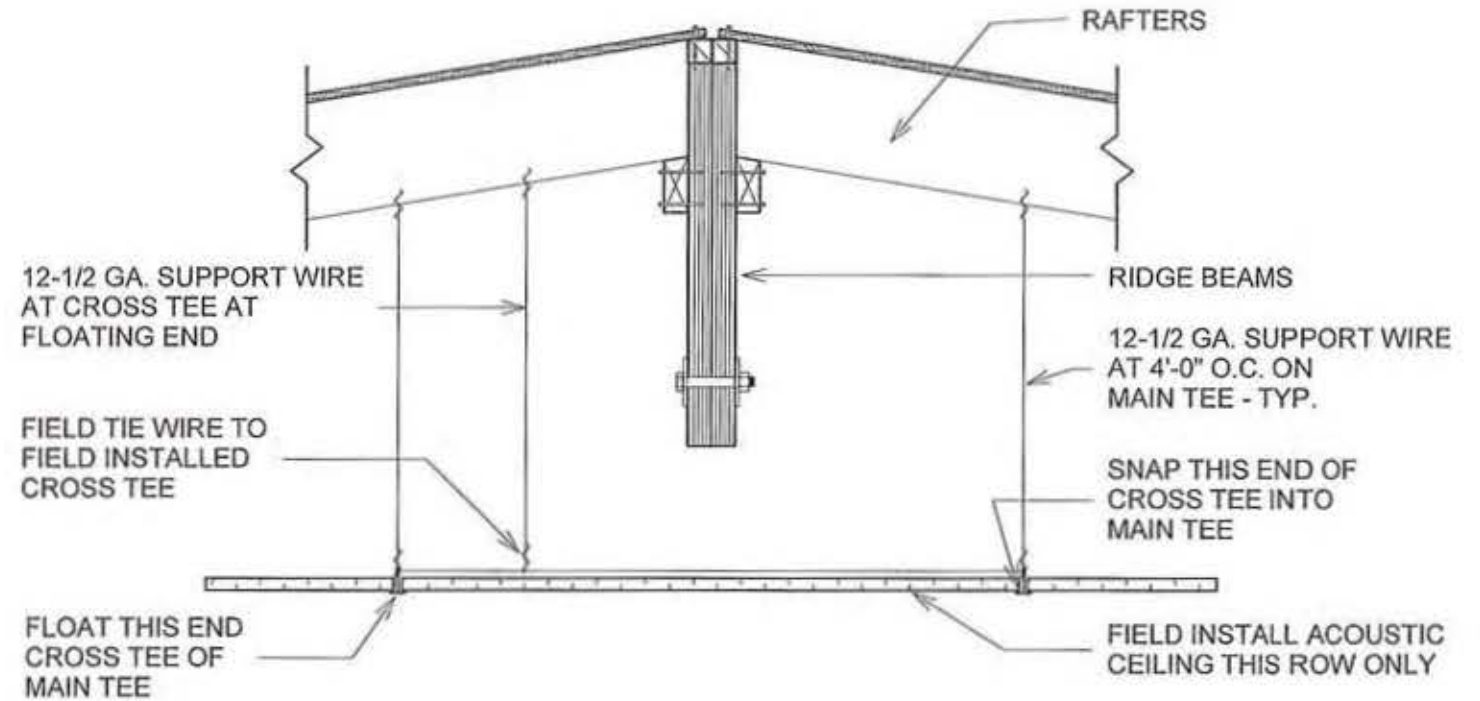


REV.	DESCRIPTION	DATE	BY			SHEET	INTERIOR ELEVATIONS	JOB#	2015-AR-34		
				REUSE OF DOCUMENTS THIS DOCUMENT AND THE IDEAS AND DESIGNS INCORPORATED HEREIN ARE THE PROPERTY OF MODERN BUILDING SYSTEMS INC. AND ARE NOT TO BE USED IN WHOLE OR IN PART FOR ANY OTHER USE OR PROJECT WITHOUT WRITTEN AUTHORIZATION.		 MODERN BUILDING SYSTEMS, INC. TELEPHONE: (503) 749-4948 FAX: (503) 749-4990 P.O. BOX 110, 9493 PORTER ROAD, ALMSVILLE, OR 97325 CHECK OUT OUR WEB PAGE: www.modernbuiltingsystems.com © MODERN BUILDING SYSTEMS, INC. 2015		PROJ. 28' x 64' MODULAR CLASSROOM HORIZON CHRISTIAN		SHEET #	A 4.0
						ADDRESS 23370 SW BOONES FERRY RD, TUALATIN, OR 97062		DRW SR	DATE 4/17/15		

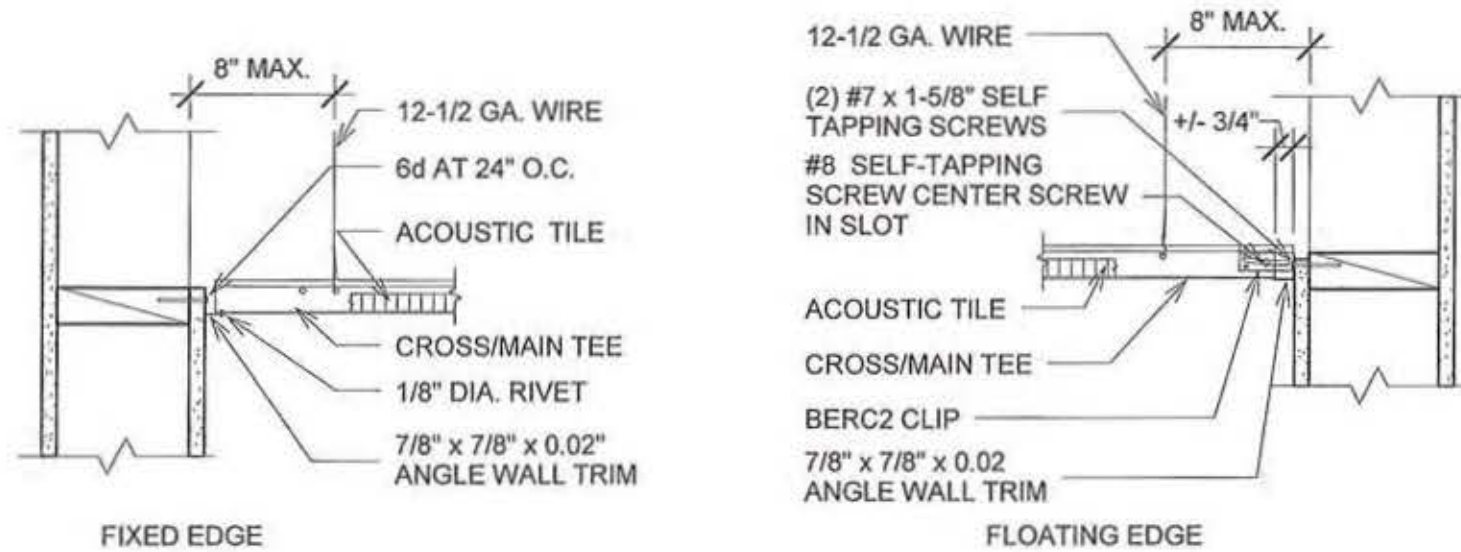
HANGERS TO BE #12-1/2 GA. GALV., SOFT-ANNEALED, MILD STEEL WIRE AT 4'-0" O.C. AND MAX. 8" FROM END WALLS - ATTACHED W/ MIN. (3) TURNS TO CEILING SUSPENSION MEMBERS AND TO 1/4" x 3" LAG INTO BOTTOM EDGE OF ROOF JOIST. WHERE WIRES ARE SPLAYED MORE THAN 1 IN 6 OUT OF PLUMB, PROVIDE COUNTER SLOPING WIRES



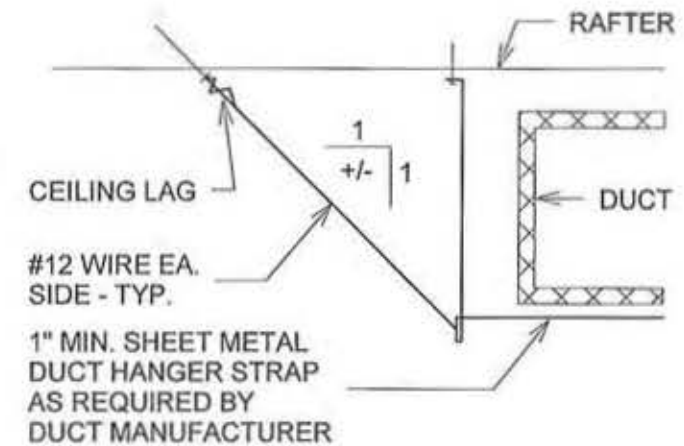
1 CEILING BRACING DETAIL
3/4" = 1'-0"



3 CEILING GRID AT MARRIAGE
1" = 1'-0"



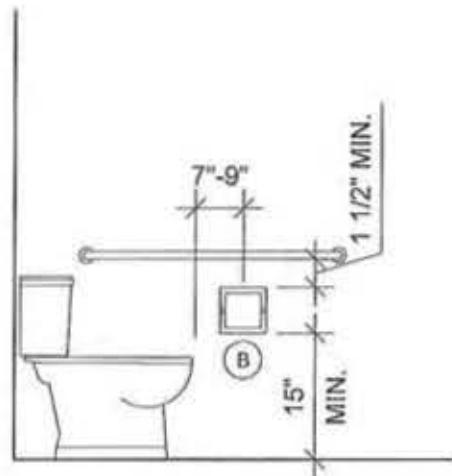
2 CEILING GRID AT SIDE/END WALL
1 1/2" = 1'-0"



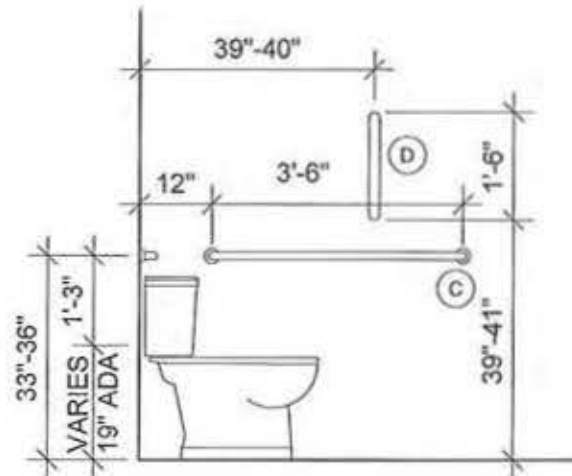
4 DUCT SUPPORT
1" = 1'-0"



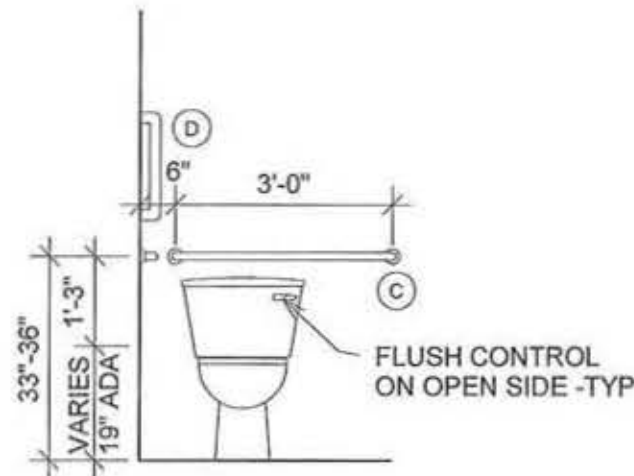
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						PROJ. 28' x 64' MODULAR CLASSROOM HORIZON CHRISTIAN	SHEET # A 5.0
						ADDRESS 23370 SW BOONES FERRY RD, TUALATIN, OR 97062	DATE 4/17/15



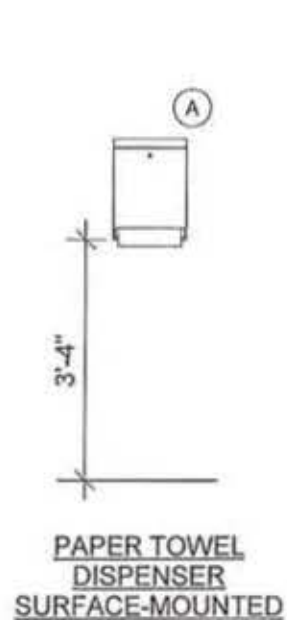
TOILET PAPER HOLDER



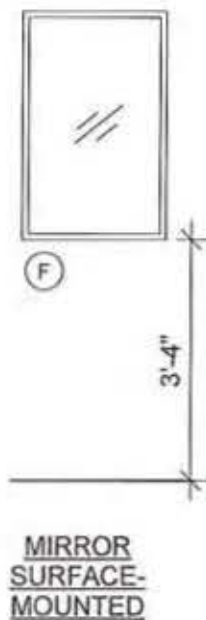
SIDE & VERTICAL GRAB BAR



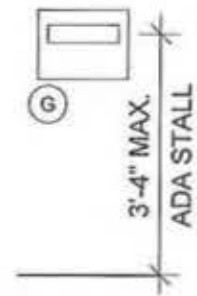
BACK GRAB BAR



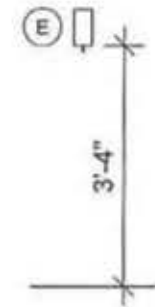
PAPER TOWEL DISPENSER SURFACE-MOUNTED



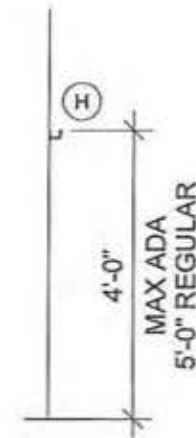
MIRROR SURFACE-MOUNTED



TOILET SEAT COVER DISPENSER



SURFACE MOUNTED SOAP DISPENSER



RESTROOM DOOR HOOK

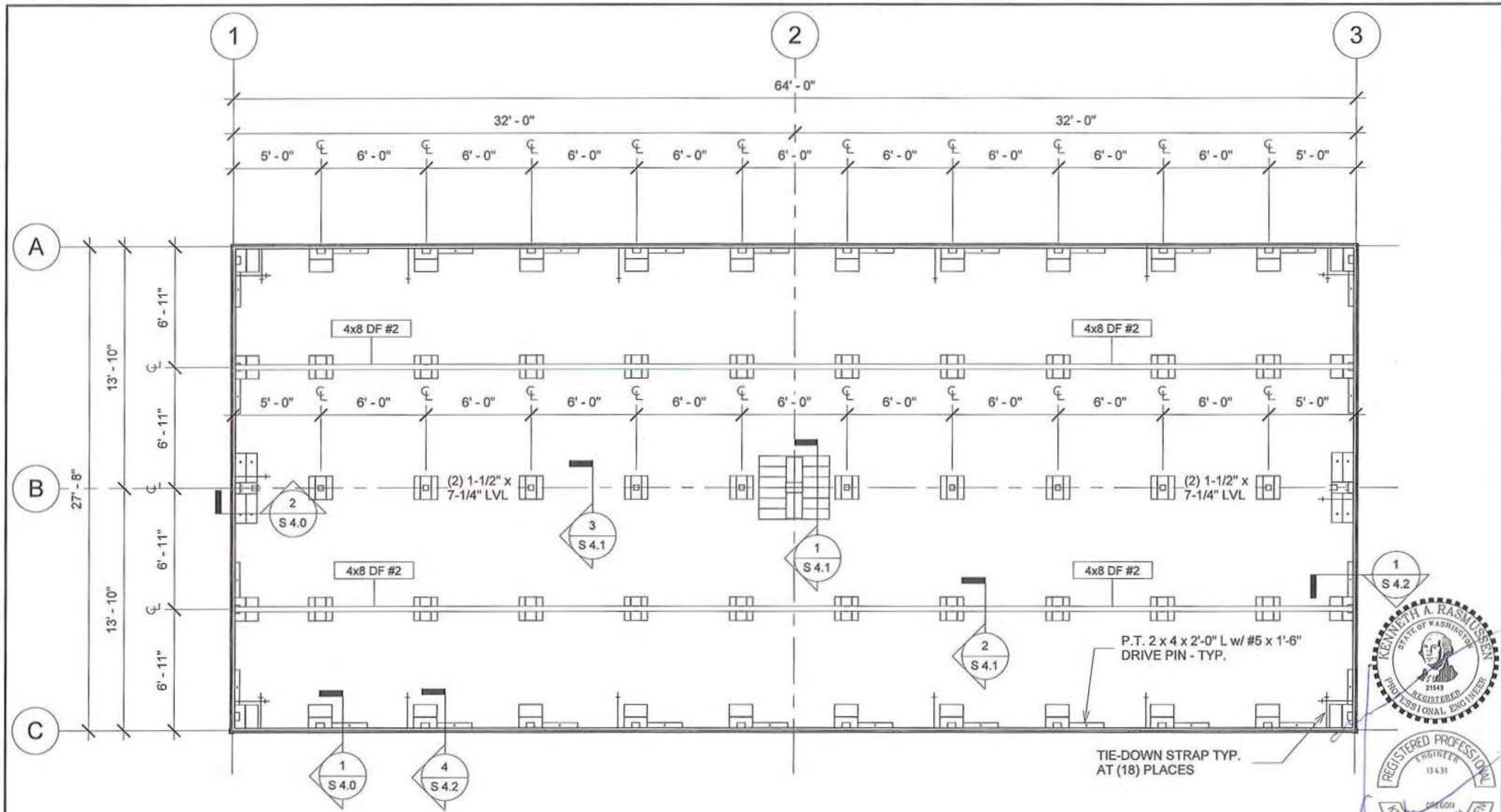
SCHEDULE OF ACCESSORIES	
ID	ITEMS
A	PAPER TOWEL DISPENSER
B	TOILET TISSUE DISPENSER
C	HORIZONTAL GRAB BAR
D	VERTICAL GRAB BAR
E	SOAP DISPENSER
F	MIRROR
G	TOILET SEAT COVER DISPENSER
H	HOOK

NOTE:
 1. DIMENSIONS TO FLOOR AND WALLS ARE TO FACE OF FINISH (U.N.O.)
 2. NOT ALL ACCESSORIES MAY BE PRESENT IN THIS PARTICULAR BUILDING.

1 ADA MOUNTING HEIGHTS
 3/8" = 1'-0"



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					PROJ. 28' x 64' MODULAR CLASSROOM HORIZON CHRISTIAN	SHEET # A 5.1
					ADDRESS 23370 SW BOONES FERRY RD, TUALATIN, OR 97062	DRW SR
						DATE 4/17/15



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

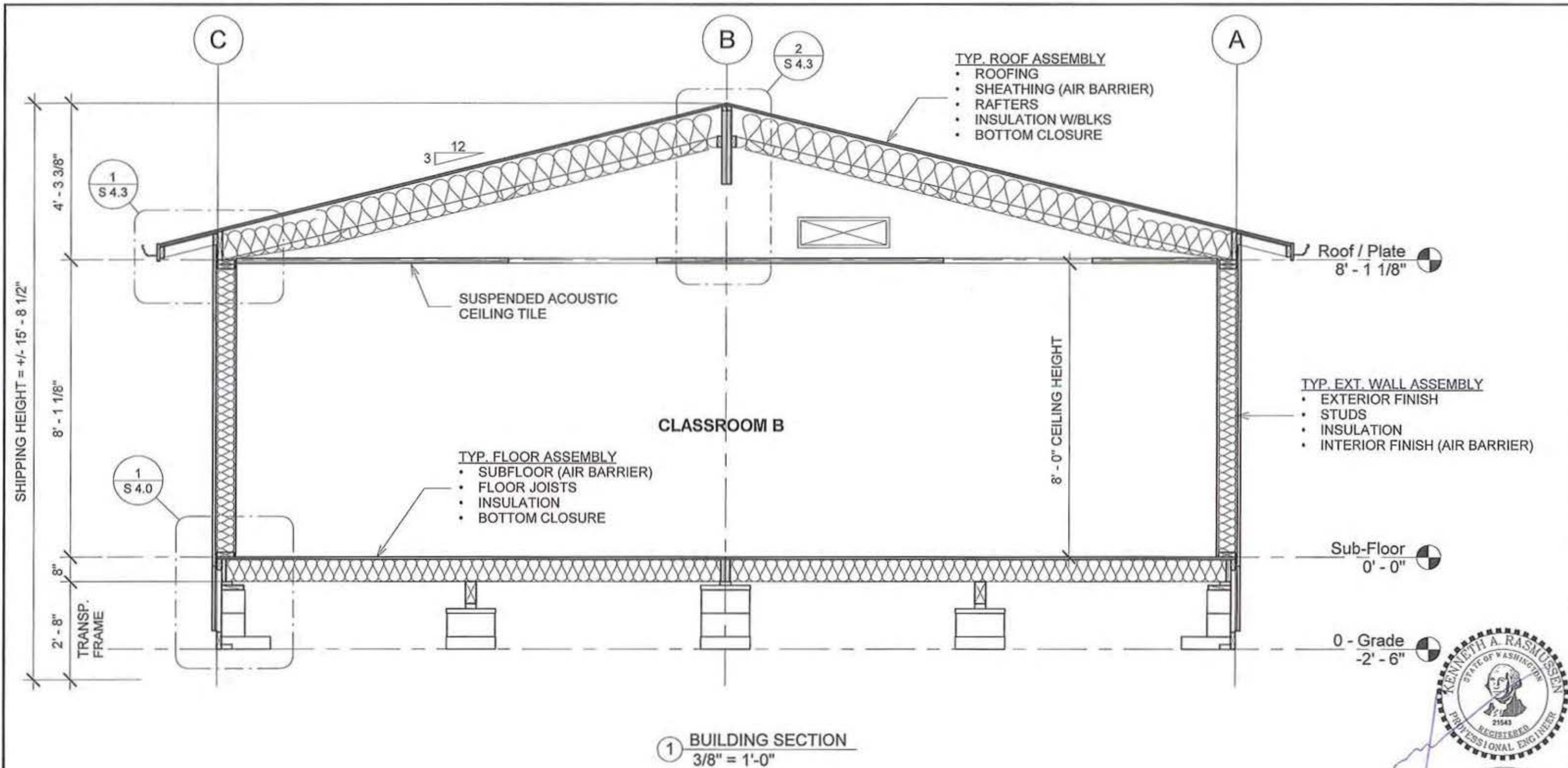


REV.	DESCRIPTION	DATE	BY	SHEET FOUNDATION PLAN		JOB# 2015-AR-34
				PROJ. 28' x 64' MODULAR CLASSROOM HORIZON CHRISTIAN		SHEET # S 1.0
				ADDRESS 23370 SW BOONES FERRY RD, TUALATIN, OR 97062		DATE 4/17/15

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DRW SR



NOTES:

PER C402.4.1.2.3 BUILDING TEST. THE COMPLETED BUILDING SHALL BE TESTED AND AIR LEAKAGE RATE OF THE BUILDING ENVELOPE SHALL NOT EXCEED 0.40 CFM/SQ. FT. AT A PRESSURE DIFFERENTIAL OF 0.3 INCHES OF WATER GAUGE IN ACCORDANCE WITH ASTM E 779 OR AN EQUIVALENT METHOD APPROVED BY THE CODE OFFICIAL.

THE AIR BARRIER SHALL BE CONTINUOUS FOR THE THERMAL ENVELOPE & ACROSS THE JOINTS & ASSEMBLIES. JOINTS & SEAMS SHALL BE SEALED, INCLUDING SEALING TRANSITIONS IN PLACES & CHANGES IN MATERIALS. PENETRATIONS OF THE AIR BARRIER & PATHS OF AIR LEAKAGE SHALL BE CAULKED, GASKETED, OR OTHERWISE SEALED IN A MANNER COMPATIBLE WITH THE CONSTRUCTION MATERIALS & LOCATION



REV.	DESCRIPTION	DATE	BY	SHEET BUILDING SECTIONS		JOB#
				28' x 64' MODULAR CLASSROOM		2015-AR-34
				HORIZON CHRISTIAN		SHEET# S 3.0
				ADDRESS 23370 SW BOONES FERRY RD, TUALATIN, OR 97062	DRW SR	DATE 4/17/15

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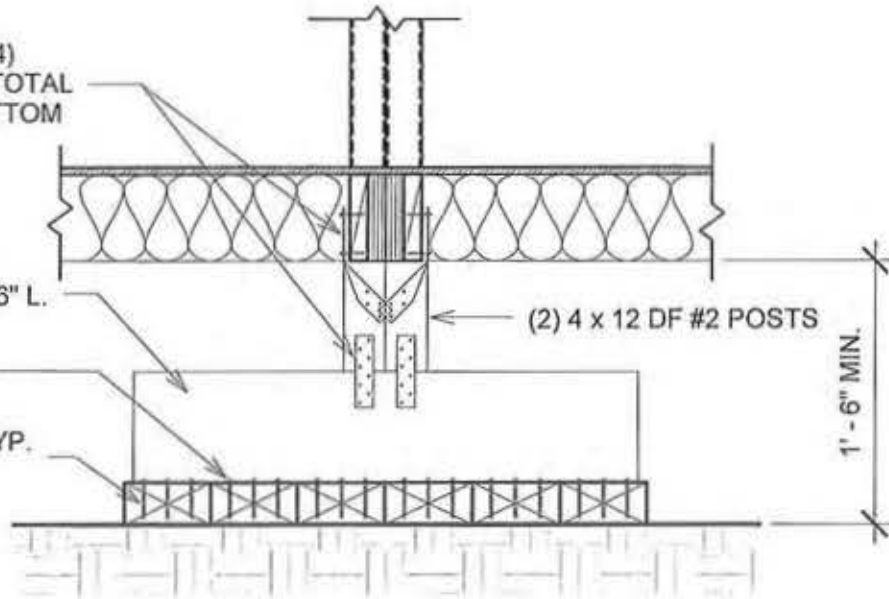


SIMPSON CS18 W/ (4)
N10'S EA. END - (4) TOTAL
AT BOTH TOP & BOTTOM

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

(6) P.T. HF #2,
4 x 8 x 4'-0" L. FLAT

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



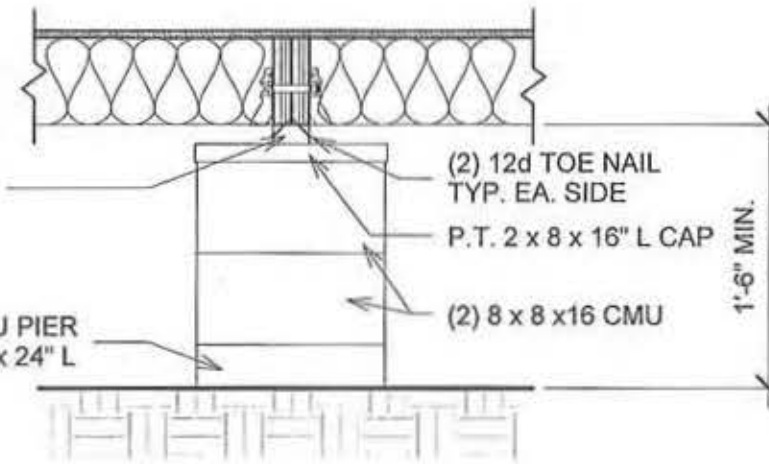
① COLUMN FOOTING
3/4" = 1'-0"

WEDGE/ SHIM

16 x 16 x 4 CMU PIER
OR P.T. 2 x 12 x 24" L

(2) 12d TOE NAIL
TYP. EA. SIDE
P.T. 2 x 8 x 16" L CAP

(2) 8 x 8 x 16 CMU

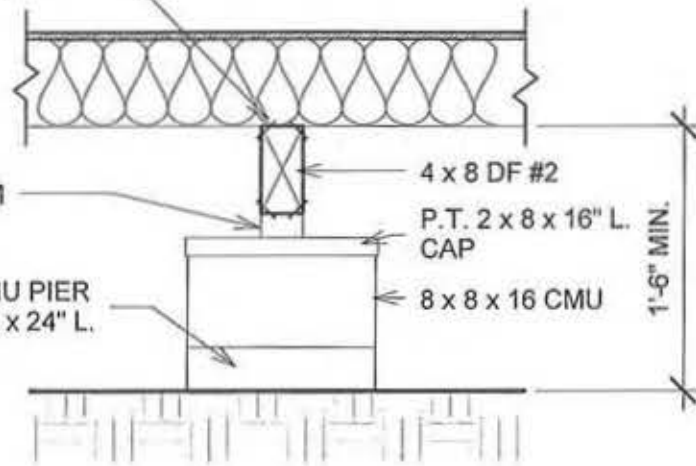


③ MARRIAGE LINE FOOTING
3/4" = 1'-0"

(2) 12d TOE NAIL
EA. SIDE - TYP.

WEDGE/ SHIM

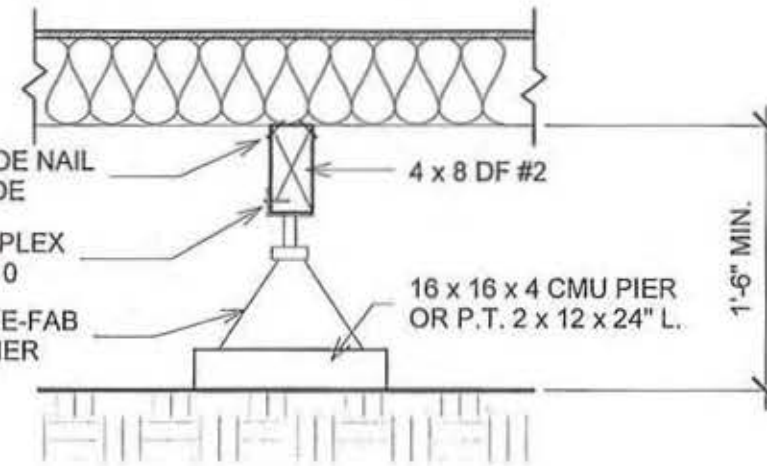
16 x 16 x 4 CMU PIER
OR P.T. 2 x 12 x 24" L.



② MID-SPAN FOOTING
3/4" = 1'-0"

(2) 12d TOE NAIL
EACH SIDE

(2) 6d DUPLEX
OR (2) N10
6000# PRE-FAB
METAL PIER



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



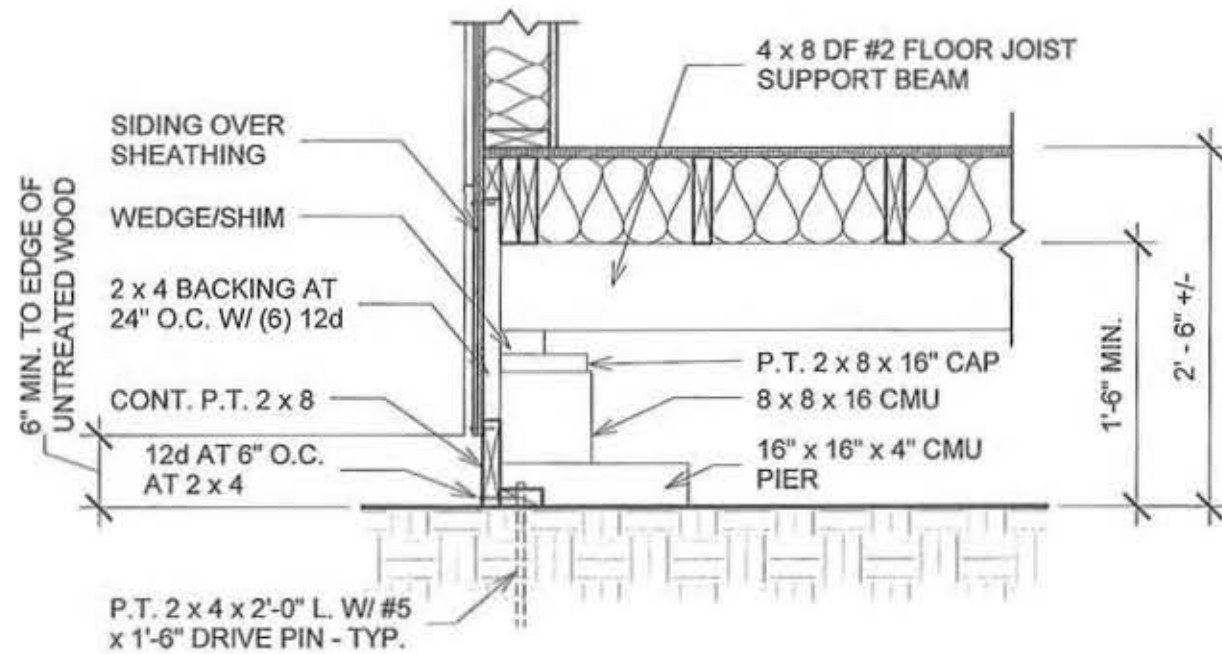
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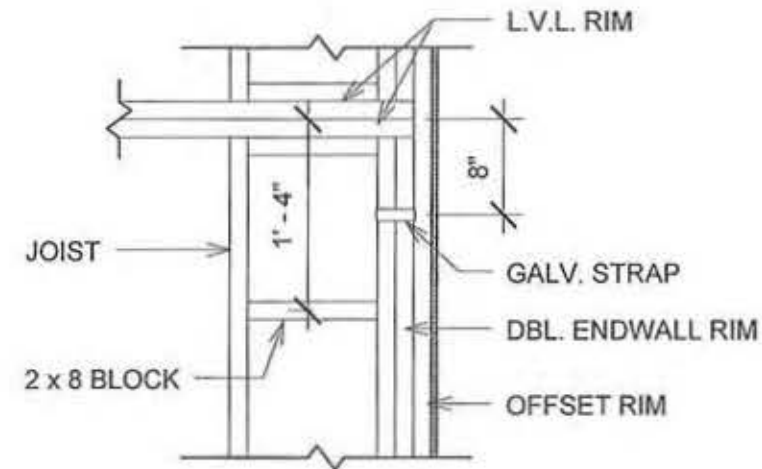


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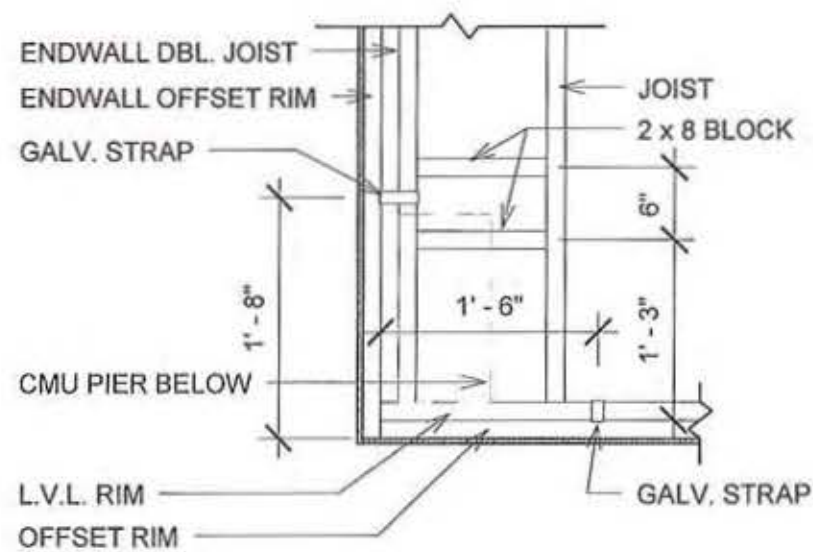
SHEET	FOUNDATION DETAILS	JOB#	2015-AR-34
PROJ.	28' x 64' MODULAR CLASSROOM HORIZON CHRISTIAN	SHEET #	S 4.1
ADDRESS	23370 SW BOONES FERRY RD, TUALATIN, OR 97062	DRW	SR
		DATE	4/17/15



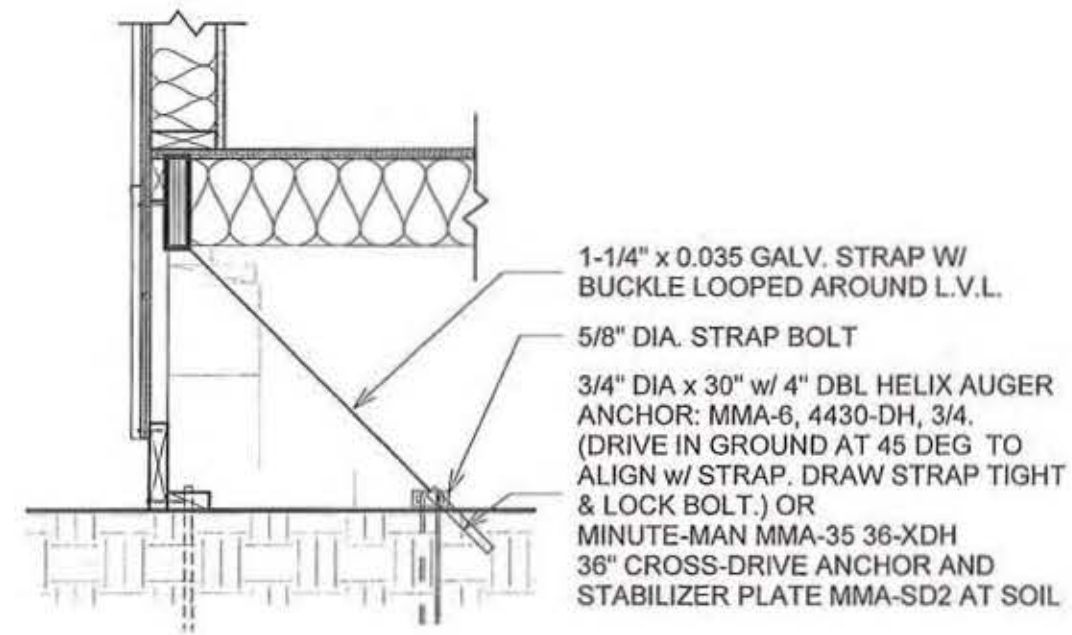
① ENDWALL FOOTING AT BEAM
3/4" = 1'-0"



③ TIE-DOWN AT MARRIAGE
3/4" = 1'-0"



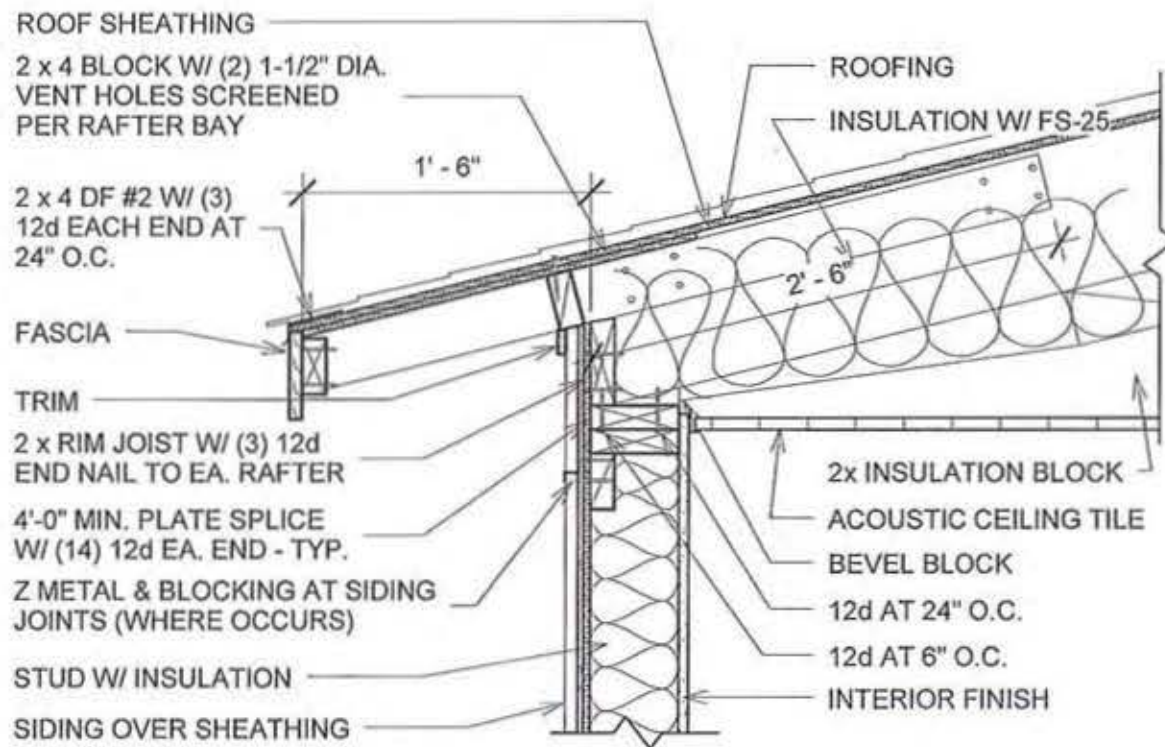
② TIE-DOWN AT CORNER
3/4" = 1'-0"



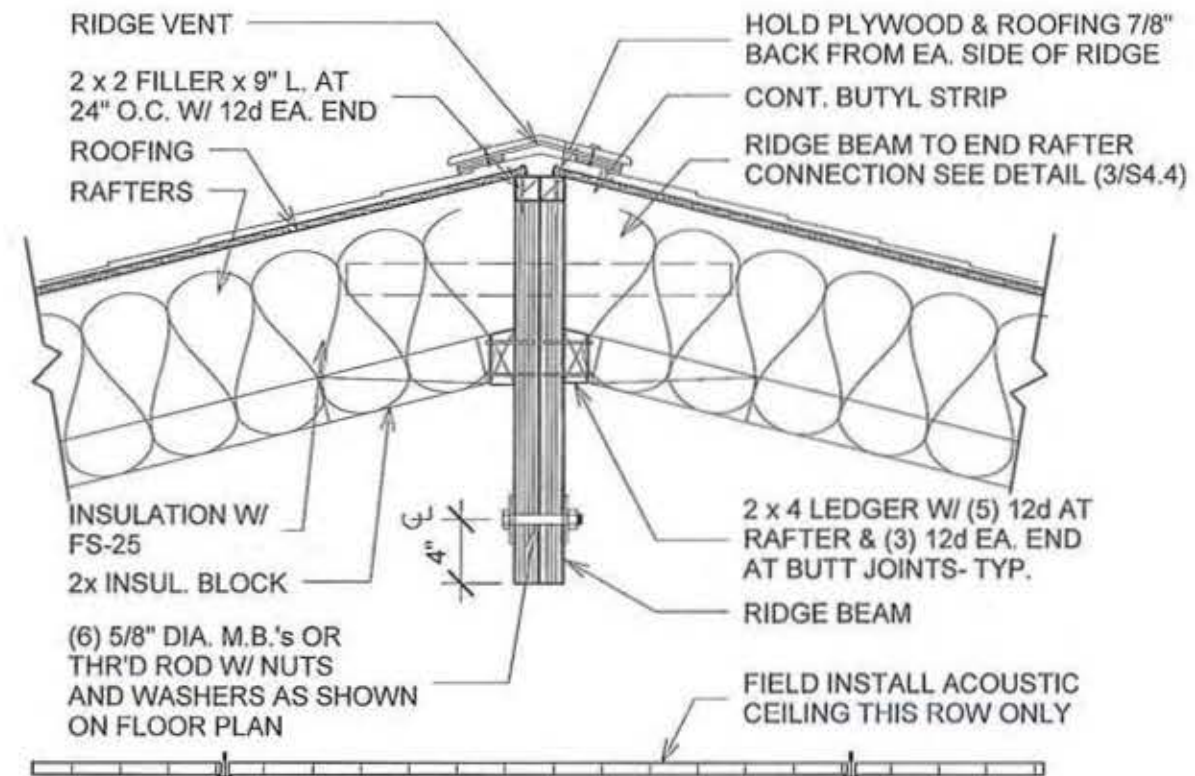
④ TIE-DOWN STRAP
3/4" = 1'-0"



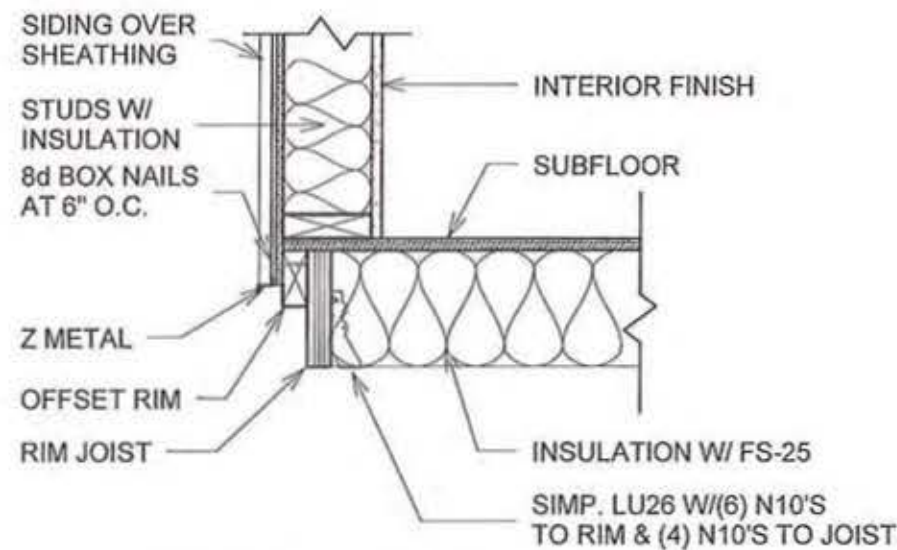
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						PROJ. 28' x 64' MODULAR CLASSROOM HORIZON CHRISTIAN	SHEET # S 4.2
						ADDRESS 23370 SW BOONES FERRY RD, TUALATIN, OR 97062	DATE 4/17/15



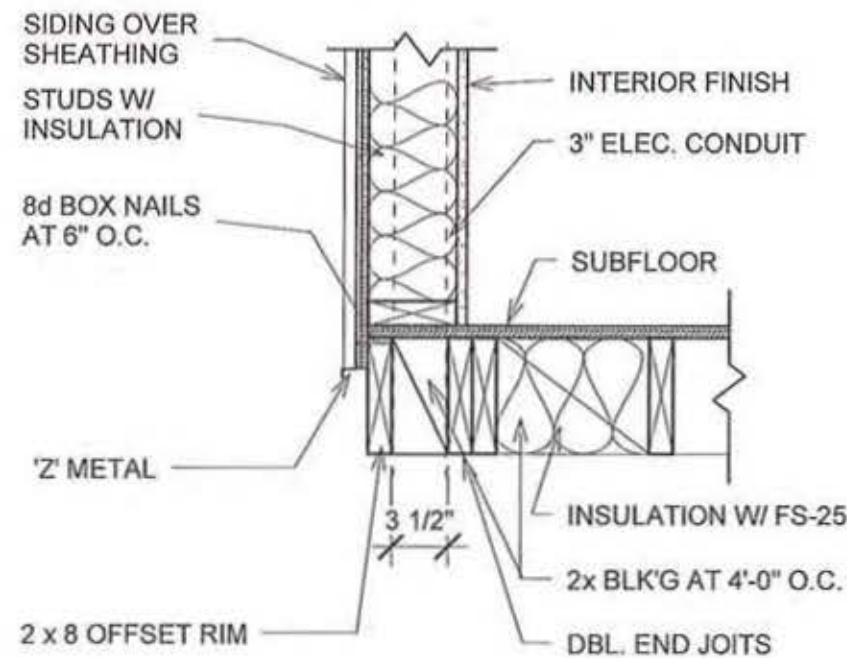
① SIDEWALL EAVE DETAIL
1" = 1'-0"



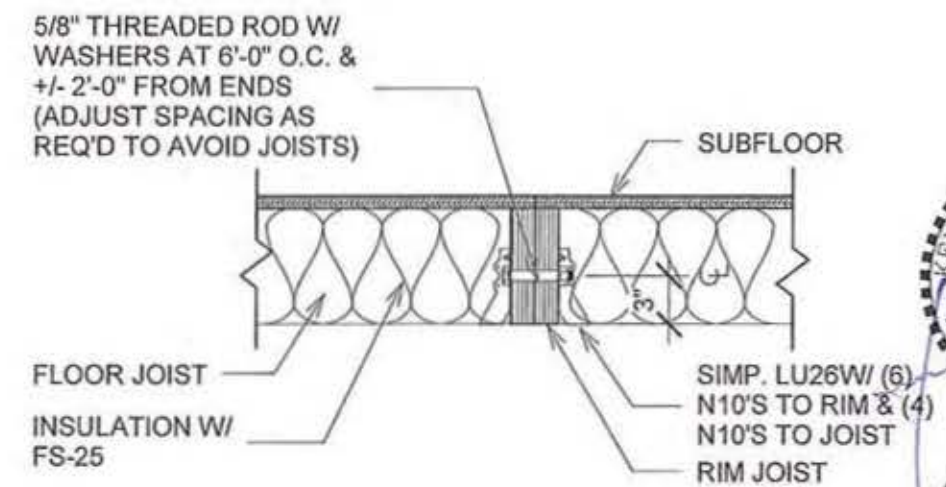
② ROOF MARRIAGE DETAIL
1" = 1'-0"



③ SIDEWALL FLOOR DETAIL
1" = 1'-0"



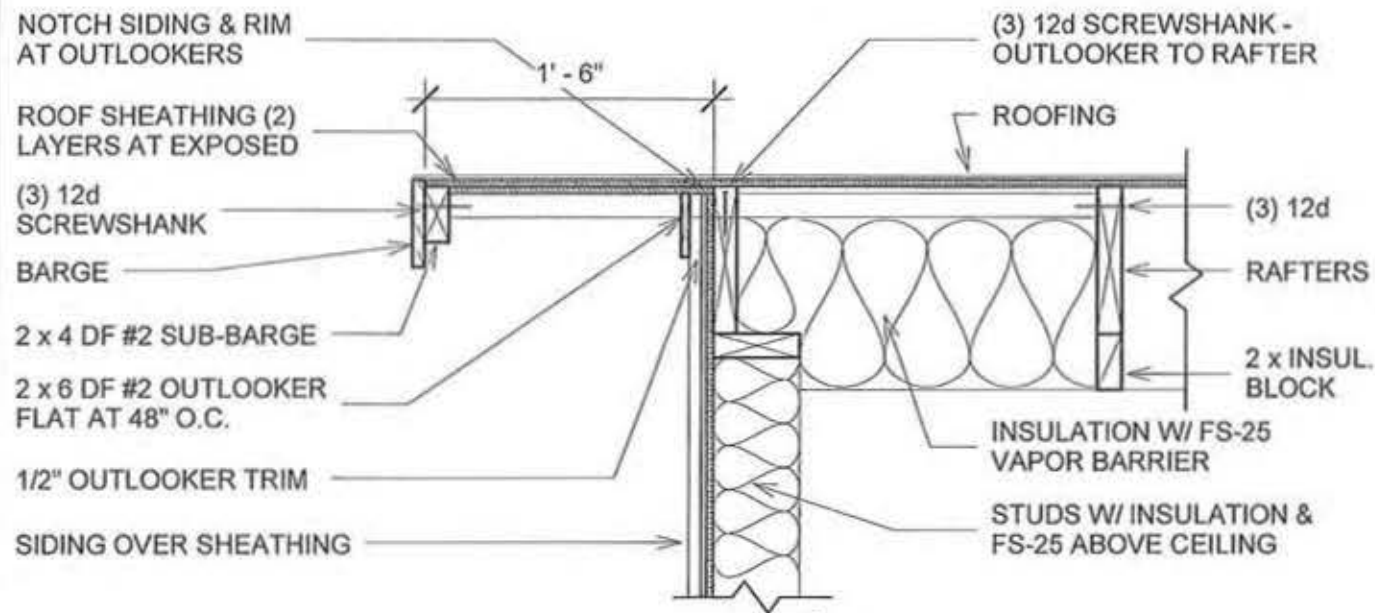
④ ENDWALL FLOOR AT CONDUIT
1" = 1'-0"



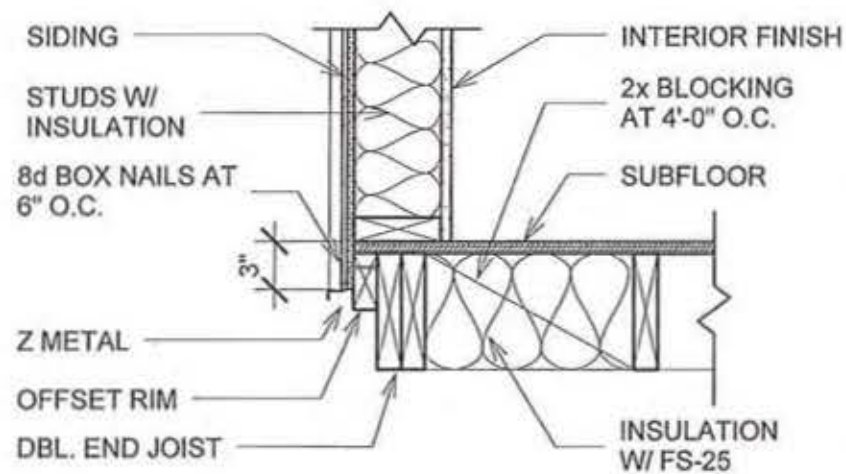
⑤ FLOOR MARRIAGE DETAIL
1" = 1'-0"



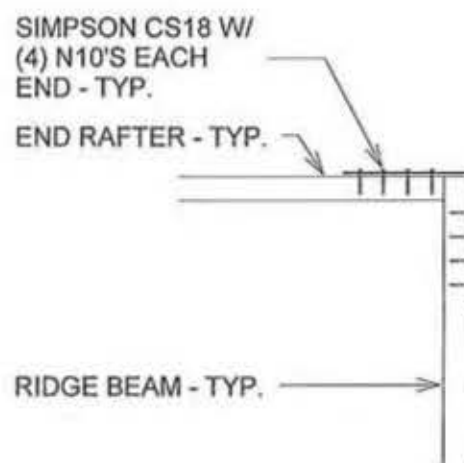
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					MODERN BUILDING SYSTEMS, INC. TELEPHONE: (503) 749-4049 FAX: (503) 749-4050 P.O. BOX 110, 9493 PORTER ROAD, ALAMSVILLE, OR 97225 CHECK OUT OUR WEB PAGE: www.modernbuildingsystems.com © MODERN BUILDING SYSTEMS, INC. 2015	PROJ. 28' x 64' MODULAR CLASSROOM HORIZON CHRISTIAN	SHEET # S 4.3
ADDRESS 23370 SW BOONES FERRY RD, TUALATIN, OR 97062						DRW SR	DATE 4/17/15



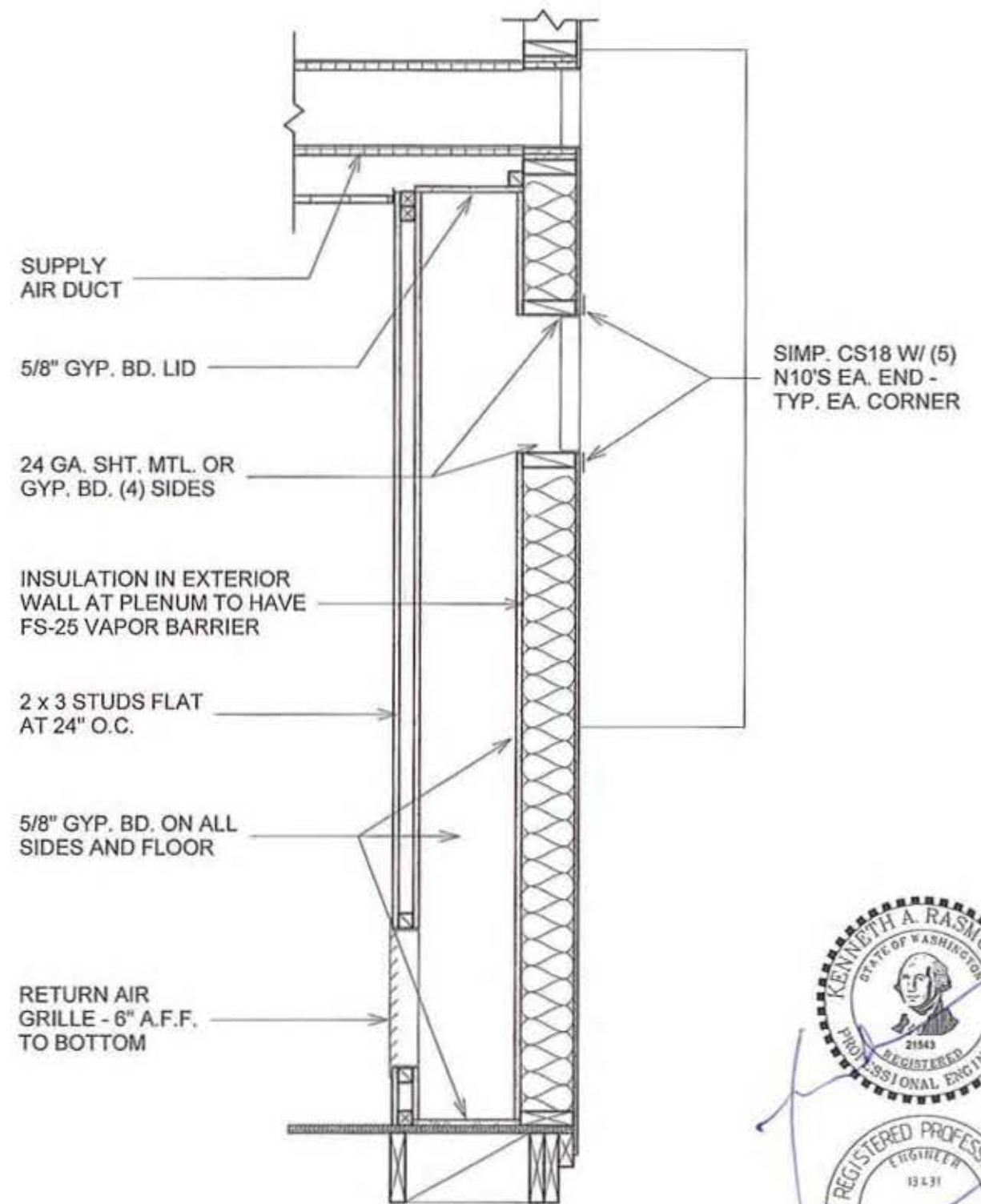
1 ENDWALL GABLE DETAIL
1" = 1'-0"



2 ENDWALL FLOOR DETAIL
1" = 1'-0"



3 PLAN VIEW AT CHORD TIE
1" = 1'-0"



4 PLENUM DETAIL
3/4" = 1'-0"



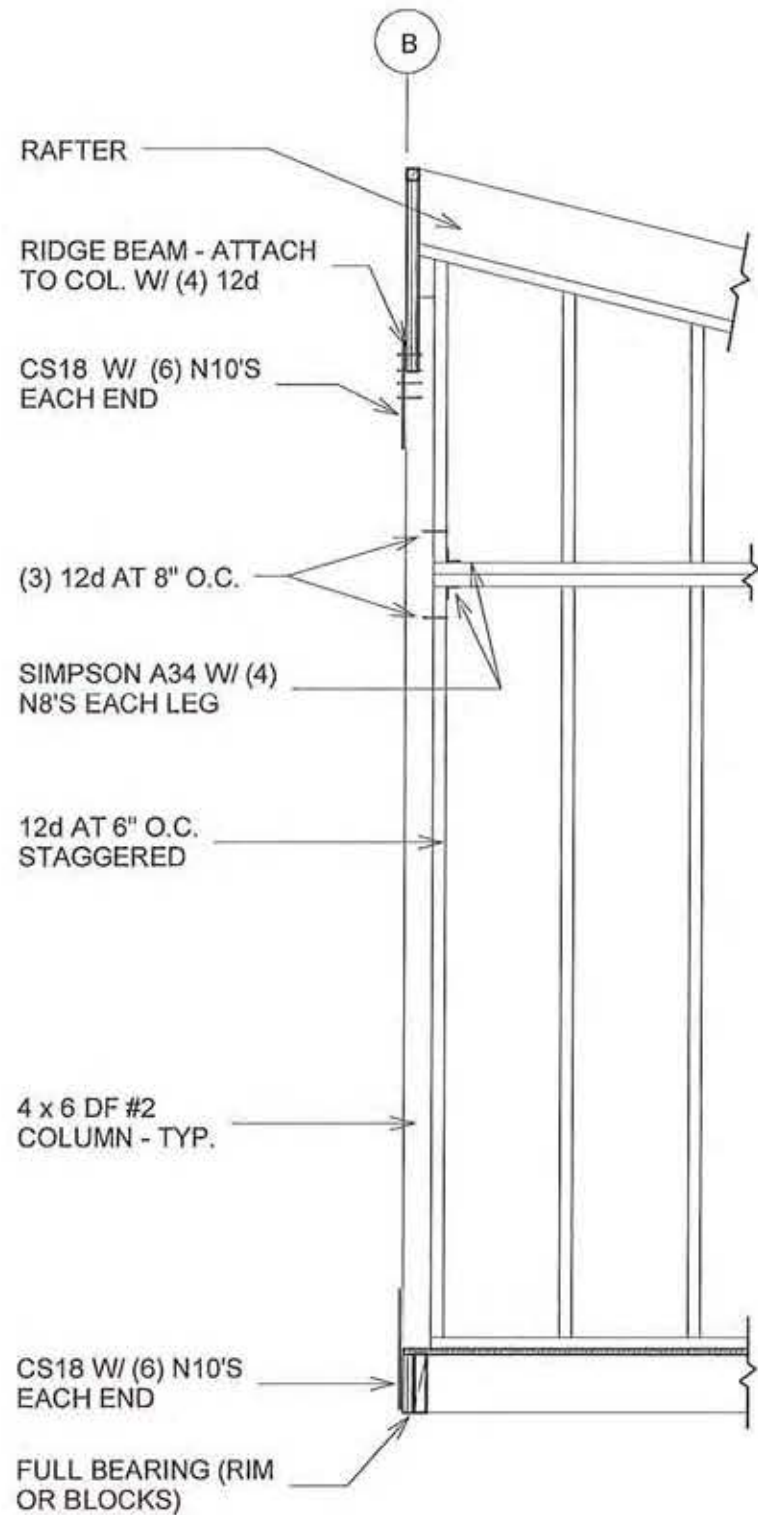
REV.	DESCRIPTION	DATE	BY

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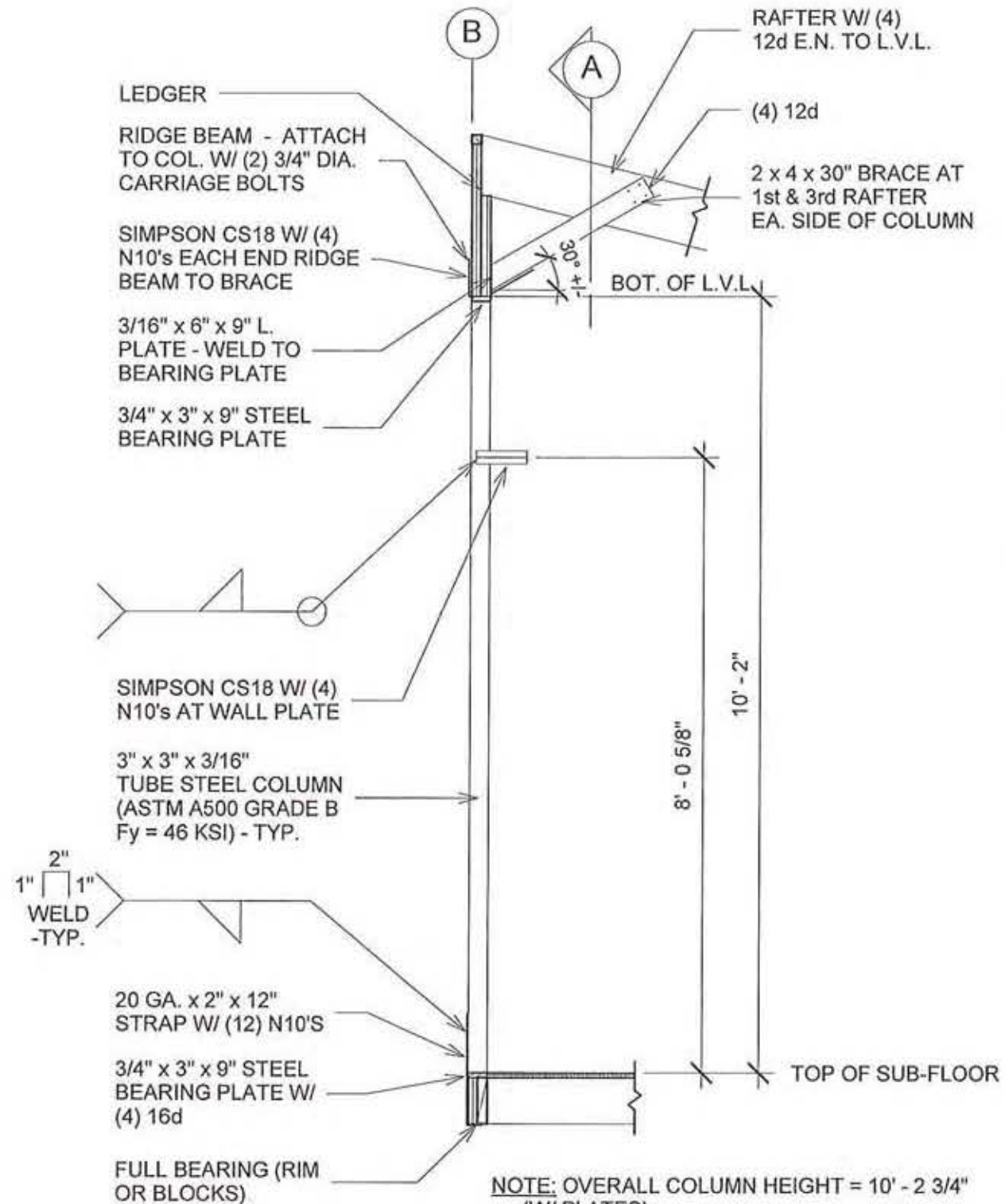


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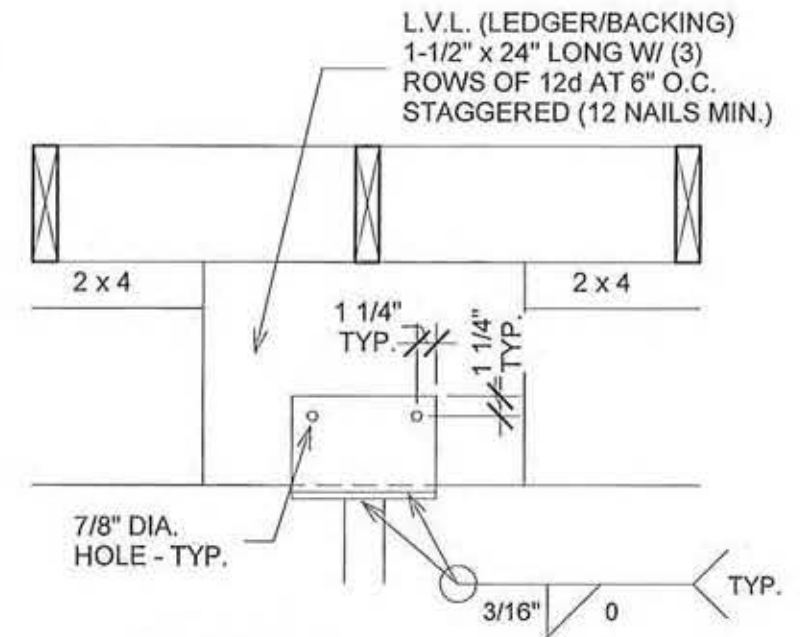
SHEET DETAILS		JOB# 2015-AR-34
PROJ.	28' x 64' MODULAR CLASSROOM HORIZON CHRISTIAN	SHEET # S 4.4
ADDRESS	23370 SW BOONES FERRY RD, TUALATIN, OR 97062	DATE 4/17/15
DRW SR		



1 END WALL COLUMN DETAIL
1/2" = 1'-0"

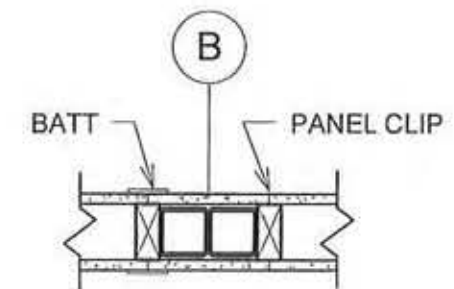


2 CENTER COLUMN DETAIL
1/2" = 1'-0"



SECTION A

SCALE: 1" = 1'-0"



PLAN VIEW

SCALE: 1" = 1'-0"

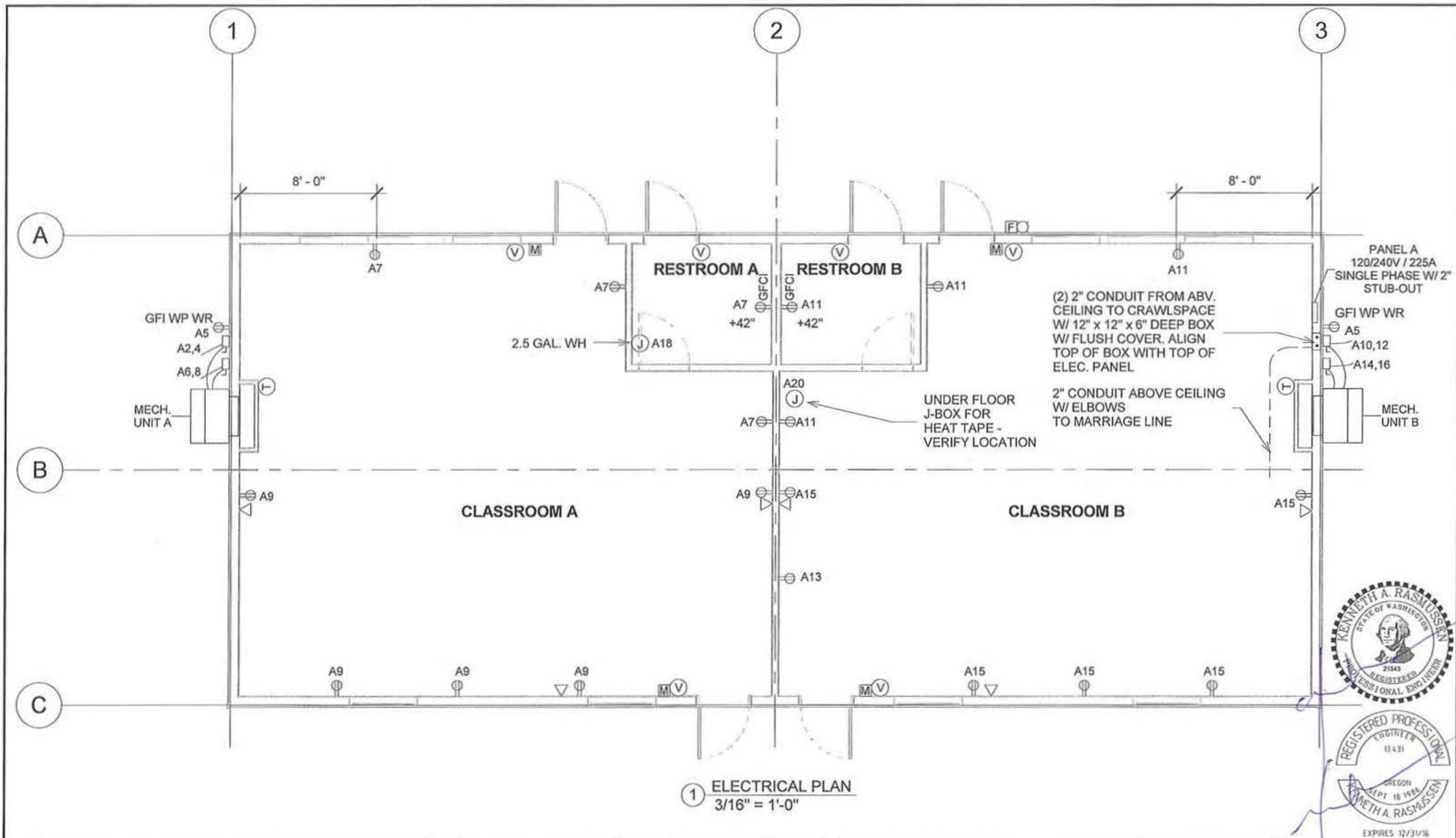


REV.	DESCRIPTION	DATE	BY	SHEET DETAILS		JOB#
				28' x 64' MODULAR CLASSROOM		2015-AR-34
				HORIZON CHRISTIAN		SHEET # S 4.5
				ADDRESS 23370 SW BOONES FERRY RD, TUALATIN, OR 97062	DRW SR	DATE 4/17/15

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						PROJ. 28' x 64' MODULAR CLASSROOM HORIZON CHRISTIAN	SHEET # E 1.0
						ADDRESS 23370 SW BOONES FERRY RD, TUALATIN, OR 97062	DRW SR DATE 4/17/15

1

LIGHTING PLAN NOTES

OCCUPANCY SENSOR(S) IN EACH ROOM WILL BE WIRED TO CONTROL ALL LIGHT FIXTURES IN THAT ROOM.

LIGHT WIRING AS SHOWN IS FOR GENERAL CONTROL CLARIFICATION ONLY. ACTUAL WIRING FOR CONTROLS (I.E.: SWITCHES, OCCUPANCY SENSORS AND DAYLIGHT SENSORS) SHALL BE PER CONTROL MANUFACTURER'S SPECIFICATIONS AND AS NECESSARY TO MEET THE CODE REQUIREMENTS FOR EACH CONTROL AND THE LIGHT FIXTURES CONNECTED TO IT.

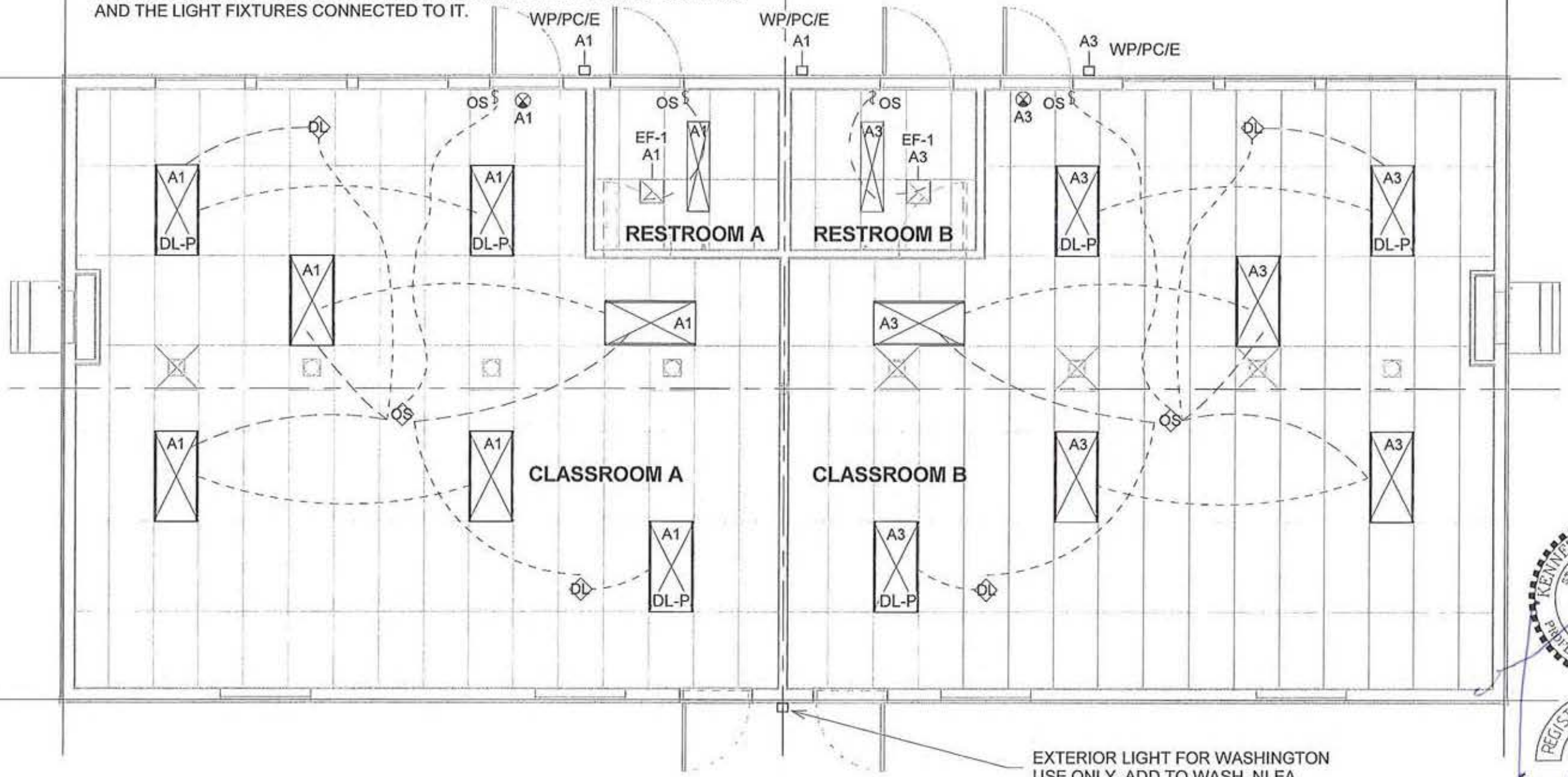
2

3

A

B

C



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










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						PROJ.	28' x 64' MODULAR CLASSROOM HORIZON CHRISTIAN		SHEET #	E 2.0		
						ADDRESS	23370 SW BOONES FERRY RD, TUALATIN, OR 97062		DRW	SR	DATE	4/17/15

MECHANICAL NOTES

- 1. MECHANICAL UNIT:
(2) 3.0 TON WALL HUNG HEAT PUMP WITH
10 kW ELECTRICAL HEAT AND ECONOMIZER
- 2. EXHAUST FAN:
EF-1: PANASONIC FV-11VQ5 (110 CFM)
DAMPER: FAMCO ADC4120 MOTORIZED
DAMPER
- 3. CONTROLS:
THERMOSTAT:
PECO T4932SCH-001
DCV/OCCUPANCY SENSOR:
OCCUPANCY SENSING THERMOSTAT
- 4. DUCTWORK:
MATERIAL:
1" FIBERGLASS (R-4.3) W/ 26 GA.
SHEET METAL ROUNDS AND
FLEX DUCT ROUNDS AT DIFFUSERS
INSULATING AND SEALING:
DUCTWORK TO BE INSULATED AND
SEALED PER OEESC 503.2.7 &
WSEC C403.2.7.
CONSTRUCTION:
DUCTWORK TO BE CONSTRUCTED AS
LOW PRESSURE DUCT SYSTEM PER
OEESC 503.2.7.1.1 AND WSEC C403.2.7.3.1
- 5. VOLUME DAMPERS:
PROVIDE VOLUME DAMPERS TO CONTROL
AIRFLOW AT EACH DIFFUSER

HVAC SYMBOL LEGEND

-  2' x 2' LAY-IN SUPPLY DIFFUSER
-  1' x 1' LAY-IN SUPPLY DIFFUSER
-  2' x 2' LAY-IN RETURN GRILLE
-  CEILING MOUNTED EXHAUST FAN (80 CFM)
-  WALL MOUNTED EXHAUST FAN (80 CFM)
-  FLEX DUCT
-  THERMOSTAT +48" A.F.F. TO TOP OF CONTROLS

OUTSIDE AIR CALCULATION

MECHANICAL UNIT A:

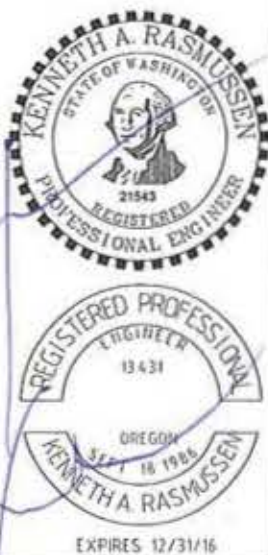
CLASSROOM	(28 OCC)(10 CFM)	= 280
AREA FACTOR	(794 SF)(.12 CFM)	= 96
RESTROOM	(1 FIXT)(75 CFM)	= 75
TOTAL		= 451 CFM

MINIMUM OUTSIDE AIR FOR UNOCCUPIED BUILDING = 96 CFM

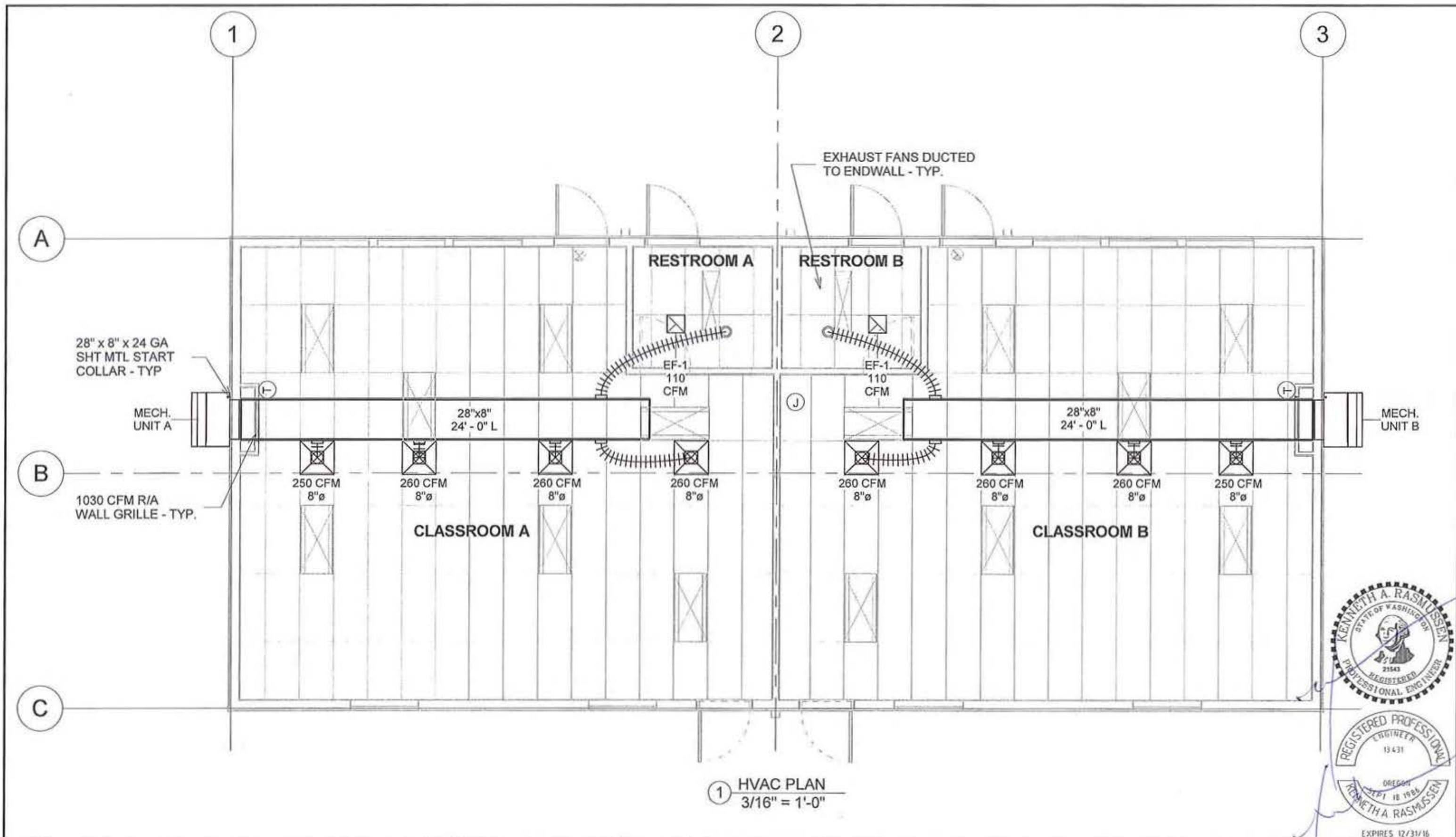
MECHANICAL UNIT B:

CLASSROOM	(28 OCC)(10 CFM)	= 280
AREA FACTOR	(794 SF)(.12 CFM)	= 96
RESTROOM	(1 FIXT)(75 CFM)	= 75
TOTAL		= 451 CFM

MINIMUM OUTSIDE AIR FOR UNOCCUPIED BUILDING = 96 CFM



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						PROJ.	28' x 64' MODULAR CLASSROOM HORIZON CHRISTIAN		SHEET #	M 0.1		
						ADDRESS	23370 SW BOONES FERRY RD, TUALATIN, OR 97062		DRW	SR	DATE	4/17/15

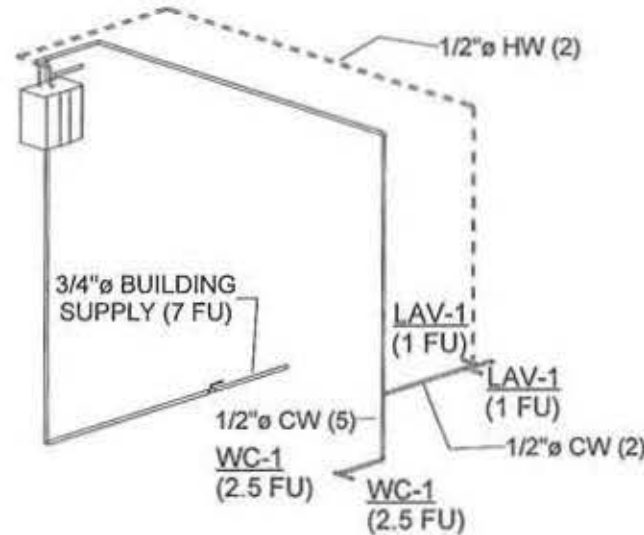


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						PROJ. 28' x 64' MODULAR CLASSROOM HORIZON CHRISTIAN	SHEET # M 1.0
						ADDRESS 23370 SW BOONES FERRY RD, TUALATIN, OR 97062	DATE 4/17/15

PLUMBING NOTES

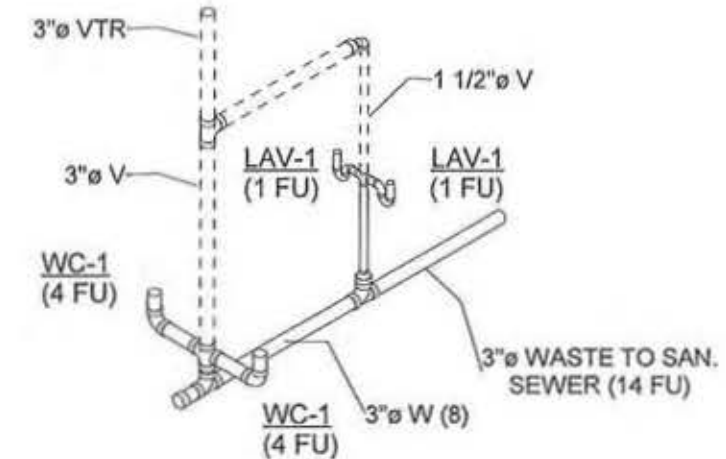
- SUPPLY PIPING AND FITTINGS:
 - TYPE 'L' CU
 - CHLORINATED POLYVINYL CHLORIDE (CPVC) PLASTIC SCHED 40
 - CROSSLINKED POLYETHYLENE (PEX) PLASTIC
- SUPPLY PIPE SIZES BASED ON:
 - 100 FT. DEVELOPED LENGTH
 - 46 - 60 PSI
- WASTE PIPING:
 - ABS - DMV
- WASTE PIPE SIZES BASED ON:
 - 1/4" PER FOOT SLOPE
- FLOOR DRAINS TO BE PROVIDED WITH TRAP SEAL PROTECTION PER OPSC/UPC 1007
- TRAP PRIMERS TO BE MIN. 12" ABOVE FLOOD RIM PER OPSC 1007.4
- WATER HEATING:
 - SERVICE WATER HEATING EQUIPMENT SHALL BE PROVIDED WITH TEMPERATURE CONTROLS PER OEESC 504.3 & WSEC C404.3
 - HOT WATER FROM PUBLIC-USE LAVATORIES SHALL ALSO BE CONTROLLED PER OPSC 413.1 & UPC 421.2
 - WATER HEATING EQUIPMENT SHALL BE SUPPLIED WITH HEAT TRAPS PER OEESC 504.4 & WSEC C404.4
 - STRAP WATER HEATER TO WALL W/ 26 GA. x 1" SEISMIC STRAP W/ (1) #6 SMST TO TANK AND (1) #3 x 2" BUGLE HEAD SCREW TO WALL EACH END
 - HOT WATER PIPES TO BE INSULATED PER OEESC 504.5 & WSEC C404.6
 - NO PEX PIPING WITHIN 18" OF WATER HEATER PER OPSC 604.11.2 & UPC 605.10

NOTE: PLUMBING TREE BY OTHERS. BOTH WASTE AND VENT WILL REQUIRE HOOK-UP TO STUB-DOWN DUE TO LOCATION, SLOPE AND JOIST DEPTH. IT IS THE SITE PLUMBERS RESPONSIBILITY TO MAKE SURE THAT ALL PLUMBING DROPS ARE CONNECTED.



NOTE:
PROVIDE AT WATER HEATER:
 • CAPPED 'T' FOR FUTURE EXP. TANK
 • 3/4" P&T DISCHARGE TO EXTERIOR

1 PLUMBING ISO - WATER SUPPLY



2 PLUMBING ISO - WASTE & VENT

PLUMBING FIXTURE SCHEDULE

Mark	Count	Description	Style	GPM/GPF	WATTS
LAV-1	2	WALL HUNG LAVATORY	VITR. CHINA	0.5	
WC-1	2	ACCESSIBLE W.C.	TANK	1.6	
WH-2.5	1	2.5 GAL. WATER HEATER	ELEC.		1500



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						PROJ. 28' x 64' MODULAR CLASSROOM HORIZON CHRISTIAN	SHEET # P 1.0
						ADDRESS 23370 SW BOONES FERRY RD, TUALATIN, OR 97062	DRW SR DATE 4/17/15



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JOB #2015-34 Horizon Christian

SHEET NO 1 OF

CALCULATED BY MCL DATE 3/30/2015

CHECKED BY DATE

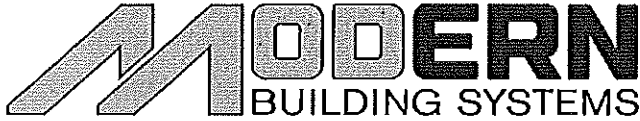
SCALE

STRUCTURAL CALCULATIONS FOR
28' X 64' MODULAR

MATERIAL SUMMARY	MS-1 --> MS-3
BENDING STRESS	BS-1 --> BS-2
ROOF FRAMING ANALYSIS	RF-1 --> RF-5
EXTERIOR WALL STUD	STUD-1
FLOOR FRAMING ANALYSIS	FLR-1 --> FLR-4
LATERAL FORCE ANALYSIS	LFA-1 --> LFA-4
FOUNDATION ANALYSIS	FDN-1 --> FDN-7
LOADING ANALYSIS	L-1 --> L-5

9/21/15

EXP 12/31/16



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JOB #2015-34 Horizon Christian

SHEET NO MS-1 OF MS-3

CALCULATED BY MCL DATE 3/30/2015

CHECKED BY DATE

SCALE

MATERIAL SUMMARY FOR

28' X 64' MODULAR

ROOF FRAMING:

TYP RF RAFTER USE 2x10 HF #2 @ 24" O.C. SEE RF-1

TYP 6'-0" OR LESS OPENING USE (2) 2 x 8 DF #2 SEE RF-2
 HDR

RIDGE BEAM USE (2) MURPHY LVL 3100 Fb - SEE RF-3
 2.0E, 1.5" W (EA) x 24" D

COLUMNS:

ENDWALL COLUMNS USE (2) 4X6 DF #2 SEE RF-4

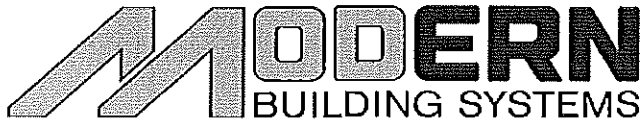
MIDSPAN COLUMNS USE (2) 3"X3"X3/16" HSS ASTM SEE RF-5
 500 GRADE B, Fy=46ksi

EXTERIOR WALL STUD USE 2X6 HF STUD GRADE @ 16" STUD-1
 O.C.

FLOOR FRAMING:

TYP FLR JOIST USE 2X8 DF #2 @ 16" O.C. SEE FLR-1-3

TYP FLR JOIST SUPPORT BEAM USE 4X8 DF #2 SEE FLR-4



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JOB #2015-34 Horizon Christian

SHEET NO MS-2	OF MS-3
CALCULATED BY MCL	DATE 3/30/2015
CHECKED BY	DATE
SCALE	

SHEATHING:

ROOF	USE	USE MIN 7/16" SHTG w/ 15 GA STAPLES AT 6" EDGE & 12" FIELD (UNBLOCKED) (ESR-1539, TABLE 9) UPGRADE TO 4" & 8". AT ROOF	SEE LFA-1,2
EXT ENDWALLS	USE	USE MIN 7/16" SHTG w/ 15 GA STAPLES AT 6" EDGE & 12" FIELD (BLOCKED) (ESR-1539, TABLE 18)	SEE LFA-1
EXT SIDEWALLS	USE	USE MIN 7/16" SHTG w/ 15 GA STAPLES AT 6" EDGE & 12" FIELD (BLOCKED) (ESR-1539, TABLE 18)	SEE LFA-2
FLOOR	USE	USE MIN 19/32" SHTG w/ 8d (.113) AT 6" EDGE & 12" FIELD (UNBLOCKED) (ESR-1539, TABLE 11) UPGRADE TO 23/32" SHTG AT 6" & 8". AT FLOOR	SEE LFA-1,2
MOBILE UNIT TO CHASSIS	USE	N/A	SEE FDN-4



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JOB #2015-34 Horizon Christian

SHEET NO MS-3	OF MS-3
CALCULATED BY MCL	DATE 3/30/2015
CHECKED BY	DATE
SCALE	

SHEAR WALL HOLD DOWNS	USE	USE MIN SIMP CS-18 w/ (5) N-10's EA END	SEE LFA-3
SIDEWALL TOP PLATE SPLICE	USE	USE MIN 4 ft SPLICE w/ (14) 12d's (.131) EA END	SEE LFA-4
ENDWALL TOP PLATE SPLICE	USE	USE MIN SIMP CS-18 w/ (4) N-10's EA END	SEE LFA-4
RIDGE BEAM TO RIDGE BEAM CONNECTIONS	USE	USE MIN (6) - 5/8 in DIA M.B.'s AT RIDGE BEAM	SEE LFA-4

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	(6) (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 3.5' L	SEE FDN-3,7
BLDG SIDE ANCHORS	USE	USE (6) ANCHORS AT EA SIDE OF BLDG	SEE FDN-4
BLDG END ANCHORS	USE	USE (3) ANCHORS AT EA END OF BLDG	SEE FDN-4

MODERN BUILDING SYSTEMS, INC.

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AUMSVILLE, OREGON 97325

503-749-4949

Fax 503-749-4950

BENDING STRESSES

SHEET NO BS-1 OF BS-2

CALCULATED BY MCL DATE 09/03/13

CHECKED BY DATE

SCALE

ALLOWABLE BENDING STRESS $F'_b = F_b (C_D C_M C_t C_L C_F C_{fu} C_r)$

F_b - BENDING STRESS DESIGN VALUE

C_D - LOAD DURATION FACTOR

C_F - SIZE FACTOR

C_r - REPETITIVE MEMBER FACTOR

BASED ON 2012 NDS

SIZE	SPECIES	M.O.E. (x10^6)	Fb (psi)	C _F	C _r	FLOORS OR ROOFS	C _D (Snow)	ROOFS
						F' _b w/o DURATION (psi)		F' _b w/ DURATION (psi)
JOISTS AND RAFTERS								
2 x 8	DF #1 & Btr	1.8	1200	1.2	1.15	1656	1.15	1904
	DF #1	1.7	1000	1.2	1.15	1380	1.15	1587
	DF #2	1.6	900	1.2	1.15	1242	1.15	1428
	SPF #1 /#2	1.4	875	1.2	1.15	1208	1.15	1389
	HF #2	1.3	850	1.2	1.15	1173	1.15	1349
2 x 10	DF Sel Struct	1.9	1500	1.1	1.15	1898	1.15	2182
	DF #1 & Btr	1.8	1200	1.1	1.15	1518	1.15	1746
	DF #1	1.7	1000	1.1	1.15	1265	1.15	1455
	HF #1	1.5	975	1.1	1.15	1233	1.15	1418
	DF #2	1.6	900	1.1	1.15	1139	1.15	1309
	SPF #1 /#2	1.4	875	1.1	1.15	1107	1.15	1273
	HF #2	1.3	850	1.1	1.15	1075	1.15	1237
HEADERS								
4 x 4	DF #2	1.6	900	1.5	N/A	1350	1.15	1553
4 x 6	DF #2	1.6	900	1.3	N/A	1170	1.15	1346
4 x 8	DF #2	1.6	900	1.3	N/A	1170	1.15	1346
4 x 10	DF #2	1.6	900	1.2	N/A	1080	1.15	1242

- 5.4 Evaluation of the effect of fire-retardant or preservative treatment on LVL is outside the scope of this report.
- 5.5 Installation, fabrication, identification and connection details must be in accordance with this report, the manufacturer's published installation instructions and the applicable code. This report must govern if there are conflicts between the manufacturer's published installation instructions and this report.
- 5.6 Murphy LVL is produced in Sutherlin, Oregon, under a quality control program with inspections by APA—The Engineered Wood Association (AA-649).

6.0 EVIDENCE SUBMITTED

Data in accordance with the ICC-ES Acceptance Criteria for Structural Wood-based Products (AC47), dated October 2009, (corrected December 2009).

7.0 IDENTIFICATION

The Murphy LVL must be identified with stamps bearing the Murphy Engineered Wood Division name (or the name of one of the listees noted at the beginning of this report); grade; evaluation report number (ESR-2913); the production shift and date of manufacture; and the name of the inspection agency [APA—The Engineered Wood Association (AA-649)].



TABLE 1—DESIGN PROPERTIES (ALLOWABLE STRESS DESIGN) FOR MURPHY LVL^{1,2,3}

PROPERTY		DESIGN STRESS (psi)				
		2,250 F _b -1.5E	2,750 F _b -1.8E	2,850 F _b -1.9E	2,950 F _b -2.0E	3,100 F _b -2.0E
Bending (F _b)	Joist ⁴	2,250	2,750	2,850	2,950	3,100
	Plank	2,200	2,750	2,800	2,950	3,100
Tension parallel to grain (F _t) ⁵		1,350	1,950	1,950	2,100	2,100
Longitudinal shear (F _v)	Joist	285	285	285	290	290
	Plank	150	150	150	150	150
Compression parallel (F _c)		2,350	2,350	2,350	3,200	3,200
Compression perpendicular (F _{c⊥})	Joist	750	750	750	750	750
	Plank	450	450	550	550	550
Modulus of Elasticity, E	Joist	1.5 x 10 ⁶	1.8 x 10 ⁶	1.9 x 10 ⁶	2.0 x 10 ⁶	2.0 x 10 ⁶
	Plank	1.4 x 10 ⁶	1.8 x 10 ⁶	1.9 x 10 ⁶	2.0 x 10 ⁶	2.0 x 10 ⁶

For SI: 1 psi = 6.9 kPa.

¹The tabulated values are design values for normal duration of load. All values, except for E and F_{c⊥}, may be adjusted for other load durations as permitted by the code. The design stresses are limited to conditions in which the average equilibrium moisture content of solid-sawn lumber is less than 16 percent.

²Reference design values must be adjusted, as applicable, in accordance with Section 8.3 of the NDS.

³Joist = load parallel to glueline. Plank = load perpendicular to glueline.

⁴The tabulated values are based on a reference depth of 12 inches. For other depths, when loaded edgewise, the allowable bending stress (F_b) shall be modified by (12/d)^{0.18} where d = depth in inches. For depths less than 2 1/2 inches, the factor for the 2 1/2-inch depth must be used.

⁵The values published in Table 1 are based on a reference length of 3 feet. For other lengths, the allowable tensile stress must be modified by (3/ℓ)^{0.11}, where ℓ = length in feet. For lengths less than 3 feet, the unadjusted allowable tension stresses in Table 1 are used.

TABLE 2—FASTENER DESIGN FOR MURPHY LVL: EQUIVALENT SPECIFIC GRAVITY¹

NAILS				BOLTS	
Withdrawal Load		Lateral Load		Lateral Load	
Installed in Edge	Installed in Face	Installed in Edge	Installed in Face	Installed in Face	
				Parallel to Grain	Perpendicular to Grain
0.49	0.50	0.50	0.50	0.50	0.50

¹Fastener values based on the equivalent specific gravities in the above table are for normal load duration and may be adjusted using the load duration factors in accordance with the code.

Wood Beam

File = C:\Projects\ENERCALC-1\2015-3-3\2015-3-1.EC6
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File #: KW-06009251

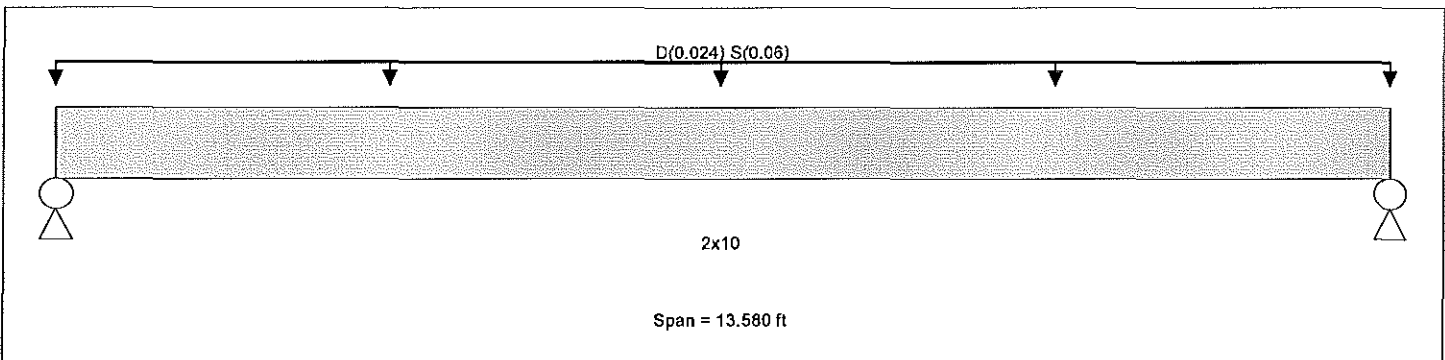
Description: TYP ROOF RAFTER - 2015-34

CODE REFERENCES

Calculations per NDS 2012, IBC 2012, CBC 2013, ASCE 7-10
 Load Combination Set : IBC 2012

Material Properties

Analysis Method : Allowable Stress Design	Fb - Tension	850.0 psi	E : Modulus of Elasticity	
Load Combination IBC 2012	Fb - Compr	850.0 psi	Ebend- xx	1,300.0ksi
	Fc - Prll	1,300.0 psi	Eminbend - xx	470.0ksi
Wood Species : Hem Fir	Fc - Perp	405.0 psi		
Wood Grade : No.2	Fv	95.0 psi		
	Ft	525.0 psi	Density	27.70pcf
Beam Bracing : Beam is Fully Braced against lateral-torsion buckling			Repetitive Member Stress Increase	



Applied Loads

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

Beam self weight calculated and added to loads

Uniform Load : D = 0.0120, S = 0.030 ksf, Tributary Width = 2.0 ft, (Roof Dead Load and Snow Load)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio =	0.906	1	Maximum Shear Stress Ratio =	0.519	: 1
Section used for this span	2x10		Section used for this span	2x10	
fb : Actual =	1,120.81	psi	fv : Actual =	56.65	psi
FB : Allowable =	1,236.54	psi	Fv : Allowable =	109.25	psi
Load Combination =	+D+S+H		Load Combination =	+D+S+H	
Location of maximum on span =	6.790ft		Location of maximum on span =	0.000ft	
Span # where maximum occurs =	Span # 1		Span # where maximum occurs =	Span # 1	
Maximum Deflection					
Max Downward Transient Deflection	0.359	in	Ratio =	453	
Max Upward Transient Deflection	0.000	in	Ratio =	0	<360
Max Downward Total Deflection	0.519	in	Ratio =	314	
Max Upward Total Deflection	0.000	in	Ratio =	0	<240

Vertical Reactions

Support notation : Far left is #1

Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	0.588	0.588
Overall MINimum	0.181	0.181
+D+H	0.181	0.181
+D+S+H	0.588	0.588
D Only	0.181	0.181
S Only	0.407	0.407

Wood Beam

File = C:\Projects\ENERCALC-1\2015-3-3\2015-3-1.EC6
 ENERCALC, INC. 1983-2015, Build:6.15.1.19, Ver:6.15.1.19
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Lic. #: KW406009251

Description: UP TO 6'0" OPENING HDR - 2015-34

CODE REFERENCES

Calculations per NDS 2012, IBC 2012, CBC 2013, ASCE 7-10
 Load Combination Set: IBC 2012

Material Properties

Analysis Method: Allowable Stress Design
 Load Combination IBC 2012

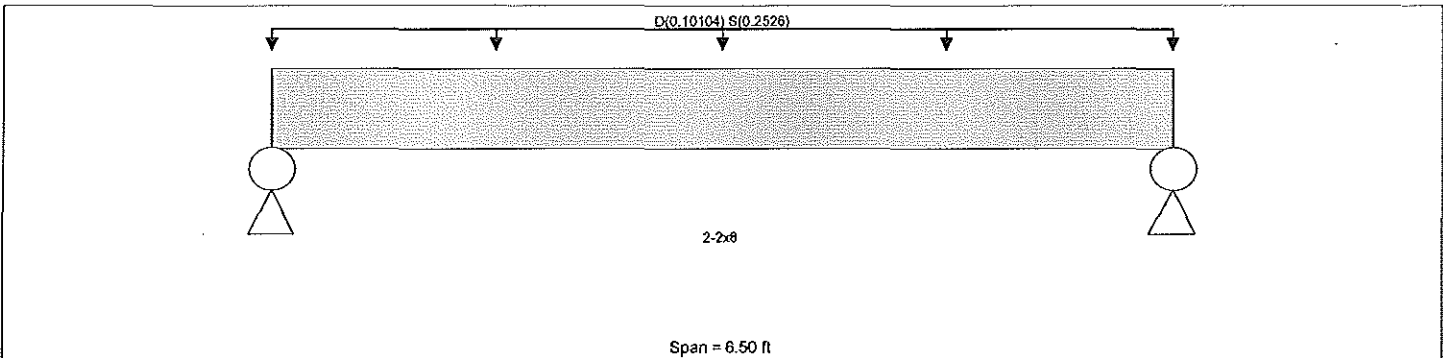
Fb - Tension	900.0 psi	E : Modulus of Elasticity	
Fb - Compr	900.0 psi	Ebend-xx	1,600.0 ksi
Fc - Prll	1,350.0 psi	Eminbend-xx	580.0 ksi
Fc - Perp	625.0 psi		
Fv	95.0 psi		
Ft	575.0 psi	Density	32.210 pcf

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

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

Unbraced Lengths

First Brace starts at ft from Left-Most support
 Regular spacing of lateral supports on length of beam = 1.330 ft



Applied Loads

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

Beam self weight calculated and added to loads

Uniform Load : D = 0.0120, S = 0.030 ksf, Tributary Width = 8.420 ft, (1/2 Roof span and 18" overhang)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.697 : 1	Maximum Shear Stress Ratio	=	0.601 : 1
Section used for this span		2-2x8	Section used for this span		2-2x8
fb : Actual	=	864.50 psi	fv : Actual	=	65.69 psi
FB : Allowable	=	1,240.67 psi	Fv : Allowable	=	109.25 psi
Load Combination		+D+S+H	Load Combination		+D+S+H
Location of maximum on span	=	3.250 ft	Location of maximum on span	=	5.907 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1
Maximum Deflection					
Max Downward Transient Deflection		0.067 in	Ratio =		1165
Max Upward Transient Deflection		0.000 in	Ratio =		0 < 360
Max Downward Total Deflection		0.095 in	Ratio =		820
Max Upward Total Deflection		0.000 in	Ratio =		0 < 240

Vertical Reactions

Support notation : Far left is #1

Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	1.165	1.165
Overall MINimum	0.344	0.344
+D+H	0.344	0.344
+D+S+H	1.165	1.165
D Only	0.344	0.344
S Only	0.821	0.821

Wood Beam

File = C:\Projects\ENERCALC-1\2015-3-3\2015-3-1.EC6
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Lic. #: KW-06009251
 Description: (2) LVL RIDGE BEAM - 2015-34

CODE REFERENCES

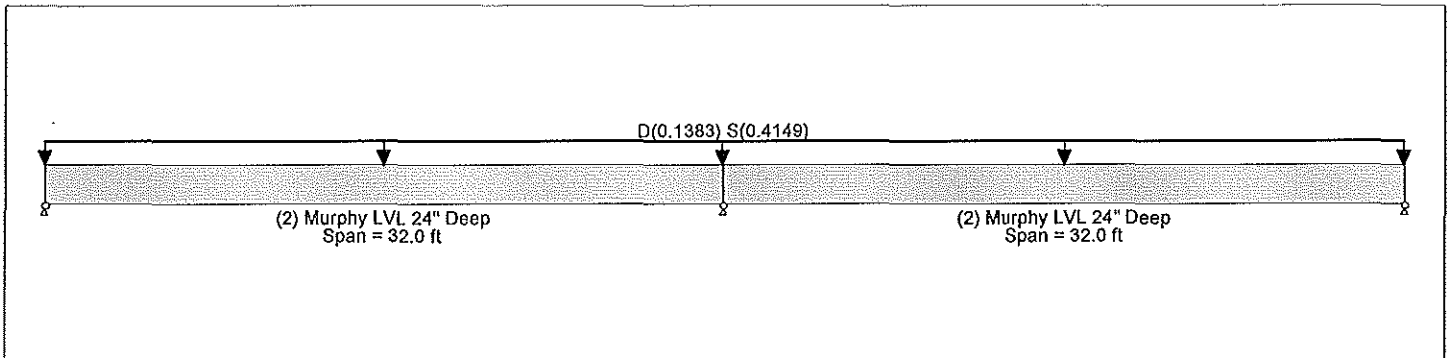
Calculations per NDS 2012, IBC 2012, CBC 2013, ASCE 7-10
 Load Combination Set: IBC 2012

Material Properties

Analysis Method: Allowable Stress Design	Fb - Tension	2,736.0 psi	E: Modulus of Elasticity
Load Combination IBC 2012	Fb - Compr	2,736.0 psi	Ebend-xx
	Fc - Prll	3,200.0 psi	Eminbend-xx
	Fc - Perp	750.0 psi	
Wood Species: Murphy LVL 3100Fb-2.0E x 24" Deep	Fv	290.0 psi	
Wood Grade: Manufactured	Ft	2,100.0 psi	Density
			35.0pcf
Beam Bracing: Beam bracing is defined as a set spacing over all spans			

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 = 0.010, S = 0.030 ksf, Tributary Width = 13.830 ft

DESIGN SUMMARY

Design OK

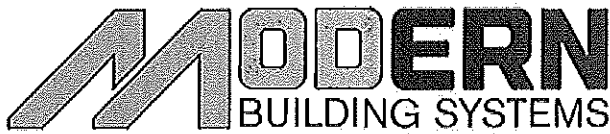
Maximum Bending Stress Ratio	=	0.997: 1	Maximum Shear Stress Ratio	=	0.643: 1
Section used for this span	=	(2) Murphy LVL 24" D	Section used for this span	=	(2) Murphy LVL 24" D
fb: Actual	=	3,043.73 psi	fv: Actual	=	214.41 psi
FB: Allowable	=	3,051.71 psi	Fv: Allowable	=	333.50 psi
Load Combination	=	+D+S+H	Load Combination	=	+D+S+H
Location of maximum on span	=	32.000ft	Location of maximum on span	=	30.034 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1
Maximum Deflection					
Max Downward Transient Deflection		0.595 in	Ratio =		644
Max Upward Transient Deflection		0.000 in	Ratio =		0 < 360
Max Downward Total Deflection		0.819 in	Ratio =		468
Max Upward Total Deflection		0.000 in	Ratio =		0 < 240

Vertical Reactions

Support notation: Far left is #1

Values in KIPS

Load Combination	Support 1	Support 2	Support 3
Overall MAXimum	6.848	22.828	6.848
Overall MINimum	1.870	6.232	1.870
+D+H	1.870	6.232	1.870
+D+S+H	6.848	22.828	6.848
D Only	1.870	6.232	1.870
S Only	4.979	16.596	4.979



Project Title: HORIZON CHRISTIAN
 Engineer: MCL
 Project Descr: 28' X 64' MODULAR CLASSROOM
 Project ID: 2015-34

RF-5 of RF-5

Printed: 30 MAR 2015, 1:09PM

Steel Column

File = C:\Projects\ENERCALC-1\2015-3-3\2015-3-1.EC6
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File #: KW-06009251

Licensee: MODERN BUILDING SYSTEMS

Description: CNTR COLUMN FOR RIDGE BEAM 1 OF 2 REQ'D - 2015-34

Code References

Calculations per AISC 360-10, IBC 2012, CBC 2013, ASCE 7-10
 Load Combinations Used : IBC 2012

General Information

Steel Section Name :	HSS3x3x3/16	Overall Column Height	10.170 ft
Analysis Method :	Allowable Strength	Top & Bottom Fixity	Top & Bottom Pinned
Steel Stress Grade		Brace condition for deflection (buckling) along columns :	
Fy : Steel Yield	46.0 ksi	X-X (width) axis :	
E : Elastic Bending Modulus	29,000.0 ksi	Unbraced Length for X-X Axis buckling =	10.170 ft, K = 1.0
Load Combination :	IBC 2012	Y-Y (depth) axis :	
		Unbraced Length for Y-Y Axis buckling =	10.170 ft, K = 1.0

Applied Loads

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

Column self weight included : 69.674 lbs * Dead Load Factor
 AXIAL LOADS ...

1/2 OF RIDGE BEAM RXT: Axial Load at 10.170 ft, Xecc = 1.000 in, D = 3.116, S = 8.298 k

DESIGN SUMMARY

Bending & Shear Check Results

PASS Max. Axial+Bending Stress Ratio = **0.6626** : 1
 Load Combination +D+S+H
 Location of max. above base 10.102 ft
 At maximum location values are ...
 Pa : Axial 11.484 k
 Pn / Omega : Allowable 24.083 k
 Ma-x : Applied 0.0 k-ft
 Mn-x / Omega : Allowable 4.522 k-ft
 Ma-y : Applied -0.9448 k-ft
 Mn-y / Omega : Allowable 4.522 k-ft

Maximum SERVICE Load Reactions ..
 Top along X-X 0.09353 k
 Bottom along X-X 0.09353 k
 Top along Y-Y 0.0 k
 Bottom along Y-Y 0.0 k

Maximum SERVICE Load Deflections ...
 Along Y-Y 0.0 in at 0.0ft above base
 for load combination :
 Along X-X -0.1542 in at 5.938ft above base
 for load combination : +D+S+H

PASS Maximum Shear Stress Ratio = **0.006562** : 1
 Load Combination +D+S+H
 Location of max. above base 0.0 ft
 At maximum location values are ...
 Va : Applied 0.09353 k
 Vn / Omega : Allowable 14.252 k

Maximum Deflections for Load Combinations

Load Combination	Max. X-X Deflection	Distance	Max. Y-Y Deflection	Distance
+D+H	-0.0421 in	5.938 ft	0.000 in	0.000 ft
+D+S+H	-0.1542 in	5.938 ft	0.000 in	0.000 ft
D Only	-0.0421 in	5.938 ft	0.000 in	0.000 ft
S Only	-0.1121 in	5.938 ft	0.000 in	0.000 ft

Wood Beam

File = C:\Projects\ENERCALC-1\2015-3-3\2015-3-1.EC6
 ENERCALC, INC. 1983-2015, Build:6.15.1.19, Ver:6.15.1.19
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Lic. #: KW-06009251

Description: TYP FLOOR JOIST- DIST LOAD (OFFICE) - 2015-34

CODE REFERENCES

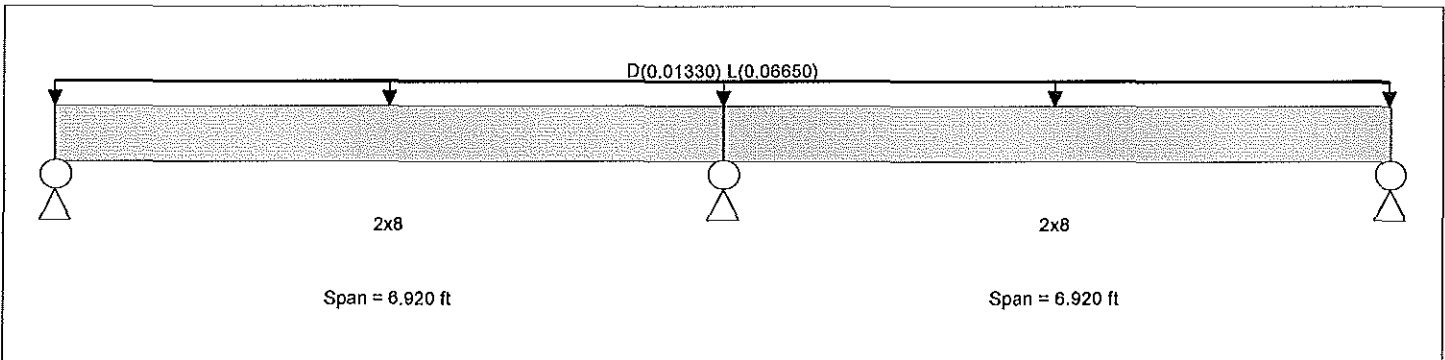
Calculations per NDS 2012, IBC 2012, CBC 2013, ASCE 7-10
 Load Combination Set : IBC 2012

Material Properties

Analysis Method : Allowable Stress Design	Fb - Tension	900.0 psi	E : Modulus of Elasticity
Load Combination IBC 2012	Fb - Compr	900.0 psi	Ebend- xx
Wood Species : Douglas Fir - Larch	Fc - Prll	1,350.0 psi	Eminbend - xx
Wood Grade : No.2	Fc - Perp	625.0 psi	Density
Beam Bracing : Beam bracing is defined as a set spacing over all spans	Fv	95.0 psi	Repetitive Member Stress Increase
	Ft	575.0 psi	

Unbraced Lengths

First Brace starts at ft from Left-Most support
 Regular spacing of lateral supports on length of beam = 2.0 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 = 0.010, L = 0.050 ksf, Tributary Width = 1.330 ft

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.365	1	Maximum Shear Stress Ratio	=	0.447	: 1
Section used for this span		2x8		Section used for this span		2x8	
fb : Actual	=	449.50	psi	fv : Actual	=	42.48	psi
FB : Allowable	=	1,231.38	psi	Fv : Allowable	=	95.00	psi
Load Combination		+D+L+H		Load Combination		+D+L+H	
Location of maximum on span	=	0.000	ft	Location of maximum on span	=	6.920	ft
Span # where maximum occurs	=	Span # 2		Span # where maximum occurs	=	Span # 1	
Maximum Deflection							
Max Downward Transient Deflection		0.019	in	Ratio =		4387	
Max Upward Transient Deflection		0.000	in	Ratio =		0 <360	
Max Downward Total Deflection		0.023	in	Ratio =		3547	
Max Upward Total Deflection		0.000	in	Ratio =		0 <240	

Vertical Reactions

Support notation : Far left is #1

Values in KIPS

Load Combination	Support 1	Support 2	Support 3
Overall MAXimum	0.213	0.711	0.213
Overall MINimum	0.041	0.136	0.041
+D+H	0.041	0.136	0.041
+D+L+H	0.213	0.711	0.213
D Only	0.041	0.136	0.041
L Only	0.173	0.575	0.173

Wood Beam

File = C:\Projects\ENERCA-1\2015-3-3\2015-3-1.EC6
 ENERCALC, INC. 1983-2015, Build:6.15.1.19, Ver:6.15.1.19
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Item #: KW-06009251

Description: TYP FLOOR JOIST - CONC LOAD at CNTR (OFFICE) - 2015-34

CODE REFERENCES

Calculations per NDS 2012, IBC 2012, CBC 2013, ASCE 7-10
 Load Combination Set: IBC 2012

Material Properties

Analysis Method: Allowable Stress Design
 Load Combination IBC 2012

Fb - Tension 900.0 psi
 Fb - Compr 900.0 psi
 Fc - Prll 1,350.0 psi
 Fc - Perp 625.0 psi
 Fv 95.0 psi
 Ft 575.0 psi

E : Modulus of Elasticity
 Ebend-xx 1,600.0ksi
 Eminbend-xx 580.0ksi

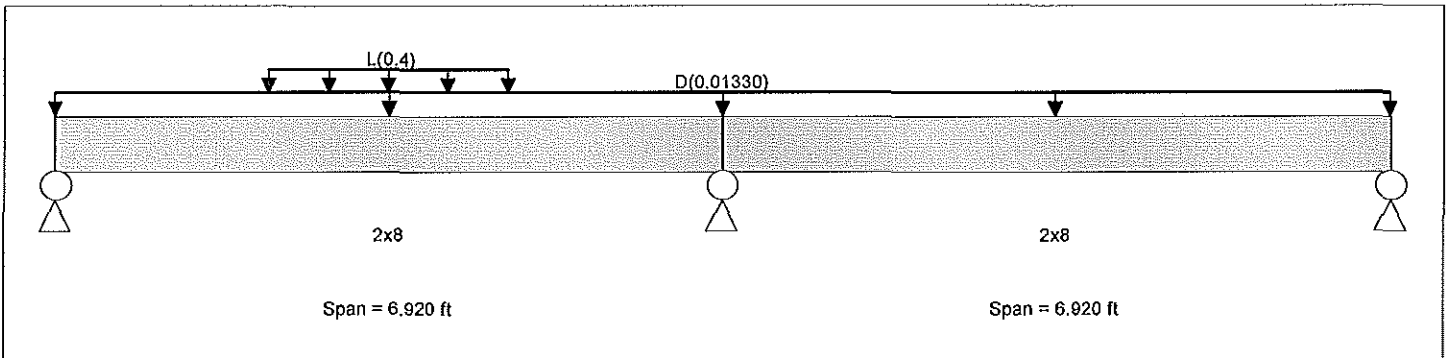
Wood Species : Douglas Fir - Larch
 Wood Grade : No.2

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

Density 32.210 pcf
 Repetitive Member Stress Increase

Unbraced Lengths

First Brace starts at ft from Left-Most support
 Regular spacing of lateral supports on length of beam = 6.0 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 = 0.010 ksf, Tributary Width = 1.330 ft

Load for Span Number 1

Uniform Load : L = 0.40 k/ft, Extent = 2.20 --> 4.70 ft, Tributary Width = 1.0 ft

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.965	1	Maximum Shear Stress Ratio	=	0.939	: 1
Section used for this span		2x8		Section used for this span		2x8	
fb : Actual	=	1,066.64	psi	fv : Actual	=	89.25	psi
FB : Allowable	=	1,105.75	psi	Fv : Allowable	=	95.00	psi
Load Combination		+D+L+H		Load Combination		+D+L+H	
Location of maximum on span	=	3.209	ft	Location of maximum on span	=	6.340	ft
Span # where maximum occurs	=	Span # 1		Span # where maximum occurs	=	Span # 1	
Maximum Deflection							
Max Downward Transient Deflection		0.106	in	Ratio =		780	
Max Upward Transient Deflection		-0.044	in	Ratio =		1895	
Max Downward Total Deflection		0.111	in	Ratio =		749	
Max Upward Total Deflection		-0.040	in	Ratio =		2070	

Vertical Reactions

Support notation : Far left is #1

Values in KIPS

Load Combination	Support 1	Support 2	Support 3
Overall MAXimum	0.453	0.814	-0.090
Overall MINimum	0.041	0.136	0.041
+D+H	0.041	0.136	0.041
+D+L+H	0.453	0.814	-0.049
D Only	0.041	0.136	0.041

Wood Beam

File = C:\Projects\ENERCALC-1\2015-3-3\2015-3-1.EC6
 ENERCALC, INC. 1983-2015, Build:6.15.1.19, Ver:6.15.1.19
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Lic. #: KW-06009251

Description: TYP FLOOR JOIST - CONC LOAD at SUPPORT (OFFICE) - 2015-34

CODE REFERENCES

Calculations per NDS 2012, IBC 2012, CBC 2013, ASCE 7-10
 Load Combination Set : IBC 2012

Material Properties

Analysis Method : Allowable Stress Design
 Load Combination IBC 2012

Fb - Tension 900.0 psi
 Fb - Compr 900.0 psi
 Fc - Prll 1,350.0 psi
 Fc - Perp 625.0 psi
 Fv 100.0 psi
 Ft 575.0 psi

E : Modulus of Elasticity
 Ebend- xx 1,600.0ksi
 Eminbend - xx 580.0ksi

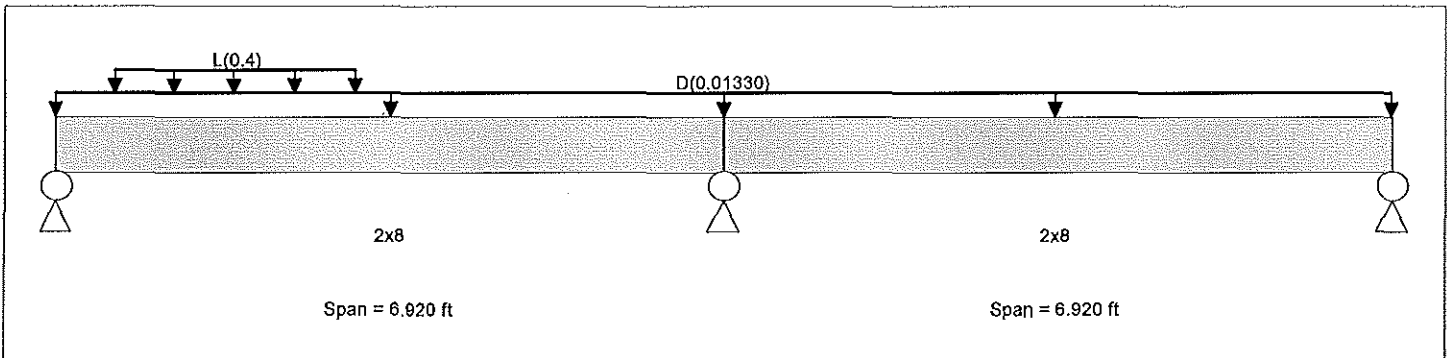
Wood Species : Douglas Fir - Larch
 Wood Grade : No.2

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

Density 32.210pcf
 Repetitive Member Stress Increase

Unbraced Lengths

First Brace starts at ft from Left-Most support
 Regular spacing of lateral supports on length of beam = 6.0 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 = 0.010 ksf, Tributary Width = 1.330 ft

Load for Span Number 1

Uniform Load : L = 0.40 k/ft, Extent = 0.60 --> 3.10 ft, Tributary Width = 1.0 ft, (2k pt load over 2 joists; 1k on)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.844	1	Maximum Shear Stress Ratio	=	0.972	: 1
Section used for this span		2x8		Section used for this span		2x8	
fb : Actual	=	932.98	psi	fv : Actual	=	97.17	psi
FB : Allowable	=	1,105.75	psi	Fv : Allowable	=	100.00	psi
Load Combination		+D+L+H		Load Combination		+D+L+H	
Location of maximum on span	=	2.281	ft	Location of maximum on span	=	0.000	ft
Span # where maximum occurs	=	Span # 1		Span # where maximum occurs	=	Span # 1	
Maximum Deflection							
Max Downward Transient Deflection		0.084	in	Ratio =		993	
Max Upward Transient Deflection		-0.029	in	Ratio =		2836	
Max Downward Total Deflection		0.088	in	Ratio =		942	
Max Upward Total Deflection		-0.026	in	Ratio =		3240	

Vertical Reactions

Support notation : Far left Is #1

Values in KIPS

Load Combination	Support 1	Support 2	Support 3
Overall MAXimum	0.714	0.523	-0.060
Overall MINimum	0.041	0.136	-0.019
+D+H	0.041	0.136	0.041
+D+L+H	0.714	0.523	-0.019
D Only	0.041	0.136	0.041

Wood Beam

File = C:\Projects\ENERCALC-112015-3-3\2015-3-1.EC6
 ENERCALC, INC. 1983-2015, Build:6.15.1.19, Ver:6.15.1.19
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Lic. #: KW-06009251

Description: TYP FLOOR JOIST SUPPORT BEAM - 2015-34

CODE REFERENCES

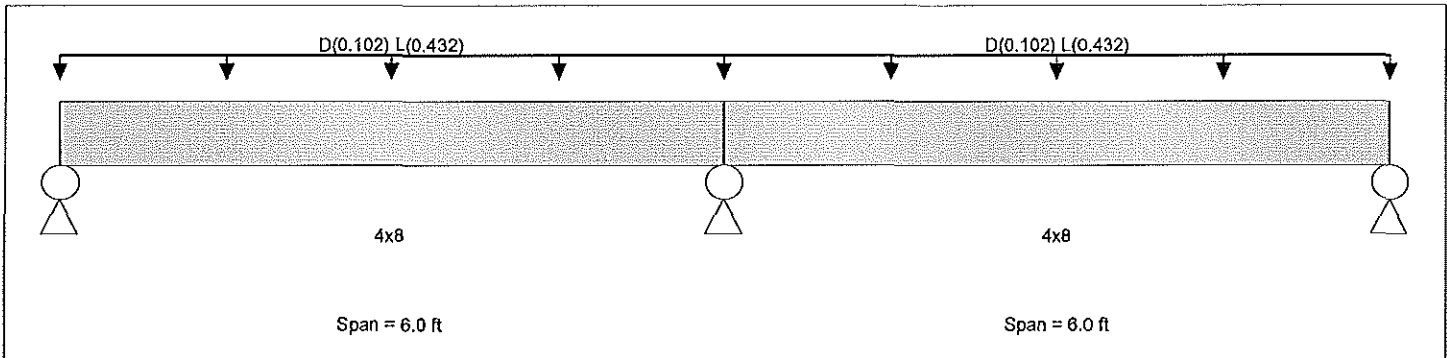
Calculations per NDS 2012, IBC 2012, CBC 2013, ASCE 7-10
 Load Combination Set: IBC 2012

Material Properties

Analysis Method: Allowable Stress Design	Fb - Tension	900.0 psi	E : Modulus of Elasticity	
Load Combination IBC 2012	Fb - Compr	900.0 psi	Ebend-xx	1,600.0 ksi
	Fc - Prll	1,350.0 psi	Eminbend-xx	580.0 ksi
Wood Species : Douglas Fir - Larch	Fc - Perp	625.0 psi		
Wood Grade : No.2	Fv	110.0 psi		
	Ft	575.0 psi	Density	32.210pcf
Beam Bracing : Beam bracing is defined as a set spacing over all spans				

Unbraced Lengths

First Brace starts at ft from Left-Most support
 Regular spacing of lateral supports on length of beam = 2.0 ft



Applied Loads

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

Beam self weight calculated and added to loads

Load for Span Number 1

Uniform Load : D = 0.1020, L = 0.4320, Tributary Width = 1.0 ft, (Joist Rxt 711# / 1.33)

Load for Span Number 2

Uniform Load : D = 0.1020, L = 0.4320, Tributary Width = 1.0 ft, (Joist Rxt 711# / 1.33)

DESIGN SUMMARY

Design OK

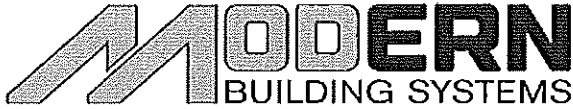
Maximum Bending Stress Ratio	=	0.813	1	Maximum Shear Stress Ratio	=	0.913	: 1
Section used for this span		4x8		Section used for this span		4x8	
fb : Actual	=	950.46	psi	fv : Actual	=	100.38	psi
FB : Allowable	=	1,168.56	psi	Fv : Allowable	=	110.00	psi
Load Combination		+D+L+H		Load Combination		+D+L+H	
Location of maximum on span	=	6.000	ft	Location of maximum on span	=	5.397	ft
Span # where maximum occurs	=	Span # 1		Span # where maximum occurs	=	Span # 1	
Maximum Deflection							
Max Downward Transient Deflection		0.030	in	Ratio =		2417	
Max Upward Transient Deflection		0.000	in	Ratio =		0 <360	
Max Downward Total Deflection		0.037	in	Ratio =		1935	
Max Upward Total Deflection		0.000	in	Ratio =		0 <180	

Vertical Reactions

Support notation : Far left is #1

Values in KIPS

Load Combination	Support 1	Support 2	Support 3
Overall MAXimum	1.214	4.048	1.214
Overall MINimum	0.242	0.808	0.242
+D+H	0.242	0.808	0.242
+D+L+H	1.214	4.048	1.214
D Only	0.242	0.808	0.242



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JOB # 2015-34 Horizon Christian

SHEET NO LFA-2	OF LFA-4
CALCULATED BY MCL	DATE OF LFA-4
CHECKED BY	DATE
SCALE	

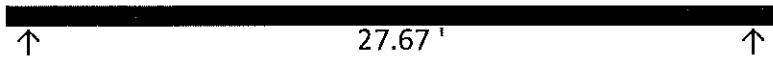
SHEAR DIAPHRAGM DESIGN (CON'T)

LONGITUDINAL

(SEISMIC CONTROLS)

SEISMIC ROOF = 3126 #

112 plf



Vrf = ROOF / 2 WALLS = 1563 #
 Lrf = 67.00'

1563 #

v rf = 23 plf

<115 plf = 140plf(CASE 3) X 0.82(HF) OK
 USE MIN 7/16" SHTG w/ 15 GA STAPLES AT 6" EDGE & 12" FIELD (UNBLOCKED) (ESR-1539, TABLE 9) UPGRADE TO 4" & 8". AT ROOF

SHEAR WALL PIER LENGTHS

4.00'	8.00'	Lwall = 16.00'
4.00'	0.00'	
0.00'	0.00'	v wall = 98 plf

<156plf = 190plf X 0.82(HF) OK
 USE MIN 7/16" SHTG w/ 15 GA STAPLES AT 6" EDGE & 12" FIELD (BLOCKED) (ESR-1539, TABLE 18)

Vflr = 1563 #
 Lflr = 64.00'

v flr = 24 plf

<140plf(Case 3) OK
 USE MIN 19/32" SHTG w/ 8d (.113) AT 6" EDGE & 12" FIELD (UNBLOCKED) (ESR-1539, TABLE 11) UPGRADE TO 23/32" SHTG AT 6" & 8". AT FLOOR



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SHEET NO	LFA-3	OF LFA-4
CALCULATED BY	MCL	DATE 3/30/2015
CHECKED BY		DATE
SCALE		

SHEARWALL HOLD DOWNS (TRANSVERSE)

UNIT SHEAR = 115 plf
 PIER WIDTH = 9.25 '
 ROOF TRIB WIDTH = 3.00 '
 Mot = 115plf X 9.25' X 8' = 8508 lb-ft
 Mr = [3'(12psf)+8'(10psf)] X 9.25'^2/2 X 0.6 = 2978 lb-ft
 T=C=M/b (8508 - 2978)lb-ft / (9.25 - 0.5)' = 632 #
 PER NAIL VALUE (SIMP C-2013 PG 175) = 152 # HF
 N = 632# / 152# EA = 5 NAILS 4 (MIN)

USE MIN SIMP CS-18 w/ (5) N-10's EA END

SHEARWALL HOLD DOWNS (LONGIT)

UNIT SHEAR = 98 plf
 PIER WIDTH = 4.00 '
 ROOF TRIB WIDTH = 8.42 '
 Mot = 98plf X 4' X 8' = 3126 lb-ft
 Mr = [8.42'(12psf)+8'(10psf)] X 4'^2/2 X 0.6 = 869 lb-ft
 T=C=M/b (3126 - 869)lb-ft / (4 - 0.5)' = 645 #
 PER NAIL VALUE (SIMP C-2013 PG 175) = 152 # HF
 N = 645# / 152# EA = 5 NAILS 4 (MIN)

USE MIN SIMP CS-18 w/ (5) N-10's EA END



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SHEET NO LFA-4 OF LFA-4 3/30/2015

CALCULATED BY MCL DATE

CHECKED BY DATE

SCALE

SIDEWALL TOP PLATE SPLICE

$T=C=M/b \quad (90\text{plf} \times 64'^2)/(8 \times 27.67')$ 1662 #

PER NAIL VALUE (NDS TABLE 11N, Cd=1.6) = 134 # HF

$N = 1662\# / 134\# \text{ EA} =$ 14 NAILS 14
(MIN)

USE MIN 4 ft SPLICE w/ (14) 12d's (.131) EA END

ENDWALL TOP PLATE SPLICE

$T=C=M/b \quad (112\text{plf} \times 27.67'^2)/(8 \times 64')$ 167 #

PER NAIL VALUE (SIMP C-2013 PG 175) 152 # HF

$N = 167\# / 152\# \text{ EA} =$ 4 NAILS 4
(MIN)

USE MIN SIMP CS-18 w/ (4) N-10's EA END

SHEAR TRANSFER AT M.L.

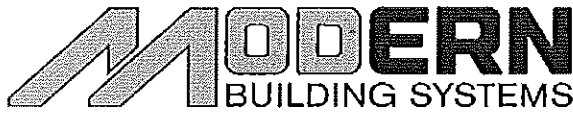
$v = \frac{V_{ay'}}{l} = \frac{2874\# \times (64' \times 27.67' / 2)(27.67' / 4)}{(64' \times 27.67'^3) / 12}$ 156 plf

$V = 156\text{plf} \times (64'/2) / 2 \times 2 =$ 4986 #

PER BOLT VALUE (NDS TABLE 11A) (600# X 1.6)= 960 # LVL or GLB: G=0.50

$N = 4986\# / 960\# \text{ EA} =$ 6 BOLTS 6
(MIN)

USE MIN (6) - 5/8 in DIA M.B.'s AT RIDGE BEAM



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JOB # 2015-34 Horizon Christian

SHEET NO FDN-1

OF FDN- 7

CALCULATED BY MCL

3/30/2015

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 = 1.50'
 ROOF TRIB WIDTH = 8.42'
 WALL PLATE HEIGHT = 8.00' (ABOVE F.F.)
 TRANSVERSE WIND/SEIS. = 11497 #
 LONGIT. WIND/SEIS. = 5922 #
 WIND UPLIFT = 29390 #
 SNOW LOAD = 25 psf
 BUILDING WEIGHT = 48324 # (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

$DL = 8.42'(12 \text{ psf}) + 8'(10 \text{ psf}) + 6.92'/2(10 \text{ psf}) = 216 \text{ plf}$

$LL = 6.92' / 2 \times 50 \text{ psf} = 173 \text{ plf}$

$SL = 8.42' \times 25 \text{ psf} = 210 \text{ plf}$

$D + L = 388 \text{ plf}$

$D + S = 426 \text{ plf}$

$D + 0.75L + 0.75S = 503 \text{ plf}$

CONTROLS

PIER SPACING = 6.00'

$q = (503 \text{ plf} - 0 \text{ plf}) \times (6') / 1.78 \text{ ft}^2 = 1695 \text{ psf}$

\therefore 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

$DL = 6.92' (10 \text{ psf}) = 69 \text{ plf}$

$LL = 6.92' (50 \text{ psf}) = 346 \text{ plf}$

$D + L = 415 \text{ plf}$

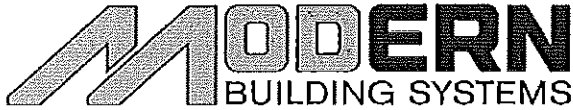
CONTROLS

PIER SPACING = 6.00'

$q = 415 \text{ plf} \times (6') / 1.78 \text{ ft}^2 = 1399 \text{ psf}$

\therefore 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 # 2015-34 Horizon Christian

SHEET NO FDN-2

OF FDN- 7

CALCULATED BY MCL

3/30/2015

CHECKED BY

DATE

SCALE

AT ENDWALL COLUMN FTG

COLUMN DL = 1870 #

COLUMN SL = 4149 #

DL = [3' (10 psf) + 10.5' (10 psf)] X 6.92' =

934 #

LL = 3' (50 psf) X 6.92' =

1037 #

D + L = 3841 #

D + S = 6953 #

CONTROLS

D + 0.75L + 0.75S = 6693 #

<9000# Therefore OK. (See FDN- 3,5)

AT MIDSPAN COLUMN FTG

COLUMN DL = 6232 #

COLUMN SL = 13830 #

DL = 6.92' (10 psf) (6') =

415 #

LL = 6.92' (50 psf) (6') =

2075 #

D + L = 8721 #

D + S = 20477 #

CONTROLS

D + 0.75L + 0.75S = 18575 #

<26093# Therefore OK. (See FDN- 3,6,7)



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SHEET NO FDN-3	OF FDN- 7
CALCULATED BY MCL	3/30/2015
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'

$P_{max} = 1800\text{psf} \times 2 \times 0.63' \times 4' = 9000 \#$

DL % = 40%

SL % = 60%

$W_{DL} = 1800\text{psf} \times 0.63' \times 0.4 = 454 \text{ plf}$

$W_{SL} = 1800\text{psf} \times 0.63' \times 0.6 = 671 \text{ plf}$

@ MIDSPAN COLUMN FOOTING

TRY 6 (FLAT) P.T. HF #2, 4 x 8 x 4.00' L
 Width (b) each = 0.60'

$P_{max} = 1800\text{psf} \times 6 \times 0.6' \times 4' = 26093 \#$

DL % = 32%

SL % = 68%

$W_{DL} = 1800\text{psf} \times 0.6' \times 0.32 = 353 \text{ plf}$

$W_{SL} = 1800\text{psf} \times 0.6' \times 0.68 = 734 \text{ plf}$

@ MIDSPAN INTERMEDIATE POST

TRY 2 DF #2, 6 x 10 x 3.50' L
 Width (b) each = 0.46'

$W_{DL} = 1800\text{psf} \times 4' \times 0.32 / 2 \text{ MEMBERS} = 1169 \text{ plf}$

$W_{SL} = 1800\text{psf} \times 4' \times 0.68 / 2 \text{ MEMBERS} = 2431 \text{ plf}$



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JOB # 2015-34 Horizon Christian

SHEET NO	FDN-4	OF FDN	7
CALCULATED BY	MCL	DATE	3/30/2015
CHECKED BY		DATE	
SCALE			

BUILDING SIDE ANCHORS

N =	$11497\# / (2962\# \times .707) =$	6 ANCHORS
Mot =	$11497\# / 2 \times 13' + 11497\# / 2 \times 2.5' + 29390\# \times 27.67' / 2 =$	496 k-ft
Mr =	$48324\# \times 27.67' / 2 =$	669 k-ft
w/ ANCHORS =	$6 \times 2962\# \times .707 \times 27.67' =$	348 k-ft
TOTAL =	$(669\text{k-ft} \times 0.6) + 348\text{k-ft} =$ > 496k-ft therefore OK	749 k-ft

USE (6) ANCHORS AT EA SIDE OF BLDG

BUILDING END ANCHORS

N =	$5922\# / (2962\# \times .707) =$	3 ANCHORS
Mot =	$5922\# / 2 \times 13' + 5922\# / 2 \times 2.5' + 29390\# \times 64' / 2 =$	986 k-ft
Mr =	$48324\# \times 64' / 2 =$	1546 k-ft
w/ ANCHORS =	$3 \times 2962\# \times .707 \times 64' =$	402 k-ft
TOTAL =	$(1546\text{k-ft} \times 0.6) + 402\text{k-ft} =$ > 986k-ft therefore OK	1330 k-ft

USE (3) ANCHORS AT EA END OF BLDG

MOBILE UNIT CONNECTION TO CHASSIS

(TRANSVERSE LOADING)	$T = 496 \text{ k-ft} - (0.6) \times 669 \text{ k-ft} / 27.67 \text{ ft} / 2 =$	1709 #
		PER STRAP
	PER NAIL VALUE (SIMP C-2013 PG 173)	179 # HF
	N=	12 NAILS 12 (MIN)

N/A

Wood Beam

File = C:\Projects\ENERCALC-1\2015-3-3\2015-3-1.EC6
 ENERCALC, INC. 1983-2015, Build:6.15.1.19, Ver:6.15.1.19
 Licensee: MODERN BUILDING SYSTEMS

Lic. #: KW-06009251

Description: ENDWALL COLUMN FTG - 2015-34

CODE REFERENCES

Calculations per NDS 2012, IBC 2012, CBC 2013, ASCE 7-10
 Load Combination Set : IBC 2012

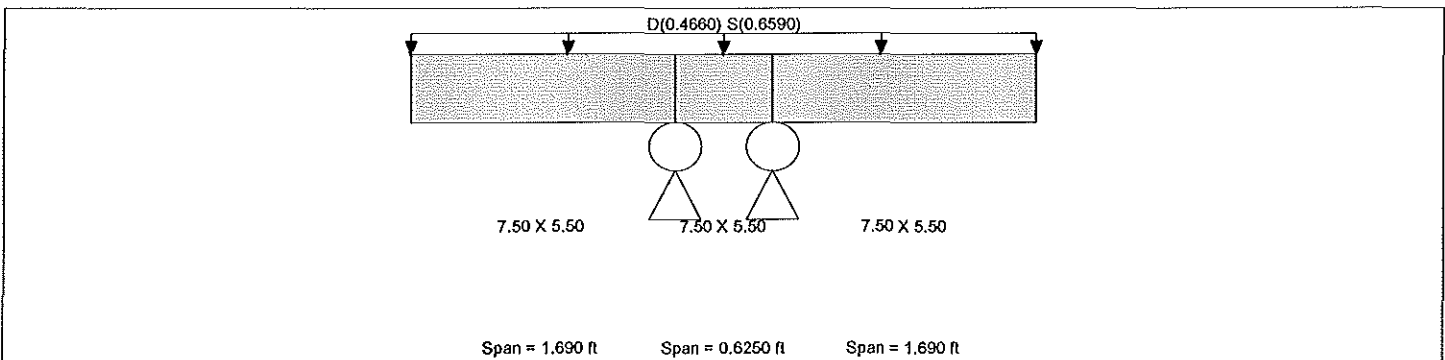
Material Properties

Analysis Method : Allowable Stress Design
 Load Combination IBC 2012

Wood Species : Hem Fir
 Wood Grade : No.2

Beam Bracing : Completely Unbraced

Fb - Tension	675.0 psi	E : Modulus of Elasticity	
Fb - Compr	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 = 0.4660, S = 0.6590 k/ft

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.657 : 1	Maximum Shear Stress Ratio	=	0.463 : 1
Section used for this span	=	7.50 X 5.50	Section used for this span	=	7.50 X 5.50
fb : Actual	=	509.85psi	fv : Actual	=	50.55 psi
FB : Allowable	=	776.25psi	Fv : Allowable	=	109.25 psi
Load Combination	=	+D+S+H	Load Combination	=	+D+S+H
Location of maximum on span	=	1.690ft	Location of maximum on span	=	1.236 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1
Maximum Deflection					
Max Downward Transient Deflection		0.018 in	Ratio =		2310
Max Upward Transient Deflection		0.000 in	Ratio =		0 < 360
Max Downward Total Deflection		0.030 in	Ratio =		1354
Max Upward Total Deflection		-0.001 in	Ratio =		6405

Vertical Reactions

Support notation : Far left is #1

Values in KIPS

Load Combination	Support 1	Support 2	Support 3	Support 4
Overall MAXimum		2.253	2.253	
Overall MINimum		0.933	0.933	
+D+H		0.933	0.933	
+D+S+H		2.253	2.253	
D Only		0.933	0.933	
S Only		1.320	1.320	

Wood Beam

File = C:\Projects\ENERCA-1\2015-3-3\2015-3-1.EC6
 ENERCALC, INC. 1983-2015, Build:6.15.1.19, Ver:6.15.1.19
 Licensee: MODERN BUILDING SYSTEMS

License #: KW-06009251

Description: CNTR COLUMN FTG - 2015-34

CODE REFERENCES

Calculations per NDS 2012, IBC 2012, CBC 2013, ASCE 7-10

Load Combination Set: IBC 2012

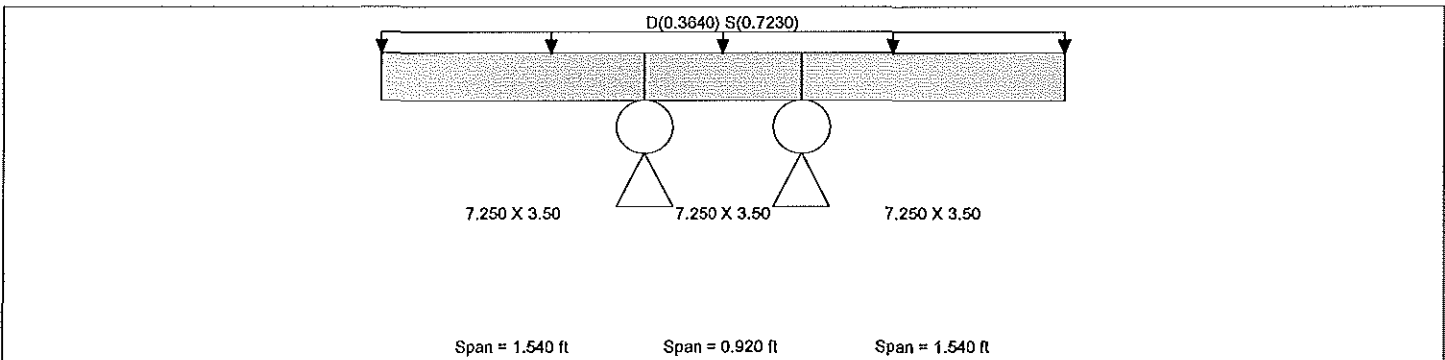
Material Properties

Analysis Method: Allowable Stress Design
 Load Combination IBC 2012

Wood Species: Hem Fir
 Wood Grade: No.2

Beam Bracing: Completely Unbraced

Fb - Tension	1,160.0 psi	E : Modulus of Elasticity	
Fb - Compr	1,160.0 psi	Ebend-xx	1,300.0ksi
Fc - Prll	1,300.0 psi	Eminbend - xx	470.0ksi
Fc - Perp	405.0 psi		
Fv	95.0 psi		
Ft	525.0 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 = 0.3640, S = 0.7230 k/ft

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.783	1	Maximum Shear Stress Ratio	=	0.738	: 1
Section used for this span	=	7.250 X 3.50		Section used for this span	=	7.250 X 3.50	
fb : Actual	=	1,044.96psi		fv : Actual	=	80.66 psi	
FB : Allowable	=	1,334.00psi		Fv : Allowable	=	109.25 psi	
Load Combination	=	+D+S+H		Load Combination	=	+D+S+H	
Location of maximum on span	=	1.540ft		Location of maximum on span	=	1.255 ft	
Span # where maximum occurs	=	Span # 1		Span # where maximum occurs	=	Span # 1	
Maximum Deflection							
Max Downward Transient Deflection		0.056 in	Ratio =	664			
Max Upward Transient Deflection		-0.004 in	Ratio =	2519			
Max Downward Total Deflection		0.084 in	Ratio =	442			
Max Upward Total Deflection		-0.007 in	Ratio =	1675			

Vertical Reactions

Support notation : Far left is #1

Values in KIPS

Load Combination	Support 1	Support 2	Support 3	Support 4
Overall MAXimum		2.174	2.174	
Overall MINimum		0.728	0.728	
+D+H		0.728	0.728	
+D+S+H		2.174	2.174	
D Only		0.728	0.728	
S Only		1.446	1.446	

Wood Beam

File = C:\Projects\ENERCA-112015-3-32015-3-1.EC6
 ENERCALC, INC. 1983-2015, Build 8.15.1.19, Ver. 8.15.1.19
 Licensee: MODERN BUILDING SYSTEMS

Lic. #: KW-06009251

Description: CNTR COLUMN FTG INTERMEDIATE POST- 2015-30

CODE REFERENCES

Calculations per NDS 2012, IBC 2012, CBC 2013, ASCE 7-10

Load Combination Set : IBC 2012

Material Properties

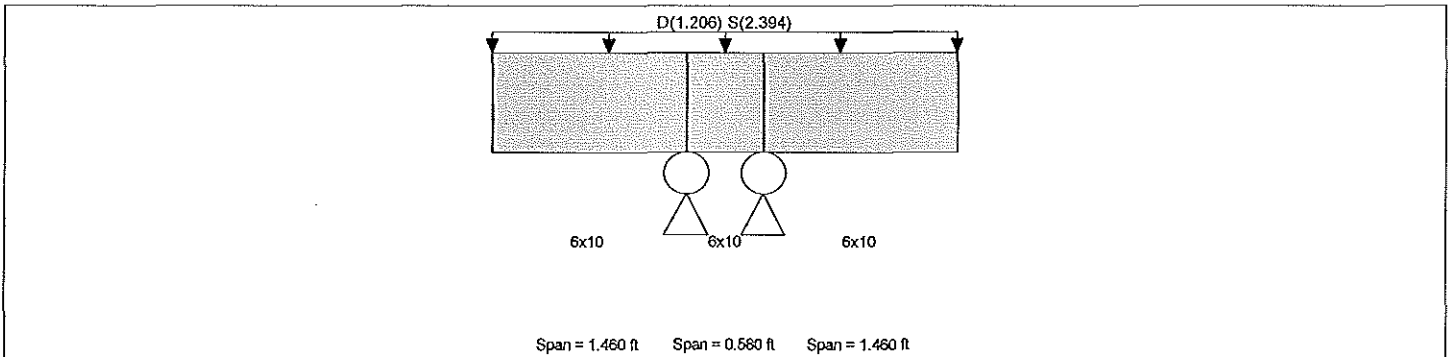
Analysis Method : Allowable Stress Design
 Load Combination IBC 2012

Fb - Tension 875.0 psi
 Fb - Compr 875.0 psi
 Fc - Prll 600.0 psi
 Fc - Perp 625.0 psi
 Fv 95.0 psi
 Ft 425.0 psi

E : Modulus of Elasticity
 Ebend- xx 1,300.0 ksi
 Eminbend - xx 470.0 ksi
 Density 32.210 pcf

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

Beam Bracing : Completely Unbraced



Applied Loads

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

Loads on all spans...

Uniform Load on ALL spans : D = 1.206, S = 2.394 k/ft

DESIGN SUMMARY

Design OK

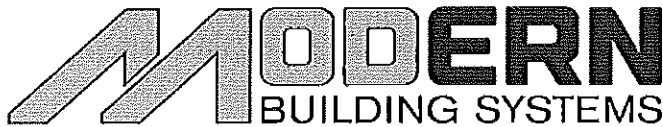
Maximum Bending Stress Ratio	=	0.554	1	Maximum Shear Stress Ratio	=	0.754	: 1
Section used for this span		6x10		Section used for this span		6x10	
fb : Actual	=	556.55	psi	fv : Actual	=	82.42	psi
FB : Allowable	=	1,005.21	psi	Fv : Allowable	=	109.25	psi
Load Combination		+D+S+H		Load Combination		+D+S+H	
Location of maximum on span	=	1.460ft		Location of maximum on span	=	0.797 ft	
Span # where maximum occurs	=	Span # 1		Span # where maximum occurs	=	Span # 1	
Maximum Deflection							
Max Downward Transient Deflection		0.008	in	Ratio =		4282	
Max Upward Transient Deflection		0.000	in	Ratio =		0	<360
Max Downward Total Deflection		0.012	in	Ratio =		2846	
Max Upward Total Deflection		-0.001	in	Ratio =		12966	

Vertical Reactions

Support notation : Far left is #1

Values in KIPS

Load Combination	Support 1	Support 2	Support 3	Support 4
Overall MAXimum		6.300	6.300	
Overall MINimum		2.111	2.111	
+D+H		2.111	2.111	
+D+S+H		6.300	6.300	
D Only		2.111	2.111	
S Only		4.190	4.190	



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JOB #	2015-34 Horizon Christian		
SHEET NO	L-1	OF	L-5
CALCULATED BY	MCL	DATE	3/30/2015
CHECKED BY	DATE		
SCALE			

WIND ANALYSIS FOR ENCLOSED SIMPLE DIAPHRAGM LOW-RISE BUILDINGS - BASED ON IBC 2012 / ASCE 7-10 CHAPTER 28, PART 2

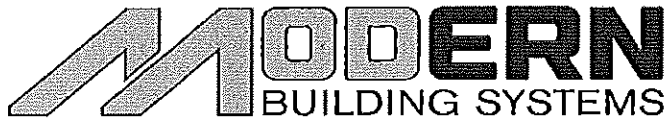
INPUT DATA

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	2:50:42 PM
Building Height to Eave =	he	11.00	ft	
Building Height to Ridge =	hr	15.00	ft	
Eave Overhang	oh	1.50	ft	
Building End Zone =	a	3.00	ft	
Roof Pitch =	RP	3.0	:12	
Approx. Roof Angle =	RA	15	degrees	(Ref. Fig. 28.6-1)

OUTPUT

Wind Pressure, ps30 (Fig. 28.6-1)

Horizontal	A-ps30	39.00	psf
Horizontal	B-ps30	-12.90	psf
Horizontal	C-ps30	26.00	psf
Horizontal	D-ps30	-7.40	psf
Vertical	E-ps30	-37.30	psf
Vertical	F-ps30	-24.40	psf
Vertical	G-ps30	-26.00	psf
Vertical	H-ps30	-18.60	psf
O.H.	Eoh-ps30	-52.30	psf
O.H.	Goh-ps30	-40.90	psf



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JOB # 2015-34 Horizon Christian

SHEET NO	L-2	OF	L-5
CALCULATED BY	MCL	DATE	3/30/2015
CHECKED BY		DATE	
SCALE			

Wind Pressure, ps

ps = Lambda * Kzt * ps30

				Min Loading
Horizontal	A-ps	39.00	psf	16.00
Horizontal	B-ps	-12.90	psf	8.00
Horizontal	C-ps	26.00	psf	16.00
Horizontal	D-ps	-7.40	psf	8.00
Vertical	E-ps	-37.30	psf	0.00
Vertical	F-ps	-24.40	psf	0.00
Vertical	G-ps	-26.00	psf	0.00
Vertical	H-ps	-18.60	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	2574 lbs	1056 lbs
Set to 0	B-tw	-310 lbs	192 lbs
	C-tw	16588 lbs	10208 lbs
Set to 0	D-tw	<u>-1717 lbs</u>	<u>1856 lbs</u>
Total		<u>19162 lbs (SD)</u>	<u>13312 lbs</u>
Convert to ASD x		0.6	0.6
Total Force on building side L =		<u>11497 lbs (ASD)</u>	<u>7987 lbs</u>

CASE B - Longitudinal Wind

	A-lw	1375 lbs	564 lbs
	C-lw	<u>8494 lbs</u>	<u>5227 lbs</u>
Total		<u>9869 lbs (SD)</u>	<u>5791 lbs</u>
Convert to ASD x		0.6	0.6
Total Force on building end B =		<u>5922 lbs (ASD)</u>	<u>3475 lbs</u>

CASE A - Transverse Uplift

w/ gable end OH uplift	E-up	-3870 lbs
w/ gable end OH uplift	F-up	-2532 lbs
w/ gable end OH uplift	G-up	-21403 lbs
w/ gable end OH uplift	H-up	-15311 lbs
sidewall eaves OH uplift	Eoh-up	-690 lbs
sidewall eaves OH uplift	Goh-up	<u>-5177 lbs</u>
Total		<u>-48983 lbs (SD)</u>
Convert to ASD x		0.6
Total Uplift Force =		<u>-29390 lbs (ASD)</u>



PO Box 110 • 9493 Porter Rd • Aumsville, OR 97325
 800.682.1422 ModernBuildingSystems.com

JOB #2015-34 Horizon Christian

SHEET NO	L-3	OF	L-5
CALCULATED BY	MCL	DATE	3/30/2015
CHECKED BY		DATE	
SCALE			

28' x 64' MODULAR

SEISMIC per IBC 2012 / ASCE 7-10

ASCE 7-10 Table 1.5-1	Risk Category		II
ASCE 7-10 Table 1.5-2	Seismic Importance Factor	Ie =	1.00
ASCE 7-10 Table 12.2-1	Response Modification Factor	R =	6.50
USGS Data	Spectral Response Accel.	Ss =	0.940
ASCE 7-10 11.4.2	Site Class D		
ASCE 7-10 Table 11.4-1	Site Coefficient	Fa =	1.124
ASCE 7-10 Eqn. 11.4-1	Sms = Ss * Fa	Sms =	1.057
ASCE 7-10 Eqn 11.4-3	Sds = 2/3 * Sms	Sds =	0.704
ASCE 7-10 12.14.8.1	F=1.0 for one story bldgs	F=	1.000
ASCE 7-10 Table 11.6-1	Seismic Design Cat.		D
ASCE 7-10 Eqn 12.8-1	$V = (F * Sds / (R / Ie) * W) * 0.7$	V =	0.076 W
IBC 2012 1605.3.1	Note: 0.7 converts to ASD		
ASCE 7-10 Eqn 12.8-5	Vmin =		0.010 W

Building Weight

	Roof (psf)		Exterior Wall (psf)
Comp	2.5	7/16 Shtg	1.5
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	FC Pnl	2.5
	0		0
	0		0
Total	9.5		9.8

	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	R-30U	1.6
	0		0
	0		0
Total	6.7		7.3



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JOB # JOB #2015-34 Horizon Christian

SHEET NO L-4 OF L-5

CALCULATED BY MCL **DATE** 3/30/2015

CHECKED BY **DATE**

SCALE

Building Weight (con't)

No Snow	30.67'	67.00'	0.0 psf	=	0	lbs
Roof =	30.67'	67.00'	9.5 psf	=	19521	lbs
Ext. Wall =	8.00'	183.34'	9.8 psf	=	14374	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 48324 lbs

Wr = Total DL tributary to roof 27459 lbs

W1 = Total DL tributary to floor 20865 lbs

Fx Story (Shearwall) Force Table

Story	Height	Weight		Story Force - k Fx= wx*hx/ (Σ wx*hx)*V	Fx Coef = V*hx/(Σ wx*hx)	Story Shear
	(hx)	(wx)	(wx*hx)			(Vx)
R	11.00'	27.46 k	302 k-ft	3.13 k	0.114	3.13 k
1	2.50'	20.86 k	52 k-ft	0.54 k	0.026	3.67 k
Grade	0.00'					
Sum (Σ)		48.32 k	354 k-ft	V= 3.67 k		

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

USGS Design Maps Summary Report

L-5 of L-5

User-Specified Input

Report Title 2015-34, 23370 SW Boones Ferry, Tualatin, OR
 Mon March 30, 2015 22:03:14 UTC

Building Code Reference Document 2012 International Building Code
 (which utilizes USGS hazard data available in 2008)

Site Coordinates 45.351°N, 122.771°W

Site Soil Classification Site Class D - "Stiff Soil"

Risk Category I/II/III

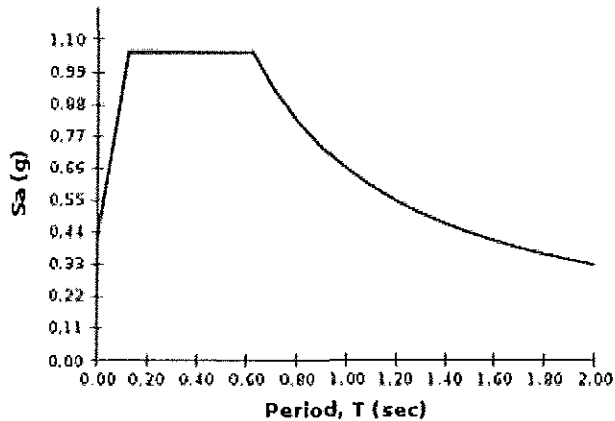


USGS-Provided Output

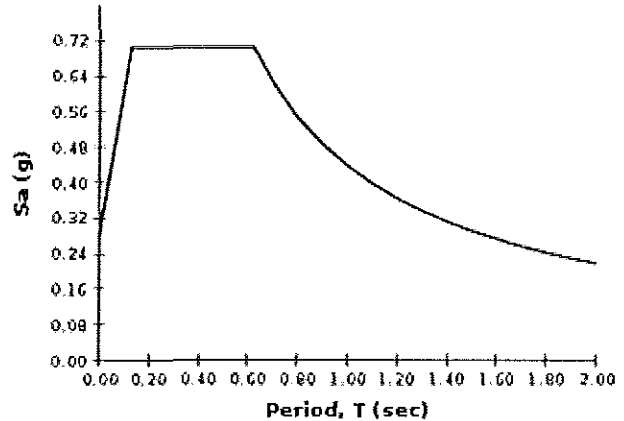
$S_s = 0.940 \text{ g}$	$S_{MS} = 1.057 \text{ g}$	$S_{DS} = 0.704 \text{ g}$
$S_1 = 0.413 \text{ g}$	$S_{M1} = 0.656 \text{ g}$	$S_{D1} = 0.437 \text{ g}$

For information on how the S_s and S_1 values above have been calculated from probabilistic (risk-targeted) and deterministic ground motions in the direction of maximum horizontal response, please return to the application and select the "2009 NEHRP" building code reference document.

MCE_R Response Spectrum



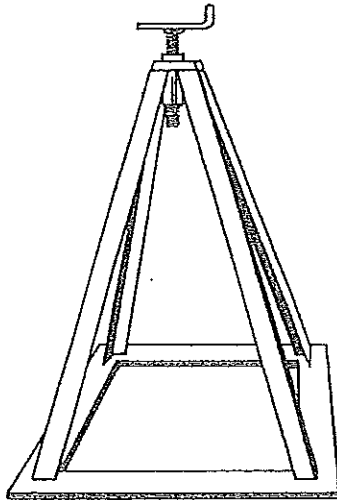
Design Response Spectrum



**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

INSTRUCTIONS FOR USING *Minute Man anchors* MOBILE HOME PIERS



MINUTE MAN ANCHORS 28726
TR# 8524
RATED 6000 LBS 3 TO 1 SAFETY FACTOR
RATED 8000 LBS 2.25 TO 1 SAFETY FACTOR
2" MAX EXTENSION
WARNING! DO NOT USE TO JACK HOME

The manufactured home shall be installed and leveled by qualified contracting personnel who are acceptable and licensed by the governing authority. Minute Man piers are designed to SUPPORT mobile homes and are not to be used for raising or lowering the home.

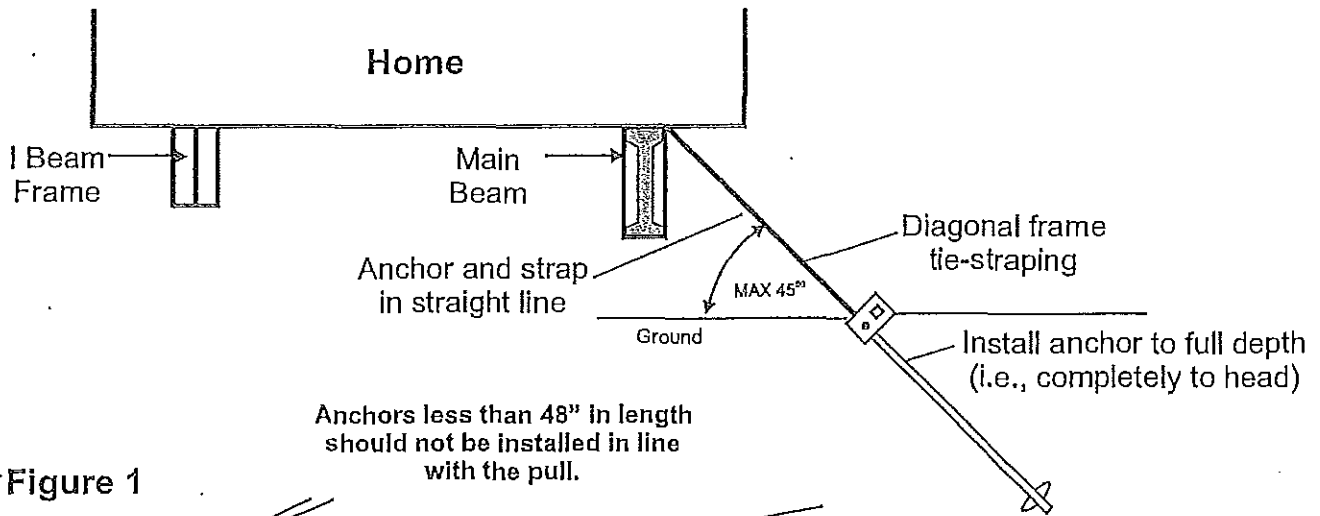
Minute Man piers should be placed directly under the main support frames on both sides of the home spaced in accordance with the home manufacturer's instructions.

OR EQUAL

MINUTE MAN PIER SET-UP PROCEDURES

1. Designed and manufactured for use under mobile and manufactured homes and commercial structures, the support pier is best suited to a dry environment. Minute Man piers are not recommended for use within 1500 feet of a coastline or in an application where the base of the pier would be immersed in water. All support piers must be attached to the I-beams with an appropriate pier head, to prevent horizontal movement.
2. Use hydraulic jacks or other suitable devices to level the chassis beam of the home. Be sure to use sufficient jacks and safety blocking to safely support the home before installing support piers. Level the chassis using a water level or other leveling device for accuracy. After the chassis is leveled using hydraulic jacks and levels, you may begin to install the support piers.
3. Using the appropriate pier for the installation, determine the pier height that will be best for each individual pier location and insure that the height to the bottom of the chassis beam is no greater than 36 inches. Insure that the pier caps are appropriate for the type of chassis beam or for the marriage line.
4. Prepare a level surface at the location of each pier. Use coarse sand or gravel, if necessary to prepare the surface so as to have full contact for the footing pad. The surface of the footing pad needs to be high enough to insure that the base of the support pier does not come into contact with any drainage water that may be present under the home. Do not set a footing pad on organic material. Use the appropriate type and size of footing pad for the load required. Refer to the home manufacturer's installation manual for specific loads and footing sizes; and to the governing authority in the locale in which you are installing.
5. Locate the support pier on the footing pad, making certain to center the support pier on the pier pad. Where required by local code, secure the support pier to the footing pad with appropriate fasteners. In no case are you to extend the threaded rod adjuster more than 2 inches. When more height is needed, use the next taller size support pier. Carefully align the support pier under the chassis beam or marriage line and install the pier head. Tighten and snug plus one-half turn.
6. Repeat this installation process with each pier. After all support piers are installed, you may then remove the safety blocking and hydraulic jacks used to initially level the chassis.

IN LINE INSTALLED AND CONNECTED GROUND ANCHOR AND FRAME CONNECTION



Anchors less than 48" in length
should not be installed in line
with the pull.

Figure 1

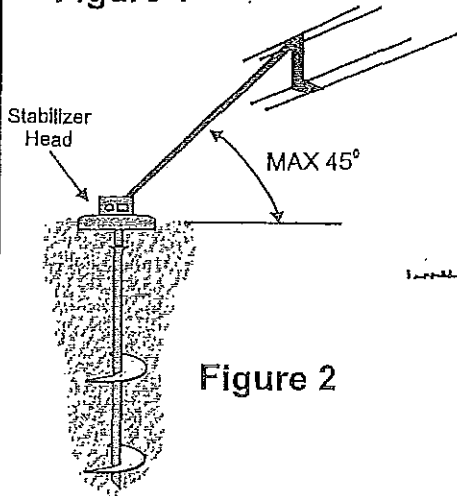


Figure 2

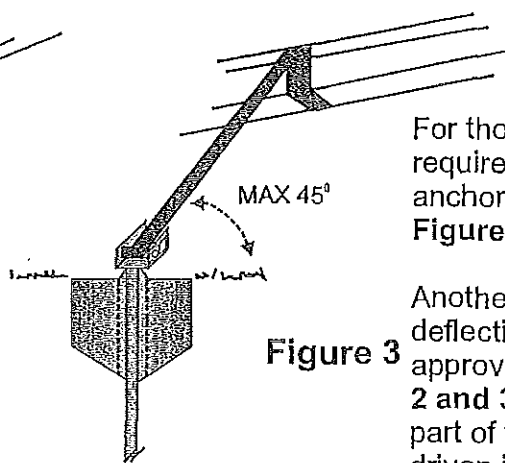


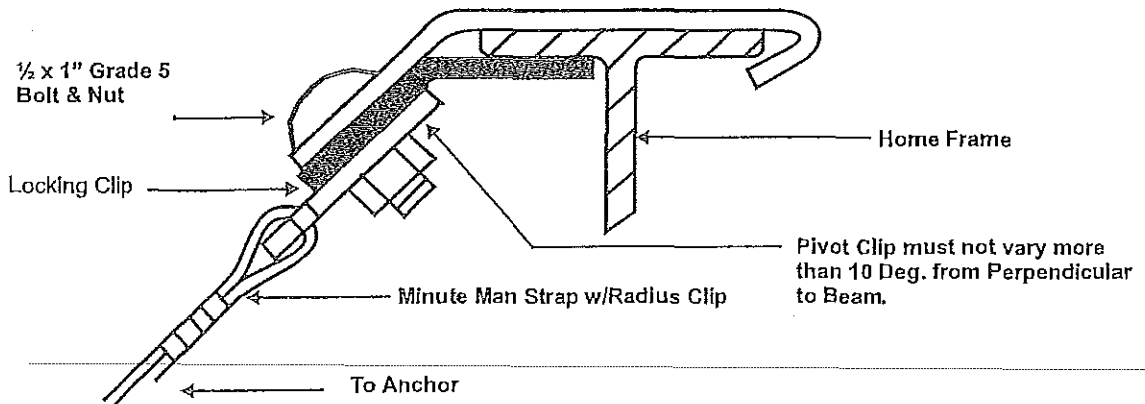
Figure 3

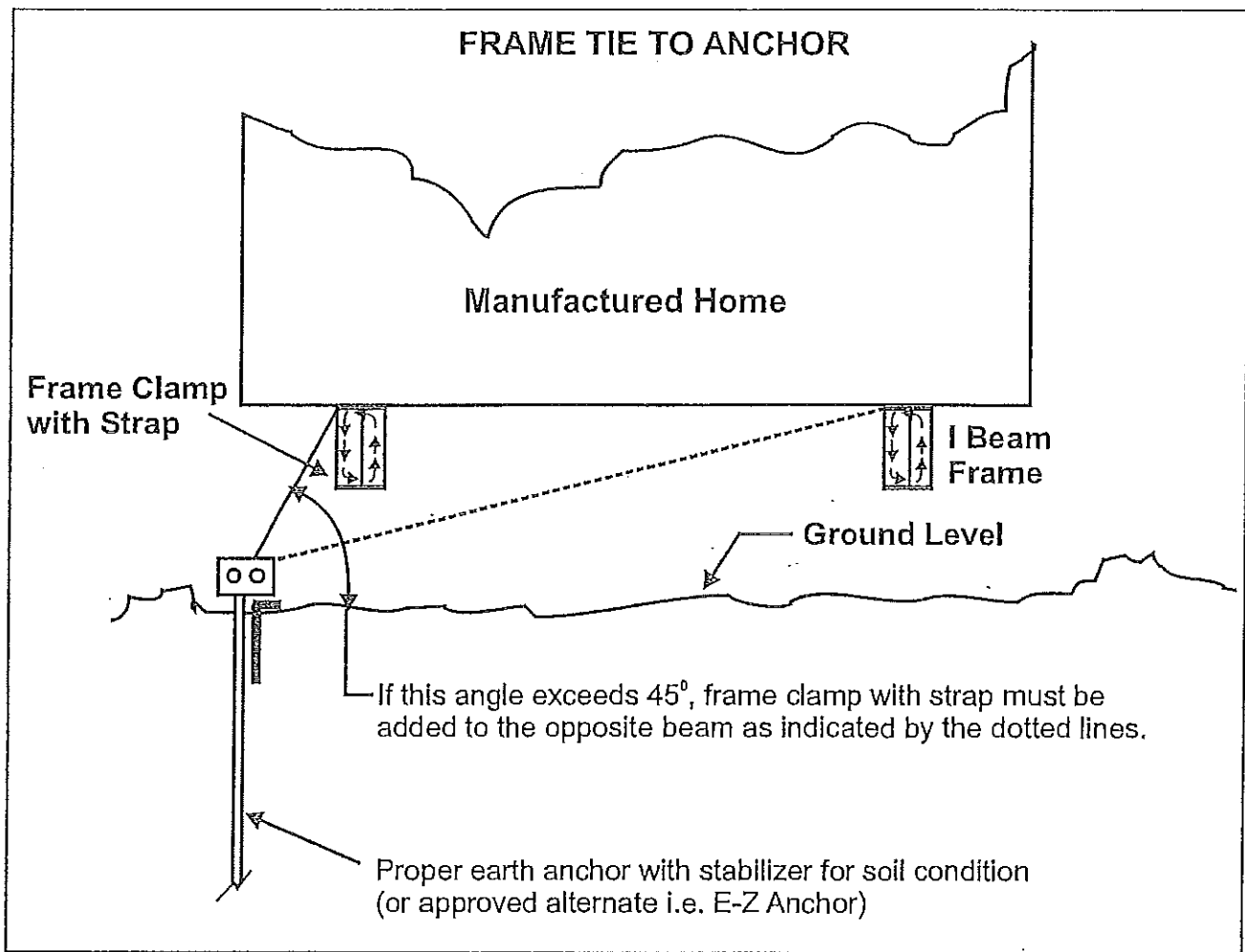
For those homes which are designed to require only diagonal frame ties, the anchor can be installed in line with the ties. **Figure 1.**

Another accepted way to limit lateral deflection is by use of a tested and approved Metal Stabilizing Device. **Figure 2 and 3.** In **Figure 2**, the Stabilizer is a part of the anchor. In **Figure 3**, the plate is driven in front of the anchor's direction of pull and will act to minimize the anchor rod deflection.

See Top of Page 2.

LOCKING FRAME CLAMP II MMA-33 ASSEMBLED UNIT





FRAME TIE INSTALLATION INSTRUCTIONS

<p>Frame Tie With Buckle</p> <p style="text-align: right;">1.</p> <p style="text-align: right;">2.</p> <p style="text-align: right;">3.</p> <p>Thread sufficient length of frame tie strap through buckle as shown.</p> <p>Next, thread long end of strap between frame and floor of home. Bring strap around frame and through buckle as shown in diagram and fasten to anchor head.</p> <p>Diagram showing strap in position around frame and through buckle. It is important to remove all slack from system.</p> <p>Note: Use of a single buckle is an appropriate alternate.</p>	<p>Single Slot Buckle With Strap</p> <p style="text-align: center;">Enlarged View of Frame Beam</p> <p>Place buckle at top of anchor side of beam, pass strap around beam and through buckle. Pass strap back around beam and through buckle to anchor. Strap will wrap beam twice. Remove all slack from system.</p>	<p>Frame Tie With Hook</p> <p style="text-align: center;">Enlarged View of Frame Beam</p> <p>Attach Frame Clamp (Hook) inside top flange of home frame. Bring strap around frame. Place strap between frame and home as shown in sketch. Pull strap tight and attach to anchor tension head.</p>
--	---	--

For tie down strap and anchor spacing. See the Mobile Home Manufacturers Installation Manual. Each state, county or municipality may require a specific anchor from the groups shown for each soil classification. Check local regulations before installation.

Note:

- o Soil test probe the anchor location in order to match the proper anchor with the soil classification.
- o Stabilizer plates or certified stabilizing device must be used with anchors when anchors are used to resist horizontal forces.
- o The distance from the end of the home to the first anchor must not exceed 2'- 0".
- o All homes located in Wind Zones II and III must have a vertical tie installed at each diagonal tie location.

SOIL CLASSIFICATION CHART

Soil Class	Soil Description	Blow Count (ASTM D1586)	Test Probe Value	Recommended Minute Man Anchor
1	Sound hard rock	NA	NA	Cross Drive or Rock Anchor
2	Very dense &/or cemented sands, coarse gravel and cobbles, caliche, preloaded silts, and clays.	40-up	551 lb. in. Up	4430DH 650DH 4430 EZDH 4636 EZDH 636 EZDH GW-2 12" Stabilizer Plate Nu-Concept Stabilizer Cap
3	Medium dense coarse sands, sandy gravels, very stiff silts, and clays.	24-39	351 to 550 lb in.	636 DH 4430 EZDH 650DH 636 EZDH 4430DH 4636 EZDH 4636 DH 650 EZDH GW-2 12" Stabilizer Plate Nu-Concept Stabilizer Cap
4(a)	Loose to medium dense sands, firm to stiff clays and silts alluvial fill.	18-23,3	276 to 350 lb. in.	4636 DH 4450DH 650DH 4636 EZDH 4636 NU Concept Stabilizer Cap 12" Stabilizer Plate
4(b)	VERY loose to medium dense sands, firm to stiff clays and silts, alluvial fill.	12-17	175 to 275 lbs. in	760DH 860DH 1060DH 17" Stabilizer Plate

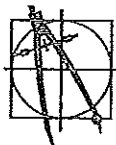
Remember: Each state, county or municipality may require a specific anchor from the groups shown for each soil classification. Check local regulations first. Soils less than 4B, see home manufacturer's instructions.

Note: Many anchors are designed for particular soil condition(s) and are unacceptable for use in other type soils. We have listed the soils for which each anchor is designed and approved. Soil classifications are taken from the "standard for the installation on mobile homes". Part 3280 each anchor model listed has been tested by an independent professional engineer to meet ANSI A225.1 and ASTM D3953.91 codes.

Revised 3/14/07

Following is a list of Minute-Man Anchors with an allowable working load equal to or exceeding 3,150 lbs. and are capable of withstanding a 50% overload (4,725 lbs. total). Stabilizer devices must be used with anchors when anchors are used to resist horizontal forces. HUD Part 3280.506(f)

ITEM #	MARK	MODEL	DESCRIPTION	USE IN SOIL TYPE
1071	MMA-2	650-DH 5/8"	6" DISC, 50" ANCHOR	2,3,4(a)
1101	MMA-4	650-DH 3/4	6" DISC, 50" ANCHOR	2,3,4(a)
1131	MMA-28	636-DH 3/4	6" DISC, 36" ANCHOR	2,3
1241	MMA-30	4430-DH 5/8	DOUBLE 4" DISC, 30" ANCHOR	2,3
1271	MMA-6	4430-DH 3/4 ←	DOUBLE 4" DISC, 30" ANCHOR	2,3
1349	MMA-35	36-XDH ←	36" CROSS DRIVE ANCHOR	1
1350	MMA-8	48-XDH	48" CROSS DRIVE ANCHOR	1
1390	MMA-BR	24 BA	BARB ROCK ANCHOR	1
1287	MMA-86	860-DH 3/4	8" DISC, 60" ANCHOR	4(b) (Fla.)
1288	MMA-71	1060-DH 3/4	10" DISC, 60" ANCHOR	4(b)
1291	MMA-75	760-DH 3/4	7" DISC, 60" ANCHOR	2,3,4(a),4(b)
1346	MMA-52	4636-DH 3/4	4" & 6" DISC, 36" ANCHOR	2,3,4(a)
1284	MMA-55	4450-DH 3/4	DOUBLE 4" DISC, 50" ANCHOR	2,3,4(a)
1282	MMA-50	4442-DH 3/4	DOUBLE 4" DISC, 42" ANCHOR	2,3
1312	MMA-57	4636 NU 7/8	4" & 6" DISC, NU CONCEPT CAP	2,3,4(a)
1592	MMA-92	4430-EZDH 3/4	DOUBLE 4" DISC, 30" EZ ANCHOR	2,3
1593	MMA-93	4636-EZDH 3/4	4" DISC, 6" DISC, 36" EZ ANCHOR	2,3,4
1594	MMA-94	636-EZDH 3/4	6" DISC, 36" EZ ANCHOR	2,3
1596	MMA-96	650-EZDH 3/4	6" DISC, 50" EZ ANCHOR	2,3
1598	MMA-98	6650 EZVDH 3/4	DOUBLE 6" DISC, VERT. STABILIZER	2,3,4(a) (Fla.)
1599	MMA-99	8860 EZVDH 3/4	DOUBLE 8" DISC, VERT. STABILIZER	4(b) (Fla.)
2390	MMA-18	THDH	DOUBLE HEAD TENSION DEVICE	SLAB
2391	MMA-18	THDHLS	DH TENSION DEVICE W/LAG	SLAB
1420	MMA-12	210-DH	CONCRETE ANCHOR	SLAB
1450	MMA-14	210-PDH	WET CONCRETE ANCHOR	SLAB
1445	MMA-42	210-JDH	SWIVEL HEAD WET CONCRETE ANCHOR	SLAB
1321	MMA	G W1	G W 1 ROCK ANCHOR	1
1322	MMA	G W2	G W 2 SOIL ANCHOR	2,3
2200	MMA-SD2A		STABILIZER- 12"	2,3,4(a)
2202	MMA-SD2		STABILIZER- 17"	FLA. 2,3,4(a),4(b)
2211	N C1		NU CONCEPT STABILIZER CAP	2,3,4(a)
2691	MMA-29	FCIIW/S	FRAME CLAMP II W/STRAP	FLA.
2820	MMA-31	FRAME TIE	LONGITUDINAL FRAME TIE-8 BOLT	
2822	MMA-34	FRAME TIE	LONGITUDINAL FRAME TIE-4 BOLT	



ROD M. HUDGINS, JR. P.E.
P.O. BOX 5070
ASHEVILLE, N.C. 28613-5070

JANUARY 8, 2007

MINUTE MAN ANCHORS, INC.
 305 WEST KING STREET
 EAST FLAT ROCK, N.C. 28726

DEAR SIR:

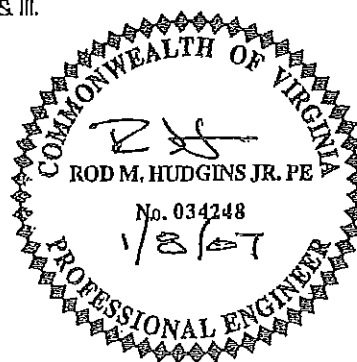
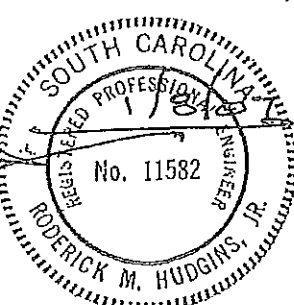
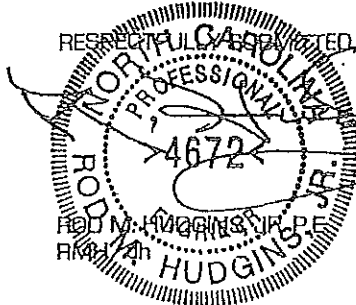
I HAVE ANALYZED DESIGN DRAWING, PHYSICAL TESTING REPORTS AND INSTALLATION INSTRUCTIONS FOR THE MINUTE MAN PRODUCTS LISTED AS FOLLOWS:

650 OH 5/8	4430 DH 5/8	GW2-NC2	
650 DH 11/16	4430 DH 11/16	36 XDH	THDH
650 DH 3/4	4430 DH 3/4	48 XDH	THOHL5
760 DH3/4		36 DH	
636 DH 5/8	4442 DH 5/8	24 BA	FCI W/S
636 DH 3/4		210 DH	FCII W/S
		210 PDH	BUC W/S
	4450 DH 11/16	210 JDH	SBN
4636 DH 3/4	4450 DH 3/4	100 DH	MMASD2
4636 NCI 7/8			MMASDA2
4430 EZDH		CT/WS CORNER TIE	
636 EZDH 3/4		LLBS LONGITUDINAL & LATERAL BRACING SYSTEM	
650 EZDH 3/4		MMA 31 LONGITUDINAL FRAME TIE	
660 EZDH 3/4		MMA 33 LOCKING FRAME CLAMP 11	
6650 EZVDH 3/4 W/ VERT. STABILIZER		MMSPP LONG STAB SYSTEM	
8860 EZVDH 3/4 W/VERT. STABILIZER		E-Z ASTS SUPPORT TUBS SYSTEM	

MY ANALYSIS OF THE PHYSICAL TEST REPORTS DEFINE THE BREAKING STRENGTH OF EACH OF THESE ANCHORS AND THEIR COMPONENTS TO BE IN EXCESS OF 4625 POUNDS. THE STRAPPING MEETS FEDERAL SPECIFICATION QQ-S-781H FOR TYPE I, CLASS B, GRADE I STRAPPING. THE STRAPPING ALSO MEETS WITH ANSI 225.1 STANDARDS AND ASTM D3953-91 STANDARDS. THE STRAPPING IS 1 1/4 X .035 MINIMUM, HOT DIP GALVANIZED STEEL.

ON FILE ARE TESTING REPORTS OF THE DIRECT WITHDRAWAL STRENGTH OF THESE ANCHORS. THESE TEST EVALUATE THE ANCHORAGE STRENGTH OF MINUTE MEN ANCHORS INSTALLED RESISTING AN AXIAL AND 45 DEGREE ANGLE APPLIED WITHDRAWAL LOAD. FOR THE ANCHORS LISTED ON PAGES 10 AND 11, THE AVERAGE HOLDING POWER MEETS AND/ OR EXCEEDS THE REQUIRED MINIMUM OF 4,725 POUNDS, WHEN INSTALLED IN ACCORDANCE WITH MANUFACTURER INSTRUCTIONS IN THE SOIL TYPES AND CLASS SHOWN.

THE LLBS BRACING SYSTEM WAS TESTED FOR WIND ZONES I, II, & III.



MINUTE MAN ANCHORS, INC.

305 WEST KING STREET
EAST FLATROCK, NC 28726
PH: (800) 438-7277

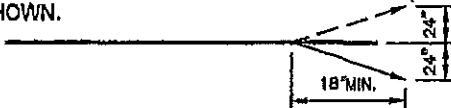
ENGINEERED TIE DOWN SYSTEM DESIGN & GENERAL NOTES

DESIGN LOADS:

- * WIND ----- 15 PSF (70 MPH EXPOSURE "C") CAC T-25 and COMPLIES WITH THE 2013 CBC
Vult = 110 MPH EXP "C" AND THE 2012 IBC, Vult = 115 MPH EXP "C"
 - * SOIL BEARING ----- 1000 PSF
 - * TIE DOWN STRAP ----- 3150# WORKING LOAD
 - * SEISMIC ZONE ----- 4 CAC T-25 AND 2013 CBC & 2012 IBC $S_s=1.5$ $F_a=1.4$ $S_{ds}1.4$ Site Class D
- TIE DOWN STRAPS TO BE MIN. 1 1/4" WIDE x 0.036 THICKNESS ZINC PLATED AND MEET ASTM D-396397
- * EARTH AUGERS ----- 2992# MIN. (TESTED TO 4760# MIN.)
 - * CROSS DRIVES ----- 2992 # (CALCULATED)
 - * CONCRETE SLAB ANCHORS ----- 1390# (CALCULATED)

GENERAL NOTES:

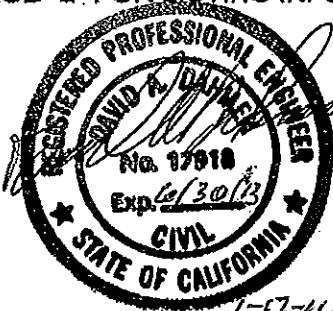
1. THE CHARTS SHOWN HEREIN ARE FOR THE REQUIRED NUMBER OF TIE DOWNS ON THE SIDES OF THE MANUFACTURED HOME.
2. TIE DOWNS ARE REQUIRED AT EACH CHASSIS BEAM, EACH END OF EACH TRANSPORTABLE SECTION OF THE MANUFACTURED HOME AND CAN BE ANY OF THE TYPES SHOWN HEREIN.
3. COMBINATIONS OF THE DIFFERENT TYPES OF TIE DOWNS CAN BE USED.
4. IN THE EVENT AN EARTH AUGER CANNOT BE INSTALLED DUE TO AN OBSTRUCTION, USE OF CROSS DRIVE ANCHORS IS PERMITTED, PROVIDED (2) CROSS DRIVES ARE INSTALLED FOR EACH EARTH AUGER THAT CANNOT BE INSTALLED.
5. FOR ALL TIE DOWN INSTALLATIONS, THE MFG'D HOME CHASSIS MEMBERS ARE SHOWN AS "I" BEAMS. FOR ILLUSTRATION PURPOSES ONLY. CHASSIS BEAMS CAN ALSO BE "C" SHAPED OR "RFC" SHAPED.
6. END TIE DOWNS CAN BE LOCATED WITHIN 24" OF EITHER SIDE OF CHASSIS BEAM AXIS AS SHOWN.



7. THE SIZES, TYPES, LENGTHS, ECT. OF MATERIAL SHOWN HEREIN ARE MINIMUM. LARGER, LONGER, HEAVIER MATERIALS SUPPLIED BY MINUTE-MAN PRODUCTS, MAY BE USED AT THE SAME SPACING & LOCATION SHOWN.
8. ALL PARTS ARE STAMPED MMA- WITH THE APPROPRIATE PART NUMBER.
9. THIS TIE DOWN SYSTEM CAN BE USED WITH 10' WIDE MANUFACTURED HOME SECTIONS WITH 100" CHASSIS CENTERS PROVIDED THE HEIGHT FROM GRADE TO THE BOTTOM OF THE CHASSIS-BEAM DOES NOT EXCEED 10".
10. TIE DOWN STRAPS IN THE LONGITUDINAL OR TRANSVERSE DIRECTION CAN BE BOLTED TO THE HITCH ATTACHMENT PLATE THAT IS WELDED TO THE CHASSIS BEAM.

ENGINEER APPROVAL

SEE PAGE "2" FOR LISTING INFORMATION



PACIFIC CONSULTING ENGINEERS
2160 BELL AVE. SUITE 145
SACRAMENTO, CALIFORNIA 95838
PH: (916) 584-6028

STATE APPROVAL

ENGINEERED TIEDOWN SYSTEM APPROVED

SUBJECT TO CORRECTIONS NOTED

Approved does not authorize or approve any omission or deviation from requirements of applicable State laws and regulations.

State of California
Department of Housing and Community Development
DIVISION OF CODES AND STANDARDS

By R. M. [Signature] Date 7/23/13
(Signature)

SPA NO. ETS 119

This Plan Approval Expires 7/23/15

INSTALLATION INSTRUCTIONS

FIRST CHECK FOR UNDERGROUND UTILITY LOCATION:

EZDH EARTH AUGERS

1. SEE DETAIL THIS BOOKLET FOR INSTALLATION INSTRUCTIONS.

EARTH AUGERS

1. INSTALL AUGERS INTO SOIL WITH CONSTANT DOWNWARD PRESSURE TO MINIMIZE SOIL DISTURBANCE LEAVING APPROX. 12" OF SHAFT EXPOSED.
2. INSTALL STABILIZER PLATE - DRIVE FLUSH WITH GROUND SURFACE.
3. COMPLETE TURNING AUGER INTO GROUND UNTIL AUGER HEAD IS FLUSH WITH GROUND SURFACE AND TOP OF STABILIZER PLATE.

CROSS DRIVE ANCHORS

1. CROSS DRIVES ARE USED WHERE HARD ROCKY SOIL OCCURS. IF THE GROUND SURFACE IS OTHER THAN ROCK OR MINIMUM 2" ASPHALT, INSTALL MMA-SD2 STABILIZER PLATE, OR PLACE 12"x12"x12" DEEP CONCRETE.

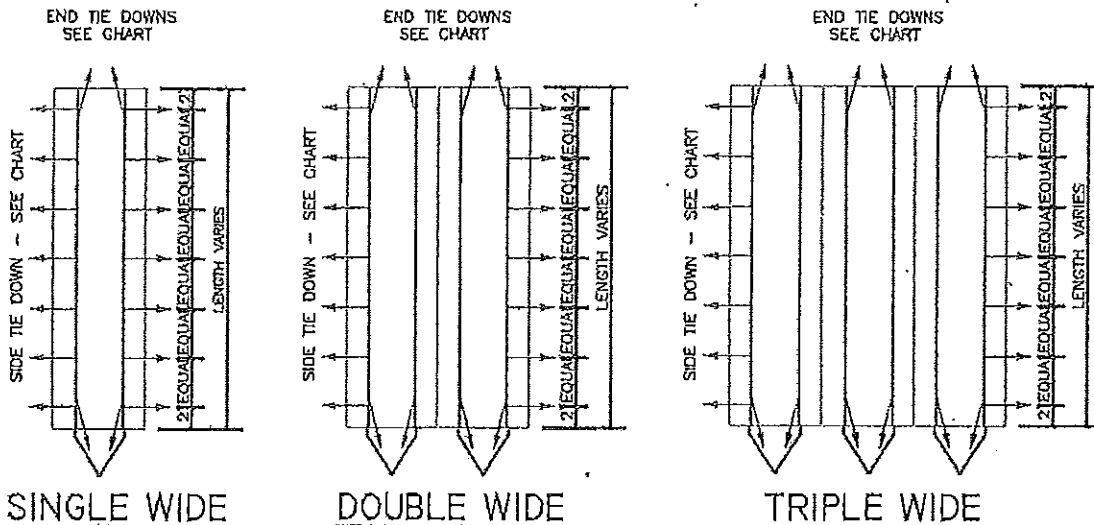
CONCRETE SLAB ANCHORS

1. CONCRETE SLAB TO BE MINIMUM 3 1/2" THICK AND IN GOOD CONDITION.
2. MINIMUM SLAB AREA REQUIRED FOR EACH ANCHOR IS 28 SQ. FEET.
3. DRILL PROPER SIZE HOLE IN SLAB MINIMUM 12" FROM ANY EDGE.

ALL APPLICATIONS

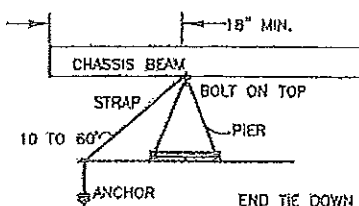
1. ATTACH STRAPS TO CHASSIS BEAM IN MANNER SHOWN.
2. INSERT STRAP THROUGH SPLIT NUT, CUT OFF EXCESS STRAP AND TIGHTEN UNTIL SNUG.

TIE DOWN LOCATIONS



EARTH AUGERS					CROSS DRIVE ANCHORS					CONCRETE SLAB ANCHORS							
MAX. LENGTH OF MFG'D HOME	32'	42'	52'	62'	73'	MAX. LENGTH OF MFG'D HOME	32'	42'	52'	62'	73'	MAX. LENGTH OF MFG'D HOME	34'	42'	50'	59'	68'
MAX. NO. OF SIDE TIE DOWNS	3	4	5	6	7	MAX. NO. OF SIDE TIE DOWNS	3	4	5	6	7	MAX. NO. OF SIDE TIE DOWNS	4	5	6	7	8

NOTE: IF OBSTRUCTIONS PRECLUDE THE PLACEMENT OF THE SIDE TIE DOWNS AT THE 2' LOCATION SHOWN SIDE TIE DOWNS AT 2'-0" FROM EACH END HAVE A TOLERANCE OF 1 1/2"



MINUTE MAN PRODUCTS LISTED BY:

TRI STATE TESTING SERVICES, INC
5101 WILFONG ROAD
MEMPHIS, TN. 38134
LISTING NUMBER AT IS-01

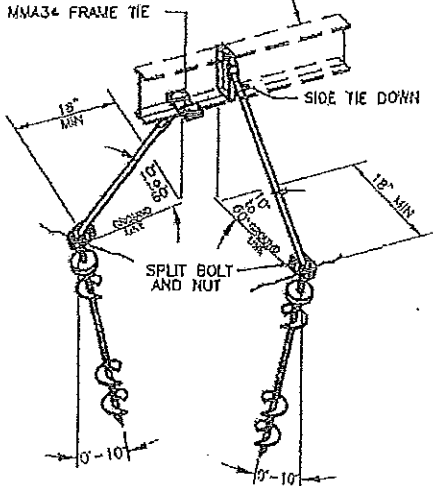
TIE DOWN SYSTEM TO BE IDENTIFIED BY A STICKER PLACED ON THE STEEL STRAPS MMA-32 OR MMA-71 - STICKER TO CONTAIN THE FOLLOWING:
MINUTE MAN PRODUCTS ET3-118
TRI STATE TESTING SERVICE, INC
LISTING NO. AT IS-01

NOTE: TIE DOWN STRAPS AT THE CHASSIS BEAM ENDS (END TIE DOWNS) CAN BE ATTACHED TO A CHASSIS SUPPORT PIER WITH A PIER BOLT ON TOP. (SEE SKETCH ABOVE).

HCD

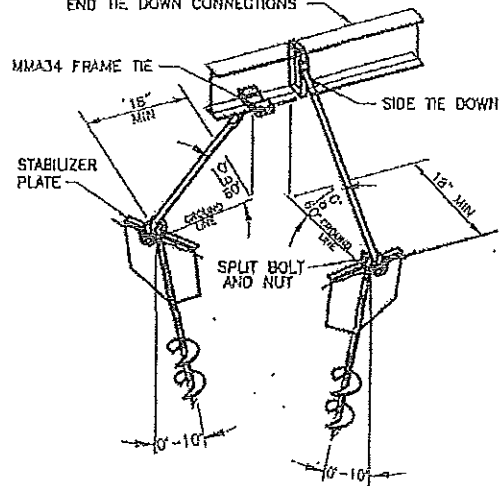
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275119

"I" BEAM SHOWN, SEE "C" & "RFC" CHASSIS FOR END TIE DOWN CONNECTIONS



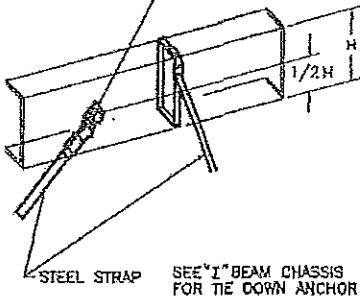
NC4636, EZDH & MMA34 EARTH AUGER TIE DOWN

"I" BEAM SHOWN, SEE "C" & "RFC" CHASSIS FOR END TIE DOWN CONNECTIONS



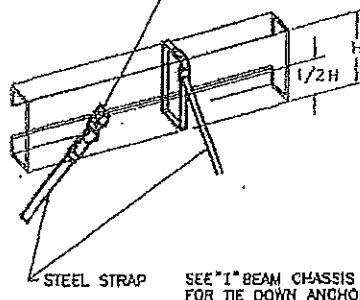
EARTH AUGER TIE DOWN

DRILL 9/16" HOLE AT MID HEIGHT OF BEAM, INSTALL 1/2" A307 BOLT.



"C" BEAM CHASSIS

DRILL 9/16" HOLE AT MID HEIGHT OF BEAM, INSTALL 1/2" A307 BOLT.

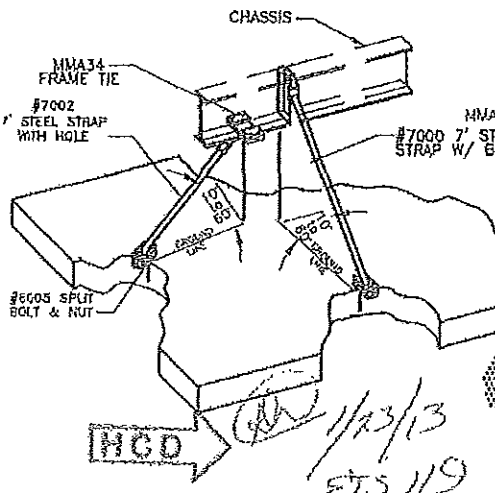


"RFC" BEAM CHASSIS

INSTALLATION INSTRUCTIONS

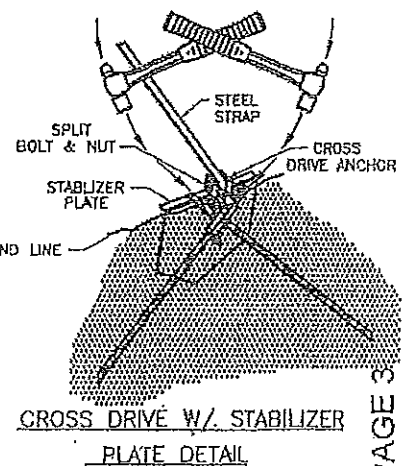
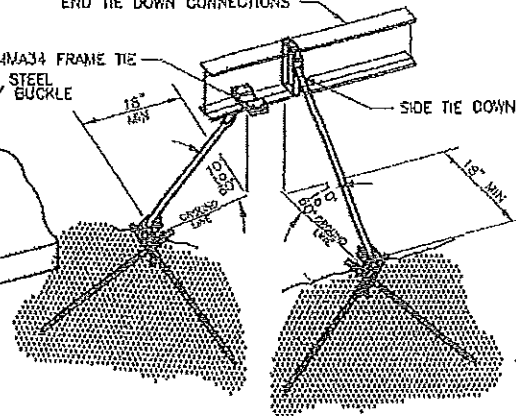
1. THE DRIVE MACHINE IS STARTED AND THE ANCHOR IS TURNED INTO THE GROUND TO A POINT WHERE THE TOP (STABILIZER HEAD PLATE) IS FLUSH OR SLIGHTLY BELOW GROUND LEVEL. THIS INSURES THAT THE E-Z ANCHOR STABILIZER WILL BE AT ITS REQUIRED INSTALLATION POSITION.
 2. FOR THE E-Z ANCHOR/STABILIZER TO ACHIEVE FULL POTENTIAL, INSTALL THE ANCHOR VERTICALLY WITH NO DEVIATION GREATER THAN 10 DEGREES. NOTE: A SLIGHTLY GREATER ANGLE MAY BE USED TO START THE ANCHOR TO AVOID CONTACT WITH THE HOME & STRAIGHTENED AS THE ANCHOR IS GROUND SET. THE SPLIT BOLT IS INSERTED, STRAP FASTENED, AND TIGHTENING ADJUSTMENT MADE.
- NOTE: WITH MACHINE INSTALLATION, A MINUTE-MAN ADAPTER DESIGNED TO FIT BOTH THE ANCHOR HEAD AND DRIVE MACHINE SHAFT IS AVAILABLE. INSTALLERS DO NOT NEED ADDITIONAL OR SPECIAL EQUIPMENT FOR E-Z ANCHOR INSTALLATION.

CONCRETE TIE DOWN

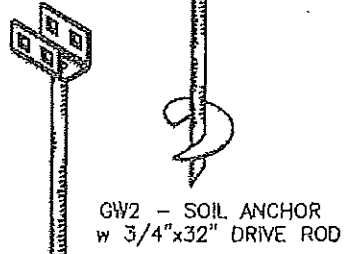
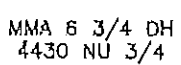
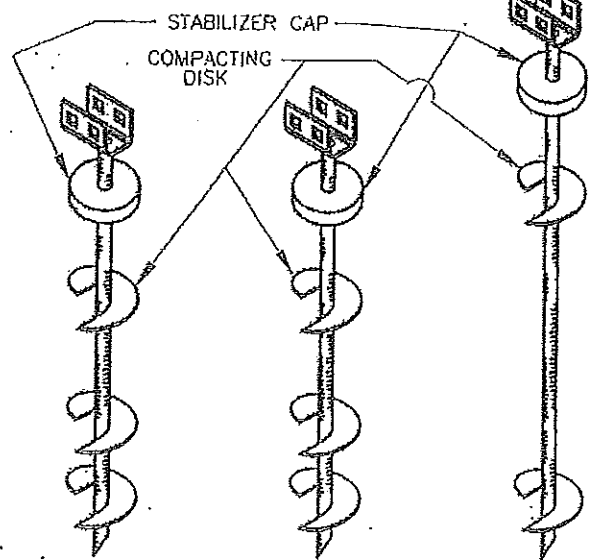
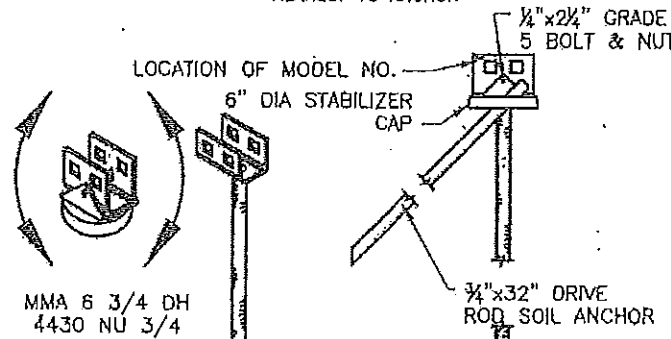
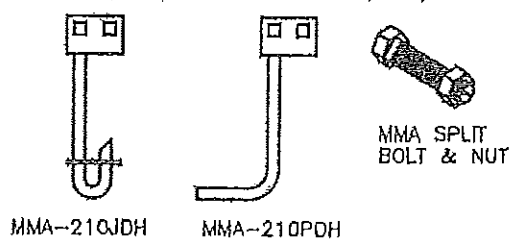
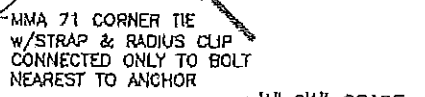
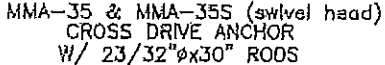
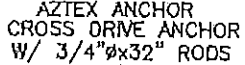
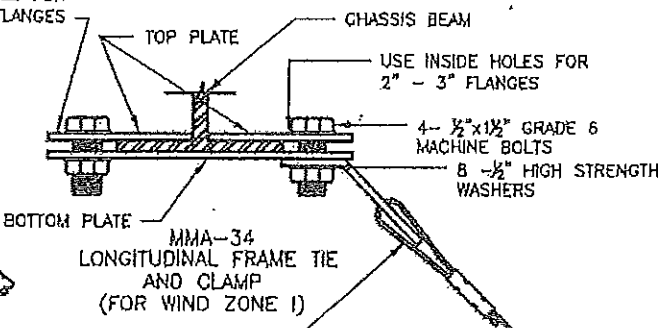
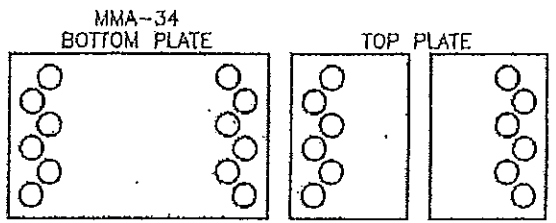
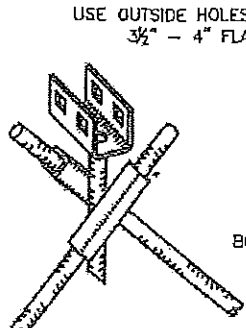
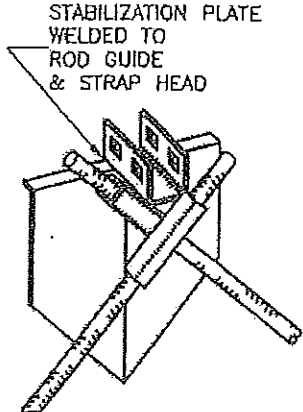
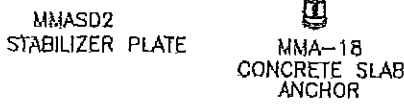
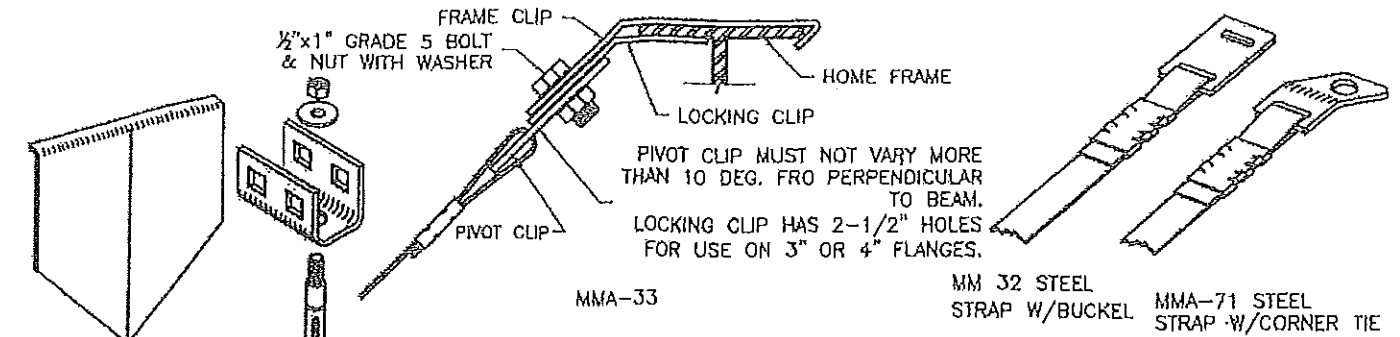


CROSS DRIVE TIE DOWN

"I" BEAM SHOWN, SEE "C" & "RFC" CHASSIS FOR END TIE DOWN CONNECTIONS



CROSS DRIVE W/ STABILIZER PLATE DETAIL

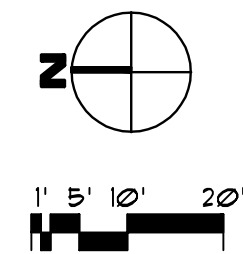


- MMA-91 5/8 DIA 32" AUGER ANCHOR
- MMA-92 3/4 DIA 32" AUGER ANCHOR
- MMA-94 3/4 DIA 36" AUGER ANCHOR
- MMA-650 3/4 DIA 50" AUGER ANCHOR
- 4430 DH 3/4 DIA 30" AUGER ANCHOR

HCD

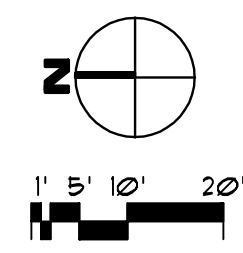
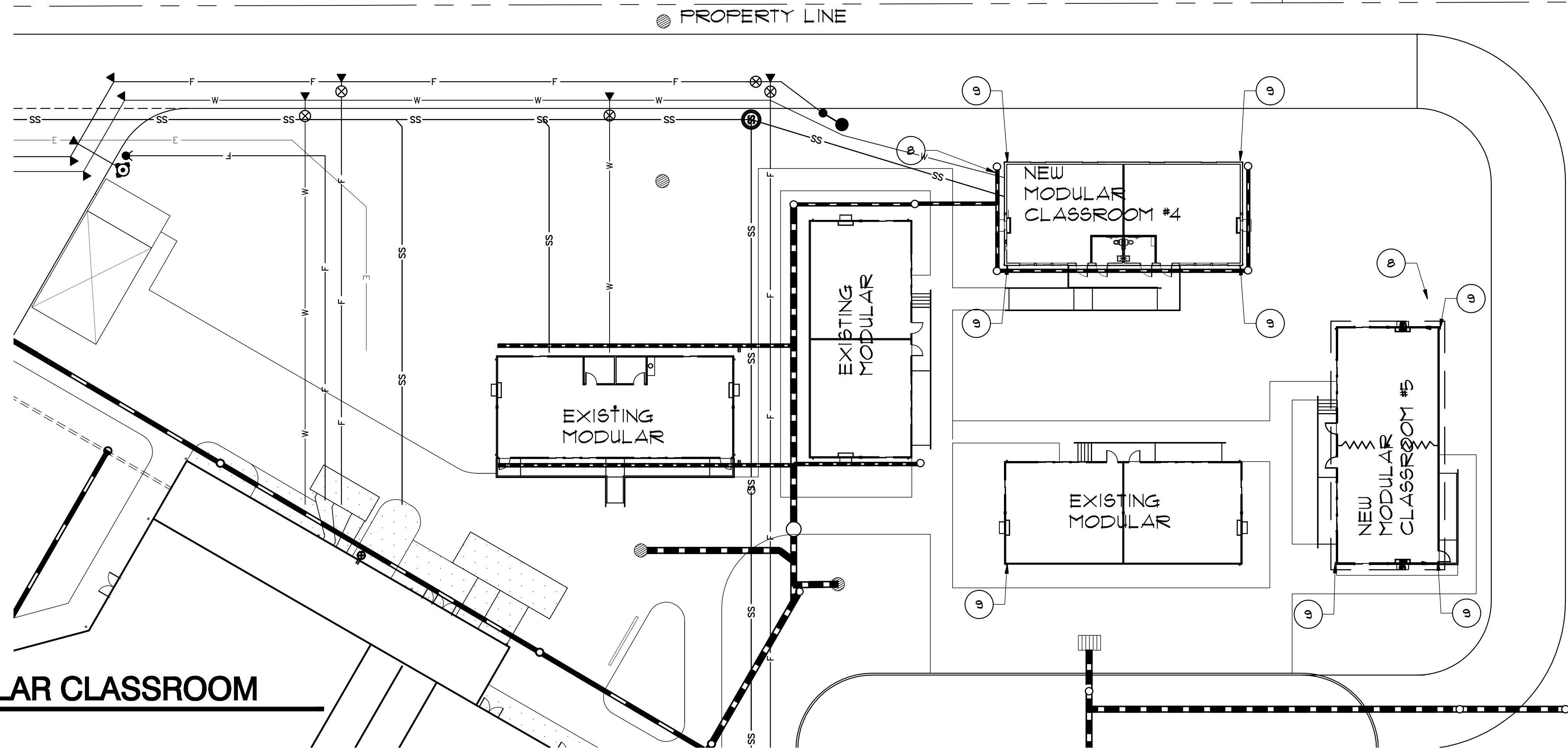
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ETS 119



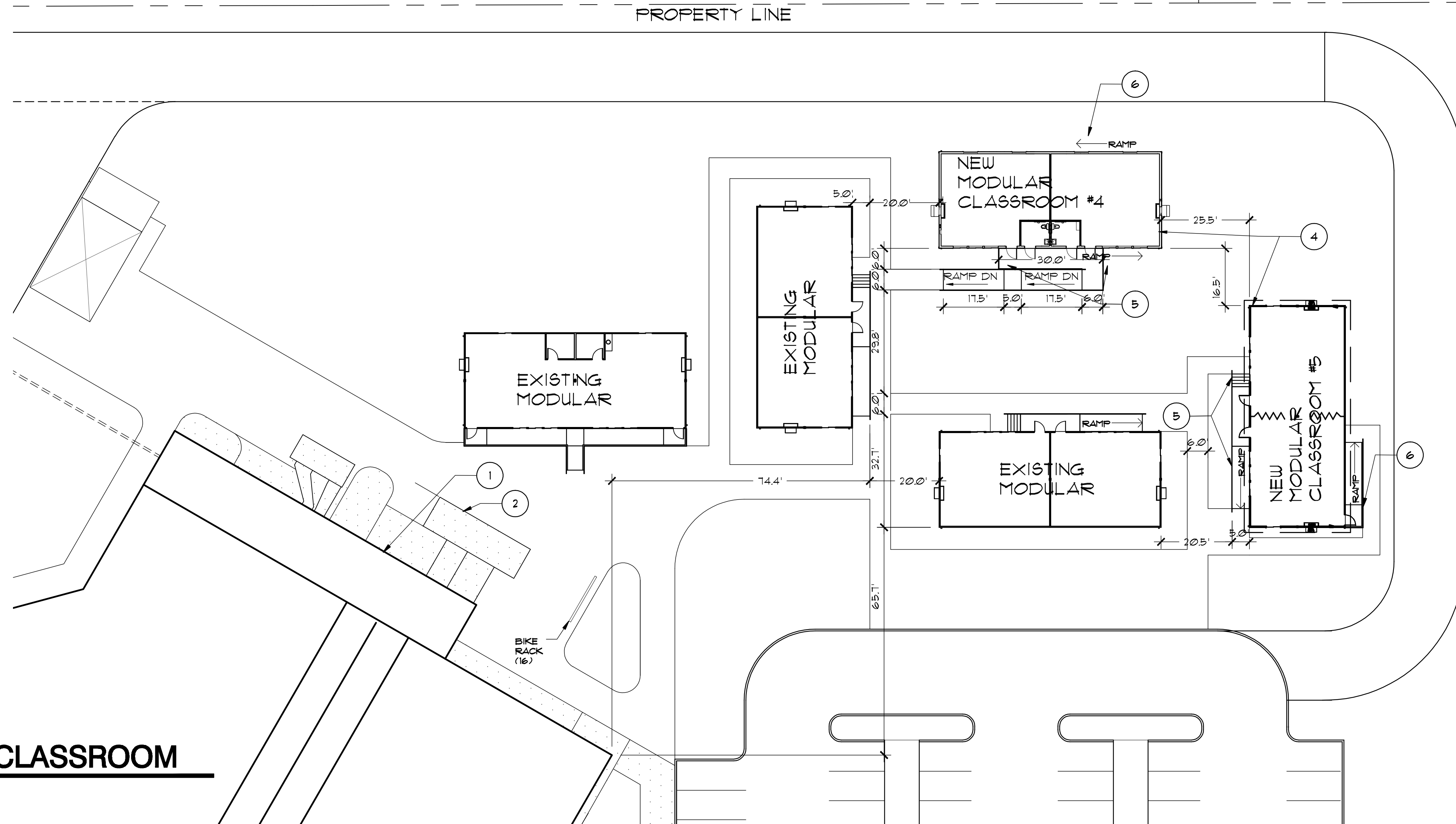
UTILITY PLAN - MODULAR CLASSROOM

1" = 20'



SITE PLAN - MODULAR CLASSROOM

1" = 20'



KEYNOTES

- 1 WALL OF EXISTING BUILDING #3.
- 2 EXISTING HVAC UNIT ON CONC. PAD.
- 3 NOT USED
- 4 MODULAR CLASSROOM #4 AND 5, SEE ATTACHED MODERN BUILDING SYSTEMS, INC. (2006-HE-59) PLANS & SPECIFICATIONS FOR CONSTRUCTION DRAWINGS.
- 5 ADA RAMP AND ACCESS STAIRS, SEE SHEET A2.1 & A2.2 FOR ENLARGED PLANS AND DETAILS.
- 6 ADA RAMP. SEE SHEET A2.1 & A2.2 FOR ENLARGED PLANS AND DETAILS.
- 7 NOT USED
- 8 PROVIDE ELECTRICAL POWER CONNECTION TO MODULAR PANEL: 120 / 240V / 225A SINGLE PHASE W/ 2" STUB-OUT AS NEEDED.
- 9 DOWNSPOUTS - CONNECT TO EXISTING STORY SEWER SYSTEM.



dba DAVID BISSETT ARCHITECT PC
 503.341.4445 davidb@dbaarch.com
 www.dbaarch.com

SITE PLAN - UTILITY PLAN
 HORIZON COMMUNITY CHURCH & SCHOOL
 MODULAR CLASSROOM #4
 23620 SW BOONES FERRY ROAD
 TUALATIN, OREGON 97062

Revisions

NO.	DATE	DESCRIPTION

Drawn By **MAF** Checked By **DB**

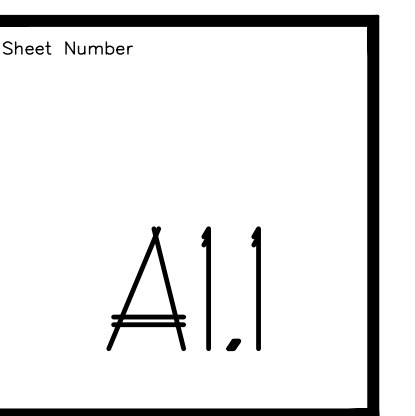
Project Number **15-1039**

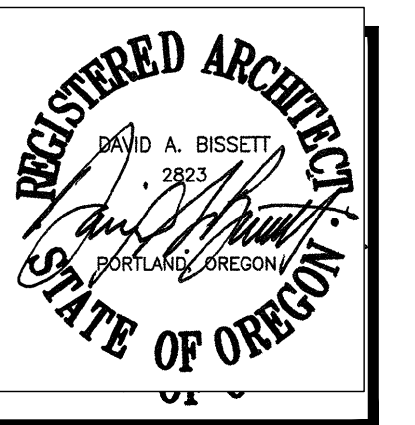
Issue Date **05-22-15**

Drawing File Name

Sheet Number

MODULAR CLASSROOM #4 AND 5
 BUILDING PERMIT
 SUBMITTAL

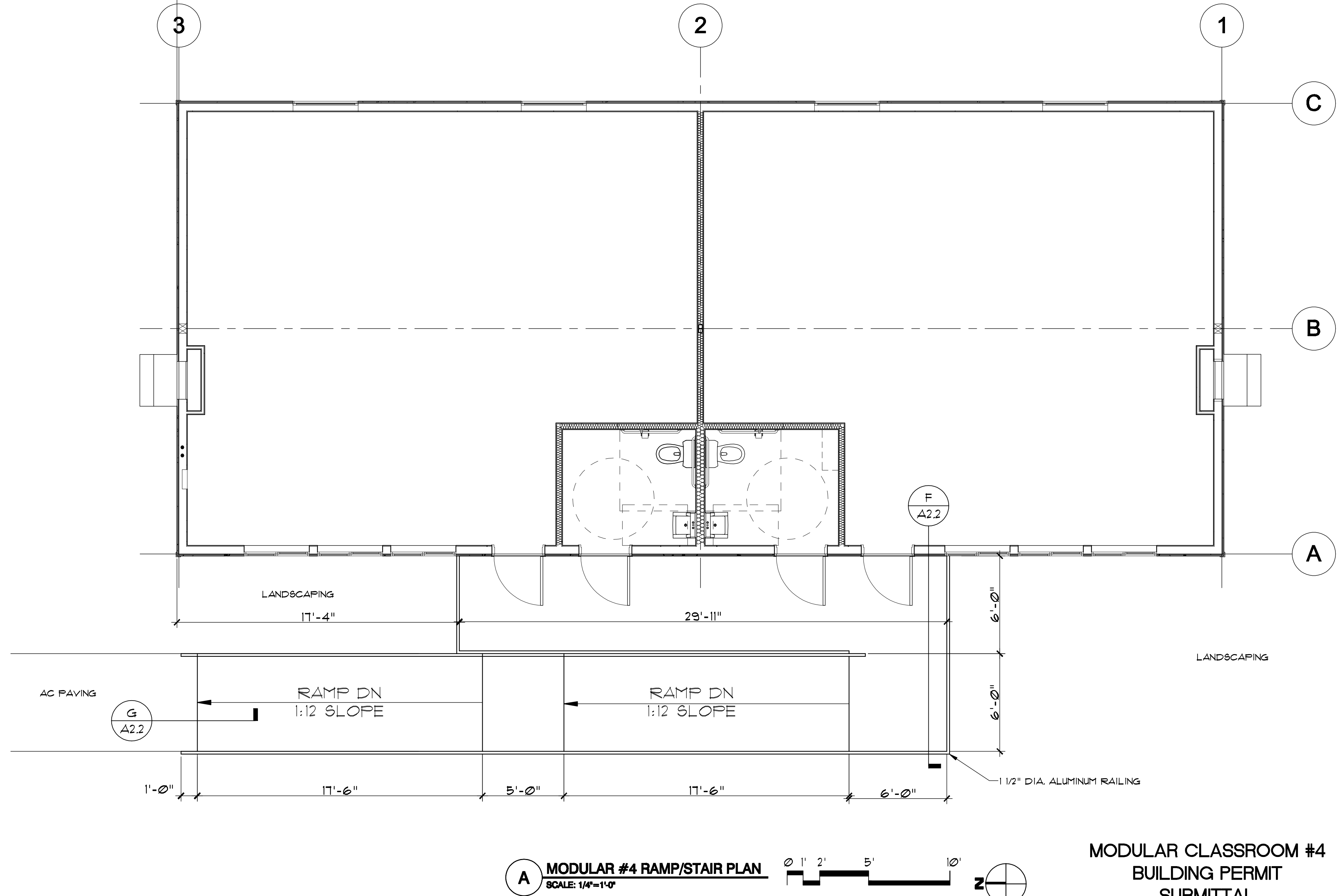
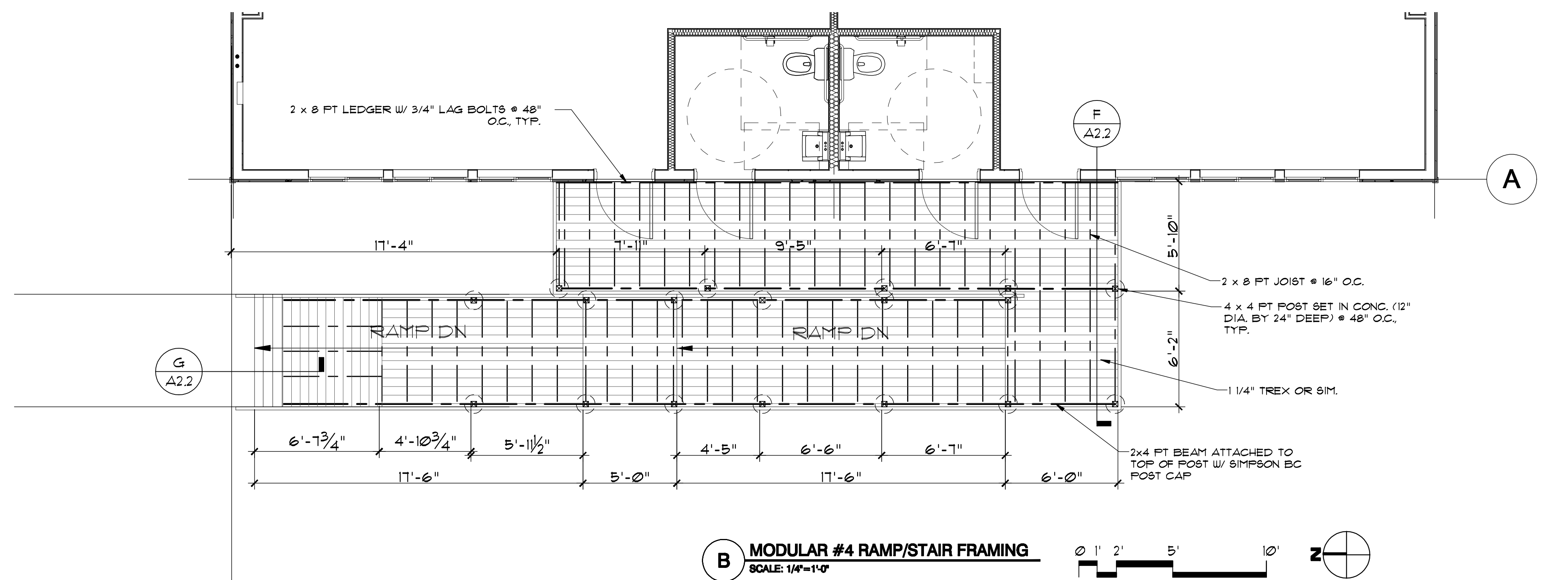




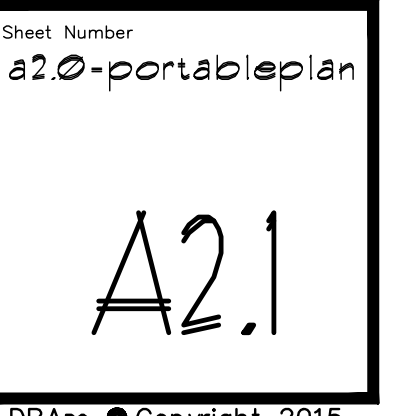
dba DAVID BISSETT
ARCHITECT PC
503.341.4445 davidb@dbaarch.com
www.DBAarch.com

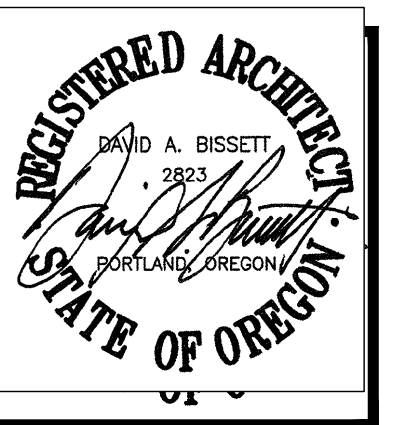
FLANS MODULAR #4
HORIZON COMMUNITY CHURCH & SCHOOL
MODULAR CLASSROOM #4
23620 SW BOONES FERRY ROAD
TUALATIN, OREGON 971062

Revisions	
Drawn By	Checked By
MAF	DB
Project Number	15-1039
Issue Date	05-22-15
Drawing File Name	



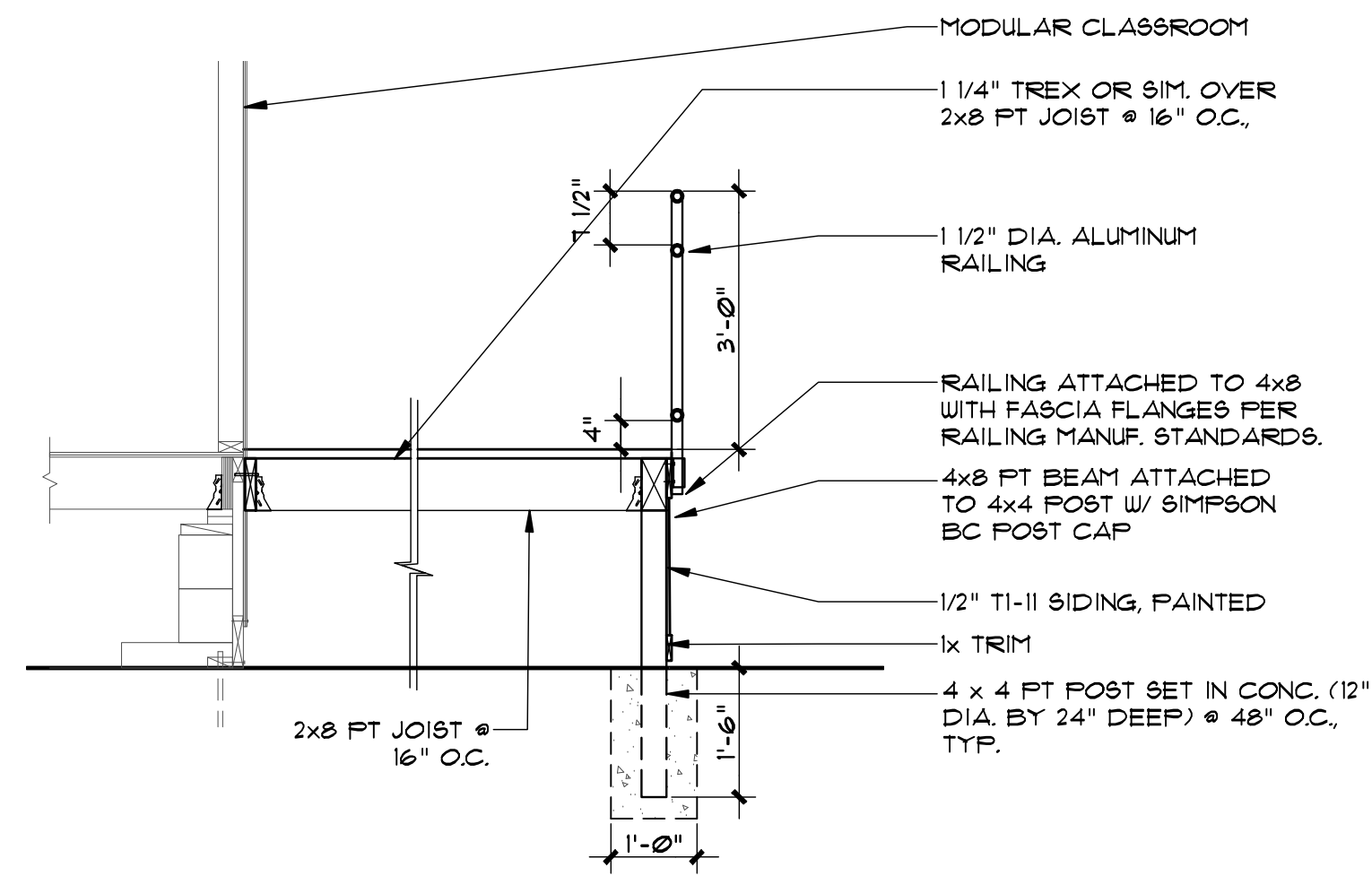
MODULAR CLASSROOM #4
BUILDING PERMIT
SUBMITTAL



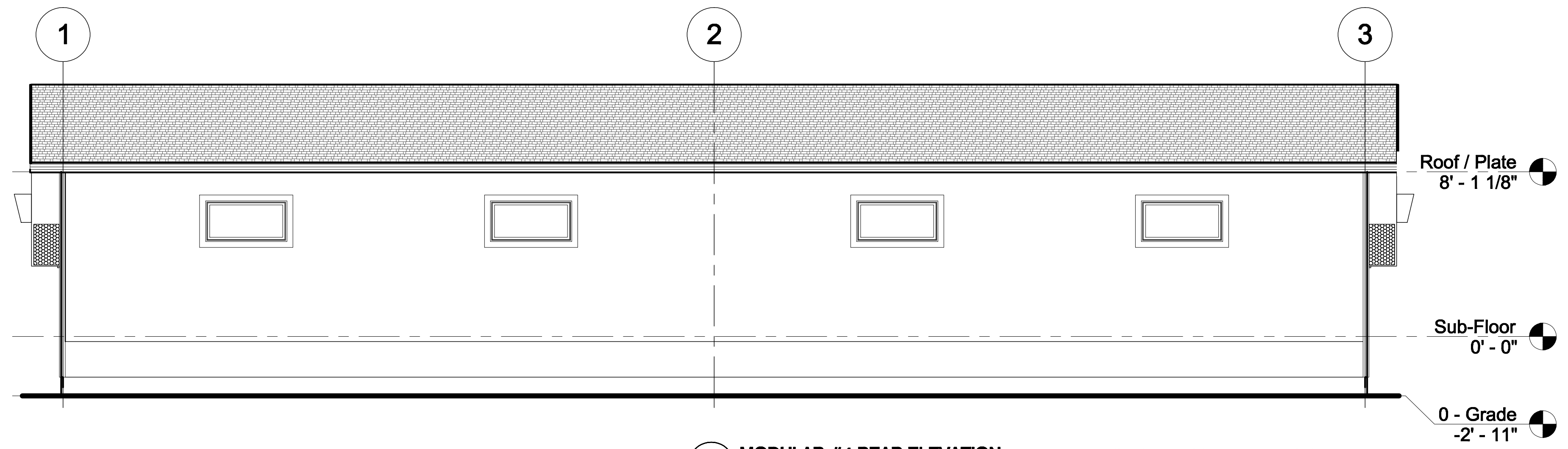


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503.341.4445 davidb@dbaarch.com
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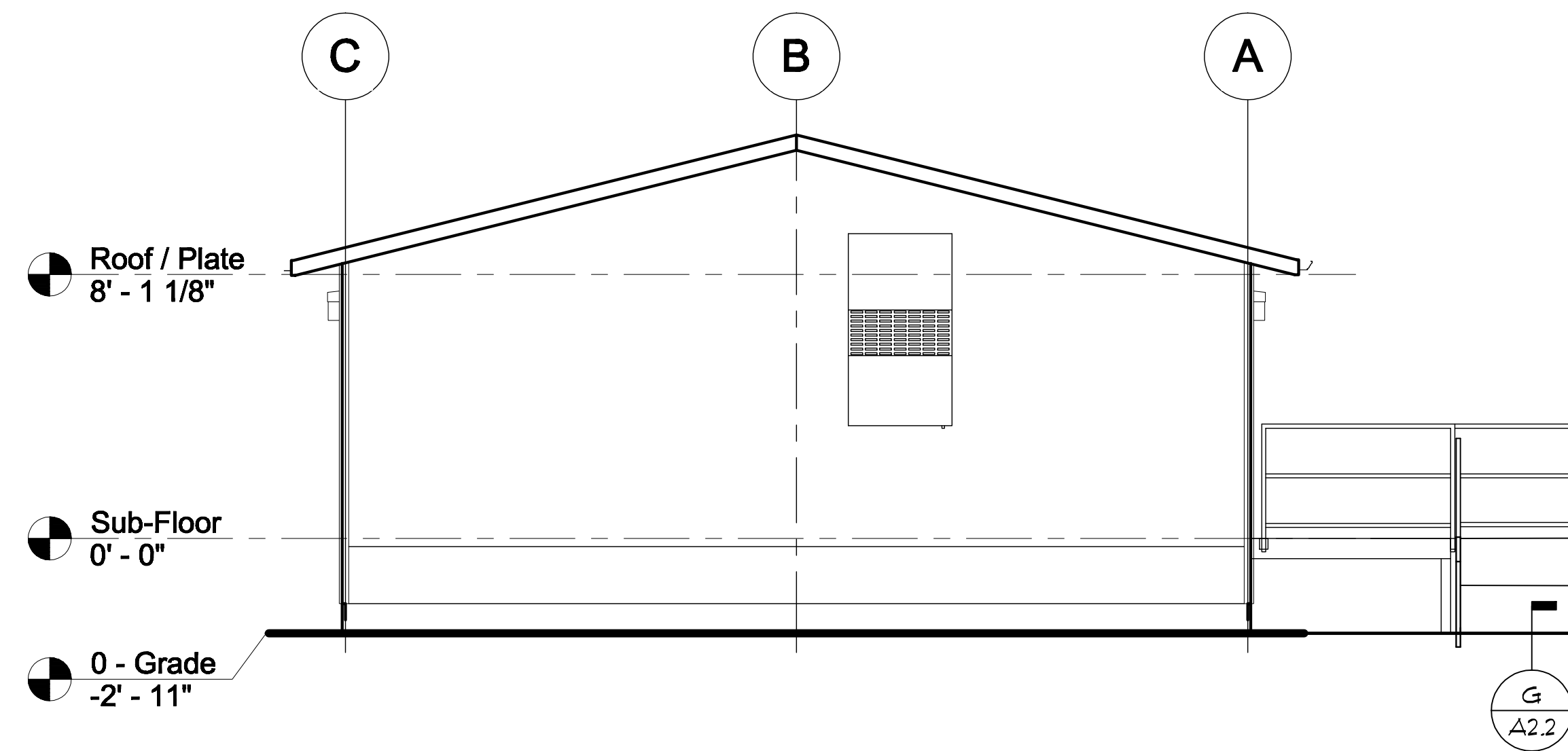
ELEVATIONS & DETAILS MODULAR #4
HORIZON COMMUNITY CHURCH & SCHOOL
MODULAR CLASSROOM #4
23620 SW BOONES FERRY ROAD
TUALATIN, OREGON 97062



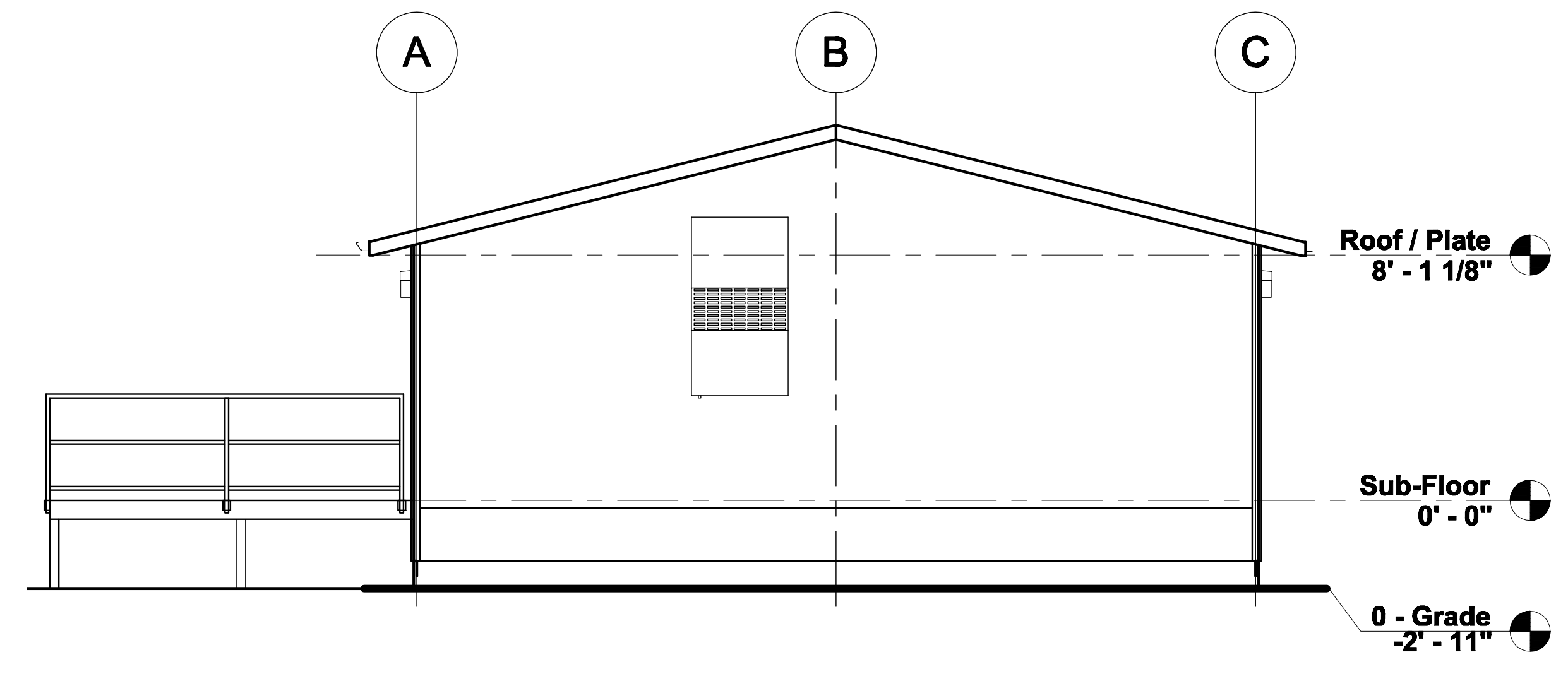
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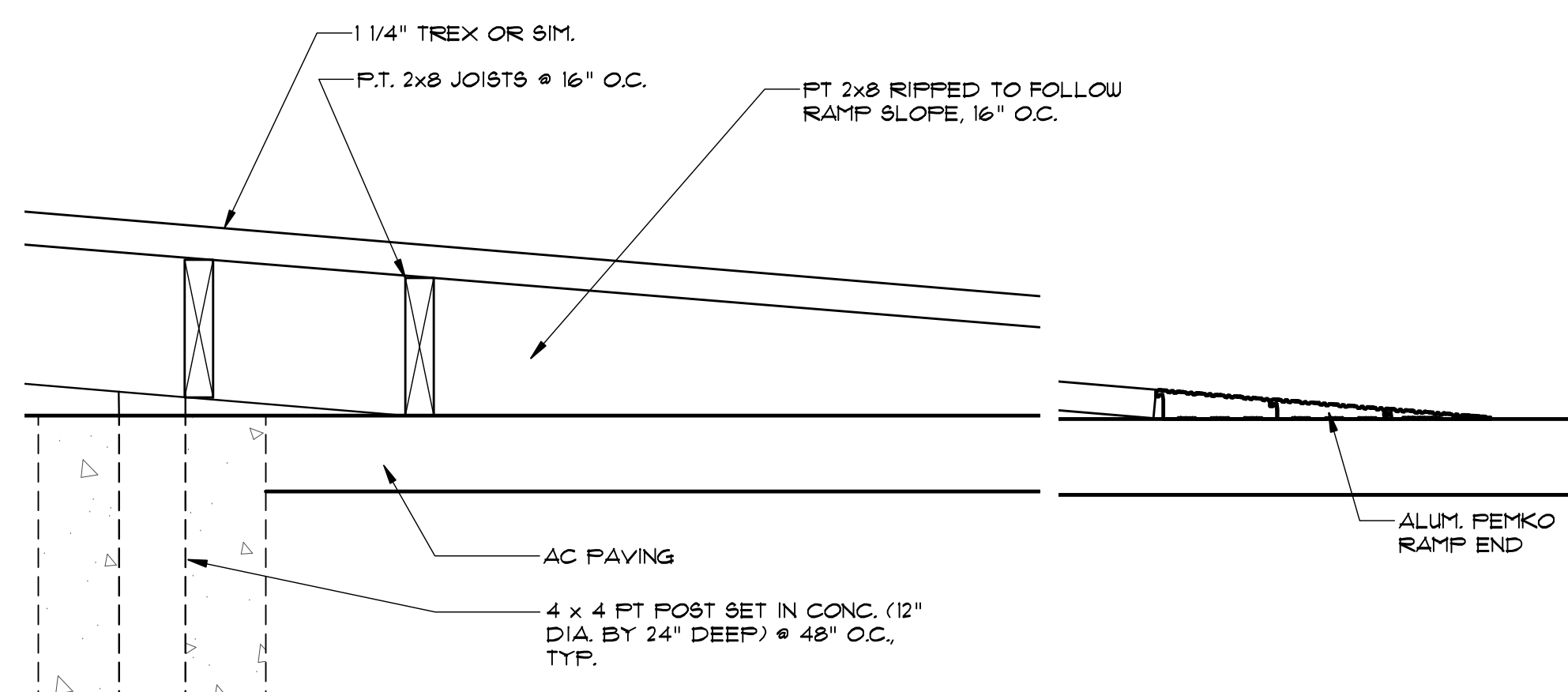
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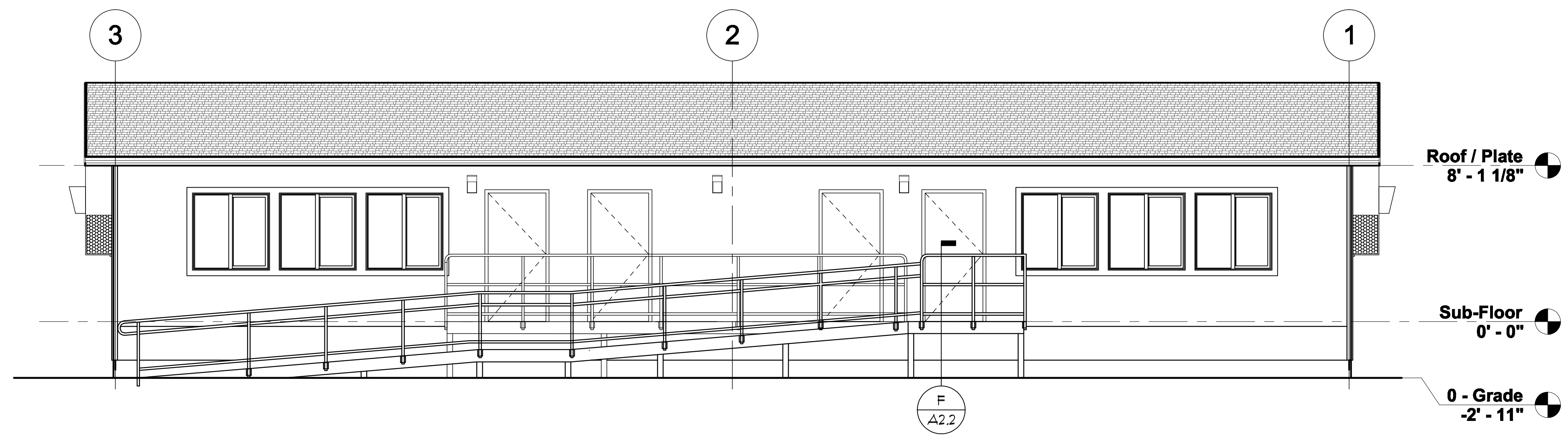
E MODULAR #4 END ELEVATION
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D MODULAR #4 END ELEVATION
SCALE: 1/4"=1'-0"



G DETAIL SECTION @ RAMP END
SCALE: 1/2"=1'-0"



C MODULAR #4 FRONT ELEVATION
SCALE: 1/4"=1'-0"

Revisions	

Drawn By	MAF	Checked By	DB
Project Number	15-1039		
Issue Date	05-22-15		
Drawing File Name			

MODULAR CLASSROOM #4
BUILDING PERMIT
SUBMITTAL

Sheet Number
a2.0-portableplan

A2.2

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Proposed New Construction For:

HORIZON COMMUNITY CHURCH

MODULAR CLASSROOM #4
WASHINGTON COUNTY, OREGON



dba DAVID BISSETT
ARCHITECT PC
davidb@dbaarch.com
www.DBAarch.com

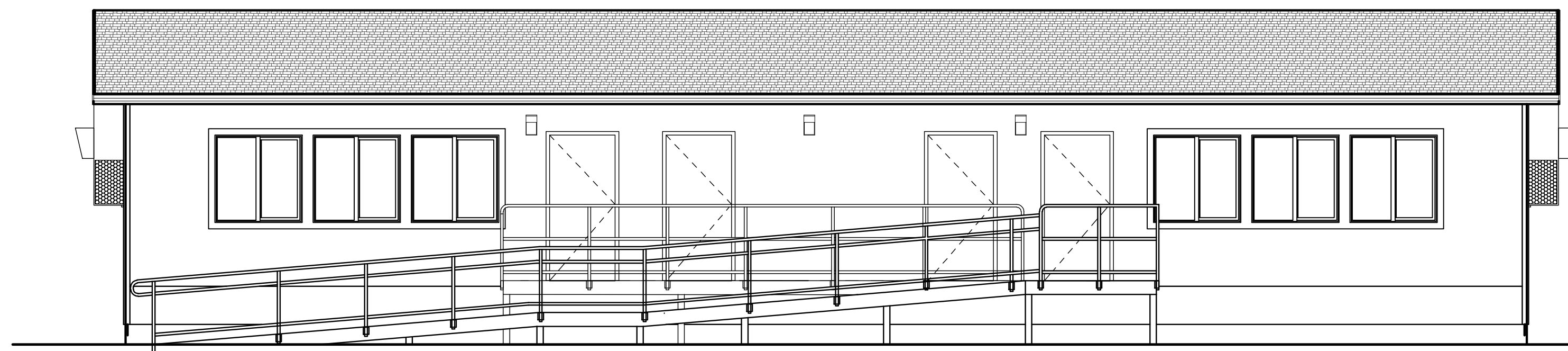
dba DAVID BISSETT
ARCHITECT PC
503.341.4445
www.DBAarch.com

COVER SHEET
HORIZON COMMUNITY CHURCH & SCHOOL
MODULAR CLASSROOM #4
23620 SW BOONES FERRY ROAD
TUALATIN, OREGON 97062

MATERIALS

	EARTH		WOOD FRAMING (THROUGH MEMBER)
	SAND / MORTAR PLASTER		WOOD BLOCKING (INTERRUPTED MEMBER)
	CONCRETE		PLYWOOD
	BRICK / VENEER CMU		ACOUSTIC TILE / BOARD
	CONCRETE MASONRY UNIT		GYPSUM BOARD
	METAL		BATT INSULATION
	FINISH WOOD		RIGID INSULATION

ELEVATIONS



INDEX OF SHEETS

NO.	DESCRIPTION
C6	COVER SHEET
A1.0	FULL SITE PLAN
A1.1	SITE PLAN - UTILITY PLAN
A2.1	PLANS MOD. #4
A2.2	ELEVATIONS & DETAILS MOD. #4

ATTACHMENTS
MODERN BUILDING SYSTEMS, INC DRAWINGS:
2015-AR-34 (MODULAR CLASSROOM #4)

PROJECT TEAM

ARCHITECT:
DAVID BISSETT ARCHITECT PC
10340 SW BARNES RD, #101
PORTLAND, OR 97225
PH: (503) 341-4445

OWNER
HORIZON COMMUNITY CHURCH
& SCHOOL
2362 SW BOONES FERRY ROAD
TUALATIN, OR 97062
PH: (503) 129-0173

MODULAR BUILDER
MODERN BUILDING SYSTEMS, INC.
9493 PORTER ROAD
P.O. BOX 110
AUMSVILLE, OR 97325
PH: (503) 149-4949
FAX: (503) 149-4950

Revisions

Drawn By MAF	Checked By DB
Project Number 15-1039	
Issue Date 05-22-15	
Drawing File Name	

Sheet Number
MR-SHEETS

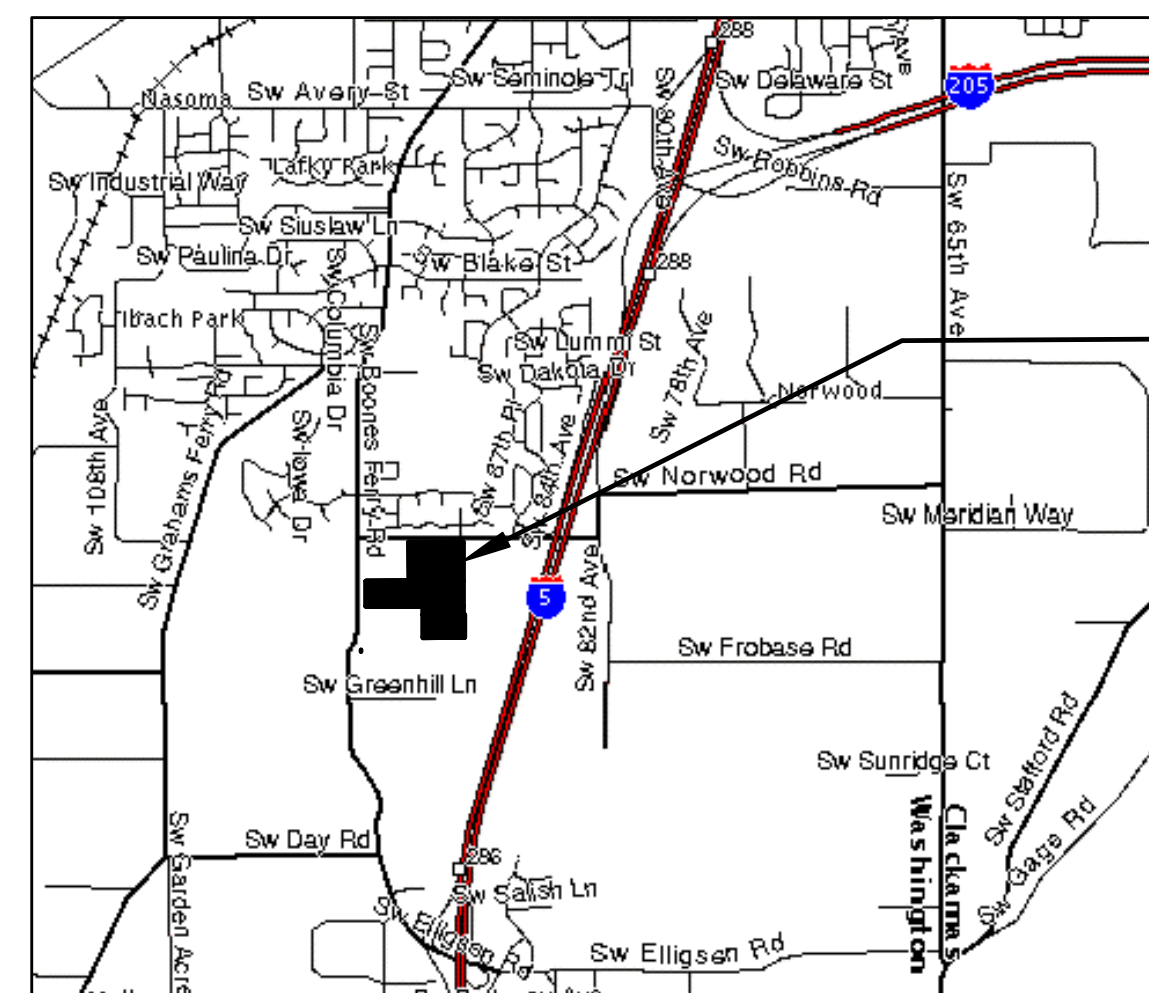
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SYMBOLS

	DETAIL NUMBER		NUMBER
	SHEET WHERE DETAIL IS DRAWN		DOOR
	SECTION NUMBER		LETTER FOR WINDOW
	SHEET WHERE SECTION IS DRAWN		WINDOW
	DETAIL - ENLARGED PLAN		REVISION
	INTERIOR ELEVATION		ELEVATION TAG
	ROOM NUMBER		WALL TYPE
	DRAWING NAME		
	DRAWING TITLE		

VICINITY MAP



SITE
LOCATION

MODULAR CLASSROOM #4
BUILDING PERMIT
SUBMITTAL