TAYLOR KOHRS
Successful Construction Experiences

12160 Pennsylvania Street
Thornton, CO 80241
Ph : 303-928-1800

Submittal

Job: 22-108
Vail Pass RestArea Replacement
MM190 1-70
Frisco, CO 80443

Spec Section No: 061219
Submittal No: 2
Revision No: 1
Sent Date: 1/20/2023
Due Date: 2/3/2023

Spec Section Title:

Submittal Title: SIPS - Shop Drawings

Contractor:
Taylor Kohrs LLC
Scott Heasty

Submittal Package Includes:

-Revised submittal 061219.02

A/E: Please verify all clouded items. Please confirm elevations and dimensions are acceptable

Colorado Department of Transp
Hope Wright

Contractor's Stamp

TAYLOR KOHRS
Successful Construction Experiences

This review is only for general conformance of the submittal with information provided in the Contract Documents. Review comments do not relieve the Subcontractor from compliance with the Contract Documents. The Subcontractor is responsible for conforming and correlating all: quantities, dimensions, site conditions, means, methods, sequences, & procedures.

☐ No Exception Taken
☑ See Notation
☐ Rejected & Resubmit
☐ Revise & Resubmit
☐ Non-Review
☐ Submit Specified Item Only

061219 Specification # | 2 Submittal # | 1 Revision #

01/20/2023 Date | Ryan Moler Reviewed by

Architect's Stamp

Engineer's Stamp

Furnish as Corrected

This review is only for general conformance with the design concept of the project and general compliance with the information given in the Contract Documents. Corrections and comments made on the shop drawings and/or submittals during this review do not relieve the Contractor from compliance with the requirement of the Contract Documents. Review of a specific item shall not include review of an assembly of which the item is a component. Contractor is responsible for: dimensions, lengths, elevations and quantities which are to be confirmed and correlated at the jobsite; information that pertains to the fabrication process or to the means, methods, techniques, sequences and procedures of construction; coordination of the Work of all trades; and for performing all work in a safe and satisfactory manner.

FARNSWORTH GROUP, INC.

Date 02/09/2023 By egrau

VAIL PASS REST AREA PHASE II

PREMIER SIPS

BIG SKY INSULATIONS, INC.
dba PREMIER BUILDING SYSTEMS
P.O. Box 838 | 15 Arden Drive
BELGRADE, MT 59714
406-388-4146

GENERAL NOTES

1. THESE SIP SHOP DRAWINGS ARE BASED ON THE INFORMATION FURNISHED TO PREMIER BUILDING SYSTEMS (PBS). PROPER INSTALLATION OF OUR PRODUCT SHOULD BE DONE BY A LICENSED CONTRACTOR. IT IS THE CONTRACTOR'S RESPONSIBILITY TO COMPLY WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES, REGULATIONS, AND SAFETY MEASURES.
2. PBS'S SIP SHOP DRAWINGS ARE FOR ILLUSTRATION PURPOSES AND SIP ASSEMBLY. AS SUCH, THESE SIP SHOP DRAWINGS ARE NOT TO BE CONSIDERED A REPLACEMENT FOR THE EXPERTISE OF AN ARCHITECT OR ENGINEER, NOR THEIR DRAWINGS. THESE SIP SHOP DRAWINGS EXCLUDE ANY DESIGN OF SITE, FOUNDATION, MECHANICAL, ELECTRICAL, OR PLUMBING. SIP SHOP DRAWINGS ARE TO BE USED IN CONJUNCTION WITH ARCHITECTURAL AND STRUCTURAL DRAWINGS. IF ANYTHING IS NOT CLEAR OR THERE ARE QUESTIONS THEY SHOULD BE IMMEDIATELY DIRECTED TO THE ARCHITECT OR ENGINEER OF RECORD.
3. PBS MAKES EVERY EFFORT TO SUPPLY COMPLETE SIP LAYOUT DRAWINGS FROM THE ORIGINAL ARCHITECTURAL AND / OR STRUCTURAL DRAWINGS PROVIDED TO US. IT IS THE RESPONSIBILITY OF THE CONTRACTOR OR OWNER TO CHECK AND VERIFY ALL DIMENSIONS, NOTES AND DETAILS ON THE SIP SHOP DRAWINGS FOR COMPATIBILITY WITH THE ARCHITECTURAL AND OTHER CONSULTANTS' DRAWINGS AND EXISTING CONDITIONS PRIOR TO COMMENCEMENT OF WORK. SIPS ARE FABRICATED PER THESE SIP SHOP DRAWINGS. ANY DISCREPANCIES OR MISSING ITEMS IN THESE SHOP DRAWINGS SHOULD BE NOTED.
4. SHOULD ANY DISCREPANCIES OR OMISSIONS BE FOUND, THE CONTRACTOR OR OWNER MUST NOTIFY A PBS REPRESENTATIVE IN WRITING, AS SOON AS POSSIBLE SO THAT CORRECTIONS CAN BE MADE BEFORE SIP FABRICATION BEGINS. CONTRACTOR SHOULD LOOK THROUGH THE PLANS CAREFULLY TO ENSURE THAT ALL ASPECTS OF THE SIP PACKAGE CAN BE CONSTRUCTED THROUGH THEIR PREFERRED MEANS AND METHODS PRIOR TO SIGNING OFF ON THE SIP SHOP DRAWINGS.
5. THE CONTRACTOR OR OWNER SHALL NOTIFY PBS IN WRITING OF ANY CHANGES TO THE SITE AND FIELD CONDITION WHICH MAY AFFECT THE SIP LAYOUT, PRIOR TO THE START OF SIP FABRICATION.
6. IT IS THE CONTRACTOR'S OR OWNER'S RESPONSIBILITY TO PROVIDE A LEVEL AND SQUARE FOUNDATION TO ENSURE A GOOD FIT OF THE PBS SIPS. PREMIER BUILDING SYSTEMS DOES NOT ASSUME RESPONSIBILITY FOR ANY VARIANCES FROM THE FINAL SIGNED PANEL DRAWING AND SPECIFICATIONS OR ADJUSTMENTS REQUIRED RESULTING FROM THE CONDITIONS ENCOUNTERED ON THE JOB SITE.
7. THE DETAILS ON THE DRAWINGS MAY NOT BE ALL INCLUSIVE. SIPS MUST BE INSTALLED PER THE PREMIER SIPS RESOURCE MANUAL. PLEASE REFER TO THE RESOURCE MANUAL DURING INSTALLATION.
8. SOME DIMENSIONS CAN NOT BE VERIFIED UNTIL CONSTRUCTED. THEREFORE PBS TAKES NO RESPONSIBILITY FOR FIELD FABRICATION. SOME FIELD FABRICATED AREAS MAY HAVE BEEN HIGHLIGHTED ON THE SIP SHOP DRAWINGS BUT MAY NOT BE LIMITED TO ONLY THOSE AREAS.
9. IT IS THE BUILDERS RESPONSIBILITY TO DETERMINE ALL MATERIALS NECESSARY FOR SIP INSTALLATION. THIS INCLUDES VERIFYING THAT THE MATERIALS PBS WILL BE PROVIDING PER THE CONTRACT OF SALE ARE ADEQUATE FOR THE PROJECT AND SOURCE ANY ADDITIONAL MATERIALS REQUIRED FOR SIP INSTALLATION THAT ARE NOT PROVIDED BY PBS. ALL DIMENSIONAL OR ENGINEERED LUMBER, STEEL, ETC. USED FOR ANY PURPOSE AND NOT NOTED ON THE SHOP DRAWINGS, SHALL BE SUPPLIED BY OTHERS. REQUIRED SUPPORT BEAMS, COLUMNS, DIMENSIONAL LUMBER AND HEADERS NOT NOTED ON THE SHOP DRAWINGS MUST BE DESIGNED AND SUPPLIED BY OTHERS.
10. SIP WALL AND/OR ROOF LAYOUTS INCLUDE LOCATIONS OF FACTORY ELECTRICAL CHASES AS INDICATED IN THE LEGEND BELOW. ADDITIONAL "CUSTOM" ELECTRICAL CHASES MAY BE ADDED FOR A FEE. ALL FIELD CUTS, INCLUDING ELECTRICAL AND PLUMBING CHASES, MUST BE IN ACCORDANCE WITH THE PREMIER SIPS RESOURCE MANUAL, OR PRE-APPROVED BY PBS.
11. OWNER IS RESPONSIBLE FOR VERIFYING ALL SIP SHOP DRAWING DIMENSIONS TO ENSURE COMPLIANCE WITH ARCHITECTURAL AND STRUCTURAL DRAWINGS. OWNER MUST "RED-LINE" DIMENSIONS ON SIP SHOP DRAWINGS WHICH NEED TO BE REVISED. IF APPLICABLE, INDICATE WHICH END OF THE DIMENSION WILL BE RELOCATING. UNCHECKED DIMENSIONS MAY RESULT IN THE NEED FOR FIELD FABRICATION.
12. PBS ACCEPTS NO RESPONSIBILITY FOR CONSTRUCTION, ARCHITECTURE, OR ENGINEERING.
13. EXECUTION OF WORK FOR THE SIP PACKAGE MAY REQUIRE COORDINATION WITH OTHER TRADES (I.E. ELECTRICIAN, HVAC, WINDOW/DOOR MANUFACTURER, ETC...). THIS COORDINATION IS THE RESPONSIBILITY OF THE CONTRACTOR.
14. ALL ELEVATIONS DRAWN ARE VIEWED FROM THE EXTERIOR UNLESS OTHERWISE NOTED.
15. WHEN BUILT PROPERLY A SIP BUILDING PROVIDES A TIGHT ENVELOPE. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE THAT THE SIP STRUCTURE IS PROPERLY VENTILATED TO ENSURE PROPER AIR QUALITY AND HUMIDITY LEVELS.
16. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO ENSURE THAT ALL SPLINES ARE PROPERLY SEATED INTO THE SIP RECESSES AND COMPLETELY SEALED WITH PREMIER SEALANT PER PREMIER SIPS DETAILS. VOIDS BETWEEN SPLINE JOINTS ARE NOT ACCEPTABLE IN A PROPER SIP INSTALLATION. ONLY USE EXPANDING SPRAY FOAM WHERE INDICATED WITHIN THE PREMIER SIPS DETAILS, INCLUDING BUT NOT LIMITED TO, PENETRATIONS, LIFTING HOLES, ELECTRICAL BOXES, TOP OF SIP WALL/ROOF CONNECTIONS, ETC.
17. THE CONTRACTOR IS RESPONSIBLE TO DETERMINE THE PROPER WEATHER BARRIER (I.E. BUILDING WRAPS, FLASHING, ROOF UNDERLAYMENT, ETC..) TO DRY IN THE BUILDING ENVELOPE.
18. YOU MAY EXPERIENCE DIMENSIONAL VARIANCES FROM THE CONSTRUCTION DRAWINGS AS SIPS ARE ASSEMBLED HAVING GAPS AT SIP JOINTS AND ADDITIONAL MISCELLANEOUS CONSTRUCTION VARIABLES SUCH AS FABRICATION TOLERANCES, LUMBER POST THICKNESS VARIANCES, ETC. MINOR FIELD CUTTING THE SIPS TO CONFORM WITH THE APPROVED DESIGN MAY BE REQUIRED TO ENSURE THAT THE TOTAL WALL OR ROOF ASSEMBLY IS PER THE CONSTRUCTION DRAWINGS. PBS WILL ADD GAPS AS INDICATED ON SIP LAYOUTS BETWEEN PANEL JOINTS IN THE SHOP DRAWINGS (TYPICALLY 1/8" GAP).
19. CONSULT YOUR PBS SALES REPRESENTATIVE OR PROJECT MANAGER IF FIELD MODIFICATIONS TO THE SIPS IS REQUIRED DUE TO DEVIATION FROM THE APPROVED SIP SHOP DRAWINGS FOR ANY REASON.

CUSTOMER CHECK LIST

TWO ROUNDS OF REVISIONS/EDITS ARE INCLUDED IN THE INITIAL PRE-PRODUCTION SERVICES PORTION OF THE PBS ESTIMATE. ADDITIONAL REVISIONS MAY INCUR ADDITIONAL FEES.
WHEN YOU HAVE FINISHED VERIFYING THE SIP SHOP DRAWINGS AND HAVE MADE ANY CHANGES/CORRECTIONS, COPY THOSE CHANGES TO THE SIP SHOP DRAWINGS AND SEND BACK TO PBS FOR REVISIONS.

THIS CHECKLIST IS BEING PROVIDED FOR THE EXPRESS PURPOSE OF ASSISTING OUR CUSTOMERS IN THE REVIEW OF THESE SIP SHOP DRAWINGS AGAINST THE PLAN SET CURRENTLY ON FILE AND FOR ACCURACY AND COMPLETENESS. THIS HELPS ENSURE THE QUALITY OF THE PRODUCT AND EASE OF CONSTRUCTION IN THE FIELD. PLEASE FEEL FREE TO CONTACT YOUR PBS PROJECT MANAGER WITH ANY QUESTIONS OR CONCERNS THAT MAY ARISE DURING THE REVIEW PROCESS.

INITIAL

_____ CONFIRM WINDOW ROUGH OPENING LOCATIONS & DIMENSIONS
_____ CONFIRM DOOR ROUGH OPENING LOCATIONS & DIMENSIONS
_____ CONFIRM WALL PLATE HEIGHT DIMENSIONS
_____ CONFIRM ROOF PITCHES
_____ CONFIRM ROOF OVERHANG DIMENSIONS
_____ CONFIRM BEAM SIZES AND LOCATIONS
_____ CONFIRM DESIGN VALUE CRITERIA (THIS PAGE)
_____ CONFIRM OVERALL WALL DIMENSIONS INCLUDING STEPS IN FOUNDATION IF APPLICABLE
_____ CONFIRM FLOOR THICKNESS AND DIMENSIONS
_____ CONFIRM SIP FLOOR PANELS HAVE SOLID BLOCKING AT POINT LOADS
_____ DENOTE ANY CUSTOM ELECTRICAL CHASE LOCATIONS WITH DIMENSIONS
_____ SIGN THE SIGNATURE BLOCK IN LOWER RIGHT CORNER OF THIS SHEET

ANY AND ALL DISCREPANCIES RELATED TO SIPS ON SITE ARE THE RESPONSIBILITY OF OWNER UNLESS THERE IS A DIFFERENCE BETWEEN FABRICATED SIPS AND SIGNED SIP SHOP DRAWINGS. PBS HOLDS FIRST RIGHT OF DECISION TO REPLACE, REPAIR OR PAY FOR REPAIR OF ALL PRODUCTS IN DISCREPANCY WITH FINAL SIP SHOP DRAWINGS.

SIP DELIVERY

WE DO OUR BEST TO SHIP SIPS SEQUENCED PER CLIENT REQUEST. HOWEVER, WE MUST ALSO MAKE BEST USE OF THE AVAILABLE SPACE ON EACH SHIPMENT, AND ENSURE THAT THE LOAD IS SAFE FOR TRANSPORTATION. BEAR IN MIND THAT ALL SIPS HAVE MARKINGS WHICH MAKE FOR A SMOOTH IDENTIFICATION PROCESS. IF YOU DESIRE A SPECIAL LOADING PLAN, THAT REQUEST, AND LAYOUT, MUST BE MADE CONCURRENT WITH THE RETURN OF THE SIGNED SIP SHOP DRAWINGS AND MAY BE SUBJECT TO AN ADDITIONAL FEE DUE TO IMPACT ON YIELD, AND THE TOTAL NUMBER OF SHIPMENTS REQUIRED. SIPS ARE FABRICATED AT 4' & 8' WIDTHS AND UP TO 24' LENGTHS. 6' FORKS ARE REQUIRED FOR 8' WIDE SIPS (REFER TO THE CONTRACT OF SALE FOR MORE INFORMATION OR ASK PBS FOR A DELIVERY INFORMATION SHEET).

ENGINEERING DATA

WIND SPEED: 115 (ULT) MPH EXP.: C
SEISMIC: B ELEVATION:

FLOOR LOAD		ROOF LOAD	
LIVE LOAD:	N/A PSF	SNOW LOAD: VARIES:	133 psf - 235 psf
DEAD LOAD:	N/A PSF	DEAD LOAD:	25 PSF
TOTAL LOAD:	N/A PSF	TOTAL LOAD:	PSF

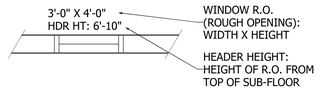
LEGEND/ABBREVIATIONS

WALL# — SIP WALL NUMBER: ARROW INDICATES PANEL WALL LAYOUT VIEW DIRECTION

A / X/12 — SIP ROOF NUMBER: (A) INDICATES ROOF PLANE (#/12) INDICATES ROOF PITCH ARROW POINTS DOWNSLOPE

POINT LOAD ARROW

WINDOW IN SIP WALL:



PBS PANEL IDENTIFICATION
A=7/16" OSB B=3/4" OSB C=5/8" OSB
D=SPECIAL SKIN
EXAMPLE - A 5-11/16 C GPS
7/16" OSB EXT. FACING — FOAM THICKNESS — 5/8" OSB INT. FACING — TYPE OF FOAM

SIP CROSS SECTION

STICK FRAME BY OTHERS

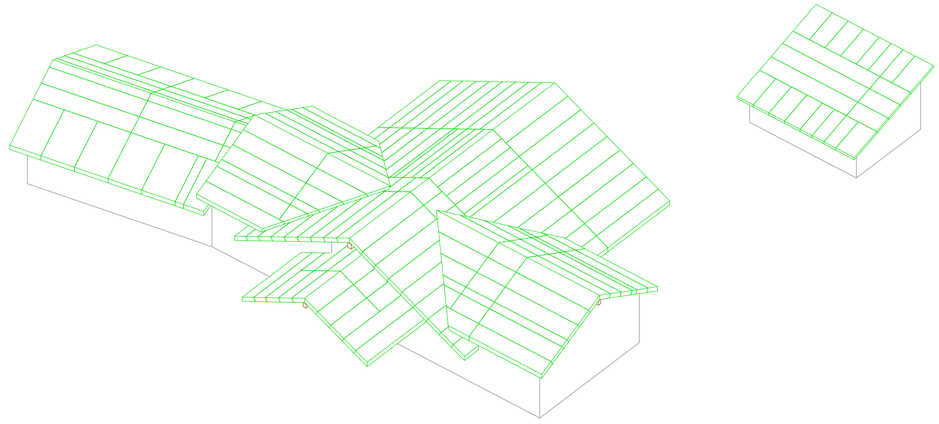
SIP BEVEL CUTS:
(BOTTOM FACING DIMENSIONED IN MAGENTA)

TOP FACING LONG

BOTTOM FACING LONG

SIP NUMBERING:
F1 3 FLOOR # 1 - SIP 3
2.8 WALL # 2 - SIP 8
B 7 ROOF PLANE B - SIP 7

A.B.	- ANCHOR BOLTS
HDR	- HEADER
HBO	- HEADER BY OTHERS
IHDR	- INSULATED HEADER
2-PLY	- (2) 1.75x11.25 LVL
1-PLY	- (1) 1.75x11.25 LVL
O.C.	- ON CENTER
GPS	- GRAPHITE INFUSED EPS FOAM
EPS	- EXPANDED POLYSTYRENE
R.O.	- ROUGH OPENING - NOT UNIT SIZE
SIM.	- SIMILAR
TYP.	- TYPICAL
(#)K	- NUMBER OF KING STUDS
(#)T	- NUMBER OF TRIMMERS
U.N.O.	- UNLESS NOTED OTHERWISE
FG	- FRAME-GUARD
REF.	- REFERENCE
EXT.	- EXTERIOR
INT.	- INTERIOR
T.P.	- TREATED PLATE
T.PLY	- TREATED PLY



FOR APPROVAL ONLY
REVISE AND RESUBMIT
JAN. 20, 2023

THIS PROJECT UTILIZES THE FOLLOWING SIP TYPES

6	PREMIER SIPS ROOF TYPE A 5-11/16 A EPS
12	PREMIER SIPS ROOF TYPE A 11-7/16 A EPS

LIST OF DRAWINGS

AS A SUPPLIER OF MATERIALS ONLY, PBS DOES NOT ASSUME RESPONSIBILITY FOR ERRORS IN DESIGN, ENGINEERING, OR DIMENSIONS. OWNER/AGENT (ARCHITECT, CONTRACTOR, AND/OR INSTALLER) SHALL VERIFY ALL DIMENSIONS AND SIZES, AND BY SIGNING THESE PLANS, THE OWNER TAKES FULL RESPONSIBILITY FOR THEIR ACCURACY. I UNDERSTAND THAT THIS STRUCTURE IS TO BE ASSEMBLED IN ACCORDANCE WITH THE PREMIER SIPS RESOURCE MANUAL.

LAMWOOD SYSTEMS
Zach Anderson

SIGN HERE PLEASE

CUSTOMER'S SIGNATURE DATE

☐ REVISE & RESUBMIT
☐ APPROVED WITH REVISIONS AS NOTED IN RED
☐ APPROVED AS DRAWN

PREMIER SIPS

BIG SKY INSULATIONS, INC.
dba PREMIER BUILDING SYSTEMS
P.O. Box 838 | 15 Arden Drive
BELGRADE, MT 59714
406-388-4146

DRAWN BY: SDK
DATE: 10/07/2022

REVISIONS
REVISION TYPES
C-REV: Customer Revision
E-REV: Engineer Revision
P-REV: Premier Revision

#	DATE	DRAFTER	TYPE
1.	10/24/2022	JD	C-REV
2.	11/11/2022	JD	C-REV
3.	12/07/2022	JD	E-REV
4.	12/09/2022	EE	C-REV
5.	01/16/2023	EE	E&C-REV
6.	01/19/2023	DRK	E-REV

COVER SHEET

VAIL PASS REST AREA PHASE II
MILE MARKER 190 INTERSTATE 70
VAIL, CO 80443

PBS PROJECT NO:
531359

001

K:\JOBS\current S3xxx\S31xx\S3135\9 - VAIL PASS REST AREA PHASE II\Drawings\S31359\

PREMIER SIPS

Premier SIPS Installation Guide:

You are on your way to installing one of the most high performance building envelopes available. When you choose Premier SIPS you are making a positive impact to create more energy efficient, stronger, and healthier commercial and residential structures. Premier SIPS is the # 1 SIPs brand and this building envelope system has been used across North America for several decades.

The information within this sheet is intended to educate our clients and SIP installers of SIP assembly methods specific to the use of SIPs. This information is to be used in conjunction with knowing and following good building practices typical in all forms of construction. If you have any questions that are not addressed within these SIP shop drawings please consult your Premier SIPS project manager or sales representative for assistance.

Thank you for choosing Premier SIPS and we look forward to working with you toward a successfully installation!

Installation Tips: Technical Bulletins: Code Report:

Jobsite Tool Checklist:

Prior to executing SIP set, understand process, materials, and hardware needed for the panel system:

- Review Premier Resource Manual, project specific SIP shop drawings and notes.
- Check that Other Framing Items are accessible for install. If needed ask your PM or SR, at completion of SIP shop drawings.
- Material handler for offloading and staging SIPs on site.

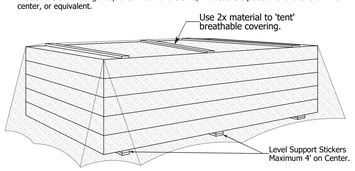
Ensure you have these tools onsite for a successful SIPs installation:

- Dunnage for supporting panels (storage off ground)
- Come-along with 2" trucking ratchet straps (pull panels together)
- Pry bars
- Chalk line
- Lifting plates for roof & tall wall panels
- Framer's square
- Levels (6' or longer)
- Loose 8d and 16d sinker nails (specific to nail gun used)
- Air compressor air hose and electrical cords as needed
- Ladders - step & extension scaffolding for roof panel install if needed
- 1/2" drill for 1-1/2" diameter electrical chase holes & long panel screws
- 1 1/2" auger, forstner or chipper bits (for electrical chase through plates)
- 3/8" drill or impact driver (cordless)
- Chain saw with 14"-16" bar and chainsaw guide for site fabrication
- Power planer
- Recess cutter and/or hot knife
- T25 & T30 Torx driver bit
- Nail gun(s)
- 20oz sealant guns for sausage packs (recommend cordless electric)
- Reciprocating saw (6" & 12" blades)
- One or two circular saws
- Mineral spirits for clean up of caulking gun
- Minimal Expanding foam/foam gun compatible with EPS insulation for mechanical openings, window/door jams
- Eye and Ear protection - Fall arrest gear for roofs (if applicable)

Storage of SIPs & Protection from Weather:

Your SIPs will usually arrive on a flatbed truck and should be off-loaded to a clean flat area with a forklift, or equivalent equipment that fully support your SIPs. Do not handle SIPs by top facing only.

SIPs should be stored a minimum of 3" above ground/surface. Support SIPs flat on minimum of 3" wide stickers with length equal to width of the SIPs, with stickers placed no further than 4' on center, or equivalent.



Protect SIPs and accessories from weather with breathable opaque, white, or light-colored coverings. IMPORTANT! Do not use clear or colored plastic films to cover SIPs. Keep SIPs covered to avoid exposure to weather for an extended period of time. Exposure to moisture can cause wood products to swell making installation more difficult. Protect SIPs from weather as soon as practical after installation

Refer to Tech Bulletin #45 for moisture content information.

Protect SIPs from weather as soon as possible after installation.

Fasteners:

Typically, an 8d nail 6" (o.c.) is used to connect panels to top and bottom plates at spline connections and for dimensional plating. SIP Screws are used at corners and SIP Wall to SIP Roof connections. Reference the SIP shop drawings for fastener requirements specific to your structure.

Field Fabrication:

Field fabrication will be necessary on the site if you ordered blank SIPs. Even on factory fabricated SIPs, slight field modifications may be necessary to allow for SIP growth or variations in the actual field dimensions. Modifications are not difficult. Common construction tools will suffice for most projects with the only additional recommended tool being a recess cutter (available for purchase) for quick and easy recessing of the foam core.

When performing field modifications to SIPs, wait to make measurements and modifications until the previous SIP has been placed into its final position. When cutting wall SIPs, make sure you have the correct SIP, and that it is PROPERLY ORIENTED (horizontal electrical chases are at the bottom of the SIP).

SIPs can be field cut using a chainsaw bar attached to a compatible circular saw, a chainsaw with a guide, or double cut on both sides of the SIP with a standard circular saw.

Scrape off any excess foam between the facings with a metal straight edge. Adjust your foam cutter to the depth of the installed member. (Foam cutters will melt foam back further than the setting.) After your foam is "scooped" out, clean the leftover foam along the sides by placing the foam cutter parallel with the facing. (The depth gauge can rest on the SIP edge.) Use a paint scraper or speed square to take off any excess foam that may inhibit lumber placement. Use Premier SIPS Sealant as required and follow the appropriate details outlined in the Premier SIPS PBS details or our website at: www.premiersips.com.

Sealant Application:

Sill and Bottom Plates:

Check your bottom plates to see if they are all the same dimension in width. Install all of the sill plates level (± 1/8"), square (within a 1/4" of being square on the longest diagonal), and to the exact dimensions of the layouts on the shop drawings. When placement of the wall SIPs is directly on top of a concrete foundation, remember that because the SIP facings cannot bear directly on the concrete, a capillary break and solid bearing is required.

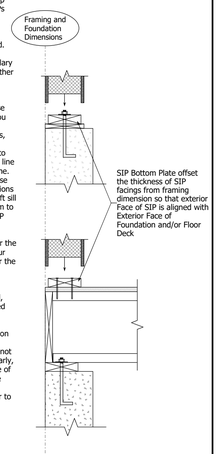
One of the best methods to provide a capillary break is to use a treated sill plate that is either equal to the total thickness of the SIP or slightly wider.

Take your time and make sure to be precise and accurate. Time spent now will save you time throughout the rest of your project. When you lay out the sill and bottom plates, always use the longest building line to establish the base line. Use this base line to establish the largest perpendicular building line available and make it square to the base line. Be exact. Measure parallel to either of these reference lines for all other smaller dimensions that are within the structure. Adjust or shift sill plates as required on the foundation system to match all the desired dimensions on the SIP layout drawings.

Snap a chalk line on the foundation wall for the inside of the sill plate and begin setting your plates. Use an appropriate sill sealer under the sill plates. Level the plates as required.

If the plates are not laid out to the exact desired dimensions and within 1/8" of level, extensive SIP modifications may be required later.

Dimensions to the exterior face of foundation and full width treated sill plate will be equivalent to the exterior face of the SIP—not the lumber plate that is inside them. Similarly, framing dimensions are to the exterior face of the SIP—not the lumber plate that is inside them. This is different from stick framing where the framing dimensions usually refer to the outside edge of the framing member.



Wall Assembly:

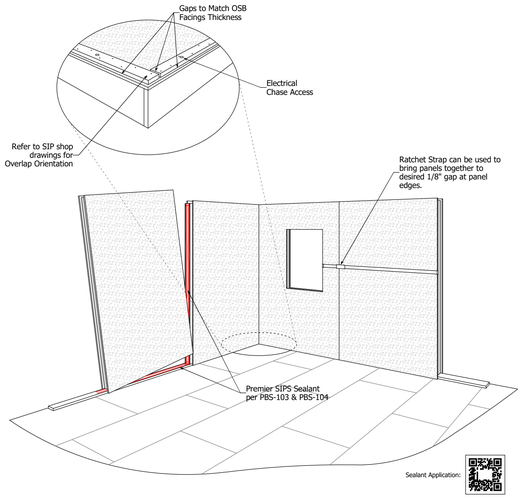
Set out the SIPs in the order you are going to install them. Get all your tools onto the floor deck, including:

- Foam scoop
- Marker
- Flat dolly—for moving SIPs around the deck (A come-along or truckers ratchet straps is not needed, but may prove useful.)

STEP 1. BOTTOM PLATE
Wall SIPs are placed over a dimensional bottom plate that fits in the recess in the wall SIP. Refer to your SIP layout drawings for the location of the bottom plate. The plate will be measured 1/2" in from the outside edge of your floor. Snap a chalk line on the floor, equal to the plate width + 1/2" to represent the inside edge of the bottom plate. SIP facings should run flush to the floor edge. Apply Premier SIPS Sealant per details and nail per schedule or engineering.

STEP 2. LAYOUT TRANSFER
Using a black marker, transfer the SIP layouts to the bottom plate. Include all window and door openings as well as the vertical electrical chases in each wall SIP. If electrical chases are being utilized, drill the chase holes so you set each SIP using a minimum 1 1/2" bit. (Do not drill all the chase holes down the entire wall, because as SIP joints grow you will be off center as you get to the end of the wall.)

STEP 3. PANEL TILT
Determine the best place to start the installation and get your SIPs to that area. Most of the time it is best to start in a building corner. The corners are locked together using Premier SIP Screws secured through the SIP spaced 2' o.c. maximum. (Normally you will use a screw two inches longer than the wall thickness.) Use a drill to finish tightening and the SIPs will cinch together. Set the underside of the screw heads flush with the OSB, do not break the facing of the SIP. Always check the fastening or engineering schedule on your shop drawings. Check the SIP dimensions against the floor layout. Apply Premier SIPS Sealant per PBS details specific to each connection. Jimmy's Strapjack SIP Puller or a ratchet strap can also be used to pull the SIPs together. After the SIP is standing, check for proper placement. Next, plumb the wall section in both directions and fasten it to the plate and the adjacent SIP with the specified fasteners. If necessary, brace the wall before moving to the next SIP.



STEP 4. ADJACENT PANEL
Move the next SIP into position and apply Premier SIPS Sealant in the same manner as with the first SIP. Place splines on the floor and run the Sealant down one side and up the other per Premier SIPS details. Set the splines into the grooves of the fixed (standing) SIP. Bring your connecting SIP into position over the bottom plate, tilted slightly away from the fixed SIP. Butt the facings together at the bottom and scissor the walls together using a sharp motion.

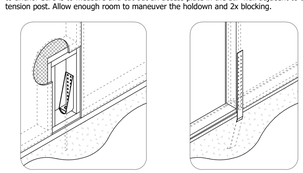
STEP 5. FASTENING
Plumb the SIP in both directions. Once the SIP is plumb in both directions, nail both sides of the spline seam and the sill plate with 8d nails per plan. (You may have to brace the wall.)

STEP 6. TOP PLATE
Repeat the procedures for the remaining wall SIPs. When you get to a corner or opening make sure to check the SIP dimensions before standing the SIP. (This SIP may need to be trimmed to fit the location properly.)

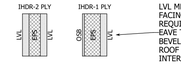
After all of the walls are up, prior to setting your top plate, check and plumb the alignment of each wall, getting as close to square and plumb as possible. If electrical chases are being utilized, mark the vertical chases onto your dimensional lumber top plate. Cut the top plate so that the ends of the top plate have a minimum 2' overlap with the wall SIP seams. Apply Premier SIPS Sealant per details. Set the top plate and nail it off per schedule or engineering. Finish by drilling the electrical chase access with a minimum 1 1/2" auger bit.

Shearwalls:

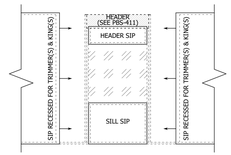
A shearwall is a vertical bracing element that transfers the in-plane forces imposed on a floor or roof diaphragm to the foundation. Wood framed buildings use shearwalls as the vertical bracing element or lateral load resisting element almost exclusively. The most common way to anchor SIPs is to measure and cut out an access plate in the SIP wall adjacent to the tension post. Allow enough room to maneuver the holdown and 2x blocking.



Headers:



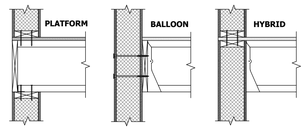
Determine trimmer height: depth of the header + the top plate + bottom plate - height of SIP = height of trimmer (11 1/4" + 1 1/2" + 1 1/2" - 96" = 81 3/4"). Cut your trimmer and cripple, apply Premier SIPS Sealant and nail them together. Next, install the SIP that sits below the window (sill SIP) to the assembled trimmer and cripple using 8d nails per SIP shop drawings. Install the SIP between the top of the opening and the bottom of the IHDR (header SIP) similar to the sill SIP assembly process so that the distance between the top of the sill and bottom of the header SIP equal the window rough opening height. Measure the distance between the king studs and cut the header 1/8" short of this. Apply Premier SIPS Sealant to the cripples and top edge of the Header SIP then install IHDR between the king studs so that the IHDR is in contact with the top of the trimmers. Nail through the kings into the IHDR. Next tilt the header/header SIP/sill SIP assembly into a vertical position and install into adjacent SIPs per standard Wall Assembly techniques.



Cut your SIP top plate to be continuous over the opening and at least 2' past each end of the opening and 2' from any SIP joint. Apply Premier SIPS Sealant and install the top plate into the SIP recess and over the header. Nail the top plate to the IHDR first with (2) 16d nails 12" o.c. Nail the SIP facings on either side of the header to the top plate next, then nail down the sides of the header assembly SIPs.

Fur out both sides of the IHDR with 7/16" sheathing to match the thickness of the SIPs, keeping the sheathing flush with the top of the top plate.

Intermediate Floors:



PLATFORM FRAMING
In typical platform framing, the rim is placed on top of the SIP, flush to the exterior, and the joists are placed on top of the SIP.

(Floor joists can be either engineered wood or dimensional lumber. For more information, refer to the Premier SIPS resource manual or our website at www.premiersips.com)

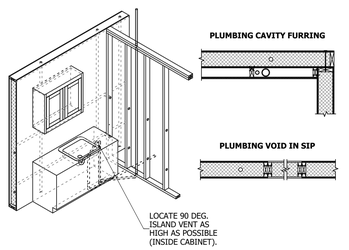
BALLOON FRAMING
Once the top plate is in, you may now also hang joists directly from the wall SIP via a ledger attached to the face of the SIP with SIP screws at a spacing specified by an engineer.

HYBRID PLATFORM-BALLOON
The lower SIP wall can be used to insulate the floor rim when using a joist hanger with a nailable top flange. The flange should bear at least 1.5" (2" is best) on to the top plate. Nail the top flange following the fastening schedule specified by the engineer. As always, consult with your engineer of record concerning your specific design requirements.

Plumbing:

Whether you are building a standard stick frame house or a SIP home, PBS does not recommend placing plumbing chases in the exterior walls.

Situations do arise in which it becomes necessary for a builder to consider options for chases in the exterior walls such as a kitchen sink next to a window or washer and dryer unit next to an exterior wall. This situation can be answered through the use of an "island vent" through the floor to the nearest interior wall.



If plumbing in the exterior wall is unavoidable, consider furring out the wall, or you can add a stick frame void in the SIP wall and insulate conventionally.

Roofs:

If the SIPs aren't being installed immediately, cover the SIPs and lumber until ready for installation. See the "Storage of SIPs & Protection from Weather" section.

ON THE GROUND

Prior to lifting, install as many of your dimensional lumber splines and I-joist splines as possible along the connecting sides of each roof SIP. Premier SIPS splines should be installed as SIPs are installed. The dimensional lumber at the ridge and eaves should be installed prior to SIP installation. (If SIPs are spanning perpendicular to the ridge.)

Cut a bevel block out of dimensional lumber to the same pitch as the roof and fasten the full length of the ridge. The roof SIP must bear at least 1 1/2" on the beveled block. Next, tack SIP Tape that is 18" wide on top of the ridge beam. (Be sure that the release paper is facing up towards the underside of the roof SIPs.)

LIFTING SIPS

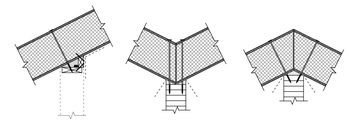
Use either a lifting bracket, picking eye, or strap method to lift your roof SIPs. A 12" x 12" lifting bracket can be purchased from Premier SIPS. The plate should be secured to the SIP facings with a total of (35) #10 deck screws. Star drive screws are recommended. A 12"x12" 3/4" plywood shim can be placed between the plate and the SIP to hold screws in place between picks; just back the screws out of the SIP facings, but not all the way out of the 3/4" plywood shim.

As an alternative to lifting brackets, a picking eye can be fashioned from a 4" eye made from 3/4" steel rod. The shaft should be at least 14" long. The nut should be tack welded to a minimum 4" diameter washer made of 1/2" thick steel. Drill through the roof SIP, insert the 3/4" steel rod through the full section of the SIP, apply a 12" square 3/4" Plywood "washer", and thread on the nut welded to the 4" steel washer. After SIPs are secured in place, remove all of the lifting hardware and fill the hole in SIP with low expanding foam that is compatible with EPS.

Determine the center of each SIP. Depending on the pitch of the roof, drill your hole for the picking eye, or place the center of the lifting plates, 3" from the center of the SIP toward the ridge end for every pitch change after 4:12. For example: On a 7:12 roof, the lifting hole will be 9" from the SIP center. This will allow the SIP to arrive on the ridge at almost the proper pitch, which will help the SIP installation. If you use the picking eye, be sure to fill the hole with low expanding foam prior to installing roofing felt. (If the roof SIP has installed lumber, the placement of the lifting eye or plate may need to be adjusted.)

During the install care should be taken to secure the ridge beam during installation to prevent bowing.

Note: It is the sole responsibility of the contractor and lift operator to select the appropriate methods and means for placing the SIPs of the structure. Further, the contractor and lift operator are responsible for the proper installation of the SIPs following product label instructions and for using all safety precautions during installation to avoid injury to anyone on the project site. The Premier SIPS manufacturer does not accept any responsibility for improper or defective installation workmanship.



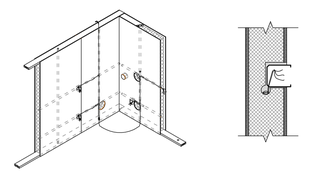
In some eave wall/roof connections the electrician can run the wires in the void created by the beveled block. Once the wires are in place, install the beveled block and spray expanding foam in the void.

Vapor Retarder
An appropriate vapor retarder must be installed on the interior of the roof SIPs. PBS recommends using SIP tape on the SIP joints and at the wall to roof connections. Refer to Premier SIPS Details and Technical Bulletin #28 at www.premiersips.com for more information on this subject.

SIP Tape Application: Sealant Application:

Electrical General Guidelines:

1. Pre-Drill Plates and Splines at electrical chase locations within each SIP wall during SIP installation.
2. Never cut long grooves in the facing of a SIP. Long grooves in the facing can seriously compromise the structural integrity of your SIPs.
3. When necessary, you may cut 4" access holes and use a long remodelers flex bit with a catch hook to run wires where a chase may not exist.
4. Use vertical chases and interior walls whenever possible for most of your wiring needs.



5. Use a remodeler's box that has flanges so the box can be fastened directly to the SIP facing.
6. Push or pull all wires through a chase simultaneously. With an electrician's pliers fold and crimp the longest wire back on itself about 1". Wrap electrical tape around that end. Stagger remaining wires flat side to flat side and tape these to the long wire below the crimp. Have 8"-10" of straight wire to slide into the electrical chase holes.
7. As a general rule, don't try to go horizontal between outlets or switches in the SIPs unless the distance is short and you have no other options. Use the vertical chases to run the wire back into the floor or attic if the roof is stick framed.
8. The triangular space on top of the wall SIP and under the roof SIP can be used as a chase if SIPs are used for the walls and roof. Refer to detail PBS-301. Run the wires horizontally in these areas to access the vertical chases in the SIPs.
9. To gain access to chase intersections, use a 4" to 4 1/8" hole saw. Use a flat blade screw driver and pry out the plug. Nail the plug to the wall for reinstallation. After pulling your wires, secure the plug with Premier SIPS Sealant or expanding foam.
10. Where walls terminate against a SIP you can drill (at the horizontal electrical chase height) a long diagonal hole through the face of the stud diagonally into the electrical chase. Electrical wires will stuff easily into this type of access.

Electrical Installation:

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PREMIER SIPS
BIG SKY INSULATIONS, INC.
dba PREMIER BUILDING SYSTEMS
P.O. Box 838 | 15 Arden Drive
BELGRADE, MT 59714
406-388-4146

DRAWN BY: SDK
DATE: 10/07/2022

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6.	01/19/2023	DRK	E-REV

INSTALLATION GUIDE

VAIL PASS REST AREA PHASE II
MILE MARKER 190 INTERSTATE 70
VAIL, CO 80443

PBS PROJECT NO:
531359

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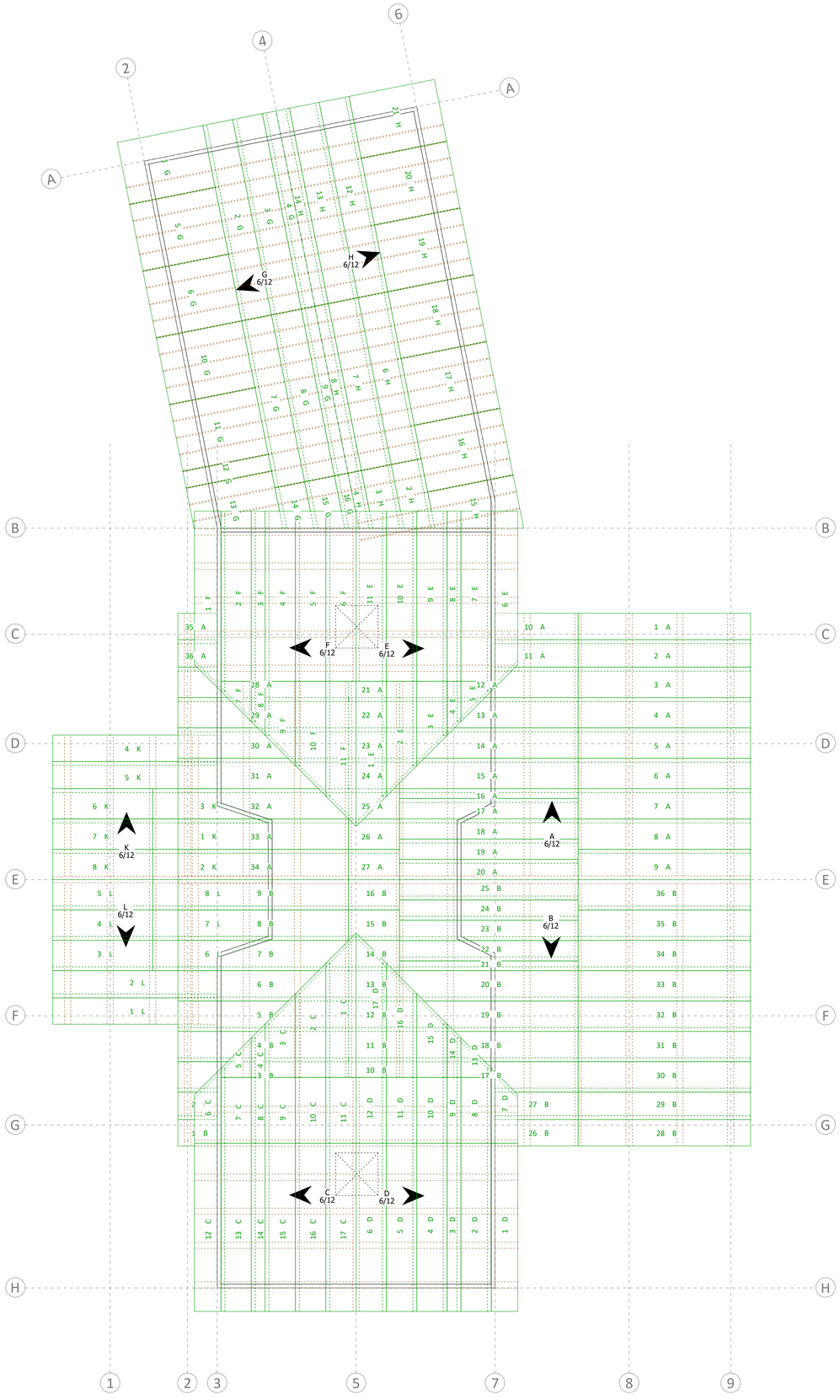

NOTES:
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2. A 1/8" GAP FIGURED BETWEEN WINDOW / DOOR ROUGH OPENING AND THE PANEL NEXT TO THE OPENING.
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4. ROUGH OR SMOOTH OSB DOES NOT DENOTE TOP OR BOTTOM OF SIP. REFER TO PANEL LAYOUTS FOR PANEL ORIENTATION.
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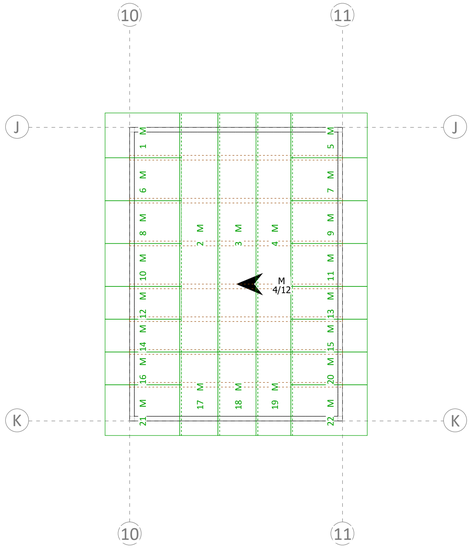
8. STANDARD DETAILS PROVIDED FOR TYPICAL INSTALLATION METHODS. REFERENCE ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR JOB SPECIFIC CONNECTION DETAILS, WHICH TAKE PRECEDENT OVER PBS TYPICAL DETAILS.
9. BEAM POCKETS TO BE FIELD CUT FOR PROPER ELEVATION AND SIZE.
10. STANDARD WALL ELECTRICAL CHASES INCLUDED BY DEFAULT. HORIZONTAL CHASES ARE 14" AND 42" ABOVE BOTTOM OF PANEL AND VERTICALLY APPROXIMATELY 4'-0" O.C DEPENDING ON PANEL WIDTHS.



OVERALL SIP ROOF PLAN

Scale: N.T.S.

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SIP ROOF PLAN

VAIL PASS REST AREA PHASE II
MILE MARKER 190 INTERSTATE 70
VAIL, CO 80443

PBS PROJECT NO:
531359

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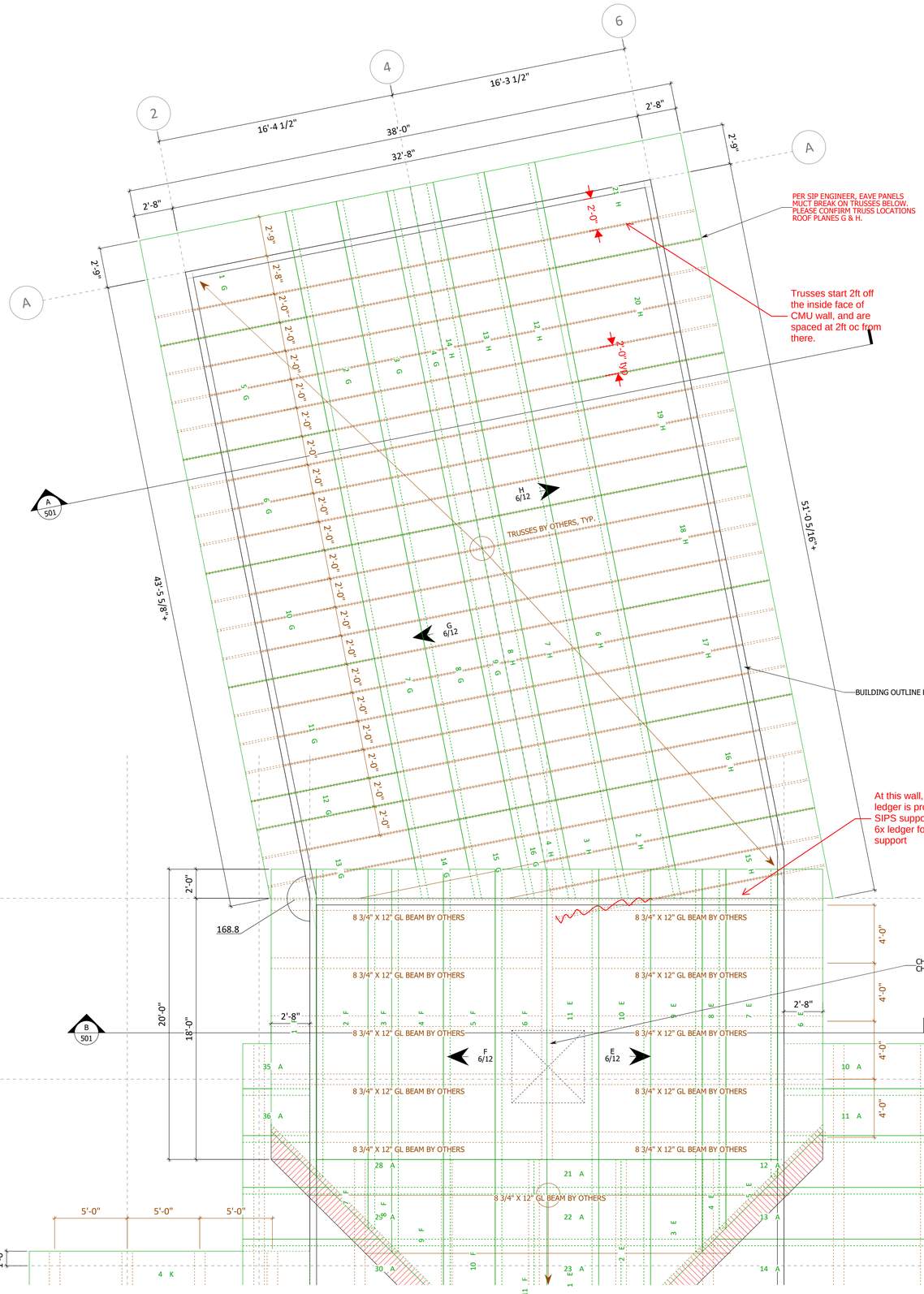

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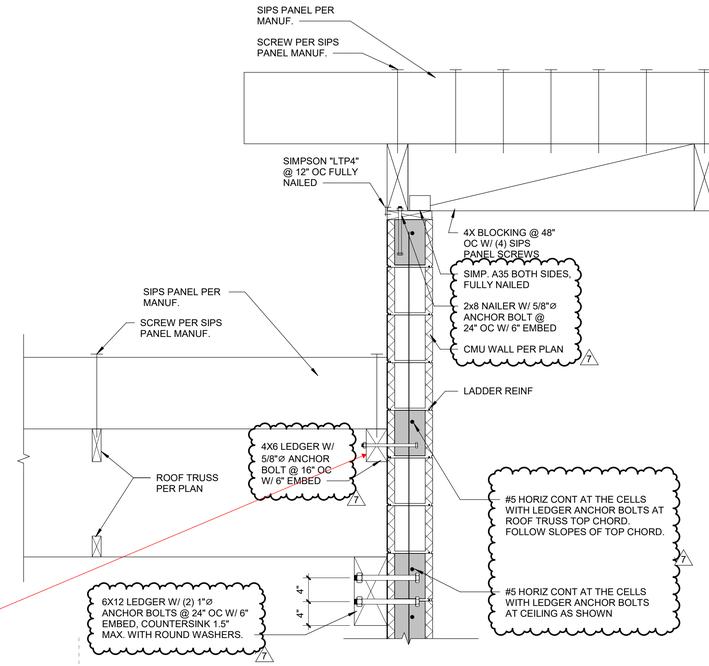

1 TYPICAL WALL TO RAFTER CONNECTION UPPER AND LOWER ROOF
SCALE: 1" = 1'-0"

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JAN. 20, 2023

SIP ROOF PLAN
Scale: 1/4"=1'-0"

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BELGRADE, MT 59714
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SIP ROOF PLAN

VAIL PASS REST AREA PHASE II
MILE MARKER 190 INTERSTATE 70
VAIL, CO 80443

PBS PROJECT NO:
531359

302

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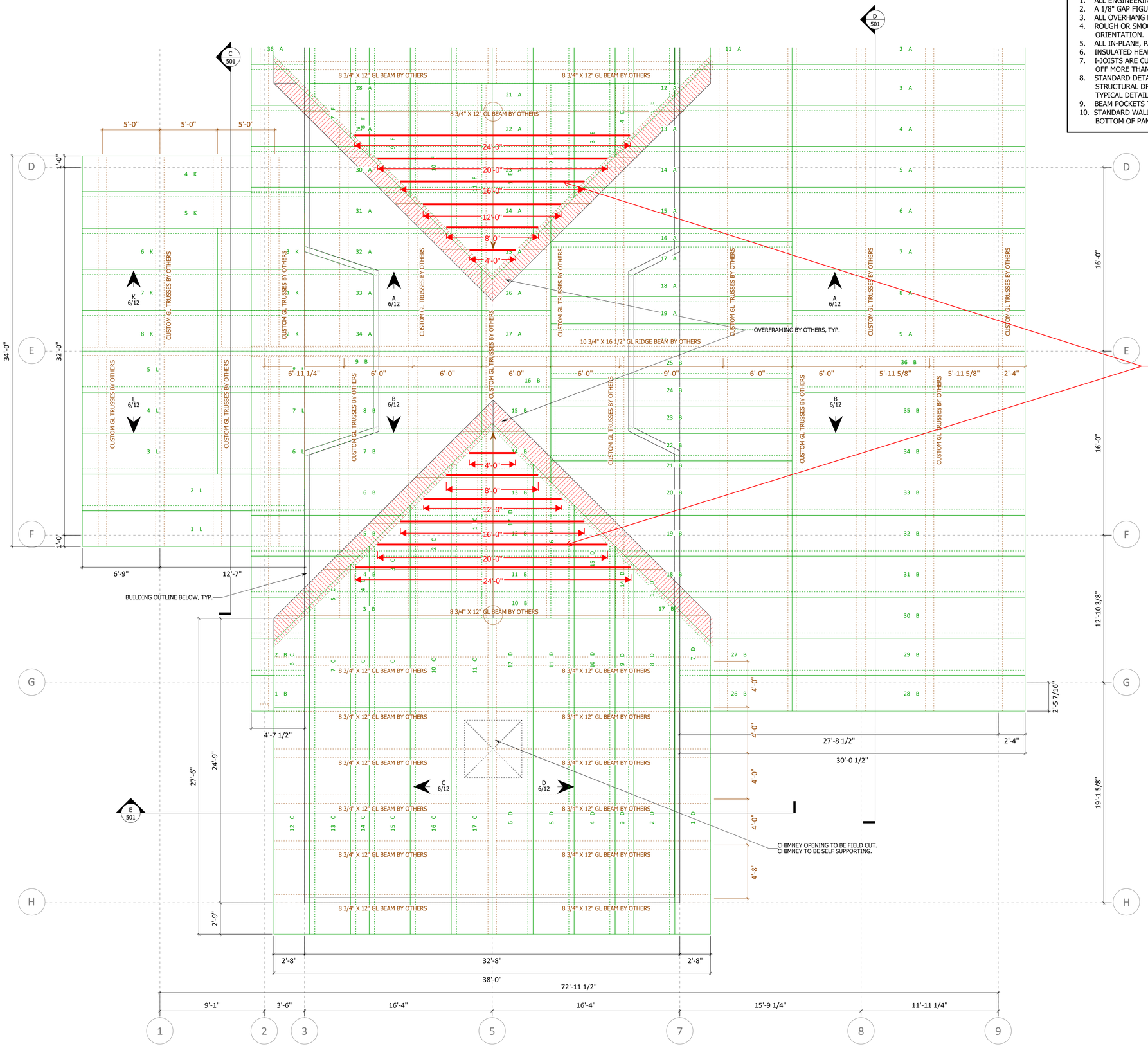
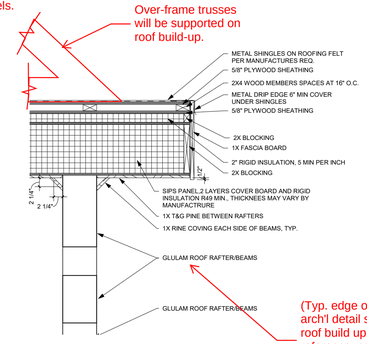


The truss manufacturer proposes to frame the structure for the overbuild, between the low and high SIPS, with trusses at 2ft oc. Approximate truss locations are noted with thick red lines. TYP line load from truss (service): 345 plf
Please verify that this is acceptable for the SIPS panels.



DIAPHRAGM FASTENING NOTES:

1. ALL DIAPHRAGM NAILING SHALL BE IN ACCORDANCE WITH MARK /D3\ PER TABLE PBS - 100D.

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SIP ROOF PLAN

Scale: 1/4"=1'-0"

PREMIER SIPS

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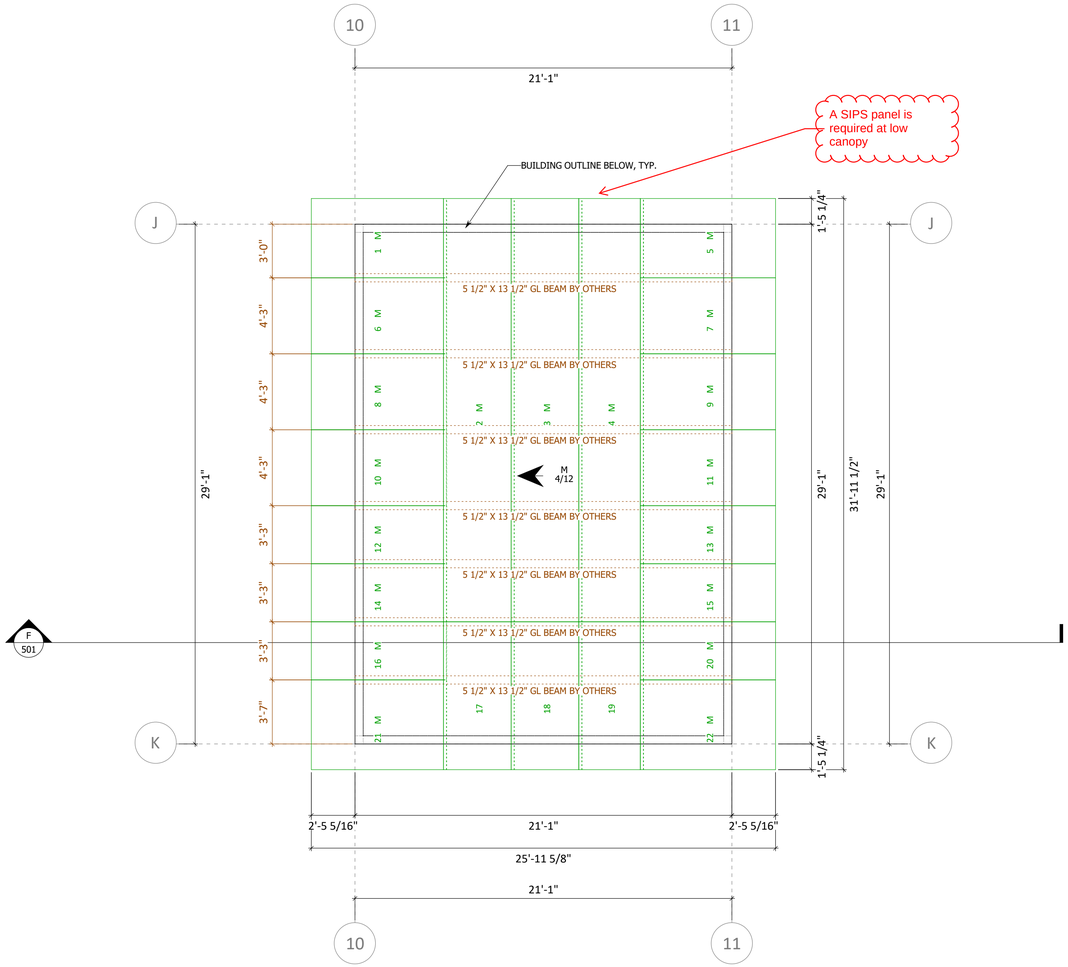

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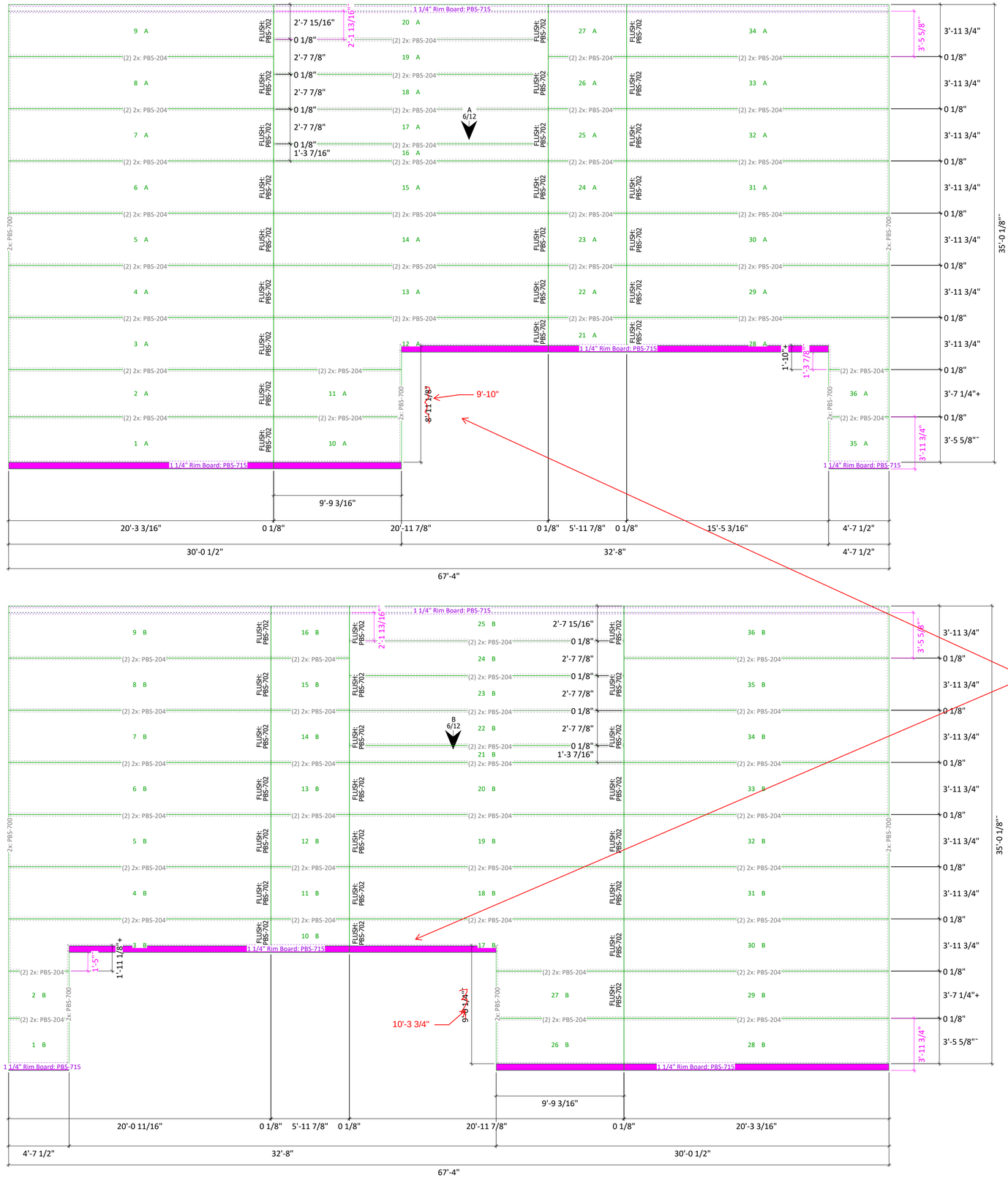
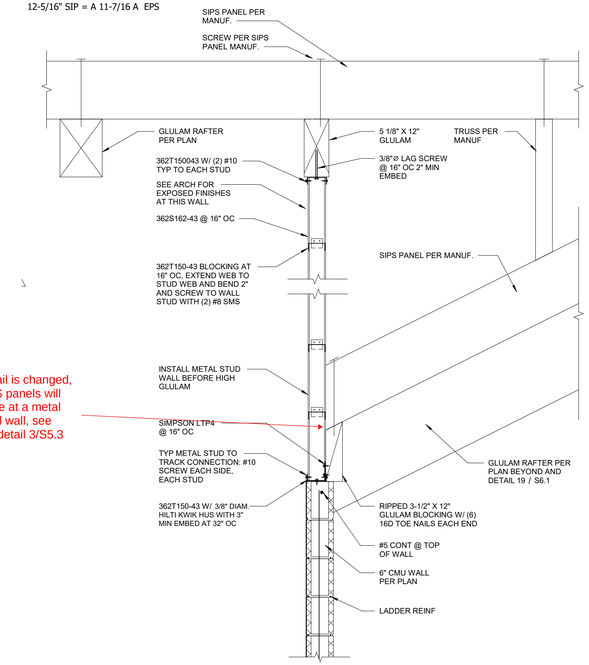


The detail is changed, the SIPS panels will terminate at a metal stud infill wall, see revised detail 3/S5.3

ROOF PLANE - A

12-5/16" SIP = A 11-7/16 A EPS



3 **WALL TO RAFTER CONNECTION**
SCALE: 1" = 1'-0"

ROOF PLANE - B

12-5/16" SIP = A 11-7/16 A EPS

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ROOF PANEL LAYOUTS

Scale: 1/4"=1'-0"

PAGE NOTES: ROOF PANELS

- ALL VIEWS ARE SET TO BE PERPENDICULAR TO ROOF PLANES.

PREMIER SIPS
BIG SKY INSULATIONS, INC.
dba PREMIER BUILDING SYSTEMS
P.O. Box 838 | 15 Arden Drive
BELGRADE, MT 59714
406-388-4146

DRAWN BY: SDK
DATE: 10/07/2022

REVISIONS
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5.	01/16/2023	EE	E&C-REV
6.	01/19/2023	DRK	E-REV

SIP ROOF PANEL LAYOUTS

VAIL PASS REST AREA PHASE II
MILE MARKER 190 INTERSTATE 70
VAIL, CO 80443

PBS PROJECT NO:
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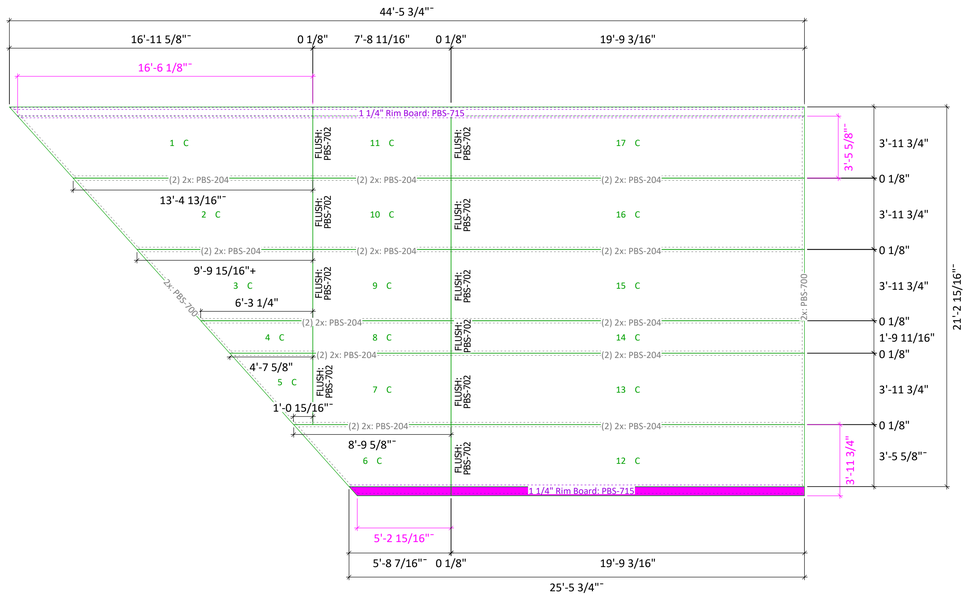

ROOF PLANE - C

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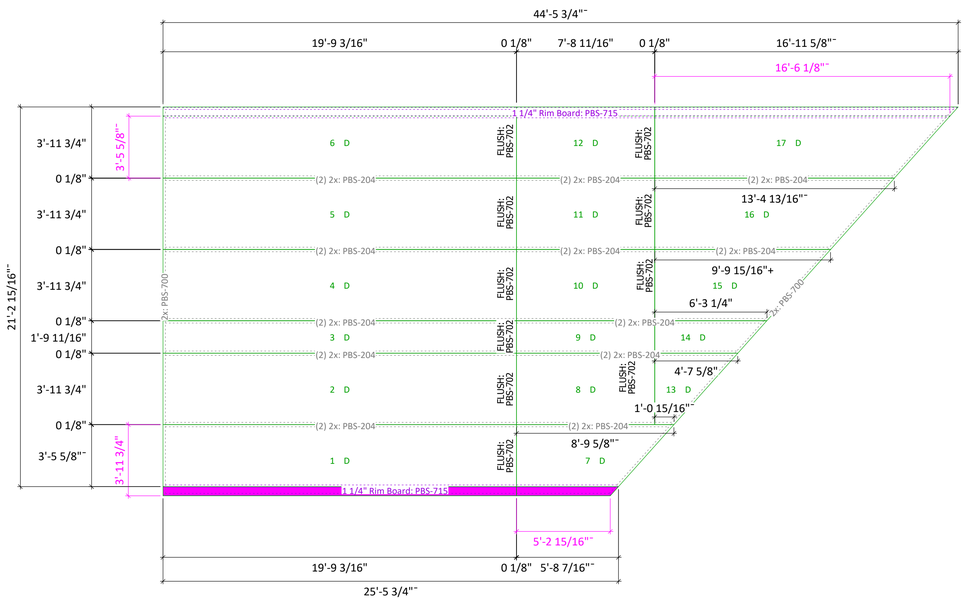

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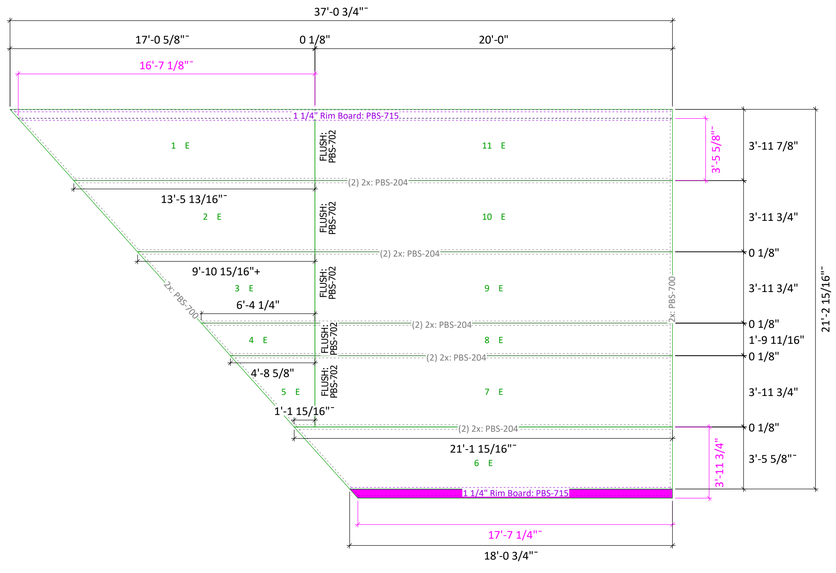

ROOF PLANE - E

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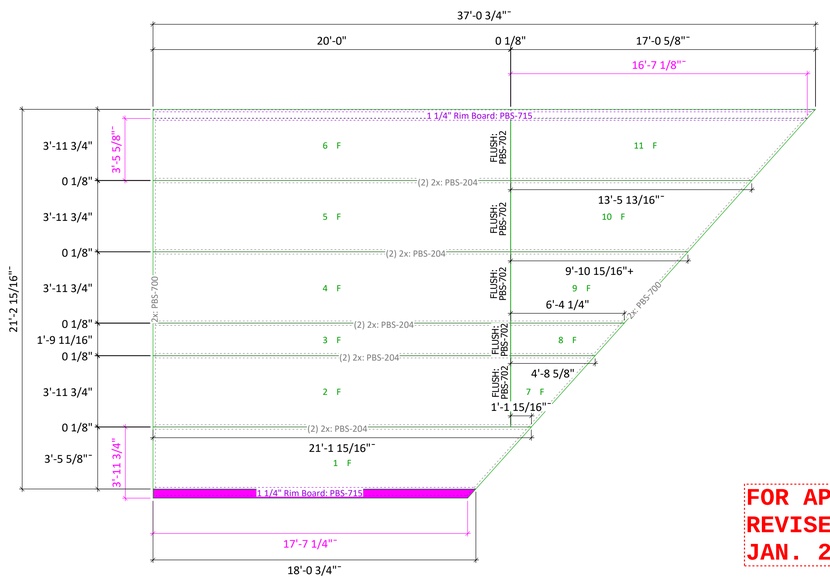

ROOF PLANE - F

12-5/16" SIP = A 11-7/16 A EPS

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ROOF PANEL LAYOUTS

Scale: 1/4"=1'-0"

PAGE NOTES: ROOF PANELS

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SIP ROOF PANEL LAYOUTS

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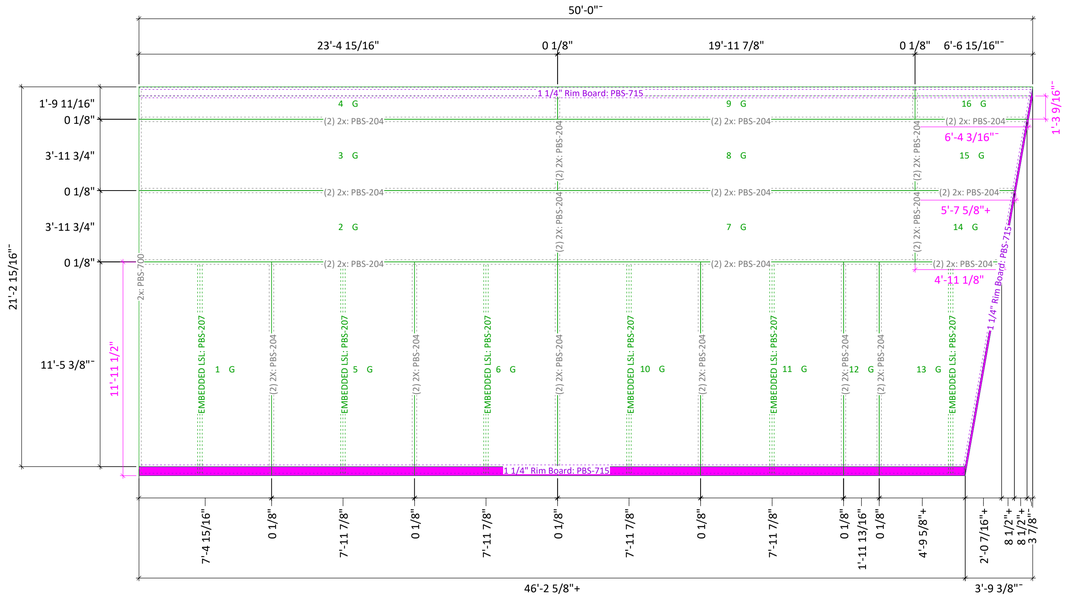

ROOF PLANE - G

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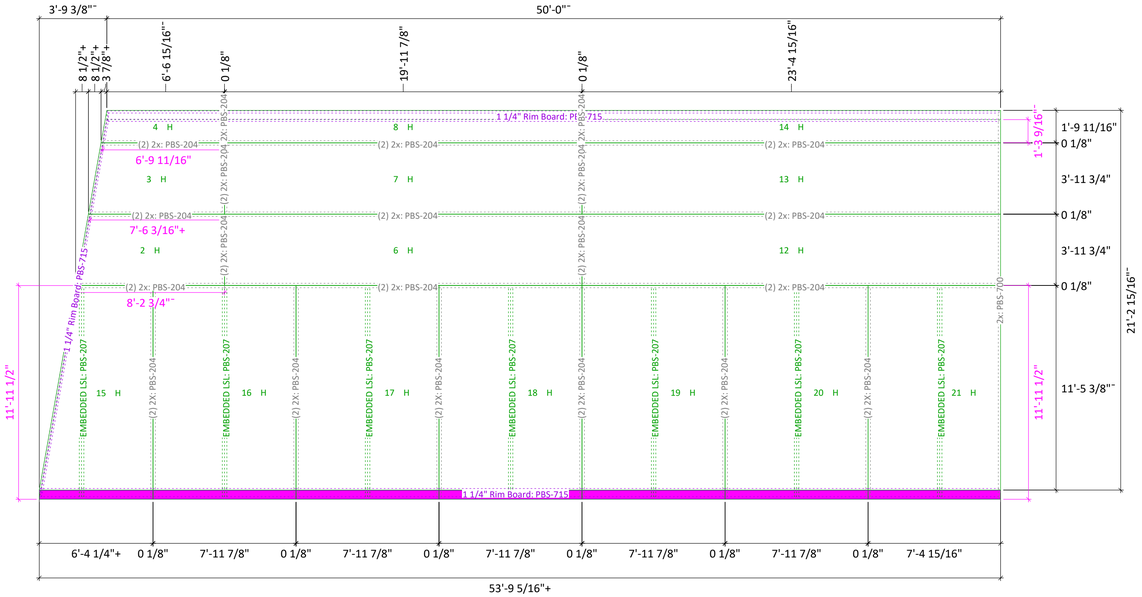

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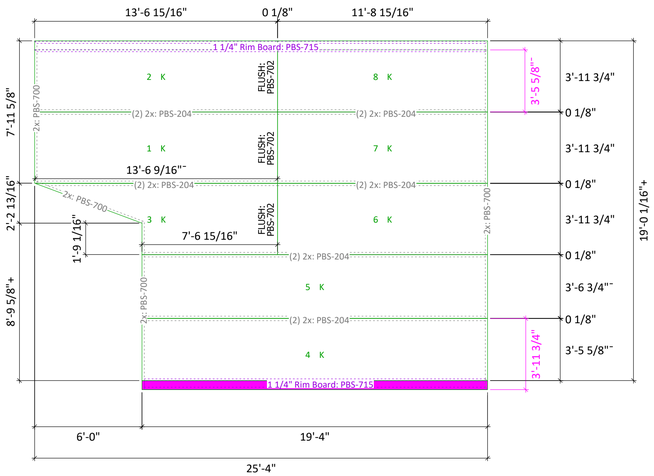

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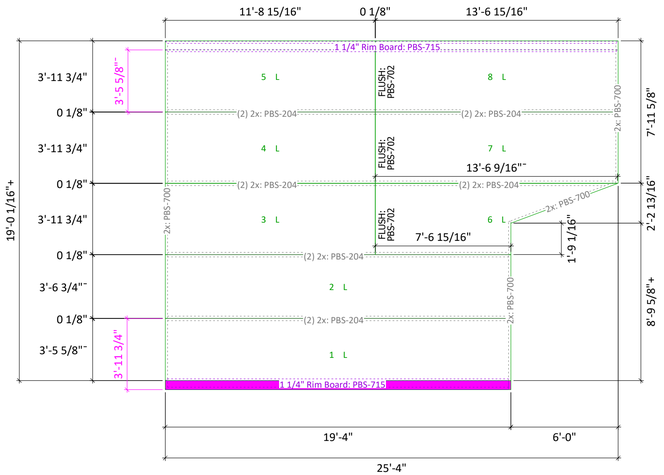

ROOF PLANE - L

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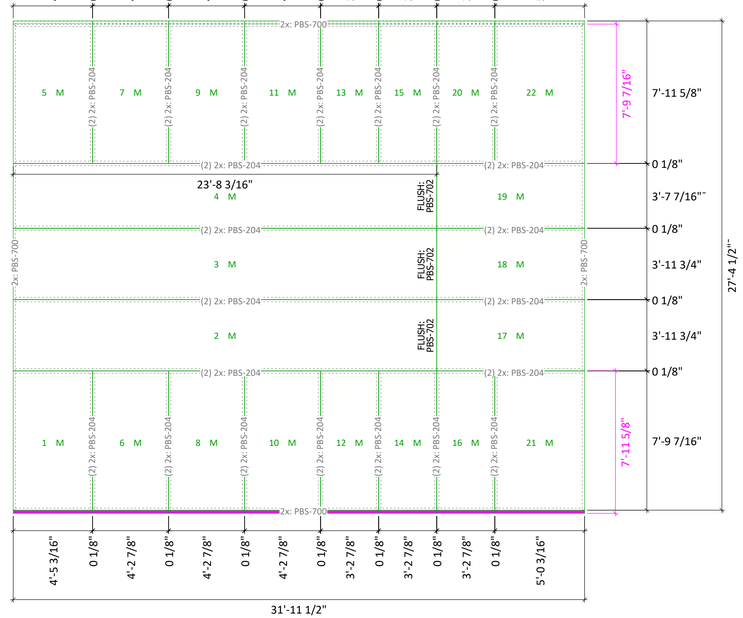

ROOF PLANE - M

6-9/16" SIP = A 5-11/16 A EPS

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ROOF PANEL LAYOUTS

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SIP ROOF PANEL LAYOUTS

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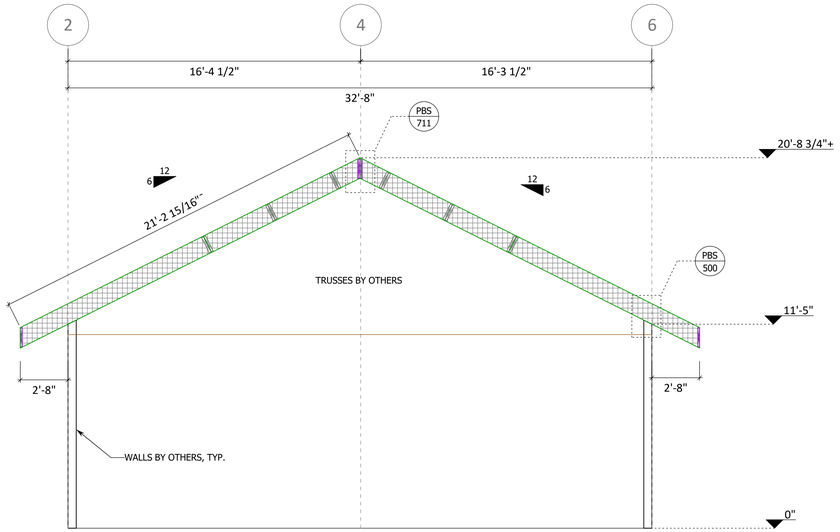
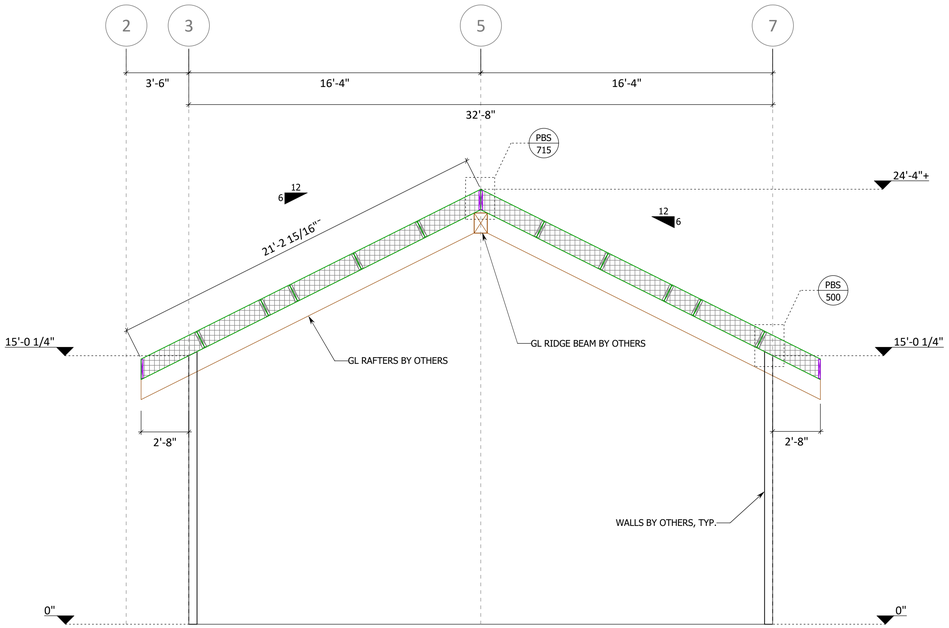


SECTION - A



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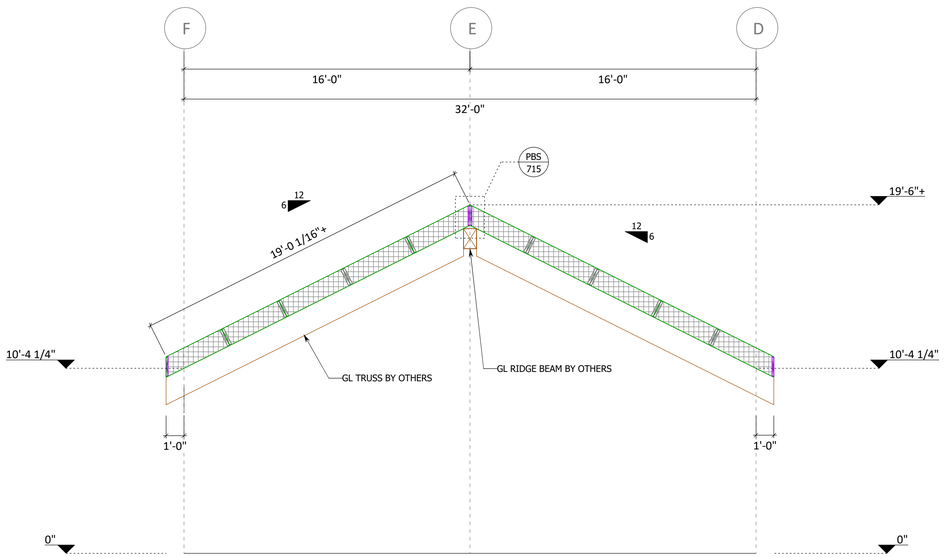

SECTION - C

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SECTION DRAWINGS

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SECTIONS

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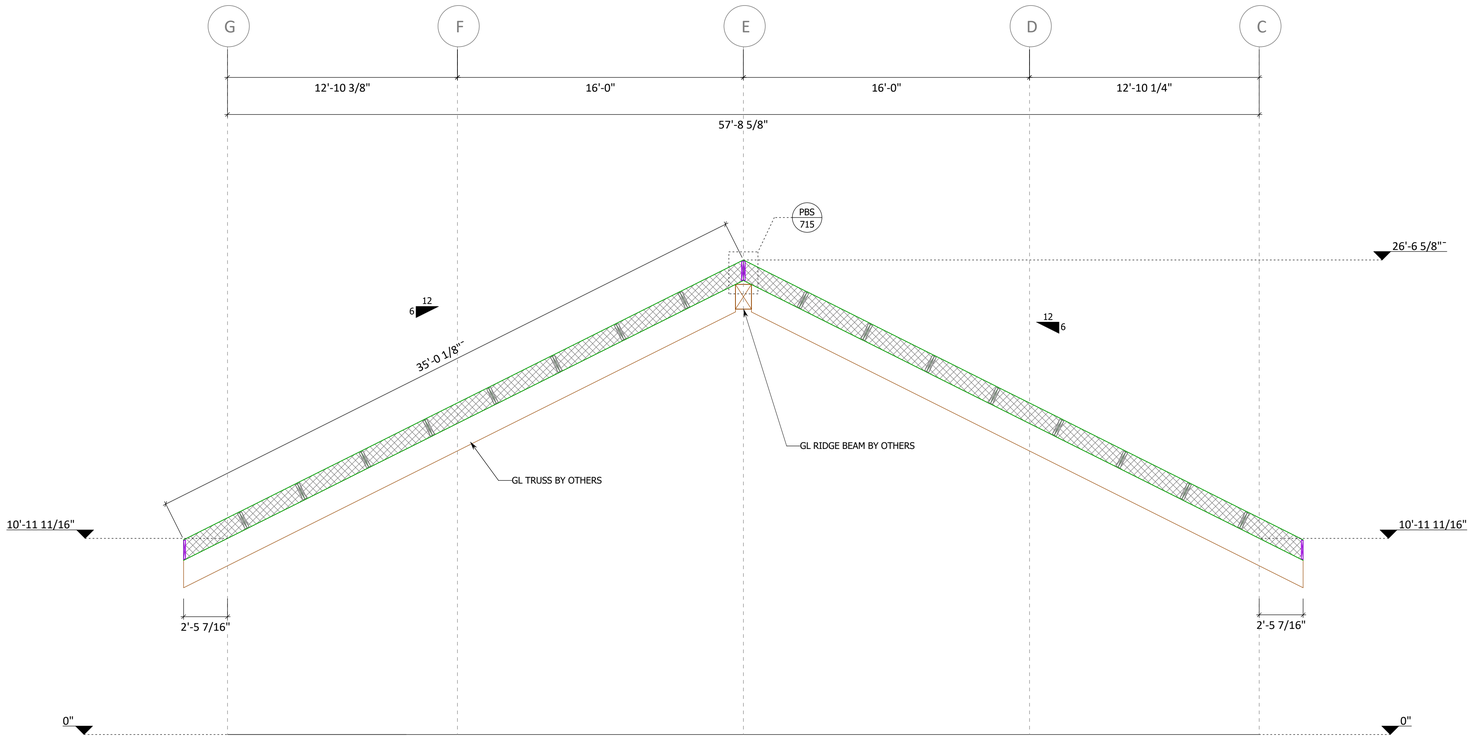

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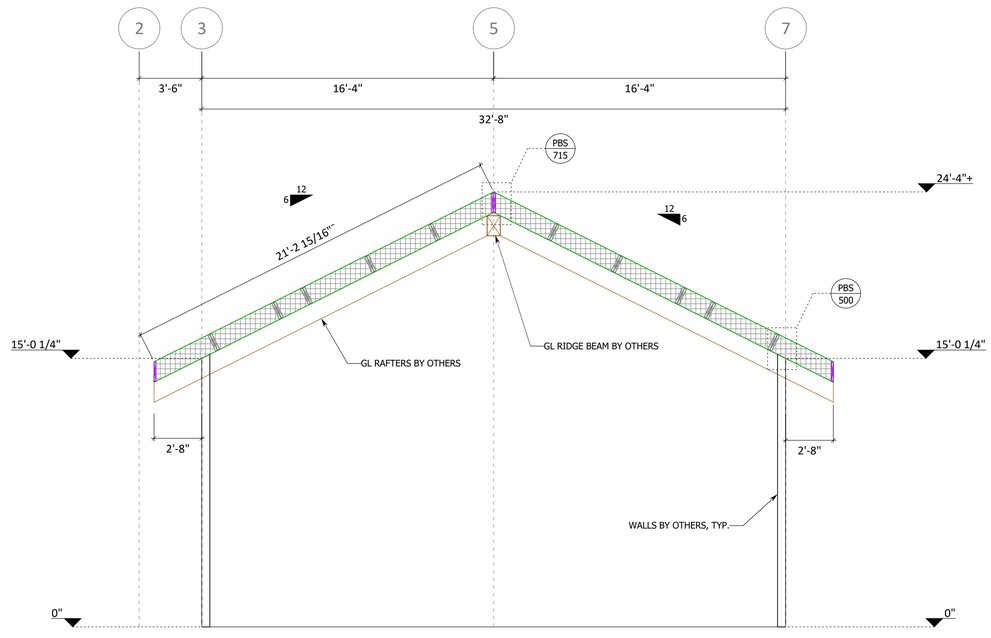

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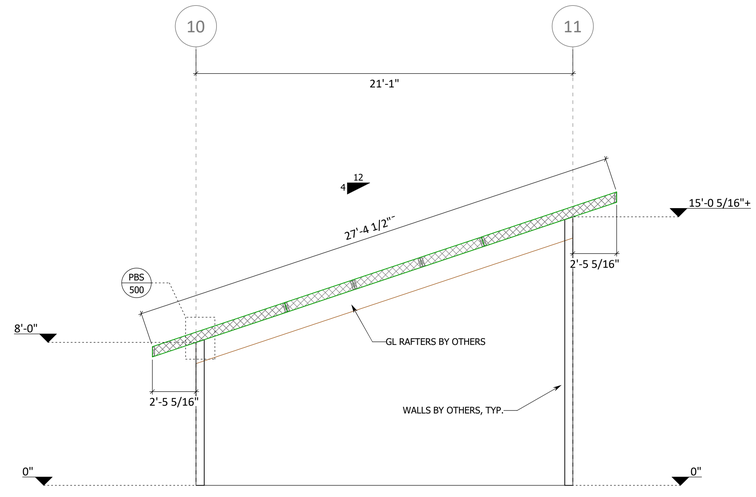

SECTION - F

SECTION DRAWINGS

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PBS PROJECT NO:
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502

MAXIMUM ALLOWABLE IN-PLANE SHEAR
FOR DIAPHRAGMS SUBJECTED TO WIND OR SEISMIC LOADING[1]

Mark	MINIMUM CONNECTIONS[2] Interior Supports (FIGURE A)	Box/Block Spline (FIGURE B)	BOUNDARY[4] (FIGURE C) SUPPORT	SPLINE	ALLOWABLE SHEAR LOAD (plf)	G' APPARENT SHEAR STIFFNESS (lbs/in)	MAXIMUM ASPECT RATIO
D1	PBS No. 14 SIP Screw with 1" penetration 12" on center	0.113" x 2.5" nails, 3" on center 7/16" OSB - 3" Box/Block Spline	PBS No. 14 SIP Screw with 1" penetration 12" on center	0.113" x 2.5" nails, 6" on center	430	24000	4:1
D2	PBS No. 14 SIP Screw with 1" penetration 12" on center	0.113" x 2.5" nails, 3" on center, 2 rows, staggered 7/16" OSB - 3" Box/Block Spline	PBS No. 14 SIP Screw with 1" penetration 3" on center	0.113" x 2.5" nails, 4" on center	460	30300	4:1
D3	PBS No. 14 SIP Screw with 1" penetration 2" on center	0.113" x 2.5" nails, 3" on center, 2 rows, staggered 7/16" OSB - 3" Box/Block Spline	PBS No. 14 SIP Screw with 1" penetration 2" on center	0.113" x 2.5" nails, 3" on center	655	41300	4:1
D4	PBS No. 14 SIP Screw with 1" penetration 4" on center	0.113" x 2.5" nails, 3" on center, 2 rows, staggered 7/16" OSB - 3" Box/Block Spline	PBS No. 14 SIP Screw with 1" penetration 4" on center	0.113" x 2.5" nails, 3" on center	795	93700	3:1
D5	PBS No. 14 SIP Screw with 1" penetration 4" on center	0.113" x 2.5" nails, 3" on center, 2 rows, staggered 2½"/2" OSB - 4" Box/Block Spline	PBS No. 14 SIP Screw with 1" penetration 4" on center	0.113" x 2.5" nails, 6" on center	1130	110600	3:1

For SI: 1 inch = 25.4 mm; 1 lb = 4.45 N; 1 psf = 14.6 N/m

1. The maximum diaphragm length-to-width ratio shall not exceed 4:1. Load may be applied parallel to continuous panel joints.
2. Interior supports shall be spaced not to exceed 12 feet (3.66 m) on center and have a minimum width of 3 1/2 inches (88.9 mm) and a specific gravity of 0.42 or greater. Specified fasteners are required on both sides of panel joint where panels are joined over a support. See figure A.
3. Box/Block Spline fastened at top only, at interior panel-to-panel joints. Specified fasteners are required on both sides of panel joint. See figure B.
4. Boundary spline shall be solid 1 1/2 inches (38.1 mm) wide, minimum, and have a specific gravity of 0.42 or greater. Boundary supports shall have a minimum width of 3 1/2 inches (88.9 mm) and a specific gravity of 0.42 or greater. Specified spline fasteners are required through both facings. See Figure C.
5. Diaphragms shall be specified in accordance with accepted engineering practices.

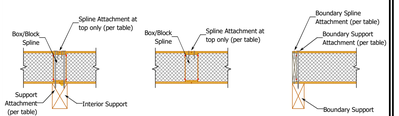


FIGURE A - INTERIOR SUPPORT | FIGURE B - BOX/BLOCK SPLINE | FIGURE C - BOUNDARY

N.T.S. Rev: 7/19/2022

PBS - 100D | PBS ESR-4524 ICC-ES IN-PLANE SHEAR FOR DIAPHRAGMS | PREMIER SIPS

SIP BEST PRACTICES:

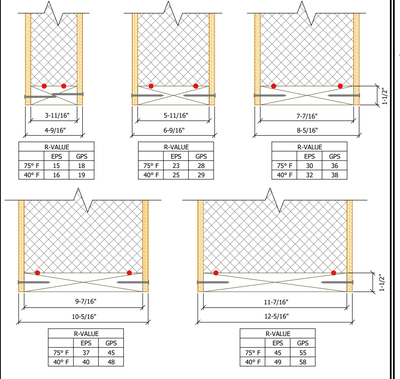
1. HANDLE SIPS WITH APPROPRIATE CARE. PROTECT SIP CORNERS AND AVOID LIFTING SIPS BY EDGE OF TOP FACING.
2. STORE SIPS AND ACCESSORIES A MINIMUM OF 3 INCHES ABOVE GROUND/SURFACE. SUPPORT SIPS FLAT ON MINIMUM OF 3" WIDE STICKERS WITH LENGTH EQUAL TO THE WIDTH OF THE SIPS WITH STICKERS PLACED NO FURTHER THAN FOUR FEET ON CENTER, OR EQUIVALENT.
3. PROTECT SIPS AND ACCESSORIES FROM WEATHER WITH BREATHABLE OPAQUE, WHITE, OR LIGHT-COLORED COVERING. IMPORTANT! DO NOT USE CLEAR OR COLORED PLASTIC FILMS TO COVER SIPS. KEEP SIPS COVERED TO AVOID EXPOSURE TO WEATHER FOR AN EXTENDED PERIOD OF TIME. EXPOSURE TO MOISTURE CAN CAUSE WOOD PRODUCTS TO SWELL MAKING INSTALLATION MORE DIFFICULT. PROTECT SIPS FROM WEATHER AS SOON AS PRACTICAL AFTER INSTALLATION.
4. INSTALL FASTENERS FLUSH TO SIP FACING SURFACE. BE SURE NOT TO OVERDRIVE SCREW HEADS INTO SIP FACINGS.
5. IF FIELD CUTTING OPENINGS BE SURE THAT THE EDGE OF THE OPENING CUTS STOP AT A COMMON CORNER. CONTINUATION OF THE CUT PAST THE CORNER SIGNIFICANTLY DECREASES THE STRUCTURAL CAPACITY OF THE SIP.
6. PROVIDE LEVEL AND SQUARE FOUNDATIONS AND/OR SUPPORTING FLOORS. REMOVE DEBRIS FROM SILL PLATE BEFORE SIP INSTALLATION.
7. INSTALL SIPS IN ACCORDANCE WITH APPROVED DRAWINGS. DOUBLE CHECK SIP SIZES AND ELECTRICAL CHASE ORIENTATION WITH SIP SHOP DRAWINGS BEFORE INSTALLATION.
8. DETAILS SPECIFYING SIP TAPE AND SEALANT APPLICATION MUST BE FOLLOWED.
9. PROVIDE ADEQUATE BRACING OF SIPS DURING INSTALLATION.
10. FOLLOW PROPER NAILING REQUIREMENTS ACCORDING TO DETAILS AND JOB SPECIFIC ENGINEERING. BE SURE TO ADJUST YOUR NAIL GUN SO THAT NAIL HEAD IS FLUSH TO SIP FACINGS.
11. USE FACTORY PROVIDED ELECTRICAL CHASES IN SIP CORE OR SURFACE MOUNT CONDUIT. FACINGS SHOULD NOT BE CUT HORIZONTALLY OR VERTICALLY IF ADDITIONAL CHASES ARE REQUIRED. CONSULT YOUR SIPS REPRESENTATIVE TO DISCUSS OPTIONS.
12. MAKE SURE TO PRE-DRILL TOP AND BOTTOM PLATES FOR THE VERTICAL ELECTRICAL CHASES IN THE WALL SIPS. PRE-DRILL DRILL VERTICAL MEMBERS AT HORIZONTAL CHASE LOCATIONS.
13. SIPS CAN BE HEAVY. LIFT AND PLACE SIPS WITH APPROPRIATE EQUIPMENT.
14. WHEN USING 2X, ENGINEERED WOOD, OR I-JOIST SPLINES, USE ONLY CONTINUOUS MEMBERS; STRUCTURAL SPLINES MUST BE CONTINUOUS BETWEEN SUPPORTS.
15. PROVIDE APPROPRIATE BEARING FOR ROOF SIPS PER DETAILS.
16. BEFORE COVERING ROOF SYSTEM MAKE CERTAIN THAT OSB MOISTURE CONTENT OF TOP + BOTTOM FACINGS, AND SPLINE MATERIAL DOESN'T EXCEED APA MAXIMUM MOISTURE CONTENT RECOMMENDATIONS.
17. MAKE SURE SIPS ARE CLEAN AND DRY BEFORE APPLYING INTERIOR OR EXTERIOR MATERIALS.
18. ALL SIP ROOF PENETRATIONS SHOULD BE REVIEWED BY A LICENSED STRUCTURAL ENGINEER.
19. USE CODE RECOGNIZED FLASHINGS AND EXTERIOR WALL AND ROOF COVERINGS.
20. USE CODE RECOGNIZED THERMAL BARRIERS ON INTERIOR PER BUILDING CODES.
21. PLUMBING SHOULD NOT BE INSTALLED WITHIN SIPS; SEE PBS-112 AND PBS-111 FOR ALTERNATIVES.
22. FILL ALL VOIDS WITH LOW EXPANDING FOAM COMPATIBLE WITH EPS.
23. SIP STRUCTURES SHOULD BE REVIEWED BY A LICENSED STRUCTURAL ENGINEER. SIP SUPPLIER IS NOT RESPONSIBLE FOR ERRORS IN DESIGN OR ENGINEERING.
24. ENGINEERED DETAILS TAKE PRECEDENCE OVER GENERIC DETAILS.
25. PROJECT MUST MEET LOCAL CODE.
26. FIELD MODIFICATIONS TO SIPS, SUCH AS OPENINGS AND PENETRATIONS, SHOULD BE REVIEWED BY A LICENSED STRUCTURAL ENGINEER.

N.T.S. Rev: 3/31/2022

PBS - 101B | SIP BEST PRACTICES NOTES | PREMIER SIPS

NOTES:

1. SIPS ARE AVAILABLE IN THICKNESSES FROM 4-1/2" THROUGH 12-1/4".
2. SIPS ARE SIZED TO USE STANDARD 2X LUMBER PLATING DIMENSIONS + 1/8" TO ACCOMMODATE LUMBER MILL VARIATIONS.
3. SIP CORE THICKNESS WILL NEVER CHANGE. STANDARD FACINGS ARE 7/16" OSB ON BOTH SIDES.



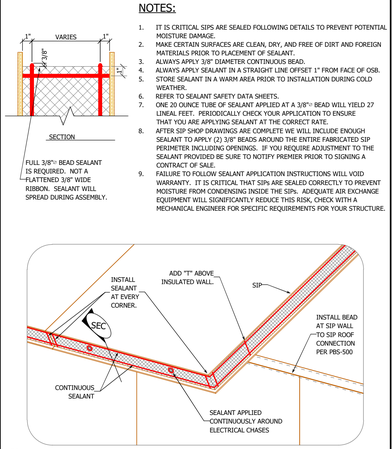
* SIP THICKNESSES ARE NOMINAL INCHES

N.T.S. Rev: 4/7/2022

PBS - 102 | SIP THICKNESS AND R-VALUE | PREMIER SIPS

NOTES:

1. IT IS CRITICAL SIPS ARE SEALED FOLLOWING DETAILS TO PREVENT POTENTIAL MOISTURE DAMAGE.
2. MAKE CERTAIN SURFACES ARE CLEAN, DRY, AND FREE OF DIRT AND FOREIGN MATERIALS PRIOR TO PLACEMENT OF SEALANT.
3. ALWAYS APPLY 3/8" DIAMETER CONTINUOUS BEAD.
4. ALWAYS APPLY SEALANT IN A STRAIGHT LINE OFFSET 1" FROM FACE OF OSB.
5. STORE SEALANT IN A WARM AREA PRIOR TO INSTALLATION DURING COLD WEATHER.
6. REFER TO SEALANT SAFETY DATA SHEETS.
7. ONE 20 OUNCE TUBE OF SEALANT APPLIED AT A 3/8"= BEAD WILL YIELD 27 LINEAL FEET. PERIODICALLY CHECK YOUR APPLICATION TO ENSURE THAT YOU ARE APPLYING SEALANT AT THE CORRECT RATE.
8. AFTER SIP SHOP DRAWINGS ARE COMPLETE WE WILL INCLUDE ENOUGH SEALANT TO APPLY (2) 3/8" BEADS AROUND THE ENTIRE FABRICATED SIP PERIMETER INCLUDING OPENINGS. IF YOU REQUIRE ADJUSTMENT TO THE SEALANT PROVIDED BE SURE TO NOTIFY PREMIER PRIOR TO SIGNING A CONTRACT OF SALE.
9. FAILURE TO FOLLOW SEALANT APPLICATION INSTRUCTIONS WILL VOID WARRANTY. IT IS CRITICAL THAT SIPS ARE SEALED CORRECTLY TO PREVENT MOISTURE FROM CONDENSING INSIDE THE SIPs. ADEQUATE AIR EXCHANGE EQUIPMENT WILL SIGNIFICANTLY REDUCE THIS RISK, CHECK WITH A MECHANICAL ENGINEER FOR SPECIFIC REQUIREMENTS FOR YOUR STRUCTURE.



N.T.S. Rev: 7/27/2021

PBS - 104 | SIP SEALANT APPLICATION ROOF | PREMIER SIPS

NOTES:

SURFACE PREPARATION

ALL SURFACES MUST BE CLEAN, DRY AND FREE OF DUST, DIRT, GREASE, OIL, AND ANY OTHER CONTAMINANTS THAT MAY INTERFERE WITH ADHESION. SURFACE TEMPERATURE OF THE SIP TAPE BEING APPLIED MUST BE 20° F OR WARMER.

TAPE INSTALLATION

POSITION SIP TAPE SO THAT IT IS CENTERED OVER SIP JOINT. WHILE UNROLLING SIP TAPE ALONG CENTER LINE OF SIP JOINT, REMOVE RELEASE FILM AT A 45° ANGLE AND CONTINUE TO PRESS SIP TAPE INTO PLACE. TO ENSURE A TIGHT SEAL AND MINIMIZE AIR BUBBLES AND WRINKLES, SIP TAPE MUST BE PRESSED FIRMLY BY HAND AT THE CENTER, WORKING OUTWARD WITH A SMOOTHING MOTION TO THE EDGES. A ROLLER OR SIMILAR TOOL MUST THEN BE USED TO ROLL OVER THE ENTIRE SIP TAPE SURFACE TO FIRMLY MATE TO SIP SURFACE.

OVERLAPS AND "T" JOINTS

TAPE FOR SIP TO SIP CORNERS AND SIP JOINTS OVER BEAMS SHOULD BE INSTALLED BEFORE IN PLANE SIP JOINTS. OVERLAP TAPE A MINIMUM OF 3" AT "T" JOINTS AND WHEN CONTINUING A SEAM TO INSURE AN AIRTIGHT SEAL.

NOTE: SIP TAPE IS TYPICALLY NOT PROVIDED FOR SIP FLOOR SPLINE OR SIP FLOOR TO SIP WALL CONNECTIONS. HOWEVER, IF GYPCRETE IS TO BE APPLIED TO TOP OF SIP FLOOR WE DO RECOMMEND THE APPLICATION OF 4" SIP TAPE AT ALL JOINTS. PLEASE CONTACT YOUR PBS REPRESENTATIVE TO REQUEST THE ADDITION OF SIP TAPE IF DESIRED.

REFERENCE ACCOMPANYING APPLICATION SEQUENCE DETAIL FOR ADDITIONAL INSTRUCTIONS.

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JAN. 20, 2023

N.T.S. Rev: 3/31/2022

PBS - 105 | SIP TAPE APPLICATION NOTES | PREMIER SIPS

NOTE:

PRIOR TO ANY INTERIOR SIP TAPE APPLICATION, ALL EXTERIOR ROOF AND WALL SURFACES MUST HAVE WEATHER RESISTANT BARRIERS APPLIED TO ROOF AND WALLS. SIP TAPE SHALL BE INSTALLED EITHER INTERIOR OR EXTERIOR BASED ON CODE REQUIREMENTS AND LOCAL CLIMATE CONDITIONS. REFER TO PBS-105B FOR EXTERIOR APPLICATION.

TAPE APPLICATION SEQUENCE:

1. APPLY TAPE TO JOINTS OVER BEAMS

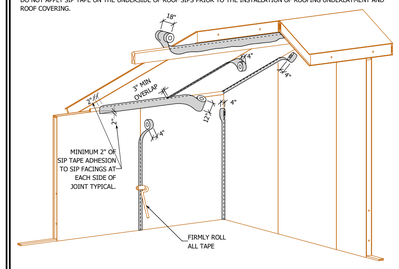
ROLL OUT TAPE CENTERED OVER BEAM PRIOR TO SIP INSTALLATION AND SECURE TEMPORARILY WITH STAPLES. AFTER SIPS ARE INSTALLED AND SECURED OVER TAPE, REMOVE BACKING, PRESS FIRMLY INTO PLACE, AND FIRMLY ROLL.

2. INSTALL SIPS

IF RAIN IS OCCURRING AT TIME OF SIP ROOF INSTALLATION RUN A BEAD OF SEALANT AT EXTERIOR SIP JOINT TO PREVENT MOISTURE PENETRATION INTO SPLINE JOINT. IF YOU BELIEVE RAIN WILL BE LIKELY DURING INSTALLATION CONTACT YOUR SIP REPRESENTATIVE TO PURCHASE ADDITIONAL SEALANT.

3. APPLY SIP TAPE TO WALLS AND ROOF SIPS

DO NOT APPLY SIP TAPE ON THE UNDERSIDE OF ROOF SIPS PRIOR TO THE INSTALLATION OF ROOFING UNDERLAYMENT AND ROOF COVERING.

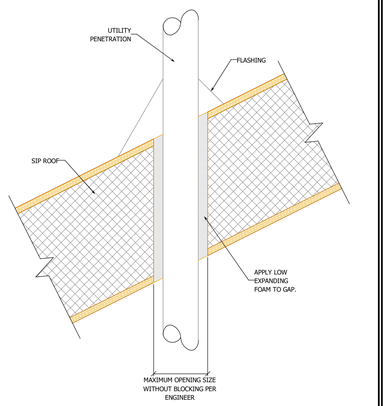


N.T.S. Rev: 7/27/2021

PBS - 105A | SIP TAPE APPLICATION INTERIOR | PREMIER SIPS

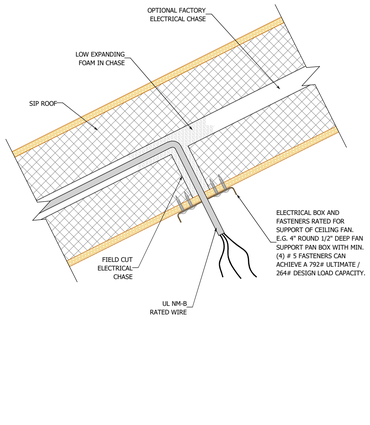
NOTES:

PROTECT SIP CORE FROM TEMPERATURES OF 160°F OR ABOVE. USE ZERO CLEARANCE INSULATING MATERIAL DESIGNED FOR HIGH TEMPS AS REQUIRED.



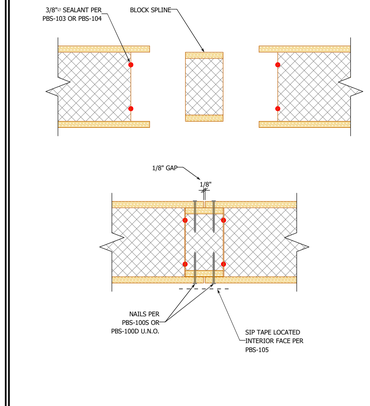
N.T.S. Rev: 7/27/2021

PBS - 114 | SIP ROOF PENETRATIONS | PREMIER SIPS



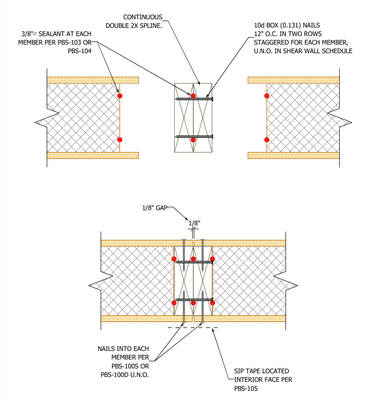
N.T.S. Rev: 7/27/2021

PBS - 115 | CEILING FAN ATTACHMENT | PREMIER SIPS



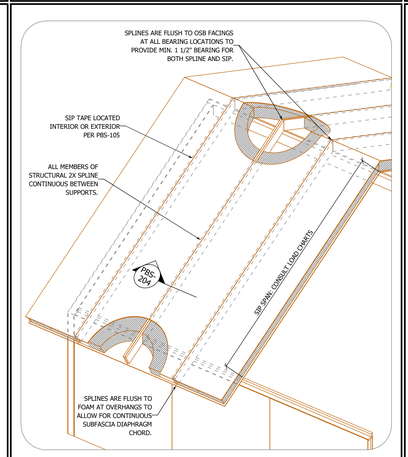
N.T.S. Rev: 7/18/2022

PBS - 200 | TYPE S (BLOCK) SPLINE | PREMIER SIPS



N.T.S. Rev: 7/18/2022

PBS - 204 | 2X SPLINE | PREMIER SIPS

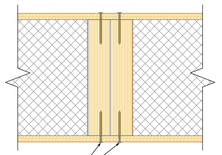


N.T.S. Rev: 7/18/2022

PBS - 205 | 2X SIP CONNECTION | PREMIER SIPS

NOTES:

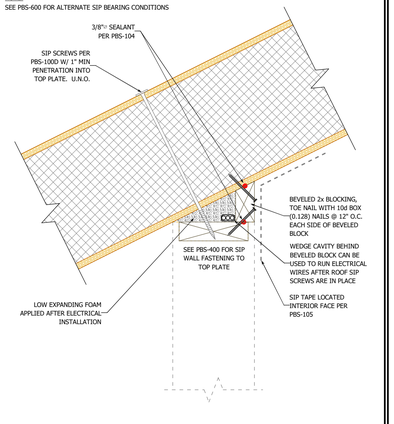
LSL WILL BE SECURED WITH SINGLE NAIL IN FACTORY PRIOR TO SHIPMENT. INSTALLER IS RESPONSIBLE FOR NAILING OFF EMBEDDED LSL PER PLAN IN THE FIELD PRIOR TO SIP PLACEMENT TO PREVENT SPLINE FROM SLIDING OUT OF SIP DURING LIFT.



N.T.S. Rev: 7/19/2022

PBS - 207 | EMBEDDED LSL SPLINE | PREMIER SIPS

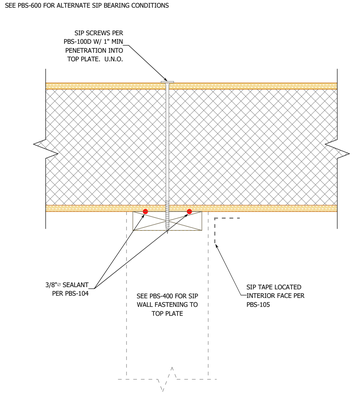
NOTE:
SEE PBS-600 FOR ALTERNATE SIP BEARING CONDITIONS



N.T.S. Rev: 7/27/2021

PBS - 500 | SIP WALL TO ROOF BEVELED BLOCK | PREMIER SIPS

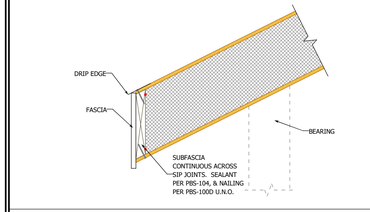
NOTE:
SEE PBS-600 FOR ALTERNATE SIP BEARING CONDITIONS



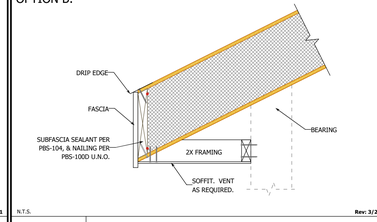
N.T.S. Rev: 7/27/2021

PBS - 502 | SIP WALL TO ROOF GABLE OVERHANG | PREMIER SIPS

OPTION A:



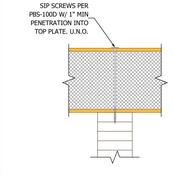
OPTION B:



N.T.S. Rev: 3/21/2022

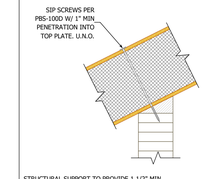
PBS - 506 | SIP EAVE PLUMB CUT SIP | PREMIER SIPS

OPTION A:



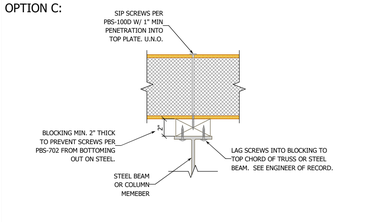
STRUCTURAL SUPPORT TO PROVIDE 1 1/2" MIN. BEARING FOR SIP

OPTION B:



STRUCTURAL SUPPORT TO PROVIDE 1 1/2" MIN. BEARING FOR SIP

OPTION C:

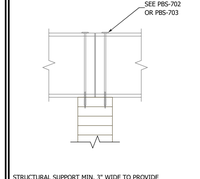


STRUCTURAL SUPPORT TO PROVIDE 1 1/2" MIN. BEARING FOR SIP

N.T.S. Rev: 7/27/2021

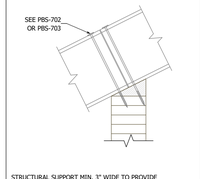
PBS -600A-C | SIP BEARING CONDITIONS CONTINUOUS SIP | PREMIER SIPS

OPTION A:



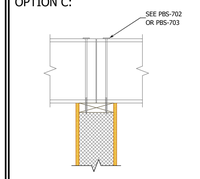
STRUCTURAL SUPPORT MIN. 3" WIDE TO PROVIDE 1 1/2" MIN. BEARING FOR EACH ROOF SIP

OPTION B:



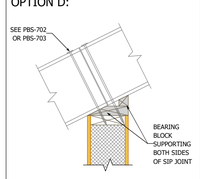
STRUCTURAL SUPPORT MIN. 3" WIDE TO PROVIDE 1 1/2" MIN. BEARING FOR EACH ROOF SIP

OPTION C:



STRUCTURAL SUPPORT MIN. 3" WIDE TO PROVIDE 1 1/2" MIN. BEARING FOR EACH ROOF SIP

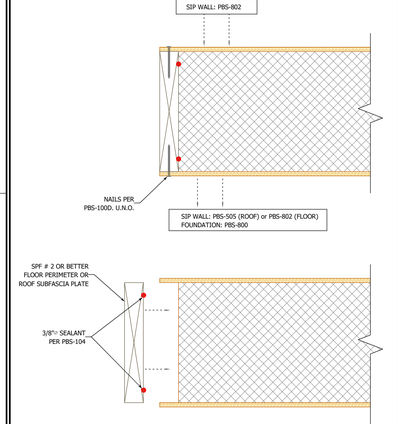
OPTION D:



STRUCTURAL SUPPORT MIN. 3" WIDE TO PROVIDE 1 1/2" MIN. BEARING FOR EACH ROOF SIP

N.T.S. Rev: 7/27/2021

PBS -601A-D | SIP BEARING CONDITIONS SIP JOINT | PREMIER SIPS



N.T.S. Rev: 7/7/2022

PBS - 700 | SIP FLOOR/ROOF PLATE | PREMIER SIPS

NOTE: STANDARD DETAILS PROVIDED FOR TYPICAL INSTALLATION METHODS. REFERENCE ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR SPECIFIC CONNECTION DETAILS, WHICH TAKE PRECEDENT OVER THESE DETAILS. FOLLOW PBS-103/104 FOR PROPERLY SEALING ALL SIPS.

PREMIER SIPS
BIG SKY INSULATIONS, INC.
dba PREMIER BUILDING SYSTEMS
P.O. Box 838 | 15 Arden Drive
BELGRADE, MT 59714
406-388-4146

DRAWN BY: SDK
DATE: 10/07/2022

REVISIONS
REVISION TYPES
C-REV: Customer Revision
E-REV: Engineer Revision
P-REV: Premier Revision

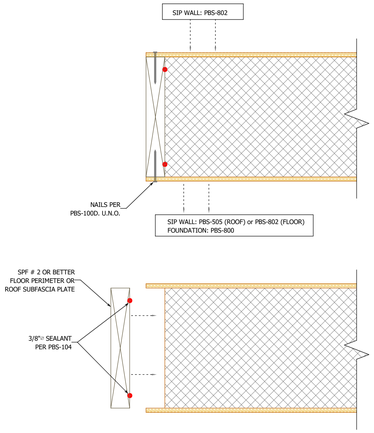
#	DATE	DRAFTER	TYPE
1.	10/24/2022	JD	C-REV
2.	11/11/2022	JD	C-REV
3.	12/07/2022	JD	E-REV
4.	12/09/2022	EE	C-REV
5.	01/16/2023	EE	E&C-REV
6.	01/19/2023	DRK	E-REV

DETAILS

VAIL PASS REST AREA PHASE II
MILE MARKER 190 INTERSTATE 70
VAIL, CO 80443

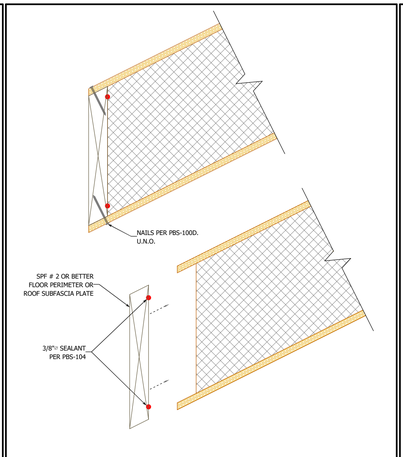
PBS PROJECT NO:
531359

601



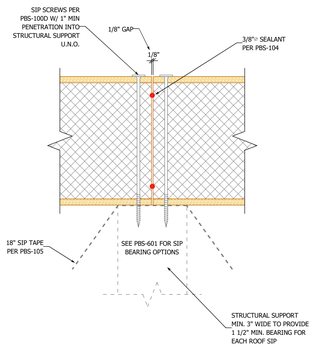
N.T.S. Rev: 7/7/2022

PBS - 700 | SIP FLOOR/ROOF PLATE | PREMIER SIPS



N.T.S. Rev: 7/7/2022

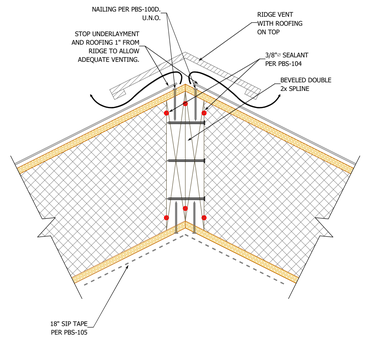
PBS - 701 | BEVELED ROOF PLATE | PREMIER SIPS



N.T.S. Rev: 7/7/2022

PBS - 702 | FLUSH FOAM ABOVE BEARING | PREMIER SIPS

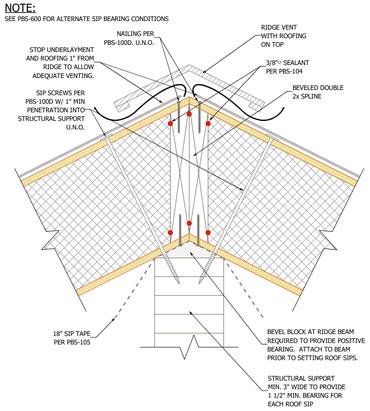
NOTE:
THIS DETAIL IS ONLY PERMITTED IN SITUATIONS WHERE THE SIP IS SPANNING PARALLEL TO THE RIDGE. E.G. BEARING ON TRUSSES, OR RAFTERS.



N.T.S. Rev: 7/7/2022

PBS - 711 | ROOF RIDGE SIPS SPANNING PARALLEL TO RIDGE | PREMIER SIPS

NOTE:
SEE PBS-600 FOR ALTERNATE SIP BEARING CONDITIONS



N.T.S. Rev: 7/7/2022

PBS - 715 | ROOF RIDGE / HIP BEVEL CUT | PREMIER SIPS

NOTE: STANDARD DETAILS PROVIDED FOR TYPICAL INSTALLATION METHODS. REFERENCE ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR SPECIFIC CONNECTION DETAILS, WHICH TAKE PRECEDENT OVER THESE DETAILS. FOLLOW PBS-103/104 FOR PROPERLY SEALING ALL SIPS.

FOR APPROVAL ONLY
REVISE AND RESUBMIT
JAN. 20, 2023

PREMIER SIPS

BIG SKY INSULATIONS, INC.
dba PREMIER BUILDING SYSTEMS
P.O. Box 838 | 15 Arden Drive
BELGRADE, MT 59714
406-388-4146

DRAWN BY: SDK
DATE: 10/07/2022

REVISIONS
REVISION TYPES
C-REV: Customer Revision
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#	DATE	DRAFTER	TYPE
1.	10/24/2022	JD	C-REV
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3.	12/07/2022	JD	E-REV
4.	12/09/2022	EE	C-REV
5.	01/16/2023	EE	E&C-REV
6.	01/19/2023	DRK	E-REV

DETAILS

VAIL PASS REST AREA PHASE II
MILE MARKER 190 INTERSTATE 70
VAIL, CO 80443

PBS PROJECT NO:
531359

602

R:\JOBS\current-3\work\531359 - VAIL PASS REST AREA PHASE II\Drawings\531359\

Calculations

ANCHOR ENGINEERING
STRUCTURAL ENGINEERS

STRUCTURAL CALCULATIONS

FOR

Vail Pass Rest Area Phase II

LOCATED IN

Mile Marker 190, Interstate 70
Vail, CO 80443

January 25, 2023

PROJECT ENGINEERS:	*Bryan Prosinski, P.E., S.E.*
REVIEW ENGINEER:	*Jason E. Stebbins, P.E.*
PROJECT NUMBER:	*220002*

Structural analysis contained herein pertains to the shop drawings dated 11/11/2022, with additional AEI comments, noted in red.

❖ 2535 17TH STREET, SUITE A, DENVER, CO 80211 ❖ 303-783-4797 ❖ 303-830-9133 FAX ❖

Load Development

Anchor Engineering, Inc.
2535 17th Street
Denver, CO 80211
303.783.4797

JOB TITLE	Vail Pass Rest Area Phase II		
JOB NO.	220002	**SHEET NO.**	
CALCULATED BY	BDP	**DATE**	11/21/22
CHECKED BY	JES	**DATE**	11/21/22

STRUCTURAL CALCULATIONS

FOR

Vail Pass Rest Area Phase II

Anchor Engineering, Inc.
2535 17th Street
Denver, CO 80211
303.783.4797

JOB TITLE	Vail Pass Rest Area Phase II		
JOB NO.	220002	**SHEET NO.**	
CALCULATED BY	BDP	**DATE**	11/21/22
CHECKED BY	JES	**DATE**	11/21/22

www.struware.com

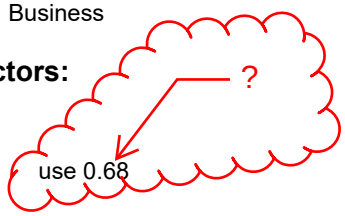
Code Search

Code: International Building Code 2018

Occupancy:

Occupancy Group = B Business

Risk Category & Importance Factors:



Risk Category =	II	
Wind factor =	1.00	use 0.68
Snow factor =	1.00	
Seismic factor =	1.00	

Type of Construction:

Fire Rating:

Roof =	0.0 hr
Floor =	0.0 hr

Building Geometry:

Roof angle (θ)	6.00 / 12	26.6 deg
Building length	140.0 ft	
Least width	60.0 ft	
Mean Roof Ht (h)	22.5 ft	
Parapet ht above grd		
Minimum parapet ht		

Live Loads:

Roof 0 to 200 sf: 18 psf
200 to 600 sf: 21.6 - 0.018Area, but not less than 12 psf
over 600 sf: 12 psf

N/A

Floor:

Typical Floor	N/A
Partitions	N/A
Partitions	N/A
Partitions	N/A
Partitions	N/A
Partitions	N/A

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CHECKED BY	JES	**DATE**	11/21/22

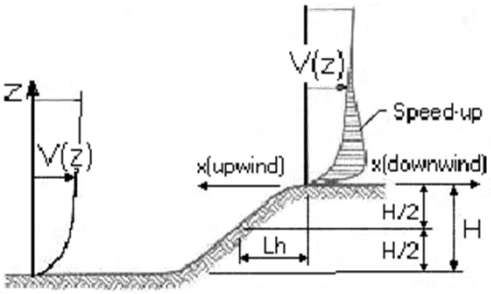
Wind Loads : ASCE 7- 16

Ultimate Wind Speed	115 mph
Nominal Wind Speed	89.1 mph
Risk Category	II
Exposure Category	C
Enclosure Classif.	Enclosed Building
Internal pressure	+/-0.18
Directionality (Kd)	0.85
Kh case 1	0.925
Kh case 2	0.925
Type of roof	Gable

Topographic Factor (Kzt)

Topography		Flat
Hill Height	(H)	
Half Hill Length	(Lh)	
Actual H/Lh	=	0.00
Use H/Lh	=	0.00
Modified Lh	=	0.0 ft
From top of crest: x =		
Bldg up/down wind?		downwind

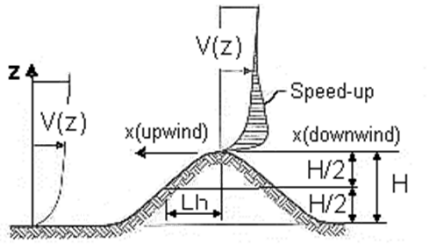
H< 15ft;exp C
∴ Kzt=1.0



ESCARPMENT

H/Lh= 0.00 K_1 = 0.000
x/Lh = 0.00 K_2 = 0.000
z/Lh = 0.00 K_3 = 1.000

At Mean Roof Ht:
Kzt = $(1+K_1K_2K_3)^2$ = 1.00



2D RIDGE or 3D AXISYMMETRICAL HILL

Gust Effect Factor

h =	22.5 ft
B =	60.0 ft
/z (0.6h) =	15.0 ft

Flexible structure if natural frequency < 1 Hz (T > 1 second).
If building h/B>4 then may be flexible and should be investigated.
h/B = 0.38 Rigid structure (low rise bldg)

G = 0.85 Using rigid structure formula

Rigid Structure

$\bar{e}$ =	0.20
ℓ =	500 ft
z_{min} =	15 ft
c =	0.20
g_Q, g_v =	3.4
L_z =	427.1 ft
Q =	0.90
I_z =	0.23
G =	**0.87** use G = 0.85

Flexible or Dynamically Sensitive Structure

Natural Frequency (η_1) =	0.0 Hz				
Damping ratio (β) =	0				
/b =	0.65				
/α =	0.15				
Vz =	97.1				
N_1 =	0.00				
R_n =	0.000				
R_h =	28.282	η =	0.000	h =	22.5 ft
R_B =	28.282	η =	0.000		
R_L =	28.282	η =	0.000		
g_R =	0.000				
R =	0.000				
Gf =	0.000				

Anchor Engineering, Inc.
2535 17th Street
Denver, CO 80211
303.783.4797

JOB TITLE Vail Pass Rest Area Phase II

JOB NO. 220002 **SHEET NO.**
CALCULATED BY BDP **DATE** 11/21/22
CHECKED BY JES **DATE** 11/21/22

Enclosure Classification

Test for Enclosed Building: Ao < 0.01Ag or 4 sf, whichever is smaller

Test for Open Building: All walls are at least 80% open.
Ao ≥ 0.8Ag

Test for Partially Enclosed Building: Predominately open on one side only

	Input			Test	
Ao		sf	Ao ≥ 1.1Aoi		
Ag		sf	Ao > 4' or 0.01Ag		
Aoi		sf	Aoi / Agi ≤ 0.20	NO	Building is NOT Partially Enclosed
Agi		sf			

ERROR: Must enter value in all cells

Conditions to qualify as Partially Enclosed Building. Must satisfy all of the following:
Ao ≥ 1.1Aoi
Ao > smaller of 4' or 0.01 Ag
Aoi / Agi ≤ 0.20
Where:
Ao = the total area of openings in a wall that receives positive external pressure.
Ag = the gross area of that wall in which Ao is identified.
Aoi = the sum of the areas of openings in the building envelope (walls and roof) not including Ao.
Agi = the sum of the gross surface areas of the building envelope (walls and roof) not including Ag.

Test for Partially Open Building: A building that does not qualify as open, enclosed or partially enclosed.
(This type building will have same wind pressures as an enclosed building.

Reduction Factor for large volume partially enclosed buildings (Ri) :

If the partially enclosed building contains a single room that is unpartitioned , the internal pressure coefficient may be multiplied by the reduction factor Ri.

Total area of all wall & roof openings (Aog): 0 sf
Unpartitioned internal volume (Vi) : 0 cf
Ri = 1.00

Ground Elevation Factor (Ke)

Grd level above sea level = 0.0 ft Ke = 1.0000
Constant = 0.00256 Adj Constant = 0.00256

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CHECKED BY	JES	**DATE**	11/21/22

Wind Loads - MWFRS all h (Except for Open Buildings)

Kh (case 2) =	0.92			GCpi =	+/-0.18
Base pressure (q_h) =	**18.1 psf**	Bldg dim parallel to ridge =	140.0 ft	G =	0.85
Roof Angle (θ) =	26.6 deg	Bldg dim normal to ridge =	60.0 ft	qi = qh	
Roof tributary area:		h =	22.5 ft		
Wind normal to ridge =(h/2)*L:	1575 sf	ridge ht =	26.5 ft		
Wind parallel to ridge =(h/2)*L:	675 sf				

Ultimate Wind Surface Pressures (psf)

	Wind Normal to Ridge				Wind Parallel to Ridge				
	L/B = 0.43		h/L = 0.38		L/B = 2.33		h/L = 0.16		
Surface	Cp	q_hGC_p	w/+q_iGC_{pi}	w/-q_hGC_{pi}	Dist.*	Cp	q_hGC_p	w/ +q_iGC_{pi}	w/ -q_hGC_{pi}
Windward Wall (WW)	0.80	12.3	see table below			0.80	12.3	see table below	
Leeward Wall (LW)	-0.50	-7.7	-11.0	-4.4		-0.28	-4.4	-7.6	-1.1
Side Wall (SW)	-0.70	-10.8	-14.1	-7.5		-0.70	-10.8	-14.1	-7.5
Leeward Roof (LR)	-0.60	-9.3	-12.5	-6.0		Included in windward roof			
Neg Windward Roof pressure	-0.23	-3.6	-6.9	-0.3	0 to h/2*	-0.90	-13.9	-17.1	-10.6
Pos/min Windward Roof press.	0.25	3.9	0.6	7.1	h/2 to h*	-0.90	-13.9	-17.1	-10.6
					h to 2h*	-0.50	-7.7	-11.0	-4.4
					> 2h*	-0.30	-4.6	-7.9	-1.4
					Min press.	-0.18	-2.8	-6.0	0.5

*Horizontal distance from windward edge

NOTE: The code requires the MWFRS be designed for minimum ultimate force of 16 psf multiplied by the wall area plus an 8 psf force applied to the vertical projection of the roof.

Parapet

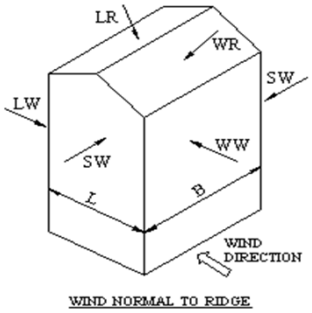
z	Kz	Kzt	qp (psf)
0.0 ft	0.85	1.00	0.0

Windward parapet: 0.0 psf (GCpn = +1.5)
Leeward parapet: 0.0 psf (GCpn = -1.0)

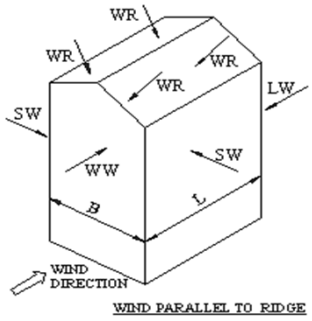
Windward roof overhangs : 12.3 psf (upward - add to windward roof pressure)

Windward Wall Pressures at "z" (psf)

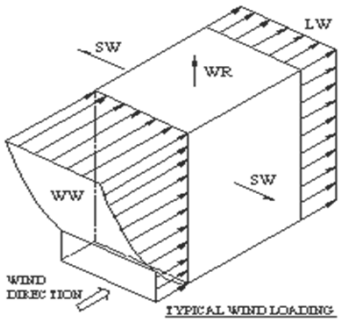
				Windward Wall			Combined WW + LW	
	z	Kz	Kzt	q_zGC_p	w/+q_iGC_{pi}	w/-q_hGC_{pi}	Wind Normal to Ridge	Wind Parallel to Ridge
	0 to 15'	0.85	1.00	11.3	8.1	14.6	19.0	15.7
	20.0 ft	0.90	1.00	12.0	8.8	15.3	19.7	16.4
h=	22.5 ft	0.92	1.00	12.3	9.1	15.6	20.0	16.7
ridge =	26.5 ft	0.96	1.00	12.8	9.5	16.0	20.5	17.1



WIND NORMAL TO RIDGE

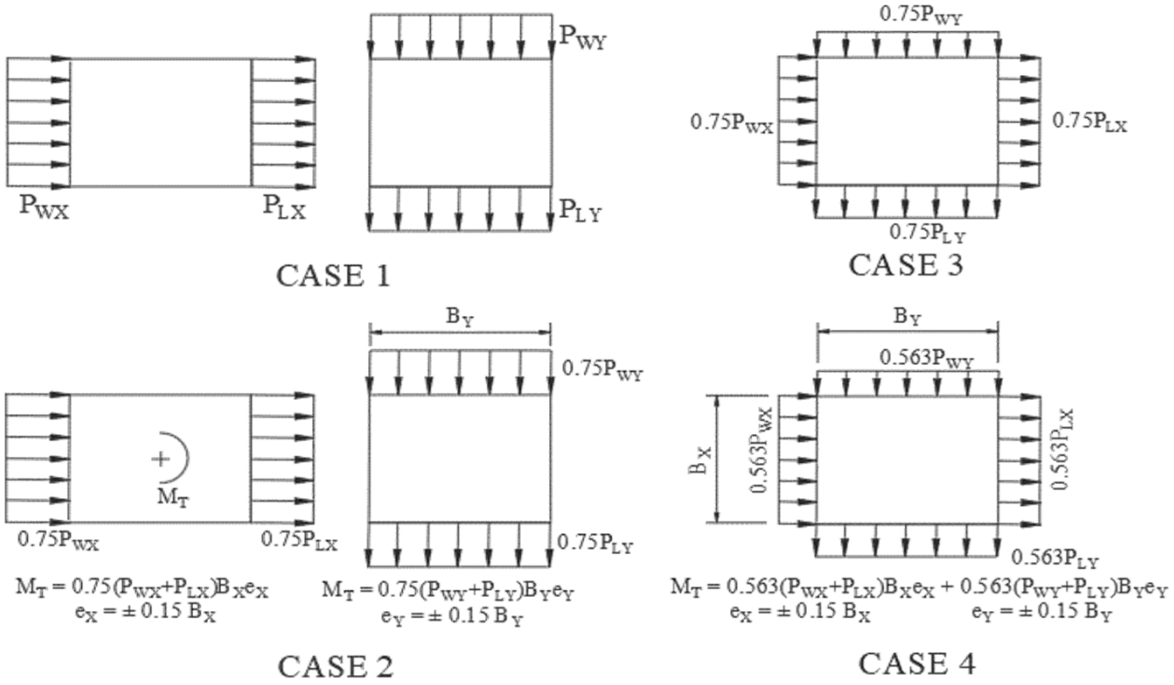


WIND PARALLEL TO RIDGE



TYPICAL WIND LOADING

NOTE: ASCE 7 requires the application of full and partial loading of the wind pressures per the 4 cases below.



Wind Forces at Floors

Building dimension (parallel with ridge) = 140.0 ft e = 21.00 ft

Total Floors = 1 Building dimension (normal to ridge) = 60.0 ft e = 9.00 ft

T/Fdn (dist below grade) = 2.0 ft L is the building dimension parallel to the wind direction

	Elevation	Height of	Wind Normal to Ridge						Wind Parallel to Ridge			
Level	Above Grade (ft)	Centroid to Fdn (ft)	L	B	Area (sf)	Applied Force (k)	Story Shear (k)	Overturning Moment ('k)	Area	Applied Force (k)	Story Shear (k)	Overturning Moment ('k)
Equip,etc		0.00	wind on equip, screenwalls, etc =					0.0				
Parapet	0.00	0.00				0.0		0.0		0.0		
T/Ridge		0.00			0.0	0.0		0.0	0.0	0.0		0.0
Roof	15.00	17.00	60.0	140.0	1,050.0	20.0	20.0	0.0	450.0	7.1	7.1	0.0
1	0.00	2.00	60.0	140.0	1,050.0	20.0	40.0	299.8	450.0	7.1	14.1	106.0
FDN		0.00						379.8				134.2

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JOB TITLE Vail Pass Rest Area Phase II

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CHECKED BY JES **DATE** 11/21/22

Ultimate Wind Pressures

Wind Loads - Components & Cladding : h ≤ 60'

Kh (case 2) =	0.92	h =	22.5 ft
Base pressure (qh) =	**18.1 psf**	a =	6.0 ft
Minimum parapet ht =	0.0 ft	GCpi =	+/-0.18
Roof Angle (θ) =	26.6 deg	qi = qh =	18.1 psf
Type of roof =	Gable		

Roof

	Surface Pressure (psf)									User input	
Area	2 sf	4 sf	10 sf	20 sf	50 sf	100 sf	150 sf	300 sf	350 sf	10 sf	150 sf
Negative Zone 1 & 2e	-30.5	-30.5	-30.5	-30.5	-26.2	-22.9	-21.0	-17.8	-17.8	-30.5	-21.0
Negative Zone 2n, 2r &3e	-48.6	-48.6	-48.6	-42.6	-34.6	-28.6	-25.0	-25.0	-25.0	-48.6	-25.0
Negative Zone 3r	-68.6	-68.6	-56.7	-47.8	-35.9	-35.9	-35.9	-35.9	-35.9	-56.7	-35.9
Positive All Zones	16	16	16	16	16.0	16.0	16.0	16.0	16.0	16.0	16.0
Overhang Zone 1 & 2e	-36.3	-36.3	-36.3	-36.3	-35.1	-34.1	-33.6	-32.7	-32.7	-36.3	-33.6
Overhang Zone 2n & 2r	-54.4	-54.4	-54.4	-50.7	-45.8	-42.1	-39.9	-39.9	-39.9	-54.4	-39.9
Overhang Zone 3e	-65.3	-65.3	-65.3	-56.5	-44.8	-36.0	-30.8	-30.8	-30.8	-65.3	-30.8
Overhang Zone 3r	-85.3	-85.3	-69.5	-57.5	-41.7	-41.7	-41.7	-41.7	-41.7	-69.5	-41.7

Overhang pressures in the table above assume an internal pressure coefficient (Gcpi) of 0.0
Overhang soffit pressure equals adj wall pressure (which includes internal pressure of 3.3 psf)

Parapet

qp = 0.0 psf

	Surface Pressure (psf)							User input
Solid Parapet Pressure	4 sf	10 sf	20 sf	50 sf	150 sf	300 sf	500 sf	20 sf
CASE A: Zone 2e :	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Zone 2n, 2r & 3e :	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Zone 3r :	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CASE B: Interior zone :	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Corner zone :	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Walls

	GCp +/- GCpi				Surface Pressure at h				User input	
Area	10 sf	100 sf	200 sf	500 sf	10 sf	100 sf	200 sf	500 sf	20 sf	55 sf
Negative Zone 4	-1.28	-1.10	-1.05	-0.98	-23.2	-20.0	-19.1	-17.8	-22.3	-20.9
Negative Zone 5	-1.58	-1.23	-1.12	-0.98	-28.7	-22.3	-20.3	-17.8	-26.7	-23.9
Positive Zone 4 & 5	1.18	1.00	0.95	0.88	21.4	18.2	17.2	16.0	20.4	19.0

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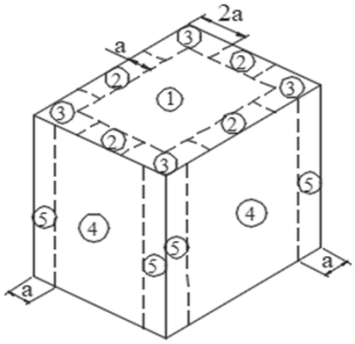
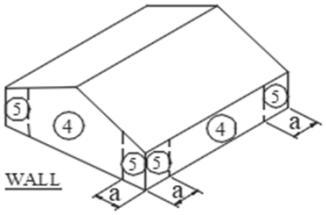
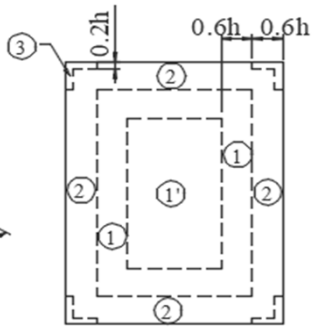
Location of C&C Wind Pressure Zones - ASCE 7-16



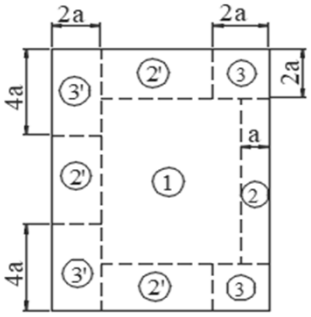
Roofs w/ θ ≤ 10°
and all walls
h > 60'



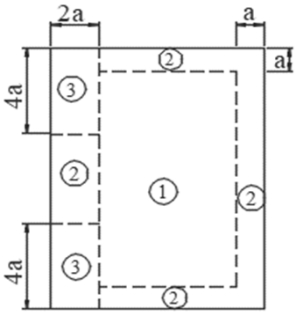
Walls h ≤ 60'
& alt design h<90'



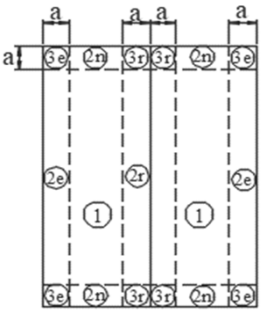
Gable, Sawtooth and
Multispan Gable θ ≤ 7 degrees &
Monoslope ≤ 3 degrees
h ≤ 60' & alt design h<90'



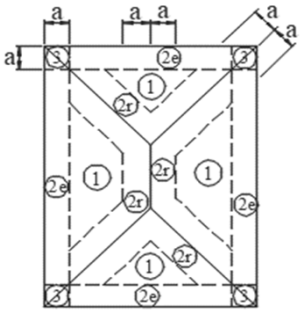
Monoslope roofs
3° < θ ≤ 10°
h ≤ 60' & alt design h<90'



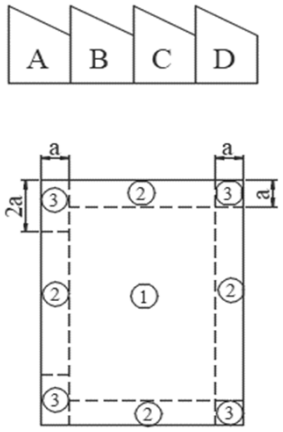
Monoslope roofs
10° < θ ≤ 30°
h ≤ 60' & alt design h<90'



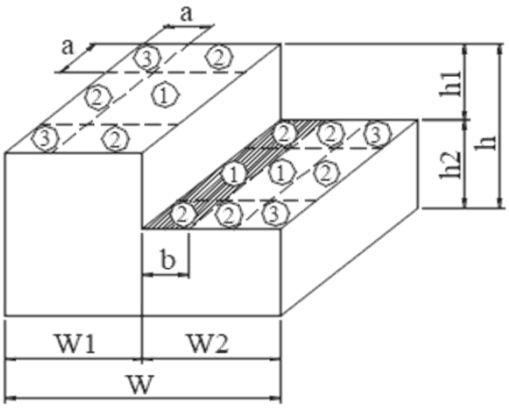
Multispan Gable &
Gable 7° < θ ≤ 45°



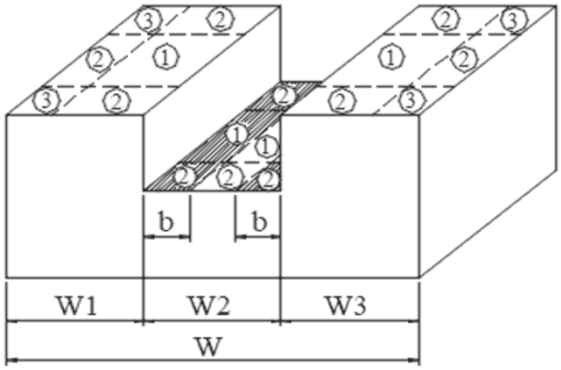
Hip 7° < θ ≤ 27°



Sawtooth 10° < θ ≤ 45°
h ≤ 60' & alt design h<90'



Stepped roofs θ ≤ 3°
h ≤ 60' & alt design h<90'



Note: The stepped roof zones above are as shown in ASCE 7-16 (except the upper roof zones 1 and 2 are shown at the inside edge per the notes). Prior editions didn't show zones, but the notes sent you to the low slope gable figure. The note in ASCE 7-16 still sends you to the low slope gable figure, but for some reasons the zones shown are per editions prior to ASCE 7-16. Therefore, the above zones may be a code mistake and the correct zone locations may be per the low slope gable roof shown at the top of this page.

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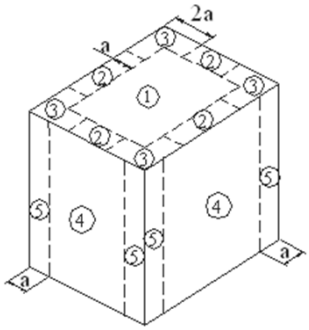
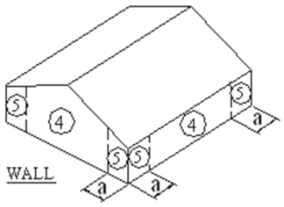
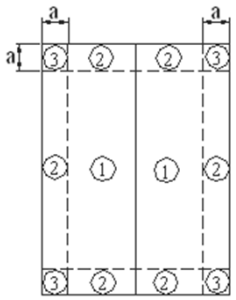
Location of C&C Wind Pressure Zones - ASCE 7-10 & earlier



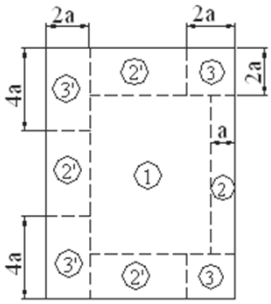
Roofs w/ θ ≤ 10°
and all walls
h > 60'



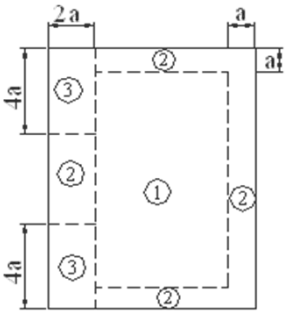
Walls h ≤ 60'
& alt design h<90'



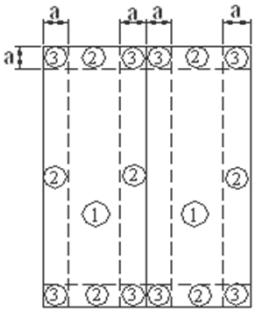
Gable, Sawtooth and
Multispan Gable θ ≤ 7 degrees &
Monoslope ≤ 3 degrees
h ≤ 60' & alt design h<90'



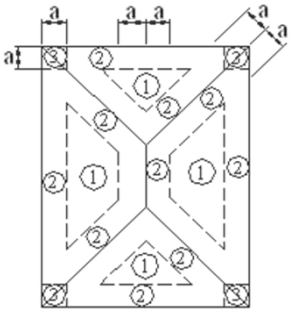
Monoslope roofs
3° < θ ≤ 10°
h ≤ 60' & alt design h<90'



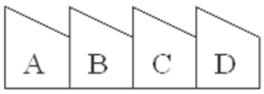
Monoslope roofs
10° < θ ≤ 30°
h ≤ 60' & alt design h<90'

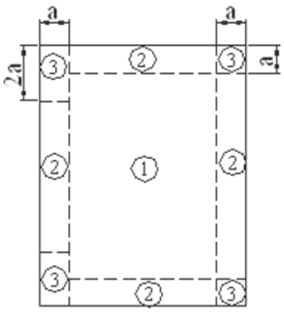


Multispan Gable &
Gable 7° < θ ≤ 45°

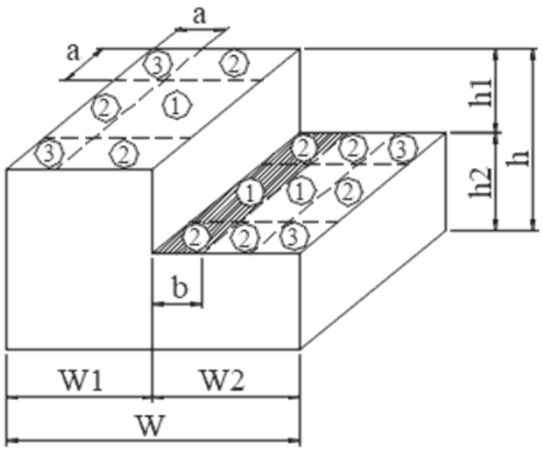


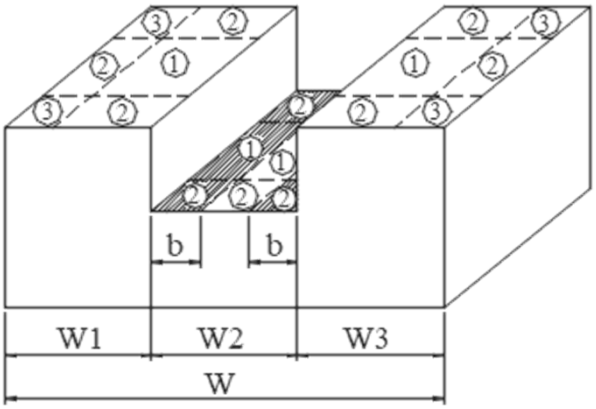
Hip 7° < θ ≤ 27°





Sawtooth 10° < θ ≤ 45°
h ≤ 60' & alt design h<90'





Stepped roofs θ ≤ 3°
h ≤ 60' & alt design h<90'

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Snow Loads : ASCE 7- 16

Nominal Snow Forces

Roof slope		=	26.6 deg
Horiz. eave to ridge dist (W)		=	30.0 ft
Roof length parallel to ridge (L)		=	140.0 ft
Type of Roof			Hip and gable w/ rafters
Ground Snow Load	Pg	=	190.0 psf
Risk Category		=	II
Importance Factor	I	=	1.0
Thermal Factor	Ct	=	1.00
Exposure Factor	Ce	=	1.0
Pf = 0.7*Ce*Ct*I*Pg		=	133.0 psf
Unobstructed Slippery Surface			no
Sloped-roof Factor	Cs	=	1.00
Balanced Snow Load		**=**	**133.0 psf**
Rain on Snow Surcharge Angle			0.60 deg
Code Maximum Rain Surcharge			5.0 psf
Rain on Snow Surcharge		=	0.0 psf
Ps plus rain surcharge		=	133.0 psf
Minimum Snow Load	Pm	=	0.0 psf
Uniform Roof Design Snow Load		=	**133.0 psf**

Near ground level surface balanced snow load = **190.0 psf**

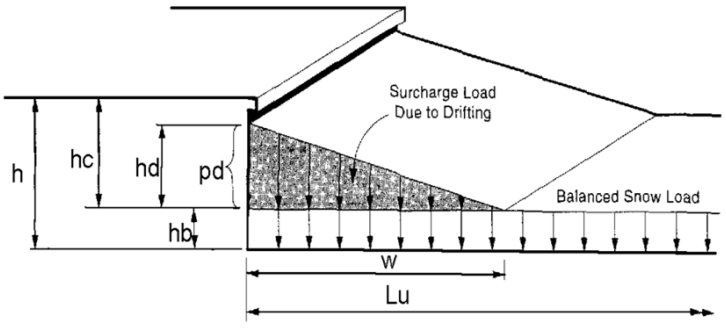
NOTE: Alternate spans of continuous beams shall be loaded with half the design roof snow load so as to produce the greatest possible effect - see code for loading diagrams and exceptions for gable roofs..

Unbalanced Snow Loads - for Hip & Gable roofs only

Required if slope is between 7 on 12 =	30.26 deg	
and 2.38 deg =	2.38 deg	**Unbalanced snow loads must be applied**
Windward snow load =	39.9 psf	= 0.3Ps
Leeward snow load from ridge to 13.29' =	207.8 psf	= hdγ / √S + Ps
Leeward snow load from 13.29' to the eave =	133.0 psf	= Ps

Windward Snow Drifts 1 - Against walls, parapets, etc

Up or downwind fetch	lu	=	0.0 ft
Projection height	h	=	0.0 ft
Projection width/length	lp	=	0.0 ft
Snow density	g	=	30.0 pcf
Balanced snow height	hb	=	4.43 ft
	hd	=	2.17 ft
	hc	=	-4.43 ft
hc/hb <0.2 = -1.0	**lp <15', drift not req'd**		
Drift height (hc)		=	0.00 ft
Drift width	w	=	-35.47 ft
Surcharge load:	pd = γ*hd	=	**0.0 psf**
Balanced Snow load:		=	133.0 psf
			133.0 psf



Windward Snow Drifts 2 - Against walls, parapets, etc

Up or downwind fetch	lu	=	0.0 ft
Projection height	h	=	0.0 ft
Projection width/length	lp	=	0.0 ft
Snow density	g	=	30.0 pcf
Balanced snow height	hb	=	4.43 ft
	hd	=	2.17 ft
	hc	=	-4.43 ft
hc/hb <0.2 = -1.0	**lp <15', drift not req'd**		
Drift height (hc)		=	0.00 ft
Drift width	w	=	-35.47 ft
Surcharge load:	pd = γ*hd	=	**0.0 psf**
Balanced Snow load:		=	133.0 psf
			133.0 psf

Note: If bottom of projection is at least 2 feet above hb then snow drift is not required.

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Snow Loads : ASCE 7- 16

Nominal Snow Forces

Roof slope		=	18.4 deg
Horiz. eave to ridge dist (W)		=	10.5 ft
Roof length parallel to ridge (L)		=	29.0 ft
Type of Roof			Hip and gable w/ rafters
Ground Snow Load	Pg	=	190.0 psf
Risk Category		=	II
Importance Factor	I	=	1.0
Thermal Factor	Ct	=	1.10
Exposure Factor	Ce	=	1.0
Pf = 0.7*Ce*Ct*I*Pg		=	146.3 psf
Unobstructed Slippery Surface			no
Sloped-roof Factor	Cs	=	1.00
Balanced Snow Load		=	**146.3 psf**
Rain on Snow Surcharge Angle			0.21 deg
Code Maximum Rain Surcharge			5.0 psf
Rain on Snow Surcharge		=	0.0 psf
Ps plus rain surcharge		=	146.3 psf
Minimum Snow Load	Pm	=	0.0 psf
Uniform Roof Design Snow Load		=	**146.3 psf**

Near ground level surface balanced snow load = **190.0 psf**

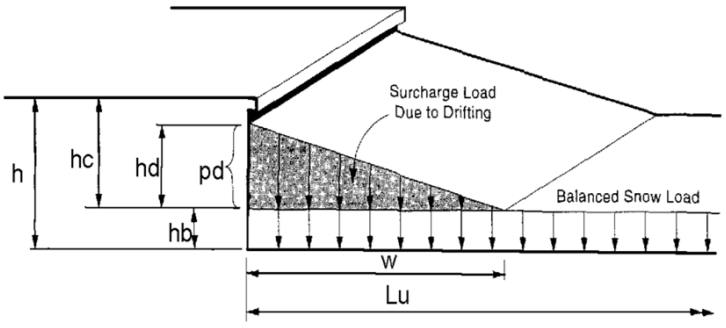
NOTE: Alternate spans of continuous beams shall be loaded with half the design roof snow load so as to produce the greatest possible effect - see code for loading diagrams and exceptions for gable roofs..

Unbalanced Snow Loads - for Hip & Gable roofs only

Required if slope is between 7 on 12 =	30.26 deg	
and 2.38 deg =	2.38 deg	**Unbalanced snow loads must be applied**
Windward snow load =	0.0 psf	
Leeward snow load =	190.0 psf	= I * Pg

Windward Snow Drifts 1 - Against walls, parapets, etc

Up or downwind fetch	lu	=	0.0 ft
Projection height	h	=	0.0 ft
Projection width/length	lp	=	0.0 ft
Snow density	g	=	30.0 pcf
Balanced snow height	hb	=	4.88 ft
	hd	=	2.17 ft
	hc	=	-4.88 ft
hc/hb <0.2 = -1.0	**lp <15', drift not req'd**		
Drift height (hc)		=	0.00 ft
Drift width	w	=	-39.01 ft
Surcharge load:	pd = γ*hd	=	**0.0 psf**
Balanced Snow load:		=	146.3 psf
			146.3 psf



Windward Snow Drifts 2 - Against walls, parapets, etc

Up or downwind fetch	lu	=	0.0 ft
Projection height	h	=	0.0 ft
Projection width/length	lp	=	0.0 ft
Snow density	g	=	30.0 pcf
Balanced snow height	hb	=	4.88 ft
	hd	=	2.17 ft
	hc	=	-4.88 ft
hc/hb <0.2 = -1.0	**lp <15', drift not req'd**		
Drift height (hc)		=	0.00 ft
Drift width	w	=	-39.01 ft
Surcharge load:	pd = γ*hd	=	**0.0 psf**
Balanced Snow load:		=	146.3 psf
			146.3 psf

Note: If bottom of projection is at least 2 feet above hb then snow drift is not required.

Calculations

Project Title: Vail Pass Rest Area Phase II
Engineer:
Project ID: 220002
Project Descr:

Wood Beam

Project File: 220002. vail pass rest area phase ii.ec(

LIC# : KW-06015319, Build:20.22.10.25 ANCHOR ENGINEERING AND INSPECTION (c) ENERCALC INC 1983-2022

DESCRIPTION: (2)2x12 - 6' Span

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : IBC 2021

Material Properties

Analysis Method : Allowable Stress Design
Load Combination : IBC 2021

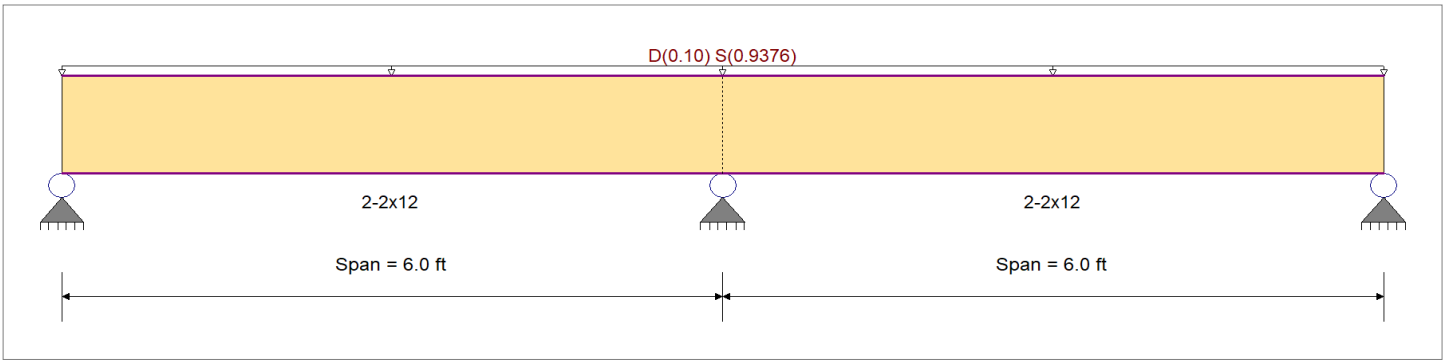
Wood Species : Hem-Fir
Wood Grade : No.2

Beam Bracing : Beam is Fully Braced against lateral-torsional buckling

Fb +	850.0 psi
Fb -	850.0 psi
Fc - Prll	1,300.0 psi
Fc - Perp	405.0 psi
Fv	150.0 psi
Ft	525.0 psi

E : Modulus of Elasticity

Ebend- xx	1,300.0 ksi
Eminbend - xx	470.0 ksi
Density	26.840 pcf



Applied Loads

Service loads entered. Load Factors will be applied for calculations

Beam self weight calculated and added to loading
Loads on all spans...
Uniform Load on ALL spans : D = 0.0250, S = 0.2344 ksf, Tributary Width = 4.0 ft

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.911 : 1	Maximum Shear Stress Ratio	=	0.765 : 1
Section used for this span		2-2x12	Section used for this span		2-2x12
fb: Actual	=	890.79 psi	fv: Actual	=	131.99 psi
F'b	=	977.50 psi	F'v	=	172.50 psi
Load Combination		+D+S+H	Load Combination		+D+S+H
Location of maximum on span	=	6.000 ft	Location of maximum on span	=	5.095 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.025 in	Ratio =	2898	>=360	Span: 2 : S Only
Max Upward Transient Deflection	0 in	Ratio =	0	<360	n/a
Max Downward Total Deflection	0.028 in	Ratio =	2603	>=180	Span: 2 : +D+S+H
Max Upward Total Deflection	0 in	Ratio =	0	<180	n/a

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	CD	CM	C_t	CLx	C_F	Cfu	C_i	C_r	Moment Values M	fb	F'b	Shear Values V	fv	F'v
+D+H														0.0	0.00	0.0	0.0
Length = 6.0 ft	1	0.119	0.100	0.90	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.48	90.7	765.0	0.30	13.4	135.0
Length = 6.0 ft	2	0.119	0.100	0.90	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.48	90.7	765.0	0.30	13.4	135.0
+D+L+H, LL Comb Run (*L)					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 6.0 ft	1	0.107	0.090	1.00	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.48	90.7	850.0	0.30	13.4	150.0
Length = 6.0 ft	2	0.107	0.090	1.00	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.48	90.7	850.0	0.30	13.4	150.0
+D+L+H, LL Comb Run (L*)					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 6.0 ft	1	0.107	0.090	1.00	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.48	90.7	850.0	0.30	13.4	150.0
Length = 6.0 ft	2	0.107	0.090	1.00	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.48	90.7	850.0	0.30	13.4	150.0
+D+L+H, LL Comb Run (LL)					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0

Wood Beam

DESCRIPTION: (2)2x12 - 6' Span

Maximum Forces & Stresses for Load Combinations

Load Combination		Max Stress Ratios										Moment Values			Shear Values		
Segment Length	Span #	M	V	CD	CM	C_t	CLx	C_F	Cfu	C_i	C_r	M	fb	F'b	V	fv	F'v
Length = 6.0 ft	**1**	0.107	0.090	1.00	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.48	90.7	850.0	0.30	13.4	150.0
Length = 6.0 ft	**2**	0.107	0.090	1.00	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.48	90.7	850.0	0.30	13.4	150.0
+D+Lr+H, LL Comb Run (*L)					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 6.0 ft	**1**	0.085	0.072	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.48	90.7	1,062.5	0.30	13.4	187.5
Length = 6.0 ft	**2**	0.085	0.072	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.48	90.7	1,062.5	0.30	13.4	187.5
+D+Lr+H, LL Comb Run (L*)					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 6.0 ft	**1**	0.085	0.072	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.48	90.7	1,062.5	0.30	13.4	187.5
Length = 6.0 ft	**2**	0.085	0.072	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.48	90.7	1,062.5	0.30	13.4	187.5
+D+Lr+H, LL Comb Run (LL)					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 6.0 ft	**1**	0.085	0.072	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.48	90.7	1,062.5	0.30	13.4	187.5
Length = 6.0 ft	**2**	0.085	0.072	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.48	90.7	1,062.5	0.30	13.4	187.5
+D+S+H					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 6.0 ft	**1**	0.911	0.765	1.15	1.00	1.00	1.00	1.000	1.00	1.00	1.00	4.70	890.8	977.5	2.97	132.0	172.5
Length = 6.0 ft	**2**	0.911	0.765	1.15	1.00	1.00	1.00	1.000	1.00	1.00	1.00	4.70	890.8	977.5	2.97	132.0	172.5
+D+0.750Lr+0.750L+H, LL Cc					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 6.0 ft	**1**	0.085	0.072	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.48	90.7	1,062.5	0.30	13.4	187.5
Length = 6.0 ft	**2**	0.085	0.072	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.48	90.7	1,062.5	0.30	13.4	187.5
+D+0.750Lr+0.750L+H, LL Cc					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 6.0 ft	**1**	0.085	0.072	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.48	90.7	1,062.5	0.30	13.4	187.5
Length = 6.0 ft	**2**	0.085	0.072	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.48	90.7	1,062.5	0.30	13.4	187.5
+D+0.750Lr+0.750L+H, LL Cc					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 6.0 ft	**1**	0.085	0.072	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.48	90.7	1,062.5	0.30	13.4	187.5
Length = 6.0 ft	**2**	0.085	0.072	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.48	90.7	1,062.5	0.30	13.4	187.5
+D+0.750L+0.750S+H, LL Co					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 6.0 ft	**1**	0.707	0.593	1.15	1.00	1.00	1.00	1.000	1.00	1.00	1.00	3.64	690.8	977.5	2.30	102.4	172.5
Length = 6.0 ft	**2**	0.707	0.593	1.15	1.00	1.00	1.00	1.000	1.00	1.00	1.00	3.64	690.8	977.5	2.30	102.4	172.5
+D+0.750L+0.750S+H, LL Co					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 6.0 ft	**1**	0.707	0.593	1.15	1.00	1.00	1.00	1.000	1.00	1.00	1.00	3.64	690.8	977.5	2.30	102.4	172.5
Length = 6.0 ft	**2**	0.707	0.593	1.15	1.00	1.00	1.00	1.000	1.00	1.00	1.00	3.64	690.8	977.5	2.30	102.4	172.5
+D+0.750L+0.750S+H, LL Co					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 6.0 ft	**1**	0.707	0.593	1.15	1.00	1.00	1.00	1.000	1.00	1.00	1.00	3.64	690.8	977.5	2.30	102.4	172.5
Length = 6.0 ft	**2**	0.707	0.593	1.15	1.00	1.00	1.00	1.000	1.00	1.00	1.00	3.64	690.8	977.5	2.30	102.4	172.5
+D+0.60W+H					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 6.0 ft	**1**	0.067	0.056	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.48	90.7	1,360.0	0.30	13.4	240.0
Length = 6.0 ft	**2**	0.067	0.056	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.48	90.7	1,360.0	0.30	13.4	240.0
+D+0.70E+H					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 6.0 ft	**1**	0.067	0.056	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.48	90.7	1,360.0	0.30	13.4	240.0
Length = 6.0 ft	**2**	0.067	0.056	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.48	90.7	1,360.0	0.30	13.4	240.0
+D+0.750Lr+0.750L+0.450W+					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 6.0 ft	**1**	0.067	0.056	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.48	90.7	1,360.0	0.30	13.4	240.0
Length = 6.0 ft	**2**	0.067	0.056	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.48	90.7	1,360.0	0.30	13.4	240.0
+D+0.750Lr+0.750L+0.450W+					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 6.0 ft	**1**	0.067	0.056	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.48	90.7	1,360.0	0.30	13.4	240.0
Length = 6.0 ft	**2**	0.067	0.056	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.48	90.7	1,360.0	0.30	13.4	240.0
+D+0.750Lr+0.750L+0.450W+					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 6.0 ft	**1**	0.067	0.056	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.48	90.7	1,360.0	0.30	13.4	240.0
Length = 6.0 ft	**2**	0.067	0.056	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.48	90.7	1,360.0	0.30	13.4	240.0

Wood Beam

Project File: 220002. vail pass rest area phase ii.ec

DESCRIPTION: (2)2x12 - 6' Span

Maximum Forces & Stresses for Load Combinations

Load Combination		Max Stress Ratios										Moment Values			Shear Values		
Segment Length	Span #	M	V	CD	CM	C_t	CLx	C_F	Cfu	C_i	C_r	M	fb	F'b	V	fv	F'v
+D+0.750L+0.750S+0.450W+					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 6.0 ft	1	0.508	0.426	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	3.64	690.8	1,360.0	2.30	102.4	240.0
Length = 6.0 ft	2	0.508	0.426	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	3.64	690.8	1,360.0	2.30	102.4	240.0
+D+0.750L+0.750S+0.450W+					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 6.0 ft	1	0.508	0.426	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	3.64	690.8	1,360.0	2.30	102.4	240.0
Length = 6.0 ft	2	0.508	0.426	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	3.64	690.8	1,360.0	2.30	102.4	240.0
+D+0.750L+0.750S+0.450W+					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 6.0 ft	1	0.508	0.426	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	3.64	690.8	1,360.0	2.30	102.4	240.0
Length = 6.0 ft	2	0.508	0.426	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	3.64	690.8	1,360.0	2.30	102.4	240.0
+D+0.750L+0.750S+0.5250E+					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 6.0 ft	1	0.508	0.426	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	3.64	690.8	1,360.0	2.30	102.4	240.0
Length = 6.0 ft	2	0.508	0.426	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	3.64	690.8	1,360.0	2.30	102.4	240.0
+D+0.750L+0.750S+0.5250E+					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 6.0 ft	1	0.508	0.426	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	3.64	690.8	1,360.0	2.30	102.4	240.0
Length = 6.0 ft	2	0.508	0.426	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	3.64	690.8	1,360.0	2.30	102.4	240.0
+D+0.750L+0.750S+0.5250E+					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 6.0 ft	1	0.508	0.426	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	3.64	690.8	1,360.0	2.30	102.4	240.0
Length = 6.0 ft	2	0.508	0.426	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	3.64	690.8	1,360.0	2.30	102.4	240.0
+0.60D+0.60W+0.60H					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 6.0 ft	1	0.040	0.034	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.29	54.4	1,360.0	0.18	8.1	240.0
Length = 6.0 ft	2	0.040	0.034	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.29	54.4	1,360.0	0.18	8.1	240.0
+0.60D+0.70E+0.60H					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 6.0 ft	1	0.040	0.034	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.29	54.4	1,360.0	0.18	8.1	240.0
Length = 6.0 ft	2	0.040	0.034	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.29	54.4	1,360.0	0.18	8.1	240.0

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+S+H	1	0.0277	2.547		0.0000	0.000
+D+S+H	2	0.0274	3.486		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2	Support 3
Max Upward from all Load Conditions	2.349	7.829	2.349
Max Upward from Load Combinations	2.349	7.829	2.349
Max Upward from Load Cases	2.110	7.032	2.110
+D+H	0.239	0.797	0.239
+D+L+H, LL Comb Run (*L)	0.239	0.797	0.239
+D+L+H, LL Comb Run (L*)	0.239	0.797	0.239
+D+L+H, LL Comb Run (LL)	0.239	0.797	0.239
+D+Lr+H, LL Comb Run (*L)	0.239	0.797	0.239
+D+Lr+H, LL Comb Run (L*)	0.239	0.797	0.239
+D+Lr+H, LL Comb Run (LL)	0.239	0.797	0.239
+D+S+H	2.349	7.829	2.349
+D+0.750Lr+0.750L+H, LL Comb Run (*	0.239	0.797	0.239
+D+0.750Lr+0.750L+H, LL Comb Run (L	0.239	0.797	0.239
+D+0.750Lr+0.750L+H, LL Comb Run (L	0.239	0.797	0.239
+D+0.750L+0.750S+H, LL Comb Run (*L	1.821	6.071	1.821
+D+0.750L+0.750S+H, LL Comb Run (L*	1.821	6.071	1.821
+D+0.750L+0.750S+H, LL Comb Run (LL	1.821	6.071	1.821
+D+0.60W+H	0.239	0.797	0.239
+D+0.70E+H	0.239	0.797	0.239
+D+0.750Lr+0.750L+0.450W+H, LL Comb	0.239	0.797	0.239
+D+0.750Lr+0.750L+0.450W+H, LL Comb	0.239	0.797	0.239

Project Title: Vail Pass Rest Area Phase II
Engineer:
Project ID: 220002
Project Descr:

Wood Beam

Project File: 220002. vail pass rest area phase ii.ec(

DESCRIPTION: (2)2x12 - 6' Span

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2	Support 3
+D+0.750Lr+0.750L+0.450W+H, LL Comb	0.239	0.797	0.239
+D+0.750L+0.750S+0.450W+H, LL Comb	1.821	6.071	1.821
+D+0.750L+0.750S+0.450W+H, LL Comb	1.821	6.071	1.821
+D+0.750L+0.750S+0.450W+H, LL Comb	1.821	6.071	1.821
+D+0.750L+0.750S+0.5250E+H, LL Comb	1.821	6.071	1.821
+D+0.750L+0.750S+0.5250E+H, LL Comb	1.821	6.071	1.821
+D+0.750L+0.750S+0.5250E+H, LL Comb	1.821	6.071	1.821
+0.60D+0.60W+0.60H	0.143	0.478	0.143
+0.60D+0.70E+0.60H	0.143	0.478	0.143
D Only	0.239	0.797	0.239
S Only	2.110	7.032	2.110
H Only			

Project Title: Vail Pass Rest Area Phase II
Engineer:
Project ID: 220002
Project Descr:

Wood Beam

Project File: 220002. vail pass rest area phase ii.ec(

LIC# : KW-06015319, Build:20.22.10.25 ANCHOR ENGINEERING AND INSPECTION (c) ENERCALC INC 1983-2022

DESCRIPTION: (2)2x12 - 9' Span

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : IBC 2021

Material Properties

Analysis Method : Allowable Stress Design
Load Combination : IBC 2021

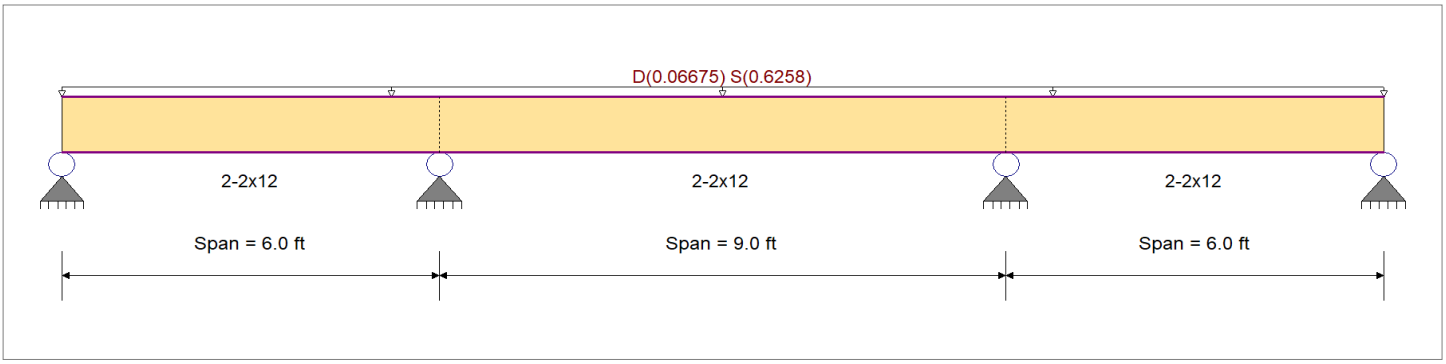
Wood Species : Hem-Fir
Wood Grade : No.2

Beam Bracing : Beam is Fully Braced against lateral-torsional buckling

Fb +	850.0 psi
Fb -	850.0 psi
Fc - Prll	1,300.0 psi
Fc - Perp	405.0 psi
Fv	150.0 psi
Ft	525.0 psi

E : Modulus of Elasticity

Ebend- xx	1,300.0 ksi
Eminbend - xx	470.0 ksi
Density	26.840 pcf



Applied Loads

Service loads entered. Load Factors will be applied for calculations

Beam self weight calculated and added to loading
Loads on all spans...
Uniform Load on ALL spans : D = 0.0250, S = 0.2344 ksf, Tributary Width = 2.670 ft

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.821 : 1	Maximum Shear Stress Ratio	=	0.647 : 1
Section used for this span		2-2x12	Section used for this span		2-2x12
fb: Actual	=	802.83 psi	fv: Actual	=	111.59 psi
F'b	=	977.50 psi	F'v	=	172.50 psi
Load Combination		+D+S+H	Load Combination		+D+S+H
Location of maximum on span	=	6.000 ft	Location of maximum on span	=	6.000 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.057 in	Ratio =	1908 >=360	Span: 3 : S Only
Max Upward Transient Deflection	-0.002 in	Ratio =	30768 >=360	Span: 3 : S Only
Max Downward Total Deflection	0.063 in	Ratio =	1708 >=180	Span: 3 : +D+S+H
Max Upward Total Deflection	-0.003 in	Ratio =	27553 >=180	Span: 3 : +D+S+H

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	CD	CM	C_t	CLx	C_F	Cfu	C_i	C_r	Moment Values M	fb	F'b	Shear Values V	fv	F'v
+D+H														0.0	0.00	0.0	0.0
Length = 6.0 ft	1	0.110	0.086	0.90	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.44	83.9	765.0	0.26	11.7	135.0
Length = 9.0 ft	2	0.110	0.086	0.90	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.44	83.9	765.0	0.26	11.7	135.0
Length = 6.0 ft	3	0.110	0.086	0.90	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.44	83.9	765.0	0.23	11.7	135.0
+D+L+H, LL Comb Run (**L)					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 6.0 ft	1	0.099	0.078	1.00	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.44	83.9	850.0	0.26	11.7	150.0
Length = 9.0 ft	2	0.099	0.078	1.00	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.44	83.9	850.0	0.26	11.7	150.0
Length = 6.0 ft	3	0.099	0.078	1.00	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.44	83.9	850.0	0.23	11.7	150.0
+D+L+H, LL Comb Run (*L*)					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 6.0 ft	1	0.099	0.078	1.00	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.44	83.9	850.0	0.26	11.7	150.0

Project Title: Vail Pass Rest Area Phase II
Engineer:
Project ID: 220002
Project Descr:

Wood Beam

Project File: 220002. vail pass rest area phase ii.ec(

LIC# : KW-06015319, Build:20.22.10.25 ANCHOR ENGINEERING AND INSPECTION (c) ENERCALC INC 1983-2022

DESCRIPTION: (2)2x12 - 9' Span

Maximum Forces & Stresses for Load Combinations

Load Combination		Max Stress Ratios										Moment Values			Shear Values		
Segment Length	Span #	M	V	CD	CM	C_t	CLx	C_F	Cfu	C_i	C_r	M	fb	F'b	V	fv	F'v
Length = 9.0 ft	**2**	0.099	0.078	1.00	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.44	83.9	850.0	0.26	11.7	150.0
Length = 6.0 ft	**3**	0.099	0.078	1.00	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.44	83.9	850.0	0.23	11.7	150.0
+D+L+H, LL Comb Run (*LL)					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 6.0 ft	**1**	0.099	0.078	1.00	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.44	83.9	850.0	0.26	11.7	150.0
Length = 9.0 ft	**2**	0.099	0.078	1.00	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.44	83.9	850.0	0.26	11.7	150.0
Length = 6.0 ft	**3**	0.099	0.078	1.00	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.44	83.9	850.0	0.23	11.7	150.0
+D+L+H, LL Comb Run (L**)					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 6.0 ft	**1**	0.099	0.078	1.00	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.44	83.9	850.0	0.26	11.7	150.0
Length = 9.0 ft	**2**	0.099	0.078	1.00	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.44	83.9	850.0	0.26	11.7	150.0
Length = 6.0 ft	**3**	0.099	0.078	1.00	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.44	83.9	850.0	0.23	11.7	150.0
+D+L+H, LL Comb Run (L*L)					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 6.0 ft	**1**	0.099	0.078	1.00	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.44	83.9	850.0	0.26	11.7	150.0
Length = 9.0 ft	**2**	0.099	0.078	1.00	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.44	83.9	850.0	0.26	11.7	150.0
Length = 6.0 ft	**3**	0.099	0.078	1.00	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.44	83.9	850.0	0.23	11.7	150.0
+D+L+H, LL Comb Run (LL*)					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 6.0 ft	**1**	0.099	0.078	1.00	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.44	83.9	850.0	0.26	11.7	150.0
Length = 9.0 ft	**2**	0.099	0.078	1.00	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.44	83.9	850.0	0.26	11.7	150.0
Length = 6.0 ft	**3**	0.099	0.078	1.00	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.44	83.9	850.0	0.23	11.7	150.0
+D+L+H, LL Comb Run (LLL)					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 6.0 ft	**1**	0.099	0.078	1.00	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.44	83.9	850.0	0.26	11.7	150.0
Length = 9.0 ft	**2**	0.099	0.078	1.00	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.44	83.9	850.0	0.26	11.7	150.0
Length = 6.0 ft	**3**	0.099	0.078	1.00	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.44	83.9	850.0	0.23	11.7	150.0
+D+Lr+H, LL Comb Run (**L)					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 6.0 ft	**1**	0.079	0.062	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.44	83.9	1,062.5	0.26	11.7	187.5
Length = 9.0 ft	**2**	0.079	0.062	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.44	83.9	1,062.5	0.26	11.7	187.5
Length = 6.0 ft	**3**	0.079	0.062	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.44	83.9	1,062.5	0.23	11.7	187.5
+D+Lr+H, LL Comb Run (*L*)					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 6.0 ft	**1**	0.079	0.062	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.44	83.9	1,062.5	0.26	11.7	187.5
Length = 9.0 ft	**2**	0.079	0.062	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.44	83.9	1,062.5	0.26	11.7	187.5
Length = 6.0 ft	**3**	0.079	0.062	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.44	83.9	1,062.5	0.23	11.7	187.5
+D+Lr+H, LL Comb Run (*LL)					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 6.0 ft	**1**	0.079	0.062	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.44	83.9	1,062.5	0.26	11.7	187.5
Length = 9.0 ft	**2**	0.079	0.062	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.44	83.9	1,062.5	0.26	11.7	187.5
Length = 6.0 ft	**3**	0.079	0.062	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.44	83.9	1,062.5	0.23	11.7	187.5
+D+Lr+H, LL Comb Run (L**)					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 6.0 ft	**1**	0.079	0.062	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.44	83.9	1,062.5	0.26	11.7	187.5
Length = 9.0 ft	**2**	0.079	0.062	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.44	83.9	1,062.5	0.26	11.7	187.5
Length = 6.0 ft	**3**	0.079	0.062	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.44	83.9	1,062.5	0.23	11.7	187.5
+D+Lr+H, LL Comb Run (L*L)					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 6.0 ft	**1**	0.079	0.062	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.44	83.9	1,062.5	0.26	11.7	187.5
Length = 9.0 ft	**2**	0.079	0.062	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.44	83.9	1,062.5	0.26	11.7	187.5
Length = 6.0 ft	**3**	0.079	0.062	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.44	83.9	1,062.5	0.23	11.7	187.5
+D+Lr+H, LL Comb Run (LL*)					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 6.0 ft	**1**	0.079	0.062	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.44	83.9	1,062.5	0.26	11.7	187.5
Length = 9.0 ft	**2**	0.079	0.062	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.44	83.9	1,062.5	0.26	11.7	187.5
Length = 6.0 ft	**3**	0.079	0.062	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.44	83.9	1,062.5	0.23	11.7	187.5
+D+Lr+H, LL Comb Run (LLL)					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0

Wood Beam

DESCRIPTION: (2)2x12 - 9' Span

Maximum Forces & Stresses for Load Combinations

Load Combination		Max Stress Ratios										Moment Values			Shear Values		
Segment Length	Span #	M	V	CD	CM	C_t	CLx	C_F	Cfu	C_i	C_r	M	fb	F'b	V	fv	F'v
Length = 6.0 ft	1	0.079	0.062	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.44	83.9	1,062.5	0.26	11.7	187.5
Length = 9.0 ft	2	0.079	0.062	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.44	83.9	1,062.5	0.26	11.7	187.5
Length = 6.0 ft	3	0.079	0.062	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.44	83.9	1,062.5	0.23	11.7	187.5
+D+S+H					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 6.0 ft	1	0.821	0.647	1.15	1.00	1.00	1.00	1.000	1.00	1.00	1.00	4.23	802.8	977.5	2.51	111.6	172.5
Length = 9.0 ft	2	0.821	0.647	1.15	1.00	1.00	1.00	1.000	1.00	1.00	1.00	4.23	802.8	977.5	2.51	111.6	172.5
Length = 6.0 ft	3	0.821	0.647	1.15	1.00	1.00	1.00	1.000	1.00	1.00	1.00	4.23	802.8	977.5	2.17	111.6	172.5
+D+0.750Lr+0.750L+H, LL Cc					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 6.0 ft	1	0.079	0.062	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.44	83.9	1,062.5	0.26	11.7	187.5
Length = 9.0 ft	2	0.079	0.062	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.44	83.9	1,062.5	0.26	11.7	187.5
Length = 6.0 ft	3	0.079	0.062	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.44	83.9	1,062.5	0.23	11.7	187.5
+D+0.750Lr+0.750L+H, LL Cc					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 6.0 ft	1	0.079	0.062	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.44	83.9	1,062.5	0.26	11.7	187.5
Length = 9.0 ft	2	0.079	0.062	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.44	83.9	1,062.5	0.26	11.7	187.5
Length = 6.0 ft	3	0.079	0.062	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.44	83.9	1,062.5	0.23	11.7	187.5
+D+0.750Lr+0.750L+H, LL Cc					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 6.0 ft	1	0.079	0.062	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.44	83.9	1,062.5	0.26	11.7	187.5
Length = 9.0 ft	2	0.079	0.062	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.44	83.9	1,062.5	0.26	11.7	187.5
Length = 6.0 ft	3	0.079	0.062	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.44	83.9	1,062.5	0.23	11.7	187.5
+D+0.750Lr+0.750L+H, LL Cc					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 6.0 ft	1	0.079	0.062	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.44	83.9	1,062.5	0.26	11.7	187.5
Length = 9.0 ft	2	0.079	0.062	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.44	83.9	1,062.5	0.26	11.7	187.5
Length = 6.0 ft	3	0.079	0.062	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.44	83.9	1,062.5	0.23	11.7	187.5
+D+0.750Lr+0.750L+H, LL Cc					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 6.0 ft	1	0.079	0.062	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.44	83.9	1,062.5	0.26	11.7	187.5
Length = 9.0 ft	2	0.079	0.062	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.44	83.9	1,062.5	0.26	11.7	187.5
Length = 6.0 ft	3	0.079	0.062	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.44	83.9	1,062.5	0.23	11.7	187.5
+D+0.750Lr+0.750L+H, LL Cc					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 6.0 ft	1	0.079	0.062	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.44	83.9	1,062.5	0.26	11.7	187.5
Length = 9.0 ft	2	0.079	0.062	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.44	83.9	1,062.5	0.26	11.7	187.5
Length = 6.0 ft	3	0.079	0.062	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.44	83.9	1,062.5	0.23	11.7	187.5
+D+0.750Lr+0.750L+H, LL Cc					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 6.0 ft	1	0.079	0.062	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.44	83.9	1,062.5	0.26	11.7	187.5
Length = 9.0 ft	2	0.079	0.062	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.44	83.9	1,062.5	0.26	11.7	187.5
Length = 6.0 ft	3	0.079	0.062	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.44	83.9	1,062.5	0.23	11.7	187.5
+D+0.750L+0.750S+H, LL Co					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 6.0 ft	1	0.637	0.502	1.15	1.00	1.00	1.00	1.000	1.00	1.00	1.00	3.29	623.1	977.5	1.95	86.6	172.5
Length = 9.0 ft	2	0.637	0.502	1.15	1.00	1.00	1.00	1.000	1.00	1.00	1.00	3.29	623.1	977.5	1.95	86.6	172.5
Length = 6.0 ft	3	0.637	0.502	1.15	1.00	1.00	1.00	1.000	1.00	1.00	1.00	3.29	623.1	977.5	1.68	86.6	172.5
+D+0.750L+0.750S+H, LL Co					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 6.0 ft	1	0.637	0.502	1.15	1.00	1.00	1.00	1.000	1.00	1.00	1.00	3.29	623.1	977.5	1.95	86.6	172.5
Length = 9.0 ft	2	0.637	0.502	1.15	1.00	1.00	1.00	1.000	1.00	1.00	1.00	3.29	623.1	977.5	1.95	86.6	172.5
Length = 6.0 ft	3	0.637	0.502	1.15	1.00	1.00	1.00	1.000	1.00	1.00	1.00	3.29	623.1	977.5	1.68	86.6	172.5
+D+0.750L+0.750S+H, LL Co					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 6.0 ft	1	0.637	0.502	1.15	1.00	1.00	1.00	1.000	1.00	1.00	1.00	3.29	623.1	977.5	1.95	86.6	172.5
Length = 9.0 ft	2	0.637	0.502	1.15	1.00	1.00	1.00	1.000	1.00	1.00	1.00	3.29	623.1	977.5	1.95	86.6	172.5
Length = 6.0 ft	3	0.637	0.502	1.15	1.00	1.00	1.00	1.000	1.00	1.00	1.00	3.29	623.1	977.5	1.68	86.6	172.5

Wood Beam

Project File: 220002. vail pass rest area phase ii.ec6

LIC# : KW-06015319, Build:20.22.10.25 ANCHOR ENGINEERING AND INSPECTION

DESCRIPTION: (2)2x12 - 9' Span

Maximum Forces & Stresses for Load Combinations

Load Combination		Max Stress Ratios										Moment Values			Shear Values		
Segment Length	Span #	M	V	CD	CM	C_t	CLx	C_F	Cfu	C_i	C_r	M	fb	F'b	V	fv	F'v
+D+0.750L+0.750S+H, LL Co					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 6.0 ft	1	0.637	0.502	1.15	1.00	1.00	1.00	1.000	1.00	1.00	1.00	3.29	623.1	977.5	1.95	86.6	172.5
Length = 9.0 ft	2	0.637	0.502	1.15	1.00	1.00	1.00	1.000	1.00	1.00	1.00	3.29	623.1	977.5	1.95	86.6	172.5
Length = 6.0 ft	3	0.637	0.502	1.15	1.00	1.00	1.00	1.000	1.00	1.00	1.00	3.29	623.1	977.5	1.68	86.6	172.5
+D+0.750L+0.750S+H, LL Co					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 6.0 ft	1	0.637	0.502	1.15	1.00	1.00	1.00	1.000	1.00	1.00	1.00	3.29	623.1	977.5	1.95	86.6	172.5
Length = 9.0 ft	2	0.637	0.502	1.15	1.00	1.00	1.00	1.000	1.00	1.00	1.00	3.29	623.1	977.5	1.95	86.6	172.5
Length = 6.0 ft	3	0.637	0.502	1.15	1.00	1.00	1.00	1.000	1.00	1.00	1.00	3.29	623.1	977.5	1.68	86.6	172.5
+D+0.750L+0.750S+H, LL Co					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 6.0 ft	1	0.637	0.502	1.15	1.00	1.00	1.00	1.000	1.00	1.00	1.00	3.29	623.1	977.5	1.95	86.6	172.5
Length = 9.0 ft	2	0.637	0.502	1.15	1.00	1.00	1.00	1.000	1.00	1.00	1.00	3.29	623.1	977.5	1.95	86.6	172.5
Length = 6.0 ft	3	0.637	0.502	1.15	1.00	1.00	1.00	1.000	1.00	1.00	1.00	3.29	623.1	977.5	1.68	86.6	172.5
+D+0.750L+0.750S+H, LL Co					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 6.0 ft	1	0.637	0.502	1.15	1.00	1.00	1.00	1.000	1.00	1.00	1.00	3.29	623.1	977.5	1.95	86.6	172.5
Length = 9.0 ft	2	0.637	0.502	1.15	1.00	1.00	1.00	1.000	1.00	1.00	1.00	3.29	623.1	977.5	1.95	86.6	172.5
Length = 6.0 ft	3	0.637	0.502	1.15	1.00	1.00	1.00	1.000	1.00	1.00	1.00	3.29	623.1	977.5	1.68	86.6	172.5
+D+0.60W+H					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 6.0 ft	1	0.062	0.049	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.44	83.9	1,360.0	0.26	11.7	240.0
Length = 9.0 ft	2	0.062	0.049	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.44	83.9	1,360.0	0.26	11.7	240.0
Length = 6.0 ft	3	0.062	0.049	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.44	83.9	1,360.0	0.23	11.7	240.0
+D+0.70E+H					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 6.0 ft	1	0.062	0.049	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.44	83.9	1,360.0	0.26	11.7	240.0
Length = 9.0 ft	2	0.062	0.049	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.44	83.9	1,360.0	0.26	11.7	240.0
Length = 6.0 ft	3	0.062	0.049	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.44	83.9	1,360.0	0.23	11.7	240.0
+D+0.750Lr+0.750L+0.450W+					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 6.0 ft	1	0.062	0.049	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.44	83.9	1,360.0	0.26	11.7	240.0
Length = 9.0 ft	2	0.062	0.049	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.44	83.9	1,360.0	0.26	11.7	240.0
Length = 6.0 ft	3	0.062	0.049	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.44	83.9	1,360.0	0.23	11.7	240.0
+D+0.750Lr+0.750L+0.450W+					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 6.0 ft	1	0.062	0.049	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.44	83.9	1,360.0	0.26	11.7	240.0
Length = 9.0 ft	2	0.062	0.049	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.44	83.9	1,360.0	0.26	11.7	240.0
Length = 6.0 ft	3	0.062	0.049	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.44	83.9	1,360.0	0.23	11.7	240.0
+D+0.750Lr+0.750L+0.450W+					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 6.0 ft	1	0.062	0.049	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.44	83.9	1,360.0	0.26	11.7	240.0
Length = 9.0 ft	2	0.062	0.049	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.44	83.9	1,360.0	0.26	11.7	240.0
Length = 6.0 ft	3	0.062	0.049	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.44	83.9	1,360.0	0.23	11.7	240.0
+D+0.750Lr+0.750L+0.450W+					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 6.0 ft	1	0.062	0.049	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.44	83.9	1,360.0	0.26	11.7	240.0
Length = 9.0 ft	2	0.062	0.049	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.44	83.9	1,360.0	0.26	11.7	240.0
Length = 6.0 ft	3	0.062	0.049	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.44	83.9	1,360.0	0.23	11.7	240.0
+D+0.750Lr+0.750L+0.450W+					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 6.0 ft	1	0.062	0.049	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.44	83.9	1,360.0	0.26	11.7	240.0
Length = 9.0 ft	2	0.062	0.049	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.44	83.9	1,360.0	0.26	11.7	240.0
Length = 6.0 ft	3	0.062	0.049	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.44	83.9	1,360.0	0.23	11.7	240.0
+D+0.750Lr+0.750L+0.450W+					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 6.0 ft	1	0.062	0.049	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.44	83.9	1,360.0	0.26	11.7	240.0
Length = 9.0 ft	2	0.062	0.049	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.44	83.9	1,360.0	0.26	11.7	240.0

Wood Beam

DESCRIPTION: (2)2x12 - 9' Span

Maximum Forces & Stresses for Load Combinations

Load Combination		Max Stress Ratios											Moment Values			Shear Values		
Segment Length	Span #	M	V	CD	CM	C_t	CLx	C_F	Cfu	C_i	C_r		M	fb	F'b	V	fv	F'v
Length = 6.0 ft	3	0.062	0.049	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00		0.44	83.9	1,360.0	0.23	11.7	240.0
+D+0.750Lr+0.750L+0.450W+					1.00	1.00	1.00	1.000	1.00	1.00	1.00				0.0	0.00	0.0	0.0
Length = 6.0 ft	1	0.062	0.049	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00		0.44	83.9	1,360.0	0.26	11.7	240.0
Length = 9.0 ft	2	0.062	0.049	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00		0.44	83.9	1,360.0	0.26	11.7	240.0
Length = 6.0 ft	3	0.062	0.049	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00		0.44	83.9	1,360.0	0.23	11.7	240.0
+D+0.750L+0.750S+0.450W+					1.00	1.00	1.00	1.000	1.00	1.00	1.00				0.0	0.00	0.0	0.0
Length = 6.0 ft	1	0.458	0.361	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00		3.29	623.1	1,360.0	1.95	86.6	240.0
Length = 9.0 ft	2	0.458	0.361	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00		3.29	623.1	1,360.0	1.95	86.6	240.0
Length = 6.0 ft	3	0.458	0.361	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00		3.29	623.1	1,360.0	1.68	86.6	240.0
+D+0.750L+0.750S+0.450W+					1.00	1.00	1.00	1.000	1.00	1.00	1.00				0.0	0.00	0.0	0.0
Length = 6.0 ft	1	0.458	0.361	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00		3.29	623.1	1,360.0	1.95	86.6	240.0
Length = 9.0 ft	2	0.458	0.361	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00		3.29	623.1	1,360.0	1.95	86.6	240.0
Length = 6.0 ft	3	0.458	0.361	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00		3.29	623.1	1,360.0	1.68	86.6	240.0
+D+0.750L+0.750S+0.450W+					1.00	1.00	1.00	1.000	1.00	1.00	1.00				0.0	0.00	0.0	0.0
Length = 6.0 ft	1	0.458	0.361	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00		3.29	623.1	1,360.0	1.95	86.6	240.0
Length = 9.0 ft	2	0.458	0.361	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00		3.29	623.1	1,360.0	1.95	86.6	240.0
Length = 6.0 ft	3	0.458	0.361	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00		3.29	623.1	1,360.0	1.68	86.6	240.0
+D+0.750L+0.750S+0.450W+					1.00	1.00	1.00	1.000	1.00	1.00	1.00				0.0	0.00	0.0	0.0
Length = 6.0 ft	1	0.458	0.361	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00		3.29	623.1	1,360.0	1.95	86.6	240.0
Length = 9.0 ft	2	0.458	0.361	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00		3.29	623.1	1,360.0	1.95	86.6	240.0
Length = 6.0 ft	3	0.458	0.361	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00		3.29	623.1	1,360.0	1.68	86.6	240.0
+D+0.750L+0.750S+0.450W+					1.00	1.00	1.00	1.000	1.00	1.00	1.00				0.0	0.00	0.0	0.0
Length = 6.0 ft	1	0.458	0.361	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00		3.29	623.1	1,360.0	1.95	86.6	240.0
Length = 9.0 ft	2	0.458	0.361	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00		3.29	623.1	1,360.0	1.95	86.6	240.0
Length = 6.0 ft	3	0.458	0.361	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00		3.29	623.1	1,360.0	1.68	86.6	240.0
+D+0.750L+0.750S+0.450W+					1.00	1.00	1.00	1.000	1.00	1.00	1.00				0.0	0.00	0.0	0.0
Length = 6.0 ft	1	0.458	0.361	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00		3.29	623.1	1,360.0	1.95	86.6	240.0
Length = 9.0 ft	2	0.458	0.361	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00		3.29	623.1	1,360.0	1.95	86.6	240.0
Length = 6.0 ft	3	0.458	0.361	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00		3.29	623.1	1,360.0	1.68	86.6	240.0
+D+0.750L+0.750S+0.450W+					1.00	1.00	1.00	1.000	1.00	1.00	1.00				0.0	0.00	0.0	0.0
Length = 6.0 ft	1	0.458	0.361	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00		3.29	623.1	1,360.0	1.95	86.6	240.0
Length = 9.0 ft	2	0.458	0.361	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00		3.29	623.1	1,360.0	1.95	86.6	240.0
Length = 6.0 ft	3	0.458	0.361	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00		3.29	623.1	1,360.0	1.68	86.6	240.0
+D+0.750L+0.750S+0.5250E+					1.00	1.00	1.00	1.000	1.00	1.00	1.00				0.0	0.00	0.0	0.0
Length = 6.0 ft	1	0.458	0.361	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00		3.29	623.1	1,360.0	1.95	86.6	240.0
Length = 9.0 ft	2	0.458	0.361	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00		3.29	623.1	1,360.0	1.95	86.6	240.0
Length = 6.0 ft	3	0.458	0.361	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00		3.29	623.1	1,360.0	1.68	86.6	240.0
+D+0.750L+0.750S+0.5250E+					1.00	1.00	1.00	1.000	1.00	1.00	1.00				0.0	0.00	0.0	0.0
Length = 6.0 ft	1	0.458	0.361	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00		3.29	623.1	1,360.0	1.95	86.6	240.0
Length = 9.0 ft	2	0.458	0.361	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00		3.29	623.1	1,360.0	1.95	86.6	240.0
Length = 6.0 ft	3	0.458	0.361	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00		3.29	623.1	1,360.0	1.68	86.6	240.0
+D+0.750L+0.750S+0.5250E+					1.00	1.00	1.00	1.000	1.00	1.00	1.00				0.0	0.00	0.0	0.0
Length = 6.0 ft	1	0.458	0.361	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00		3.29	623.1	1,360.0	1.95	86.6	240.0
Length = 9.0 ft	2	0.458	0.361	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00		3.29	623.1	1,360.0	1.95	86.6	240.0
Length = 6.0 ft	3	0.458	0.361	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00		3.29	623.1	1,360.0	1.68	86.6	240.0
+D+0.750L+0.750S+0.5250E+					1.00	1.00	1.00	1.000	1.00	1.00	1.00				0.0	0.00	0.0	0.0
Length = 6.0 ft	1	0.458	0.361	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00		3.29	623.1	1,360.0	1.95	86.6	240.0

Wood Beam

Project File: 220002. vail pass rest area phase ii.ec6

DESCRIPTION: (2)2x12 - 9' Span

Maximum Forces & Stresses for Load Combinations

Load Combination		Max Stress Ratios										Moment Values			Shear Values		
Segment Length	Span #	M	V	CD	CM	C_t	CLx	C_F	Cfu	C_i	C_r	M	fb	F'b	V	fv	F'v
Length = 9.0 ft	**2**	0.458	0.361	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	3.29	623.1	1,360.0	1.95	86.6	240.0
Length = 6.0 ft	**3**	0.458	0.361	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	3.29	623.1	1,360.0	1.68	86.6	240.0
+D+0.750L+0.750S+0.5250E+					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 6.0 ft	**1**	0.458	0.361	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	3.29	623.1	1,360.0	1.95	86.6	240.0
Length = 9.0 ft	**2**	0.458	0.361	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	3.29	623.1	1,360.0	1.95	86.6	240.0
Length = 6.0 ft	**3**	0.458	0.361	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	3.29	623.1	1,360.0	1.68	86.6	240.0
+D+0.750L+0.750S+0.5250E+					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 6.0 ft	**1**	0.458	0.361	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	3.29	623.1	1,360.0	1.95	86.6	240.0
Length = 9.0 ft	**2**	0.458	0.361	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	3.29	623.1	1,360.0	1.95	86.6	240.0
Length = 6.0 ft	**3**	0.458	0.361	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	3.29	623.1	1,360.0	1.68	86.6	240.0
+D+0.750L+0.750S+0.5250E+					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 6.0 ft	**1**	0.458	0.361	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	3.29	623.1	1,360.0	1.95	86.6	240.0
Length = 9.0 ft	**2**	0.458	0.361	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	3.29	623.1	1,360.0	1.95	86.6	240.0
Length = 6.0 ft	**3**	0.458	0.361	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	3.29	623.1	1,360.0	1.68	86.6	240.0
+0.60D+0.60W+0.60H					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 6.0 ft	**1**	0.037	0.029	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.27	50.3	1,360.0	0.16	7.0	240.0
Length = 9.0 ft	**2**	0.037	0.029	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.27	50.3	1,360.0	0.16	7.0	240.0
Length = 6.0 ft	**3**	0.037	0.029	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.27	50.3	1,360.0	0.14	7.0	240.0
+0.60D+0.70E+0.60H					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 6.0 ft	**1**	0.037	0.029	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.27	50.3	1,360.0	0.16	7.0	240.0
Length = 9.0 ft	**2**	0.037	0.029	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.27	50.3	1,360.0	0.16	7.0	240.0
Length = 6.0 ft	**3**	0.037	0.029	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.27	50.3	1,360.0	0.14	7.0	240.0

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+S+H	1	0.0104	2.168	+D+S+H	-0.0022	5.395
+D+S+H	2	0.0632	4.538		0.0000	5.395
+D+S+H	3	0.0100	3.882	+D+S+H	-0.0026	0.655

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2	Support 3	Support 4
Max Upward from all Load Conditions	1.391	5.947	5.947	1.391
Max Upward from Load Combinations	1.391	5.947	5.947	1.391
Max Upward from Load Cases	1.246	5.326	5.326	1.246
+D+H	0.145	0.622	0.622	0.145
+D+L+H, LL Comb Run (**L)	0.145	0.622	0.622	0.145
+D+L+H, LL Comb Run (*L*)	0.145	0.622	0.622	0.145
+D+L+H, LL Comb Run (*LL)	0.145	0.622	0.622	0.145
+D+L+H, LL Comb Run (L**)	0.145	0.622	0.622	0.145
+D+L+H, LL Comb Run (L*L)	0.145	0.622	0.622	0.145
+D+L+H, LL Comb Run (LL*)	0.145	0.622	0.622	0.145
+D+L+H, LL Comb Run (LLL)	0.145	0.622	0.622	0.145
+D+Lr+H, LL Comb Run (**L)	0.145	0.622	0.622	0.145
+D+Lr+H, LL Comb Run (*L*)	0.145	0.622	0.622	0.145
+D+Lr+H, LL Comb Run (*LL)	0.145	0.622	0.622	0.145
+D+Lr+H, LL Comb Run (L**)	0.145	0.622	0.622	0.145
+D+Lr+H, LL Comb Run (L*L)	0.145	0.622	0.622	0.145
+D+Lr+H, LL Comb Run (LL*)	0.145	0.622	0.622	0.145
+D+Lr+H, LL Comb Run (LLL)	0.145	0.622	0.622	0.145
+D+S+H	1.391	5.947	5.947	1.391
+D+0.750Lr+0.750L+H, LL Comb Run (*	0.145	0.622	0.622	0.145
+D+0.750Lr+0.750L+H, LL Comb Run (*	0.145	0.622	0.622	0.145
+D+0.750Lr+0.750L+H, LL Comb Run (*	0.145	0.622	0.622	0.145
+D+0.750Lr+0.750L+H, LL Comb Run (L	0.145	0.622	0.622	0.145

Wood Beam

DESCRIPTION: (2)2x12 - 9' Span

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2	Support 3	Support 4
+D+0.750Lr+0.750L+H, LL Comb Run (L	0.145	0.622	0.622	0.145
+D+0.750Lr+0.750L+H, LL Comb Run (L	0.145	0.622	0.622	0.145
+D+0.750Lr+0.750L+H, LL Comb Run (L	0.145	0.622	0.622	0.145
+D+0.750L+0.750S+H, LL Comb Run (**	1.080	4.616	4.616	1.080
+D+0.750L+0.750S+H, LL Comb Run (*L	1.080	4.616	4.616	1.080
+D+0.750L+0.750S+H, LL Comb Run (*L	1.080	4.616	4.616	1.080
+D+0.750L+0.750S+H, LL Comb Run (L*	1.080	4.616	4.616	1.080
+D+0.750L+0.750S+H, LL Comb Run (L*	1.080	4.616	4.616	1.080
+D+0.750L+0.750S+H, LL Comb Run (LL	1.080	4.616	4.616	1.080
+D+0.750L+0.750S+H, LL Comb Run (LL	1.080	4.616	4.616	1.080
+D+0.60W+H	0.145	0.622	0.622	0.145
+D+0.70E+H	0.145	0.622	0.622	0.145
+D+0.750Lr+0.750L+0.450W+H, LL Comb	0.145	0.622	0.622	0.145
+D+0.750Lr+0.750L+0.450W+H, LL Comb	0.145	0.622	0.622	0.145
+D+0.750Lr+0.750L+0.450W+H, LL Comb	0.145	0.622	0.622	0.145
+D+0.750Lr+0.750L+0.450W+H, LL Comb	0.145	0.622	0.622	0.145
+D+0.750Lr+0.750L+0.450W+H, LL Comb	0.145	0.622	0.622	0.145
+D+0.750Lr+0.750L+0.450W+H, LL Comb	0.145	0.622	0.622	0.145
+D+0.750Lr+0.750L+0.450W+H, LL Comb	0.145	0.622	0.622	0.145
+D+0.750L+0.750S+0.450W+H, LL Comb	1.080	4.616	4.616	1.080
+D+0.750L+0.750S+0.450W+H, LL Comb	1.080	4.616	4.616	1.080
+D+0.750L+0.750S+0.450W+H, LL Comb	1.080	4.616	4.616	1.080
+D+0.750L+0.750S+0.450W+H, LL Comb	1.080	4.616	4.616	1.080
+D+0.750L+0.750S+0.450W+H, LL Comb	1.080	4.616	4.616	1.080
+D+0.750L+0.750S+0.450W+H, LL Comb	1.080	4.616	4.616	1.080
+D+0.750L+0.750S+0.450W+H, LL Comb	1.080	4.616	4.616	1.080
+D+0.750L+0.750S+0.5250E+H, LL Comb	1.080	4.616	4.616	1.080
+D+0.750L+0.750S+0.5250E+H, LL Comb	1.080	4.616	4.616	1.080
+D+0.750L+0.750S+0.5250E+H, LL Comb	1.080	4.616	4.616	1.080
+D+0.750L+0.750S+0.5250E+H, LL Comb	1.080	4.616	4.616	1.080
+D+0.750L+0.750S+0.5250E+H, LL Comb	1.080	4.616	4.616	1.080
+D+0.750L+0.750S+0.5250E+H, LL Comb	1.080	4.616	4.616	1.080
+D+0.750L+0.750S+0.5250E+H, LL Comb	1.080	4.616	4.616	1.080
+0.60D+0.60W+0.60H	0.087	0.373	0.373	0.087
+0.60D+0.70E+0.60H	0.087	0.373	0.373	0.087
D Only	0.145	0.622	0.622	0.145
S Only	1.246	5.326	5.326	1.246
H Only				

Project Title: Vail Pass Rest Area Phase II
Engineer:
Project ID: 220002
Project Descr:

Wood Beam

Project File: 220002. vail pass rest area phase ii.ec(

LIC# : KW-06015319, Build:20.22.10.25 ANCHOR ENGINEERING AND INSPECTION (c) ENERCALC INC 1983-2022

DESCRIPTION: (2)2x12 - 3' Overhang

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : IBC 2021

Material Properties

Analysis Method : Allowable Stress Design
Load Combination : IBC 2021

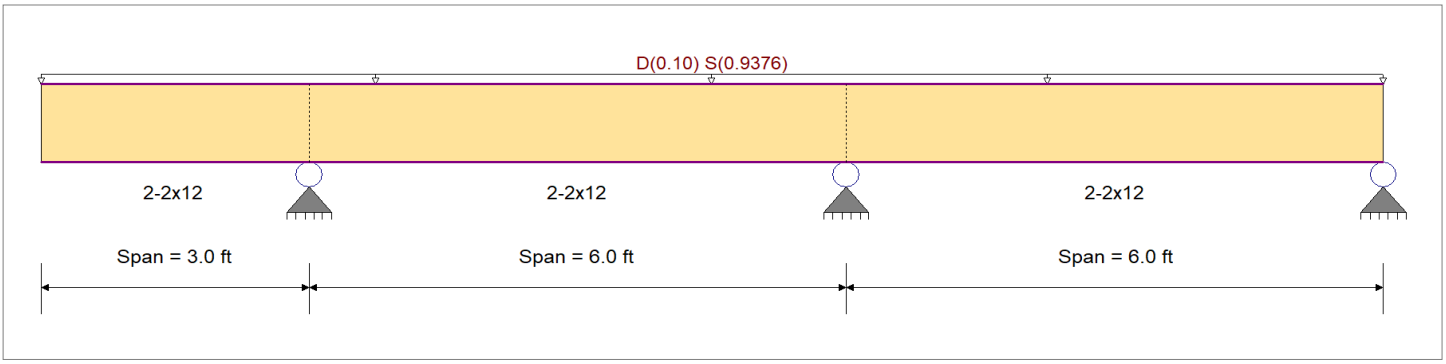
Wood Species : Hem-Fir
Wood Grade : No.2

Beam Bracing : Beam is Fully Braced against lateral-torsional buckling

Fb +	850.0 psi
Fb -	850.0 psi
Fc - Prll	1,300.0 psi
Fc - Perp	405.0 psi
Fv	150.0 psi
Ft	525.0 psi

E : Modulus of Elasticity

Ebend- xx	1,300.0 ksi
Eminbend - xx	470.0 ksi
Density	26.840 pcf



Applied Loads

Service loads entered. Load Factors will be applied for calculations

Beam self weight calculated and added to loading
Loads on all spans...
Uniform Load on ALL spans : D = 0.0250, S = 0.2344 ksf, Tributary Width = 4.0 ft

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.911 : 1	Maximum Shear Stress Ratio	=	0.714 : 1
Section used for this span		2-2x12	Section used for this span		2-2x12
fb: Actual	=	890.79 psi	fv: Actual	=	123.18 psi
F'b	=	977.50 psi	F'v	=	172.50 psi
Load Combination		+D+S+H	Load Combination		+D+S+H
Location of maximum on span	=	3.000 ft	Location of maximum on span	=	6.000 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 2

Maximum Deflection

Max Downward Transient Deflection	0.071 in	Ratio =	1012 >=360	Span: 3 : S Only
Max Upward Transient Deflection	-0.006 in	Ratio =	11902 >=360	Span: 2 : S Only
Max Downward Total Deflection	0.079 in	Ratio =	908 >=180	Span: 3 : +D+S+H
Max Upward Total Deflection	-0.007 in	Ratio =	10690 >=180	Span: 2 : +D+S+H

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	CD	CM	C_t	CLx	C_F	Cfu	C_i	C_r	Moment Values M	fb	F'b	Shear Values V	fv	F'v
+D+H														0.0	0.00	0.0	0.0
Length = 3.0 ft	1	0.119	0.080	0.90	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.48	90.7	765.0	0.24	10.8	135.0
Length = 6.0 ft	2	0.119	0.093	0.90	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.48	90.7	765.0	0.28	12.5	135.0
Length = 6.0 ft	3	0.089	0.093	0.90	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.36	68.0	765.0	0.28	12.5	135.0
+D+L+H, LL Comb Run (**L)					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 3.0 ft	1	0.107	0.072	1.00	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.48	90.7	850.0	0.24	10.8	150.0
Length = 6.0 ft	2	0.107	0.084	1.00	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.48	90.7	850.0	0.28	12.5	150.0
Length = 6.0 ft	3	0.080	0.084	1.00	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.36	68.0	850.0	0.28	12.5	150.0
+D+L+H, LL Comb Run (*L*)					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 3.0 ft	1	0.107	0.072	1.00	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.48	90.7	850.0	0.24	10.8	150.0

Project Title: Vail Pass Rest Area Phase II
Engineer:
Project ID: 220002
Project Descr:

Wood Beam

Project File: 220002. vail pass rest area phase ii.ec(

LIC# : KW-06015319, Build:20.22.10.25 ANCHOR ENGINEERING AND INSPECTION (c) ENERCALC INC 1983-2022

DESCRIPTION: (2)2x12 - 3' Overhang

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	CD	CM	C_t	CLx	C_F	Cfu	C_i	C_r	Moment Values M	fb	F'b	Shear Values V	fv	F'v
Length = 6.0 ft	**2**	0.107	0.084	1.00	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.48	90.7	850.0	0.28	12.5	150.0
Length = 6.0 ft	**3**	0.080	0.084	1.00	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.36	68.0	850.0	0.28	12.5	150.0
+D+L+H, LL Comb Run (*LL)					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 3.0 ft	**1**	0.107	0.072	1.00	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.48	90.7	850.0	0.24	10.8	150.0
Length = 6.0 ft	**2**	0.107	0.084	1.00	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.48	90.7	850.0	0.28	12.5	150.0
Length = 6.0 ft	**3**	0.080	0.084	1.00	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.36	68.0	850.0	0.28	12.5	150.0
+D+L+H, LL Comb Run (L**)					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 3.0 ft	**1**	0.107	0.072	1.00	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.48	90.7	850.0	0.24	10.8	150.0
Length = 6.0 ft	**2**	0.107	0.084	1.00	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.48	90.7	850.0	0.28	12.5	150.0
Length = 6.0 ft	**3**	0.080	0.084	1.00	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.36	68.0	850.0	0.28	12.5	150.0
+D+L+H, LL Comb Run (L*L)					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 3.0 ft	**1**	0.107	0.072	1.00	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.48	90.7	850.0	0.24	10.8	150.0
Length = 6.0 ft	**2**	0.107	0.084	1.00	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.48	90.7	850.0	0.28	12.5	150.0
Length = 6.0 ft	**3**	0.080	0.084	1.00	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.36	68.0	850.0	0.28	12.5	150.0
+D+L+H, LL Comb Run (LL*)					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 3.0 ft	**1**	0.107	0.072	1.00	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.48	90.7	850.0	0.24	10.8	150.0
Length = 6.0 ft	**2**	0.107	0.084	1.00	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.48	90.7	850.0	0.28	12.5	150.0
Length = 6.0 ft	**3**	0.080	0.084	1.00	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.36	68.0	850.0	0.28	12.5	150.0
+D+L+H, LL Comb Run (LLL)					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 3.0 ft	**1**	0.107	0.072	1.00	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.48	90.7	850.0	0.24	10.8	150.0
Length = 6.0 ft	**2**	0.107	0.084	1.00	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.48	90.7	850.0	0.28	12.5	150.0
Length = 6.0 ft	**3**	0.080	0.084	1.00	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.36	68.0	850.0	0.28	12.5	150.0
+D+Lr+H, LL Comb Run (**L)					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 3.0 ft	**1**	0.085	0.057	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.48	90.7	1,062.5	0.24	10.8	187.5
Length = 6.0 ft	**2**	0.085	0.067	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.48	90.7	1,062.5	0.28	12.5	187.5
Length = 6.0 ft	**3**	0.064	0.067	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.36	68.0	1,062.5	0.28	12.5	187.5
+D+Lr+H, LL Comb Run (*L*)					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 3.0 ft	**1**	0.085	0.057	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.48	90.7	1,062.5	0.24	10.8	187.5
Length = 6.0 ft	**2**	0.085	0.067	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.48	90.7	1,062.5	0.28	12.5	187.5
Length = 6.0 ft	**3**	0.064	0.067	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.36	68.0	1,062.5	0.28	12.5	187.5
+D+Lr+H, LL Comb Run (*LL)					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 3.0 ft	**1**	0.085	0.057	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.48	90.7	1,062.5	0.24	10.8	187.5
Length = 6.0 ft	**2**	0.085	0.067	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.48	90.7	1,062.5	0.28	12.5	187.5
Length = 6.0 ft	**3**	0.064	0.067	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.36	68.0	1,062.5	0.28	12.5	187.5
+D+Lr+H, LL Comb Run (L**)					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 3.0 ft	**1**	0.085	0.057	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.48	90.7	1,062.5	0.24	10.8	187.5
Length = 6.0 ft	**2**	0.085	0.067	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.48	90.7	1,062.5	0.28	12.5	187.5
Length = 6.0 ft	**3**	0.064	0.067	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.36	68.0	1,062.5	0.28	12.5	187.5
+D+Lr+H, LL Comb Run (L*L)					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 3.0 ft	**1**	0.085	0.057	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.48	90.7	1,062.5	0.24	10.8	187.5
Length = 6.0 ft	**2**	0.085	0.067	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.48	90.7	1,062.5	0.28	12.5	187.5
Length = 6.0 ft	**3**	0.064	0.067	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.36	68.0	1,062.5	0.28	12.5	187.5
+D+Lr+H, LL Comb Run (LL*)					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 3.0 ft	**1**	0.085	0.057	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.48	90.7	1,062.5	0.24	10.8	187.5
Length = 6.0 ft	**2**	0.085	0.067	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.48	90.7	1,062.5	0.28	12.5	187.5
Length = 6.0 ft	**3**	0.064	0.067	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.36	68.0	1,062.5	0.28	12.5	187.5
+D+Lr+H, LL Comb Run (LLL)					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0

Wood Beam

DESCRIPTION: (2)2x12 - 3' Overhang

Maximum Forces & Stresses for Load Combinations

Load Combination		Max Stress Ratios										Moment Values			Shear Values		
Segment Length	Span #	M	V	CD	CM	C_t	CLx	C_F	Cfu	C_i	C_r	M	fb	F'b	V	fv	F'v
Length = 3.0 ft	1	0.085	0.057	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.48	90.7	1,062.5	0.24	10.8	187.5
Length = 6.0 ft	2	0.085	0.067	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.48	90.7	1,062.5	0.28	12.5	187.5
Length = 6.0 ft	3	0.064	0.067	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.36	68.0	1,062.5	0.28	12.5	187.5
+D+S+H					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 3.0 ft	1	0.911	0.613	1.15	1.00	1.00	1.00	1.000	1.00	1.00	1.00	4.70	890.8	977.5	2.38	105.8	172.5
Length = 6.0 ft	2	0.911	0.714	1.15	1.00	1.00	1.00	1.000	1.00	1.00	1.00	4.70	890.8	977.5	2.77	123.2	172.5
Length = 6.0 ft	3	0.683	0.714	1.15	1.00	1.00	1.00	1.000	1.00	1.00	1.00	3.52	668.1	977.5	2.77	123.2	172.5
+D+0.750Lr+0.750L+H, LL Cc					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 3.0 ft	1	0.085	0.057	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.48	90.7	1,062.5	0.24	10.8	187.5
Length = 6.0 ft	2	0.085	0.067	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.48	90.7	1,062.5	0.28	12.5	187.5
Length = 6.0 ft	3	0.064	0.067	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.36	68.0	1,062.5	0.28	12.5	187.5
+D+0.750Lr+0.750L+H, LL Cc					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 3.0 ft	1	0.085	0.057	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.48	90.7	1,062.5	0.24	10.8	187.5
Length = 6.0 ft	2	0.085	0.067	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.48	90.7	1,062.5	0.28	12.5	187.5
Length = 6.0 ft	3	0.064	0.067	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.36	68.0	1,062.5	0.28	12.5	187.5
+D+0.750Lr+0.750L+H, LL Cc					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 3.0 ft	1	0.085	0.057	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.48	90.7	1,062.5	0.24	10.8	187.5
Length = 6.0 ft	2	0.085	0.067	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.48	90.7	1,062.5	0.28	12.5	187.5
Length = 6.0 ft	3	0.064	0.067	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.36	68.0	1,062.5	0.28	12.5	187.5
+D+0.750Lr+0.750L+H, LL Cc					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 3.0 ft	1	0.085	0.057	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.48	90.7	1,062.5	0.24	10.8	187.5
Length = 6.0 ft	2	0.085	0.067	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.48	90.7	1,062.5	0.28	12.5	187.5
Length = 6.0 ft	3	0.064	0.067	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.36	68.0	1,062.5	0.28	12.5	187.5
+D+0.750Lr+0.750L+H, LL Cc					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 3.0 ft	1	0.085	0.057	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.48	90.7	1,062.5	0.24	10.8	187.5
Length = 6.0 ft	2	0.085	0.067	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.48	90.7	1,062.5	0.28	12.5	187.5
Length = 6.0 ft	3	0.064	0.067	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.36	68.0	1,062.5	0.28	12.5	187.5
+D+0.750Lr+0.750L+H, LL Cc					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 3.0 ft	1	0.085	0.057	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.48	90.7	1,062.5	0.24	10.8	187.5
Length = 6.0 ft	2	0.085	0.067	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.48	90.7	1,062.5	0.28	12.5	187.5
Length = 6.0 ft	3	0.064	0.067	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.36	68.0	1,062.5	0.28	12.5	187.5
+D+0.750Lr+0.750L+H, LL Cc					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 3.0 ft	1	0.085	0.057	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.48	90.7	1,062.5	0.24	10.8	187.5
Length = 6.0 ft	2	0.085	0.067	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.48	90.7	1,062.5	0.28	12.5	187.5
Length = 6.0 ft	3	0.064	0.067	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.36	68.0	1,062.5	0.28	12.5	187.5
+D+0.750L+0.750S+H, LL Co					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 3.0 ft	1	0.707	0.476	1.15	1.00	1.00	1.00	1.000	1.00	1.00	1.00	3.64	690.8	977.5	1.85	82.0	172.5
Length = 6.0 ft	2	0.707	0.554	1.15	1.00	1.00	1.00	1.000	1.00	1.00	1.00	3.64	690.8	977.5	2.15	95.5	172.5
Length = 6.0 ft	3	0.530	0.554	1.15	1.00	1.00	1.00	1.000	1.00	1.00	1.00	2.73	518.1	977.5	2.15	95.5	172.5
+D+0.750L+0.750S+H, LL Co					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 3.0 ft	1	0.707	0.476	1.15	1.00	1.00	1.00	1.000	1.00	1.00	1.00	3.64	690.8	977.5	1.85	82.0	172.5
Length = 6.0 ft	2	0.707	0.554	1.15	1.00	1.00	1.00	1.000	1.00	1.00	1.00	3.64	690.8	977.5	2.15	95.5	172.5
Length = 6.0 ft	3	0.530	0.554	1.15	1.00	1.00	1.00	1.000	1.00	1.00	1.00	2.73	518.1	977.5	2.15	95.5	172.5
+D+0.750L+0.750S+H, LL Co					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 3.0 ft	1	0.707	0.476	1.15	1.00	1.00	1.00	1.000	1.00	1.00	1.00	3.64	690.8	977.5	1.85	82.0	172.5
Length = 6.0 ft	2	0.707	0.554	1.15	1.00	1.00	1.00	1.000	1.00	1.00	1.00	3.64	690.8	977.5	2.15	95.5	172.5
Length = 6.0 ft	3	0.530	0.554	1.15	1.00	1.00	1.00	1.000	1.00	1.00	1.00	2.73	518.1	977.5	2.15	95.5	172.5

Wood Beam

Project File: 220002. vail pass rest area phase ii.ec(

LIC# : KW-06015319, Build:20.22.10.25 ANCHOR ENGINEERING AND INSPECTION (c) ENERCALC INC 1983-2022

DESCRIPTION: (2)2x12 - 3' Overhang

Maximum Forces & Stresses for Load Combinations

Load Combination		Max Stress Ratios										Moment Values			Shear Values		
Segment Length	Span #	M	V	CD	CM	C_t	CLx	C_F	Cfu	C_i	C_r	M	fb	F'b	V	fv	F'v
+D+0.750L+0.750S+H, LL Co					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 3.0 ft	1	0.707	0.476	1.15	1.00	1.00	1.00	1.000	1.00	1.00	1.00	3.64	690.8	977.5	1.85	82.0	172.5
Length = 6.0 ft	2	0.707	0.554	1.15	1.00	1.00	1.00	1.000	1.00	1.00	1.00	3.64	690.8	977.5	2.15	95.5	172.5
Length = 6.0 ft	3	0.530	0.554	1.15	1.00	1.00	1.00	1.000	1.00	1.00	1.00	2.73	518.1	977.5	2.15	95.5	172.5
+D+0.750L+0.750S+H, LL Co					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 3.0 ft	1	0.707	0.476	1.15	1.00	1.00	1.00	1.000	1.00	1.00	1.00	3.64	690.8	977.5	1.85	82.0	172.5
Length = 6.0 ft	2	0.707	0.554	1.15	1.00	1.00	1.00	1.000	1.00	1.00	1.00	3.64	690.8	977.5	2.15	95.5	172.5
Length = 6.0 ft	3	0.530	0.554	1.15	1.00	1.00	1.00	1.000	1.00	1.00	1.00	2.73	518.1	977.5	2.15	95.5	172.5
+D+0.750L+0.750S+H, LL Co					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 3.0 ft	1	0.707	0.476	1.15	1.00	1.00	1.00	1.000	1.00	1.00	1.00	3.64	690.8	977.5	1.85	82.0	172.5
Length = 6.0 ft	2	0.707	0.554	1.15	1.00	1.00	1.00	1.000	1.00	1.00	1.00	3.64	690.8	977.5	2.15	95.5	172.5
Length = 6.0 ft	3	0.530	0.554	1.15	1.00	1.00	1.00	1.000	1.00	1.00	1.00	2.73	518.1	977.5	2.15	95.5	172.5
+D+0.750L+0.750S+H, LL Co					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 3.0 ft	1	0.707	0.476	1.15	1.00	1.00	1.00	1.000	1.00	1.00	1.00	3.64	690.8	977.5	1.85	82.0	172.5
Length = 6.0 ft	2	0.707	0.554	1.15	1.00	1.00	1.00	1.000	1.00	1.00	1.00	3.64	690.8	977.5	2.15	95.5	172.5
Length = 6.0 ft	3	0.530	0.554	1.15	1.00	1.00	1.00	1.000	1.00	1.00	1.00	2.73	518.1	977.5	2.15	95.5	172.5
+D+0.60W+H					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 3.0 ft	1	0.067	0.045	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.48	90.7	1,360.0	0.24	10.8	240.0
Length = 6.0 ft	2	0.067	0.052	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.48	90.7	1,360.0	0.28	12.5	240.0
Length = 6.0 ft	3	0.050	0.052	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.36	68.0	1,360.0	0.28	12.5	240.0
+D+0.70E+H					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 3.0 ft	1	0.067	0.045	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.48	90.7	1,360.0	0.24	10.8	240.0
Length = 6.0 ft	2	0.067	0.052	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.48	90.7	1,360.0	0.28	12.5	240.0
Length = 6.0 ft	3	0.050	0.052	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.36	68.0	1,360.0	0.28	12.5	240.0
+D+0.750Lr+0.750L+0.450W+					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 3.0 ft	1	0.067	0.045	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.48	90.7	1,360.0	0.24	10.8	240.0
Length = 6.0 ft	2	0.067	0.052	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.48	90.7	1,360.0	0.28	12.5	240.0
Length = 6.0 ft	3	0.050	0.052	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.36	68.0	1,360.0	0.28	12.5	240.0
+D+0.750Lr+0.750L+0.450W+					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 3.0 ft	1	0.067	0.045	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.48	90.7	1,360.0	0.24	10.8	240.0
Length = 6.0 ft	2	0.067	0.052	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.48	90.7	1,360.0	0.28	12.5	240.0
Length = 6.0 ft	3	0.050	0.052	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.36	68.0	1,360.0	0.28	12.5	240.0
+D+0.750Lr+0.750L+0.450W+					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 3.0 ft	1	0.067	0.045	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.48	90.7	1,360.0	0.24	10.8	240.0
Length = 6.0 ft	2	0.067	0.052	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.48	90.7	1,360.0	0.28	12.5	240.0
Length = 6.0 ft	3	0.050	0.052	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.36	68.0	1,360.0	0.28	12.5	240.0
+D+0.750Lr+0.750L+0.450W+					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 3.0 ft	1	0.067	0.045	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.48	90.7	1,360.0	0.24	10.8	240.0
Length = 6.0 ft	2	0.067	0.052	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.48	90.7	1,360.0	0.28	12.5	240.0
Length = 6.0 ft	3	0.050	0.052	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.36	68.0	1,360.0	0.28	12.5	240.0
+D+0.750Lr+0.750L+0.450W+					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 3.0 ft	1	0.067	0.045	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.48	90.7	1,360.0	0.24	10.8	240.0
Length = 6.0 ft	2	0.067	0.052	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.48	90.7	1,360.0	0.28	12.5	240.0
Length = 6.0 ft	3	0.050	0.052	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.36	68.0	1,360.0	0.28	12.5	240.0
+D+0.750Lr+0.750L+0.450W+					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 3.0 ft	1	0.067	0.045	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.48	90.7	1,360.0	0.24	10.8	240.0
Length = 6.0 ft	2	0.067	0.052	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.48	90.7	1,360.0	0.28	12.5	240.0

Wood Beam

DESCRIPTION: (2)2x12 - 3' Overhang

Maximum Forces & Stresses for Load Combinations

Load Combination		Max Stress Ratios										Moment Values			Shear Values		
Segment Length	Span #	M	V	CD	CM	C_t	CLx	C_F	Cfu	C_i	C_r	M	fb	F'b	V	fv	F'v
Length = 6.0 ft	**3**	0.050	0.052	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.36	68.0	1,360.0	0.28	12.5	240.0
+D+0.750Lr+0.750L+0.450W+					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 3.0 ft	**1**	0.067	0.045	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.48	90.7	1,360.0	0.24	10.8	240.0
Length = 6.0 ft	**2**	0.067	0.052	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.48	90.7	1,360.0	0.28	12.5	240.0
Length = 6.0 ft	**3**	0.050	0.052	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.36	68.0	1,360.0	0.28	12.5	240.0
+D+0.750L+0.750S+0.450W+					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 3.0 ft	**1**	0.508	0.342	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	3.64	690.8	1,360.0	1.85	82.0	240.0
Length = 6.0 ft	**2**	0.508	0.398	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	3.64	690.8	1,360.0	2.15	95.5	240.0
Length = 6.0 ft	**3**	0.381	0.398	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	2.73	518.1	1,360.0	2.15	95.5	240.0
+D+0.750L+0.750S+0.450W+					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 3.0 ft	**1**	0.508	0.342	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	3.64	690.8	1,360.0	1.85	82.0	240.0
Length = 6.0 ft	**2**	0.508	0.398	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	3.64	690.8	1,360.0	2.15	95.5	240.0
Length = 6.0 ft	**3**	0.381	0.398	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	2.73	518.1	1,360.0	2.15	95.5	240.0
+D+0.750L+0.750S+0.450W+					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 3.0 ft	**1**	0.508	0.342	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	3.64	690.8	1,360.0	1.85	82.0	240.0
Length = 6.0 ft	**2**	0.508	0.398	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	3.64	690.8	1,360.0	2.15	95.5	240.0
Length = 6.0 ft	**3**	0.381	0.398	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	2.73	518.1	1,360.0	2.15	95.5	240.0
+D+0.750L+0.750S+0.450W+					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 3.0 ft	**1**	0.508	0.342	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	3.64	690.8	1,360.0	1.85	82.0	240.0
Length = 6.0 ft	**2**	0.508	0.398	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	3.64	690.8	1,360.0	2.15	95.5	240.0
Length = 6.0 ft	**3**	0.381	0.398	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	2.73	518.1	1,360.0	2.15	95.5	240.0
+D+0.750L+0.750S+0.450W+					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 3.0 ft	**1**	0.508	0.342	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	3.64	690.8	1,360.0	1.85	82.0	240.0
Length = 6.0 ft	**2**	0.508	0.398	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	3.64	690.8	1,360.0	2.15	95.5	240.0
Length = 6.0 ft	**3**	0.381	0.398	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	2.73	518.1	1,360.0	2.15	95.5	240.0
+D+0.750L+0.750S+0.450W+					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 3.0 ft	**1**	0.508	0.342	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	3.64	690.8	1,360.0	1.85	82.0	240.0
Length = 6.0 ft	**2**	0.508	0.398	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	3.64	690.8	1,360.0	2.15	95.5	240.0
Length = 6.0 ft	**3**	0.381	0.398	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	2.73	518.1	1,360.0	2.15	95.5	240.0
+D+0.750L+0.750S+0.450W+					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 3.0 ft	**1**	0.508	0.342	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	3.64	690.8	1,360.0	1.85	82.0	240.0
Length = 6.0 ft	**2**	0.508	0.398	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	3.64	690.8	1,360.0	2.15	95.5	240.0
Length = 6.0 ft	**3**	0.381	0.398	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	2.73	518.1	1,360.0	2.15	95.5	240.0
+D+0.750L+0.750S+0.5250E+					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 3.0 ft	**1**	0.508	0.342	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	3.64	690.8	1,360.0	1.85	82.0	240.0
Length = 6.0 ft	**2**	0.508	0.398	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	3.64	690.8	1,360.0	2.15	95.5	240.0
Length = 6.0 ft	**3**	0.381	0.398	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	2.73	518.1	1,360.0	2.15	95.5	240.0
+D+0.750L+0.750S+0.5250E+					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 3.0 ft	**1**	0.508	0.342	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	3.64	690.8	1,360.0	1.85	82.0	240.0
Length = 6.0 ft	**2**	0.508	0.398	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	3.64	690.8	1,360.0	2.15	95.5	240.0
Length = 6.0 ft	**3**	0.381	0.398	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	2.73	518.1	1,360.0	2.15	95.5	240.0
+D+0.750L+0.750S+0.5250E+					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 3.0 ft	**1**	0.508	0.342	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	3.64	690.8	1,360.0	1.85	82.0	240.0
Length = 6.0 ft	**2**	0.508	0.398	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	3.64	690.8	1,360.0	2.15	95.5	240.0
Length = 6.0 ft	**3**	0.381	0.398	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	2.73	518.1	1,360.0	2.15	95.5	240.0
+D+0.750L+0.750S+0.5250E+					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 3.0 ft	**1**	0.508	0.342	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	3.64	690.8	1,360.0	1.85	82.0	240.0

Wood Beam

Project File: 220002. vail pass rest area phase ii.ec6

DESCRIPTION: (2)2x12 - 3' Overhang

Maximum Forces & Stresses for Load Combinations

Load Combination		Max Stress Ratios										Moment Values			Shear Values		
Segment Length	Span #	M	V	CD	CM	C_t	CLx	C_F	Cfu	C_i	C_r	M	fb	F'b	V	fv	F'v
Length = 6.0 ft	**2**	0.508	0.398	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	3.64	690.8	1,360.0	2.15	95.5	240.0
Length = 6.0 ft	**3**	0.381	0.398	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	2.73	518.1	1,360.0	2.15	95.5	240.0
+D+0.750L+0.750S+0.5250E+					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 3.0 ft	**1**	0.508	0.342	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	3.64	690.8	1,360.0	1.85	82.0	240.0
Length = 6.0 ft	**2**	0.508	0.398	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	3.64	690.8	1,360.0	2.15	95.5	240.0
Length = 6.0 ft	**3**	0.381	0.398	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	2.73	518.1	1,360.0	2.15	95.5	240.0
+D+0.750L+0.750S+0.5250E+					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 3.0 ft	**1**	0.508	0.342	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	3.64	690.8	1,360.0	1.85	82.0	240.0
Length = 6.0 ft	**2**	0.508	0.398	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	3.64	690.8	1,360.0	2.15	95.5	240.0
Length = 6.0 ft	**3**	0.381	0.398	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	2.73	518.1	1,360.0	2.15	95.5	240.0
+D+0.750L+0.750S+0.5250E+					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 3.0 ft	**1**	0.508	0.342	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	3.64	690.8	1,360.0	1.85	82.0	240.0
Length = 6.0 ft	**2**	0.508	0.398	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	3.64	690.8	1,360.0	2.15	95.5	240.0
Length = 6.0 ft	**3**	0.381	0.398	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	2.73	518.1	1,360.0	2.15	95.5	240.0
+0.60D+0.60W+0.60H					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 3.0 ft	**1**	0.040	0.027	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.29	54.4	1,360.0	0.15	6.5	240.0
Length = 6.0 ft	**2**	0.040	0.031	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.29	54.4	1,360.0	0.17	7.5	240.0
Length = 6.0 ft	**3**	0.030	0.031	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.22	40.8	1,360.0	0.17	7.5	240.0
+0.60D+0.70E+0.60H					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 3.0 ft	**1**	0.040	0.027	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.29	54.4	1,360.0	0.15	6.5	240.0
Length = 6.0 ft	**2**	0.040	0.031	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.29	54.4	1,360.0	0.17	7.5	240.0
Length = 6.0 ft	**3**	0.030	0.031	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.22	40.8	1,360.0	0.17	7.5	240.0

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+S+H	1	0.0792	0.000		0.0000	0.000
	2	0.0000	0.000	+D+S+H	-0.0067	1.210
+D+S+H	3	0.0369	3.328		0.0000	1.210

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2	Support 3	Support 4
Max Upward from all Load Conditions		6.459	6.655	2.544
Max Upward from Load Combinations		6.459	6.655	2.544
Max Upward from Load Cases		5.801	5.977	2.285
+D+H		0.658	0.678	0.259
+D+L+H, LL Comb Run (**L)		0.658	0.678	0.259
+D+L+H, LL Comb Run (*L*)		0.658	0.678	0.259
+D+L+H, LL Comb Run (*LL)		0.658	0.678	0.259
+D+L+H, LL Comb Run (L**)		0.658	0.678	0.259
+D+L+H, LL Comb Run (L*L)		0.658	0.678	0.259
+D+L+H, LL Comb Run (LL*)		0.658	0.678	0.259
+D+L+H, LL Comb Run (LLL)		0.658	0.678	0.259
+D+Lr+H, LL Comb Run (**L)		0.658	0.678	0.259
+D+Lr+H, LL Comb Run (*L*)		0.658	0.678	0.259
+D+Lr+H, LL Comb Run (*LL)		0.658	0.678	0.259
+D+Lr+H, LL Comb Run (L**)		0.658	0.678	0.259
+D+Lr+H, LL Comb Run (L*L)		0.658	0.678	0.259
+D+Lr+H, LL Comb Run (LL*)		0.658	0.678	0.259
+D+Lr+H, LL Comb Run (LLL)		0.658	0.678	0.259
+D+S+H		6.459	6.655	2.544
+D+0.750Lr+0.750L+H, LL Comb Run (*		0.658	0.678	0.259
+D+0.750Lr+0.750L+H, LL Comb Run (*		0.658	0.678	0.259
+D+0.750Lr+0.750L+H, LL Comb Run (*		0.658	0.678	0.259
+D+0.750Lr+0.750L+H, LL Comb Run (L		0.658	0.678	0.259

Wood Beam

DESCRIPTION: (2)2x12 - 3' Overhang

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2	Support 3	Support 4
+D+0.750Lr+0.750L+H, LL Comb Run (L		0.658	0.678	0.259
+D+0.750Lr+0.750L+H, LL Comb Run (L		0.658	0.678	0.259
+D+0.750Lr+0.750L+H, LL Comb Run (L		0.658	0.678	0.259
+D+0.750L+0.750S+H, LL Comb Run (**		5.009	5.161	1.973
+D+0.750L+0.750S+H, LL Comb Run (*L		5.009	5.161	1.973
+D+0.750L+0.750S+H, LL Comb Run (*L		5.009	5.161	1.973
+D+0.750L+0.750S+H, LL Comb Run (L*		5.009	5.161	1.973
+D+0.750L+0.750S+H, LL Comb Run (L*		5.009	5.161	1.973
+D+0.750L+0.750S+H, LL Comb Run (LL		5.009	5.161	1.973
+D+0.750L+0.750S+H, LL Comb Run (LL		5.009	5.161	1.973
+D+0.60W+H		0.658	0.678	0.259
+D+0.70E+H		0.658	0.678	0.259
+D+0.750Lr+0.750L+0.450W+H, LL Comb		0.658	0.678	0.259
+D+0.750Lr+0.750L+0.450W+H, LL Comb		0.658	0.678	0.259
+D+0.750Lr+0.750L+0.450W+H, LL Comb		0.658	0.678	0.259
+D+0.750Lr+0.750L+0.450W+H, LL Comb		0.658	0.678	0.259
+D+0.750Lr+0.750L+0.450W+H, LL Comb		0.658	0.678	0.259
+D+0.750Lr+0.750L+0.450W+H, LL Comb		0.658	0.678	0.259
+D+0.750Lr+0.750L+0.450W+H, LL Comb		0.658	0.678	0.259
+D+0.750L+0.750S+0.450W+H, LL Comb		5.009	5.161	1.973
+D+0.750L+0.750S+0.450W+H, LL Comb		5.009	5.161	1.973
+D+0.750L+0.750S+0.450W+H, LL Comb		5.009	5.161	1.973
+D+0.750L+0.750S+0.450W+H, LL Comb		5.009	5.161	1.973
+D+0.750L+0.750S+0.450W+H, LL Comb		5.009	5.161	1.973
+D+0.750L+0.750S+0.450W+H, LL Comb		5.009	5.161	1.973
+D+0.750L+0.750S+0.450W+H, LL Comb		5.009	5.161	1.973
+D+0.750L+0.750S+0.5250E+H, LL Comb		5.009	5.161	1.973
+D+0.750L+0.750S+0.5250E+H, LL Comb		5.009	5.161	1.973
+D+0.750L+0.750S+0.5250E+H, LL Comb		5.009	5.161	1.973
+D+0.750L+0.750S+0.5250E+H, LL Comb		5.009	5.161	1.973
+D+0.750L+0.750S+0.5250E+H, LL Comb		5.009	5.161	1.973
+D+0.750L+0.750S+0.5250E+H, LL Comb		5.009	5.161	1.973
+D+0.750L+0.750S+0.5250E+H, LL Comb		5.009	5.161	1.973
+0.60D+0.60W+0.60H		0.395	0.407	0.155
+0.60D+0.70E+0.60H		0.395	0.407	0.155
D Only		0.658	0.678	0.259
S Only		5.801	5.977	2.285
H Only				

Project Title: Vail Pass Rest Area Phase II
Engineer:
Project ID: 220002
Project Descr:

General Beam Analysis

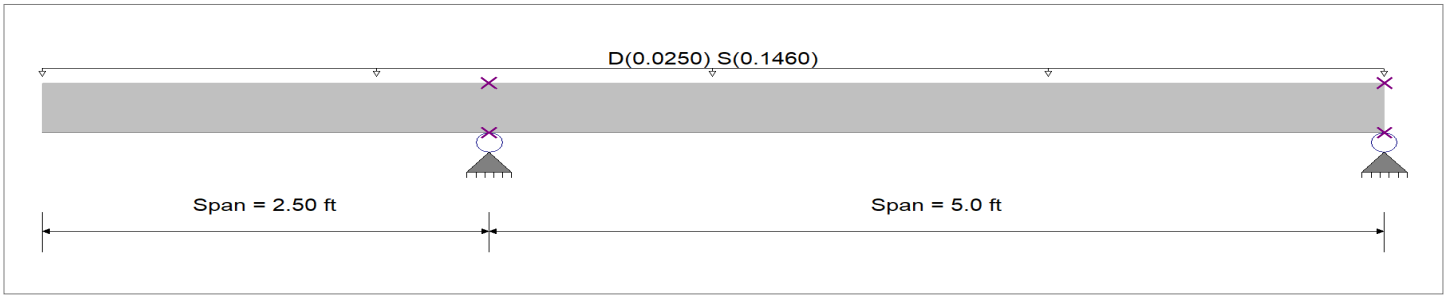
Project File: 220002. vail pass rest area phase ii.ec(

DESCRIPTION: 2.5' Cantilever - Roof Panel

General Beam Properties

Elastic Modulus 1,667.10 ksi

Span #1	Span Length =	2.50 ft	Area =	10.50 in^2	Moment of Inertia =	96.50	in^4
Span #2	Span Length =	5.0 ft	Area =	10.50 in^2	Moment of Inertia =	96.50	in^4



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 = 0.0250, S = 0.1460 k/ft, Tributary Width = 1.0 ft

DESIGN SUMMARY

Maximum Bending =	0.534 k-ft	Maximum Shear =	0.5344 k
Load Combination	+D+S+H	Load Combination	+D+S+H
Span # where maximum occurs	Span # 1	Span # where maximum occurs	Span # 1
Location of maximum on span	2.500 ft	Location of maximum on span	2.500 ft

Maximum Deflection

Max Downward Transient Deflection	0.008 in	7794
Max Upward Transient Deflection	0.000 in	0
Max Downward Total Deflection	0.009 in	6656
Max Upward Total Deflection	0.000 in	5770271

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+S+H	1	0.0090	0.000		0.0000	0.000
+D+S+H	2	0.0062	2.923		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2	Support 3
Overall MAXimum		0.962	0.321
Overall MINimum			
+D+H		0.141	0.047
+D+L+H, LL Comb Run (*L)		0.141	0.047
+D+L+H, LL Comb Run (L*)		0.141	0.047
+D+L+H, LL Comb Run (LL)		0.141	0.047
+D+Lr+H, LL Comb Run (*L)		0.141	0.047
+D+Lr+H, LL Comb Run (L*)		0.141	0.047
+D+Lr+H, LL Comb Run (LL)		0.141	0.047
+D+S+H		0.962	0.321
+D+0.750Lr+0.750L+H, LL Comb		0.141	0.047
+D+0.750Lr+0.750L+H, LL Comb		0.141	0.047
+D+0.750Lr+0.750L+H, LL Comb		0.141	0.047
+D+0.750L+0.750S+H, LL Comb I		0.757	0.252
+D+0.750L+0.750S+H, LL Comb I		0.757	0.252
+D+0.750L+0.750S+H, LL Comb I		0.757	0.252
+D+0.60W+H		0.141	0.047
+D+0.70E+H		0.141	0.047
+D+0.750Lr+0.750L+0.450W+H, I		0.141	0.047
+D+0.750Lr+0.750L+0.450W+H, I		0.141	0.047
+D+0.750Lr+0.750L+0.450W+H, I		0.141	0.047
+D+0.750L+0.750S+0.450W+H, L		0.757	0.252
+D+0.750L+0.750S+0.450W+H, L		0.757	0.252

Project Title: Vail Pass Rest Area Phase II
Engineer:
Project ID: 220002
Project Descr:

General Beam Analysis

Project File: 220002. vail pass rest area phase ii.ec(

DESCRIPTION: 2.5' Cantilever - Roof Panel

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2	Support 3
+D+0.750L+0.750S+0.450W+H, L		0.757	0.252
+D+0.750L+0.750S+0.5250E+H, l		0.757	0.252
+D+0.750L+0.750S+0.5250E+H, l		0.757	0.252
+D+0.750L+0.750S+0.5250E+H, l		0.757	0.252
+0.60D+0.60W+0.60H		0.084	0.028
+0.60D+0.70E+0.60H		0.084	0.028
D Only		0.141	0.047
Lr Only, LL Comb Run (*L)			
Lr Only, LL Comb Run (L*)			
Lr Only, LL Comb Run (LL)			
L Only, LL Comb Run (*L)			
L Only, LL Comb Run (L*)			
L Only, LL Comb Run (LL)			
S Only		0.821	0.274
W Only			
E Only			
H Only			

Project Title: Vail Pass Rest Area Phase II
Engineer:
Project ID: 220002
Project Descr:

General Beam Analysis

Project File: 220002. vail pass rest area phase ii.ec(

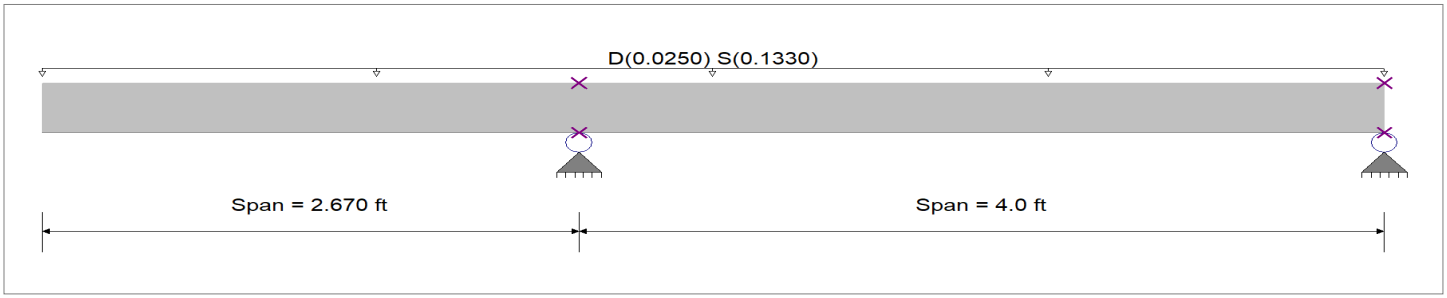
LIC# : KW-06015319, Build:20.22.12.28 ANCHOR ENGINEERING AND INSPECTION (c) ENERCALC INC 1983-2022

DESCRIPTION: 2.67' Overhang

General Beam Properties

Elastic Modulus 1,677.10 ksi

Span #1	Span Length =	2.670 ft	Area =	10.50 in^2	Moment of Inertia =	366.30	in^4
Span #2	Span Length =	4.0 ft	Area =	10.50 in^2	Moment of Inertia =	366.30	in^4



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 = 0.0250, S = 0.1330 k/ft, Tributary Width = 1.0 ft

DESIGN SUMMARY

Maximum Bending =	0.563 k-ft	Maximum Shear =	0.4568 k
Load Combination	+D+S+H	Load Combination	+D+S+H
Span # where maximum occurs	Span # 1	Span # where maximum occurs	Span # 1
Location of maximum on span	2.670 ft	Location of maximum on span	2.670 ft

Maximum Deflection

Max Downward Transient Deflection	0.004 in	14328
Max Upward Transient Deflection	0.000 in	0
Max Downward Total Deflection	0.005 in	12060
Max Upward Total Deflection	-0.000 in	136375

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+S+H	1	0.0053	0.000		0.0000	0.000
+D+S+H	2	0.0001	3.169	+D+S+H	-0.0004	0.862

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2	Support 3
Overall MAXimum		0.879	0.175
Overall MINimum			
+D+H		0.139	0.028
+D+L+H, LL Comb Run (*L)		0.139	0.028
+D+L+H, LL Comb Run (L*)		0.139	0.028
+D+L+H, LL Comb Run (LL)		0.139	0.028
+D+Lr+H, LL Comb Run (*L)		0.139	0.028
+D+Lr+H, LL Comb Run (L*)		0.139	0.028
+D+Lr+H, LL Comb Run (LL)		0.139	0.028
+D+S+H		0.879	0.175
+D+0.750Lr+0.750L+H, LL Comb		0.139	0.028
+D+0.750Lr+0.750L+H, LL Comb		0.139	0.028
+D+0.750Lr+0.750L+H, LL Comb		0.139	0.028
+D+0.750L+0.750S+H, LL Comb I		0.694	0.138
+D+0.750L+0.750S+H, LL Comb I		0.694	0.138
+D+0.750L+0.750S+H, LL Comb I		0.694	0.138
+D+0.60W+H		0.139	0.028
+D+0.70E+H		0.139	0.028
+D+0.750Lr+0.750L+0.450W+H, I		0.139	0.028
+D+0.750Lr+0.750L+0.450W+H, I		0.139	0.028
+D+0.750Lr+0.750L+0.450W+H, I		0.139	0.028
+D+0.750L+0.750S+0.450W+H, L		0.694	0.138
+D+0.750L+0.750S+0.450W+H, L		0.694	0.138

Ma = 495 psi (59.8 in^3/ft) = 29601 lb-in/ft = 2.467 k-ft/ft
Mactual = 0.563 k-ft < Ma...ok

Project Title: Vail Pass Rest Area Phase II
Engineer:
Project ID: 220002
Project Descr:

General Beam Analysis

Project File: 220002. vail pass rest area phase ii.ec(

LIC# : KW-06015319, Build:20.22.12.28 ANCHOR ENGINEERING AND INSPECTION (c) ENERCALC INC 1983-2022

DESCRIPTION: 2.67' Overhang

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2	Support 3
+D+0.750L+0.750S+0.450W+H, L		0.694	0.138
+D+0.750L+0.750S+0.5250E+H, l		0.694	0.138
+D+0.750L+0.750S+0.5250E+H, l		0.694	0.138
+D+0.750L+0.750S+0.5250E+H, l		0.694	0.138
+0.60D+0.60W+0.60H		0.083	0.017
+0.60D+0.70E+0.60H		0.083	0.017
D Only		0.139	0.028
Lr Only, LL Comb Run (*L)			
Lr Only, LL Comb Run (L*)			
Lr Only, LL Comb Run (LL)			
L Only, LL Comb Run (*L)			
L Only, LL Comb Run (L*)			
L Only, LL Comb Run (LL)			
S Only		0.740	0.147
W Only			
E Only			
H Only			

LOAD CHART #6A

Roof/Floor Uniform Transverse Loads - PSF [1-4]

Type S Spline

SIP Thickness	Deflection Limit	SIP Span (ft.)									
		4' [4]	8'	10'	12'	14'	16'	18'	20'	22'	24'
4-1/2"	L/360	100	32	23	NA	NA	NA	NA	NA	NA	NA
	L/240	143	48	35	NA	NA	NA	NA	NA	NA	NA
	L/180	143	63	47	NA	NA	NA	NA	NA	NA	NA
6-1/2"	L/360	105	51	38	29	23	NA	NA	NA	NA	NA
	L/240	162	76	57	44	35	NA	NA	NA	NA	NA
	L/180	191	80	61	50	42	NA	NA	NA	NA	NA
8-1/4"	L/360	120	67	51	40	32	26	22	NA	NA	NA
	L/240	179	94	71	57	48	40	33	NA	NA	NA
	L/180	179	94	71	57	48	41	36	NA	NA	NA
10-1/4"	L/360	131	86	66	52	43	35	29	25	21	NA
	L/240	168	94	75	63	54	47	41	36	32	NA
	L/180	168	94	75	63	54	47	41	36	33	NA
12-1/4"	L/360	132	94	75	63	53	44	37	32	27	23
	L/240	163	94	75	63	54	47	42	37	34	31
	L/180	163	94	75	63	54	47	42	37	34	31

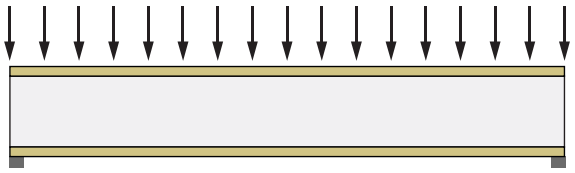
[1] Table values assume a simply supported SIP with 1-1/2 inches (38.1 mm) of continuous bearing. Permanent loads, such as dead load, shall not exceed 0.50 times the tabulated load. Values do not include the dead weight of the SIP.

[2] Deflection limit shall be selected by building designer based on the serviceability requirements of the structure and the requirements of applicable building code. Values are based on loads of short duration only and do not consider the effects of creep.

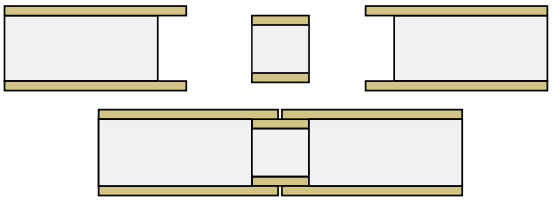
[3] Table values for 8-foot (2.44 m) spans apply to SIPs constructed with the OSB strength axis oriented either parallel or perpendicular to span direction. Table values for other spans are based on the OSB strength axis parallel to the span direction.

[4] SIPs shall be a minimum of 8-foot (2.44 m) long spanning two 4-foot (1.22 m) spans.

TRANSVERSE LOAD



TYPE S SPLINE



NOTE:

Load Chart #6A provides maximum allowable uniformly distributed pounds per square foot (PLF) roof/floor transverse load based on SIP thickness and span with Type S spline.

TECHNICAL BULLETIN NO. D-6

PREMIER SIPS
STRUCTURAL INSULATED PANELS

LOAD CHART #6B

Roof/Floor Uniform Transverse Loads - PSF [1-4]

Type I Spline

SIP Thickness	Deflection Limit	SIP Span (feet)									
		4[4]	8	10	12	14	16	18	20	22	24
10-1/4”	L/360	197	164	124	72	67	61	48	34	29	24
	L/240	336	164	124	107	96	84	70	49	43	36
	L/180	336	164	124	107	96	84	76	65	56	47
12-1/4”	L/360	258	143	103	86	83	77	61	42	37	32
	L/240	318	143	103	93	85	77	68	59	54	46
	L/180	318	143	103	93	85	77	68	59	54	49

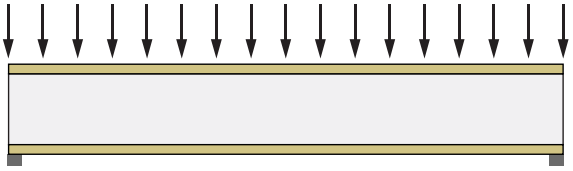
[1] Table values assume a simply supported SIP with 1-1/2 inches (38.1 mm) of continuous bearing. Permanent loads, such as dead load, shall not exceed 0.50 times the tabulated load. Splines consist of Premier I-beam, 2-1/4 inch (57.2 mm) wide flange (minimum) with a depth equal to the core thickness, spaced not to exceed 48 inches (1219.2 mm) on center.

[2] Deflection limit shall be selected by building designer based on the serviceability requirements of the structure and the requirements of applicable building code.

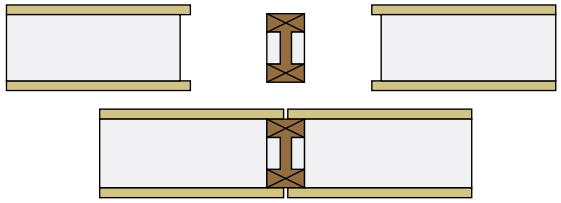
[3] Table values for 8-foot (2.44 m) spans apply to SIPs constructed with the OSB strength axis oriented either parallel or perpendicular to span direction. Table values for other spans are based on the OSB strength axis parallel to the span direction.

[4] SIP shall be a minimum of 8 foot (2.44 m) long spanning a minimum of two 4-foot (1.22 m) spans.

TRANSVERSE LOAD



TYPE I SPLINE



NOTE:
Load Chart #6B provides maximum allowable uniformly distributed pounds per square foot (PLF) roof/floor transverse load based on SIP thickness and span with Type I spline.

LOAD CHART #6C

Roof/Floor Uniform Transverse Loads - PSF [1-4]

Type L Spline

SIP Thickness	Deflection Limit	SIP Span (feet)									
		4[4]	8	10	12	14	16	18	20	22	24
4-1/2"	L/360	103	45	33	24	NA	NA	NA	NA	NA	NA
	L/240	225	68	47	34	NA	NA	NA	NA	NA	NA
	L/180	297	91	61	45	NA	NA	NA	NA	NA	NA
6-1/2"	L/360	307	129	57	42	34	25	20	NA	NA	NA
	L/240	307	182	87	61	49	37	30	NA	NA	NA
	L/180	307	182	112	80	65	49	39	NA	NA	NA
8-1/4"	L/360	253	171	82	66	54	41	32	23	NA	NA
	L/240	288	188	128	100	81	61	48	35	NA	NA
	L/180	288	188	133	117	105	80	63	45	NA	NA
10-1/4"	L/360	286	188	117	101	80	58	47	36	32	27
	L/240	326	188	147	134	120	90	71	52	47	41
	L/180	326	188	147	134	121	106	93	68	61	53
12-1/4"	L/360	327	188	167	141	116	91	75	58	47	36
	L/240	327	188	167	153	132	110	97	83	69	53
	L/180	327	188	167	153	132	110	97	83	83	70

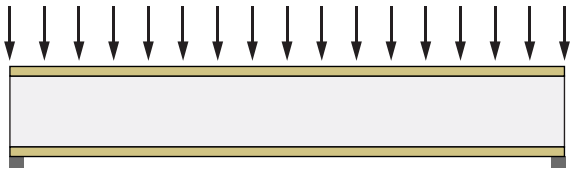
[1] Table values assume a simply supported SIP with 1-1/2 inches (38.1 mm) of continuous bearing. Permanent loads, such as dead load, shall not exceed 0.50 times the tabulated load. Splines consist of No. 2 or better Hem-Fir, 1-1/2 inches (38.1 mm) wide with a depth equal to the core thickness, spaced to provide not less than two members for every 48 inches (1219.2 mm) of SIP width.

[2] Deflection limit shall be selected by building designer based on the serviceability requirements of the structure and the requirements of applicable building code.

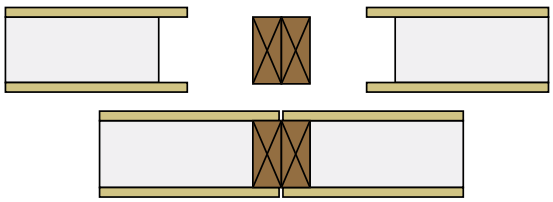
[3] Table values for 8-foot (2.44 m) spans apply to SIPs constructed with the OSB strength axis oriented either parallel or perpendicular to span direction. Table values for other spans are based on the OSB strength axis parallel to the span direction.

[4] SIP shall be a minimum of 8 foot (2.44 m) long spanning two 4-foot (1.22 m) spans. No single span condition is allowed.

TRANSVERSE LOAD

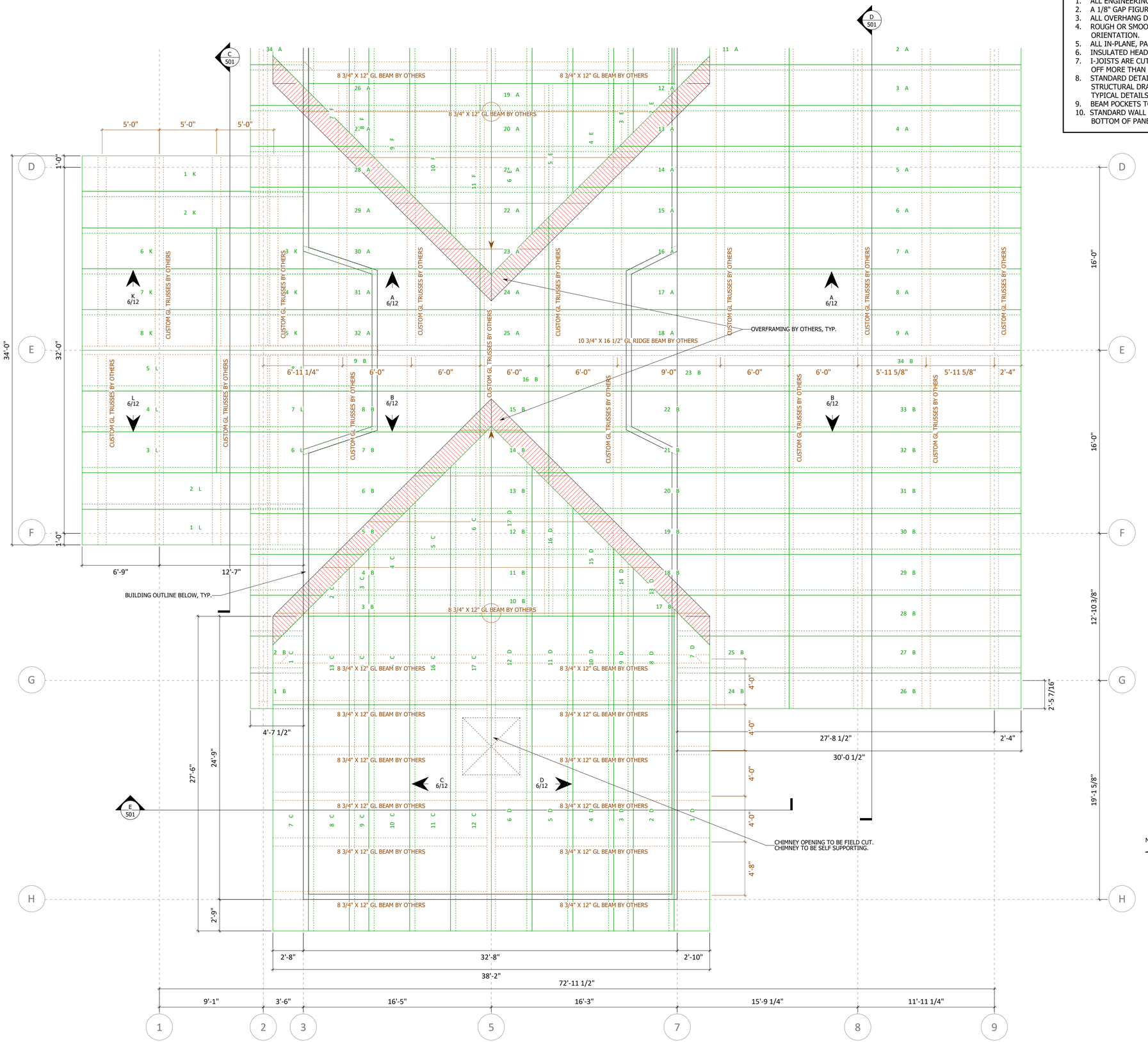


TYPE L SPLINE



NOTE:
Load Chart #6C provides maximum allowable uniformly distributed pounds per square foot (PLF) roof/floor transverse load based on SIP thickness and span with Type L spline.

NOTES:
1. ALL ENGINEERING PROVIDED BY OTHERS.
2. A 1/8" GAP FIGURED BETWEEN WINDOW / DOOR ROUGH OPENING AND THE PANEL NEXT TO THE OPENING.
3. ALL OVERHANG DIMENSIONS ARE TO TOP SKIN OF SIP ROOF PANEL. U.N.O.
4. ROUGH OR SMOOTH OSB DOES NOT DENOTE TOP OR BOTTOM OF SIP. REFER TO PANEL LAYOUTS FOR PANEL ORIENTATION.
5. ALL IN-PLANE, PANEL-TO-PANEL JOINTS PBS-200 U.N.O
6. INSULATED HEADERS (IHDR-2 PLY OR IHDR-1 PLY) ARE CUT TO LENGHT.
7. I-JOISTS ARE CUT TO 2' INCREMENTS ROUNDED UP FROM THE REQUIRED SPAN. (IF YOU'RE ABOUT TO CUT OFF MORE THAN 2' OF I-JOISTS THEN YOU'RE CUTTING THE WRONG ONE).
8. STANDARD DETAILS PROVIDED FOR TYPICAL INSTALLATION METHODS. REFERENCE ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR JOB SPECIFIC CONNECTION DETAILS, WHICH TAKE PRECEDENT OVER PBS TYPICAL DETAILS.
9. BEAM POCKETS TO BE FIELD CUT FOR PROPER ELEVATION AND SIZE.
10. STANDARD WALL ELECTRICAL CHASES INCLUDED BY DEFAULT. HORIZONTAL CHASES ARE 14" AND 42" ABOVE BOTTOM OF PANEL AND VERTICALLY APPROXIMATELY 4'-0" O.C DEPENDING ON PANEL WIDTHS.



Wind Uplift Calculation (Conservative)

@ Beams:
Wuplift=55 psf
Wuplift=((55 psf - 25 psf*0.9) * 7.5 ft) = 244 plf
Head Pullthrough screw = 0.65*630 #/screw = 410 #/screw
Spacing = 410/244 = 1.68 ft = 20" = 12" OK

DIAPHRAGM FASTENING NOTES:
1. ALL DIAPHRAGM NAILING SHALL BE IN ACCORDANCE WITH MARK D3 PER TABLE PBS - 100D.

N. 12" SIPS PANEL BOUNDARY SCREWS SHALL BE DESIGNED FOR ALLOWABLE DIAPHRAGM SHEAR OF 600 PLF.

SIP ROOF PLAN

Scale: 1/4"=1'-0"

PREMIER SIPS

BIG SKY INSULATIONS, INC.
dba PREMIER BUILDING SYSTEMS
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DRAWN BY: SDK
DATE: 10/07/2022

REVISIONS
REVISION TYPES
C-REV: Customer Revision
E-REV: Engineer Revision
P-REV: Premier Revision

#	DATE	DRAFTER	TYPE
1.	10/24/2022	JD	CR - REV
2.	11/11/2022	JD	CR - REV
3.			
4.			

SIP ROOF PLAN

VAIL PASS REST AREA PHASE II
MILE MARKER 190 INTERSTATE 70
VAIL, CO 80443

PBS PROJECT NO:
531359

303

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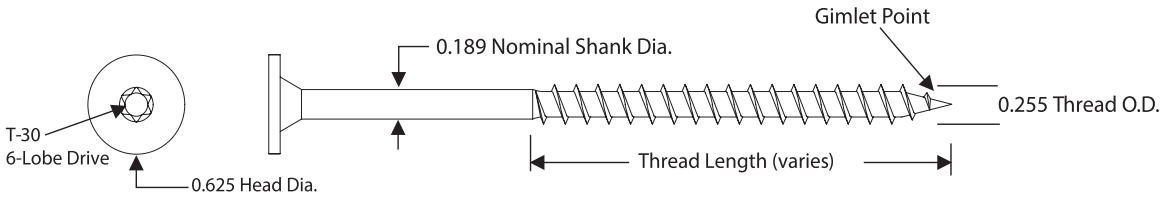
TECHNICAL BULLETIN NO. D-15

PREMIER SIPS
STRUCTURAL INSULATED PANELS

PREMIER WOOD SCREW PROPERTIES

The Premier Wood Metal Screw property values provided are average ultimate values. As determined by the project architect/engineer, appropriate safety factors must be used in design.



WOOD SCREW PROPERTIES			
Tensile (lbs) AISI S904	Shear (lbs) AISI S904	Bending Yield Strength - Fyb (psi) ASTM F1575	Corrosive Resistance ASTM D6294, ETAG 006
3555	2580	185,000	<15% Red Rust after 30 cycles

WITHDRAWAL: LUMBER & ENGINEERED WOOD - LBS./IN.[1]							
SPF/HF (0.42)		DF/SP (0.50)		LVL (0.50)		LSL (0.50)	OSB (7/16")
Face Grain	Edge Grain	Face Grain	Edge Grain	Face Grain	Edge Grain	Face Grain	Face
799	615	899	702	556	495	711	265

[1] Load values include fastener tip.

WITHDRAWAL: CONCRETE & CMU - LBS. [1]		
2500 psi Concrete	5000 psi Concrete	CMU[2]
682	869	713

[1] Fastener penetrates 1" into concrete or CMU clock, including the tip.
[2] Concrete Masonary unit (CMU) conforming to ASTM C90.

HEAD PULL-THRU - LBS.	
7/16" OSB	SIP
490	630

LATERAL LOAD RESISTANCE - LBS.		
Main Member	Side Member	Load
SPF[1]	8-1/4" SIP	943

[1] 1-3/4" fastener embedment into edge grain, including tip.