



STATE OF COLORADO
Cover Sheet for Building Specifications, Third Party
Reviews, and QA Manuals

Name of Manufacturer: Dreamwood Cabin Company Plant I.D. Number: 4128

Manufacturer Address: 155 Shoop Drive, Penrose, CO 81240

Manufacturer Contact Name and Contact Number: Daniel Mendoza 719-315-0106

Manufacturer Contact Email address: daniel@dreamwood.co

Third Party Inspection Agency (if not CDOH): N/A

Third Party Plan Review Agency (if applicable): ICC-NTA

Third Party Plan Review Approval Name/Number (if applicable): _____

Factory Type: ☒ FB ☐ FBNR ☐ Tiny Homes ☐ HUD Homes

Document Type: ☒ New Plan ☐ Revision ☐ Renewal

Model Name/No.: 24x40 Ranch Zook DH189

MANUFACTURER CERTIFIES that only approved equipment and materials will be used and the installations shall be made in accordance with approved plans and applicable codes and provisions of the Colorado Division of Housing. Manufacturer agrees to in-plant inspection of units manufactured under the above plan approval. Application shall be made for and insignia affixed to ~~each factory built~~ ^{Each factory built} unit that is subject to Colorado statutes and which is manufactured or is to be sold, offered for sale, or occupied in the state of Colorado.

Sq. Footage Finished: <u>935</u>	
Sq. Footage Unfinished: _____	
CDOH Approval Stamp	
 APPROVED PLANS Subject to field inspection OC INSPECTION REQUIRED	
Expiration Date 12/1/2026	CDOH Plan Approval Number R-00074930C

Model Number: 24x40 Ranch Zook DH189**Residential (IRC) & Tiny Home Plan Submission Checklist**

*A full plan set submission to the Colorado Division of Housing includes the following:
(Electronic Plan Submissions Only)*

Submitted	Document Type
☒	Plan Review Payment through Salesforce
	Plan Set Package
	Architectural Plan Set
☒	Initialed and signed copy of the Plan Submission Checklist confirming applicable documents have been included in the plan package.
☒	- Index of submitted plan package - Can be a separate document or clearly denoted on cover page
☒	Site location where structure is to be installed, and Local Authority Having Jurisdiction, or designate the structure as lot model with design loads that are specific for the area the home can be installed, and a minimum setback distance noted for fire separation requirements. If site location is known, a site plan, set back distances to lot lines or other structures, and local AHJ Wildfire Mitigation area requirements (if any) are required to determine fire separation requirements for structure. If structure is to be set in a location where there is no local authority having jurisdiction or lot model, at a minimum, the design loads must comply with 8 CCR 1302-14, Rule 2.2.1.
☒	- Code Analysis - Design Codes - Wind, and Snow Loads (must meet local AHJ and CDOH minimums) - Seismic and Wind Exposure category - Type of Fire suppression system if applicable (factory installed or on site) - If location is known, clearly denote on code analysis if the jurisdiction require a fire suppression system. If one is required and any of the installation is to be in-plant, then it must comply with Colorado Division of Fire Safety & Control Rules (8 CCR 1507-11) & a CORI shall accompany the units throughout the process.
☒	- List of items to be completed on site - OC Form included that complies with 8 CCR 1302-14, Rules 1.19, 4.17.1.1, and C.R.S. 24-32-3311(1)(a.7)
☒	- Architectural plans with applicable details - Floor Plan for Each Level - Room Use Specification - Window and Door Schedules - Elevations - Section Drawings (Full and at Stairs)



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☒	- Fire Rated Assembly Details (If applicable) - Assemblies not exempt in section R302 to be fire rated or other sections in the code, need to have details showing compliance with section R302 of the IRC for separation of dwellings, fire separation distances, and/or floors. Must comply with the testing standards of either ASTM E119 or UL263 or section 703.3 of the IBC. - If section 722 of the IBC has been opted for compliance, the design must be approved through a Colorado Registered Fire Protection engineer.
	Structural Framing Plans
☒	- Components - Floor Assemblies - Wall Assemblies - Roof Assemblies - Ceiling Assemblies - Headers, Beams and Columns - Proposed Foundation - Braced Wall line details, and tie down equipment with locations that are not specifically addressed in approved installation manual. - Construction components exceeding section R301 of the IRC, shall have plans stamped by a Colorado Registered Design Professional.
	MEP Plan Sheets
☒	- Mechanical System Plans - Exhaust Locations - Whole home ventilation systems
☒	- Electrical System Plans - Fixtures, load calculations, panel/circuit schedule with breaker and wire sizing, symbols legend, etc.
☒	- Plumbing System Plans - Service water piping with piping location, insulation and size - Fixture types and locations - Isometric for DWV, indicate pipe sizes
☒	- Gas System Plans - Gas Isometric with distances and BTU ratings of appliances it serves - Piping material and sizes, service pressure ratings
	Spec Set Package
☒	Spec Cover Sheet
☒	Copy of the "OC" Inspection letter denoting the "OC" inspection items listed on the submitted plans. Information from the site address on the first page to the "factory authorized representative" portion to the date must be filled in by the factory, except for the CDOH P/A NO (DOH assigned).
☒	- Engineered/Certified Component Details - Engineered and stamped truss details by a State of Colorado professional designed per TPI 1 - 2014 per IRC 2018. Include correct loading and wind speed & exposure, etc. - Tiny Home chassis must be engineer approved or certified by NHTSA
	Energy Compliance





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☒	○ REScheck (<i>signed</i>) ▪ Use appropriate version 2015 (or 2012, 2009 based on local adoption) ▪ Use the Colorado city where the building will be installed (If site location is not a selection on REScheck, list exact location on Construction Site information box) • If a REScheck is omitted and the prescriptive method is opted for use, please clearly denote on plans a table showing the information depicted in the IECC, Section R103.2 and applicable information per 8 CCR 1302-14, Rule 2.7
☒	• HVAC System Plans ○ Load calculations for equipment sizing (Manual J) ○ Equipment size listed and meets or exceeds load calculation with deration (Manual S) ○ Supply and return air sizing and plans (Manual D) ○ Site information must match information provided on the REScheck

The Colorado Division of Housing plan review does not begin until the entire plan submission is received.

Applicant must sign below acknowledging submittal checklist has been read and all applicable documents have been submitted for review and any changes to plans require plans to be resubmitted for review, and approved by DOH before construction. All DOH plans are subject to field inspection. Additional information not included in this general list may be requested by DOH plan reviewers to complete review.

x Daniel Mendoza

Date: 04/15/26

For additional plan review requirements, questions, or concerns, please reach out to our staff at:

FB/FBNR
manufactured.plans@state.co.us
Tiny Homes
dola_tinyhomes@state.co.us





“OC” (On-site Construction) Form

Please read below before signing form.

Please See Attached Document at bottom of form for Specific plan and Manufacturer information.

To: The Local Authority Having Jurisdiction (LAHJ) or other DOH approved third party inspection agency.

By signing this form, you confirm that you have received and reviewed this form, and acknowledge that the identified components below are required to complete the construction of this modular structure onsite within your jurisdiction.

Building Official Responsibility

Please check the box labeled “Accept” and initial to confirm that you will take responsibility for inspections of the “OC” Inspection Items on behalf of the DOH. You also acknowledge that it will be done to the DOH approved plans.

If you would like to defer inspection of the “OC” Inspection Items back to the DOH, please check the box labeled “Defer Inspection”.

ATTENTION

“On-site Construction” or “OC” means on-site construction or modification of the factory-built structure that directly relates to the durability, quality, and safety; that is completed at the installation “site” as defined by section 24-32-3302(33), C.R.S.; using components not installed at the manufacturer’s location; and to complete the compliance of that structure as reflected in the Division of Housing approved plans. These items do not include the component(s) required for setting and securing the structure for its installation.

Fire Safety Official Responsibility (if applicable)

The DOH defers the requirement of any fire protection system for all modular IBC (Section 901.2) and IRC (Section R313) structures as follows:

An automatic fire sprinkler system shall be installed in buildings (IBC) OR one and two family dwellings and townhouses (IRC) OR Tiny homes as required by the local jurisdiction where the structure or home will be set. Final tests required by this Section shall be approved by a certified inspector. The inspector must be either an employee of the fire department having jurisdiction or another qualified individual with prior approval of the Colorado Division of Fire Prevention & Control.

Wild Fire mitigation requirements will be deferred for (IBC) OR one and two family dwellings and townhouses (IRC) OR Tiny homes as required by the local jurisdiction where the structure or home will be set. Final inspections required by locals shall be approved by a certified inspector. The inspector must be either an employee of the fire department having jurisdiction or another qualified individual with prior approval of the Colorado Division of Fire Prevention & Control.





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Please confirm if the LAHJ requires a fire protection system and/or wild fire mitigation for this modular structure. If so, please indicate if the inspection will be completed by a fire department (identify which one) or whether it will be completed by the Colorado Division of Fire Prevention & Control.

Manufacturer Responsibility

The registered manufacturer is responsible for manufacturing a structure that is compliant with our Administrative Rules (CCR 1302-14). If items in the factory have not been completed, only to be completed in the field, you are still responsible for ensuring they have been completed for compliance. Please sign below that you have received this letter and acknowledge the items listed are to complete compliance of the structure, and items are to be inspected and passed for compliance in order to meet Rule 1.13.1 and section 24-32-3311(4), Colorado Revised Statutes (C.R.S.).

ATTENTION

A DOH issued insignia (silver for residential or blue for nonresidential or pink for tiny homes or black for multi-family) certifying its construction cannot be affixed to the structure until all "OC" items are completed on site and pass inspection. The same applies to modular structures manufactured by a certified manufacturer.

Acknowledge Receipt and Understanding

Normal permits and fees for these site work inspections are to be per the local jurisdiction.

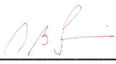
State approved plans for Factory-Built Construction may be obtained from the Builder/Manufacturer.

A copy of this completed form is included with the DOH approved plans and must be included with the installation instructions and shipped with the unit. If the completed form has been damaged or lost during shipping, the manufacturer or its representative can obtain a copy from the DOH.

Before any inspection is scheduled at the on-site location or Installation Authorization (required for modular homes and multi-family structures) is issued by the DOH, this form will be required to be signed and dated by the Building Official, or Approved Third Party Agent, or Fire Safety Official (if applicable), and submitted to the DOH.

The DOH approved OC form will be included with the approved spec file, with the DOH Plan Reviewer signature below and their plan approval stamp on the page(s) with the OC listed items to be completed at the site location. That approved OC form should be submitted to the appropriate parties described in this form and submitted back to the DOH before any inspection is scheduled at the onsite location or Installation Authorization (required for modular homes and multi-family structures) is issued.

DOH Plan Reviewer Name DAVE LARKIN

DOH Plan Reviewer Signature 

Date Approved APPROVED

Contact email: dave.larkin@state.co.us

By dlarkin at 8:43 am, Apr 30, 2026





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Division of Housing

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Building Department Representative Printed Name_____

Building Department Representative Signature_____

Title_____

Date_____

☐

Accept

☐

Defer Inspection

Contact email:_____

If applicable:

Fire Safety Official Printed Name_____

Fire Safety Official Signature_____ Date_____

Contact email:_____

Is a fire protection system required? (check one)

Required

Not Required

If required, the inspection is to be performed by (check one):

_____ Fire Department: (NAME)_____

OR

_____ Colorado Division of Fire Prevention & Control

Manufacturer's Authorized Quality Assurance Representative

Printed Name Daniel Mendoza

Manufacturer's Authorized Quality Assurance Representative

Signature Daniel Mendoza Date 04/15/26

Contact email: daniel@dreamwoo.co

If the inspection has been deferred and the manufacturer elects to utilize an Approved Third Party Agency to inspect the "OC" items on behalf of DOH, please sign and date below.

Approved Third Party Agent Printed Name_____

Approved Third Party Agent Signature_____ Date_____

Contact email:_____





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Verify Inspection(s) Completed

Once you have completed all of your assigned inspections identified in this form and they have passed for compliance, please sign and date below.

Building Department Representative Printed Name_____

Building Department Representative Signature_____

Date_____

Contact email:_____

Or

Approved Third Party Agent Printed Name_____

Approved Third Party Agent Signature_____ Date_____

Contact email:_____

Fire Protection Systems (if applicable)

Fire Safety Official Printed Name_____

Fire Safety Official Signature_____ Date_____

Contact email:_____

Please direct questions to manufactured.plans@state.co.us





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The following is based on information provided to the Division of Housing (DOH) and may be modified based on the actual findings of the field inspection.

DATE: 04/15/26

MANUFACTURER: Dreamwood Cabin Company

ID NO.: 4128

CONTACT: Daniel Mendoza

PHONE NO.: 719-315-0106

MODEL NO.: 24x40 Ranch Zook DH189

DOH P/A NO.:

INSPECTION REQUIREMENTS: Check on site:

"OC" Inspection Items

- Building Drain Cleanouts and Connection to Plumbing
- Compliance with Blower Door Test
- Compliance with Colorado Solar Ready and EV Ready Code. Including Solar and EV Ready Space RS402 and RV502.1
- Plumbing System Connections and Completion. DWV and Supply Drops in Modular Floor attaching to utility connections.
- Weatherproof Cap installations at the termination of penetrations (if unable to be installed in the factory)
- Porch Railings, Landings, Stairs (if applicable on-site)
- Foundation Ventilation
- Completion of Exterior Wall Coverings at Matelines and Ridgecap Installation
- Completion of Thermal Insulation Barrier
- Foundation Design, Engineering, and Construction. Including Concrete Piers, Footings, and Hold
- Downs per Manufacturer Loading Requirements
- Electrical Service Entrance. Including Meter Base, Main Disconnect, Service Conductors, and Ground Rod
- Electrical Overcurrent Protection and Disconnect at Building
- Heating System Design, Supply, and Installation
- Mechanical Vent Terminations Through Roof. Including Bath Exhaust and Range Hood Duct
- Connections per IRC M1504
- Gutters, Leaders, and Splash Blocks
- Access to Grade at All Exterior Entry Doors. Including Stoops, Steps, and Landings
- Energy Efficiency Certificate Posted at Interior of Building per IECC
- Floor Insulation Installation and Inspection (R-38C / R-35 Compressed Value)
- Fire Protection on Underside of Floors Where Required per R302.13





Compliance Certificate

Project Information

Project Title:

Energy Code:

Location:

Construction Type:

Project Type:

Project Sub Type:

Conditioned Floor Area:

Glazing Area:

Climate Zone:

Project No:

All Electric:

Is Renewable:

Has Battery:

Has Charger:

Has Heat Pump

Novacek

2021 IECC

La Plata, Colorado

Single Family

New Construction

None

935 ft2

18%

5b (8499 HDD)

1825616

false

false

false

false

false

**Construction Site:**200 Vista Drive
Bayfield, CO 81122**Owner/Agent:**

Novacek

Designer/Contractor:150 Commerce Drive
Zook Cabins
New Holland, PA 17557**Project Notes:**

Energy Credits

Description	Credits
Enhanced Envelope Performance Option - R408.2.1	1.0

Required: 1 Proposed: 1**APPROVED BY**

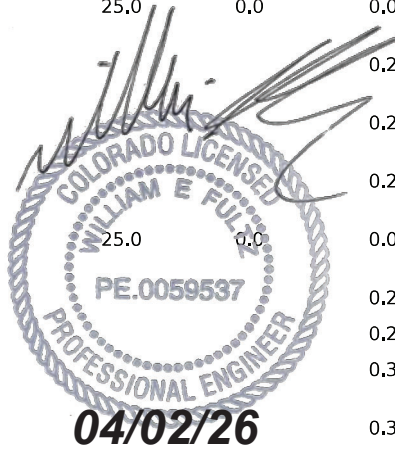
04/07/2026

Approval of this document does not authorize or approve any deviation or deviations from the requirements of applicable State Laws.

Envelope Assemblies

Assembly	Gross Area or Perimeter	Cavity R-Value	Cont. R-Value	Prop. U-Factor/ F-Factor	Req. U-Factor/ F-Factor	Prop. UA	Req. UA
Ceiling: Cathedral Ceiling	935	65.0	0.0	0.016	0.024	15	22
Floor: All-Wood Joist/Truss	935	35.0	0.0	0.028	0.033	26	31
Wall - Front: Wood Frame, 16" o.c.	396	25.0	0.0	0.053	0.045	16	14
Transom - FWT50110: Vinyl Frame	9			0.290	0.320	3	3
Window - CW13: Vinyl Frame	7			0.290	0.320	2	2
Transom - FWT60110: Vinyl Frame	11			0.290	0.320	3	4
Door - 3/0 Full lite: Glass Door (over 50% glazing)	22			0.240	0.320	5	7
Door - FWG6068: Glass Door (over 50% glazing)	40			0.300	0.320	12	13
Wall - Rear: Wood Frame, 16" o.c.	368	25.0	0.0	0.053	0.045	16	14
Window - CXW16E: Vinyl Frame	18			0.290	0.320	5	6
Window - CXW16E: Vinyl Frame	18			0.290	0.320	5	6
Door - 3/0 Full lite: Glass Door (over 50% glazing)	22			0.240	0.320	5	7
Wall - Left: Wood Frame, 16" o.c.	218	25.0	0.0	0.053	0.045	9	8
Window - Trap: Vinyl Frame	5			0.270	0.320	1	1
Window - Trap: Vinyl Frame	5			0.270	0.320	1	1
Door - FWG3168S: Glass Door (over 50% glazing)	21			0.300	0.320	6	7
Door - FWG3168S: Glass Door (over 50% glazing)	21			0.300	0.320	6	7
Wall - Right: Wood Frame, 16" o.c.	218	25.0	0.0	0.053	0.045	10	9
Window - C125: Vinyl Frame	5			0.290	0.320	1	2
Window - CXW16E: Vinyl Frame	18			0.290	0.320	5	6

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NIA 04/07/2026
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Compliance: Passes using UA trade-off

Compliance: 5.9% Better Than Code

Max UA: 162

Your UA: 152

The % Better or Worse Than Code Index reflects how close to compliance the house is based on code trade-off rules. It DOES NOT provide an estimate of energy use or cost relative to a minimum-code home.

Slab-on-grade tradeoffs are no longer considered in the UA or performance compliance path in REScheck. Each slab-on-grade assembly in the specified climate zone must meet the minimum energy code insulation R-value and depth requirements.

Compliance Statement

The proposed building design described here is consistent with the building plans, specifications, and other calculations submitted with the permit application. The proposed building has been designed to meet the 2021 IECC requirements in REScheck-Web and to comply with the mandatory requirements listed in the REScheck Inspection Checklist.

Name - Title

Signature

Date

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04/07/2026

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04/02/26



Inspection Checklist

Energy Code: 2021 IECC

Requirements: 0% were addressed directly in the REScheck software

Text in the "Comments/Assumptions" column is provided by the user in the REScheck Requirements screen. For each requirement, the user certifies that a code requirement will be met and how that is documented, or that an exception is being claimed. Where compliance is itemized in a separate table, a reference to that table is provided.

Pre-Inspection/Plan Review

Section # & Req.ID	Pre-Inspection/Plan Review	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
103.1, 103.2 [PR1] ¹	Construction drawings and documentation demonstrate energy code compliance for the building envelope. Thermal envelope and energy compliance path represented on construction documents.			☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable	
103.1, 103.2, 403.8 [PR3] ¹	Construction drawings and documentation demonstrate energy code compliance for lighting and mechanical systems. Systems serving multiple dwelling units must demonstrate compliance with the IECC Commercial Provisions.			☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable	
302.1, 403.7 [PR2] ²	Heating and cooling equipment is sized per ACCA Manual S based on loads calculated per ACCA Manual J or other methods approved by the code official.	Heating: Btu/hr Cooling: Btu/hr 	Heating: Btu/hr Cooling: Btu/hr 	☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable	

Additional Comments/Assumptions:

1	High Impact (Tier 1)	2	Medium Impact (Tier 2)	3	Low Impact (Tier 3)
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Foundation Inspection

Section # & Req.ID	Foundation Inspection	Complies?	Comments/Assumptions
303.2.1 [FO11] ²	A protective covering is installed to protect exposed exterior insulation and extends a minimum of 6 in. below grade.	☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable	
403.9 [FO12] ²	Snow and ice-melting system controls installed to shut off system when pavement temperature > 50F and no precipitation.	☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable	

Additional Comments/Assumptions:

1	High Impact (Tier 1)	2	Medium Impact (Tier 2)	3	Low Impact (Tier 3)
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Framing / Rough-In Inspection

Section # & Req.ID	Framing / Rough-In Inspection	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
402.1, 402.3.1, 402.3.3, 402.5 [FR2] ¹	Glazing U-factor (area-weighted average).	U-	U-	☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable	See the Envelope Assemblies table for values
402.4.1.1 [FR23] ¹	Air barrier and thermal barrier installed per manufacturer's instructions.			☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable	
402.4.3 [FR20] ¹	Fenestration that is not site built is listed and labeled as meeting AAMA /WDMA/CSA 101/I.S.2/A440 or has infiltration rates per NFRC 400 that do not exceed code limits.			☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable	
402.4.5 [FR16] ²	IC-rated recessed lighting fixtures sealed at housing/interior finish and labeled to indicate ≤ 2.0 cfm leakage at 75 Pa.			☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable	
403.3.1 [FR12] ¹	Supply and return ducts in attics insulated $\geq R-8$ where duct is ≥ 3 inches in diameter and $\geq R-6$ where < 3 inches.			☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable	
403.3.4 [FR13] ¹	Ducts, air handlers and filter boxes are sealed with joints/seams compliant with International Mechanical Code or International Residential Code, as applicable.			☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable	
403.3.7 [FR15] ³	Building cavities are not used as ducts or plenums.			☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable	
403.4 [FR17] ²	HVAC piping conveying fluids above 105 °F or chilled fluids below 55 °F are insulated to $\geq R-3$.	R-	R-	☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable	

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Section # & Req.ID	Framing / Rough-In Inspection	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
402.4.6 [FR29] ³	Electrical and communication boxes installed in the thermal boundary of the envelope sealed to limit air leakage between conditioned and unconditioned spaces.			☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable	
403.4.1 [FR24] ¹	Protection of insulation on HVAC piping.			☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable	
403.5.2 [FR18] ²	Hot water pipes are insulated to $\geq R-3$.	R-	R-	☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable	
403.6 [FR19] ²	Automatic or gravity dampers are installed on all outdoor air intakes and exhausts for mechanical ventilation systems.			☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable	
403.6.1 [FR30] ²	Ventilation systems in climate zones 7 & 8 shall utilize heat or energy recovery			☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable	
303.1.3 [FR4] ¹	U-factors of fenestration products are determined in accordance with the NFRC test procedure or taken from the default table.			☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable	

Additional Comments/Assumptions:

1	High Impact (Tier 1)	2	Medium Impact (Tier 2)	3	Low Impact (Tier 3)
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Insulation Inspection

Section # & Req.ID	Insulation Inspection	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
303.1 [IN13] ²	All installed insulation is labeled or the installed R-values provided.			☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable	
402.1, 402.2.7 [IN1] ¹	Floor insulation R-value.	R- ☐ Wood ☐ Steel	R- ☐ Wood ☐ Steel	☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable	See the Envelope Assemblies table for values
402.1, 402.2.5, 402.2.6 [IN3] ¹	Wall insulation R-value. If this is a mass wall with at least ½ of the wall insulation on the wall exterior, the exterior insulation requirement applies (FR10).	R- ☐ Wood ☐ Mass ☐ Steel	R- ☐ Wood ☐ Mass ☐ Steel	☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable	See the Envelope Assemblies table for values
303.2 [IN4] ¹	Wall insulation is installed per manufacturer's instructions.			☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable	

Additional Comments/Assumptions:

1	High Impact (Tier 1)	2	Medium Impact (Tier 2)	3	Low Impact (Tier 3)
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Final Inspection Provisions

Section # & Req.ID	Final Inspection Provisions	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
303.1.1.1, 303.2 [FI2] ¹	Ceiling insulation installed per manufacturer's instructions. Blown insulation marked every 300 ft ² .			☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable	
303.3 [FI18] ³	Manufacturer manuals for mechanical and water heating systems have been provided.			☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable	
403.2 [FI26] ²	Hot water boilers supplying heat through one- or two-pipe heating systems have automatic outdoor setback control to lower boiler water temperature based on outdoor temperature, indoor temperature or water temperature sensing.			☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable	 APPROVED BY 04/07/2026 Approval of this document does not authorize or approve any deviation or deviations from the requirements of applicable State Laws.
403.3.4.1 [FI24] ¹	Air handler leakage designated by manufacturer at <=2% of design air flow.			☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable	
403.3.6 [FI4] ¹	Duct tightness test result of <=4 cfm/100 ft ² across the system or <=3 cfm/100 ft ² without air handler @ 25 Pa. Duct tightness <= 8 cfm/100 ft ² for ducts within thermal envelope. For rough-in tests, verification may need to occur during Framing Inspection.	cfm/100 ft ²	cfm/100 ft ²	☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable	
403.5.1 [FI11] ²	Circulating service hot water systems have automatic or accessible manual controls.			☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable	
404.1 [FI6] ¹	100% of permanent fixtures have high efficacy lamps.			☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable	
403.5.1.1 [FI28] ²	Heated water circulation systems have a circulation pump. The system return pipe is a dedicated return pipe or a cold water supply pipe. Gravity and thermos-syphon circulation systems are not present. Controls for circulating hot water system pumps start the pump with signal for hot water demand within the occupancy. Controls automatically turn off the pump when water is in circulation loop is at set-point temperature and no demand for hot water exists.			☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable	

Section # & Req.ID	Final Inspection Provisions	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
403.5.1.1.1 [FI32] ²	Demand recirculation water systems have automatic controls to start pump when hot water is requested.			☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable	
404.2 [FI36] ³	Permanent interior lighting shall be controlled with either a dimmer, occupancy sensor or other control built into the fixture.			☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable	APPROVED BY  04/07/2026 Approval of this document does not authorize or approve any deviation or deviations from the requirements of applicable State Laws.
404.3 [FI37] ³	Exterior lighting $\geq$ 30 watts shall have the following controls: manual on/off switch with automatic shut-off, automatic shut-off in daylight hours, and controls that override automatic shutoff that returns to automatic control within 24 hours.			☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable	
403.5.1.2 [FI29] ²	Electric heat trace systems comply with IEEE 515.1 or UL 515. Controls automatically adjust the energy input to the heat tracing to maintain the desired water temperature in the piping.			☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable	
403.5.3 [FI31] ²	Drain water heat recovery units tested in accordance with CSA B55.1. Potable water-side pressure loss of drain water heat recovery units $<$ 3 psi for individual units connected to one or two showers. Potable water-side pressure loss of drain water heat recovery units $<$ 2 psi for individual units connected to three or more showers.			☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable	
401.3 [FI7] ²	Compliance certificate posted with building specifications and compliance path and results.			☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable	
403.6.2 [FI25] ²	All mechanical ventilation system fans not part of tested and listed HVAC equipment meet efficacy and air flow limits per Table R403.6.2.			☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable	
403.6.3 [FI33] ²	Mechanical ventilation systems tested and verified to meet the minimum flow rates required by Section R403.6.			☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable	
404.1.1 [FI35] ³	Exterior lighting for multifamily buildings shall comply with Section C405.4.			☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable	

Section # & Req.ID	Final Inspection Provisions	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
408.2.1 [FI38] ³	Enhanced Envelope Performance Option: Proposed building UA = 0.95 UA of 2021 IECC Standard Reference Design.			☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable	
402.1, 402.2.1, 402.2.2, 402.2.6 [FI1] ¹	Ceiling insulation R-value.	R- ☐ Wood ☐ Steel	R- ☐ Wood ☐ Steel	☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable	See the Envelope Assemblies table for values
402.2.3 [FI22] ²	Vented attics with air permeable insulation include baffle adjacent to soffit and eave vents that extends over insulation.			☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable	
402.2.4 [FI3] ¹	Attic access hatch and door insulation $\geq$ R-value of the adjacent assembly.	R-	R-	☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable	
402.4.1.3 [FI17] ¹	Blower door test @ 50 Pa. ≤ 5.0 ach in Climate Zones 1-2, and ≤ 3.0 ach in Climate Zones 3-8.	ACH 50 =	ACH 50 =	☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable	
402.4.4 [FI29] ²	Where open combustion air ducts provide combustion air to open combustion fuel burning appliances, the appliances and combustion air opening are located outside the building thermal envelope or enclosed in a room, isolated from inside the thermal envelope. Such rooms are sealed and insulated.			☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable	
403.1.1 [FI9] ²	Programmable thermostats installed for control of primary heating and cooling systems and initially set by manufacturer to code specifications.			☐ Complies ☐ Does Not Comply ☐ Not Observable ☐ Not Applicable	

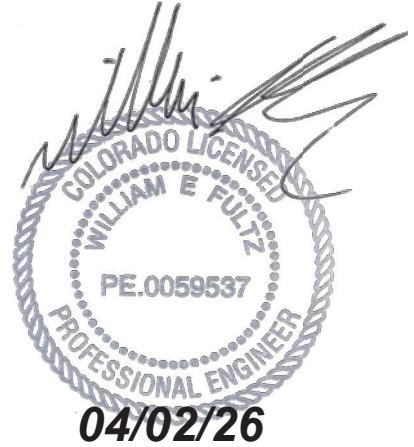
Additional Comments/Assumptions:

1	High Impact (Tier 1)	2	Medium Impact (Tier 2)	3	Low Impact (Tier 3)
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2021 IECC Energy Efficiency Certificate



Insulation Rating	R-Value
Above-Grade Wall	25.00
Below-Grade Wall	0.00
Floor	35.00
Ceiling / Roof	65.00
Ductwork (unconditioned spaces):	_____

Glass & Door Rating	U-Factor	SHGC
Window	0.29	0.29
Door	0.30	0.23
Skylight	0.00	

Heating & Cooling Equipment	Efficiency
Heating System: _____	_____
Cooling System: _____	_____
Water Heater: _____	_____

Signature
Name: _____ Date: 04/02/202
Comments: 6



04/07/2026

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Estimated R-values for Compressed Fiber Glass Batt Insulation

When to Account for Compression of Batt Insulation

Fiber glass insulation manufacturers design batts to fit standard wood and metal framing sizes. However, there may be times when insulation is compressed to fit specific needs. While fiber glass insulation can be compressed below labeled thickness and still achieve Grade I installation, manufacturers’ instructions specify installation without compression to achieve labeled R-value. When uniformly compressed below the labeled

thickness, some reduction in R-value will occur in fiber glass batt insulation. The chart below displays the compressed R-value of standard batt products installed across several nominal framing cavity depths. The data represented on the chart come from the majority of fiber glass insulation manufacturers. Cavities that have a depth greater than the labeled thickness will see no compression and therefore no reduction in R-value.

Guidance and Limitations

- **Always Use Manufacturer Data First.** Manufacturer R-value reduction data for specific products always takes precedence over the R-values included in this chart. Be sure to contact your manufacturer to have the most accurate product-specific information.
 - **Intended Use for Inspections Only.** This chart is intended for use by inspectors as guidance in assessing the thermal resistance of compressed fiber glass batt insulation. These data are not intended as recommendations for alternative design selection or non-standard installation.
- **No Extrapolation/Interpolation.** The R-values noted below are applicable only to the exact cavity depths and insulation label R-values/label thicknesses listed. Do not calculate or estimate R-values in the shaded areas. Contact the manufacturer for specific products and designs.
 - **Durability Advisory.** Some products will resist compression into framing cavities and may deform sheathing for the cavity depths and label R-values listed. Consult with the manufacturer on specific applications to ensure durability of construction.

Nominal Lumber Size	Cavity Depth	Estimated R-values for Insulation Compressed into Framing Cavities											
I Joist	14"	49											
I Joist	11 7/8"	44	38										
2x12	11 1/4"	42	37	30									
I Joist	9 1/2"		33	29									
2x10	9 1/4"		32	29	30	25							
2x8	7 1/4"			25	25	24							
2x6 (metal)	6"					21			19				
2x6	5 1/2"						21	20	18				
2x4 (metal)	4"						16	16	14				
2x4 (metal)	3 5/8"						15	15					
2x4	3 1/2"						15	14		15	13	11	
2x3	2 1/2"									11	10	8.9	
2x2 (metal)	1 5/8"											6.5	
2x2	1 1/2"											6.1	
Label R-Value		R-49	R-38	R-30		R-25	R-21	R-20	R-19	R-15	R-13	R-11	
Label Thickness		14"	12"	10"	9 1/2"	8"	5 1/2"		6 1/4"	3 1/2"			



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CARLISLE SPRAY FOAM INSULATION

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Cartersville, GA 30120
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SEALTITE™ PRO HFO SPRAY-APPLIED POLYURETHANE FOAM PLASTIC INSULATION

CSI Section:

07 21 00 Thermal Insulation

1.0 RECOGNITION

SealTite™ PRO HFO spray-applied polyurethane foam plastic insulation described in this report has been evaluated for use as thermal insulation. The physical properties, thermal resistance, surface burning characteristics, air permeability, water vapor transmission, attic and crawl space installations, and uses in Types I through V construction were evaluated for compliance with the following codes and regulations:

- 2021, 2018, 2015, and 2012 International Building Code® (IBC)
- 2021, 2018, 2015, and 2012 International Residential Code® (IRC)
- 2021, 2018, 2015, and 2012 International Energy Conservation Code® (IECC)
- 2020 Florida Building Code, Building (FBC, Building) – Supplement attached
- 2020 Florida Building Code, Residential (FBC, Residential) – Supplement attached
- 2020 Florida Building Code, Energy Conservation (FBC, Energy Conservation) – Supplement attached

2.0 LIMITATIONS

Use of SealTite PRO HFO spray-applied polyurethane foam plastic insulation recognized in this report is subject to the following limitations:

2.1 The insulation shall be installed in accordance with the manufacturer's published installation instructions, this evaluation report, and the applicable code. If there are any conflicts between the manufacturer's published installation instructions and this report, the more restrictive shall govern.

2.2 In accordance with Section 4.6.1 of this report, the insulation shall be separated from the interior of the building by a code-complying thermal barrier.

2.3 The insulation shall not exceed the nominal density and thickness for the installation conditions described in this report.

2.4 During application, the insulation shall be protected from exposure to weather.

2.5 The insulation shall be installed by professional spray polyurethane foam installers approved by Carlisle Spray Foam Insulation or by the Spray Polyurethane Foam Alliance (SPFA).

2.6 Use of the insulation in areas of "very heavy" termite infestation probability shall be in accordance with 2021, 2018, and 2015 IBC Section 2603.8, 2012 IBC Section 2603.9, or IRC Section R318.4, as applicable.

2.7 When required by the applicable code, a Class I vapor retarder shall be installed.

2.8 Labeling and job site certification of the insulation and coatings shall comply with the following code sections as applicable:

- IBC Section 2603.2
- IRC Section R316.2
- 2021, 2018, and 2015 IRC Section N1101.10.1.1
- 2012 IRC Section N1101.12.1.1
- IECC Sections C303.1.1.1 or R303.1.1.1

2.9 Foam plastic insulation used in plenums as interior finish or interior trim shall comply with Section 2603.7 of the IBC.

2.10 Fire-resistance ratings are beyond the scope of this review. Where fire-resistance rated assemblies are required by the IBC or IRC, documentation shall be provided to the building official showing compliance.

2.11 When used in exterior walls of Type I, II, III, or IV construction, application shall be as required in Section 4.8 of this report.

2.12 The insulation recognized in this report shall be produced by Carlisle Spray Foam Insulation in Cartersville, Georgia.

3.0 PRODUCT USE

SealTite PRO HFO spray-applied polyurethane foam plastic insulation complies with IBC Sections 2603 and 1202.3, IRC Sections R316, R408.3, and R806.5, and IECC Sections C303, C402, R303, and R402. When installed in accordance with Section 4.0 of this report, the foam plastic insulation may be used in wall cavities, floor or ceiling assemblies, interior or exterior sides of below-grade vertical foundations, the underside of on-grade slabs, and in attics and crawl spaces as nonstructural thermal insulation material. SealTite PRO HFO spray-applied polyurethane foam plastic insulation can be used in Types I, II, III, IV, and V construction under the IBC and in one- and two-family dwellings under the IRC.

The product described in this Uniform Evaluation Service (UES) Report has been evaluated as an alternative material, design or method of construction in order to satisfy and comply with the intent of the provision of the code, as noted in this report, and for at least equivalence to that prescribed in the code in quality, strength, effectiveness, fire resistance, durability and safety, as applicable, in accordance with IBC Section 104.11. This document shall only be reproduced in its entirety.

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SealTite PRO HFO spray-applied polyurethane foam plastic insulation may be used as air impermeable insulation when installed in accordance with Section 4.4 of this report.

4.0 PRODUCT DESCRIPTION

4.1 Properties: SealTite PRO HFO is a medium-density, closed-cell, spray-applied polyurethane foam plastic insulation in accordance with Section 3.1.1 and Table 1 of AC377. The insulation has a nominal in-place density of 2.0 pcf (32 kg/m³). The two-component spray foam plastic is produced in the field by combining a polymeric isocyanate (A component) and a polymeric resin (B component). The liquid components shall be stored in 55-gallon (208 L) drums at temperatures between 50°F and 80°F (10°C and 27°C). When Component A and Component B are stored in factory-sealed containers at the recommended temperatures, the shelf life is six months.

4.2 Thermal Resistance (R-Values): SealTite PRO HFO spray-applied polyurethane foam plastic insulation has thermal resistance (R-Value) at a mean temperature of 75°F±5°F (23.8°C±2.8°C) as shown in Table 1 of this report. For thicknesses above 3.5 inches not listed in Table 1, a multiplier of 7.24/inch shall be used to calculate installed R value.

TABLE 1 - Thermal Resistance (R-Values)	
Thickness (inch)	SealTite PRO HFO R-Value (°F·ft ² ·h/Btu)
1	7.2
2	14
3	22
3.5	25
4	29
5	36
5.5	40
6	43
7	51
7.5	54
8	58
9	65
10	72
11	80
11.5	83
12	87

For SI: 1 inch = 25.4 mm, 1°F·ft²·h/Btu = 0.176 110 K·m²/W.

4.3 Surface Burning Characteristics: At a maximum thickness of 4 inches (102 mm) and a nominal density of 2.0 pcf (32 kg/m³), the SealTite PRO HFO spray-applied polyurethane foam plastic insulation yields a flame spread index of 25 or less and smoke-developed index of 450 or less when tested in accordance with ASTM E84. Greater thicknesses, depending on the end use, are recognized when installed in accordance with this report.

Foam insulation thicknesses are not limited when covered by a code complying thermal barrier and installed in accordance with Section 4.6.1.1 of this report.

4.4 Air Permeability: SealTite PRO HFO spray-applied polyurethane foam plastic insulation is classified as an air-impermeable insulation when tested in accordance with ASTM E2178 at a minimum thickness of 1 inch (25.4 mm), in accordance with 2021 and 2018 IBC Section 1202.3 and 2015 and 2012 IBC Section 1203.3, and IRC Section R806.5.

4.5 Fire-Protective Coatings and Coverings: Fire protective coatings, for use as part of an alternative thermal barrier assembly, shall be in accordance with Table 2 of this report and installed in accordance with Section 4.6 of this report.

4.6 Installation: SealTite PRO HFO spray-applied polyurethane foam plastic insulation shall comply with Sections C402.1 or R402.1 of the IECC, as applicable.

The manufacturer’s published installation instructions for SealTite PRO HFO spray-applied polyurethane foam plastic insulation and this report shall be available on the job site during installation. Where conflicts occur, the most restrictive governs.

SealTite PRO HFO shall be spray-applied on the job site using equipment specified in the manufacturer’s published installation instructions. The maximum in-service temperature for all areas shall not exceed the maximum temperature stated in the manufacturer’s published installation instructions. The insulation shall be sprayed onto a substrate that is protected and clean from any debris or weather-related conditions during and after application and shall not be used in electrical outlets or junction boxes or in contact with rain or water.

4.6.1 Thermal Barrier

4.6.1.1 Application with a Prescriptive Thermal Barrier: SealTite PRO HFO spray-applied polyurethane foam plastic insulation, in any thickness, in ceiling cavities and in wall cavities shall be separated from the interior by a prescriptive thermal barrier. The thermal barrier shall comply with and be installed in accordance with IBC Section 2603.4 and IRC Section R316.4.

Exception: The thermal barrier is not required when the insulation is installed in attics or crawlspaces as described in Section 4.6.2 but shall be installed between the insulation and the interior of the building.

4.6.1.2 Alternative Thermal Barrier Assemblies: SealTite PRO HFO spray-applied polyurethane foam plastic insulation may be installed without a thermal barrier as defined in Section 4.6.1.1 of this report when installed with a fire-protective coating as described in Table 2 of this report based on testing in accordance with NFPA 286 or UL 1715.

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04/07/2026

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4.6.2 Installation in Attics or Crawl Spaces: SealTite PRO HFO spray-applied polyurethane foam plastic insulation may be installed in attics or crawl spaces when installed in accordance with this section. The insulation may be installed in unvented attics and unvented enclosed rafter spaces for use as air-impermeable insulation as described in Section 4.4 of this report.

When installed in attics or crawl spaces where entry is made only for the service of utilities, SealTite PRO HFO spray-applied polyurethane foam plastic insulation may be installed in accordance with this section. SealTite PRO HFO spray-applied polyurethane foam plastic insulation need not be surfaced with a thermal barrier. However, such attic and crawl space areas shall be separated from the interior of the building by a thermal barrier in accordance with Section 4.6.1 of this report.

4.6.2.1 Installation in Attics and Crawl Spaces Without an Ignition Barrier: SealTite PRO HFO spray-applied polyurethane foam plastic insulation may be installed in attics and crawl spaces without a prescriptive ignition barrier or fire-protective coating provided:

- Entry is only to service utilities in the attic or crawl space and no storage is permitted.
- Attic or crawl space areas cannot be interconnected.
- Air from the attic or crawl space cannot be circulated to other parts of the building.
- Attic ventilation is provided as required by 2021 and 2018 IBC Section 1202.2, 2015 and 2012 IBC Section 1203.2, or IRC Section R806 except where air-impermeable insulation is permitted in unvented attics and shall comply with the following code sections as applicable:

For Unvented Attics:

- 2021 and 2018 IBC Section 1202.3
- 2015 IBC Section 1203.3
- IRC Section R806.5

Unvented crawl spaces shall meet the requirements of Section 4.6.2.2 of this report.

Ventilated crawl spaces shall be provided with ventilation as required by the following code sections as applicable:

- 2021 and 2018 IBC Section 1202.4
- 2015 IBC Section 1203.4
- 2012 IBC Section 1203.3
- 2021, 2018, 2015, 2012 IRC Section R408.1

- SealTite PRO HFO spray-applied polyurethane foam plastic insulation may be applied at a nominal density of 2.0 pcf to the underside of roof sheathing or roof rafters and vertical surfaces of attics and in crawl spaces without a prescriptive ignition barrier or fire-protective coating. When applied to the underside of the top of the space, the thickness of the SealTite PRO HFO spray-

applied polyurethane foam plastic insulation shall not exceed 11¹/₂ inches (292 mm), and when applied to vertical surfaces or floor, the maximum thickness shall not exceed 7¹/₂ inches (191 mm).

- In accordance with IMC (International Mechanical Code®) Section 701, combustion air is provided.

4.6.2.2 Installation in Unvented Crawl Spaces: SealTite PRO HFO spray-applied polyurethane foam plastic insulation may be installed in unvented crawl spaces. when using an alternative thermal barrier assembly meeting Section 4.6.1.2 of this report when complying with IRC Section R408.3.

Exception: The alternative thermal barrier assembly may be eliminated in Item 2.4 of IRC Section R408.3 when installed in accordance with Section 4.6.2.1 of this report and when the crawl space does not include an air pathway to the common area.

4.7 Water Vapor Transmission: When tested to the requirements of ASTM E96, desiccant method, at a thickness of one inch, SealTite PRO HFO has a Vapor Retarder Classification of Class II.

4.8 Use in Exterior Walls of Types I, II, III, and IV Construction (IBC)

4.8.1 General: When SealTite PRO HFO spray-applied polyurethane foam plastic insulation is used in exterior walls of Types I, II, III, or IV construction of any height, the insulation shall comply with IBC Section 2603.5 and Section 4.8 of this report.

4.8.2 Complying Exterior Wall Assemblies: Wall assemblies that comply with Section 2603.5.5 of the IBC and this report that may be used in exterior walls of buildings of Type I, II, III, or IV construction of any height are described in Tables 3, 4, and 5 of this report.

4.9 Potential Heat of Combustion: When tested to NFPA 259, SealTite PRO HFO has a potential heat of combustion of 11,024 BTU/lb. (25,643 kJ/kg) (1,984 BTU/ft² per inch of thickness).

5.0 IDENTIFICATION

The spray foam insulation is identified with the following:

- Manufacturer's name (Carlisle Spray Foam Insulation)
- address and telephone number,
- the product trade name (SealTite PRO HFO)
- use instructions
- density, flame-spread and smoke-development indices
- date of manufacture or batch/run number
- thermal resistance values
- the evaluation report number (ER-720)
- the name or logo of the inspection agency

APPROVED BY



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EVALUATION REPORT

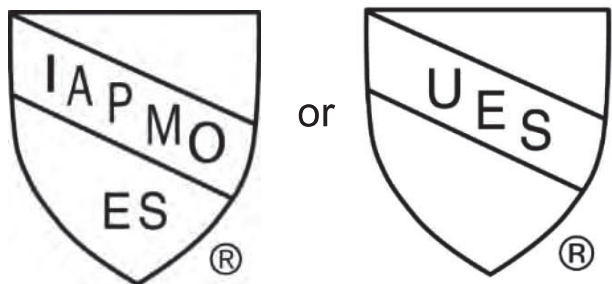
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Either IAPMO UES Mark of Conformity may also be used as shown below:



IAPMO UES ER-720

6.0 SUBSTANTIATING DATA

- 6.1 Data in accordance with the ICC-ES Acceptance Criteria for Spray-applied Foam Plastic Insulation, AC377, including Appendix X.
- 6.2 Report of room corner fire testing in accordance with NFPA 286.
- 6.3 Report of fire test of interior finish material in accordance with UL 1715.
- 6.4 Report of testing of air permeance in accordance with ASTM E2178.
- 6.5 Report of testing of water vapor transmission in accordance with ASTM E96.
- 6.6 Data in accordance with IAPMO/ANSI ES1000-2020, Standard for Building Code Compliance of Spray-Applied Polyurethane Foam.

- 6.7 Data in accordance with 2019 ICC 1100 Standard for Spray-applied Polyurethane Foam Plastic Insulation.
- 6.8 Reports of testing and evaluation of flame propagation in accordance with NFPA 285.
- 6.9 Testing to the requirements of NFPA 259.
- 6.10 Test Reports are from Laboratories in conformance with ISO/IEC 17025.

7.0 STATEMENT OF RECOGNITION

This evaluation report describes the results of research completed by IAPMO Uniform Evaluation Service on SealTite PRO HFO spray-applied polyurethane foam plastic insulation to assess conformance to the codes and standards shown in Section 1.0 of this report and documents the product’s certification. This spray foam is produced at locations noted in Section 2.12 of this report under a quality control program with periodic inspection under the supervision of IAPMO UES.

For additional information about this evaluation report please visit www.uniform-es.org or email us at info@uniform-es.org

TABLE 2 - ALTERNATIVE THERMAL BARRIER ASSEMBLIES				
FIRE-PROTECTIVE COATING/COVERING ¹			MAXIMUM SPF THICKNESS (inch)	
TYPE	MINIMUM THICKNESS (mils)	THEORETICAL APPLICATION RATE (COATINGS ONLY)	WALLS AND VERTICAL SURFACES	CEILING AND OVERHEAD SURFACES
DC315 ²	14 WFT (9 DFT)	0.87 gal/100 ft ²	7.5	11.5
Flame Control 60-60A ³	14 WFT (9 DFT)	0.87 gal/100 ft ²	6	12
Fireshell F10E ⁴	14 WFT (9 DFT)	0.87 gal/100 ft ²	6	10
No-Burn, Inc. ⁵	14 WFT (9 DFT)	0.87 gal/100 ft ²	7.25	11.25

For SI: 1 inch = 25.4 mm, 1 gallon = 3.785 L, 1 ft² = 0.0929 m²

¹ Fire-protective coatings and coverings shall be applied over all exposed SPF surfaces in accordance with the coating/covering manufacturer’s instructions and this report.
² International Fireproof Technology, Inc, recognized in [IAPMO UES ER-499](#) and tested to the requirements of NFPA 286.
³ Flame Control Coatings, recognized in [IAPMO UES ER-596](#) and tested to the requirements of NFPA 286.
⁴ ICP Construction, tested to the requirements of NFPA 286.
⁵ No-Burn, Inc., recognized in IAPMO UES ER-305 and tested to the requirements of UL 1715.



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TABLE 3 – NFPA 285 COMPLYING EXTERIOR WALL ASSEMBLIES
SEALTITE PRO HFO APPLIED IN WALL STUD CAVITY

Wall Component	Material Description
Base Wall (BWS) Use either 1, 2, 3 or 4	1) Concrete Walls 2) Concrete Masonry Unit Walls 3) Steel Stud Wall - 1 layer of 5/8-inch Type X gypsum wallboard installed on the interior side of minimum 35/8-inch deep No. 20 gauge steel studs spaced a maximum of 24 inches on center. 4) Fire-retardant-treated wood (FRTW) Stud Wall – 1 layer of 5/8-inch thick Type X gypsum wallboard on the interior, installed on 2x4 (min.) FRTW studs spaced a maximum of 24 inches on center.
Fire-Stopping in Stud Cavity at Floor Lines	1) 4-inch 4 pcf mineral wool (friction fit or installed with Z-Clips) 2) FRTW lumber -1.5 inches thick (minimum) (FRTW firestop shall only be used with FRTW framing)
Cavity Insulation Use Item 1, 2 or 3 when steel framing is used. Use Item 1 or 3 when FRTW framing is used.	1) None 2) Full stud cavity depth or less of SealTite PRO HFO 3) Any noncombustible fiberglass insulation (faced or unfaced).
Exterior Sheathing	Minimum 1/2-inch thick exterior gypsum sheathing.
WRB over Base Wall Use Item 1 or 2	1) None 2) Any water-resistive barrier or air vapor barrier approved to be used in an NFPA 285 compliant assembly paired with mineral wool, polyisocyanurate, EPS, or XPS insulation or no exterior insulation for claddings approved for that WRB. Approvals shall be from an evaluation report by an approved evaluation entity.
Exterior Insulation Use Item 1, 2 or 3	1) None – only where the cladding is listed to be approved with specific water-resistive barriers. (Note 1) 2) Minimum 2-inch-thick. 4 pcf mineral fiber insulation allowed for used with any water-resistive barrier on the base wall surface. (Note 1) 3) Any polyisocyanurate, EPS, or XPS insulation approved (see note) to be used in an NFPA 285 compliant assembly paired with the water-resistive barriers in Item 2 above and claddings in Item 2 below. (Note 2)
Exterior Cladding Use Item 1 or 2	1) Claddings below may only be used with noncombustible exterior insulation Item 2 above (mineral fiber). a. Any noncombustible cladding, such as brick, stone, terra cotta, fiber cement, concrete, sheet metal, etc. b. Combustible cladding. Use any cladding that has been successfully tested by the panel manufacturer (or fabricator) via the NFPA 285 test method. (Note 2) 2) Claddings below may be used with any approved (see note) combustible exterior insulation Item 3 above. Any cladding (combustible or noncombustible) approved to be used in an NFPA 285 compliant assembly paired with approved polyisocyanurate, EPS, XPS, or SPF insulation. Each insulation must be specifically approved for the exact cladding types listed in the approval. (Note 2) It is important to note the following item (Window/Door perimeter details) for specific insulation types that require unique detailing. Note: Approvals shall be by evaluation reports from approved evaluation entities.
Window/Door Perimeters	The approved design for the specific system being considered shall be used. Note: EPS and XPS required specific door/window header and jamb details to be compliant with NFPA 285. Polyisocyanurate and SPF may or may not require specific header/jamb details. Approvals from approved evaluation reports by approved evaluation entities for the header/jamb detail required for each insulation type.
(Notes to Table 3 continued on next page)	

Note 1: Examples for use with no exterior insulation or mineral wool insulation per the table above. Cladding Lists 1 and 2 below are for use with no exterior insulation. However, this will expose the substrate to moisture, in which case a water-resistive barrier shall be added to the system. For these applications, water-resistive barriers approved for use with each cladding shall be used.





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(Notes to Table 3 continued)

- 1) Any combustible cladding that has passed NFPA 285 testing (examples below)
 - a. NFPA 285 approved MCM/ACM Metal/Aluminum Composite building panels
 - b. NFPA 285 approved stone/aluminum honeycomb composite
 - c. NFPA 285 approved HPL High-pressure Laminate Panels.
- 2) Any noncombustible cladding such as (but not limited to):
 - a. Brick – nominal 4-inch clay brick or veneer
 - b. Stucco – $\frac{7}{8}$ -inch exterior cement plaster and lath. A secondary water-resistive barrier can be installed between the insulation and lath. The secondary WRB may not be full coverage asphalt or butyl-based self-adhering membranes.
 - c. Natural Stone (granite, limestone, marble, sandstone) – 2 inches thick
 - d. Architectural Cast Stone – $2\frac{1}{2}$ inches thick
 - e. Terra Cotta Cladding – $1\frac{1}{4}$ inches thick
 - f. $\frac{1}{4}$ -inch-thick glass-fiber-reinforced concrete panels (installed per manufacturer instructions)
 - g. Concrete – 2 inches thick
 - h. CMU blocks – 4 inches thick
 - i. Sheet metals such as aluminum, copper, or zinc – any thickness

Note 2: Combustible WRB/Insulation/Cladding

If the base wall is covered with a combustible WRB/Insulation and various claddings (combustible or noncombustible), each insulation/WRB/cladding combination for approval shall have explicitly been tested or approved to be used with each other. Evaluation reports from approved evaluation entities may be used.

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Approval of this document does not authorize or approve any deviation or deviations from the requirements of applicable State Laws.



TABLE 4. NFPA 285 COMPLYING EXTERIOR WALL ASSEMBLIES WITH SEALTITE PRO HFO APPLIED TO EXTERIOR OF WALL ASSEMBLY WITH OPTIONAL SPF IN WALL STUD CAVITY

Wall Component	Material Description
Base Wall System (BWS) – Use Item 1, 2, 3 or 4	1) Concrete Walls 2) Concrete Masonry Unit Walls 3) Steel Stud Wall - 1 layer of 5/8-inch Type X gypsum wallboard installed on the interior side of minimum 35/8-inch No. 20 gauge steel studs spaced a maximum of 24 inches on center. 4) Fire-retardant-treated wood (FRTW) stud wall – 1 layer of 5/8-inch thick Type X gypsum wall board on the interior, installed on 2x4 (minimum FRTW studs spaced a maximum of 24 inches on center.
Fire-Stopping at floor lines – Use Item 1 or 2	1) 4-inch 4 pcf mineral wool (friction fit or installed with Z-clips) 2) FRT lumber -1 1/2 -inch thick (min) (FRT firestop shall only be used with FRT framing)
Cavity Insulation Use Item 1, 2, 3 or 4	1) None 2) Full stud cavity or less of SealTite PRO HFO, SealTite PRO Closed Cell, SealTite PRO One Zero, SealTite PRO Open Cell, SealTite PRO High Yield, SealTite PRO No Mix, SealTite PRO No Trim 21, or SealTite PRO OCX 3) Any noncombustible insulation per ASTM E136 4) Any fiberglass insulation (faced or unfaced)
Exterior Sheathing	Minimum 1/2 - inch thick exterior gypsum sheathing
Exterior Insulation Item 1 limited to cladding types 1 - 7	1) SealTite PRO HFO - 4-inch nominal thickness (max) of 2) SealTite PRO HFO - 3.5-inch nominal thickness (max)
Exterior Cladding - Items 1-7 are allowed to be used without the DC315 coating system. Use of any of Items 1-20 when exterior SPF is coated with IFTI DC315 (16 mil WFT) with Top Coat Paint (8 mils WFT Sherwin Williams Sher-Cryl or equivalent) For Items 8-20, air gap cannot exceed 2 1/2 inches. All claddings non-open joint. Panel claddings may use vertical or horizontal Z girt attachment. Panel claddings may be vertical or horizontal.	1) Brick – Nominal 4-inch clay or concrete brick or veneer with maximum 2-inch air gap behind the brick. Brick Ties/Anchors 24 inches on center (maximum) 2) Precast Concrete Panels – minimum 1 1/2-inch-thick using any standard non-open joint installation technique such as shiplap, with maximum 2-inch airgap behind the cladding. 3) Concrete Masonry Units – Minimum 2-inch-thick with maximum 2-inch air gap between exterior wall insulation and concrete masonry units. 4) Stucco – minimum 7/8-inch-thick exterior cement plaster and lath. A secondary water-resistive barrier (WRB) may be installed between the exterior insulation and the lath. The secondary WRB shall not be full-coverage asphalt or butyl-based self-adhered membranes. 5) Natural Stone Veneer – minimum 2-inch-thick natural stone (granite, limestone, marble, sandstone). Any standard non-open joint installation technique may be used. 6) Cast Artificial Stone – minimum 1 1/2-inch thick complying with ICC-ES AC 51 or ASTM C1670 using any standard non-open joint installation technique. 7) Terra Cotta Cladding – minimum 1 1/4-inch thick (solid or equivalent by weight) using any standard non-open joint installation technique such as shiplap. 8) Aluminum cladding – 0.030-inch minimum thickness – non-open joint. 9) Steel cladding – 0.0149-inch minimum thickness – non-open joint 10) Copper cladding – 0.0216-inch minimum thickness – non-open joint. 11) Zinc cladding – 0.040-inch minimum thickness – non-open joint. 12) Concrete – 1-inch-thick minimum thickness using any standard non-open joint installation technique. 13) One-coat Stucco – 3/8-inch minimum exterior cement plaster and lath – non-open joint 14) Thin brick adhered with noncombustible mortar to 3/4-inch minimum stucco base – non-open joint. 15) CMU: Minimum 1-inch-thick concrete masonry unit. Any standard non-open joint installation technique may be used. 16) 1/4-inch fiber cement cladding – non-open joint. 17) Stone veneer – minimum 1-inch thick – non-open joint. 18) Terreal Zephir Evolution Rainscreen System (or similar Terra Cotta) minimum 9/16-inch thick – non-open joint. ¹ 19) SwissPearl Carat Panels (ER-551)– 0.315-inch minimum thickness – non-open joint 20) FunderMax M.Look (minimum 1/4-inch) – non-open joint ¹
Window/Door Perimeters	The window opening perimeters shall be per UL Design Listings EWS0013, EWS0029, or EWS0054, as applicable were approved by the engineer and the local building official. For FRTW stud construction, openings are lined with 1 1/2-inch-thick FRTW lumber.

For SI: 1 inch = 25.4 mm

Notes:
¹Approval of this product is beyond the scope of this review. Documentation of code compliance of this product shall be provided to the building official.



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TABLE 5. NFPA 285 COMPLYING EXTERIOR WALL ASSEMBLIES WITH SEALTITE PRO HFO APPLIED DIRECTLY TO EXTERIOR INSULATION WITHOUT EXTERIOR SHEATHING (Applicable for 2018, 2015, and 2012 IBC)

Wall Component	Material Description
Base Wall System (BWS) – Use Item 1, 2, 3 or 4	1) Concrete Walls 2) Concrete Masonry Unit Walls 3) Steel Stud Wall - 1 layer of 5⁄8-inch Type X gypsum wallboard installed on the interior side of minimum 35⁄8-inch No. 25 gauge steel studs spaced a maximum of 24 inches on center with lateral bracing every 4 feet. 4) Fire-retardant-treated wood (FRTW) stud wall – 1 layer of 5⁄8-inch thick Type X gypsum wall board on the interior, installed minimum 2x4 (nominal dimension) FRTW studs spaced a maximum of 24 inches on center with lateral bracing as required by the applicable code.
Fire-Stopping at floor lines – Use Item 1 or 2	1) Any approved mineral fiber-based safing insulation in each stud cavity at the floor line (safing thickness shall match stud cavity depth) 2) Solid FRT lumber in accordance with Type III Construction in the IBC (FRT firestop shall only be used with FRT framing)
Cavity Insulation	SealTite PRO HFO – 1½-inch minimum up to full cavity thickness.
Exterior Sheathing	None
Exterior Insulation Use Items 1 - 3 for all cladding types Items 4 - 8 limited to Cladding Types 1 - 6.	1) Hunter Panels Xci Foil (Class A) - 3½" (max.) 2) Hunter Panels Xci-286 - 3½" (max.) 3) CCW R2+ SHEATHE - 3½" (max.) 4) Hunter Panels Xci Foil (Class A) - 4" (max.) 5) Hunter Panels Xci-286 - 4" (max.) 6) CCW R2+ SHEATHE - 4" (max.) 7) Hunter Panels Xci CG or Xci CG (Class A) – 4" (max.) 8) CCW R2+ MATTE or R2+ MATTE (Class A) - 4" (max.)
Weather Resistant Barrier Over Exterior Insulation Use any item 1 – 9 For additional engineered solutions for WRB’s contact CSFI Technical Service Department	1) None 2) Hunter Xci VP-SA WRB 3) Carlisle Fire Resist 705 RS 4) Fire Resist Barithane VP 5) Fire Resist 705 VP (with 702 WB, Cav-Grip, or Low VOC Travel-Tack adhesives) 6) Fire Resist 705 FR-A (with CCW 702, 702LV, 702 WB, CAV-Grip, and Low VOC Travel Tack adhesives) 7) Fire Resist Barritech VP 8) Fire Resist Barritech NP (or NP LT) 9) Henry Air-Bloc 21 S, AB 33MR, AB 31MR, AB 17MR, AB 16MR The exterior insulation may be used with or without CavClear® Masonry Mat over the insulation with a maximum 1” air gap between the CavClear and the cladding. When CavClear is used, this may only be used with Cladding 1 – 6 or with thin brick/thin stone adhered to stucco as long as total thickness is ¾” min.
Exterior Cladding Use any Item 1 -17 Item 7 may use any tested/approved installation technique Items 8, 9, or 12 may use any standard installation technique <i>Table cont’d on next page</i>	1) Brick - 4” (nom.) clay or concrete brick or veneer with maximum 2” air gap behind the brick. Brick Ties/anchors 24” (max.) O.C. 2) Stucco – ¾” (min.) - exterior cement plaster and lath 3) Limestone – 2” (min.) using any standard non-open joint installation technique such as shiplap 4) Natural Stone (granite, limestone, marble, sandstone) – 2” (min.) using any standard non-open joint installation technique such as grouted/mortared stone 5) Artificial Cast Stone - 1½” (min.) complying with ICC-ES AC 51 using any standard non-open joint installation technique such as shiplap 6) Terracotta Cladding - 1¼” (min.) - solid or equivalent by weight - using any standard non-open joint installation technique such as shiplap 7) Metal Composite Material (MCM) - any MCM that has successfully passed NFPA 285 8) Metal Building Panels - Uninsulated sheet metal building panels including steel, copper, aluminum, or zinc (zinc not permitted for use with Hunter Panels Xci-CG or CCW R2+ MATTE) 9) Fiber-cement Siding, Porcelain, or Ceramic Tile – ¼” (min.) uninsulated and mechanically attached 10) Composite Building Panels - Stone, porcelain, ceramic/aluminum honeycomb composite building panels that have successfully passed NFPA 285 criteria 11) Autoclaved-aerated-Concrete (AAC) Panels – any AAC panels that have successfully passed NFPA 285 criteria

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	12) Terra Cotta Cladding – ½” (min.) rain-screen terracotta with ventilated shiplap 13) One Coat Stucco – ½” (min.) - any one coat stucco which meets AC11 acceptance criteria or is approved for use in Types I-IV construction or has been tested per NFPA 285 or stays in place when tested per ASTM E119 (stucco exposed to fire) for at least 30 minutes 14) Thin Brick or Cultured Stone – ¾” (min.) in thin-set adhesive and metal lath tested to ASTM E119 (brick exposed to furnace) and remains in place for a minimum of 30 minutes or has passed an NFPA 285 test. 15) Glen Gery Thin Tech Elite Series Masonry Veneer or TABS II Panel System - ½” thick bricks using TABS Wall Adhesive or Brick It MCS & CI Panel Systems 16) Stone Veneer – 1¼” (min.) using any standard installation technique 17) FunderMax M.Look – ¼” (min.) using any standard installation technique
Window/Door Perimeters	The window opening perimeters shall be per UL Design Listings EWS0013, EWS0029, or EWS0054, as applicable were approved by the engineer and the local building official. For FRTW stud construction, openings are lined with 1½-inch-thick FRTW lumber.

For SI: 1 inch = 25.4 mm

Note 1: The following adhesives may be used to attach the polyisyanurate (polyiso) insulation

- 1) LM 800 XL or BarriBond or BarriBond XL: adhesive applied discontinuously at a rate of ¾” thick by 3” diameter dabs, 16” O.C.
- 2) CAV-GRIP™ or Low VOC Travel-Tack aerosol adhesive: applied per manufacturers’ instructions

Note 2: The following may be used as a gap-filler between insulation panels:

- 1) ICP HandiFoam Fireblock
- 2) TVM Fireblock
- 3) DuPont Great Stuff PRO Gaps & Cracks Insulating Foam

Note 3: These detailing materials may be used over the polyiso insulation and can be used alone or with any approved WRB for the assembly

- 1) Board Joint Treatments:

a. BarriBond or Barribond XL: 2” x 40 mil ribbon

b. 4” DCH Reinforcing Fabric embedded in Fire-Resist VP/NP/NP LT or Fire-Resist Barrithane VP

c. 4” Foil-GRIP 1402*

d. 4” AlumaGRIP 701*
- 2) Termination Mastic for Flashing/Membrane: 1” x 40 mil ribbon or tooled ¾” bead of SURE-SEAL Lap Sealant, LM 800 XL, BarriBond, or BarriBond XL
- 3) Detail Flashing: 3” on each side at Openings, Terminations, Penetrations, Transitions, and Angle Changes

a. Fire Resist 705 FR-A/XLT*

b. SURE-SEAL P/S Elastoform* or SURE-SEAL P/S Cover Strip*

c. LiquiFiber or DCH Reinforcing Fabric embedded in Barritech VP/NP/NP LT

d. 40 mil application of BarriBond, BarriBond XL, or Barrithane VP

*Prepare the surface as recommended by Carlisle using CCW-702, CCW-702 LV, CCW-702 WB, CCW-715, Low VOC Travel-Tack, CAV-GRIP, HP 250 Primer, or Low VOC EPDM Primer per the instructions on Product Data Sheets

Note 4: In the NFPA 285 test, flashings for fenestration, including through-wall flashing (TWF), are not considered part of the WRB (Ref: 2015 IBC Sec. 1403.5 and 2018 IBC Sec. 1402.5). Therefore, suitable combustible or non-combustible flashings are permitted for wall assemblies as required in Building Code (Ref: 2015 IBC Sec. 1405.4 and 2018 IBC Sec. 1404.4).

Through Wall Flashing (TWF) is permitted for use in wall assemblies clad with masonry or stone at the base of wall, head of wall, relieving angle, window head, windowsill, and at other interruptions in the exterior cavity. TWF shall be applied at a maximum of 8” onto the back-up wall and terminate at daylight or onto a drip edge. The following TWF products may be used:

- 1) CCW-705 TWF/XLT*
- 2) Pre-Kleened EPDM TWF loose-laid or adhered with SURE-SEAL 90-8-30A bonding adhesive or SURE-SEAL low VOC Bonding adhesive
- 3) Metal TWF by others

Note 5: BRT-801 tape may be used over Fire-Resist 705 RS at membrane splices, terminations, and penetrations. Fire-Resist 705 RS and the substrate may be treated with CCW-702, CCW-702 LV, CCW-702 WB, or Low VOC Travel-Tack to promote adhesion of BRT-801.

Note 6: Approval of this product is beyond the scope of this review. Documentation of code compliance of this product shall be provided to the building official.





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FLORIDA SUPPLEMENT

CARLISLE SPRAY FOAM INSULATION
100 Enterprise Drive
Cartersville, GA 30120
Phone: (770) 607-0755
www.CarlisleSFI.com

SEALTITE™ PRO HFO SPRAY-APPLIED POLYURETHANE FOAM PLASTIC INSULATION

CSI Section:
07 21 00 Thermal Insulation

1.0 RECOGNITION

The SealTite PRO HFO spray-applied polyurethane foam plastic insulation as evaluated and represented in IAPMO UES Evaluation Report ER-720 and with changes as noted in this supplement is a satisfactory alternative for use in buildings built under the following codes (and regulations) including locations in the High-velocity Hurricane Zone:

- 2020 Florida Building Code, Building, (FBC, Building)
- 2020 Florida Building Code, Residential (FBC, Residential)
- 2020 Florida Building Code, Energy Conservation (FBC, Energy Conservation)

2.0 LIMITATIONS

Use of SealTite PRO HFO spray-applied polyurethane foam plastic insulation recognized in this report is subject to the following limitations:

2.1 The clearance between the foam insulation installed above grade and exposed earth shall be in accordance with Sections 1403.8 and 2603.8 of the FBC, Building or Sections R318.7 and R318.8 of the FBC, Residential.

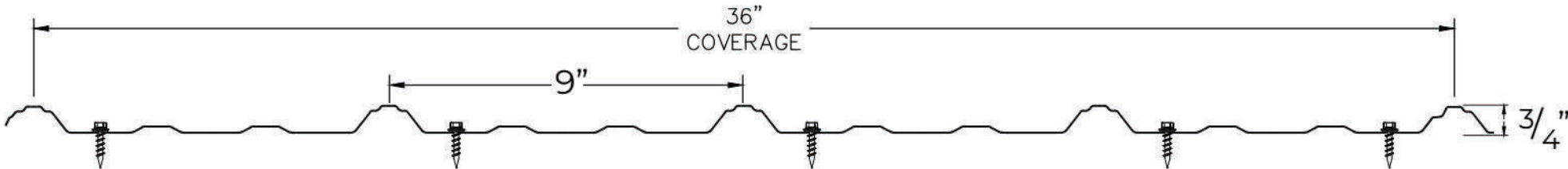
2.2 Verification shall be provided that a quality assurance agency audits the manufacturer's quality assurance program and audits the production quality of products in accordance with Section (5)(d) of Florida Rule 61G20-3.008. The quality assurance agency shall be approved by the Commission (or the building official when the report holder does not possess an approval by the Commission).

2.3 This supplement expires concurrently with ER-720.

For additional information about this evaluation report please visit www.uniform-es.org or email us at info@uniform-es.org



ABM Panel Specifications



	Premium / G-100 28 gauge	Standard AZ50 26 & 28 gauge	Economy	What Does It Mean?
Steel Thickness	28 ga. - 0.0157"	28 ga. - 0.0157" 26 ga. - 0.019" min.	Varies	This is the thickness of bare coil before paint
Panel Weight	2.2 lbs. per linear foot	28 ga. - 2.1 lbs./lf 26 ga. - 2.85 lbs./lf	Varies	Thicker steel means less oil canning, and stronger panels
Coating Weight	G-100 1oz. of zinc per sq. ft.	AZ50 Galvalume Aluminum/Zinc Alloy	Varies	More zinc or aluminum = more protection
Life of Panel	Best	Better	Good	Premium will hold up better in harsh environments
Pretreatment	Zinc Phosphate	1303	Varies	Zinc Phosphate provides superior scratch protection, adhesion, cut-edge protection, and corrosion resistance
Primer	Yes	Yes	Varies	Provides paint adhesion, and corrosion resistance
Paint	Valspar WeatherXL	Valspar WeatherXL	Valspar WeatherXL	A Silicon Polyester Paint
Heat-Formed ¹	Yes	Yes	Yes	Reduces paint crazing
Quality Control ²	Labeled	Labeled	Labeled	Imprinted for Tracking and Customer Assurance
Warranty ³	40 Year Limited Premium Paint Warranty	40 Year Limited Standard Paint Warranty	No Warranty	Refer to Warranty for details
Suggested Applications	Agricultural, Residential, Commercial	Residential and light commercial not exposed to harsh environments.	Temporary Shelters & Interior Panels	(Hint: Use Economy panels when quality and appearance are not critical)

1. Heat-forming: The painted steel is heated to over 170° to allow the paint to flex as the panel is formed. Without heat-forming, the paint would crack along the bends and eventually rust.

2. All panels are imprinted on the underlap of the panel with Order Number, Material Grade, Part ID, and Panel Length for customer assurance and warranty information.

3. Most warranties apply only to the paint finish and not to the underlying steel panel. Our G-100 and Standard metal panel both carry the same paint warranty because they have the same paint finish. This does not mean the overall performance will be the same. The AZ50 Galvalume (aluminum/zinc alloy-coated) panels carry a 20-year limited substrate warranty.

Load Chart							
Materials				Load Chart PSF Max Deflection l/180, min. 1 1/2" Bearing			
Gauge	Thickness	Coating	Grade	18"	24"	30"	36"
28	0.0157"	G-100 / AZ50	80-110ksi	148 psf	84 psf	54 psf	39 psf
26	0.019" min.	AZ50	80-110ksi	192 psf	112 psf	72 psf	51 psf
				Load Chart is for informational purposes only and is not meant to be used as a calculation for purlin or rafter design.			

Location: Floor girder - floor load only
Multi-Loaded Multi-Span Beam
Multi-Loaded Multi-Span Beam [2021 International Building Code(2018 NDS)]
1.75 IN x 9.25 IN x 10.0 FT
2.0 Rigidlam LVL - Roseburg Forest Products
Section Adequate By: 42.5%
Controlling Factor: Deflection

DEFLECTIONS	Center	
Live Load	0.23	IN L/513
Dead Load	0.06	in
Total Load	0.30	IN L/405
Live Load Deflection Criteria: L/360 Total Load Deflection Criteria: L/240		

REACTIONS	A	B
Live Load	1200 lb	1200 lb
Dead Load	320 lb	320 lb
Total Load	1520 lb	1520 lb
Bearing Length	1.16 in	1.16 in

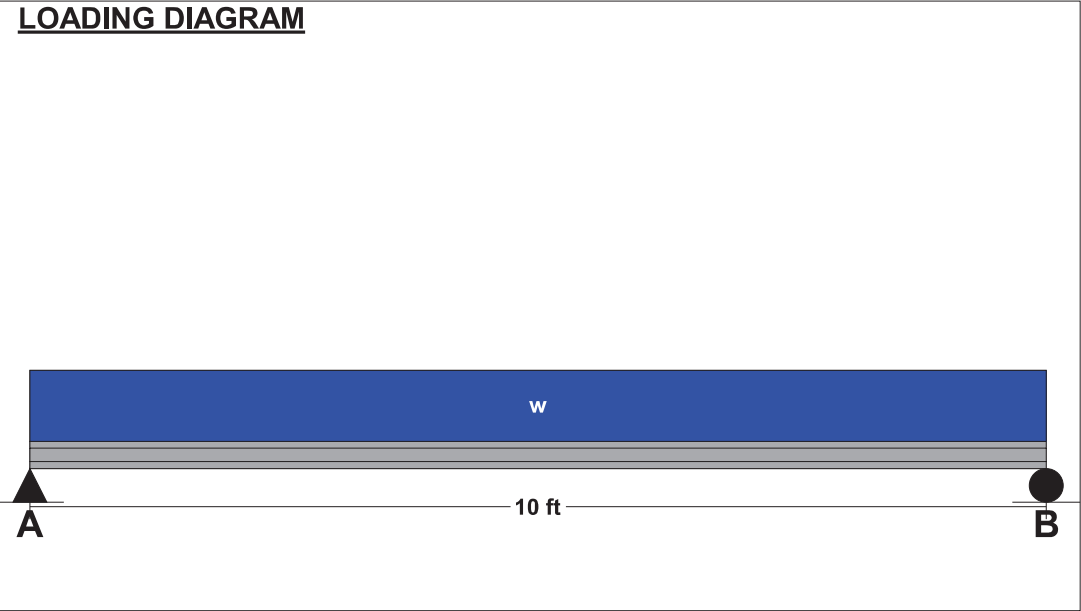
BEAM DATA	Center
Span Length	10 ft
Unbraced Length-Top	0 ft
Unbraced Length-Bottom	10 ft
Live Load Duration Factor	1.00
Notch Depth	0.00

MATERIAL PROPERTIES	2.0 Rigidlam LVL - Roseburg Forest Products	
	Base Values	Adjusted
Bending Stress:	Fb = 3100 psi Cd=1.00 CF=1.03	Fb' = 3203 psi
Shear Stress:	Fv = 290 psi Cd=1.00	Fv' = 290 psi
Modulus of Elasticity:	E = 2000 ksi	E' = 2000 ksi
Comp. $\perp$ to Grain:	Fc - $\perp$ = 750 psi	Fc - $\perp$ = 750 psi

Controlling Moment: 3801 ft-lb
5.0 Ft from left support of span 2 (Center Span)
Created by combining all dead loads and live loads on span(s) 2

Controlling Shear: 1520 lb
At left support of span 2 (Center Span)
Created by combining all dead loads and live loads on span(s) 2

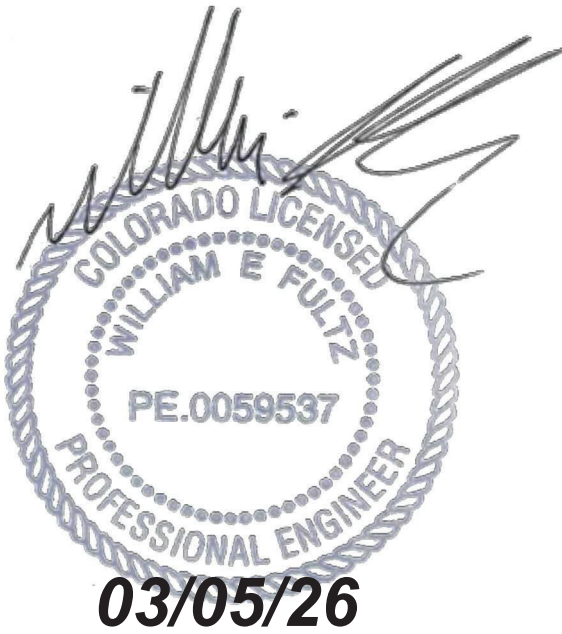
Comparisons with required sections:	Req'd	Provided
Section Modulus:	14.24 in3	24.96 in3
Area (Shear):	7.86 in2	16.19 in2
Moment of Inertia (deflection):	80.99 in4	115.42 in4
Moment:	3801 ft-lb	6660 ft-lb
Shear:	1520 lb	3130 lb



UNIFORM LOADS	Center
Uniform Live Load	240 plf
Uniform Dead Load	60 plf
Beam Self Weight	4 plf
Total Uniform Load	304 plf



State of Colorado
Division of Housing



Location: Floor girder - full load
Multi-Loaded Multi-Span Beam
Multi-Loaded Multi-Span Beam [2021 International Building Code(2018 NDS)]
1.75 IN x 9.25 IN x 6.0 FT
2.0 Rigidlam LVL - Roseburg Forest Products
Section Adequate By: 4.1%
Controlling Factor: Shear

DEFLECTIONS	Center	
Live Load	0.10	IN L/692
Dead Load	0.02	in
Total Load	0.13	IN L/569
Live Load Deflection Criteria: L/360 Total Load Deflection Criteria: L/240		

REACTIONS	A	B
Live Load	2472 lb	2472 lb
Dead Load	534 lb	531 lb
Total Load	3006 lb	3003 lb
Bearing Length	2.29 in	2.29 in

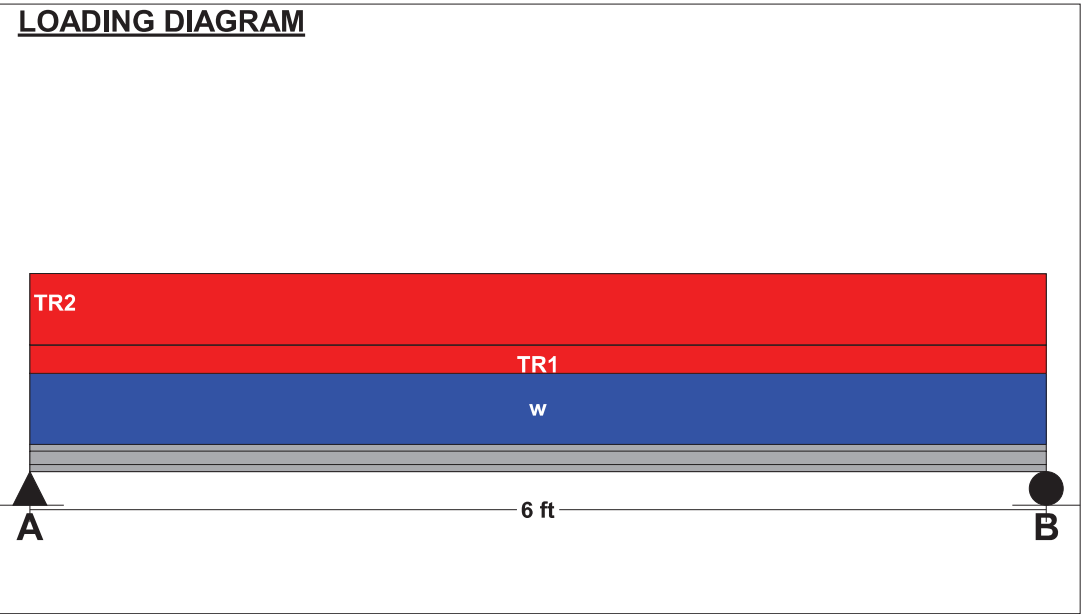
BEAM DATA	Center
Span Length	6 ft
Unbraced Length-Top	0 ft
Unbraced Length-Bottom	6 ft
Live Load Duration Factor	1.00
Notch Depth	0.00

MATERIAL PROPERTIES	2.0 Rigidlam LVL - Roseburg Forest Products	
	Base Values	Adjusted
Bending Stress:	Fb = 3100 psi Cd=1.00 CF=1.03	Fb' = 3203 psi
Shear Stress:	Fv = 290 psi Cd=1.00	Fv' = 290 psi
Modulus of Elasticity:	E = 2000 ksi	E' = 2000 ksi
Comp. $\perp$ to Grain:	Fc - $\perp$ = 750 psi	Fc - $\perp$ ' = 750 psi

Controlling Moment: 4507 ft-lb
3.0 Ft from left support of span 2 (Center Span)
Created by combining all dead loads and live loads on span(s) 2

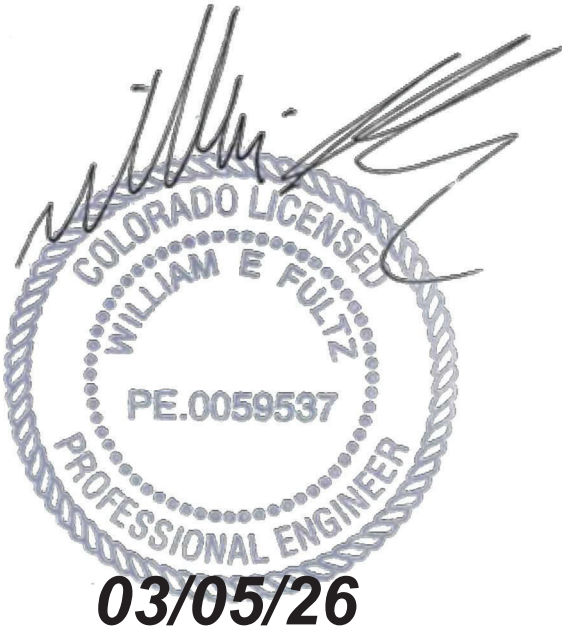
Controlling Shear: 3006 lb
At left support of span 2 (Center Span)
Created by combining all dead loads and live loads on span(s) 2

Comparisons with required sections:	Req'd	Provided
Section Modulus:	16.89 in3	24.96 in3
Area (Shear):	15.55 in2	16.19 in2
Moment of Inertia (deflection):	60.06 in4	115.42 in4
Moment:	4507 ft-lb	6660 ft-lb
Shear:	3006 lb	3130 lb



UNIFORM LOADS	Center
Uniform Live Load	240 plf
Uniform Dead Load	60 plf
Beam Self Weight	4 plf
Total Uniform Load	304 plf

TRAPEZOIDAL LOADS - CENTER SPAN	One	Two
Load Number	0 plf	584 plf
Left Live Load	40 plf	75 plf
Left Dead Load	0 plf	584 plf
Right Live Load	40 plf	72 plf
Right Dead Load	0 ft	0 ft
Load Start	6 ft	6 ft
Load End	6 ft	6 ft
Load Length	6 ft	6 ft



Location: Header - Ext wall up to 3'9
Multi-Loaded Multi-Span Beam
Multi-Loaded Multi-Span Beam [2021 International Building Code(2018 NDS)]
(3) 1.5 IN x 5.5 IN x 4.0 FT
#2 - Spruce-Pine-Fir - Dry Use
Section Adequate By: 20.6%
Controlling Factor: Shear

DEFLECTIONS	Center	
Live Load	0.05	IN L/897
Dead Load	0.01	in
Total Load	0.06	IN L/788
Live Load Deflection Criteria: L/240 Total Load Deflection Criteria: L/180		

REACTIONS	A	B
Live Load	1624 lb	1624 lb
Dead Load	223 lb	223 lb
Total Load	1847 lb	1847 lb
Bearing Length	0.97 in	0.97 in

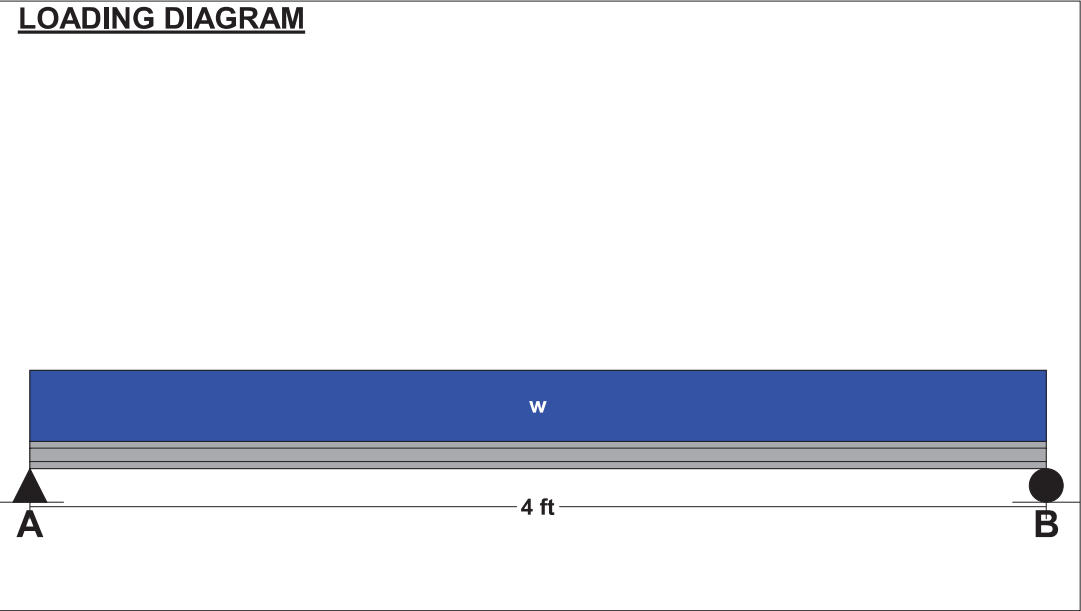
BEAM DATA	Center
Span Length	4 ft
Unbraced Length-Top	0 ft
Unbraced Length-Bottom	4 ft
Live Load Duration Factor	1.00
Notch Depth	0.00

MATERIAL PROPERTIES		
#2 - Spruce-Pine-Fir		
	Base Values	Adjusted
Bending Stress:	Fb = 875 psi	Fb' = 1308 psi
	Cd=1.00 CF=1.30 Cr=1.15	
Shear Stress:	Fv = 135 psi	Fv' = 135 psi
	Cd=1.00	
Modulus of Elasticity:	E = 1400 ksi	E' = 1400 ksi
Comp. $\perp$ to Grain:	Fc - $\perp$ = 425 psi	Fc - $\perp$ ' = 425 psi

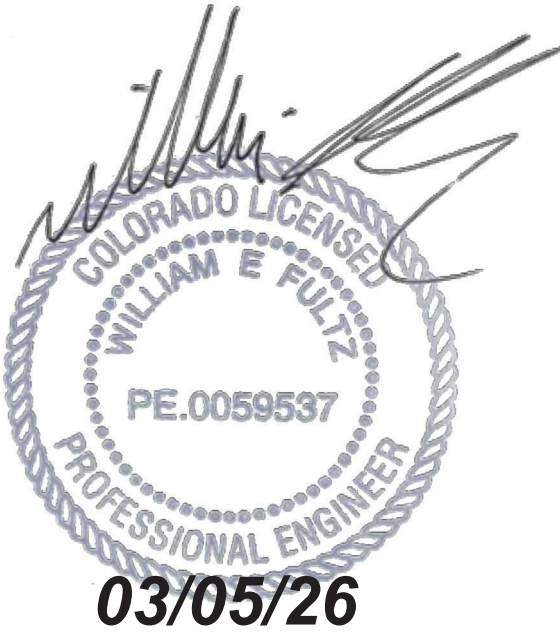
Controlling Moment: 1847 ft-lb
2.0 Ft from left support of span 2 (Center Span)
Created by combining all dead loads and live loads on span(s) 2

Controlling Shear: -1847 lb
At right support of span 2 (Center Span)
Created by combining all dead loads and live loads on span(s) 2

Comparisons with required sections:	Req'd	Provided
Section Modulus:	16.94 in3	22.69 in3
Area (Shear):	20.52 in2	24.75 in2
Moment of Inertia (deflection):	16.7 in4	62.39 in4
Moment:	1847 ft-lb	2473 ft-lb
Shear:	-1847 lb	2228 lb



UNIFORM LOADS	Center
Uniform Live Load	812 plf
Uniform Dead Load	107 plf
Beam Self Weight	5 plf
Total Uniform Load	924 plf



Location: Header - Mate wall up to 3'9 opg
Multi-Loaded Multi-Span Beam
Multi-Loaded Multi-Span Beam [2021 International Building Code(2018 NDS)]
(2) 1.5 IN x 5.5 IN x 4.0 FT
#2 - Spruce-Pine-Fir - Dry Use
Section Adequate By: 8.3%
Controlling Factor: Moment

DEFLECTIONS	Center	
Live Load	0.06	IN L/831
Dead Load	0.01	in
Total Load	0.07	IN L/733
Live Load Deflection Criteria: L/240 Total Load Deflection Criteria: L/180		

REACTIONS	A	B
Live Load	1168 lb	1168 lb
Dead Load	156 lb	156 lb
Total Load	1324 lb	1324 lb
Bearing Length	1.04 in	1.04 in

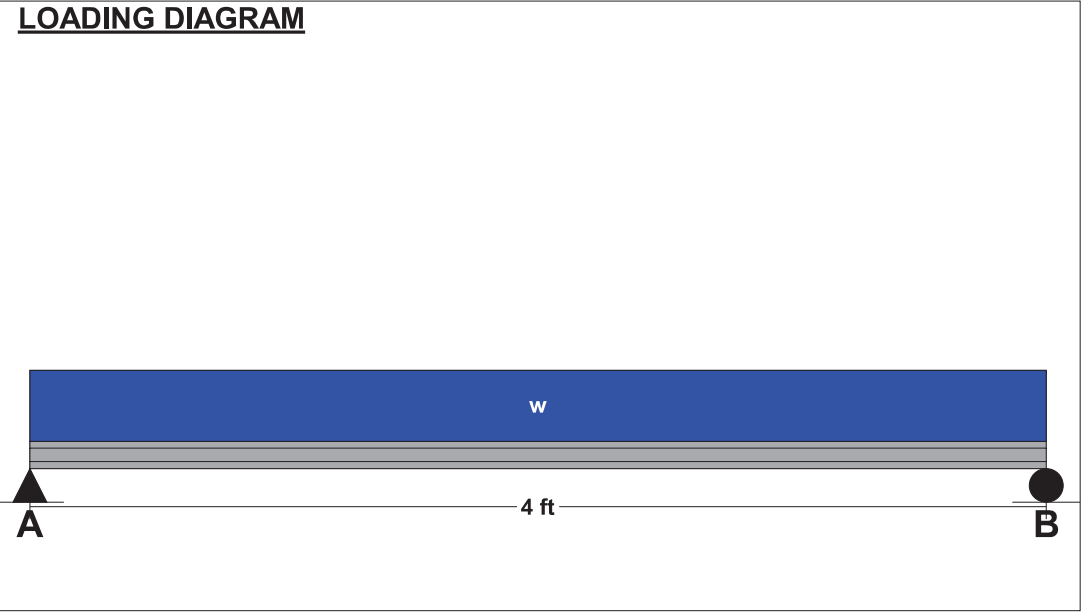
BEAM DATA	Center
Span Length	4 ft
Unbraced Length-Top	0 ft
Unbraced Length-Bottom	4 ft
Live Load Duration Factor	1.00
Notch Depth	0.00

MATERIAL PROPERTIES		
#2 - Spruce-Pine-Fir		
	Base Values	Adjusted
Bending Stress:	Fb = 875 psi Cd=1.00 CF=1.30	Fb' = 1138 psi
Shear Stress:	Fv = 135 psi Cd=1.00	Fv' = 135 psi
Modulus of Elasticity:	E = 1400 ksi	E' = 1400 ksi
Comp. $\perp$ to Grain:	Fc - $\perp$ = 425 psi	Fc - $\perp$ ' = 425 psi

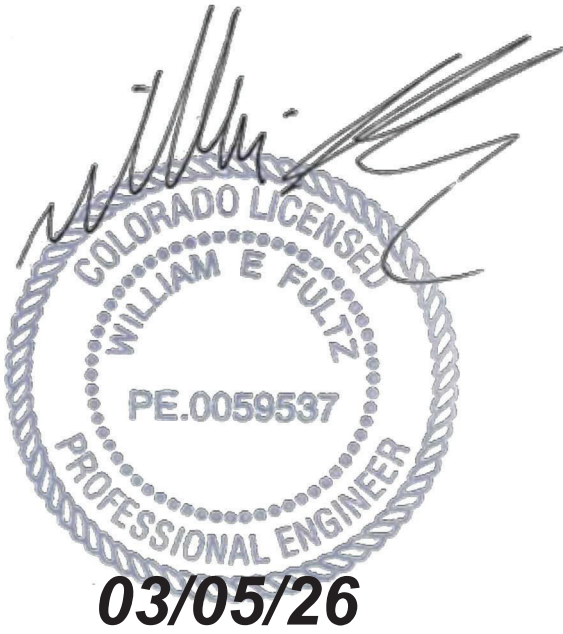
Controlling Moment: 1324 ft-lb
2.0 Ft from left support of span 2 (Center Span)
Created by combining all dead loads and live loads on span(s) 2

Controlling Shear: -1324 lb
At right support of span 2 (Center Span)
Created by combining all dead loads and live loads on span(s) 2

Comparisons with required sections:	Req'd	Provided
Section Modulus:	13.97 in3	15.13 in3
Area (Shear):	14.71 in2	16.5 in2
Moment of Inertia (deflection):	12.01 in4	41.59 in4
Moment:	1324 ft-lb	1434 ft-lb
Shear:	-1324 lb	1485 lb



UNIFORM LOADS	Center
Uniform Live Load	584 plf
Uniform Dead Load	75 plf
Beam Self Weight	3 plf
Total Uniform Load	662 plf



Location: Header H1
Multi-Loaded Multi-Span Beam
Multi-Loaded Multi-Span Beam [2021 International Building Code(2018 NDS)]
(3) 1.75 IN x 7.25 IN x 5.25 FT
2.0 Rigidlam LVL - Roseburg Forest Products
Section Adequate By: 44.6%
Controlling Factor: Shear

CAUTIONS

* Laminations are to be fully connected to provide uniform transfer of loads to all members

DEFLECTIONS	Center	
Live Load	0.09	IN L/668
Dead Load	0.01	in
Total Load	0.11	IN L/583
Live Load Deflection Criteria: L/240 Total Load Deflection Criteria: L/180		

REACTIONS	A	B
Live Load	3689 lb	4446 lb
Dead Load	537 lb	645 lb
Total Load	4226 lb	5091 lb
Bearing Length	1.07 in	1.29 in

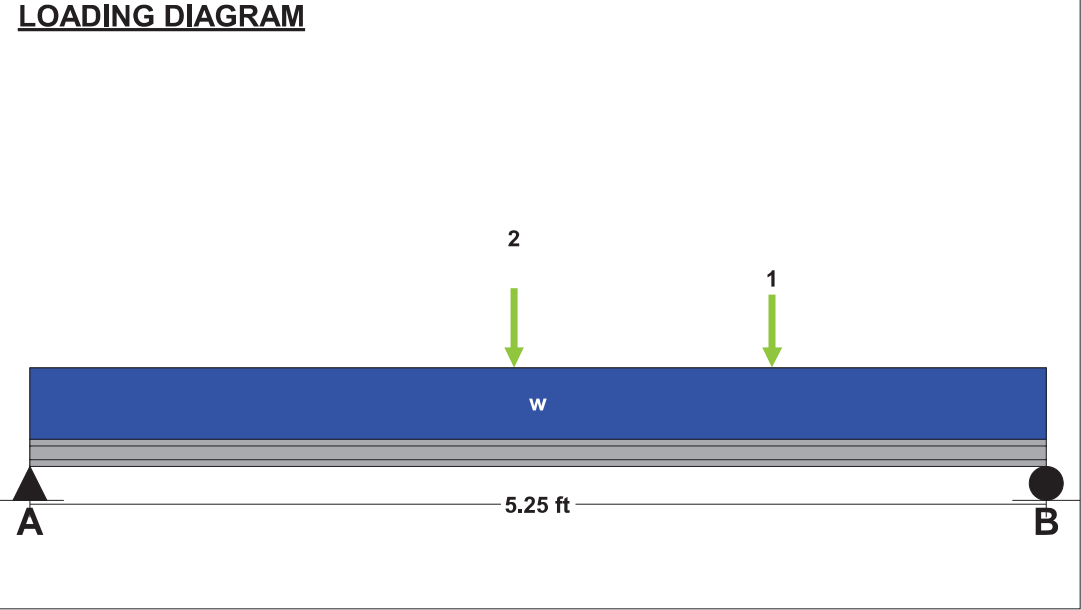
BEAM DATA	Center
Span Length	5.25 ft
Unbraced Length-Top	0 ft
Unbraced Length-Bottom	5.25 ft
Live Load Duration Factor	1.00
Notch Depth	0.00

MATERIAL PROPERTIES

2.0 Rigidlam LVL - Roseburg Forest Products			
	Base Values		Adjusted
Bending Stress:	Fb =	3100 psi	Fb' = 3302 psi
	Cd=1.00 CF=1.07		
Shear Stress:	Fv =	290 psi	Fv' = 290 psi
	Cd=1.00		
Modulus of Elasticity:	E =	2000 ksi	E' = 2000 ksi
Comp. ⊥ to Grain:	Fc - ⊥ =	750 psi	Fc - ⊥' = 750 psi

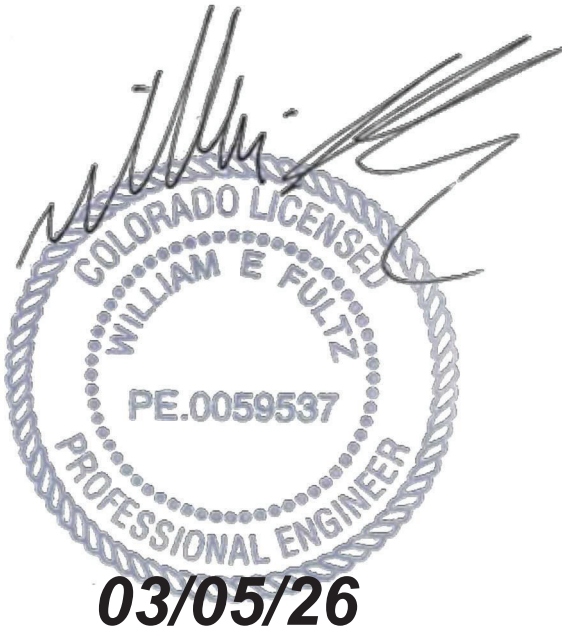
Controlling Moment: 7656 ft-lb
2.52 Ft from left support of span 2 (Center Span)
Created by combining all dead loads and live loads on span(s) 2
Controlling Shear: -5090 lb
5.0 Ft from left support of span 2 (Center Span)
Created by combining all dead loads and live loads on span(s) 2

Comparisons with required sections:	Req'd	Provided
Section Modulus:	27.83 in3	45.99 in3
Area (Shear):	26.33 in2	38.06 in2
Moment of Inertia (deflection):	59.86 in4	166.72 in4
Moment:	7656 ft-lb	12654 ft-lb
Shear:	-5090 lb	7359 lb



UNIFORM LOADS	Center
Uniform Live Load	812 plf
Uniform Dead Load	107 plf
Beam Self Weight	10 plf
Total Uniform Load	929 plf

POINT LOADS - CENTER SPAN		
Load Number	One *	Two
Live Load	1852 lb	2020 lb
Dead Load	266 lb	304 lb
Location	3.83 ft	2.5 ft
* Load obtained from Load Tracker. See Summary Report for details.		



Location: Header H1 - Uplift
Multi-Loaded Multi-Span Beam
Multi-Loaded Multi-Span Beam [2021 International Building Code(2018 NDS)]
(3) 1.75 IN x 7.25 IN x 5.25 FT
2.0 Rigidlam LVL - Roseburg Forest Products
Section Adequate By: 1063.9%
Controlling Factor: Shear

CAUTIONS

* Laminations are to be fully connected to provide uniform transfer of loads to all members

DEFLECTIONS	Center	
Live Load	-0.02	IN L/3134
Dead Load	0.00	in
Total Load	-0.02	IN L/3212
Live Load Deflection Criteria: L/240 Total Load Deflection Criteria: L/180		

REACTIONS	A	B
Live Load	-725 lb	-1037 lb
Dead Load	25 lb	25 lb
Total Load	-700 lb	-1012 lb
Uplift (1.5 F.S)	-708 lb	-1020 lb
Bearing Length	0.01 in	0.01 in

BEAM DATA	Center
Span Length	5.25 ft
Unbraced Length-Top	0 ft
Unbraced Length-Bottom	5.25 ft
Live Load Duration Factor	1.60
Notch Depth	0.00

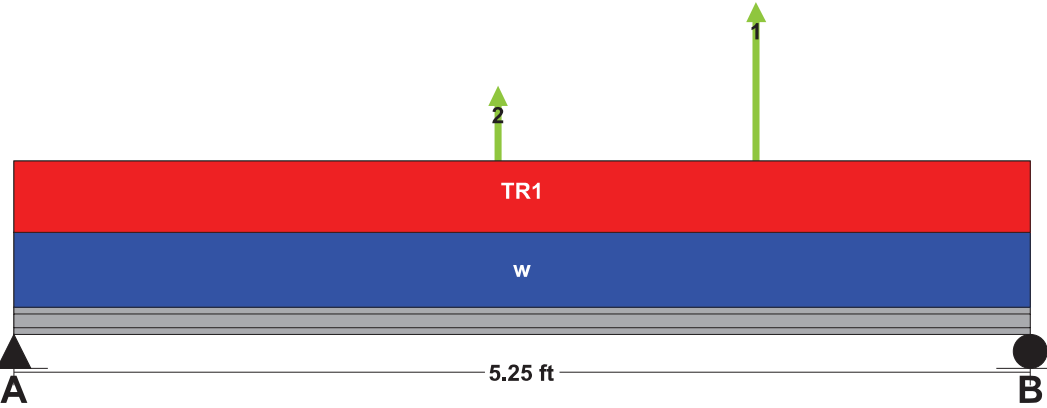
MATERIAL PROPERTIES

2.0 Rigidlam LVL - Roseburg Forest Products			
	Base Values	Adjusted	
Bending Stress:	Fb = 3100 psi	Fb' = 5241 psi	
	Cd=1.60 Cl=0.99 CF=1.07		
Shear Stress:	Fv = 290 psi	Fv' = 464 psi	
	Cd=1.60		
Modulus of Elasticity:	E = 2000 ksi	E' = 2000 ksi	
Comp. ⊥ to Grain:	Fc - ⊥ = 750 psi	Fc - ⊥' = 750 psi	

Controlling Moment: -1343 ft-lb
2.99 Ft from left support of span 2 (Center Span)
Created by combining all dead loads and live loads on span(s) 2
Controlling Shear: 1012 lb
5.0 Ft from left support of span 2 (Center Span)
Created by combining all dead loads and live loads on span(s) 2

Comparisons with required sections:	Req'd	Provided
Section Modulus:	3.08 in3	45.99 in3
Area (Shear):	3.27 in2	38.06 in2
Moment of Inertia (deflection):	12.77 in4	166.72 in4
Moment:	-1343 ft-lb	20089 ft-lb
Shear:	1012 lb	11774 lb

LOADING DIAGRAM



UNIFORM LOADS

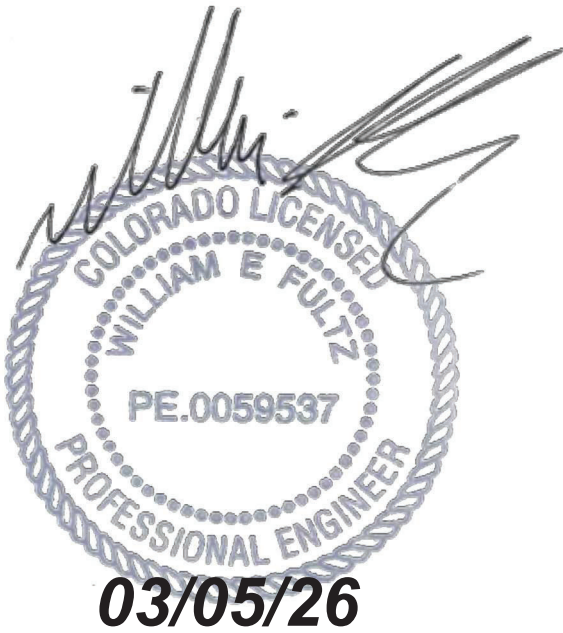
	Center
Uniform Live Load	0 plf
Uniform Dead Load	0 plf
Beam Self Weight	10 plf
Total Uniform Load	10 plf

POINT LOADS - CENTER SPAN

Load Number	One	Two
Live Load	-708 lb	-292 lb
Dead Load	0 lb	0 lb
Location	3.83 ft	2.5 ft

TRAPEZOIDAL LOADS - CENTER SPAN

Load Number	One
Left Live Load	-145 plf
Left Dead Load	0 plf
Right Live Load	-145 plf
Right Dead Load	0 plf
Load Start	0 ft
Load End	5.25 ft
Load Length	5.25 ft



Location: Header H2
Multi-Loaded Multi-Span Beam
Multi-Loaded Multi-Span Beam [2021 International Building Code(2018 NDS)]
(3) 1.5 IN x 11.25 IN x 6.25 FT
#2 - Spruce-Pine-Fir - Dry Use
Section Adequate By: 57.1%
Controlling Factor: Shear

CAUTIONS

* Laminations are to be fully connected to provide uniform transfer of loads to all members

DEFLECTIONS	Center	
Live Load	0.04	IN L/2011
Dead Load	0.01	in
Total Load	0.04	IN L/1760
Live Load Deflection Criteria: L/240 Total Load Deflection Criteria: L/180		

REACTIONS	A	B
Live Load	2538 lb	2538 lb
Dead Load	363 lb	363 lb
Total Load	2901 lb	2901 lb
Bearing Length	1.52 in	1.52 in

BEAM DATA	Center
Span Length	6.25 ft
Unbraced Length-Top	0 ft
Unbraced Length-Bottom	6.25 ft
Live Load Duration Factor	1.00
Notch Depth	0.00

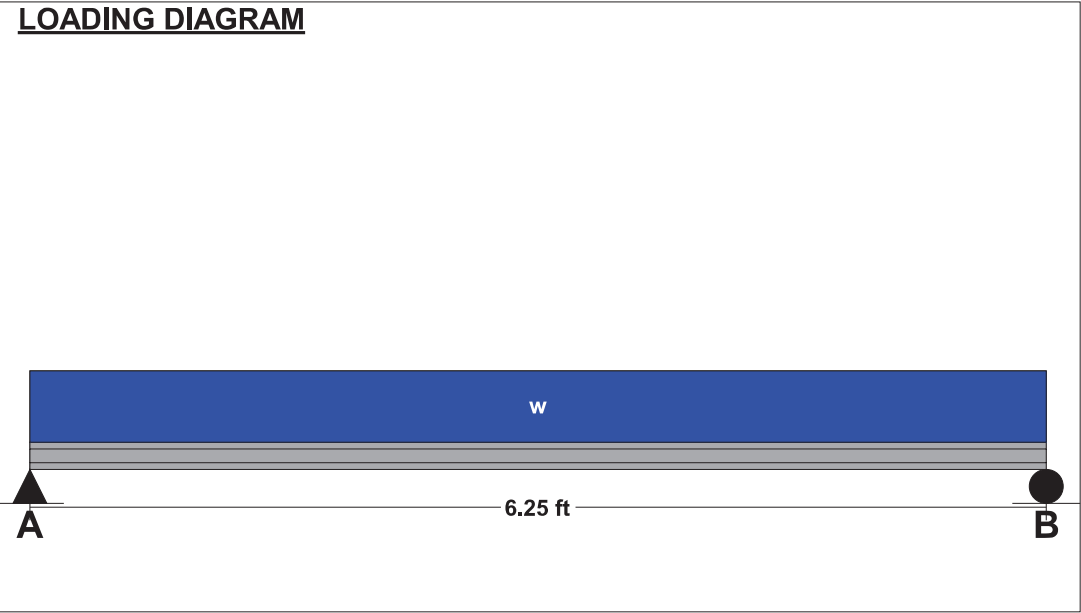
MATERIAL PROPERTIES

#2 - Spruce-Pine-Fir

	Base Values	Adjusted
Bending Stress:	Fb = 875 psi Cd=1.00 CF=1.00 Cr=1.15	Fb' = 1006 psi
Shear Stress:	Fv = 135 psi Cd=1.00	Fv' = 135 psi
Modulus of Elasticity:	E = 1400 ksi	E' = 1400 ksi
Comp. ⊥ to Grain:	Fc ⊥ = 425 psi	Fc ⊥' = 425 psi

Controlling Moment: 4532 ft-lb
3.12 Ft from left support of span 2 (Center Span)
Created by combining all dead loads and live loads on span(s) 2
Controlling Shear: -2901 lb
6.0 Ft from left support of span 2 (Center Span)
Created by combining all dead loads and live loads on span(s) 2

Comparisons with required sections:	Req'd	Provided
Section Modulus:	54.05 in3	94.92 in3
Area (Shear):	32.23 in2	50.63 in2
Moment of Inertia (deflection):	63.71 in4	533.94 in4
Moment:	4532 ft-lb	7960 ft-lb
Shear:	-2901 lb	4556 lb



UNIFORM LOADS	Center
Uniform Live Load	812 plf
Uniform Dead Load	107 plf
Beam Self Weight	9 plf
Total Uniform Load	928 plf



CAUTIONS
* Laminations are to be fully connected to provide uniform transfer of loads to all members

DEFLECTIONS	Center	
Live Load	0.01	IN L/3554
Dead Load	0.00	in
Total Load	0.01	IN L/3108
Live Load Deflection Criteria: L/240 Total Load Deflection Criteria: L/180		

REACTIONS	A	B
Live Load	3008 lb	1686 lb
Dead Load	432 lb	242 lb
Total Load	3440 lb	1928 lb
Bearing Length	0.87 in	0.49 in

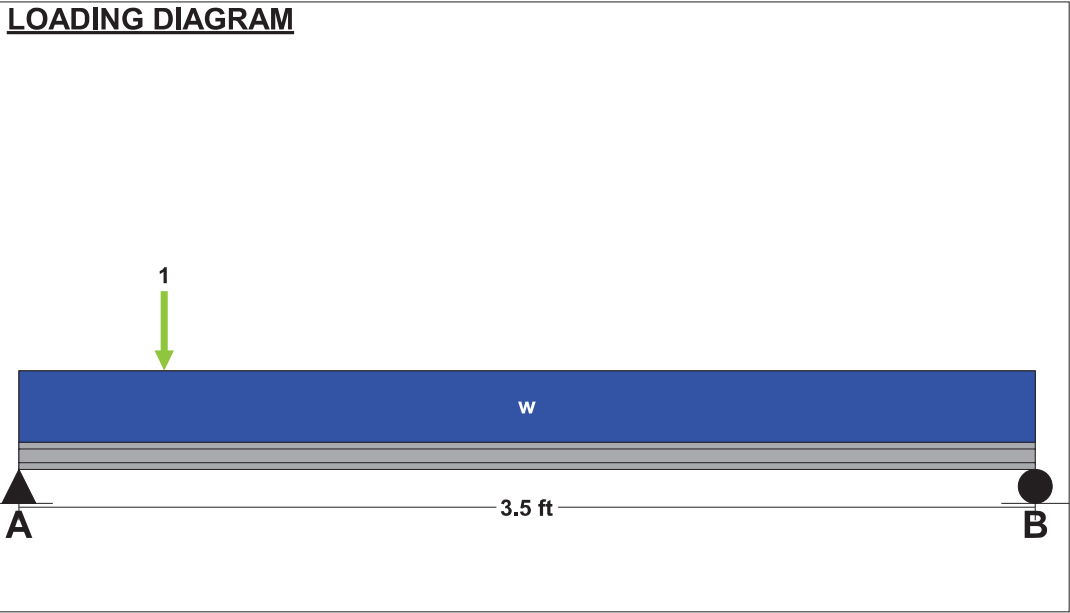
BEAM DATA	Center
Span Length	3.5 ft
Unbraced Length-Top	0 ft
Unbraced Length-Bottom	3.5 ft
Live Load Duration Factor	1.00
Notch Depth	0.00

MATERIAL PROPERTIES	2.0 Rigidlam LVL - Roseburg Forest Products	
	Base Values	Adjusted
Bending Stress:	Fb = 3100 psi Cd=1.00 CF=1.07	Fb' = 3302 psi
Shear Stress:	Fv = 290 psi Cd=1.00	Fv' = 290 psi
Modulus of Elasticity:	E = 2000 ksi	E' = 2000 ksi
Comp. ⊥ to Grain:	Fc ⊥ = 750 psi	Fc ⊥' = 750 psi

Controlling Moment: 2001 ft-lb
1.43 Ft from left support of span 2 (Center Span)
Created by combining all dead loads and live loads on span(s) 2

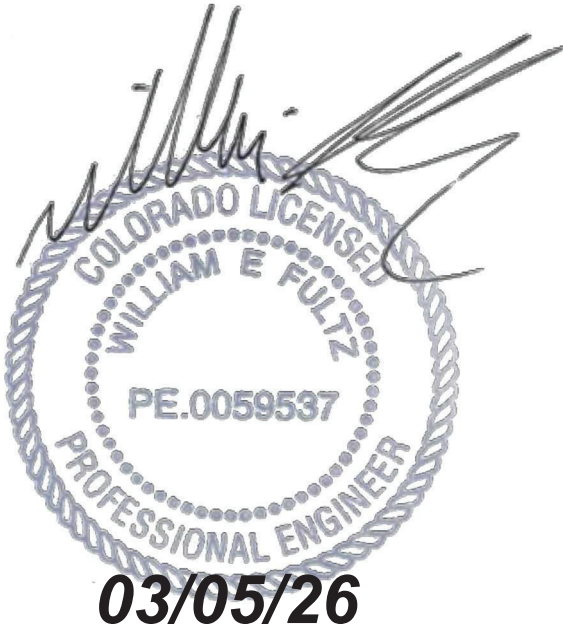
Controlling Shear: 3440 lb
At left support of span 2 (Center Span)
Created by combining all dead loads and live loads on span(s) 2

Comparisons with required sections:	Req'd	Provided
Section Modulus:	7.27 in3	45.99 in3
Area (Shear):	17.79 in2	38.06 in2
Moment of Inertia (deflection):	11.26 in4	166.72 in4
Moment:	2001 ft-lb	12654 ft-lb
Shear:	3440 lb	7359 lb



UNIFORM LOADS	Center
Uniform Live Load	812 plf
Uniform Dead Load	107 plf
Beam Self Weight	10 plf
Total Uniform Load	929 plf

<u>POINT LOADS - CENTER SPAN</u>	
Load Number	<u>One</u> *
Live Load	1852 lb
Dead Load	266 lb
Location	0.5 ft
* Load obtained from Load Tracker. See Summary Report for details.	



Location: Header H4
Multi-Loaded Multi-Span Beam
Multi-Loaded Multi-Span Beam [2021 International Building Code(2018 NDS)]
(3) 1.5 IN x 7.25 IN x 3.5 FT
#2 - Spruce-Pine-Fir - Dry Use
Section Adequate By: 31.0%
Controlling Factor: Moment

CAUTIONS

* Laminations are to be fully connected to provide uniform transfer of loads to all members

DEFLECTIONS	Center	
Live Load	0.02	IN L/1757
Dead Load	0.00	in
Total Load	0.03	IN L/1509
Live Load Deflection Criteria: L/240 Total Load Deflection Criteria: L/180		

REACTIONS	A	B
Live Load	1727 lb	1727 lb
Dead Load	298 lb	298 lb
Total Load	2025 lb	2025 lb
Bearing Length	1.06 in	1.06 in

BEAM DATA	Center
Span Length	3.5 ft
Unbraced Length-Top	0 ft
Unbraced Length-Bottom	3.5 ft
Live Load Duration Factor	1.00
Notch Depth	0.00

MATERIAL PROPERTIES

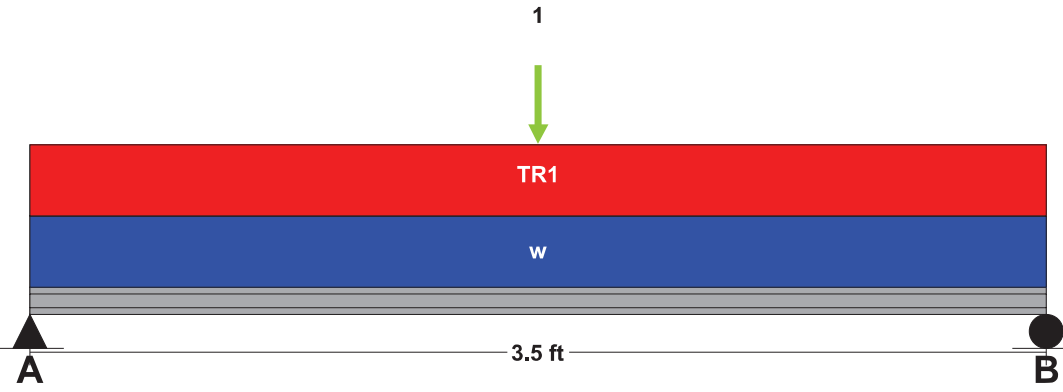
#2 - Spruce-Pine-Fir

	Base Values	Adjusted
Bending Stress:	Fb = 875 psi Cd=1.00 CF=1.20 Cr=1.15	Fb' = 1208 psi
Shear Stress:	Fv = 135 psi Cd=1.00	Fv' = 135 psi
Modulus of Elasticity:	E = 1400 ksi	E' = 1400 ksi
Comp. ⊥ to Grain:	Fc ⊥ = 425 psi	Fc ⊥' = 425 psi

Controlling Moment: 3028 ft-lb
1.75 Ft from left support of span 2 (Center Span)
Created by combining all dead loads and live loads on span(s) 2
Controlling Shear: -2024 lb
4.0 Ft from left support of span 2 (Center Span)
Created by combining all dead loads and live loads on span(s) 2

Comparisons with required sections:	Req'd	Provided
Section Modulus:	30.09 in3	39.42 in3
Area (Shear):	22.49 in2	32.63 in2
Moment of Inertia (deflection):	19.52 in4	142.9 in4
Moment:	3028 ft-lb	3967 ft-lb
Shear:	-2024 lb	2936 lb

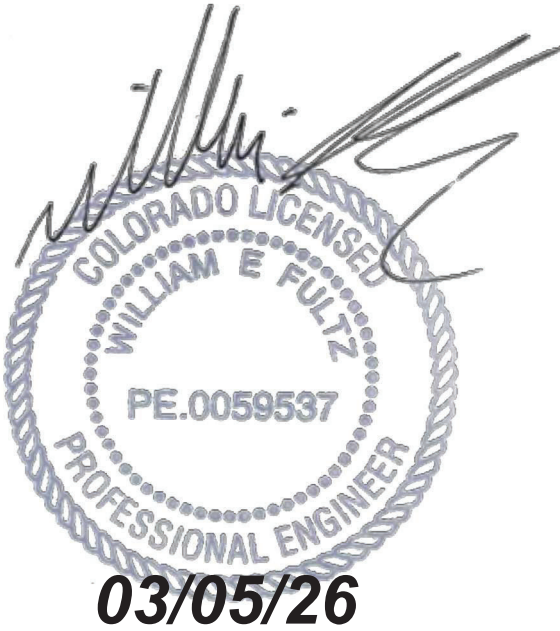
LOADING DIAGRAM



UNIFORM LOADS	Center
Uniform Live Load	270 plf
Uniform Dead Load	30 plf
Beam Self Weight	6 plf
Total Uniform Load	306 plf

<u>POINT LOADS - CENTER SPAN</u>	
Load Number	<u>One</u> *
Live Load	2508 lb
Dead Load	365 lb
Location	1.75 ft
* Load obtained from Load Tracker. See Summary Report for details.	

TRAPEZOIDAL LOADS - CENTER SPAN	
Load Number	<u>One</u>
Left Live Load	0 plf
Left Dead Load	30 plf
Right Live Load	0 plf
Right Dead Load	30 plf
Load Start	0 ft
Load End	3.5 ft
Load Length	3.5 ft



Location: Header H5
Multi-Loaded Multi-Span Beam
Multi-Loaded Multi-Span Beam [2021 International Building Code(2018 NDS)]
(2) 1.5 IN x 9.25 IN x 3.0 FT
#2 - Spruce-Pine-Fir - Dry Use
Section Adequate By: 23.6%
Controlling Factor: Shear

CAUTIONS

* Laminations are to be fully connected to provide uniform transfer of loads to all members

DEFLECTIONS	Center	
Live Load	0.01	IN L/5050
Dead Load	0.00	in
Total Load	0.01	IN L/4439
Live Load Deflection Criteria: L/240 Total Load Deflection Criteria: L/180		

REACTIONS	A	B
Live Load	1776 lb	1222 lb
Dead Load	244 lb	168 lb
Total Load	2020 lb	1390 lb
Bearing Length	1.58 in	1.09 in

BEAM DATA	Center
Span Length	3 ft
Unbraced Length-Top	0 ft
Unbraced Length-Bottom	3 ft
Live Load Duration Factor	1.00
Notch Depth	0.00

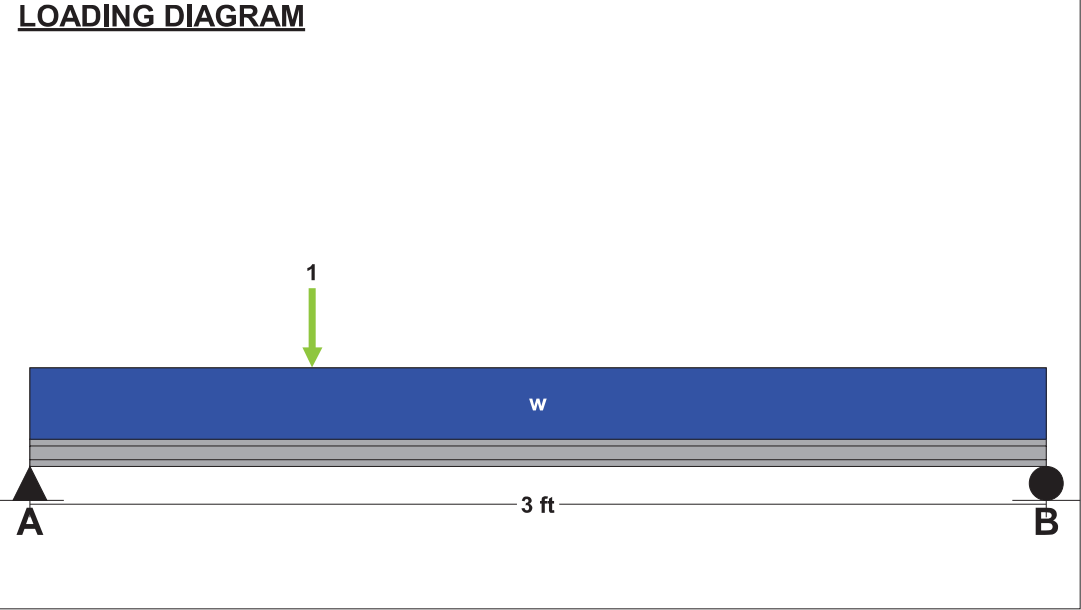
MATERIAL PROPERTIES

#2 - Spruce-Pine-Fir

	Base Values	Adjusted
Bending Stress:	Fb = 875 psi Cd=1.00 CF=1.10	Fb' = 963 psi
Shear Stress:	Fv = 135 psi Cd=1.00	Fv' = 135 psi
Modulus of Elasticity:	E = 1400 ksi	E' = 1400 ksi
Comp. $\perp$ to Grain:	Fc $\perp$ = 425 psi	Fc $\perp$ ' = 425 psi

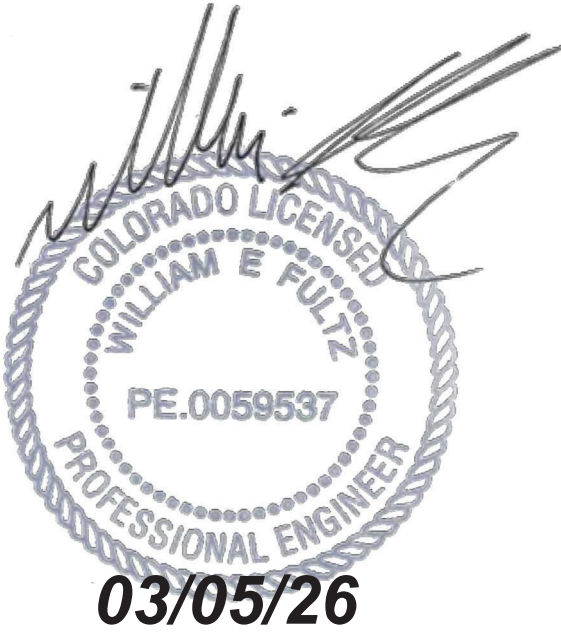
Controlling Moment: 1454 ft-lb
0.9 Ft from left support of span 2 (Center Span)
Created by combining all dead loads and live loads on span(s) 2
Controlling Shear: 2020 lb
At left support of span 2 (Center Span)
Created by combining all dead loads and live loads on span(s) 2

Comparisons with required sections:	Req'd	Provided
Section Modulus:	18.13 in3	42.78 in3
Area (Shear):	22.45 in2	27.75 in2
Moment of Inertia (deflection):	9.4 in4	197.86 in4
Moment:	1454 ft-lb	3431 ft-lb
Shear:	2020 lb	2498 lb



UNIFORM LOADS	Center
Uniform Live Load	584 plf
Uniform Dead Load	75 plf
Beam Self Weight	5 plf
Total Uniform Load	664 plf

<u>POINT LOADS - CENTER SPAN</u>	
Load Number	<u>One</u> *
Live Load	1246 lb
Dead Load	172 lb
Location	0.83 ft
* Load obtained from Load Tracker. See Summary Report for details.	



CAUTIONS
* Laminations are to be fully connected to provide uniform transfer of loads to all members

DEFLECTIONS	Center	
Live Load	0.36	IN L/341
Dead Load	0.05	in
Total Load	0.41	IN L/299
Live Load Deflection Criteria: L/240 Total Load Deflection Criteria: L/180		

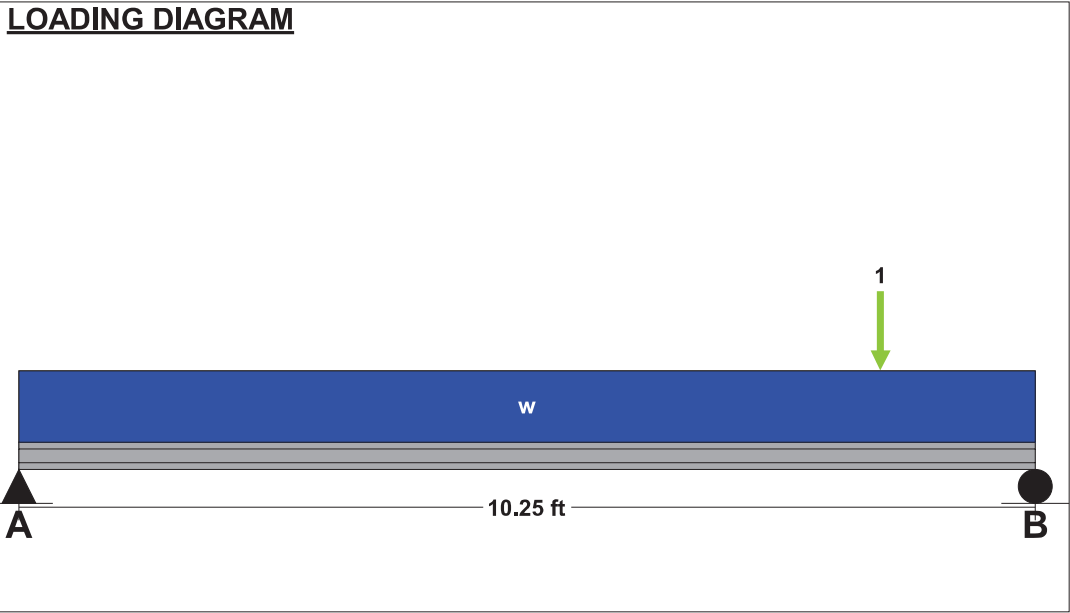
REACTIONS	A	B
Live Load	3183 lb	4049 lb
Dead Load	452 lb	572 lb
Total Load	3635 lb	4621 lb
Bearing Length	1.38 in	1.76 in

BEAM DATA	Center
Span Length	10.25 ft
Unbraced Length-Top	1.34 ft
Unbraced Length-Bottom	1.34 ft
Live Load Duration Factor	1.00
Notch Depth	0.00

MATERIAL PROPERTIES	2.0 Rigidlam LVL - Roseburg Forest Products	
	Base Values	Adjusted
Bending Stress:	Fb = 3100 psi	Fb' = 3192 psi
	Cd=1.00 Cl=1.00 CF=1.03	
Shear Stress:	Fv = 290 psi	Fv' = 290 psi
	Cd=1.00	
Modulus of Elasticity:	E = 2000 ksi	E' = 2000 ksi
Comp. ⊥ to Grain:	Fc - ⊥ = 750 psi	Fc - ⊥' = 750 psi

Controlling Moment: 9904 ft-lb
5.43 Ft from left support of span 2 (Center Span)
Created by combining all dead loads and live loads on span(s) 2
Controlling Shear: -4621 lb
10.0 Ft from left support of span 2 (Center Span)
Created by combining all dead loads and live loads on span(s) 2

Comparisons with required sections:	Req'd	Provided
Section Modulus:	37.23 in3	49.91 in3
Area (Shear):	23.9 in2	32.38 in2
Moment of Inertia (deflection):	162.42 in4	230.84 in4
Moment:	9904 ft-lb	13276 ft-lb
Shear:	-4621 lb	6259 lb



UNIFORM LOADS	Center
Uniform Live Load	584 plf
Uniform Dead Load	75 plf
Beam Self Weight	8 plf
Total Uniform Load	667 plf

<u>POINT LOADS - CENTER SPAN</u>	
Load Number	<u>One</u> *
Live Load	1246 lb
Dead Load	172 lb
Location	8.69 ft
* Load obtained from Load Tracker. See Summary Report for details.	



CAUTIONS
* Laminations are to be fully connected to provide uniform transfer of loads to all members

DEFLECTIONS	Center	
Live Load	-0.06	IN L/2007
Dead Load	0.00	in
Total Load	-0.06	IN L/2160
Live Load Deflection Criteria: L/240 Total Load Deflection Criteria: L/180		

REACTIONS	A	B
Live Load	-558 lb	-581 lb
Dead Load	41 lb	41 lb
Total Load	-517 lb	-540 lb
Uplift (1.5 F.S)	-531 lb	-553 lb
Bearing Length	0.02 in	0.02 in

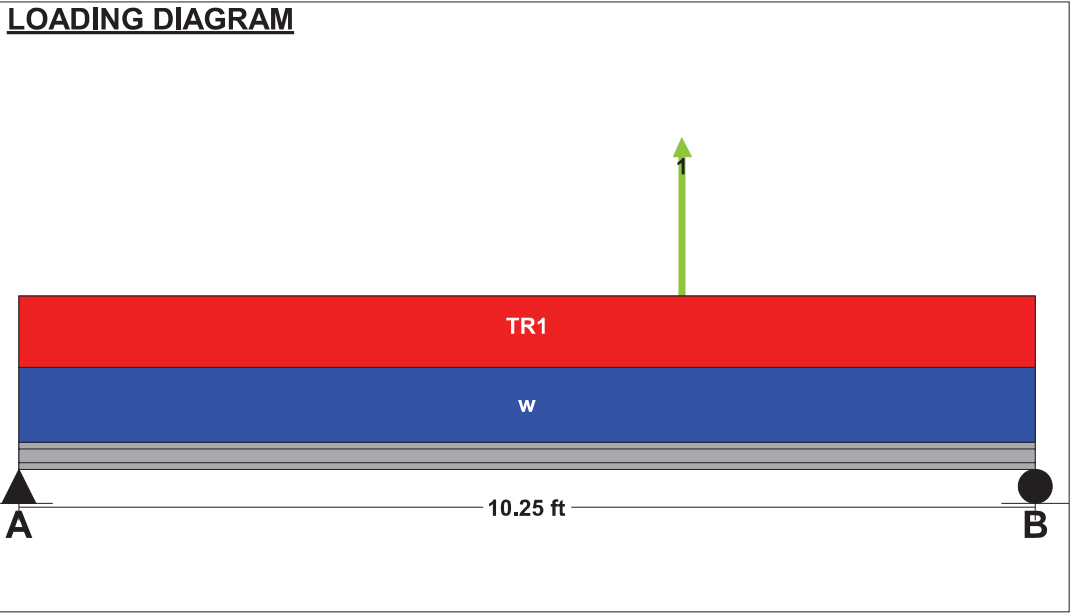
BEAM DATA	Center
Span Length	10.25 ft
Unbraced Length-Top	1.34 ft
Unbraced Length-Bottom	1.34 ft
Live Load Duration Factor	1.60
Notch Depth	0.00

MATERIAL PROPERTIES	2.0 Rigidlam LVL - Roseburg Forest Products	
	Base Values	Adjusted
Bending Stress:	Fb = 3100 psi	Fb' = 5096 psi
	Cd=1.60 Cl=0.99 CF=1.03	
Shear Stress:	Fv = 290 psi	Fv' = 464 psi
	Cd=1.60	
Modulus of Elasticity:	E = 2000 ksi	E' = 2000 ksi
Comp. ⊥ to Grain:	Fc - ⊥ = 750 psi	Fc - ⊥' = 750 psi

Controlling Moment: -1393 ft-lb
5.43 Ft from left support of span 2 (Center Span)
Created by combining all dead loads and live loads on span(s) 2

Controlling Shear: 539 lb
10.0 Ft from left support of span 2 (Center Span)
Created by combining all dead loads and live loads on span(s) 2

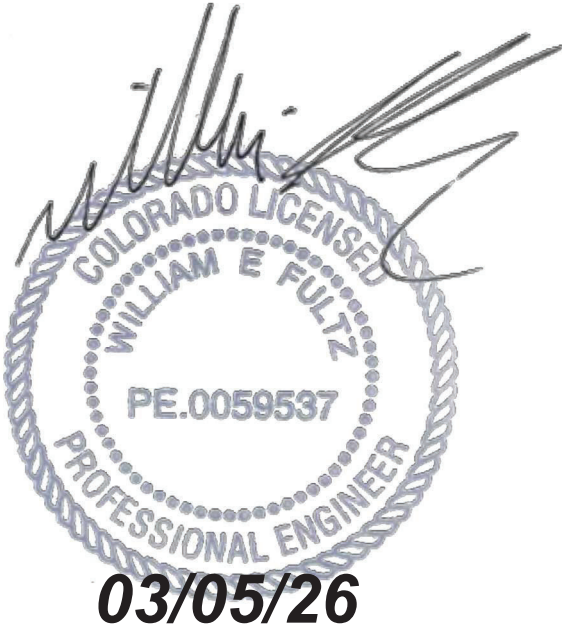
Comparisons with required sections:	Req'd	Provided
Section Modulus:	3.28 in3	49.91 in3
Area (Shear):	1.74 in2	32.38 in2
Moment of Inertia (deflection):	27.61 in4	230.84 in4
Moment:	-1393 ft-lb	21194 ft-lb
Shear:	539 lb	10015 lb



UNIFORM LOADS	Center
Uniform Live Load	0 plf
Uniform Dead Load	0 plf
Beam Self Weight	8 plf
Total Uniform Load	8 plf

POINT LOADS - CENTER SPAN	One
Load Number	One
Live Load	-73 lb
Dead Load	0 lb
Location	6.69 ft

TRAPEZOIDAL LOADS - CENTER SPAN	One
Load Number	One
Left Live Load	-104 plf
Left Dead Load	0 plf
Right Live Load	-104 plf
Right Dead Load	0 plf
Load Start	0 ft
Load End	10.25 ft
Load Length	10.25 ft



DEFLECTIONS	Center	Right
Live Load	0.00 IN L/4182	0.13 IN 2L/574
Dead Load	0.00 in	0.01 in
Total Load	0.00 IN L/3775	0.14 IN 2L/516
Live Load Deflection Criteria: L/240 Total Load Deflection Criteria: L/180		

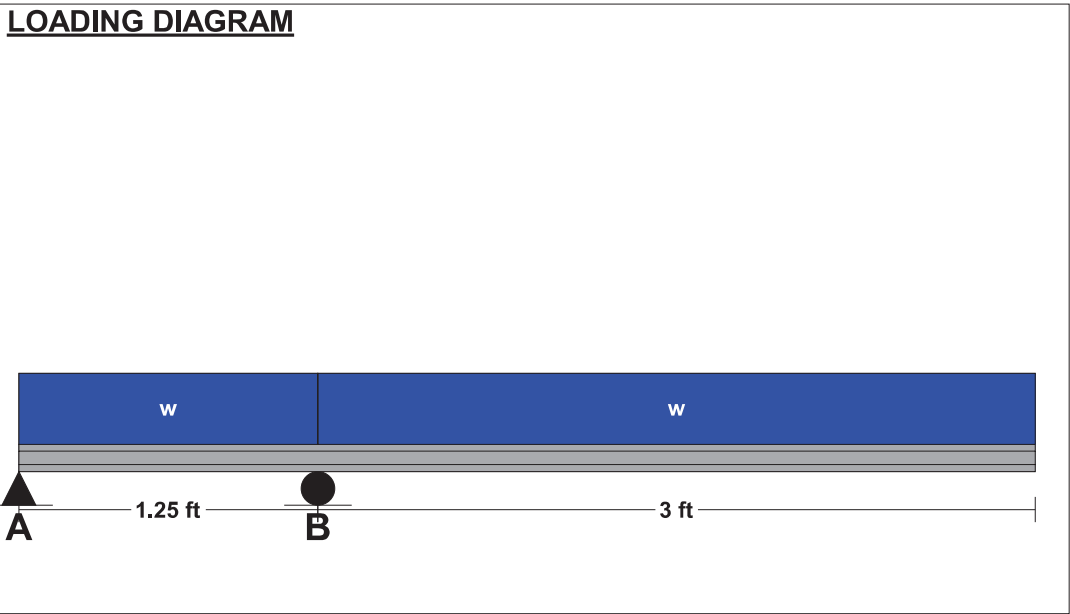
REACTIONS	A	B
Live Load	84 lb	968 lb
Dead Load	-46 lb	112 lb
Total Load	38 lb	1080 lb
Uplift (1.5 F.S)	-529 lb	0 lb
Bearing Length	0.06 in	1.69 in

BEAM DATA	Center	Right
Span Length	1.25 ft	3 ft
Unbraced Length-Top	0 ft	0 ft
Unbraced Length-Bottom	1.25 ft	3 ft
Live Load Duration Factor	1.00	
Notch Depth	0.00	

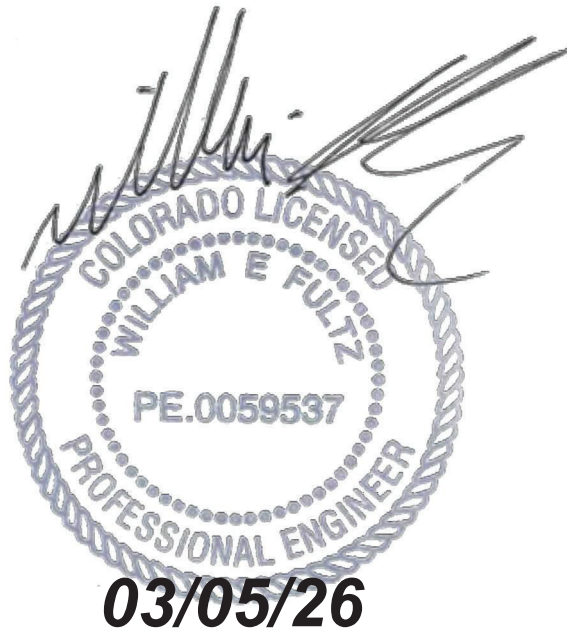
MATERIAL PROPERTIES	Base Values	Adjusted
#2 - Spruce-Pine-Fir		
Bending Stress:	Fb = 875 psi	Fb' = 1110 psi
	Cd=1.00 Cl=0.98 CF=1.30	
Shear Stress:	Fv = 135 psi	Fv' = 135 psi
	Cd=1.00	
Modulus of Elasticity:	E = 1400 ksi	E' = 1400 ksi
Comp. ⊥ to Grain:	Fc - ⊥ = 425 psi	Fc - ⊥' = 425 psi

Controlling Moment:	-673 ft-lb
Over left support of span 3 (Right Span)	
Created by combining all dead loads and live loads on span(s) 2, 3	
Controlling Shear:	-632 lb
1.0 Ft from left support of span 2 (Center Span)	
Created by combining all dead loads and live loads on span(s) 2, 3	

Comparisons with required sections:	Req'd	Provided
Section Modulus:	7.27 in3	7.56 in3
Area (Shear):	7.02 in2	8.25 in2
Moment of Inertia (deflection):	8.68 in4	20.8 in4
Moment:	-673 ft-lb	700 ft-lb
Shear:	-632 lb	743 lb



UNIFORM LOADS	Center	Right
Uniform Live Load	134 plf	134 plf
Uniform Dead Load	14 plf	14 plf
Beam Self Weight	2 plf	2 plf
Total Uniform Load	150 plf	150 plf



Location: Outrigger BS12OH36-2
Multi-Loaded Multi-Span Beam
Multi-Loaded Multi-Span Beam [2021 International Building Code(2018 NDS)]
(2) 1.5 IN x 5.5 IN x 4.25 FT (1.2 + 3)
#2 - Spruce-Pine-Fir - Dry Use
Section Adequate By: 90.8%
Controlling Factor: Shear

DEFLECTIONS	Center		Right	
Live Load	0.00	IN L/7578	0.07	IN 2L/1080
Dead Load	0.00	in	0.01	in
Total Load	0.00	IN L/6823	0.07	IN 2L/962
Live Load Deflection Criteria: L/240 Total Load Deflection Criteria: L/180				

REACTIONS	A		B	
Live Load	162	lb	1221	lb
Dead Load	-48	lb	147	lb
Total Load	114	lb	1368	lb
Uplift (1.5 F.S)	-580	lb	0	lb
Bearing Length	0.09	in	1.07	in

BEAM DATA	Center		Right	
Span Length	1.25	ft	3	ft
Unbraced Length-Top	0	ft	0	ft
Unbraced Length-Bottom	1.25	ft	3	ft
Live Load Duration Factor	1.00			
Notch Depth	0.00			

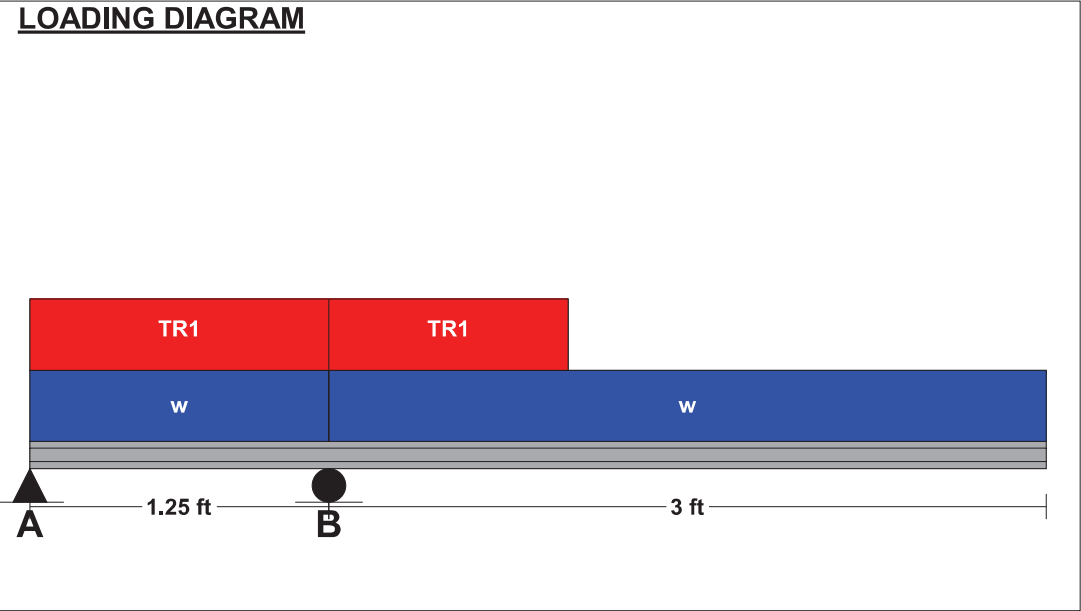
MATERIAL PROPERTIES

#2 - Spruce-Pine-Fir

	Base Values		Adjusted	
Bending Stress:	Fb =	875 psi	Fb' =	1132 psi
	Cd=1.00 Cl=1.00 CF=1.30			
Shear Stress:	Fv =	135 psi	Fv' =	135 psi
	Cd=1.00			
Modulus of Elasticity:	E =	1400 ksi	E' =	1400 ksi
Comp. ⊥ to Grain:	Fc - ⊥ =	425 psi	Fc - ⊥' =	425 psi

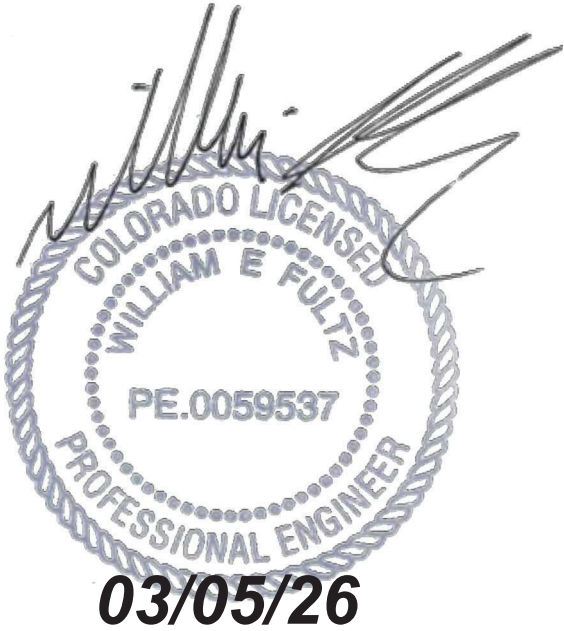
Controlling Moment: -748 ft-lb
Over left support of span 3 (Right Span)
Created by combining all dead loads and live loads on span(s) 2, 3
Controlling Shear: -778 lb
1.0 Ft from left support of span 2 (Center Span)
Created by combining all dead loads and live loads on span(s) 2, 3

Comparisons with required sections:	Req'd	Provided
Section Modulus:	7.93 in3	15.13 in3
Area (Shear):	8.65 in2	16.5 in2
Moment of Inertia (deflection):	9.24 in4	41.59 in4
Moment:	-748 ft-lb	1427 ft-lb
Shear:	-778 lb	1485 lb



UNIFORM LOADS	Center		Right	
Uniform Live Load	134	plf	134	plf
Uniform Dead Load	14	plf	14	plf
Beam Self Weight	3	plf	3	plf
Total Uniform Load	151	plf	151	plf

TRAPEZOIDAL LOADS - CENTER SPAN	
Load Number	One
Left Live Load	125 plf
Left Dead Load	12 plf
Right Live Load	125 plf
Right Dead Load	12 plf
Load Start	0 ft
Load End	1.25 ft
Load Length	1.25 ft
RIGHT SPAN	
Load Number	One
Left Live Load	125 plf
Left Dead Load	12 plf
Right Live Load	125 plf
Right Dead Load	12 plf
Load Start	0 ft
Load End	1 ft
Load Length	1 ft



Location: Outrigger BS36OH12
Multi-Loaded Multi-Span Beam
Multi-Loaded Multi-Span Beam [2021 International Building Code(2018 NDS)]
1.5 IN x 5.5 IN x 4.0 FT (3 + 1)
#2 - Spruce-Pine-Fir - Dry Use
Section Adequate By: 198.0%
Controlling Factor: Shear

DEFLECTIONS	Center		Right	
Live Load	0.01	IN L/4293	-0.01	IN 2L/2682
Dead Load	0.00	in	0.00	in
Total Load	0.01	IN L/3957	-0.01	IN 2L/2552
Live Load Deflection Criteria: L/240		Total Load Deflection Criteria: L/180		

REACTIONS	A		B	
Live Load	201	lb	357	lb
Dead Load	21	lb	41	lb
Total Load	222	lb	398	lb
Uplift (1.5 F.S)	-9	lb	0	lb
Bearing Length	0.35	in	0.63	in

BEAM DATA	Center	Right
Span Length	3 ft	1 ft
Unbraced Length-Top	0 ft	0 ft
Unbraced Length-Bottom	3 ft	1 ft
Live Load Duration Factor	1.00	
Notch Depth	0.00	

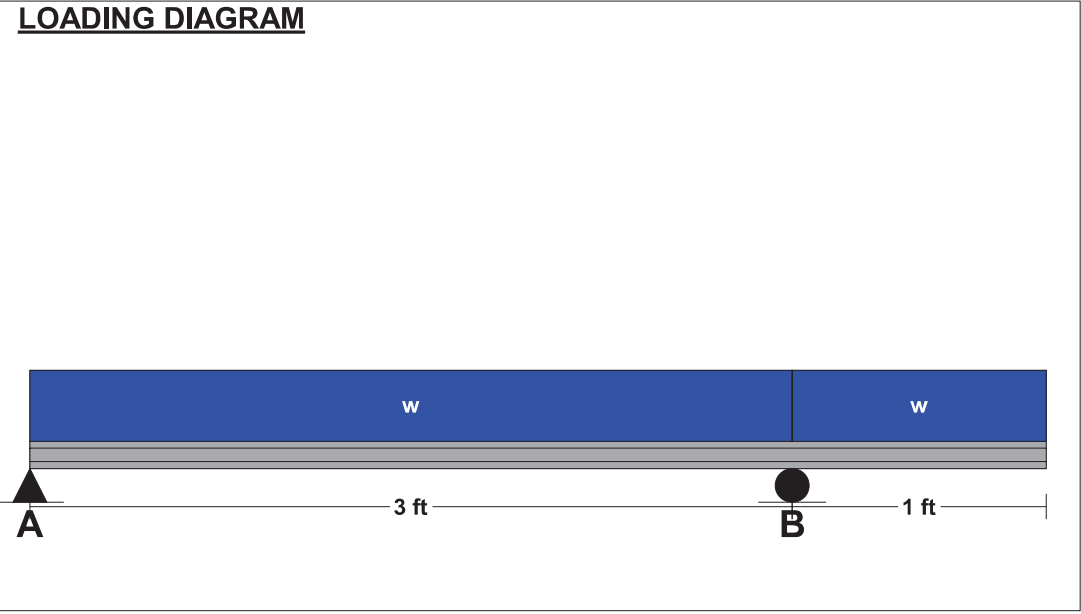
MATERIAL PROPERTIES

#2 - Spruce-Pine-Fir

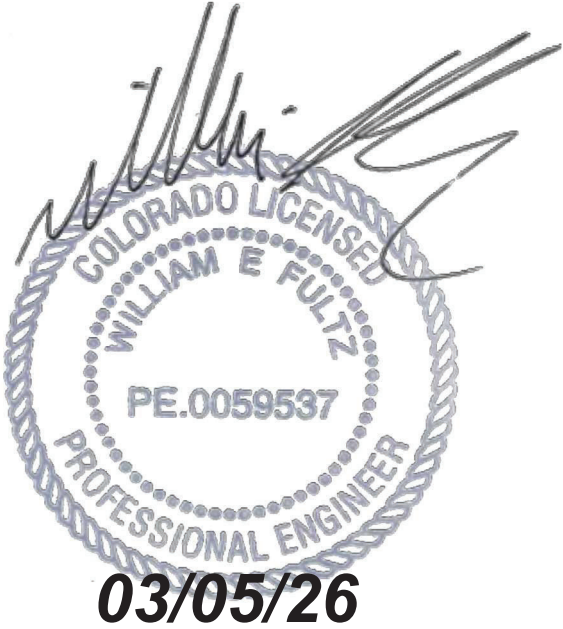
	Base Values		Adjusted	
Bending Stress:	Fb =	875 psi	Fb' =	1138 psi
	Cd=1.00 CF=1.30			
Shear Stress:	Fv =	135 psi	Fv' =	135 psi
	Cd=1.00			
Modulus of Elasticity:	E =	1400 ksi	E' =	1400 ksi
Comp. ⊥ to Grain:	Fc - ⊥ =	425 psi	Fc - ⊥' =	425 psi

Controlling Moment: 164 ft-lb
1.47 Ft from left support of span 2 (Center Span)
Created by combining all dead loads and live loads on span(s) 2
Controlling Shear: -249 lb
At right support of span 2 (Center Span)
Created by combining all dead loads and live loads on span(s) 2, 3

Comparisons with required sections:	Req'd	Provided
Section Modulus:	1.73 in3	7.56 in3
Area (Shear):	2.77 in2	8.25 in2
Moment of Inertia (deflection):	1.86 in4	20.8 in4
Moment:	164 ft-lb	717 ft-lb
Shear:	-249 lb	743 lb



UNIFORM LOADS	Center		Right	
Uniform Live Load	134	plf	134	plf
Uniform Dead Load	14	plf	14	plf
Beam Self Weight	2	plf	2	plf
Total Uniform Load	150	plf	150	plf



DEFLECTIONS	Center		Right	
Live Load	-0.05	IN L/1345	0.15	IN 2L/394
Dead Load	0.00	in	0.01	in
Total Load	-0.06	IN L/1244	0.17	IN 2L/360
Live Load Deflection Criteria: L/240		Total Load Deflection Criteria: L/180		

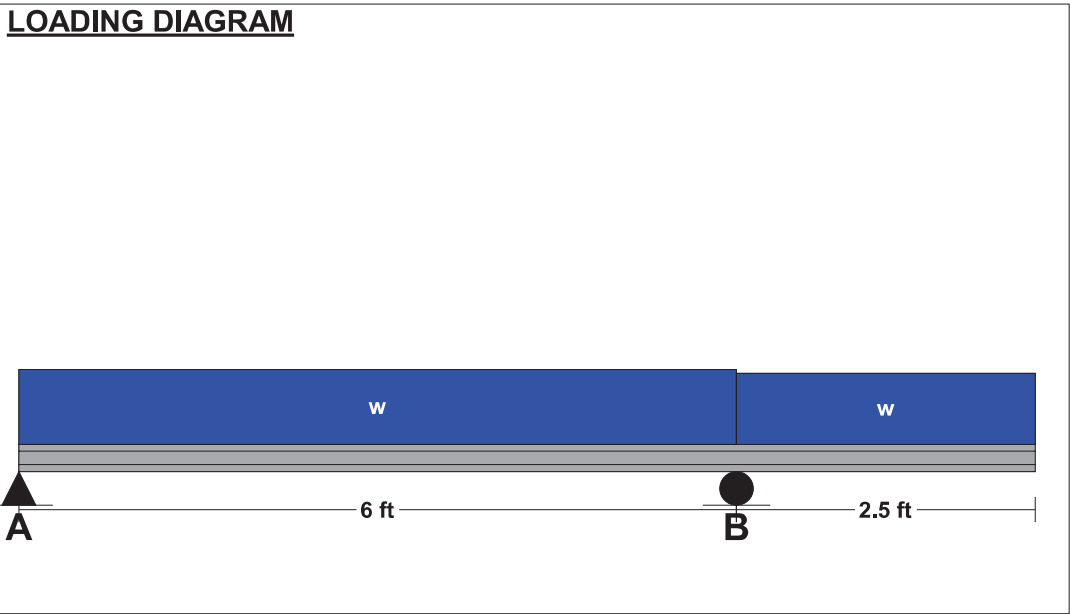
REACTIONS	A	B
Live Load	0 lb	378 lb
Dead Load	-3 lb	45 lb
Total Load	-3 lb	423 lb
Uplift (1.5 F.S)	-68 lb	0 lb
Bearing Length	0.00 in	0.66 in

BEAM DATA	Center	Right
Span Length	6 ft	2.5 ft
Unbraced Length-Top	0 ft	0 ft
Unbraced Length-Bottom	6 ft	2.5 ft
Live Load Duration Factor	1.00	
Notch Depth	0.00	

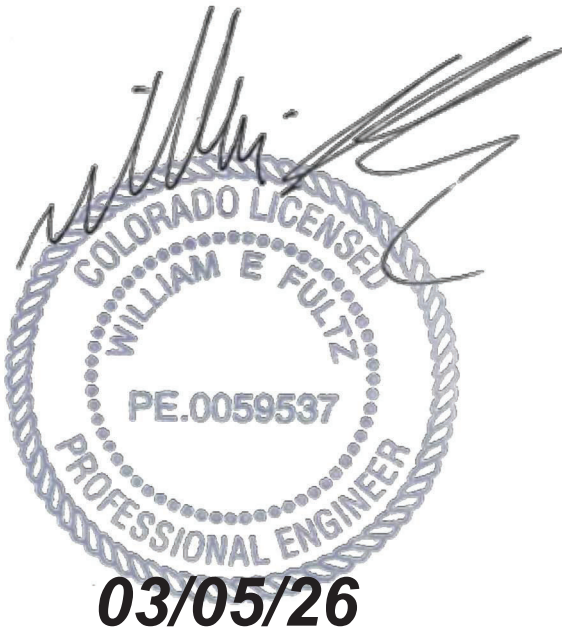
<u>MATERIAL PROPERTIES</u>			
#2 - Spruce-Pine-Fir			
	<u>Base Values</u>		<u>Adjusted</u>
Bending Stress:	Fb =	875 psi	Fb' = 1067 psi
	Cd=1.00 Cl=0.94 CF=1.30		
Shear Stress:	Fv =	135 psi	Fv' = 135 psi
	Cd=1.00		
Modulus of Elasticity:	E =	1400 ksi	E' = 1400 ksi
Comp. ⊥ to Grain:	Fc - ⊥ =	425 psi	Fc - ⊥' = 425 psi

Controlling Moment:	-433 ft-lb
Over right support of span 2 (Center Span)	
Created by combining all dead loads and live loads on span(s) 2, 3	
Controlling Shear:	346 lb
At left support of span 3 (Right Span)	
Created by combining all dead loads and live loads on span(s) 2, 3	

Comparisons with required sections:	Req'd	Provided
Section Modulus:	4.87 in3	7.56 in3
Area (Shear):	3.85 in2	8.25 in2
Moment of Inertia (deflection):	12.66 in4	20.8 in4
Moment:	-433 ft-lb	672 ft-lb
Shear:	346 lb	743 lb



UNIFORM LOADS	Center	Right
Uniform Live Load	0 plf	125 plf
Uniform Dead Load	0 plf	12 plf
Beam Self Weight	2 plf	2 plf
Total Uniform Load	2 plf	139 plf



CAUTIONS
* Laminations are to be fully connected to provide uniform transfer of loads to all members

DEFLECTIONS	Left		Center	
Live Load	-0.07	IN 2L/738	0.12	IN L/1168
Dead Load	-0.01	in	0.02	in
Total Load	-0.08	IN 2L/672	0.14	IN L/1040
Live Load Deflection Criteria: L/240		Total Load Deflection Criteria: L/180		

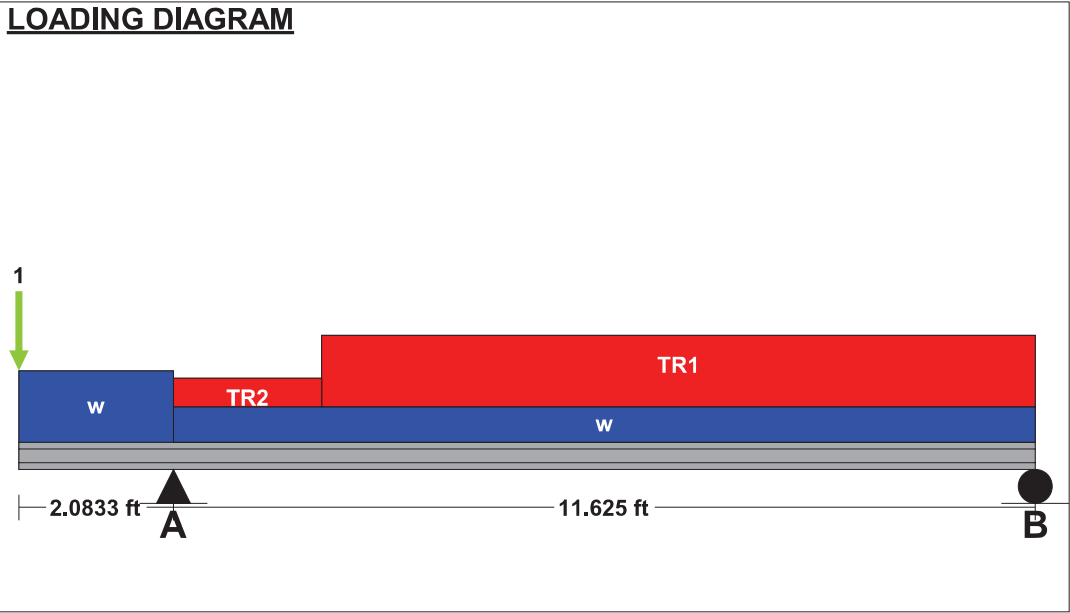
REACTIONS	A		B	
Live Load	1852	lb	1246	lb
Dead Load	266	lb	172	lb
Total Load	2118	lb	1418	lb
Bearing Length	1.11	in	0.74	in

BEAM DATA	Left		Center	
Span Length	2.08	ft	11.63	ft
Unbraced Length-Top	0	ft	0	ft
Unbraced Length-Bottom	2.08	ft	11.63	ft
Beam End Elevation Difference	3.42	ft		
Live Load Duration Factor	1.00			
Notch Depth	0.00			

<u>MATERIAL PROPERTIES</u>				
#2 - Spruce-Pine-Fir				
	<u>Base Values</u>		<u>Adjusted</u>	
Bending Stress:	Fb =	875 psi	Fb' =	1006 psi
	Cd=1.00 CF=1.00 Cr=1.15			
Shear Stress:	Fv =	135 psi	Fv' =	135 psi
	Cd=1.00			
Modulus of Elasticity:	E =	1400 ksi	E' =	1400 ksi
Comp. ⊥ to Grain:	Fc - ⊥ =	425 psi	Fc - ⊥' =	425 psi

Controlling Moment: 4035 ft-lb
5.929 Ft from left support of span 2 (Center Span)
Created by combining all dead loads and live loads on span(s) 2
Controlling Shear: -1376 lb
11.644 Ft from left support of span 2 (Center Span)
Created by combining all dead loads and live loads on span(s) 2

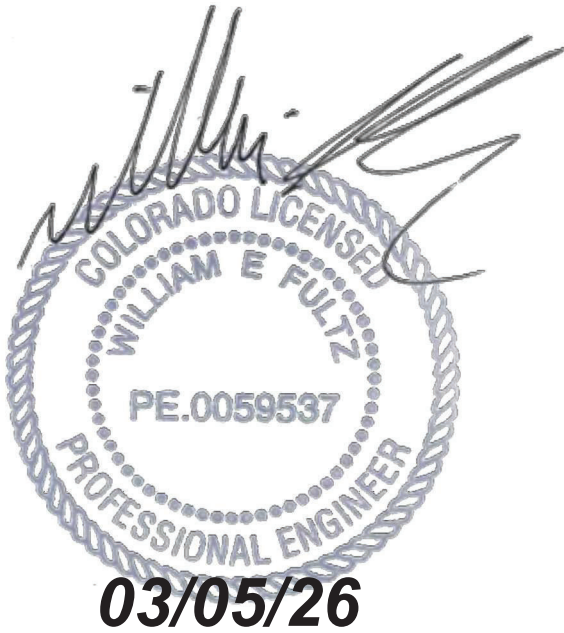
Comparisons with required sections:	Req'd	Provided
Section Modulus:	48.12 in3	94.92 in3
Area (Shear):	15.29 in2	50.63 in2
Moment of Inertia (deflection):	173.49 in4	533.94 in4
Moment:	4035 ft-lb	7960 ft-lb
Shear:	-1376 lb	4556 lb



UNIFORM LOADS	Left		Center	
Uniform Live Load	134	plf	67	plf
Uniform Dead Load	14	plf	7	plf
Beam Self Weight	9	plf	9	plf
Total Uniform Load	157	plf	83	plf

POINT LOADS - LEFT SPAN	
Load Number	One *
Live Load	378 lb
Dead Load	45 lb
Location	0 ft
* Load obtained from Load Tracker. See Summary Report for details.	

TRAPEZOIDAL LOADS - CENTER SPAN	One	Two
Load Number		
Left Live Load	150 plf	63 plf
Left Dead Load	15 plf	0 plf
Right Live Load	150 plf	63 plf
Right Dead Load	15 plf	0 plf
Load Start	2 ft	0 ft
Load End	11.63 ft	2 ft
Load Length	9.63 ft	2 ft



Location: Outrigger giirder rafter - dbl wide gable - Uplift
Multi-Loaded Multi-Span Beam
Multi-Loaded Multi-Span Beam [2021 International Building Code(2018 NDS)]
(3) 1.5 IN x 11.25 IN x 13.708 FT (2.1 + 11.6) (Actual 14.1 FT)
#2 - Spruce-Pine-Fir - Dry Use
Section Adequate By: 568.8%
Controlling Factor: Shear

CAUTIONS
* Laminations are to be fully connected to provide uniform transfer of loads to all members

DEFLECTIONS	Left		Center	
Live Load	0.02	IN 2L/3364	-0.02	IN L/7083
Dead Load	0.00	in	0.01	in
Total Load	0.01	IN 2L/4088	-0.02	IN L/9388
Live Load Deflection Criteria: L/240			Total Load Deflection Criteria: L/180	

REACTIONS	A	B
Live Load	0 lb	0 lb
Dead Load	77 lb	53 lb
Total Load	77 lb	53 lb
Uplift (1.5 F.S)	-708 lb	-73 lb
Bearing Length	0.04 in	0.03 in

BEAM DATA	Left	Center
Span Length	2.08 ft	11.63 ft
Unbraced Length-Top	0 ft	0 ft
Unbraced Length-Bottom	2.08 ft	11.63 ft
Beam End Elevation Difference	3.42 ft	
Live Load Duration Factor	1.00	
Notch Depth	0.00	

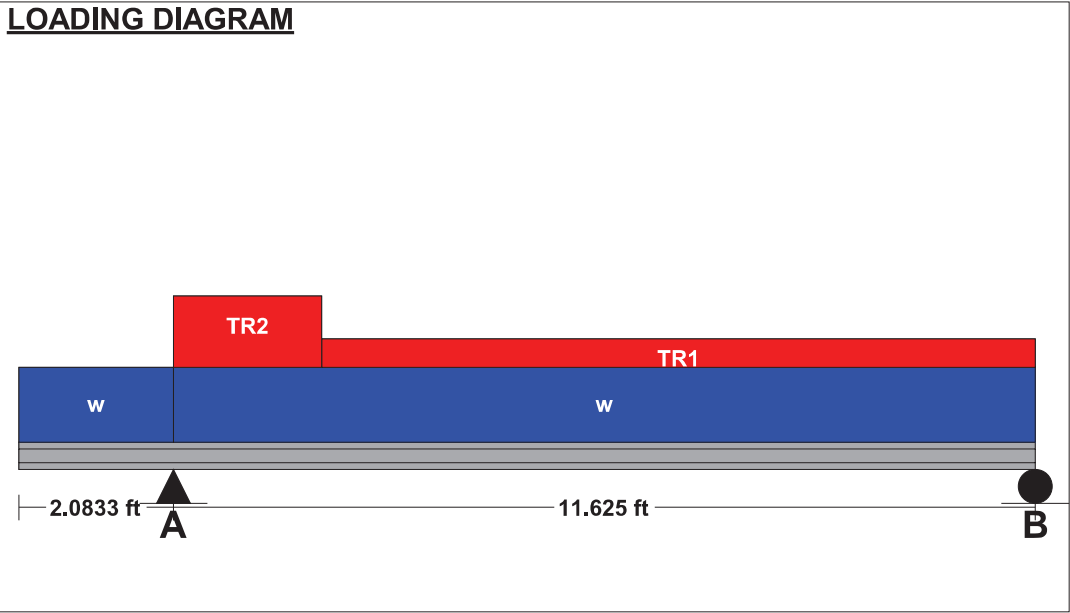
MATERIAL PROPERTIES
#2 - Spruce-Pine-Fir

	Base Values	Adjusted
Bending Stress:	Fb = 875 psi	Fb' = 991 psi
	Cd=1.00 Cl=0.98 CF=1.00 Cr=1.15	
Shear Stress:	Fv = 135 psi	Fv' = 135 psi
	Cd=1.00	
Modulus of Elasticity:	E = 1400 ksi	E' = 1400 ksi
Comp. ⊥ to Grain:	Fc - ⊥ = 425 psi	Fc - ⊥' = 425 psi

Controlling Moment: -651 ft-lb
1.747 Ft from left support of span 2 (Center Span)
Created by combining all dead loads and live loads on span(s) 1, 2

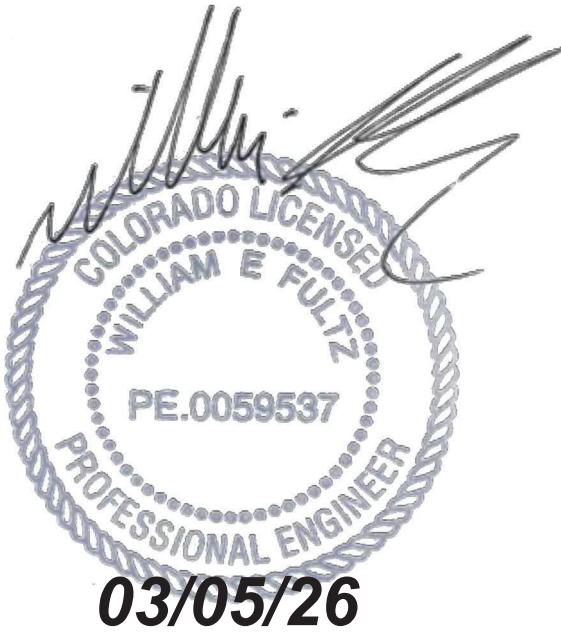
Controlling Shear: -681 lb
At left support of span 2 (Center Span)
Created by combining all dead loads and live loads on span(s) 1, 2

Comparisons with required sections:	Req'd	Provided
Section Modulus:	7.89 in3	94.92 in3
Area (Shear):	7.57 in2	50.63 in2
Moment of Inertia (deflection):	38.1 in4	533.94 in4
Moment:	-651 ft-lb	7835 ft-lb
Shear:	-681 lb	4556 lb



UNIFORM LOADS	Left	Center
Uniform Live Load	0 plf	0 plf
Uniform Dead Load	0 plf	0 plf
Beam Self Weight	9 plf	9 plf
Total Uniform Load	9 plf	9 plf

TRAPEZOIDAL LOADS - LEFT SPAN			
Load Number	One		
Left Live Load	-26 plf		
Left Dead Load	0 plf		
Right Live Load	-26 plf		
Right Dead Load	0 plf		
Load Start	0 ft		
Load End	0 ft		
Load Length	0 ft		
CENTER SPAN			
Load Number	One	Two	Three
Left Live Load	-7 plf	-400 plf	-26 plf
Left Dead Load	0 plf	0 plf	0 plf
Right Live Load	-7 plf	-400 plf	-26 plf
Right Dead Load	0 plf	0 plf	0 plf
Load Start	2 ft	0 ft	0 ft
Load End	11.63 ft	2 ft	0 ft
Load Length	9.63 ft	2 ft	0 ft



DEFLECTIONS	Left		Center	
Live Load	0.07	IN 2L/712	-0.01	IN L/3650
Dead Load	0.01	in	0.00	in
Total Load	0.08	IN 2L/636	-0.01	IN L/3285
Live Load Deflection Criteria: L/240 Total Load Deflection Criteria: L/180				

REACTIONS	A		B	
Live Load	1330	lb	134	lb
Dead Load	171	lb	-48	lb
Total Load	1501	lb	86	lb
Uplift (1.5 F.S)	0	lb	-588	lb
Bearing Length	0.79	in	0.04	in

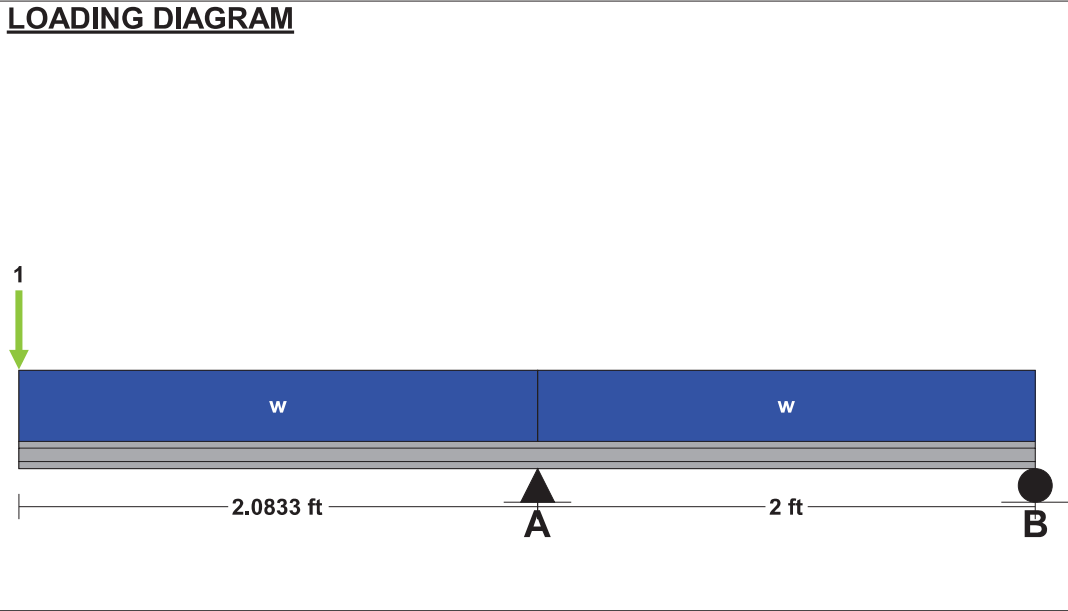
BEAM DATA	Left		Center	
Span Length	2.08	ft	2	ft
Unbraced Length-Top	0	ft	0	ft
Unbraced Length-Bottom	2.08	ft	2	ft
Beam End Elevation Difference		1	ft	
Live Load Duration Factor		1.00		
Notch Depth		0.00		

<u>MATERIAL PROPERTIES</u>			
#3 - Spruce-Pine-Fir			
	<u>Base Values</u>		<u>Adjusted</u>
Bending Stress:	Fb =	500 psi	Fb' = 747 psi
	Cd=1.00 Cl=1.00 CF=1.30 Cr=1.15		
Shear Stress:	Fv =	135 psi	Fv' = 135 psi
	Cd=1.00		
Modulus of Elasticity:	E =	1200 ksi	E' = 1200 ksi
Comp. ⊥ to Grain:	Fc - ⊥ =	425 psi	Fc - ⊥' = 425 psi

Controlling Moment: -1213 ft-lb
2.079 Ft from left support of span 1 (Left Span)
Created by combining all dead loads and live loads on span(s) 1, 2

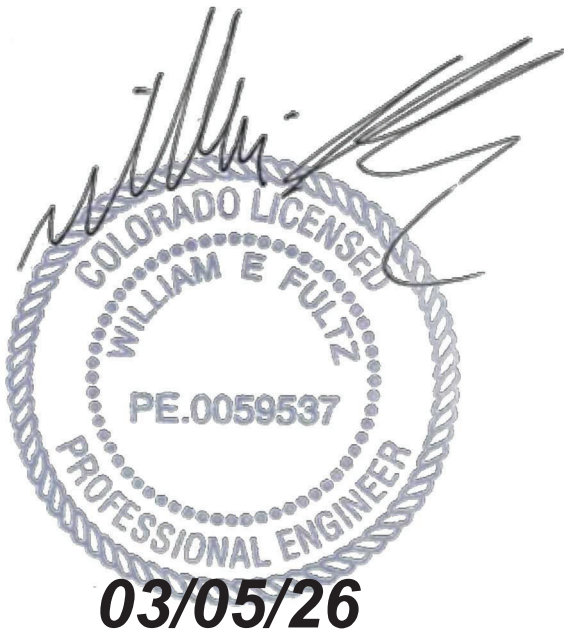
Controlling Shear: 738 lb
At left support of span 2 (Center Span)
Created by combining all dead loads and live loads on span(s) 1, 2

Comparisons with required sections:	Req'd	Provided
Section Modulus:	19.5 in3	22.69 in3
Area (Shear):	8.2 in2	24.75 in2
Moment of Inertia (deflection):	21.01 in4	62.39 in4
Moment:	-1213 ft-lb	1412 ft-lb
Shear:	738 lb	2228 lb



UNIFORM LOADS	Left		Center	
Uniform Live Load	134	plf	134	plf
Uniform Dead Load	14	plf	14	plf
Beam Self Weight	5	plf	5	plf
Total Uniform Load	153	plf	153	plf

POINT LOADS - LEFT SPAN	
Load Number	One *
Live Load	378 lb
Dead Load	45 lb
Location	0 ft
* Load obtained from Load Tracker. See Summary Report for details.	



DEFLECTIONS	Left		Center	
Live Load	-0.13	IN 2L/382	0.23	IN L/613
Dead Load	-0.02	in	0.03	in
Total Load	-0.15	IN 2L/344	0.26	IN L/546
Live Load Deflection Criteria: L/240		Total Load Deflection Criteria: L/180		

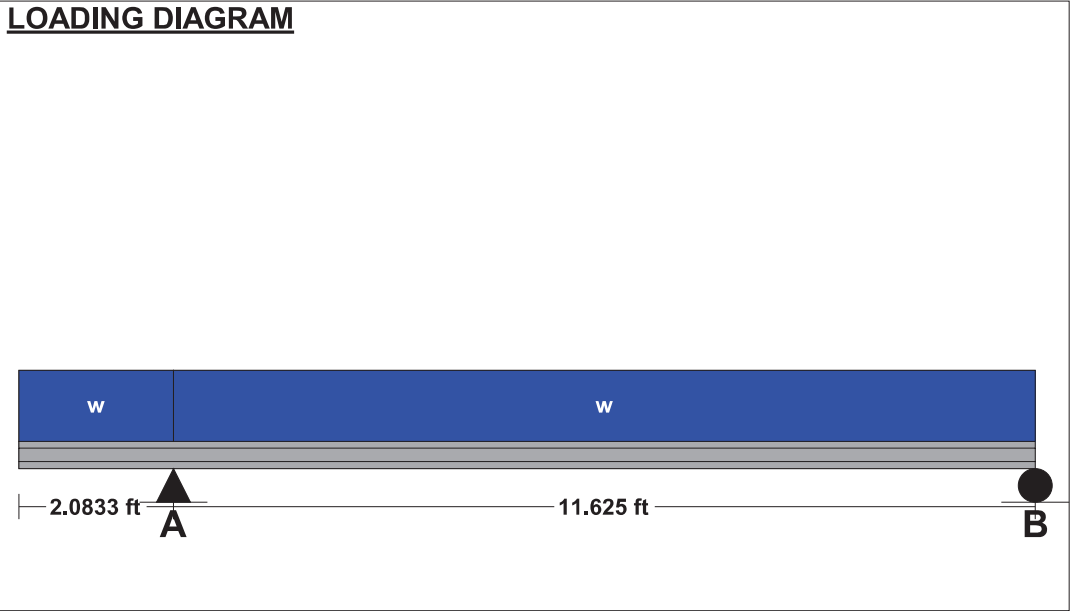
REACTIONS	A		B	
Live Load	1083	lb	779	lb
Dead Load	142	lb	99	lb
Total Load	1225	lb	878	lb
Bearing Length	1.92	in	1.38	in

BEAM DATA	Left		Center	
Span Length	2.08	ft	11.63	ft
Unbraced Length-Top	0	ft	0	ft
Unbraced Length-Bottom	2.08	ft	11.63	ft
Beam End Elevation Difference	3.42	ft		
Live Load Duration Factor	1.00			
Notch Depth	0.00			

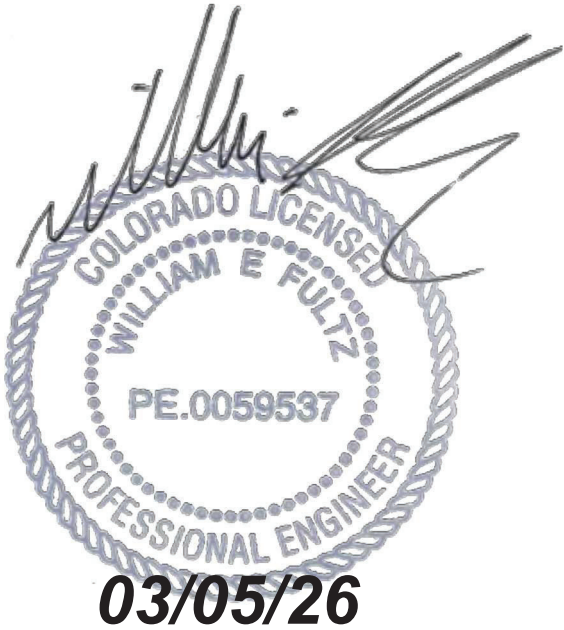
<u>MATERIAL PROPERTIES</u>				
#2 - Spruce-Pine-Fir				
	<u>Base Values</u>		<u>Adjusted</u>	
Bending Stress:	Fb =	875 psi	Fb' =	1006 psi
	Cd=1.00 CF=1.00 Cr=1.15			
Shear Stress:	Fv =	135 psi	Fv' =	135 psi
	Cd=1.00			
Modulus of Elasticity:	E =	1400 ksi	E' =	1400 ksi
Comp. $\perp$ to Grain:	Fc - $\perp$ =	425 psi	Fc - $\perp$ ' =	425 psi

Controlling Moment:	2542 ft-lb
5.812 Ft from left support of span 2 (Center Span)	
Created by combining all dead loads and live loads on span(s) 2	
Controlling Shear:	882 lb
At left support of span 2 (Center Span)	
Created by combining all dead loads and live loads on span(s) 1, 2	

Comparisons with required sections:	Req'd	Provided
Section Modulus:	30.31 in3	31.64 in3
Area (Shear):	9.8 in2	16.88 in2
Moment of Inertia (deflection):	111.57 in4	177.98 in4
Moment:	2542 ft-lb	2653 ft-lb
Shear:	882 lb	1519 lb



UNIFORM LOADS	Left		Center	
Uniform Live Load	134	plf	134	plf
Uniform Dead Load	14	plf	14	plf
Beam Self Weight	3	plf	3	plf
Total Uniform Load	151	plf	151	plf



Location: Rafter - dbl wide gable - Uplift C&C
Multi-Loaded Multi-Span Beam
Multi-Loaded Multi-Span Beam [2021 International Building Code(2018 NDS)]
1.5 IN x 11.25 IN x 13.708 FT (2.1 + 11.6) (Actual 14.1 FT)
#2 - Spruce-Pine-Fir - Dry Use
Section Adequate By: 105.4%
Controlling Factor: Moment

DEFLECTIONS	Left		Center	
Live Load	0.04	IN 2L/1386	-0.06	IN L/2219
Dead Load	0.00	in	0.01	in
Total Load	0.03	IN 2L/1496	-0.06	IN L/2409
Live Load Deflection Criteria: L/240		Total Load Deflection Criteria: L/180		

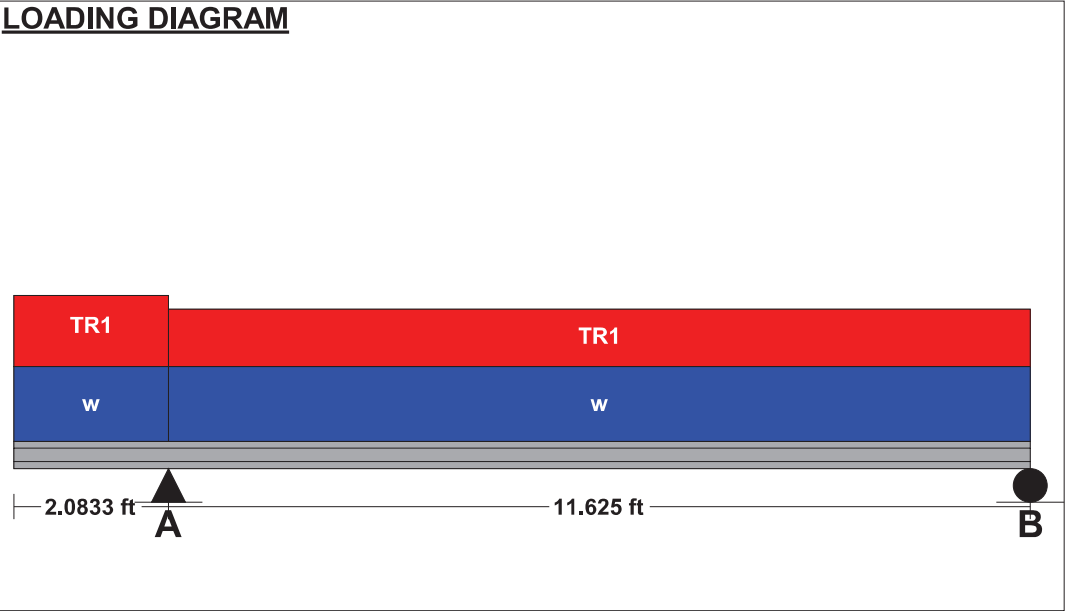
REACTIONS	A	B
Live Load	-104 lb	9 lb
Dead Load	26 lb	18 lb
Total Load	-78 lb	27 lb
Uplift (1.5 F.S)	-302 lb	-203 lb
Bearing Length	0.04 in	0.04 in

BEAM DATA	Left	Center
Span Length	2.08 ft	11.63 ft
Unbraced Length-Top	0 ft	0 ft
Unbraced Length-Bottom	2.08 ft	11.63 ft
Beam End Elevation Difference	3.42 ft	
Live Load Duration Factor	1.60	
Notch Depth	0.00	

MATERIAL PROPERTIES	Base Values		Adjusted	
Bending Stress:	Fb =	875 psi	Fb' =	448 psi
	Cd=1.60 Cl=0.28 CF=1.00 Cr=1.15			
Shear Stress:	Fv =	135 psi	Fv' =	216 psi
	Cd=1.60			
Modulus of Elasticity:	E =	1400 ksi	E' =	1400 ksi
	Comp. ⊥ to Grain:			
Comp. ⊥ to Grain:	Fc - ⊥ =	425 psi	Fc - ⊥' =	425 psi

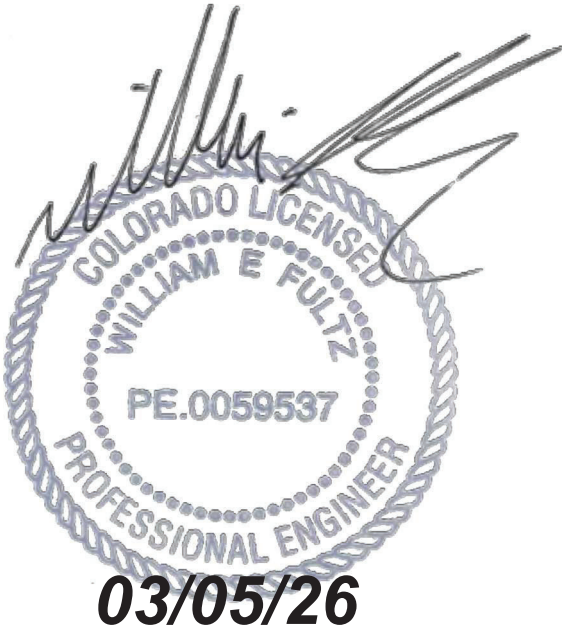
Controlling Moment: -575 ft-lb
5.812 Ft from left support of span 2 (Center Span)
Created by combining all dead loads and live loads on span(s) 2
Controlling Shear: -199 lb
At left support of span 2 (Center Span)
Created by combining all dead loads and live loads on span(s) 1, 2

Comparisons with required sections:	Req'd	Provided
Section Modulus:	15.4 in3	31.64 in3
Area (Shear):	1.38 in2	16.88 in2
Moment of Inertia (deflection):	30.81 in4	177.98 in4
Moment:	-575 ft-lb	1181 ft-lb
Shear:	-199 lb	2430 lb



UNIFORM LOADS	Left	Center
Uniform Live Load	0 plf	0 plf
Uniform Dead Load	0 plf	0 plf
Beam Self Weight	3 plf	3 plf
Total Uniform Load	3 plf	3 plf

TRAPEZOIDAL LOADS - LEFT SPAN	
Load Number	One
Left Live Load	-46 plf
Left Dead Load	0 plf
Right Live Load	-46 plf
Right Dead Load	0 plf
Load Start	0 ft
Load End	2.08 ft
Load Length	2.08 ft
CENTER SPAN	
Load Number	One
Left Live Load	-37 plf
Left Dead Load	0 plf
Right Live Load	-37 plf
Right Dead Load	0 plf
Load Start	0 ft
Load End	11.63 ft
Load Length	11.63 ft



DEFLECTIONS	Left		Center	
Live Load	0.03	IN 2L/1974	-0.05	IN L/3157
Dead Load	0.00	in	0.01	in
Total Load	0.02	IN 2L/2202	-0.04	IN L/3557
Live Load Deflection Criteria: L/240		Total Load Deflection Criteria: L/180		

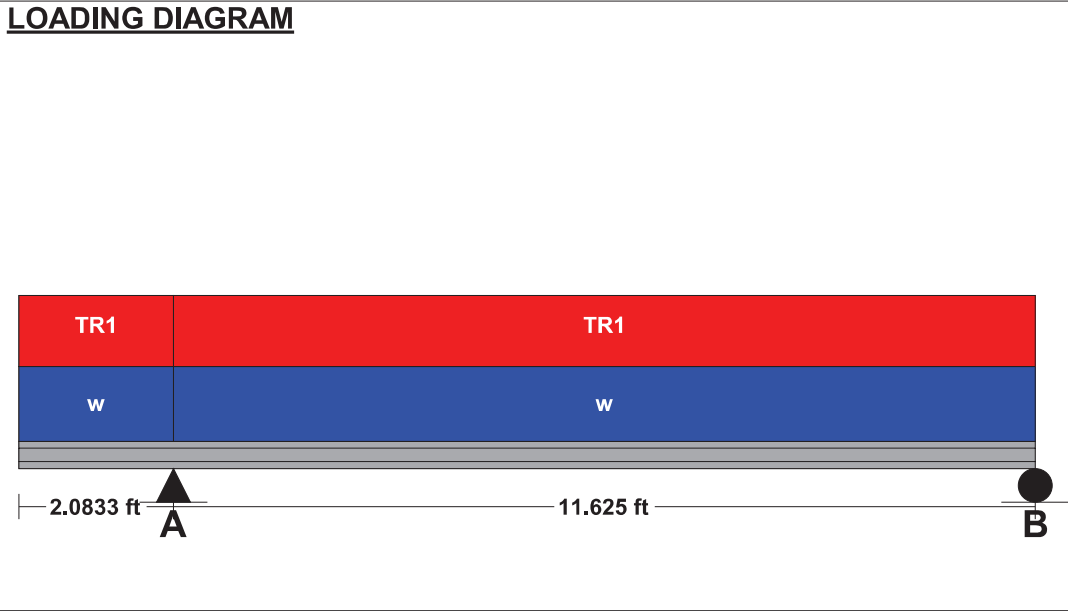
REACTIONS	A	B
Live Load	-59 lb	5 lb
Dead Load	26 lb	18 lb
Total Load	-33 lb	23 lb
Uplift (1.5 F.S)	-193 lb	-139 lb
Bearing Length	0.04 in	0.04 in

BEAM DATA	Left	Center
Span Length	2.08 ft	11.63 ft
Unbraced Length-Top	0 ft	0 ft
Unbraced Length-Bottom	2.08 ft	11.63 ft
Beam End Elevation Difference	3.42 ft	
Live Load Duration Factor	1.60	
Notch Depth	0.00	

<u>MATERIAL PROPERTIES</u>			
#2 - Spruce-Pine-Fir			
	<u>Base Values</u>		<u>Adjusted</u>
Bending Stress:	Fb =	875 psi	Fb' = 448 psi
	Cd=1.60 Cl=0.28 CF=1.00 Cr=1.15		
Shear Stress:	Fv =	135 psi	Fv' = 216 psi
	Cd=1.60		
Modulus of Elasticity:	E =	1400 ksi	E' = 1400 ksi
Comp. ⊥ to Grain:	Fc - ⊥ =	425 psi	Fc - ⊥' = 425 psi

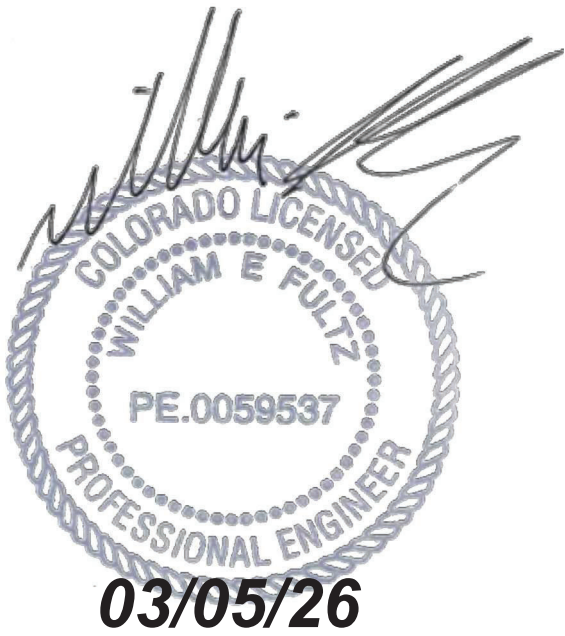
Controlling Moment:	-389 ft-lb
5.812 Ft from left support of span 2 (Center Span)	
Created by combining all dead loads and live loads on span(s) 2	
Controlling Shear:	-133 lb
At left support of span 2 (Center Span)	
Created by combining all dead loads and live loads on span(s) 1, 2	

Comparisons with required sections:	Req'd	Provided
Section Modulus:	10.43 in3	31.64 in3
Area (Shear):	0.92 in2	16.88 in2
Moment of Inertia (deflection):	21.65 in4	177.98 in4
Moment:	-389 ft-lb	1181 ft-lb
Shear:	-133 lb	2430 lb



UNIFORM LOADS	Left	Center
Uniform Live Load	0 plf	0 plf
Uniform Dead Load	0 plf	0 plf
Beam Self Weight	3 plf	3 plf
Total Uniform Load	3 plf	3 plf

TRAPEZOIDAL LOADS - LEFT SPAN	
Load Number	One
Left Live Load	-26 plf
Left Dead Load	0 plf
Right Live Load	-26 plf
Right Dead Load	0 plf
Load Start	0 ft
Load End	2.08 ft
Load Length	2.08 ft
CENTER SPAN	
Load Number	One
Left Live Load	-26 plf
Left Dead Load	0 plf
Right Live Load	-26 plf
Right Dead Load	0 plf
Load Start	0 ft
Load End	11.63 ft
Load Length	11.63 ft



DEFLECTIONS	Left		Center	
Live Load	-0.13	IN 2L/382	0.23	IN L/613
Dead Load	-0.02	in	0.03	in
Total Load	-0.15	IN 2L/344	0.26	IN L/546
Live Load Deflection Criteria: L/240		Total Load Deflection Criteria: L/180		

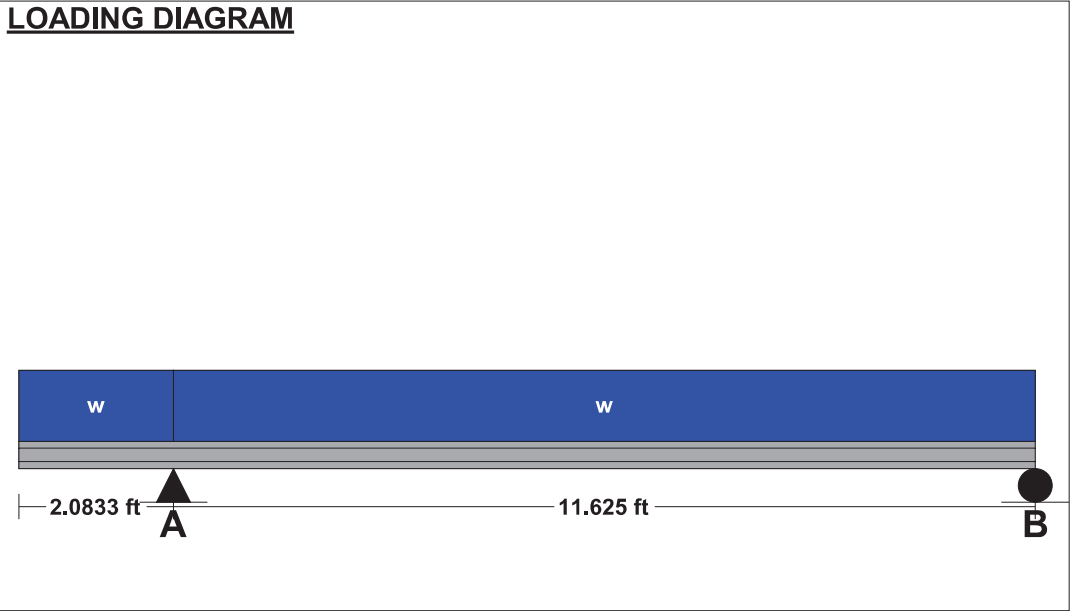
REACTIONS	A		B	
Live Load	1083	lb	779	lb
Dead Load	142	lb	99	lb
Total Load	1225	lb	878	lb
Bearing Length	1.92	in	1.38	in

BEAM DATA	Left		Center	
Span Length	2.08	ft	11.63	ft
Unbraced Length-Top	0	ft	0	ft
Unbraced Length-Bottom	2.08	ft	11.63	ft
Beam End Elevation Difference	3.42	ft		
Live Load Duration Factor	1.00			
Notch Depth	0.00			

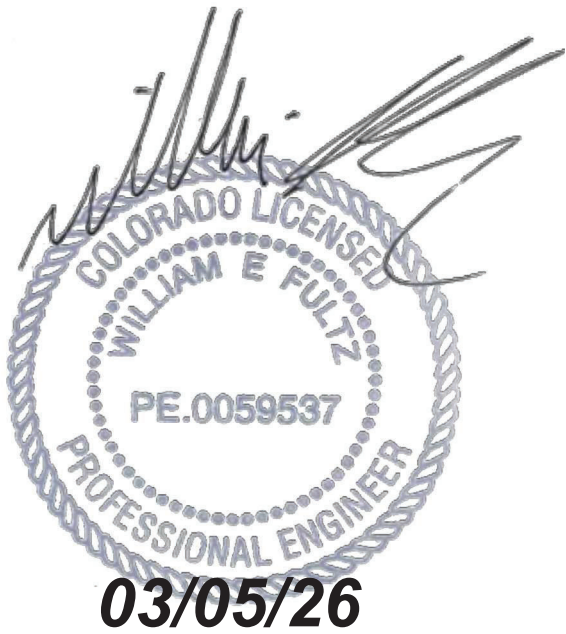
<u>MATERIAL PROPERTIES</u>			
#2 - Spruce-Pine-Fir			
	<u>Base Values</u>		<u>Adjusted</u>
Bending Stress:	Fb =	875 psi	Fb' = 1006 psi
	Cd=1.00 CF=1.00 Cr=1.15		
Shear Stress:	Fv =	135 psi	Fv' = 135 psi
	Cd=1.00		
Modulus of Elasticity:	E =	1400 ksi	E' = 1400 ksi
Comp. $\perp$ to Grain:	Fc - $\perp$ =	425 psi	Fc - $\perp$ ' = 425 psi

Controlling Moment:	2542 ft-lb
5.812 Ft from left support of span 2 (Center Span)	
Created by combining all dead loads and live loads on span(s) 2	
Controlling Shear:	882 lb
At left support of span 2 (Center Span)	
Created by combining all dead loads and live loads on span(s) 1, 2	

Comparisons with required sections:	Req'd	Provided
Section Modulus:	30.31 in3	31.64 in3
Area (Shear):	9.8 in2	16.88 in2
Moment of Inertia (deflection):	111.57 in4	177.98 in4
Moment:	2542 ft-lb	2653 ft-lb
Shear:	882 lb	1519 lb



UNIFORM LOADS	Left		Center	
Uniform Live Load	134	plf	134	plf
Uniform Dead Load	14	plf	14	plf
Beam Self Weight	3	plf	3	plf
Total Uniform Load	151	plf	151	plf



Location: Rafter - sgl wide mono - Uplift C&C
Multi-Loaded Multi-Span Beam
Multi-Loaded Multi-Span Beam [2021 International Building Code(2018 NDS)]
1.5 IN x 11.25 IN x 13.708 FT (2.1 + 11.6) (Actual 14.1 FT)
#2 - Spruce-Pine-Fir - Dry Use
Section Adequate By: 105.4%
Controlling Factor: Moment

DEFLECTIONS	Left		Center	
Live Load	0.04	IN 2L/1386	-0.06	IN L/2219
Dead Load	0.00	in	0.01	in
Total Load	0.03	IN 2L/1496	-0.06	IN L/2409
Live Load Deflection Criteria: L/240		Total Load Deflection Criteria: L/180		

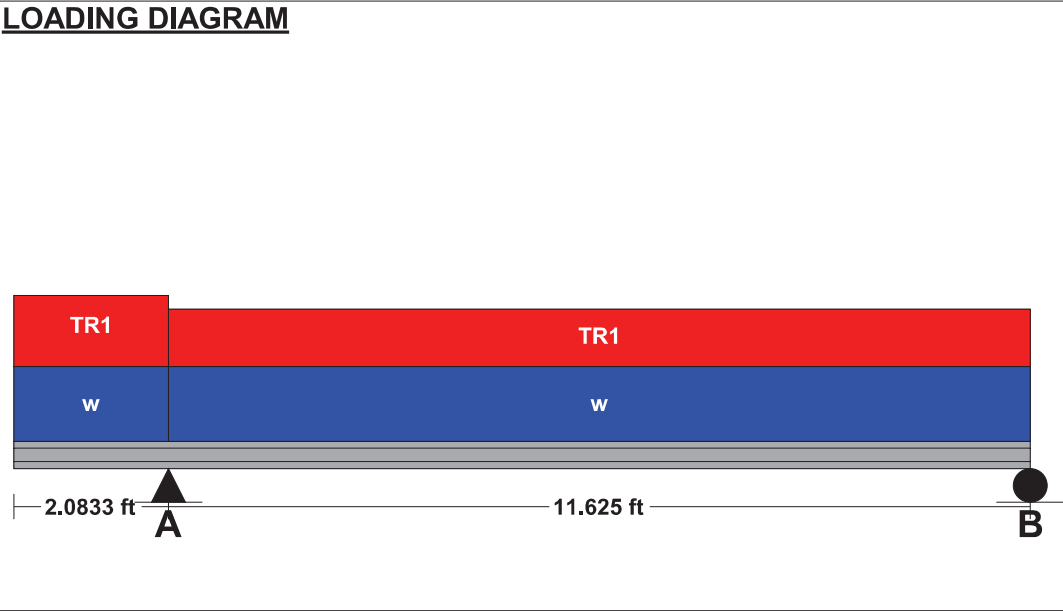
REACTIONS	A	B
Live Load	-104 lb	9 lb
Dead Load	26 lb	18 lb
Total Load	-78 lb	27 lb
Uplift (1.5 F.S)	-302 lb	-203 lb
Bearing Length	0.04 in	0.04 in

BEAM DATA	Left	Center
Span Length	2.08 ft	11.63 ft
Unbraced Length-Top	0 ft	0 ft
Unbraced Length-Bottom	2.08 ft	11.63 ft
Beam End Elevation Difference	3.42 ft	
Live Load Duration Factor	1.60	
Notch Depth	0.00	

MATERIAL PROPERTIES	Base Values		Adjusted	
Bending Stress:	Fb =	875 psi	Fb' =	448 psi
	Cd=1.60 Cl=0.28 CF=1.00 Cr=1.15			
Shear Stress:	Fv =	135 psi	Fv' =	216 psi
	Cd=1.60			
Modulus of Elasticity:	E =	1400 ksi	E' =	1400 ksi
	Comp. ⊥ to Grain:			
	Fc - ⊥ =	425 psi	Fc - ⊥' =	425 psi

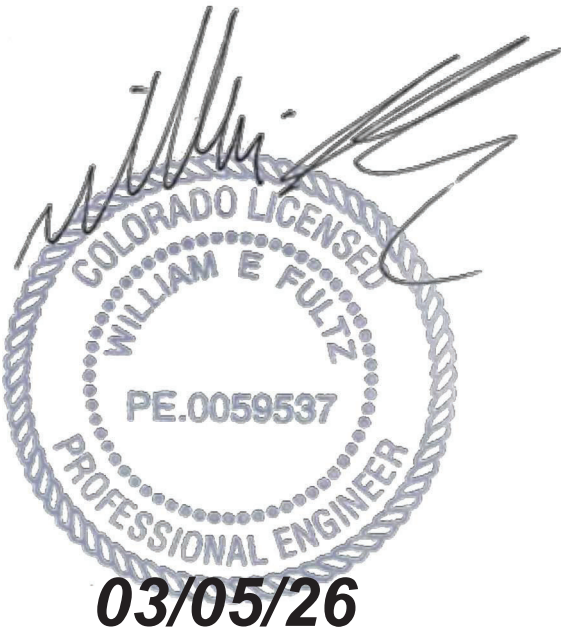
Controlling Moment: -575 ft-lb
5.812 Ft from left support of span 2 (Center Span)
Created by combining all dead loads and live loads on span(s) 2
Controlling Shear: -199 lb
At left support of span 2 (Center Span)
Created by combining all dead loads and live loads on span(s) 1, 2

Comparisons with required sections:	Req'd	Provided
Section Modulus:	15.4 in3	31.64 in3
Area (Shear):	1.38 in2	16.88 in2
Moment of Inertia (deflection):	30.81 in4	177.98 in4
Moment:	-575 ft-lb	1181 ft-lb
Shear:	-199 lb	2430 lb



UNIFORM LOADS	Left	Center
Uniform Live Load	0 plf	0 plf
Uniform Dead Load	0 plf	0 plf
Beam Self Weight	3 plf	3 plf
Total Uniform Load	3 plf	3 plf

TRAPEZOIDAL LOADS - LEFT SPAN	
Load Number	One
Left Live Load	-46 plf
Left Dead Load	0 plf
Right Live Load	-46 plf
Right Dead Load	0 plf
Load Start	0 ft
Load End	2.08 ft
Load Length	2.08 ft
CENTER SPAN	
Load Number	One
Left Live Load	-37 plf
Left Dead Load	0 plf
Right Live Load	-37 plf
Right Dead Load	0 plf
Load Start	0 ft
Load End	11.63 ft
Load Length	11.63 ft



DEFLECTIONS	Left		Center	
Live Load	0.03	IN 2L/1974	-0.05	IN L/3157
Dead Load	0.00	in	0.01	in
Total Load	0.02	IN 2L/2202	-0.04	IN L/3557
Live Load Deflection Criteria: L/240		Total Load Deflection Criteria: L/180		

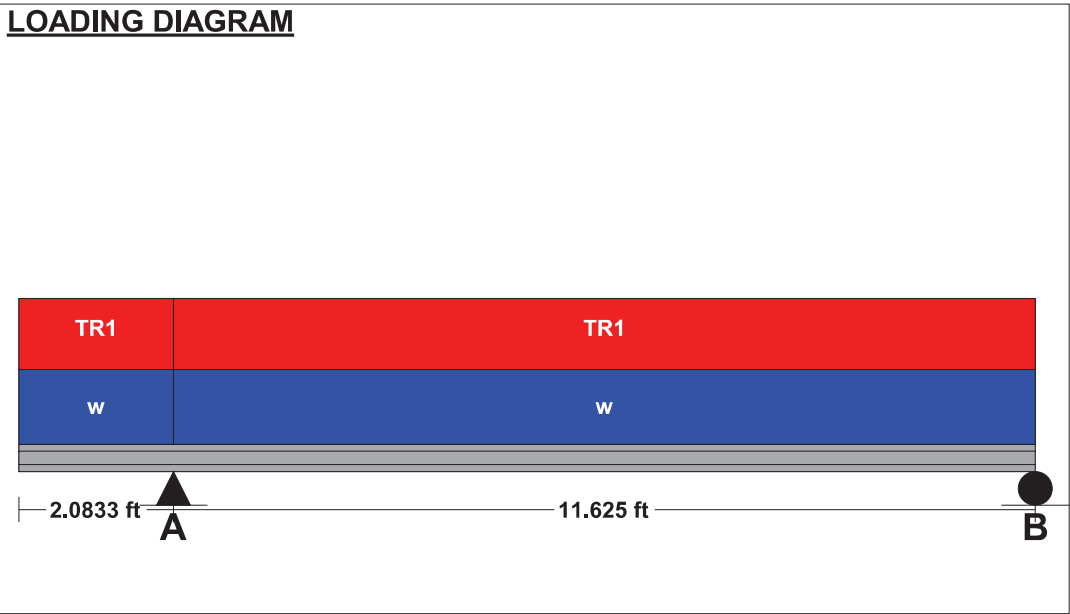
REACTIONS	A	B
Live Load	-59 lb	5 lb
Dead Load	26 lb	18 lb
Total Load	-33 lb	23 lb
Uplift (1.5 F.S)	-193 lb	-139 lb
Bearing Length	0.04 in	0.04 in

BEAM DATA	Left	Center
Span Length	2.08 ft	11.63 ft
Unbraced Length-Top	0 ft	0 ft
Unbraced Length-Bottom	2.08 ft	11.63 ft
Beam End Elevation Difference	3.42 ft	
Live Load Duration Factor	1.60	
Notch Depth	0.00	

MATERIAL PROPERTIES	Base Values		Adjusted	
Bending Stress:	Fb =	875 psi	Fb' =	448 psi
	Cd=1.60 Cl=0.28 CF=1.00 Cr=1.15			
Shear Stress:	Fv =	135 psi	Fv' =	216 psi
	Cd=1.60			
Modulus of Elasticity:	E =	1400 ksi	E' =	1400 ksi
Comp. ⊥ to Grain:	Fc - ⊥ =	425 psi	Fc - ⊥' =	425 psi

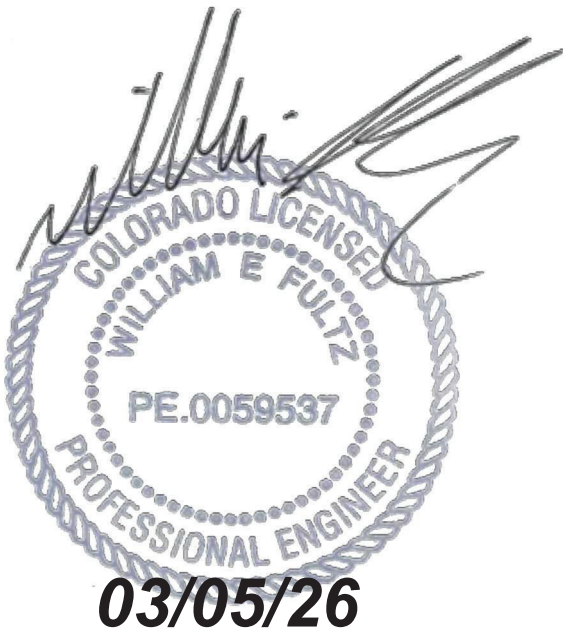
Controlling Moment:	-389 ft-lb
5.812 Ft from left support of span 2 (Center Span)	
Created by combining all dead loads and live loads on span(s) 2	
Controlling Shear:	-133 lb
At left support of span 2 (Center Span)	
Created by combining all dead loads and live loads on span(s) 1, 2	

Comparisons with required sections:	Req'd	Provided
Section Modulus:	10.43 in3	31.64 in3
Area (Shear):	0.92 in2	16.88 in2
Moment of Inertia (deflection):	21.65 in4	177.98 in4
Moment:	-389 ft-lb	1181 ft-lb
Shear:	-133 lb	2430 lb



UNIFORM LOADS	Left	Center
Uniform Live Load	0 plf	0 plf
Uniform Dead Load	0 plf	0 plf
Beam Self Weight	3 plf	3 plf
Total Uniform Load	3 plf	3 plf

TRAPEZOIDAL LOADS - LEFT SPAN	One
Load Number	One
Left Live Load	-26 plf
Left Dead Load	0 plf
Right Live Load	-26 plf
Right Dead Load	0 plf
Load Start	0 ft
Load End	2.08 ft
Load Length	2.08 ft
CENTER SPAN	One
Load Number	One
Left Live Load	-26 plf
Left Dead Load	0 plf
Right Live Load	-26 plf
Right Dead Load	0 plf
Load Start	0 ft
Load End	11.63 ft
Load Length	11.63 ft



Location: Rafter tail 2x6 check - Snow
Multi-Loaded Multi-Span Beam
Multi-Loaded Multi-Span Beam [2021 International Building Code(2018 NDS)]
1.5 IN x 5.5 IN x 4.0 FT (2 + 2) (Actual 4.1 FT)
#3 - Spruce-Pine-Fir - Dry Use
Section Adequate By: 55.4%
Controlling Factor: Moment

DEFLECTIONS	Left		Center	
Live Load	0.05	IN 2L/1076	-0.01	IN L/4890
Dead Load	0.00	in	0.00	in
Total Load	0.05	IN 2L/976	-0.01	IN L/4560
Live Load Deflection Criteria: L/240		Total Load Deflection Criteria: L/180		

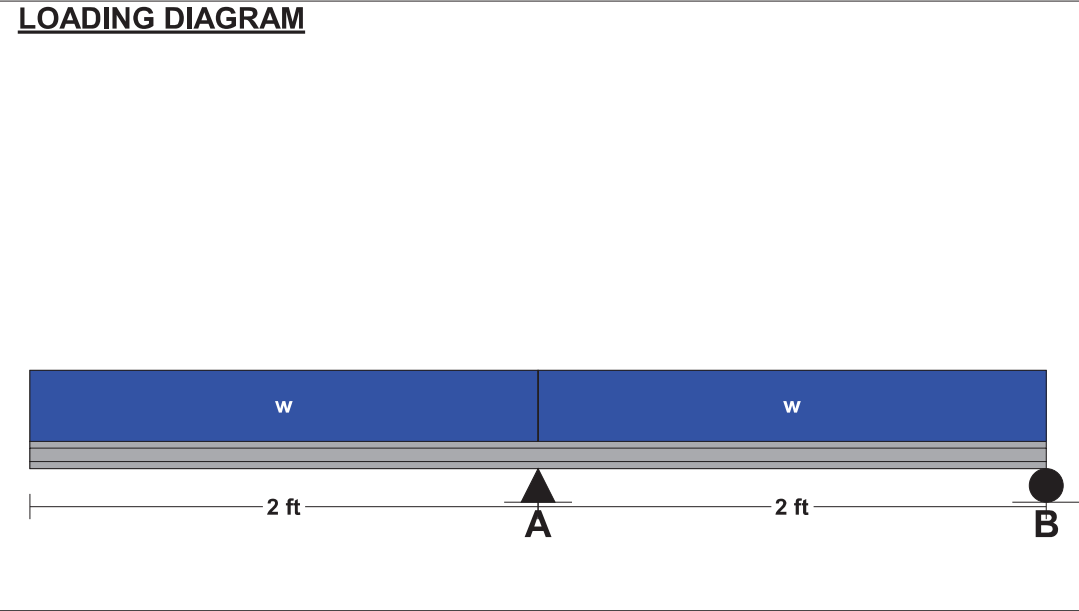
REACTIONS	A		B	
Live Load	536	lb	134	lb
Dead Load	64	lb	0	lb
Total Load	600	lb	134	lb
Uplift (1.5 F.S)	0	lb	-134	lb
Bearing Length	0.94	in	0.21	in

BEAM DATA	Left	Center
Span Length	2 ft	2 ft
Unbraced Length-Top	0 ft	0 ft
Unbraced Length-Bottom	2 ft	2 ft
Beam End Elevation Difference	1 ft	
Live Load Duration Factor	1.00	
Notch Depth	0.00	

<u>MATERIAL PROPERTIES</u>				
#3 - Spruce-Pine-Fir				
	<u>Base Values</u>		<u>Adjusted</u>	
Bending Stress:	Fb =	500 psi	Fb' =	740 psi
	Cd=1.00 Cl=0.99 CF=1.30 Cr=1.15			
Shear Stress:	Fv =	135 psi	Fv' =	135 psi
	Cd=1.00			
Modulus of Elasticity:	E =	1200 ksi	E' =	1200 ksi
Comp. ⊥ to Grain:	Fc - ⊥ =	425 psi	Fc - ⊥' =	425 psi

Controlling Moment: -300 ft-lb
1.998 Ft from left support of span 1 (Left Span)
Created by combining all dead loads and live loads on span(s) 1, 2
Controlling Shear: 291 lb
At left support of span 2 (Center Span)
Created by combining all dead loads and live loads on span(s) 1, 2

Comparisons with required sections:	Req'd	Provided
Section Modulus:	4.87 in3	7.56 in3
Area (Shear):	3.23 in2	8.25 in2
Moment of Inertia (deflection):	4.64 in4	20.8 in4
Moment:	-300 ft-lb	466 ft-lb
Shear:	291 lb	743 lb



UNIFORM LOADS	Left		Center	
Uniform Live Load	134	plf	134	plf
Uniform Dead Load	14	plf	14	plf
Beam Self Weight	2	plf	2	plf
Total Uniform Load	150	plf	150	plf



Location: Ridge beam girder rafter
Multi-Loaded Multi-Span Beam
Multi-Loaded Multi-Span Beam [2021 International Building Code(2018 NDS)]
(2) 1.75 IN x 11.25 IN x 13.708 FT (2.1 + 11.6) (Actual 14.1 FT)
2.0 Rigidlam LVL - Roseburg Forest Products
Section Adequate By: 87.0%
Controlling Factor: Deflection

CAUTIONS

* Laminations are to be fully connected to provide uniform transfer of loads to all members

DEFLECTIONS	Left		Center	
Live Load	-0.11	IN 2L/448	0.21	IN L/684
Dead Load	-0.01	in	0.03	in
Total Load	-0.13	IN 2L/398	0.24	IN L/604
Live Load Deflection Criteria: L/240		Total Load Deflection Criteria: L/180		

REACTIONS	A		B	
Live Load	2020	lb	1779	lb
Dead Load	304	lb	251	lb
Total Load	2324	lb	2030	lb
Bearing Length	0.89	in	0.77	in

BEAM DATA	Left		Center	
Span Length	2.08	ft	11.63	ft
Unbraced Length-Top	0	ft	0	ft
Unbraced Length-Bottom	2.08	ft	11.63	ft
Beam End Elevation Difference	3.42	ft		
Live Load Duration Factor	1.00			
Notch Depth	0.00			

MATERIAL PROPERTIES

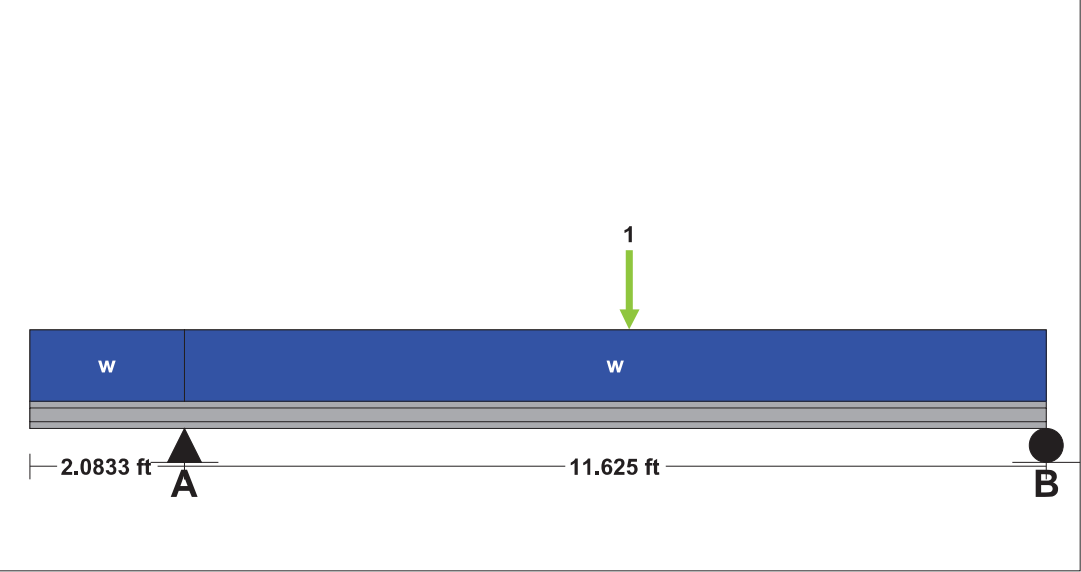
2.0 Rigidlam LVL - Roseburg Forest Products

	Base Values		Adjusted	
Bending Stress:	Fb =	3100 psi	Fb' =	3594 psi
	Cd=1.00 CF=1.01 Cr=1.15			
Shear Stress:	Fv =	290 psi	Fv' =	290 psi
	Cd=1.00			
Modulus of Elasticity:	E =	2000 ksi	E' =	2000 ksi
Comp. ⊥ to Grain:	Fc - ⊥ =	750 psi	Fc - ⊥' =	750 psi

Controlling Moment: 8855 ft-lb
6.045 Ft from left support of span 2 (Center Span)
Created by combining all dead loads and live loads on span(s) 2
Controlling Shear: -1969 lb
11.644 Ft from left support of span 2 (Center Span)
Created by combining all dead loads and live loads on span(s) 2

Comparisons with required sections:	Req'd	Provided
Section Modulus:	29.57 in3	73.83 in3
Area (Shear):	10.19 in2	39.38 in2
Moment of Inertia (deflection):	222.05 in4	415.28 in4
Moment:	8855 ft-lb	22111 ft-lb
Shear:	-1969 lb	7613 lb

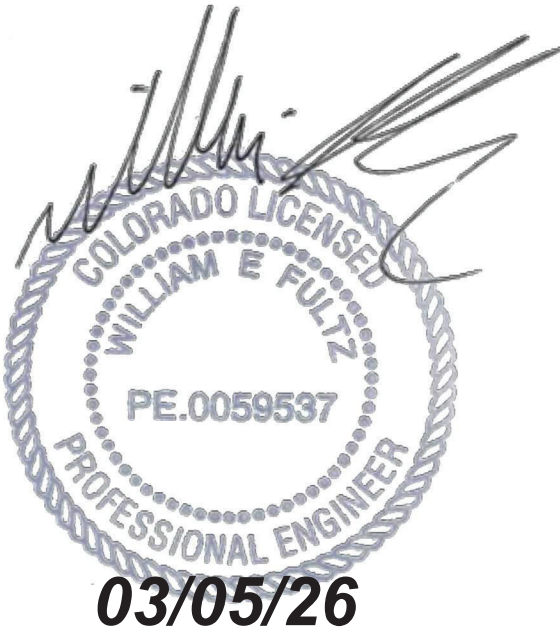
LOADING DIAGRAM



UNIFORM LOADS	Left		Center	
Uniform Live Load	134	plf	134	plf
Uniform Dead Load	14	plf	14	plf
Beam Self Weight	10	plf	10	plf
Total Uniform Load	158	plf	158	plf

POINT LOADS - CENTER SPAN

Load Number	One *
Live Load	1937 lb
Dead Load	218 lb
Location	6 ft
* Load obtained from Load Tracker. See Summary Report for details.	



Location: Ridge beam girder rafter - Uplift
Multi-Loaded Multi-Span Beam
Multi-Loaded Multi-Span Beam [2021 International Building Code(2018 NDS)]
(2) 1.75 IN x 11.25 IN x 13.708 FT (2.1 + 11.6) (Actual 14.1 FT)
2.0 Rigidlam LVL - Roseburg Forest Products
Section Adequate By: 1047.7%
Controlling Factor: Deflection

CAUTIONS

* Laminations are to be fully connected to provide uniform transfer of loads to all members

DEFLECTIONS	Left		Center	
Live Load	0.02	IN 2L/2754	-0.03	IN L/4217
Dead Load	0.00	in	0.00	in
Total Load	0.02	IN 2L/3202	-0.03	IN L/4928
Live Load Deflection Criteria: L/240		Total Load Deflection Criteria: L/180		

REACTIONS	A	B
Live Load	-59 lb	5 lb
Dead Load	82 lb	57 lb
Total Load	23 lb	62 lb
Uplift (1.5 F.S)	-292 lb	-259 lb
Bearing Length	0.03 in	0.02 in

BEAM DATA	Left	Center
Span Length	2.08 ft	11.63 ft
Unbraced Length-Top	0 ft	0 ft
Unbraced Length-Bottom	2.08 ft	11.63 ft
Beam End Elevation Difference	3.42 ft	
Live Load Duration Factor	1.60	
Notch Depth	0.00	

MATERIAL PROPERTIES

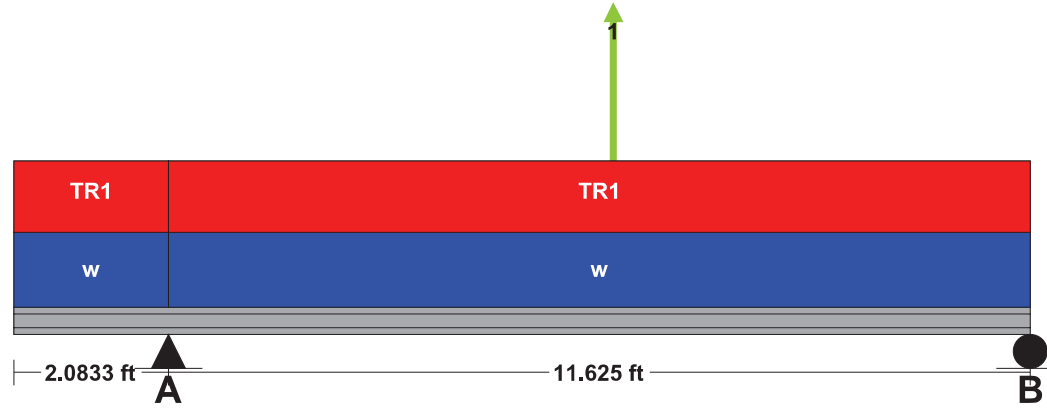
2.0 Rigidlam LVL - Roseburg Forest Products

	Base Values	Adjusted
Bending Stress:	Fb = 3100 psi Cd=1.60 Cl=0.77 CF=1.01 Cr=1.15	Fb' = 4419 psi
Shear Stress:	Fv = 290 psi Cd=1.60	Fv' = 464 psi
Modulus of Elasticity:	E = 2000 ksi	E' = 2000 ksi
Comp. ⊥ to Grain:	Fc - ⊥ = 750 psi	Fc - ⊥' = 750 psi

Controlling Moment: -1093 ft-lb
6.045 Ft from left support of span 2 (Center Span)
Created by combining all dead loads and live loads on span(s) 2
Controlling Shear: 233 lb
11.644 Ft from left support of span 2 (Center Span)
Created by combining all dead loads and live loads on span(s) 2

Comparisons with required sections:	Req'd	Provided
Section Modulus:	2.97 in3	73.83 in3
Area (Shear):	0.75 in2	39.38 in2
Moment of Inertia (deflection):	36.18 in4	415.28 in4
Moment:	-1093 ft-lb	27184 ft-lb
Shear:	233 lb	12180 lb

LOADING DIAGRAM



UNIFORM LOADS	Left	Center
Uniform Live Load	0 plf	0 plf
Uniform Dead Load	0 plf	0 plf
Beam Self Weight	10 plf	10 plf
Total Uniform Load	10 plf	10 plf

<u>POINT LOADS - CENTER SPAN</u>	
Load Number	<u>One</u>
Live Load	-283 lb
Dead Load	0 lb
Location	6 ft

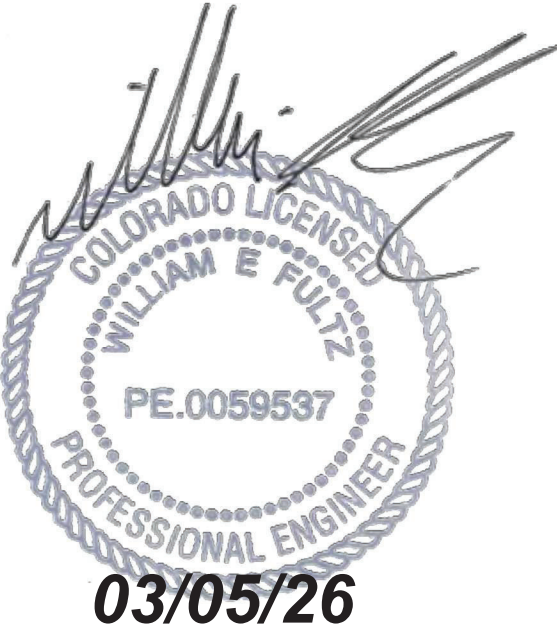
<u>TRAPEZOIDAL LOADS - LEFT SPAN</u>	
Load Number	<u>One</u>
Left Live Load	-26 plf
Left Dead Load	0 plf
Right Live Load	-26 plf
Right Dead Load	0 plf
Load Start	0 ft
Load End	2.08 ft
Load Length	2.08 ft
<u>CENTER SPAN</u>	
Load Number	<u>One</u>
Left Live Load	-26 plf
Left Dead Load	0 plf
Right Live Load	-26 plf
Right Dead Load	0 plf
Load Start	0 ft
Load End	11.63 ft
Load Length	11.63 ft

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04/07/2026

Approval of this document does not authorize or approve any deviation or deviations from the requirements of applicable State Laws.



DEFLECTIONS	Left		Center	
Live Load	-0.07	IN 2L/354	0.17	IN L/540
Dead Load	-0.01	in	0.02	in
Total Load	-0.08	IN 2L/312	0.19	IN L/478
Live Load Deflection Criteria: L/240		Total Load Deflection Criteria: L/180		

REACTIONS	A		B	
Live Load	2508	lb	3023	lb
Dead Load	365	lb	368	lb
Total Load	2873	lb	3391	lb
Bearing Length	2.19	in	2.58	in

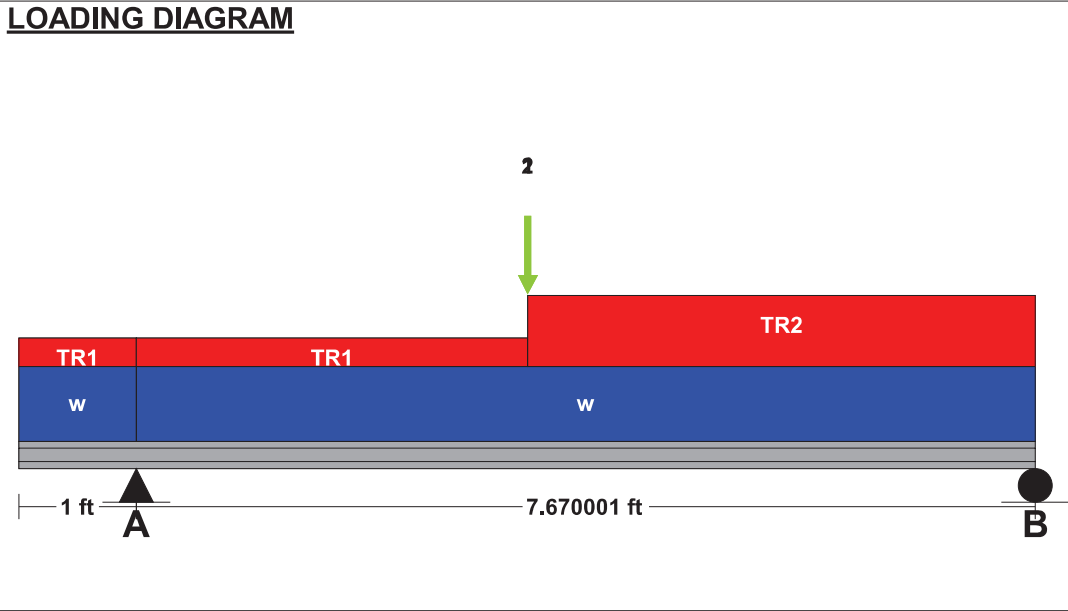
BEAM DATA	Left		Center	
Span Length	1	ft	7.67	ft
Unbraced Length-Top	0	ft	0	ft
Unbraced Length-Bottom	1	ft	7.67	ft
Live Load Duration Factor	1.00			
Notch Depth	0.00			

MATERIAL PROPERTIES				
2.0 Rigidlam LVL - Roseburg Forest Products				
	<u>Base Values</u>		<u>Adjusted</u>	
Bending Stress:	Fb =	3100 psi	Fb' =	3125 psi
	<i>Cd=1.00 CF=1.01</i>			
Shear Stress:	Fv =	290 psi	Fv' =	290 psi
	<i>Cd=1.00</i>			
Modulus of Elasticity:	E =	2000 ksi	E' =	2000 ksi
Comp. $\perp$ to Grain:	Fc - $\perp$ =	750 psi	Fc - $\perp$ ' =	750 psi

Controlling Moment: 8430 ft-lb
3.37 Ft from left support of span 2 (Center Span)
Created by combining all dead loads and live loads on span(s) 2

Controlling Shear: -3391 lb
8.0 Ft from left support of span 2 (Center Span)
Created by combining all dead loads and live loads on span(s) 2

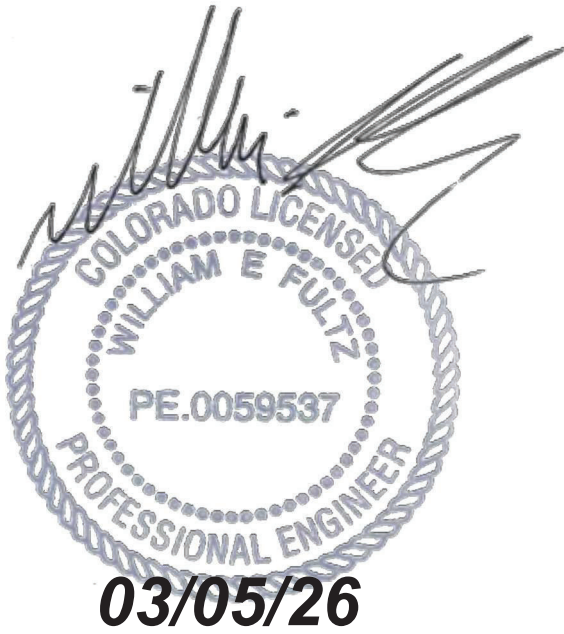
Comparisons with required sections:	Req'd	Provided
Section Modulus:	32.37 in3	36.91 in3
Area (Shear):	17.54 in2	19.69 in2
Moment of Inertia (deflection):	140.95 in4	207.64 in4
Moment:	8430 ft-lb	9613 ft-lb
Shear:	-3391 lb	3806 lb



UNIFORM LOADS	Left		Center	
Uniform Live Load	0	plf	0	plf
Uniform Dead Load	0	plf	0	plf
Beam Self Weight	5	plf	5	plf
Total Uniform Load	5	plf	5	plf

POINT LOADS - CENTER SPAN	One *		Two *	
Load Number	One		Two	
Live Load	1246 lb		1246 lb	
Dead Load	172 lb		172 lb	
Location	3.34 ft		3.34 ft	
* Load obtained from Load Tracker. See Summary Report for details.				

TRAPEZOIDAL LOADS - LEFT SPAN	One		Two	
Load Number	One		Two	
Left Live Load	100 plf		600 plf	
Left Dead Load	20 plf		60 plf	
Right Live Load	100 plf		600 plf	
Right Dead Load	20 plf		60 plf	
Load Start	0 ft		3.34 ft	
Load End	1 ft		7.67 ft	
Load Length	1 ft		4.33 ft	
CENTER SPAN	One		Two	
Load Number	One		Two	
Left Live Load	100 plf		600 plf	
Left Dead Load	20 plf		60 plf	
Right Live Load	100 plf		600 plf	
Right Dead Load	20 plf		60 plf	
Load Start	0 ft		3.34 ft	
Load End	3.34 ft		7.67 ft	
Load Length	3.34 ft		4.33 ft	



DEFLECTIONS	Left		Center	
Live Load	0.01	IN 2L/4366	-0.01	IN L/6763
Dead Load	0.00	in	0.00	in
Total Load	0.01	IN 2L/4668	-0.01	IN L/7233
Live Load Deflection Criteria: L/240			Total Load Deflection Criteria: L/180	

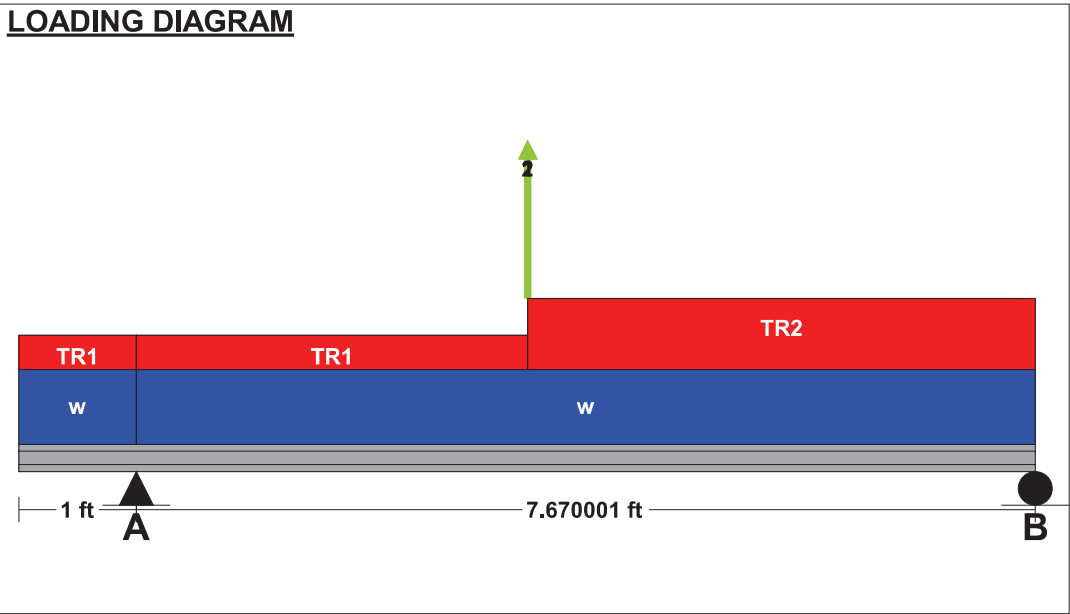
REACTIONS	A	B
Live Load	-28 lb	2 lb
Dead Load	24 lb	19 lb
Total Load	-4 lb	21 lb
Uplift (1.5 F.S)	-228 lb	-238 lb
Bearing Length	0.02 in	0.02 in

BEAM DATA	Left	Center
Span Length	1 ft	7.67 ft
Unbraced Length-Top	0 ft	0 ft
Unbraced Length-Bottom	1 ft	7.67 ft
Live Load Duration Factor	1.60	
Notch Depth	0.00	

MATERIAL PROPERTIES	Base Values		Adjusted	
2.0 Rigidlam LVL - Roseburg Forest Products				
Bending Stress:	Fb =	3100 psi	Fb' =	1826 psi
	Cd=1.60 Cl=0.37 CF=1.01			
Shear Stress:	Fv =	290 psi	Fv' =	464 psi
	Cd=1.60			
Modulus of Elasticity:	E =	2000 ksi	E' =	2000 ksi
Comp. ⊥ to Grain:	Fc - ⊥ =	750 psi	Fc - ⊥' =	750 psi

Controlling Moment:	-543 ft-lb
3.37 Ft from left support of span 2 (Center Span)	
Created by combining all dead loads and live loads on span(s) 2	
Controlling Shear:	232 lb
8.0 Ft from left support of span 2 (Center Span)	
Created by combining all dead loads and live loads on span(s) 2	

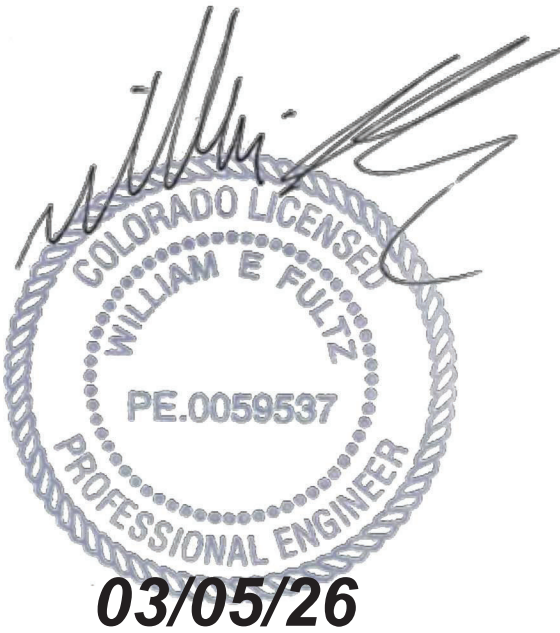
Comparisons with required sections:	Req'd	Provided
Section Modulus:	3.57 in3	36.91 in3
Area (Shear):	0.75 in2	19.69 in2
Moment of Inertia (deflection):	11.42 in4	207.64 in4
Moment:	-543 ft-lb	5618 ft-lb
Shear:	232 lb	6090 lb



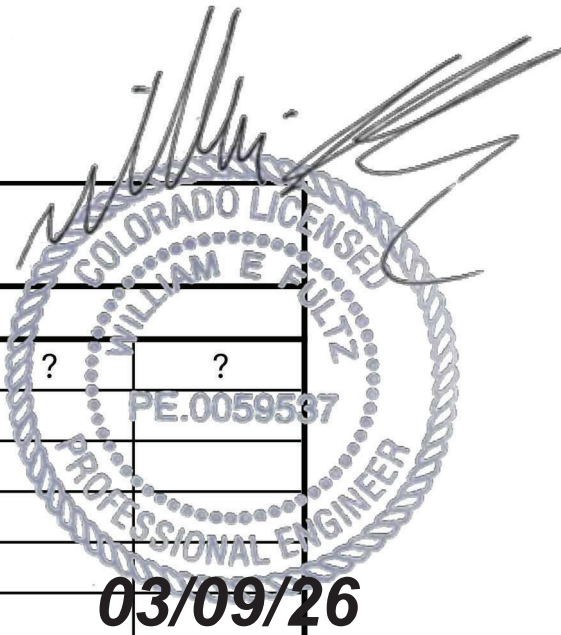
UNIFORM LOADS	Left	Center
Uniform Live Load	0 plf	0 plf
Uniform Dead Load	0 plf	0 plf
Beam Self Weight	5 plf	5 plf
Total Uniform Load	5 plf	5 plf

POINT LOADS - CENTER SPAN	One	Two
Load Number	One	Two
Live Load	-73 lb	-73 lb
Dead Load	0 lb	0 lb
Location	3.34 ft	3.34 ft

TRAPEZOIDAL LOADS - LEFT SPAN	One	Two
Load Number	One	Two
Left Live Load	-26 plf	-54 plf
Left Dead Load	0 plf	0 plf
Right Live Load	-26 plf	-54 plf
Right Dead Load	0 plf	0 plf
Load Start	0 ft	3.34 ft
Load End	1 ft	7.67 ft
Load Length	1 ft	4.33 ft
CENTER SPAN	One	Two
Load Number	One	Two
Left Live Load	-26 plf	-54 plf
Left Dead Load	0 plf	0 plf
Right Live Load	-26 plf	-54 plf
Right Dead Load	0 plf	0 plf
Load Start	0 ft	3.34 ft
Load End	3.34 ft	7.67 ft
Load Length	3.34 ft	4.33 ft



HEAT LOSS CALCULATION									
Project Name	Novacek								
Room Name	Mstr Bdrm	Mstr Bath	Bath #2	Bdrm #2	Din/Kit/Liv	?	?	?	?
Room length	13.92	6.00	5.04	12.29	20.30				
Room Width	12.06	12.06	12.06	12.06	24.13				
Exterior Wall length	33.50	18.06	5.04	12.29	72.96				
Ceiling height	9.00	9.00	9.00	9.00	9.00				
Window area	28.03	4.94	0.00	18.35	36.92				
Window U value	0.29	0.29	0.00	0.29	0.29	0.29	0.29	0.29	0.29
Window loss	8.13	1.43	0.00	5.32	10.71	0.00	0.00	0.00	0.00
Window area	0.00	0.00	0.00	0.00	4.54	0.00	0.00	0.00	0.00
Window U value	0.00	0.00	0.00	0.00	0.27	0.00	0.00	0.00	0.00
Window loss	0.00	0.00	0.00	0.00	1.23	0.00	0.00	0.00	0.00
Door area	20.54	0.00	0.00	0.00	101.64	0.00	0.00	0.00	0.00
Door U value	0.30	0.00	0.00	0.00	0.30	0.00	0.00	0.00	0.00
Door loss	6.16	0.00	0.00	0.00	101.94	0.00	0.00	0.00	0.00
Gross ext wall area	301.50	162.56	45.38	110.63	656.63	0.00	0.00	0.00	0.00
Net wall area	252.93	157.62	45.38	92.28	513.53	0.00	0.00	0.00	0.00
Ext wall U value	0.053	0.053	0.053	0.053	0.053	0.053	0.053	0.053	0.053
Ext wall loss	13.41	8.35	2.40	4.89	27.22	0.00	0.00	0.00	0.00
Ceiling area	167.91	72.38	60.82	148.27	489.74	0.00	0.00	0.00	0.00
Ceiling U value	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Ceiling loss	2.69	1.16	0.97	2.37	7.84	0.00	0.00	0.00	0.00
Floor area	167.91	72.38	60.82	148.27	489.74	0.00	0.00	0.00	0.00
Floor U value	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Floor loss	4.70	2.03	1.70	4.15	13.71	0.00	0.00	0.00	0.00
Volume	1511.19	651.38	547.34	1334.42	4407.64	0.00	0.00	0.00	0.00
Infiltration	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Infiltration loss	28.71	12.38	10.40	25.35	83.75	0.00	0.00	0.00	0.00
Total U x A	63.80	25.35	15.48	42.09	246.38	0.00	0.00	0.00	0.00
Heating design temp °F	70.00	70.00	70.00	70.00	70.00	70.00	70.00	70.00	70.00
Room Heat Loss	4912.34	1951.74	1191.98	3240.92	18971.49	0.00		0.00	0.00
Btuh Loss to Watts	1439.66	572.00	349.33	949.82	5559.99	0.00		0.00	0.00
EBB length required	6	3	2	4	23	0		0	0
Total Building BTU Loss	30268								



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04/07/2026
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Novacek
Snow/Roof live load - 97 psf
Wind speed - 115 Vult
Exposure - C
Seismic Design - B
Elevation - 8, 129' asl

Legend

- 200 Lake Vista Dr
- Cabins on Vallecito Lake
- Pine River Lodge - Vallecito Lake

