Project Name:

CC-705 / CLIFFORD & CAROL ABEL

237 ZOERB HOLLOW ROAD, GALETON, PA 16922 (POTTER COUNTY)

CLASSIFICATION	
FOUNDATION:	_X_BASEMENT
	___CRAWL
USE GROUP:	SINGLE FAMILY
CONSTRUCTION TYPE:	VB WOOD FRAMED UNPROTECTED
LOCATION:	NOT LESS THAN 60" TO PROPERTY LINE

DESIGN LOADS	
ROOF LOAD:	40 PSF GROUND SNOW LOAD
ROOF DEAD LOAD:	10 PSF
CEILING DEAD LOAD:	10 PSF
CEILING LIVE LOAD:	20 PSF (STORAGE)
FLOOR LIVE LOAD:	40 PSF
FLOOR DEAD LOAD:	10 PSF
WIND SPEED (V-ULT):	115 MPH (3 SEC GUST)
EXPOSURE:	B
SEISMIC CATEGORY:	B
SITE CLASS:	D

APPLICABLE CODES	
BUILDING CODE:	2015 IRC with PA IHA AMENDMENTS
ELECTRICAL CODE:	2014 NATIONAL ELECTRICAL CODE
ENERGY CODE:	2015 IECC ENERGY CONSERVATION CODE

DRAWING INDEX

SHEET#	DESCRIPTION	REV. DATE	LAYER CODE
0	COVER SHEET	.	.
1	FOUNDATION	.	FD
1A	FOUNDATION DETAILS	.	.
2	FLOOR PLAN	.	1Q
3	ELECTRICAL PLAN	.	1E
4	FRONT & REAR ELEVATIONS	.	1EV
4A	LEFT & RIGHT SIDE ELEVATIONS	.	2EV
5	CROSS SECTION	.	1SE
5A	CROSS SECTION - A-FRAME PORCHES	.	2SE
5B	RAFTER DETAILS	.	3SE
5C	RIDGE BEAM DETAILS	.	6SE
6-9	RESERVED	.	.
10	WINDOW & DOOR SCHEDULE	.	.
11	BRACED WALL PLAN	.	1PR
11A	BRACED WALL DETAILS	.	.
12	PORCH CONNECTION DETAILS	.	.

ADDITIONAL PAGES	
1-11	ENERGY CHECK
1-3	TRUSS CERTIFICATION
1	ELECTRICAL LOAD CALCULATION
1	WHOLE HOUSE VENTILATION CALCULATION
1-31	STRUCTURAL CALCULATIONS
1-15	METAL ROOF INSTALLATION INSTRUCTIONS

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REV#	DATE	REVISIONS	BY

DRAWN BY: LDZ
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SCALE: NTS
CHECKED BY: .

FILE: CC-705
SQ.FT.: 1,560
STATE: PA
TYPE: RANCH
MODEL: MUSKETEER
DRAWING: COVER SHEET
SHEET: 0

BUILDER: COZY CABINS LLC **S/N:** CC10200705

THIS HOUSE HAS BEEN EXTRACTED FROM THE APPROVED SYSTEMS PLAN ON FILE WITH THE STATE.

GENERAL NOTES

1. ALL WORK SHALL CONFORM TO THE CODES REFERENCED IN THE COVER SHEET AND MEET LOCAL ZONING REQUIREMENTS.
2. ALL WORK SHALL CONFORM TO THE DESIGN LOADS REFERENCED IN THE COVER SHEET.
3. ALL WORK IN THE FACTORY SHALL COMPLY WITH THE APPROVED DRAWINGS.
4. ALL SITE WORK SHALL COMPLY WITH ANY APPLICABLE MANUFACTURER APPROVED DRAWINGS OR LOCAL CODES AS REQUIRED.
5. SPECIFIED MATERIALS MAY BE SUBSTITUTED WITH MATERIALS THAT ARE EQUAL OR BETTER.
6. NO STRUCTURAL MEMBER SHALL BE CUT FOR PIPE'S, DUCTS, ETC, UNLESS SPECIFICALLY DETAILED IN THIS PACKAGE.
7. STRUCTURAL STEEL SHALL CONFORM TO THE LATEST SPECIFICATIONS OF THE ASTM AND HAVE A MIN. YIELD OF 36,000 PSI.
8. PLYWOOD SHALL BE GRADE STAMPED BY THE AMERICAN PLYWOOD ASSOCIATION OR EQUAL AND SHALL BE RATED SHEATHING.
9. STRUCTURAL USE LUMBER SHALL BE STAMPED AY AN APPROVED AGENCY AND SHALL CONFORM TO LATEST GRADING RULES FOR THE WESTERN LUMBER ASSOCIATION OR EQUAL
10. STRESS RATED BOARDS SHALL BE STAMPED ACCORDING TO GRADE SPECIES AND VALUE AND SHALL BE MARKED "SRB" 11 FINGER JOINTED
11. INTERIOR STAIRWAY REQUIREMENTS TO COMPLY WITH CODE REFERENCE

DISCLAIMER: These drawings have been prepared and reviewed in accordance with all applicable codes. This drawing set is not intended to be all inclusive, nor does this set detail every code required aspect of this building. The building contractor is responsible for compliance with all applicable codes under the supervision of the local authority having jurisdiction whether detailed in this set or not. Cozy Cabins LLC, its employees and affiliates assume no liability for errors and omissions from this set of drawings as may be permitted by law.

SEAL: Harold Raup

Digitally signed by Harold Raup
DN: cn=Harold Raup, o=PFSTECO, ou, email=harold.raup@pfsteco.com, c=US
Date: 2020.11.10 15:06:02 -05'00'

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Plans Certified to comply with all Applicable codes and regulations of the
PA DCED Industrialized Housing Regulations
Signature: Harold Raup
Title: Staff Plan Reviewer
Date: **11/10/20**

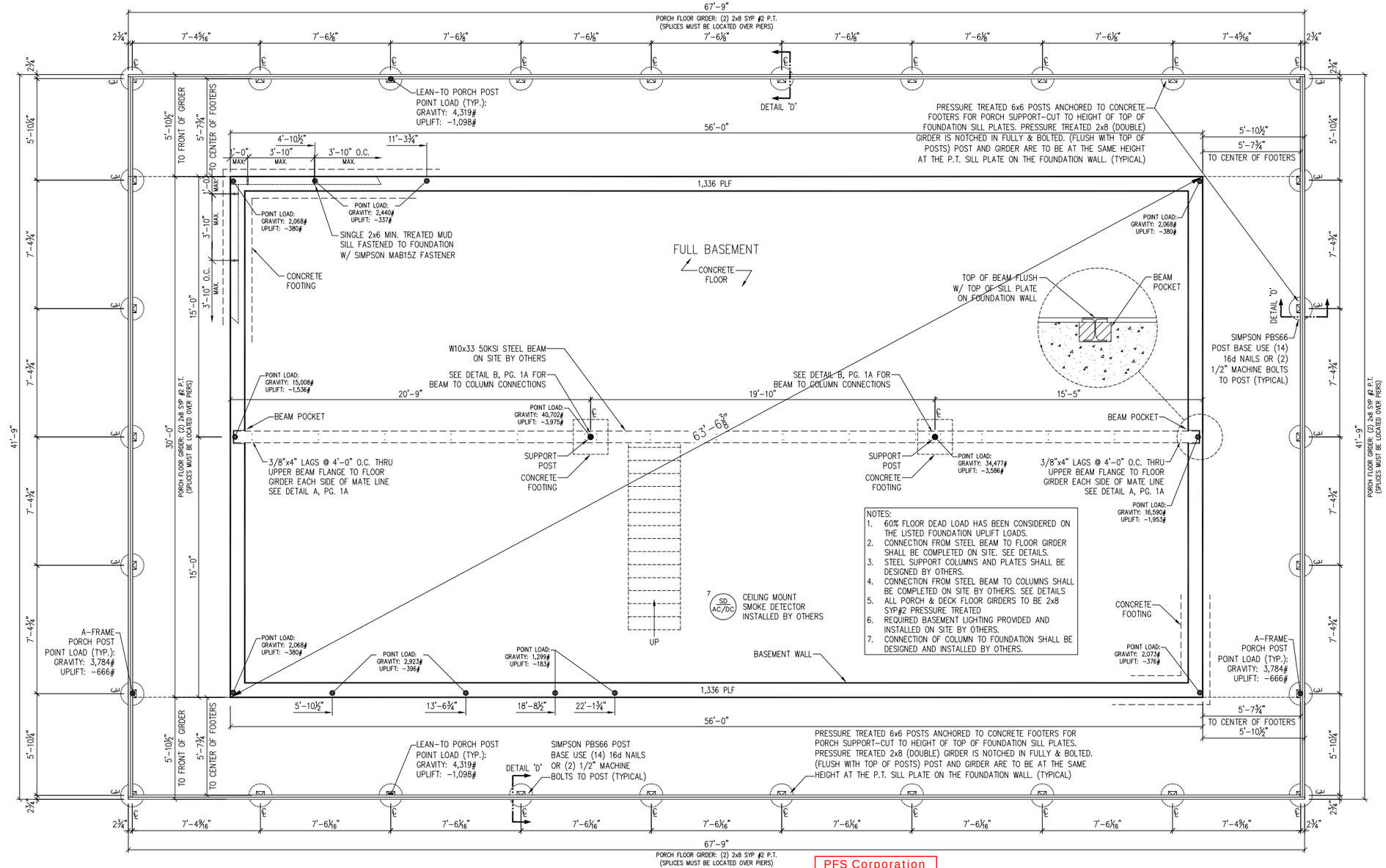
NOTES:

1. ALL EXPOSED LUMBER TO BE OF NATURALLY DURABLE WOOD OR WOOD THAT IS PRESERVATIVE-TREATED IN ACCORDANCE WITH AWPA U1. PRESERVATIVES SHALL BE LISTED IN SECTION 4 OF AWPA U1.
2. ALL LUMBER THAT IS IN CONTACT WITH CONCRETE OR THE GROUND MUST BE APPROVED PRESSURE-PRESERVATIVE-TREATED WOOD SUITABLE FOR GROUND CONTACT USE.
3. ALL SUPPORT COLUMNS SHALL BE APPROVED WOOD OF NATURAL DECAY RESISTANCE OR APPROVED PRESSURE-PRESERVATIVE-TREATED WOOD.
4. ALL FIELD CUT ENDS, NOTCHES, DRILLED HOLES OF PRESERVATIVE-TREATED WOOD SHALL BE TREATED IN THE FIELD IN ACCORDANCE WITH AWPA M4.
5. ALL NAILS USED IN THE CONSTRUCTION OF PORCHES AND DECKS SHALL BE THREADED AND MEET THE REQUIREMENTS OF ASTM F 1667. THREADED NAILS AS STATED IN THIS DOCUMENT INCLUDE HELICAL (SPIRAL) AND ANNULAR (RINK SHANK) NAILS. WOOD SCREWS SHALL MEET THE REQUIREMENTS OF ANSI/ASME B18.6.1. BOLTS AND LAG SCREWS SHALL MEET THE REQUIREMENTS OF ANSI/ASME B18.2.1.
6. FLASHING SHALL BE CORROSION-RESISTANT METAL OF A MINIMUM NOMINAL THICKNESS OF 0.019 INCHES OR AN APPROVED NON-METALLIC MATERIAL.
   - 6.1. ALUMINUM SHOULD NOT BE USED IN DIRECT CONTACT WITH LUMBER TREATED WITH PRESERVATIVES THAT CONTAIN COPPER SUCH AS ACQ, COPPER AZOLE, OR ACZA.
7. ALL SCREWS, BOLTS, NAILS, NUTS AND WASHERS FOR USE WITH PRESERVATIVE TREATED WOOD SHALL BE HOT-DIPPED ZINC-COATED GALVANIZED STEEL, STAINLESS STEEL, SILICON BRONZE, OR COPPER. FASTENERS SHALL BE HOT DIPPED GALVANIZED AND SHALL MEET THE REQUIREMENTS OF ASTM A 153, CLASS D FOR FASTENERS 3/8" DIAMETER AND SMALLER, OR CLASS C FOR FASTENERS WITH DIAMETERS OVER 3/8".
8. FASTENERS OTHER THAN NAILS AND TIMBER RIVETS SHALL BE PERMITTED TO BE OF MECHANICALLY DEPOSITED ZINC-COATED STEEL WITH COATING WEIGHTS IN ACCORDANCE WITH ASTM B 695, CLASS 55, MINIMUM.
9. ALL HARDWARE (JOIST HANGERS, CAST-IN-PLACE POST ANCHORS, ETC.) THAT IS EXPOSED TO WEATHER OR IN CONTACT WTIH GROUND, CONCRETE OR PRESSURE TREATED LUMBER SHALL BE GALVANIZED OR SHALL BE STAINLESS STEEL. HARDWARE TO BE HOT DIPPED GALVANIZED PRIOR TO FABRICATION SHALL MEET ASTM A 653, G-185 COATING. HARDWARE TO BE HOT DIPPED GALVANIZED AFTER FABRICATION SHALL MEET ASTM A123.
10. FASTENERS AND CONNECTORS EXPOSED TO SALT WATER OR LOCATED WITHIN 300 FEET OF A SALT WATER SHORELINE SHALL BE STAINLESS STEEL GRADE 304 OR 316.
11. ALL OTHER COATED OR NON-FERROUS FASTENERS OR HARDWARE SHALL BE AS APPROVED BY THE AUTHORITY HAVING JURISDICTION.
12. HOT-DIPPED ZINC-COATED GALVANIZED STEEL CONNECTORS ARE REQUIRED AT ANY CONNECTIONS INTO CONCRETE
13. FASTENERS AND CONNECTORS INSTALLED IN TREATED LUMBER OTHER THAN MATERIAL WITH A CHEMICAL RETENTION GREATER THAN AWPA OR UC4A SHALL BE STAINLESS STEEL GRADE 304 OR 316.

FOUNDATION NOTES:

1. BUILDER TO LOCATE AND INSTALL BASEMENT WINDOWS OR VENT. 1/150 FLOOR AREA REQUIRED. VENTING MAY BE REDUCED TO 1/1500 FLOOR AREA WHEN A CLASS I VAPOR BARRIER IS INSTALLED. VENT OPENINGS SHALL BE LOCATED WITHIN 3' OR EACH CORNER TO PROVIDE CROSS VENTILATION.
2. ALL OPENINGS AND CONC. JOINTS TO BE COMPLETELY CAULKED.
3. R402.2 CONCRETE. ALL CONCRETE SHALL HAVE A MINIMUM SPECIFIED COMPRESSIVE STRENGTH AS SHOWN ON TABLE R402.2
4. ALL EXHAUST SYSTEMS TO TERMINATE TO EXTERIOR WITH BACK DRAFT BAFFLE

THIS FOUNDATION SHALL BE DESIGNED BY A LICENSED PROFESSIONAL WITH KNOWLEDGE OF LOCAL SOIL CONDITIONS. THIS FOUNDATION PLAN IS MEANT ONLY TO COMMUNICATE THE DIMENSIONAL AND LOADING INFORMATION TO THE DESIGN PROFESSIONAL SO THE FOUNDATION DESIGN IS COORDINATED WITH THE REQUIREMENTS OF THE MODULAR BUILDING. FOUNDATION WALLS, FOOTINGS, COLUMNS, PIERS, AND SLAB TO BE DESIGNED BY OTHERS TO MEET STATE AND/OR LOCAL CODES USING EXISTING SOIL ANALYSIS. MANUFACTURER ASSUMES NO RESPONSIBILITY FOR ERRORS IN THE CONSTRUCTION OF THE FOUNDATION. ANY AND ALL DIMENSIONS ARE TO BE CHECKED AND VERIFIED AGAINST THE FLOOR PLAN BY BUILDER/DEALER PRIOR TO FOUNDATION CONSTRUCTION. THE BUILDER/DEALER MUST CONTACT THE MANUFACTURER WITH ANY DISCREPANCIES PRIOR TO THE START OF CONSTRUCTION. MANUFACTURER WILL NOT ASSUME ANY RESPONSIBILITY IF BUILDER/DEALER/OWNER EXCEEDS MAXIMUM SPACING OF SUPPORTS AS SHOWN ON THIS DRAWING.



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PA FOUNDATIONS MUST MEET THE FOLLOWING CRITERIA:

A-BE A TRUE FOOTPRINT OF THE BUILDING AND IS SPECIFIC TO THE SAID UNIT.
B-ALL LOADS HAVE SUPPORT COLUMNS FOR ALL OPENINGS GREATER THAN 4 FT. IF ONE IS MISSING, ONE MUST BE INSTALLED.
C-IF FILL IS MORE THAN 5 FT, USE 12" INCH BLOCK ON 20"x10" CONCRETE FOOTINGS
D-FOUNDATION DRAINAGE AND DAMP PROOFING TO CONFORM TO CODE
E-ALL ELECTRICAL AND MECHANICAL INSTRUCTIONS TO CONFORM TO CURRENT STATE & LOCAL CODE REQUIREMENTS
F-BASEMENT WALL OR BASEMENT CEILING INSULATION MAY BE SPELLED OUT ON FOUNDATION PRINTS TO COMPLETE COMPLIANCE TO ENERGY REQUIREMENTS PER 2015 IECC.
G-MINIMUM 6" FROM BOTTOM OF GRADE TO SIDING NEEDS TO BE PROVIDED AT SITE.
H-PURCHASER RESPONSIBLE FOR ALL SERVICE ENTRY CONNECTIONS AND ON-SITE TESTING AS REQUIRED BY LOCAL JURISDICTION
I-FOUNDATIONS PRINTS MAY NEED TO BE SEALED BY A PROFESSIONAL ENGINEER WHERE IT IS A REQUIREMENT OF THE LOCAL JURISDICTION.
J-BACK FILL AND TAMPING SHALL BE DONE PER THE LOCAL BUILDING OFFICIAL.

PA MODULAR EXEMPTION NOTES:

THE MANUFACTURER CERTIFIES THAT THE STRUCTURE (CC-705) IS NOT A MANUFACTURED HOME SUBJECT TO THE PROVISIONS OF THE NATIONAL MANUFACTURED HOUSING CONSTRUCTION AND SAFETY STANDARDS ACT AND IS:
(1) DESIGNATED ONLY FOR ERECTION OR INSTALLATION ON A SITE-BUILT PERMANENT FOUNDATION.
(2) NOT DESIGNED TO BE MOVED ONCE SO ERECTED OR INSTALLED.
(3) DESIGNED AND MANUFACTURED TO COMPLY WITH 2015 IRC.
(4) TO THE MANUFACTURER'S KNOWLEDGE THE STRUCTURE IS NOT INTENDED TO BE USED OTHER THAN ON A SITE-BUILT PERMANENT FOUNDATION.

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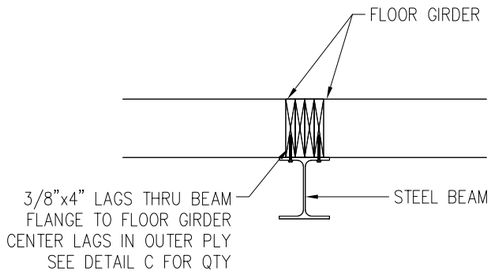
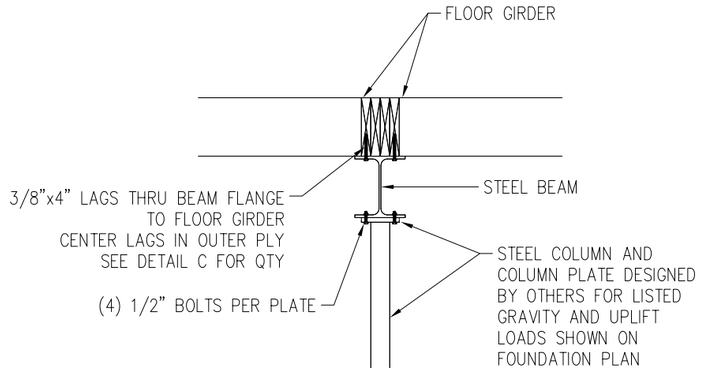
SCALE: 5/32"=1'-0"
CHECKED BY: .

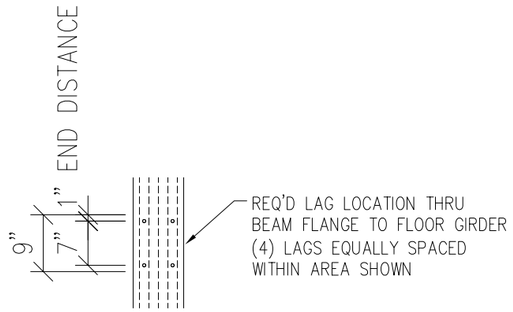
FILE: CC-705
SQ.FT.: 1,560
STATE: PA
TYPE: RANCH
MODEL: MUSKETEER
DRAWING: FOUNDATION
SHEET: 1



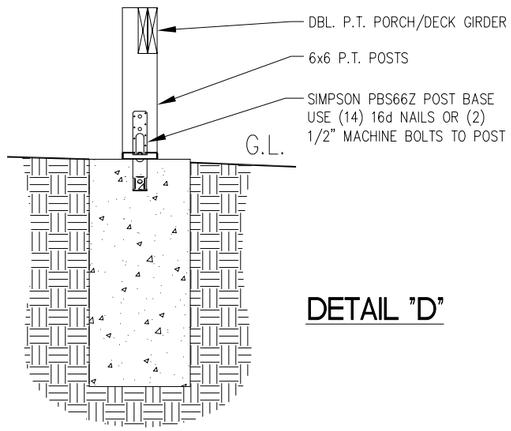
DETAIL A
STEEL BEAM CONNECTION
SECTION VIEW



DETAIL B
STEEL BEAM W/COLUMN CONNECTION
SECTION VIEW



DETAIL C
BEAM CONNECTION
TOP VIEW
(4,935# MAX UPLIFT CAPACITY)



DETAIL "D"

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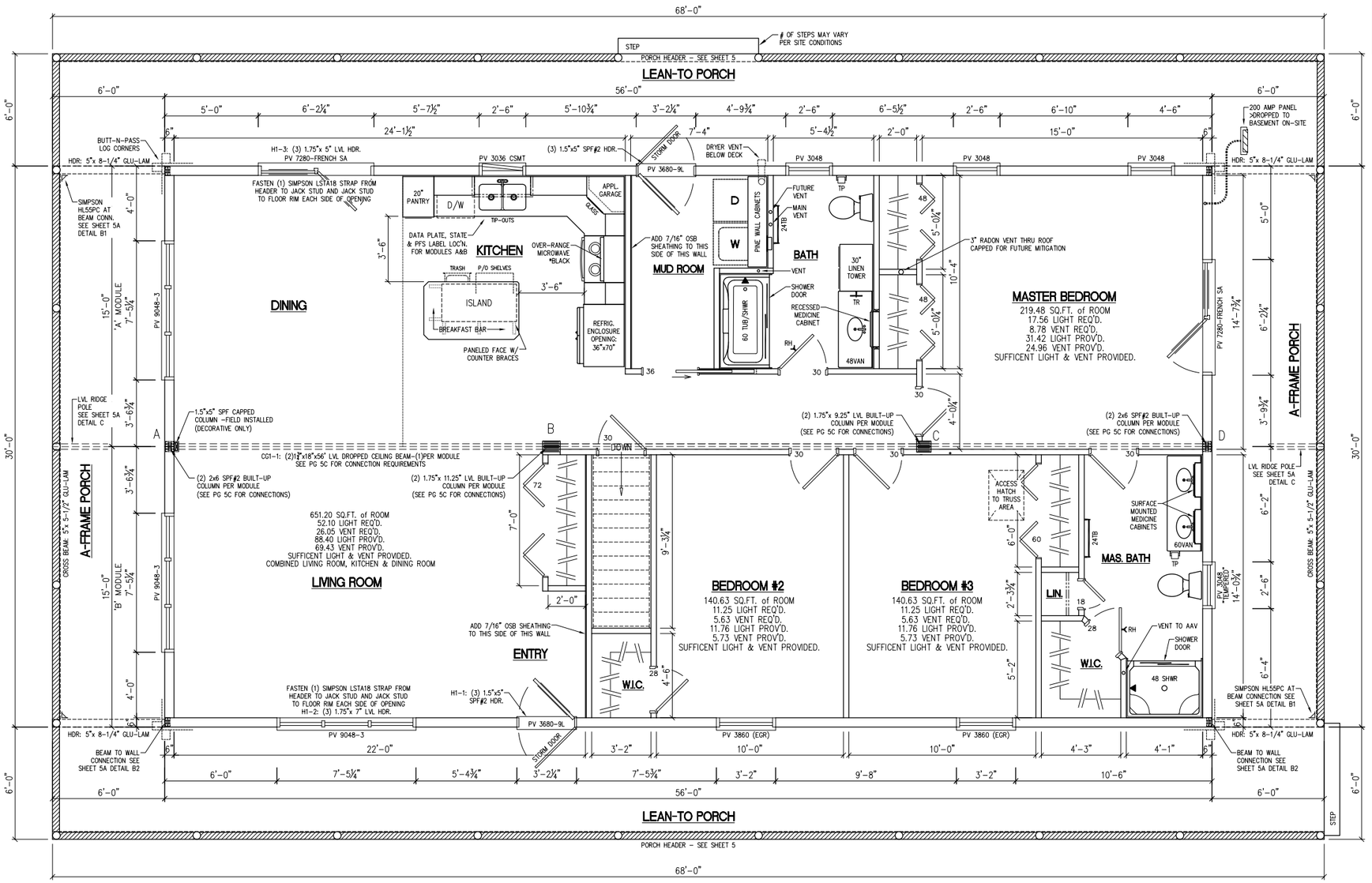
FILE: CC-705
SQ.FT.: 1,560
STATE: PA
TYPE: RANCH
MODEL: MUSKETEER
DRAWING: FOUNDATION DETAILS
SHEET: 1A

** 2x10 SPF#2 FLOOR JOISTS @ 16" O.C.
** 2x6 EXTERIOR WALLS @ 16" O.C.
** 8/12 ENGINEERED TRUSS ROOF SYSTEM @ 24" O.C.
** (3) 2x6 SPF#2 HEADERS OVER EXT BEARING WALL OPENINGS (UNLESS INDICATED OTHERWISE)



2018 IRC, TABLE R602.7.5
MINIMUM NUMBER OF FULL HEIGHT STUDS AT EACH END OF HEADERS IN EXTERIOR WALLS

MAXIMUM HEADER SPAN (FEET)	ULTIMATE DESIGN WIND SPEED AND EXPOSURE CATEGORY	
	<140 MPH, EXPOSURE B OR <130 MPH, EXPOSURE C	≤115 MPH, EXPOSURE B
4	1	1
6	2	1
8	2	1
10	3	2
12	3	2
14	3	2
16	4	2
18	4	2

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NOTES:
- INSULATE BASEMENT STAIRWELL WALLS
- WEATHER-STRIPPING & DOOR SWEEP SHALL BE INSTALLED AT STAIRWELL DOOR IF BASEMENT IS UNCONDITIONED (IN FIELD BY OTHERS)

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THE BOTTOM OF THE CLEAR OPENINGS OF ALL WINDOWS SHALL BE 24" OR MORE ABOVE THE FINISHED FLOOR, AVOIDING THE NEED FOR WINDOW GUARDS AS DESCRIBED BY R312.2

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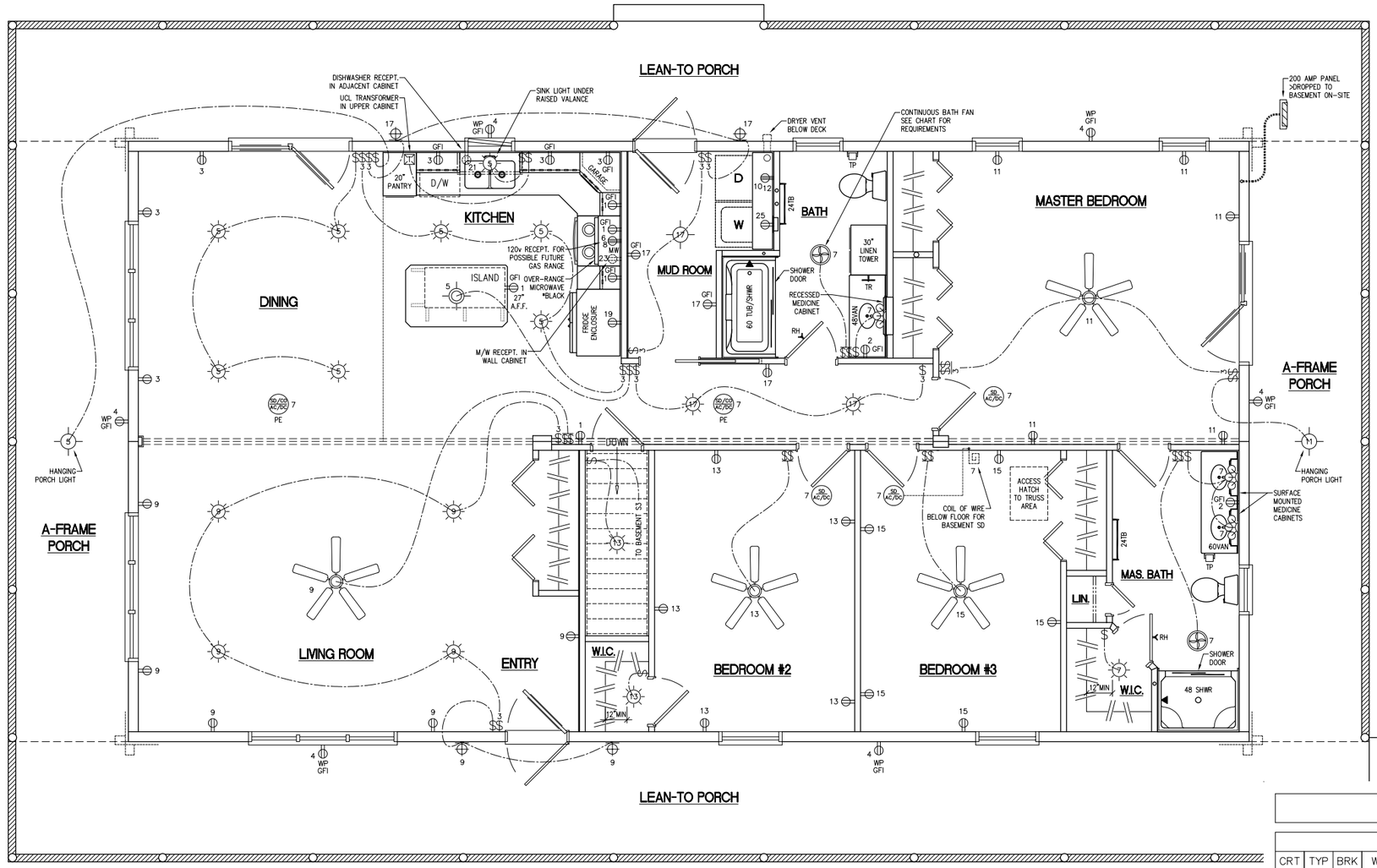

WHOLE HOUSE MECHANICAL VENTILATION 2015 IRC SECTION M1507

NUMBER OF BEDROOMS: 3
FLOOR AREA: 1,680 SQ. FT.
AIR FLOW PROVIDED: 60.1 CFM
AIR FLOW REQUIRED: 60 CFM
MAX 110 CFM (VIA WALL SWITCH) PROVIDES THE ADDITIONAL 50 CFM REQUIRED FOR BATHROOM EXHAUST

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HEATING SYSTEM NOTES:
– OMIT HEAT
* SYSTEM AND DESIGN CRITERIA TO BE VERIFIED PRIOR TO INSTALLATION.

ELECTRIC SYMBOLS

- SINGLE RECEPTACLE
- DUPLEX RECEPTACLE
- WATERPROOF RECEP. w/GFI
- GROUND–FAULT INTER.
- 220 VOLT RECEPTACLE
- TOP HOT & BOT. SWITCHED
- SINGLE POLE SWITCH
- THREE WAY SWITCH
- CEILING LIGHT
- THIN LED CEILING LIGHT
- MINI PENDANT LIGHT
- CATHEDRAL PENDANT LIGHT
- RECESSED LIGHT
- EXHAUST FAN/LIGHT
- INT. OR EXT. WALL LIGHT
- CEILING FAN / LIGHT
- FLUORESCENT LIGHT
- RANGE EXHAUST HOOD
- SMOKE DETECTOR
- CO/SMOKE DETECTOR
- JUNCTION BOX
- AMP CONNECTS
- SPECIAL APPLIANCE
- FLOOD LIGHT
- THERMOSTAT
- PHONE JACK
- TV JACK
- VANITY LIGHT
- PULL–CHAIN WALL LIGHT

2014 NEC ELECTRICAL NOTES:

1. AN ARC–FAULT BREAKER IS REQUIRED FOR ALL 15 AND 20 AMP CIRCUITS SUPPLYING OUTLETS INSTALLED IN THE DWELLING UNIT EXCEPT THOSE IN BATHROOMS, UNFINISHED BASEMENTS, GARAGES, OUTDOORS, OR OTHER SIMILAR AREAS. (NEC 210.12B)
2. A GFCI BREAKER OR RECEPTACLE IS REQUIRED (BUT NOT LIMITED TO) ALL CIRCUITS SERVING KITCHEN COUNTERTOP RECEPTACLES, BATHROOMS, LAUNDRIES, AND DISHWASHERS. (NEC 210.8)
3. A GFCI BREAKER OR RECEPTACLE IS REQUIRED (BUT NOT LIMITED TO) ALL CIRCUITS WITHIN 6' OF ANY SINK (NEC 210.8)
4. AN EXTERIOR WEATHER PROOF RECEPTACLE IS REQUIRED TO BE LOCATED AT BOTH THE FRONT & REAR (AT GRADE LEVEL) OF ALL DWELLING UNITS. (NEC 210.52) AN EXTERIOR WEATHER PROOF RECEPTACLE IS REQUIRED TO BE LOCATED AT ALL PORCHES, STOOPS, PATIOS, AND DECKS AND SHALL BE ACCESSIBLE FROM GRADE LEVEL.
5. ALL RECEPTACLES IN DWELLING UNITS ARE TO BE TAMPER RESISTANT.
6. INTERIOR LOCATION OF ELECTRICAL PANEL REQUIRES A DISCONNECT INSTALLED AT THE POINT OF ENTRANCE NEAREST THE SERVICE CONDUCTORS.
7. A NEUTRAL CONDUCTOR SHALL BE PROVIDED IN EVERY SWITCH BOX
8. ALL LIGHTING CEILING OUTLETS MUST BE RATED FOR 50#
9. WATER HEATER ON–SITE BY OTHERS

200 AMP CIRCUIT SCHEDULE

*WIRE WITH GROUND ALL CIRCUITS

CRT	TYP	BRK	WIRE	LOCATION	VOLT	CRT	TYP	BRK	WIRE	LOCATION	VOLT
1	AFI	20A	12–2	APPL.–KITCHEN	120	2	–	20A	12–2	BATH RECPT.	120
3	AFI	20A	12–2	APPL.–KIT/DIN	120	4	–	20A	12–2	EXTERIOR RECPT.	120
5	AFI	15A	14–2	GENERAL LIGHTS	120	6	–	40A	8–3	ELECTRIC RANGE	240
7	AFI	15A	14–2	LIGHTS & SD	120	8					
9	AFI	15A	14–2	LIVING ROOM	120	10	–	30A	10–3	ELECTRIC DRYER	240
11	AFI	15A	14–2	MASTER BEDROOM	120	12					
13	AFI	15A	14–2	BDRM#2/BSMT.LIGHTS	120	14					
15	AFI	15A	14–2	BEDROOM #3	120	16					
17	AFI	15A	14–2	MUD ROOM/HALL	120	18					
19	AFI	20A	12–2	REFRIGERATOR	120	20					
21	AFI/GFI	20A	12–2	DISHWASHER	120	22					
23	AFI/GFI	20A	12–2	MICROWAVE	120	24					
25	AFI/GFI	20A	12–2	WASHER	120	26					
27						28					
29						30					
31						32					
33						34					
35						36					
37						38					
39						40					

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FILE: CC–705
SQ.FT.: 1,560
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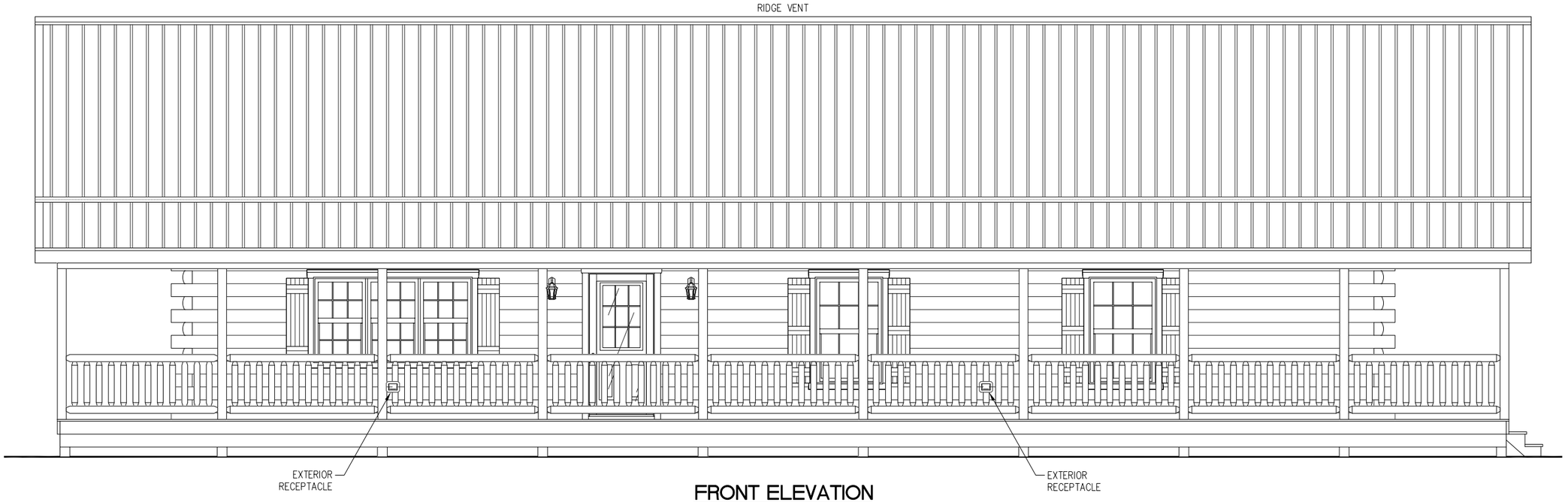
TYPE: RANCH
MODEL: MUSKETEER
DRAWING: ELECTRICAL PLAN
SHEET: 3



FRONT ELEVATION

REAR ELEVATION

NOTES:
1. ELEVATION DRAWINGS ARE APPROXIMATE.
2. CORROSION RESISTANT FLASHING AT TOP AND SIDE OF DOORS, WINDOWS, AND AT ROOF PENETRATIONS.
3. GUTTERS, LEADERS, AND SPLASH BLOCKS FURNISHED AND INSTALLED BY OTHERS ON SITE.

PFS Corporation
Northeast Region
APPROVED
H Raup – 3
11/10/20

COZY CABINS LLC
455 FARMERSVILLE RD
NEW HOLLAND, PA 17557
PHONE: 717-354-3278
FAX: 717-354-0015
WWW.MYCOZYCABINS.COM

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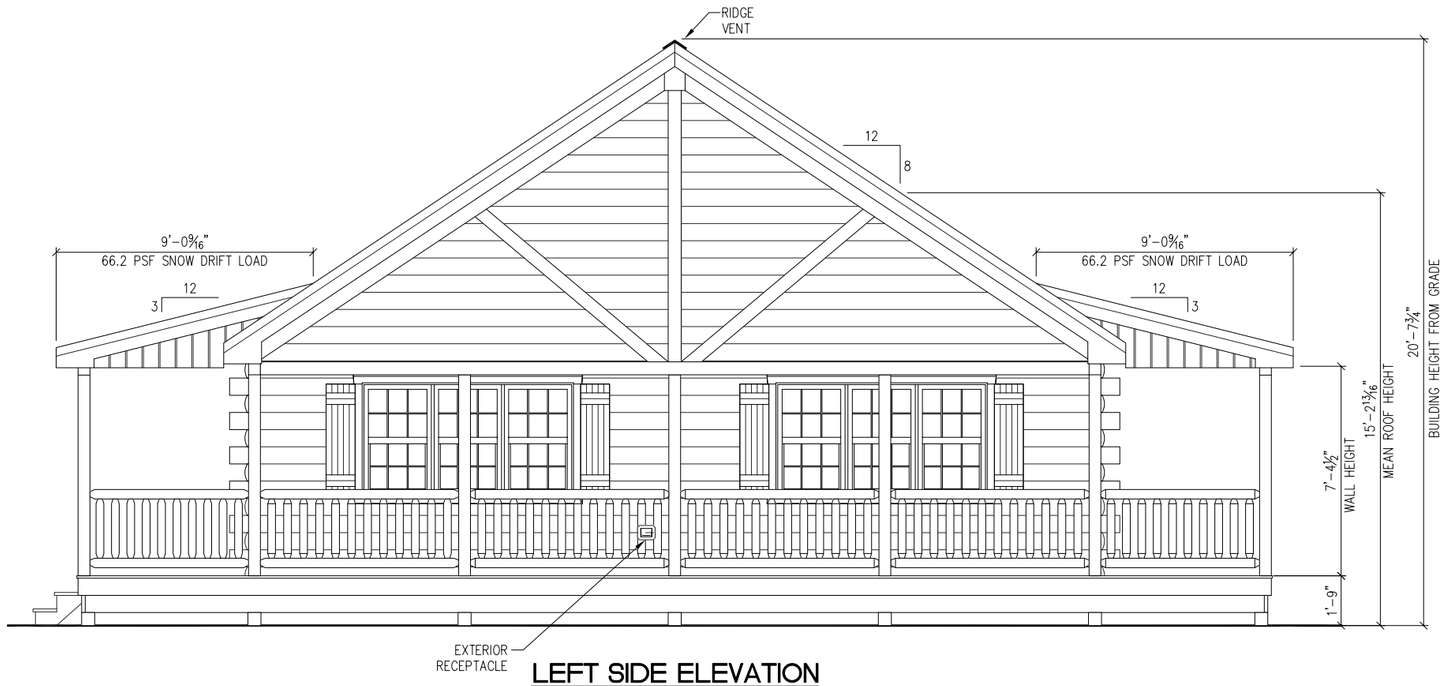
CUSTOMER/PROJECT:
CLIFFORD & CAROL ABEL
237 ZOERB HOLLOW ROAD
GALETON, PA 16992

BUILDER:
COZY CABINS LLC
455 FARMERSVILLE ROAD
NEW HOLLAND, PA 17557

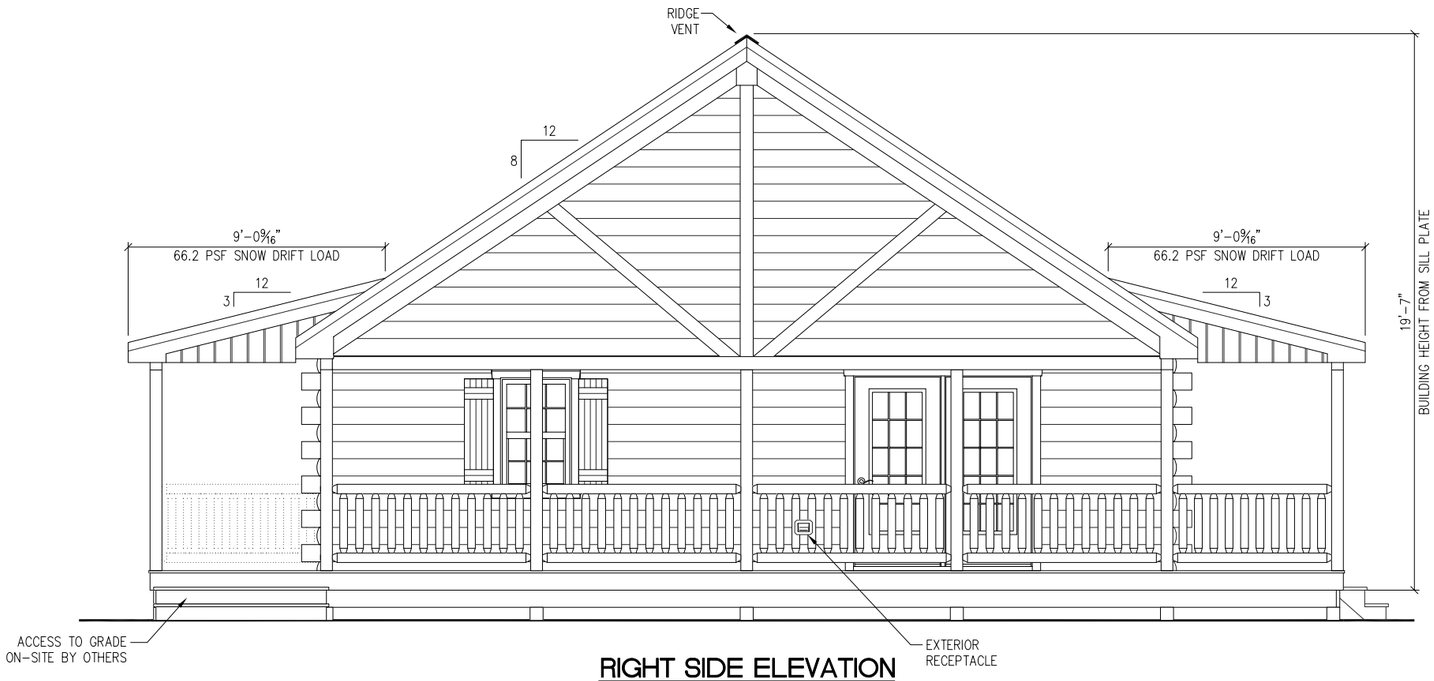
REV#	DATE	REVISIONS	BY

DRAWN BY: LDZ
DATE: 10/13/20
SCALE: 3/16"=1'-0"
CHECKED BY: .

FILE: CC-705
SQ.FT.: 1,560
STATE: PA
TYPE: RANCH
MODEL: MUSKETEER
DRAWING: FRONT & REAR ELEVATIONS
SHEET: 4



LEFT SIDE ELEVATION



RIGHT SIDE ELEVATION

NOTES:
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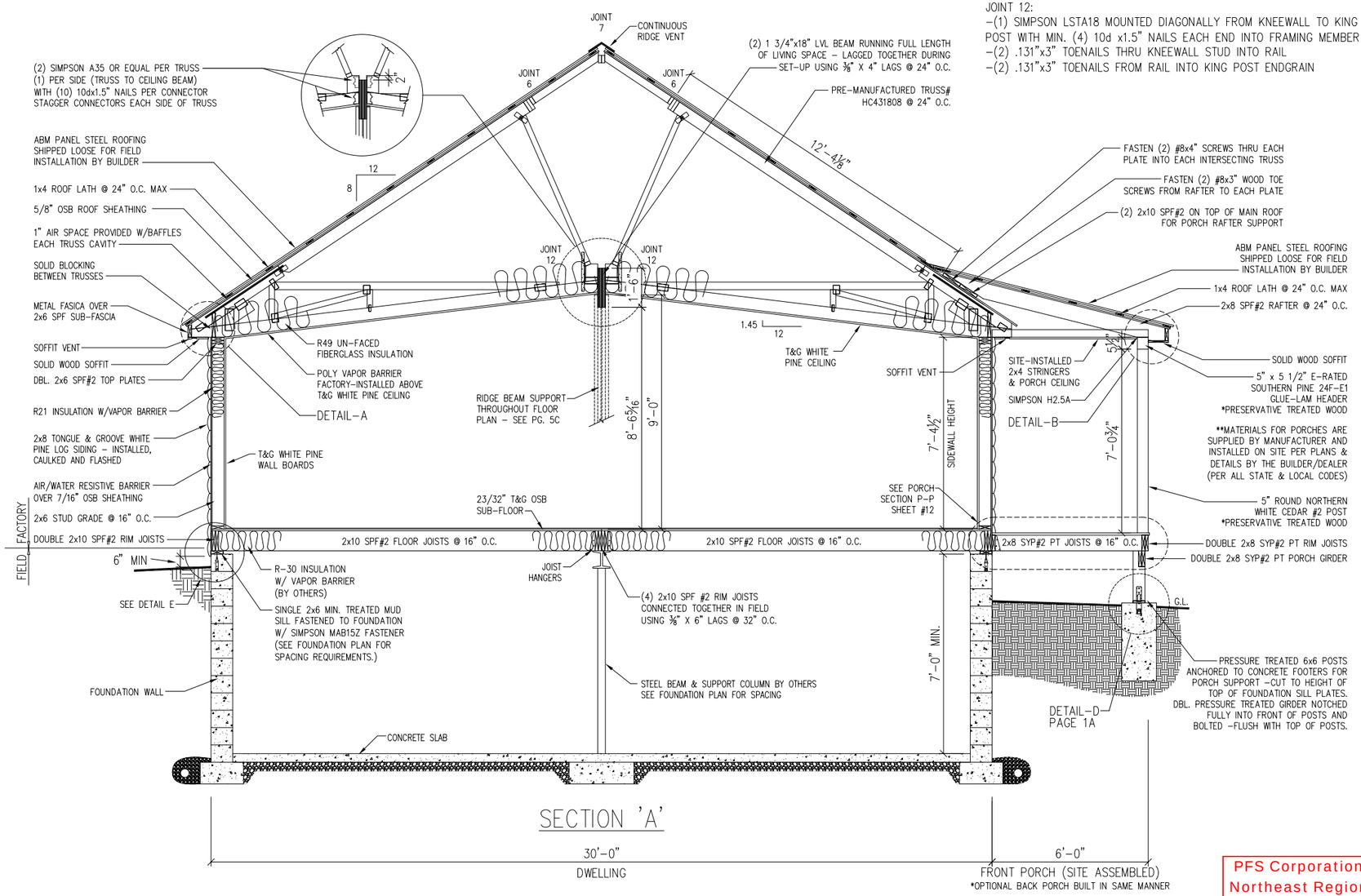
SCALE: 3/16"=1'-0"
CHECKED BY: .

FILE: CC-705
SQ.FT.: 1,560
STATE: PA
TYPE: RANCH
MODEL: MUSKETEER
DRAWING: SIDE ELEVATIONS
SHEET: 4A



SECTION 'A'

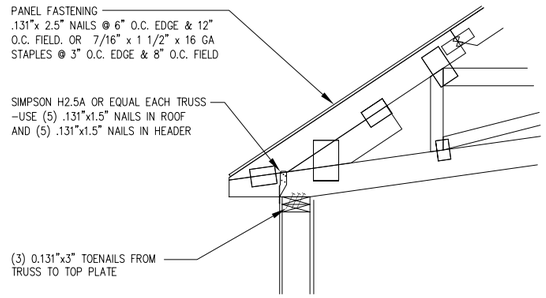
30'-0" DWELLING | 6'-0" FRONT PORCH (SITE ASSEMBLED) *OPTIONAL BACK PORCH BUILT IN SAME MANNER

ON-SITE TRUSS CONNECTIONS

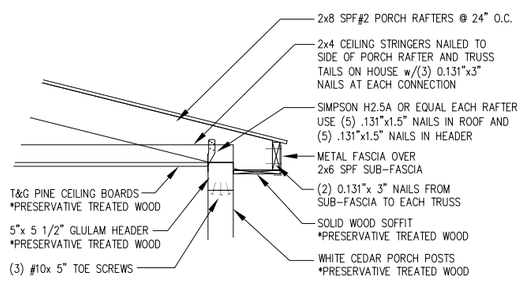
JOINT 6:
-(3) .131"x3" NAILS THRU RAIL INTO TRUSS CHORD END GRAIN
-(3) .131"x3" TOENAILS FROM RAIL TO RAIL EACH TRUSS
-ROOF SHEATHING LAP OVER JOINT w/ (3) 7/16" x2" x16 GA STAPLES EACH SIDE OF JOINT INTO EACH FRAMING MEMBER

JOINT 7:
-(3) .131"x3" NAILS THRU RAIL INTO TRUSS CHORD END GRAIN
-(3) .131"x3" TOENAILS FROM RAIL TO RAIL EACH TRUSS

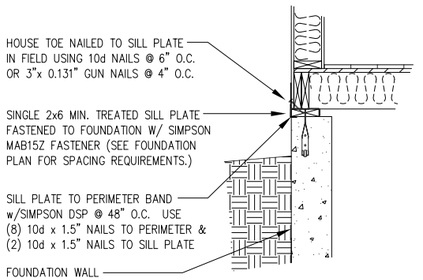
JOINT 12:
-(1) SIMPSON LSTA18 MOUNTED DIAGONALLY FROM KNEEWALL TO KING POST WITH MIN. (4) 10d x1.5" NAILS EACH END INTO FRAMING MEMBER
-(2) .131"x3" TOENAILS THRU KNEEWALL STUD INTO RAIL
-(2) .131"x3" TOENAILS FROM RAIL INTO KING POST ENDGRAIN



DETAIL "A"



DETAIL "B"



DETAIL "E"

HOUSE TO FOUNDATION CONNECTIONS

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NOTES:
1. ALL EXPOSED LUMBER TO BE PRESSURE TREATED OR PRESERVATIVE TREATED
2. ALL EXPOSED CONNECTORS MUST BE CORROSIONS RESISTANT

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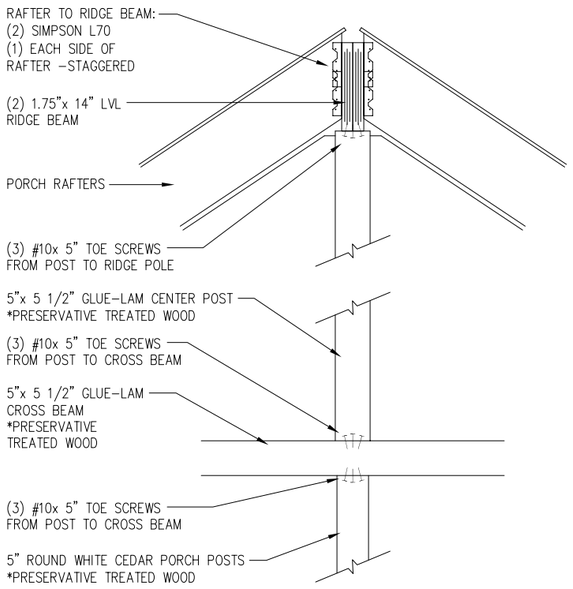
GALETON, PA 16992

BUILDER: COZY CABINS LLC
455 FARMERSVILLE ROAD
NEW HOLLAND, PA 17557

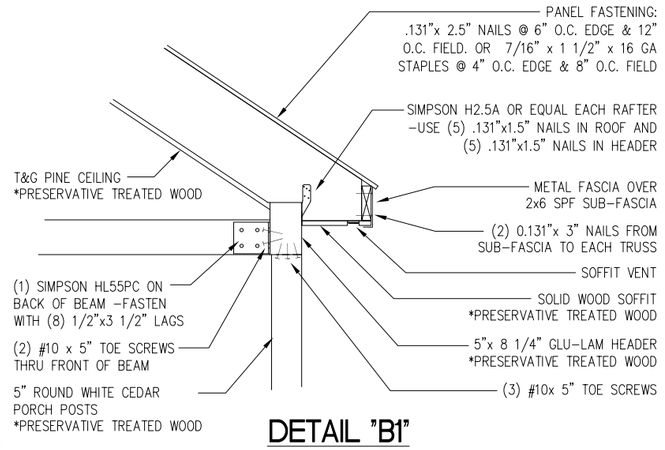
REV#	DATE	REVISIONS	BY

DRAWN BY: LDZ
DATE: 10/13/20
SCALE: NTS
CHECKED BY: .

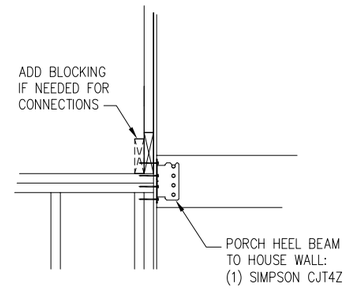
FILE: CC-705
SQ.FT.: 1,560
STATE: PA
TYPE: RANCH
MODEL: MUSKETEER
DRAWING: CROSS SECTION
SHEET: 5



DETAIL "C"



DETAIL "B1"



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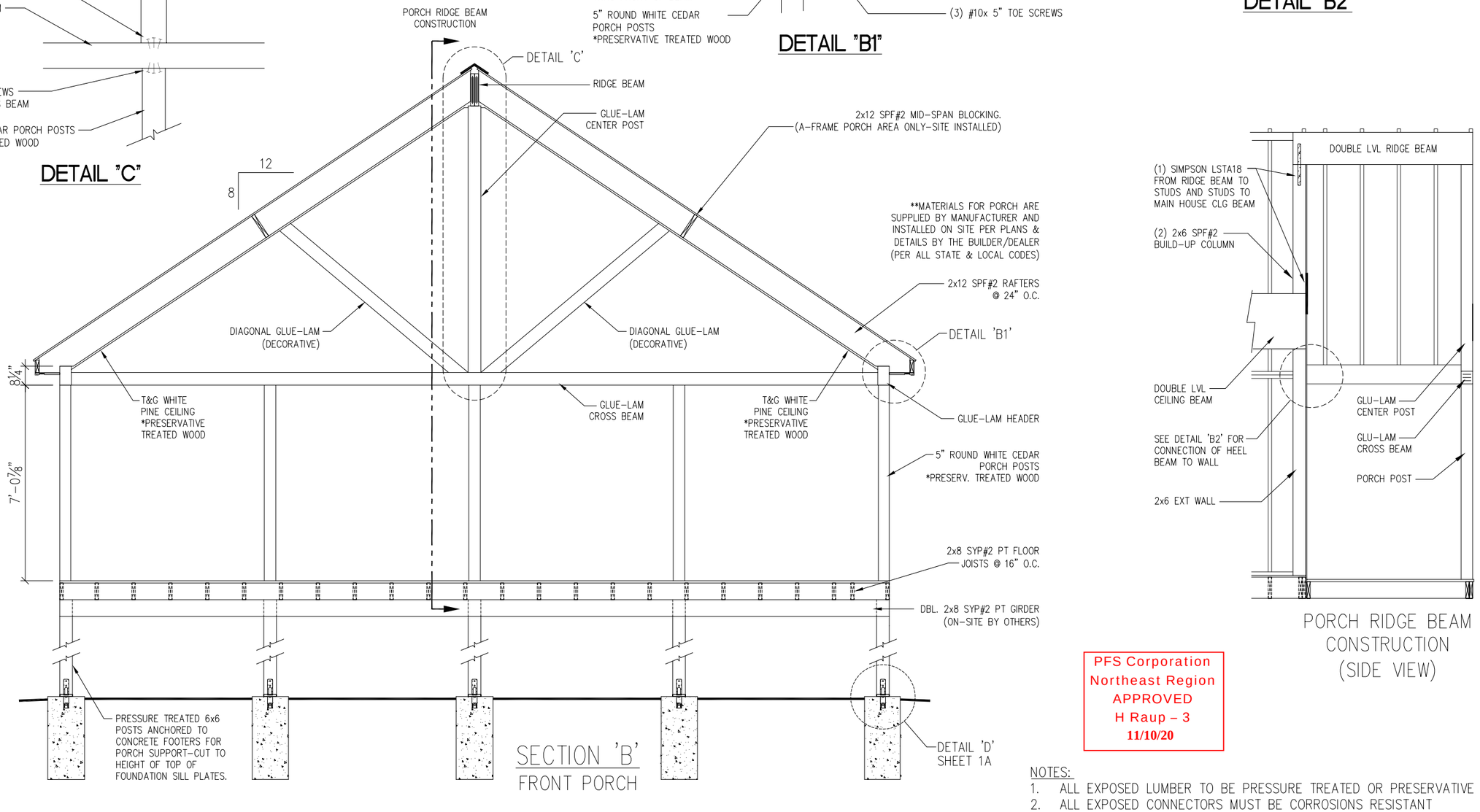

SECTION 'B'
FRONT PORCH

PORCH RIDGE BEAM
CONSTRUCTION
(SIDE VIEW)

PFS Corporation
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11/10/20

NOTES:
1. ALL EXPOSED LUMBER TO BE PRESSURE TREATED OR PRESERVATIVE TREATED
2. ALL EXPOSED CONNECTORS MUST BE CORROSIONS RESISTANT

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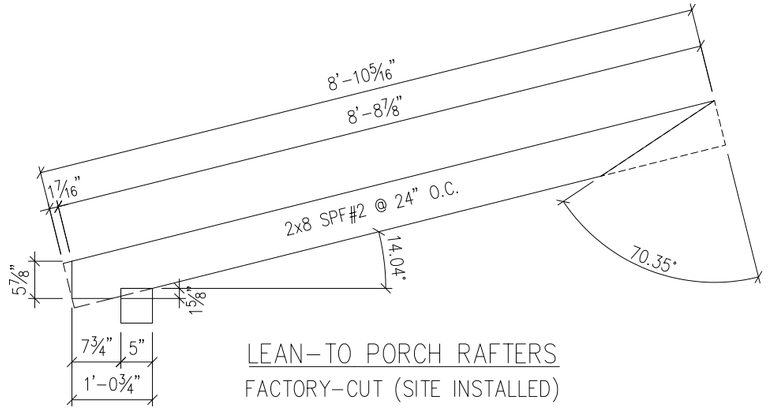
BUILDER:
COZY CABINS LLC
455 FARMERSVILLE ROAD
NEW HOLLAND, PA. 17557

REV#	DATE	REVISIONS	BY

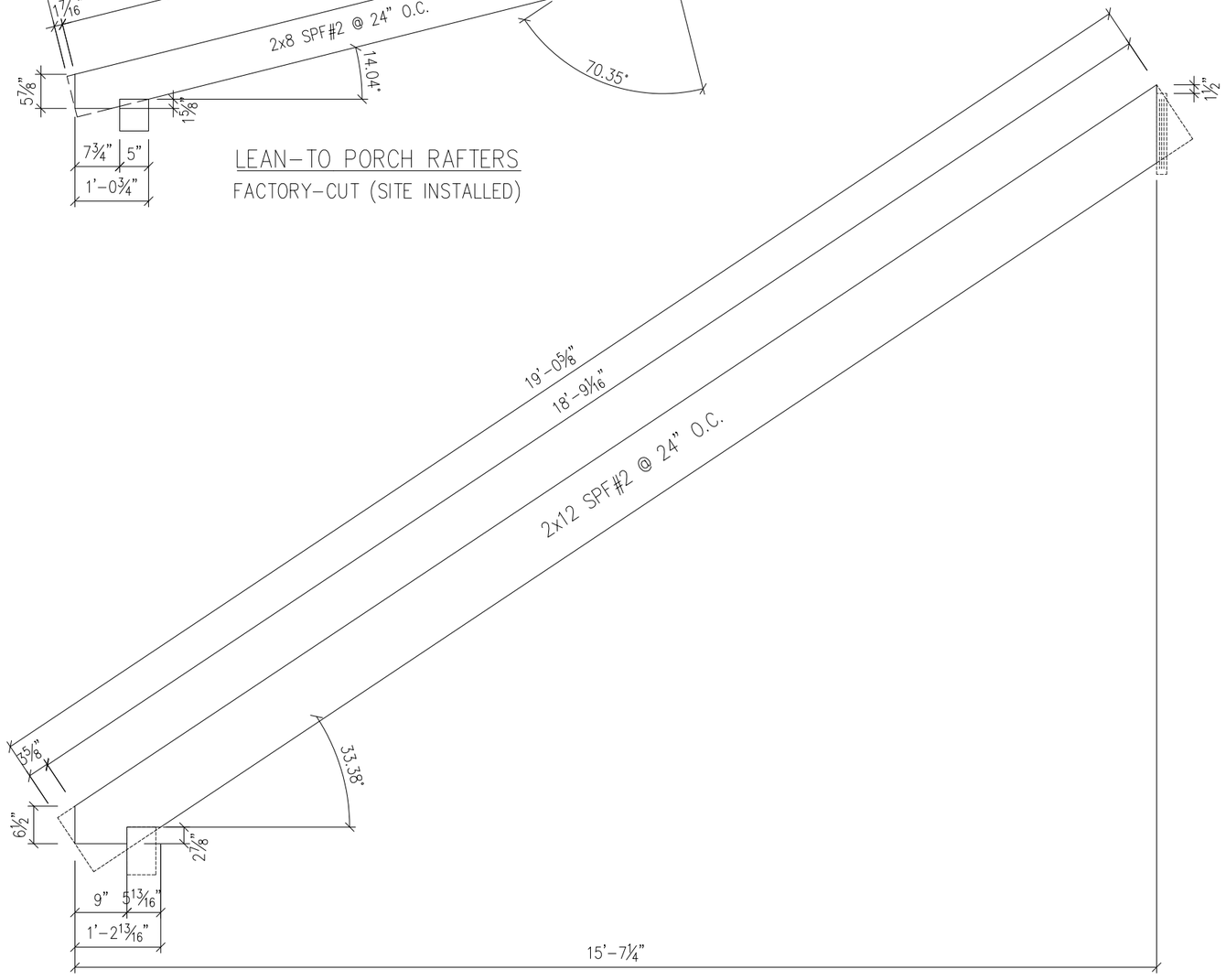
DRAWN BY: LDZ
DATE: 10/13/20
SCALE: 1/4"=1'–0"
CHECKED BY: .

FILE: CC–705
SQ.FT.: 1,560
STATE: PA
TYPE: RANCH
MODEL: MUSKETEER
DRAWING: A–FRAME PORCH CROSS SECTION
SHEET: 5A



LEAN-TO PORCH RAFTERS

FACTORY-CUT (SITE INSTALLED)



A-FRAME PORCH RAFTERS

FACTORY-CUT (SITE INSTALLED)

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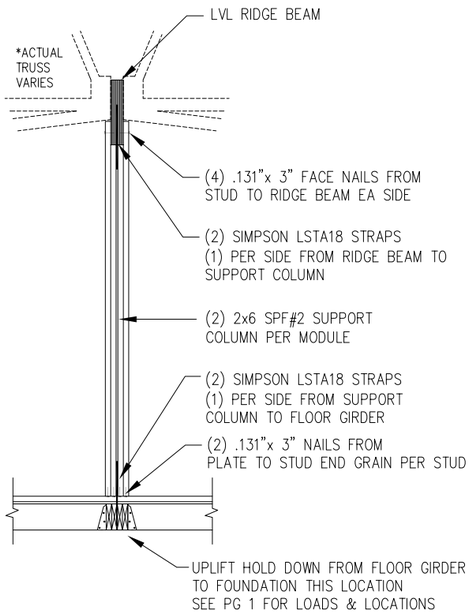
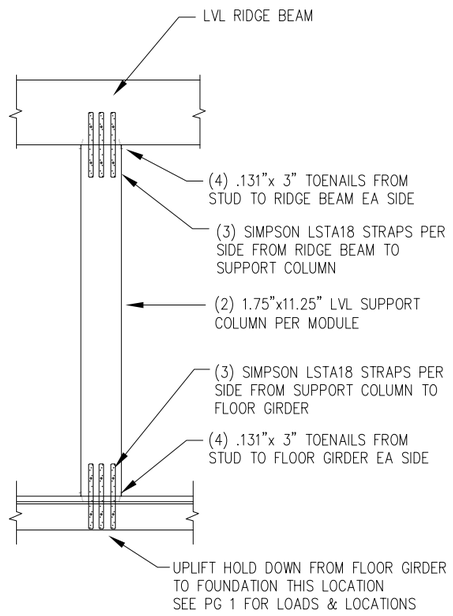
REV#	DATE	REVISIONS	BY

DRAWN BY: LDZ
DATE: 10/13/20
SCALE: 1/2"=1'-0"
CHECKED BY: .

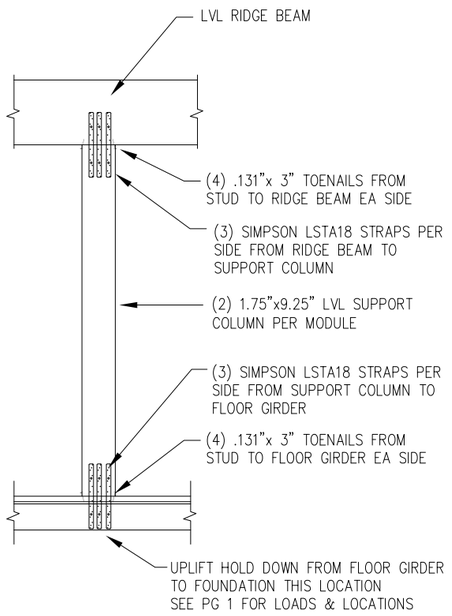
FILE: CC-705
SQ.FT.: 1,560
STATE: PA
TYPE: RANCH
MODEL: MUSKETEER
DRAWING: RAFTER DETAILS
SHEET: 5B



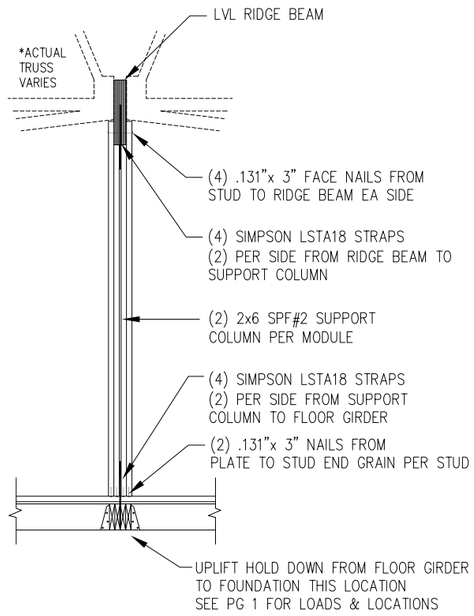
LOCATION "A"



LOCATION "B"

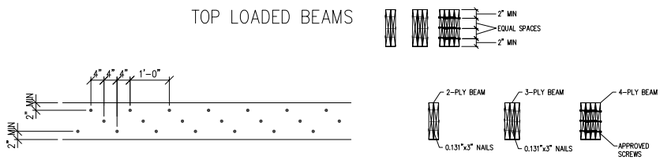


LOCATION "C"



LOCATION "D"

TOP LOADED BEAMS



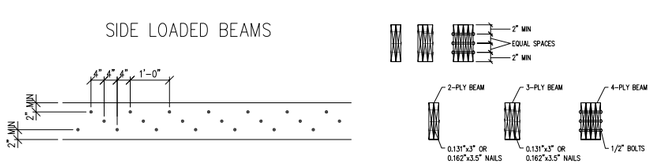
FASTENING REQUIREMENTS FOR MULTIPLE PLY LVL MEMBERS:

2- AND 3-PLY MEMBERS:
- 12" OR LESS x 1.5" MEMBER BEAMS: USE (2) ROWS OF 0.131"x3" NAILS @ 8" O.C.
- 14", 16" OR 18" x 1.5" MEMBER BEAMS: USE (3) ROWS OF 0.131"x3" NAILS @ 8" O.C.
- 20",22" OR 24" x 1.5" MEMBER BEAMS: USE (4) ROWS OF 0.131"x3" NAILS @ 8" O.C.

4-PLY MEMBERS:
- 16" OR LESS x 1.5" MEMBER BEAMS: USE (2) ROWS OF APPROVED SCREWS @ 24" O.C.
- 16" TO 24" x 1.5" MEMBER BEAMS: USE (3) ROWS OF APPROVED SCREWS @ 24" O.C.

NOTES:
- FOR 1.75" THICK MEMBERS, USE 0.131"x3.5" NAILS IN PLACE OF 0.131"x3" NAILS.
- THE FOLLOWING SCREWS ARE APPROVED FOR USE IN CONNECTING MULTIPLE PLIES OF LVL:
  - SIMPSON SDW WOOD SCREWS
  - SIMPSON SDS WOOD SCREWS
  - USP WS WOOD SCREWS
  - FASTENMASTER TRUSSLOK WOOD SCREWS
- IF THE FASTENER POINT PENETRATES A MINIMUM OF 75% OF THE 4TH PLY OF THE BEAM, THEY MAY BE APPLIED FROM ONE SIDE OF THE BEAM; OTHERWISE, THE FASTENERS MUST BE APPLIED FROM BOTH SIDES AND STAGGERED.
- LOAD MUST BE APPLIED EVENLY TO ALL 4 PLIES; OTHERWISE, USE CONNECTIONS FOR SIDE LOADED MEMBERS.
- FASTENING SPACING IS FOR EACH ROW. STAGGER SPACING BETWEEN ROWS OF FASTENERS.

SIDE LOADED BEAMS



FASTENING REQUIREMENTS FOR MULTIPLE PLY LVL MEMBERS:

(2) 1.5" MEMBER BEAMS:
- USE (3) ROWS OF 0.131"x3" NAILS @ 12" O.C. (575 PLF MAX. UNIFORM LOAD)
- USE (3) ROWS OF 0.131"x3" NAILS @ 6" O.C. (1,150 PLF MAX. UNIFORM LOAD)

(2) 1.75" MEMBER BEAMS:
- USE (3) ROWS OF 0.162"x3.5" NAILS @ 12" O.C. (845 PLF MAX. UNIFORM LOAD)
- USE (3) ROWS OF 0.162"x3.5" NAILS @ 6" O.C. (1,690 PLF MAX. UNIFORM LOAD)

(3) 1.5" MEMBER BEAMS:
- USE (3) ROWS OF 0.131"x3" NAILS @ 12" O.C. (431 PLF MAX. UNIFORM LOAD)
- USE (3) ROWS OF 0.131"x3" NAILS @ 6" O.C. (863 PLF MAX. UNIFORM LOAD)
- USE (3) ROWS OF 0.131"x3" NAILS @ 4" O.C. (1,294 PLF MAX. UNIFORM LOAD)

(3) 1.75" MEMBER BEAMS:
- USE (3) ROWS OF 0.162"x3.5" NAILS @ 12" O.C. (635 PLF MAX. UNIFORM LOAD)
- USE (3) ROWS OF 0.162"x3.5" NAILS @ 6" O.C. (1,270 PLF MAX. UNIFORM LOAD)

(4) 1.5" OR 1.75" MEMBER BEAMS:
- USE (2) ROWS OF 1/2" BOLTS @ 12" O.C. (580 PLF MAX. UNIFORM LOAD)
- USE (3) ROWS OF 1/2" BOLTS @ 12" O.C. (870 PLF MAX. UNIFORM LOAD)

NOTES:
- VALUES APPLY TO COMMON A307 BOLTS. BOLT HOLES MUST BE THE SAME DIAMETER AS THE THE BOLTS. WASHERS MUST BE USED UNDER THE BOLT HEADS AND NUTS.
- THE SPECIFIED NAILING APPLIES TO BOTH SIDES OF A 3-PLY BEAM.
- 7" WIDE BEAMS MAY NOT BE LOADED FROM ONE SIDE ONLY. THEY MUST BE LOADED FROM BOTH SIDES AND/OR TOP LOADED.
- LOAD DURATION FACTORS MAY BE APPLIED TO THE LOADS LISTED ABOVE.

LVL DESIGN IS SUFFICIENT FOR LVL GRADES WITH A SPECIFIC GRAVITY OF 0.5 OR BETTER

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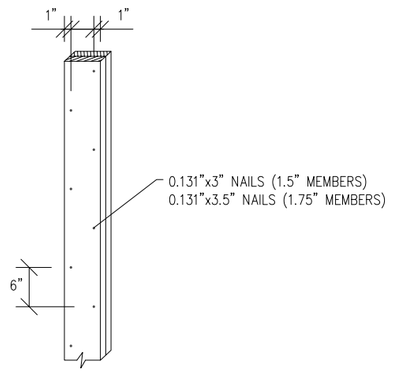

BUILT UP COLUMN FASTENING

COZY CABINS LLC
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BUILDER:
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REV#	DATE	REVISIONS	BY

DRAWN BY: LDZ
DATE: 10/13/20
SCALE: NTS
CHECKED BY: .

FILE: CC-705
SQ.FT.: 1,560
STATE: PA
TYPE: RANCH
MODEL: MUSKETEER
DRAWING: RIDGE BEAM DETAILS
SHEET: 5C

PROVIA WINDOW SCHEDULE

BUILDER / MANUFACTURER TO VERIFY ALL WINDOW ROUGH OPENINGS PRIOR TO CONSTRUCTION

CALL OUT	MFGR	R.O.			AREA	LIGHT	VENT	U VALUE	DP RATING	SHGC
PV 1824	PROVIA DOUBLE HUNG	18	x	24	3.00	1.35	0.4	0.26	DP50	0.27
PV 2130	PROVIA DOUBLE HUNG	21	x	30	4.38	2.3	0.82	0.26	DP50	0.27
PV 2436	PROVIA DOUBLE HUNG	24	x	36	6.00	3.5	1.36	0.26	DP50	0.27
PV 3036	PROVIA DOUBLE HUNG	30	x	36	7.50	4.71	1.8	0.26	DP50	0.27
PV 3048	PROVIA DOUBLE HUNG	30	x	48	10.00	6.66	2.83	0.26	DP50	0.27
PV 3860	PROVIA DOUBLE HUNG	38	x	60	15.83	11.76	5.73	0.26	DP50	0.27
PV 6036-2	PROVIA DOUBLE HUNG	59.63	x	36	14.91	9.42	3.6	0.26	DP50	0.27
PV 6048-2	PROVIA DOUBLE HUNG	59.63	x	48	19.88	13.32	5.66	0.26	DP50	0.27
PV 7660-2	PROVIA DOUBLE HUNG	75.63	x	60	31.51	23.52	11.46	0.26	DP50	0.27
PV 9048-3	PROVIA DOUBLE HUNG	89.25	x	48	29.75	19.98	8.49	0.26	DP50	0.27
PV 11460-3	PROVIA DOUBLE HUNG	113.25	x	60	47.19	35.28	17.19	0.26	DP50	0.27
PV 3030 CSMT	PROVIA CASEMENT	30	x	30	6.25	4.32	4.32	0.22	DP50	0.18
PV 3036 CSMT	PROVIA CASEMENT	30	x	36	7.50	5.36	5.36	0.22	DP50	0.18
VISTA GLASS (26')	(6) PROVIA TRAPEZOIDS	N/A	x	N/A	62.84	51.46	0	0.28	DP50	0.23
VISTA GLASS (28')	(6) PROVIA TRAPEZOIDS	N/A	x	N/A	78.42	65.18	0	0.28	DP50	0.23
VISTA GLASS (30')	(6) PROVIA TRAPEZOIDS	N/A	x	N/A	95.60	80.98	0	0.28	DP50	0.23

EXTERIOR DOOR SCHEDULE

BUILDER / MANUFACTURER TO VERIFY ALL DOOR ROUGH OPENINGS PRIOR TO CONSTRUCTION

CALL OUT	MFGR / SERIES	R.O.			AREA	LIGHT	VENT	U VALUE	SHGC
PV 3680-6P	PROVIA 6-PANEL SOLID	38.25	x	82.00	21.8	0.0	19.3	0.14	0.01
PV 3680-9L	PROVIA 9-LITE GLASS	38.25	x	82.00	21.8	5.0	19.3	0.19	0.08
PV 3680-15L	PROVIA 15-LITE GLASS	38.25	x	82.00	21.8	9.0	19.3	0.23	0.15
PV 3680-OVL	PROVIA OVAL GLASS	38.25	x	82.00	21.8	0.0	19.3	0.21	0.12
PV 3680-6L	PROVIA 6-LITE UPPER GLASS	38.25	x	82.00	21.8	2.2	19.3	0.20	0.06
PV 3680-6L-DSL	PROVIA 6-LITE DUAL SIDELITES	68.75	x	82.00	39.1	8.2	19.3	0.20	0.06
PV 7280-FRENCH SA	PROVIA SGL-ACTIVE FRENCH	74.25	x	82.00	42.3	18.1	19.3	0.23	0.15
PV 7280-FRENCH DA	PROVIA DBL-ACTIVE FRENCH	74.75	x	82.00	42.6	18.1	38.5	0.23	0.15
PV 7280-PATIO	PROVIA PATIO	71.50	x	80.00	39.7	27.7	15.6	0.25	0.25
PV 9680-PATIO	PROVIA PATIO	95.00	x	80.00	52.8	39.2	21.7	0.25	0.25
PV 10480-PATIO	PROVIA PATIO	104.00	x	80.00	57.8	41.6	15.6	0.25	0.25
PV3680-9L MB	PROVIA HALF GL. MINI BLINDS	38.00	x	82.00	21.6	0.0	19.3	0.25	0.14
PV3680-15L MB	PROVIA FULL GL. MINI BLINDS	38.00	x	82.00	21.6	0.0	0.0	0.33	0.26
PV 7280-FRENCH SA MB	PROVIA FRENCH SA MINI BLINDS	74.25	x	82.00	42.3	18.1	19.3	0.33	0.26
PV 7280-FRENCH DA MB	PROVIA FRENCH DA MINI BLINDS	74.75	x	82.00	42.6	18.1	38.5	0.33	0.26
PV 7280-PATIO MB	PROVIA PATIO MINI BLINDS	71.50	x	80.00	39.7	27.7	15.6	0.29	0.24

INTERIOR DOOR SCHEDULE

BUILDER / MANUFACTURER TO VERIFY ALL DOOR ROUGH OPENINGS PRIOR TO

TAG	CALL OUT	MFGR	R.O.			AREA
18	HINGED 1/6	STALLION	20	x	82.5	11.5
24	HINGED 2/0	STALLION	26	x	82.5	14.9
28	HINGED 2/4	STALLION	30	x	82.5	17.2
30	HINGED 2/6	STALLION	32	x	82.5	18.3
32	HINGED 2/8	STALLION	34	x	82.5	19.5
36	HINGED 3/0	STALLION	38	x	82.5	21.8
24	BIFOLD 2/0	STALLION	25.75	x	82.5	14.8
30	BIFOLD 2/6	STALLION	31.75	x	82.5	18.2
36	BIFOLD 3/0	STALLION	37.75	x	82.5	21.6
48	DBL. BIFOLD 2/0	STALLION	49.5	x	82.5	28.4
60	DBL. BIFOLD 2/6	STALLION	37.5	x	82.5	21.5
72	DBL. BIFOLD 3/0	STALLION	73.5	x	82.5	42.1
48	BI-PASS 4/0	STALLION	48	x	83.75	27.9
60	BI-PASS 5/0	STALLION	60	x	83.75	34.9
72	BI-PASS 6/0	STALLION	72	x	83.75	41.9
24	POCKET 2/0	STALLION	49.75	x	84.5	29.2
30	POCKET 2/6	STALLION	61.75	x	84.5	36.2
28	POCKET 2/8	STALLION	65.75	x	84.5	38.6
36	POCKET 3/0	STALLION	73.75	x	84.5	43.3

CALLOUT SUFFIXES

THE FOLLOWING SUFFIXES MAY BE APPENDED TO A CALLOUT TO SIGNIFY THE SPECIFICATIONS AS LISTED:

EGR = MEETS EGRESS REQUIREMENTS
PG = PRAIRIE GRID STYLE
NG = NO GRIDS

GENERAL NOTES:

1. WINDOWS, SKYLIGHTS, AND DOORS OF EQUAL OR BETTER "U" AND INFILTRATION VALUES, AND MANUFACTURED BY OTHER THAN SHOWN, MAY BE SUBSTITUTED. AIR INFILTRATION VALUES MUST COMPLY WITH THE MAXIMUM ALLOWABLE INFILTRATION RATES AND "U" VALUES, IF NOT CERTIFIED BY ACCREDITED LABORATORY IN ACCORDANCE WITH NFRC 100.
2. WINDOW AREA OF HABITABLE SPACE (SLEEPING AREAS, LIVING, DINING, INCLUDING KITCHEN/DINING IF NO OTHER DINING AREAS ARE PROVIDED) SHALL BE 8% OF THE FLOOR AREA FOR NATURAL LIGHT WITH 4% OPENING FOR VENTILATION MINIMUM. KITCHENETTES, BATHROOMS, AND TOILET ROOMS MAY BE PROVIDED WITH MECHANICAL VENTILATION ONLY, OR PROVIDED WITH NATURAL VENTILATION WITH AN OPENABLE AREA OF 4% MIN EXCEPT THAT THE MIN AREA SHALL NOT BE LESS THAN 1 ½ SQ.FT. FOR BATHROOMS OR TOILET ROOMS AND NOT LESS THEN 3 SQ.FT. FOR KITCHENETTES.
3. DOORS, VENTS, AND OPENINGS IN EXTERIOR OR INTERIOR TENANT SEPARATION WALLS, STAIR AND GARAGE SEPARATION WALLS, SKYLIGHTS, RIDGE VENTS, LOUVERS OR OPENINGS PASSING THROUGH A FIRE RATED CEILING IN A STAIRS OR GARAGE SHALL BE ¾ HR. MN. FIRE RATED AND BE SELF CLOSING OR HAVE A 1 HR. MIN. OPENING PROTECTION.
4. EGRESS WINDOWS SHALL HAVE A NET CLEAR OPENING OF 5 SQ.FT. AT GRADE LEVEL FLOORS AND 5.7 SQ.FT. FOR ALL OTHER FLOORS. ALL EGRESS WINDOWS SHALL HAVE A NET CLEAR OPENING OF 24" HIGH, 20" WIDE AND A MAXIMUM SILL HEIGHT OF 44" ABOVE THE FINISHED FLOOR. WINDOWS MUST MEET EGRESS BY NORMAL OPERATION. THE REMOVAL OF SASH, TILTING/TWISTING SASH, SNAP AWAY HARDWARE ETC. TO MEET EGRESS REQUIREMENTS IS NOT PERMITTED.
5. ALL JOINTS, CONNECTIONS, AND PENETRATIONS BETWEEN CONDITIONED SPACE AND UNCONDITIONED OR OUTSIDE SPACE MUST BE SEALED. CAULKING AND SEALANTS IN THE EXTERIOR ENVELOPE MUST BE IN COMPLIANCE WITH 2015 IRC.

PFS Corporation
Northeast Region
APPROVED
H Raup – 3
11/10/20

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WWW.MYCOZYCABINS.COM

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www.glencoinc.com

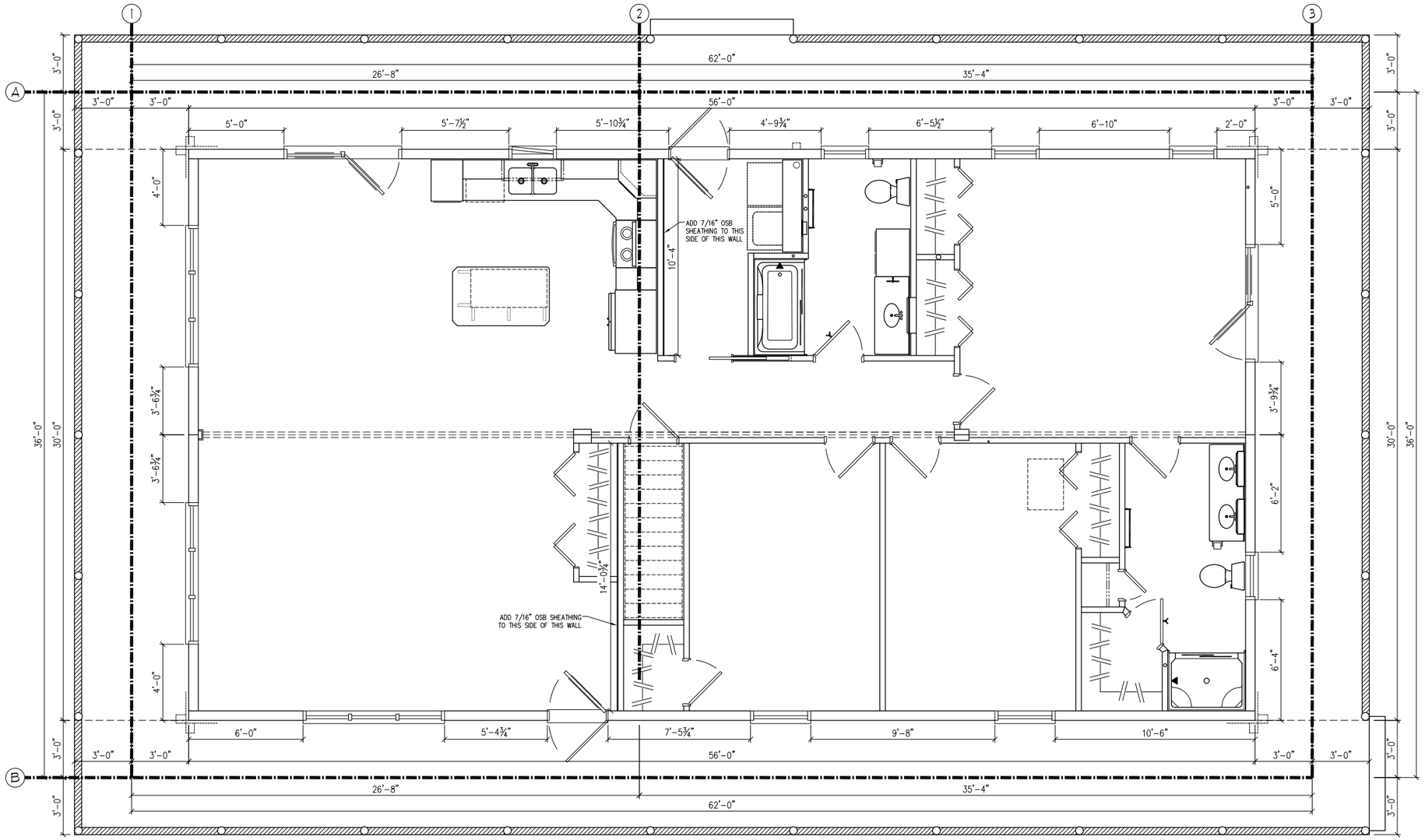
CUSTOMER/PROJECT:
CLIFFORD & CAROL ABEL
237 ZOERB HOLLOW ROAD
GALETON, PA 16992

BUILDER:
COZY CABINS LLC
455 FARMERSVILLE ROAD
NEW HOLLAND, PA 17557

REV#	DATE	REVISIONS	BY

DRAWN BY: LDZ
DATE: 10/13/20
SCALE: NTS
CHECKED BY: .

FILE: CC-705
SQ.FT.: 1,560
STATE: PA
TYPE: RANCH
MODEL: MUSKETEER
DRAWING: WINDOW & DOOR SCHEDULE
SHEET: 10



CODE		2015 IRC
# STORIES		1
SEISMIC DESIGN CATEGORY		B
WIND SPEED (Vult)		115
WIND EXPOSURE		B
EAVE TO RIDGE HEIGHT		11.52 FT
WALL HEIGHT		8'-3"
# VERTICAL BRACED WALL LINES		See Charts Below
# HORIZONTAL BRACED WALL LINES		See Charts Below
ROOF/CEILING DEAD LOAD - PSF		15 PSF
GYP ON I/S OF WALLS		YES

CS-WSP / WSP	SHALL BE CONSTRUCTED PER TABLE BELOW								
MINIMUM NAIL		MINIMUM WOOD STRUCTURAL PANEL SPAN RATING	MINIMUM NOMINAL PANEL THICKNESS (INCHES)	MAXIMUM WALL STUD SPACING (INCHES)	PANEL NAILING SPACING		ULTIMATE DESIGN WIND SPEED Vult (MPH)		
SIZE	PENETRATION (INCHES)				EDGES (INCHES O.C.)	FIELD (INCHES O.C.)	WIND EXPOSURE CATEGORY		
							B	C	D
6d Common (2.0"x0.113")	1.5	24/0	3/8	16	6	12	140	115	110
				16	3	6	140	140	140
8d Common (2.5"x0.131")	1.75	24/16	7/16	16	6	12	170	140	135
				24	6	12	140	115	110

EXTERIOR WALL LINE	BRACED WALL SPACING	BRACED WALL METHOD	TABULATED MIN BRACED WALL TOTAL Table R602.10.3(1)	WIND EXPOSURE FACTOR Table R602.10.3(2)	RIDGE TO EAVE HEIGHT FACTOR Table R602.10.3(2)	WALL HEIGHT FACTOR Table R602.10.3(2)	WALL LINE QTY FACTOR Table R602.10.3(2)	ADDT'L 800# HOLD DOWN DEVICE	INTERIOR GYPSUM BOARD FINISH (OR EQUIVALENT)	GYPSUM BOARD FASTENING	MIN BRACED WALL LENGTH REQ'D	WALL MEETS REQUIREMENT
A	36.00	CS-WSP	5.40	1.00	1.09	0.95	1.0	1.0	1.0	1.0	5.6	YES
B	36.00	CS-WSP	5.40	1.00	1.09	0.95	1.0	1.0	1.0	1.0	5.6	YES
1	26.67	CS-WSP	4.17	1.00	1.09	0.95	1.3	1.0	1.0	1.0	5.6	YES
2	35.33	CS-WSP	5.30	1.00	1.09	0.95	1.3	1.0	1.0	1.0	7.1	YES
3	35.33	CS-WSP	5.30	1.00	1.09	0.95	1.3	1.0	1.0	1.0	7.1	YES

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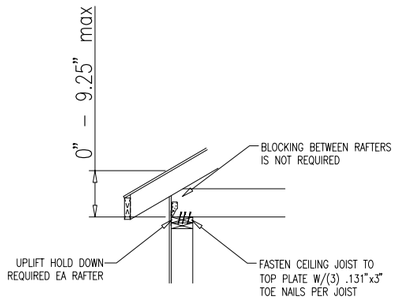
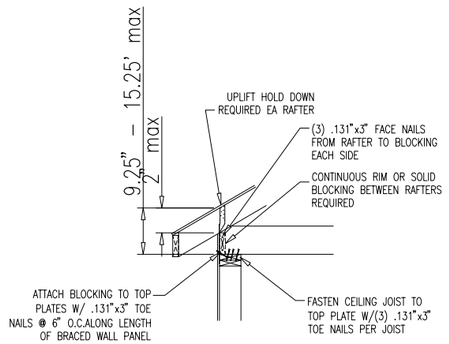
REV#	DATE	REVISIONS	BY

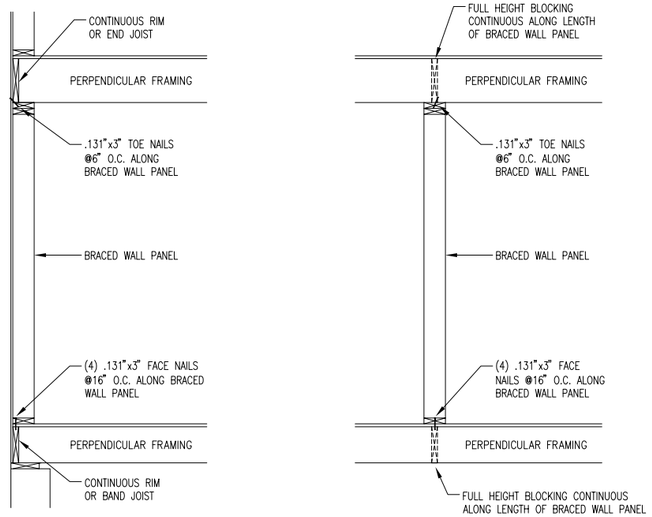
DRAWN BY: LDZ
DATE: 10/13/20
SCALE: NTS
CHECKED BY: .

FILE: CC-705
SQ.FT.: 1,560
STATE: PA
TYPE: RANCH
MODEL: MUSKETEER
DRAWING: BRACED WALL PLAN
SHEET: 11





TRUSS/RAFTER TO BRACED WALL ATTACHMENT
(SEISMIC DESIGN CAT. A, B, & C)



2015 INTERNATIONAL RESIDENTIAL CODE FIGURE R602.10.8(1)
BRACED WALL CONNECTION WHEN PERPENDICULAR TO FLOOR/CEILING FRAMING

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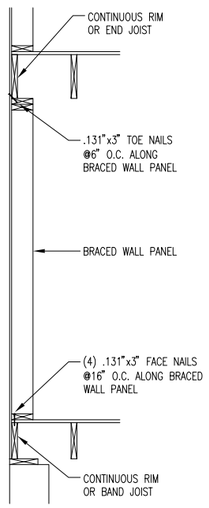

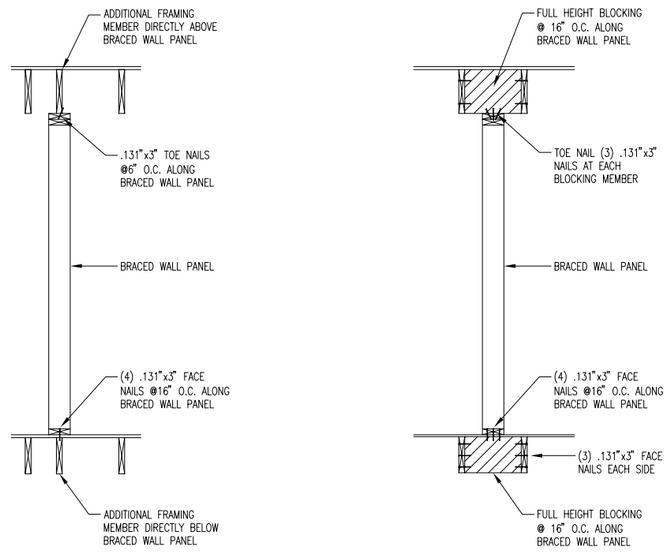

2015 INTERNATIONAL RESIDENTIAL CODE FIGURE R602.10.8(2)
BRACED WALL CONNECTION WHEN PARALLEL TO FLOOR/CEILING FRAMING

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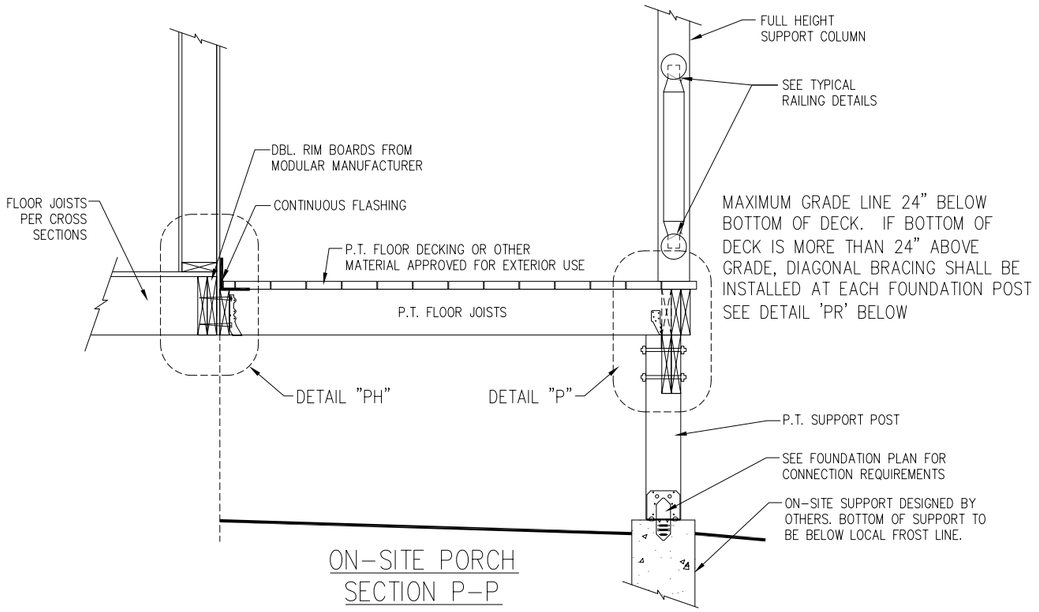
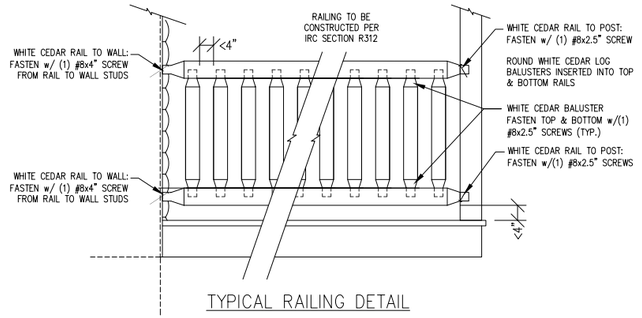
DRAWN BY: LDZ
DATE: 10/13/20
SCALE: NTS
CHECKED BY: .

FILE: CC-705
SQ.FT.: 1,560
STATE: PA
TYPE: RANCH
MODEL: MUSKETEER
DRAWING: BRACED WALL DETAILS
SHEET: 11A

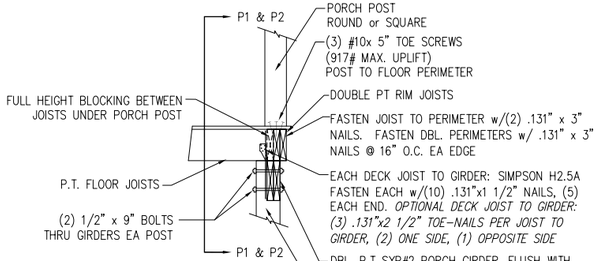


MAXIMUM GRADE LINE 24" BELOW BOTTOM OF DECK. IF BOTTOM OF DECK IS MORE THAN 24" ABOVE GRADE, DIAGONAL BRACING SHALL BE INSTALLED AT EACH FOUNDATION POST SEE DETAIL 'PR' BELOW

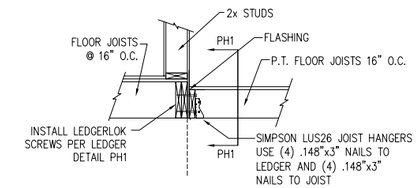
ON-SITE PORCH SECTION P-P



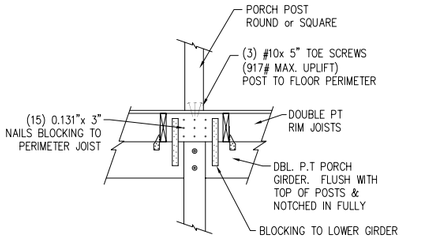
TYPICAL RAILING DETAIL



DETAIL P

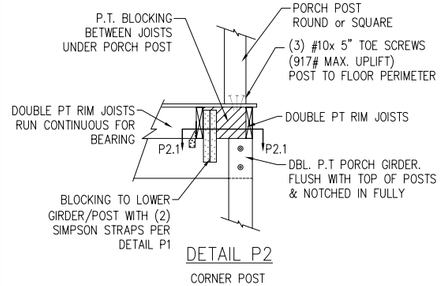


DETAIL PH



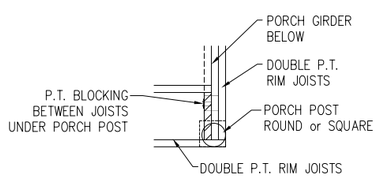
DETAIL P1

INTERMEDIATE POSTS



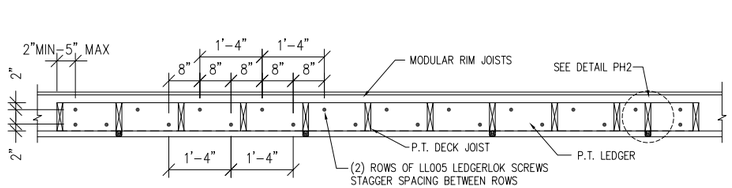
DETAIL P2

CORNER POST

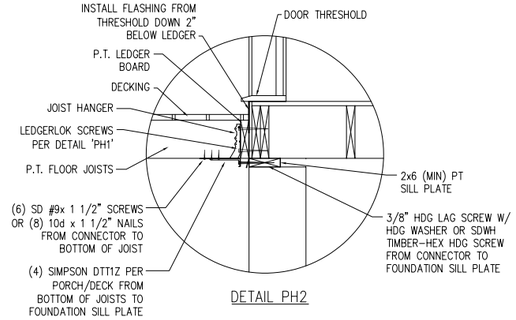


DETAIL P2.1

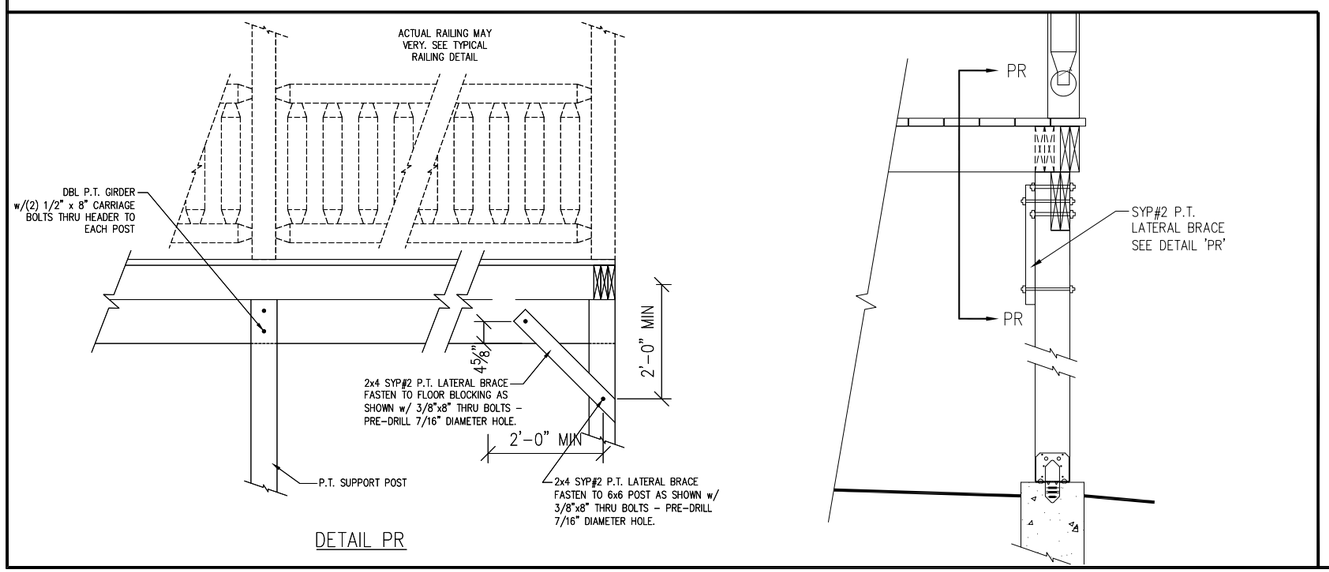
SEE DETAILS "P, P1 & P2" FOR ADDITIONAL CONNECTIONS



DETAIL PH1



DETAIL PH2



DETAIL PR

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11/10/20

NOTES:

1. ALL EXPOSED LUMBER TO BE OF NATURALLY DURABLE WOOD OR WOOD THAT IS PRESERVATIVE-TREATED IN ACCORDANCE WITH AWPA U1. PRESERVATIVES SHALL BE LISTED IN SECTION 4 OF AWPA U1.
2. ALL LUMBER THAT IS IN CONTACT WITH CONCRETE OR THE GROUND MUST BE APPROVED PRESSURE-PRESERVATIVE-TREATED WOOD SUITABLE FOR GROUND CONTACT USE.
3. ALL SUPPORT COLUMNS SHALL BE APPROVED WOOD OF NATURAL DECAY RESISTANCE OR APPROVED PRESSURE-PRESERVATIVE-TREATED WOOD.
4. ALL FIELD CUT ENDS, NOTCHES, DRILLED HOLES OF PRESERVATIVE-TREATED WOOD SHALL BE TREATED IN THE FIELD IN ACCORDANCE WITH AWPA M4.
5. ALL NAILS USED IN THE CONSTRUCTION OF PORCHES AND DECKS SHALL BE THREADED AND MEET THE REQUIREMENTS OF ASTM F 1667. THREADED NAILS AS STATED IN THIS DOCUMENT INCLUDE HELICAL (SPIRAL) AND ANNULAR (RINK SHANK) NAILS. WOOD SCREWS SHALL MEET THE REQUIREMENTS OF ANSI/ASME B18.6.1. BOLTS AND LAG SCREWS SHALL MEET THE REQUIREMENTS OF ANSI/ASME B18.2.1.
6. FLASHING SHALL BE CORROSION-RESISTANT METAL OF A MINIMUM NOMINAL THICKNESS OF 0.019 INCHES OR AN APPROVED NON-METALLIC MATERIAL.
   6.1. ALUMINUM SHOULD NOT BE USED IN DIRECT CONTACT WITH LUMBER TREATED WITH PRESERVATIVES THAT CONTAIN COPPER SUCH AS ACQ, COPPER AZOLE, OR ACZA.
7. ALL SCREWS, BOLTS, NAILS, NUTS AND WASHERS FOR USE WITH PRESERVATIVE TREATED WOOD SHALL BE HOT-DIPPED ZINC-COATED GALVANIZED STEEL, STAINLESS STEEL, SILICON BRONZE, OR COPPER. FASTENERS SHALL BE HOT DIPPED GALVANIZED AND SHALL MEET THE REQUIREMENTS OF ASTM A 153, CLASS D FOR FASTENERS 3/8" DIAMETER AND SMALLER, OR CLASS C FOR FASTENERS WITH DIAMETERS OVER 3/8".
8. FASTENERS OTHER THAN NAILS AND TIMBER RIVETS SHALL BE PERMITTED TO BE OF MECHANICALLY DEPOSITED ZINC-COATED STEEL WITH COATING WEIGHTS IN ACCORDANCE WITH ASTM B 695, CLASS 55, MINIMUM.
9. ALL HARDWARE (JOIST HANGERS, CAST-IN-PLACE POST ANCHORS, ETC.) THAT IS EXPOSED TO WEATHER OR IN CONTACT WITH GROUND, CONCRETE OR PRESSURE TREATED LUMBER SHALL BE GALVANIZED OR SHALL BE STAINLESS STEEL. HARDWARE TO BE HOT DIPPED GALVANIZED PRIOR TO FABRICATION SHALL MEET ASTM A 653, G-185 COATING. HARDWARE TO BE HOT DIPPED GALVANIZED AFTER FABRICATION SHALL MEET ASTM A123.
10. FASTENERS AND CONNECTORS EXPOSED TO SALT WATER OR LOCATED WITHIN 300 FEET OF A SALT WATER SHORELINE SHALL BE STAINLESS STEEL GRADE 304 OR 316.
11. ALL OTHER COATED OR NON-FERROUS FASTENERS OR HARDWARE SHALL BE AS APPROVED BY THE AUTHORITY HAVING JURISDICTION.
12. HOT-DIPPED ZINC-COATED GALVANIZED STEEL CONNECTORS ARE REQUIRED AT ANY CONNECTIONS INTO CONCRETE
13. FASTENERS AND CONNECTORS INSTALLED IN TREATED LUMBER OTHER THAN MATERIAL WITH A CHEMICAL RETENTION GREATER THAN AWPA OR UC4A SHALL BE STAINLESS STEEL GRADE 304 OR 316.

COZY CABINS LLC
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BUILDER:
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REV#	DATE	REVISIONS	BY

DRAWN BY: LDZ
DATE: 10/13/20
SCALE: NTS
CHECKED BY: .

FILE: CC-705
SQ.FT.: 1,560
STATE: PA
TYPE: RANCH
MODEL: MUSKETEER
DRAWING: PORCH CONNECTION DETAILS
SHEET: 12

REScheck Software Version 4.7.1

Compliance Certificate

Project Clifford Abel (CC-705)

PFS Corporation
Northeast Region
APPROVED
H Raup – 3
11/10/20

Energy Code: **2015 IECC**
Location: **Galeton, Pennsylvania**
Construction Type: **Single-family**
Project Type: **New Construction**
Conditioned Floor Area: **1,680 ft2**
Glazing Area **17%**
Climate Zone: **6 (7405 HDD)**
Permit Date:
Permit Number:

Construction Site:
237 Zoerb Hollow Rd
Galeton, PA 16992

Owner/Agent:

Designer/Contractor:
Cozy Cabins LLC
455 Farmersville Road
New Holland, PA 17557

Compliance: Passes using UA trade-off

Compliance: **3.1% Better Than Code** Maximum UA: **254** Your UA: **246**

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.

Envelope Assemblies

Assembly	Gross Area or Perimeter	Cavity R-Value	Cont. R-Value	U-Factor	UA
Ceiling: Raised or Energy Truss	1,692	49.0	0.0	0.020	34
Front Wall: Wood Frame, 16" o.c.	413	21.0	0.0	0.057	19
Window: PV 9048-3: Vinyl/Fiberglass Frame, Double Pane with Low-E	30			0.260	8
Window: PV 3860: Vinyl/Fiberglass Frame, Double Pane with Low-E	16			0.260	4
Window: PV 3860: Vinyl/Fiberglass Frame, Double Pane with Low-E	16			0.260	4
Door: PV 3680-9L: Solid	22			0.190	4
Right Wall: Wood Frame, 16" o.c.	247	21.0	0.0	0.057	11
Window: PV 3048: Vinyl/Fiberglass Frame, Double Pane with Low-E	10			0.260	3
Door: PV 7280-FRENCH SA: Glass	42			0.230	10
Rear Wall: Wood Frame, 16" o.c.	413	21.0	0.0	0.057	18
Window: PV 3048: Vinyl/Fiberglass Frame, Double Pane with Low-E	10			0.260	3
Window: PV 3048: Vinyl/Fiberglass Frame, Double Pane with Low-E	10			0.260	3
Window: PV 3048: Vinyl/Fiberglass Frame, Double Pane with Low-E	10			0.260	3
Window: PV 3036 CSMT: Vinyl/Fiberglass Frame, Double Pane with Low-E	8			0.220	2
Door: PV 3680-9L: Solid	22			0.190	4
Door: PV 7280-FRENCH SA: Glass	42			0.230	10
Left Wall: Wood Frame, 16" o.c.	247	21.0	0.0	0.057	11

Assembly	Gross Area or Perimeter	Cavity R-Value	Cont. R-Value	U-Factor	UA
Window: PV 9048-3: Vinyl/Fiberglass Frame, Double Pane with Low-E	30			0.260	8
Window: PV 9048-3: Vinyl/Fiberglass Frame, Double Pane with Low-E	30			0.260	8
Basement Stair Walls: Wood Frame, 16" o.c.	212	13.0	0.0	0.082	16
Door: 3080-INT (solid wood): Solid	18			0.500	9
Floor: All-Wood Joist/Truss, Over Unconditioned Space	1,650	30.0	0.0	0.033	54

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 2015 IECC requirements in RES*check* Version 4.7.1 and to comply with the mandatory requirements listed in the RES*check* Inspection Checklist.

Dwayne Keister - Designer / Draftsman		10/22/2020
Name - Title	Signature	Date

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RES*check* Software Version 4.7.1

Inspection Checklist

Energy Code: 2015 IECC

Requirements: 0.0% were addressed directly in the RES*check* 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.

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 represented on construction documents.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
103.1, 103.2, 403.7 [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 ☐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 ☐Not Observable ☐Not Applicable	

Additional Comments/Assumptions:

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

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 ☐Not Observable ☐Not Applicable	
403.9 [FO12][2]	Snow- and ice-melting system controls installed.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

Additional Comments/Assumptions:

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

Section # & Req.ID	Framing / Rough-In Inspection	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
402.1.1, 402.3.4 [FR1][1]	Door U-factor.	U-____	U-____	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	*See the Envelope Assemblies table for values.*
402.1.1, 402.3.1, 402.3.3, 402.5 [FR2][1]	Glazing U-factor (area-weighted average).	U-____	U-____	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	*See the Envelope Assemblies table for values.*
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 ☐Not Observable ☐Not Applicable	
402.4.1.1 [FR23][1]	Air barrier and thermal barrier installed per manufacturer's instructions.			☐Complies ☐Does Not ☐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 ☐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 ☐Not Observable ☐Not Applicable	
403.3.1 [FR12][1]	Supply and return ducts in attics insulated >= R-8 where duct is >= 3 inches in diameter and >= R-6 where < 3 inches. Supply and return ducts in other portions of the building insulated >= R-6 for diameter >= 3 inches and R-4.2 for < 3 inches in diameter.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.3.5 [FR15][3]	Building cavities are not used as ducts or plenums.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.4 [FR17][2]	HVAC piping conveying fluids above 105 ºF or chilled fluids below 55 ºF are insulated to ≥R-3.	R-____	R-____	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.4.1 [FR24][1]	Protection of insulation on HVAC piping.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.5.3 [FR18][2]	Hot water pipes are insulated to ≥R-3.	R-____	R-____	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.6 [FR19][2]	Automatic or gravity dampers are installed on all outdoor air intakes and exhausts.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

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

Additional Comments/Assumptions:

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

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 ☐Not Observable ☐Not Applicable	
402.1.1, 402.2.6 [IN1][1]	Floor insulation R-value.	R-____ ☐ Wood ☐ Steel	R-____ ☐ Wood ☐ Steel	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	*See the Envelope Assemblies table for values.*
303.2, 402.2.7 [IN2][1]	Floor insulation installed per manufacturer's instructions and in substantial contact with the underside of the subfloor, or floor framing cavity insulation is in contact with the top side of sheathing, or continuous insulation is installed on the underside of floor framing and extends from the bottom to the top of all perimeter floor framing members.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
402.1.1, 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 ☐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 ☐Not Observable ☐Not Applicable	

Additional Comments/Assumptions:

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

Section # & Req.ID	Final Inspection Provisions	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
402.1.1, 402.2.1, 402.2.2, 402.2.6 [FI1][1]	Ceiling insulation R-value.	R-____ ☐ Wood ☐ Steel	R-____ ☐ Wood ☐ Steel	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	*See the Envelope Assemblies table for values.*
303.1.1.1, 303.2 [FI2][1]	Ceiling insulation installed per manufacturer's instructions. Blown insulation marked every 300 ft².			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
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 ☐Not Observable ☐Not Applicable	
402.2.4 [FI3][1]	Attic access hatch and door insulation ≥R-value of the adjacent assembly.	R-____	R-____	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
402.4.1.2 [FI17][1]	Blower door test @ 50 Pa. <=5 ach in Climate Zones 1-2, and <=3 ach in Climate Zones 3-8.	ACH 50 =____	ACH 50 =____	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.3.4 [FI4][1]	Duct tightness test result of <=4 cfm/100 ft2 across the system or <=3 cfm/100 ft2 without air handler @ 25 Pa. For rough-in tests, verification may need to occur during Framing Inspection.	____ cfm/100 ft²	____ cfm/100 ft²	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.3.3 [FI27][1]	Ducts are pressure tested to determine air leakage with either: Rough-in test: Total leakage measured with a pressure differential of 0.1 inch w.g. across the system including the manufacturer's air handler enclosure if installed at time of test. Postconstruction test: Total leakage measured with a pressure differential of 0.1 inch w.g. across the entire system including the manufacturer's air handler enclosure.	____ cfm/100 ft²	____ cfm/100 ft²	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.3.2.1 [FI24][1]	Air handler leakage designated by manufacturer at <=2% of design air flow.			☐Complies ☐Does Not ☐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 ☐Not Observable ☐Not Applicable	
403.1.2 [FI10][2]	Heat pump thermostat installed on heat pumps.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.5.1 [FI11][2]	Circulating service hot water systems have automatic or accessible manual controls.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

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Section # & Req.ID	Final Inspection Provisions	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
403.6.1 [FI25][2]	All mechanical ventilation system fans not part of tested and listed HVAC equipment meet efficacy and air flow limits.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.2 [FI26][2]	Hot water boilers supplying heat through one- or two-pipe heating systems have outdoor setback control to lower boiler water temperature based on outdoor temperature.			☐Complies ☐Does Not ☐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 ☐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 ☐Not Observable ☐Not Applicable	
403.5.2 [FI30][2]	Water distribution systems that have recirculation pumps that pump water from a heated water supply pipe back to the heated water source through a cold water supply pipe have a demand recirculation water system. Pumps have controls that manage operation of the pump and limit the temperature of the water entering the cold water piping to 104ºF.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.5.4 [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.	PFS Corporation Northeast Region APPROVED H Raup – 3 11/10/20		☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
404.1 [FI6][1]	75% of lamps in permanent fixtures or 75% of permanent fixtures have high efficacy lamps. Does not apply to low-voltage lighting.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
404.1.1 [FI23][3]	Fuel gas lighting systems have no continuous pilot light.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

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

Section # & Req.ID	Final Inspection Provisions	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
401.3 [FI7][2]	Compliance certificate posted.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
303.3 [FI18][3]	Manufacturer manuals for mechanical and water heating systems have been provided.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

Additional Comments/Assumptions:

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

2015 IECC Energy Efficiency Certificate

Insulation Rating	R-Value
Above-Grade Wall	21.00
Below-Grade Wall	0.00
Floor	30.00
Ceiling / Roof	49.00
Ductwork (unconditioned spaces):	_____

Glass & Door Rating	U-Factor	SHGC
Window	0.26	0.27
Door	0.23	0.15

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

Name: _____ **Date:** _____

Comments

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Job	Truss	Truss Type	Qty	Ply	Cozy Cabins 212
99677	HC431808	HINGE CATHEDRAL	1	1	

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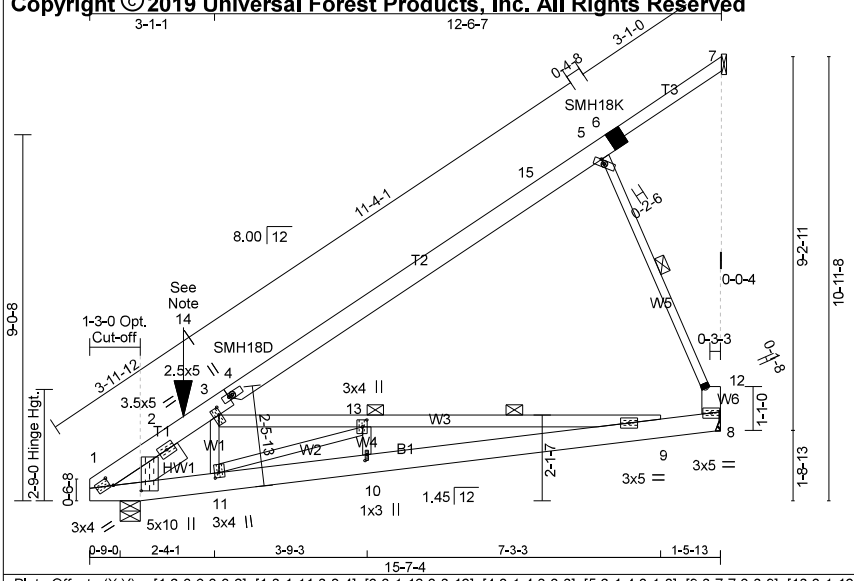

Plate Offsets (X,Y)— [1:0-0-6,0-3-2], [1:0-1-11,0-8-4], [3:0-1-12,0-0-12], [4:0-1-4,0-0-0], [5:0-1-4,0-1-0], [9:0-7-7,0-0-9], [10:0-1-12,0-0-8], [11:0-1-12,0-1-8], [13:0-1-12,0-1-4]

SPACING-: 2-0-0	SPACING-: 1-4-0	SPACING-: 1-0-0		CSI.		DEFL.	in	(loc)	l/defl	L/d	PLATES	GRIP
LOADING (psf)	LOADING (psf)	LOADING (psf)	Plate Grip DOL 1.15	TC 0.69		Vert(LL)	-0.14	9-10	>999	240	MT20	137/130
TCLL 30.8	TCLL 46.2	TCLL 61.6	Lumber DOL 1.15	BC 0.83		Vert(CT)	-0.38	9-10	>481	180	MT18HS	197/144
(Ground Snow=40.0)	(Ground Snow=60.0)	(Ground Snow=80.0)	Rep Stress Incr YES	WB 0.57		Horz(CT)	0.03	8	n/a	n/a		
TCDL 10.0	TCDL 15.0	TCDL 20.0	Code IBC2015/TPI2014	Matrix-R							Weight: 84 lb	
BCLL 0.0 *	BCLL 0.0 *	BCLL 0.0 *	IBC2012/TPI2007								FT = 0%	
BCDL 10.0	BCDL 15.0	BCDL 20.0										

LUMBER-
TOP CHORD 2x6 SPF No.2 *Except*
T2: 2x6 SPF 1650F 1.5E, T3: 2x4 SPF No.2
BOT CHORD 2x6 SPF No.2
WEBS 2x3 SPF Stud *Except*
W6: 1-1/2X5-1/2 LP-LSL TC 1.75E, W3: 2x4 SPF No.2
SLIDER Left 2x6 SPF Stud 1-10-13

BRACING-
TOP CHORD Structural wood sheathing directly applied or 4-6-5 oc purlins, except end verticals[P]
BOT CHORD Rigid ceiling directly applied or 8-6-6 oc bracing.
WEBS 1 Row at midpt 9-13, 5-12
JOINTS 1 Brace at Jt(s): 12, 13

REACTIONS. (lb/size) 8=787/Mechanical, 7=0/Mechanical, 1=1423/0-6-0 (min. 0-2-5)
Max Horz 7=-222(LC 13), 1=348(LC 9)
Max Uplift8=-353(LC 9), 1=-306(LC 9)
Max Grav 8=895(LC 13), 1=1501(LC 13)

FORCES. (lb) - Maximum Compression/Maximum Tension
TOP CHORD 1-2=-2512/572, 2-14=-2399/578, 3-14=-2038/475, 3-4=-825/51, 4-15=-724/14, 5-15=-403/26, 5-6=-384/74, 6-7=-272/83, 8-12=-506/269
BOT CHORD 1-11=-761/1696, 10-11=-680/2159, 9-10=-685/2159, 8-9=-135/279
WEBS 3-11=0/352, 3-13=-1480/632, 9-13=-2078/551, 10-13=0/319, 11-13=-928/0, 5-12=-558/297

REQUIRED FIELD JOINT CONNECTIONS - Maximum Compression (lb)/ Maximum Tension (lb)/ Maximum Shear (lb)/ Maximum Moment (lb-in)
6=362/76/138/0, 12=558/297/235/0

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NOTES-
1) Wind: ASCE 7-10; Vult=115mph (3-second gust) Vasd=91mph @24in o.c.; TCDL=3.0psf; BCDL=3.0psf; (Alt. 141mph @16in o.c.; TCDL=4.5psf; BCDL=4.5psf); (Alt. 163mph @12in o.c.; TCDL=6.0psf; BCDL=6.0psf); h=30ft; Cat. II; Exp C; Enclosed; MWFRS (envelope) gable end zone and C-C Exterior(2) zone; cantilever left exposed ;C-C for members and forces & MWFRS for reactions shown; Lumber DOL=1.60 plate grip DOL=1.60
2) TCLL: ASCE 7-10; Pg=40.0 psf (ground snow); Ps=30.8 psf (roof snow); Category II; Exp C; Partially Exp.; Ct=1.10
3) Roof design snow load has been reduced to account for slope.
4) Unbalanced snow loads have been considered for this design.
5) All plates are MT20 plates unless otherwise indicated.
6) See HINGE PLATE DETAILS for plate placement.
7) Provisions must be made to prevent lateral movement of hinged member(s) during transportation.
8) All additional member connections shall be provided by others for forces as indicated.
9) This truss has been designed for a 10.0 psf bottom chord live load nonconcurrent with any other live loads.
10) * This truss has been designed for a live load of 20.0psf on the bottom chord in all areas where a rectangle 3-6-0 tall by 2-0-0 wide will fit between the bo chord and any other members.
11) Bearing at joint(s) 1 considers parallel to grain value using ANSI/TPI 1 angle to grain formula. Building designer should verify capacity of bearing surface
12) Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 353 lb uplift at joint 8 and 306 lb uplift at joint 1.
13) This truss is designed in accordance with the 2015 International Building Code section 2306.1 and referenced standard ANSI/TPI 1.
14) Hanger(s) or other connection device(s) shall be provided sufficient to support concentrated load(s) 650 lb down and 190 lb up at 2-6-8 on top chord. Tl design/selection of such connection device(s) is the responsibility of others.
15) In the LOAD CASE(S) section, loads applied to the face of the truss are noted as front (F) or back (B).
16) This truss is designed in accordance with the 2012 IBC Sec 2306.1 and referenced standard ANSI/TPI 1

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL ENGINEER
KEVIN W. FREEMAN
PE 064541 E

The professional engineering seal indicates that a licensed professional engineer has designed the truss under the standards referenced within this document, not necessarily the current state building code. The engineering seal is not an approval to use in a specific state. The final determination on whether a truss design is acceptable under the locally adopted building code rest with the building official or designated appointee.

12/27/2019

WARNING - *Verify design parameters and READ NOTES*
Truss shall not be cut or modified without approval of the truss design engineer.
This component has only been designed for the loads noted on this drawing. Construction and lifting forces have not been considered. The builder is responsible for lifting methods and system design. Builder responsibilities are defined under TPI1. This design is based only upon parameters shown, and is for an individual building component to be installed and loaded vertically. Applicability of design parameters and proper incorporation of component is responsibility of building designer - not truss designer. Bracing shown is for lateral support of individual web members only. Additional temporary bracing to insure stability during construction is the responsibility of the erector. Additional permanent bracing of the overall structure is the responsibility of the building designer. For general guidance regarding fabrication, quality control, storage, delivery, erection and bracing, consult BCSI 1-06 from the Wood Truss Council of America and Truss Plate Institute Recommendation available from WTCA, 6300 Enterprise LN, Madison, WI 53719 J:\support\MitekSupp\templates\ufp.tpe

Universal Forest Products, Inc. 2801 EAST BELTLINE RD, NE
PHONE (616)-364-6161 FAX (616)-365-0060 GRAND RAPIDS, MI 49525

Job	Truss	Truss Type	Qty	Ply	Cozy Cabins 212
99677	HC431808	HINGE CATHEDRAL	1	1	

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17) Take precaution to keep the chords in plane, any bending or twisting of the hinge plate must be repaired before the building is put into service.
18) The field-installed members are an integral part of the truss design. Retain a design professional to specify final field connections and temporary supports. All field-installed members must be properly fastened prior to applying any loading to the truss. This design anticipates the final set position.
19) Based on HC431807
20) Added point load

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Universal Forest Products

Job	Truss	MFG	Customer
99677	HC431808	212	COZY CABINS

The professional engineering seal indicates that a licensed professional has reviewed the design under the standards referenced within this document, not necessarily the current state building code. The engineering seal is not an approval to use a design in a specific state. The final determination on whether a truss design is acceptable under the locally adopted building code rest with the building official or designated appointee.

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Corporate Engineering
2801 East Beltline, NE Grand Rapids, MI 49525-9736 (616) 364-6161 Fax (616) 365-0060
ufpi.com

Electrical Load Calculation Form:

Date: 10/22/2020 Performed By: GLENCO INC Mfg: **Cozy Cabins, LLC**

Project: CC-705 / Clifford & Carol Abel Model: Ranch

Air Conditioning *			1920
Central Electric Space Heating	(0	x .65) *	0
Less Than Four Separately Controlled Electric Space Heating Units	(0	x .65) *	0
Four or More Separately Controlled Electric Space Heating Units	(0	x .40) *	0

* Use the larger of the air-conditioning or the diversified demand of the heating load.

Other Loads:

General Lighting	W	L	Watts or Volt-Amps	Circuit Ampacity	Wire Size
1st Story	(30	x 56 x 3)	5040	15 A	14-2
2nd Story	(0	x 0 x 3)	0	15 A	14-2
Small Appliances	(2	x 1500)	3000	20 A	12-2
Range			11400	40 A	8-3
Dishwasher			1200	20 A	12-2
Refrigerator			1920	20 A	12-2
Washer			1500	20 A	12-2
Dryer			5800	30 A	10-3
Microwave			1200	20 A	12-2
Water Heater			5500	30 A	10-2
Other			0	N/A	N/A

Subtotal: 36560

First 10 KW of other loads @ 100% = 10000

Remainder of other loads @ 40% (26560 x .40) = 10624

Heat or A/C from Above: 0 *

Total Calculated Load: = 20624

Required Service Size: 20624 4 240 = 85.93 Amps

Installed Panel Size = 200 Amps

Max panel amps @ 80% = 160 Amps

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file name: CC-705 / Clifford & Carol Abel

JOB	CC-705 / Clifford & Carol Abel		
SHEET NO.	1	OF	1
CALCULATED BY	Glenco	DATE	10/22/2020
CHECKED BY		DATE	

Whole House Ventilation Supply Air Worksheet

Manual J Table 5A

Table 5A
Default Air Change Values for Three or Four Exposures

Construction	Air Changes per Hour (Heating)					Infiltration CFM for One Fireplace*
	Floor Area of Heated Space (SqFt)					
	900 or Less	901 to 1500	1501 to 2000	2001 to 3000	3000 or More	
Tight	0.21	0.16	0.14	0.11	0.10	0
Semi-Tight	0.41	0.31	0.26	0.22	0.19	13
Average	0.61	0.45	0.38	0.32	0.28	20
Semi-Loose	0.95	0.70	0.59	0.49	0.43	27
Loose	1.29	0.94	0.80	0.66	0.58	33

For one additional fireplace, add 7 CFM to the above fireplace values. For two or more additional fireplaces, add 10 CFM (total) to the above.

2015 IRC Table M1507.3.3(1)

2018 IRC Table M1505.4.3(1)

2020 RCNYS Table M1505.4.3(1)

CONTINUOUS WHOLE-HOUSE MECHANICAL VENTILATION SYSTEM AIRFLOW RATE REQUIREMENTS

DWELLING UNIT FLOOR AREA (square feet)	NUMBER OF BEDROOMS				
	0 – 1	2 – 3	4 – 5	6 – 7	> 7
	Airflow in CFM				
< 1,500	30	45	60	75	90
1,501 – 3,000	45	60	75	90	105
3,001 – 4,500	60	75	90	105	120
4,501 – 6,000	75	90	105	120	135
6,001 – 7,500	90	105	120	135	150
> 7,500	105	120	135	150	165

For SI: 1 square foot = 0.0929 m^2, 1 cubic foot per minute = 0.0004719 m^3/s.

Construction:	Semi-Tight	
1st story area sq.ft.	1680	sf
1st story ceiling height	8.25	ft
Total Building sq.ft.	1680	sf
Building volume cu.ft.	13860.0	cf
Air Change/Hr Value	0.26	ACH
(ACH*Volume)/60 min = CFM Provided	60.1	CFM
CFM Required per Table M1507.3.3(1)	60	CFM

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SUPPLY OK

Whole house ventilation exhaust is provided by a continuous bath fan. See electrical plan for the identified fixture location and size.

Project: CC-705 Structural Calcs 10-28-2020 DAK

Location: A-Frame Porch Floor Girder
Multi-Loaded Multi-Span Beam
[2015 International Residential Code(2015 NDS)]
(2) 1.5 IN x 7.25 IN x 7.4 FT
#2 - Southern Pine - Wet Use
Section Adequate By: 90.7%
Controlling Factor: Moment

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CAUTIONS

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

DEFLECTIONS Center

Live Load	0.07	IN L/1317
Dead Load	0.02	in
Total Load	0.09	IN L/1018

Live Load Deflection Criteria: L/360 Total Load Deflection Criteria: L/240

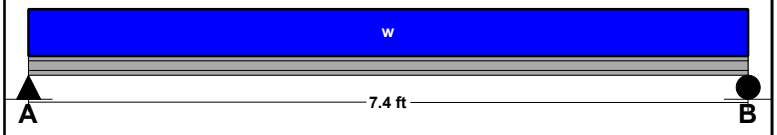
REACTIONS

	A	B
Live Load	444 lb	444 lb
Dead Load	130 lb	130 lb
Total Load	574 lb	574 lb
Bearing Length	0.51 in	0.51 in

BEAM DATA Center

Span Length	7.4 ft
Unbraced Length-Top	0 ft
Unbraced Length-Bottom	7.4 ft
Live Load Duration Factor	1.00
Notch Depth	0.00

LOADING DIAGRAM



UNIFORM LOADS Center

Uniform Live Load	120	plf
Uniform Dead Load	30	plf
Beam Self Weight	5	plf
Total Uniform Load	155	plf

MATERIAL PROPERTIES

#2 - Southern Pine

	Base Values	Adjusted
Bending Stress:	Fb = 925 psi	Fb' = 925 psi
	Cd=1.00 CF=1.00	
Shear Stress:	Fv = 175 psi	Fv' = 170 psi
	Cd=1.00 Cm=0.97	
Modulus of Elasticity:	E = 1400 ksi	E' = 1260 ksi
	Cm=0.90	
Comp. ⊥ to Grain:	Fc - ⊥ = 565 psi	Fc - ⊥' = 379 psi
	Cm=0.67	

Controlling Moment: 1062 ft-lb
3.7 Ft from left support of span 2 (Center Span)
Created by combining all dead loads and live loads on span(s) 2

Controlling Shear: -574 lb
7.0 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:	13.78 in3	26.28 in3
Area (Shear):	5.07 in2	21.75 in2
Moment of Inertia (deflection):	26.05 in4	95.27 in4
Moment:	1062 ft-lb	2026 ft-lb
Shear:	-574 lb	2461 lb

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Project: CC-705 Structural Calcs 10-28-2020 DAK

Location: A-Frame Porch Floor Girder - Uplift
Multi-Loaded Multi-Span Beam
[2015 International Residential Code(2015 NDS)]
(2) 1.5 IN x 7.25 IN x 7.4 FT
#2 - Southern Pine - Wet Use
Section Adequate By: 997.3%
Controlling Factor: Deflection

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CAUTIONS

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

DEFLECTIONS Center

Live Load	-0.02	IN L/3950
Dead Load	0.00	in
Total Load	-0.02	IN L/4539

Live Load Deflection Criteria: L/360 Total Load Deflection Criteria: L/240

REACTIONS

	A	B
Live Load	-148 lb	-148 lb
Dead Load	19 lb	19 lb
Total Load	-129 lb	-129 lb
Uplift (1.5 F.S)	**-135 lb**	**-135 lb**
Bearing Length	0.02 in	0.02 in

BEAM DATA Center

Span Length	7.4	ft
Unbraced Length-Top	0	ft
Unbraced Length-Bottom	7.4	ft
Live Load Duration Factor	1.60	
Notch Depth	0.00	

MATERIAL PROPERTIES

#2 - Southern Pine

	Base Values	Adjusted
Bending Stress:	Fb = 925 psi	Fb' = 1441 psi
	Cd=1.60 Cl=0.97 CF=1.00	
Shear Stress:	Fv = 175 psi	Fv' = 272 psi
	Cd=1.60 Cm=0.97	
Modulus of Elasticity:	E = 1400 ksi	E' = 1260 ksi
	Cm=0.90	
Comp. ⊥ to Grain:	Fc - ⊥ = 565 psi	Fc - ⊥' = 379 psi
	Cm=0.67	

Controlling Moment: -238 ft-lb
3.7 Ft from left support of span 2 (Center Span)
Created by combining all dead loads and live loads on span(s) 2

Controlling Shear: -129 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:	1.98 in3	26.28 in3
Area (Shear):	0.71 in2	21.75 in2
Moment of Inertia (deflection):	8.68 in4	95.27 in4
Moment:	-238 ft-lb	3156 ft-lb
Shear:	-129 lb	3938 lb

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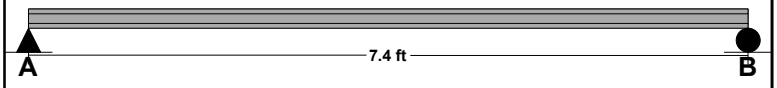

UNIFORM LOADS Center

Uniform Live Load	-40	plf
Uniform Dead Load	0	plf
Beam Self Weight	5	plf
Total Uniform Load	-35	plf

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Project: CC-705 Structural Calcs 10-28-2020 DAK

Location: A-Frame Porch Header - Snow
Multi-Loaded Multi-Span Beam
[2015 International Residential Code(2015 NDS)]
5.0 IN x 8.25 IN x 6.0 FT
24F-E1 - E-Rated Southern Pine - Dry Use
Section Adequate By: 318.8%
Controlling Factor: Moment

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DEFLECTIONS Center

Live Load	0.04	IN L/1837
Dead Load	0.01	in
Total Load	0.05	IN L/1505

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

REACTIONS

	A	B
Live Load	1698 lb	1698 lb
Dead Load	375 lb	375 lb
Total Load	2073 lb	2073 lb
Bearing Length	0.51 in	0.51 in

BEAM DATA Center

Span Length	6 ft
Unbraced Length-Top	2 ft
Unbraced Length-Bottom	6 ft
Live Load Duration Factor	1.15
Camber Adj. Factor	1
Camber Required	0.01
Notch Depth	0.00

MATERIAL PROPERTIES

24F-E1 - E-Rated Southern Pine

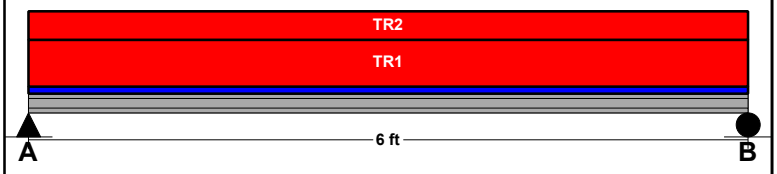
	Base Values		Adjusted	
Bending Stress:	Fb = 2400 psi		*Controlled by:*	
	Fb_cmpr = 1450 psi		Fb' = 2754 psi	
	Cd=1.15 Cl=1.00			
Shear Stress:	Fv = 300 psi		Fv' = 345 psi	
	Cd=1.15			
Modulus of Elasticity:	E = 1800 ksi		E' = 1800 ksi	
Comp. ⊥ to Grain:	Fc - ⊥ = 805 psi		Fc - ⊥' = 805 psi	

Controlling Moment: 3109 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: -2073 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:	13.54 in3	56.72 in3
Area (Shear):	9.01 in2	41.25 in2
Moment of Inertia (deflection):	30.56 in4	233.96 in4
Moment:	3109 ft-lb	13019 ft-lb
Shear:	-2073 lb	9488 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

TRAPEZOIDAL LOADS - CENTER SPAN

Load Number	One	Two
Left Live Load	338 plf	228 plf
Left Dead Load	87 plf	28 plf
Right Live Load	338 plf	228 plf
Right Dead Load	87 plf	28 plf
Load Start	0 ft	0 ft
Load End	6 ft	6 ft
Load Length	6 ft	6 ft

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Bloomsburg, PA

Project: CC-705 Structural Calcs 10-28-2020 DAK

Location: A-Frame Porch Header - Uplift
Multi-Loaded Multi-Span Beam
[2015 International Residential Code(2015 NDS)]
5.0 IN x 8.25 IN x 6.0 FT
24F-E1 - E-Rated Southern Pine - Dry Use
Section Adequate By: 1884.3%
Controlling Factor: Moment

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DEFLECTIONS Center

Live Load	-0.01	IN L/7879
Dead Load	0.00	in
Total Load	-0.01	IN L/8513

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

REACTIONS

	A	B
Live Load	-396 lb	-396 lb
Dead Load	30 lb	30 lb
Total Load	-366 lb	-366 lb
Uplift (1.5 F.S)	**-376 lb**	**-376 lb**
Bearing Length	0.01 in	0.01 in

BEAM DATA

	Center
Span Length	6 ft
Unbraced Length-Top	2 ft
Unbraced Length-Bottom	6 ft
Live Load Duration Factor	1.60
Camber Adj. Factor	1
Camber Required	0
Notch Depth	0.00

MATERIAL PROPERTIES

24F-E1 - E-Rated Southern Pine

	Base Values		Adjusted	
Bending Stress:	Fb =	2400 psi	*Controlled by:*	
	Fb_cmpr =	1450 psi	Fb_cmpr' =	2308 psi
	Cd=1.60 Cl=0.99			
Shear Stress:	Fv =	300 psi	Fv' =	480 psi
	Cd=1.60			
Modulus of Elasticity:	E =	1800 ksi	E' =	1800 ksi
Comp. ⊥ to Grain:	Fc - ⊥ =	805 psi	Fc - ⊥' =	805 psi

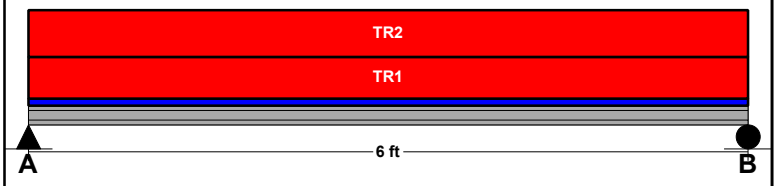
Controlling Moment: -550 ft-lb
3.0 Ft from left support of span 2 (Center Span)
Created by combining all dead loads and live loads on span(s) 2

Controlling Shear: -366 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:	2.86 in3	56.72 in3
Area (Shear):	1.15 in2	41.25 in2
Moment of Inertia (deflection):	7.13 in4	233.96 in4
Moment:	-550 ft-lb	10908 ft-lb
Shear:	-366 lb	13200 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

TRAPEZOIDAL LOADS - CENTER SPAN

Load Number	One	Two
Left Live Load	-62 plf	-70 plf
Left Dead Load	0 plf	0 plf
Right Live Load	-62 plf	-70 plf
Right Dead Load	0 plf	0 plf
Load Start	0 ft	0 ft
Load End	6 ft	6 ft
Load Length	6 ft	6 ft

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Project: CC-705 Structural Calcs 10-28-2020 DAK

Location: Lean-To Porch Post
Column
[2015 International Residential Code(2015 NDS)]
5.0 IN DIA. x 7.06 FT
#2 - Northern White Cedar - Wet Use
Section Adequate By: 32.7%

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DEFLECTIONS

Deflection due to lateral loads only:	Defl = 0.02	IN = L/4174
Live Load Deflection Criteria:		L/180

VERTICAL REACTIONS

Live Load:	Vert-LL-Rxn =	2595	lb
Dead Load:	Vert-DL-Rxn =	371	lb
Total Load:	Vert-TL-Rxn =	2966	lb

HORIZONTAL REACTIONS

Total Reaction at Top of Column:	TL-Rxn-Top =	25	lb
Total Reaction at Bottom of Column:	TL-Rxn-Bottom =	25	lb

COLUMN DATA

Total Column Length:	7.06	ft
Unbraced Length (X-Axis) Lx:	7.06	ft
Unbraced Length (Y-Axis) Ly:	7.06	ft
Column End Condition-K (e):	1	
Axial Load Duration Factor	1.15	
Lateral Load Duration Factor	1.00	

COLUMN PROPERTIES

#2 - Northern White Cedar

	Base Values	Adjusted
Compressive Stress:	Fc = 250 psi	Fc' = 224 psi
	Cm=0.91 Cp=0.86	
Bending Stress (X-X Axis):	Fbx = 400 psi	Fbx' = 543 psi
	Cd=1.15 CF=1.00 Cf=1.18	
Bending Stress (Y-Y Axis):	Fby = 400 psi	Fby' = 543 psi
	Cd=1.15 CF=1.00 Cf=1.18	
Modulus of Elasticity:	E = 600 ksi	E' = 600 ksi

Column Section (X-X Axis):	dx =	4.43	in
Column Section (Y-Y Axis):	dy =	4.43	in
Area:	A =	19.63	in2
Section Modulus (X-X Axis):	Sx =	14.5	in3
Section Modulus (Y-Y Axis):	Sy =	14.5	in3
Slenderness Ratio:	Lex/dx =	19.12	
	Ley/dy =	19.12	

Column Calculations (Controlling Case Only):

Controlling Load Case: Axial Total Load Only (L + D)

Actual Compressive Stress:	Fc =	151	psi
Allowable Compressive Stress:	Fc' =	224	psi
Eccentricity Moment (X-X Axis):	Mx-ex =	0	ft-lb
Eccentricity Moment (Y-Y Axis):	My-ey =	0	ft-lb
Moment Due to Lateral Loads (X-X Axis):	Mx =	0	ft-lb
Moment Due to Lateral Loads (Y-Y Axis):	My =	0	ft-lb
Bending Stress Lateral Loads Only (X-X Axis)	Fbx =	0	psi
Allowable Bending Stress (X-X Axis):	Fbx' =	543	psi
Bending Stress Lateral Loads Only (Y-Y Axis)	Fby =	0	psi
Allowable Bending Stress (Y-Y Axis):	Fby' =	543	psi
Combined Stress Factor:	**CSF =**	**0.67**	

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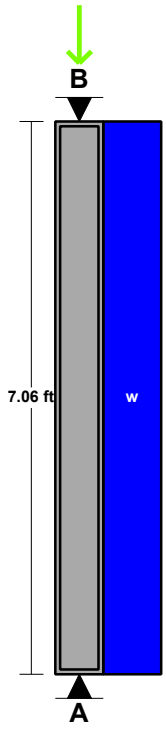

AXIAL LOADING

Live Load:	PL =	2595	lb *
Dead Load:	PD =	352	lb *
Column Self Weight:	CSW =	19	lb
Total Axial Load:	PT =	2966	lb

* Load obtained from Load Tracker. See Summary Report for details.

LATERAL LOADING (Dy Face)

Uniform Lateral Load:	wL-Lat =	7	plf

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Project: CC-705 Structural Calcs 10-28-2020 DAK

Location: A-Frame Porch Rafter - Snow
Multi-Loaded Multi-Span Beam
[2015 International Residential Code(2015 NDS)]
1.5 IN x 11.25 IN x 15.73 FT (1.1 + 14.6) (Actual 18.9 FT)
#2 - Spruce-Pine-Fir - Dry Use
Section Adequate By: 13.5%
Controlling Factor: Moment

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DEFLECTIONS

	Left		Center	
Live Load	-0.11	IN 2L/276	0.48	IN L/441
Dead Load	-0.03	in	0.12	in
Total Load	-0.14	IN 2L/220	0.60	IN L/352

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

REACTIONS

	A		B	
Live Load	676	lb	586	lb
Dead Load	173	lb	149	lb
Total Load	849	lb	735	lb
Bearing Length	1.33	in	1.15	in

BEAM DATA

	Left		Center	
Span Length	1.08	ft	14.65	ft
Unbraced Length-Top	0	ft	0	ft
Unbraced Length-Bottom	1.08	ft	7.33	ft
Beam End Elevation Difference	10.4	ft		
Live Load Duration Factor	1.15			
Notch Depth	0.00			

MATERIAL PROPERTIES

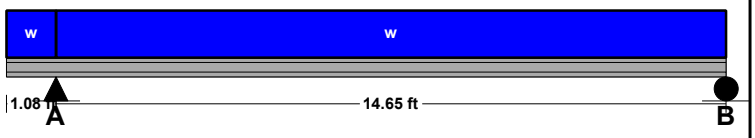
#2 - Spruce-Pine-Fir

	Base Values		Adjusted	
Bending Stress:	Fb = 875	psi	Fb' = 1157	psi
	Cd=1.15 CF=1.00 Cr=1.15			
Shear Stress:	Fv = 135	psi	Fv' = 155	psi
	Cd=1.15			
Modulus of Elasticity:	E = 1400	ksi	E' = 1400	ksi
Comp. ⊥ to Grain:	Fc - ⊥ = 425	psi	Fc - ⊥' = 425	psi

Controlling Moment: 2689 ft-lb
7.324 Ft from left support of span 2 (Center Span)
Created by combining all dead loads and live loads on span(s) 2
Controlling Shear: 617 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:	27.89 in3	31.64 in3
Area (Shear):	5.96 in2	16.88 in2
Moment of Inertia (deflection):	155.06 in4	177.98 in4
Moment:	2689 ft-lb	3051 ft-lb
Shear:	617 lb	1747 lb

LOADING DIAGRAM



UNIFORM LOADS

	Left		Center	
Uniform Live Load	80	plf	80	plf
Uniform Dead Load	14	plf	14	plf
Beam Self Weight	3	plf	3	plf
Total Uniform Load	97	plf	97	plf

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Project: CC-705 Structural Calcs 10-28-2020 DAK

Location: A-Frame Porch Rafter - Uplift
Multi-Loaded Multi-Span Beam
[2015 International Residential Code(2015 NDS)]
1.5 IN x 11.25 IN x 15.73 FT (1.1 + 14.6) (Actual 18.9 FT)
#2 - Spruce-Pine-Fir - Dry Use
Section Adequate By: 28.3%
Controlling Factor: Moment

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DEFLECTIONS

	Left		Center	
Live Load	0.07	IN 2L/460	-0.29	IN L/735
Dead Load	-0.01	in	0.02	in
Total Load	0.06	IN 2L/496	-0.27	IN L/795

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

REACTIONS

	A		B	
Live Load	-54	lb	2	lb
Dead Load	31	lb	27	lb
Total Load	-23	lb	29	lb
Uplift (1.5 F.S)	**-385**	**lb**	**-334**	**lb**
Bearing Length	0.05	in	0.05	in

BEAM DATA

	Left		Center	
Span Length	1.08	ft	14.65	ft
Unbraced Length-Top	0	ft	0	ft
Unbraced Length-Bottom	1.08	ft	7.33	ft
Beam End Elevation Difference	10.4	ft		
Live Load Duration Factor	1.60			
Notch Depth	0.00			

MATERIAL PROPERTIES

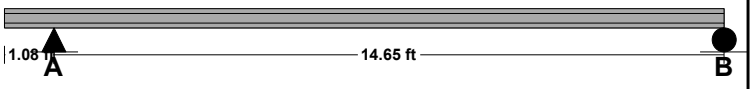
#2 - Spruce-Pine-Fir

	Base Values		Adjusted	
Bending Stress:	Fb = 875	psi	Fb' = 579	psi
	Cd=1.60 Cl=0.36 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: -1190 ft-lb
7.324 Ft from left support of span 2 (Center Span)
Created by combining all dead loads and live loads on span(s) 2
Controlling Shear: -272 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:	24.66	in3	31.64	in3
Area (Shear):	1.89	in2	16.88	in2
Moment of Inertia (deflection):	93.04	in4	177.98	in4
Moment:	-1190	ft-lb	1527	ft-lb
Shear:	-272	lb	2430	lb

LOADING DIAGRAM



UNIFORM LOADS

	Left		Center	
Uniform Live Load	-48	plf	-48	plf
Uniform Dead Load	0	plf	0	plf
Beam Self Weight	3	plf	3	plf
Total Uniform Load	-45	plf	-45	plf

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Project: CC-705 Structural Calcs 10-28-2020 DAK

Location: A-Frame Porch Ridge Beam - Snow
Multi-Loaded Multi-Span Beam
[2015 International Residential Code(2015 NDS)]
(2) 1.75 IN x 14.0 IN x 6.5 FT
2.0 Rigidlam LVL - Roseburg Forest Products
Section Adequate By: 348.0%
Controlling Factor: Shear

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

DEFLECTIONS	Center	
Live Load	0.01	IN L/5306
Dead Load	0.00	in
Total Load	0.02	IN L/4155

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

REACTIONS	A		B	
Live Load	1905	lb	1905	lb
Dead Load	527	lb	527	lb
Total Load	2432	lb	2432	lb
Bearing Length	0.93	in	0.93	in

BEAM DATA	Center	
Span Length	6.5	ft
Unbraced Length-Top	2	ft
Unbraced Length-Bottom	2	ft
Live Load Duration Factor	1.15	
Notch Depth	0.00	

MATERIAL PROPERTIES
2.0 Rigidlam LVL - Roseburg Forest Products

	Base Values		Adjusted	
Bending Stress:	Fb = 3100	psi	Fb' = 3465	psi
	Cd=1.15 Cl=0.99 CF=0.98			
Shear Stress:	Fv = 290	psi	Fv' = 334	psi
	Cd=1.15			
Modulus of Elasticity:	E = 2000	ksi	E' = 2000	ksi
Comp. ⊥ to Grain:	Fc - ⊥ = 750	psi	Fc - ⊥' = 750	psi

Controlling Moment: 3952 ft-lb
3.25 Ft from left support of span 2 (Center Span)
Created by combining all dead loads and live loads on span(s) 2
Controlling Shear: 2432 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:	13.68	in3	114.33	in3
Area (Shear):	10.94	in2	49	in2
Moment of Inertia (deflection):	36.2	in4	800.33	in4
Moment:	3952	ft-lb	33017	ft-lb
Shear:	2432	lb	10894	lb

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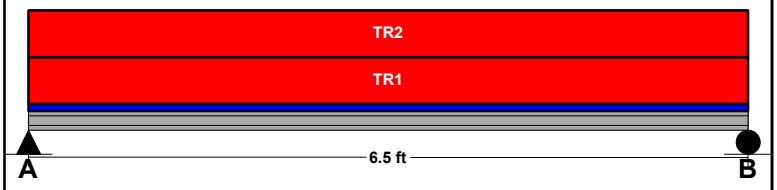

UNIFORM LOADS	Center	
Uniform Live Load	0	plf
Uniform Dead Load	0	plf
Beam Self Weight	12	plf
Total Uniform Load	12	plf

TRAPEZOIDAL LOADS - CENTER SPAN

Load Number	One	Two
Left Live Load	293 plf	293 plf
Left Dead Load	75 plf	75 plf
Right Live Load	293 plf	293 plf
Right Dead Load	75 plf	75 plf
Load Start	0 ft	0 ft
Load End	6.5 ft	6.5 ft
Load Length	6.5 ft	6.5 ft

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Project: CC-705 Structural Calcs 10-28-2020 DAK

Location: A-Frame Porch Ridge Beam - Uplift
Multi-Loaded Multi-Span Beam
[2015 International Residential Code(2015 NDS)]
(2) 1.75 IN x 14.0 IN x 6.5 FT
2.0 Rigidlam LVL - Roseburg Forest Products
Section Adequate By: 4770.8%
Controlling Factor: Shear

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CAUTIONS

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

DEFLECTIONS	Center	
Live Load	0.00	IN L/MAX
Dead Load	0.00	in
Total Load	0.00	IN L/MAX

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

REACTIONS	A	B
Live Load	-351 lb	-351 lb
Dead Load	40 lb	40 lb
Total Load	-311 lb	-311 lb
Uplift (1.5 F.S)	**-324 lb**	**-324 lb**
Bearing Length	0.02 in	0.02 in

BEAM DATA	Center
Span Length	6.5 ft
Unbraced Length-Top	2 ft
Unbraced Length-Bottom	2 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' = 4800 psi
	Cd=1.60 Cl=0.99 CF=0.98	
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: -506 ft-lb
3.25 Ft from left support of span 2 (Center Span)
Created by combining all dead loads and live loads on span(s) 2

Controlling Shear: 311 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:	1.26 in3	114.33 in3
Area (Shear):	1.01 in2	49 in2
Moment of Inertia (deflection):	6.67 in4	800.33 in4
Moment:	-506 ft-lb	45734 ft-lb
Shear:	311 lb	15157 lb

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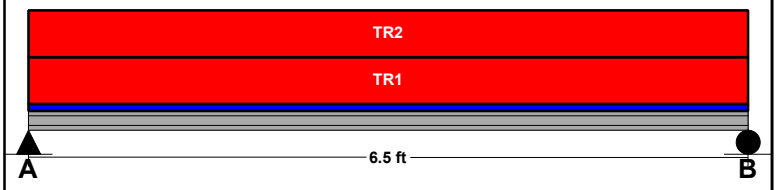

UNIFORM LOADS	Center
Uniform Live Load	0 plf
Uniform Dead Load	0 plf
Beam Self Weight	12 plf
Total Uniform Load	12 plf

TRAPEZOIDAL LOADS - CENTER SPAN

Load Number	One	Two
Left Live Load	-54 plf	-54 plf
Left Dead Load	0 plf	0 plf
Right Live Load	-54 plf	-54 plf
Right Dead Load	0 plf	0 plf
Load Start	0 ft	0 ft
Load End	6.5 ft	6.5 ft
Load Length	6.5 ft	6.5 ft

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Project: CC-705 Structural Calcs 10-28-2020 DAK

Location: Basement Steel Beam Spans ABCD
Multi-Loaded Multi-Span Beam
[2015 International Residential Code(AISC 13th Ed ASD)]
A992-50 W10x33 x 56.0 FT (20.8 + 19.8 + 15.4)
Section Adequate By: 71.7%
Controlling Factor: Moment

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DEFLECTIONS	Left		Center		Right	
Live Load	0.36	IN L/694	0.21	IN L/1132	0.14	IN L/1357
Dead Load	0.08	in	0.01	in	0.02	in
Total Load	0.44	IN L/570	0.22	IN L/1060	0.16	IN L/1180

Live Load Deflection Criteria: L/360 Total Load Deflection Criteria: L/240

REACTIONS	A		B		C		D	
Live Load	10939	lb	29184	lb	25269	lb	12622	lb
Dead Load	4069	lb	11518	lb	9208	lb	3968	lb
Total Load	15008	lb	40702	lb	34477	lb	16590	lb
Bearing Length	0.94	in	0.94	in	0.94	in	0.94	in

BEAM DATA	Left		Center		Right	
Span Length	20.75	ft	19.83	ft	15.42	ft
Unbraced Length-Top	0	ft	0	ft	0	ft
Unbraced Length-Bottom	20.75	ft	19.83	ft	15.42	ft

STEEL PROPERTIES

W10x33 - A992-50

Properties:

Yield Stress:	Fy =	50	ksi
Modulus of Elasticity:	E =	29000	ksi
Depth:	d =	9.73	in
Web Thickness:	tw =	0.29	in
Flange Width:	bf =	7.96	in
Flange Thickness:	tf =	0.44	in
Distance to Web Toe of Fillet:	k =	0.94	in
Moment of Inertia About X-X Axis:	Ix =	171	in4
Section Modulus About X-X Axis:	Sx =	35	in3
Plastic Section Modulus About X-X Axis:	Zx =	38.8	in3

Design Properties per AISC 14th Edition Steel Manual:

Flange Buckling Ratio:	FBR =	9.15	
Allowable Flange Buckling Ratio:	AFBR =	9.15	
Web Buckling Ratio:	WBR =	27.1	
Allowable Web Buckling Ratio:	AWBR =	90.55	
Controlling Unbraced Length:	Lb =	20.75	ft
Limiting Unbraced Length -			
for lateral-torsional buckling:	Lp =	6.85	ft
for Eqn. F2-2:	Lr =	21.78	ft
Nominal Flexural Strength w/ safety factor:	Mn =	63580	ft-lb
Controlling Equation:	F2-2		
Web height to thickness ratio:	h/tw =	27.1	
Limiting height to thickness ratio for eqn. G2-2:	h/tw-limit =	53.95	
Cv Factor:	Cv =	1	
Controlling Equation:	G2-2		
Nominal Shear Strength w/ safety factor:	Vn =	56434	lb

Controlling Moment: -37029 ft-lb
Over right support of span 1 (Left Span)
Created by combining all dead loads and live loads on span(s) 1, 2
Controlling Shear: -26690 lb
20.0 Ft from left support of span 2 (Center Span)
Created by combining all dead loads and live loads on span(s

Comparisons with required sections:	Req'd	Provided
Moment of Inertia (deflection):	88.7 in4	171 in4
Moment:	-37029 ft-lb	63580 ft-lb
Shear:	-26690 lb	56434 lb

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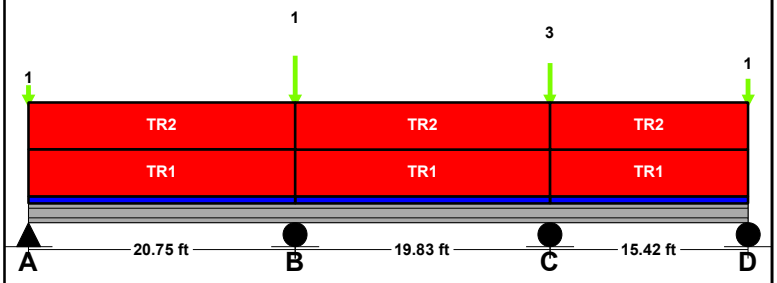

UNIFORM LOADS	Left		Center		Right	
Uniform Live Load	0	plf	0	plf	0	plf
Uniform Dead Load	0	plf	0	plf	0	plf
Beam Self Weight	33	plf	33	plf	33	plf
Total Uniform Load	33	plf	33	plf	33	plf

POINT LOADS - LEFT SPAN

Load Number	One *		Two *	
Live Load	2735	lb	2735	lb
Dead Load	1282	lb	1282	lb
Location	0	ft	0	ft

CENTER SPAN

Load Number	One *		Two *		Three *		Four *	
Live Load	7296	lb	7296	lb	6317	lb	6317	lb
Dead Load	3629	lb	3629	lb	2901	lb	2901	lb
Location	0	ft	0	ft	19.83	ft	19.83	ft

RIGHT SPAN

Load Number	One *		Two *	
Live Load	4108	lb	4108	lb
Dead Load	1445	lb	1445	lb
Location	15.42	ft	15.42	ft

* Load obtained from Load Tracker. See Summary Report for details.

TRAPEZOIDAL LOADS - LEFT SPAN

Load Number	One		Two	
Left Live Load	300	plf	300	plf
Left Dead Load	75	plf	75	plf
Right Live Load	300	plf	300	plf
Right Dead Load	75	plf	75	plf
Load Start	0	ft	0	ft
Load End	20.75	ft	20.75	ft
Load Length	20.75	ft	20.75	ft

CENTER SPAN

Load Number	One		Two	
Left Live Load	300	plf	300	plf
Left Dead Load	75	plf	75	plf
Right Live Load	300	plf	300	plf
Right Dead Load	75	plf	75	plf
Load Start	0	ft	0	ft
Load End	19.83	ft	19.83	ft
Load Length	19.83	ft	19.83	ft

RIGHT SPAN

Load Number	One		Two	
Left Live Load	300	plf	300	plf
Left Dead Load	75	plf	75	plf
Right Live Load	300	plf	300	plf
Right Dead Load	75	plf	75	plf
Load Start	0	ft	0	ft
Load End	15.42	ft	15.42	ft
Load Length	15.42	ft	15.42	ft

Project: CC-705 Structural Calcs 10-28-2020 DAK

Location: Basement Steel Beam Spans ABCD - Uplift
Multi-Loaded Multi-Span Beam
[2015 International Residential Code(AISC 13th Ed ASD)]
A992-50 W10x33 x 56.0 FT (20.8 + 19.8 + 15.4)
Section Adequate By: 1057.0%
Controlling Factor: Moment

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DEFLECTIONS	Left		Center		Right	
Live Load	0.00	IN L/MAX	0.00	IN L/MAX	0.00	IN L/MAX
Dead Load	0.05	in	0.01	in	0.01	in
Total Load	0.05	IN L/4709	0.01	IN L/MAX	0.01	IN L/MAX

Live Load Deflection Criteria: L/360 Total Load Deflection Criteria: L/240

REACTIONS	A	B	C	D
Live Load	0 lb	0 lb	0 lb	0 lb
Dead Load	1011 lb	2863 lb	2289 lb	724 lb
Total Load	1011 lb	2863 lb	2289 lb	724 lb
Uplift (1.5 F.S)	**-1536 lb**	**-3975 lb**	**-3586 lb**	**-1953 lb**
Bearing Length	0.94 in	0.94 in	0.94 in	0.94 in

BEAM DATA	Left	Center	Right
Span Length	20.75 ft	19.83 ft	15.42 ft
Unbraced Length-Top	0 ft	0 ft	0 ft
Unbraced Length-Bottom	20.75 ft	19.83 ft	15.42 ft

STEEL PROPERTIES

W10x33 - A992-50

Properties:

Yield Stress:	Fy =	50	ksi
Modulus of Elasticity:	E =	29000	ksi
Depth:	d =	9.73	in
Web Thickness:	tw =	0.29	in
Flange Width:	bf =	7.96	in
Flange Thickness:	tf =	0.44	in
Distance to Web Toe of Fillet:	k =	0.94	in
Moment of Inertia About X-X Axis:	Ix =	171	in4
Section Modulus About X-X Axis:	Sx =	35	in3
Plastic Section Modulus About X-X Axis:	Zx =	38.8	in3

Design Properties per AISC 14th Edition Steel Manual:

Flange Buckling Ratio:	FBR =	9.15	
Allowable Flange Buckling Ratio:	AFBR =	9.15	
Web Buckling Ratio:	WBR =	27.1	
Allowable Web Buckling Ratio:	AWBR =	90.55	
Controlling Unbraced Length:	Lb =	20.75	ft
Limiting Unbraced Length -			
for lateral-torsional buckling:	Lp =	6.85	ft
for Eqn. F2-2:	Lr =	21.78	ft
Nominal Flexural Strength w/ safety factor:	Mn =	63580	ft-lb
Controlling Equation:	F2-2		
Web height to thickness ratio:	h/tw =	27.1	
Limiting height to thickness ratio for eqn. G2-2:	h/tw-limit =	53.95	
Cv Factor:	Cv =	1	
Controlling Equation:	G2-2		
Nominal Shear Strength w/ safety factor:	Vn =	56434	lb

Controlling Moment: -5495 ft-lb
Over right support of span 1 (Left Span)
Created by combining all dead loads and live loads on span(s) 1, 2, 3

Controlling Shear: 3995 lb
20.0 Ft from left support of span 2 (Center Span)
Created by combining all dead loads and live loads on span(s

Comparisons with required sections:	Req'd	Provided
Moment of Inertia (deflection):	8.72 in4	171 in4
Moment:	-5495 ft-lb	63580 ft-lb
Shear:	3995 lb	56434 lb

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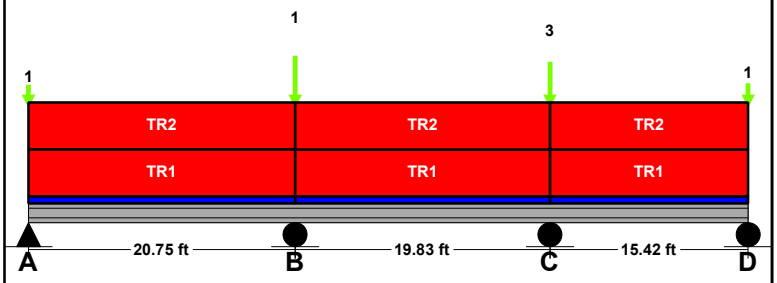

UNIFORM LOADS	Left	Center	Right
Uniform Live Load	0 plf	0 plf	0 plf
Uniform Dead Load	0 plf	0 plf	0 plf
Beam Self Weight	33 plf	33 plf	33 plf
Total Uniform Load	33 plf	33 plf	33 plf

POINT LOADS - LEFT SPAN

Load Number	One	Two
Live Load	-1105 lb	-1105 lb
Dead Load	0 lb	0 lb
Location	0 ft	0 ft

CENTER SPAN

Load Number	One	Two	Three	Four
Live Load	-2942 lb	-2942 lb	-2556 lb	-2556 lb
Dead Load	0 lb	0 lb	0 lb	0 lb
Location	0 ft	0 ft	19.83 ft	19.83 ft

RIGHT SPAN

Load Number	One	Two
Live Load	-1218 lb	-1218 lb
Dead Load	0 lb	0 lb
Location	15.42 ft	15.42 ft

TRAPEZOIDAL LOADS - LEFT SPAN

Load Number	One	Two
Left Live Load	0 plf	0 plf
Left Dead Load	45 plf	45 plf
Right Live Load	0 plf	0 plf
Right Dead Load	45 plf	45 plf
Load Start	0 ft	0 ft
Load End	20.75 ft	20.75 ft
Load Length	20.75 ft	20.75 ft

CENTER SPAN

Load Number	One	Two
Left Live Load	0 plf	0 plf
Left Dead Load	45 plf	45 plf
Right Live Load	0 plf	0 plf
Right Dead Load	45 plf	45 plf
Load Start	0 ft	0 ft
Load End	19.83 ft	19.83 ft
Load Length	19.83 ft	19.83 ft

RIGHT SPAN

Load Number	One	Two
Left Live Load	0 plf	0 plf
Left Dead Load	45 plf	45 plf
Right Live Load	0 plf	0 plf
Right Dead Load	45 plf	45 plf
Load Start	0 ft	0 ft
Load End	15.42 ft	15.42 ft
Load Length	15.42 ft	15.42 ft

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Bloomsburg, PA

Project: CC-705 Structural Calcs 10-28-2020 DAK

Location: Ceiling girder CG1-1 - Snow
Multi-Loaded Multi-Span Beam
[2015 International Residential Code(2015 NDS)]
1.75 IN x 18.0 IN x 56.0 FT (20.8 + 19.8 + 15.4)
2.0 Rigidlam LVL - Roseburg Forest Products
Section Adequate By: 11.9%
Controlling Factor: Moment

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DEFLECTIONS	Left		Center		Right	
Live Load	0.52	IN L/476	0.31	IN L/776	0.20	IN L/931
Dead Load	0.20	in	0.04	in	0.05	in
Total Load	0.72	IN L/347	0.34	IN L/696	0.25	IN L/741

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

REACTIONS	A		B		C		D	
Live Load	2735	lb	7296	lb	6317	lb	4108	lb
Dead Load	1282	lb	3629	lb	2901	lb	1445	lb
Total Load	4017	lb	10925	lb	9218	lb	5553	lb
Bearing Length	3.06	in	8.32	in	7.02	in	4.23	in

BEAM DATA	Left		Center		Right	
Span Length	20.75	ft	19.83	ft	15.42	ft
Unbraced Length-Top	2	ft	2	ft	2	ft
Unbraced Length-Bottom	2	ft	2	ft	2	ft
Live Load Duration Factor	1.15					
Notch Depth	0.00					

MATERIAL PROPERTIES

2.0 Rigidlam LVL - Roseburg Forest Products

	Base Values			Adjusted		
Bending Stress:	Fb =	3100	psi	Fb' =	3040	psi
	Cd=1.15 Cl=0.90 CF=0.95					
Shear Stress:	Fv =	290	psi	Fv' =	334	psi
	Cd=1.15					
Modulus of Elasticity:	E =	2000	ksi	E' =	2000	ksi
Comp. ⊥ to Grain:	Fc - ⊥ =	750	psi	Fc - ⊥' =	750	psi

Controlling Moment: -21391 ft-lb
Over right support of span 1 (Left Span)
Created by combining all dead loads and live loads on span(s) 1, 2

Controlling Shear: -5761 lb
21.0 Ft from left support of span 1 (Left Span)
Created by combining all dead loads and live loads on span(s) 1, 2

Comparisons with required sections:	Req'd		Provided	
Section Modulus:	84.44	in3	94.5	in3
Area (Shear):	25.91	in2	31.5	in2
Moment of Inertia (deflection):	441.16	in4	850.5	in4
Moment:	-21391	ft-lb	23940	ft-lb
Shear:	-5761	lb	7004	lb

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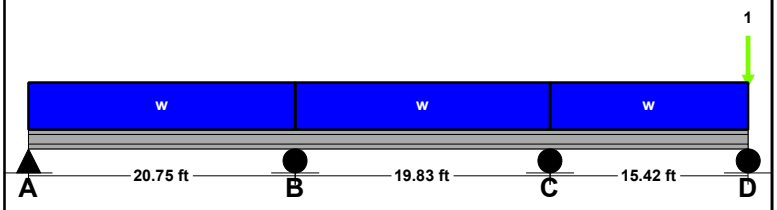

UNIFORM LOADS	Left		Center		Right	
Uniform Live Load	300	plf	300	plf	300	plf
Uniform Dead Load	148	plf	148	plf	148	plf
Beam Self Weight	8	plf	8	plf	8	plf
Total Uniform Load	456	plf	456	plf	456	plf

POINT LOADS - RIGHT SPAN

Load Number	One *
Live Load	1905 lb
Dead Load	527 lb
Location	15.42 ft

* Load obtained from Load Tracker. See Summary Report for details.

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Project: CC-705 Structural Calcs 10-28-2020 DAK

Location: Ceiling girder CG1-1 - Uplift
Multi-Loaded Multi-Span Beam
[2015 International Residential Code(2015 NDS)]
1.75 IN x 18.0 IN x 56.0 FT (20.8 + 19.8 + 15.4)
2.0 Rigidlam LVL - Roseburg Forest Products
Section Adequate By: 372.4%
Controlling Factor: Deflection

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DEFLECTIONS	Left		Center		Right	
Live Load	-0.22	IN L/1134	-0.13	IN L/1849	-0.08	IN L/2217
Dead Load	0.01	in	0.00	in	0.00	in
Total Load	-0.21	IN L/1187	-0.13	IN L/1874	-0.08	IN L/2287

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

REACTIONS	A	B	C	D
Live Load	113 lb	131 lb	309 lb	183 lb
Dead Load	65 lb	183 lb	147 lb	46 lb
Total Load	178 lb	314 lb	456 lb	229 lb
Uplift (1.5 F.S)	**-1105 lb**	**-2942 lb**	**-2556 lb**	**-1218 lb**
Bearing Length	0.14 in	0.24 in	0.35 in	0.18 in

BEAM DATA	Left	Center	Right
Span Length	20.75 ft	19.83 ft	15.42 ft
Unbraced Length-Top	2 ft	2 ft	2 ft
Unbraced Length-Bottom	2 ft	2 ft	2 ft
Live Load Duration Factor	1.60		
Notch Depth	0.00		

MATERIAL PROPERTIES

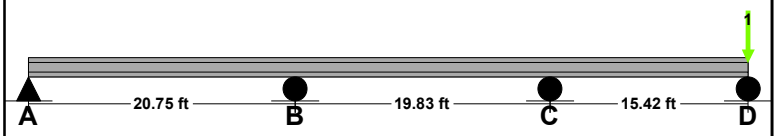
2.0 Rigidlam LVL - Roseburg Forest Products

	Base Values		Adjusted	
Bending Stress:	Fb = 3100 psi		Fb' = 3695 psi	
	Cd=1.60 Cl=0.78 CF=0.95			
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: 5707 ft-lb
Over right support of span 1 (Left Span)
Created by combining all dead loads and live loads on span(s) 1, 2
Controlling Shear: 1501 lb
21.0 Ft from left support of span 1 (Left Span)
Created by combining all dead loads and live loads on span(s) 1, 2

Comparisons with required sections:	Req'd	Provided
Section Modulus:	18.53 in3	94.5 in3
Area (Shear):	4.85 in2	31.5 in2
Moment of Inertia (deflection):	180.05 in4	850.5 in4
Moment:	5707 ft-lb	29100 ft-lb
Shear:	1501 lb	9744 lb

LOADING DIAGRAM



UNIFORM LOADS	Left	Center	Right
Uniform Live Load	-126 plf	-126 plf	-126 plf
Uniform Dead Load	0 plf	0 plf	0 plf
Beam Self Weight	8 plf	8 plf	8 plf
Total Uniform Load	-118 plf	-118 plf	-118 plf

POINT LOADS - RIGHT SPAN

Load Number	One
Live Load	-324 lb
Dead Load	0 lb
Location	15.42 ft

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Location: Column - CG1-1 Point A
Column
[2015 International Residential Code(2015 NDS)]
(2) 1.5 IN x 5.5 IN x 9.0 FT
#2 - Spruce-Pine-Fir - Dry Use
Section Adequate By: 61.5%

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CAUTIONS

* Laminations to be nailed together per National Design Specifications for Wood Construction Section 15.3.3.1

DEFLECTIONS

Deflection due to lateral loads only:	Defl =	0.02	IN = L/6086
Live Load Deflection Criteria:			L/180

VERTICAL REACTIONS

Live Load:	Vert-LL-Rxn =	2735	lb
Dead Load:	Vert-DL-Rxn =	1309	lb
Total Load:	Vert-TL-Rxn =	4044	lb

HORIZONTAL REACTIONS

Total Reaction at Top of Column:	TL-Rxn-Top =	32	lb
Total Reaction at Bottom of Column:	TL-Rxn-Bottom =	32	lb

COLUMN DATA

Total Column Length:	9	ft
Unbraced Length (X-Axis) Lx:	9	ft
Unbraced Length (Y-Axis) Ly:	4	ft
Column End Condition-K (e):	1	
Axial Load Duration Factor	1.15	
Lateral Load Duration Factor	1.00	

COLUMN PROPERTIES

#2 - Spruce-Pine-Fir

	Base Values		Adjusted	
Compressive Stress:	Fc = 1150	psi	Fc' = 637	psi
	Cd=1.15 Cf=1.10 Cp=0.44			
Bending Stress (X-X Axis):	Fbx = 875	psi	Fbx' = 1308	psi
	Cd=1.15 CF=1.30			
Bending Stress (Y-Y Axis):	Fby = 875	psi	Fby' = 1308	psi
	Cd=1.15 CF=1.30			
Modulus of Elasticity:	E = 1400	ksi	E' = 1400	ksi

Column Section (X-X Axis):	dx =	5.5	in
Column Section (Y-Y Axis):	dy =	3	in
Area:	A =	16.5	in2
Section Modulus (X-X Axis):	Sx =	15.13	in3
Section Modulus (Y-Y Axis):	Sy =	4.13	in3
Slenderness Ratio:	Lex/dx =	19.64	
	Ley/dy =	16	

Column Calculations (Controlling Case Only):

Controlling Load Case: Axial Total Load Only (L + D)

Actual Compressive Stress:	Fc =	245	psi
Allowable Compressive Stress:	Fc' =	637	psi
Eccentricity Moment (X-X Axis):	Mx-ex =	0	ft-lb
Eccentricity Moment (Y-Y Axis):	My-ey =	0	ft-lb
Moment Due to Lateral Loads (X-X Axis):	Mx =	0	ft-lb
Moment Due to Lateral Loads (Y-Y Axis):	My =	0	ft-lb
Bending Stress Lateral Loads Only (X-X Axis):	Fbx =	0	psi
Allowable Bending Stress (X-X Axis):	Fbx' =	1308	psi
Bending Stress Lateral Loads Only (Y-Y Axis):	Fby =	0	psi
Allowable Bending Stress (Y-Y Axis):	Fby' =	1308	psi
Combined Stress Factor:	**CSF =**	**0.38**	

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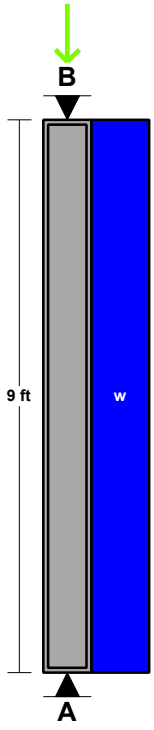

AXIAL LOADING

Live Load:	PL =	2735	lb *
Dead Load:	PD =	1282	lb *
Column Self Weight:	CSW =	27	lb
Total Axial Load:	PT =	4044	lb

* Load obtained from Load Tracker. See Summary Report for details.

LATERAL LOADING (Dy Face)

Uniform Lateral Load:	wL-Lat =	7	plf

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Location: Column - CG1-1 Point B
Column
[2015 International Residential Code(2015 NDS)]
3.5 IN x 11.25 IN x 9 FT
2.0 Rigidlam LVL - Roseburg Forest Products
Section Adequate By: 67.1%

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DEFLECTIONS

Deflection due to lateral loads only: Defl = 0 IN = L/MAX
Live Load Deflection Criteria: L/180

VERTICAL REACTIONS

Live Load:	Vert-LL-Rxn =	7296	lb
Dead Load:	Vert-DL-Rxn =	3718	lb
Total Load:	Vert-TL-Rxn =	11014	lb

HORIZONTAL REACTIONS

Total Reaction at Top of Column:	TL-Rxn-Top =	32	lb
Total Reaction at Bottom of Column:	TL-Rxn-Bottom =	32	lb

COLUMN DATA

Total Column Length:	9	ft
Unbraced Length (X-Axis) Lx:	9	ft
Unbraced Length (Y-Axis) Ly:	9	ft
Column End Condition-K (e):	1	
Axial Load Duration Factor	1.15	
Lateral Load Duration Factor	1.00	

COLUMN PROPERTIES

2.0 Rigidlam LVL - Roseburg Forest Products

	Base Values	Adjusted
Compressive Stress:	Fc = 3000 psi	Fc' = 850 psi
	Cd=1.15 Cp=0.25	
Bending Stress (X-X Axis):	Fbx = 3100 psi	Fbx' = 3594 psi
	Cd=1.15 CF=1.01	
Bending Stress (Y-Y Axis):	Fby = 3100 psi	Fby' = 3594 psi
	Cd=1.15 CF=1.01	
Modulus of Elasticity:	E = 2000 ksi	E' = 2000 ksi

Column Section (X-X Axis):	dx =	11.25	in
Column Section (Y-Y Axis):	dy =	3.5	in
Area:	A =	39.38	in2
Section Modulus (X-X Axis):	Sx =	73.83	in3
Section Modulus (Y-Y Axis):	Sy =	22.97	in3
Slenderness Ratio:	Lex/dx =	9.6	
	Ley/dy =	30.86	

Column Calculations (Controlling Case Only):
Controlling Load Case: Axial Total Load Only (L + D)

Actual Compressive Stress:	Fc =	280	psi
Allowable Compressive Stress:	Fc' =	850	psi
Eccentricity Moment (X-X Axis):	Mx-ex =	0	ft-lb
Eccentricity Moment (Y-Y Axis):	My-ey =	0	ft-lb
Moment Due to Lateral Loads (X-X Axis):	Mx =	0	ft-lb
Moment Due to Lateral Loads (Y-Y Axis):	My =	0	ft-lb
Bending Stress Lateral Loads Only (X-X Axis):	Fbx =	0	psi
Allowable Bending Stress (X-X Axis):	Fbx' =	3594	psi
Bending Stress Lateral Loads Only (Y-Y Axis):	Fby =	0	psi
Allowable Bending Stress (Y-Y Axis):	Fby' =	3594	psi
Combined Stress Factor:	**CSF =**	**0.33**	

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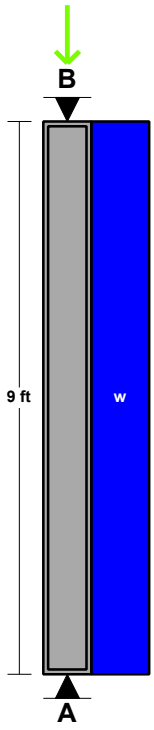

AXIAL LOADING

Live Load:	PL =	7296	lb *
Dead Load:	PD =	3629	lb *
Column Self Weight:	CSW =	89	lb
Total Axial Load:	PT =	11014	lb

* Load obtained from Load Tracker. See Summary Report for details.

LATERAL LOADING (Dy Face)

Uniform Lateral Load: wL-Lat = 7 plf

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Location: Column - CG1-1 Point C
Column
[2015 International Residential Code(2015 NDS)]
3.5 IN x 9.25 IN x 9 FT
2.0 Rigidlam LVL - Roseburg Forest Products
Section Adequate By: 66.2%

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DEFLECTIONS

Deflection due to lateral loads only: Defl = 0 IN = L/MAX
Live Load Deflection Criteria: L/180

VERTICAL REACTIONS

Live Load:	Vert-LL-Rxn =	6317	lb
Dead Load:	Vert-DL-Rxn =	2974	lb
Total Load:	Vert-TL-Rxn =	9291	lb

HORIZONTAL REACTIONS

Total Reaction at Top of Column:	TL-Rxn-Top =	32	lb
Total Reaction at Bottom of Column:	TL-Rxn-Bottom =	32	lb

COLUMN DATA

Total Column Length:	9	ft
Unbraced Length (X-Axis) Lx:	9	ft
Unbraced Length (Y-Axis) Ly:	9	ft
Column End Condition-K (e):	1	
Axial Load Duration Factor	1.15	
Lateral Load Duration Factor	1.00	

COLUMN PROPERTIES

2.0 Rigidlam LVL - Roseburg Forest Products

	Base Values	Adjusted
Compressive Stress:	Fc = 3000 psi	Fc' = 850 psi
	Cd=1.15 Cp=0.25	
Bending Stress (X-X Axis):	Fbx = 3100 psi	Fbx' = 3683 psi
	Cd=1.15 CF=1.03	
Bending Stress (Y-Y Axis):	Fby = 3100 psi	Fby' = 3683 psi
	Cd=1.15 CF=1.03	
Modulus of Elasticity:	E = 2000 ksi	E' = 2000 ksi

Column Section (X-X Axis):	dx =	9.25	in
Column Section (Y-Y Axis):	dy =	3.5	in
Area:	A =	32.38	in2
Section Modulus (X-X Axis):	Sx =	49.91	in3
Section Modulus (Y-Y Axis):	Sy =	18.89	in3
Slenderness Ratio:	Lex/dx =	11.68	
	Ley/dy =	30.86	

Column Calculations (Controlling Case Only):
Controlling Load Case: Axial Total Load Only (L + D)

Actual Compressive Stress:	Fc =	287	psi
Allowable Compressive Stress:	Fc' =	850	psi
Eccentricity Moment (X-X Axis):	Mx-ex =	0	ft-lb
Eccentricity Moment (Y-Y Axis):	My-ey =	0	ft-lb
Moment Due to Lateral Loads (X-X Axis):	Mx =	0	ft-lb
Moment Due to Lateral Loads (Y-Y Axis):	My =	0	ft-lb
Bending Stress Lateral Loads Only (X-X Axis):	Fbx =	0	psi
Allowable Bending Stress (X-X Axis):	Fbx' =	3683	psi
Bending Stress Lateral Loads Only (Y-Y Axis):	Fby =	0	psi
Allowable Bending Stress (Y-Y Axis):	Fby' =	3683	psi
Combined Stress Factor:	**CSF =**	**0.34**	

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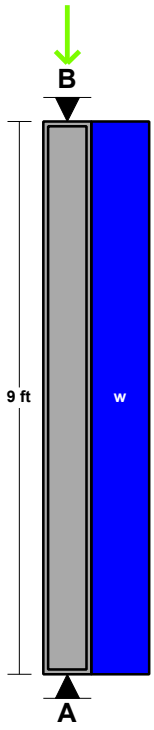

AXIAL LOADING

Live Load:	PL =	6317	lb *
Dead Load:	PD =	2901	lb *
Column Self Weight:	CSW =	73	lb
Total Axial Load:	PT =	9291	lb

* Load obtained from Load Tracker. See Summary Report for details.

LATERAL LOADING (Dy Face)

Uniform Lateral Load: wL-Lat = 7 plf

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Location: Column - CG1-1 Point D
Column
[2015 International Residential Code(2015 NDS)]
(2) 1.5 IN x 5.5 IN x 9.0 FT
#2 - Spruce-Pine-Fir - Dry Use
Section Adequate By: 46.9%

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CAUTIONS

* Laminations to be nailed together per National Design Specifications for Wood Construction Section 15.3.3.1

DEFLECTIONS

Deflection due to lateral loads only:	Defl =	0.02	IN = L/6086
Live Load Deflection Criteria:			L/180

VERTICAL REACTIONS

Live Load:	Vert-LL-Rxn =	4108	lb
Dead Load:	Vert-DL-Rxn =	1472	lb
Total Load:	Vert-TL-Rxn =	5580	lb

HORIZONTAL REACTIONS

Total Reaction at Top of Column:	TL-Rxn-Top =	32	lb
Total Reaction at Bottom of Column:	TL-Rxn-Bottom =	32	lb

COLUMN DATA

Total Column Length:	9	ft
Unbraced Length (X-Axis) Lx:	9	ft
Unbraced Length (Y-Axis) Ly:	4	ft
Column End Condition-K (e):	1	
Axial Load Duration Factor	1.15	
Lateral Load Duration Factor	1.00	

COLUMN PROPERTIES

#2 - Spruce-Pine-Fir

	Base Values		Adjusted	
Compressive Stress:	Fc = 1150	psi	Fc' = 637	psi
	Cd=1.15 Cf=1.10 Cp=0.44			
Bending Stress (X-X Axis):	Fbx = 875	psi	Fbx' = 1308	psi
	Cd=1.15 CF=1.30			
Bending Stress (Y-Y Axis):	Fby = 875	psi	Fby' = 1308	psi
	Cd=1.15 CF=1.30			
Modulus of Elasticity:	E = 1400	ksi	E' = 1400	ksi

Column Section (X-X Axis):	dx =	5.5	in
Column Section (Y-Y Axis):	dy =	3	in
Area:	A =	16.5	in2
Section Modulus (X-X Axis):	Sx =	15.13	in3
Section Modulus (Y-Y Axis):	Sy =	4.13	in3
Slenderness Ratio:	Lex/dx =	19.64	
	Ley/dy =	16	

Column Calculations (Controlling Case Only):

Controlling Load Case: Axial Total Load Only (L + D)

Actual Compressive Stress:	Fc =	338	psi
Allowable Compressive Stress:	Fc' =	637	psi
Eccentricity Moment (X-X Axis):	Mx-ex =	0	ft-lb
Eccentricity Moment (Y-Y Axis):	My-ey =	0	ft-lb
Moment Due to Lateral Loads (X-X Axis):	Mx =	0	ft-lb
Moment Due to Lateral Loads (Y-Y Axis):	My =	0	ft-lb
Bending Stress Lateral Loads Only (X-X Axis):	Fbx =	0	psi
Allowable Bending Stress (X-X Axis):	Fbx' =	1308	psi
Bending Stress Lateral Loads Only (Y-Y Axis):	Fby =	0	psi
Allowable Bending Stress (Y-Y Axis):	Fby' =	1308	psi
Combined Stress Factor:	**CSF =**	**0.53**	

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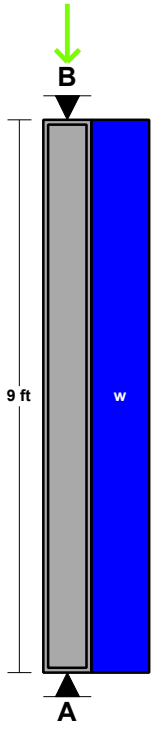

AXIAL LOADING

Live Load:	PL =	4108	lb *
Dead Load:	PD =	1445	lb *
Column Self Weight:	CSW =	27	lb
Total Axial Load:	PT =	5580	lb

* Load obtained from Load Tracker. See Summary Report for details.

LATERAL LOADING (Dy Face)

Uniform Lateral Load:	wL-Lat =	7	plf

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Project: CC-705 Structural Calcs 10-28-2020 DAK

Location: Header - Ext Wall - Up to 4/0 opg
Multi-Loaded Multi-Span Beam
[2015 International Residential Code(2015 NDS)]
(3) 1.5 IN x 5.5 IN x 4.25 FT
#2 - Spruce-Pine-Fir - Dry Use
Section Adequate By: 59.6%
Controlling Factor: Shear

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DEFLECTIONS Center

Live Load	0.04	IN L/1207
Dead Load	0.02	in
Total Load	0.06	IN L/803

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

REACTIONS

	A	B
Live Load	1069 lb	1069 lb
Dead Load	537 lb	537 lb
Total Load	1606 lb	1606 lb
Bearing Length	0.84 in	0.84 in

BEAM DATA Center

Span Length	4.25	ft
Unbraced Length-Top	0	ft
Unbraced Length-Bottom	4.25	ft
Live Load Duration Factor	1.15	
Notch Depth	0.00	

MATERIAL PROPERTIES
#2 - Spruce-Pine-Fir

	Base Values		Adjusted	
Bending Stress:	Fb = 875	psi	Fb' = 1504	psi
	Cd=1.15 CF=1.30 Cr=1.15			
Shear Stress:	Fv = 135	psi	Fv' = 155	psi
	Cd=1.15			
Modulus of Elasticity:	E = 1400	ksi	E' = 1400	ksi
Comp. ⊥ to Grain:	Fc - ⊥ = 425	psi	Fc - ⊥' = 425	psi

Controlling Moment: 1706 ft-lb
2.12 Ft from left support of span 2 (Center Span)
Created by combining all dead loads and live loads on span(s) 2
Controlling Shear: 1605 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:	13.61 in3	22.69 in3
Area (Shear):	15.51 in2	24.75 in2
Moment of Inertia (deflection):	13.98 in4	62.39 in4
Moment:	1706 ft-lb	2844 ft-lb
Shear:	1605 lb	2562 lb

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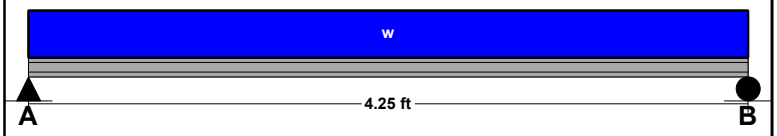

UNIFORM LOADS Center

Uniform Live Load	503	plf
Uniform Dead Load	248	plf
Beam Self Weight	5	plf
Total Uniform Load	756	plf

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Project: CC-705 Structural Calcs 10-28-2020 DAK

Location: Header - H1-1
Multi-Loaded Multi-Span Beam
[2015 International Residential Code(2015 NDS)]
(3) 1.5 IN x 5.0 IN x 3.44 FT
#3 - Spruce-Pine-Fir - Dry Use
Section Adequate By: 29.5%
Controlling Factor: Moment

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DEFLECTIONS Center

Live Load	0.03	IN L/1465
Dead Load	0.01	in
Total Load	0.04	IN L/976

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

REACTIONS

	A		B	
Live Load	865	lb	865	lb
Dead Load	434	lb	434	lb
Total Load	1299	lb	1299	lb
Bearing Length	0.68	in	0.68	in

BEAM DATA Center

Span Length	3.44	ft
Unbraced Length-Top	0	ft
Unbraced Length-Bottom	3.44	ft
Live Load Duration Factor	1.15	
Notch Depth	0.00	

MATERIAL PROPERTIES
#3 - Spruce-Pine-Fir

	Base Values		Adjusted	
Bending Stress:	Fb = 500	psi	Fb' = 926	psi
	Cd=1.15 CF=1.40 Cr=1.15			
Shear Stress:	Fv = 135	psi	Fv' = 155	psi
	Cd=1.15			
Modulus of Elasticity:	E = 1200	ksi	E' = 1200	ksi
Comp. ⊥ to Grain:	Fc - ⊥ = 425	psi	Fc - ⊥' = 425	psi

Controlling Moment: 1117 ft-lb
1.72 Ft from left support of span 2 (Center Span)
Created by combining all dead loads and live loads on span(s) 2
Controlling Shear: -1299 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

Comparisons with required sections:	Req'd		Provided	
Section Modulus:	14.48	in3	18.75	in3
Area (Shear):	12.55	in2	22.5	in2
Moment of Inertia (deflection):	8.64	in4	46.88	in4
Moment:	1117	ft-lb	1446	ft-lb
Shear:	-1299	lb	2329	lb

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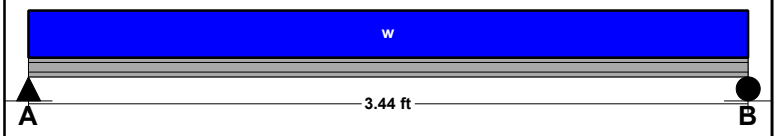

UNIFORM LOADS Center

Uniform Live Load	503	plf
Uniform Dead Load	248	plf
Beam Self Weight	4	plf
Total Uniform Load	755	plf

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Project: CC-705 Structural Calcs 10-28-2020 DAK

Location: Header - H1-1 - Uplift
Multi-Loaded Multi-Span Beam
[2015 International Residential Code(2015 NDS)]
(3) 1.5 IN x 5.0 IN x 3.44 FT
#3 - Spruce-Pine-Fir - Dry Use
Section Adequate By: 709.3%
Controlling Factor: Moment

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DEFLECTIONS Center

Live Load	-0.01	IN L/6762
Dead Load	0.00	in
Total Load	-0.01	IN L/7026

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

REACTIONS

	A		B	
Live Load	-187	lb	-187	lb
Dead Load	7	lb	7	lb
Total Load	-180	lb	-180	lb
Uplift (1.5 F.S)	**-183**	**lb**	**-183**	**lb**
Bearing Length	0.00	in	0.00	in

BEAM DATA Center

Span Length	3.44	ft
Unbraced Length-Top	0	ft
Unbraced Length-Bottom	3.44	ft
Live Load Duration Factor	1.00	
Notch Depth	0.00	

MATERIAL PROPERTIES

#3 - Spruce-Pine-Fir

	Base Values		Adjusted	
Bending Stress:	Fb = 500	psi	Fb' = 804	psi
	Cd=1.00 Cl=1.00 CF=1.40 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: -155 ft-lb
1.72 Ft from left support of span 2 (Center Span)
Created by combining all dead loads and live loads on span(s) 2

Controlling Shear: -180 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:	2.32 in3	18.75 in3
Area (Shear):	2 in2	22.5 in2
Moment of Inertia (deflection):	1.66 in4	46.88 in4
Moment:	-155 ft-lb	1256 ft-lb
Shear:	-180 lb	2025 lb

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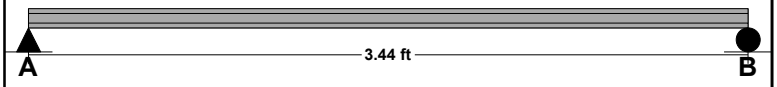

UNIFORM LOADS Center

Uniform Live Load	-109	plf
Uniform Dead Load	0	plf
Beam Self Weight	4	plf
Total Uniform Load	-105	plf

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Bloomsburg, PA

Project: CC-705 Structural Calcs 10-28-2020 DAK

Location: Header - H1-2
Multi-Loaded Multi-Span Beam
[2015 International Residential Code(2015 NDS)]
(3) 1.75 IN x 7.0 IN x 7.69 FT
2.0 Rigidlam LVL - Roseburg Forest Products
Section Adequate By: 142.5%
Controlling Factor: Moment

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DEFLECTIONS	Center	
Live Load	0.13	IN L/700
Dead Load	0.07	in
Total Load	0.20	IN L/463

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

REACTIONS	A		B	
Live Load	1934	lb	1934	lb
Dead Load	989	lb	989	lb
Total Load	2923	lb	2923	lb
Bearing Length	0.74	in	0.74	in

BEAM DATA	Center	
Span Length	7.69	ft
Unbraced Length-Top	0	ft
Unbraced Length-Bottom	7.69	ft
Live Load Duration Factor	1.15	
Notch Depth	0.00	

MATERIAL PROPERTIES

2.0 Rigidlam LVL - Roseburg Forest Products

	Base Values		Adjusted	
Bending Stress:	Fb = 3100	psi	Fb' = 3813	psi
	Cd=1.15 CF=1.07			
Shear Stress:	Fv = 290	psi	Fv' = 334	psi
	Cd=1.15			
Modulus of Elasticity:	E = 2000	ksi	E' = 2000	ksi
Comp. ⊥ to Grain:	Fc - ⊥ = 750	psi	Fc - ⊥' = 750	psi

Controlling Moment: 5619 ft-lb
3.85 Ft from left support of span 2 (Center Span)
Created by combining all dead loads and live loads on span(s) 2
Controlling Shear: -2923 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:	17.68	in3	42.88	in3
Area (Shear):	13.15	in2	36.75	in2
Moment of Inertia (deflection):	58.33	in4	150.06	in4
Moment:	5619	ft-lb	13625	ft-lb
Shear:	-2923	lb	8171	lb

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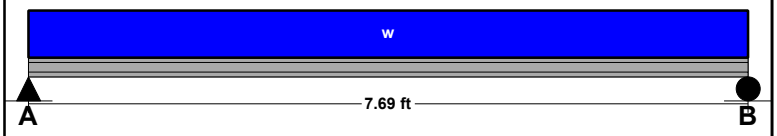

UNIFORM LOADS	Center	
Uniform Live Load	503	plf
Uniform Dead Load	248	plf
Beam Self Weight	9	plf
Total Uniform Load	760	plf

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Project: CC-705 Structural Calcs 10-28-2020 DAK

Location: Header - H1-2 - Uplift
Multi-Loaded Multi-Span Beam
[2015 International Residential Code(2015 NDS)]
(3) 1.75 IN x 7.0 IN x 7.69 FT
2.0 Rigidlam LVL - Roseburg Forest Products
Section Adequate By: 1245.7%
Controlling Factor: Deflection

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DEFLECTIONS Center

Live Load	-0.03	IN L/3230
Dead Load	0.00	in
Total Load	-0.03	IN L/3527

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

REACTIONS A B

	A		B	
Live Load	-419	lb	-419	lb
Dead Load	35	lb	35	lb
Total Load	-384	lb	-384	lb
Uplift (1.5 F.S)	**-396**	**lb**	**-396**	**lb**
Bearing Length	0.01	in	0.01	in

BEAM DATA Center

Span Length	7.69	ft
Unbraced Length-Top	0	ft
Unbraced Length-Bottom	7.69	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' = 5248	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: -738 ft-lb
3.85 Ft from left support of span 2 (Center Span)
Created by combining all dead loads and live loads on span(s) 2
Controlling Shear: -384 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:	1.69	in3	42.88	in3
Area (Shear):	1.24	in2	36.75	in2
Moment of Inertia (deflection):	11.15	in4	150.06	in4
Moment:	-738	ft-lb	18751	ft-lb
Shear:	-384	lb	11368	lb

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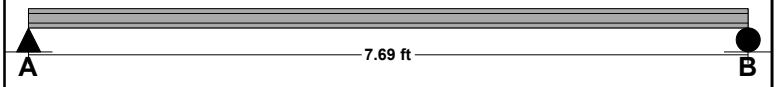

UNIFORM LOADS Center

Uniform Live Load	-109	plf
Uniform Dead Load	0	plf
Beam Self Weight	9	plf
Total Uniform Load	-100	plf

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Project: CC-705 Structural Calcs 10-28-2020 DAK

Location: Header - H1-3
Multi-Loaded Multi-Span Beam
[2015 International Residential Code(2015 NDS)]
(3) 1.75 IN x 5.0 IN x 6.44 FT
2.0 Rigidlam LVL - Roseburg Forest Products
Section Adequate By: 60.2%
Controlling Factor: Deflection

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DEFLECTIONS Center

Live Load	0.18	IN L/434
Dead Load	0.09	in
Total Load	0.27	IN L/288

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

REACTIONS A B

	A		B	
Live Load	1620	lb	1620	lb
Dead Load	820	lb	820	lb
Total Load	2440	lb	2440	lb
Bearing Length	0.62	in	0.62	in

BEAM DATA Center

Span Length	6.44	ft
Unbraced Length-Top	0	ft
Unbraced Length-Bottom	6.44	ft
Live Load Duration Factor	1.15	
Notch Depth	0.00	

MATERIAL PROPERTIES

2.0 Rigidlam LVL - Roseburg Forest Products

	Base Values		Adjusted	
Bending Stress:	Fb = 3100	psi	Fb' = 3977	psi
	Cd=1.15 CF=1.12			
Shear Stress:	Fv = 290	psi	Fv' = 334	psi
	Cd=1.15			
Modulus of Elasticity:	E = 2000	ksi	E' = 2000	ksi
Comp. ⊥ to Grain:	Fc - ⊥ = 750	psi	Fc - ⊥' = 750	psi

Controlling Moment: 3927 ft-lb
3.22 Ft from left support of span 2 (Center Span)
Created by combining all dead loads and live loads on span(s) 2
Controlling Shear: 2439 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:	11.85	in3	21.88	in3
Area (Shear):	10.97	in2	26.25	in2
Moment of Inertia (deflection):	34.14	in4	54.69	in4
Moment:	3927	ft-lb	7250	ft-lb
Shear:	2439	lb	5836	lb

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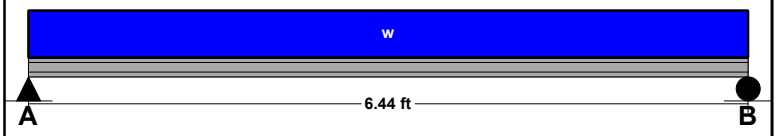

UNIFORM LOADS Center

Uniform Live Load	503	plf
Uniform Dead Load	248	plf
Beam Self Weight	7	plf
Total Uniform Load	758	plf

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Project: CC-705 Structural Calcs 10-28-2020 DAK

Location: Header - H1-3 - Uplift
Multi-Loaded Multi-Span Beam
[2015 International Residential Code(2015 NDS)]
(3) 1.75 IN x 5.0 IN x 6.44 FT
2.0 Rigidlam LVL - Roseburg Forest Products
Section Adequate By: 735.0%
Controlling Factor: Deflection

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DEFLECTIONS

	Center	
Live Load	-0.04	IN L/2004
Dead Load	0.00	in
Total Load	-0.04	IN L/2132

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

REACTIONS

	A		B	
Live Load	-351	lb	-351	lb
Dead Load	21	lb	21	lb
Total Load	-330	lb	-330	lb
Uplift (1.5 F.S)	**-337**	**lb**	**-337**	**lb**
Bearing Length	0.01	in	0.01	in

BEAM DATA

	Center	
Span Length	6.44	ft
Unbraced Length-Top	0	ft
Unbraced Length-Bottom	6.44	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' =	5499 psi
	Cd=1.60 Cl=0.99 CF=1.12				
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: -531 ft-lb
3.22 Ft from left support of span 2 (Center Span)
Created by combining all dead loads and live loads on span(s) 2

Controlling Shear: 330 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:	1.16 in3	21.88 in3
Area (Shear):	1.07 in2	26.25 in2
Moment of Inertia (deflection):	6.55 in4	54.69 in4
Moment:	-531 ft-lb	10024 ft-lb
Shear:	330 lb	8120 lb

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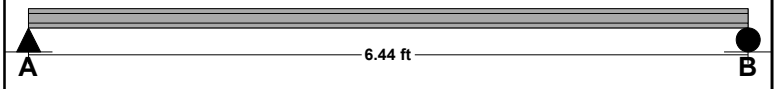

UNIFORM LOADS

	Center	
Uniform Live Load	-109	plf
Uniform Dead Load	0	plf
Beam Self Weight	7	plf
Total Uniform Load	-102	plf

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Project: CC-705 Structural Calcs 10-28-2020 DAK

Location: Lean-To Porch Floor Girder
Multi-Loaded Multi-Span Beam
[2015 International Residential Code(2015 NDS)]
(2) 1.5 IN x 7.25 IN x 7.51 FT
#2 - Southern Pine - Wet Use
Section Adequate By: 85.2%
Controlling Factor: Moment

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CAUTIONS

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

DEFLECTIONS	Center	
Live Load	0.07	IN L/1260
Dead Load	0.02	in
Total Load	0.09	IN L/974

Live Load Deflection Criteria: L/360 Total Load Deflection Criteria: L/240

REACTIONS	A	B
Live Load	451 lb	451 lb
Dead Load	132 lb	132 lb
Total Load	583 lb	583 lb
Bearing Length	0.51 in	0.51 in

BEAM DATA	Center	
Span Length	7.51	ft
Unbraced Length-Top	0	ft
Unbraced Length-Bottom	7.51	ft
Live Load Duration Factor	1.00	
Notch Depth	0.00	

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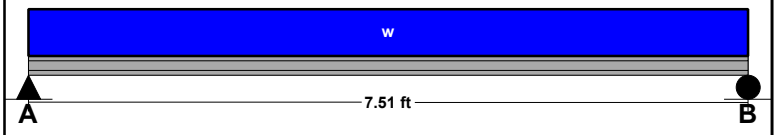

UNIFORM LOADS	Center	
Uniform Live Load	120	plf
Uniform Dead Load	30	plf
Beam Self Weight	5	plf
Total Uniform Load	155	plf

MATERIAL PROPERTIES

#2 - Southern Pine

	Base Values	Adjusted
Bending Stress:	Fb = 925 psi	Fb' = 925 psi
	Cd=1.00 CF=1.00	
Shear Stress:	Fv = 175 psi	Fv' = 170 psi
	Cd=1.00 Cm=0.97	
Modulus of Elasticity:	E = 1400 ksi	E' = 1260 ksi
	Cm=0.90	
Comp. ⊥ to Grain:	Fc - ⊥ = 565 psi	Fc - ⊥' = 379 psi
	Cm=0.67	

Controlling Moment: 1094 ft-lb
3.76 Ft from left support of span 2 (Center Span)
Created by combining all dead loads and live loads on span(s) 2

Controlling Shear: 583 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:	14.19 in3	26.28 in3
Area (Shear):	5.15 in2	21.75 in2
Moment of Inertia (deflection):	27.22 in4	95.27 in4
Moment:	1094 ft-lb	2026 ft-lb
Shear:	583 lb	2461 lb

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Project: CC-705 Structural Calcs 10-28-2020 DAK

Location: Lean-To Porch Floor Girder - Uplift
Multi-Loaded Multi-Span Beam
[2015 International Residential Code(2015 NDS)]
(2) 1.5 IN x 7.25 IN x 7.51 FT
#2 - Southern Pine - Wet Use
Section Adequate By: 949.8%
Controlling Factor: Deflection

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CAUTIONS

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

DEFLECTIONS Center

Live Load	-0.02	IN L/3779
Dead Load	0.00	in
Total Load	-0.02	IN L/4342

Live Load Deflection Criteria: L/360 Total Load Deflection Criteria: L/240

REACTIONS

	A	B
Live Load	-150 lb	-150 lb
Dead Load	19 lb	19 lb
Total Load	-131 lb	-131 lb
Uplift (1.5 F.S)	**-137 lb**	**-137 lb**
Bearing Length	0.02 in	0.02 in

BEAM DATA Center

Span Length	7.51	ft
Unbraced Length-Top	0	ft
Unbraced Length-Bottom	7.51	ft
Live Load Duration Factor	1.60	
Notch Depth	0.00	

MATERIAL PROPERTIES

#2 - Southern Pine

	Base Values	Adjusted
Bending Stress:	Fb = 925 psi	Fb' = 1440 psi
	Cd=1.60 Cl=0.97 CF=1.00	
Shear Stress:	Fv = 175 psi	Fv' = 272 psi
	Cd=1.60 Cm=0.97	
Modulus of Elasticity:	E = 1400 ksi	E' = 1260 ksi
	Cm=0.90	
Comp. ⊥ to Grain:	Fc - ⊥ = 565 psi	Fc - ⊥' = 379 psi
	Cm=0.67	

Controlling Moment: -245 ft-lb
3.76 Ft from left support of span 2 (Center Span)
Created by combining all dead loads and live loads on span(s) 2

Controlling Shear: 131 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:	2.04 in3	26.28 in3
Area (Shear):	0.72 in2	21.75 in2
Moment of Inertia (deflection):	9.07 in4	95.27 in4
Moment:	-245 ft-lb	3154 ft-lb
Shear:	131 lb	3938 lb

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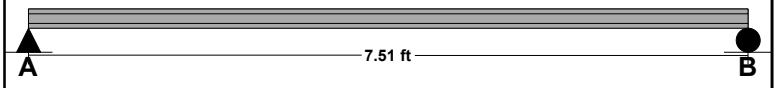

UNIFORM LOADS Center

Uniform Live Load	-40	plf
Uniform Dead Load	0	plf
Beam Self Weight	5	plf
Total Uniform Load	-35	plf

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Project: CC-705 Structural Calcs 10-28-2020 DAK

Location: Lean-To Porch Header - Snow
Multi-Loaded Multi-Span Beam
[2015 International Residential Code(2015 NDS)]
5.0 IN x 5.5 IN x 7.51 FT
24F-E1 - E-Rated Southern Pine - Dry Use
Section Adequate By: 127.3%
Controlling Factor: Deflection

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DEFLECTIONS Center

Live Load	0.17	IN L/546
Dead Load	0.02	in
Total Load	0.19	IN L/475

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

REACTIONS A B

	A		B	
Live Load	1081	lb	1081	lb
Dead Load	160	lb	160	lb
Total Load	1241	lb	1241	lb
Bearing Length	0.31	in	0.31	in

BEAM DATA Center

Span Length	7.51	ft
Unbraced Length-Top	0	ft
Unbraced Length-Bottom	7.51	ft
Live Load Duration Factor	1.15	
Camber Adj. Factor	1	
Camber Required	0.02	
Notch Depth	0.00	

MATERIAL PROPERTIES

24F-E1 - E-Rated Southern Pine

		Base Values		Adjusted	
Bending Stress:	Fb =	2400	psi	*Controlled by:*	
	Fb_cmpr =	1450	psi	Fb' =	2760 psi
	Cd=1.15				
Shear Stress:	Fv =	300	psi	Fv' =	345 psi
	Cd=1.15				
Modulus of Elasticity:	E =	1800	ksi	E' =	1800 ksi
Comp. ⊥ to Grain:	Fc - ⊥ =	805	psi	Fc - ⊥' =	805 psi

Controlling Moment: 2330 ft-lb
3.76 Ft from left support of span 2 (Center Span)
Created by combining all dead loads and live loads on span(s) 2

Controlling Shear: 1241 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:	10.13	in3	25.21	in3
Area (Shear):	5.4	in2	27.5	in2
Moment of Inertia (deflection):	30.49	in4	69.32	in4
Moment:	2330	ft-lb	5798	ft-lb
Shear:	1241	lb	6325	lb

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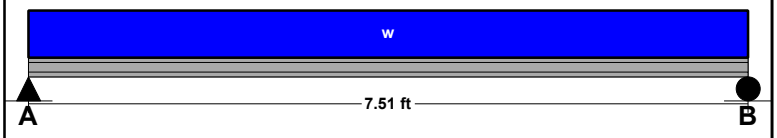

UNIFORM LOADS Center

Uniform Live Load	288	plf
Uniform Dead Load	36	plf
Beam Self Weight	7	plf
Total Uniform Load	331	plf

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Project: CC-705 Structural Calcs 10-28-2020 DAK

Location: Lean-To Porch Header - Uplift
Multi-Loaded Multi-Span Beam
[2015 International Residential Code(2015 NDS)]
5.0 IN x 5.5 IN x 7.51 FT
24F-E1 - E-Rated Southern Pine - Dry Use
Section Adequate By: 635.7%
Controlling Factor: Deflection

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DEFLECTIONS

	Center	
Live Load	-0.05	IN L/1766
Dead Load	0.00	in
Total Load	-0.05	IN L/1906

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

REACTIONS

	A		B	
Live Load	-334	lb	-334	lb
Dead Load	25	lb	25	lb
Total Load	-309	lb	-309	lb
Uplift (1.5 F.S)	**-318**	**lb**	**-318**	**lb**
Bearing Length	0.01	in	0.01	in

BEAM DATA

	Center	
Span Length	7.51	ft
Unbraced Length-Top	0	ft
Unbraced Length-Bottom	7.51	ft
Live Load Duration Factor	1.60	
Camber Adj. Factor	1	
Camber Required	0	
Notch Depth	0.00	

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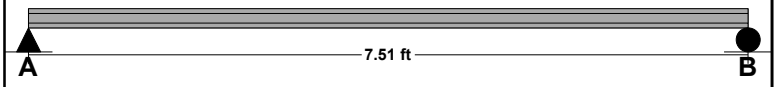

UNIFORM LOADS

	Center	
Uniform Live Load	-89	plf
Uniform Dead Load	0	plf
Beam Self Weight	7	plf
Total Uniform Load	-82	plf

MATERIAL PROPERTIES

24F-E1 - E-Rated Southern Pine

		Base Values		Adjusted	
Bending Stress:	Fb =	2400	psi	*Controlled by:*	
	Fb_cmpr =	1450	psi	Fb_cmpr' =	2311 psi
	Cd=1.60 Cl=1.00				
Shear Stress:	Fv =	300	psi	Fv' =	480 psi
	Cd=1.60				
Modulus of Elasticity:	E =	1800	ksi	E' =	1800 ksi
Comp. ⊥ to Grain:	Fc - ⊥ =	805	psi	Fc - ⊥' =	805 psi

Controlling Moment: -581 ft-lb
3.76 Ft from left support of span 2 (Center Span)
Created by combining all dead loads and live loads on span(s) 2

Controlling Shear: 310 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:	3.02 in3	25.21 in3
Area (Shear):	0.97 in2	27.5 in2
Moment of Inertia (deflection):	9.42 in4	69.32 in4
Moment:	-581 ft-lb	4854 ft-lb
Shear:	310 lb	8800 lb

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Project: CC-705 Structural Calcs 10-28-2020 DAK

Location: Lean-To Porch Post
Column
[2015 International Residential Code(2015 NDS)]
5.0 IN DIA. x 7.06 FT
#2 - Northern White Cedar - Wet Use
Section Adequate By: 32.7%

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DEFLECTIONS

Deflection due to lateral loads only: Defl = 0.02 IN = L/4174
Live Load Deflection Criteria: L/180

VERTICAL REACTIONS

Live Load:	Vert-LL-Rxn =	2595	lb
Dead Load:	Vert-DL-Rxn =	371	lb
Total Load:	Vert-TL-Rxn =	2966	lb

HORIZONTAL REACTIONS

Total Reaction at Top of Column:	TL-Rxn-Top =	25	lb
Total Reaction at Bottom of Column:	TL-Rxn-Bottom =	25	lb

COLUMN DATA

Total Column Length:	7.06	ft
Unbraced Length (X-Axis) Lx:	7.06	ft
Unbraced Length (Y-Axis) Ly:	7.06	ft
Column End Condition-K (e):	1	
Axial Load Duration Factor	1.15	
Lateral Load Duration Factor	1.00	

COLUMN PROPERTIES

#2 - Northern White Cedar

	Base Values	Adjusted
Compressive Stress:	Fc = 250 psi	Fc' = 224 psi
	Cm=0.91 Cp=0.86	
Bending Stress (X-X Axis):	Fbx = 400 psi	Fbx' = 543 psi
	Cd=1.15 CF=1.00 Cf=1.18	
Bending Stress (Y-Y Axis):	Fby = 400 psi	Fby' = 543 psi
	Cd=1.15 CF=1.00 Cf=1.18	
Modulus of Elasticity:	E = 600 ksi	E' = 600 ksi

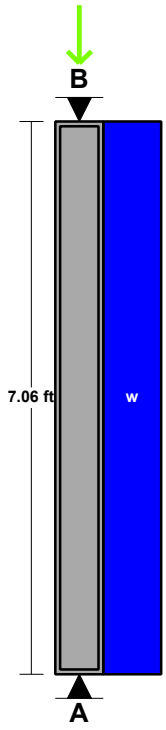
Column Section (X-X Axis):	dx =	4.43	in
Column Section (Y-Y Axis):	dy =	4.43	in
Area:	A =	19.63	in2
Section Modulus (X-X Axis):	Sx =	14.5	in3
Section Modulus (Y-Y Axis):	Sy =	14.5	in3
Slenderness Ratio:	Lex/dx =	19.12	
	Ley/dy =	19.12	

Column Calculations (Controlling Case Only):

Controlling Load Case: Axial Total Load Only (L + D)

Actual Compressive Stress:	Fc =	151	psi
Allowable Compressive Stress:	Fc' =	224	psi
Eccentricity Moment (X-X Axis):	Mx-ex =	0	ft-lb
Eccentricity Moment (Y-Y Axis):	My-ey =	0	ft-lb
Moment Due to Lateral Loads (X-X Axis):	Mx =	0	ft-lb
Moment Due to Lateral Loads (Y-Y Axis):	My =	0	ft-lb
Bending Stress Lateral Loads Only (X-X Axis)	Fbx =	0	psi
Allowable Bending Stress (X-X Axis):	Fbx' =	543	psi
Bending Stress Lateral Loads Only (Y-Y Axis)	Fby =	0	psi
Allowable Bending Stress (Y-Y Axis):	Fby' =	543	psi
Combined Stress Factor:	**CSF =**	**0.67**	

LOADING DIAGRAM



AXIAL LOADING

Live Load:	PL =	2595	lb *
Dead Load:	PD =	352	lb *
Column Self Weight:	CSW =	19	lb
Total Axial Load:	PT =	2966	lb

* Load obtained from Load Tracker. See Summary Report for details.

LATERAL LOADING (Dy Face)

Uniform Lateral Load: wL-Lat = 7 plf

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Project: CC-705 Structural Calcs 10-28-2020 DAK

Location: Lean-To Porch Rafter - Snow
Multi-Loaded Multi-Span Beam
[2015 International Residential Code(2015 NDS)]
1.5 IN x 7.25 IN x 7.75 FT (6.9 + 0.9) (Actual 7.9 FT)
#2 - Spruce-Pine-Fir - Dry Use
Section Adequate By: 50.3%
Controlling Factor: Moment

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DEFLECTIONS

	Center		Right	
Live Load	0.11	IN L/803	-0.04	IN 2L/502
Dead Load	0.01	in	0.00	in
Total Load	0.12	IN L/717	-0.05	IN 2L/450

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

REACTIONS

	A		B	
Live Load	455	lb	575	lb
Dead Load	55	lb	71	lb
Total Load	510	lb	646	lb
Bearing Length	0.80	in	1.01	in

BEAM DATA

	Center		Right	
Span Length	6.9	ft	0.85	ft
Unbraced Length-Top	0	ft	0	ft
Unbraced Length-Bottom	6.9	ft	0.85	ft
Beam End Elevation Difference	1.62	ft		
Live Load Duration Factor	1.15			
Notch Depth	0.00			

MATERIAL PROPERTIES

#2 - Spruce-Pine-Fir

	Base Values		Adjusted	
Bending Stress:	Fb = 875	psi	Fb' = 1208	psi
	Cd=1.15 CF=1.20			
Shear Stress:	Fv = 135	psi	Fv' = 155	psi
	Cd=1.15			
Modulus of Elasticity:	E = 1400	ksi	E' = 1400	ksi
Comp. ⊥ to Grain:	Fc - ⊥ = 425	psi	Fc - ⊥' = 425	psi

Controlling Moment: 880 ft-lb
3.446 Ft from left support of span 2 (Center Span)
Created by combining all dead loads and live loads on span(s) 2
Controlling Shear: -508 lb
6.852 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:	8.74 in3	13.14 in3
Area (Shear):	4.91 in2	10.88 in2
Moment of Inertia (deflection):	22.78 in4	47.63 in4
Moment:	880 ft-lb	1322 ft-lb
Shear:	-508 lb	1126 lb

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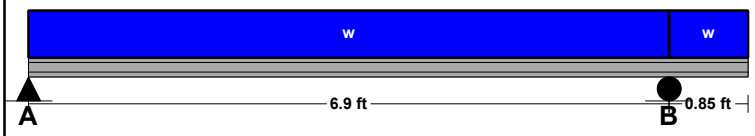

UNIFORM LOADS

	Center		Right	
Uniform Live Load	132	plf	132	plf
Uniform Dead Load	14	plf	14	plf
Beam Self Weight	2	plf	2	plf
Total Uniform Load	148	plf	148	plf

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Project: CC-705 Structural Calcs 10-28-2020 DAK

Location: Lean-To Porch Rafter - Uplift
Multi-Loaded Multi-Span Beam
[2015 International Residential Code(2015 NDS)]
1.5 IN x 7.25 IN x 7.75 FT (6.9 + 0.9) (Actual 7.9 FT)
#2 - Spruce-Pine-Fir - Dry Use
Section Adequate By: 292.7%
Controlling Factor: Moment

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DEFLECTIONS

	Center		Right	
Live Load	-0.04	IN L/2000	0.02	IN 2L/1250
Dead Load	0.00	in	0.00	in
Total Load	-0.04	IN L/2076	0.02	IN 2L/1296

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

REACTIONS

	A		B	
Live Load	3	lb	-48	lb
Dead Load	7	lb	9	lb
Total Load	10	lb	-39	lb
Uplift (1.5 F.S)	**-178**	**lb**	**-225**	**lb**
Bearing Length	0.02	in	0.01	in

BEAM DATA

	Center		Right	
Span Length	6.9	ft	0.85	ft
Unbraced Length-Top	0	ft	0	ft
Unbraced Length-Bottom	6.9	ft	0.85	ft
Beam End Elevation Difference	1.62	ft		
Live Load Duration Factor	1.60			
Notch Depth	0.00			

MATERIAL PROPERTIES

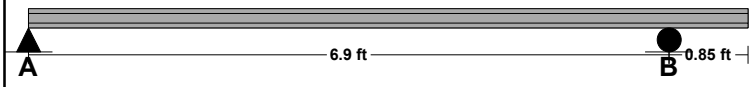
#2 - Spruce-Pine-Fir

	Base Values		Adjusted	
Bending Stress:	Fb = 875	psi	Fb' = 1089	psi
	Cd=1.60 Cl=0.65 CF=1.20			
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: -304 ft-lb
3.446 Ft from left support of span 2 (Center Span)
Created by combining all dead loads and live loads on span(s) 2
Controlling Shear: 175 lb
6.852 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:	3.35 in3	13.14 in3
Area (Shear):	1.21 in2	10.88 in2
Moment of Inertia (deflection):	9.15 in4	47.63 in4
Moment:	-304 ft-lb	1193 ft-lb
Shear:	175 lb	1566 lb

LOADING DIAGRAM



UNIFORM LOADS

	Center		Right	
Uniform Live Load	-53	plf	-53	plf
Uniform Dead Load	0	plf	0	plf
Beam Self Weight	2	plf	2	plf
Total Uniform Load	-51	plf	-51	plf

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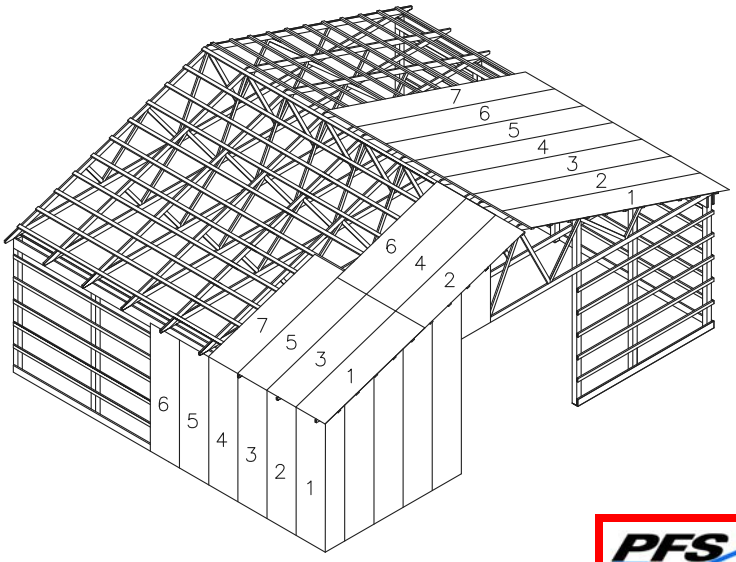
ROOFING SUPPLY, LLC
Roofing & Siding • Hardware • Lumber



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ABM Panel Installation & Trim Guide

Storage

Store the ABM Panels in a dry place. The panels should be stored outside only when it is absolutely necessary and, even then, only for short periods of time. Canvas or waterproof paper may be used to cover the panels only if there is adequate ventilation. Plastic tarps should never be used because they may trap moisture causing sweating and condensation. Panels that are installed immediately will perform correctly even if they were wet in the bundle. If panels get wet and are not ready to be installed immediately, they need to be separated and completely dried. As with all bundled and stacked roof and siding panels, water or any liquid will siphon (capillary action) from ends and sides of stacked panels.

If these precautions are not taken and moisture is trapped in the panel, superficial staining or paint peeling may occur. When moisture remains in the bundle for a considerable time, wet storage stains and paint defects may occur, reducing the beauty and effective life of the panel.

Failure to comply with all the above recommended procedures voids all warranties and relieves A.B. Martin Roofing Supply, LLC of any responsibilities for the resulting damage to, or deterioration of, the ABM panels.

Handling

Use extreme caution when handling the ABM Panels. Improper handling may cause bodily injury or material damage. A forklift can dent or puncture the underside of the ABM Panel. We recommend that a spreader device is used on the forklift for bundles over 20 feet in length to avoid bending the ABM Panels.

Care should also be exercised to protect the finish when lifting individual panels from the stack or bundle. Dragging of individual sheets from the bundle can scratch the surface and reduce the paint performance. Though the paint finish of the ABM Panels is tough enough to withstand usual weather conditions, it can be scratched and abraded if care is not taken. The panel edges must be protected at all times during the unloading and handling process to insure proper fitting and proper looking lap joints on the finished installation.

Purlin Caution

Green or wet oak purlins are not recommended due to an acid in the oak which can cause the metal to rust prematurely. Also, on a reroof job where a slate roof has been used previously, metal is known to rust prematurely due to residue on the purlins from the slate. Treated purlins are not recommended either. If the above mentioned purlins are to be used, a barrier like Double Bubble reflective insulation, #30 felt, or Post and Peel should be used between the purlins and metal sheeting.

Caution must be taken to inspect purlins for knots and rotten or soft spots. Purlins must be solid enough for fasteners to hold properly and to withstand the applicant's weight. Persons working on the purlins can fall through if not careful.

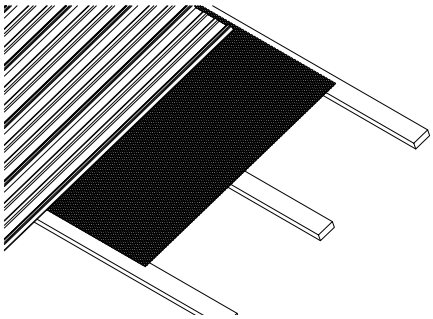

Fig. 1

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Cutting & Trimming

There will always be a certain amount of cutting and trimming necessary on the job site. Whether cutting with the rib or against it, use an offset hand snips or a Turbo Shear. For even better results, cutting may also be accomplished with a portable shear profiled to conform to the ABM Panels for perfect across-the-profile cutting.

Also care should be taken to brush off all particles after installation to further reduce the possibility of rust marks and bleeding on the panel after it is installed.

ATTENTION: Failure to comply with the recommended procedures relieves A.B. Martin Roofing Supply, LLC of all responsibility for any resulting damage to, or deterioration of, the paint finish and immediately voids the paint warranty.

ATTENTION: Using a cutting torch, steel cutting blade, abrasive blade or a Carborundum Blade with a saw is not recommended and voids the warranty.

CAUTION: Be extra careful when working with roofing and siding. Safety glasses and other safety equipment is recommended and should be worn by the worker.

Panel Installation

Begin laying the roofing panels on the end of the building away from the prevailing wind so the side lap seams will face away from the prevailing wind-driven rain. This provides extra security against water penetration.

Since the first panel determines the alignment of all remaining panels on the roof, extreme care should be taken to accurately square the first sheet. The overlapping rib edge should be flush with the edge of the roof, and the panel should overhang the eaves a minimum of two inches to provide proper drainage. The side rib with the drain channel should face the direction in which the sheets are being laid down (Figure 2). When the panel is positioned, it should be fastened through the first rib, top and bottom. The ABM Panel should be attached completely before starting the next panel.

A tip for assuring straight alignment for successive rows of panels is to stretch and snap a chalk line on the bottom purling from one gable end to the other. Than lay the next sheet and measure from the end of the sheet to the chalk line. This will help keep bottom edge straight.

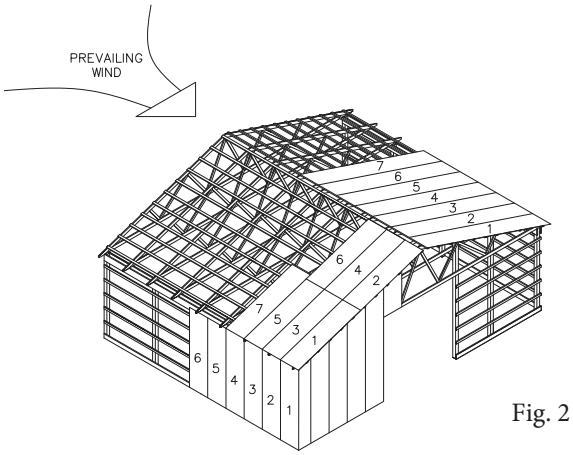

Fig. 2

If roof requires more than one horizontal row of panels, align panel #1 with your vertical-edge chalk line, and temporarily fasten the panel at two points, not at the ends, but along the main middle ribs. Overlap panel #2 above panel #1. Align both panels with the chalk line and permanently fasten. Install panel #3 next to panel #1 overlapping the ABM Panel as shown in Figure 3. Install panel #4 above panel #3.

It is important to check alignment from ridge to eaves on every sheet. Permanently fasten when the panels are in line.

Be careful to properly overlap the panels as seen in figure 3. Improper overlap installation will cause leaks and may void the panel warranty.

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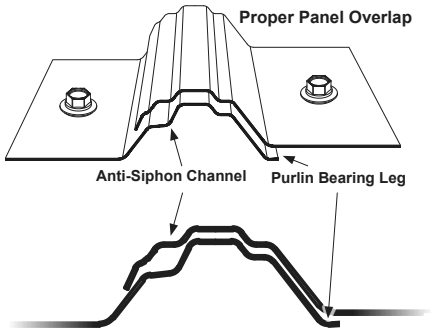

Fig. 3

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Panel Profile

Approximately ¾" high major ribs on 9" centers with two 1" wide minor between each. Overlap has an anti-siphon break for leak-free application above 3:12 pitch.

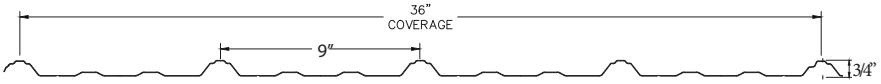


Fig. 4

Fastening

Acceptable fasteners include such items as: Sealtite WoodBinders, Evergrip 304 stainless steel, Bi-Metal or equivalent screws. All screws must have an EPDM sealing washer and should be mechanically galvanized and painted to match the roofing and siding colors. Metal to wood screws with combination metal and EPDM sealing washers should be mechanically driven into the valley or the bottom flat surface immediately adjacent to the major rib on one side or the other for both roofing and siding panels (See Figure 5).

For Purlin Installation
Screw length should allow for penetration of one inch.

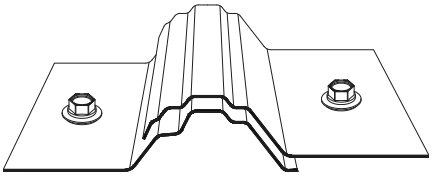
For Sheeting Installation
Screw lengh should allow penetration of the sheeting, but spacing requirements will vary depending upon the thickness, type of sheeting, and uplift requirements.

Millings or filings will occur from installing the screws. Care should be taken to brush off all particles after installation to reduce the possibility of rust marks and bleeding on the panel.

Fig. 5

Now stocking the ZXL WoodBinder. A molded zinc-aluminum head prevents red rust from ever starting even if the protective powder coating is breached. Plus the rubber washer is under the head so that it is protected from destructive UV rays.

Our first screw with a 40-year warranty to match our panel warranties.



Drive the screw through the steel so the washer is compressed securely against the metal. DO NOT OVERDRIVE the screw, because dimpling will cause the panels to leak. Under-driving can also allow leakage to occur around the screw shaft.

NOTE: For proper application, the use of impact drivers are not recommended for powder coated or any wet painted fastener. Use of an impact driver may void the paint warranty of the panel.

Roof Pitch

ABM roofing requires a certain degree of pitch to ensure proper drainage. Roofing should be applied on roofs with a pitch of at least 2½ inches per foot. To insure weather tightness, a ⅜ inch wide butyl sealant tape can be used on the overlap. When you need to end lap roof panel sheets, an 8 inch lap is recommended with a roof pitch of 3 inches to 5 inches. Any slope 5 inches or more requires a 7 inch end lap. Panels can be ordered up to 48 foot in length to help reduce end lapping.

Panels Over Shingles

ABM Panels can be installed over existing sheeted or shingled roofs. For shingled roofs, place 1x4 or 2x4 purlins on top of shingles. Securely screw the purlins to the rafters, not the sheeting. Pull the drip edge from underneath the shingle and/or cut flush to the roof sheeting. After purlins are fastened, install a gutter apron (#29) on top of the purlins running along the eaves to cover the wood purlins. Then finish the rake with a residential rake trim (#18). Make sure you consult local codes for possible weight limitations with multilayer roofing.

Condensation

Condensation can cause a problem for metal roofing over open purlins especially for residential applications. It is recommended to lay a Double Bubble reflective insulation over the trusses or rafters and then install the purlins on top of the Double Bubble reflective insulation. Tape all joints and staple the reflective insulation to the bottom of the purlins. The insulation will be most effective with at least a 1 inch air space between the insulation and the metal roof sheeting. Condensation from animal confinement can shorten the life of a metal roof by rusting the metal from the inside out. A Double Bubble reflective insulation will increase the life of metal roof sheet where animals are confined. If roof purlins are already installed, lay the insulation on top of the purlins. Then fasten the sheeting through the insulation into the purlins. The Double Bubble insulation will greatly reduce the condensation plus reflect radiant heat from the sun, thereby keeping your buildings cooler in the summer and warmer in the winter.

Side-Wall Panels Installation

Siding panels should be installed starting at the corner or edge of building. Do not run siding sheets all the way to the ground. It is important that all siding panels be kept 6 to 18 inches from contacting the soil to minimize sheet corrosion. A Base Angle (#3) is recommended at the bottom edge over the foundation or splash board. If however you use treated lumber or treated skirt board, use a barrier like Post & Peel to cover the treated board before trims or panels are installed. Evergrip 304 stainless steel Bi-Metal screws are recommended to fasten the panels to treated purlins.

The first siding panel must be plumb to assure straight alignment of the entire row of panels. A level should be used to check if panels are plumb. Temporarily fasten the first ABM panel at the starting edge. Install the second panel next to the first with the ABM Panel overlapping.

Run a string along the purling where fasteners are to be installed. This keeps a straight line to permanently fasten panels.

ABM panel can be installed on sidewalls that have up to 3 foot purlin spacing. When you apply panels to solid sheeting, or old weather boards, you may need to use longer screws to reach into solid wood.

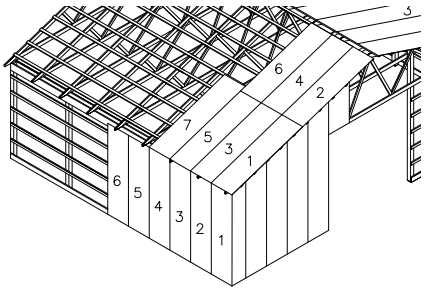


Fig. 6

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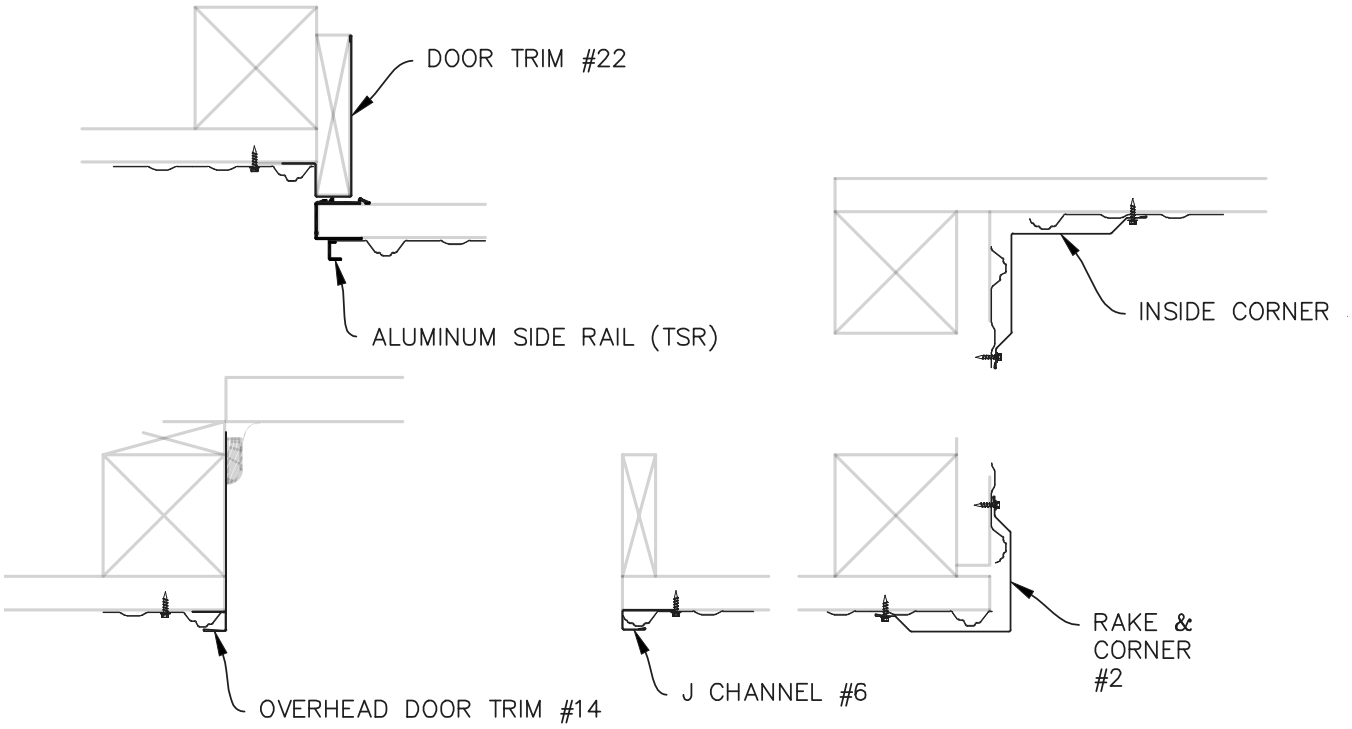
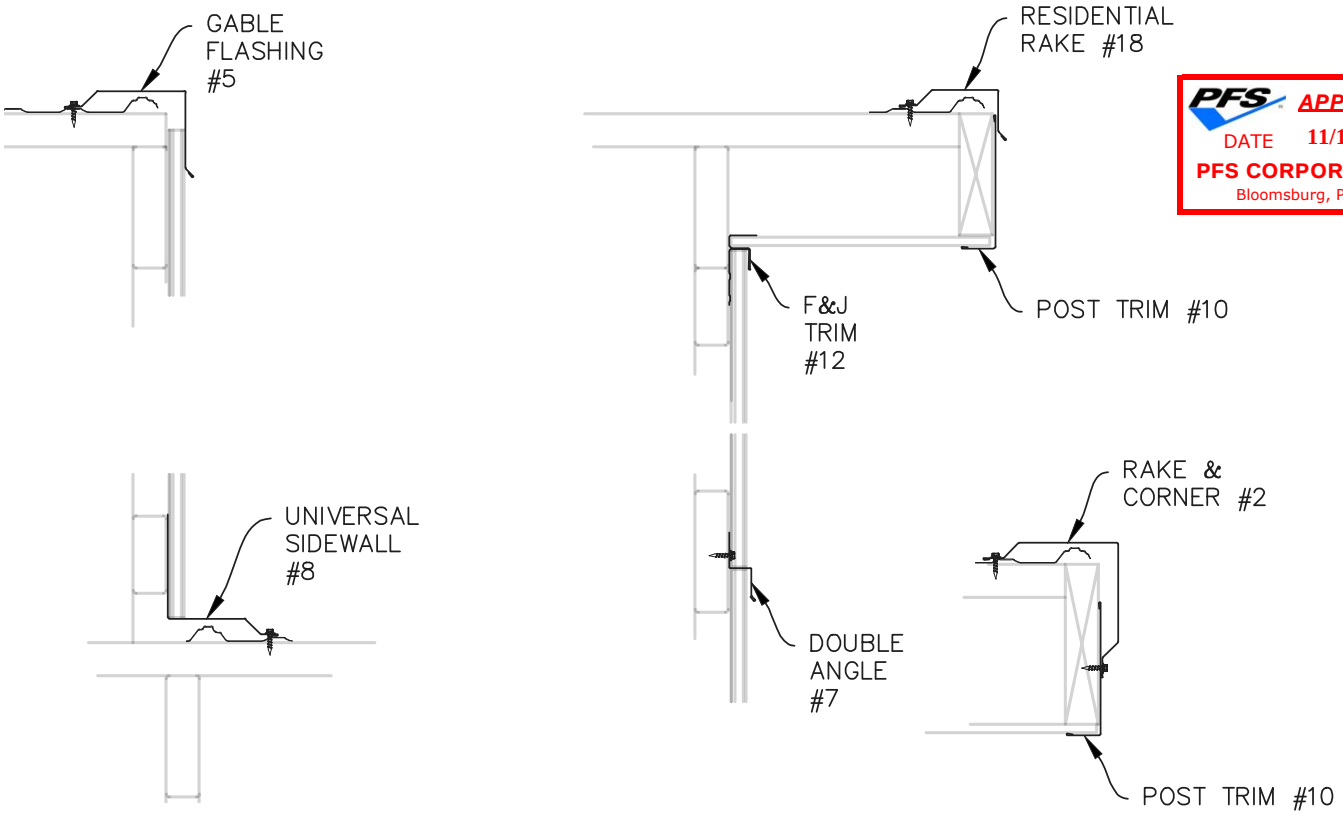
NOTE: Purl ins are also referred to as girts or roof lath. ABM panel roofing & siding is also referred to as roof panels, roof sheeting, tin roofing, corrugated roofing, and other names.

Corners & Door Trim (Top View)



Rakes & Gable Flashing (Side View)



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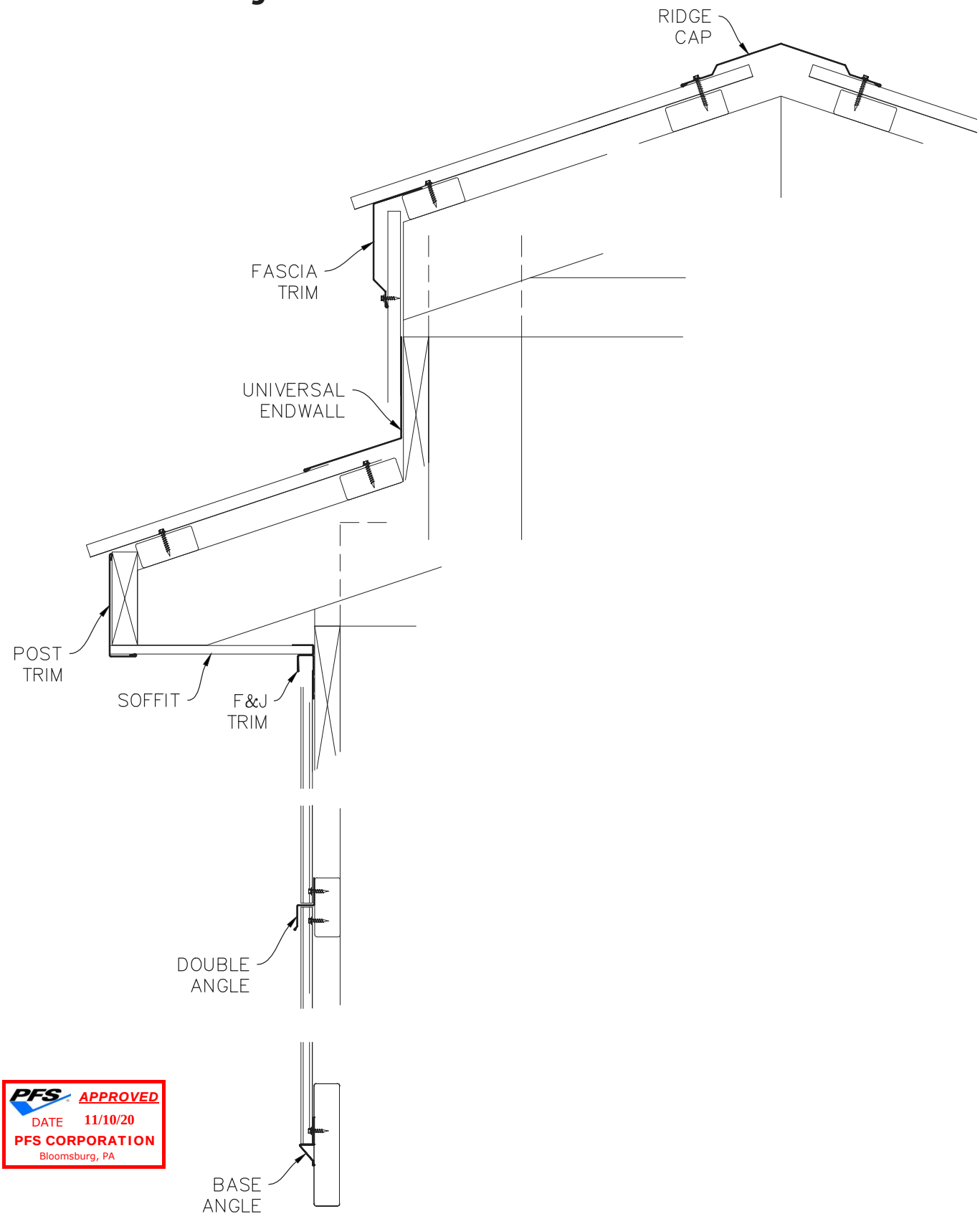
Common Trim Usage



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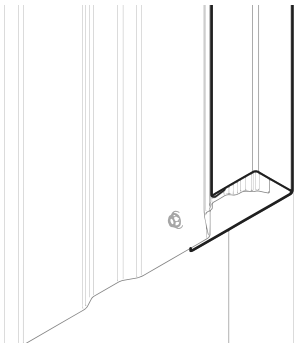
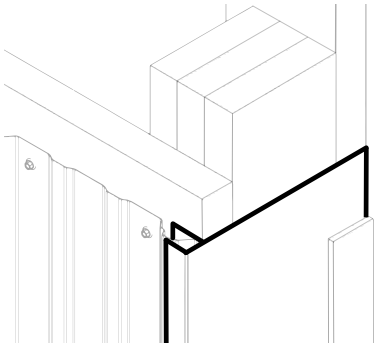


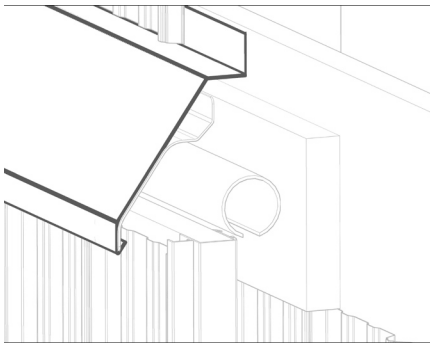
❻ J Chanel (Jcc)

From walls to triming around windows and doors, the J Chanel is one of the most versatile and most used trim pieces.



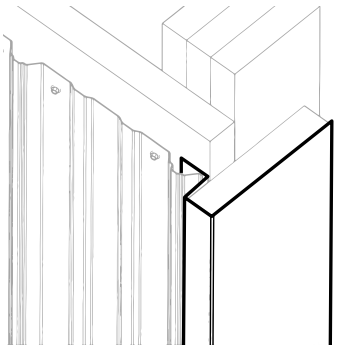
⓮ Overhead Door (ODcc)

Almost a combination of the ❿ Post Trim and ❻ J Chanel, the Overhead Door trim works for the sides and top of an overhead door entrance.



⓯ Track Cover (CTcc)

Commonly used to cover the tracks of rolling/sliding doors. Get it in the color of your choice.



㉒ Door Trim (JTcc725 or JTcc925)

Most often used to trim a sliding door opening.

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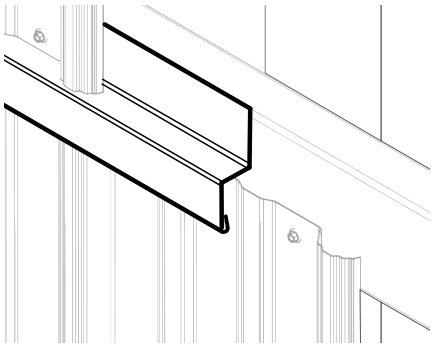
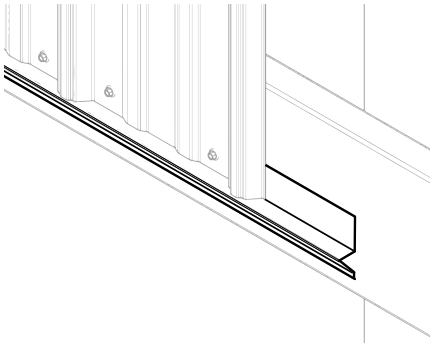


❼ Double Angle (DAcc)

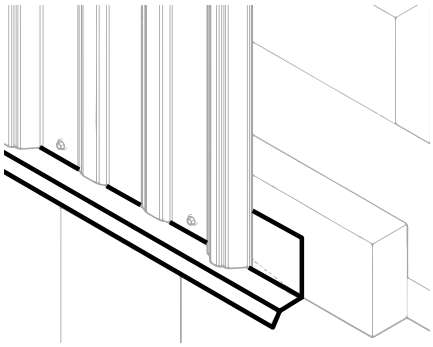
Commonly used to provided a straight edge between multi-layers of panels such as when adding a wainscoting or finishing the gable.



❸ Base Angle (BAcc)

Start with a Base Angle for an easy way to perfectly align the entire bottom row of wall panels.

Tip: Use your contrasting trim color to provide a clean horizontal footer appearance.



❾ Drip Cap (DCcc)

Commonly used above windows or doors to direct the precipitation away from the panel.

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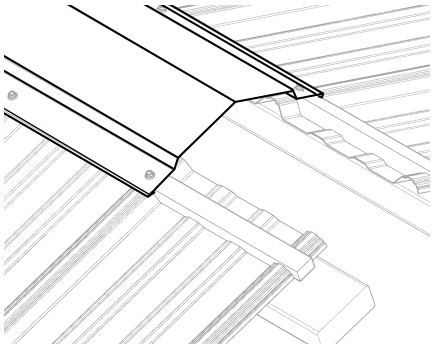
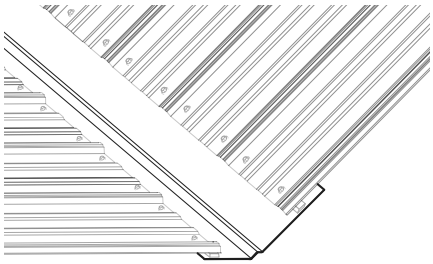
Roof



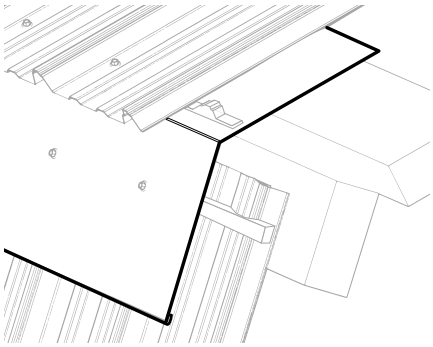
❶ Universal Ridge Cap (CPcc)

Finish off your roof with the Universal Ridge Cap to allow the heat to escape the attic space and allow fresh air to infiltrate the building. For best results, use either our Inside Foam Filler Strip, EmSeal, UltraVent, or Perform Vent to prevent driving wind from carrying rain and debris under the Universal Ridge Cap.



⓳ Formed Valley (WVcc)

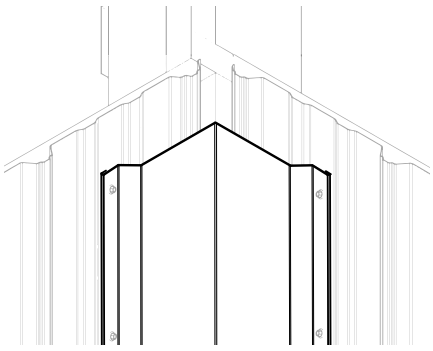
Wide enough to ensure proper overlap to prevent moisture from seeping up under the two opposing roofing panels. Best practice recommends running EmSeal along the edge of the Formed Valley to prevent driving winds from carrying rain and debris under the roof panels.



㊾ Gambrel Trim (GTcc)

The Gambrel trim is the perfect trim for connecting two parts of a roof that have differing pitches. For best results, make sure you extend the top roof panel at least 1" past the edge of the first bend of the Gambrel Trim, and the use of both Inside Foam Filler Strips under the top panel and Outside Foam Filler Strips on top of the bottom panel is recommended.

Corner



⓭ Inside Corner (ICcc)

Used for finishing the inside corner of a wall.

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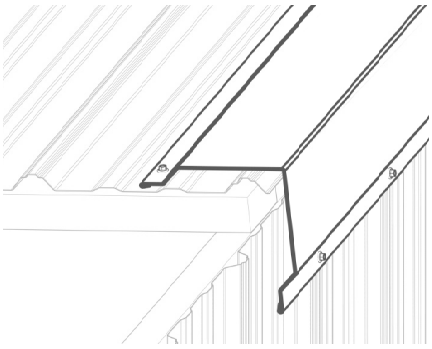
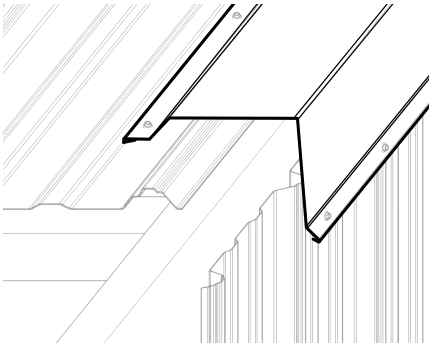


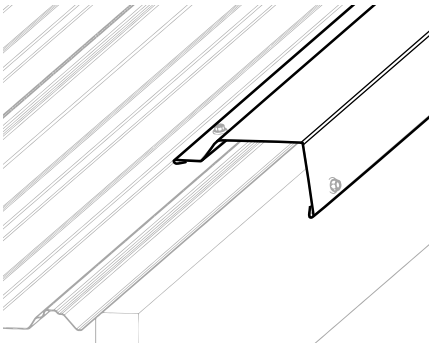
❷ Rake & Corner (RCcc)

Smaller than the ❺ Gable Flashing, the Rake & Corner is designed for trimming a slopping roof with the lower level side wall. Can also be used as an outside vertical corner. For best results, use either EmSeal or Sealant Tape to prevent driving wind from carrying rain and debris under the Rake & Corner especially if the roof panel does not end with a major rib.



❺ Gable Flashing (GFcc)

Designed for trimming a slopping roof with the lower level side wall. An extra lip helps reflect precipitation away from the wall panels. Can also be used as an outside vertical corner trim. Can also be used as an outside vertical corner. For best results, use either EmSeal or Sealant Tape to prevent driving wind from carrying rain and debris under the Gable Flashing especially if the roof panel does not end with a major rib.



⓲ Residential Rake (RRcc)

Designed for trimming a slopping roof with the lower level side wall. Can also be used as an outside vertical corner. For best results, use either EmSeal or Sealant Tape to prevent driving wind from carrying rain and debris under the Residential Rake especially if the roof panel does not end with a major rib.

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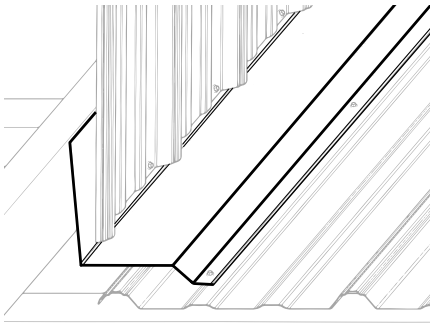
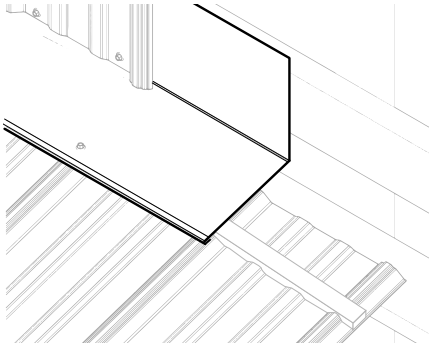
Wall to Roof



❽ Universal Sidewall (SWcc)

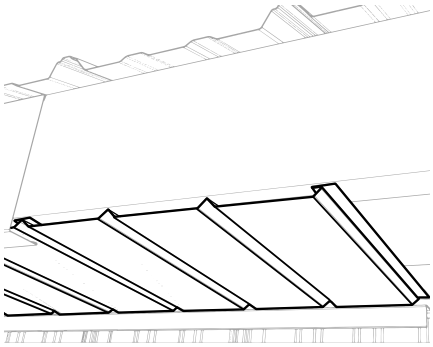
Used to join a side wall panel with an adjoining roof panel. For best results, use either EmSeal or Sealant Tape to prevent driving wind from carrying rain and debris under the Universal Sidewall especially if the roof panel does not end with a major rib.



⓫ Universal Endwall (EWcc)

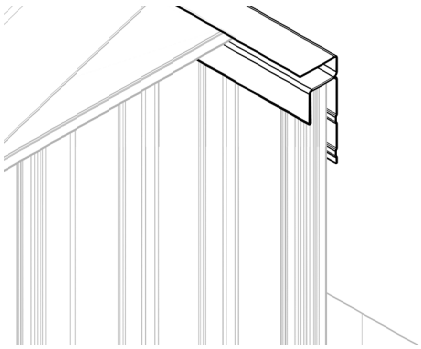
Designed to finish off a wall that is aligned with the top of a sloping roof. For best results, make sure you use the Outside Foam Filler Strip to prevent driving wind from carrying rain and debris under the Universal Endwall.

Soffit



Ⓢ 12" Soffit (Solid or Vented)

The perfect way to close off the eave of your roof, while also having the option to allow ventilation.



⓬ F & J (FJcc)

Commonly used to connect our steel or vinyl soffit with the ABM Panel. Also great for interior use when you need to connect the ceiling panels with the wall panels.

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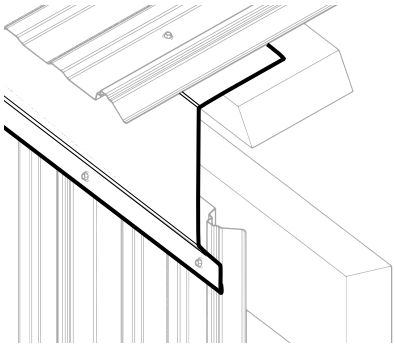
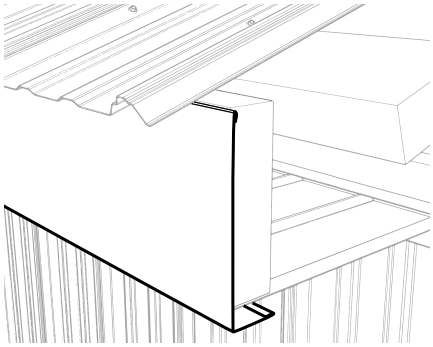


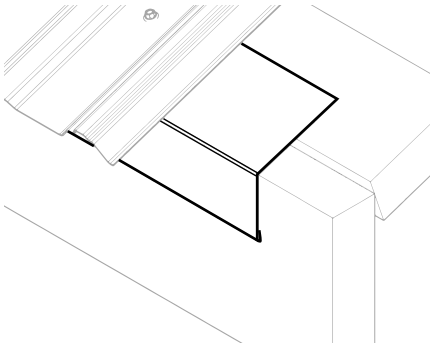
❹ Fascia Trim (FTcc)

One size in stock to slide under the end of the roof panel and fold down to provide 4 ½" of coverage over your header.



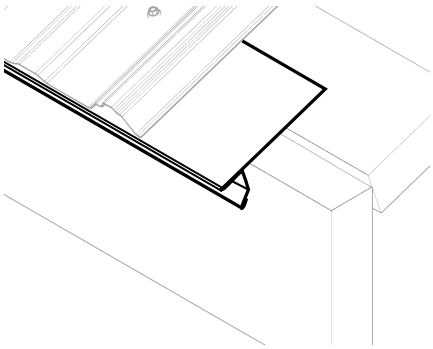
❿ Post/Fascia Trim (PTcc)

Multiple sizes to fit most headers and posts in stock. For added protection, consider using the ㉙ Gutter Apron or ㊿ Drip Edge in combination with the Post/Fascia Trim.



㉙ Gutter Apron (GAcc)

Flat end goes under your roofing, while the hemed-end folds down to provide coverage over your header or post fascia trim.



㊿ Drip Edge (DEcc)

Similar to the Gutter Apron except that it includes an extra lip to deflect precipitation away from the wall below.

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82 Garden Spot Rd. | Ephrata, PA 17522 | 717-445-6885
35 Ridge Rd. | Newville, PA 17241 | 717-776-5951

www.abmartin.net

Store Hours
Mon - Fri: 6:30 am - 5:30 pm
Sat: 7 am - 11:30 am

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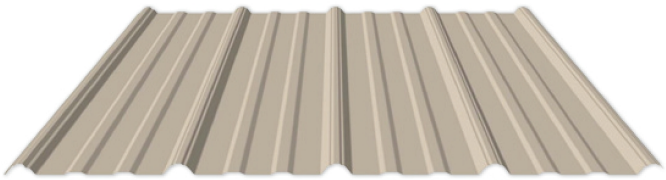
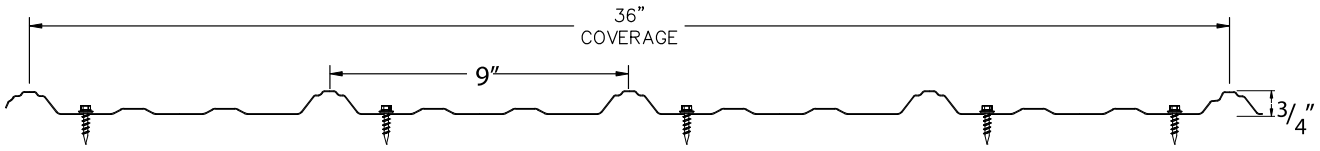
ABM Panel
Specifications





	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.			

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