

| NUMBER | DATE | REVISION BY | DESCRIPTION |
|--------|------|-------------|-------------|
| | | | |
| | | | |
| | | | |

PLAN 2L 28BT (28BT) HTD. 80 FT. OPEN Foyer
 (W/ CLOSED Foyer 3009 SF HTD.)
 2-STORY, 2-CAR GARAGE
 SIDE OR FRONT LOAD OPTIONS



NOTE
 ALTERNATE GARAGE ELEVATION WITH FRONT ENTRY
 REPLACE SIDE ENTRY IF DESIGNATED BY BUILDER



Exterior Elevation Front
 SCALE 1/4"=1'-0"

GENERAL NOTES:
 GRADE PER SITE CONDITIONS PER BUILDER,
 CRAWLSPACE MASONRY FOUNDATION, ELEVATION
 SET TO SITE CONDITIONS PER BUILDER, STEPS AND
 RAILINGS BER BUILDER TO SITE CONDITIONS

MATERIALS NOTES:
 -ROOF: ASPHALT SHINGLES, RIDGE VENTING
 -SIDING: VINYL OR CEMENT BOARD PER BUILDER
 -FOUNDATION: MASONRY CRAWL WITH BRICK AND STONE FACADE

NOTICE TO CONTRACTOR
 All construction shall comply with current NC Building Codes
 and is subject to field inspection and verification.

APPROVED
 Limited building only review.
 Permit holder responsible for
 full compliance with the code.

07/03/2023

ELEVATIONS

DRAWINGS PROVIDED BY:
 Great South Builders, Inc.
 Karelian Homes, Inc.
 Pittsboro, NC 27312
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DATE:

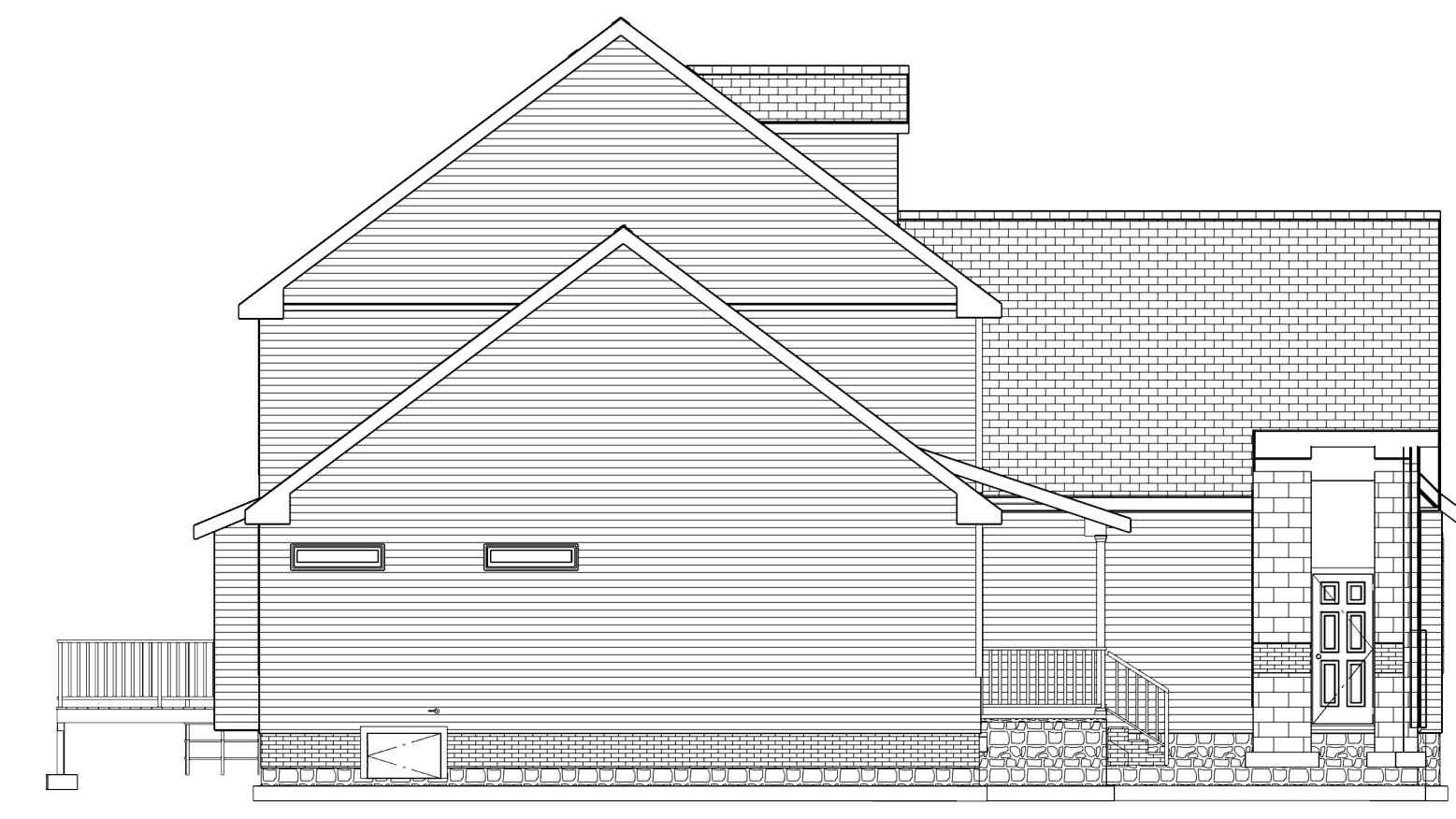
6/26/2023

SCALE:

1/4"=1'-0"

SHEET:

P-1



Exterior Elevation Left



Exterior Elevation Back
 SCALE 1/8"=1'-0"



Exterior Elevation Right

| REVISION TABLE | NUMBER | DATE | REVISION BY | DESCRIPTION |
|----------------|--------|------|-------------|-------------|
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| | | | | |
| | | | | |

PLAN 2L-2937 (2937) HTD. 90 FT. OPEN FOYER
(W/ CLOSED FOYER 3009SF HTD.)
1st FLOOR 17085F
2nd FLOOR 12295F (13015F W/ CLOSED FOYER)
GARAGE 5455F
PORCH 1245F
DECK 1925F

1ST. FLOOR LAYOUT

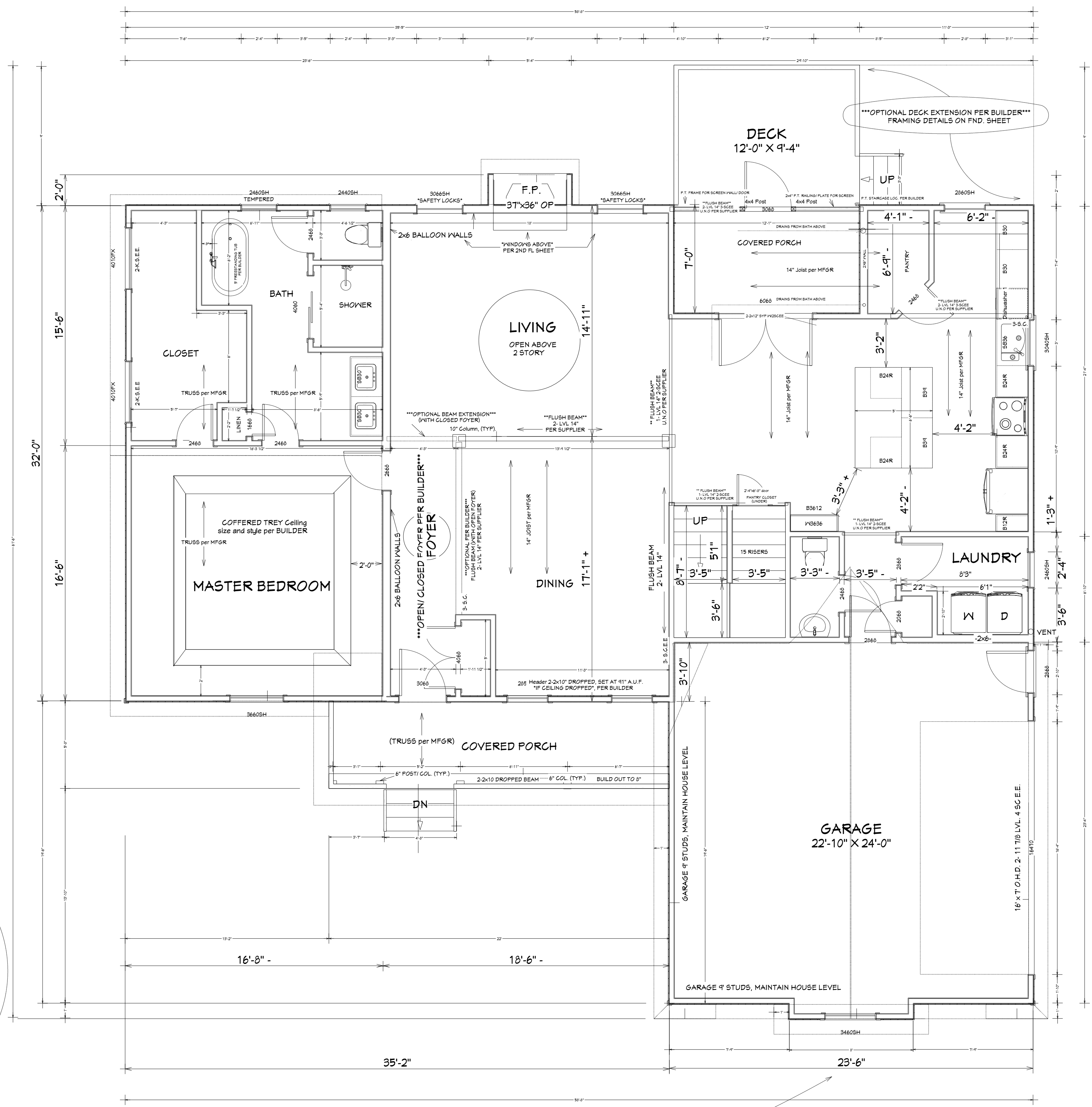
DRAWINGS PROVIDED BY:
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Karelian Homes, Inc.
Pittsboro, NC 27312
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DATE:
6/26/2023

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

SHEET:
2

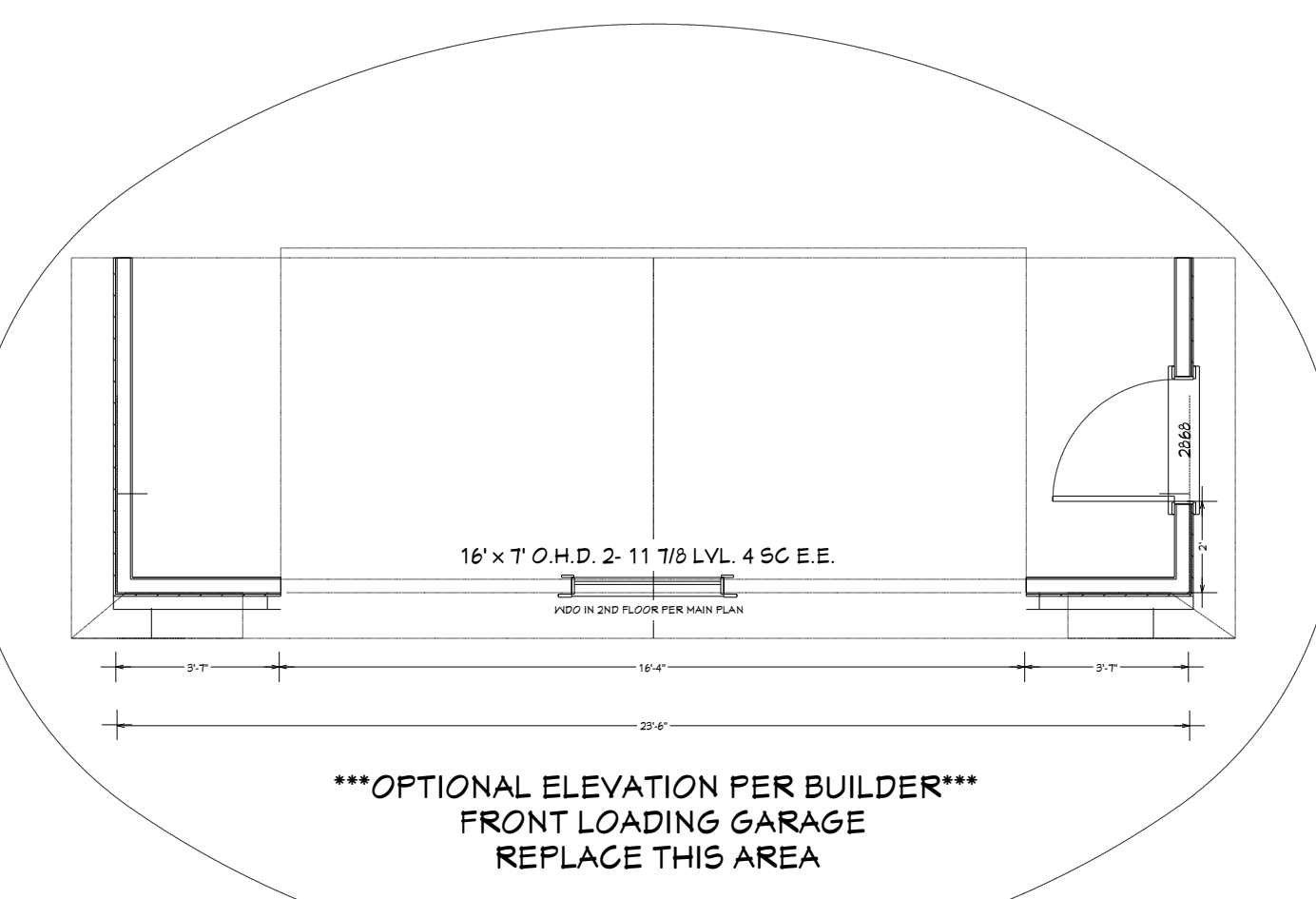
E3
P-1
Exterior Elevation Back



BUILDING AREA:
TOTAL Heated: 2937SF (3009SF W/ CLOSED FOYER)
1st FLOOR 17085F
2nd FLOOR 12295F (13015F W/ CLOSED FOYER)
GARAGE 5455F
PORCH 1245F
DECK 1925F

ENERGY EFFICIENCY NOTES:
-WINDOW MINIMUM FENESTRATION:
U: 0.35
Solar Heat Gain (SHGC): 0.30
-INSULATION MINIMUM EFFICIENCY:
FLOORS: R-19
WALLS: R-15
CEILING: R-38

NOTES: GSB Plan# 2L-2937
-FOLLOW 2nd FLOOR LAYOUT sheet for MFGR INSTRUCTIONS
-ADD STUD COLUMNS per CODE and bearing REQUIREMENTS at wall OPENINGS, WINDOWS, and BEAMS as NOTED and NEEDED
-ALL WINDOW HEADERS 2-2x10 UNO, RAISED TO TOP PLATE U.N.O.
-DINING WINDOW HEADERS DROPPED, SET AT 41" A.U.F.
OPTIONAL PER BLDR
-ALL EXTERIOR DOOR HEADERS 2-2x10" DROPPED
-NO UPSET HEADERS
-ALL NON-BEARING headers (2)-2x6"
-Walls 9" STUDS, 2x4, INC. GARAGE at same level as HOUSE
-TEMP GLASS Master Bath WND only
-BALLOON FRAME LIVING REAR and LEFT Living/ Foyer WALLS, 2x6 framing
-NOTE: BREAKFAST RIGHT EXT, LAUNDRY wall is 2x6 for plumbing AS SHOWN
-2nd FL INT. BEAMS FLUSH with CEILING5
-2nd FL over DECK beams DROPPED
-ROOF Overhangs 12"



E2
P-1
Exterior Elevation Left

E4
P-1
Exterior Elevation Right

E1
P-1
Exterior Elevation Front

| REVISION TABLE | NUMBER | DATE | REVISED BY | DESCRIPTION |
|----------------|--------|------|------------|-------------|
| | | | | |
| | | | | |
| | | | | |
| | | | | |

PLAN 2L-245T (245T) HTD. 90 FT. OPEN FOYER
 (W/ CLOSED FOYER 3009SF HTD.)
 2-STOREY, 2-CAR GARAGE
 SIDE OR FRONT LOAD OPTIONS

2ND. FLOOR LAYOUT

DRAWINGS PROVIDED BY:
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 Karelian Homes, Inc.
 Pittsboro, NC 27312
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DATE:

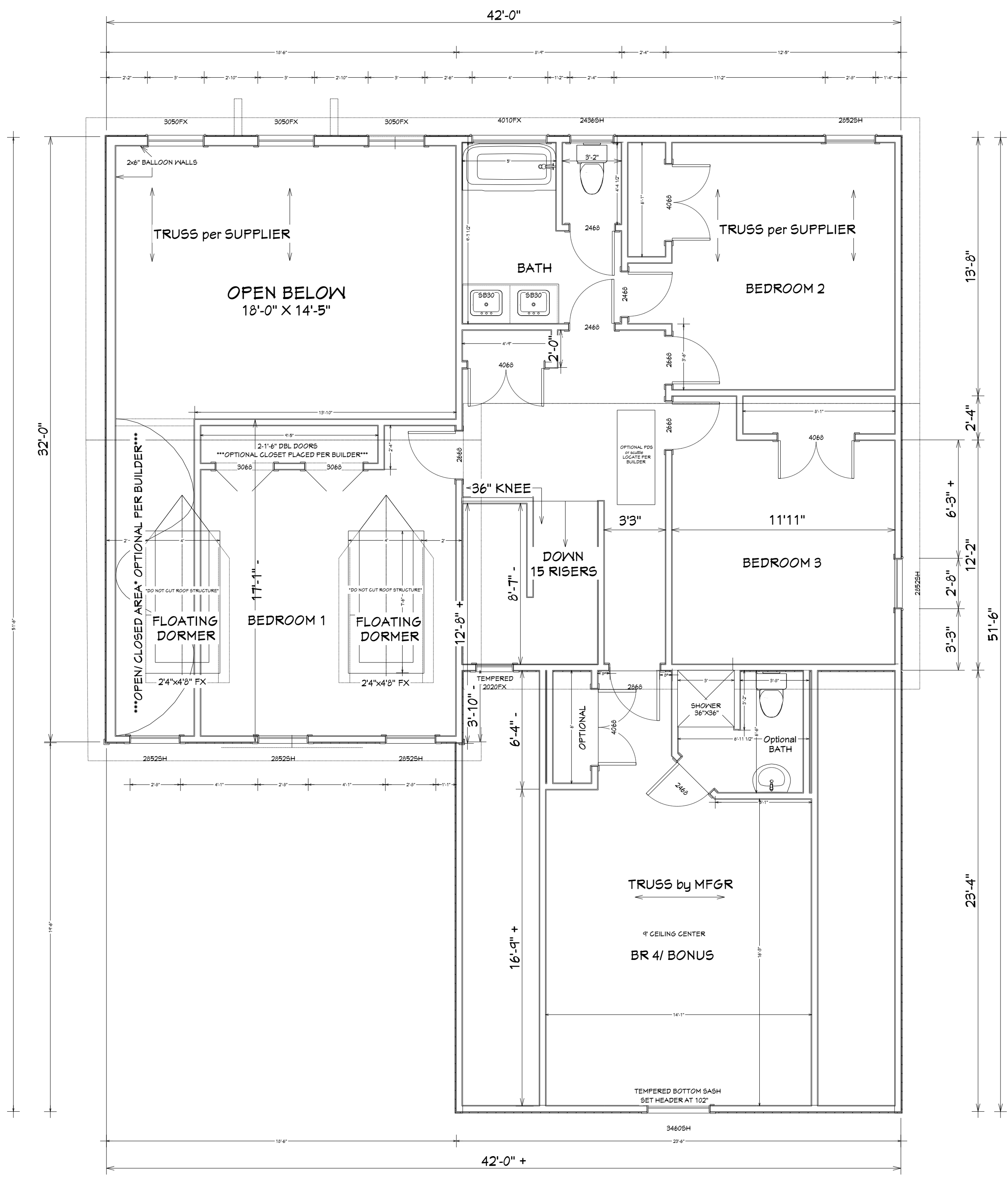
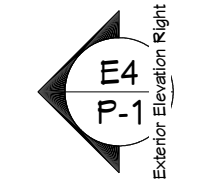
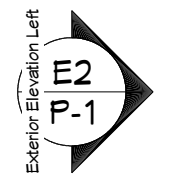
6/26/2023

SCALE:

1/4"=1'-0"

SHEET:

3



BUILDING AREA:
 TOTAL Heated: 24315F (30095F W/ OPT CLOSED FOYER)
 1st FLOOR 17085F
 2nd FLOOR 12245F (1301 W/ OPT CLOSED FOYER)
 GARAGE 5455F
 PORCH 1245F
 DECK 1425F

ENERGY EFFICIENCY NOTES:
 -WINDOW MINIMUM FENESTRATION:
 U: 0.35
 Solar Heat Gain (SHGC): 0.30
 -INSULATION MINIMUM EFFICIENCY:
 FLOORS: R-19
 WALLS: R-15
 CEILING: R-38

NOTES: 2ND FL GSB Plan #2L-245T
 -FOLLOW ROOF LAYOUT sheet and TRUSS DRAWINGS for specific MFGR INSTRUCTIONS
 -TEMPERED glass in STAIRWELL window, BONUS WINDOW BOTTOM SASH
 -All walls 2x4, 8' nominal, use PRECUT studs
 -Window HEADER HEIGHT (2)-2x6 RAISED TO TOP PLATE U.N.O. (*BONUS HEADER SET AT 102" A.U.F.*)
 -ALL Non load bearing headers 2-2x6
 -FACIA" 2x6" all GABLES only, 2x4" all FLAT areas
 -FRAME BATHTUBS at 5'-0"
 -ROOF Pitch MAIN 10/12, GARAGE 12/12, PORCH 3/12, DORMERS 12/12
 -ROOF OVERHANGS 12"



ROOF & FLOOR TRUSSES & BEAMS

Reilly Road Industrial Park
 Fayetteville, N.C. 28309
 Phone: (910) 864-8787
 Fax: (910) 864-4444

Bearing reactions less than or equal to 3000# are deemed to comply with the prescriptive Code requirements. The contractor shall refer to the attached Tables (derived from the prescriptive Code requirements) to determine the minimum foundation size and number of wood studs required to support reactions greater than 3000# but not greater than 15000#. A registered design professional shall be retained to design the support system for any reaction that exceeds those specified in the attached Tables. A registered design professional shall be retained to design the support system for all reactions that exceed 15000#.

Signature Bob Lewis
Bob Lewis

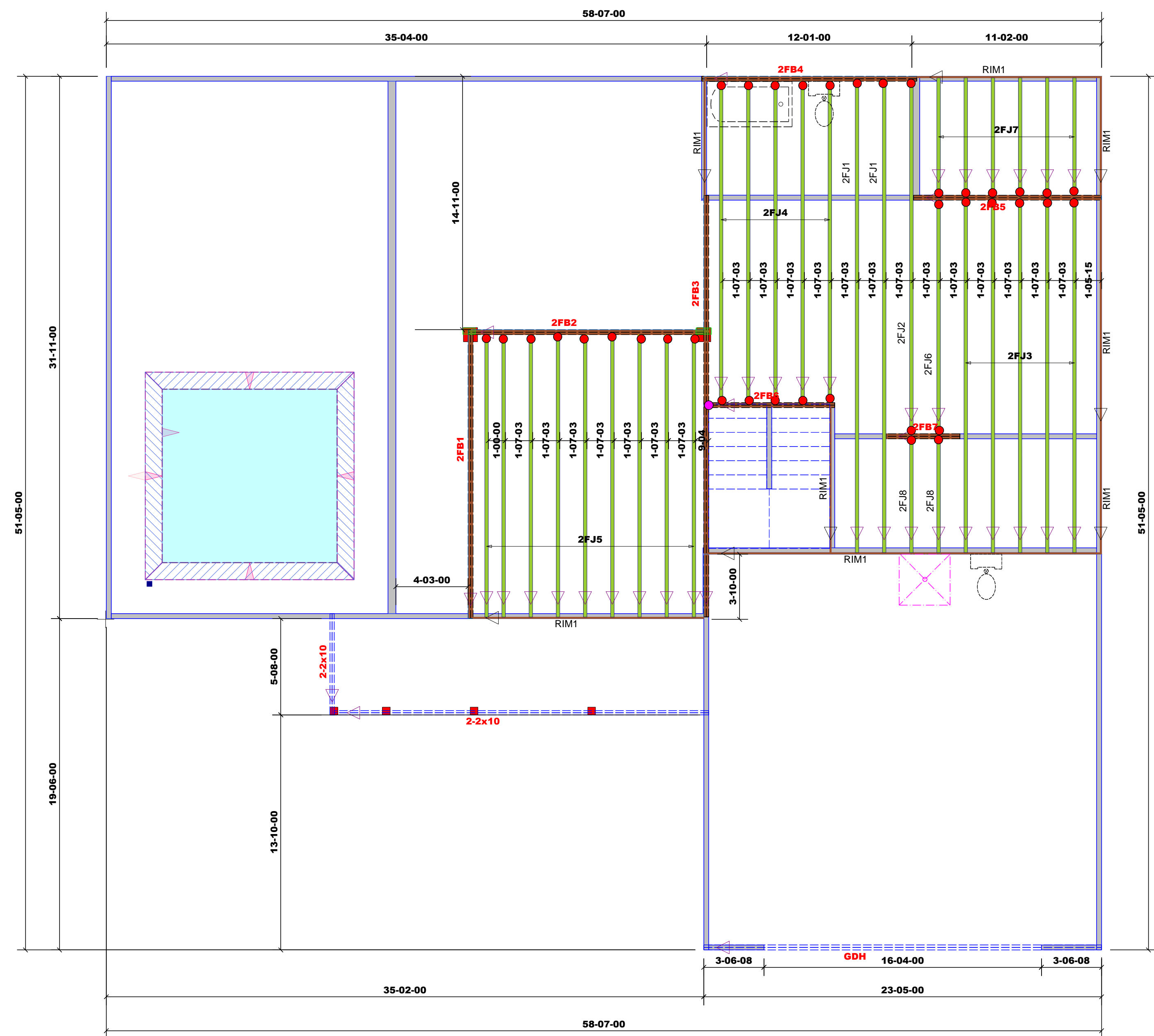
LOAD CHART FOR JACK STUDS

(BASED ON TABLES R502.5(1) & (b))
 NUMBER OF JACK STUDS REQUIRED @ EA END OF HEADER/GIRDER

| END REACTION (UP TO) | REQ. D. STUDS FOR (1) PLY HEADER | END REACTION (UP TO) | REQ. D. STUDS FOR (1) PLY HEADER | END REACTION (UP TO) | REQ. D. STUDS FOR (1) PLY HEADER |
|----------------------|----------------------------------|----------------------|----------------------------------|----------------------|----------------------------------|
| 1700 | 1 | 2550 | 1 | 3400 | 1 |
| 3400 | 2 | 5100 | 2 | 6800 | 2 |
| 5100 | 3 | 7650 | 3 | 10200 | 3 |
| 6800 | 4 | 10200 | 4 | 13600 | 4 |
| 8500 | 5 | 12750 | 5 | 17000 | 5 |
| 10200 | 6 | 15300 | 6 | | |
| 11900 | 7 | | | | |
| 13600 | 8 | | | | |
| 15300 | 9 | | | | |

| | |
|-------------------|----------------|
| CITY / CO. | SANFORD / LEE |
| ADDRESS | LONGLEAF COURT |
| MODEL | ROOF - 2 STORY |
| DATE REV. | 05/15/23 |
| DRAWN BY | Bob Lewis |
| SALES REP. | Bob Lewis |

| | |
|------------------|-------------------|
| BUILDER | GREAT SOUTH BLDRS |
| JOB NAME | LOT 36L |
| PLAN | 2L-2937 |
| SEAL DATE | Seal Date |
| QUOTE # | Quote # |
| JOB # | JO423-1835 |



NI40 JOISTS / RIMBOARD BY COMTECH

| PlotID | Length | Product | Plies | Net Qty | Fab Type |
|--------|----------|------------------------|-------|---------|----------|
| 2FJ1 | 28-00-00 | 14" NI-40x | 1 | 2 | MFD |
| 2FJ2 | 22-00-00 | 14" NI-40x | 1 | 1 | MFD |
| 2FJ3 | 22-00-00 | 14" NI-40x | 1 | 5 | MFD |
| 2FJ4 | 20-00-00 | 14" NI-40x | 1 | 5 | MFD |
| 2FJ5 | 18-00-00 | 14" NI-40x | 1 | 9 | MFD |
| 2FJ6 | 14-00-00 | 14" NI-40x | 1 | 1 | MFD |
| 2FJ7 | 8-00-00 | 14" NI-40x | 1 | 6 | MFD |
| 2FJ8 | 8-00-00 | 14" NI-40x | 1 | 2 | MFD |
| RIM1 | 12-00-00 | 1 1/8" x 14" Rim Board | 1 | 8 | FF |

LVL BY COMTECH

| PlotID | Length | Product | Plies | Net Qty | Fab Type |
|--------|----------|-----------------------------|-------|---------|----------|
| GDH | 24-00-00 | 1-3/4"x 11-7/8" LVL Kerto-S | 2 | 2 | FF |
| 2FB3 | 25-00-00 | 1-3/4"x 14" LVL Kerto-S | 2 | 2 | FF |
| 2FB1 | 17-00-00 | 1-3/4"x 14" LVL Kerto-S | 2 | 2 | FF |
| 2FB2 | 14-00-00 | 1-3/4"x 14" LVL Kerto-S | 2 | 2 | FF |
| 2FB4 | 13-00-00 | 1-3/4"x 14" LVL Kerto-S | 2 | 2 | FF |
| 2FB5 | 12-00-00 | 1-3/4"x 14" LVL Kerto-S | 2 | 2 | FF |
| 2FB6 | 8-00-00 | 1-3/4"x 14" LVL Kerto-S | 2 | 2 | FF |
| 2FB7 | 5-00-00 | 1-3/4"x 14" LVL Kerto-S | 2 | 2 | FF |

● IHF2514 USP 38 NA 16d/3-1/2" 16d/3-1/2"

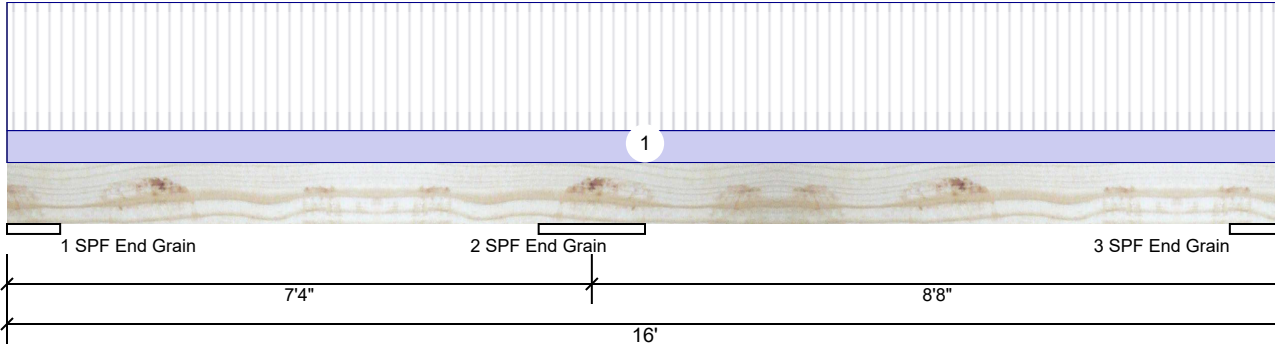
Truss Placement Plan
 SCALE: NTS

▲ = Indicates Left End of Truss
 (Reference Engineered Truss Drawing)
 Do NOT Erect Truss Backwards

THIS IS A TRUSS PLACEMENT DIAGRAM ONLY. These trusses are designed as individual building components to be incorporated into the building design at the specification of the building designer. See individual design sheets for each truss design identified on the placement drawing. The building designer is responsible for temporary and permanent bracing of the roof and floor system and for the overall structure. The design of the truss support structure including headers, beams, walls, and columns is the responsibility of the building designer. For general guidance regarding bracing, consult BCSI-B1 and BCSI-B3 provided with the truss delivery package or online @ sbcindustry.com

1DB2 Kerto-S LVL 1.750" X 9.250" 3-Ply - PASSED

Level: Level



Member Information

| | | | |
|---------------------|---------------|----------------|--------------|
| Type: | Girder | Application: | Floor |
| Plies: | 3 | Design Method: | ASD |
| Moisture Condition: | Dry | Building Code: | IBC/IRC 2015 |
| Deflection LL: | 480 | Load Sharing: | Yes |
| Deflection TL: | 240 | Deck: | Not Checked |
| Importance: | Normal - II | | |
| Temperature: | Temp <= 100°F | | |

Reactions UNPATTERNED lb (Uplift)

| Brg | Direction | Live | Dead | Snow | Wind | Const |
|-----|-----------|------|------|------|------|-------|
| 1 | Vertical | 2271 | 598 | 0 | 0 | 0 |
| 2 | Vertical | 7018 | 1849 | 0 | 0 | 0 |
| 3 | Vertical | 2903 | 765 | 0 | 0 | 0 |

Bearings

| Bearing | Length | Dir. | Cap. | React D/L lb | Total | Ld. Case | Ld. Comb. |
|-------------------|---------|------|------|--------------|-------|----------|-----------|
| 1 - SPF End Grain | 8.000" | Vert | 9% | 588 / 2733 | 3320 | L_ | D+L |
| 2 - SPF End Grain | 16.000" | Vert | 13% | 1868 / 7091 | 8959 | LL | D+L |
| 3 - SPF End Grain | 8.000" | Vert | 11% | 756 / 3114 | 3870 | _L | D+L |

Analysis Results

| Analysis | Actual | Location | Allowed | Capacity | Comb. | Case |
|--------------|----------------|-------------|---------------|-------------|-------|------|
| Neg Moment | -6743 ft-lb | 7'4" | 19565 ft-lb | 0.345 (34%) | D+L | LL |
| Unbraced | -6743 ft-lb | 7'4" | 7759 ft-lb | 0.869 (87%) | D+L | LL |
| Pos Moment | 5615 ft-lb | 11'11 3/4" | 19565 ft-lb | 0.287 (29%) | D+L | _L |
| Unbraced | 5615 ft-lb | 11'11 3/4" | 7759 ft-lb | 0.724 (72%) | D+L | _L |
| Shear | 3342 lb | 8'9 1/4" | 10360 lb | 0.323 (32%) | D+L | LL |
| LL Defl inch | 0.087 (L/1111) | 11'6 13/16" | 0.202 (L/480) | 0.432 (43%) | L | _L |
| TL Defl inch | 0.105 (L/920) | 11'7 3/16" | 0.403 (L/240) | 0.261 (26%) | D+L | _L |

Design Notes

- 1 Provide support to prevent lateral movement and rotation at the end bearings. Lateral support may also be required at the interior bearings by the building code.
- 2 Girders are designed to be supported on the bottom edge only.
- 3 Multiple plies must be fastened together as per manufacturer's details.
- 4 Top loads must be supported equally by all plies.
- 5 Top must be laterally braced at end bearings.
- 6 Bottom must be laterally braced at end bearings.
- 7 Lateral slenderness ratio based on single ply width.

| ID | Load Type | Location | Trib Width | Side | Dead 0.9 | Live 1 | Snow 1.15 | Wind 1.6 | Const. 1.25 | Comments |
|----|-------------|----------|------------|------|----------|---------|-----------|----------|-------------|----------|
| 1 | Uniform | | | Top | 190 PLF | 762 PLF | 0 PLF | 0 PLF | 0 PLF | 1FJ1 |
| | Self Weight | | | | 11 PLF | | | | | |

Notes

Calculated Structural Designs is responsible only of the structural adequacy of this component based on the design criteria and loadings shown. It is the responsibility of the customer and/or the contractor to ensure the component suitability of the intended application, and to verify the dimensions and loads.

Lumber

1. Dry service conditions, unless noted otherwise
2. LVL not to be treated with fire retardant or corrosive

chemicals

Handling & Installation

1. LVL beams must not be cut or drilled
2. Refer to manufacturer's product information regarding installation requirements, multi-ply fastening details, beam strength values, and code approvals
3. Damaged Beams must not be used
4. Design assumes top edge is laterally restrained
5. Provide lateral support at bearing points to avoid lateral displacement and rotation

6. For flat roofs provide proper drainage to prevent ponding

This design is valid until 11/3/2024

Manufacturer Info

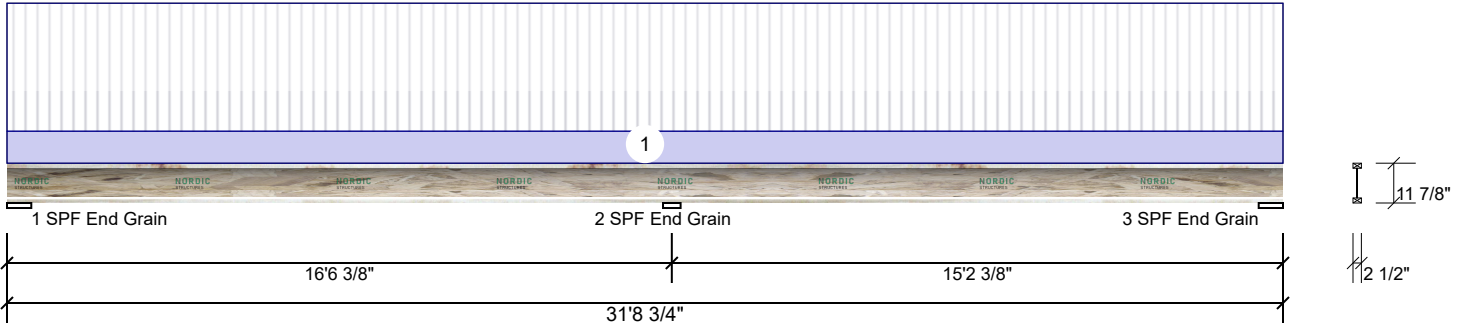
Metsä Wood
 301 Merritt 7 Building, 2nd Floor
 Norwalk, CT 06851
 (800) 622-5850
www.metsawood.com/us

Comtech
 Reilly Road Industrial Park P.O. Box 40408, NC
 USA
 28309
 910-864-8787



1FJ1 NI-40x 11.875" - PASSED

Level: Level



Member Information

| | | | |
|---------------------|---------------|----------------|--|
| Type: | Joist | Application: | Floor |
| Spacing: | 19.2" o.c. | Design Method: | ASD |
| Moisture Condition: | Dry | Building Code: | IBC/IRC 2015 |
| Deflection LL: | 480 | Load Sharing: | No |
| Deflection TL: | 240 | Deck: | 3/4 APA Rated Sturd-I-Floor Plywood Nailed and Glued |
| Importance: | Normal - II | | |
| Temperature: | Temp <= 100°F | | |

Reactions UNPATTERNED lb (Uplift)

| Brg | Direction | Live | Dead | Snow | Wind | Const |
|-----|-----------|------|------|------|------|-------|
| 1 | Vertical | 434 | 109 | 0 | 0 | 0 |
| 2 | Vertical | 1215 | 304 | 0 | 0 | 0 |
| 3 | Vertical | 381 | 95 | 0 | 0 | 0 |

Bearings

| Bearing | Length | Dir. | Cap. | React D/L lb | Total | Ld. Case | Ld. Comb. |
|-------------------|--------|------|------|--------------|-------|----------|-----------|
| 1 - SPF End Grain | 7.250" | Vert | 40% | 108 / 482 | 591 | L_ | D+L |
| 2 - SPF End Grain | 5.250" | Vert | 44% | 304 / 1218 | 1522 | LL | D+L |
| 3 - SPF End Grain | 7.250" | Vert | 37% | 95 / 450 | 545 | _L | D+L |

Analysis Results

| Analysis | Actual | Location | Allowed | Capacity | Comb. | Case |
|--------------|----------------|-----------|---------------|-------------|-------|------|
| Neg Moment | -2265 ft-lb | 16'6 3/8" | 3760 ft-lb | 0.602 (60%) | D+L | LL |
| Unbraced | -2265 ft-lb | 16'6 3/8" | 2289 ft-lb | 0.989 (99%) | D+L | LL |
| Pos Moment | 1872 ft-lb | 7'4 9/16" | 3760 ft-lb | 0.498 (50%) | D+L | L_ |
| Shear | 781 lb | 16'6 3/8" | 1480 lb | 0.528 (53%) | D+L | LL |
| LL Defl inch | 0.174 (L/1100) | 8'2" | 0.400 (L/480) | 0.436 (44%) | L | L_ |
| TL Defl inch | 0.207 (L/928) | 8'1 1/16" | 0.799 (L/240) | 0.259 (26%) | D+L | L_ |

Design Notes

- Provide support to prevent lateral movement and rotation at the end bearings. Lateral support may also be required at the interior bearings by the building code.
- Bottom flange must be laterally braced at a maximum of 4'8" o.c.

| ID | Load Type | Location | Trib Width | Dead 0.9 | Live 1 | Snow 1.15 | Wind 1.6 | Const. 1.25 | Comments |
|----|-----------|----------|------------|----------|--------|-----------|----------|-------------|----------|
| 1 | Uniform | | 1-7-3 | 10 PSF | 40 PSF | 0 PSF | 0 PSF | 0 PSF | |

Notes

It is the responsibility of the customer and/or the contractor to ensure the component suitability of the intended application and to verify the dimensions and loads.

Engineered Wood Products

- Dry service conditions, unless noted otherwise
- No treatment with fire-retardant or other strength-reducing chemicals.

Handling & Installation

- Engineered wood products must not be cut or drilled. Damaged products shall not be used.
- Refer to the latest version of the installation guide for construction details, hole specifications, multiple-member connections, and handling guidelines.
- Provide lateral support at bearing points to prevent lateral displacement and rotation.
- For flat roof, provide proper drainage to prevent ponding.
- Design assumes top flange to be laterally restrained

by attached sheathing or as specified in engineering notes.

This design is valid until 11/3/2024

Manufacturer Info

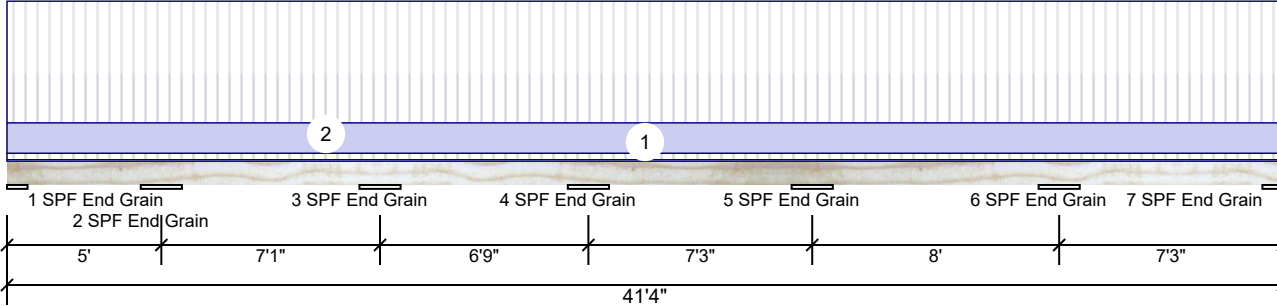
Nordic Structures
 1100 Avenue des Canadiens-de-Montréal, Suite 100
 Montréal, Québec, Canada H3B 2S2
 (866) 871-3418
 www.nordic.ca
 APA PR-L274C

Comtech
 Reilly Road Industrial Park P.O. Box 40408, NC
 USA
 28309
 910-864-8787



1DB1 Kerto-S LVL 1.750" X 9.250" 2-Ply - PASSED

Level: Level



Member Information

| | | | |
|---------------------|---------------|----------------|--------------|
| Type: | Girder | Application: | Floor |
| Plies: | 2 | Design Method: | ASD |
| Moisture Condition: | Dry | Building Code: | IBC/IRC 2015 |
| Deflection LL: | 480 | Load Sharing: | No |
| Deflection TL: | 240 | Deck: | Not Checked |
| Importance: | Normal - II | | |
| Temperature: | Temp <= 100°F | | |

Reactions UNPATTERNED Ib (Uplift)

| Brg | Direction | Live | Dead | Snow | Wind | Const |
|-----|-----------|------|------|------|------|-------|
| 1 | Vertical | 1636 | 423 | 0 | 0 | 0 |
| 2 | Vertical | 5125 | 1324 | 0 | 0 | 0 |
| 3 | Vertical | 5667 | 1464 | 0 | 0 | 0 |
| 4 | Vertical | 5465 | 1412 | 0 | 0 | 0 |
| 5 | Vertical | 6196 | 1601 | 0 | 0 | 0 |
| 6 | Vertical | 6557 | 1694 | 0 | 0 | 0 |
| 7 | Vertical | 2504 | 647 | 0 | 0 | 0 |

Analysis Results

| Analysis | Actual | Location | Allowed | Capacity | Comb. | Case |
|--------------|---------------|------------|---------------|--------------|-------|--------|
| Neg Moment | -6184 ft-lb | 34'1" | 12542 ft-lb | 0.493 (49%) | D+L | L_L_LL |
| Unbraced | -6184 ft-lb | 34'1" | 6195 ft-lb | 0.998 (100%) | D+L | L_L_LL |
| Pos Moment | 4387 ft-lb | 30' 1/16" | 12542 ft-lb | 0.350 (35%) | D+L | L_L_L_ |
| Unbraced | 4387 ft-lb | 30' 1/16" | 4394 ft-lb | 0.998 (100%) | D+L | L_L_L_ |
| Shear | 3020 lb | 32'7 3/4" | 6907 lb | 0.437 (44%) | D+L | L_L_LL |
| LL Defl inch | 0.106 (L/902) | 30' 11/16" | 0.200 (L/480) | 0.532 (53%) | L | L_L_L_ |
| TL Defl inch | 0.122 (L/789) | 30' 9/16" | 0.400 (L/240) | 0.304 (30%) | D+L | L_L_L_ |

Bearings

| Bearing | Length | Dir. | Cap. | React D/L | Ib | Total | Ld. Case | Ld. Comb. |
|-------------------|---------|------|------|-------------|------|--------|----------|-----------|
| 1 - SPF End Grain | 8.000" | Vert | 11% | 415 / 2213 | 2628 | L_L_L_ | D+L | |
| 2 - SPF End Grain | 16.000" | Vert | 15% | 1336 / 5717 | 7054 | LL_L_L | D+L | |
| 3 - SPF End Grain | 16.000" | Vert | 17% | 1460 / 6430 | 7891 | _LL_L_ | D+L | |
| 4 - SPF End Grain | 16.000" | Vert | 17% | 1411 / 6587 | 7997 | L_LL_L | D+L | |
| 5 - SPF End Grain | 16.000" | Vert | 18% | 1596 / 7045 | 8641 | _L_LL_ | D+L | |
| 6 - SPF End Grain | 16.000" | Vert | 19% | 1704 / 7045 | 8749 | L_L_LL | D+L | |
| 7 - SPF End Grain | 8.000" | Vert | 15% | 642 / 2914 | 3556 | _L_L_L | D+L | |

Design Notes

- Provide support to prevent lateral movement and rotation at the end bearings. Lateral support may also be required at the interior bearings by the building code.
- Girders are designed to be supported on the bottom edge only.
- Multiple plies must be fastened together as per manufacturer's details.
- Top loads must be supported equally by all plies.
- Top must be laterally braced at a maximum of 17'6 3/16" o.c.
- Bottom must be laterally braced at a maximum of 12'2" o.c.
- Lateral slenderness ratio based on single ply width.

| ID | Load Type | Location | Trib Width | Side | Dead 0.9 | Live 1 | Snow 1.15 | Wind 1.6 | Const. 1.25 | Comments |
|----|-------------|----------|------------|------|----------|---------|-----------|----------|-------------|----------|
| 1 | Uniform | | | Top | 10 PLF | 40 PLF | 0 PLF | 0 PLF | 0 PLF | |
| 2 | Uniform | | | Top | 190 PLF | 762 PLF | 0 PLF | 0 PLF | 0 PLF | 1FJ1 |
| | Self Weight | | | | 7 PLF | | | | | |

Notes

Calculated Structured Designs is responsible only of the structural adequacy of this component based on the design criteria and loadings shown. It is the responsibility of the customer and/or the contractor to ensure the component suitability of the intended application, and to verify the dimensions and loads.

Lumber

- Dry service conditions, unless noted otherwise
- LVL not to be treated with fire retardant or corrosive chemicals

Handling & Installation

- LVL beams must not be cut or drilled
- Refer to manufacturer's product information regarding installation requirements, multi-ply fastening details, beam strength values, and code approvals
- Damaged Beams must not be used
- Design assumes top edge is laterally restrained
- Provide lateral support at bearing points to avoid lateral displacement and rotation

6. For flat roofs provide proper drainage to prevent ponding

This design is valid until 11/3/2024

Manufacturer Info

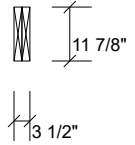
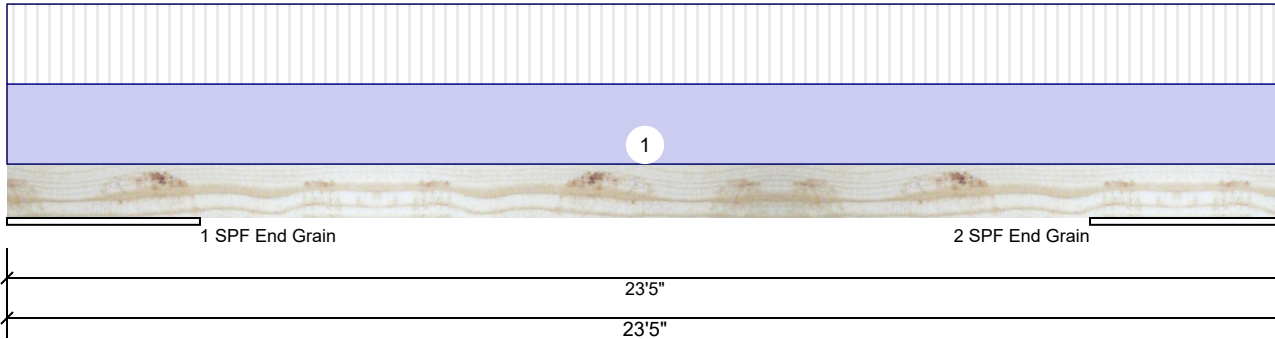
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 301 Merritt 7 Building, 2nd Floor
 Norwalk, CT 06851
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www.metsawood.com/us

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 28309
 910-864-8787



GDH Kerto-S LVL 1.750" X 11.875" 2-Ply - PASSED

Level: Level



Member Information

| | | | |
|---------------------|---------------|----------------|--------------|
| Type: | Girder | Application: | Floor |
| Plies: | 2 | Design Method: | ASD |
| Moisture Condition: | Dry | Building Code: | IBC/IRC 2015 |
| Deflection LL: | 480 | Load Sharing: | No |
| Deflection TL: | 240 | Deck: | Not Checked |
| Importance: | Normal - II | | |
| Temperature: | Temp <= 100°F | | |

Reactions UNPATTERNED lb (Uplift)

| Brg | Direction | Live | Dead | Snow | Wind | Const |
|-----|-----------|------|------|------|------|-------|
| 1 | Vertical | 2517 | 2625 | 0 | 0 | 0 |
| 2 | Vertical | 2517 | 2625 | 0 | 0 | 0 |

Bearings

| Bearing | Length | Dir. | Cap. | React D/L lb | Total | Ld. Case | Ld. Comb. |
|-------------------|---------|------|------|--------------|-------|----------|-----------|
| 1 - SPF End Grain | 42.500" | Vert | 4% | 2625 / 2517 | 5143 | L | D+L |
| 2 - SPF End Grain | 42.500" | Vert | 4% | 2625 / 2517 | 5143 | L | D+L |

Analysis Results

| Analysis | Actual | Location | Allowed | Capacity | Comb. | Case |
|--------------|---------------|------------|---------------|--------------|-------|------|
| Moment | 14872 ft-lb | 11'8 1/2" | 19911 ft-lb | 0.747 (75%) | D+L | L |
| Unbraced | 14872 ft-lb | 11'8 1/2" | 14883 ft-lb | 0.999 (100%) | D+L | L |
| Shear | 3162 lb | 4'6 3/8" | 8867 lb | 0.357 (36%) | D+L | L |
| LL Defl inch | 0.384 (L/515) | 11'8 9/16" | 0.411 (L/480) | 0.932 (93%) | L | L |
| TL Defl inch | 0.784 (L/252) | 11'8 9/16" | 0.823 (L/240) | 0.952 (95%) | D+L | L |

Design Notes

- 1 Provide support to prevent lateral movement and rotation at the end bearings. Lateral support may also be required at the interior bearings by the building code.
- 2 Girders are designed to be supported on the bottom edge only.
- 3 Multiple plies must be fastened together as per manufacturer's details.
- 4 Top loads must be supported equally by all plies.
- 5 Top must be laterally braced at a maximum of 5'3 5/8" o.c.
- 6 Bottom must be laterally braced at end bearings.
- 7 Lateral slenderness ratio based on single ply width.

| ID | Load Type | Location | Trib Width | Side | Dead 0.9 | Live 1 | Snow 1.15 | Wind 1.6 | Const. 1.25 | Comments |
|----|-------------|----------|------------|------|----------|---------|-----------|----------|-------------|----------|
| 1 | Uniform | | | Top | 215 PLF | 215 PLF | 0 PLF | 0 PLF | 0 PLF | |
| | Self Weight | | | | 9 PLF | | | | | |

Notes

Calculated Structured Designs is responsible only of the structural adequacy of this component based on the design criteria and loadings shown. It is the responsibility of the customer and/or the contractor to ensure the component suitability of the intended application, and to verify the dimensions and loads.

Lumber

1. Dry service conditions, unless noted otherwise
2. LVL not to be treated with fire retardant or corrosive chemicals

chemicals

Handling & Installation

1. LVL beams must not be cut or drilled
2. Refer to manufacturer's product information regarding installation requirements, multi-ply fastening details, beam strength values, and code approvals
3. Damaged Beams must not be used
4. Design assumes top edge is laterally restrained
5. Provide lateral support at bearing points to avoid lateral displacement and rotation

6. For flat roofs provide proper drainage to prevent ponding

This design is valid until 11/3/2024

Manufacturer Info

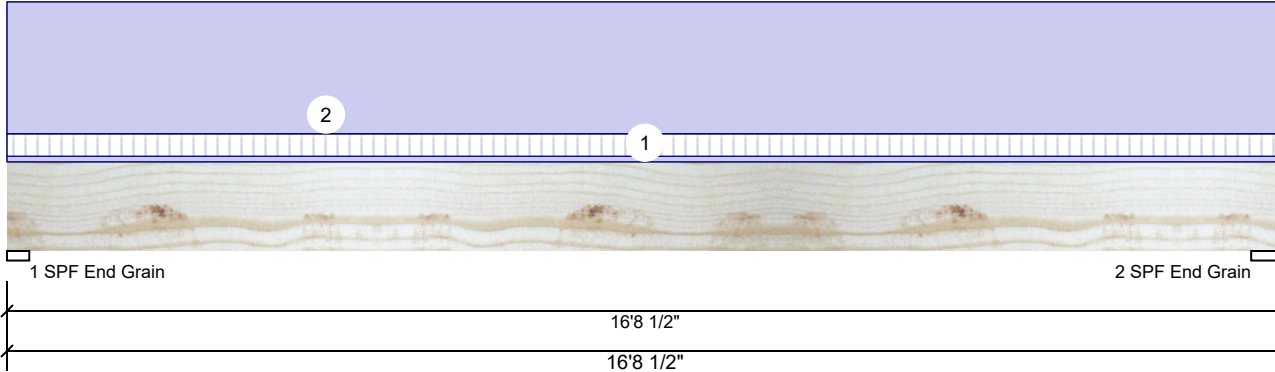
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2FB1 Kerto-S LVL 1.750" X 14.000" 2-Ply - PASSED

Level: Level



Member Information

| | | | |
|---------------------|---------------|----------------|--------------|
| Type: | Girder | Application: | Floor |
| Plies: | 2 | Design Method: | ASD |
| Moisture Condition: | Dry | Building Code: | IBC/IRC 2015 |
| Deflection LL: | 480 | Load Sharing: | No |
| Deflection TL: | 240 | Deck: | Not Checked |
| Importance: | Normal - II | | |
| Temperature: | Temp <= 100°F | | |

Reactions UNPATTERNED lb (Uplift)

| Brg | Direction | Live | Dead | Snow | Wind | Const |
|-----|-----------|------|------|------|------|-------|
| 1 | Vertical | 332 | 2113 | 0 | 0 | 0 |
| 2 | Vertical | 337 | 2145 | 0 | 0 | 0 |

Bearings

| Bearing | Length | Dir. | Cap. | React D/L lb | Total | Ld. Case | Ld. Comb. |
|-------------------|--------|------|------|--------------|-------|----------|-----------|
| 1 - SPF End Grain | 3.500" | Vert | 24% | 2113 / 332 | 2445 | L | D+L |
| 2 - SPF End Grain | 5.000" | Vert | 17% | 2145 / 337 | 2482 | L | D+L |

Analysis Results

| Analysis | Actual | Location | Allowed | Capacity | Comb. | Case |
|--------------|----------------|-----------|---------------|--------------|-------|------|
| Moment | 9584 ft-lb | 8'3 1/2" | 26999 ft-lb | 0.355 (35%) | D+L | L |
| Unbraced | 9584 ft-lb | 8'3 1/2" | 9597 ft-lb | 0.999 (100%) | D+L | L |
| Shear | 2028 lb | 1'5 1/2" | 10453 lb | 0.194 (19%) | D+L | L |
| LL Defl inch | 0.041 (L/4711) | 8'3 9/16" | 0.403 (L/480) | 0.102 (10%) | L | L |
| TL Defl inch | 0.303 (L/639) | 8'3 9/16" | 0.806 (L/240) | 0.376 (38%) | D+L | L |

Design Notes

- 1 Provide support to prevent lateral movement and rotation at the end bearings. Lateral support may also be required at the interior bearings by the building code.
- 2 Girders are designed to be supported on the bottom edge only.
- 3 Multiple plies must be fastened together as per manufacturer's details.
- 4 Top loads must be supported equally by all plies.
- 5 Top must be laterally braced at a maximum of 11'6 11/16" o.c.
- 6 Bottom must be laterally braced at end bearings.
- 7 Lateral slenderness ratio based on single ply width.

| ID | Load Type | Location | Trib Width | Side | Dead 0.9 | Live 1 | Snow 1.15 | Wind 1.6 | Const. 1.25 | Comments |
|----|-------------|----------|------------|------|----------|--------|-----------|----------|-------------|----------|
| 1 | Uniform | | 1-0-0 | Top | 10 PSF | 40 PSF | 0 PSF | 0 PSF | 0 PSF | |
| 2 | Uniform | | | Top | 234 PLF | 0 PLF | 0 PLF | 0 PLF | 0 PLF | WALL |
| | Self Weight | | | | 11 PLF | | | | | |

Notes

Calculated Structured Designs is responsible only of the structural adequacy of this component based on the design criteria and loadings shown. It is the responsibility of the customer and/or the contractor to ensure the component suitability of the intended application, and to verify the dimensions and loads.

Lumber

1. Dry service conditions, unless noted otherwise
2. LVL not to be treated with fire retardant or corrosive chemicals

chemicals

Handling & Installation

1. LVL beams must not be cut or drilled
2. Refer to manufacturer's product information regarding installation requirements, multi-ply fastening details, beam strength values, and code approvals
3. Damaged Beams must not be used
4. Design assumes top edge is laterally restrained
5. Provide lateral support at bearing points to avoid lateral displacement and rotation

6. For flat roofs provide proper drainage to prevent ponding

This design is valid until 11/3/2024

Manufacturer Info

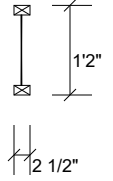
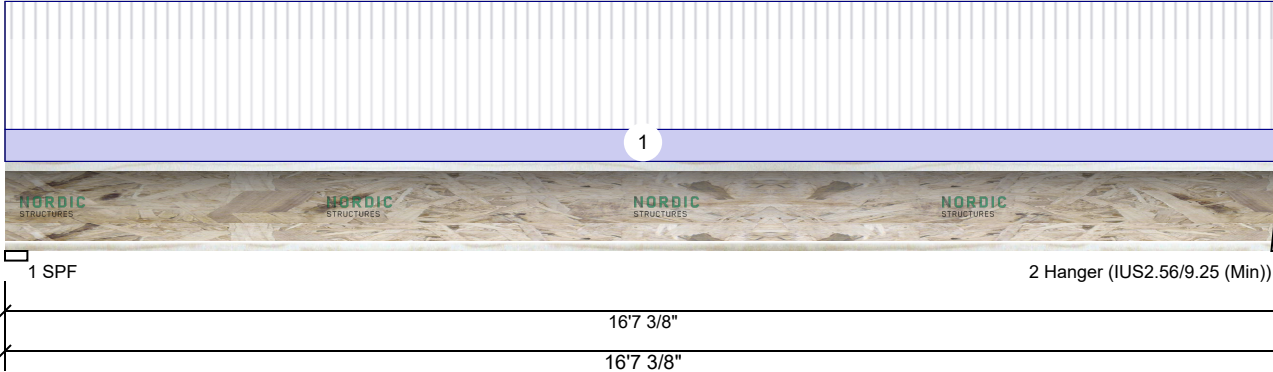
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2FJ5 NI-40x 14.000" - PASSED

Level: Level



Member Information

| | |
|---------------------|---------------|
| Type: | Joist |
| Spacing: | 19.2" o.c. |
| Moisture Condition: | Dry |
| Deflection LL: | 480 |
| Deflection TL: | 240 |
| Importance: | Normal - II |
| Temperature: | Temp <= 100°F |

| | |
|----------------|--------------|
| Application: | Floor |
| Design Method: | ASD |
| Building Code: | IBC/IRC 2015 |
| Load Sharing: | No |
| Deck: | Not Checked |

Reactions UNPATTERNED lb (Uplift)

| Brg | Direction | Live | Dead | Snow | Wind | Const |
|-----|-----------|------|------|------|------|-------|
| 1 | Vertical | 534 | 134 | 0 | 0 | 0 |
| 2 | Vertical | 529 | 132 | 0 | 0 | 0 |

Bearings

| Bearing | Length | Dir. | Cap. | React D/L lb | Total | Ld. Case | Ld. Comb. |
|------------|--------|------|------|--------------|-------|----------|-----------|
| 1 - SPF | 3.500" | Vert | 45% | 134 / 534 | 668 | L | D+L |
| 2 - Hanger | 1.500" | Vert | 47% | 132 / 529 | 661 | L | D+L |

Analysis Results

| Analysis | Actual | Location | Allowed | Capacity | Comb. | Case |
|--------------|---------------|-----------|---------------|--------------|-------|------|
| Moment | 2637 ft-lb | 8'4 3/16" | 4530 ft-lb | 0.582 (58%) | D+L | L |
| Unbraced | 2637 ft-lb | 8'4 3/16" | 2639 ft-lb | 1.000 (100%) | D+L | L |
| Shear | 650 lb | 2 3/4" | 1730 lb | 0.375 (38%) | D+L | L |
| LL Defl inch | 0.213 (L/914) | 8'4 1/4" | 0.406 (L/480) | 0.525 (53%) | L | L |
| TL Defl inch | 0.267 (L/731) | 8'4 1/4" | 0.812 (L/240) | 0.328 (33%) | D+L | L |

Design Notes

- 1 Provide support to prevent lateral movement and rotation at the end bearings. Lateral support may also be required at the interior bearings by the building code.
- 2 Fill all hanger nailing holes.
- 3 Top flange must be laterally braced at a maximum of 4'10" o.c.
- 4 Bottom flange must be laterally braced at bearings.

| ID | Load Type | Location | Trib Width | Dead 0.9 | Live 1 | Snow 1.15 | Wind 1.6 | Const. 1.25 | Comments |
|----|-----------|----------|------------|----------|--------|-----------|----------|-------------|----------|
| 1 | Uniform | | 1-7-3 | 10 PSF | 40 PSF | 0 PSF | 0 PSF | 0 PSF | |

Notes

It is the responsibility of the customer and/or the contractor to ensure the component suitability of the intended application and to verify the dimensions and loads.

Engineered Wood Products

1. Dry service conditions, unless noted otherwise
2. No treatment with fire-retardant or other strength-reducing chemicals.

Handling & Installation

1. Engineered wood products must not be cut or drilled. Damaged products shall not be used.
2. Refer to the latest version of the installation guide for construction details, hole specifications, multiple-member connections, and handling guidelines.
3. Provide lateral support at bearing points to prevent lateral displacement and rotation.
4. For flat roof, provide proper drainage to prevent ponding.
5. Design assumes top flange to be laterally restrained

by attached sheathing or as specified in engineering notes.

Manufacturer Info

Nordic Structures
 1100 Avenue des Canadiens-de-Montréal, Suite 100
 Montréal, Québec, Canada H3B 2S2
 (866) 871-3418
 www.nordic.ca
 APA PR-L274C

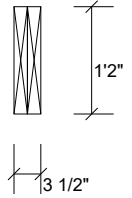
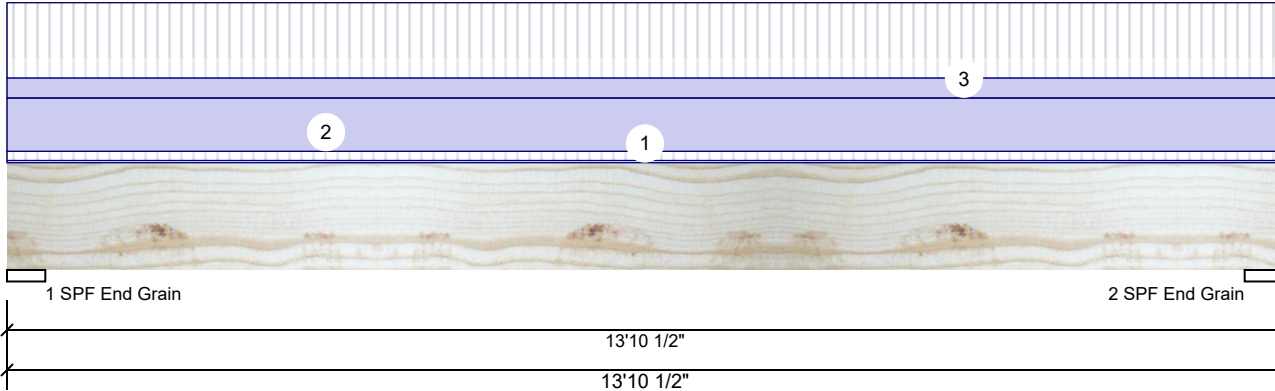
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This design is valid until 11/3/2024

2FB2 Kerto-S LVL 1.750" X 14.000" 2-Ply - PASSED

Level: Level



Member Information

| | |
|----------------------------|-----------------------------|
| Type: Girder | Application: Floor |
| Plies: 2 | Design Method: ASD |
| Moisture Condition: Dry | Building Code: IBC/IRC 2015 |
| Deflection LL: 480 | Load Sharing: No |
| Deflection TL: 240 | Deck: Not Checked |
| Importance: Normal - II | |
| Temperature: Temp <= 100°F | |

Reactions UNPATTERNED lb (Uplift)

| Brg | Direction | Live | Dead | Snow | Wind | Const |
|-----|-----------|------|------|------|------|-------|
| 1 | Vertical | 2567 | 2372 | 0 | 0 | 0 |
| 2 | Vertical | 2567 | 2372 | 0 | 0 | 0 |

Bearings

| Bearing | Length | Dir. | Cap. | React D/L lb | Total | Ld. Case | Ld. Comb. |
|-------------------|--------|------|------|--------------|-------|----------|-----------|
| 1 - SPF End Grain | 5.000" | Vert | 34% | 2372 / 2567 | 4939 | L | D+L |
| 2 - SPF End Grain | 5.000" | Vert | 34% | 2372 / 2567 | 4939 | L | D+L |

Analysis Results

| Analysis | Actual | Location | Allowed | Capacity | Comb. | Case |
|--------------|---------------|-----------|---------------|--------------|-------|------|
| Moment | 15427 ft-lb | 6'11 1/4" | 26999 ft-lb | 0.571 (57%) | D+L | L |
| Unbraced | 15427 ft-lb | 6'11 1/4" | 15443 ft-lb | 0.999 (100%) | D+L | L |
| Shear | 4311 lb | 1'7" | 10453 lb | 0.412 (41%) | D+L | L |
| LL Defl inch | 0.175 (L/902) | 6'11 1/4" | 0.329 (L/480) | 0.532 (53%) | L | L |
| TL Defl inch | 0.337 (L/469) | 6'11 1/4" | 0.658 (L/240) | 0.512 (51%) | D+L | L |

Design Notes

- 1 Provide support to prevent lateral movement and rotation at the end bearings. Lateral support may also be required at the interior bearings by the building code.
- 2 Girders are designed to be supported on the bottom edge only.
- 3 Multiple plies must be fastened together as per manufacturer's details.
- 4 Top loads must be supported equally by all plies.
- 5 Top must be laterally braced at a maximum of 6'6 1/16" o.c.
- 6 Bottom must be laterally braced at end bearings.
- 7 Lateral slenderness ratio based on single ply width.

| ID | Load Type | Location | Trib Width | Side | Dead 0.9 | Live 1 | Snow 1.15 | Wind 1.6 | Const. 1.25 | Comments |
|----|-------------|----------|------------|-----------|----------|---------|-----------|----------|-------------|----------|
| 1 | Uniform | | 1-0-0 | Top | 10 PSF | 40 PSF | 0 PSF | 0 PSF | 0 PSF | |
| 2 | Uniform | | | Top | 234 PLF | 0 PLF | 0 PLF | 0 PLF | 0 PLF | WALL |
| 3 | Uniform | | | Near Face | 87 PLF | 330 PLF | 0 PLF | 0 PLF | 0 PLF | 2FJ5 |
| | Self Weight | | | | 11 PLF | | | | | |

Notes

Calculated Structured Designs is responsible only of the structural adequacy of this component based on the design criteria and loadings shown. It is the responsibility of the customer and/or the contractor to ensure the component suitability of the intended application, and to verify the dimensions and loads.

Lumber

1. Dry service conditions, unless noted otherwise
2. LVL not to be treated with fire retardant or corrosive chemicals

chemicals

Handling & Installation

1. LVL beams must not be cut or drilled
2. Refer to manufacturer's product information regarding installation requirements, multi-ply fastening details, beam strength values, and code approvals
3. Damaged Beams must not be used
4. Design assumes top edge is laterally restrained
5. Provide lateral support at bearing points to avoid lateral displacement and rotation

6. For flat roofs provide proper drainage to prevent ponding

This design is valid until 11/3/2024

Manufacturer Info

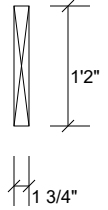
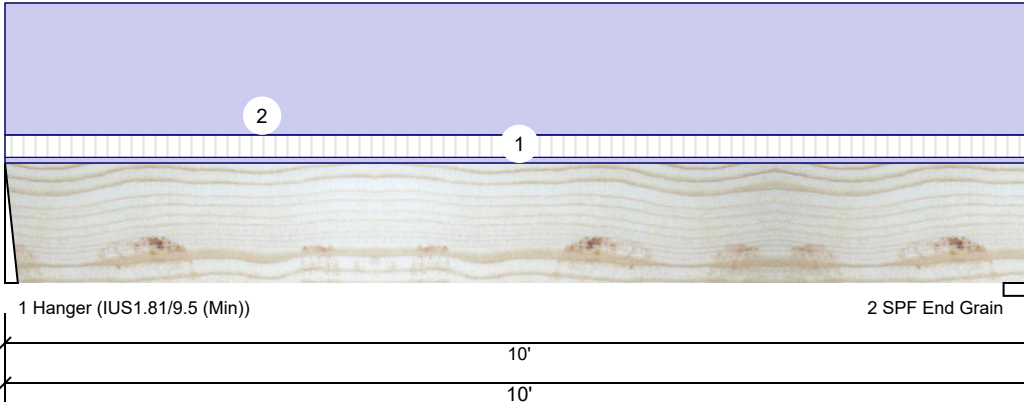
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2FB3 Kerto-S LVL 1.750" X 14.000" - PASSED

Level: Level



Member Information

| | | | |
|---------------------|---------------|----------------|--------------|
| Type: | Girder | Application: | Floor |
| Plies: | 1 | Design Method: | ASD |
| Moisture Condition: | Dry | Building Code: | IBC/IRC 2015 |
| Deflection LL: | 480 | Load Sharing: | No |
| Deflection TL: | 240 | Deck: | Not Checked |
| Importance: | Normal - II | | |
| Temperature: | Temp <= 100°F | | |

Reactions UNPATTERNED lb (Uplift)

| Brg | Direction | Live | Dead | Snow | Wind | Const |
|-----|-----------|------|------|------|------|-------|
| 1 | Vertical | 198 | 1237 | 0 | 0 | 0 |
| 2 | Vertical | 202 | 1258 | 0 | 0 | 0 |

Bearings

| Bearing | Length | Dir. | Cap. | React D/L lb | Total | Ld. Case | Ld. Comb. |
|-------------------|--------|------|------|--------------|-------|----------|-----------|
| 1 - Hanger | 1.500" | Vert | 39% | 1237 / 198 | 1435 | L | D+L |
| 2 - SPF End Grain | 3.500" | Vert | 28% | 1258 / 202 | 1459 | L | D+L |

Analysis Results

| Analysis | Actual | Location | Allowed | Capacity | Comb. | Case |
|--------------|----------------|-----------|---------------|-------------|-------|------|
| Moment | 3352 ft-lb | 4'11 1/2" | 13500 ft-lb | 0.248 (25%) | D+L | L |
| Unbraced | 3352 ft-lb | 4'11 1/2" | 5549 ft-lb | 0.604 (60%) | D+L | L |
| Shear | 1044 lb | 1'4 1/2" | 5227 lb | 0.200 (20%) | D+L | L |
| LL Defl inch | 0.012 (L/9764) | 4'11 1/2" | 0.241 (L/480) | 0.049 (5%) | L | L |
| TL Defl inch | 0.086 (L/1349) | 4'11 1/2" | 0.481 (L/240) | 0.178 (18%) | D+L | L |

Design Notes

- 1 Provide support to prevent lateral movement and rotation at the end bearings. Lateral support may also be required at the interior bearings by the building code.
- 2 Fill all hanger nailing holes.
- 3 Girders are designed to be supported on the bottom edge only.
- 4 Top must be laterally braced at end bearings.
- 5 Bottom must be laterally braced at end bearings.

| ID | Load Type | Location | Trib Width | Side | Dead 0.9 | Live 1 | Snow 1.15 | Wind 1.6 | Const. 1.25 | Comments |
|----|-------------|----------|------------|------|----------|--------|-----------|----------|-------------|----------|
| 1 | Uniform | | 1-0-0 | Top | 10 PSF | 40 PSF | 0 PSF | 0 PSF | 0 PSF | |
| 2 | Uniform | | | Top | 234 PLF | 0 PLF | 0 PLF | 0 PLF | 0 PLF | WALL |
| | Self Weight | | | | 5 PLF | | | | | |

Notes

Calculated Structured Designs is responsible only of the structural adequacy of this component based on the design criteria and loadings shown. It is the responsibility of the customer and/or the contractor to ensure the component suitability of the intended application, and to verify the dimensions and loads.

Lumber

1. Dry service conditions, unless noted otherwise
2. LVL not to be treated with fire retardant or corrosive

chemicals

Handling & Installation

1. LVL beams must not be cut or drilled
2. Refer to manufacturer's product information regarding installation requirements, multi-ply fastening details, beam strength values, and code approvals
3. Damaged Beams must not be used
4. Design assumes top edge is laterally restrained
5. Provide lateral support at bearing points to avoid lateral displacement and rotation

6. For flat roofs provide proper drainage to prevent ponding

This design is valid until 11/3/2024

Manufacturer Info

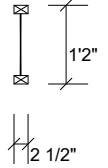
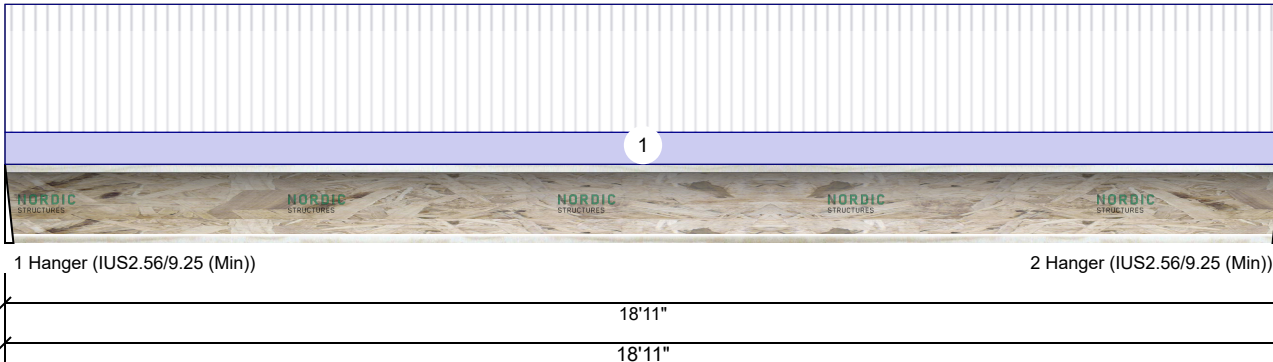
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2FJ4 NI-40x 14.000" - PASSED

Level: Level



Member Information

| | | | |
|---------------------|---------------|----------------|--------------|
| Type: | Joist | Application: | Floor |
| Spacing: | 19.2" o.c. | Design Method: | ASD |
| Moisture Condition: | Dry | Building Code: | IBC/IRC 2015 |
| Deflection LL: | 480 | Load Sharing: | No |
| Deflection TL: | 240 | Deck: | Not Checked |
| Importance: | Normal - II | | |
| Temperature: | Temp <= 100°F | | |

Reactions UNPATTERNED Ib (Uplift)

| Brg | Direction | Live | Dead | Snow | Wind | Const |
|-----|-----------|------|------|------|------|-------|
| 1 | Vertical | 605 | 151 | 0 | 0 | 0 |
| 2 | Vertical | 605 | 151 | 0 | 0 | 0 |

Bearings

| Bearing | Length | Dir. | Cap. | React D/L lb | Total | Ld. Case | Ld. Comb. |
|------------|--------|------|------|--------------|-------|----------|-----------|
| 1 - Hanger | 1.500" | Vert | 54% | 151 / 605 | 757 | L | D+L |
| 2 - Hanger | 1.500" | Vert | 54% | 151 / 605 | 757 | L | D+L |

Analysis Results

| Analysis | Actual | Location | Allowed | Capacity | Comb. | Case |
|--------------|---------------|-----------|---------------|--------------|-------|------|
| Moment | 3469 ft-lb | 9'5 1/2" | 4530 ft-lb | 0.766 (77%) | D+L | L |
| Unbraced | 3469 ft-lb | 9'5 1/2" | 3483 ft-lb | 0.996 (100%) | D+L | L |
| Shear | 745 lb | 1 3/4" | 1730 lb | 0.431 (43%) | D+L | L |
| LL Defl inch | 0.357 (L/625) | 9'5 9/16" | 0.466 (L/480) | 0.768 (77%) | L | L |
| TL Defl inch | 0.447 (L/500) | 9'5 9/16" | 0.931 (L/240) | 0.480 (48%) | D+L | L |

Design Notes

- Provide support to prevent lateral movement and rotation at the end bearings. Lateral support may also be required at the interior bearings by the building code.
- Fill all hanger nailing holes.
- Top flange must be laterally braced at a maximum of 3'8" o.c.
- Bottom flange must be laterally braced at bearings.

| ID | Load Type | Location | Trib Width | Dead 0.9 | Live 1 | Snow 1.15 | Wind 1.6 | Const. 1.25 | Comments |
|----|-----------|----------|------------|----------|--------|-----------|----------|-------------|----------|
| 1 | Uniform | | 1-7-3 | 10 PSF | 40 PSF | 0 PSF | 0 PSF | 0 PSF | |

Notes

It is the responsibility of the customer and/or the contractor to ensure the component suitability of the intended application and to verify the dimensions and loads.

Engineered Wood Products

- Dry service conditions, unless noted otherwise
- No treatment with fire-retardant or other strength-reducing chemicals.

Handling & Installation

- Engineered wood products must not be cut or drilled. Damaged products shall not be used.
- Refer to the latest version of the installation guide for construction details, hole specifications, multiple-member connections, and handling guidelines.
- Provide lateral support at bearing points to prevent lateral displacement and rotation.
- For flat roof, provide proper drainage to prevent ponding.
- Design assumes top flange to be laterally restrained

by attached sheathing or as specified in engineering notes.

This design is valid until 11/3/2024

Manufacturer Info

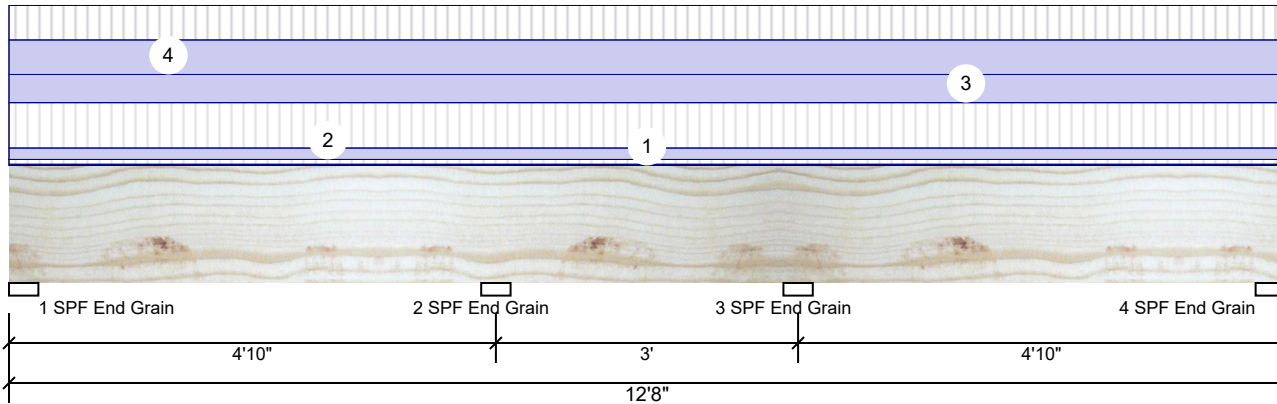
Nordic Structures
 1100 Avenue des Canadiens-de-Montréal, Suite 100
 Montréal, Québec, Canada H3B 2S2
 (866) 871-3418
 www.nordic.ca
 APA PR-L274C

Comtech
 Reilly Road Industrial Park P.O. Box 40408, NC
 USA
 28309
 910-864-8787



2FB4 Kerto-S LVL 1.750" X 14.000" 2-Ply - PASSED

Level: Level



Member Information

| | | | |
|---------------------|---------------|----------------|--------------|
| Type: | Girder | Application: | Floor |
| Plies: | 2 | Design Method: | ASD |
| Moisture Condition: | Dry | Building Code: | IBC/IRC 2015 |
| Deflection LL: | 480 | Load Sharing: | No |
| Deflection TL: | 240 | Deck: | Not Checked |
| Importance: | Normal - II | | |
| Temperature: | Temp <= 100°F | | |

Reactions UNPATTERNED lb (Uplift)

| Brg | Direction | Live | Dead | Snow | Wind | Const |
|-----|-----------|------|------|------|------|-------|
| 1 | Vertical | 1558 | 1407 | 0 | 0 | 0 |
| 2 | Vertical | 2907 | 2626 | 0 | 0 | 0 |
| 3 | Vertical | 2907 | 2626 | 0 | 0 | 0 |
| 4 | Vertical | 1558 | 1407 | 0 | 0 | 0 |

Bearings

| Bearing | Length | Dir. | Cap. | React D/L lb | Total | Ld. Case | Ld. Comb. |
|-------------------|--------|------|------|--------------|-------|----------|-----------|
| 1 - SPF End Grain | 3.500" | Vert | 29% | 1375 / 1579 | 2955 | L_L | D+L |
| 2 - SPF End Grain | 3.500" | Vert | 54% | 2658 / 3463 | 6121 | LL_ | D+L |
| 3 - SPF End Grain | 3.500" | Vert | 54% | 2658 / 3463 | 6121 | _LL | D+L |
| 4 - SPF End Grain | 3.500" | Vert | 29% | 1375 / 1579 | 2955 | L_L | D+L |

Analysis Results

| Analysis | Actual | Location | Allowed | Capacity | Comb. | Case |
|--------------|----------------|------------|---------------|-------------|-------|------|
| Neg Moment | -2528 ft-lb | 4'10" | 26999 ft-lb | 0.094 (9%) | D+L | LL_ |
| Unbraced | -2528 ft-lb | 4'10" | 9178 ft-lb | 0.275 (28%) | D+L | LL_ |
| Pos Moment | 2611 ft-lb | 10'5 9/16" | 26999 ft-lb | 0.097 (10%) | D+L | L_L |
| Unbraced | 2611 ft-lb | 10'5 9/16" | 9178 ft-lb | 0.285 (28%) | D+L | L_L |
| Shear | 2441 lb | 9'1 3/4" | 10453 lb | 0.234 (23%) | D+L | _LL |
| LL Defl inch | 0.008 (L/7132) | 2'5 13/16" | 0.115 (L/480) | 0.067 (7%) | L | L_ |
| TL Defl inch | 0.014 (L/3838) | 10'2 5/16" | 0.230 (L/240) | 0.063 (6%) | D+L | _L |

Design Notes

- 1 Provide support to prevent lateral movement and rotation at the end bearings. Lateral support may also be required at the interior bearings by the building code.
- 2 Girders are designed to be supported on the bottom edge only.
- 3 Multiple plies must be fastened together as per manufacturer's details.
- 4 Top loads must be supported equally by all plies.
- 5 Top must be laterally braced at end bearings.
- 6 Bottom must be laterally braced at end bearings.
- 7 Lateral slenderness ratio based on single ply width.

| ID | Load Type | Location | Trib Width | Side | Dead 0.9 | Live 1 | Snow 1.15 | Wind 1.6 | Const. 1.25 | Comments |
|----|-------------|----------|------------|-----------|----------|---------|-----------|----------|-------------|----------|
| 1 | Uniform | | 1-0-0 | Top | 10 PSF | 40 PSF | 0 PSF | 0 PSF | 0 PSF | |
| 2 | Uniform | | | Near Face | 95 PLF | 378 PLF | 0 PLF | 0 PLF | 0 PLF | 2FJ4 |
| 3 | Uniform | | | Top | 234 PLF | 0 PLF | 0 PLF | 0 PLF | 0 PLF | WALL |
| 4 | Uniform | | | Top | 287 PLF | 287 PLF | 0 PLF | 0 PLF | 0 PLF | B1 |
| | Self Weight | | | | 11 PLF | | | | | |

Notes

Calculated Structured Designs is responsible only of the structural adequacy of this component based on the design criteria and loadings shown. It is the responsibility of the customer and/or the contractor to ensure the component suitability of the intended application, and to verify the dimensions and loads.

Lumber

1. Dry service conditions, unless noted otherwise
2. LVL not to be treated with fire retardant or corrosive chemicals

chemicals

Handling & Installation

1. LVL beams must not be cut or drilled
2. Refer to manufacturer's product information regarding installation requirements, multi-ply fastening details, beam strength values, and code approvals
3. Damaged Beams must not be used
4. Design assumes top edge is laterally restrained
5. Provide lateral support at bearing points to avoid lateral displacement and rotation

6. For flat roofs provide proper drainage to prevent ponding

This design is valid until 11/3/2024

Manufacturer Info

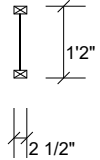
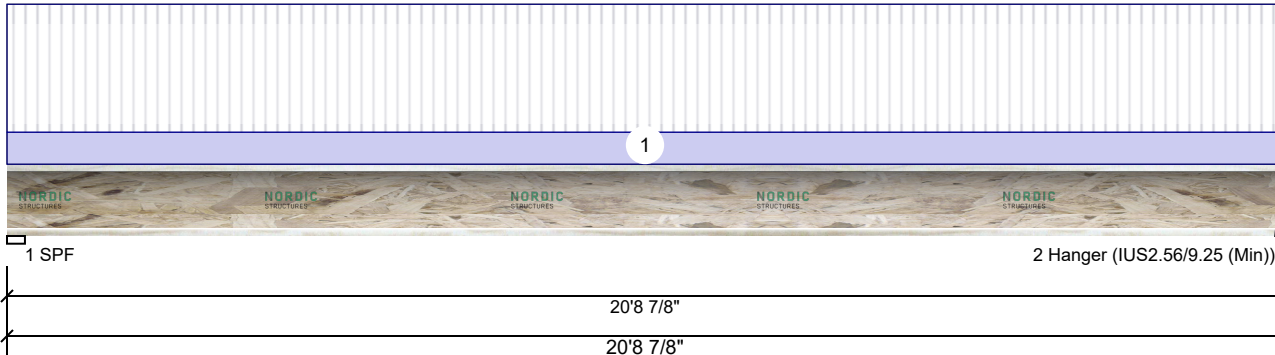
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2FJ3 NI-40x 14.000" - PASSED

Level: Level



Member Information

| | |
|---------------------|---------------|
| Type: | Joist |
| Spacing: | 19.2" o.c. |
| Moisture Condition: | Dry |
| Deflection LL: | 480 |
| Deflection TL: | 240 |
| Importance: | Normal - II |
| Temperature: | Temp <= 100°F |

| | |
|----------------|--------------|
| Application: | Floor |
| Design Method: | ASD |
| Building Code: | IBC/IRC 2015 |
| Load Sharing: | No |
| Deck: | Not Checked |

Reactions UNPATTERNED lb (Uplift)

| Brg | Direction | Live | Dead | Snow | Wind | Const |
|-----|-----------|------|------|------|------|-------|
| 1 | Vertical | 666 | 167 | 0 | 0 | 0 |
| 2 | Vertical | 661 | 165 | 0 | 0 | 0 |

Bearings

| Bearing | Length | Dir. | Cap. | React D/L lb | Total | Ld. Case | Ld. Comb. |
|------------|--------|------|------|--------------|-------|----------|-----------|
| 1 - SPF | 3.500" | Vert | 56% | 167 / 666 | 833 | L | D+L |
| 2 - Hanger | 1.500" | Vert | 59% | 165 / 661 | 826 | L | D+L |

Analysis Results

| Analysis | Actual | Location | Allowed | Capacity | Comb. | Case |
|--------------|---------------|-------------|---------------|--------------|-------|------|
| Moment | 4147 ft-lb | 10'4 15/16" | 4530 ft-lb | 0.915 (92%) | D+L | L |
| Unbraced | 4147 ft-lb | 10'4 15/16" | 4159 ft-lb | 0.997 (100%) | D+L | L |
| Shear | 815 lb | 2 3/4" | 1730 lb | 0.471 (47%) | D+L | L |
| LL Defl inch | 0.502 (L/486) | 10'5" | 0.509 (L/480) | 0.987 (99%) | L | L |
| TL Defl inch | 0.628 (L/389) | 10'5" | 1.018 (L/240) | 0.617 (62%) | D+L | L |

Design Notes

- 1 Provide support to prevent lateral movement and rotation at the end bearings. Lateral support may also be required at the interior bearings by the building code.
- 2 Fill all hanger nailing holes.
- 3 Top flange must be laterally braced at a maximum of 2'5" o.c.
- 4 Bottom flange must be laterally braced at bearings.

| ID | Load Type | Location | Trib Width | Dead 0.9 | Live 1 | Snow 1.15 | Wind 1.6 | Const. 1.25 | Comments |
|----|-----------|----------|------------|----------|--------|-----------|----------|-------------|----------|
| 1 | Uniform | | 1-7-3 | 10 PSF | 40 PSF | 0 PSF | 0 PSF | 0 PSF | |

Notes

It is the responsibility of the customer and/or the contractor to ensure the component suitability of the intended application and to verify the dimensions and loads.

Engineered Wood Products

1. Dry service conditions, unless noted otherwise
2. No treatment with fire-retardant or other strength-reducing chemicals.

Handling & Installation

1. Engineered wood products must not be cut or drilled. Damaged products shall not be used.
2. Refer to the latest version of the installation guide for construction details, hole specifications, multiple-member connections, and handling guidelines.
3. Provide lateral support at bearing points to prevent lateral displacement and rotation.
4. For flat roof, provide proper drainage to prevent ponding.
5. Design assumes top flange to be laterally restrained

by attached sheathing or as specified in engineering notes.

This design is valid until 11/3/2024

Manufacturer Info

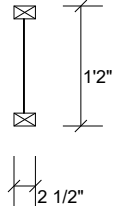
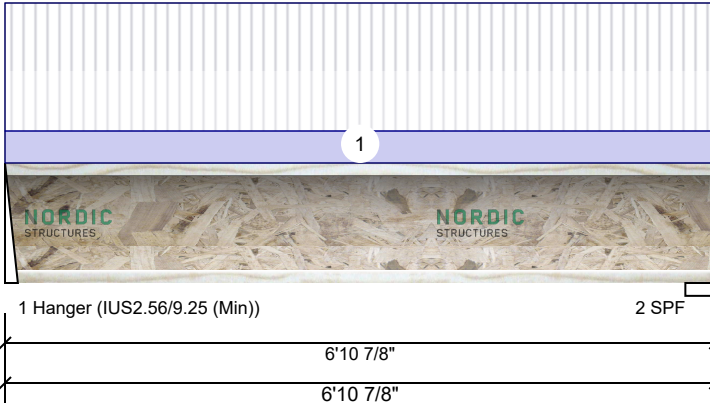
Nordic Structures
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 APA PR-L274C

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 28309
 910-864-8787



2FJ7 NI-40x 14.000" - PASSED

Level: Level



Member Information

| | |
|---------------------|---------------|
| Type: | Joist |
| Spacing: | 19.2" o.c. |
| Moisture Condition: | Dry |
| Deflection LL: | 480 |
| Deflection TL: | 240 |
| Importance: | Normal - II |
| Temperature: | Temp <= 100°F |

| | |
|----------------|--------------|
| Application: | Floor |
| Design Method: | ASD |
| Building Code: | IBC/IRC 2015 |
| Load Sharing: | No |
| Deck: | Not Checked |

Reactions UNPATTERNED lb (Uplift)

| Brg | Direction | Live | Dead | Snow | Wind | Const |
|-----|-----------|------|------|------|------|-------|
| 1 | Vertical | 218 | 55 | 0 | 0 | 0 |
| 2 | Vertical | 224 | 56 | 0 | 0 | 0 |

Bearings

| Bearing | Length | Dir. | Cap. | React D/L lb | Total | Ld. Case | Ld. Comb. |
|------------|--------|------|------|--------------|-------|----------|-----------|
| 1 - Hanger | 1.500" | Vert | 20% | 55 / 218 | 273 | L | D+L |
| 2 - SPF | 3.500" | Vert | 19% | 56 / 224 | 280 | L | D+L |

Analysis Results

| Analysis | Actual | Location | Allowed | Capacity | Comb. | Case |
|--------------|----------------|------------|---------------|-------------|-------|------|
| Moment | 427 ft-lb | 3'4 15/16" | 4530 ft-lb | 0.094 (9%) | D+L | L |
| Unbraced | 427 ft-lb | 3'4 15/16" | 1638 ft-lb | 0.260 (26%) | D+L | L |
| Shear | 261 lb | 1 3/4" | 1730 lb | 0.151 (15%) | D+L | L |
| LL Defl inch | 0.009 (L/8380) | 3'4 15/16" | 0.163 (L/480) | 0.057 (6%) | L | L |
| TL Defl inch | 0.012 (L/6704) | 3'4 15/16" | 0.327 (L/240) | 0.036 (4%) | D+L | L |

Design Notes

- 1 Provide support to prevent lateral movement and rotation at the end bearings. Lateral support may also be required at the interior bearings by the building code.
- 2 Fill all hanger nailing holes.
- 3 Top flange must be laterally braced at bearings.
- 4 Bottom flange must be laterally braced at bearings.

| ID | Load Type | Location | Trib Width | Dead | Live | Snow | Wind | Const. | Comments |
|----|-----------|----------|------------|--------|--------|-------|-------|--------|----------|
| 1 | Uniform | | 1-7-3 | 10 PSF | 40 PSF | 0 PSF | 0 PSF | 0 PSF | |

Notes

It is the responsibility of the customer and/or the contractor to ensure the component suitability of the intended application and to verify the dimensions and loads.

Engineered Wood Products

1. Dry service conditions, unless noted otherwise
2. No treatment with fire-retardant or other strength-reducing chemicals.

Handling & Installation

1. Engineered wood products must not be cut or drilled. Damaged products shall not be used.
2. Refer to the latest version of the installation guide for construction details, hole specifications, multiple-member connections, and handling guidelines.
3. Provide lateral support at bearing points to prevent lateral displacement and rotation.
4. For flat roof, provide proper drainage to prevent ponding.
5. Design assumes top flange to be laterally restrained

by attached sheathing or as specified in engineering notes.

Manufacturer Info

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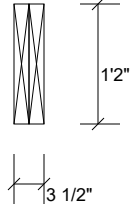
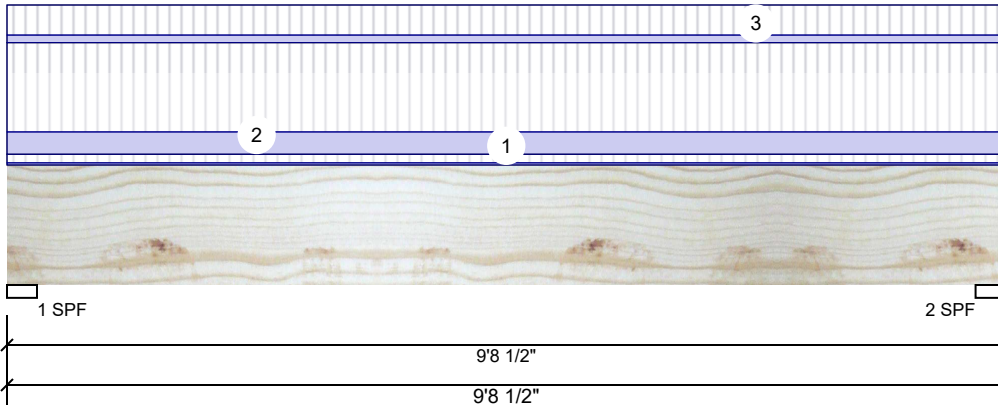
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This design is valid until 11/3/2024

2FB5 Kerto-S LVL 1.750" X 14.000" 2-Ply - PASSED

Level: Level



Member Information

| | | | |
|---------------------|---------------|----------------|--------------|
| Type: | Girder | Application: | Floor |
| Plies: | 2 | Design Method: | ASD |
| Moisture Condition: | Dry | Building Code: | IBC/IRC 2015 |
| Deflection LL: | 480 | Load Sharing: | No |
| Deflection TL: | 240 | Deck: | Not Checked |
| Importance: | Normal - II | | |
| Temperature: | Temp <= 100°F | | |

Reactions UNPATTERNED lb (Uplift)

| Brg | Direction | Live | Dead | Snow | Wind | Const |
|-----|-----------|------|------|------|------|-------|
| 1 | Vertical | 2874 | 771 | 0 | 0 | 0 |
| 2 | Vertical | 2874 | 771 | 0 | 0 | 0 |

Bearings

| Bearing | Length | Dir. | Cap. | React D/L lb | Total | Ld. Case | Ld. Comb. |
|---------|--------|------|------|--------------|-------|----------|-----------|
| 1 - SPF | 3.500" | Vert | 70% | 771 / 2874 | 3645 | L | D+L |
| 2 - SPF | 3.500" | Vert | 70% | 771 / 2874 | 3645 | L | D+L |

Analysis Results

| Analysis | Actual | Location | Allowed | Capacity | Comb. | Case |
|--------------|----------------|-----------|---------------|-------------|-------|------|
| Moment | 8031 ft-lb | 4'10 1/4" | 26999 ft-lb | 0.297 (30%) | D+L | L |
| Unbraced | 8031 ft-lb | 4'10 1/4" | 11443 ft-lb | 0.702 (70%) | D+L | L |
| Shear | 3368 lb | 8'3" | 10453 lb | 0.322 (32%) | D+L | L |
| LL Defl inch | 0.076 (L/1464) | 4'10 1/4" | 0.231 (L/480) | 0.328 (33%) | L | L |
| TL Defl inch | 0.096 (L/1154) | 4'10 1/4" | 0.462 (L/240) | 0.208 (21%) | D+L | L |

Design Notes

- 1 Provide support to prevent lateral movement and rotation at the end bearings. Lateral support may also be required at the interior bearings by the building code.
- 2 Girders are designed to be supported on the bottom edge only.
- 3 Multiple plies must be fastened together as per manufacturer's details.
- 4 Top loads must be supported equally by all plies.
- 5 Top must be laterally braced at end bearings.
- 6 Bottom must be laterally braced at end bearings.
- 7 Lateral slenderness ratio based on single ply width.

| ID | Load Type | Location | Trib Width | Side | Dead 0.9 | Live 1 | Snow 1.15 | Wind 1.6 | Const. 1.25 | Comments |
|----|-------------|----------|------------|-----------|----------|---------|-----------|----------|-------------|----------|
| 1 | Uniform | | 1-0-0 | Top | 10 PSF | 40 PSF | 0 PSF | 0 PSF | 0 PSF | |
| 2 | Uniform | | | Near Face | 103 PLF | 413 PLF | 0 PLF | 0 PLF | 0 PLF | 2FJ3 |
| 3 | Uniform | | | Far Face | 35 PLF | 139 PLF | 0 PLF | 0 PLF | 0 PLF | 2FJ7 |
| | Self Weight | | | | 11 PLF | | | | | |

Notes

Calculated Structured Designs is responsible only of the structural adequacy of this component based on the design criteria and loadings shown. It is the responsibility of the customer and/or the contractor to ensure the component suitability of the intended application, and to verify the dimensions and loads.

Lumber

1. Dry service conditions, unless noted otherwise
2. LVL not to be treated with fire retardant or corrosive chemicals

chemicals

Handling & Installation

1. LVL beams must not be cut or drilled
2. Refer to manufacturer's product information regarding installation requirements, multi-ply fastening details, beam strength values, and code approvals
3. Damaged Beams must not be used
4. Design assumes top edge is laterally restrained
5. Provide lateral support at bearing points to avoid lateral displacement and rotation

6. For flat roofs provide proper drainage to prevent ponding

This design is valid until 11/3/2024

Manufacturer Info

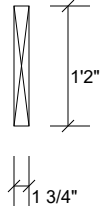
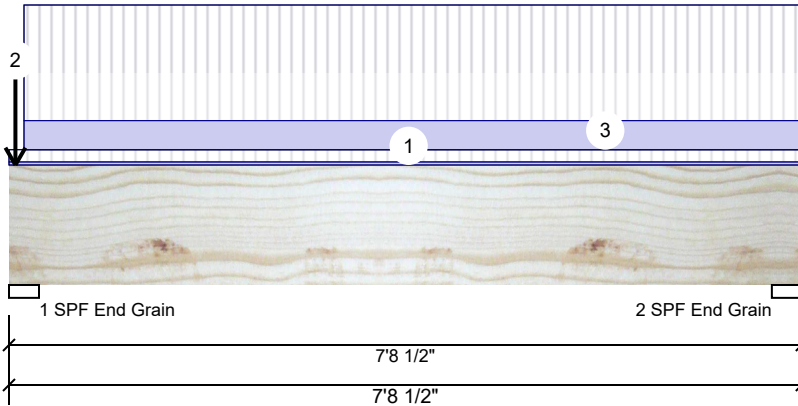
Metsä Wood
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 28309
 910-864-8787



2FB6 Kerto-S LVL 1.750" X 14.000" - PASSED

Level: Level



Member Information

| | | | |
|---------------------|---------------|----------------|--------------|
| Type: | Girder | Application: | Floor |
| Plies: | 1 | Design Method: | ASD |
| Moisture Condition: | Dry | Building Code: | IBC/IRC 2015 |
| Deflection LL: | 480 | Load Sharing: | No |
| Deflection TL: | 240 | Deck: | Not Checked |
| Importance: | Normal - II | | |
| Temperature: | Temp <= 100°F | | |

Reactions UNPATTERNED lb (Uplift)

| Brg | Direction | Live | Dead | Snow | Wind | Const |
|-----|-----------|------|------|------|------|-------|
| 1 | Vertical | 1556 | 1847 | 0 | 0 | 0 |
| 2 | Vertical | 1611 | 426 | 0 | 0 | 0 |

Bearings

| Bearing | Length | Dir. | Cap. | React D/L lb | Total | Ld. Case | Ld. Comb. |
|-------------------|--------|------|------|--------------|-------|----------|-----------|
| 1 - SPF End Grain | 3.500" | Vert | 66% | 1847 / 1556 | 3403 | L | D+L |
| 2 - SPF End Grain | 3.500" | Vert | 40% | 426 / 1611 | 2037 | L | D+L |

Analysis Results

| Analysis | Actual | Location | Allowed | Capacity | Comb. | Case |
|--------------|----------------|------------|---------------|-------------|-------|------|
| Moment | 3472 ft-lb | 3'10 1/4" | 13500 ft-lb | 0.257 (26%) | D+L | L |
| Unbraced | 3472 ft-lb | 3'10 1/4" | 7008 ft-lb | 0.495 (50%) | D+L | L |
| Shear | 1824 lb | 1'5 1/2" | 5227 lb | 0.349 (35%) | D+L | L |
| LL Defl inch | 0.045 (L/1917) | 3'10 5/16" | 0.181 (L/480) | 0.250 (25%) | L | L |
| TL Defl inch | 0.057 (L/1516) | 3'10 5/16" | 0.362 (L/240) | 0.158 (16%) | D+L | L |

Design Notes

- 1 Provide support to prevent lateral movement and rotation at the end bearings. Lateral support may also be required at the interior bearings by the building code.
- 2 Girders are designed to be supported on the bottom edge only.
- 3 Top must be laterally braced at end bearings.
- 4 Bottom must be laterally braced at end bearings.

| ID | Load Type | Location | Trib Width | Side | Dead 0.9 | Live 1 | Snow 1.15 | Wind 1.6 | Const. 1.25 | Comments |
|----|------------------------------|-----------------|------------|----------|-----------------|---------|-----------|----------|-------------|----------|
| 1 | Uniform | | 1-0-0 | Top | 10 PSF | 40 PSF | 0 PSF | 0 PSF | 0 PSF | |
| 2 | Point | 0-0-12 | | Far Face | 1435 lb | 0 lb | 0 lb | 0 lb | 0 lb | 3FB3 |
| 3 | Part. Uniform Self Weight | 0-1-12 to 7-8-8 | | Far Face | 95 PLF 5 PLF | 378 PLF | 0 PLF | 0 PLF | 0 PLF | 2FJ4 |

Notes

Calculated Structured Designs is responsible only of the structural adequacy of this component based on the design criteria and loadings shown. It is the responsibility of the customer and/or the contractor to ensure the component suitability of the intended application, and to verify the dimensions and loads.

Lumber

1. Dry service conditions, unless noted otherwise
2. LVL not to be treated with fire retardant or corrosive

chemicals

Handling & Installation

1. LVL beams must not be cut or drilled
2. Refer to manufacturer's product information regarding installation requirements, multi-ply fastening details, beam strength values, and code approvals
3. Damaged Beams must not be used
4. Design assumes top edge is laterally restrained
5. Provide lateral support at bearing points to avoid lateral displacement and rotation

6. For flat roofs provide proper drainage to prevent ponding

Manufacturer Info

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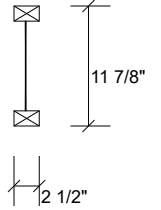
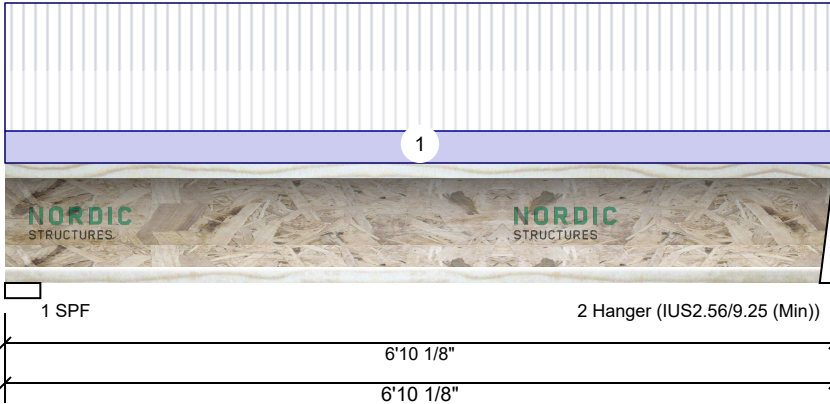
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 28309
 910-864-8787



This design is valid until 11/3/2024

2FJ8 NI-40x 11.875" - PASSED

Level: Level



Member Information

| | |
|---------------------|---------------|
| Type: | Joist |
| Spacing: | 16" o.c. |
| Moisture Condition: | Dry |
| Deflection LL: | 480 |
| Deflection TL: | 240 |
| Importance: | Normal - II |
| Temperature: | Temp <= 100°F |

| | |
|----------------|--------------|
| Application: | Floor |
| Design Method: | ASD |
| Building Code: | IBC/IRC 2015 |
| Load Sharing: | No |
| Deck: | Not Checked |

Reactions UNPATTERNED Ib (Uplift)

| Brg | Direction | Live | Dead | Snow | Wind | Const |
|-----|-----------|------|------|------|------|-------|
| 1 | Vertical | 186 | 46 | 0 | 0 | 0 |
| 2 | Vertical | 179 | 45 | 0 | 0 | 0 |

Bearings

| Bearing | Length | Dir. | Cap. | React D/L lb | Total | Ld. Case | Ld. Comb. |
|------------|--------|------|------|--------------|-------|----------|-----------|
| 1 - SPF | 3.500" | Vert | 16% | 46 / 186 | 232 | L | D+L |
| 2 - Hanger | 1.500" | Vert | 17% | 45 / 179 | 224 | L | D+L |

Analysis Results

| Analysis | Actual | Location | Allowed | Capacity | Comb. | Case |
|--------------|----------------|------------|---------------|-------------|-------|------|
| Moment | 353 ft-lb | 3'5 13/16" | 3760 ft-lb | 0.094 (9%) | D+L | L |
| Unbraced | 353 ft-lb | 3'5 13/16" | 1367 ft-lb | 0.258 (26%) | D+L | L |
| Shear | 217 lb | 6'8 7/8" | 1480 lb | 0.147 (15%) | D+L | L |
| LL Defl inch | 0.010 (L/7659) | 3'5 13/16" | 0.163 (L/480) | 0.063 (6%) | L | L |
| TL Defl inch | 0.013 (L/6127) | 3'5 13/16" | 0.326 (L/240) | 0.039 (4%) | D+L | L |

Design Notes

- 1 Provide support to prevent lateral movement and rotation at the end bearings. Lateral support may also be required at the interior bearings by the building code.
- 2 Fill all hanger nailing holes.
- 3 Top flange must be laterally braced at bearings.
- 4 Bottom flange must be laterally braced at bearings.

| ID | Load Type | Location | Trib Width | Dead 0.9 | Live 1 | Snow 1.15 | Wind 1.6 | Const. 1.25 | Comments |
|----|-----------|----------|------------|----------|--------|-----------|----------|-------------|----------|
| 1 | Uniform | | 1-4-0 | 10 PSF | 40 PSF | 0 PSF | 0 PSF | 0 PSF | |

Notes

It is the responsibility of the customer and/or the contractor to ensure the component suitability of the intended application and to verify the dimensions and loads.

Engineered Wood Products

1. Dry service conditions, unless noted otherwise
2. No treatment with fire-retardant or other strength-reducing chemicals.

Handling & Installation

1. Engineered wood products must not be cut or drilled. Damaged products shall not be used.
2. Refer to the latest version of the installation guide for construction details, hole specifications, multiple-member connections, and handling guidelines.
3. Provide lateral support at bearing points to prevent lateral displacement and rotation.
4. For flat roof, provide proper drainage to prevent ponding.
5. Design assumes top flange to be laterally restrained

by attached sheathing or as specified in engineering notes.

Manufacturer Info

Nordic Structures
 1100 Avenue des Canadiens-de-Montréal, Suite 100
 Montréal, Québec, Canada H3B 2S2
 (866) 871-3418
 www.nordic.ca
 APA PR-L274C

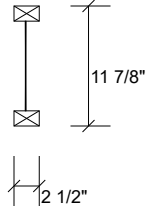
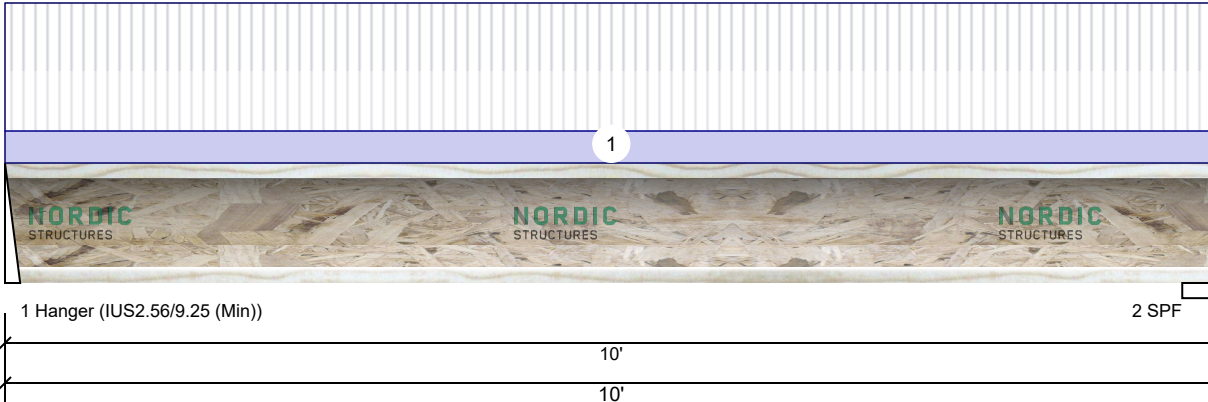
Comtech
 Reilly Road Industrial Park P.O. Box 40408, NC
 USA
 28309
 910-864-8787



This design is valid until 11/3/2024

2FJ2 NI-40x 11.875" - PASSED

Level: Level



Member Information

| | |
|---------------------|---------------|
| Type: | Joist |
| Spacing: | 16" o.c. |
| Moisture Condition: | Dry |
| Deflection LL: | 480 |
| Deflection TL: | 240 |
| Importance: | Normal - II |
| Temperature: | Temp <= 100°F |

| | |
|----------------|--------------|
| Application: | Floor |
| Design Method: | ASD |
| Building Code: | IBC/IRC 2015 |
| Load Sharing: | No |
| Deck: | Not Checked |

Reactions UNPATTERNED lb (Uplift)

| Brg | Direction | Live | Dead | Snow | Wind | Const |
|-----|-----------|------|------|------|------|-------|
| 1 | Vertical | 263 | 66 | 0 | 0 | 0 |
| 2 | Vertical | 270 | 68 | 0 | 0 | 0 |

Bearings

| Bearing | Length | Dir. | Cap. | React D/L lb | Total | Ld. Case | Ld. Comb. |
|------------|--------|------|------|--------------|-------|----------|-----------|
| 1 - Hanger | 1.500" | Vert | 25% | 66 / 263 | 329 | L | D+L |
| 2 - SPF | 3.500" | Vert | 24% | 68 / 270 | 338 | L | D+L |

Analysis Results

| Analysis | Actual | Location | Allowed | Capacity | Comb. | Case |
|--------------|----------------|-----------|---------------|--------------|-------|------|
| Moment | 779 ft-lb | 4'11 1/4" | 3760 ft-lb | 0.207 (21%) | D+L | L |
| Unbraced | 779 ft-lb | 4'11 1/4" | 779 ft-lb | 1.000 (100%) | D+L | L |
| Shear | 322 lb | 1 1/4" | 1480 lb | 0.218 (22%) | D+L | L |
| LL Defl inch | 0.038 (L/3059) | 4'11 1/4" | 0.242 (L/480) | 0.157 (16%) | L | L |
| TL Defl inch | 0.047 (L/2447) | 4'11 1/4" | 0.483 (L/240) | 0.098 (10%) | D+L | L |

Design Notes

- 1 Provide support to prevent lateral movement and rotation at the end bearings. Lateral support may also be required at the interior bearings by the building code.
- 2 Fill all hanger nailing holes.
- 3 Top flange must be laterally braced at a maximum of 8'10" o.c.
- 4 Bottom flange must be laterally braced at bearings.

| ID | Load Type | Location | Trib Width | Dead 0.9 | Live 1 | Snow 1.15 | Wind 1.6 | Const. 1.25 | Comments |
|----|-----------|----------|------------|----------|--------|-----------|----------|-------------|----------|
| 1 | Uniform | | 1-4-0 | 10 PSF | 40 PSF | 0 PSF | 0 PSF | 0 PSF | |

Notes

It is the responsibility of the customer and/or the contractor to ensure the component suitability of the intended application and to verify the dimensions and loads.

Engineered Wood Products

1. Dry service conditions, unless noted otherwise
2. No treatment with fire-retardant or other strength-reducing chemicals.

Handling & Installation

1. Engineered wood products must not be cut or drilled. Damaged products shall not be used.
2. Refer to the latest version of the installation guide for construction details, hole specifications, multiple-member connections, and handling guidelines.
3. Provide lateral support at bearing points to prevent lateral displacement and rotation.
4. For flat roof, provide proper drainage to prevent ponding.
5. Design assumes top flange to be laterally restrained

by attached sheathing or as specified in engineering notes.

Manufacturer Info

Nordic Structures
 1100 Avenue des Canadiens-de-Montréal, Suite 100
 Montréal, Québec, Canada H3B 2S2
 (866) 871-3418
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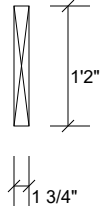
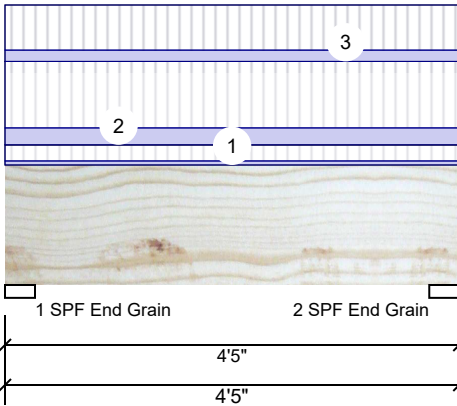
Comtech
 Reilly Road Industrial Park P.O. Box 40408, NC
 USA
 28309
 910-864-8787



This design is valid until 11/3/2024

2FB7 Kerto-S LVL 1.750" X 14.000" - PASSED

Level: Level



Member Information

| | | | |
|---------------------|---------------|----------------|--------------|
| Type: | Girder | Application: | Floor |
| Plies: | 1 | Design Method: | ASD |
| Moisture Condition: | Dry | Building Code: | IBC/IRC 2015 |
| Deflection LL: | 480 | Load Sharing: | No |
| Deflection TL: | 240 | Deck: | Not Checked |
| Importance: | Normal - II | | |
| Temperature: | Temp <= 100°F | | |

Reactions UNPATTERNED lb (Uplift)

| Brg | Direction | Live | Dead | Snow | Wind | Const |
|-----|-----------|------|------|------|------|-------|
| 1 | Vertical | 700 | 189 | 0 | 0 | 0 |
| 2 | Vertical | 700 | 189 | 0 | 0 | 0 |

Bearings

| Bearing | Length | Dir. | Cap. | React D/L lb | Total | Ld. Case | Ld. Comb. |
|-------------------|--------|------|------|--------------|-------|----------|-----------|
| 1 - SPF End Grain | 3.500" | Vert | 17% | 189 / 700 | 889 | L | D+L |
| 2 - SPF End Grain | 3.500" | Vert | 17% | 189 / 700 | 889 | L | D+L |

Analysis Results

| Analysis | Actual | Location | Allowed | Capacity | Comb. | Case |
|--------------|----------------|-----------|---------------|-------------|-------|------|
| Moment | 788 ft-lb | 2'2 1/2" | 13500 ft-lb | 0.058 (6%) | D+L | L |
| Unbraced | 788 ft-lb | 2'2 1/2" | 11156 ft-lb | 0.071 (7%) | D+L | L |
| Shear | 713 lb | 1'5 1/2" | 5227 lb | 0.136 (14%) | D+L | L |
| LL Defl inch | 0.005 (L/9301) | 2'2 9/16" | 0.099 (L/480) | 0.052 (5%) | L | L |
| TL Defl inch | 0.006 (L/7326) | 2'2 9/16" | 0.198 (L/240) | 0.033 (3%) | D+L | L |

Design Notes

- 1 Provide support to prevent lateral movement and rotation at the end bearings. Lateral support may also be required at the interior bearings by the building code.
- 2 Girders are designed to be supported on the bottom edge only.
- 3 Top must be laterally braced at end bearings.
- 4 Bottom must be laterally braced at end bearings.

| ID | Load Type | Location | Trib Width | Side | Dead 0.9 | Live 1 | Snow 1.15 | Wind 1.6 | Const. 1.25 | Comments |
|----|-------------|----------|------------|-----------|----------|---------|-----------|----------|-------------|----------|
| 1 | Uniform | | 1-0-0 | Top | 10 PSF | 40 PSF | 0 PSF | 0 PSF | 0 PSF | |
| 2 | Uniform | | | Far Face | 42 PLF | 165 PLF | 0 PLF | 0 PLF | 0 PLF | 2FJ2 |
| 3 | Uniform | | | Near Face | 28 PLF | 112 PLF | 0 PLF | 0 PLF | 0 PLF | 2FJ8 |
| | Self Weight | | | | 5 PLF | | | | | |

Notes

Calculated Structured Designs is responsible only of the structural adequacy of this component based on the design criteria and loadings shown. It is the responsibility of the customer and/or the contractor to ensure the component suitability of the intended application, and to verify the dimensions and loads.

Lumber

1. Dry service conditions, unless noted otherwise
2. LVL not to be treated with fire retardant or corrosive

chemicals

Handling & Installation

1. LVL beams must not be cut or drilled
2. Refer to manufacturer's product information regarding installation requirements, multi-ply fastening details, beam strength values, and code approvals
3. Damaged Beams must not be used
4. Design assumes top edge is laterally restrained
5. Provide lateral support at bearing points to avoid lateral displacement and rotation

6. For flat roofs provide proper drainage to prevent ponding

This design is valid until 11/3/2024

Manufacturer Info

Metsä Wood
 301 Merritt 7 Building, 2nd Floor
 Norwalk, CT 06851
 (800) 622-5850
www.metsawood.com/us

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 Reilly Road Industrial Park P.O. Box 40408, NC
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