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Plan #  
**25'X35' SHOP**

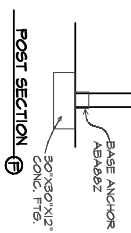
THIS PLAN DESIGNED UNDER NORTH CAROLINA  
RESIDENTIAL CODE 2018 EDITION (2018 IRC)

DATE: 6/14/2023  
PROJECT #: 230606



2-1/4" LVL TREATED  
HEADER

3-1/2" POST NOTCHED  
2-5/8" GALVANIZED  
THROUGH BOLTS  
PER CONNECTION



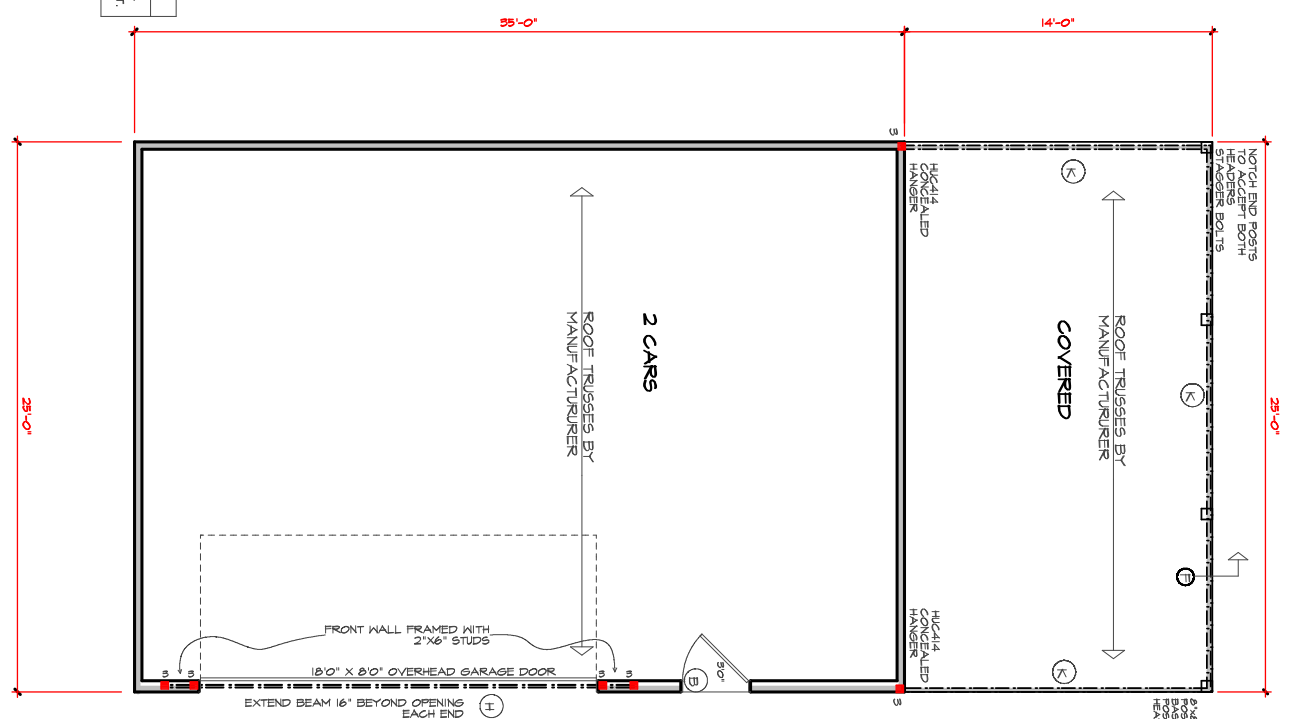
- FINISH NOTES:**
1. Check units (ft. vs. in.)
  2. Use Lumber 2021
  3. Use Steel Decking 2021
  4. Use Steel Joists 2021
  5. Use Steel Decking 2021
  6. Use Steel Joists 2021
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- SPECIAL NOTES:**
1. Finish exterior walls to suit.
  2. Finish interior walls to suit.
  3. Finish floor to suit.
  4. Finish ceiling to suit.
  5. Finish roof to suit.
  6. Finish foundation to suit.
  7. Finish exterior doors to suit.
  8. Finish exterior windows to suit.
  9. Finish interior doors to suit.
  10. Finish interior windows to suit.
  11. Finish exterior stairs to suit.
  12. Finish interior stairs to suit.
  13. Finish exterior ramps to suit.
  14. Finish interior ramps to suit.
  15. Finish exterior porches to suit.
  16. Finish interior porches to suit.
  17. Finish exterior decks to suit.
  18. Finish interior decks to suit.
  19. Finish exterior patios to suit.
  20. Finish interior patios to suit.
  21. Finish exterior balconies to suit.
  22. Finish interior balconies to suit.
  23. Finish exterior pergolas to suit.
  24. Finish interior pergolas to suit.
  25. Finish exterior gazebos to suit.
  26. Finish interior gazebos to suit.
  27. Finish exterior sheds to suit.
  28. Finish interior sheds to suit.
  29. Finish exterior tool sheds to suit.
  30. Finish interior tool sheds to suit.
  31. Finish exterior storage sheds to suit.
  32. Finish interior storage sheds to suit.
  33. Finish exterior workshops to suit.
  34. Finish interior workshops to suit.
  35. Finish exterior garages to suit.
  36. Finish interior garages to suit.
  37. Finish exterior carports to suit.
  38. Finish interior carports to suit.
  39. Finish exterior driveways to suit.
  40. Finish interior driveways to suit.
  41. Finish exterior walkways to suit.
  42. Finish interior walkways to suit.
  43. Finish exterior ramps to suit.
  44. Finish interior ramps to suit.
  45. Finish exterior stairs to suit.
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  65. Finish exterior workshops to suit.
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  69. Finish exterior carports to suit.
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  71. Finish exterior driveways to suit.
  72. Finish interior driveways to suit.
  73. Finish exterior walkways to suit.
  74. Finish interior walkways to suit.
  75. Finish exterior ramps to suit.
  76. Finish interior ramps to suit.
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  78. Finish interior stairs to suit.
  79. Finish exterior porches to suit.
  80. Finish interior porches to suit.
  81. Finish exterior decks to suit.
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  93. Finish exterior tool sheds to suit.
  94. Finish interior tool sheds to suit.
  95. Finish exterior storage sheds to suit.
  96. Finish interior storage sheds to suit.
  97. Finish exterior workshops to suit.
  98. Finish interior workshops to suit.
  99. Finish exterior garages to suit.
  100. Finish interior garages to suit.

**BEAM SCHEDULE**

A	2-2"X10" FLUSH
B	2-2"X10" DROPPED
C	2-2"X8" FLUSH
D	2-2"X8" DROPPED
E	2-1-1/8"X4-1/2" LVL FLUSH
F	2-1-1/8"X4-1/2" DROPPED
G	1-1-1/8"X4" LVL FLUSH
H	2-1-1/8"X16 LVL DROPPED
K	2-1-1/8"X14" LVL FLUSH
L	3-1-1/8"X8" LVL DROPPED

SQUARE FOOTAGE	875 SQ.FT.
GARAGE	548 SQ.FT.
COVERED PORCH	327 SQ.FT.



**FIRST FLOOR PLAN**  
SCALE 1/4" = 1'-0"



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Plan # **25'X35' SHOP**

THIS PLAN DESIGNED UNDER NORTH CAROLINA RESIDENTIAL CODE 2018 EDITION (2018 IRC)

DATE: 6/14/2023  
PROJECT #: 230606



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Plan #

# 25'X35' SHOP

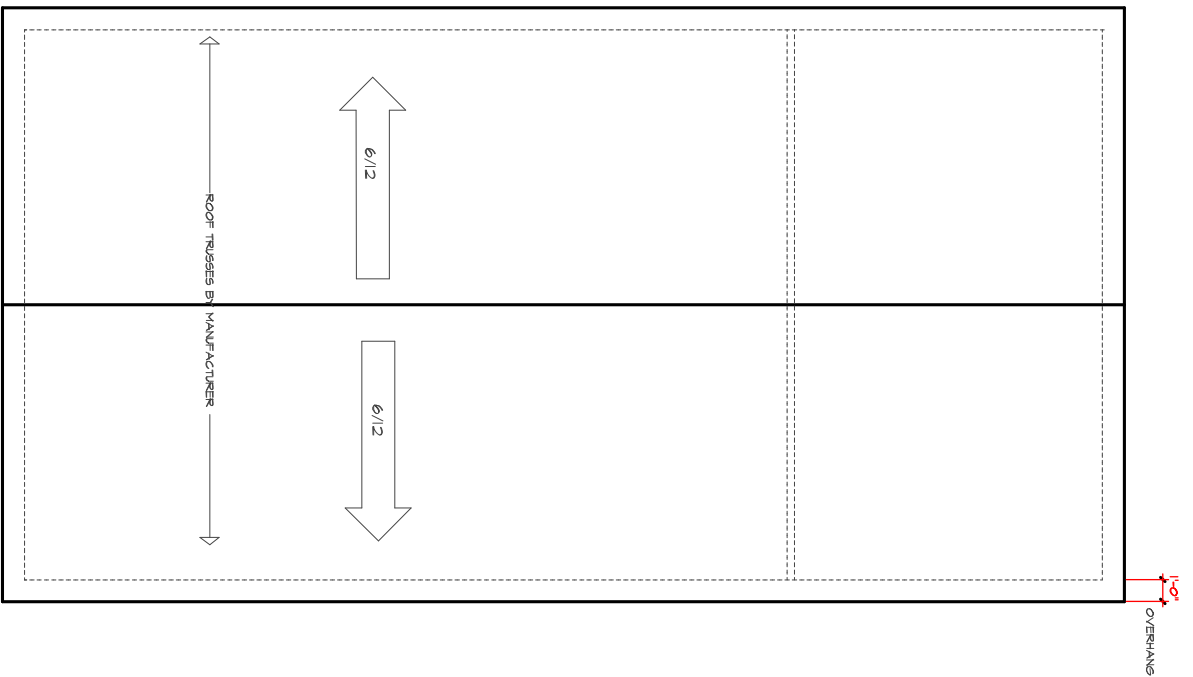
THIS PLAN DESIGNED UNDER NORTH CAROLINA  
RESIDENTIAL CODE 2018 EDITION (2018 IRC)

DATE: 6/14/2023

PROJECT #: 230606

## ROOF PLAN

SCALE 1/4" = 1'-0"



- ### TRUSS SYSTEM REQUIREMENTS
- NC (2018 IRC), MW (19-20) 904
1. TRUSS SYSTEM LAYOUTS (FLOOR PLAN) SHALL BE IDENTIFIED AND Labeled WITH THE TRUSS MANUFACTURER'S NAME AND NEED TO CHANGE TRUSSES SHALL BE COORDINATED WITH ENGINEER OF RECORD
  2. TRUSS SCHEMATICS (PROFILES) SHALL BE PREPARED AND SIGNED BY TRUSS MANUFACTURER.
  3. ALL TRUSSES SHALL BE DESIGNED FOR BEARING ON SPACERS OR PLATES OR LEADERS (NO).
  4. ALL REQUIRED ANALYSES FOR TRUSSES DUE TO POINT OR LINE LOADS SHALL BE SUBMITTED AS REQUIRED TO THE TRUSS SCHEMATICS.
  5. INSTALL A TRUSS BRACE PARALLEL TO/ALONG BEARING WALLS OR BLOCK BETWEEN TRUSSES BY TRUSS MANUFACTURER.

**STRUCTURAL NOTES**

- 1) ALL CONSTRUCTION SHALL CONFORM TO THE LATEST REQUIREMENTS OF THE NORTH CAROLINA STATE RESIDENTIAL CODE - 2006 EDITION (2018 RC). ALL MEMBERS SHALL BE FRAMED, ANCHORED, TIED AND BRACED IN ACCORDANCE WITH GOOD CONSTRUCTION PRACTICE AND THE BUILDING CODE.
- 2) DESIGN LOADS SEE TABLE R201.2
- 3) WIND SPEED: (REFER TO TABLE R201.2.4) WIND SPEED BEFORE CONSTRUCTION.
- 4) WALL BRACKING WALLS SHALL BE FRAMED ALONG BRACKED WALL LINES ACCORDING TO SECTION R202.10. THE ANCHOR LOCATION AND CONSTRUCTION OF BRACKING SHALL COMPLY WITH R202.10.10. THE BRACKING SHOWN ON THIS PLAN SHALL BE VERIFIED AND/OR APPROVED BY THE CODE OFFICIAL.
- 5) ALL CONCRETE SHALL HAVE A MINIMUM 28 DAY STRENGTH OF 5000 PSI AND A MAXIMUM SLAB OF 5 INCHES UNLESS NOTED OTHERWISE (NO) AT EXTRACTED HANDLED SAMPLES TESTED AND PLACED IN ACCORDANCE WITH ACI 308 AND ACI 308.1R. ALL SAMPLES FOR FINISH SHALL BE TAKEN FROM THE EXITS OF THE WALL.
- 6) ALL CONCRETE JOINTS SHALL BE REINFORCED TO BE 200% PER THE DESIGNER'S REQUIREMENTS. ALL REINFORCEMENT SHALL BE STRUCTURAL REBAR. REINFORCEMENT SHALL BE PLACED IN ACCORDANCE WITH THE DESIGNER'S REQUIREMENTS. REINFORCEMENT SHALL BE PLACED IN ACCORDANCE WITH THE DESIGNER'S REQUIREMENTS. REINFORCEMENT SHALL BE PLACED IN ACCORDANCE WITH THE DESIGNER'S REQUIREMENTS.
- 7) ALL REINFORCING LUMBER SHALL BE SPP #218 - #7'S (PI) UNLESS NOTED OTHERWISE (NO). ALL REINFORCING LUMBER SHALL BE SPP #218 - #7'S (PI) UNLESS NOTED OTHERWISE (NO). ALL REINFORCING LUMBER SHALL BE SPP #218 - #7'S (PI) UNLESS NOTED OTHERWISE (NO).
- 8) ALL JOIST BEAMS AND HANGERS SHALL HAVE THE FOLLOWING BIRD SUPPORTS: (1) 2x4 STUD COLUMN FOR 6'-0" MAX BEAM SPAN (NO), (2) 2x4 STUDS FOR BEAM SPAN GREATER THAN 6'-0" (NO).
- 9) ALL ROOF TRUSS AND JOIST LAYOUTS SHALL BE PREPARED IN ACCORDANCE WITH THE SECTED STRUCTURAL DRAWINGS, TRUSSES AND JOISTS SHALL BE INSTALLED ACCORDING TO THE MANUFACTURER'S SPECIFICATIONS.
- 10) ALL STRUCTURAL STEEL SHALL BE A36/A36 STEEL. BEAMS SHALL BE SHAPED AT EACH END WITH FINISHED BEARING SURFACES. ALL STRUCTURAL BEAMS SHALL BE ATTACHED TO EACH SUPPORT WITH TWO LAG BOLTS AND ONE WASHER. ALL STRUCTURAL BEAMS SHALL BE ATTACHED TO EACH SUPPORT WITH TWO LAG BOLTS AND ONE WASHER. ALL STRUCTURAL BEAMS SHALL BE ATTACHED TO EACH SUPPORT WITH TWO LAG BOLTS AND ONE WASHER. ALL STRUCTURAL BEAMS SHALL BE ATTACHED TO EACH SUPPORT WITH TWO LAG BOLTS AND ONE WASHER.
- 11) REBAR SHALL BE DEVELOPED STEEL, ASTM#65, GRADE 60.
- 12) PLAIN BEAMS SHALL BE BOLTED TOGETHER USING (2) LAGS OF 1/2" DIA. BOLTS AT EACH END. ALL BEAMS SHALL BE BOLTED TOGETHER USING (2) LAGS OF 1/2" DIA. BOLTS AT EACH END. ALL BEAMS SHALL BE BOLTED TOGETHER USING (2) LAGS OF 1/2" DIA. BOLTS AT EACH END.
- 13) ALL JOIST BEAMS AND HANGERS SHALL BE BOLTED TOGETHER USING (2) LAGS OF 1/2" DIA. BOLTS AT EACH END. ALL JOIST BEAMS AND HANGERS SHALL BE BOLTED TOGETHER USING (2) LAGS OF 1/2" DIA. BOLTS AT EACH END.
- 14) THE POSITIVE AND NEGATIVE DESIGN PRESSURE FOR DOORS AND WINDOWS (SEE R202.1(6))

**DEMELLING / GARAGE SEPARATION**

REFER TO SECTIONS R202.3, R202.4, AND R202.1

WALLS. A minimum 1/2" gypsum board must be installed on walls supporting overhead concrete used for separation required by this section.

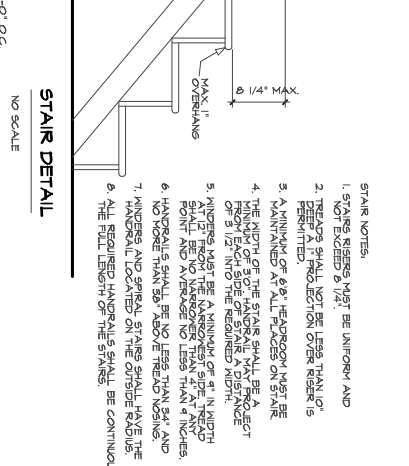
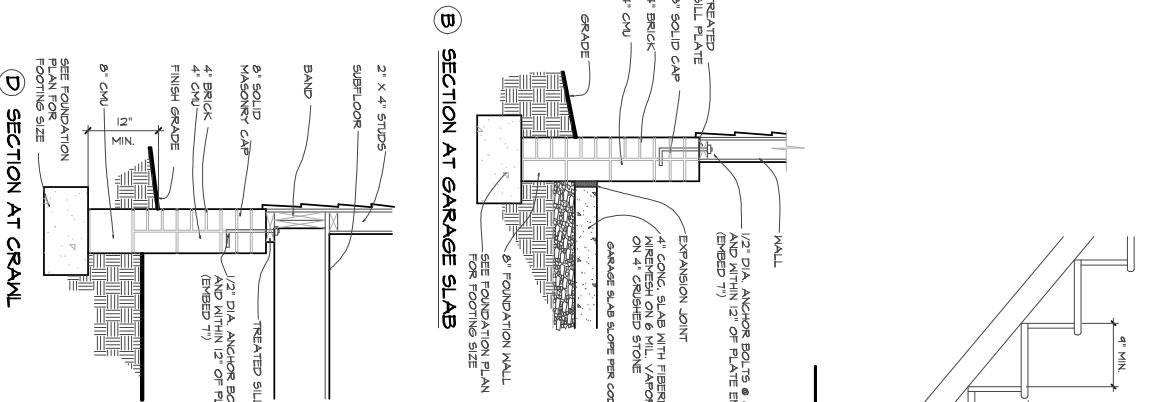
5' x 8' x 16' gypsum board may be installed on the underside and exposed sides of all structural steel members.

CEILING. A minimum of 1/2" gypsum must be installed on the garage ceiling if there are no habitable rooms above the garage. If there are habitable rooms above the garage, a minimum of 5/8" Type X gypsum board must be installed on the garage ceiling.

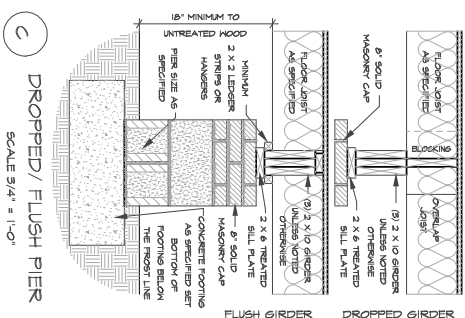
DOORS. All doors shall be installed in accordance with the applicable code and shall be tested and approved by the local authority having jurisdiction.

WINDUYS. All windows shall be tested and approved by the local authority having jurisdiction.

FRAMING. Details in the garage and deck penetrating the walls or ceiling separating the dwelling from the garage shall be constructed of a minimum 1/2" gypsum board on each side or other approved material and shall have no openings, other requirements. Penetrations through the separation required by Section R202.4 shall be provided as required by Section R202.1, Item 4.



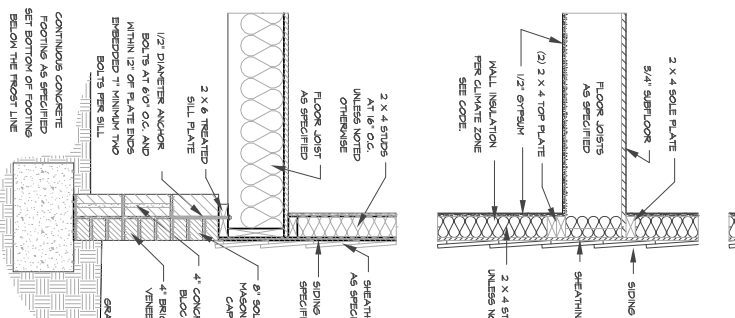
- STAIR NOTES:**
1. STAIR RISERS MUST BE UNIFORM AND NOT EXCEED 6 1/2".
  2. TREADS SHALL NOT BE LESS THAN 10" DEEP.
  3. TREADS SHALL NOT BE LESS THAN 10" DEEP.
  4. A MINIMUM OF 60" HEADROOM MUST BE MAINTAINED AT ALL PLACES ON STAIRS.
  5. THE WIDTH OF THE STAIR SHALL BE A MINIMUM OF 36" UNLESS OTHERWISE NOTED.
  6. HANDRAILS SHALL BE A MINIMUM OF 4" IN DIAMETER AND AVERAGE NO LESS THAN 4 INCHES FROM AND AVERAGE NO MORE THAN 4 INCHES FROM THE STAIR TREADS.
  7. HANDRAILS SHALL BE NO LESS THAN 34" AND NO MORE THAN 38" HIGH.
  8. HANDRAILS SHALL BE LOCATED ON THE INSIDE RAIL.
  9. ALL REQUIRED HANDRAILS SHALL BE CONTINUOUS THE FULL LENGTH OF THE STAIRS.



**TABLE R201.2.1**

**ROOF SLOPES**

CLIMATE ZONE	MINIMUM SLOPE	MINIMUM SLOPE	MINIMUM SLOPE	MINIMUM SLOPE	MINIMUM SLOPE	MINIMUM SLOPE
1	2:12	2:12	2:12	2:12	2:12	2:12
2	3:12	3:12	3:12	3:12	3:12	3:12
3	4:12	4:12	4:12	4:12	4:12	4:12
4	5:12	5:12	5:12	5:12	5:12	5:12



**TYPICAL WALL SECTION**  
SCALE 3/4" = 1'-0"

**TABLE R201.2.2**

**MINIMUM ROOF SLOPES**

CLIMATE ZONE	MINIMUM SLOPE	MINIMUM SLOPE	MINIMUM SLOPE	MINIMUM SLOPE	MINIMUM SLOPE	MINIMUM SLOPE
1	2:12	2:12	2:12	2:12	2:12	2:12
2	3:12	3:12	3:12	3:12	3:12	3:12
3	4:12	4:12	4:12	4:12	4:12	4:12
4	5:12	5:12	5:12	5:12	5:12	5:12

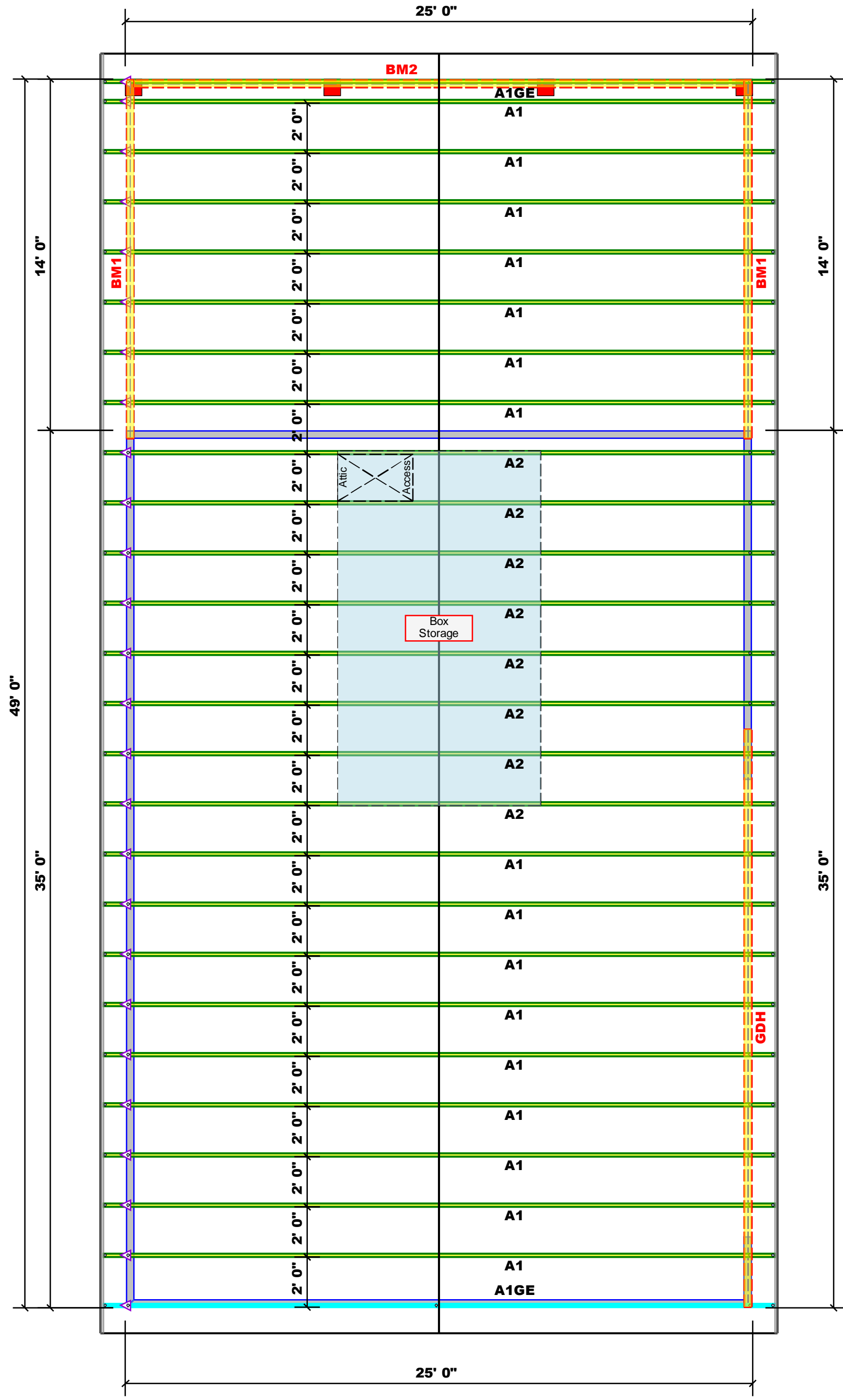


**ROOF & FLOOR TRUSSES & BEAMS**

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 Jonathan Landry  
**Jonathan Landry**



All Headers Are Considered 2X10 Beams Unless Otherwise Noted

All Walls Shown Are Considered Load Bearing

Roof Area = 1539.53 sq.ft.  
 Ridge Line = 51 ft.  
 Hip Line = 0 ft.  
 Horiz. OH = 102 ft.  
 Raked OH = 60.37 ft.  
 Decking = 53 sheets

**Dimension Notes**  
 1. All exterior wall to wall dimensions are to face of sheathing unless noted otherwise  
 2. All interior wall dimensions are to face of stud unless noted otherwise  
 3. All exterior wall to truss dimensions are to face of stud unless noted otherwise

**Hatch Legend**

- Box Storage
- Drop Beam

Products				
PlotID	Length	Product	Plies	Net Qty
BM1	15' 0"	1-3/4"x 14" LVL Kerto-S	2	4
BM2	25' 0"	1-3/4"x 14" LVL Kerto-S	2	2
GDH	24' 0"	1-3/4"x 18" LVL Kerto-S	2	2

1 Truss Placement Plan  
 Scale: 1/4"=1'

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

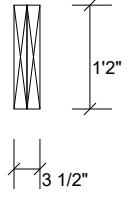
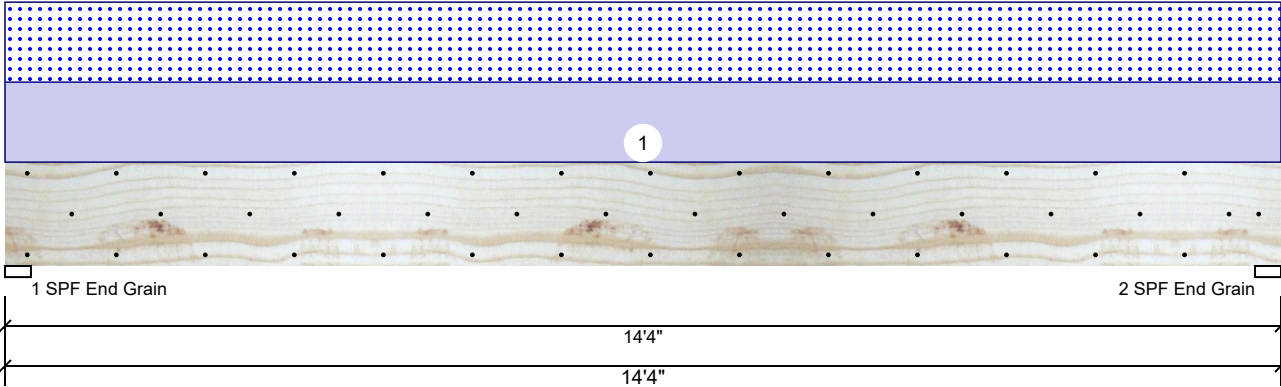
BUILDER	WEAVER DEVELOPMENT	CITY / CO.	SANFORD / LEE
JOB NAME	Lugiano Garage	ADDRESS	415 Robert's Road
PLAN	Custom	MODEL	Roof
SEAL DATE	N/A	DATE REV.	07/06/23
QUOTE #		DRAWN BY	Jonathan Landry
JOB #	J0723-3468	SALES REP.	Lenny Norris

▲ = Denotes Left End of Truss  
 (Reference Engineered Truss Drawing)

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

**BM1 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:	360	Deck:	Not Checked
Importance:	Normal - II	Ceiling:	Gypsum 1/2"
Temperature:	Temp <= 100°F		

**Reactions UNPATTERNED lb (Uplift)**

Brg	Direction	Live	Dead	Snow	Wind	Const
1	Vertical	0	1941	1863	0	0
2	Vertical	0	1941	1863	0	0

**Bearings**

Bearing	Length	Dir.	Cap.	React D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF End Grain	3.500"	Vert	37%	1941 / 1863	3805	L	D+S
2 - SPF End Grain	3.500"	Vert	37%	1941 / 1863	3805	L	D+S

**Analysis Results**

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	12776 ft-lb	7'2"	31049 ft-lb	0.411 (41%)	D+S	L
Unbraced	12776 ft-lb	7'2"	12798 ft-lb	0.998 (100%)	D+S	L
Shear	3043 lb	1'5 1/2"	12021 lb	0.253 (25%)	D+S	L
LL Defl inch	0.150 (L/1109)	7'2 1/16"	0.347 (L/480)	0.433 (43%)	S	L
TL Defl inch	0.307 (L/543)	7'2 1/16"	0.462 (L/360)	0.663 (66%)	D+S	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 Fasten all plies using 3 rows of 10d Box nails (.128x3") at 12" o.c. Maximum end distance not to exceed 6".
- 3 Refer to last page of calculations for fasteners required for specified loads.
- 4 Girders are designed to be supported on the bottom edge only.
- 5 Top loads must be supported equally by all plies.
- 6 Top must be laterally braced at a maximum of 8' 15/16" o.c.
- 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	260 PLF	0 PLF	260 PLF	0 PLF	0 PLF	A1
	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**

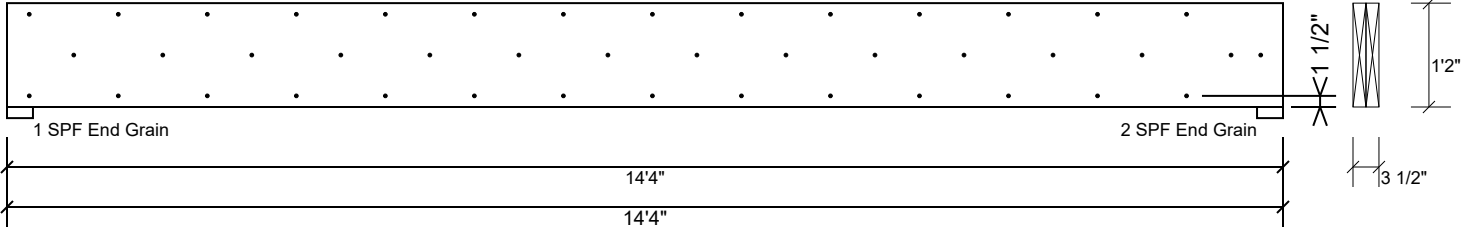
Metsä Wood  
 301 Merritt 7 Building, 2nd Floor  
 Norwalk, CT 06851  
 (800) 622-5850  
[www.metsawood.com/us](http://www.metsawood.com/us)

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



**BM1 Kerto-S LVL 1.750" X 14.000" 2-Ply - PASSED**

Level: Level



**Multi-Ply Analysis**

Fasten all plies using 3 rows of 10d Box nails (.128x3") at 12" o.c.. Maximum end distance not to exceed 6".

Capacity	0.0 %
Load	0.0 PLF
Yield Limit per Foot	245.6 PLF
Yield Limit per Fastener	81.9 lb.
Yield Mode	IV
Edge Distance	1 1/2"
Min. End Distance	3"
Load Combination	
Duration Factor	1.00

**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](http://www.metsawood.com/us)

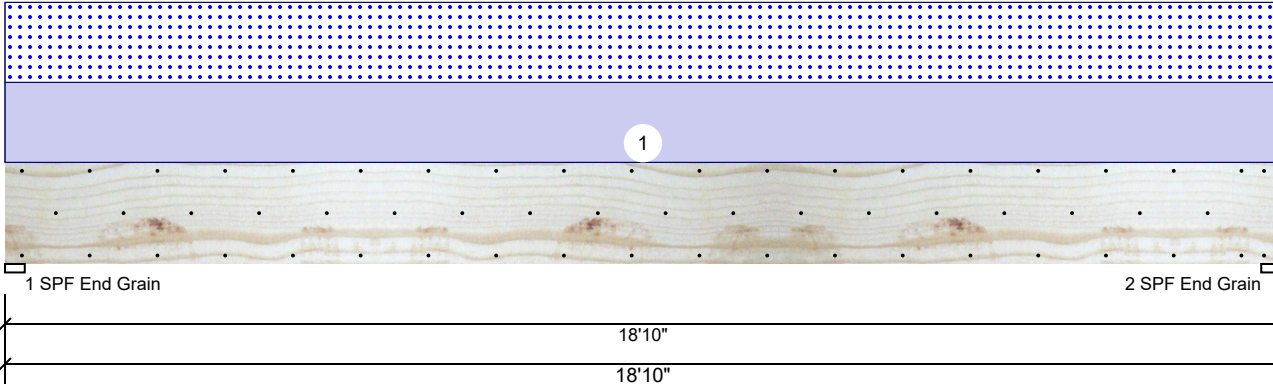
Comtech  
 Reilly Road Industrial Park P.O. Box 40408, NC  
 USA  
 28309  
 910-864-8787





**GDH Kerto-S LVL 1.750" X 18.000" 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:	360	Deck:	Not Checked
Importance:	Normal - II	Ceiling:	Gypsum 1/2"
Temperature:	Temp <= 100°F		

**Reactions UNPATTERNED lb (Uplift)**

Brg	Direction	Live	Dead	Snow	Wind	Const
1	Vertical	0	2580	2448	0	0
2	Vertical	0	2580	2448	0	0

**Bearings**

Bearing	Length	Dir.	Cap.	React D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF End Grain	3.500"	Vert	49%	2580 / 2448	5029	L	D+S
2 - SPF End Grain	3.500"	Vert	49%	2580 / 2448	5029	L	D+S

**Analysis Results**

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	22589 ft-lb	9'5"	49428 ft-lb	0.457 (46%)	D+S	L
Unbraced	22589 ft-lb	9'5"	22602 ft-lb	0.999 (100%)	D+S	L
Shear	4093 lb	1'9 1/2"	15456 lb	0.265 (26%)	D+S	L
LL Defl inch	0.217 (L/1017)	9'5 1/16"	0.460 (L/480)	0.472 (47%)	S	L
TL Defl inch	0.446 (L/495)	9'5 1/16"	0.613 (L/360)	0.727 (73%)	D+S	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.
- Fasten all plies using 3 rows of 10d Box nails (.128x3") at 12" o.c. Maximum end distance not to exceed 6".
- Refer to last page of calculations for fasteners required for specified loads.
- Girders are designed to be supported on the bottom edge only.
- Top loads must be supported equally by all plies.
- Top must be laterally braced at a maximum of 5'10 1/4" 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	260 PLF	0 PLF	260 PLF	0 PLF	0 PLF	A1
	Self Weight				14 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**

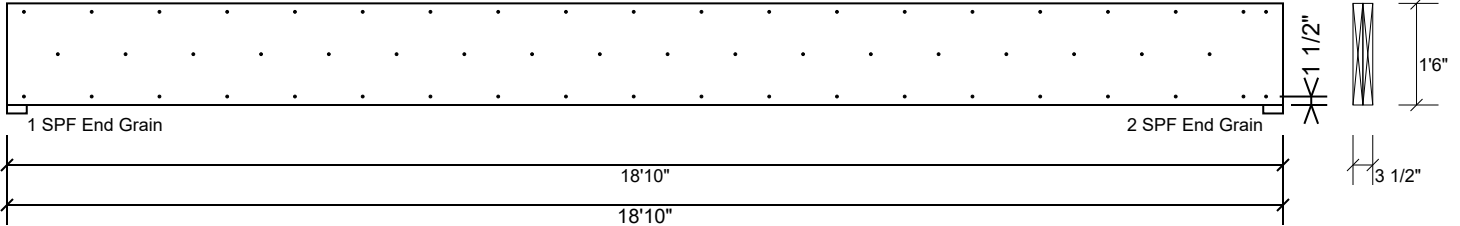
Metsä Wood  
 301 Merritt 7 Building, 2nd Floor  
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 (800) 622-5850  
[www.metsawood.com/us](http://www.metsawood.com/us)

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



**GDH Kerto-S LVL 1.750" X 18.000" 2-Ply - PASSED**

Level: Level



**Multi-Ply Analysis**

Fasten all plies using 3 rows of 10d Box nails (.128x3") at 12" o.c.. Maximum end distance not to exceed 6".

Capacity	0.0 %
Load	0.0 PLF
Yield Limit per Foot	245.6 PLF
Yield Limit per Fastener	81.9 lb.
Yield Mode	IV
Edge Distance	1 1/2"
Min. End Distance	3"
Load Combination	
Duration Factor	1.00

**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
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6. For flat roofs provide proper drainage to prevent ponding

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**Manufacturer Info**

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

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



Trenco  
818 Soundside Rd  
Edenton, NC 27932

Re: J0723-3468  
Lugiano Garage

The truss drawing(s) referenced below have been prepared by Truss Engineering Co. under my direct supervision based on the parameters provided by Comtech, Inc - Fayetteville.

Pages or sheets covered by this seal: I59365369 thru I59365371

My license renewal date for the state of North Carolina is December 31, 2023.

North Carolina COA: C-0844



July 6, 2023

Gilbert, Eric

**IMPORTANT NOTE:** The seal on these truss component designs is a certification that the engineer named is licensed in the jurisdiction(s) identified and that the designs comply with ANSI/TPI 1. These designs are based upon parameters shown (e.g., loads, supports, dimensions, shapes and design codes), which were given to MiTek or TRENCO. Any project specific information included is for MiTek's or TRENCO's customers file reference purpose only, and was not taken into account in the preparation of these designs. MiTek or TRENCO has not independently verified the applicability of the design parameters or the designs for any particular building. Before use, the building designer should verify applicability of design parameters and properly incorporate these designs into the overall building design per ANSI/TPI 1, Chapter 2.

Job	Truss	Truss Type	Qty	Ply	Lugiano Garage	I59365369
J0723-3468	A1	COMMON	16	1		

Comtech, Inc. Fayetteville, NC - 28314,

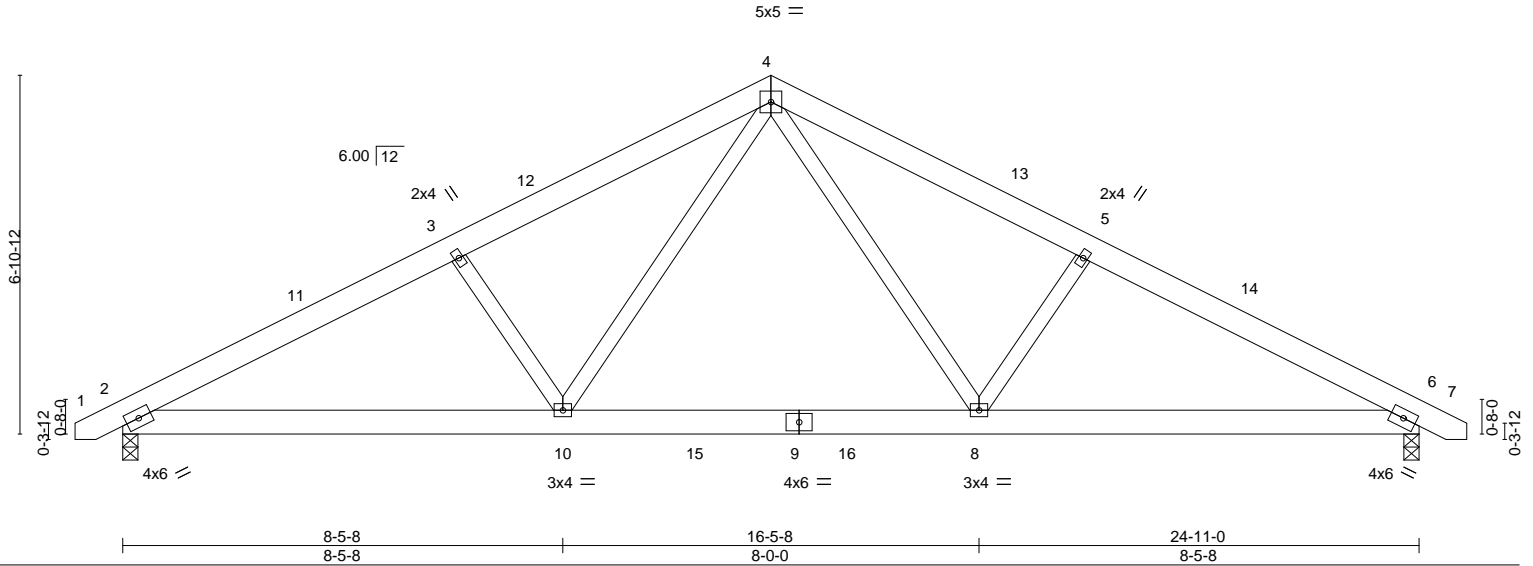
8.430 s Jan 6 2022 MiTek Industries, Inc. Thu Jul 6 07:54:33 2023 Page 1

ID:ssVaBLH33i3DZ5iDDT5U25z\_s3H-RIC?PsB70Hq3NSgPqnL8w3ulTXbGKWrCdoi7J4zJC?f

Job Reference (optional)

0-11-0	6-5-8	12-5-8	18-5-8	24-11-0	25-10-0
0-11-0	6-5-8	6-0-0	6-0-0	6-5-8	0-11-0

Scale = 1:44.3



<b>LOADING</b> (psf)	<b>SPACING-</b>	2-0-0	<b>CSI.</b>	<b>DEFL.</b>	in (loc)	l/defl	L/d	<b>PLATES</b>	<b>GRIP</b>
TCLL 20.0	Plate Grip DOL	1.15	TC 0.21	Vert(LL)	-0.07 8-10	>999	360	MT20	244/190
TCDL 10.0	Lumber DOL	1.15	BC 0.28	Vert(CT)	-0.12 8-10	>999	240		
BCLL 0.0 *	Rep Stress Incr	YES	WB 0.60	Horz(CT)	0.03 6	n/a	n/a		
BCDL 10.0	Code IRC2015/TPI2014		Matrix-S	Wind(LL)	0.09 2-10	>999	240		
								Weight: 161 lb	FT = 20%

**LUMBER-**  
 TOP CHORD 2x6 SP No.1  
 BOT CHORD 2x6 SP No.1  
 WEBS 2x4 SP No.2

**BRACING-**  
 TOP CHORD Structural wood sheathing directly applied or 5-11-2 oc purlins.  
 BOT CHORD Rigid ceiling directly applied or 7-2-4 oc bracing.

**REACTIONS.** (size) 2=0-3-8, 6=0-3-8  
 Max Horz 2=-86(LC 10)  
 Max Uplift 2=-221(LC 9), 6=-221(LC 8)  
 Max Grav 2=1037(LC 1), 6=1037(LC 1)

**FORCES.** (lb) - Max. Comp./Max. Ten. - All forces 250 (lb) or less except when shown.  
 TOP CHORD 2-3=-1653/1357, 3-4=-1466/1374, 4-5=-1466/1374, 5-6=-1653/1358  
 BOT CHORD 2-10=-1110/1403, 8-10=-675/951, 6-8=-1115/1403  
 WEBS 4-8=-616/566, 5-8=-338/214, 4-10=-616/566, 3-10=-338/214

- NOTES-**
- 1) Unbalanced roof live loads have been considered for this design.
  - 2) Wind: ASCE 7-10; Vult=130mph Vasd=103mph; TC DL=6.0psf; BCDL=6.0psf; h=15ft; Cat. II; Exp C; Enclosed; MWFRS (envelope) and C-C Exterior(2) -0-8-10 to 3-8-3, Interior(1) 3-8-3 to 12-5-8, Exterior(2) 12-5-8 to 16-10-5, Interior(1) 16-10-5 to 25-7-10 zone; porch left and right exposed; C-C for members and forces & MWFRS for reactions shown; Lumber DOL=1.60 plate grip DOL=1.60
  - 3) This truss has been designed for a 10.0 psf bottom chord live load nonconcurrent with any other live loads.
  - 4) \* This truss has been designed for a live load of 30.0psf on the bottom chord in all areas where a rectangle 3-6-0 tall by 2-0-0 wide will fit between the bottom chord and any other members, with BCDL = 10.0psf.
  - 5) Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 221 lb uplift at joint 2 and 221 lb uplift at joint 6.
  - 6) See Standard Industry Piggyback Truss Connection Detail for Connection to base truss as applicable, or consult qualified building designer.



July 6, 2023

**WARNING - Verify design parameters and READ NOTES ON THIS AND INCLUDED MITEK REFERENCE PAGE MII-7473 rev. 5/19/2020 BEFORE USE.**

Design valid for use only with MiTek® connectors. This design is based only upon parameters shown, and is for an individual building component, not a truss system. Before use, the building designer must verify the applicability of design parameters and properly incorporate this design into the overall building design. Bracing indicated is to prevent buckling of individual truss web and/or chord members only. Additional temporary and permanent bracing is always required for stability and to prevent collapse with possible personal injury and property damage. For general guidance regarding the fabrication, storage, delivery, erection and bracing of trusses and truss systems, see

**ANSI/TPI1 Quality Criteria, DSB-89 and BCSI Building Component**

**Safety Information** available from Truss Plate Institute, 2670 Crain Highway, Suite 203 Waldorf, MD 20601



818 Soundside Road  
 Edenton, NC 27932

Job J0723-3468	Truss A1GE	Truss Type COMMON SUPPORTED GAB	Qty 2	Ply 1	Lugiano Garage Job Reference (optional)	159365370
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Comtech, Inc. Fayetteville, NC - 28314,

8.430 s Jan 6 2022 MiTek Industries, Inc. Thu Jul 6 07:54:34 2023 Page 1

ID:ssVaBLH33I3DZ5IDD5U25z\_s3H-RfC?PsB70Hq3NSgPqnL8w3uITXbGKWrCDoi7J4zJC?f



Scale = 1:47.2

<b>LOADING</b> (psf)	<b>SPACING-</b> 2-0-0	<b>CSI.</b>	<b>DEFL.</b> in (loc) l/defl L/d	<b>PLATES</b>	<b>GRIP</b>
TCLL 20.0	Plate Grip DOL 1.15	TC 0.03	Vert(LL) 0.00 14 n/r 120	MT20	244/190
TCDL 10.0	Lumber DOL 1.15	BC 0.02	Vert(CT) 0.00 14 n/r 120		
BCLL 0.0 *	Rep Stress Incr YES	WB 0.08	Horz(CT) 0.00 14 n/a n/a		
BCDL 10.0	Code IRC2015/TPI2014	Matrix-S			
				Weight: 182 lb	FT = 20%

**LUMBER-**  
 TOP CHORD 2x6 SP No.1  
 BOT CHORD 2x6 SP No.1  
 OTHERS 2x4 SP No.2

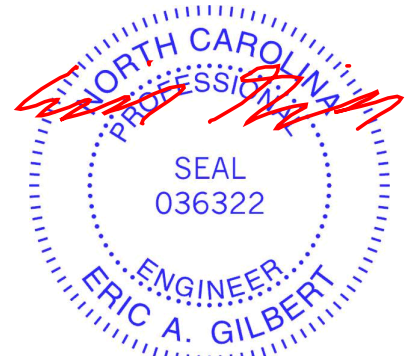
**BRACING-**  
 TOP CHORD Structural wood sheathing directly applied or 6-0-0 oc purlins.  
 BOT CHORD Rigid ceiling directly applied or 10-0-0 oc bracing.

**REACTIONS.** All bearings 24-11-0.  
 (lb) - Max Horz 2=133(LC 17)  
 Max Uplift All uplift 100 lb or less at joint(s) 2, 23, 24, 25, 26, 27, 20, 19, 18, 17, 16  
 Max Grav All reactions 250 lb or less at joint(s) 2, 22, 23, 24, 25, 26, 27, 20, 19, 18, 17, 16, 14

**FORCES.** (lb) - Max. Comp./Max. Ten. - All forces 250 (lb) or less except when shown.

**NOTES-**

- 1) Unbalanced roof live loads have been considered for this design.
- 2) Wind: ASCE 7-10; Vult=130mph Vasd=103mph; TC DL=6.0psf; BCDL=6.0psf; h=15ft; Cat. II; Exp C; Enclosed; MWFRS (envelope) gable end zone and C-C Exterior(2) zone; C-C for members and forces & MWFRS for reactions shown; Lumber DOL=1.60 plate grip DOL=1.60
- 3) Truss designed for wind loads in the plane of the truss only. For studs exposed to wind (normal to the face), see Standard Industry Gable End Details as applicable, or consult qualified building designer as per ANSI/TPI 1.
- 4) All plates are 2x4 MT20 unless otherwise indicated.
- 5) Gable requires continuous bottom chord bearing.
- 6) Gable studs spaced at 2-0-0 oc.
- 7) This truss has been designed for a 10.0 psf bottom chord live load nonconcurrent with any other live loads.
- 8) \* This truss has been designed for a live load of 30.0psf on the bottom chord in all areas where a rectangle 3-6-0 tall by 2-0-0 wide will fit between the bottom chord and any other members.
- 9) Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 100 lb uplift at joint(s) 2, 23, 24, 25, 26, 27, 20, 19, 18, 17, 16.
- 10) See Standard Industry Piggyback Truss Connection Detail for Connection to base truss as applicable, or consult qualified building designer.



July 6, 2023

**WARNING - Verify design parameters and READ NOTES ON THIS AND INCLUDED MITEK REFERENCE PAGE MII-7473 rev. 5/19/2020 BEFORE USE.**

Design valid for use only with MiTek® connectors. This design is based only upon parameters shown, and is for an individual building component, not a truss system. Before use, the building designer must verify the applicability of design parameters and properly incorporate this design into the overall building design. Bracing indicated is to prevent buckling of individual truss web and/or chord members only. Additional temporary and permanent bracing is always required for stability and to prevent collapse with possible personal injury and property damage. For general guidance regarding the fabrication, storage, delivery, erection and bracing of trusses and truss systems, see

**ANSI/TPI1 Quality Criteria, DSB-89 and BCSI Building Component**

**Safety Information** available from Truss Plate Institute, 2670 Crain Highway, Suite 203 Waldorf, MD 20601



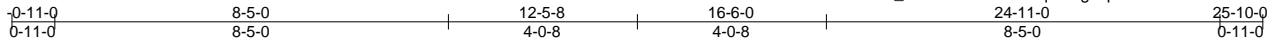
818 Soundside Road  
 Edenton, NC 27932

Job J0723-3468	Truss A2	Truss Type COMMON	Qty 8	Ply 1	Lugiano Garage Job Reference (optional)	159365371
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Comtech, Inc. Fayetteville, NC - 28314,

8.430 s Jan 6 2022 MiTek Industries, Inc. Thu Jul 6 07:54:35 2023 Page 1

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Scale = 1:49.3

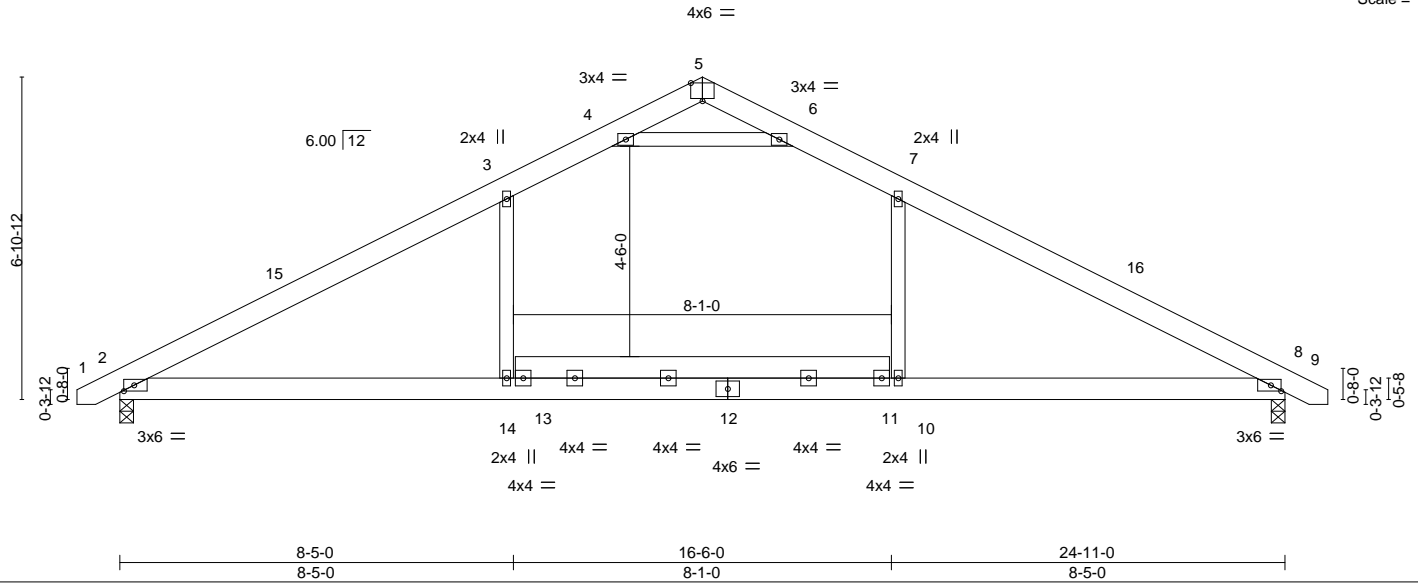


Plate Offsets (X, Y)--	[2:0-2-10,0-1-8], [5:0-3-0,Edge], [8:0-2-10,0-1-8]
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LOADING (psf)	SPACING-	2-0-0	CSI.	DEFL.	in (loc)	l/defl	L/d	PLATES	GRIP
TCLL 20.0	Plate Grip DOL	1.15	TC 0.68	Vert(LL)	-0.19	8-10	>999	MT20	244/190
TCDL 10.0	Lumber DOL	1.15	BC 0.46	Vert(CT)	-0.29	8-10	>999		
BCLL 0.0 *	Rep Stress Incr	YES	WB 0.53	Horz(CT)	0.03	8	n/a		
BCDL 10.0	Code IRC2015/TPI2014		Matrix-S	Wind(LL)	0.13	2-14	>999		
								Weight: 165 lb	FT = 20%

LUMBER-	BRACING-
TOP CHORD 2x6 SP No.1	TOP CHORD Structural wood sheathing directly applied or 5-1-8 oc purlins.
BOT CHORD 2x6 SP No.1	BOT CHORD Rigid ceiling directly applied or 10-0-0 oc bracing.
WEBS 2x4 SP No.2	

**REACTIONS.** (size) 2=0-3-8, 8=0-3-8  
 Max Horz 2=-86(LC 10)  
 Max Uplift 2=-71(LC 12), 8=-71(LC 13)  
 Max Grav 2=1085(LC 2), 8=1085(LC 2)

**FORCES.** (lb) - Max. Comp./Max. Ten. - All forces 250 (lb) or less except when shown.  
 TOP CHORD 2-3=-1701/336, 3-4=-1339/387, 4-5=-157/758, 5-6=-157/758, 6-7=-1339/387, 7-8=-1701/336  
 BOT CHORD 2-14=-161/1392, 10-14=-165/1393, 8-10=-161/1392  
 WEBS 7-10=0/451, 3-14=0/451, 4-6=-2240/585

- NOTES-**
- 1) Unbalanced roof live loads have been considered for this design.
  - 2) Wind: ASCE 7-10; Vult=130mph Vasd=103mph; TCDL=6.0psf; BCDL=6.0psf; h=15ft; Cat. II; Exp C; Enclosed; MWFRS (envelope) and C-C Exterior(2) -0-8-10 to 3-8-3, Interior(1) 3-8-3 to 12-5-8, Exterior(2) 12-5-8 to 16-7-12, Interior(1) 16-7-12 to 25-7-10 zone; C-C for members and forces & MWFRS for reactions shown; Lumber DOL=1.60 plate grip DOL=1.60
  - 3) This truss has been designed for a 10.0 psf bottom chord live load nonconcurrent with any other live loads.
  - 4) \* This truss has been designed for a live load of 30.0psf on the bottom chord in all areas where a rectangle 3-6-0 tall by 2-0-0 wide will fit between the bottom chord and any other members, with BCDL = 10.0psf.
  - 5) Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 100 lb uplift at joint(s) 2, 8.
  - 6) See Standard Industry Piggyback Truss Connection Detail for Connection to base truss as applicable, or consult qualified building designer.

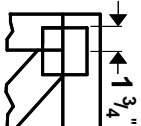


July 6, 2023

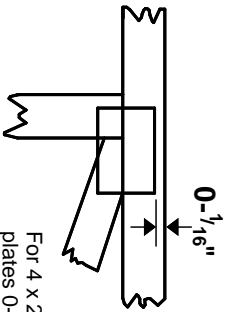
<p><b>WARNING - Verify design parameters and READ NOTES ON THIS AND INCLUDED MITEK REFERENCE PAGE MII-7473 rev. 5/19/2020 BEFORE USE.</b></p> <p>Design valid for use only with MiTek® connectors. This design is based only upon parameters shown, and is for an individual building component, not a truss system. Before use, the building designer must verify the applicability of design parameters and properly incorporate this design into the overall building design. Bracing indicated is to prevent buckling of individual truss web and/or chord members only. Additional temporary and permanent bracing is always required for stability and to prevent collapse with possible personal injury and property damage. For general guidance regarding the fabrication, storage, delivery, erection and bracing of trusses and truss systems, see <b>ANSI/TPI1 Quality Criteria, DSB-89 and BCSI Building Component Safety Information</b> available from Truss Plate Institute, 2670 Crain Highway, Suite 203 Waldorf, MD 20601</p>	<p>818 Soundside Road Edenton, NC 27932</p>
--	---

# Symbols

## PLATE LOCATION AND ORIENTATION



Center plate on joint unless x, y offsets are indicated. Dimensions are in ft-in-sixteenths. Apply plates to both sides of truss and fully embed teeth.



For 4 x 2 orientation, locate plates 0- 1/16" from outside edge of truss.



This symbol indicates the required direction of slots in connector plates.

\* Plate location details available in **MITek 20/20 software** or upon request.

## PLATE SIZE

**4 X 4**

The first dimension is the plate width measured perpendicular to slots. Second dimension is the length parallel to slots.

## LATERAL BRACING LOCATION



Indicated by symbol shown and/or by text in the bracing section of the output. Use T or I bracing if indicated.

## BEARING



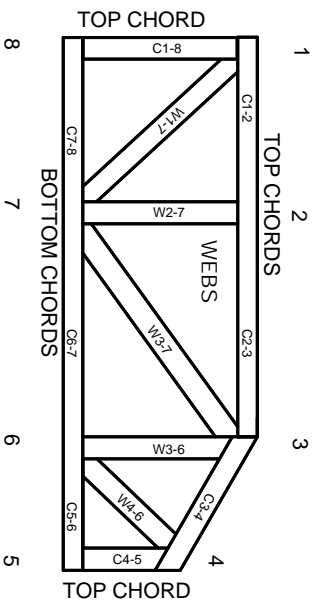
Indicates location where bearings (supports) occur. Icons vary but reaction section indicates joint number where bearings occur. Min size shown is for crushing only.

### Industry Standards:

ANSI/TFP 1: National Design Specification for Metal Plate Connected Wood Truss Construction.  
DSB-89: Design Standard for Bracing.  
BCSI: Building Component Safety Information, Guide to Good Practice for Handling, Installing & Bracing of Metal Plate Connected Wood Trusses.

# Numbering System

6-4-8  
dimensions shown in ft-in-sixteenths  
(Drawings not to scale)



**JOINTS ARE GENERALLY NUMBERED/LETTERED CLOCKWISE AROUND THE TRUSS STARTING AT THE JOINT FARTHEST TO THE LEFT.**

**CHORDS AND WEBS ARE IDENTIFIED BY END JOINT NUMBERS/LETTERS.**

## PRODUCT CODE APPROVALS

ICC-ES Reports:

ESR-1311, ESR-1352, ESR1988  
ER-3907, ESR-2362, ESR-1397, ESR-3282

Trusses are designed for wind loads in the plane of the truss unless otherwise shown.

Lumber design values are in accordance with ANSI/TFP 1 section 6.3 These truss designs rely on lumber values established by others.

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MITek Engineering Reference Sheet: MII-7473 rev. 5/19/2020



# General Safety Notes

## Failure to Follow Could Cause Property Damage or Personal Injury

1. Additional stability bracing for truss system, e.g. diagonal or X-bracing, is always required. See BCSI.
2. Truss bracing must be designed by an engineer. For wide truss spacing, individual lateral braces themselves may require bracing, or alternative Tor I bracing should be considered.
3. Never exceed the design loading shown and never stack materials on inadequately braced trusses.
4. Provide copies of this truss design to the building designer, erection supervisor, property owner and all other interested parties.
5. Cut members to bear tightly against each other.
6. Place plates on each face of truss at each joint and embed fully. Knots and wane at joint locations are regulated by ANSI/TFP 1.
7. Design assumes trusses will be suitably protected from the environment in accord with ANSI/TFP 1.
8. Unless otherwise noted, moisture content of lumber shall not exceed 19% at time of fabrication.
9. Unless expressly noted, this design is not applicable for use with fire retardant, preservative treated, or green lumber.
10. Camber is a non-structural consideration and is the responsibility of truss fabricator. General practice is to camber for dead load deflection.
11. Plate type, size, orientation and location dimensions indicated are minimum plating requirements.
12. Lumber used shall be of the species and size, and in all respects, equal to or better than that specified.
13. Top chords must be sheathed or purlins provided at spacing indicated on design.
14. Bottom chords require lateral bracing at 10 ft. spacing, or less, if no ceiling is installed, unless otherwise noted.
15. Connections not shown are the responsibility of others.
16. Do not cut or alter truss member or plate without prior approval of an engineer.
17. Install and load vertically unless indicated otherwise.
18. Use of green or treated lumber may pose unacceptable environmental, health or performance risks. Consult with project engineer before use.
19. Review all portions of this design (front, back, words and pictures) before use. Reviewing pictures alone is not sufficient.
20. Design assumes manufacture in accordance with ANSI/TFP 1 Quality Criteria.
21. The design does not take into account any dynamic or other loads other than those expressly stated.