ROOF TRUSS LAYOUT (NTS)





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Site Information:	Page 1:		
Customer: Mill Creek Truss	Job Number: JB-232208R		
Job Description: Customer:CAPITAL BUILDERS LLC Address:100 NE Tudor Rd			
Address: 100 NE Tudor Rd, Lee Summit, MO 64086			

Job Engineering Criteria:					
Design Code: IBC 2018	IntelliVIEW Version: 23.01.02				
	JRef #: 1XW093160001				
Wind Standard: ASCE 7-16 Wind Speed (mph): 115	Design Loading (psf): 40.00				
Building Type: Closed					

This package contains general notes pages, 8 truss drawing(s) and 2 detail(s).

ltem	Drawing Number	Truss	Item	Drawing Number	Truss
1	362.23.1331.50283	A01	2	362.23.1331.29623	A02
3	362.23.1331.26343	A03	4	362.23.1331.08747	B01
5	362.23.1331.06633	B02	6	362.23.1331.03987	B03
7	362.23.1331.02227	B04	8	362.23.1327.42993	B05
9	BRCLBSUB0119		10	DEFLCAMB1014	

General Notes

Truss Design Engineer Scope of Work, Design Assumptions and Design Responsibilities:

The design responsibilities assumed in the preparation of these design drawings are those specified in ANSI/TPI 1, Chapter 2; and the National Design Standard for Metal Plate Connected Wood Truss Construction, by the Truss Plate Institute. The truss component designs conform to the applicable provisions of ANSI/TPI 1 and NDS, the National Design Specification for Wood Construction by AWC. The truss component designs are based on the specified loading and dimension information furnished by others to the Truss Design Engineer. The Truss Design Engineer has no duty to independently verify the accuracy or completeness of the information provided by others and may rely on that information without liability. The responsibility for verification of that information remains with others neither employed nor controlled by the Truss Design Engineer. The Truss Design Engineer. The Truss Design Engineer. The Truss Design Engineer on the attached drawings, or cover page listing these drawings, indicates acceptance of professional engineering responsibility solely for the truss component designs and not for the technical information furnished by others which technical information and consequences thereof remain their sole responsibility.

The suitability and use of these drawings for any particular structure is the responsibility of the Building Designer in accordance with ANSI/TPI 1 Chapter 2. The Building Designer is responsible for determining that the dimensions and loads for each truss component match those required by the plans and by the actual use of the individual component, and for ascertaining that the loads shown on the drawings meet or exceed applicable building code requirements and any additional factors required in the particular application. Truss components using metal connector plates with integral teeth shall not be placed in environments that will cause the moisture content of the wood in which plates are embedded to exceed 19% and/or cause corrosion of connector plates and other metal fasteners.

The Truss Design Engineer shall not be responsible for items beyond the specific scope of the agreed contracted work set forth herein, including but not limited to: verifying the dimensions of the truss component, calculation of any of the truss component design loads, inspection of the truss components before or after installation, the design of temporary or permanent bracing and their attachment required in the roof and/or floor systems, the design of diaphragms or shear walls, the design of load transfer connections to and from diaphragms and shear walls, the design of load transfer to the foundation, the design of connections for truss components to their bearing supports, the design of the bearing supports, installation of the truss component installation, construction means and methods, site and/or worker safety in the installation of the truss components and/or its connections.

This document may be a high quality facsimile of the original engineering document which is a digitally signed electronic file with third party authentication. A wet or embossed seal copy of this engineering document is available upon request.

Temporary Lateral Restraint and Bracing:

Temporary lateral restraint and diagonal bracing shall be installed according to the provisions of BCSI chapters B1, B2, B7 and/or B10 (Building Component Safety Information, by TPI and SBCA), or as specified by the Building Designer or other Registered Design Professional. The required locations for lateral restraint and/or bracing depicted on these drawings are only for the permanent lateral support of the truss members to reduce buckling lengths, and do not apply to and may not be relied upon for the temporary stability of the truss components during their installation.

Permanent Lateral Restraint and Bracing:

The required locations for lateral restraint or bracing depicted on these drawings are for the permanent lateral support of the truss members to reduce buckling lengths. Permanent lateral support shall be installed according to the provisions of BCSI chapters B3, B7 and/or B10, or as specified by the Building Designer or other Registered Design Professional. These drawings do not depict or specify installation/erection bracing, wind bracing, portal bracing or similar building stability bracing which are parts of the overall building design to be specified, designed, and detailed by the Building Designer.

Connector Plate Information:

Alpine connector plates are made of ASTM A653 or ASTM A1063 galvanized steel with the following designations, gauges and grades: W=Wave, 20ga, grade 40; H=High Strength, 20ga, grade 60; S=Super Strength, 18ga, grade 60. Information on model code compliance is contained in the ICC Evaluation Service report ESR-1118, available on-line at www.icc-es.org.

Fire Retardant Treated Lumber:

Fire retardant treated lumber must be properly re-dried and maintained below 19% or less moisture level through all stages of construction and usage. Fire retardant treated lumber may be more brittle than untreated lumber. Special handling care must be taken to prevent breakage during all handling activities.

General Notes (continued)

Key to Terms:

Information provided on drawings reflects a summary of the pertinent information required for the truss design. Detailed information on load cases, reactions, member lengths, forces and members requiring permanent lateral support may be found in calculation sheets available upon written request.

BCDL = Bottom Chord standard design Dead Load in pounds per square foot.

BCLL = Bottom Chord standard design Live Load in pounds per square foot.

CL = Certified lumber.

Des Ld = total of TCLL, TCDL, BCLL and BCDL Design Load in pounds per square foot.

FRT = Fire Retardant Treated lumber.

FRT-DB = D-Blaze Fire Retardant Treated lumber.

FRT-DC = Dricon Fire Retardant Treated lumber.

FRT-FP = FirePRO Fire Retardant Treated lumber.

FRT-FL = FlamePRO Fire Retardant Treated lumber.

FRT-FT = FlameTech Fire Retardant Treated lumber.

FRT-PG = PYRO-GUARD Fire Retardant Treated lumber.

FRT-PR = ProWood Fire Retardant Treated lumber.

g = green lumber.

HORZ(LL) = maximum Horizontal panel point deflection due to Live Load, in inches.

HORZ(TL) = maximum Horizontal panel point long term deflection in inches, due to Total Load, including creep adjustment.

HPL = additional Horizontal Load added to a truss Piece in pounds per linear foot or pounds.

Ic = Incised lumber.

FJ = Finger Jointed lumber.

L/# = user specified divisor for limiting span/deflection ratio for evaluation of actual L/defl value.

L/defl = ratio of Length between bearings, in inches, divided by the vertical Deflection due to creep, in inches, at the referenced panel point. Reported as 999 if greater than or equal to 999.

Loc = Location, starting location of left end of bearing or panel point (joint) location of deflection.

Max BC CSI = Maximum bending and axial Combined Stress Index for Bottom Chords for all load cases.

Max TC CSI = Maximum bending and axial Combined Stress Index for Top Chords for all load cases.

Max Web CSI= Maximum bending and axial Combined Stress Index for Webs for all load cases.

NCBCLL = Non-Concurrent Bottom Chord design Live Load in pounds per square foot.

PL = additional Load applied at a user specified angle on a truss Piece in pounds per linear foot or pounds.

PLB = additional vertical load added to a Bottom chord Piece of a truss in pounds per linear foot or pounds

PLT = additional vertical load added to a Top chord Piece of a truss in pounds per linear foot or pounds.

PP = Panel Point.

R = maximum downward design Reaction, in pounds, from all specified gravity load cases, at the indicated location (Loc).

-R = maximum upward design Reaction, in pounds, from all specified gravity load cases, at the identified location (Loc). Rh = maximum horizontal design Reaction in either direction, in pounds, from all specified gravity load cases, at the indicated location (Loc).

RL = maximum horizontal design Reaction in either direction, in pounds, from all specified non-gravity (wind or seismic) load cases, at the indicated location (Loc).

Rw = maximum downward design Reaction, in pounds, from all specified non-gravity (wind or seismic) load cases, at the identified location (Loc).

TCDL = Top Chord standard design Dead Load in pounds per square foot.

TCLL = Top Chord standard design Live Load in pounds per square foot.

U = maximum Upward design reaction, in pounds, from all specified non-gravity (wind or seismic) load cases, at the indicated location (Loc).

VERT(CL) = maximum Vertical panel point deflection in inches due to Live Load and Creep Component of Dead Load in inches.

VERT(CTL) = maximum Vertical panel point deflection ratios due to Live Load and Creep Component of Dead Load, and maximum long term Vertical panel point deflection in inches due to Total load, including creep adjustment.

VERT(LL) = maximum Vertical panel point deflection in inches due to Live Load.

VERT(TL) = maximum Vertical panel point long term deflection in inches due to Total load, including creep adjustment. W = Width of non-hanger bearing, in inches.

Refer to ASCE-7 for Wind and Seismic abbreviations.

Uppercase Acronyms not explained above are as defined in TPI 1.

References:

- 1. AWC: American Wood Council; 222 Catoctin Circle SE, Suite 201; Leesburg, VA 20175; www.awc.org.
- 2. ICC: International Code Council; <u>www.iccsafe.org</u>.
- 3. Alpine, a division of ITW Building Components Group Inc.: 155 Harlem Ave, North Building, 4th Floor, Glenview, IL 60025; <u>www.alpineitw.com</u>.
- 4. TPI: Truss Plate Institute, 2670 Crain Highway, Suite 203, Waldorf, MD 20601; www.tpinst.org.
- 5. SBCA: Wood Truss Council of America, 6300 Enterprise Lane, Madison, WI 53719; www.sbcacomponents.com.





Glenview, IL 60025













CLR Reinforcing Member Substitution

This detail is to be used when a Continuous Lateral Restraint (CLR) is specified on a truss design but an alternative web reinforcement method is desired.

Notes

This detail is only applicable for changing the specified CLR shown on single ply sealed designs to T-reinforcement or L-reinforecement or scab reinforcement.

Alternative reinforcement specified in chart below may be conservative. For minimum alternative reinforcement, re-run design with appropriate reinforcement type.

Use scabs instead of L- or T- reinforcement on webs with intersecting truss joints, such as K-web joints, that may interfere with proper application along the narrow face of the web.

Web Member	Specified CLR	Alternative Reir	iforecement
Size	Restraint	T- or L- Reinf.	Scab Reinf,
2x3 or 2x4	1 row	2×4	1-2×4
2x3 or 2x4	2 rows	2×6	2-2×4
2×6	1 row	2×4	1-2×6
2×6	2 rows	2×6	2-2×4(%)
2×8	1 row	2×6	1-2×8
2×8	2 rows	2×6	2-2×6(ж)

T-reinforcement, L-reinforcement, or scab reinforcement to be same species and grade or better than web member unless specified otherwise on Engineer's sealed design.

For more information see this job's general notes page and these web sites: ALPINE: www.alpineitw.com; TPI: www.tpinst.org; SBCA: www.sbcacomponents.com; ICC: www.iccsafe.org

(Ж) Center scab on wide face of web. Apply (1) scab to each face of web.

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Commentary: Deflection and Camber

Camber may be built into trusses to compensate for the vertical deflection that results from the application of loads. Providing camber has the following advantages:

- Helps to ensure level ceilings and floors after dead loads are applied.
- Facilitates drainage to avoid ponding on flat or low slope roofs.
- Compensates for different deflection characteristics between adjacent trusses.
- Improves appearance of garage door headers and other long spans that can appear to "sag."
- Avoids "dips" in roof ridgelines at the transition from the gable to adjacent clear span trusses.

In accordance with ANSI/TPI 1 the Building Designer, through the Construction Documents, shall provide the location, direction, and magnitude of all loads attributable to ponding that may occur due to the design of the roof drainage system. The Building Designer shall also specify any dead load, live load, and in-service creep deflection criteria for flat or low-slope roofs subject to ponding loads.

The amount of camber is dependent on the truss type, span, loading, application, etceteras.

More restrictive limits for allowable deflection and slenderness ratio (L/D) may be required to help control vibration.

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The following tables are provided as guidelines for limiting deflection and estimating camber. Conditions or codes may exist that require exceeding these recommendations, or past experience may warrant using more stringent limitations.

- L = Span of Truss (inches)
- D = Depth of Truss at Deflection Point (inches)

Recommended Truss Deflection Limits

re applied.	<u>Truss Type</u>		Deflection Limits		
ainage to avoid ponding on flat or		24	Live Load	Total Load	
it S.	Pitched Roof Trusses	24	L/240 (Vertical)	L/180 (Vertical)	
for different deflection cs between adjacent trusses.	Floor of Room-In-Attic Trusses	24	L/360 (vertical)	L/240 (vertical)	
earance of garage door headers ng spans that can appear to "sag."	Flat or Shallow Pitched Roof Trusses	24	L/360 (vertical)	L/240 (vertical)	
in roof ridgelines at the transition Ile to adjacent clear span trusses.	Residential Floor Trusse	s 24	L/360 (vertical)	L/240 (vertical)	
ANSI/TPI 1 the Building Designer,	Commercial Floor Trusses	5 20	L/480 (vertical)	L/240 (vertical)	
ruction Documents, shall provide the and magnitude of all loads attributable	Scissors Trusses	24	0.75" (horizontal)	1.25" (horizontal)	
ay occur due to the design of the roof he Building Designer shall also specify load, and in-service creep deflection or low-slope roofs subject to ponding	<u>Truss Type</u> Pitched Trusses	<u>Recomme</u> 1.00 × I	<u>ended Camber</u> Deflection from Act	ual Dead Load	
ber is dependent on the truss type,	Sloping Parallel : Chord Trusses	1.5 × V Actual	ertical Deflection Dead Load	from	
cation, etceteras.	Floor Trusses	(0.25 ×	Deflection from Liv	ve Load) +	
nits for allowable deflection and	,	Actual	Dead Load		
(L/D) may be required to help	Flat Roof Trusses	(0.25 ×	Deflection from Liver	ve Load) + eflection)	
s are provided as guidelines for and estimating camber. Conditions or nat require exceeding these r past experience may warrant using	Note: The actual deal l the design deal l	OF M bad ma oad	be considerably l	ess than	
tations.	A RO	JAVID . THWEII	LER +		
HEVARNINGHER READ AND FOLLOV ALL NOTES ON THIS DRAVING HEIMPORTANTER FURNISH THIS DRAVING TO ALL CONTRACTORS INCLUDING THE D	NSTALLERS.	II IMBEI		REF DEFLEC/CAMB	
Trusses require extreme care in fabricating, handling, shipping, installing and brac follow the latest edition of BCSI (Building Component Safety Information, by TPI and practices point to perform these functions. Installens chall provide temponent	ing. Refer to and ISBCA) for safety bracing par BCSU	017000361	361 /5 2	DATE 10/01/14	
Unless noted otherwise, top chord shall have properly attached structural sheath shall have a properly attached rigid ceiling. Locations shown for pernanet latero shall have bracing installed per BCSI sections 23, 87 or 810, as applicable. Apply p	Ing and bottom chord I restraint of webs lates to each face		a a	DRWG DEFLCAMB1014	
of truss and position as shown above and on the Joint Details, unless noted other Refer to drawings 160A-Z for standard plate positions. Aloine, a division of ITV Building Components Group Inc. shall not be responsible f	rwise.	N A T	12/28/2023		
this drawing, any failure to build the truss in conformance with ANSI/TPI 1, or for handling, shipping, installation & bracing of trusses. A seal on this drawing or cover page listing this drawing, indicates acceptance of professional					
engineering responsibility solely for the design shown. The suitability and use of t for any structure is the responsibility of the Building Designer per ANSI/TPI 1 Sec. For more information see the building the second part and and the second seco	his drawing 2. MOCC	DA #200500	0817		
ALPINE: www.alpineitw.com; TPI: www.tpinst.org; SBCA: www.sbcacomponents.com; IC	C: www.iccsafe.org	MO COA #	2005000817		