DrJ Engineering, LLC
(FKA: DrJ Consulting, LLC)
6300 Enterprise Lane
Madison, Wisconsin 53719

Re: 201329RT1

Paragon ID: 29955

Site Information:

Project Customer:	SOUTH SCAN	Project Name:	201329RT1
Lot/Block:	48	Subdivision:	CAROLINA LAKES
Address:	44 WHITE HERON CT	Model:	2L-2873
City:	SANFORD	State:	North Carolina

Name Address and License # of the Building Designer, if there is one, for the Building:

Name: - License: - State: North Carolina

Address: - City: -

General Truss Engineering Criteria & Design Loads (Refer to Individual Truss Design Drawing(s) ("TDD[s]") for Special Loading Conditions):

Design Code:	IRC 2015	Design Program:	20/20
Wind Code:	-	Exposure Category:	-
Wind Speed(mph):	-	Floor Load:	-
Mean Roof Height(ft):	-		
Roof Load(psf):	20-10-0-10		

The TDD(s) (also at times referred to as "Delegated Engineering Documents") referenced have been prepared based on the Construction Documents, specifications and written requirements prepared by the Building Designer indicating the nature and character of the Building, its applied load, its load paths and the structural resistance design requirements. The design criteria from the Construction Documents, specifications and written requirements have been transferred to DrJ Engineering, LLC (DrJ) byCarolina Structural Systems

The TDDs herein are specialty structural component designs and may be part of the Building's deferred or phased submittal documents. As a Truss Design Engineer (also referred to in some Jurisdictions as a "Delegated or Specialty Engineer"), the seal on this Cover Sheet and on any TDD represents an acceptance of professional engineering responsibility for the design of the single Truss only as depicted on the TDD pursuant to ANSI/TPI 1, the National Design Standard for Metal Plate Connected Wood Truss Construction ("TPI 1"). The Building Designer is responsible for and shall coordinate and review each of the TDDs and all notes for compatibility with the Construction Documents, specifications, written requirements, design loads and load path. Capitalized terms are as defined in TPI 1.

My license renewal date for North Carolina is 12/31/2021 DrJ Consulting, PLLC P-1038

Important Notice: Each TDD uses Metal Connector Plate (MCP) design values published by MCP manufacturers and lumber industry published design values (mechanically or visually graded as indicated) and their associated Specific Gravity (SG) values. These are incorporated into lumber design provisions and equations created by the American Wood Council (AWC) per the National Design Specification® (NDS®) for Wood Construction and input into modeling and analysis software that uses TPI 1 provisions. The lumber design values (and SG values as needed for connections) correspond to the lumber size and grade as defined on the TDD incorporating the design values from the grade stamp identified by the Truss Manufacturer on the lumber prior to cross cutting for manufacturing purposes. The published lumber design values and associated SG values (a) are calculated and administered by the lumber rules writing agencies using a property range or bending correlation and are not tension proof tested, (b) are approved by the American Lumber Standards Committee (ALSC) as published design data that are representative of the strength and stiffness of specific grades and species/species groups of lumber, and (c) are further known by ALSC and the lumber rules writing agencies as individual visually or mechanically graded lumber pieces which do not have precise design values.

Neither the Truss Manufacturer nor the Truss Design Engineer can therefore verify or warrant that published lumber design values will exist within the lumber utilized in the Truss when manufactured and delivered.

_____ 4/14/2021

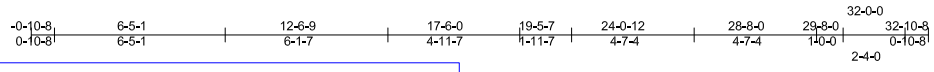
Ryan Dexter

The design assumptions, loading conditions, suitability and use of this set of TDDs for any Building shall be verified by both the Contractor and Building Designer. The approval of the Truss Submittal Package, including the TDDs and Truss Placement Diagrams ("TPDs") is the responsibility of the Building Designer and Contractor. Upon transmittal of the Truss Submittal Package and upon delivery of the Trusses to the Contractor, the Contractor shall read all notes and instructions in the TDDs and TPDs and review the practices and guidelines of Building Component Safety Information ("BCSI") and/or its summary sheets as published by the Truss Plate Institute and the Structural Building Component Association. The Truss Design Engineer is NOT the Building Designer, Truss System Engineer, or Structural Engineer of Record for any Building. Any field of use of the Truss, including applied loads, load paths, structural resistance requirements, handling, storage, installation and bracing, is the responsibility of the Building Designer and Contractor.

Job	Truss	Truss Type	Qty	Ply	
Roland A	A03	PIGGYBACK BASE	5	1	Job Reference (optional)

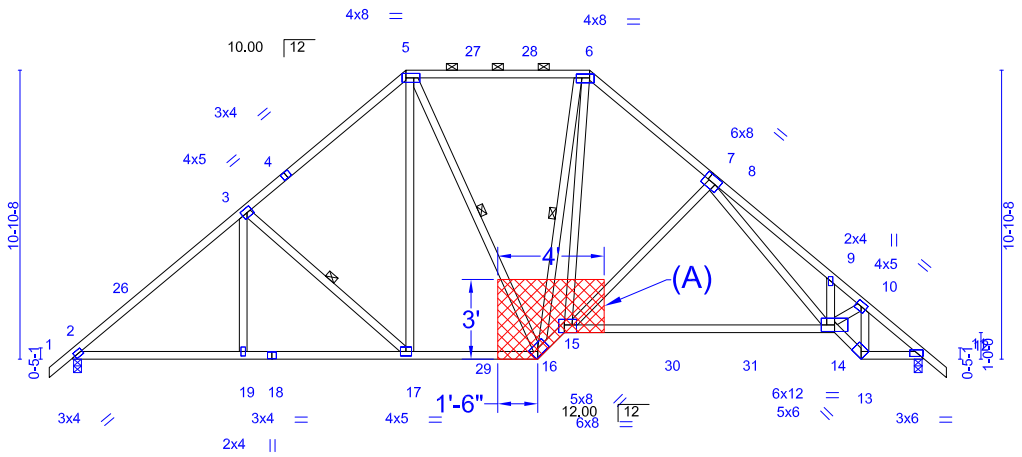
Paragon ID: 29955
P2996488

8.330 s Dec 5 2019 MiTek Industries, Inc. Wed Apr 14 16:31:42 2021 Page 1



REPAIR:
1) BREAK IN BOTTOM CHORD BETWEEN JOINTS 15 & 16

- NOTE - THIS REPAIR IS VALID FOR THE DESIGN CONDITIONS PROVIDED IN THIS TRUSS REPAIR DRAWING. IT'S ADEQUACY FOR THE ACTUAL CONDITIONS MUST BE VERIFIED BY OTHERS.
- REFER TO ORIGINAL TRUSS DESIGN DRAWING FOR ADDITIONAL NOTES.
- IF TRUSS IS IN PLACE, SHORE UP TRUSS TO RELIEVE ANY LOAD IT MAY BE SUPPORTING BEFORE BEGINNING REPAIR.
- UNLESS OTHERWISE SPECIFIED, REMOVE ALL ELECTRICAL, MECHANICAL, PLUMBING, ETC. RUNS INTERFERING WITH THE REPAIR MATERIALS AND RE-ROUTE. DO NOT CUT, DRILL, NOTCH, OR MODIFY REPAIR MATERIALS.



(A) APPLY 7/16" 24/16 SPAN RATED OSB GUSSETS TO EACH SIDE OF TRUSS AS SHOWN. ATTACH EACH GUSSET WITH (2) ROWS OF 10d (3" X 0.131") NAILS: SPACED @ 4" OC INTO ALL MEMBERS. DRIVE NAILS THROUGH BOTH GUSSETS AND CLINCH. STAGGER SPACING FROM FRONT SIDE TO BACK SIDE FOR A NET 2" OC SPACING IN THE TRUSS MEMBER.

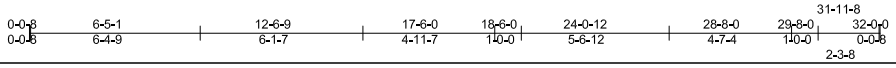


Plate Offsets (X,Y)--

LOADING	(psf)	SPACING-	2-0-0	CSI.		DEFL.	In	(loc)	l/defl	L/d	PLATES	GRIP
TCLL	20.0	Plate Grip DOL	1.00	TC	0.87	Vert(LL)	-0.47	14-15	>822	240	MT20	244/190
TCDL	10.0	Lumber DOL	1.15	BC	0.86	Vert(CT)	-0.86	14-15	>445	180		
BCLL	0.0 *	Rep Stress Incr	YES	WB	0.64	Horz(CT)	0.18	11	n/a	n/a		
BCDL	10.0	Code	IRC2018/TPI2014	Matrix-MS							Weight: 222 lb	FT = 20%

LUMBER-
TC 2x4 SP No.2
BC 2x4 SP No.2 *Except* B4: 2x4 SP DSS
WB 2x4 SP No.2
1 - Ply

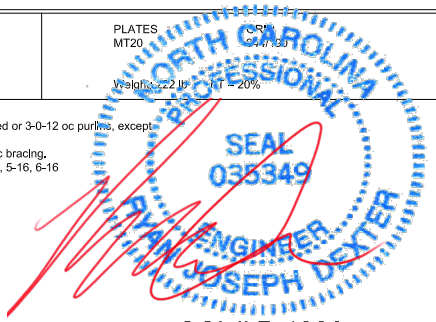
BRACING-
TOP CHORD Structural wood sheathing directly applied or 3-0-12 oc purlins, except 2-0-0 oc purlins (3-2-2 max.): 5-6.
BOT CHORD Rigid ceiling directly applied or 10-0-0 oc bracing.
WEBS 1 Row at midpt 3-17, 5-16, 6-16

REACTIONS. (lb/size) 2=1333/0-3-8 (min. 0-1-12), 11=1333/0-3-8 (min. 0-1-12)
Max Horz 2=231(LC 11)
Max Uplift 2=-67(LC 12), 11=-67(LC 12)
Max Grav 2=1491(LC 17), 11=1508(LC 18)

FORCES. (lb) - Max. Comp./Max. Ten. - All forces 250 (lb) or less except when shown.
TOP CHORD 2-26=-1927/63, 3-26=-1842/94, 3-4=-1481/122, 4-5=-1375/165, 5-27=-1084/167, 27-28=-1084/167, 6-28=-1084/167, 6-7=-1535/149, 7-8=-1541/112, 8-9=-3210/142, 9-10=-3136/29, 10-11=-2031/67
BOT CHORD 2-19=0/1563, 18-19=0/1563, 17-18=0/1563, 17-29=0/1158, 16-29=0/1158, 15-16=0/1989, 15-30=0/1501, 30-31=0/1501, 14-31=0/1501, 13-14=0/2109, 11-13=0/1500
WEBS 3-19=0/273, 3-17=-547/124, 5-17=-9/571, 6-15=0/1948, 10-14=0/1284, 10-13=-1567/0, 6-16=-1288/0, 8-15=-576/133, 8-14=-16/1524

NOTES-
1) Unbalanced roof live loads have been considered for this design.
2) Wind: ASCE 7-16; Vult=125mph (3-second gust) Vasd=99mph; TCDL=6.0psf; BCDL=6.0psf; h=25ft; B=45ft; L=32ft; eave=4ft; Cat. II; Exp B; Enclosed; MWFRS (directional) and C-C Exterior(2E) -0-10-8 to 2-3-14, Interior(1) 2-3-14 to 12-6-9, Exterior(2R) 12-6-9 to 17-0-13, Interior(1) 17-0-13 to 19-5-7, Exterior(2R) 19-5-7 to 24-2-8, Interior(1) 24-2-8 to 32-10-8 zone; cantilever left and right exposed ; end vertical left and right exposed;C-C for members and forces & MWFRS for reactions shown; Lumber DOL=1.60 plate grip DOL=1.60
3) Provide adequate drainage to prevent water ponding.
4) This truss has been designed for a 10.0 psf bottom chord live load nonconcurrent with any other live loads.
5) * This truss has been designed for a live load of 20.0psf on the bottom chord in all areas where a rectangle 3-6-0 tall by 2-0-0 wide will fit between the bottom chord and any other members, with BCDL = 10.0psf.
6) Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 67 lb uplift at joint 2 and 67 lb uplift at joint 11.
7) This truss is designed in accordance with the 2018 International Residential Code sections R502.11.1 and R802.10.2 and referenced standard ANSI/TPI 1.
8) Graphical purlin representation does not depict the size or the orientation of the purlin along the top and/or bottom chord.

LOAD CASE(S) Standard



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MAY 2017	NAIL CLINCHING DETAIL	ST-CLINCH	Paragon ID: 29955 P2996487

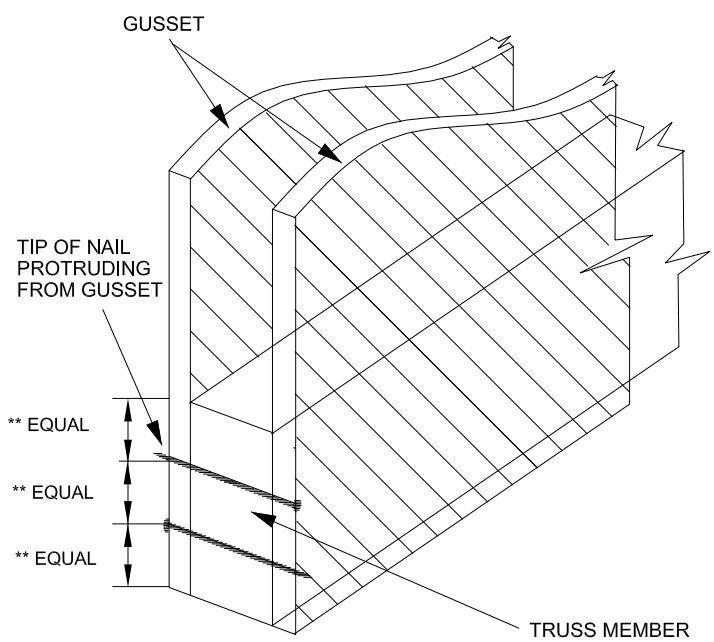


FIGURE 1

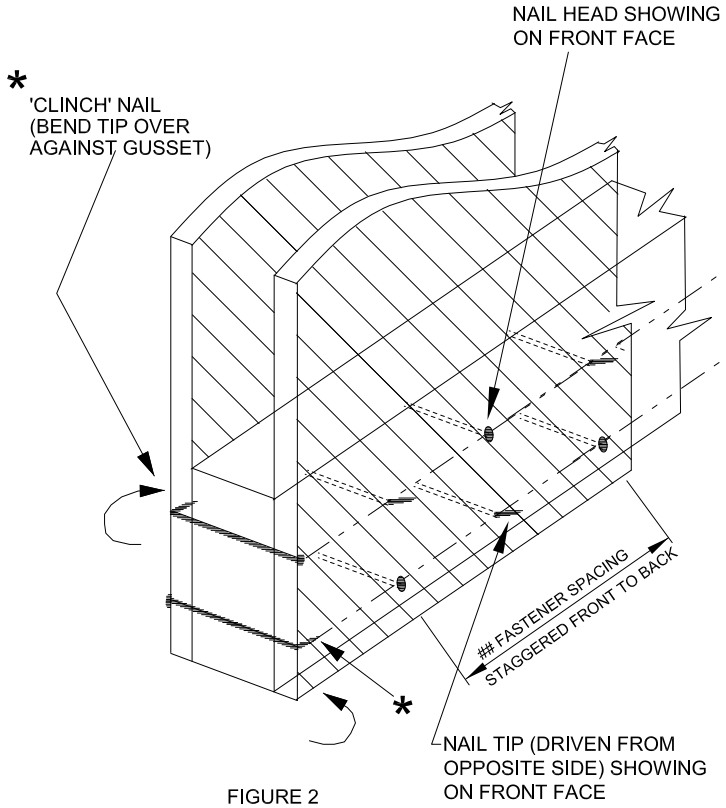


FIGURE 2

** ROWS ARE TO BE EQUALLY SPACED $\pm \frac{1}{2}$" FROM TOP OF TRUSS MEMBER TO BOTTOM OF TRUSS MEMBER.

FASTENER SPACING IS TO BE AS CALLED OUT ON THE REPAIR DRAWING $\pm \frac{1}{2}$".
STAGGER SPACING FROM FRONT SIDE TO BACK SIDE = $\frac{\text{FASTENER SPACING}}{2} \pm \frac{1}{2}$".

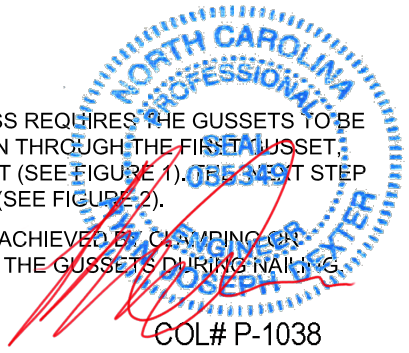
REPAIR DRAWINGS OFTEN INDICATE THAT THE SPECIFIED NAILS MUST BE 'CLINCHED'. THIS PROCESS REQUIRES THE GUSSETS TO BE APPLIED TO THE FRONT AND BACK FACES OF THE TRUSS PRIOR TO NAILING. THE NAILS ARE DRIVEN THROUGH THE FIRST GUSSET, THE TRUSS, THEN THE BACK GUSSET. THE NAILS ARE NOW PROTRUDING OUT OF THE BACK GUSSET (SEE FIGURE 1). THE LAST STEP IS TO HAMMER THE PROTRUDING TIP OF THE NAIL OVER AGAINST THE FACE OF THE BACK GUSSET (SEE FIGURE 2).

IT IS IMPORTANT THAT THE GUSSETS ARE TIGHT AGAINST EACH FACE WHEN NAILING. THIS MAY BE ACHIEVED BY CLAMPING OR SCREWING THE GUSSETS TO THE TRUSS. IF SCREWS ARE USED, APPLY ONLY ENOUGH TO SECURE THE GUSSETS DURING NAILING.

PLEASE NOTE THAT APPLYING ONE GUSSET AND NAILING IT COMPLETELY, THEN APPLYING THE SECOND GUSSET ONLY PROVIDES APPROXIMATELY 75 PERCENT OF THE DESIGNED STRENGTH. THIS IS NOT AN ACCEPTABLE METHOD OF ATTACHMENT !

IT IS ACCEPTABLE TO APPLY ALL NAILS FROM ONE FACE. HOWEVER, DRJ RECOMMENDS NAILING FROM OPPOSITE FACES IN A STAGGERED PATTERN AS INDICATED IN THE DETAILS SHOWN.

WHEN ATTACHING GUSSETS, THE USE OF A BACK-UP WEIGHT IS RECOMMENDED TO AVOID LOOSENING OF THE CONNECTOR PLATES AT THE JOINTS OR SPLICES. THIS ALSO PREVENTS THE TRUSS FROM DEFLECTING LATERALLY DURING APPLICATION OF THE REPAIR, PROVIDING EASIER NAILING.



COL# P-1038

4/14/2021

General Safety Notes

Failure to follow could cause property damage or personal injury.

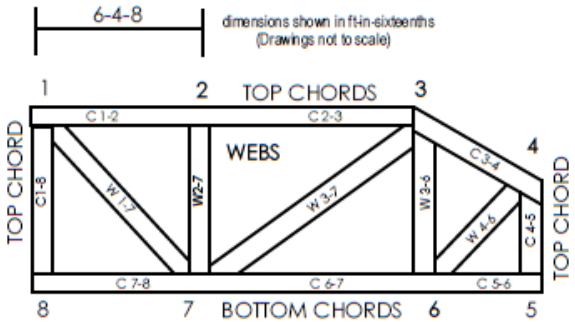
1. The Truss Manufacturer (TM) is Carolina Structural Systems
2. Capitalized terms are as defined in ANSI/TPI 1, the National Design Standard for Metal Plate Connected Wood Truss Construction ("TPI 1").
3. TPI 1 defines the responsibilities and duties of the Truss Designer (also known as Truss Design Engineer) and TM, unless otherwise defined by a Contract agreed upon in writing by the parties involved.
4. Please thoroughly review the Truss Submittal Package ("TSP") and any related documents provided by the TM (e.g., Truss Design Drawings ("TDD"(s), Truss Placement Diagrams ("TPD"(s), cover sheets, details, detail notes, etc.). The approval of the contents of the TSP is the responsibility of the Building Designer "BD") and Contractor ("GC"). The TSP shall be supplied to the GC/Truss Installer. The GC, after reviewing and/or approving the TSP, shall forward it to the BD for review.
5. The GC shall review the entire TSP before unloading, storing, handling, installing, or bracing the Trusses. A review of the graphics alone is not sufficient.
6. The TDD(s) (also at times referred to as "Delegated Engineering Documents") referenced have been prepared based on the Construction Documents, specifications and written requirements prepared by the BD indicating the nature and character of the Building, its applied load, its load paths and the structural resistance design requirements. The TDDs herein are specialty structural component designs and may be part of the Building"s deferred or phased submittal documents. The design criteria from the Construction Documents, specifications and written requirements have been transferred to DrJ Engineering, LLC ("DrJ") by the TM.
7. The seal of the Truss Design Engineer (also referred in some Jurisdictions as a "Delegated or Specialty Engineer") on any TDD represents an acceptance of professional engineering responsibility for the design of the single Truss only as depicted on the TDD pursuant to TPI 1.
8. The TM and DrJ are NOT the BD, Truss System Engineer (as the term is defined in some Jurisdictions), or Structural Engineer of Record for any Building.
9. The BD is responsible for and shall coordinate and review each of the TDDs and all notes for compatibility with the Construction Documents, specifications, written requirements, design loads and load path. Any field of use of the Truss, including applied loads, load paths, structural resistance requirements, handling, storage, installation and bracing, shall be verified by and is the responsibility of the BD and GC.
10. Upon transmittal of the TSP and upon delivery of the Trusses to the GC, the GC shall read all notes and instructions in the TDDs and TPDs and review the practices and guidelines of Building Component Safety Information ("BCSI") and/or its summary sheets as published by the Truss Plate Institute (TPI) and the Structural Building Component Association (SBCA).
11. The TSP which shall include the TDDs, TPDs, the appropriate BCSI summary sheets to facilitate proper Truss Temporary Lateral Restraint (LR) and Diagonal Bracing (DB), any Truss installation information and any related Truss details shall be reviewed by the BD for compatibility with the design of the Building, including submittal documents prepared by others, deferred and phased submittal documents. This review shall include a notation indicating that the reviewed documents have been found to be in general conformance with the design of the Building (or to make specific corrections noted and to return for review). In the absence of this notation, the TM will provide its Customer with the design assumptions used, according to the TMâ□□s interpretation of the Construction Documents, specifications and written requirements, to design the individual structural building components (i.e., Trusses) per TPI 1.
12. The TM and DrJ shall be permitted to rely on the accuracy and completeness of the Building Contract (if provided), the Construction Documents, specifications and written requirements that have been furnished to the TM.
13. As set forth in TPI 1, the BD shall provide information that is sufficiently accurate and reliable to be able to design the Trusses in the context of the following serviceability issues including, but not limited to: (a) allowable vertical, horizontal or other required deflection criteria; (b) any dead load, live load and in-service creep deflection criteria for floors or flat roofs subject to ponding loads; (c) any floor or roof camber requirements; (d) any differential deflection criteria from Truss-to-Truss or Truss-to-adjacent structural member; (e) any deflection and vibration criteria for floor Trusses including any strongback bridging requirements, and any dead load, live load, and in-service creep deflection criteria for floor Trusses supporting stone or ceramic tile finishes; (f) moisture, temperature, corrosive chemicals and gases expected to result in a wood moisture content exceeding 19%, sustained temperatures exceeding 150Â°F, and/or corrosion potential from wood preservatives or other sources that may be detrimental to Trusses.
14. Due to the lateral thrust developed by scissors-type Trusses, if scissors-type Trusses are part of this Building design, consideration should be given to bearing wall conditions. Bearing walls supporting scissors-type Trusses should be designed in such a manner that the walls will safely withstand the lateral forces of the Trusses. Consideration of effects on the design of the bearing and the associated wall or beam/header assembly is not a part of this set of TDDs and is neither the responsibility of the TM nor DrJ. Advice from the BD or any Registered Design Professional (â□□RDPâ□□) should be secured relative to these items if they are not provided in the Construction Documents, specifications and written requirements.
15. Unless specifically noted in writing otherwise, neither the TM nor DrJ have performed any of the following engineering services as it relates to the Building and are to be designed by others: (a) Masonry loading conditions relating to the Trusses, which require special engineering; (b) Areas of the Construction Documents that do not use Truss framing; and (c) All beam, header and related structural element designs. If any of the previously listed services are required by the Owner, the Owner"s authorized agent, or the BD, please call 608-628-1453 for assistance.
16. Where required by the Contract between the TM and GC or Owner or the Construction Documents, specifications and written requirements, a TPD will be provided that identifies the location of each Truss, as assumed by the TM based on their review of the Building Contract (if provided) and the Construction Documents, specifications and written requirements.
17. When the TPD is provided, it serves only as a guide for Truss installation, it does not require the seal of any RDP.
18. Truss manufacturing quality control shall be in accordance with TPI 1, Chapter 3, and monitored by a third party inspection agency.
19. Unless specified by the BD in writing and noted on the TDD, these TDDs are not applicable for use with fire-retardant, preservative-treated, or green lumber.
20. Plate type, size, orientation, and location dimensions indicated on a TDD are minimum plating requirements.
21. Lumber used in the manufacturing of the Truss shall be of the species, size and grade, and in all respects, equal to or better than that specified on the TDD.
22. Temporary LR and DB is required to be installed during construction for the purposes of holding Trusses in their proper location, plumb and in plane, until permanent individual Truss member LR, DB and Permanent Building Stability Bracing (PBSB) are completely installed (see BCSI-B1, BCSI-B2, BCSI-B3, BCSI-B7, and BCSI-B10 as applicable).
23. Top chords must be sheathed or continuous LR members (i.e., purlins) shall be provided at the spacing indicated on TDD (e.g., 24 in. o.c. maximum).
24. If no ceiling is installed or bottom chord LR is specified in writing by the BD, bottom chords require continuous LR at 10 ft. o.c. spacing, or less if specified on the TDD, along with DB as specified in BCSI-B1, BCSI-B3, BCSI-B7 or BCSI-B10 as applicable.
25. Graphical representation of LR members (i.e., purlins), if shown on the TDD, do not depict the size or orientation of the restraint along the top and/or bottom chord and/or web members.
26. The size, connections and anchorage of the permanent continuous Truss chord and web member LR and DB must be designed by others in such a way as to support the imposed load along the clear span of the LR and DB, or as specified in BCSI-B1, BCSI-B3, BCSI-B7 or BCSI-B10 as applicable.
27. Additional PBSB for the Truss system (e.g., diagonal, X-bracing, etc.) may be required and is to be specified by the BD. DB in accordance with BCSI-B3 may be sufficient.
28. The Trusses shall be examined upon delivery to the jobsite and also after they are erected and installed for: (a) dislodged or missing connectors, (b) cracked, dislodged or broken members, or (c) any other damage that may impair the structural integrity of the Trusses. Any unreported damage to any Truss during any part of the handling and installation process shall void the TMâ□□s product warranty.
29. During Truss installation, never exceed the design loading shown on the TDD and never stack materials on Trusses with inadequate LR and DB (see BCSI-B4). Never overload any structural elements with stacks of building materials to a level greater than defined in BCSI-B4.
30. Connections not shown on the TDDs are the responsibility of others.
31. Do not cut or alter a Truss member, a Metal Connector Plate ("MCP") or any related structural element member without prior approval of an RDP or TD.
32. Install and load Trusses vertically unless otherwise indicated in writing by the BD or as specifically defined on the TDD or TPD.
33. Sheathing applied in the plane of the Truss is not considered in the design of the individual Truss (e.g., a gable-end Truss has no composite stiffness analysis performed) unless specifically noted.
34. Attachment of the purlin gable (i.e., hip frames or lay-in gables) to the supporting hip Trusses satisfies the LR and DB requirements for the top chord of the hip Trusses. Refer to the TDD for the individual Trusses braced in this manner.
35. These Trusses are designed using the standard engineering analysis methods and associated software in accordance with TPI 1 and related proprietary information from the Design Program Manufacturer.

Each TDD uses MCP design values published by MCP manufacturers and lumber industry published design values (mechanically or visually graded as indicated). These are incorporated into lumber design provisions and equations created by the American Wood Council (AWC) per the National Design Specification® (NDS®) for Wood Construction and input into modeling/analysis software that uses TPI 1 provisions. The lumber design values correspond to the lumber size and grade as defined on the TDD incorporating the design values from the grade stamp identified by the TM on the lumber prior to cross cutting for manufacturing purposes. The published lumber design values (a) are calculated and administered by the lumber rules writing agencies using a property range or bending correlation, and are not tension proof tested, (b) are approved by the American Lumber Standards Committee (ALSC) as published design data that are representative of the strength and stiffness of specific grades and species/species groups of lumber, and (c) are further known by ALSC and the lumber rules writing agencies as individual visually or mechanically graded lumber pieces which do not have precise design values.
Neither the TM nor the Truss Design Engineer can therefore verify or warrant that published lumber design values will exist within the lumber utilized in the Truss when manufactured and delivered.

The "WARNING" note found on the bottom of each TDD references this document by calling it the "DrJ Reference Sheet (rev. 01-16)"

DrJ Engineering, LLC
6300 Enterprise Lane
Madison, WI 53719
www.drjengineering.org

Numbering System



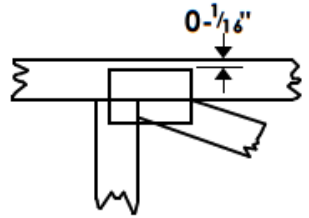
JOINTS ARE GENERALLY NUMBERED/LETTERED CLOCKWISE AROUND THE TRUSS STARTING AT THE JOINT FARTHEST TO THE LEFT.

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

Symbols

PLATE LOCATION AND ORIENTATION

Center plate on joint unless x, y offsets are indicated.
Dimensions are in ft-in-sixteenths (x-x-x).
Apply MCPs 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 the MCP.

* MCP location details available upon request from

MCP SIZE

4 x 4

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

LATERAL RESTRAINT LOCATION

Indicated by symbol shown and/or by text in the bracing section of the output. Use T- , L- , or I-Reinforcement or proprietay bracing if indicated.
NOTE - LATERAL RESTRAINTS MUST BE BRACED.
REFER TO BCSI OR AS SPECIFIED BY THE BD.

BEARING

Indicates location where bearings (supports) occur. Icons vary but reaction section indicates joint number where bearings occur.