

# How To Read A Typical Alpine Component Drawing



SEQN: 39072 FROM:	COMN Ply: 3 Qty: 1	Job Number: Truss Label: T10	Cust: R9135 JRef:1WHV91350001 T34 DrwNo: ... / ... 03/08/2022																											
<b>3 Complete Trusses Required</b>																														
<b>Conforms To:</b> Bldg Code: NBCC 2015 Design Criteria: Commercial TPIC Std: TPIC 2014 CSA Std: CSA 086-14	<b>Loading Criteria (psf)</b> TCLL: 64.32 TCDL: 5.00 BCLL: 10.00 BCCL: 7.00 Des Ld: 86.32 Lumber Duration: 1.00 Plate Duration: 1.00 Spacing: 24.0" Load Sharing: Yes PT/RT: 4sx/10%/ 5 deg Roller Pressed Plate Type: Wave-Canada, HS-Canada	<b>Wind Criteria</b> q: 14.2 Ref Ht: 19.68 Calc'd Int. Press: 7.67 Exposure: Open BLDG Cat: 2 Ceiling Attached: Yes TCDL: 5.00 BCCL: 7.00 Duration of Load: 1.15	<b>Defl/CSI Criteria</b> PP Deflection in loc L/defl L/D VERT(LL): 0.249 L 920 360 VERT(TL): 0.367 L 623 360 HORZ(LL): -0.034   - - HORZ(TL): -0.050   - 1.00 Creep Factor: 1.0 Overhang: Non-removable Max TC CSI: 0.45 Max BC CSI: 0.89 Max Web CSI: 0.90 VIEW Ver: 21.02.01.1216.15																											
<b>Ground Snow Load: 64.74</b> Rain Load: 12.53 Cb: 0.80 Cs: 1.00 Cw: 1.00 If: 1.00 Slippery Roof: N Wind Exposed: N	<b>Lumber</b> Top Chord: 2x6 SPF #1/#2; T3 2x6 SPF 1650Fb-1.5E; Bot Chord: 2x6 SPF #1/#2; B2 2x6 SPF 1650Fb-1.5E; B3 2x6 SPF 2100Fb-1.8E; Webs: 2x3 SPF #1/#2; W3,W4,W5,W6 2x4 SPF #1/#2; Rt Splice Block: 2x3 SPF #1/#2;	<b>Special Loads</b> Comm.Ld[3U2SL]: 3 (Lumber Dur.Fac.=1.00 / Plate Dur.Fac.=1.00) From S/ L/ W/ D pft To S/ L/ W/ D pft TC: -1.33 0/ 0/ 0/10 23.00 0/ 0/ 0/10 TC: 23.00 155/ 0/ 0/10 46.00 155/ 0/ 0/10 BC: 0.00 0/10/ 0/14 46.00 0/10/ 0/14 BC: 720/70/0/99 lb Conc. Load at 28.94,30.94,32.94,34.94 36.94,38.94,40.94,42.94,44.94	<b>Bearing Block(s)</b> Brg blocks:3.0" common nails brg x-loc #blocks length/bk #nails/bk 2 26.708' 1 21" 38 Brg block to be same size and species as chord. Refer to drawing C>NNALSP1014 for more information.																											
<b>Bracing</b> (a) 2x6 #3 or better "T" brace, 90% length of web member. Attach to each web ply w/3.0" nails @ 6" oc. Bracing material supplied by Erection Contractor.	<b>Plate Shift Table</b> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>JT No</th> <th>Plate Size</th> <th>Lateral Shift</th> <th>Chord Bite</th> <th>JT No</th> <th>Plate Size</th> <th>Lateral Shift</th> <th>Chord Bite</th> </tr> </thead> <tbody> <tr> <td>[11]</td> <td>5X7</td> <td>S</td> <td>2.75</td> <td>[13]</td> <td>5X7</td> <td>5.00</td> <td>R 2.00</td> </tr> <tr> <td>[15]</td> <td>7X10</td> <td>S</td> <td>2.75</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	JT No	Plate Size	Lateral Shift	Chord Bite	JT No	Plate Size	Lateral Shift	Chord Bite	[11]	5X7	S	2.75	[13]	5X7	5.00	R 2.00	[15]	7X10	S	2.75					<b>Additional Notes</b> Interaction equation as per Clause 6.5.10 of CSA-O86-14. **Warning** A factored uplift reaction of -1105# occurred on a non-wind load case. Spec. connection or hanger is required. Trusses to be properly anchored at supports, by others, to withstand the indicated vertical and horizontal reactions. Warning: Component is designed to bear at specific locations.				
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<b>Nailnote</b> Nail Schedule:3.0" common nails TOP CHORD: 2 ROWS @16.00" o.c. (Each Row) BOT CHORD: 2 ROWS @13.25" o.c. (Each Row) Webs : 1 Row @ 4" o.c. Repeat nailing as each layer is applied. Use equal spacing between rows and stagger nails in each row to avoid splitting.	<b>Purlins</b> In lieu of structural panels or rigid ceiling use purlins to laterally brace chords as follows: <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>Chord</th> <th>Spacing(in oc)</th> <th>Start(ft)</th> <th>End(ft)</th> </tr> </thead> <tbody> <tr> <td>BC</td> <td>75</td> <td>0.00</td> <td>46.00</td> </tr> </tbody> </table> Apply purlins to any chords above or below fillers at 24" OC unless shown otherwise above.	Chord	Spacing(in oc)	Start(ft)	End(ft)	BC	75	0.00	46.00	<b>Maximum Top Chord Forces Per Ply (lbs)</b> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>Chords</th> <th>Tens.Comp.</th> <th>Chords</th> <th>Tens. Comp.</th> </tr> </thead> <tbody> <tr> <td>B - C</td> <td>551 -1339</td> <td>F - G</td> <td>1629 -80</td> </tr> <tr> <td>C - D</td> <td>556 -1058</td> <td>G - H</td> <td>41 -2889</td> </tr> <tr> <td>D - E</td> <td>562 -937</td> <td>H - I</td> <td>38 -3052</td> </tr> <tr> <td>E - F</td> <td>740 0</td> <td>I - J</td> <td>49 -3341</td> </tr> </tbody> </table>	Chords	Tens.Comp.	Chords	Tens. Comp.	B - C	551 -1339	F - G	1629 -80	C - D	556 -1058	G - H	41 -2889	D - E	562 -937	H - I	38 -3052	E - F	740 0	I - J	49 -3341
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<b>Plating Notes</b> See A-100, Specification Note 7.E for standard plate positioning. See A-100, Special Engineering Note 1 for handling instructions. Plates designed for fabrication using seasoned lumber.	<b>Loading</b> Loading spec'd by auth. having jurisdiction @ time of design.	<b>Maximum Bot Chord Forces Per Ply (lbs)</b> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>Chords</th> <th>Tens.Comp.</th> <th>Chords</th> <th>Tens. Comp.</th> </tr> </thead> <tbody> <tr> <td>B - P</td> <td>1134 -519</td> <td>M - L</td> <td>154 -436</td> </tr> <tr> <td>P - O</td> <td>367 -625</td> <td>L - K</td> <td>154 -436</td> </tr> <tr> <td>O - N</td> <td>367 -625</td> <td>K - J</td> <td>3010 -4</td> </tr> <tr> <td>N - M</td> <td>136 -708</td> <td></td> <td></td> </tr> </tbody> </table>	Chords	Tens.Comp.	Chords	Tens. Comp.	B - P	1134 -519	M - L	154 -436	P - O	367 -625	L - K	154 -436	O - N	367 -625	K - J	3010 -4	N - M	136 -708										
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THIS DRAWING MUST BE REVIEWED BY A REGISTERED PROFESSIONAL ENGINEER BEFORE USE.  
 SEE A100 FOR GENERAL NOTES, IMPORTANT SPECIFICATIONS AND WARNINGS. CCMC #12182-L, 12802-L, 13124-L  
 THIS DWG PREPARED FROM COMPUTER INPUT (LOADS AND DIMENSIONS) SUBMITTED BY TRUSS MFR

Preliminary-Not for Construction

# How To Read A Typical Alpine Component Drawing



## A) Conforms To

Building Code, TPIC (Truss Plate Institute of Canada) and CSA O86 versions used for design. Component Design Criteria used (Residential, Commercial, Farm or Floor).

## B) Design Criteria

- **Roof Design: Commercial (Part 4), Residential (Part 9) & Farm Design**

### B1) Ground Snow Load

Ground Snow Load (Ss) & Associated Rain Load (Sr), all in psf. Basic roof snow load factor (Cb), slope reduction factor (Cs), wind exposure factor (Cw), importance factor (If), and options for unobstructed Slippery Roof or Wind Exposed conditions.

### B2) Wind Criteria

Includes wind design reference velocity pressure (q) in psf, design reference height (h) in ft. Calculated internal pressure<sup>2</sup> (pi) in psf. Building terrain Exposure condition (Open, Rough or Intermediate). Building Category (Cat. 1 = Closed, Cat. 2 = Partially Enclosed, Cat. 3 = Open). Ceiling Attached condition impacts top & bottom chord wind load distribution. Top & bottom chord dead loads in psf for wind design. Duration of Load Factor for lumber resistance adjustments for wind load cases.

- **Floor Design: Commercial (Part 4) Design**

### B3) Floor Live Load & Vibration Criteria Ground

Design floor live load. Vibration check results and vibration design assumptions.

### Roof Design: Part 4, Part 9 & Farm

<b>Conforms To:</b> Bldg Code: NBCC 2015 Design Criteria: Commercial TPIC Std: TPIC 2014 CSA Std: CSA 086-14	<b>Loading Criteria (psf)</b> TCLL: 64.32 TCCL: 5.00 BCLL: 10.00 BCDL: 7.00	<b>Wind Criteria</b> q: 14.2 Ref Ht: 19.68 Calc'd Int. Press: 7.67 Exposure: Open BLDG Cat: 2 Ceiling Attached: Yes TCDL: 5.00 BCDL: 7.00 Duration of Load: 1.15
<b>Ground Snow Load:</b> 64.74 Rain Load: 12.53 Cb: 0.80 Cs: 1.00 Cw: 1.00 If: 1.00 Slippery Roof: N Wind Exposed: N	Des Ld: 86.32 Lumber Duration: 1.00 Plate Duration: 1.00 Spacing: 24.0 " Load Sharing: Yes PT/IT/RT: 4sx/10%/ 5 deg Roller Pressed Plate Type: Wave-Canada, HS-Canada	<b>B2</b>

### Floor Design: Part 4

<b>Conforms To:</b> Bldg Code: NBCC 2015 Design Criteria: Floor TPIC Std: TPIC 2014 CSA Std: CSA 086-14	<b>Loading Criteria (psf)</b> TCLL: 40.00 TCCL: 20.00 BCLL: 0.00 BCDL: 10.00	<b>Vibration Criteria:</b> Checked: Passes Sub-Floor Material: OSB Thickness: 0.750 Connection: nailed and glued Gypsum Ceiling: 0.500 " Strapping: none Strap Spacing: 0.0 " Strongback Size: 2x8
<b>Floor Live Load:</b> 40.00 Cb: N/A Cs: N/A Cw: N/A If: N/A Slippery Roof: N/A Wind Exposed: N/A	Des Ld: 70.00 Lumber Duration: 1.00 Plate Duration: 1.00 Spacing: 19.2 " Load Sharing: Yes PT/IT/RT: 2sx/ 5%/ 0 deg Roller Pressed Plate Type: Wave-Canada, HS-Canada	<b>B3</b>

## C) Loading Criteria

Chord Live Loads (TCLL<sup>2</sup> & BCLL), Dead Loads (TCDL & BCDL) and Total Design Load, all in psf. Load Duration Factors for lumber & plate resistance adjustments. On-center component spacing. Load Sharing for lumber system factor resistance adjustments. Plate placement tolerances for Translation (sixteenths of an inch), Ineffective Teeth (%) and Rotation (in degrees). Plate type(s).

## D) Deflection / CSI Criteria

Panel Point (PP) deflection for the absolute maximum vertical & horizontal Live Load (LL) and Total Load (TL) deflections in inches, and the locations, the span/deflection (L/def) ratio & the permissible limits (L/D) used for the design. Dead Load Creep Factor used in the component analysis. Overhang design as either removable or non-removable. Maximum CSI (Combined Stress Index = combined maximum axial & bending stress with the associated component type) acting on a member. Software version number.

# How To Read A Typical Alpine Component Drawing



## E) Bearings & Reactions

### E1) Commercial (Part 4), Residential (Part 9) & Floor Design

Bearing location (Loc) specified by the joint label, bearing height (Ht), actual bearing width (W) and minimum required wall bearing width (Min Req) along the length of the truss in inches.

The element which controls the bearing design (Ctrl) is indicated as either Truss (for the truss), Support (for the specified support bearing material), Block (for a bearing block), or it is not specified in the case of a hanger or a nailed-bearing connection.

Fcperp is the specified strength in compression perpendicular to grain for the bearing material.

Bearing Reactions are in lbs (total of all plies):

- **S** = Maximum Unfactored **Snow** load portion of the vertical reaction<sup>2</sup>
- **L** = Maximum Unfactored **Live** load portion of the vertical reaction
- **D** = Maximum Unfactored **Dead** load portion of the vertical reaction
- **F** = Maximum Total **Factored** vertical reaction<sup>1</sup>
- **H<sub>z</sub>** = Maximum Factored **Horizontal** reaction<sup>1</sup>
- **U** = Maximum Factored **Uplift** vertical reaction<sup>1</sup>

### E2) Farm Design

This is the same as described in E1) above, except:

- **R<sub>u</sub>** = Maximum Total Unfactored vertical **Reaction**<sup>2</sup>
- **U** = Maximum Factored **Uplift** vertical reaction<sup>1</sup>
- **R<sub>f</sub>** = Maximum Total Factored vertical **Reaction**<sup>1</sup>
- **H<sub>z</sub>** = Maximum Factored **Horizontal** reaction<sup>1</sup>

### Part 4, Part 9 & Floor

▲ Bearing Locations						
Loc	Ht	/ W	/ Min Req	/ Ctrl		
B	8'	/ 5"8	/ 1"8	/ Truss	E1	
M	8'	/ 5"8	/ 5"8	/ Block		
J	8'	/ -	/ -	/ -		
Bearings B & M Fcperp = 768.4psi.						
▲ Bearing Reactions (lbs)						
Loc	/ S	/ L	/ D	/ F	/ H <sub>z</sub>	/ U
B	/ 1790	/ 141	/ 219	/ 2832	/ 383	/ 867
M	/ 8689	/ 1372	/ 1258	/ 14675	/ 0	/ 1104
J	/ 4532	/ 675	/ 530	/ 7457	/ 0	/ 116

### Farm

▲ Maximum Reactions (lbs)						
Loc	Ht	/ W	/ R <sub>u</sub>	/ U	/ R <sub>f</sub>	/ H <sub>z</sub>
Q	8'	/ 5"8	/ 2476	/ 696	/ 2985	/ 327
M	8'	/ 5"8	/ 5184	/ 1438	/ 6257	/ 0
R	8'	/ -	/ 1418	/ 398	/ 1708	/ 0
Q	Brg Wid = 5.5		Min Req = 4.3 (Support)			
M	Brg Wid = 5.5		Min Req = -			
R	Brg Wid = -		Min Req = -			
Bearings Q & M Fcperp = 507.4psi.						

# How To Read A Typical Alpine Component Drawing



## F) Maximum Member Reactions

Maximum Factored Tension (+) and Compression (-) forces<sup>1</sup> in lbs per ply for each top chord, bottom chord and web, where member forces exceed 375 lbs per ply.

## G) Lumber

Size, Species, and Grade for each member used in the analysis.

## H) Bracing

Web bracing requirements are noted and referenced by a letter in parenthesis on the component drawing.

## I) Nailnote & Multiple Ply Trusses

The number of plies and the fastener lamination requirements for multiple ply trusses are indicated.

## J) Plating Notes & Plate Shift Table

Plating specifications. Plate Shift Table indicates special plate placement requirements by joint number, plate size at the given joint, plate shift in inches and direction (L-Left, R-Right, S-Symmetrical, O-Outer edge or flush), and chord bite in inches.

## K) Purlins

Purlin, structural panel and rigid ceiling requirements to laterally brace top and bottom chords.

## L) Loading & Special Loads

The Special Loads summary shown on the Component Drawing is from the load case that results in the highest member CSI (refer to item D above for the definition of CSI).

### L1) Commercial (Part 4), Residential (Part 9) & Floor Design

Loading conditions and a summary of Special Loads applied for the indicated load case.

Special Loads are Unfactored<sup>2</sup> uniform (plf) and concentrated loads (lbs) for the Snow (S), Live (L), Wind (W) and Dead (D) load types applied. Companion load combination factors are applied for combinations with both snow and live loads applied. Load locations are specified horizontally from the left heel and are in feet.

### L2) Farm Design

Special Loads are Total Unfactored<sup>2</sup> uniform (plf) and concentrated loads (lbs) for all loads applied. Load locations are specified horizontally from the left heel and are in feet.

### Part 4, Part 9 & Floor

#### Special Loads

L1

Comm.Ld[3SL]- 1

(Lumber Dur.Fac.=1.00 / Plate Dur.Fac.=1.00)

	From	S/	L/	W/	D	plf	To	S/	L/	W/	D	plf
TC:	-1.33	129/	0/	0/	10		46.00	129/	0/	0/	10	
BC:	0.00	0/10/	0/14				46.00	0/10/	0/14			
BC:	720/71/0/99 lb Conc. Load at 28.94,30.94,32.94,34.94											

### Farm

#### Special Loads

L2

----- (Lumber Dur.Fac.=1.00 / Plate Dur.Fac.=1.00)

TC: From 114 plf at 0.00 to 114 plf at 0.04

TC: From 164 plf at 0.04 to 164 plf at 5.07

TC: From 114 plf at 5.07 to 114 plf at 16.45

TC: From 164 plf at 16.45 to 164 plf at 20.00

BC: From 14 plf at 0.00 to 14 plf at 20.00

BC: 100 lb Conc. Load at 10.04,14.87

# How To Read A Typical Alpine Component Drawing



## M) Additional Notes & Other Notes

Important design notes, warnings, specifications and requirements as part of the truss component design. This also includes Bearing Block and Hanger notes.

## N) Heel Height

The vertical measurement of the component from the bottom of the bottom chord to the top of the top chord at the outside edge of the heel.

## O) Member Label

The member number (e.g. T# = Top Chord, B# = Bottom Chord, W# = Web) as specified by the member label in the Lumber note (refer to item G above).

## P) Joint Label

All joints of the component are identified by a unique letter or double letter combination.

## Q) Connector Plate

Size and orientation of connector plate. Orientation indicates direction of slots on connector.

## R) Slope

The vertical rise in inches for every 12 inches of horizontal run.

## S) Overall Component Height

The vertical dimension including the overhang of the component.

## T) Component Span & Panel Dimensions

Horizontal measurements that provide both panel point dimensions and the running total of component span based on out-to-out dimensions of the top and bottom chord of the component.

## U) Panel Splice

The location within top chord and/or bottom chord panels where two chord members are joined together by a connector plate.

### Notes:

<sup>1</sup> Includes Importance Factor adjustments

<sup>2</sup> Importance Factor adjustments are not included in the load magnitude shown but are applied internally by the software based on the Importance Factor (If) indicated on the component drawing (refer to item B1 above).