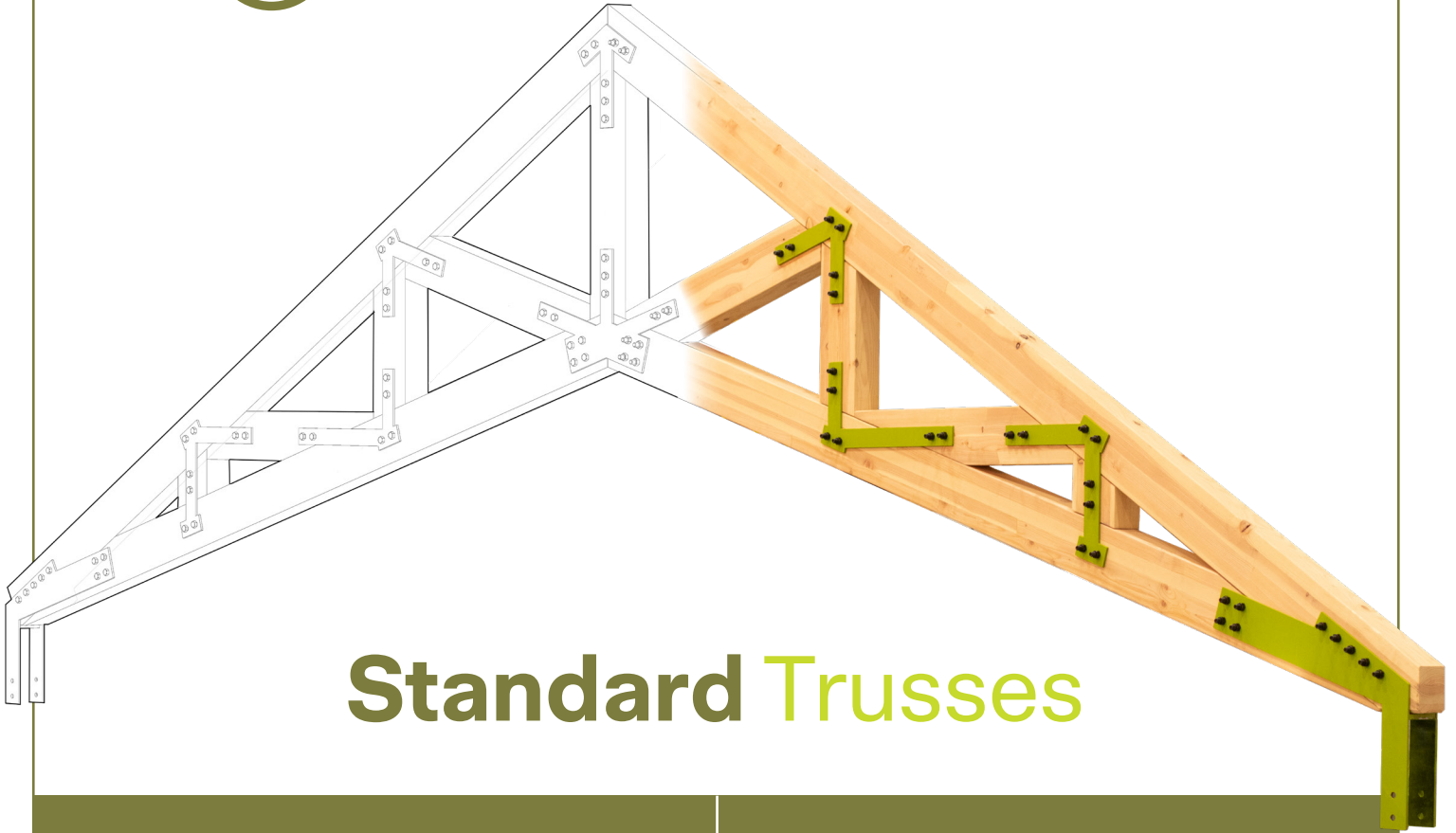




# Cascadia Structural



## Standard Trusses



Kingpost



Double Howe



Howe



Fink



Scissor

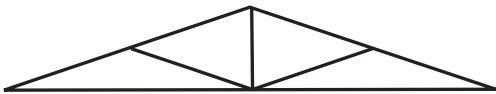
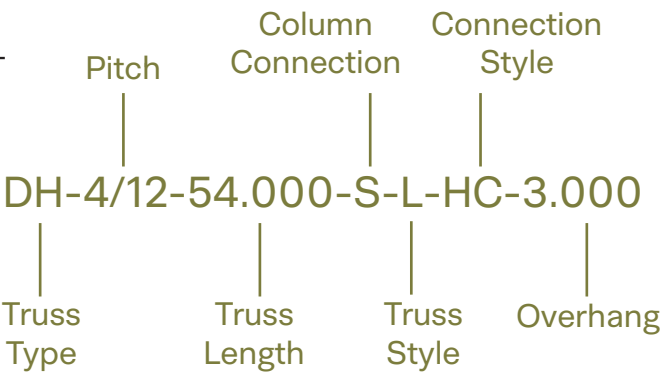
# Truss Guide

This guide provides specifiers with technical information about the Glulam Truss product lines. We have done the analysis on the trusses in the tables below, but any truss can be specified within the limits of these tables. All trusses are assumed to have distributed loading. For trusses that fall in between depths and lengths, a linear interpolation can be used to get a general idea of possible loading. **These tables are intended to be used to assist in preliminary design. All values are approximate and intended as a guide for the specifying professional.**

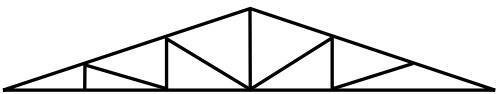
## Truss Selection

Trusses can be specified by using the following part number designation:

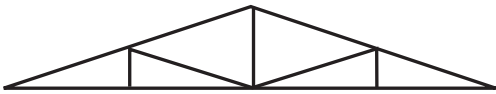
- **Truss Type:** Kingpost, Double Howe, Howe, Fink or Scissor
- **Pitch:** Pitch of the Top Chord of the Truss
- **Truss Length:** The length of the truss to three decimals
- **Column Connection:** S for a Steel Column or Concrete Pilaster, W for a Wood Column.
- **Truss Style:** Ultra-Light, Light, Medium or Heavy
- **Connection Style:** HP for Hidden Plate, SP for Side Plate and HC for Hidden Plate with Countersinks and Plugs
- **Overhang:** Horizontal length of the top chord over-



KP-Kingpost



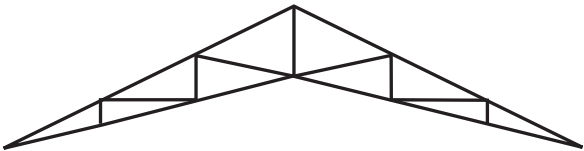
DH-Double Howe



H-Howe



F-Fink



SC-Scissor

## Engineering Responsibility Position Statement

Cascadia is a manufacturer of glulam trusses. It contracts with Western Wood Structures to aid in the development and marketing of its product. Cascadia does not replace or accept the responsibility of the design professional of record for any structure.

Cascadia and Western Wood Structures accept delegation of engineering responsibility only for the products Cascadia manufactures, provided that the application conditions are specified by the design professional of record, or other responsible party when a design professional is not engaged. Cascadia and Western Wood Structures provide engineering in the design of its products and does not displace the need on any project for a design professional of record.

## Truss Type Glulam Specifications

### Ultra-Light

Bottom Chords - 3 1/2" x 6"

Top Chords - 3 1/2" x 6"

Webs - 3 1/2" x 6"

### Light

Bottom Chords - 5 1/8" x 13 1/2"

Top Chords - 5 1/8" x 13 1/2"

Webs - 5 1/8" x 7 1/2"

### Medium

Bottom Chords - 6 3/4" x 18"

Top Chords - 6 3/4" x 18"

Webs - 6 3/4" x 7 1/2"

### Heavy

Bottom Chords - 8 3/4" x 22 1/2"

Top Chords - 8 3/4" x 22 1/2"

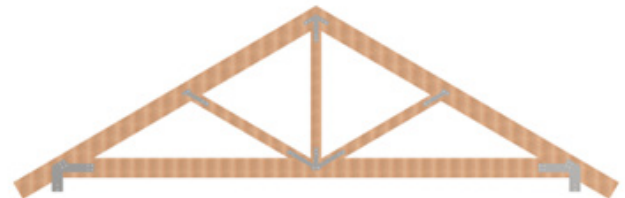
Webs - 8 3/4" x 9"

# Standard Trusses

## Kingpost Truss Allowable Uniform Load Table (PLF)

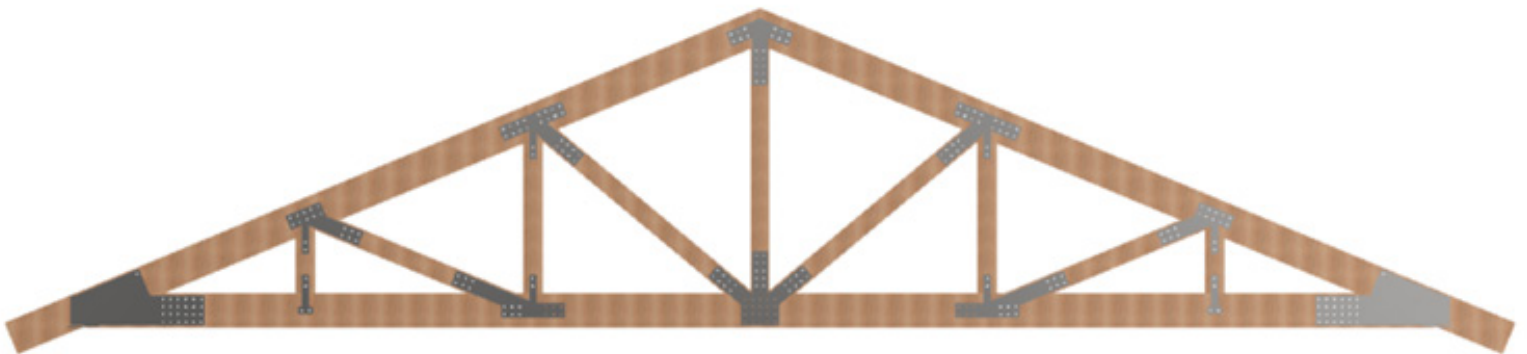
Truss Style	Length	Pitch								
		4:12			5:12			7:12		
		100% TL	115% TL	125% TL	100% TL	115% TL	125% TL	100% TL	115% TL	125% TL
Ultra-Light	10'	1524	1956	2124	1884	2388	2604	2220	2832	3072
	20'	756	900	948	804	960	1020	768	924	972
	30'	300	336	348	288	324	336	276	324	336
	40'	128	142	146	132	148	153	132	148	154
Light	30'	1728	2100	2220	2004	2400	2520	2136	2520	2652
	40'	1020	1140	1176	1128	1248	1296	948	1260	1356

Truss Style	Length	Pitch		
		7:12		
		100% TL	115% TL	125% TL
Ultra-Light	10'	2496	3216	3492
	20'	732	876	924
	30'	264	312	324
	40'	128	145	151
Light	30'	2196	2580	2700
	40'	1128	1260	1296



## Double Howe Truss Allowable Uniform Load Table (PLF)

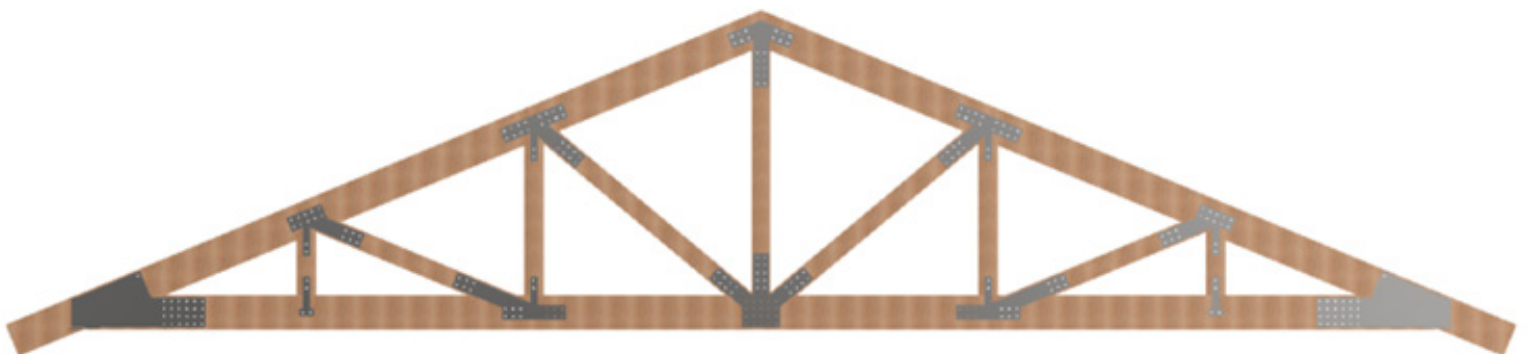
Truss Style	Length	Pitch								
		4:12			5:12			7:12		
		100% TL	115% TL	125% TL	100% TL	115% TL	125% TL	100% TL	115% TL	125% TL
Light	40'	972	1260	1368	1224	1572	1716	1452	1860	2028
	50'	816	1008	1092	996	1284	1392	1236	1404	1452
	60'	684	756	780	756	840	864	804	888	912
	70'	468	504	516	504	540	552	528	576	588
	80'	312	336	336	384	408	420	336	360	372
	90'	216	228	240	240	252	252	252	264	264
	100'	150	156	162	168	174	180	174	180	186



## Standard Trusses

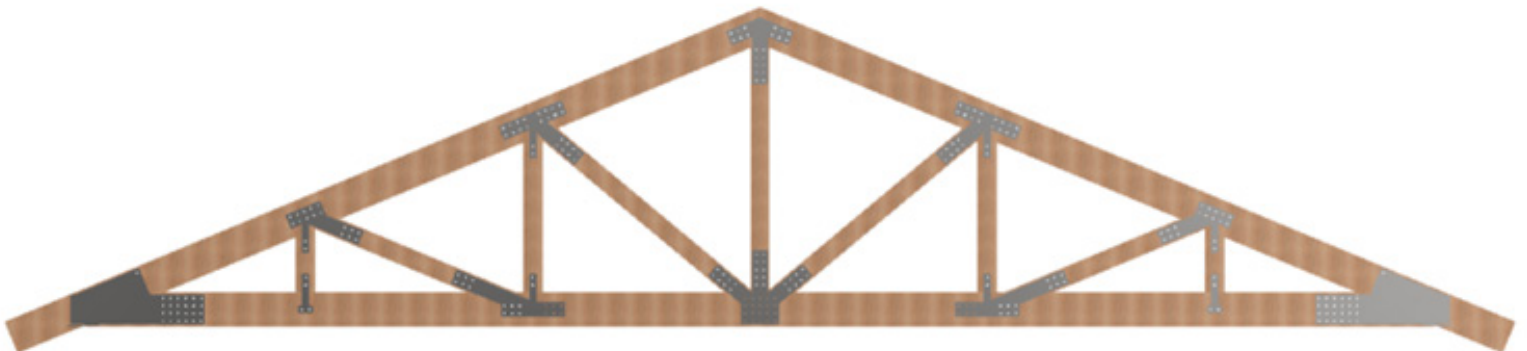
## Double Howe Truss Allowable Uniform Load Table (PLF)

Truss Style	Length	Pitch								
		4:12			5:12			6:12		
		100% TL	115% TL	125% TL	100% TL	115% TL	125% TL	100% TL	115% TL	125% TL
Medium	40'	1668	2328	2148	2028	2592	2844	2376	3072	3336
	50'	1344	1896	1740	1680	2136	2364	1992	2568	2784
	60'	1116	1572	1440	1416	1824	1992	1896	2196	2376
	70'	960	1368	1248	1236	1524	1572	1428	1596	1632
	80'	852	996	972	972	1080	1104	1032	1128	1164
	90'	648	732	708	720	780	804	768	816	840
	100'	480	528	516	540	576	588	564	600	612
	110'	360	384	390	396	420	432	420	444	450
	120'	264	288	276	300	312	318	-	-	-



## Double Howe Truss Allowable Uniform Load Table (PLF)

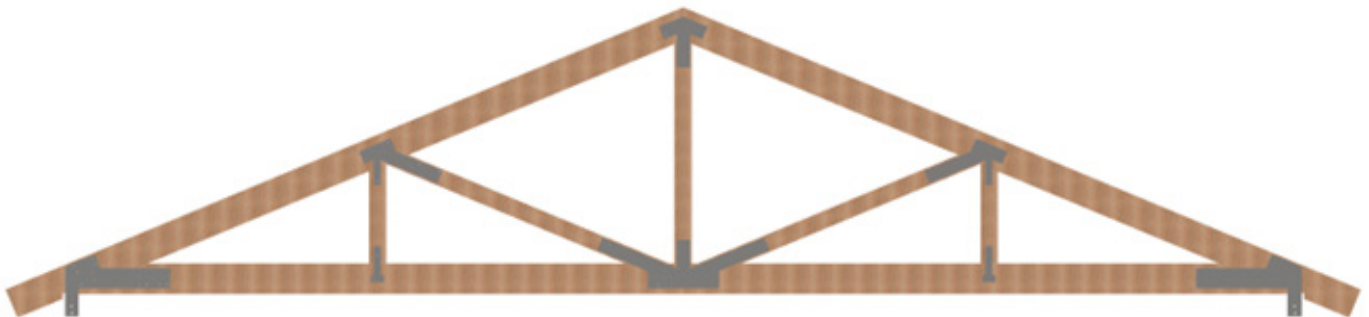
Truss Style	Length	Pitch								
		4:12			5:12			6:12		
		100% TL	115% TL	125% TL	100% TL	115% TL	125% TL	100% TL	115% TL	125% TL
Heavy	50'	2136	2736	3012	2604	3312	3624	3036	3888	4296
	60'	1728	2232	2436	2148	2796	3036	2556	3312	3624
	70'	1476	1920	2100	1848	2412	2616	2244	2880	3120
	80'	1296	1680	1836	1656	2148	2340	2004	2592	2760
	90'	1152	1500	1632	1476	1920	1992	1800	2028	2100
	100'	1044	1308	1344	1332	1476	1512	1464	1596	1644
	110'	924	1020	1044	1020	1116	1152	1092	1188	1212
	120'	720	780	804	804	876	888	840	912	936



## Standard Trusses

## Howe Truss Allowable Uniform Load Table (PLF)

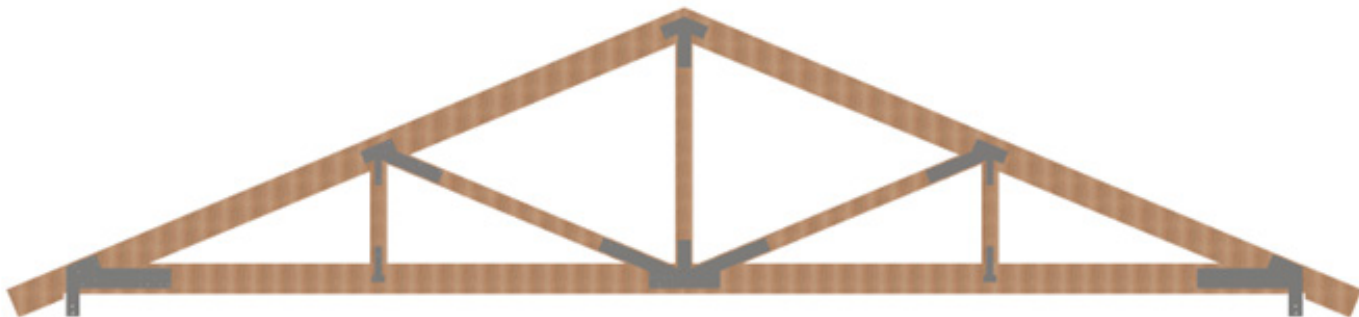
Truss Style	Length	Pitch								
		4:12			5:12			7:12		
		100% TL	115% TL	125% TL	100% TL	115% TL	125% TL	100% TL	115% TL	125% TL
Ultra-Light	10'	1284	1644	1800	1572	2016	2196	1860	2388	2592
	20'	696	888	960	816	972	1020	768	924	972
	30'	288	324	336	288	324	336	276	324	336
	40'	128	141	147	132	147	152	130	147	153





Howe Truss Allowable Uniform Load Table (PLF)

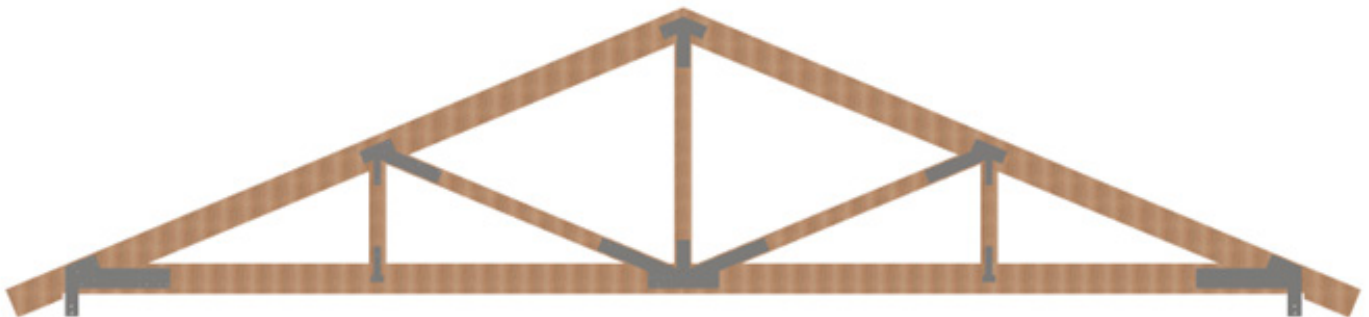
Truss Style	Length	Pitch								
		4:12			5:12			7:12		
		100% TL	115% TL	125% TL	100% TL	115% TL	125% TL	100% TL	115% TL	125% TL
Light	30'	1320	1716	1860	1668	2136	2316	1992	2556	2700
	40'	1008	1176	1212	1140	1284	1320	1200	1332	1368
	50'	588	636	648	612	672	696	624	684	708
	60'	348	372	384	360	396	402	360	396	408
	70'	216	228	233	222	240	246	228	246	252



Standard Trusses

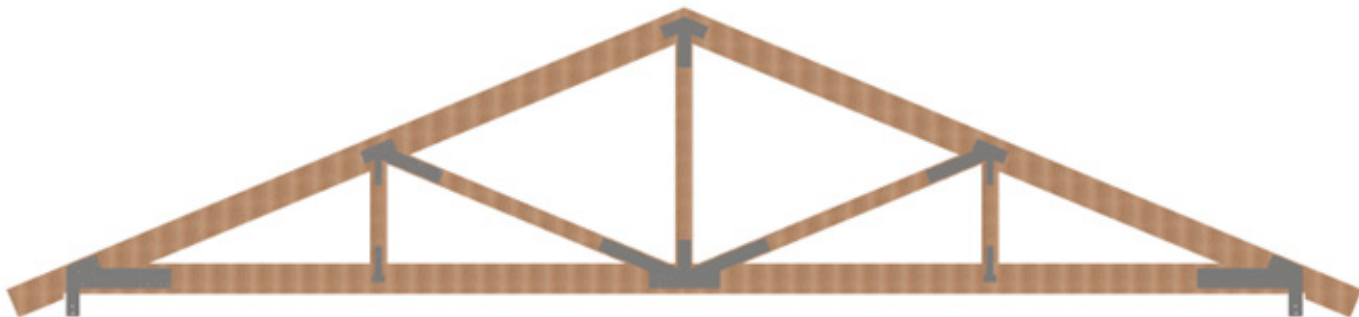
## Howe Truss Allowable Uniform Load Table (PLF)

Truss Style	Length	Pitch								
		4:12			5:12			6:12		
		100% TL	115% TL	125% TL	100% TL	115% TL	125% TL	100% TL	115% TL	125% TL
Medium	40'	1656	2124	2328	2076	2664	2916	2496	3180	3468
	50'	1452	1764	1812	1692	1956	1980	1752	1992	2052
	60'	1008	1104	1128	1080	1188	1224	1104	1212	1248
	70'	660	708	720	684	744	768	696	762	780
	80'	420	468	480	432	480	492	444	492	504
	90'	276	300	312	300	324	336	312	336	348
	100'	192	204	216	216	228	234	222	240	246



Howe Truss Allowable Uniform Load Table (PLF)

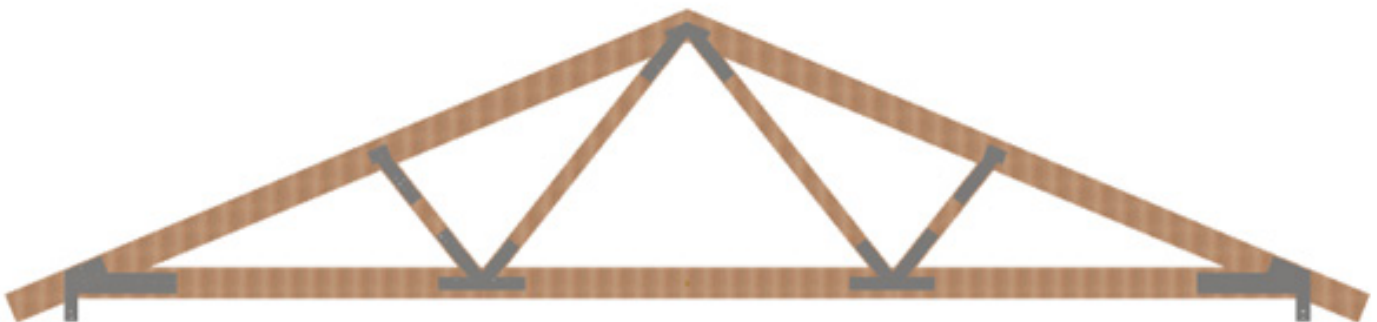
Truss Style	Length	Pitch								
		4:12			5:12			6:12		
		100% TL	115% TL	125% TL	100% TL	115% TL	125% TL	100% TL	115% TL	125% TL
Heavy	50'	2208	2832	3060	2760	3540	3900	3444	4368	4620
	60'	1860	2400	2628	2364	2820	2940	2568	2940	3048
	70'	1584	1776	1836	1728	1932	1992	1800	1992	2040
	80'	1044	1164	1212	1080	1236	1272	1104	1248	1296
	90'	732	804	828	780	864	900	828	912	948
	100'	540	588	600	576	636	648	588	648	672
	110'	396	432	444	432	468	480	438	480	492
	120'	288	312	324	324	348	360	330	360	372



Standard Trusses

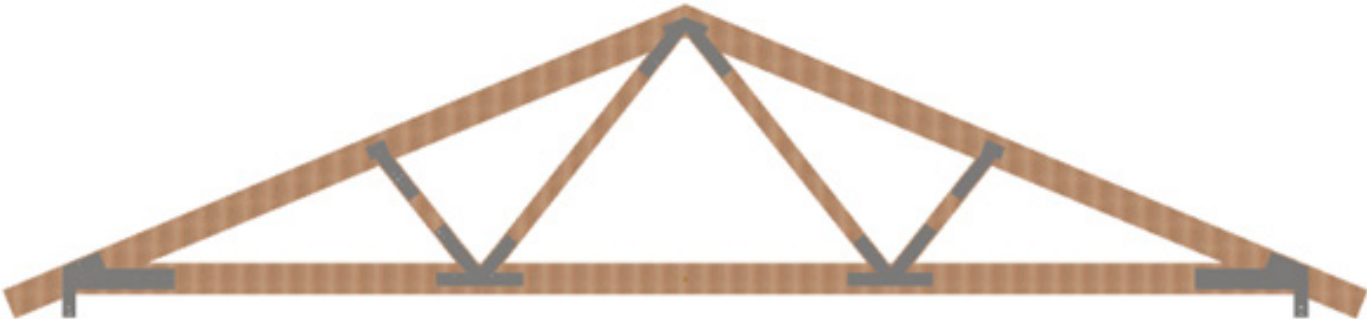
## Fink Truss Allowable Uniform Load Table (PLF)

Truss Style	Length	Pitch								
		4:12			5:12			7:12		
		100% TL	115% TL	125% TL	100% TL	115% TL	125% TL	100% TL	115% TL	125% TL
Ultra-Light	10'	1608	2052	2232	1968	2520	2736	2280	2904	3204
	20'	756	900	960	792	948	1008	756	912	972
	30'	276	312	324	276	324	336	276	312	336
	40'	127	141	146	132	147	152	130	147	153



Fink Truss Allowable Uniform Load Table (PLF)

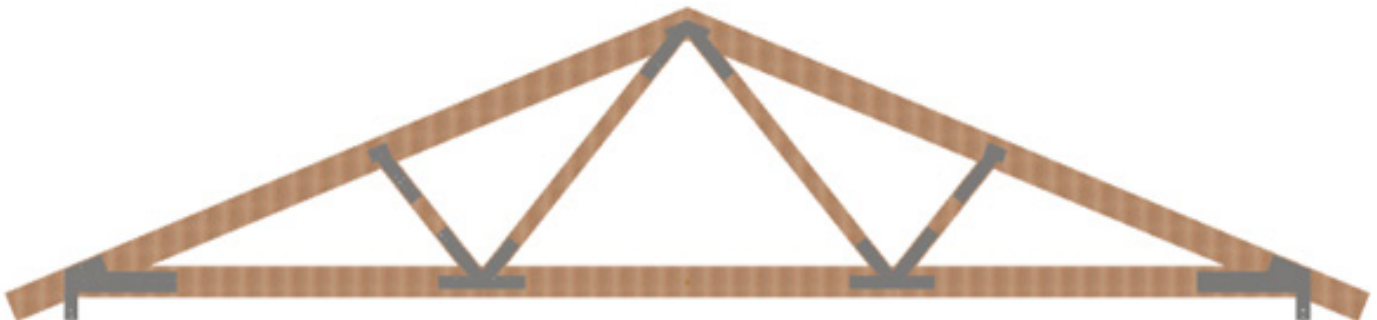
Truss Style	Length	Pitch								
		4:12			5:12			7:12		
		100% TL	115% TL	125% TL	100% TL	115% TL	125% TL	100% TL	115% TL	125% TL
Light	30'	1740	2160	2280	2040	2424	2520	2148	2544	2652
	40'	1032	1152	1176	1128	1260	1308	1176	1308	1356
	50'	576	624	648	600	660	684	612	672	696
	60'	348	360	372	360	384	396	366	396	402
	70'	216	228	234	222	240	246	228	240	246



Standard Trusses

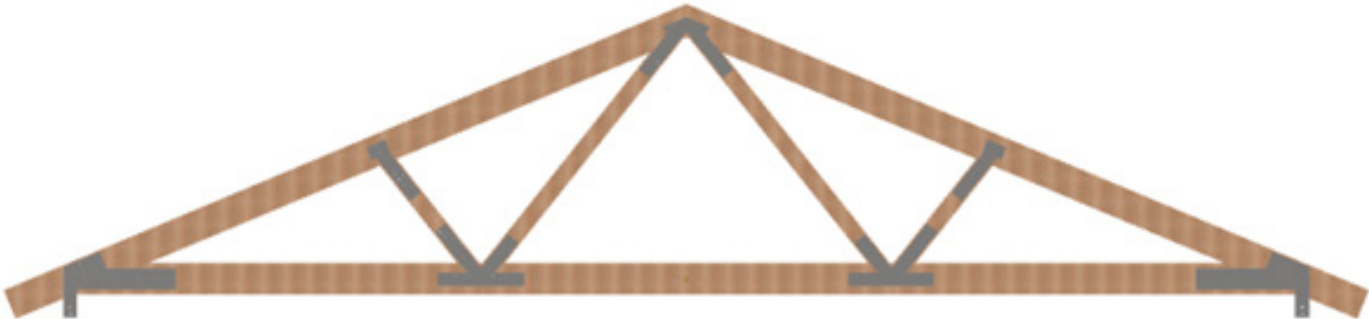
## Fink Truss Allowable Uniform Load Table (PLF)

Truss Style	Length	Pitch								
		4:12			5:12			6:12		
		100% TL	115% TL	125% TL	100% TL	115% TL	125% TL	100% TL	115% TL	125% TL
Medium	40'	2220	2808	2964	2628	3120	3276	2808	3300	3468
	50'	1512	1704	1764	1668	1872	1944	1740	1956	2028
	60'	984	1080	1104	1116	1176	1200	1086	1188	1224
	70'	636	684	708	672	732	756	684	744	768
	80'	408	444	456	432	480	492	444	492	504
	90'	276	300	312	300	324	336	312	336	348
	100'	192	204	216	216	228	240	228	240	252



Fink Truss Allowable Uniform Load Table (PLF)

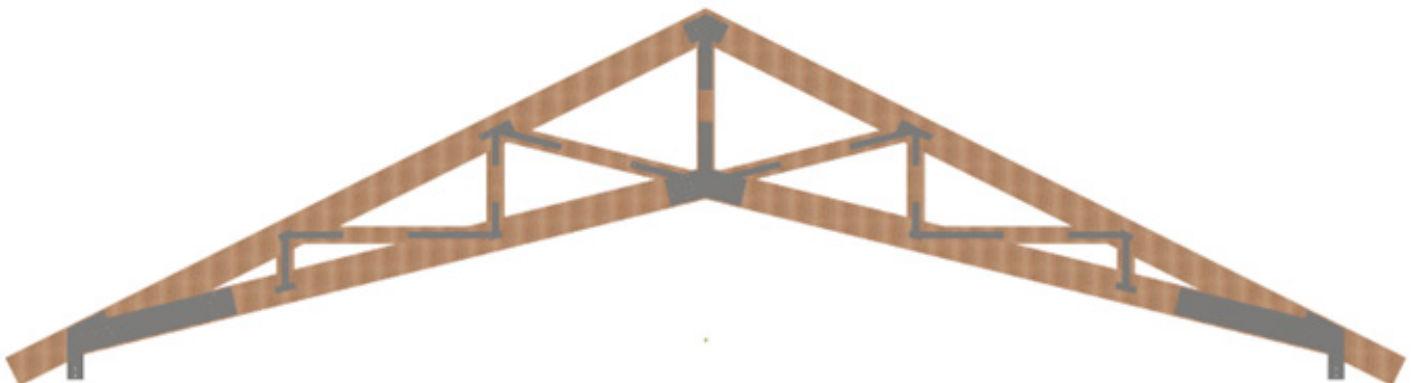
Truss Style	Length	Pitch								
		4:12			5:12			6:12		
		100% TL	115% TL	125% TL	100% TL	115% TL	125% TL	100% TL	115% TL	125% TL
Heavy	50'	3000	3624	3840	3384	4020	4284	3600	4284	4500
	60'	2184	2496	2604	2412	2772	2880	2520	2880	3000
	70'	1512	1680	1728	1704	1896	1956	1776	1968	2040
	80'	1032	1140	1176	1080	1212	1260	1092	1236	1284
	90'	744	816	840	780	876	900	792	888	924
	100'	540	588	612	576	636	660	588	648	672
	110'	396	432	444	432	468	480	444	480	492
	120'	300	324	336	324	348	360	336	360	372



Standard Trusses

## Scissor Truss Allowable Uniform Load Table (PLF)

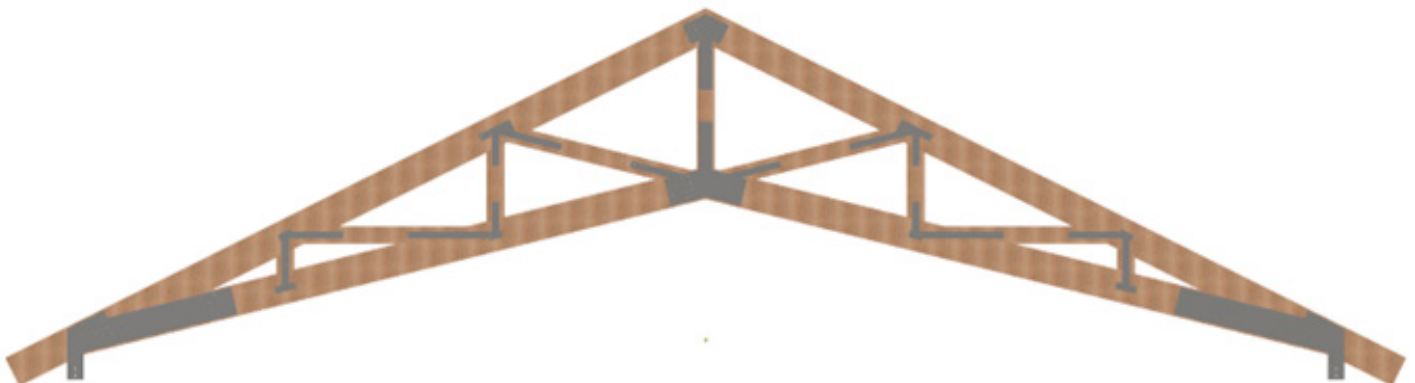
Truss Style	Length	Pitch								
		4:12			5:12			7:12		
		100% TL	115% TL	125% TL	100% TL	115% TL	125% TL	100% TL	115% TL	125% TL
Ultra-Light	10'	780	1008	1092	852	1092	1188	924	1176	1284
	20'	348	456	492	408	528	576	456	588	648
	30'	240	300	336	276	360	396	312	408	444
	40'	177	198	204	189	208	214	193	212	218





## Scissor Truss Allowable Uniform Load Table (PLF)

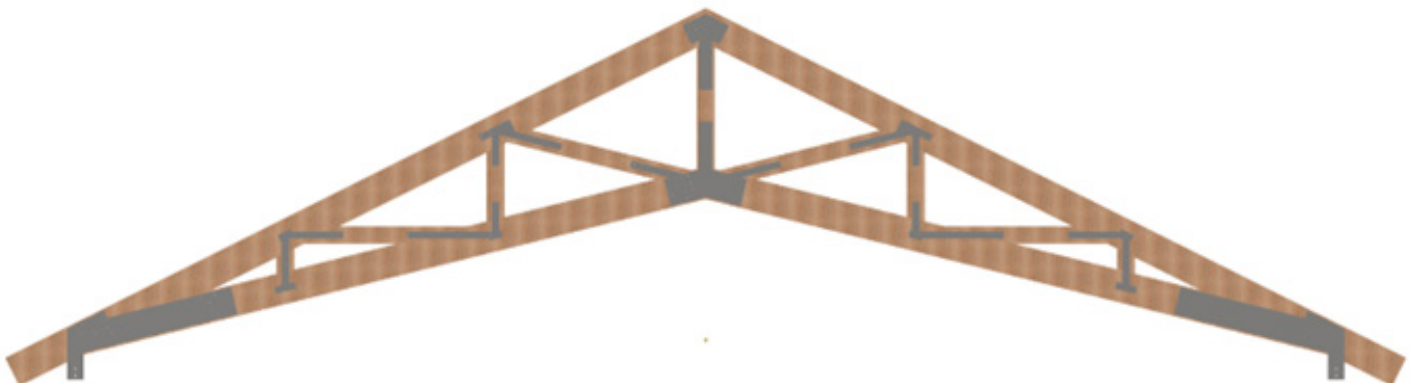
Truss Style	Length	Pitch								
		4:12			5:12			7:12		
		100% TL	115% TL	125% TL	100% TL	115% TL	125% TL	100% TL	115% TL	125% TL
Light	40'	564	708	756	660	852	924	732	948	1032
	50'	444	576	636	504	672	732	576	756	816
	60'	360	456	480	420	480	492	456	492	504
	70'	276	288	300	282	300	312	294	312	318
	80'	42	48	52	48	54	57	51	57	58



## Standard Trusses

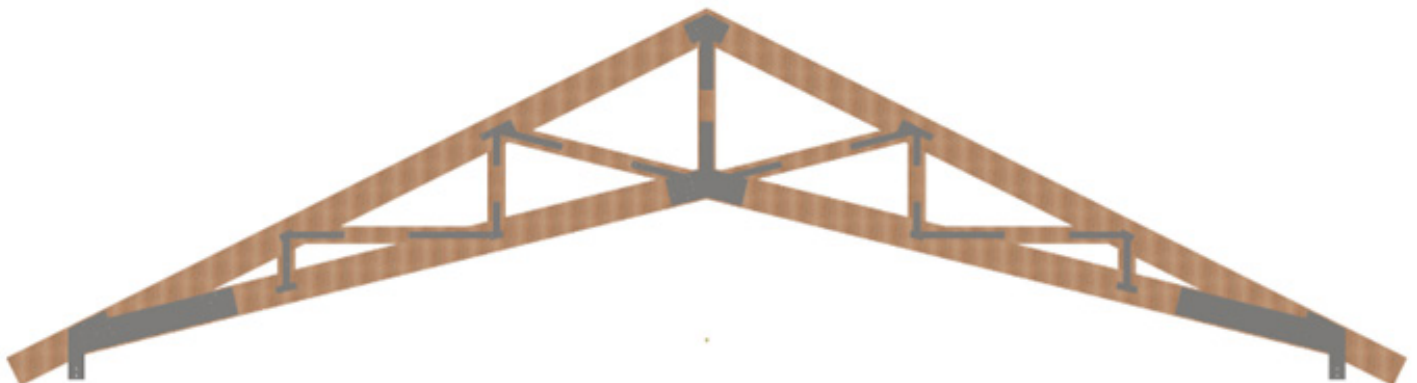
## Scissor Truss Allowable Uniform Load Table (PLF)

Truss Style	Length	Pitch								
		4:12			5:12			6:12		
		100% TL	115% TL	125% TL	100% TL	115% TL	125% TL	100% TL	115% TL	125% TL
Medium	60'	612	804	876	708	924	1020	804	1044	1140
	70'	516	672	744	588	768	852	684	888	936
	80'	444	576	636	516	624	636	576	636	648
	90'	384	420	432	468	528	552	408	444	450
	100'	276	288	300	288	306	312	294	312	318
	110'	192	204	210	204	216	222	-	-	-



## Scissor Truss Allowable Uniform Load Table (PLF)

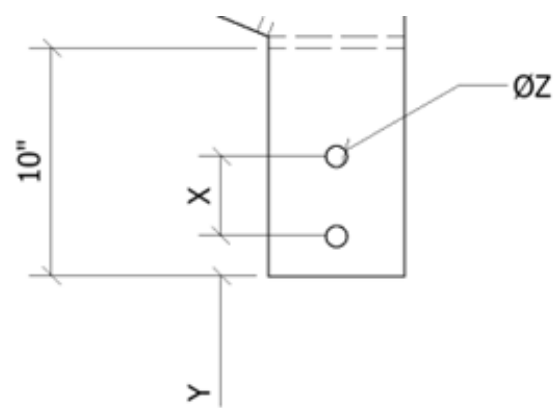
Truss Style	Length	Pitch								
		4:12			5:12			6:12		
		100% TL	115% TL	125% TL	100% TL	115% TL	125% TL	100% TL	115% TL	125% TL
Heavy	80'	696	912	1008	804	1056	1164	912	1200	1308
	90'	600	792	876	708	936	1032	804	1056	1164
	100'	528	708	780	636	828	852	732	852	870
	110'	468	600	612	576	624	636	588	636	648
	120'	408	444	456	432	468	480	516	564	576



## Standard Trusses

# Mounting Configurations

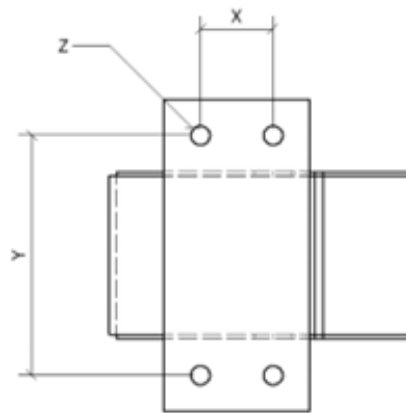
## Wood Column Mounting



Side View

	Ultra-Light	Light	Medium	Heavy
X	2"	3"	3-1/2"	4"
Y	1"	1 -1/2"	1-3/4"	2"
Z	9/16"	13/16"	15/16"	1-1/8"

## Steel/CMU Column Mounting



Bottom View

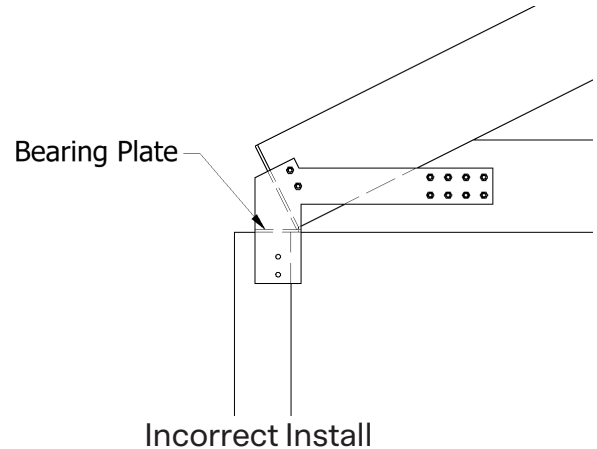
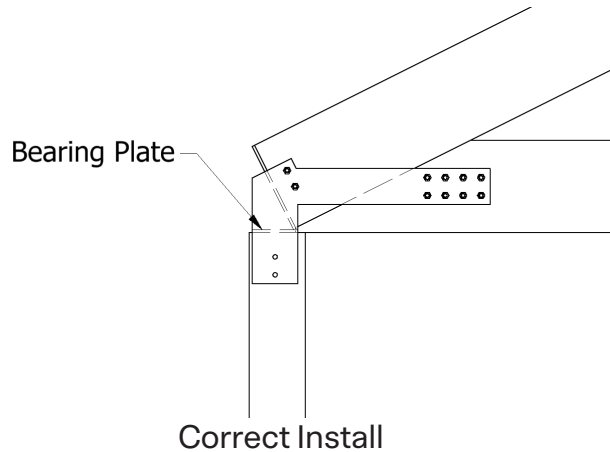
	Ultra-Light	Light	Medium	Heavy
X	2"	3"	3-1/2"	4"
Y	6"	8-5/8"	10-3/4"	13-1/4"
Z	9/16"	13/16"	15/16"	1-1/8"

## Non-Standard Loading

All trusses are assumed to be loaded as a distributive load, meaning purlins must be 4' on center or less. If this is not the case, please reach out to Cascadia to check that the proposed loading for your specific application will work with the truss you are working with.

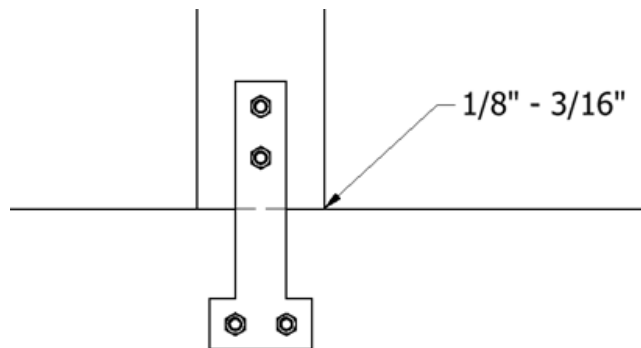
## Installation Tolerances

Truss bearing plate must be fully seated on column or beam.



## Allowable Gaps in Truss Members

Cascadia Trusses will have a gap between members of 1/8" to 3/16"

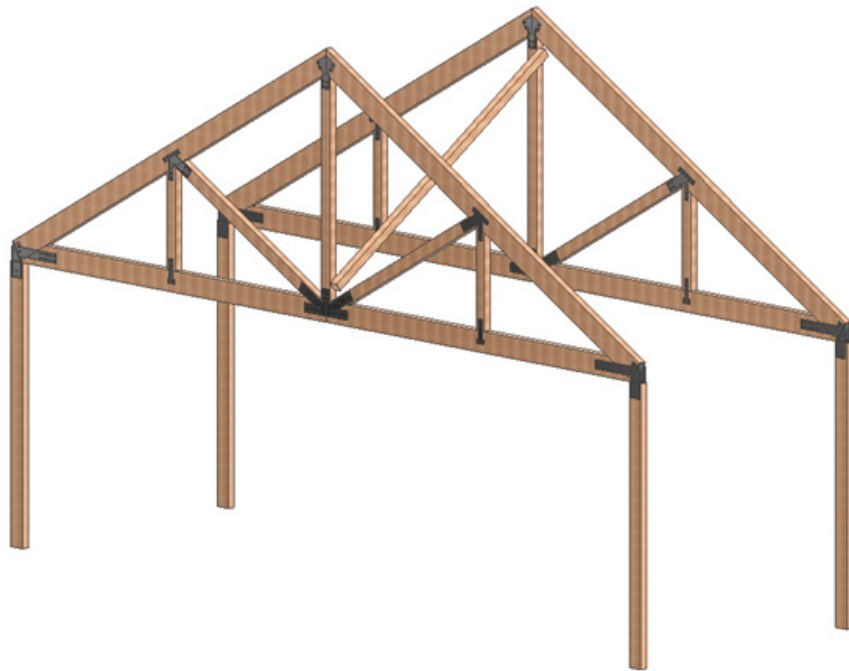


# Standard Trusses

## Bracing

Trusses must be braced during erection and the following condition must be met  $L/D < 75$ . Where L is the length of the bracing member and D is the smallest cross-sectional dimension.

Example: 20 ft bracing is being used to install a truss, at minimum a 4x4 would need to be used for bracing.  $240\text{in}/3.5\text{in} = 68.5$ .



# Architectural Truss Specification

## 1.0 GENERAL REQUIREMENTS

1.1 Description: This section includes the design, fabrication and supply of the heavy timber trusses as shown and described on the contract drawings. The trusses are to be of glulam construction and the supplier shall furnish all materials including connecting steel and hardware for a complete installation.

### 1.2 Design Criteria:

Dead Load: \_\_\_\_\_ psf (specify ASD or LRFD)  
Roof Live Load: \_\_\_\_\_ psf (specify ASD or LRFD)  
Roof Snow Load: \_\_\_\_\_ psf (specify ASD or LRFD)  
Wind and seismic loads by EOR.

1.3 Qualifications: The heavy timber truss manufacturer must be a company specializing in the design and fabrication of timber trusses with a minimum of five (5) years documented experience.

Approved manufacturers include:

Western Wood Structures, Inc.

P.O. Box 130

Tualatin, Oregon 97062-0130

(503) 692-6900

and

Cascadia Structural Timber Solutions

2800 N Lombard St #418

Portland, OR 97217

(503) 226-7065

### 1.4 Submittals:

1.4.1 Submit shop drawings and product data under the provisions of section 01300. Shop drawings shall include: general framing plan, truss profiles, loads, and fabrication details for all wood members and steel assemblies. Also indicate dimensions, wood grades, drilled holes, fasteners and cambers. Shop drawings to be stamped by a registered engineer, licensed to practice in the state where the building is being constructed.

1.4.2 Submit design calculations stamped by a registered engineer, licensed to practice in the state where the building is being constructed.

1.4.3 Furnish an APA-EWS Certificate of Conformance stating that the glulams conform to ANSI/ APA A190.1.

1.4.4 Provide a written warranty against defects in material and workmanship for a period of five (5) years.

## 2.0 PRODUCTS

### 2.1 Materials:

2.1.1 Glulam shall be Douglas Fir. Combination 3 per ANSI/APA 117. The appearance shall be Architectural per AITC 110 or other (select one). Adhesive shall be 100% waterproof phenolic resin glue per ANS 405-2023. Surfaces of truss members shall be S4S.

2.1.2 Manufacturer to supply all necessary steel and hardware required to assemble trusses. Steel to be ASTM A-36 and hardware to be ASTM A-307. Welding by certified welders per AWS specifications D1.1. All steel and hardware shall be prime coated / epoxy powder coated / galvanized (select one).

### 2.2 Fabrication:

2.2.1 Heavy timber trusses shall be fabricated and assembled in a plant with facilities for performing work specified to the fullest extent possible. Factory drill all holes using CNC Machine. Holes for timber connections shall be 1/16" larger than the bolt diameter. Where trusses cannot be shipped fully assembled due to their configuration, fabricate and trial assemble to ensure proper fit. Individually wrap trusses after assembly. Field fabrication of heavy timber trusses is not permitted.

2.2.2 Concealed connector locations shall be fabricated to within 1/8" of true position. Fabricate length of members to be within 1/8" of required length to achieve tight connections. Make end cuts flat and true to ensure consistent load transfer.

## 3.0 EXECUTION

### 3.1 Delivery, storage and handling per AITC 111-2005 Transit, Storage and Erection:

3.1.1 The purchaser or installer is responsible for handling and protection of heavy timber trusses after arrival at destination. All trusses shall be unloaded and handled with a forklift or crane using nylon slings.

3.1.2 If the trusses are to be stored at the site, they must be placed on a level surface and stickered to prevent warpage and twisting.

3.1.3 Any damage must be reported immediately to the truss manufacturer's professional engineer.

### 3.2 Installation:

3.2.1 Install the trusses according to manufacturer's shop details and installation drawings. Do not field cut, drill, or alter structural members without written approval from the timber truss manufacturer's professional engineer. Set trusses in locations and to elevations indicated. Make provisions for erection loads and provide temporary bracing to maintain trusses true and plumb, and in true alignment until completion of erection.

3.2.2 Maintain factory-applied wrapping until roof structure is enclosed. Touch up primed surfaces of steel assemblies with primer coat compatible with shop coat.



# General Structural Note

## Glued-Laminated Timber Trusses

1. THE MANUFACTURE OF STRUCTURAL GLUED-LAMINATED TIMBER SHALL COMPLY WITH REQUIREMENTS OF ANSI/APA A190.1. ALL BEAMS SHALL BEAR THE APA/EWS TRADEMARK INDICATING CONFORMANCE.
2. ALL GLUED-LAMINATED MEMEBERS SHALL BE DOUGLAS FIR/LARCH COMBINATION 3 WITH WATERPROOF RESORCINOL OR PHENOL RESORCINOL GLUE CONFORMING TO ANSI/APA 405-2023. ALLOWABLE STRESS REQUIREMENTS ARE AS FOLLOWS:
  - a. MODULUS OF ELASTICITY.....E =  $1.9 \times 10^6$  PSI
  - b. FLEXURAL STRESS.....Fb = 2000 PSI
  - c. COMPRESSION PERPENDICULAR TO GRAIN.....F<sub>c</sub> = 650 PSI
  - d. HORIZONTAL SHEAR PARALLEL TO GRAIN.....FV = 265 PSI
3. ALL EXPOSED GLULAM MEMBERS SHALL BE ARCHITECTURAL APPEAREANCE GRADE IN CONFORMANCE WITH THE STANDARD APPEARANCE GRADES OF ANSI A190.1
4. THE MANUFACTURER SHALL SUBMIT COMPLETE SHOP DRAWINGS TO THE ARCHITECT/ENGINEER FOR REVIEW PRIOR TO ANY FABRICATION.
5. PROVIDE CAMBERS AS NOTED ON DRAWINGS.
6. GLUED-LAMINATED MEMBERS SHOWN ON THESE PLANS ARE FOR DRY SERVICE CONDITIONS OF USE, DEFINED BY MOISTURE CONTENT OF MEMBER REMAINING BELOW 16%.
7. GLUED-LAMINATED MEMBERS MUST BE PROTECTED FROM MOISTURE DURING CONSTRUCTION.
8. THE STEEL USED SHALL CONFORM TO THE FOLLOWING ASTM SPECIFICATION OF LATEST ADOPTION: ASTM A36/A36M
9. ALL HARDWARE TO CONFORM TO ANSI A307
10. STEEL AND HARDWARE TO BE PRIMED PAINTED
11. GLUE-LAMATED TRUSS TO BE DESIGNED AS A DEFERRED SUBMITTAL BY CASCADIA STRUCTURAL.

CASCADIA STRUCTURAL CONTACT INFO

503-226-7065

INFO@CASCADIASTRUCTURAL.COM

## FAQ

### **What if the truss I want is outside the parameters of the Load Table?**

Trusses whose size is outside our load table are considered custom trusses. Cascadia and their sister company Western Wood Structures have been providing custom trusses for decades and can still help you with designing and pricing, simply contact either Western Wood Structures ([dherr@wwsi.com](mailto:dherr@wwsi.com)) or Cascadia Structural ([info@cascadiastructural.com](mailto:info@cascadiastructural.com)) for a custom truss quote.

### **What is the fire rating on these trusses?**

All the truss material meets the requirement for HT Type IV which is allowed for roof construction of Type 1 B, Type II A and B, Type III A and B and Type V A and B if they have a 1 hour or less fire-resistance rating required.

### **What species and finish of glulam is available?**

All of our trusses uses Architectural Combination 3 Glulam made with Douglas Fir.

### **What is the standard lead time?**

For most projects where there are less than 10 trusses lead times are 6-9 weeks after receiving your approved engineering drawings.

### **How do you purchase these trusses?**

To learn more about purchasing these trusses reach out to us at [quotes@cascadiastructural.com](mailto:quotes@cascadiastructural.com)

### **Is this a deferred submittal?**

Yes, this product is a deferred submittal, drawings can be produced within 2 weeks of receiving approved engineering drawings.

This document supersedes all previous versions. If this is more than one year old contact Cascadia Structural

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