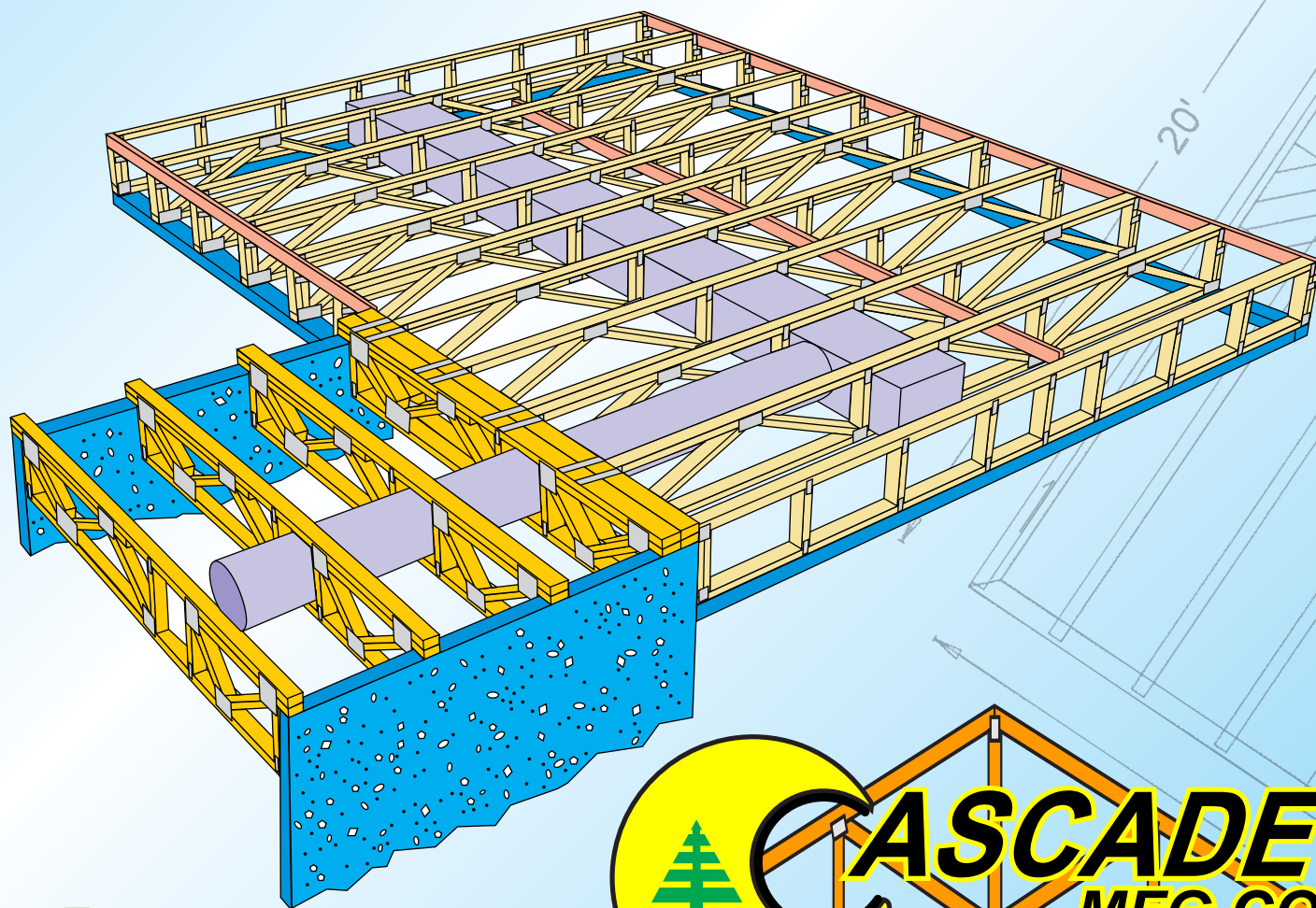




Get more Quality, Flexibility and Labor Savings using  
***FLOOR TRUSSES***



Wood Floor Trusses are  
Environmentally Compatible.



Build with Confidence. Build with Cascade.™





Builders want solutions that help them stay on schedule and maintain quality construction and profits. When compared to traditional joist construction, manufactured wood floor truss systems are better, stronger, and can be installed faster. A manufactured truss is an engineered structural component assembled from wood members, metal connector plates and other mechanical fasteners. The truss members form a rigid structural framework and are assembled such that the members form triangles. Most builders are familiar with roof truss systems, but may not realize the advantages of a manufactured floor truss system.

The benefits of manufactured wood truss floor systems are many. Floor trusses can span great distances, creating larger open spaces below unobstructed by columns and partitions. Truss systems are quicker and easier to install than traditional floor joists, and because they're manufactured in controlled environments, there's less chance of warping, shrinking, and twisting of lumber. Manufactured floor truss systems also save timber resources by reducing the amount of wood waste generated during construction.



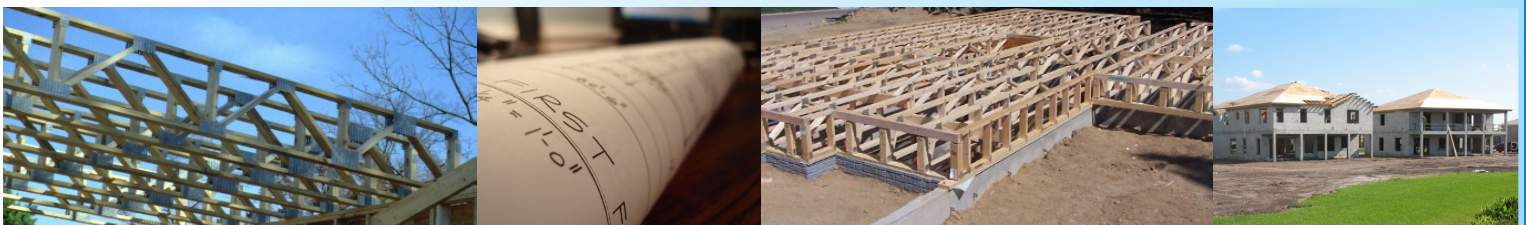
The component manufacturing process is simple and offers the professional builder plenty of time- and cost-saving resources along the way. Here's how it works:

House plans are sent by the builder to the wood floor truss manufacturer. There are hundreds of truss manufacturers operating nationwide, but builders should research the quality and delivery costs before choosing a vendor.

The building designer determines what loads need to be supported within the home. Then the truss designer determines how many trusses will be required, and their specific placement in the home. The manufacturer then builds the trusses, labels them for accurate installation, and ships them to the builder on the jobsite.

A detailed diagram with the placements of the trusses is sent along with the order to help the builder place the trusses exactly where they should be installed.

Once the trusses are on the site, the builder can really start to see the benefits. The consistent size and height of the manufactured floor joist will mean easier sub-floor material installation, and the open web design allows for utilities to be run through in the floor system without drilling or cutting holes. These benefits will reduce the amount of time trade contractors spend on site, speed up construction, and ultimately save the builder money. The technology used in the design and manufacturing of floor trusses makes them a superior choice for builders looking to streamline construction and provide a higher quality home to their customers.





# The Benefits of **FLOOR TRUSSES**



Floor trusses are delivered to your site, ready for installation. No cutting or fitting is required. Strong, lightweight and rigid "System 42" Floor Trusses go up easily and quickly. Often without the use of a crane. Expensive steelworkers, welders or riggers are not required. Your crew can do it all.

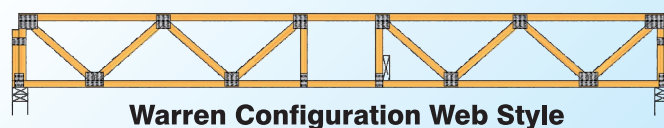
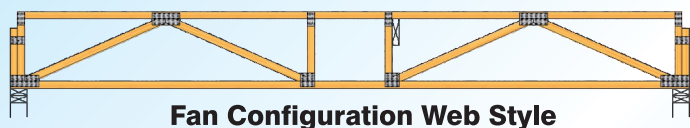
Decking and ceiling materials are attached directly to trusses without need for special hardware. And because System 42 trusses can be spaced wider apart, less trusses are required resulting in less nails to drive.

Mechanicals are installed quickly through the open webs without notching or furring. Electricians, A/C contractors and plumbers are off the job quicker.

System 42 provides longer clear spans providing exceptional design flexibility. For this reason, plus their cost saving benefits during construction, more and more architects are specifying System 42 Floor Trusses than ever before.

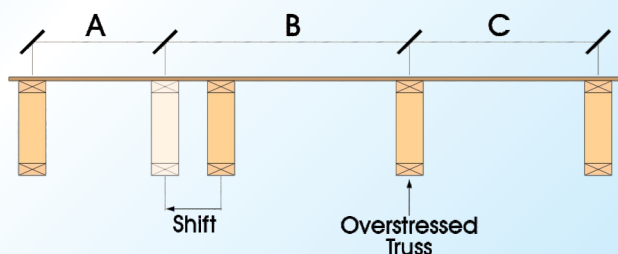


## Two of the most common web patterns for floor trusses:



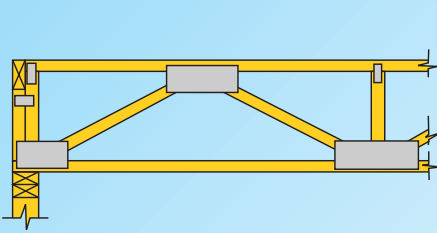
Floor truss are built with open chases for ductwork and have natural open spaces for plumbing and electrical wiring. Floor truss systems are sometimes called System 42's, because to build them manufacturers turn the 2x4's on their side. This allows for shallow depths as well as a 3 1/2" nailing surface. Some floors are built from 2x3's, others from 2x4's. Floor trusses can be manufactured with many different possible end conditions to accommodate different installation needs; around raised walls, pocketed beams, headers around stairways, etc.

**Is it OK to move a floor truss?** Typical floor trusses are engineered to be spaced evenly, and the truss design drawing will tell you how the design spacing. Occasionally the need will arise to shift one of the floor trusses from where it was designed to be. When this happens, please contact the truss manufacturer to be sure it works. Sliding a floor truss even a few inches puts more load on the truss you're moving it away from, as shown in the drawing below.

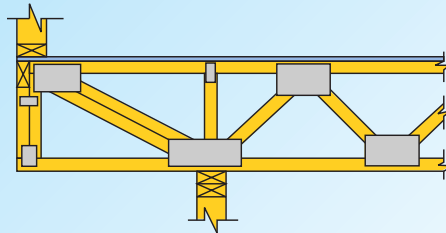


<u>If you shift it:</u>		<u>Then overstressed truss carries:</u>	
			<b>B</b>
24"	3"	6.2% more load than designed for	27"
on center	6"	12.5% "	30"
trusses	9"	18.7% "	33"
16"	3"	9.3% more load than designed for	19"
on center	6"	18.7% "	22"

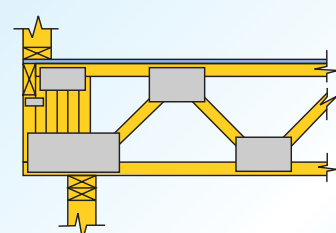
**Check with the truss manufacturer before shifting a truss !**



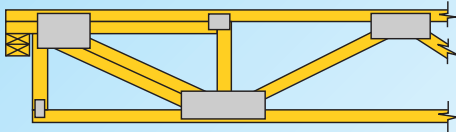
Bottom chord bearing on a stud wall.



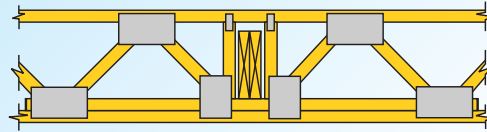
Cantilever with an exterior wall on the end.



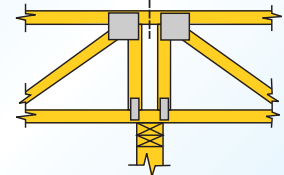
Bottom chord bearing with short cantilever and exterior wall.



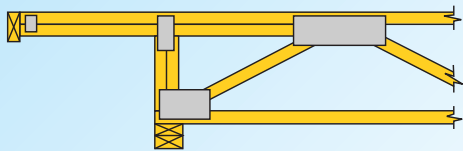
Top chord bearing on stud wall.



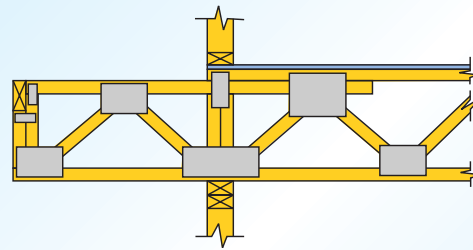
Floor truss designed to carry an interior header.



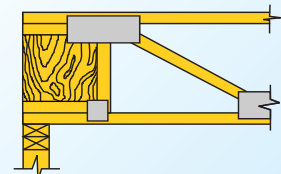
Interior bearing on wall



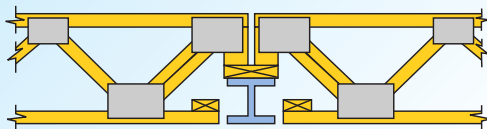
Overhang on a floor truss used on a roof.



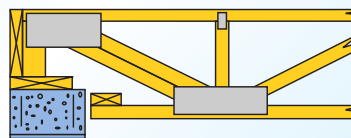
Dropped cantilever for use on exterior balconies.



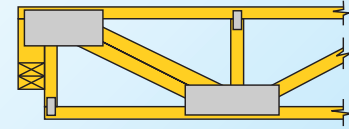
Trimmable end condition with I-Joist insert.



Interior top chord bearing with a variable end height.

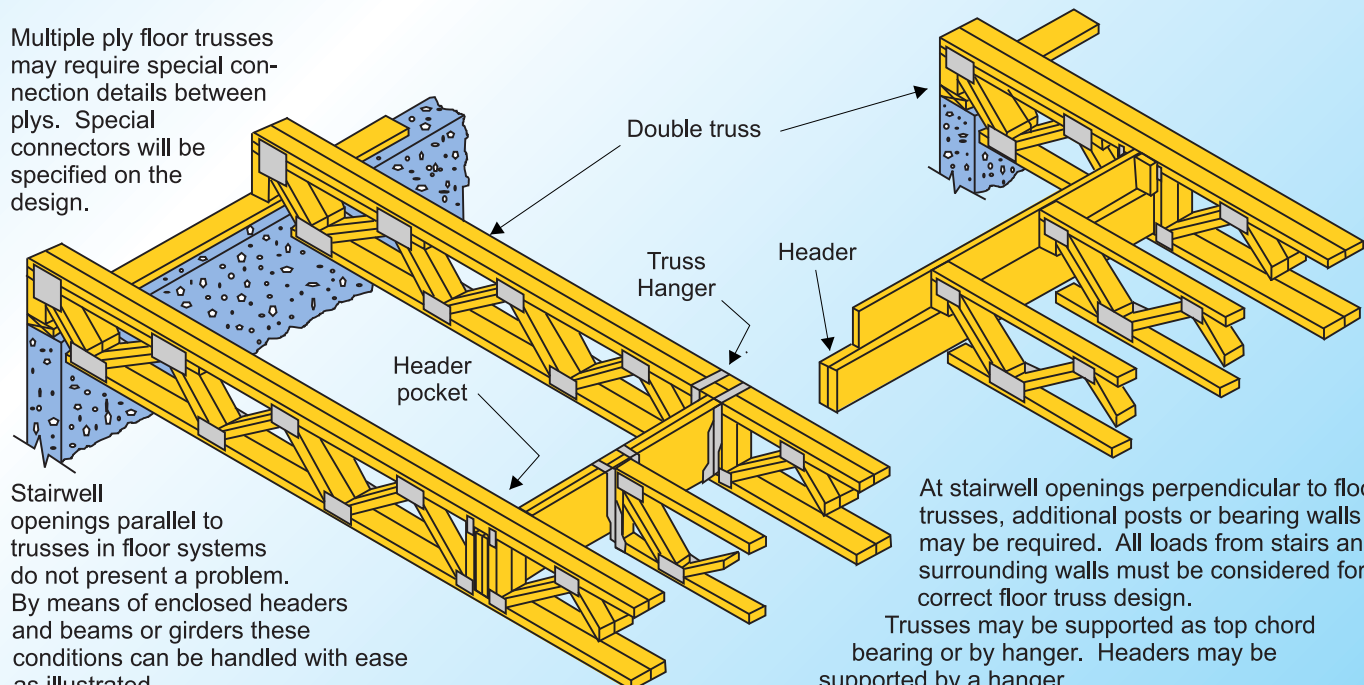


Top chord bearing with a variable end height.



Top chord bearing on stud wall with variable end height.

Multiple ply floor trusses may require special connection details between plys. Special connectors will be specified on the design.



Stairwell openings parallel to trusses in floor systems do not present a problem. By means of enclosed headers and beams or girders these conditions can be handled with ease as illustrated.

At stairwell openings perpendicular to floor trusses, additional posts or bearing walls may be required. All loads from stairs and surrounding walls must be considered for correct floor truss design.

Trusses may be supported as top chord bearing or by hanger. Headers may be supported by a hanger.



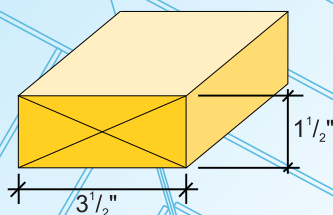
# Span Tables for FLOOR TRUSSES



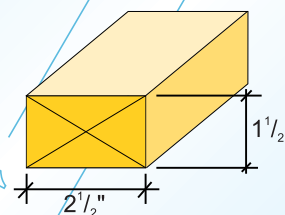
These allowable spans are based on NDS 2005. Maximum deflection is limited by  $L/360$  or  $L/480^{(1)}$  under live load. Basic Lumber Design Values are  $F_{(b)}=2000$  psi  $F_{(v)}=1100$  psi  $F_{(c)}=2000$  psi  $E=1,800,000$  psi Duration Of Load = 1.00. Spacing of trusses are center-to-center (in inches).

Top Chord Dead Load = 10 psf. Bottom Chord Dead Load = 5 psf. Center Line Chase = 24" max. Trusses must be designed for any special loading, such as concentrated loads. Other floor and roof loading conditions and a variety of species and other lumber grades are available.

**4x2  
Lumber**



**3x2  
Lumber**



## 40 PSF Live Load 55 PSF Total Load

Center Spacing	Deflection Limit	12"	14"	16"	18"	20"	22"
16" o.c.	L/360	22'2"	24'11"	26'10"	28'8"	30'4"	31'11"
	L/480	20'2"	22'7"	24'11"	27'2"	29'4"	31'5"
19.2" o.c.	L/360	20'9"	22'8"	24'4"	26'0"	27'6"	29'0"
	L/480	18'11"	21'3"	23'6"	25'7"	27'6"	29'0"
24" o.c.	L/360	18'5"	20'1"	21'7"	23'1"	24'5"	25'9"
	L/480	17'7"	19'9"	21'7"	23'1"	24'5"	25'9"

## 40 PSF Live Load 55 PSF Total Load

12"	14"	16"	18"	20"	22"
19'0"	20'9"	22'4"	23'10"	25'3"	26'7"
18'0"	20'2"	22'4"	23'10"	25'3"	26'7"
17'3"	18'9"	20'3"	21'7"	22'10"	24'1"
16'11"	18'9"	20'3"	21'7"	22'10"	24'1"
15'2"	16'7"	17'10"	19'1"	20'2"	21'3"
15'2"	16'7"	17'10"	19'1"	20'2"	21'3"

## 60 PSF Live Load 75 PSF Total Load

12"	14"	16"	18"	20"	22"
19'4"	21'4"	23'0"	24'6"	26'0"	27'4"
17'7"	19'9"	21'10"	23'9"	25'8"	27'4"
17'9"	19'4"	20'10"	22'3"	23'7"	24'10"
16'7"	18'7"	20'6"	22'3"	23'7"	24'10"
15'9"	17'2"	18'6"	19'9"	20'11"	22'0"
15'4"	17'2"	18'6"	19'9"	20'11"	22'0"

## 60 PSF Live Load 75 PSF Total Load

12"	14"	16"	18"	20"	22"
16'3"	17'9"	19'2"	20'5"	21'8"	22'9"
15'9"	17'8"	19'2"	20'5"	21'8"	22'9"
14'9"	16'1"	17'4"	18'6"	19'7"	20'7"
14'9"	16'1"	17'4"	18'6"	19'7"	20'7"
13'0"	14'2"	15'3"	16'4"	17'3"	18'2"
13'0"	14'2"	15'3"	16'4"	17'3"	18'2"

## 85 PSF Live Load 100 PSF Total Load

12"	14"	16"	18"	20"	22"
16'11"	18'6"	19'11"	21'3"	22'6"	23'8"
15'8"	17'7"	19'5"	21'2"	22'6"	23'8"
15'4"	16'9"	18'1"	19'3"	20'5"	21'6"
14'9"	16'6"	18'1"	19'3"	20'5"	21'6"
13'8"	14'10"	16'0"	17'1"	18'1"	19'1"
13'8"	14'10"	16'0"	17'1"	18'1"	19'1"

## 85 PSF Live Load 100 PSF Total Load

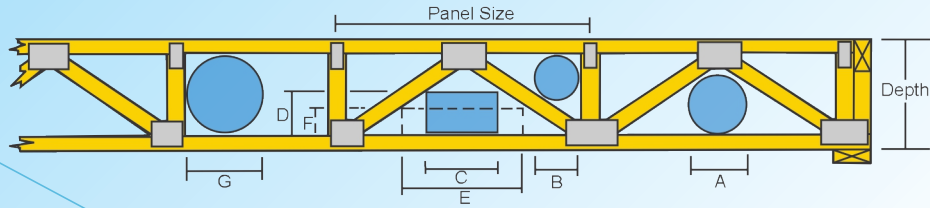
12"	14"	16"	18"	20"	22"
14'1"	15'5"	16'7"	17'8"	18'9"	19'9"
14'0"	15'5"	16'7"	17'8"	18'9"	19'9"
12'9"	13'11"	15'0"	16'0"	16'11"	17'10"
12'9"	13'11"	15'0"	16'0"	16'11"	17'10"
11'3"	12'3"	13'3"	14'1"	14'11"	15'9"
11'3"	12'3"	13'3"	14'1"	14'11"	15'9"

(1) Vibration Control -- Research by Virginia Tech indicates that  $L/480$  live load deflection criteria provides a high degree of resistance to floor vibration (bounce). The building designer

desiring this benefit may choose to specify an  $L/480$  live load deflection criteria to be used for the floor trusses.



## Duct Openings For Fan Style Floor Trusses With 4x2 Chords & Webs

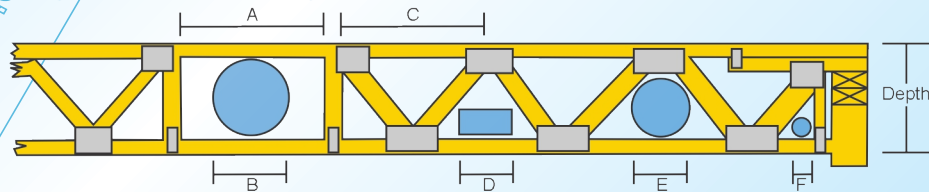


### Typical Duct Opening Sizes For 4x2 Fan Style Floor Trusses

Depth	Panel Size	A	B	C	D	E	F	G
10	60	4 <sup>1</sup> / <sub>2</sub>	4 <sup>1</sup> / <sub>4</sub>	11	4 <sup>1</sup> / <sub>2</sub>	16	4	7
11	60	5 <sup>1</sup> / <sub>4</sub>	5 <sup>1</sup> / <sub>4</sub>	12	5 <sup>1</sup> / <sub>2</sub>	15	5	8
11 <sup>7</sup> / <sub>8</sub>	60	7 <sup>3</sup> / <sub>4</sub>	6 <sup>3</sup> / <sub>4</sub>	10	6 <sup>1</sup> / <sub>4</sub>	14	5 <sup>1</sup> / <sub>2</sub>	8 <sup>3</sup> / <sub>4</sub>
12	60	6 <sup>1</sup> / <sub>4</sub>	6 <sup>1</sup> / <sub>4</sub>	14	6	20	5	9
13	60	7 <sup>1</sup> / <sub>4</sub>	7 <sup>1</sup> / <sub>4</sub>	12	7	18 <sup>1</sup> / <sub>2</sub>	6	10
14	60	8 <sup>1</sup> / <sub>4</sub>	8 <sup>1</sup> / <sub>4</sub>	17	7	22	6	11
15	60	9 <sup>1</sup> / <sub>4</sub>	8 <sup>1</sup> / <sub>2</sub>	15	8	25	6	12
16	60	10 <sup>1</sup> / <sub>4</sub>	9 <sup>1</sup> / <sub>2</sub>	14	9	27	6	13
18	60	12 <sup>1</sup> / <sub>4</sub>	10 <sup>1</sup> / <sub>2</sub>	14 <sup>1</sup> / <sub>2</sub>	10 <sup>1</sup> / <sub>2</sub>	26	7	15
20	60	14	11 <sup>1</sup> / <sub>2</sub>	14 <sup>1</sup> / <sub>2</sub>	12	26	8	17
22	60	16	12 <sup>1</sup> / <sub>2</sub>	15	13	30	8	19
24	60	18	13 <sup>1</sup> / <sub>2</sub>	16	14	32	8	21
26	60	19	14 <sup>1</sup> / <sub>2</sub>	18	15	34	8	23
30	60	22	16	20	17	32	10	24
36	60	25	17 <sup>1</sup> / <sub>2</sub>	22	19 <sup>1</sup> / <sub>2</sub>	36	10	24

All Dimensions In Inches

### Duct Openings For Warren Style Low Joists

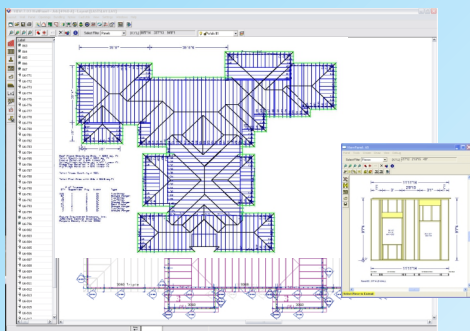


Depth	A	B	C	D	E	F
10	18	7	24	4x6	5	41/2
12	20	9	30	5x9	7	53/4
13	20	10	30	5x11	8	6
14	24	11	30	6x10	8 1/2	6 1/2
15	24	12	30	6x12	9 1/2	7
16	24	13	30	6x13	10	7 1/2
17	24	14	30	6x14	10 1/2	7 1/2
18	24	15	30	7x13	11	8
19	24	16	30	7x14	11 1/2	8 3/4
20	24	17	30	7x15	12	8 1/2
21	24	18	30	8x14	12 1/2	9
22	24	19	30	8x15	13	9
24	24	21	30	8x16	14	9 1/4

All Dimensions In Inches

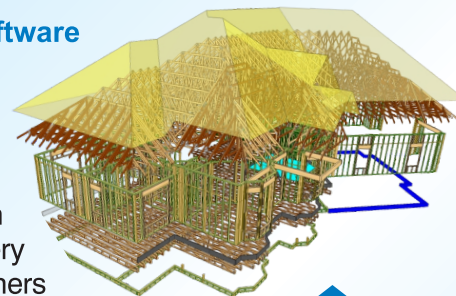


# Typical Bearing / Heel Conditions for **FLOOR TRUSSES**



## Layout, Design and Engineering Software

The Powerful CAD-based design software we use from Alpine generates traditional plan view layouts, and 3-D graphics that give an accurate picture of a structure from virtually any perspective by showing every component in place. Cascade's designers work confidently with the industry's best fully integrated design solution.



**ALPINE**  
IntelliVIEW

**Bracing is extremely IMPORTANT!!** Every truss system needs adequate bracing. The purpose of most bracing is to ensure that the trusses and truss members remain straight and do not bow out of their plane. Inadequate, improper or incorrectly installed bracing can lead to collapses, failures and serious accidents. An engineered bracing system will avoid these pitfalls and ensure the structural integrity of the truss system. Trusses need to be braced during installation, which is called temporary bracing and they need permanent bracing which will remain installed for the life of the roof system.

**Temporary Bracing Guidelines:** For metal plate connected wood truss systems, refer to BCSI 1-06 for proper installation bracing guidelines.

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## Sound Transmission

### Sound Control

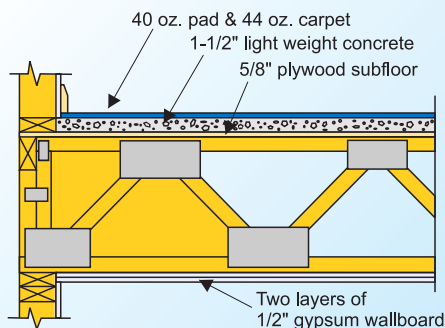
Ratings of floor-ceiling assemblies are determined by two methods. The Impact Insulation Class (IIC) is measured in accordance with ASTM Standard E-492. Airborne noise Sound Transmission Class (STC) is measured in accordance with ASTM Standard E-90.

### Impact Noise

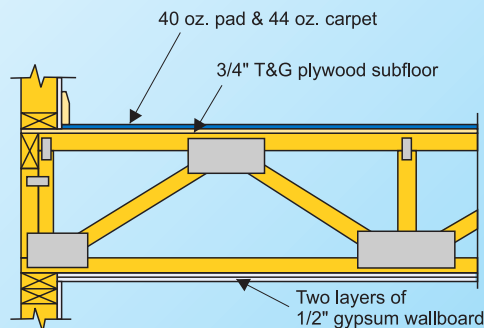
The IIC listing for floor-ceiling assemblies are generally shown for bare floors and for floors with carpet and pad. Although any carpet, with or without pad, will improve the IIC, a heavy wool carpet over a good quality pad will make a significant improvement. According to most tests, the addition of a 44 oz. Carpet over a 40 oz hair felt pad increases the IIC from 38 to 63.

### Airborne Noise

ASTM Standard E-413 is used to determine the sound transmission class, STC. Some values listed for assemblies tested in 1970 or before were done under a different standard, however, the resulting STC will generally fall in the same range. Airborne sound control is most effective when air leaks and flanking paths in the assemblies are closed off. Assemblies should be airtight. Recessed fixtures should not be back-to-back in the same cavity. ASTM Recommended Practice E-497 provides good guidance for sound control.



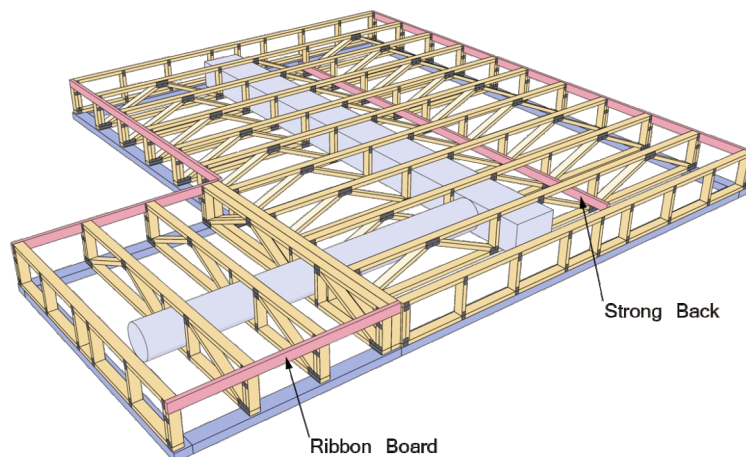
Sound Transmission Class STC=46  
Impact Insulation Class IIC=72  
Intest No. 5-425-1



Sound Transmission Class STC=47  
Impact Insulation Class IIC=72  
Intest No. 5-425-3



- Faster Construction / Saves Money
- Longer Clear Spans
- Hides Mechanicals
- Spaced 24" oc., multiple depths
- Cantilever and Balcony Built In
- 3.5 Width Surface to Glue and Nail to
- Cold Air Returns can be Eliminated
- Reduce Field Material Losses
- Pick-up Interior Point Loads
- Custom Designed for your project
- Commercial & Residential Applications
- Trim-able ends for concrete mis-pours
- No Humps in Floors
- Sound and Fire Ratings
- Angled Walls



The System 42 floor truss system provide longer, stronger clear spans and greater design flexibility in locating bearing walls and partitions. Because the System 42 floor truss system can be spaced farther apart, fewer are needed. Delivered to the job site ready for installation, the lightweight, rigid floor trusses go up easily and quickly, often without the use of a crane. Wide (3 1/2"), nailable top and bottom chords speed placement of decking and ceiling material without the need of special fasteners or clips. Mechanicals are installed quickly through the opening between webs without notching or furring. Tradesmen are on and off the job faster resulting in earlier completion dates and lower on-site labor costs.

**Cascade Mfg Co** is a full service component manufacturer serving residential, commercial and agricultural markets with prefabricated wood and cold-formed steel roof trusses, floor trusses and wall panels. In addition we are a distributor of engineered wood products by Weyerhaeuser. Our goal is to provide value-added services and customer satisfaction in the areas of products, design and production. The result is a maximizing of framing efficiencies by the use of pre-built components and engineered wood products.



Designed and built to precise tolerances by utilizing advanced design and assembly technologies; we provide components that fit right the first time in order to maximize jobsite labor. Independent third party inspection and frequent training is our assurance to you of a well designed and built wood or cold-formed steel truss component project. Professional and competent field representatives are equipped with the latest in technology to offer assistance in the field and in your office. An experienced and skilled support staff works closely with customers to consistently deliver a better product with best-in-class service.

**For more information about the advantages of engineered building components in your home, please contact us**



109 Madison ST SE, PO Box 220 Cascade, IA 52033  
 563-852-3231 / 800-942-4685 (toll free)  
 563-852-7391 (fax)

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