Innovative Technologies of Cold-Formed Steel Components

Purpose Statement:

The purpose of this presentation is to inform and educate builders, architects, engineers, and more on the innovative technologies surrounding the uses of Cold-Formed Steel Components in the Building Industry.

This presentation will show how the use of CFS Components can be utilized in wood, steel, ICF, SIP, Log, Timber-Frame, and any additional framing material that may be used for construction. Furthermore, this presentation will also highlight the many advantages of using CFS Components, such as durability, material quality, strength, Green Building product, and more.

SPANtechnologies™
by Metwood

truSPAN™
by Metwood

deckSPAN™
by Metwood

throughSPAN™
by Metwood

floorSPAN™
by Metwood

REINFORCER™
technologies
by Metwood

SQUARECOLUMNS™
by Metwood

FRAMINGsystems™
by Metwood

FRAMINGsystems™
by Metwood

Metwood offers a complete line of CFS framing products including studs, bracing, fasteners, trusses, and wall panels. Metwood can also design and fabricate additional items including stairs, walkways, and more.

FRAMINGsystems™ by Metwood

Nomenclature

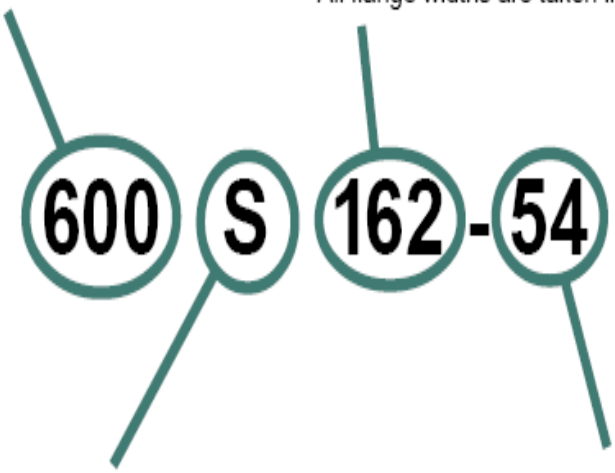
PRODUCT IDENTIFICATION

All SSMA products have a four part identification code which identifies the size (both depth and flange width), style, and material thickness of each member.

EXAMPLE:

MEMBER DEPTH:
*(Example: 6" = **600** x 1/100 inches)*
All member depths are taken in 1/100 inches. For all "T" sections member depth is the inside to inside dimension.

FLANGE WIDTH:
*(Example: 1 5/8" = 1.625" ≈ **162** x 1/100 inches)*
All flange widths are taken in 1/100 inches.



STYLE:
*(Example: Stud or Joist section = **S**)*
The four alpha characters utilized by the designator system are:
S = Stud or Joist Sections
T = Track Sections
U = Channel Sections
F = Furring Channel Sections

MATERIAL THICKNESS:
*(Example: 0.054 in. = **54** mils; 1 mil = 1/1000 in.)*
Material thickness is the minimum base metal thickness in mils. Minimum base metal thickness represents 95% of the design thickness.

Note: For those sections where two different yield strengths (33 ksi and 50 ksi) are shown, the yield strength used in the design, if greater than 33 ksi, needs to be identified on the design and ordering of steel. (i.e., 600S162-54 (50 ksi))

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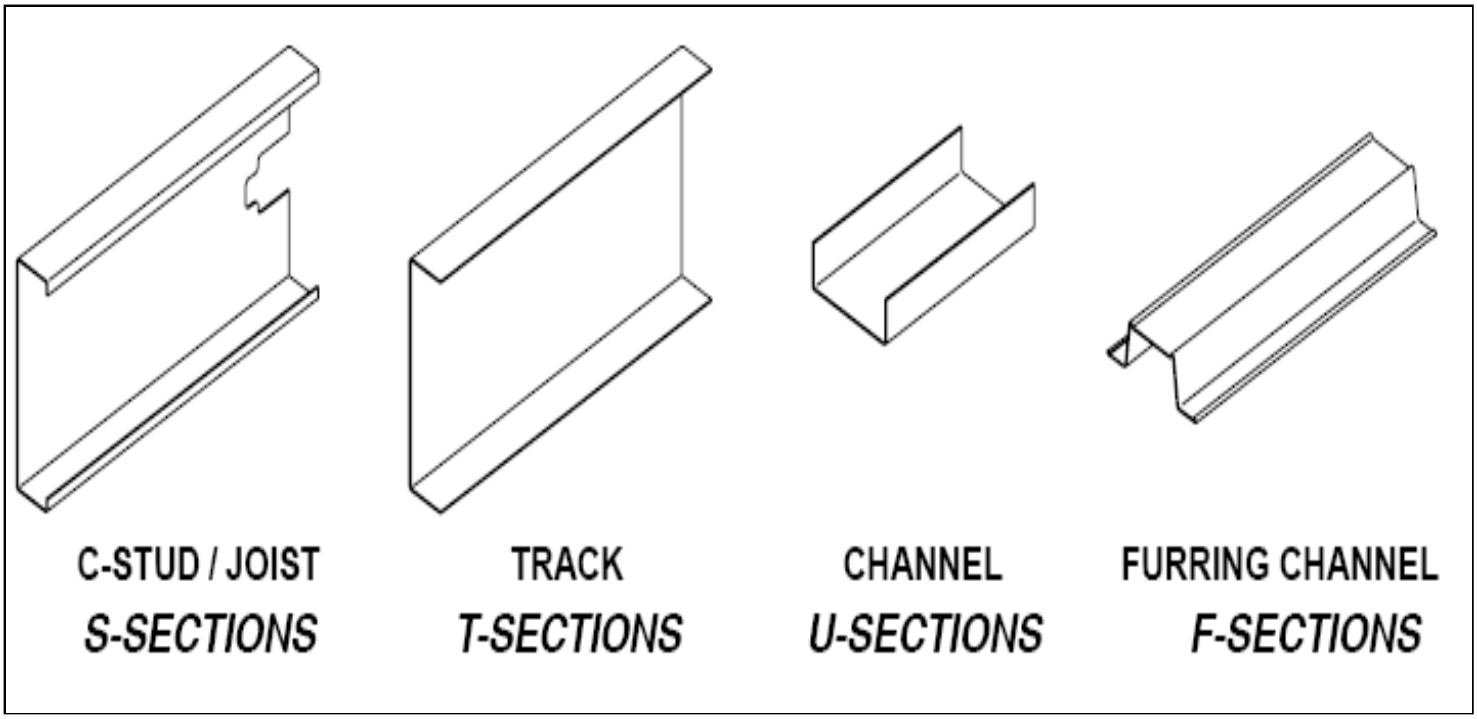
Nomenclature



Component Thickness

Minimum Thickness[1] (mils)	Design Thickness (in)	Inside Corner Radii (in)	Reference Only Gauge No.
18	0.0188	0.0843	25
27	0.0283	0.0796	22
30	0.0312	0.0781	20 - Drywall
33	0.0346	0.0764	20 - Structural
43	0.0451	0.0712	18
54	0.0566	0.0849	16
68	0.0713	0.1069	14
97	0.1017	0.1525	12

Stiffening Lip Length

Section	Flange Width	Design Stiffening Lip Length (in)
S125	1 1/4"	0.188
S137	1 3/8"	0.375
S162	1 5/8"	0.500
S200	2"	0.625
S250	2 1/2"	0.625

[1]Minimum Thickness represents 95% of the design thickness and is the minimum acceptable thickness delivered to the job site based on Section A2.4 of the 2001 NASPEC.

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Specifications

Material Specification *(ASTM)*

Drywall Nonstructural Framing Members & Accessories	A1003
Structural Framing Members & Accessories	A1003
FrameRite Framing Members & Accessories	A1003
Beads & Trims (Metal, Paper, Vinyl)	A653/
Plaster Steel Products	
Veneer & Plaster Accessories	A65

Product Specification *(ASTM)*

Drywall Nonstructural Framing Members & Accessories	
Structural Framing Members & Accessories	
FrameRite Framing Members & Accessories	
Beads & Trims (Metal, Paper, Vinyl)	
Plaster Steel Products	
Veneer & Plaster Accessories	C841/(

Coating Specification *(ASTM)*

Drywall Nonstructural Framing Members & Accessories	
Structural Framing Members & Accessories	
FrameRite Framing Members & Accessories	C645
Beads & Trims (Metal, Paper, Vinyl)	
Plaster Steel Products	
Veneer & Plaster Accessories	

Design Specification *(AISI)*

The Specification for the Design of Cold Formed Steel Structural Members.

Coating Specification Explanation

Drywall Products Nonstructural Including StudRite — G40 min or equ

Non structural products have a coating conforming to ASTM Specifi A1003-G40 minimum weight or have a protective coating with the in standard requirements of ASTM C645.

Structural Products Including StudRite — G60 min or equ

Structural products have a protective coating conforming to ASTM Specifi A1003-G60 minimum coating weight or have a protective coating wi industry standard requirements of ASTM C955.

FrameRite Products (Except StudRite) & Special Orders — G90 min or equ

A G90 coating weight is standard for JoistRite and TrussRite systems and available as a special order for structural framing products. G90 must be requ at the time of order and may require additional cost and delivery time.

ASTM Specification Descriptions

A591

Standard Specification for Steel Sheet, Electrolytic Zinc-Coated, for Light Coating Weight [Mass] Applications

A653

Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy Coated (Galvannealed) by Hot-Dip Process

A1003

Standard Specification for Steel Sheet, Carbon, Metallic- and Nonmetallic-Coated for Cold Formed Framing Members

B69

Standard Specification for Rolled Zinc

C645

Standard Specification for Nonstructural Steel Framing Members

C841

Standard Specification for Installation of Interior Lathing and Furring

C847

Standard Specification for Metal Lath

C955

Standard Specification for Load-Bearing (Transverse and Axial) Steel Studs, Runners (Tracks), and Bracing or Bridging for Screw Application of Gypsum Panel Products and Metal Plaster Bases.

C1047

Standard Specifications for Accessories for Gypsum Wallboard and Gypsum Veneer Base

C1063

Standard Specifications for Installation of Lathing and Furring to Receive Interior and Exterior Portland Cement-Based Plaster.

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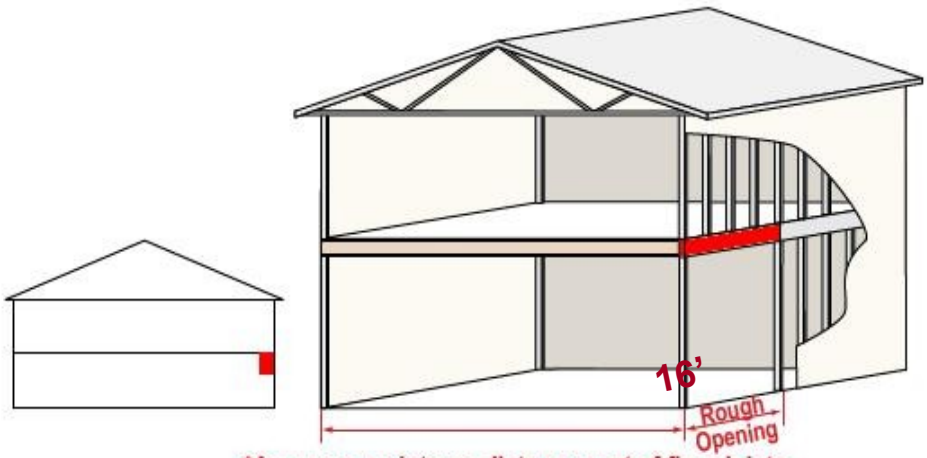
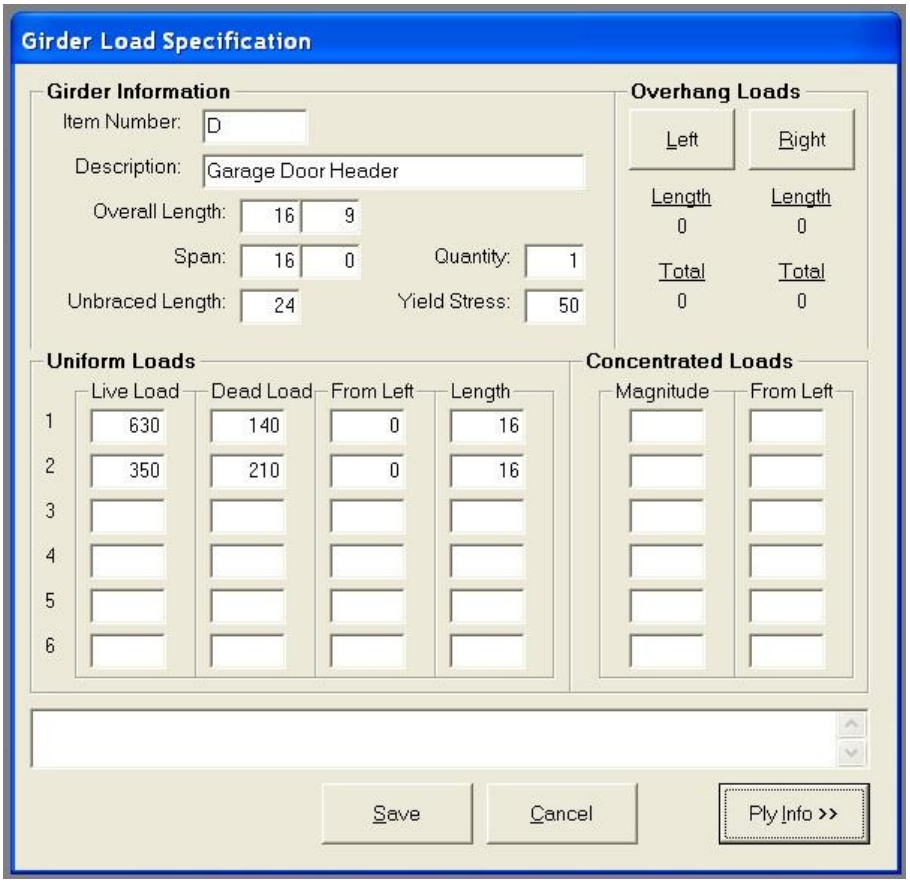
OrderEntry Program





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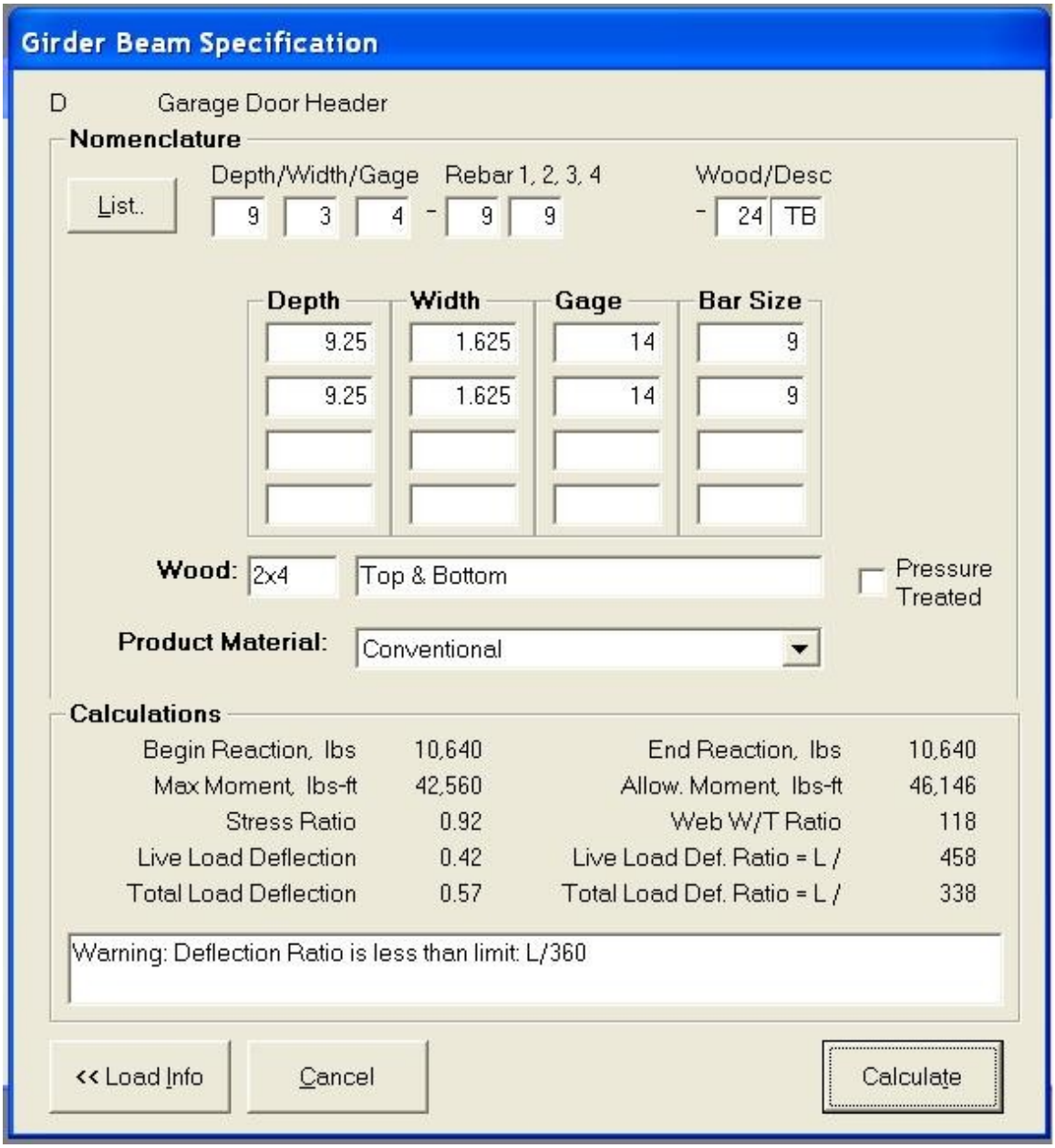

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OrderEntry Program

METWOOD BUILDING SOLUTIONS

819 Naff Rd
Boones Mill, VA 24065
(540) 334-4294 Fax: (540) 334-4293
http://www.metwood.com

Girders
Copy 1 Of 1

Item Number D
Overall Length: 16' 9"
Span: 16' 0"
Unbraced Len: 24 Inches
Quantity: 1
Product: 934-99-24TB

Customer: TEMPORARY TEST
Job Number: 23133 Sales Rep: RAY
Job Site: METZ JOB
Location: ROANOKE,VA.
Order Date: 9/9/2005
Finish Date: 9/9/2005
Deliver Date: 9/9/2005

Description: Garage Door Header Conventional
Wood: 2x4 Top Bottom

Load Information

Description	Live Load	Dead Load	From Left	Length
1. Uniform	630 Lbs	140 Lbs	0 Ft	16 Ft
2. Uniform	350 Lbs	210 Lbs	0 Ft	16 Ft

Ply Information

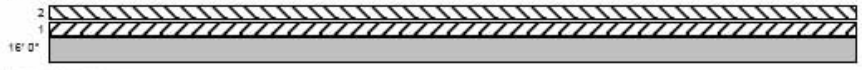
Description	Size	Yield Stress	Rebar
1	9.25X1.625	50 KSI	No. 9
2	9.25X1.625	50 KSI	No. 9

Engineering Specification

Begin Reaction 10640 Lbs
Maximum Moment 42560 Lbs-Ft
Stress Ratio: 0.92
Live Load Deflection: 0.42
Total Load Deflection: 0.57

End Reaction: 10640 Lbs
Allowable Moment: 46146 Lbs-Ft
Web w/t Ratio 118
Live Load Deflection Ratio: L/458
Total Load Deflection Ratio: L/338

Load Diagram Over Girder Span



Special Instructions

Disclaimer

This certification indicated on this sheet is limited to the adequacy of the Metwood beam to support the indicated loads within the parameters listed in the 2000 International Building Code. This certification is null and void if additional loads or load patterns differing from those indicated on this sheet are applied to the beam.

FRAMINGsystems™ by Metwood

CFS Trusses

DYNATRUSS™

Metwood is Your Authorized DYNATRUSS™ Fabricator!

Pre-Engineered

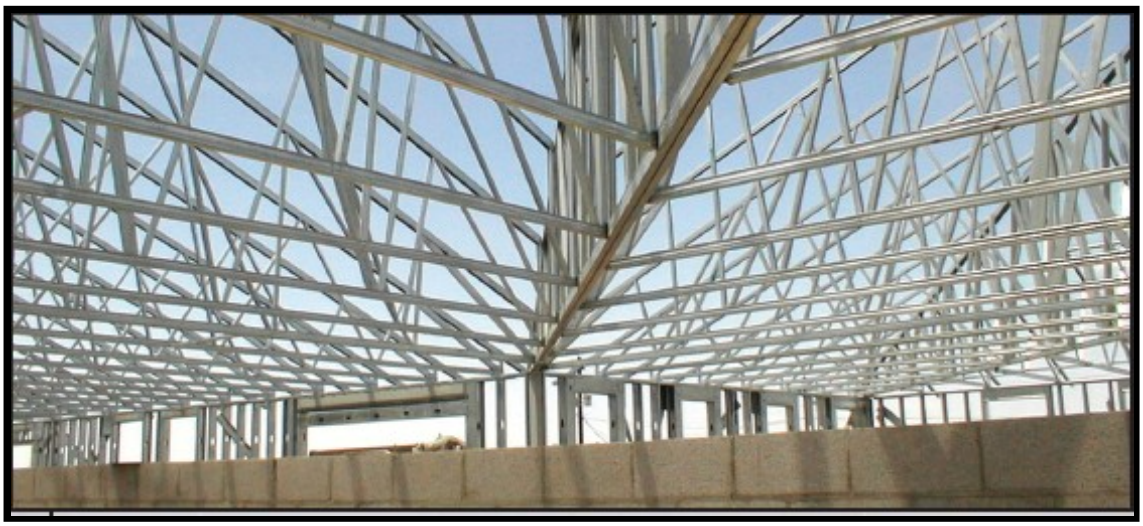
Tubular Webbing

In-Line Design

Easier to Handle

Fire Resistant

Code Compliant



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CFS Wall-Panels

StudRite™

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Modular Floor Systems

FRAMINGsystems™
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Modular Floor Systems

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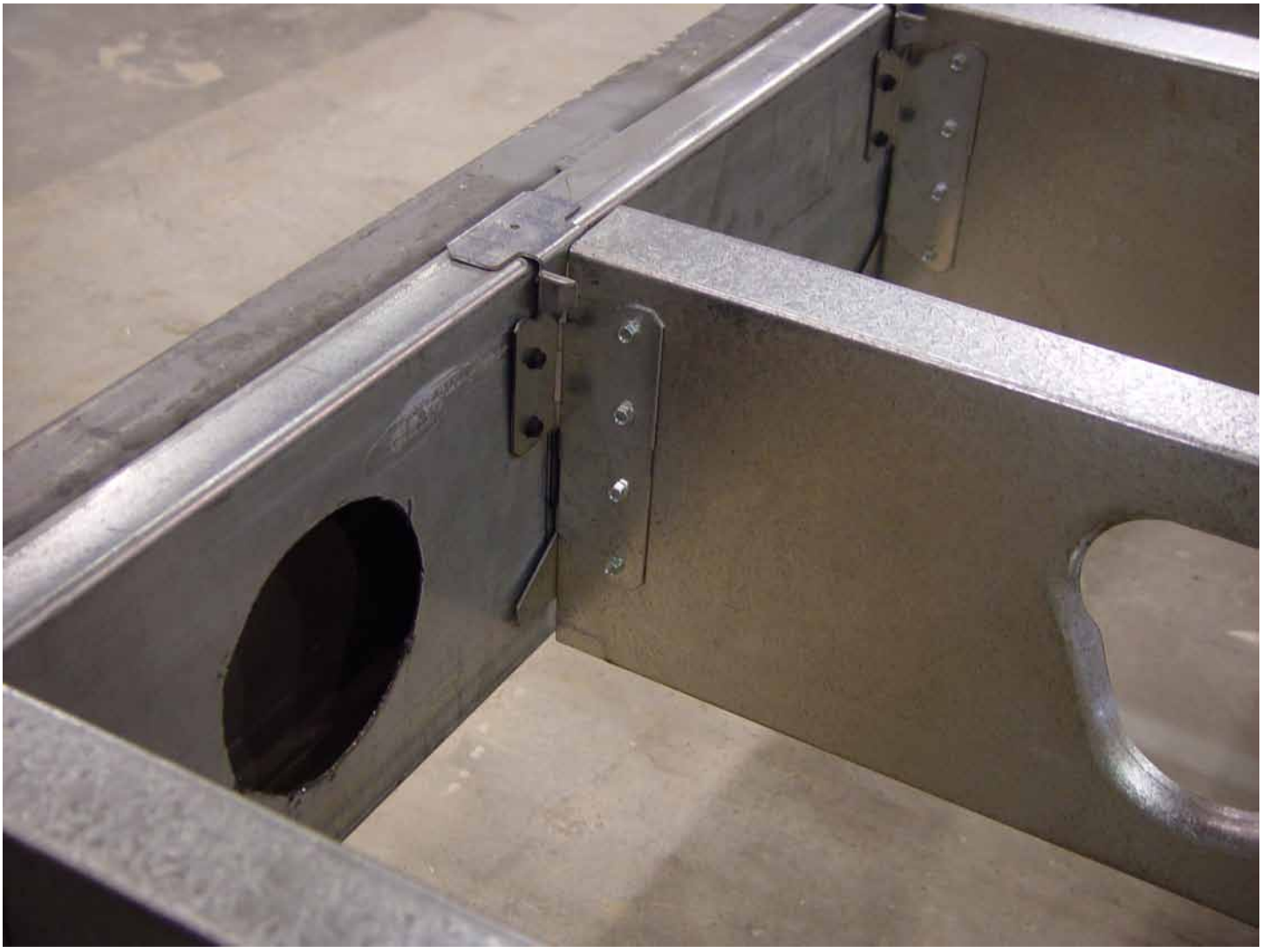
Modular Floor Systems



FRAMINGsystems™
by Metwood

Modular Floor Systems

*tru*SPAN™

by Metwood

*tru*SPAN™ Internally Reinforced Structural Beams are smaller, lighter, more versatile than any product of similar strength, and they screw in place so no welding is required. Now you can span greater distances with fewer vertical supports, improve capability, speed schedules, and lower costs. *tru*SPAN™ will revolutionize your projects!

truSPAN™
by Metwood

Flush Mounted Girder

truSPAN™ by Metwood

Applications

*through*SPAN™

by Metwood

*through*SPAN™ Internally Reinforced Structural Beams give the builder and designers all of the same advantages of the *tru*SPAN™ beams. *through*SPAN™ are a major breakthrough in construction technologies that allow the passage of utilities through the structural member.

throughSPAN™
by Metwood

Flush Mounted Girders

throughSPAN™
by Metwood

Applications

*deck*SPAN™

by Metwood

*deck*SPAN™ is the ultimate suspended concrete deck system. While utilizing the strength and advantages of *tru*SPAN™ and / or *through*SPAN™, the systems can be designed to accommodate the dimensions and desires required for the project. These decks can be designed with angles, a radius, offsets, and more with limitless finishing options. They are sure, solid, and Radiant Ready.

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Utilized to Suspend Gazebo

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Finished with Brick Pavers

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Angled Deck with Sunroom

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by Metwood

Upper Floor creates Dry Space Below

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Finished by Stamping Concrete

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Screened Deck **No Bugs**

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Radius Deck with Cantilever

*floor*SPAN™

by Metwood

*floor*SPAN™ is the ultimate suspended concrete floor system. While utilizing the strength and advantages of *tru*SPAN™ and / or *through*SPAN™, the systems can accommodate large rooms with fewer vertical supports. The technologies of *floor*SPAN™ can be applied to garages, porches, mezzanines, and entire floor systems. These floors are sure, solid, and Radiant Ready.

floorSPAN™

by Metwood

Radiant Ready Floors

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Utilities within 12” System

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Garage on Main Floor / Room Below

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Applications

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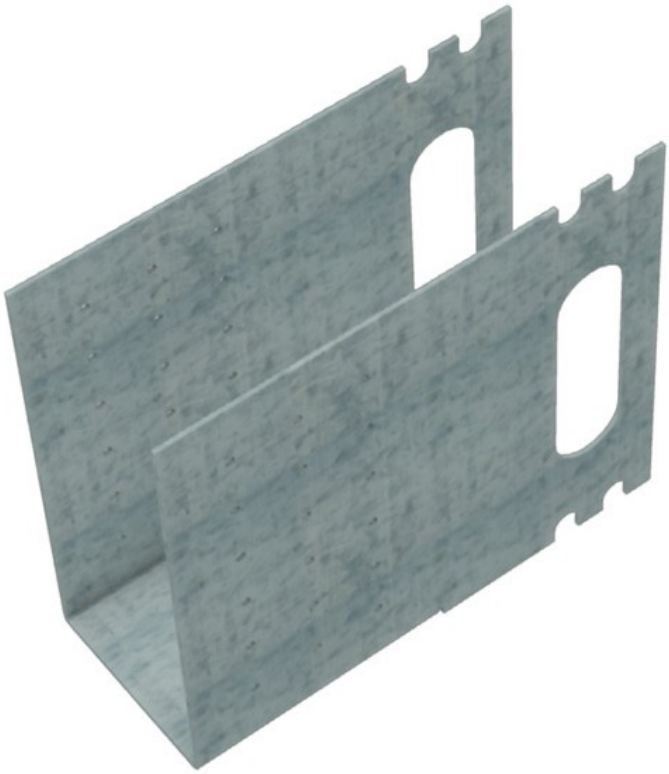
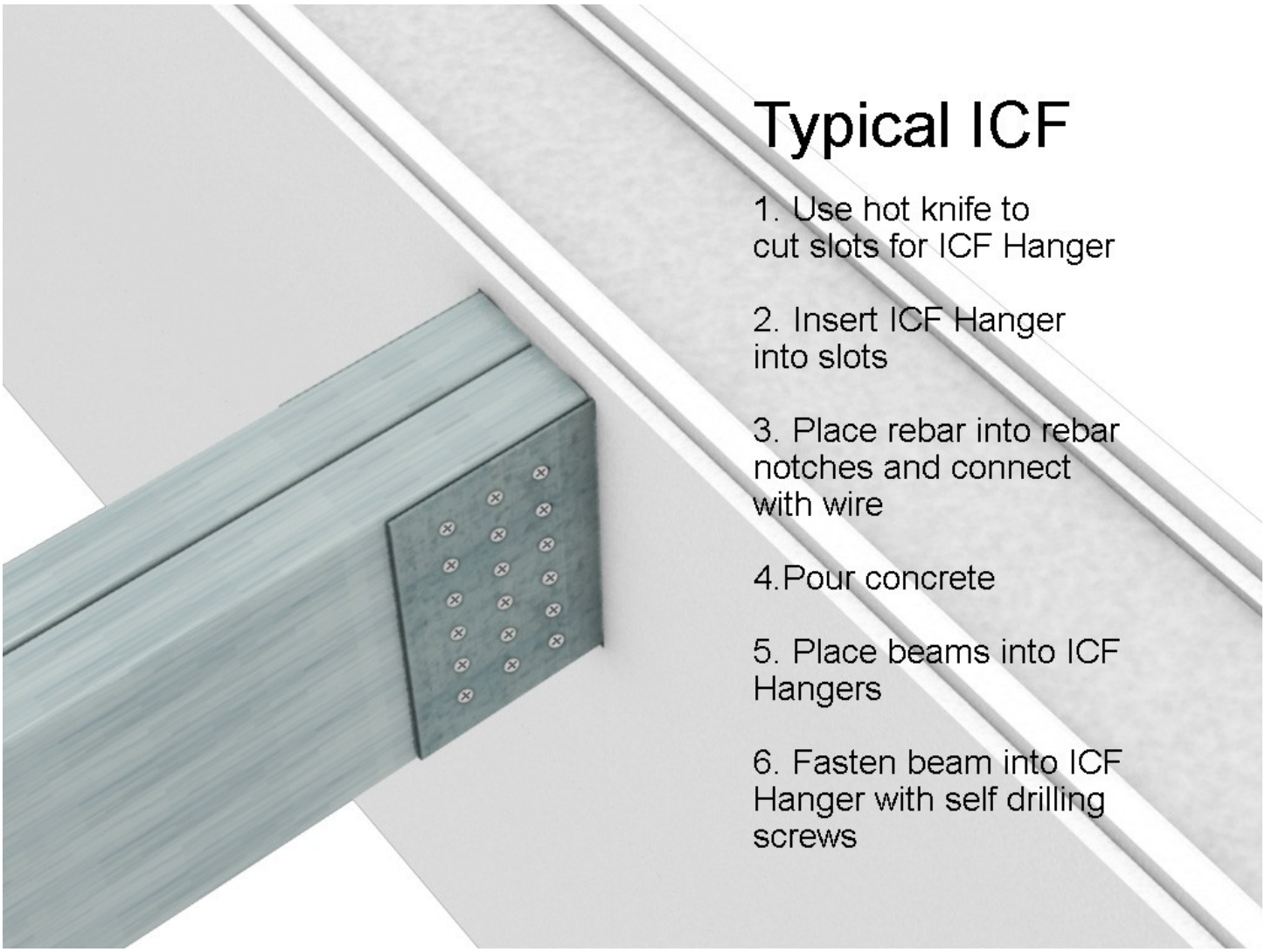
ICF Hanger



Metwood ICF Hanger

floorSPAN™
by Metwood

ICF Hanger



REINFORCER™ *technologies*

by Metwood

Metwood's Patented CFS Joist Reinforcers allow the routing of large pipe, conduit, utilities, and small HVAC ducts through wood floor joists.

REINFORCER*technologies*™ are available in several styles including a notched version to accommodate Offset Commode Flanges. They are available for I-Joists, 2x8's, 2x10's and 2x12's.

REINFORCER™ technologies by Metwood

I-Joists

I-Joist Flange Reinforcer	
Joist Depth	**Notch Size**
9-1/2"	3-1/4" H x 5" W
11-7/8"	4" H x 5" W
14"	4" H x 5" W
16"	4" H x 5" W

I-Joist Web Reinforcer	
Joist Depth	**Opening Size**
9-1/2"	5-1/2" H x 12" W
11-7/8"	7-7/8" H x 12" W
14"	10" H x 16" W
16"	12" H x 16" W

REINFORCER™ technologies by Metwood

Conventional Framing

Notch Reinforcer	
Joist Depth	**Notch Size**
2″x 10″	3-1/2″H x 5″W

Hole Reinforcer	
Joist Depth	**Hole Size**
2″x 8″	4″
2″x 10″	6″
2″x 12″	6″

210HR Joist Reinforcer
ICC ES Legacy Report 97.73

SQUARE*columns*™

by Metwood

Metwood's CFS Structural Columns have many advantage:

2. Small enough to fit inside a stud wall
3. Easily attached to, as well as easy to plumb.
4. Can be cut to length on the jobsite.
5. Higher strength values.

SQUAREcolumns™ by Metwood

Load Stickers

TRIMMABLE COLUMN
3” X 3” X 13GA.

ALLOWABLE AXIAL LOAD CAPACITIES

9’ - 18,637
10’ - 16,162
12’ - 11,386

FOR YOUR LOCAL DEALER CALL
866-METWOOD
OR VISIT OUR WEBSITE
www.metwood.com

TRIMMABLE COLUMN
4” X 4” X 13GA.

ALLOWABLE AXIAL LOAD CAPACITIES

10’ - 29,776
12’ - 25,280
14’ - 20,263

FOR YOUR LOCAL DEALER CALL
866-METWOOD
OR VISIT OUR WEBSITE
www.metwood.com

TRIMMABLE COLUMN
4” X 4” X 11GA.

ALLOWABLE AXIAL LOAD CAPACITIES

10’ - 37,204
12’ - 31,503
14’ - 25,139

FOR YOUR LOCAL DEALER CALL
866-METWOOD
OR VISIT OUR WEBSITE
www.metwood.com

SQUAREcolumns™ by Metwood

Cut-to-Length and Install