New!
See page 8...
Ultra-Span® Deluxe System

AEGIS™
METAL FRAMING, LLC
A Dietrich/MiTek Joint Venture

CHANGING THE GAME

of LIGHT GAUGE STEEL CONSTRUCTION

U.S. GREEN BUILDING COUNCIL MEMBER

ULTRA-SPAN®
The SUPERIOR CHOICE
SINCE 1993

DIETRICH METAL FRAMING

MiTek®

AEGIS™
METAL FRAMING, LLC
A Dietrich/MiTek Joint Venture

Introduction

Since 1992, there has been an explosion in the use of pre-fabricated light gauge steel building components in the commercial and institutional construction sectors. Light gauge roof trusses, wall panels, and joist systems have proved to be an extremely cost-effective, totally non-combustible alternative to traditional building materials such as concrete, bar joist, wood and structural steel. As a result, building owners, architects, engineers and contractors are turning to these strong, versatile construction products to deliver value and performance in educational, assisted living, office, hotel, retail, and myriad other applications.

In early 2002, a new kind of light gauge steel framing supplier was launched. **Aegis Metal Framing, LLC** melded the strengths of two acknowledged market leaders in engineered light gauge steel products. Aegis is a joint venture of **Dietrich Metal Framing**, the world's largest producer of light gauge metal framing products, and **MiTek Industries**, the world's leading provider of products, software, and engineering for the pre-fabricated building components industry. Aegis markets a complete line of metal framing products, including the ***Ultra-Span***® truss system, ***TradeReady***® floors, ***WallSolutions***™ wall panels, and a full range of framing products and accessories. All products are integrated with Aegis' complete suite of layout, design, estimating, and manufacturing software modules, all linked together with Professional Engineering services.

In short, Aegis can offer the whole package

CLASSIFIED UL®

COMPLETE LIGHT GAUGE STR

Going to Market

Aegis Metal Framing products and services are marketed through a nationwide network of independent authorized Aegis fabricators. All Aegis fabricators are capable of bidding, manufacturing, and delivering factory-built light gauge steel trusses. Many offer installation services as well.

In addition, Aegis fabricators can provide the innovative TradeReady steel floor joist system. TradeReady offers an easy to install, lightweight, and cost-effective alternative to bar joists, concrete panels, and commercial wood I's. Some fabricators are capable of providing the entire building shell by designing, producing, and installing structural wall panels and curtain walls.

Aegis and our fabricators are true partners in the development of the light gauge building component market. Aegis fabricators are skilled in utilizing our various software offerings to convert architectural plans into accurate proposals for factory built trusses, floors, or walls. The power of the Aegis suite of programs in the hands of skilled designers at these fabricators is quite remarkable. Reliable, comprehensive proposals for complete truss systems (including bracing, connections, and engineering), TradeReady floor systems, and pre-fabricated wall panels can literally be produced in hours instead of days. And, once the contract is awarded, Aegis fabricators work hand-in-hand with the contractor, architect, project engineer, and Aegis' staff of licensed professional engineers to ensure that the light gauge systems are designed and built to meet all project specification and building code requirements.

Please contact the Aegis fabricator identified on the back of this catalog for more information. Or, visit the "Fabricators" section of our website, *www.aegismetalframing.com* and click on the state in which your project will be built for a list of independent Aegis fabricators serving that state.

- ***Versatile***
- ***Cost-Effective***
- ***Comprehensive***

UCTURAL SYSTEMS

The Aegis Family of Products

Ultra-Span®
Light Gauge Steel Trusses

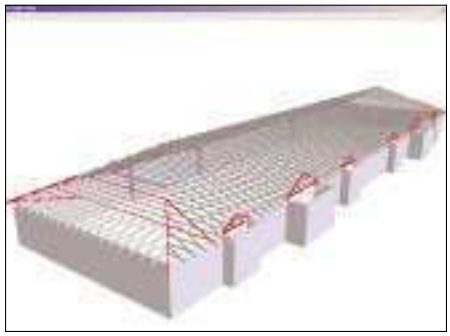
The core of the Aegis family of light gauge framing products is the Ultra-Span truss system. Launched in 1993, Ultra-Span was the first proprietary light gauge truss profile linked to state-of-the art truss industry design software. Today, the Ultra-Span system is the most widely utilized proprietary truss product in the market.

The Ultra-Span system truly presents the "best of both worlds"...virtually limitless roof and ceiling profiles, just like wood trusses and 100% non-combustibility. In fact, whenever building size, use, or classification calls for non-combustible construction, there is no faster or more versatile way to frame the roof than with pre-fabricated Ultra-Span trusses. And, with our industry-first, one and one and a half-hour, one-layer UL-rated assemblies, the cost to achieve aesthetically appealing roof-lines on commercial and institutional buildings has never been more affordable. No other light gauge truss system can rival the cost competitiveness and usability of Ultra-Span.

Since 1993, Ultra-Span trusses have been incorporated in a stunning array of commercial and institutional structures, including:

- Assisted living facilities
- Schools
- Office buildings
- Correctional facilities
- Libraries
- Sports arenas
- Hotels, Motels, and Resorts
- Apartments and Condos
- Manufacturing facilities

And many, many more



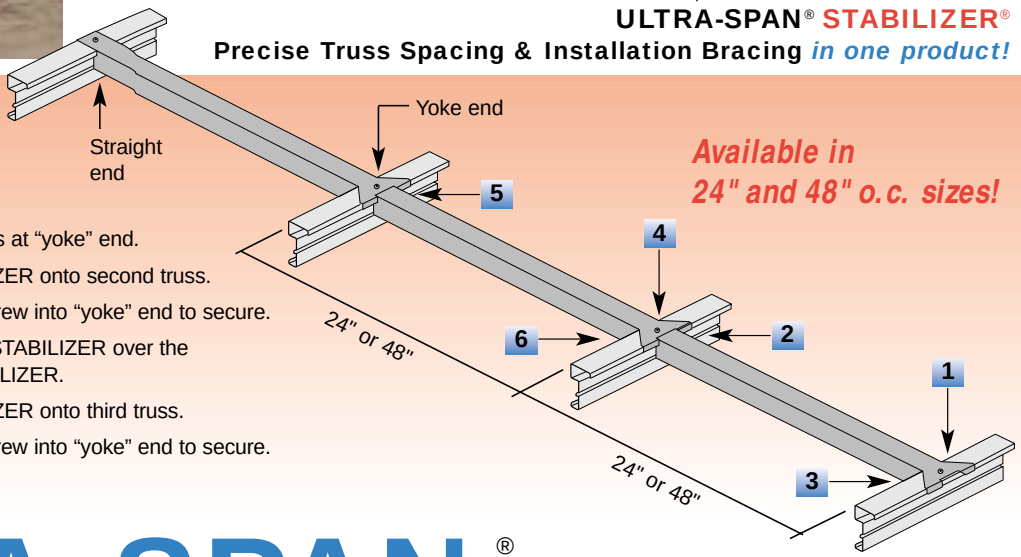
Systems vs. "Components"

Aegis understands that steel trusses are more than a bunch of individual components dropped off at your job site. As the world leader in pre-fabricated light gauge steel assemblies, we know specifiers, engineers, and installers want a full system. That's why we have developed a complete line of specialized truss-to-truss and truss-to-structure connectors – many pre-installed in the factory by your local Aegis fabricator.

Did you forget deck support in the hips, ridges, and valleys? – Aegis sure didn't with a full range of bent metal products. And, with the use of our revolutionary **Stabilizer®** for **Ultra-Span®** (available in 24" and 48" on center versions - detail below) Ultra-Span trusses can be spaced and braced more quickly than competing products. Aegis fabricators can deliver a complete range of truss accessories and framing materials to fulfill the requirements of even the most challenging truss systems.

ULTRA-SPAN® STABILIZER®

Precise Truss Spacing & Installation Bracing *in one product!*



Available in 24" and 48" o.c. sizes!

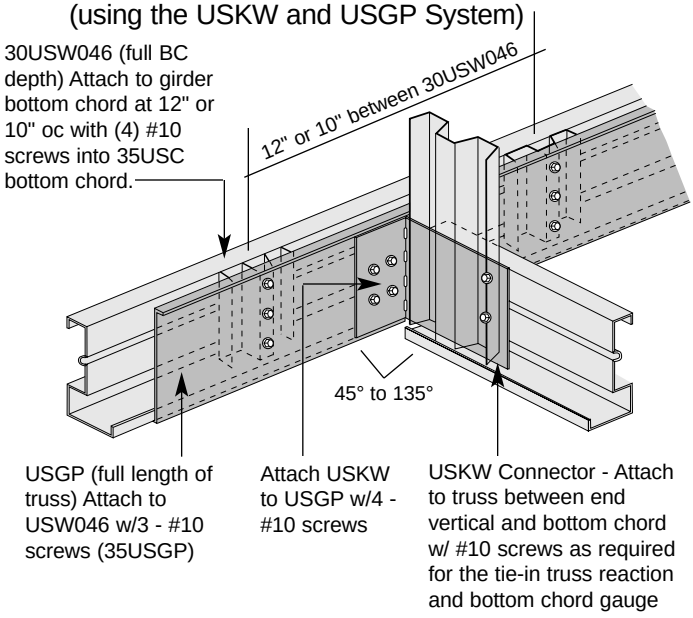
Installation instructions

Step 1 Attach STABILIZER to first truss at "yoke" end.
Step 2 Snap "straight" end of STABILIZER onto second truss.
Step 3 Install low profile self-drilling screw into "yoke" end to secure.
Step 4 Overlap "yoke" end of second STABILIZER over the "straight" end of the first STABILIZER.
Step 5 Snap "straight" end of STABILIZER onto third truss.
Step 6 Install low profile self-drilling screw into "yoke" end to secure.

ULTRA-SPAN®

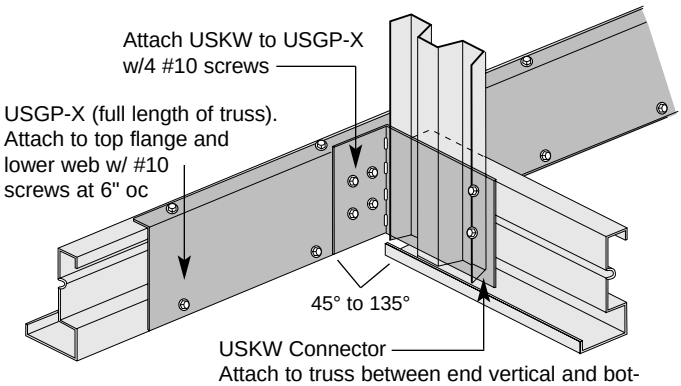
LIGHT GAUGE STEEL TRUSS SYSTEM

1 TRUSS TO GIRDER CONNECTION DETAIL
Also Hip Jack to Front Face of Girder
(using the USKW and USGP System)



USW Spacing (In)	Allowable Tie-In Truss Reaction (lbs.)			
	Tie-in truss bottom chd. / #10's	35USGP w/ 35USKW		
		35USC035	35USC046	35USC057
12	4	970	1600	1600
	6	1455		
10	4	970	1675	1900
	6	1455	1900	
	8	1900		

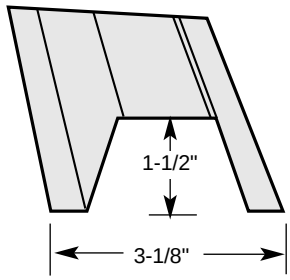
2 ULTRA-SPAN® USKW CONNECTION DETAIL
Hip Jack to Back Face of Girder



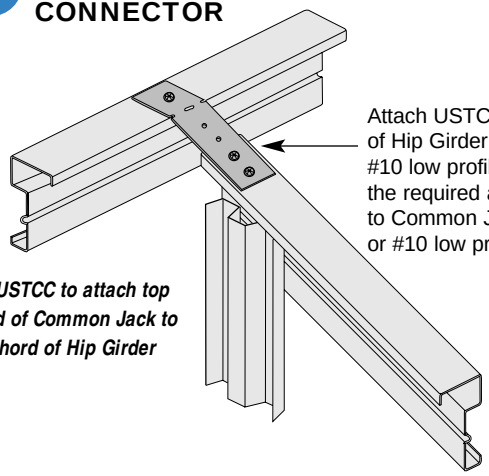
Factory installed and skewable.

Allowable Tie-In Truss Reaction (lbs.)						
#10's	Tie-in Truss Bottom Chord					
	35USC035	35USC046	35USC057	55USC035	55USC046	55USC057
4	970	1165	1165	970	1165	1165

3 HAT CHANNEL
Temporary & Permanent Bracing Member



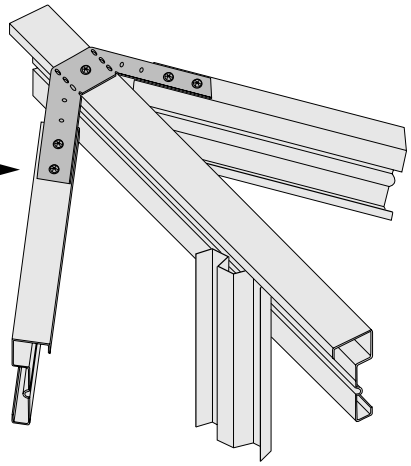
4 ULTRA-SPAN® USTCC TOP CHORD CONNECTOR



Use USTCC to attach top chord of Common Jack to top chord of Hip Girder

5 ULTRA-SPAN® USCJC HIP CORNER JACK CONNECTOR

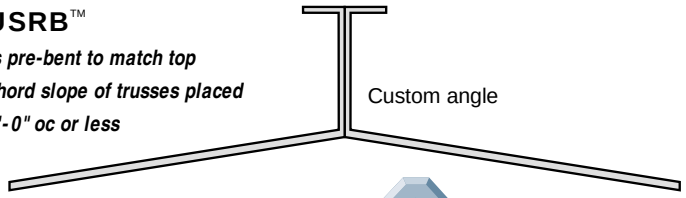
Attach USCJC to top chord of Corner Girder with (1) #8 or #10 low profile SDS. Bend wings to the required angle and attach to Corner Jack with (2) #8 or #10 low profile SDS.



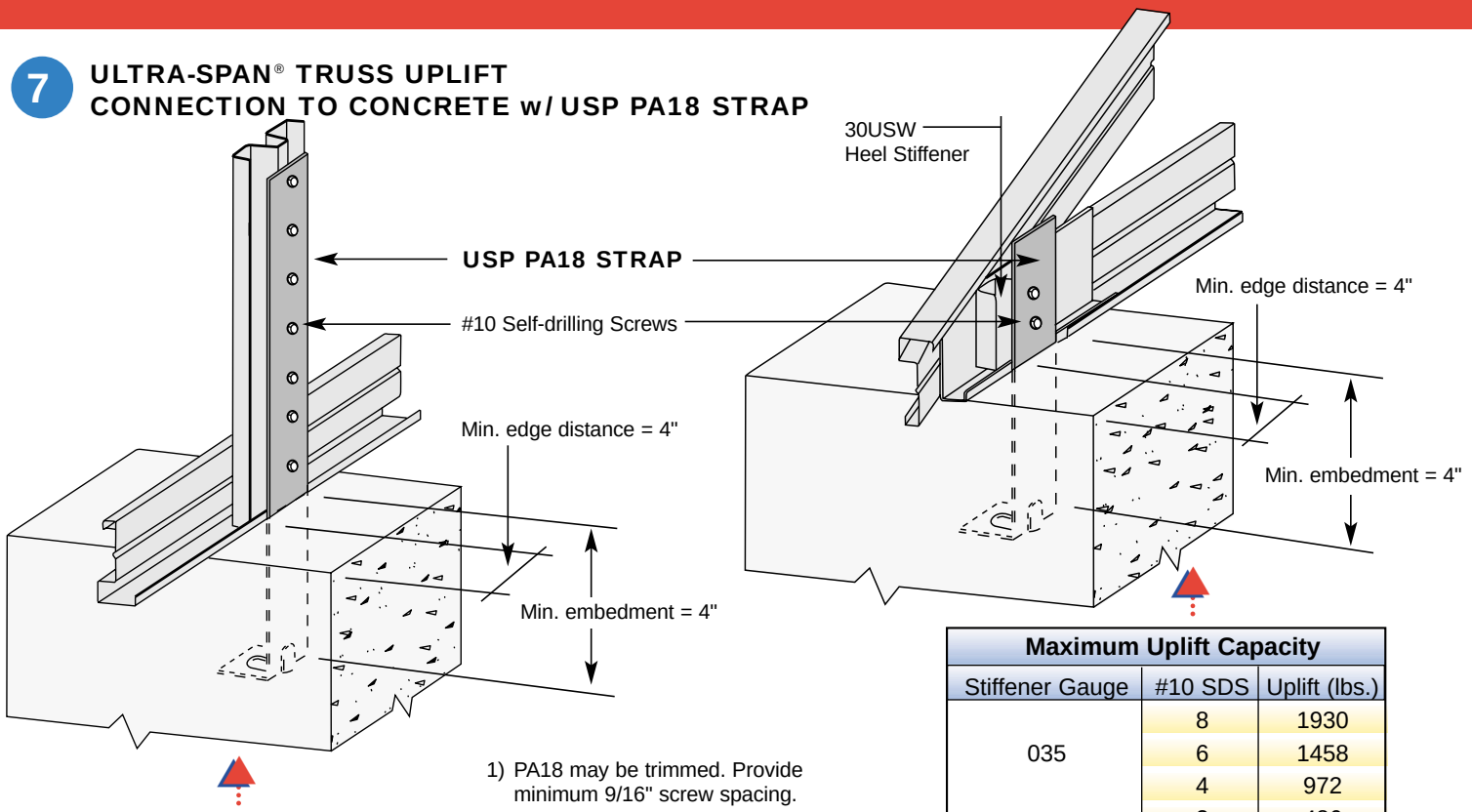
Use USCJC to attach top chord of Corner Jack to top chord of Corner Girder

6 HIP, RIDGE & VALLEY DECK SUPPORT
Slope Adjustable Ridge Brace/Beam

USRB™
is pre-bent to match top chord slope of trusses placed 4'-0" oc or less



7 ULTRA-SPAN® TRUSS UPLIFT CONNECTION TO CONCRETE w/ USP PA18 STRAP



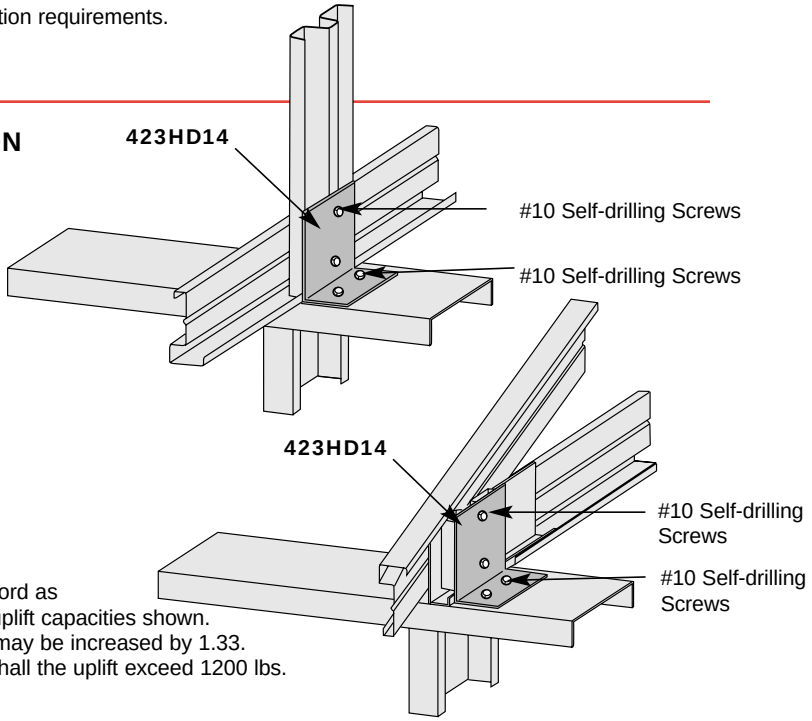
Maximum Uplift Capacity		
Web Gauge	#10 SDS	Uplift (lbs.)
035	8	1930
046	6	2355
057	5	2355

Maximum Uplift Capacity		
Stiffener Gauge	#10 SDS	Uplift (lbs.)
035	8	1930
	6	1458
	4	972
	2	486
046	6	2355
	4	1676
	2	838
057	5	2355
	4	2052
	2	1026

1) PA18 may be trimmed. Provide minimum 9/16" screw spacing.
2) Refer to USP catalog for proper use of PA.
3) Web or heel stiffener must be attached to chord for uplift load. Refer to chart at right for connection requirements. Use minimum gauge of web or bottom chord for determining required connection. For 073 bottom chord, use 057 connection requirements. Use heel stiffener gauge for stiffener connection.
4) Minimum concrete strength shall be 2000 psi.
5) PAHD42 may be used as substitute. Refer to USP catalog for installation requirements.

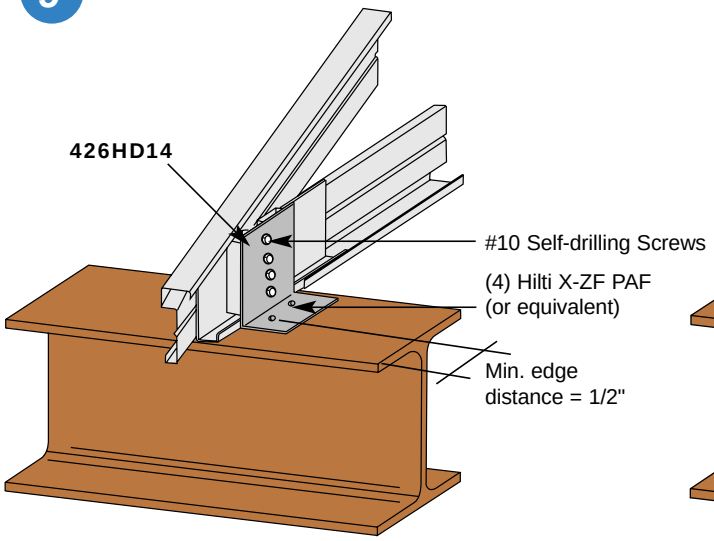
8 ULTRA-SPAN® TRUSS UPLIFT CONNECTION TO LIGHT GAUGE FRAMING w/ 423HD14

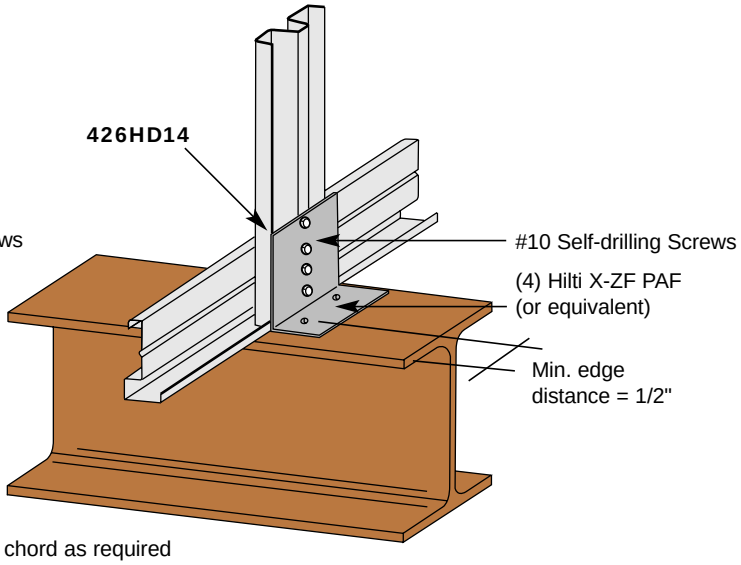
Maximum Uplift Capacity				
Web Gauge	#10 SDS Into Web	Track Gauge	#10 SDS Into Track	Uplift (lbs)
035 (20 gauge)	2	20 gauge	2 3	200 300
	2 3	18 gauge	2 3	330 500
	2 3	16 gauge	2 3	470 710
	3 4	14 gauge	2 3	645 965



1) **Warning:** The web or heel stiffener must be attached to the bottom chord as required for the truss uplift reaction. (4)-#10 SDS may be used for all uplift capacities shown.
2) When permitted by Building Code and Job Specification, uplift values may be increased by 1.33. Uplift must be the direct result of wind or seismic loading. In no case shall the uplift exceed 1200 lbs.
3) Minimum screw spacing & edge distance = 9/16"
4) Minimum bearing width = 3"
5) Screws to be placed thru holes in 423HD14. Additional fasteners are to be added in line with screw holes and must meet minimum screw spacing and edge distance requirements.
6) When this connection detail is applied to both plies of a 2-ply truss, the listed capacities double.
7) This detail does not indicate or imply that the depicted bearing material is structurally adequate for the loads shown. Design of the bearing is required.

9 ULTRA-SPAN® TRUSS UPLIFT CONNECTION TO I-BEAM w/ 426HD14

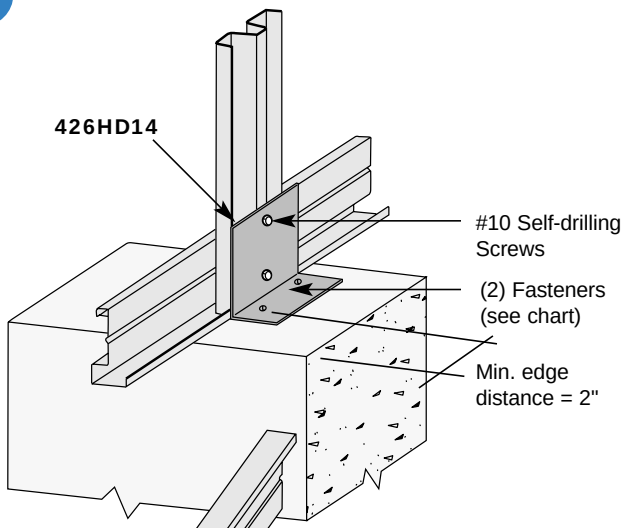


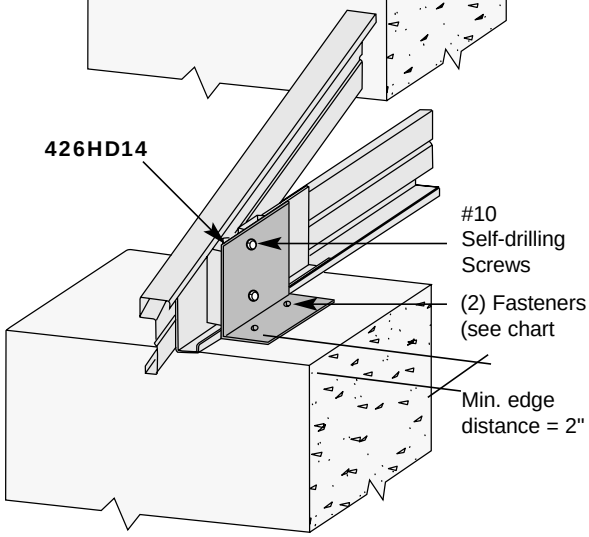


1) **Warning:** The web or heel stiffener must be attached to the bottom chord as required for the truss uplift reaction. (9)-#10 SDS may be used for all uplift capacities shown.
2) When permitted by Building Code and Job Specification, uplift values may be increased by 1.33. Uplift must be the direct result of wind or seismic loading. In no case shall the uplift exceed 2400 lbs.
3) Minimum screw spacing & edge distance = 9/16" • Minimum bearing width = 6"
4) Refer to Hilti Product Technical Guide for installation requirements and application limits. Equivalent PAFs may be substituted.
5) PAFs to be placed thru or in line with holes in 426HD14.
6) When this connection detail is applied to both plies of a 2-ply truss, the listed capacities double.
7) This detail does not indicate or imply that the depicted bearing material is structurally adequate for the loads shown. Design of bearing is required.

Maximum Uplift Capacity		
Web Gauge	#10 SDS	Uplift (lbs.)
035	5	1215
046	5	2095
057	4	2120

10 ULTRA-SPAN® TRUSS UPLIFT CONNECTION TO CONCRETE w/ 426HD14





Maximum Uplift				
Fastener	Conc. psi	#10 SDS	Embed (in)	Uplift (lbs)
Hilti X-DNI	2000	2	1.00	180
		2	1.50	330
	3000	2	1.00	240
		2	1.50	380
Hilti X-ZF	2000	2	1.25	250
	3000	2	1.25	300
Hilti Kwik-Con II 3/16" dia.	2000	3	1.75	550
	4000	2	1.00	250
		3	1.75	590
Hilti Kwik-Con II 1/4" dia.	2000	4	1.75	850
	4000	2	1.00	480
		5	1.75	1215

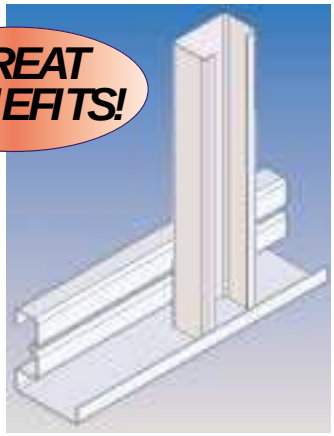
1) **Warning:** The web or heel stiffener must be attached to the bottom chord as required for the truss uplift reaction. (5)-#10 SDS may be used for all uplift capacities shown.
2) Minimum screw spacing & edge distance = 9/16" • Minimum fastener spacing = 3"
4) Minimum concrete edge distance = 2" (Powder Actuated Fasteners)
5) Minimum concrete edge distance = 2.5" (Kwik-Con II Fasteners)
6) Minimum concrete thickness = 3"
7) Refer to Hilti Product Technical Guide for installation requirements and application limits. Equivalent PAFs may be substituted.
8) PAFs to be placed thru or in line with holes in 426HD14.
9) When this connection detail is applied to both plies of a 2-ply truss, the listed capacities double.
10) This detail does not indicate or imply that the depicted bearing material is structurally adequate for the loads shown. Design of the bearing is required.

Aegis Metal Framing, the leader in pre-fabricated light gauge steel trusses, presents the latest advancement in truss technology – **Ultra-Span® Deluxe.**

Ultra-Span Deluxe (USD) provides all of the advantages of the revolutionary Ultra-Span System in a BRAWNIER PACKAGE!

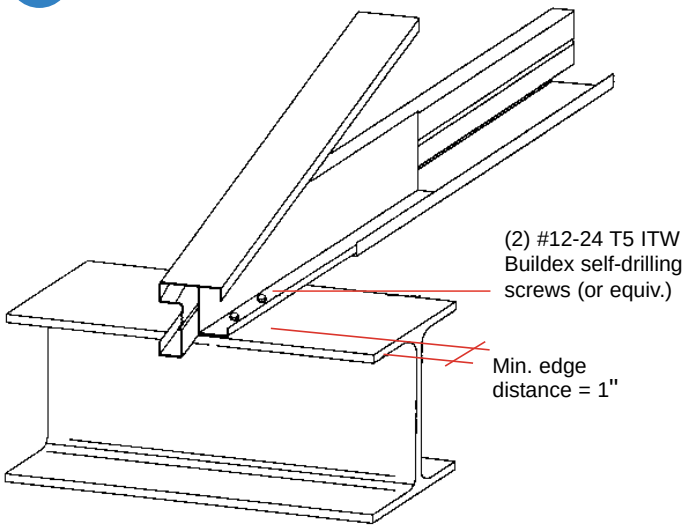
Ultra-Span Deluxe trusses offer contractors and installers..

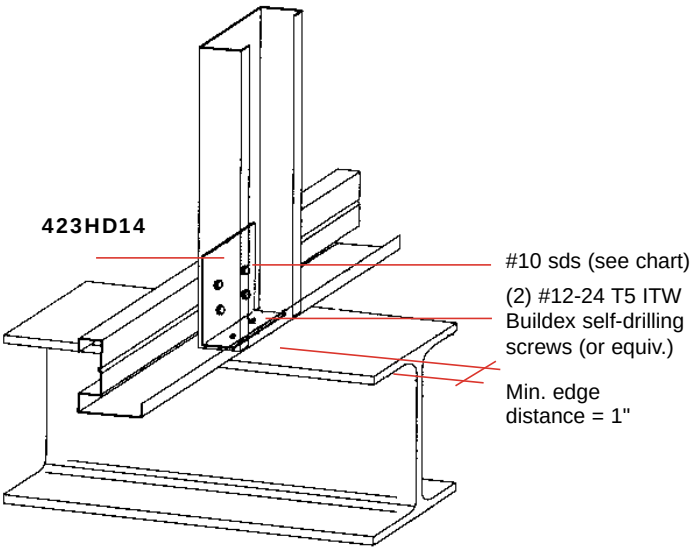
GREAT BENEFITS!



- **Lower costs** on long span or wide spacing truss jobs
- Outstanding **truss stiffness**
- **Reduced lateral bracing** for webs and chords
- **Wider, 3" surface** for deck attachment
- **Lower installation costs** over competing systems

11 ULTRA-SPAN® DELUXE TRUSS UPLIFT CONNECTION TO WIDE FLANGE BEAM



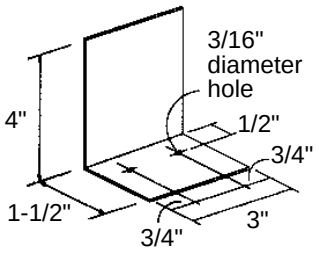


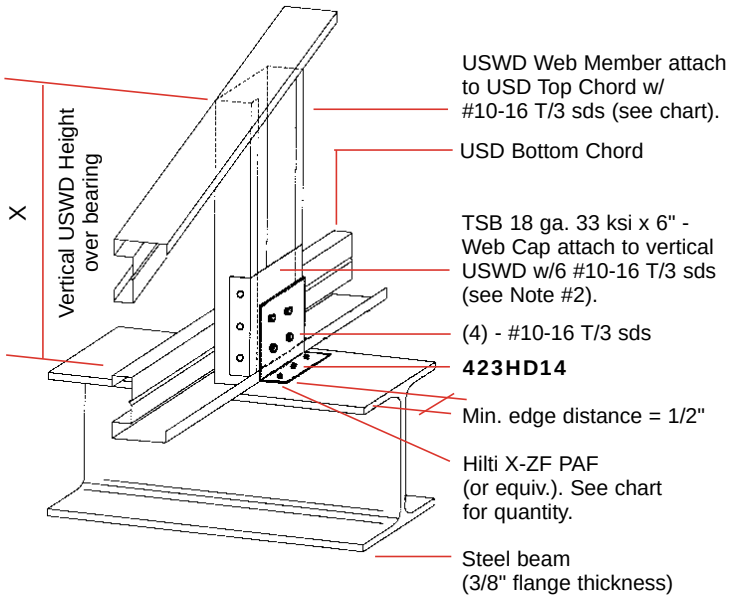
1) Minimum screw spacing = 9/16"
2) Capacities shown do not include factors for wind and seismic load combinations (conforms to IBC2000 and AISI 2001). Where allowed by code and manufacturer, the uplift values may be increased by 33% up to a maximum of 1200 lbs for 423HD14.
3) See Fastener Manufacturer's catalog for installation requirements and application limits.
4) PAF fasteners to be placed through predrilled holes in clip.
5) Equivalent fasteners may be substituted for those indicated.
6) When truss is 2-ply, connection applied to each ply (capacities doubled).

Minimum Uplift Capacity		
Web Gauge	#10 sds	1/4" Steel
035	3 4 5	729 972 1200
046	2 3	838 1200
057	2 3	1026 1200

12 ULTRA-SPAN® DELUXE TRUSS UPLIFT CONNECTION TO STRUCTURAL STEEL (423HD14 w/ HILTI X-ZF)

The wide flange beam shown is a general representation of a structural steel bearing. This detail may be used with other structural steel shapes (tubes, angles, etc.) provided they meet the minimum requirements for size and thickness.



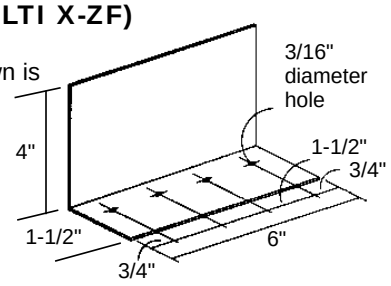


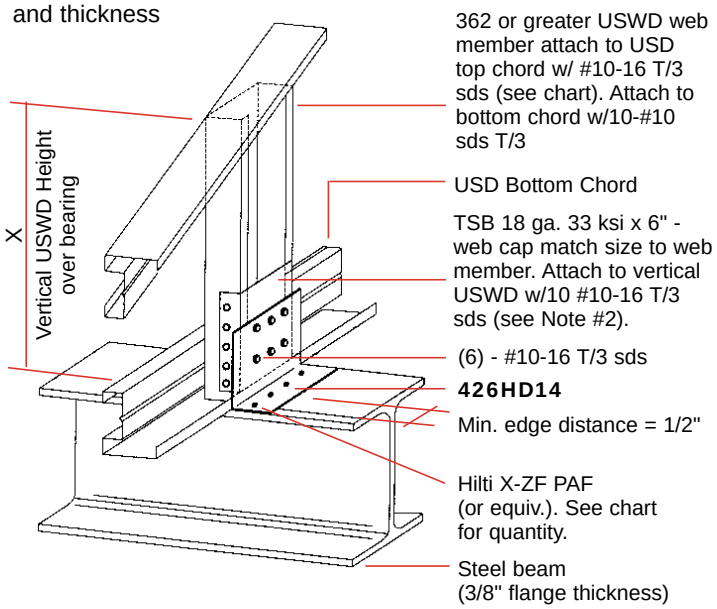
Maximum Allowable Uplift (Lbs)					
Height (In) over bearing	#PAF to bearing	#10-16 T/3 SDS thru USWD to USD 4	5	6	7
X = 12" or less	2	485	730	730	---
	3	---	---	---	970
12 < X < 24"	2	485	729	920	---
	3	---	---	970	1200
X > 24"	2	730	970	---	---
	3	---	---	1200	---

1) When permitted by building code and job specification, uplift values may be increased by 1.33. Uplift must be the direct result of wind or seismic loading. In no case shall the uplift exceed 1200 lbs.
2) TSB attachment to USWD can be reduced to (4) - #10 sds with USWD 046.
3) Minimum screw spacing and edge distance = 9/16".
4) Minimum bearing width = 3".
5) Refer to Hilti product technical guide for installation requirements and application limits. Equivalent PAFs may be substituted.
6) PAFs to be placed through or in line with holes in 423HD14.
7) When this connection detail is applied to both plies of a 2-ply truss, the listed capacities double.
8) This detail does not indicate or imply that the depicted bearing material is structurally adequate for the loads shown. Design of the bearing is required.

13 ULTRA-SPAN® DELUXE TRUSS UPLIFT CONNECTION TO STRUCTURAL STEEL (426HD14 w/ HILTI X-ZF)

The wide flange beam shown is a general representation of a structural steel bearing. This detail may be used with other structural steel shapes (tubes, angles, etc.) provided they meet the min. requirements for size and thickness





Maximum Allowable Uplift (Lbs)					
Height (In) over bearing	#PAF to bearing	#10-16 T/3 SDS thru USWD to USD 10	12	14	16
X < 12"	4	1200	1700	---	---
	5	---	---	1940	2110
12 < X < 24"	4	1700	1800	---	---
	5	---	1940	2300	---
X > 24"	4	1940	---	---	---
	5	---	2400	---	---

1) When permitted by building code and job specification, uplift values may be increased by 1.33. Uplift must be the direct result of wind or seismic loading. In no case shall the uplift exceed 2400 lbs.
2) TSB attachment to USWD can be reduced to (6) - #10 sds with USWD 046.
3) Minimum screw spacing and edge distance = 9/16".
4) Minimum bearing width = 6".
5) Refer to Hilti product technical guide for installation requirements and application limits. Equivalent PAFs may be substituted.
6) PAFs to be placed through or in line with holes in 426HD14.
7) When this connection detail is applied to both plies of a 2-ply truss, the listed capacities double.
8) This detail does not indicate or imply that the depicted bearing material is structurally adequate for the loads shown. Design of the bearing is required.

SECTION 05 44 00 (formerly 05425)

Pre-Fabricated Light Gauge Steel Roof & Floor Trusses

The following Specification may be downloaded from our website:
www.aegismetalframing.com

Specifying Aegis Systems

Our unique, on-line **Specification Creator** is the fastest, easiest way to create a complete, light gauge component specification. Just click on the state where your project will be built and an easy to download, Microsoft® Word file is created – with the names of multiple suppliers to provide project bids!

PART 1 GENERAL

1.01 SUMMARY

A. Section includes pre-engineered, pre-fabricated light gauge cold formed steel framing elements. Work includes:
   1. Light Gauge Cold-formed steel open web floor trusses.
   2. Light Gauge Cold-formed steel roof trusses.
   3. Anchorage, bracing and bridging.

B. Related work
   1. Drywall attachment
   2. Roofing, fascia, soffit

1.02 REFERENCES

Reference standards:

A. ASTM:
   1. ASTM A653/A653M-94 "Sheet Steel, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvanealed) by the Hot Dip Process."
   2. ASTM A780-93a "Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings."

B. American Welding Society (AWS)
   1. AWS D1.1 "Structural Welding Code - Steel."
   2. AWS D1.3 "Structural Welding Code - Sheet Steel."

1.03 PERFORMANCE REQUIREMENTS

A. AISI "Specifications": Calculate structural characteristics of cold-formed steel truss members according to AISI's "Specification for the Design of Cold-Formed Steel Structural Members, 1986 (1990)."

B. Structural Performance: Design, engineer, fabricate, and erect cold-formed steel trusses to withstand specified design loads within limits and under conditions required.
   1. Design Loads: As specified.
   2. Deflections: Live load deflection meeting the following (unless otherwise specified):
      a. Floor Trusses: Vertical deflection less than or equal to 1/360 of the span.
      b. Roof Trusses: Vertical deflection less than or equal to 1/240 of the span.
   3. Design framing systems to provide for movement of framing members without damage or overstressing, sheathing failure, connection failure, undue strain on fasteners and anchors, or other detrimental effects when subject to a maximum ambient temperature change (range) of 120 degrees F (67 degrees C).

1.04 SUBMITTALS

A. Submit manufacturer's product data and installation instructions for each type of cold-formed steel framing and accessory required.

B. Submit shop drawings showing member, type, location, spacing, size and gauge of members, method of attachment to supporting members and all necessary erection details. Indicate supplemental bracing, strapping, splices, bridging, accessories and details required for proper installation.

C. Submit detailed floor truss and roof truss layouts.

D. Submit truss drawings, sealed and signed by a qualified registered Professional Engineer, verifying truss' ability to meet local code and design requirements. Include:
   1. Description of design criteria.
   2. Engineering analysis depicting member stresses and truss deflection.
   3. Truss member sizes and gauges and connections at truss joints.
   4. Truss support reactions.
   5. Top chord, Bottom chord and Web bracing requirements.

1.05 QUALITY ASSURANCE

A. Fabricator Qualifications: Fabrication shall be performed by a cold-formed steel truss fabricator with experience designing and fabricating cold-formed steel truss systems equal in material, design, and extent to the systems required for this Project.
   1. Cold-Formed steel truss system installation shall be performed by an experienced installer approved by the steel truss system fabricator.

B. Welding Standards: Comply with applicable provisions of AWS D1.1 "Structural Welding Code-Steel" and AWS D1.3 "Structural Welding Code–Sheet Steel."
   1. Qualify welding processes and welding operators in accordance with AWS "Standard Qualification Procedure."

1.06 DELIVERY, STORAGE AND HANDLING

A. Deliver materials in manufacturer's unopened containers or bundles, fully identified by name, brand, type and grade. Exercise care to avoid damage during unloading, storing and erection.

B. Store trusses on blocking, pallets, platforms or other supports off the ground and in an upright position sufficiently braced to avoid damage from excessive bending.

C. Protect trusses and accessories from corrosion, deformation, damage and deterioration when stored at job site. Keep trusses free of dirt and other foreign matter.

1.07 PROJECT CONDITIONS

A. During construction, adequately distribute all loads applied to trusses so as not to exceed the carrying capacity of any one joist, truss or other component.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Manufacturer: Ultra-Span® Truss Manufacturer

2.02 COMPONENTS

A. System components: Aegis Metal Framing, LLC ULTRA-SPAN® and POSI-STRUT® light gauge steel floor truss and roof truss components.

B. Provide manufacturer's standard steel truss members, bracing, bridging, blocking, reinforcements, fasteners and accessories with each type of steel framing required, as recommended by the manufacturer for the applications indicated and as needed to provide a complete light gauge cold-formed steel truss system.

2.03 MATERIALS

A. Materials:
   1. All component gauges: Fabricate components of structural quality steel sheet per ASTM A653 with a minimum yield strength of 50,000 psi.
   2. Bracing, bridging and blocking members: Fabricate components of commercial quality steel sheet per ASTM A653 with a minimum yield strength of 33,000 psi.

B. Ultra-Span steel truss components:
   Provide sizes, shapes and gauges indicated.
   1. Design Uncoated-Steel Thickness: 20 gauge, 0.0350 inch (0.91 mm).
   2. Design Uncoated-Steel Thickness: 18 gauge, 0.0460 inch (1.20 mm).
   3. Design Uncoated-Steel Thickness: 16 gauge, 0.0570 inch (1.52 mm).
   4. Design Uncoated-Steel Thickness: 14 gauge, 0.0730 inch (1.90 mm).

C. Finish: Provide components with protective zinc coating complying with ASTM A653, minimum G60 coating.

D. Fastenings:
   1. Manufacturer recommended self-drilling, self-tapping screws with corrosion-resistant plated finish. Fasteners shall be of sufficient size and number to ensure the strength of the connection.
   2. Welding: Comply with AWS D1.1 when applicable and AWS D1.3 for welding base metals less than 1/8" thick.
   3. Other fasteners as accepted by truss engineer.

Continued...

2.04 FABRICATION

A. Factory fabricate cold-formed steel trusses plumb, square, true to line, and with connections securely fastened, according to manufacturer's recommendations and the requirements of this Section.
   1. Fabricate truss assemblies in jig templates.
   2. Cut truss members by sawing or shearing or plasma cutting.
   3. Fasten cold-formed steel truss members by welding or screw fastening, or other methods as standard with fabricator. Wire tying of framing members is not permitted.
      a. Comply with AWS requirements and procedures for welding, appearance and quality of welds, and methods used in correcting welding work.
      b. Locate mechanical fasteners and install according to cold-formed steel truss component manufacturer's instructions with screw penetrating joined members by not less than 3 exposed screw threads.

B. Care shall be taken during handling, delivery and erection. Brace, block, or reinforce truss as necessary to minimize member and connection stresses.

C. Fabrication Tolerances: Fabricate trusses to a maximum allowable tolerance variation from plumb, level, and true to line of 1/8 inch in 10 feet (1:960) and as follows:
   1. Spacing: Space individual trusses no more than plus or minus 1/8 inch (3mm) from plan location. Cumulative error shall not exceed minimum fastening requirements of sheathing or other finishing materials.
   2. Squareness: Fabricate each cold-formed steel truss to a maximum out-of-square tolerance of 1/8 inch (3mm).

PART 3 EXECUTION

3.01 EXAMINATION

A. Examine structure, substrates and installation conditions. Do not proceed with cold-formed steel truss installation until unsatisfactory conditions have been corrected.

B. Installation constitutes acceptance of existing conditions and responsibility for satisfactory performance.

3.02 INSTALLATION, GENERAL

A. General:
   1. Erection of trusses, including proper handling, safety precautions, temporary bracing and other safeguards or procedures are the responsibility of the Contractor and Contractor's installer.
   2. Exercise care and provide erection bracing required to prevent toppling of trusses during erection.

B. Erect trusses with plane of truss webs vertical and parallel to each other, accurately located at design spacing indicated.

C. Provide proper lifting equipment suited to sizes and types of trusses required, applied at lift points recommended by truss fabricator. Exercise care to avoid damage to truss members during erection and to keep horizontal bending of the trusses to a minimum.

D. Provide framing anchors as indicated or accepted on the engineering design drawing or erection drawings. Anchor trusses securely at bearing points.

E. Install roof framing and accessories plumb, square, true to line, and with connections securely fastened, according to manufacturer's recommendations.
   1. DO NOT cut truss members without prior approval of truss engineer.
   2. Fasten cold-formed steel roof framing by welding or screw fastening, as standard with fabricator. Wire tying of roof framing is not permitted.
      a. Comply with AWS requirements and procedures for welding, appearance and quality of welds, and methods used in correcting welding work.
      b. Locate mechanical fasteners and install according to cold-formed roof framing manufacturer's instructions with screw penetrating joined members by not less than 3 exposed screw threads.
      c. Install roof framing in one-piece lengths, unless splice connections are indicated.
      d. Provide temporary bracing and leave in place until trusses are permanently stabilized.

F. Erection Tolerances: Install trusses to a maximum allowable tolerance variation from plumb, level, and true to line of 1/8 inch in 10 feet (1:960) and as follows:
   a. Space individual trusses no more than plus or minus 1/8 inch (3 mm) from plan location. Cumulative error shall not exceed minimum fastening requirements of sheathing or other finishing materials.

3.03 OPEN WEB FLOOR TRUSS INSTALLATION

A. Install perimeter joist track or belly band sized to match trusses. Align and securely anchor or fasten track to supporting structure at corners, ends, and spacing indicated or as recommended by the manufacturer.

B. Install trusses bearing on supporting framing, level, straight, and plumb, adjust to final position, brace, and reinforce.
   1. Install trusses over supporting framing with a minimum end bearing of 1-1/2 inches (38mm).
   2. Reinforce ends of trusses with web stiffeners, end clips, joist hangers, steel clip angles, steel-stud sections, or as otherwise recommended by manufacturer.

C. Space trusses not more than 2 inches (51 mm) from abutting walls, and as follows:
   1. Truss Spacing: 12 inches (305 mm).
   2. Truss Spacing: 16 inches (406 mm).
   3. Truss Spacing: 24 inches (610 mm).
   4. Truss Spacing: As indicated.

D. Frame openings with built-up joist headers consisting of joist and joist track, nesting joists, or another combination of connected joists where indicated.

E. Install truss reinforcement at interior supports with single, short length of joist section located directly over interior support, with lapped joists of equal length to joist reinforcement, or by other method recommended by joist manufacturer.

F. Install bridging at each end of trusses and at intervals indicated. Fasten bridging at each truss intersection as follows:
   1. Bridging: Cold-rolled steel channel, fastened to bottom flange of trusses.
   2. Bridging: Flat, steel-sheet straps of width and thickness indicated, fastened to bottom flange of trusses.
   3. Bridging: Combination of flat, steel-sheet straps of width and thickness indicated and joist-track solid blocking of width and thickness indicated. Fasten flat straps to bottom flange of trusses and secure solid blocking to joist webs.

G. Secure trusses to load-bearing interior walls to prevent lateral movement of bottom flange.

H. Install miscellaneous truss framing and connections, including web stiffeners, closure pieces, clip angles, continuous angles, hold-down angles, anchors, and fasteners, to provide a complete and stable joist-framing assembly.

3.04 ROOF TRUSS INSTALLATION

A. Install, bridge, and brace trusses according to manufacturer's recommendations and requirements of this Section.

B. Space trusses as follows:
   1. Truss Spacing: 16 inches (406 mm).
   2. Truss Spacing: 24 inches (610 mm).
   3. Truss Spacing: 32 inches (813 mm).
   4. Truss Spacing: 48 inches (1220 mm).

C. Do not alter, cut, or remove truss members or connections of truss members.

D. Erect trusses with plane of truss webs plumb and parallel to each other, align, and accurately position at spacing indicated.

E. Erect trusses without damaging truss members or connections.

F. Align truss bottom chords with load-bearing studs or continuously reinforce track to transfer loads to structure. Anchor trusses securely at all bearing points.

G. Install continuous bridging and permanent truss bracing per truss design requirements.

H. Install necessary roof cross and diagonal bracing per design professional recommendations.

3.05 REPAIRS AND PROTECTION

A. Galvanizing Repairs: Prepare and repair damaged galvanized coatings on fabricated and installed cold-formed steel framing with galvanizing repair paint according to ASTM A 780 and the manufacturer's instructions.

End of section

DESIGN NO. P521
ULC R500

*** Bearing the UL Classification Marking**

Restrained Assembly Rating: 1 and 1-1/2 hr. - (See Items 5, 5A and 5B)

Unrestrained Assembly Rating: 1, 1-1/2 hr. and 2 hr. - (See Items 5, 5A, & 5B)

1. **Structural Steel Members*** - Pre-fabricated light gauge steel truss system consisting of cold-formed, galvanized steel chord and web sections. Trusses fabricated in various sizes, depths, and from various steel thicknesses. Trusses spaced a max. of 48 in. OC.

   Aegis® Metal Framing, LLC - Ultra-Span®, Pre-fabricated Light Gauge Steel Truss System

2. **Bridging** – (not shown) – Location of lateral bracing for truss chord and web sections to be specified on truss engineering.

3. **Steel Roof Deck** – (classified or unclassified) – Corrugated or fluted steel form units, min 22 MSG painted or galv steel, welded or mechanically fastened max. 12 in. OC to truss top chord.

   Loadmaster Systems, Inc. – Types HD, ED or PS

3A. **Steel Floor and Form Units*** – As an alternative to Item 3 – min 25 MSG, 15/16 in. deep, painted or galv units welded or mechanically fastened max. 12 in. OC to the top chord of trusses. When used, max. hourly rating is reduced to 1 hr.

4. **Cementitious Backer Units*** – Nom 1/2 or 5/8 in. thick sheets. End joints to occur over crests of steel roof deck with end-joints staggered in adjacent rows. Units loosely laid, adhered or mechanically attached to steel roof deck.

   United States Gypsum Co. – Durock

   Exterior Cement Board or Durock Cement Board

4A. **Wallboard, Gypsum** – (classified or unclassified) – (not shown) As an alternative to item 4, Gypsum sheathing, min 1/2 in. thick, applied perpendicular to steel roof deck. End joints to occur over crests of steel roof deck. Sheathing loosely laid, adhered or mechanically attached to steel roof deck.

5. **Roof Insulation** – Foamed Plastic* - Any polyisocyanurate foamed plastic insulation boards bearing the UL classification marking. Min thickness is 1 in. for the 1 hr assembly ratings, and 2 in. for the 1-1/2 hr assembly ratings with no limit on max overall thickness. Boards installed over the Cementitious backer units (item 4) or gypsum sheathing (item 4A), with the end-joints staggered in adjacent rows. When applied in more than one layer, each layer of board to be offset in both directions from layer below in order to lap all joints. Boards loosely laid, adhered or mechanically fastened to Cementitious backer units or gypsum sheathing, and to steel roof deck (item 3). See foamed plastic (CCVW) category in the fire resistance directory.

5A. **Roof insulation** – Foamed plastic* – (not shown) – As an alternative to item 5 – Any Polystyrene foamed plastic insulation boards bearing the UL classification marking. Min thickness is 1 in. for the 1 hr assembly rating, and 2 in. for the 1-1/2 hr assembly ratings with no limit on max overall thickness. Boards installed over the Cementitious backer units (item 4) or gypsum sheathing (item 4A), with end-joints staggered in adjacent rows. When applied in more than one layer, each layer of board to be offset in both directions from layer below in order to lap all joints. Boards loosely laid, adhered or mechanically fastened to cementitious backer units of gypsum sheathing, and to steel roof deck (item 3). See foamed plastic (BRYX) category in the Building Materials Directory or Foamed Plastic (CCVW) category in the Fire Resistance Directory.

5B. **Roof Insulation** – Mineral and Fiber Boards* – (not shown) – As an alternative to Item 5 – Mineral wool, glass fiber or perlite insulation boards, 24 by 48 in. min size, applied in one or more layers. Min thickness is 1 in. for the 1 hr assembly rating and 2 in. for the 1-1/2 hr assembly ratings with no limit on max overall thickness. Boards loosely laid, adhered or mechanically fastened to cementitious backer units of gypsum sheathing, and to steel roof deck (item 3). See mineral and fiber boards (BQXR) category in the Building Materials Directory or Mineral and Fiber Boards (CERZ) category in the Fire Resistance Directory.

6. **Roof Covering*** – Consisting of hot-mopped or cold – application materials compatible with insulation(s) described herein which provide class A, B, or C coverings. See Roofing Materials and Systems Directory - Roof Covering Materials (TEVT).

6A. **Roofing Membrane*** – (not shown) – In lieu of item 6, single ply membrane that is either ballasted, adhered, or mechanically attached to the insulation(s) described herein as permitted under the respective company's classification. See Fire Resistance Directory – Roofing Membranes (CHCI) category.

6B. **Metal Roof Deck Panels*** – In lieu of or in addition to items 6 and 6A, the roof covering may consist of mechanically fastened galv or painted steel roof deck panels. Panels may be installed above a steel purlin assembly per metal roof deck manufacturer's specifications. Steel purlin assembly to be installed transverse to steel roof trusses (item 1). A line of sealant or tape may be used at panel side and end laps. See Metal Roof Deck Panels category in the Roofing Materials and Systems Directory (TJPV) or Fire Resistance Directory (CETW) for names of manufacturers.

7. **Resilient Channels** – Formed of 25 MSG galv steel, installed perpendicular to the trusses (item 1), spaced a max of 16 in. OC. Channels oriented opposite at wallboard butt-joints. Channel splices overlapped 4 in. beneath steel trusses. Channels secured to each truss with type S12 by 1/2 in. long screws.

7A. **Furring Channels** – (not shown) – As an alternate to the resilient channels – Min 20 MSG galv steel, min 2 5/8 in. wide by min 7/8 in. deep, installed perpendicular to the trusses (item 1) spaced a max of 16 in. OC. Two courses of resilient channel positioned 6 in. OC at wallboard butt-joints (3 in. from each end of wallboard). Channel splices overlapped 6 in. beneath steel trusses. Channels secured to each truss with No. 18 SWG steel wire double strand saddle ties. Channels tied together with double strand of No. 18 SWG galv steel wire at each end of overlap.

7B. **Resilient Channels** - As an alternate to item 6, Resilient Channels, double legged formed of 25 MSG galv steel, 2-7/8 in. wide by 1/2 in. deep, spaced 16 in. OC, perpendicular to steel trusses. Two courses of resilient channel positioned 6 in. OC at wallboard butt-joints (3 in. from each end of wallboard). Channel splices overlapped 4 in. beneath steel trusses. Channels secured to each truss with Type S12 by 1/2 in. long screws or with No. 18 SWG steel wire double strand saddle ties. Channels tied together with double strand of No. 18 SWG galv steel wire at each end of overlap.

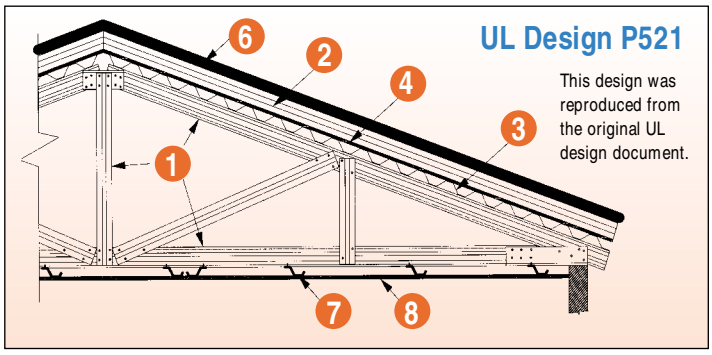
8. **Wallboard, Gypsum*** – For all Ratings except the 2 Hr. Ratings – One Layer of nom 5/8 in. thick by 48 in. wide boards, installed with long dimension parallel to trusses. Attached to the resilient channels using 1 in. long type S bugle-head screws spaced 12 in. OC along butted end-joints and 12 in. OC in the field. For the 2 Hr. Ratings – Two layers of nom 5/8 in. thick by 48 in. wide boards, installed with long dimension parallel to trusses. Base layer attached as described above. Face layer attached to the resilient Channels using 1-5/8 in. long Type S bugle-head screws spaced 12 in. OC along butted end-joints and 12 in. OC in the field. Screws staggered from base layer screws. Face layer side and end joints offset a minimum 16 in. from base layer side and end joints.

   Canadian Gypsum Company – Type C or IP-X2

   United States Gypsum Company – Type C or IP-X2

   Yeso Panamericano S.A. de C.V. – Type C or IP-X2

9. **Finishing System** – (not shown) – Vinyl, dry or premixed joint compound, applied in two coats to joints and screw heads; paper tape, 2 in. wide, embedded in first layer of compound over all joints.



UL Design P521

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DESIGN NO. P523
ULC R501

*Bearing the UL Classification Marking

Restrained Assembly Rating – 1 and 1-1/2 hr.

Unrestrained Assembly Rating – 1 hr.

1. **Structural Steel Members*** – Pre-fabricated light-gauge steel truss system consisting of cold-formed, galvanized steel chord and web sections. Trusses fabricated in various sizes, depths, and from various steel thicknesses. Trusses spaced a max of 48 in. OC.

   Aegis Metal Framing, LLC - Ultra-Span®, Pre-fabricated Light Gauge Steel Truss System

2. **Bridging** – (not shown) – Location of lateral bracing for truss chord and web sections to be specified on truss engineering.

3. **Roof System*** – Any UL Class A, B, or C Roofing System (TGFU) or Prepared Roof Covering (TFWZ) acceptable for use over nom 23/32 in. thick plywood decking. Nom 23/32 in. thick plywood decking mechanically fastened to top chord of steel trusses with fasteners spaced a max of 12 in. OC. As an option, the plywood decking may be installed to min. 20 ga. steel purlins or steel hat channels. Steel purlins or hat channels to be spaced a max. 24 in. OC and welded, or mechanically fastened, transverse to steel roof trusses (Item 1).

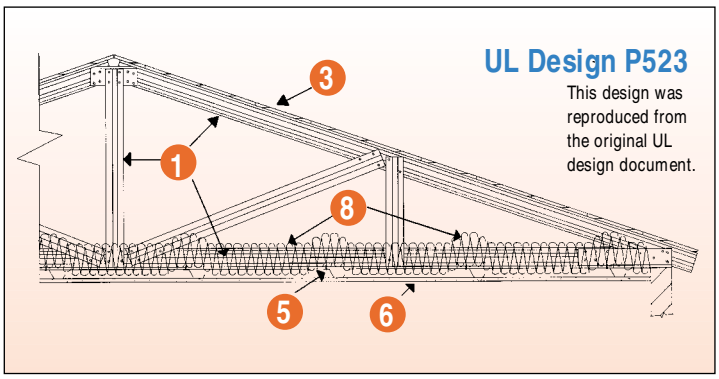
3A. **Steel Roof Deck** – (not shown) – In lieu of, or in addition to the plywood decking described in Item 3, the steel roof deck may consist of corrugated or fluted steel form units, minimum 9/16 in. deep, 22 MSG painted or galv steel, welded or mechanically fastened at a max. 12 in. OC to the top chord of the roof trusses (Item 1).

3B. **Steel Floor and Form Units*** – As an alternate to item 3 - min 25 MSG, 15/16 in. deep, painted, or galv units welded or mechanically fastened max 12 in. OC to the top chord of trusses (Item 1). When used in lieu of the plywood sheathing described in Item 3, batts and blankets (Item 8) must be used. When used in addition to the plywood sheathing described in Item 3, the use of batts and blankets is optional.

4. **Vapor Barrier** – (optional) – Commercial asphalt saturated felt, 0.030 in. thick, applied over the plywood.

5. **Resilient Channels** – Formed of 25 MSG galv steel, installed perpendicular to the steel trusses (Item 1), spaced a max of 16 in. OC when no insulation (Item 8) is fitted in the concealed space, or a max of 12 in. OC when insulation (Item 8) is fitted in the concealed space, draped over the resilient channel/gypsum wallboard ceiling membrane. Two courses of resilient channel positioned 6 in. OC at wallboard butt-joints (3 in. from each end of wallboard). Channels oriented opposite at wallboard butt-joints. Channel splices overlapped 4 in. beneath steel trusses. Channels secured to each truss with Type S12 by 1/2 in. long screws.

5A. **Furring Channels**– (not shown) – As an alternate to item 5 – Hat channels min 20 MSG galv steel, min 2-5/8 in. wide by min 7/8 in. deep, installed perpendicular to the trusses (Item 1) spaced a max of 16 in. OC. When no insulation is fitted in the concealed space, or a max 12 in. OC. when insulation (item 8 or 8A) is fitted in the concealed space, draped over the hat channel/gypsum board ceiling membrane. Two courses of channel positioned 6 in. OC. 3 in. from each end of wallboard. Channel splices over lapped 6 in. beneath steel trusses. Channels secured to each truss with No. 18 SWG steel wire double strand saddle ties. Channels tied together with double strand of No. 18 SWG steel wire at each end overlap.



UL Design P523

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5B. **Furring Channels** – As an alternate to Items 5 and 5A – Resilient channels, double-legged formed of 25 MSG galv steel, 2-7/8 in. wide by 1/2 in. deep, installed perpendicular to the trusses (Item 1) spaced max 16 in. OC. when no insulation (Item 8 or 8A) is fitted in the concealed space, or a max of 12 in. OC. when insulation (Item 8 or 8A) is fitted in the concealed space, draped over the resilient channel/gypsum wallboard ceiling membrane. Two courses of resilient channel positioned 6 in. OC. at wallboard butt-joints (3 in. from each end of wallboard). Channel splices overlapped 4 in. beneath steel trusses. Channels secured to each truss with Type S12 by 1/2 in. long screws or with No. 18 SWG galv steel wire double strand saddle ties. Channels tied together with double strand of No. 18 SWG galv steel wire at each end of overlap.

6. **Wallboard, Gypsum*** – For 1 hour rating – One layer of nom 5/8 in. thick by 48 in. wide boards, installed with long dimension parallel to trusses. Attached to the resilient channels using 1 in. long Type S bugle-head screws. Screws spaced a max of 12 in. OC along butted end-joints and in the field when no insulation (Item 8) is fitted in the concealed space, or a max of 8 in. OC along butted end-joints and in the field when insulation (Item 8) is fitted in the concealed space, draped over the resilient channel/gypsum wallboard ceiling membrane. For the 1-1/2 hr. rating – Two layers of nom 5/8 in. thick by 48 in. wide boards, installed with the long dimension parallel to the trusses. Base layer attached to resilient channels using 1 in. long Type S bugle-head screws spaced a max. of 8 in. OC along the butted end joints and in the field. Face layer attached to the resilient channels using 1-5/8 in. long bugle-type S screws spaced a max. of 8 in. OC along the butted end joints and in the field. Screws staggered from base layer screws. Face layer side and end joints offset a min. of 16 in. from base layer side and end joints.

   Canadian Gypsum Company – Type C or IP-X2, IPC-AR

   United States Gypsum Company – Type C or IP-X2, IPC-AR

   Yeso Panamericano S.A. de C.V. – Type C or IP-X2, IPC-AR

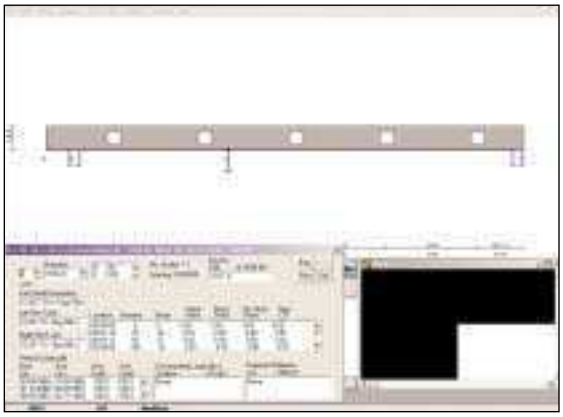
7. **Finishing System** – (not shown) – Vinyl, dry or premixed joint compound, applied in two coats to joints and screw-heads; paper tape, 2 in. wide, embedded in first layer of compound over all joints. As an alternate, nom 3/32 in. thick veneer plaster may be applied to the entire surface of gypsum wallboard.

8. **Batts and Blankets*** – Optional for the 1 hr. rating – Any thickness mineral wool or glass fiber insulation bearing the UL Classification Marking for Surface Burning Characteristics, having a flame spread value of 25 or less and a smoke value of 50 or less. Insulation fitted in the concealed space, draped over the resilient channel/gypsum wallboard ceiling membrane. Mandatory for the 1-1/2 hr. rating – Min. 9-1/2 in. thick glass fiber insulation bearing the UL Classification Marking for Surface Burning Characteristics, having flame spread value of 25 or less and a smoke spread value of 50 or less. Insulation fitted in the concealed space, draped over the resilient channel/gypsum wallboard ceiling membrane.

TradeReady Floor System

The TradeReady floor joist system was developed to overcome resistance to light gauge floor products by plumbing, HVAC, and electrical contractors. For years, these trades complained of the difficulty they encountered installing their systems in light gauge steel framed structures when compared to traditional wood joists, wood I's and floor trusses. The revolutionary TradeReady Floor System simply and effectively deals with these objections.

The large, flanged openings of the TradeReady joist allow for quick and easy installation of a variety of mechanical /electrical systems. No time consuming notching or drilling is required. And, the pre-notched and tabbed TradeReady Rim Track makes joist layout and connection a snap.



TradeReady floors offer a strong, lightweight alternative to bar joist, poured-in-place concrete, and structural steel. These factors help make the TradeReady Floor System an easy-to-use, cost-effective flooring system for a wide range of commercial and residential structures.

Utilizing TradeReady floors has never been easier. All an authorized Aegis fabricator or Designing Distributor needs is a good set of structural plans to provide an accurate, computer-generated estimate of the joists and accessories necessary to complete a TradeReady floor system. As with trusses, Aegis' professional engineers will review and seal our fabricators' shop drawings for submittal.

TYPICAL SPAN TABLES

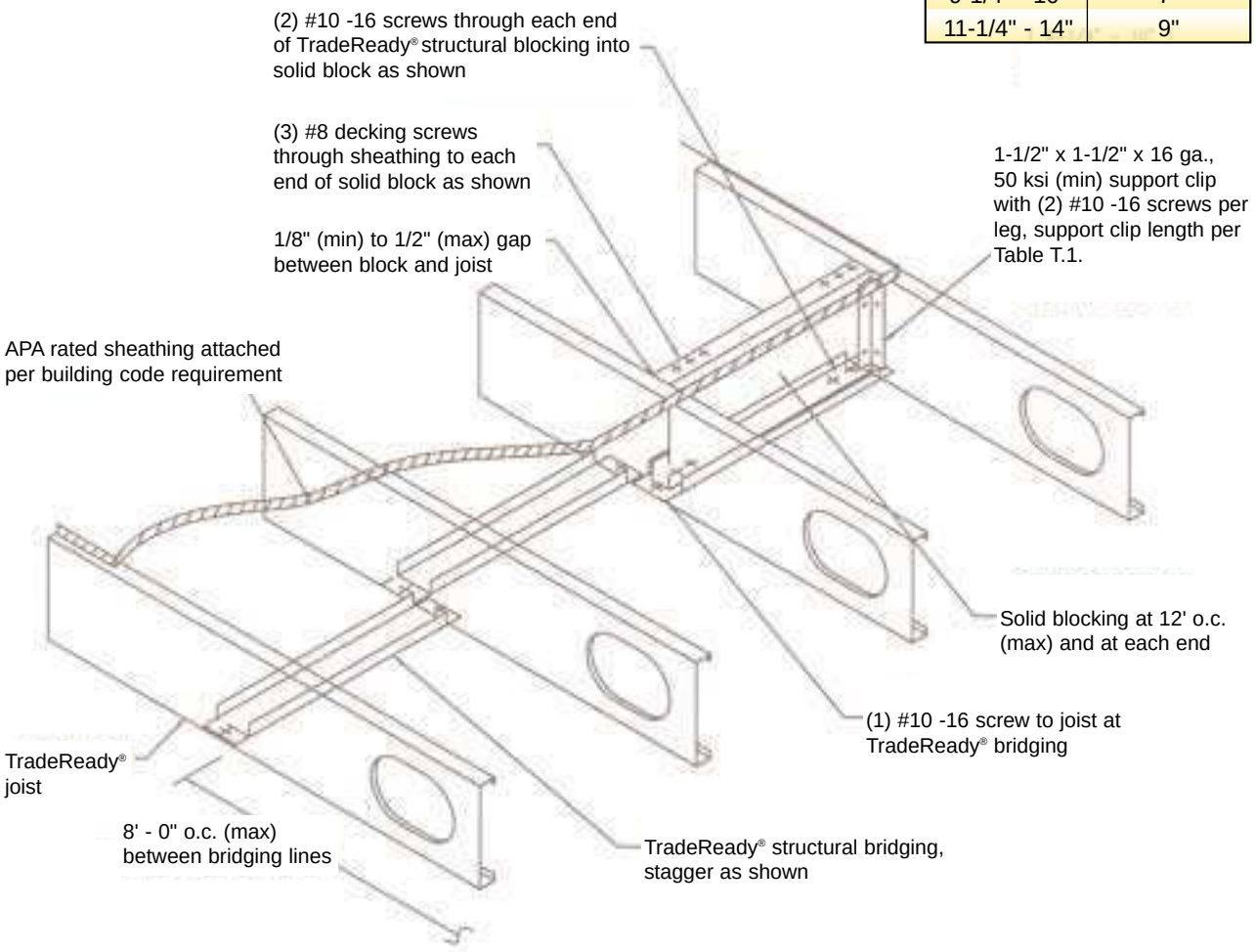
Joist Member	15 psf Dead Load • 125 psf Live Load TL Deflection = L/240, LL Deflection = L/360 Single Span Spacing (inches) o.c.			
	12	16	19.2	24
7.25" TDJ18 7.25" TDJ16 7.25" TDJ14	9' - 7" 11' - 10" 12' - 9"	7' - 3" 10' - 9" 11' - 7"	6' - 1" 10' - 2" 10' - 11"	4' - 11" 9' - 4" 10' - 1"
8" TDJ18 8" TDJ16 8" TDJ14	10' - 7" 12' - 10" 13' - 10"	8' - 0" 11' - 8" 12' - 6"	6' - 8" 11' - 0" 11' - 9"	5' - 5" 10' - 2" 10' - 11"
9.25" TDJ18 9.25" TDJ16 9.25" TDJ14	9' - 7" 14' - 6" 15' - 6"	7' - 3" 13' - 2" 14' - 1"	6' - 1" 11' - 7" 13' - 3"	4' - 11" 9' - 4" 12' - 4"
11.25" TDJ16 11.25" TDJ14 11.25" TDJ12	17' - 0" 18' - 3" 20' - 5"	14' - 9" 16' - 7" 18' - 6"	12' - 4" 15' - 6" 17' - 5"	9' - 10" 13' - 10" 16' - 2"
10" TDW16 10" TDW14 10" TDW12	15' - 9" 16' - 11" 18' - 11"	13' - 10" 15' - 5" 17' - 2"	12' - 8" 14' - 6" 16' - 2"	10' - 8" 13' - 5" 15' - 0"
12" TDW16 12" TDW14 12" TDW12	16' - 7" 19' - 8" 22' - 0"	14' - 2" 17' - 2" 20' - 0"	11' - 9" 15' - 8" 18' - 10"	9' - 5" 14' - 0" 17' - 0"
14" TDW16 14" TDW14	20' - 4" 24' - 10"	17' - 8" 21' - 6"	16' - 1" 19' - 8"	14' - 5" 17' - 7"

Joist Member	40 psf Dead Load • 50 psf Live Load TL Deflection = L/240, LL Deflection = L/360 Single Span Spacing (inches) o.c.			
	12	16	19.2	24
7.25" TDJ18 7.25" TDJ16 7.25" TDJ14	12' - 7" 15' - 2" 16' - 3"	10' - 11" 13' - 9" 14' - 9"	9' - 3" 13' - 0" 13' - 11"	7' - 6" 12' - 0" 12' - 11"
8" TDJ18 8" TDJ16 8" TDJ14	13' - 2" 16' - 5" 17' - 8"	11' - 5" 14' - 11" 16' - 0"	10' - 3" 14' - 0" 15' - 1"	8' - 3" 12' - 9" 14' - 0"
9.25" TDJ18 9.25" TDJ16 9.25" TDJ14	14' - 4" 18' - 6" 19' - 10"	11' - 1" 16' - 10" 18' - 0"	9' - 3" 15' - 8" 17' - 0"	7' - 6" 14' - 0" 15' - 7"
11.25" TDJ16 11.25" TDJ14 11.25" TDJ12	21' - 8" 23' - 4" 26' - 1"	18' - 9" 21' - 2" 23' - 8"	17' - 1" 19' - 4" 22' - 3"	15' - 4" 17' - 4" 20' - 8"
10" TDW16 10" TDW14 10" TDW12	20' - 0" 21' - 8" 24' - 2"	17' - 4" 19' - 8" 21' - 11"	15' - 10" 18' - 6" 20' - 8"	14' - 1" 16' - 10" 19' - 2"
12" TDW16 12" TDW14 12" TDW12	20' - 8" 24' - 9" 28' - 1"	17' - 11" 21' - 5" 25' - 6"	16' - 4" 19' - 6" 23' - 9"	14' - 7" 17' - 6" 21' - 2"
14" TDW16 14" TDW14	25' - 5" 31' - 0"	22' - 0" 26' - 10"	20' - 1" 24' - 6"	17' - 11" 21' - 11"

TRADEREADY® LIGHT GAUGE STEEL FLOOR SYSTEM

14 STRUCTURAL BLOCKING DETAIL

Table T.1	
Joist Depth	Clip Length
7-1/4" - 8"	5"
9-1/4" - 10"	7"
11-1/4" - 14"	9"



Notes for Typical Span Tables on opposite page:

1) Spans are based on continuous lateral support of the compression flange.
2) Web crippling capacity is based on a minimum bearing length of 3.5". The minimum available TradeReady® rim track thickness is used.
3) Recommended bridging is 8'-0" on-center, maximum.
4) Fy is 33 ksi for 18 gauge, 50 ksi for 16, 14 and 12 gauge.
5) If an additional point load is located at the end bearings (for example from a wall above), web crippling must be checked separately.
6) The minimum bearing stud flange is 1.625". A smaller bearing stud flange may be used upon approval from an Aegis engineer.
7) The joist rim must be installed according to the installation instructions provided by Aegis.
8) Rim tab must be attached to the outside of the joist.
9) Spans are not valid if the TradeReady® knockout falls within 0" of the outside bearing.
10) TDJ = 1-3/4" flange, TDW = 2" flange.

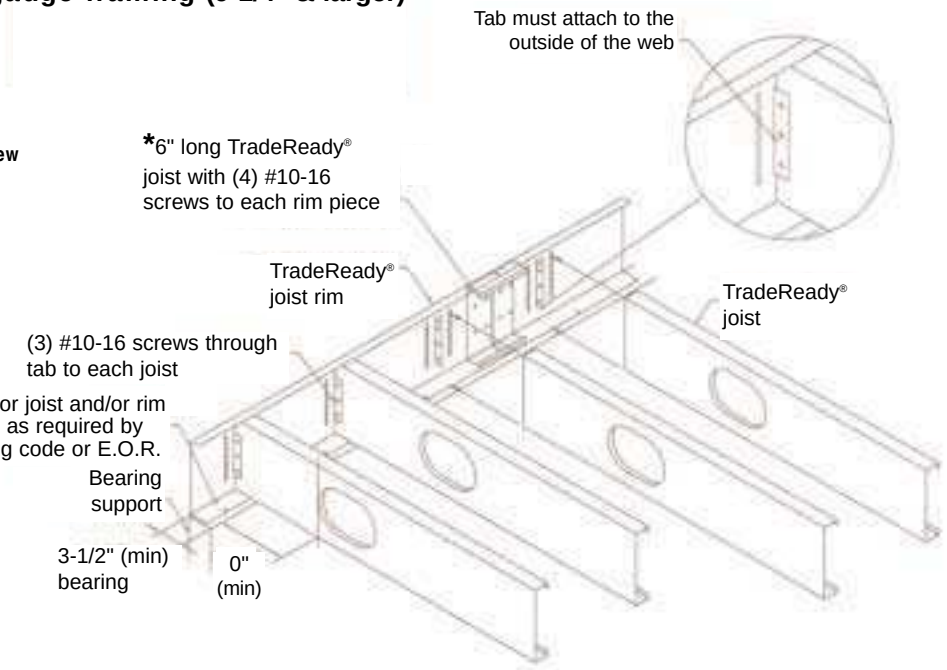
TradeReady® floor joists allow for easy installation of HVAC, plumbing and electrical!

AEGIS™ METAL FRAMING, LLC
A Dietrich/MiTek Joint Venture

15 JOIST END BEARING

for joist bearing on light gauge framing (9-1/4" & larger)

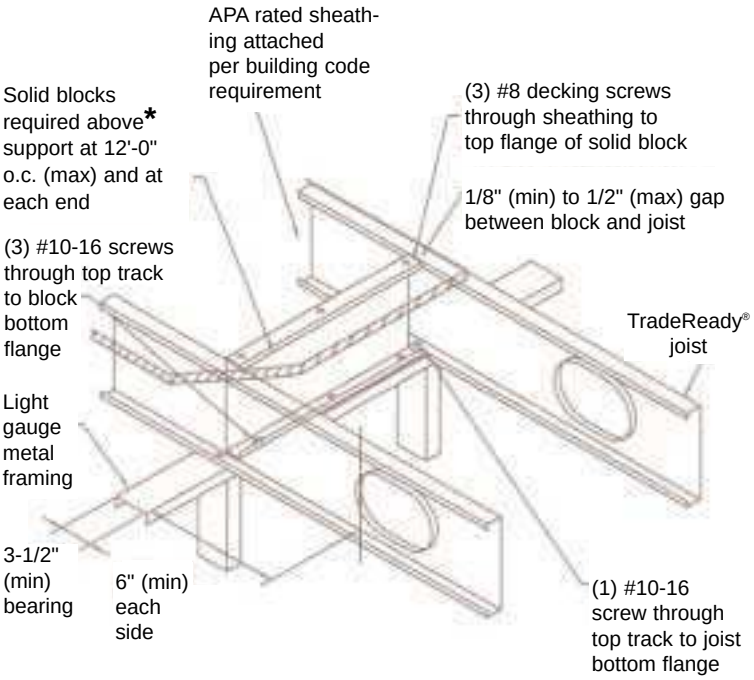
Note:
Load bearing wall framing above and below must align with joists, otherwise E.O.R. review required to verify wall load is transferrred at joist locations.



***Note: Connection review required by E.O.R., if part of lateral load resisting system**

16 JOIST/INTERMEDIATE BEARING CONDITION

***Note: Connection review required by E.O.R., if part of lateral load resisting system**



17 JOIST/SINGLE PLY GIRDER TO SINGLE PLY GIRDER CONNECTION

1-1/2" x 1-1/2" x 16 ga., 50 ksi. (min) support clip with (3) #10-16 screws to joist and (3) #10-16 screws to light gauge girder at each joist, support clip length per table T.2 below

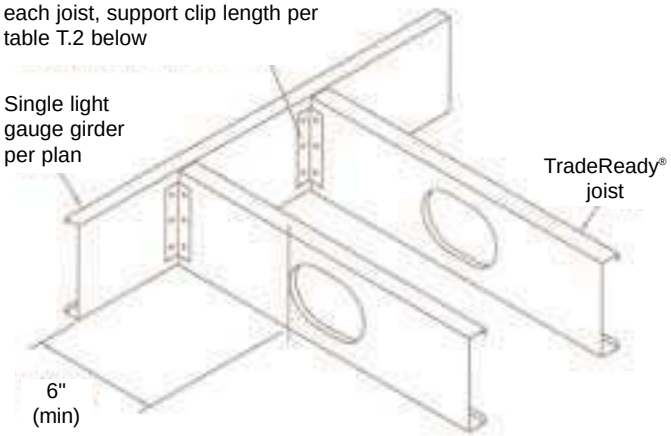


Table T.2	
Joist Depth	Clip Length
7-1/4" - 8"	5"
9-1/4" - 10"	7"
11-1/4" - 14"	9"

Note:
For skewed joists: Support clips may be bent up to 45° in either direction. Only bend clip once.

18 JOIST/SINGLE GIRDER HANGER CONDITION

Material: LB-14; B-12 gauge

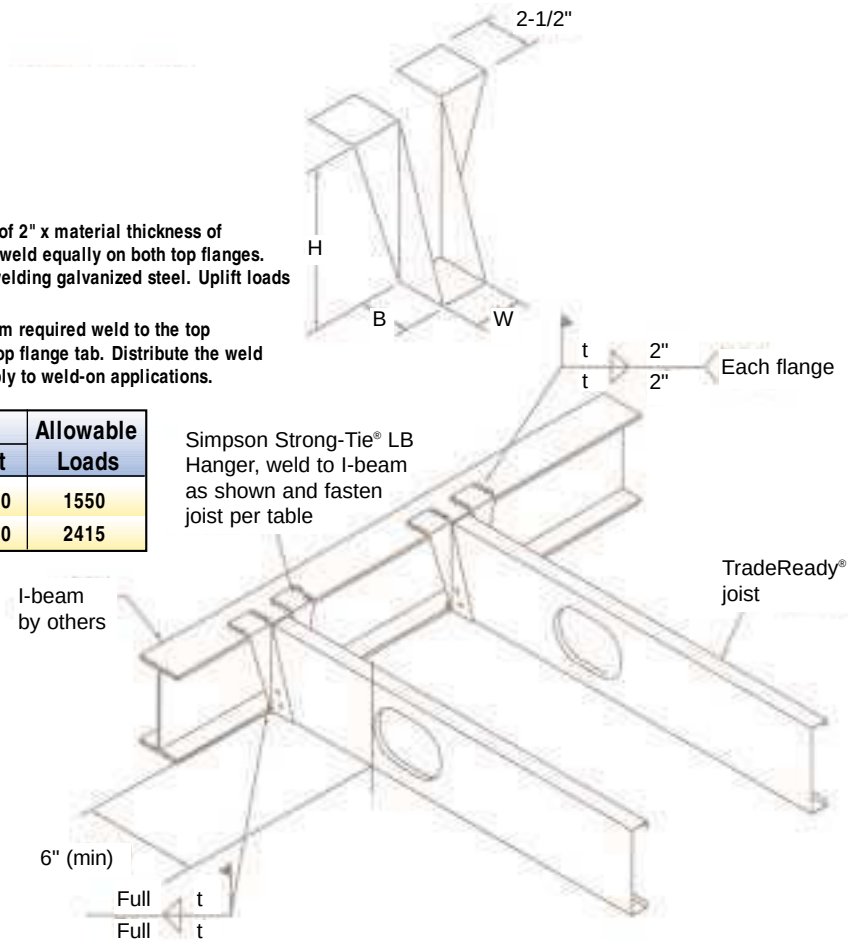
Finish: Galvanized

Installation: **LB:** May be used for weld-on applications; a minimum of 2" x material thickness of weld on each top flange is required. Distribute the weld equally on both top flanges. Consult the code for special considerations when welding galvanized steel. Uplift loads do not apply to weld-on applications.

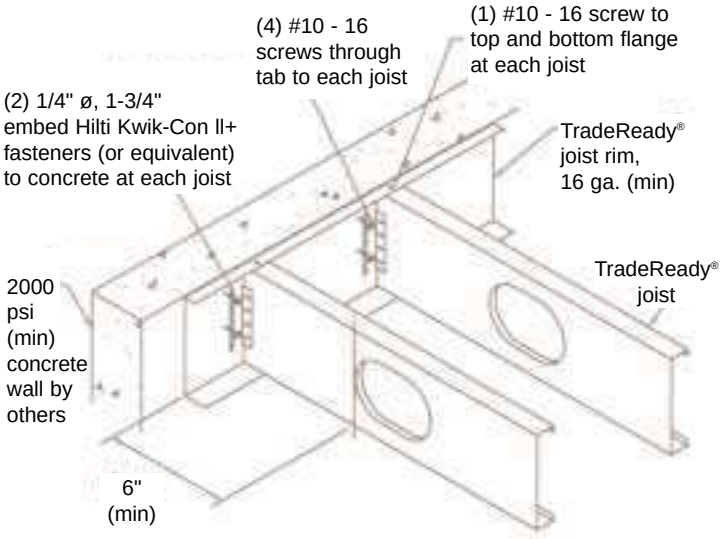
B: May be used for weld-on applications. The minimum required weld to the top flange is 1/8" x 2" fillet weld to each side of each top flange tab. Distribute the weld equally on both top flanges. Uplift loads do not apply to weld-on applications.

Model No.	Dimensions			Fasteners		Allowable Loads
	W	H	B	I-beam	Joist	
LB	1-9/16 – 3-9/16	3-1/2 – 20	2 – 3	Weld	2- #10	1550
B	1-9/16 – 7-1/12	7 – 30	2 – 3	Weld	2- #10	2415

*Note: Connection review required by E.O.R., if part of lateral load resisting system



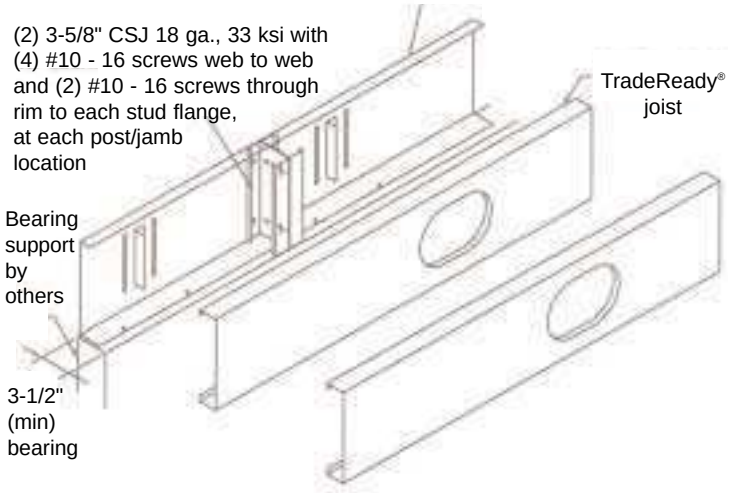
19 JOIST/SINGLE PLY GIRDER CONNECTIONS TO CONCRETE WALL



20 RIM STIFFENER CONDITION

Note: Load bearing wall framing above and below must align with joists, otherwise E.O.R. review required to verify wall load is transferred at joist locations.

TradeReady® joist rim secured per joist end bearing condition detail



Note:
Rim stiffener capacity = 5973 lbs.
If actual loads exceed capacity, further engineering review is required.

SECTION 05 42 13 (formerly 05410/05420)

Cold-Formed Metal Framing

The following Specification may be downloaded from our website: www.aegismetalframing.com

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Cold-formed metal floor joists, rims and bridging.

1.2 RELATED SECTIONS

A. Section 06100 - Rough Carpentry.

B. Section 07210 - Building Insulation.

C. Section 09110 - Non-Load Bearing Wall Framing.

1.3 REFERENCES

A. ASTM A 780 - Standard Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings.

B. ASTM A 1003 - Standard Specification for Steel Sheet, Carbon, Metallic- and Nonmetallic-Coated for Cold-Formed Framing Members.

C. ASTM B 633 - Standard Specification for Electrodeposited Coatings of Zinc on Iron and Steel.

D. ASTM C 955 - 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.

E. ASTM C 1002 - Standard Specification for Steel Self-Piercing Tapping Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs.

F. ASTM C1007 - Standard Specification for Installation of Load Bearing (Transverse and Axial) Steel Studs and Related Accessories.

G. AISC - LRFD Manual of Steel Construction.

H. AWS D.1.3 - Structural Welding Code - Sheet Steel.

1.4 PERFORMANCE REQUIREMENTS

A. Structural Performance: Design, engineer, fabricate, and erect cold-form steel floor framing to withstand specified design loads within limits and under conditions required.

1. Design Loads including Dead Load and Live Load: As required by code and as indicated on the Drawings.
2. Deflection: Total load deflection of L/240; live load deflection of L/360.
3. Deflection: Total load deflection of L/240; live load deflection of L/480.

4. Joist Spacing: 12 inches (305 mm) on center.
5. Joist Spacing: 16 inches (406 mm) on center.
6. Joist Spacing: 19.2 inches (487 mm) on center.
7. Joist Spacing: 24 inches (609 mm) on center.
8. Design framing systems to provide for movement of framing members without damage or overstressing, sheathing failure, connection failure, undue strain on fasteners and anchors, or other detrimental effects when subject to maximum ambient temperature change (range) of 120 degrees F (67 degrees C).

1.5 SUBMITTALS

A. Submit under provisions of Section 01300.

B. Product Data: Submit manufacturer's product literature, data sheets and installation recommendations for specified products.

C. Structural Calculations: Submit structural calculations prepared by manufacturer for approval. Submittal shall be sealed by a professional engineer registered in the state of the project.

1. Description of design criteria.
2. Engineering analysis depicting stress and deflection (stiffness) requirements for each framing application.
3. Selection of framing components, accessories and welded connection requirements.
4. Verification of attachments to structure and adjacent framing components.

D. Shop Drawings:

1. Submit shop drawings prepared by the manufacturer showing plans, sections, elevations, layouts, profiles and product component locations, including anchorage, bracing, fasteners, accessories and finishes.
2. Show connection details with screw types and locations, weld lengths and locations, and other fastener requirements.
3. Where prefabricated panels are to be provided, provide drawings depicting panel configurations, dimensions and locations.

1.6 QUALITY ASSURANCE

A. Fabricator Qualifications: Fabrication shall be performed by a cold-formed steel truss fabricator with experience designing and fabricating cold-formed steel truss systems equal in material, design, and extent to the systems required for this Project.

B. Installer Qualifications: Installer experienced in performing work of this section who has specialized in installation of work similar to that required for this project.

C. Pre-installation Meetings: Conduct pre-installation meeting to verify project requirements, substrate conditions, and manufacturer's installation instructions.

D. Welding Standards: Comply with applicable provisions of AWS D1.1 "Structural Welding Code—Steel" and AWS D1.3 "Structural Welding Code—Sheet Steel."

1. Qualify welding processes and welding operators in accordance with AWS "Standard Qualification Procedure."

Continued...

1.7 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.

B. Store materials protected from exposure to rain, snow or other harmful weather conditions, at temperature and humidity conditions.

C. Protect joists and accessories from corrosion, deformation, damage and deterioration when stored at job site. Keep joists free from dirt and foreign matter.

1.8 PROJECT CONDITIONS

A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

B. During construction, adequately distribute all loads applied to joists so as not to exceed the carrying capacity of any one joist or other component.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer Aegis Metal Framing LLC; 14515 N. Outer 40 Drive, Suite 110, Chesterfield, MO 63017. ASD. Tel: (866) 902-3447 or (314) 851-2200. Fax: (314) 434-5234. www.aegismetalframing.com. Email: answers@aegismetalframing.com.

B. Substitutions: Not permitted.

2.2 COMPONENTS

A. TradeReady floor joists with 1-3/4 inches (45 mm) Flange: Cold formed Galvanized Steel C-Joist, TradeReady Floor System:
1. Size: 7-1/4 inches (184 mm) deep, 4-1/4 by 7 inches (108 by 178 mm) holes.
2. Size: 8 inches (203 mm) deep, 4-1/4 by 7 inches (108 by 178 mm) holes.
3. Size: 9-1/4 inches (235 mm) deep, 6-1/4 by 9 inches (159 by 229 mm) holes.
4. Size: 11-1/4 inches (286 mm) deep, 6-1/4 by 9 inches (159 by 229 mm) holes.
5. Minimum Delivered Thickness: 18 gauge, 0.0428 inch (1.22 mm).
6. Minimum Delivered Thickness: 16 gauge, 0.0538 inch (1.37 mm).
7. Minimum Delivered Thickness: 14 gauge, 0.0677 inch (1.72 mm).
8. Minimum Delivered Thickness: 12 gauge, 0.0966 inch (2.45 mm).

B. TradeReady floor joists with with 2 inches (51 mm) Flange: Cold formed Galvanized Steel C-Joist, TradeReady Floor System:
1. Size: 10 inches (254 mm) deep, 6-1/4 by 9 inches (159 by 229 mm) holes.
2. Size: 12 inches (305 mm) deep, 8 inches (203 mm) diameter holes.
3. Size: 14 inches (356 mm) deep, 10 inches (254 mm) diameter holes.
4. Minimum Delivered Thickness: 16 gauge, 0.0538 inch (1.37 mm).
5. Minimum Delivered Thickness: 14 gauge, 0.0677 inch (1.72 mm).
6. Minimum Delivered Thickness: 12 gauge, 0.0966 inch (2.45 mm).

C. Framing Components: Provide the following components as required for a complete system.
1. Rim sections with tabs suitable for joist spacing, web sizes and gauge suitable for design.
2. Bridging sections fitting joist spacing, 2-1/2 inch (64 mm) web size, 18 gauge, 0.0428 inches (1.22 mm) delivered thickness.

D. Fasteners: Self-drilling, self-tapping screws; Steel, complying with ASTM C1002; Galvanized coating, plated or oil-phosphate coated complying with ASTM B 633 as needed for required corrosion resistance.

E. Touch-Up Paint: Zinc rich, containing 95-percent metallic zinc, ZRC 350 as manufactured by ZRC Worldwide, Marshfield, MA.

2.3 MATERIALS

A. Cold-Formed Steel Sheet: Complying with ASTM A 1003/A 1003M; unless indicated otherwise.

B. Galvanized Coating: G60 coating weight minimum, complying with ASTM C 955.

C. Galvanized Coating: G90 coating weight minimum, complying with ASTM C 955.

2.4 FABRICATION

A. Fabricate panels square, with components attached in a manner so as to prevent racking or distortion.

B. Cut all framing components squarely for attachment to fit against abutting members. Hold members positively in place until properly fastened.

C. Fasteners: Fasten components using self-tapping screws or welding.

D. Welding: Welding is permitted on 18 gauge, 0.0428 inch (1.22 mm)or heavier material only.
1. Specify welding configuration and size on the Structural Calculation submittal.
2. Qualify welding operators in accordance with Section 6.0 of AWS D.1.3.
3. Touch up all welds with zinc-rich paint in compliance with ASTM A 780.

PART 3 EXECUTION

3.1 EXAMINATION

A. Prior to installation, inspect previous work of all other trades. Verify that all work is complete and accurate to the point where this installation may properly proceed in strict accordance with framing shop drawings.

B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

C. Installation constitutes acceptance of existing conditions and responsibility for satisfactory performance.

3.2 INSTALLATION

A. General Installation Requirements:
1. Install cold-formed framing in accordance with requirements of ASTM C1007.
2. Weld in compliance with AWS D.1.3.
3. Install in compliance with applicable sections of the LRFD Manual of Steel Construction.

B. Steel Joists:
1. Locate joists directly over bearing studs or provide a suitable load distribution member at the top track.
2. Provide web stiffeners at reaction points where indicated in drawings.
3. Provide joist bridging as shown in drawings.
4. Provide end blocking where joist ends are not otherwise restrained from rotation.

FIELD QUALITY CONTROL

A. Inspection: Periodic special inspections are required by local code authorities.
1. Owner will hire and pay inspection agency.
2. Submit schedule showing when the following activities will be performed and resubmit schedule when timing changes.
3. Notify inspection agency not less than 3 days before the start of any of the following activities.
4. Inspections are required during welding operations, screw attachment, bolting, anchoring and other fastening of components within the force resisting structural system, including struts, braces, and hold-downs.

3.4 PROTECTION

A. Protect installed products until completion of project.

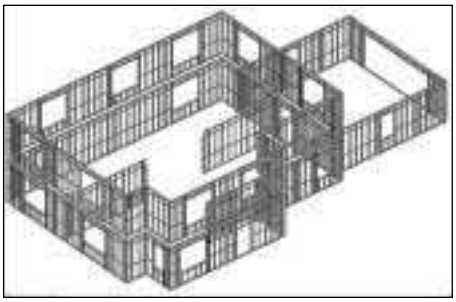
B. Touch-up, repair or replace damaged products before Substantial Completion.

End of section

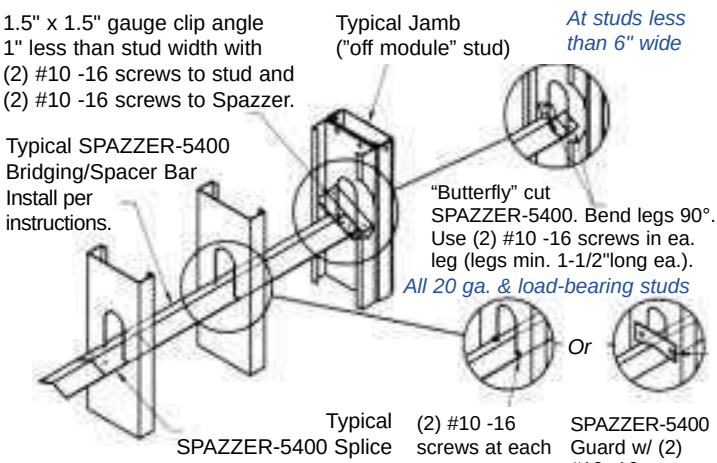
WALLSOLUTIONS™

To round out the package for your next entirely-light gauge structure, Aegis and our fabricators are pleased to introduce **WallSolutions™**.

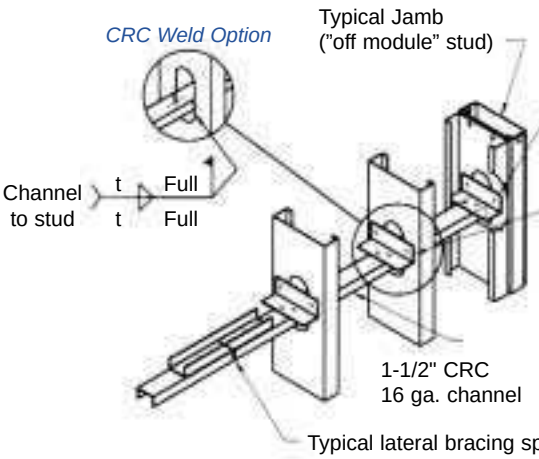
WallSolutions is a logical extension of the simple but powerful business model that has helped put Aegis and our dedicated fabricator-partners at the forefront of technology and performance in the light gauge construction industry. Aegis has developed a sophisticated software module (the Wall Solutions program) that has been put in the hands of skilled technicians at our fabricator-partners. These designers can harness the power of WallSolutions by producing precise wall panel estimating and fabrication drawings. As with trusses and floors, Aegis reviews and certifies the designs to ensure all panels and connections meet project and building code requirements. Aegis fabricators produce factory-assembled, structural panels and curtain walls and deliver them to your jobsite, ready for installation. Aegis WallSolutions fabricators can truly deliver what other light gauge providers can only talk about – the whole structure.



21 TYPICAL LATERAL BRACING TRADEREADY SPAZZER® - 5400



23 TYPICAL LATERAL BRACING CRC Lateral Bracing

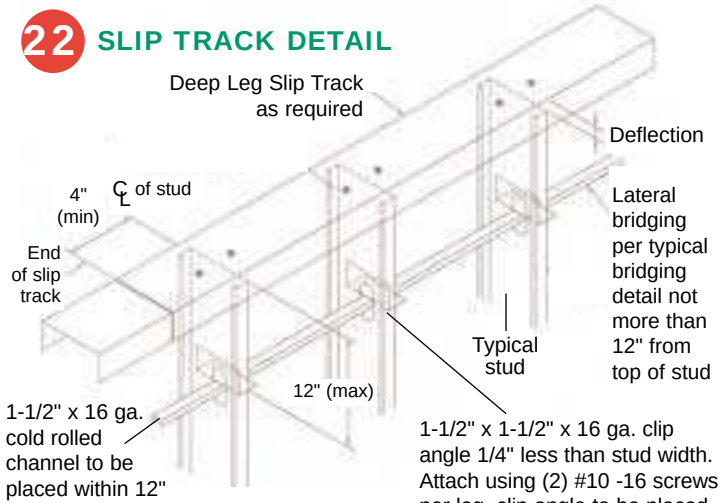


Where bracing terminates at build-up jamb or post, extend channel into punch-out. Attach w/ 1-1/2" x 1-1/2" x 16 ga. clip angle 1-1/4" less than stud width using (2) #10 -16 screws to jamb/post and (2) #10 -16 screws to U-channel.

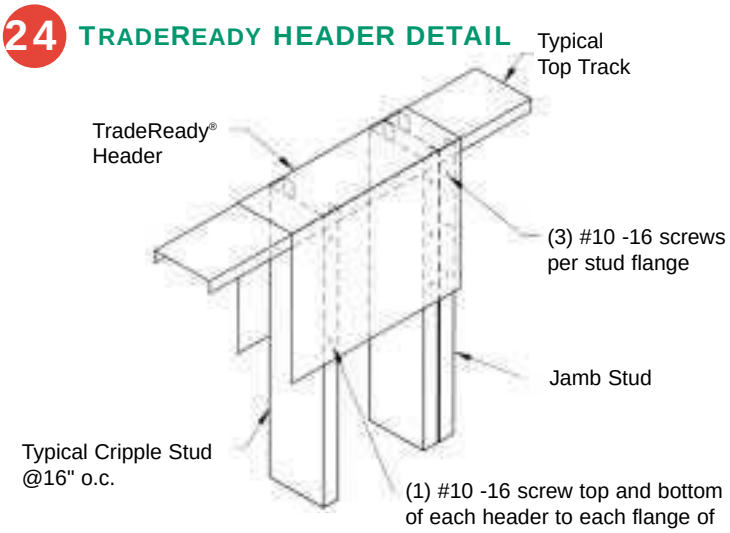
1.5" x 1.5" x 16 ga. clip angle 1/4" less than stud. Attach using (4) #10 -16 screws. Clip angle to be placed at each stud.

Typical lateral bracing splice use: (1) 12" long CRC inverted over center of splice w/ (3) #10-16 screws on each side of splice

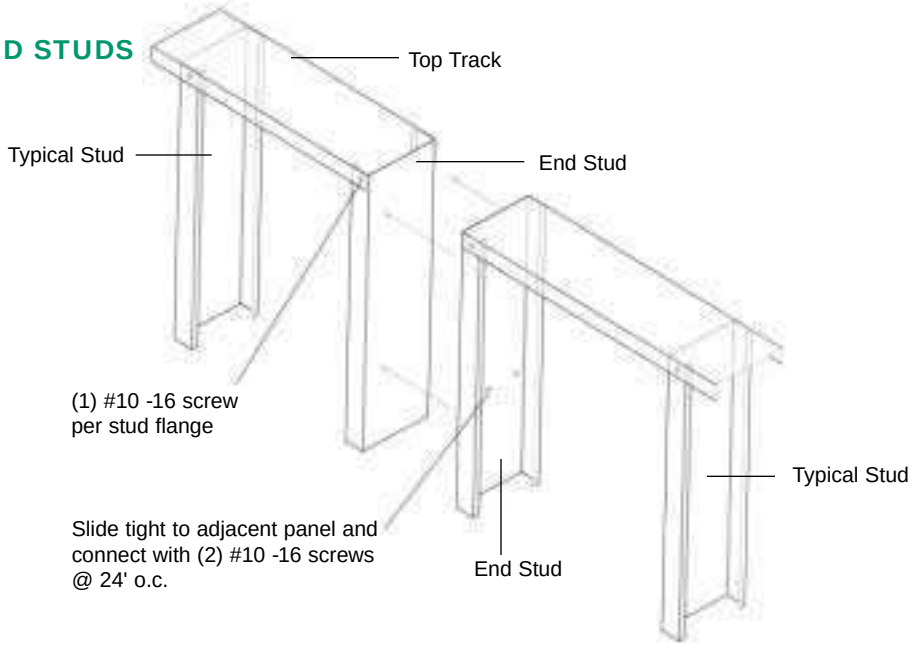
22 SLIP TRACK DETAIL



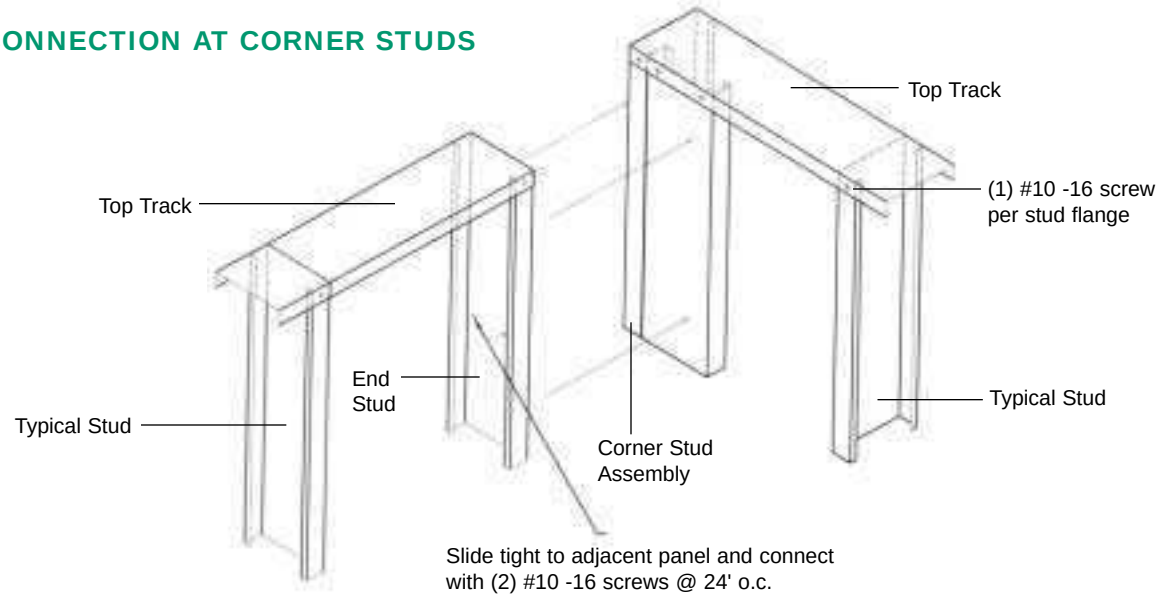
24 TRADEREADY HEADER DETAIL



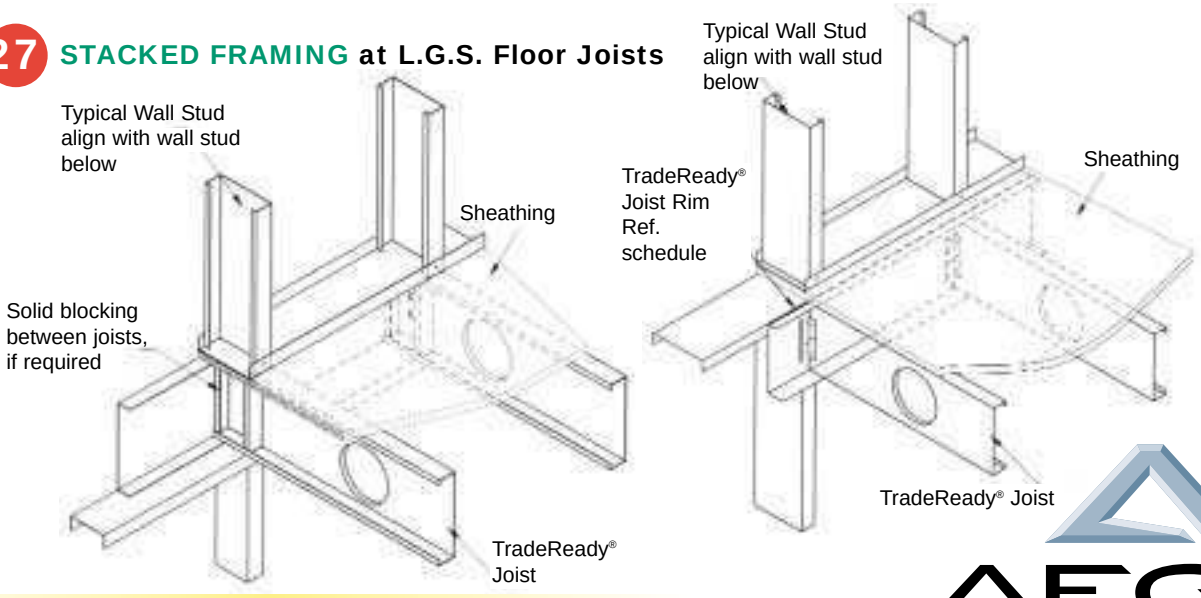
25 PANEL CONNECTION END STUDS



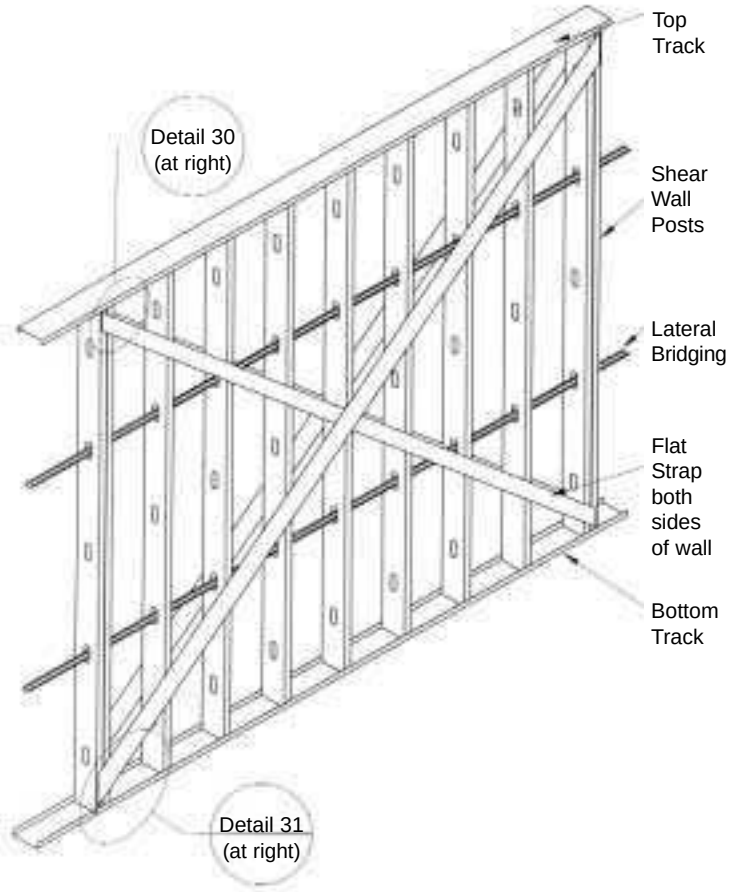
26 PANEL CONNECTION AT CORNER STUDS



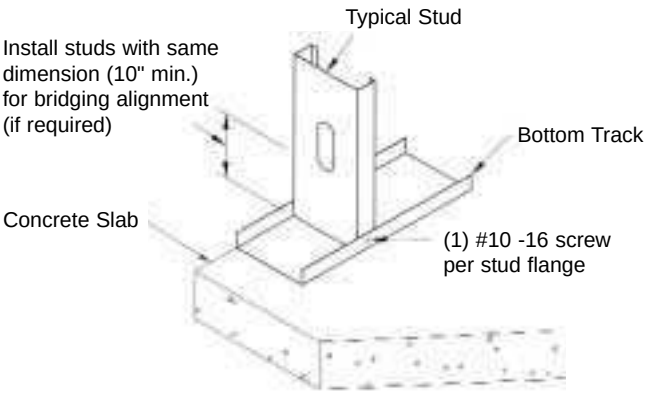
27 STACKED FRAMING at L.G.S. Floor Joists



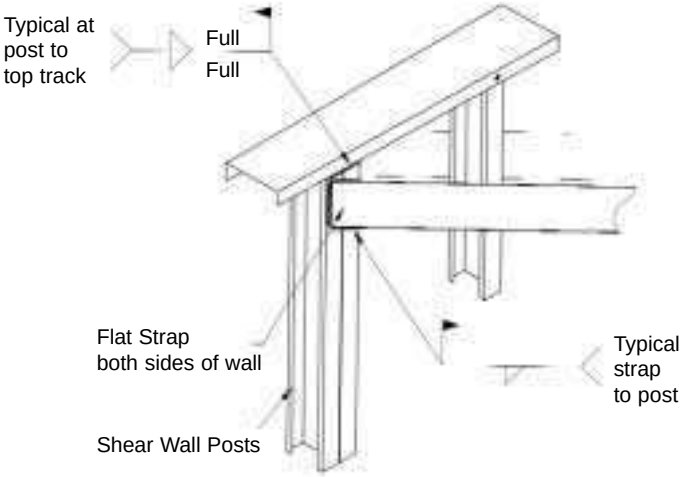
28 SHEAR WALL ISOMETRIC



29 STUD BASE DETAIL

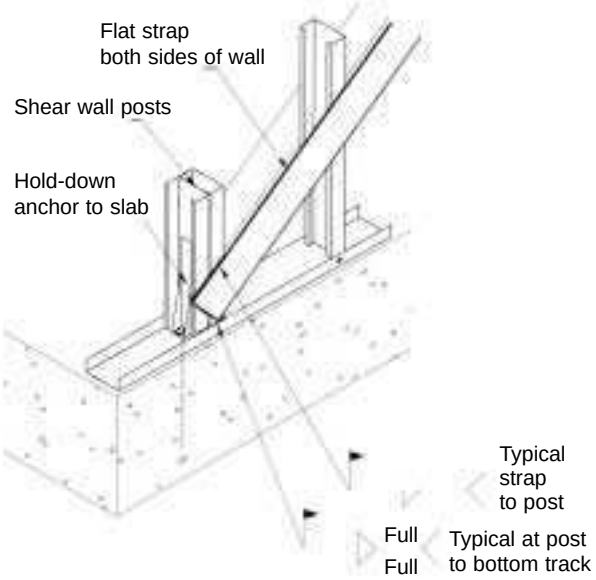


30 SHEAR WALL TOP TRACK DETAIL

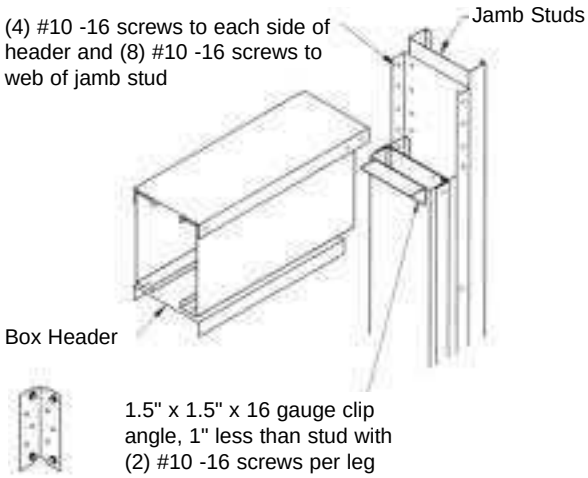


31 SHEAR WALL BASE DETAIL

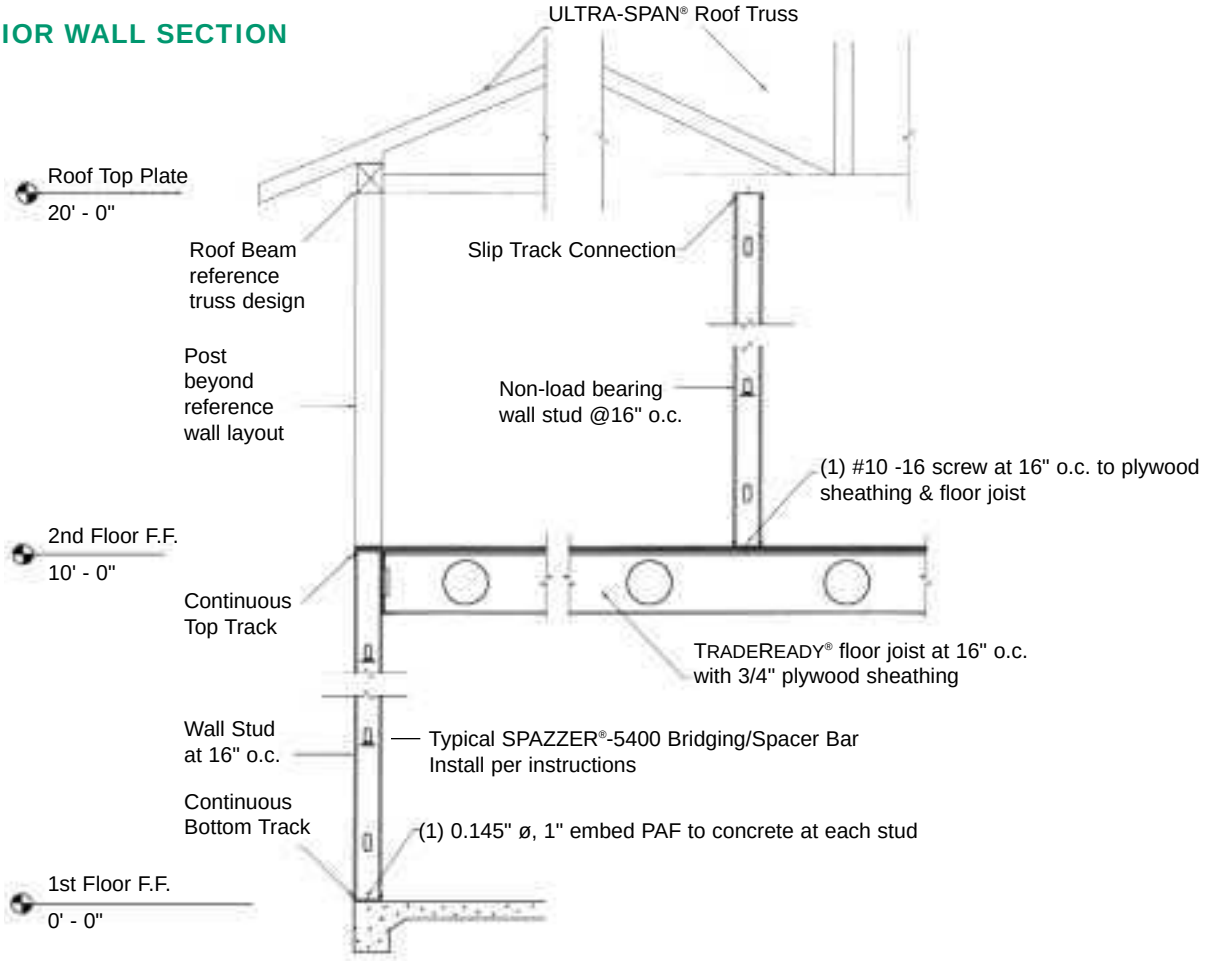
Shear wall bolted into concrete slab



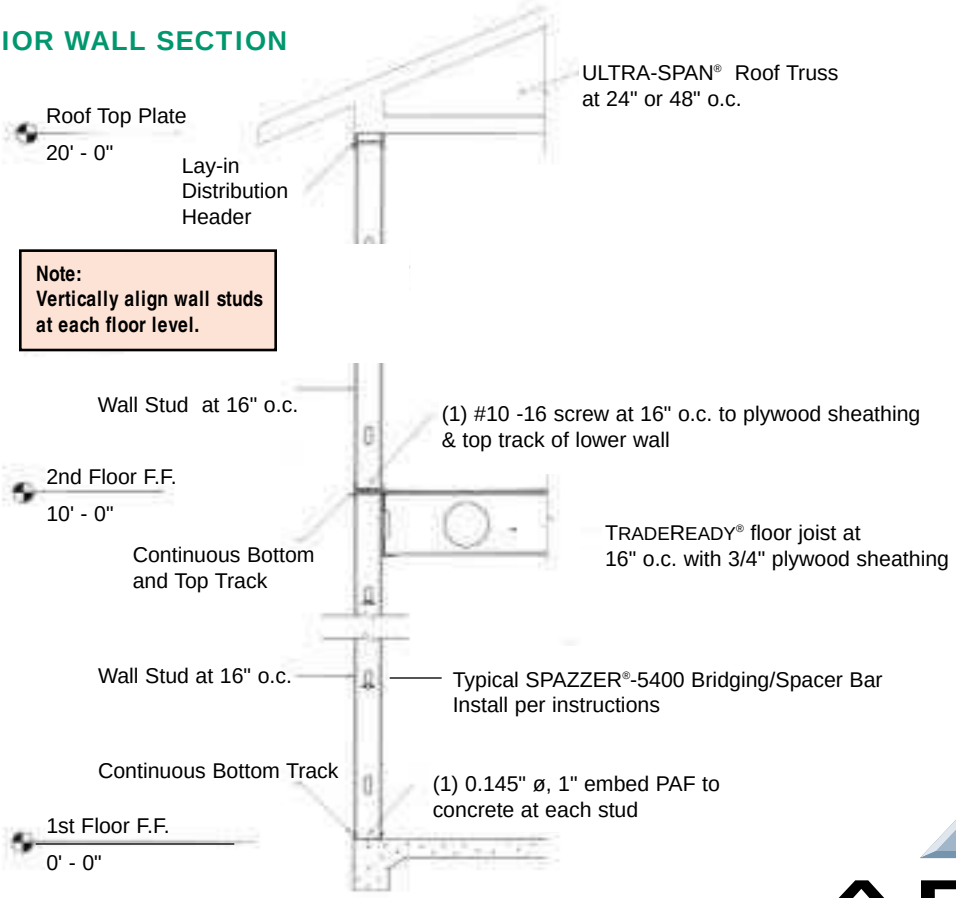
32 HEADER CONNECTION



33 EXTERIOR WALL SECTION



34 EXTERIOR WALL SECTION



Aegis Metal Framing presents

The Specification • Design • Manufacture of Light Gauge Steel Components

CONTINUING EDUCATION

AIA

Lecture Topics:

- **Light Gauge Steel Trusses**
- **Light Gauge Steel Floor Joist**
- **Light Gauge Steel Wall Panels**

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