



EFFICIENT DESIGN OF HSS CONNECTIONS

PRESENTED BY KIM OLSON, PE, FORSE CONSULTING, LLC

TRUE OR FALSE ??



HSS structures, in general, are more expensive than those made up primarily of wide flange sections

- Material

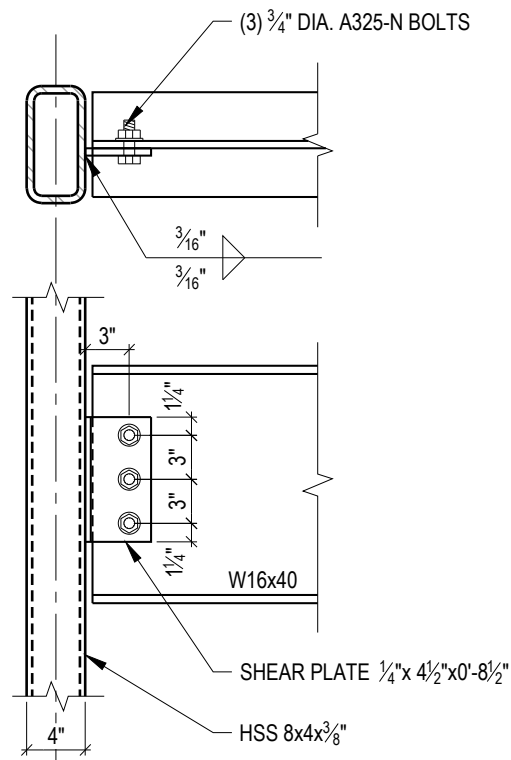
- Columns
- Beams

- Fabrication

- Weld shop or bolt shop?

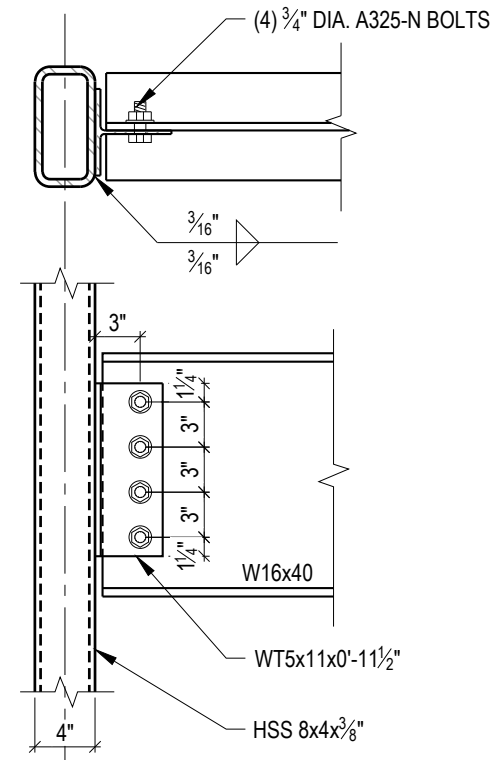


SHEAR CONNECTIONS



SINGLE PLATE CONNECTION

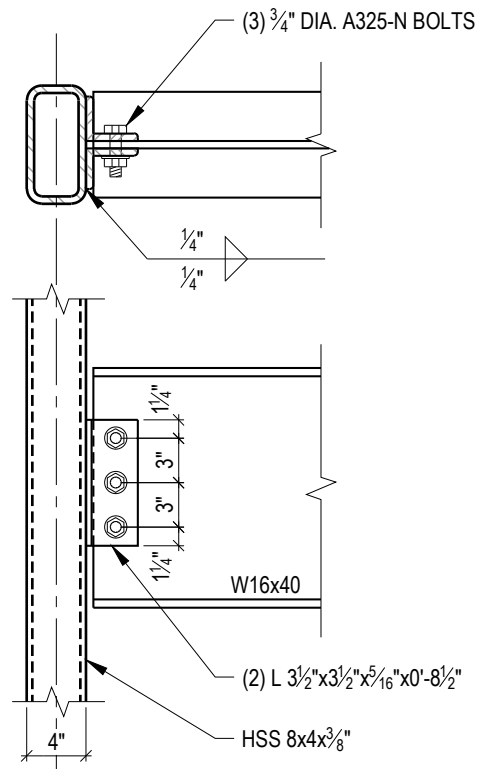
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WT CONNECTION

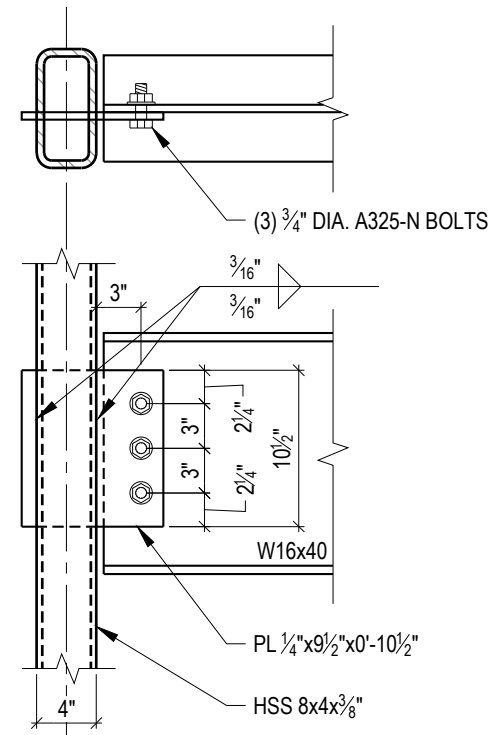
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SHEAR CONNECTIONS



DOUBLE ANGLE CONNECTION

SCALE : 1" = 1'-0"



THROUGH PLATE CONNECTION

SCALE : 1" = 1'-0"

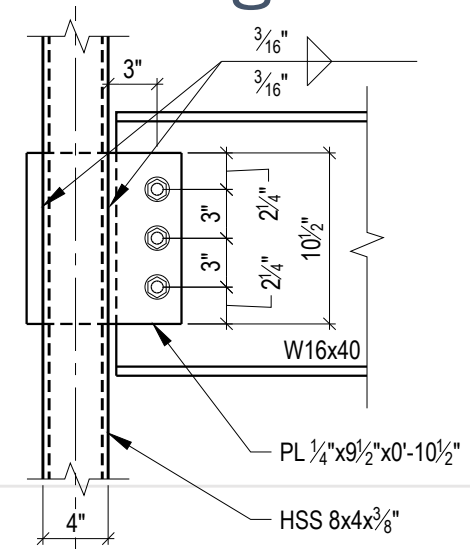
THROUGH PLATE SHEAR CONNECTION



Research found it is 4 times more expensive to specify a through plate than a shear plate welded to the face of the HSS wall.

Increase your wall thickness to avoid a through plate connection.

Watch your weld symbols.
2 directions.



THROUGH PLATE SHEAR CONNECTION



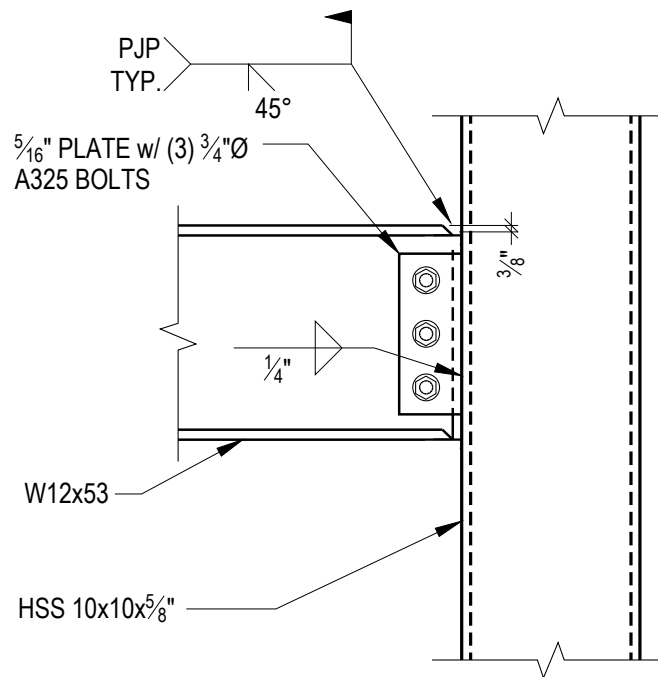
When to specify a through plate shear connection

- Axial loads
- Delegated connection engineer and column is too thin

When **NOT** to specify a through plate shear connection

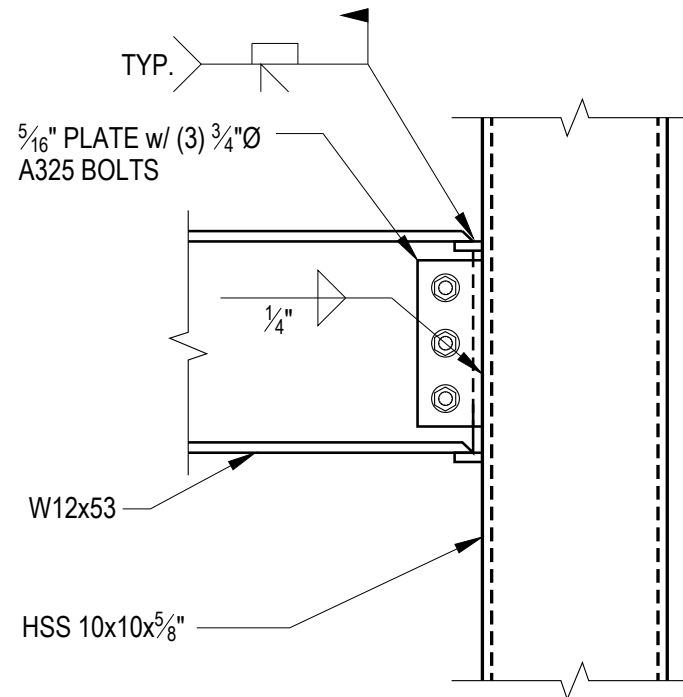
- As your standard connection!!!

MOMENT CONNECTION



PJP OPTION

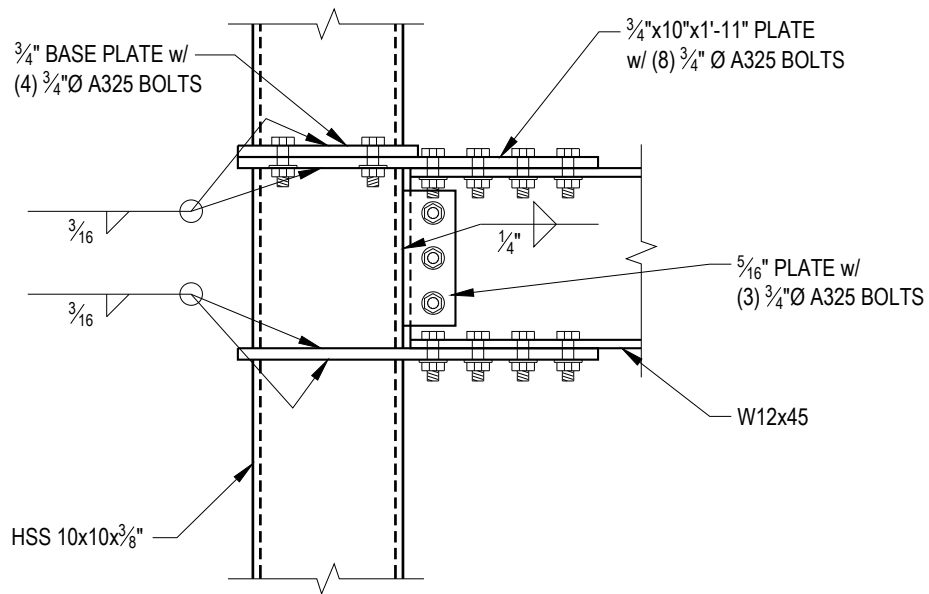
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CJP OPTION

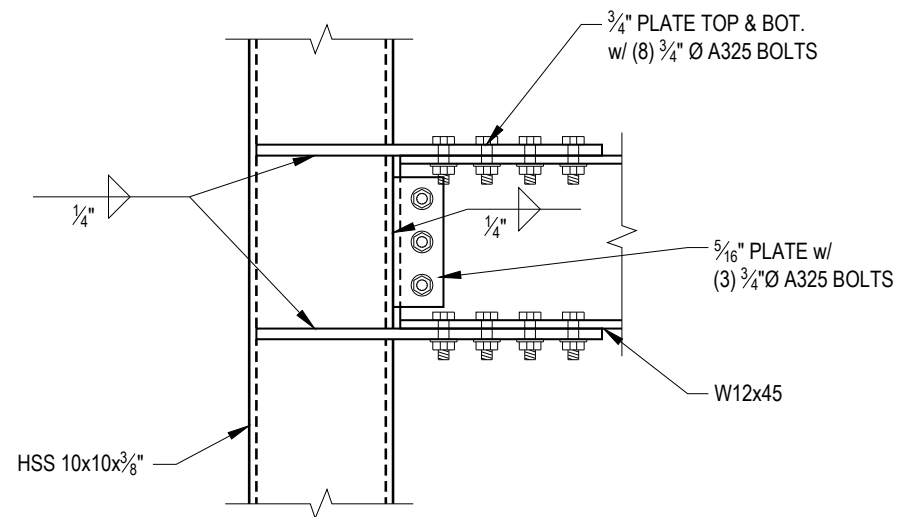
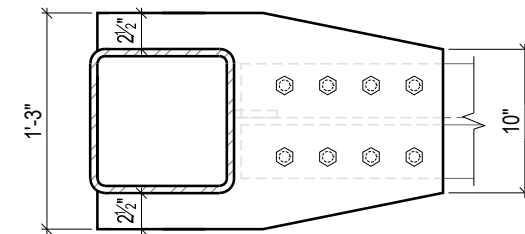
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MOMENT CONNECTION



THROUGH PLATE OPTION

SCALE : 1" = 1'-0"



CUT OUT PLATE OPTION

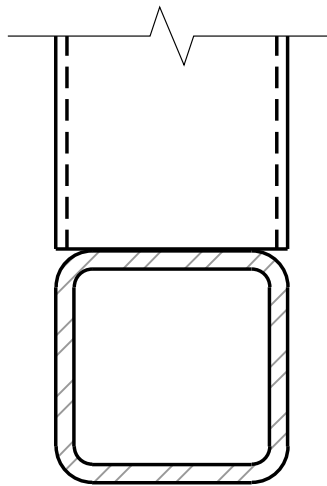
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MOMENT CONNECTION COST COMPARISON

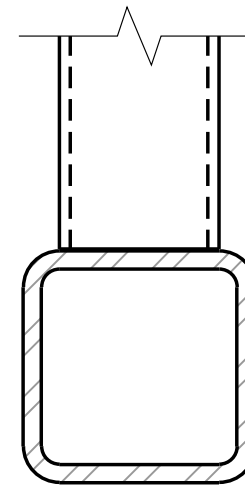


	PJP Weld	CJP Weld	Through Plate	Cut Out Plate
Column Wall t (in)	5/8	5/8	3/8	3/8
Relative Costs	1.0	1.43	1.59	1.38

WELDS MATCHED VS STEPPED CONNECTION

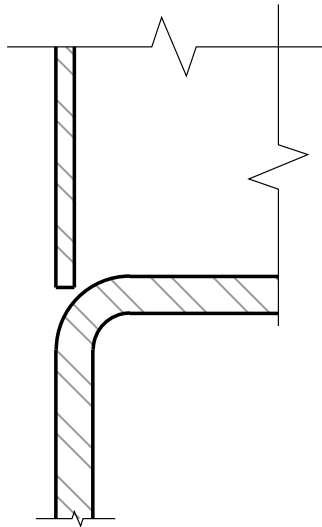


Matched Connection

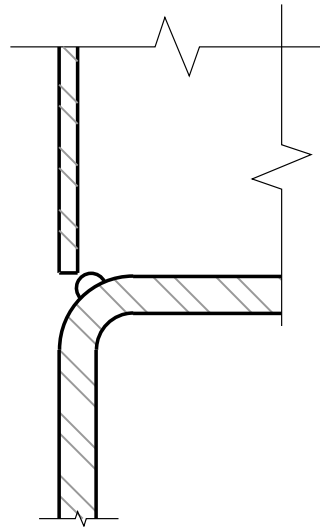


Stepped Connection

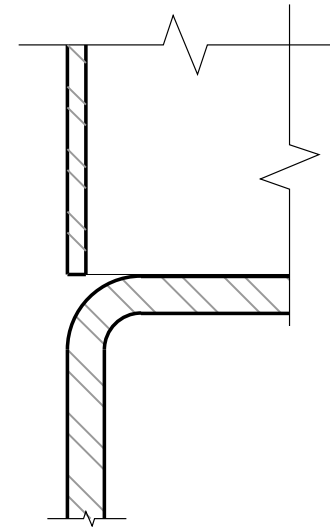
WELDS MATCHED CONNECTION



Tube Profiling



Weld backing



Steel backing

MATCHED VS STEPPED CONNECTION

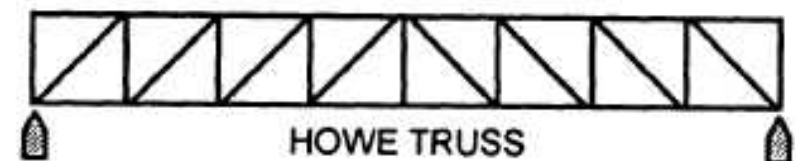


HSS HOLLOW STRUCTURAL SECTIONS

TRUSSES

Minimum weight of the truss \neq least cost

Fabrication costs factor heavily into finished structure cost



HOWE TRUSS



PRATT TRUSS



WARREN TRUSS

TRUSS CONNECTIONS- WELD SIZING



Size to develop the yield strength of the branch member

- Conservative
- Upper limit of weld size
- Appropriate if plastic stress redistribution is required for connection (moving loads)

Size to resist applied forces

- Must account for effective weld lengths

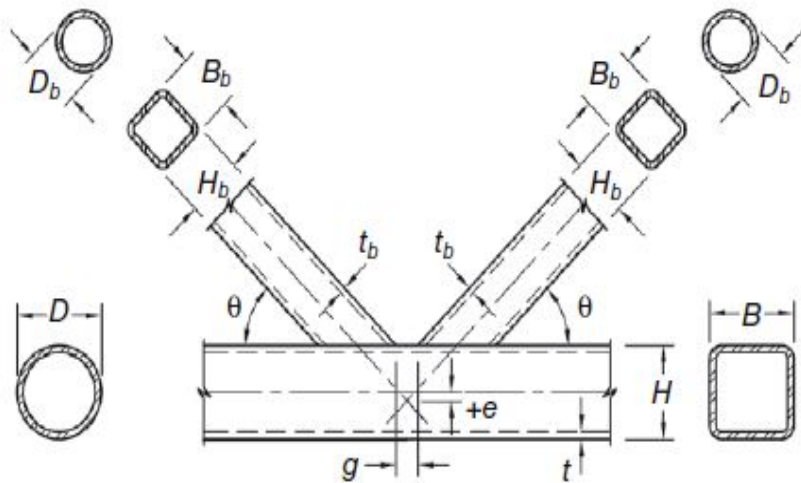
Proper joint design should allow you to specify an economical fillet weld

TRUSS CONNECTIONS – WELD SIZING



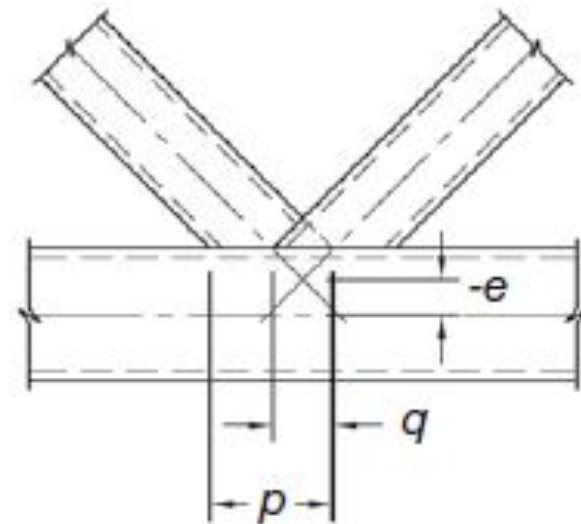
Gapped

- Less expensive



Overlapped

- Stronger joint
- Higher percentages of overlap, the higher the joint strength -> stiffer truss



PJP VS CJP WELDS

PJP welds are a good option if fillet weld sizes become large

CJP welds are generally not required and should be avoided

Increase HSS wall thickness if needed

Fillet weld \approx 2 hours

fit up work for one guy

CJP weld \approx 1 – 1.5 days

fit up work plus owner-incurred

UT testing



PURCHASING HSS FROM A SERVICE CENTER



Lengths of members? Waste? Available sizes – Capability Tool

Capability Chart

<< Adjust search parameters

SHAPE: Round

GRADE: A500 B/C

SEISMIC RATING: N/A

Wall Thickness	4	4.5	5	5.5	5.563	6	OUTSIDE 6.625
0.12		-		-	-	-	-
0.125				-	-		
0.134	-			-		-	
0.148	-	-	-	-	-	-	-
0.188				-			
0.22		-	-	-	-	-	-
0.226		-	-	-	-	-	-
0.237			-	-	-	-	-
0.247	-	-		-	-	-	-
0.25				-			
0.258	-	-				-	-
0.28	-	-	-	-	-		
0.312	-	-		-	-		
0.313				-	-	-	-

Product Capability

The following Producers regularly manufacture the selected shape as part of their rolling schedule.

Independence Tube

jtassone@independencetube.com

(800) 376-6000

<http://independencetube.com>

The following Producers do not regularly manufacture the selected shape as part of their rolling schedule, however their capabilities include this size. Please inquire directly for ordering options.

Atlas Tube

sales@atlastube.com

(800) 773-5683

<http://atlastube.com>

Independence Tube

jtassone@independencetube.com

(800) 376-6000

<http://independencetube.com>

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provided are available. Please adjust search criteria to see
d but that display of data limits number of fields

only return sections meeting the corresponding ductility



Hollow Structural Sections

NEW HSS Design
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Capability Tool

Welcome to STI's HSS Product
those within the steel supply
or HSS. To use, simply design
seismic ductility requirements
indicating the sizes of steel h
Click on any colored square to

requested. You can also find a complete list of HSS producers who are members of STI on the
Producers page of this website which contains additional information and more detailed contact

**NOW TO THE REALLY
EXCITING STUFF...**



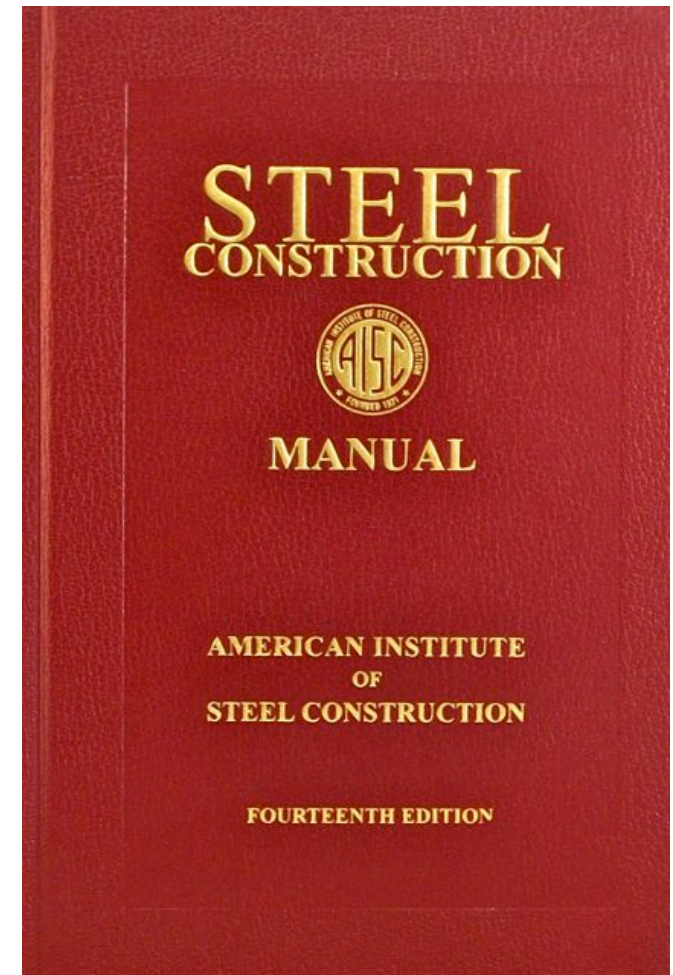
..... THE CODE!



AISC 360-10, CHAPTER K



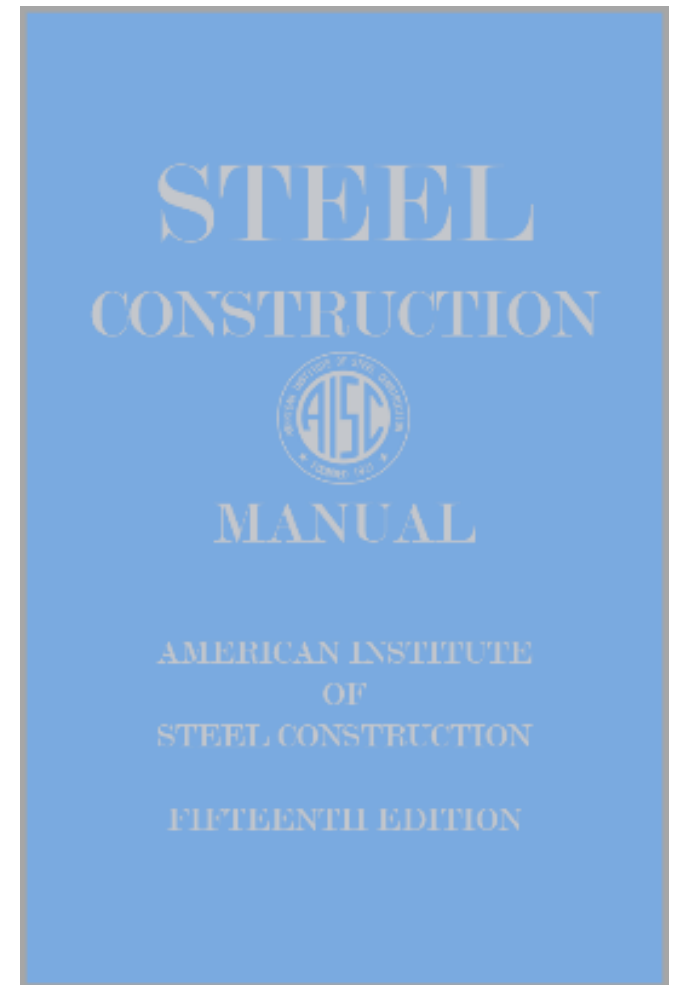
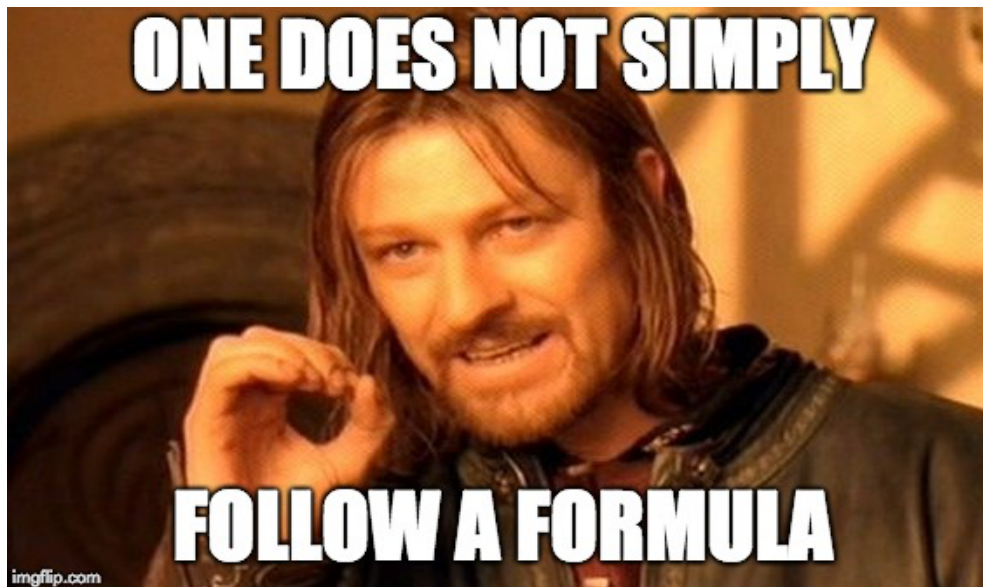
- ☐ Tables
 - ☐ Prescriptive
 - ☐ Unique to the Spec
- ☐ Repetitive
- ☐ Limits of Applicability



AISC 360-16, CHAPTER K



- ☐ “Additional Requirements for HSS and Box-Section Connections”
- ☐ Introduction clearly states the requirements of Chapter J also apply



ROUND SECTIONS



- ☐ Largely unchanged
 - ☐ New Limit of Applicability
 - ☐ Shear tab not mentioned
 - ☐ Cap plate not mentioned

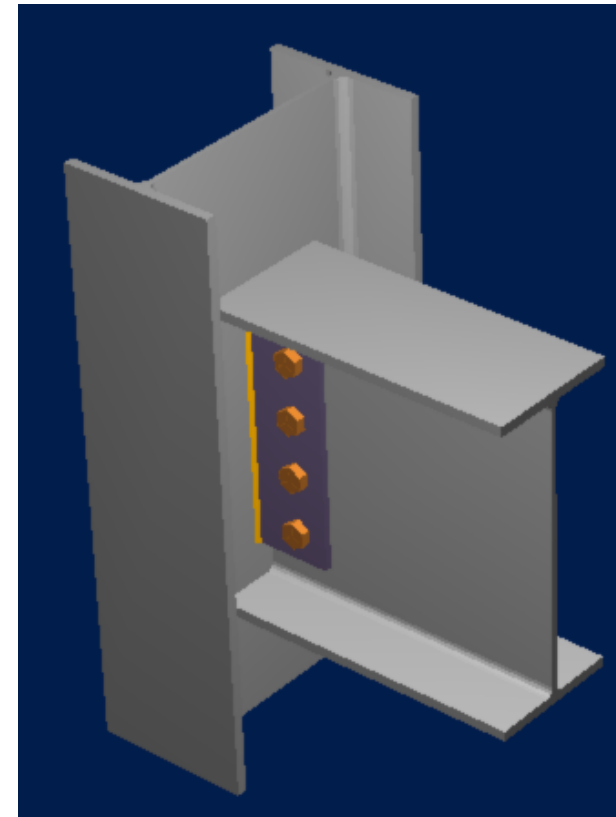
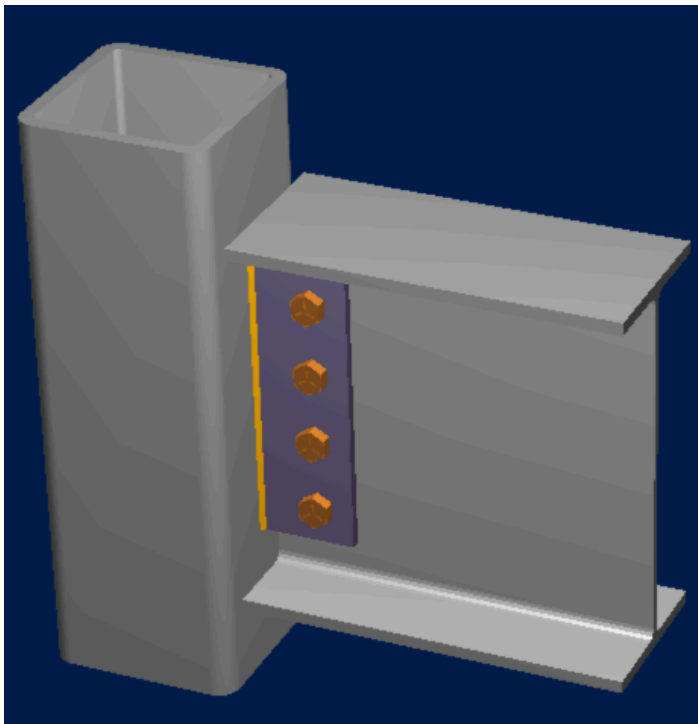


Packer, 2015

RECTANGULAR SECTIONS



- ❑ References Chapter J
- ❑ Fundamentally



RESOURCE – LIMIT STATE TABLE - AXIAL

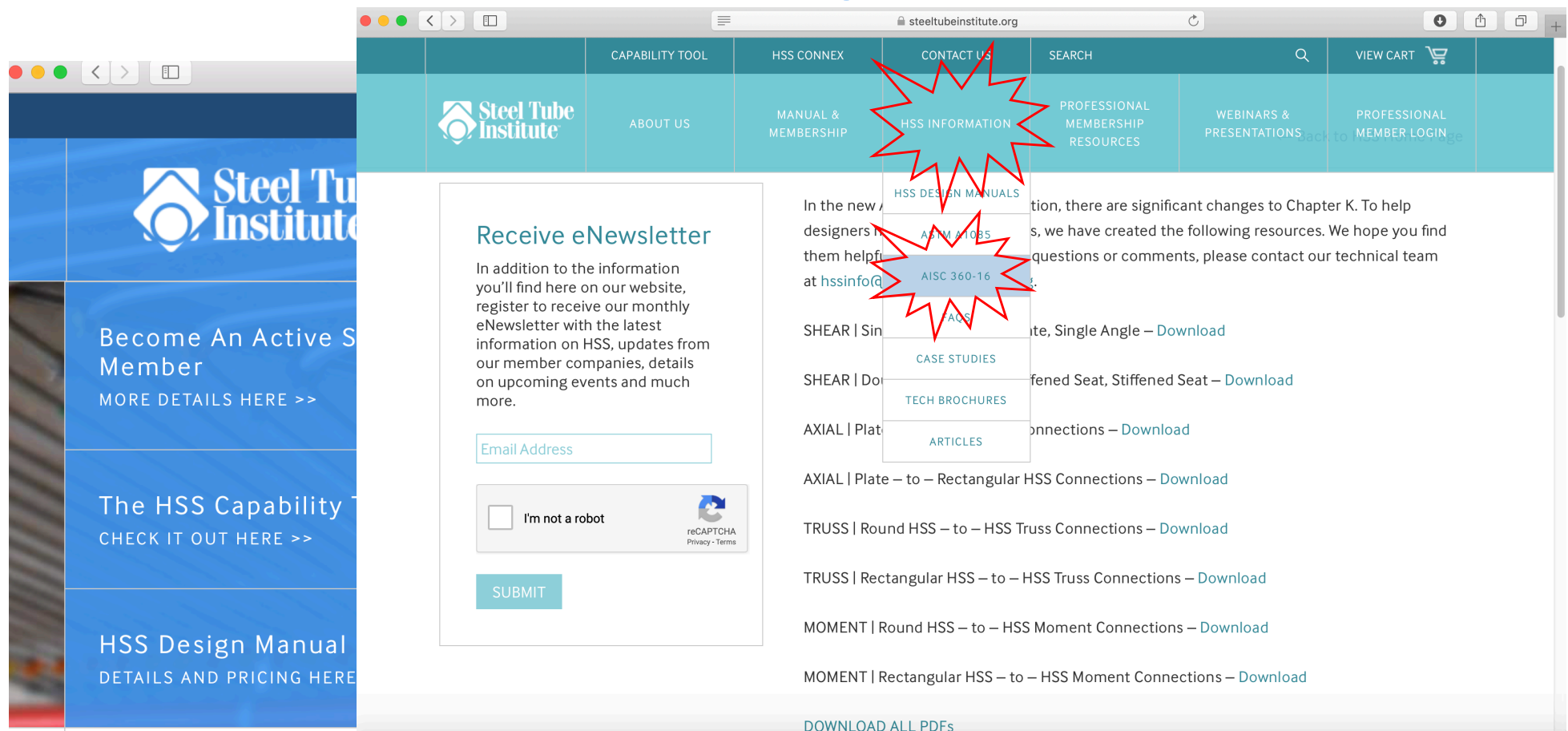


LIMIT STATE TABLE: CONNECTION AVAILABLE STRENGTH											
AXIAL LOAD PERPENDICULAR TO											
Element	Limit State	Plate-to-Round HSS Connections									
		Transverse Plate T- and Cross-Connections		Longitudinal Plate T-, Y-, and Cross-Connections		Cap Plate Connections		Transverse Plate T-Connections			
								where $\beta = \frac{R_y}{R_x}$			
AISC Specification and Manual References		AISC 360-10 and 14th Ed. Manual	AISC 360-16 and 15th Ed. Manual	AISC 360-10 and 14th Ed. Manual	AISC 360-16 and 15th Ed. Manual	AISC 360-10 and 14th Ed. Manual	AISC 360-16 and 15th Ed. Manual	AISC 360-10 and 14th Ed. Manual	AISC 360-16 and 15th Ed. Manual	AISC 360-10 and 14th Ed. Manual	AISC 360-16 and 15th Ed. Manual
1	Flexure	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A
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17	Flexure	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A
18	Flexure	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A
19	Flexure	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A
20	Flexure	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A
21	Flexure	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A
22	Flexure	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A
23	Flexure	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A
24	Flexure	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A
25	Flexure	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A
26	Flexure	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A
27	Flexure	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A
28	Flexure	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A
29	Flexure	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A
30	Flexure	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A
31	Flexure	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A
32	Flexure	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A
33	Flexure	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A
34	Flexure	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A
35	Flexure	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A
36	Flexure	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A
37	Flexure	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A
38	Flexure	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A
39	Flexure	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A
40	Flexure	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A
41	Flexure	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A
42	Flexure	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A
43	Flexure	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-9) and Table K1.2A	Table K1.2, eq. (K1-			

RESOURCE – LIMIT STATE TABLE




 <https://steeltubeinstitute.org/hss/hss-information/aisc-360-16/>



The screenshot displays the Steel Tube Institute website. The top navigation bar includes links for CAPABILITY TOOL, HSS CONNEX, CONTACT US, SEARCH, and VIEW CART. The main content area features a sidebar with a newsletter sign-up form and a list of resources. A red starburst graphic highlights the 'HSS INFORMATION' link in the top navigation bar and the 'AISc 360-16' link in the sidebar. The main content area lists various HSS design manuals and connections, each with a 'Download' link.

Receive eNewsletter

In addition to the information you'll find here on our website, register to receive our monthly eNewsletter with the latest information on HSS, updates from our member companies, details on upcoming events and much more.

☐ I'm not a robot 

HSS INFORMATION

- [HSS DESIGN MANUALS](#)
- [AISc 360-16](#)
- [SHEAR | Single Angle – Download](#)
- [SHEAR | Double Angle – Download](#)
- [AXIAL | Plate – to – Rectangular HSS Connections – Download](#)
- [AXIAL | Plate – to – Round HSS Connections – Download](#)
- [TRUSS | Round HSS – to – HSS Truss Connections – Download](#)
- [TRUSS | Rectangular HSS – to – HSS Truss Connections – Download](#)
- [MOMENT | Round HSS – to – HSS Moment Connections – Download](#)
- [MOMENT | Rectangular HSS – to – HSS Moment Connections – Download](#)

[DOWNLOAD ALL PDFs](#)

A500 GR B VS GR C SMACKDOWN



- DUAL CERT!!!
- Always specify Grade C!

Atlas Tube Canada ULC
200 Clark St.
Harrow, Ontario, Canada
N0R 1G0
Tel: 519-738-3541
Fax: 519-738-3537



MATERIAL TEST REPORT

Heat No	C	Mn	P	S	Si	Al	Cu	Cb	Mo	Ni	Cr	V
S55194	0.160	0.790	0.006	0.010	0.012	0.048	0.000	0.000	0.000	0.000	0.000	0.000
Material	Yield		Tensile		Elon.2in		Certification					
4 X 2 X .188	055129 Psi		067817 Psi		35.0 %		ASTM A500-10A GRADE B&C					

Due to the flexibility of their walls, local strength of an HSS at the connection may control the capacity of the connection.

This is very different than designing for Wide Flange (WF) supports.

Understanding this while sizing members will mean efficient and economical connections without the need for costly stiffeners or reinforcing.



RISACONNECTION

WEBINAR SERIES

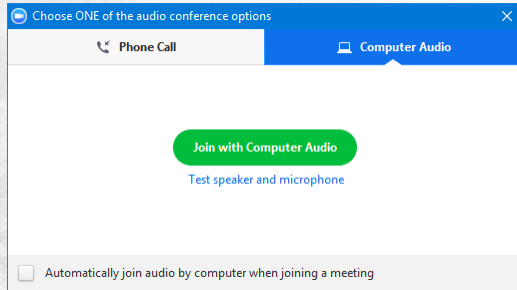
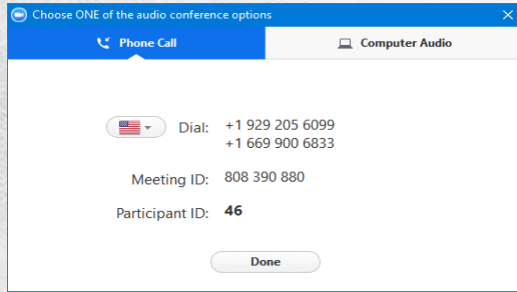
EFFICIENT DESIGN OF HSS CONNECTIONS

Ben Follett, PE
RISA

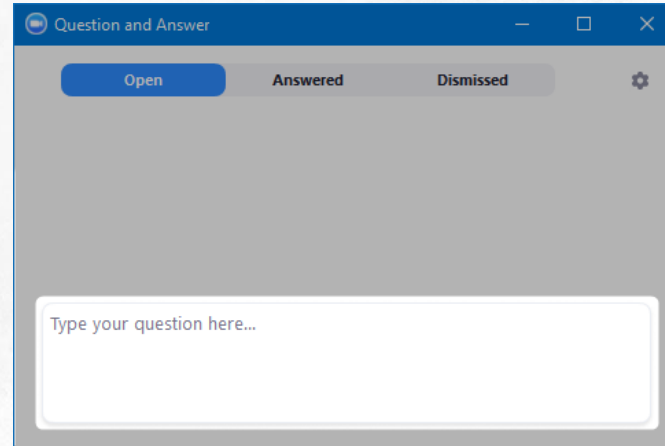
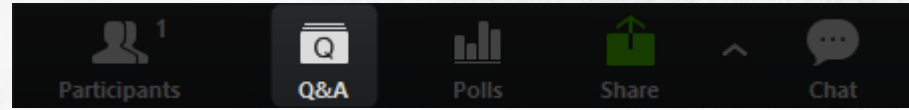
Kim Olson, PE
Steel Tube Institute

ZOOM WEBINAR SETTINGS

Audio Options:



Questions:

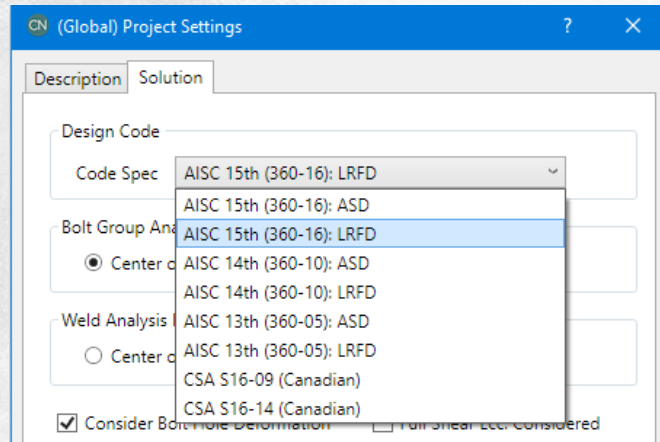


AVAILABLE DESIGN CODES

AISC 360-16/10/05 (ASD/LRFD)

AISC 341-10 (ASD/LRFD)

CSA S16-14/09



AVAILABLE HSS CONNECTION TYPES

Shear Connections

- HSS Column/Beam Clip Angle
- HSS Column/Beam End Plate
- HSS Column/Beam Shear Tab

Moment Connections

- HSS Column/Beam Ext. End Plate
- HSS Column/Beam Flange Plate
- HSS Column/Beam Direct Weld

Truss

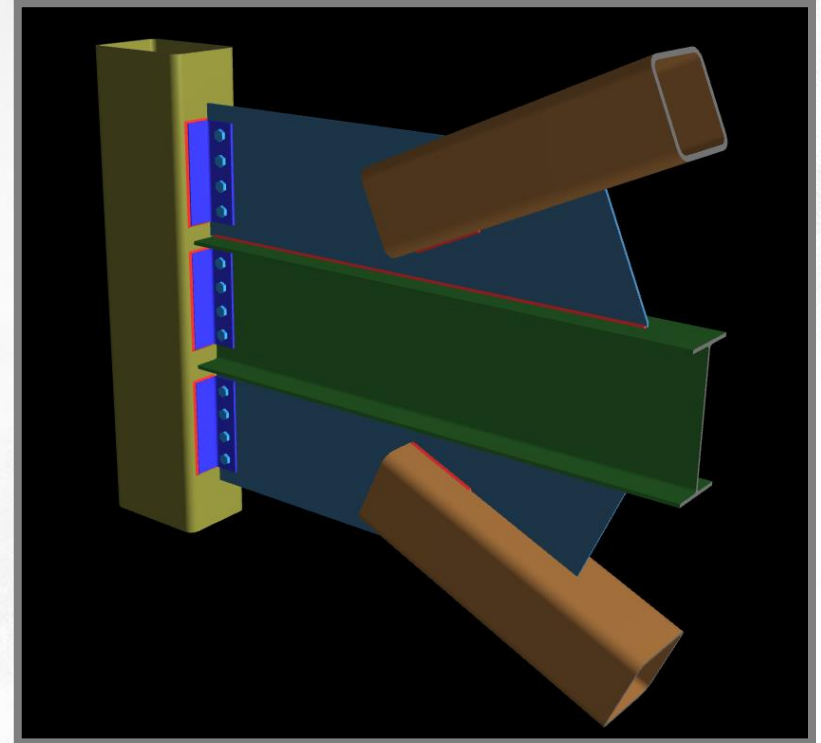
- HSS to HSS

Brace

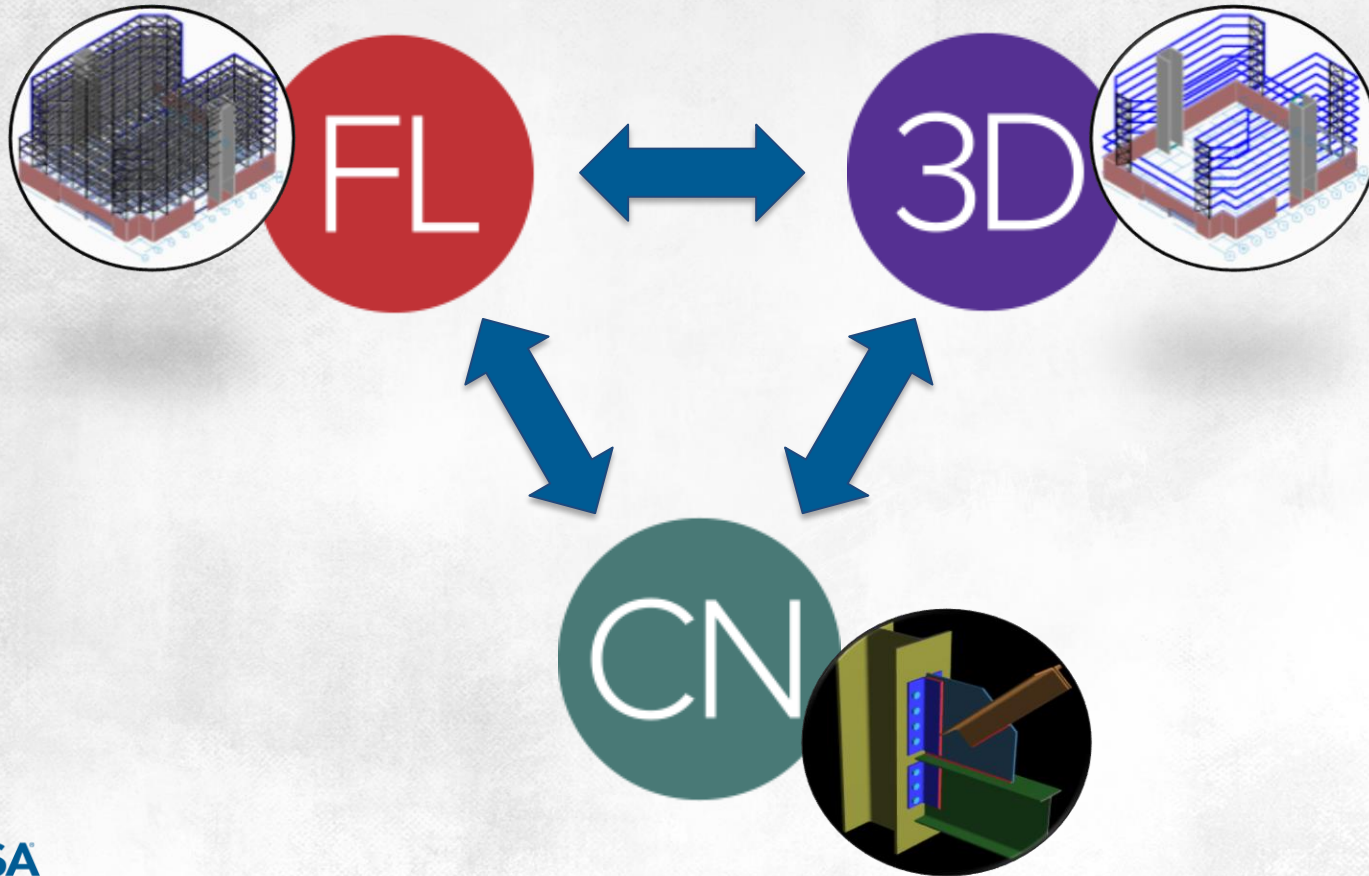
- Vertical Diagonal Brace
- Vertical Chevron Brace
- Knee Brace

Baseplate

- HSS Column
- HSS Column w/ Vertical Brace



INTEGRATION





RISACONNECTION

WEBINAR SERIES

QUESTIONS...?

