



# SHURIKEN CONCEPTUAL DETAILS SUBJECT

MADE BY

BETTER BOLTED CONNECTIONS	TABLE OF CONTENTS pg 2						
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SHOKIKLIN CONCLITONE DETRIES	SHURIKEN	CONCEPTUAL	DETAILS
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SUBJEC

SHURIKEN INTRO

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pg 3

### Shuriken Better Bolted Connections

Shuriken is a revolutionary way to field bolt connections that used to require field welds. The built-in wrench allows you to design for a wide range of quick and easy field-bolted connections, like HSS, SpeedCore and more. By eliminating field welds and other expensive one-sided connections, Shuriken saves you time and money on the job and simplifies inspections to accelerate erection.

## Unlock All the Benefits of HSS

With Shuriken, you can use HSS in more designs, more ways, more affordably. With high strength-to-weight ratios, exceptional torsional resistance and an aesthetically pleasing appearance, HSS are a more efficient and sustainable option than wide-flange sections. However, complicated connections and field welds have held engineers back from freely incorporating HSS into their designs. Not anymore. With Shuriken, you can easily field bolt a wide range of HSS connection types, making them more affordable and accessible than ever.

To learn more about Shuriken visit atlastube.com/shuriken. For immediate project support contact our team.



These conceptual details are presented to spark imagination and convey basic configurations for using Shuriken. Every project has different physical and code requirements, and the engineer is responsible for choosing and verifying acceptable materials, configurations, sizes and quantities to satisfy those requirements, regardless of the information shown in this document.

0	<b>Shuriken</b> <sup>™</sup>	
_	BETTER BOLTED CONNECTIONS	

SUBJEC

HSS SPECIFICATIONS

Y DA

pg 4

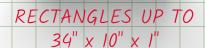




SQUARES UP TO

22" x 22" x 1"





#### HSS MATERIAL SPECIFICATIONS

ASTM ASOO Gr. C: Fy = 50 ksi; Fu = 62 ksi; MOST COMMON HSS MATERIAL

DESIGN WALL THICKNESS = .93 \* NOMINAL WALL THICKNESS

ASTM A1085: Fy = 50 ksi; Fu = 65 ksi; MORE DEMANDING APPLICATONS

ASTM A847: Fy = 50 ksi; Fu = 70 ksi; IMPROVED CORROSION RESISTANCE

DESIGN WALL THICKNESS = .93 \* NOMINAL WALL THICKNESS

DESIGN WALL THICKNESS = NOMINAL WALL THICKNESS

#### COMPACTNESS LIMITS (PER AISC 360-22; Fy = 50 ksi & E = 29,000 ksi)

COMPRESSION MEMBERS

NON-SLENDER IF b/t < 33.72

FLEXURAL MEMBERS

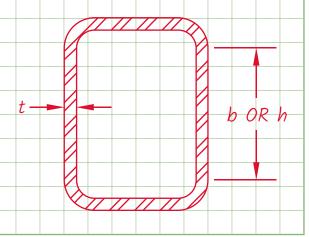
FLANGES COMPACT IF b/t < 26.97

NON-COMPACT IF b/t < 33.72

WEBS

COMPACT IF b/t < 58.28

NON-COMPACT IF b/t < 137.3



	PROJECT			•				MADE	BY				DATE			
<b>♥</b> Shuriken <sup>™</sup>	SHURIKEN SUBJECT	CONC	EPTU	AL	DE	:TAI	LS									
BETTER BOLTED CONNECTIONS	BOLTING	CONFI	GURA	TIO	NS											pg
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SINGLE SHEAR SPLICE

HSS COLUMN

pg 6

INTERNAL SPLICE PLATE WITH SHURIKEN

SHOP BOLTS, LOOSEN SLIGHTLY PRIOR TO ERECTION FOR ADDITIONAL TOLERANCE.

FIELD BOLTS

SHIM PLATES AS REQUIRED WHEN UPPER AND LOWER COLUMN SECTIONS HAVE DIFFERENT WALL THICKNESSES

THE SINGLE SHEAR SPLICE HAS A CLEAN AESTHETIC WELL-SUITED TO AESS APPLICATIONS. MORE BOLTS MAY BE REQUIRED THAN THE DOUBLE SHEAR SPLICE.



SUBJEC\*

DOUBLE SHEAR SPLICE

BY DA

HSS COLUMN

DAIL

pg 7

INTERNAL SPLICE
PLATE WITH SHURIKEN

EXTERNAL SPLICE PLATE

OPTIONAL BEND ON SPLICE PLATES TO EASE ERECTION

FIELD BOLTS

SHOP BOLTS, LOOSEN
SLIGHTLY PRIOR TO
ERECTION FOR ADDITIONAL
TOLERANCE.

SHIM PLATES AS REQUIRED
WHEN UPPER AND LOWER
COLUMN SECTIONS HAVE
DIFFERENT WALL
THICKNESSES

THE DOUBLE SHEAR SPLICE
REQUIRES FEWER BOLTS AND
LESS MATERIAL THAN THE SINGLE
SHEAR SPLICE BUT LEAVES
PLATES EXPOSED TO VIEW.

	PROJECT MADE BY	DATE
<b>⊘</b> Shuriken <sup>™</sup>	SHURIKEN CONCEPTUAL DETAILS	
BETTER BOLTED CONNECTIONS	HANGING SHEAR CONNECTION	pg 8
	COLUMN (HSS C	OR WF)
	HALF HSS SHEA	
	FILLET WELDED	TO COLUMN
		-
	HSS BEAM COPE TO ACCOMMODA	
	HSS SHEAR TAB	
	(4" MIN. WIDTH)	
	SHOP BOLTS	
		THE PROPERTY OF THE PARTY OF TH
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	INTERNAL HANGER	
	TABS WITH SHURIK	
	FIELD BOLTS	
	THE HANGING SHEAR CO	
	PROVIDES A CLEAN AEST	
	BEAMS IN AESS APPLICA	TIONS WITH

RELATIVELY LIGHT LOADS.

Q	Sh			
			×	. Daniel

SUBJECT

COPED SHEAR CONNECTION

DA<sup>-</sup>

pg 9

COLUMN (HSS OR WF) DOUBLE INTERNAL SHEAR TABS WITH SHURIKEN HSS BEAM (4" MIN. WIDTH) COPE HSS FIELD BOLT

THE COPED SHEAR CONNECTION IS AN ECONOMICAL OPTION WHEN THE ENDS OF THE HSS BEAM CAN BE LEFT OPEN.

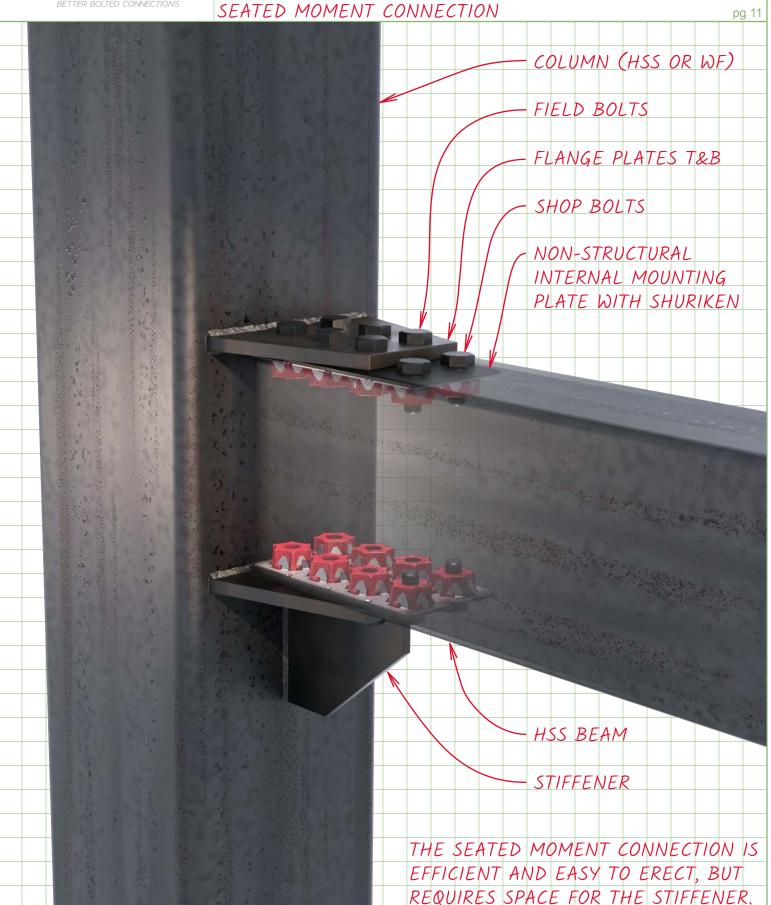
	PROJECT			MADE BY	DATE	
<b>⊘</b> Shuriken <sup>™</sup>	SHURIKEN C	ONCEPTUAL	DETAILS			
	SUBJECT			'	<u>'</u>	
BETTER BOLTED CONNECTIONS	EXTERNAL S	HEAR CONN	IECTION			pg 10
1 1 1 1 1 1 1 1						
1 1 2 2 1 1 2			601	111111111111	(001)	
			COL	UMIN (HS	S OR WF)	
		- 58	DOU	BLE EXT	ERNAL	
				AR TABS		
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			H<<	RFAM (	a" MIN. WI	DTH)
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115 3 1 1 1 1 1			SHO	P BOLT		
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				ERNAL MO		
			PLA.	TE WITH	SHURIKEN	
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			-1-1	N POLT		
(1) (1) (1) (1) (1) (1) (1) (1) (1) (1)		404	- FIEL	D BOLT		

THE EXTERNAL SHEAR CONNECTION IS A GOOD OPTION FOR CASES WHERE THE

BEAM NEEDS TO BE SEALED.



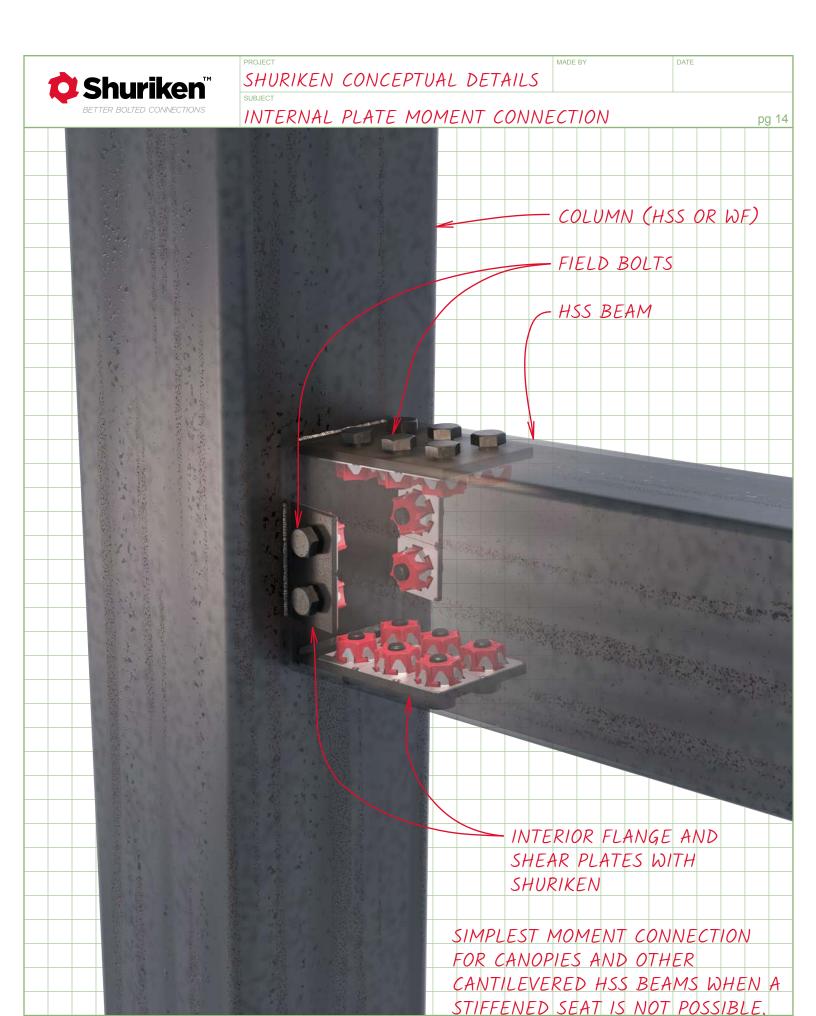
SUBJECT



<b>↑</b> Churilon™	PROJECT SHURIKEN CONCEPTUAL DETAILS  MADE BY  DATE	
Shuriken <sup>™</sup> BETTER BOLTED CONNECTIONS	SUBJECT	g 12
	WIDE-FLANGE COLUMN	9 12
	STIFFENERS STIFFENERS	
	AS REQUIRED	
	END PLATE - ATTACH	
	SHURIKEN BEFORE SHOP	
	WELDING TO BEAM	
	HSS BEAM	
Staron Waller		Esta
		mir
		7 19
		100
		1
		-
		× 3
	FIELD BOLTS	
	THE END PLATE MOMENT  CONNECTION HAS CLEAN	
	AESTHETICS, THOUGH CAPACITY M	
	BE LIMITED COMPARED TO OTHER TYPES OF MOMENT CONNECTION.	$\perp$

TM	PROJECT SHURIKEN CONCEPTUAL I	DETAILS MADE BY	DATE
Shuriken BETTER BOLTED CONNECTIONS	SIDEPLATE® MOMENT CO.		ng 12
	SIDEFEATE MOMENT CO.	IVIVECTION	pg 13
		- COLUMN (HSS OR	WF)
RESIDENCE OF THE SECOND		- SIDEPLATE - FILL	ET WELD TO
		COLUMN ON THRE	
		- NON-STRUCTURAL	
		INTERIOR MOUNTII	
		PLATE WITH SHUR	IKEN
		- CHOD POLTS	
		- SHOP BOLTS	
	7 4		
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1			STATE OF THE SECOND
		The state of the s	
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			A STATE OF THE PARTY OF THE PAR
		- HSS BEAM.	
The Marie Banks		MATCH COLUMN W	NDTH
		- FIELD BOLTS	
基本 电电子	440 1 (4)		

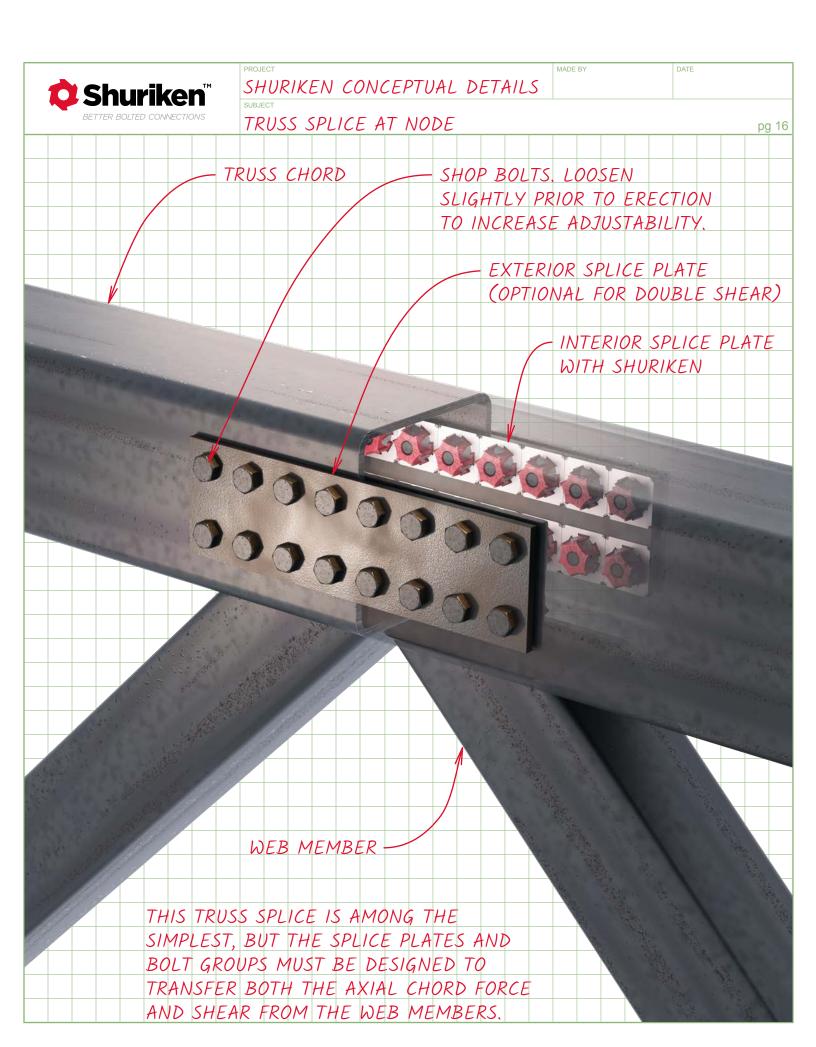
NOTE: SIDEPLATE CONNECTIONS
ARE PROPRIETARY.



<b>⊘</b> Shuriken <sup>™</sup>	PROJECT SHURIKEN CONCEPTUAL DETAILS  MADE BY  DATE
BETTER BOLTED CONNECTIONS	SUBJECT  STUB MOMENT CONNECTION pg 15
	COLUMN (HSS OR WF)
	HSS STUB WELDED TO
	COLUMN ALL AROUND.  MATCH BEAM SIZE.
	INTERNAL SPLICE
	PLATES WITH SHURIKEN
	HSS BEAM
	SUOD POUTS
	SHOP BOLTS
	FIELD BOLTS
	THIS CONNECTION HAS MORE PIECES
	AND BOLTS THAN THE INTERNAL PLATE  MOMENT CONNECTION (PREVIOUS PAGE)

BUT OFFERS LARGER CAPACITIES AND

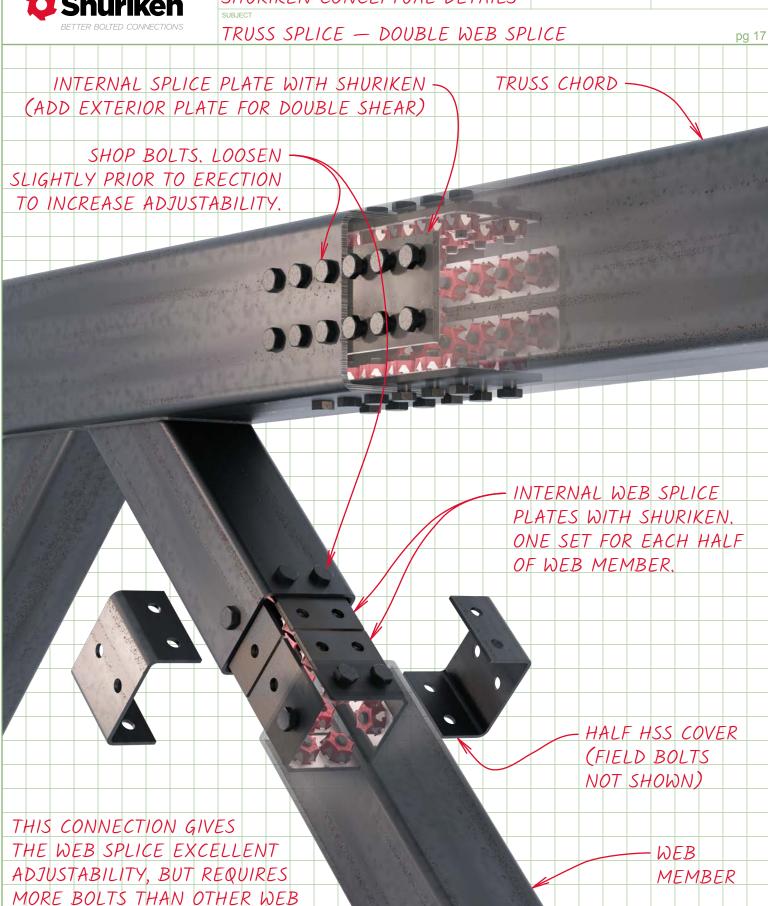
MORE ADJUSTABILITY DURING ERECTION.



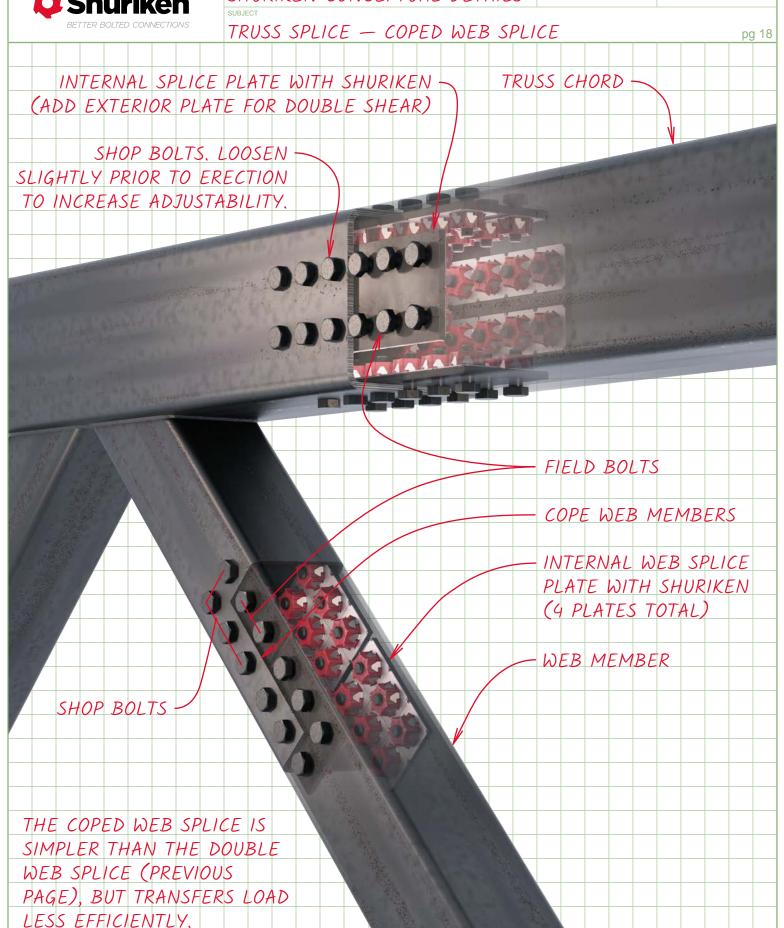
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SPLICE OPTIONS.

SHURIKEN CONCEPTUAL DETAILS

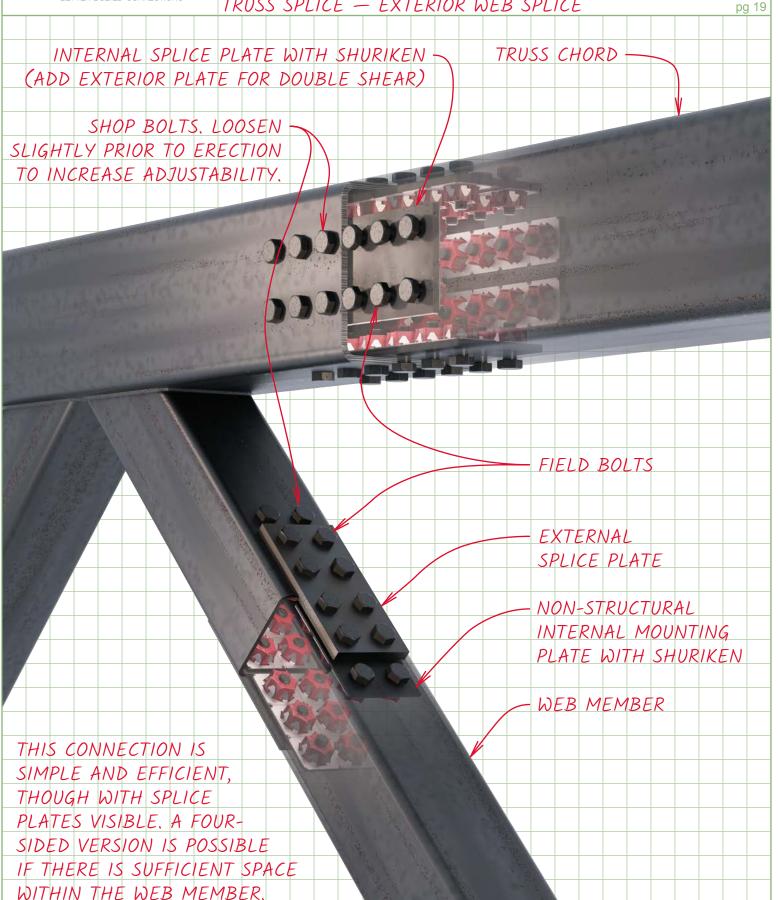


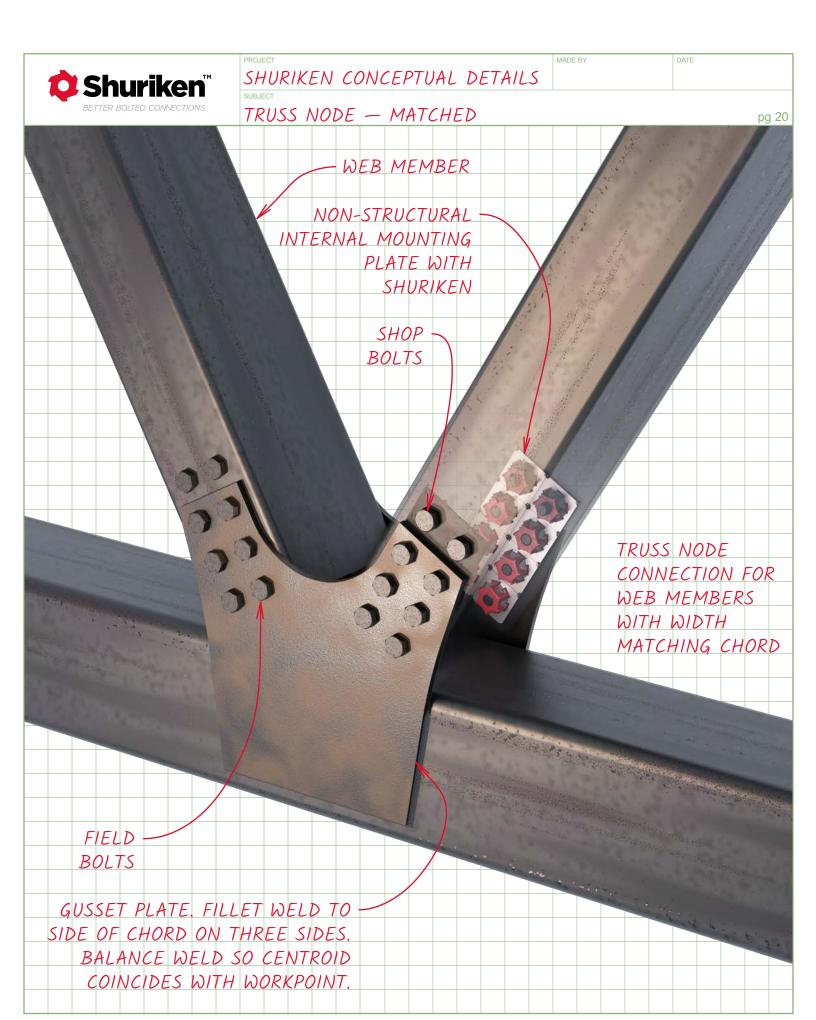
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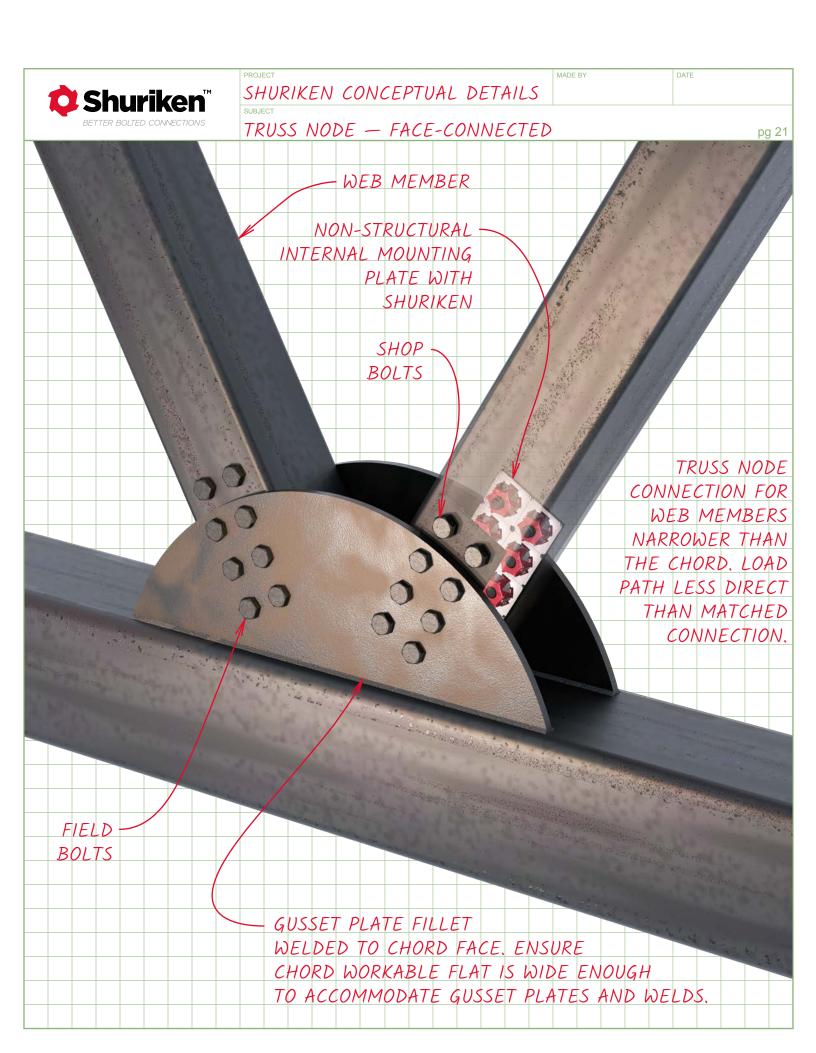


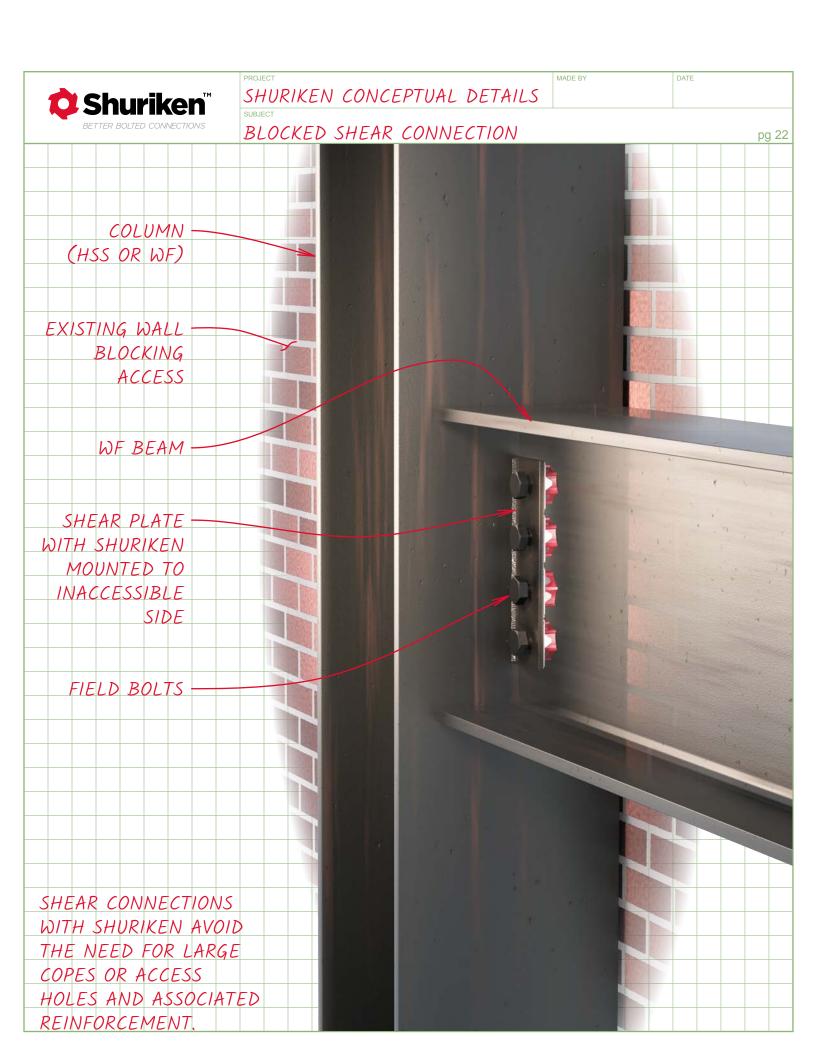


TRUSS SPLICE — EXTERIOR WEB SPLICE

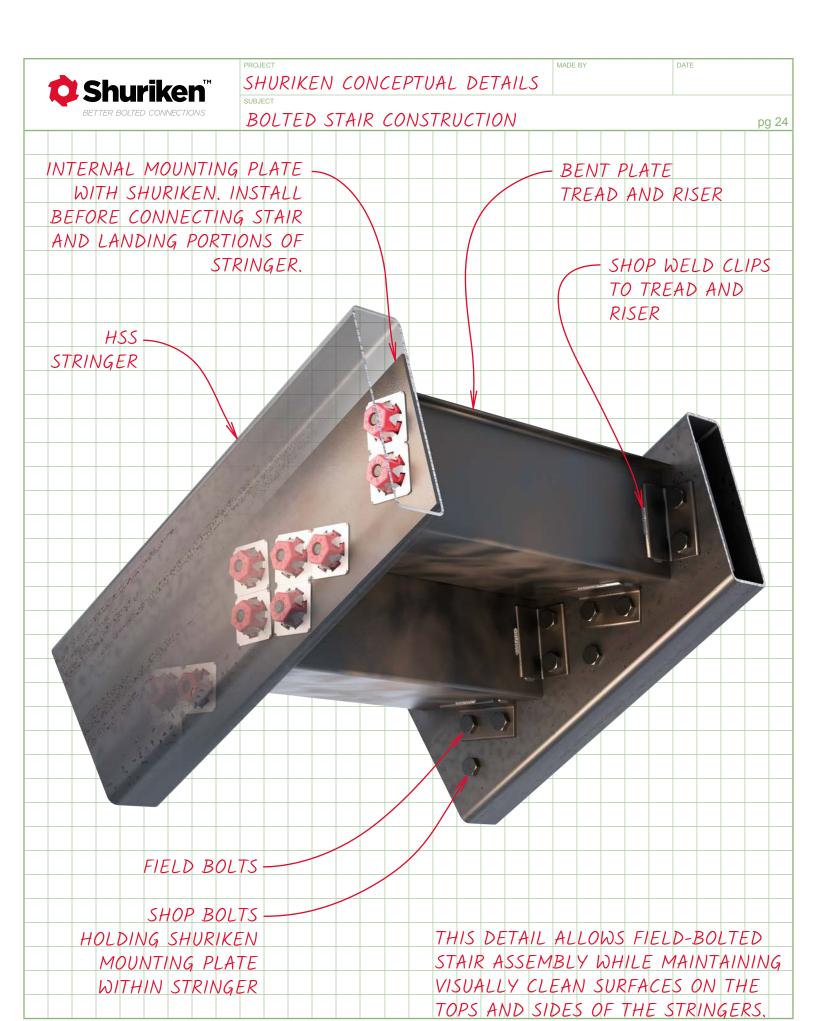


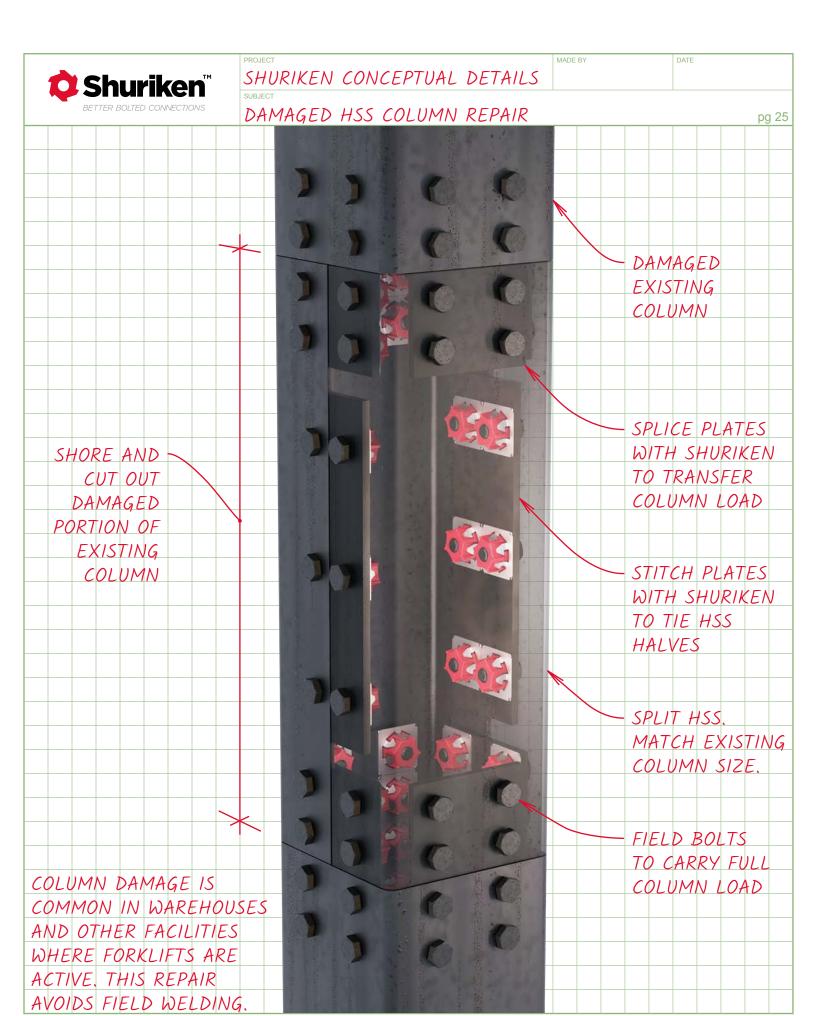




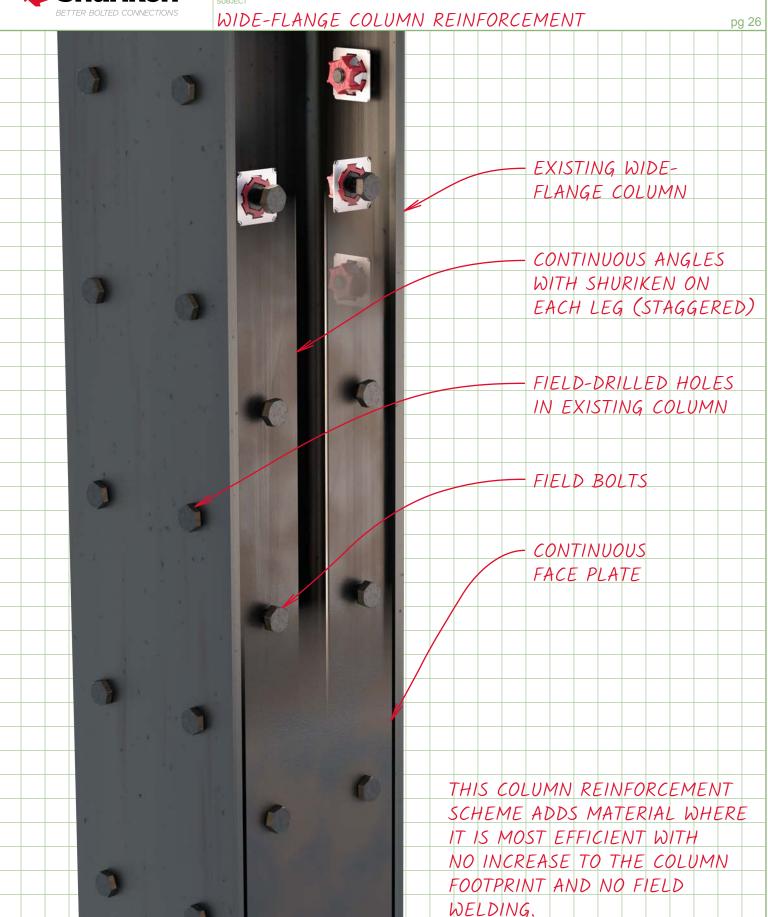


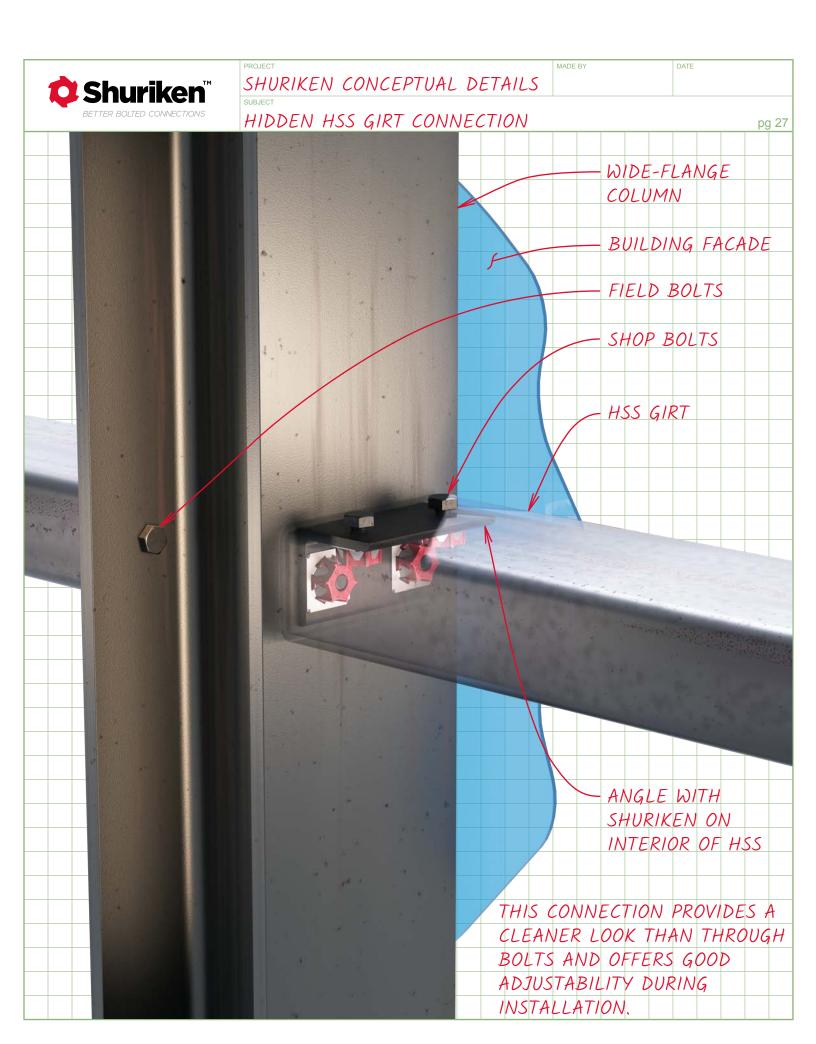
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<b>♥ Shuriken</b> ™	SUBJECT	I CONCEPTUAL DETAILS		
BETTER BOLTED CONNECTIONS	BLOCKED	MOMENT CONNECTION		pg 23
		1000		
COLUMN —		PERMIT		
(HSS OR WF)				
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EXISTING WALL -				SA (0)
BLOCKING ACCESS			. 1	
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STIFFENERS -				
AS REQUIRED				
FLANGE PLATE —				
125 75414				
WF BEAM —				
SHEAR PLATE -			X	
WITH SHURIKEN				
MOUNTED TO				
INACCESSIBLE SIDE				
FIELD BOLTS —		Sinter State		
		HILL STATE OF THE PARTY OF THE		
SHURIKEN —				
DIRECTLY MOUNTED			1	
TO INACCESSIBLE				
FLANGE				
THIS CONNECTION IS				
EFFICIENT ALTERNA		THE RELLEGIO		
TO WELDED MOMEN	<u> </u>			
CONNECTIONS.				

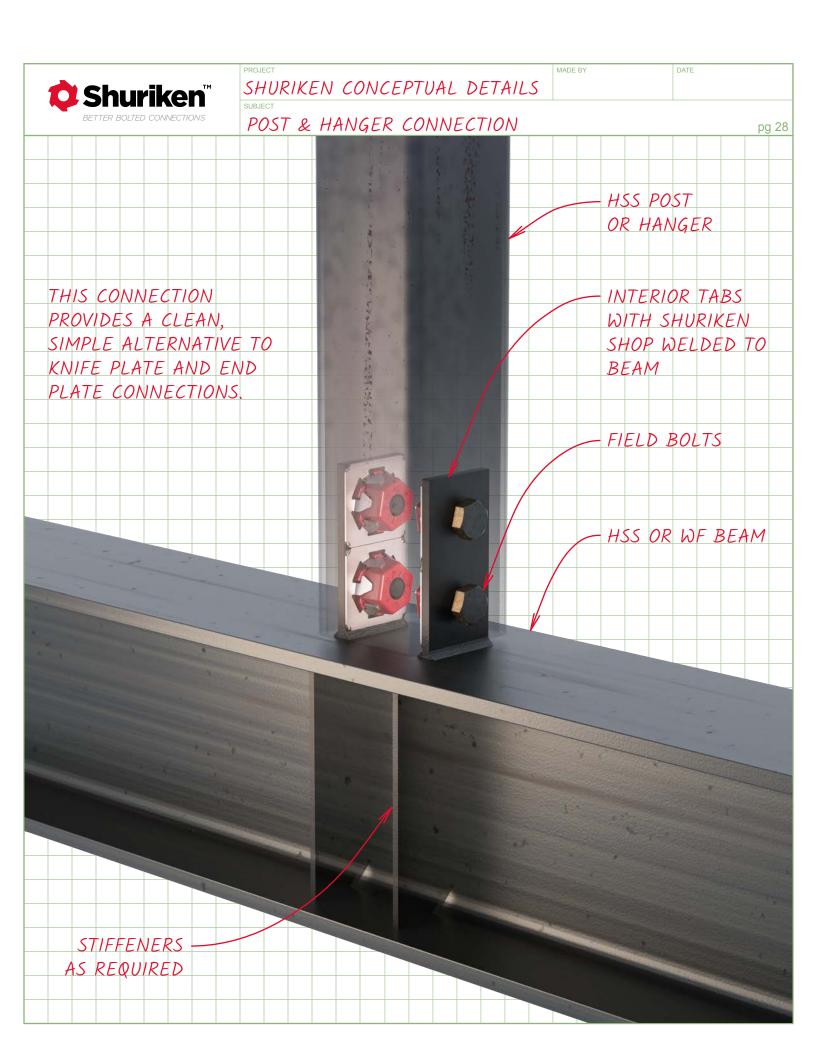


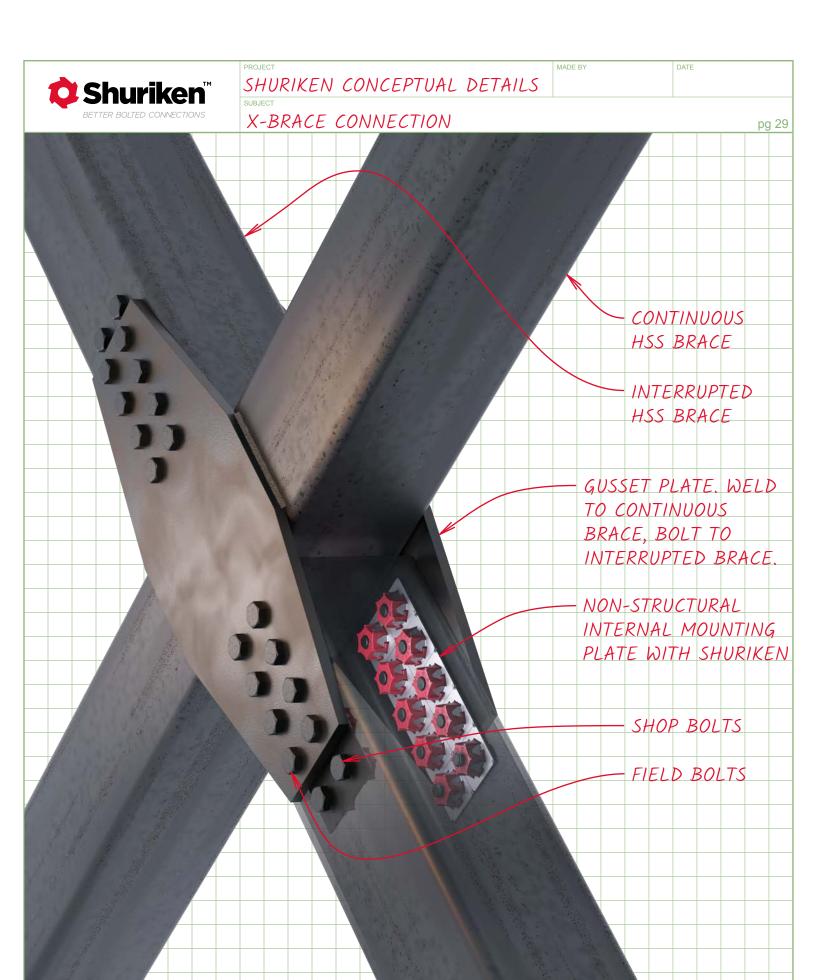














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SHURIKEN CONCEPTUAL DETAILS

SUBJEC

SPEEDCORE — WELDED-BOLTED

BY D/

SKIN PLATE

TIE BAR

pg 30

INTERIOR SPLICE
PLATES WITH SHURIKEN.
INTERRUPT PLATES TO

PROVIDE SPACE FOR WELD RETURNS.

EXTERIOR SPLICE PLATE

FIELD BOLTS

STANDARD HOLES IN SPLICE PLATES; OVERSIZE HOLES IN SKIN PLATES

FLARE EDGE OF SPLICE PLATES TO EASE ERECTION

CONCRETE FILL

THIS VERSION OF SPEEDCORE IS
LESS EXPENSIVE TO FABRICATE
AND ERECT THAN THE
BOLTED-BOLTED VERSION, BUT
PROVIDES LESS ADJUSTABILITY.



SHURIKEN CONCEPTUAL DETAILS

SUBJEC

SPEEDCORE — BOLTED-BOLTED

pg 31

SKIN PLATE

TIE BAR

INTERIOR SPLICE
PLATE WITH SHURIKEN

FLARE EDGE OF SPLICE PLATES TO EASE

ERECTION

FIELD BOLTS

EXTERIOR SPLICE PLATE

SHOP BOLTS, LOOSEN
SLIGHTLY PRIOR TO
ERECTION TO INCREASE

ADJUSTABILITY.

STANDARD HOLES IN SPLICE PLATES; OVERSIZE HOLES IN SKIN PLATES

CONCRETE FILL

THIS VERSION OF SPEEDCORE
REQUIRES MORE BOLTS THAN
THE WELDED-BOLTED VERSION,
BUT PROVIDES ADDITIONAL
ADJUSTABILITY.

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Q	BE	TTER E	BOLTED	CON	NECTIO	ONS	SUBJE	CT											pg	32

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