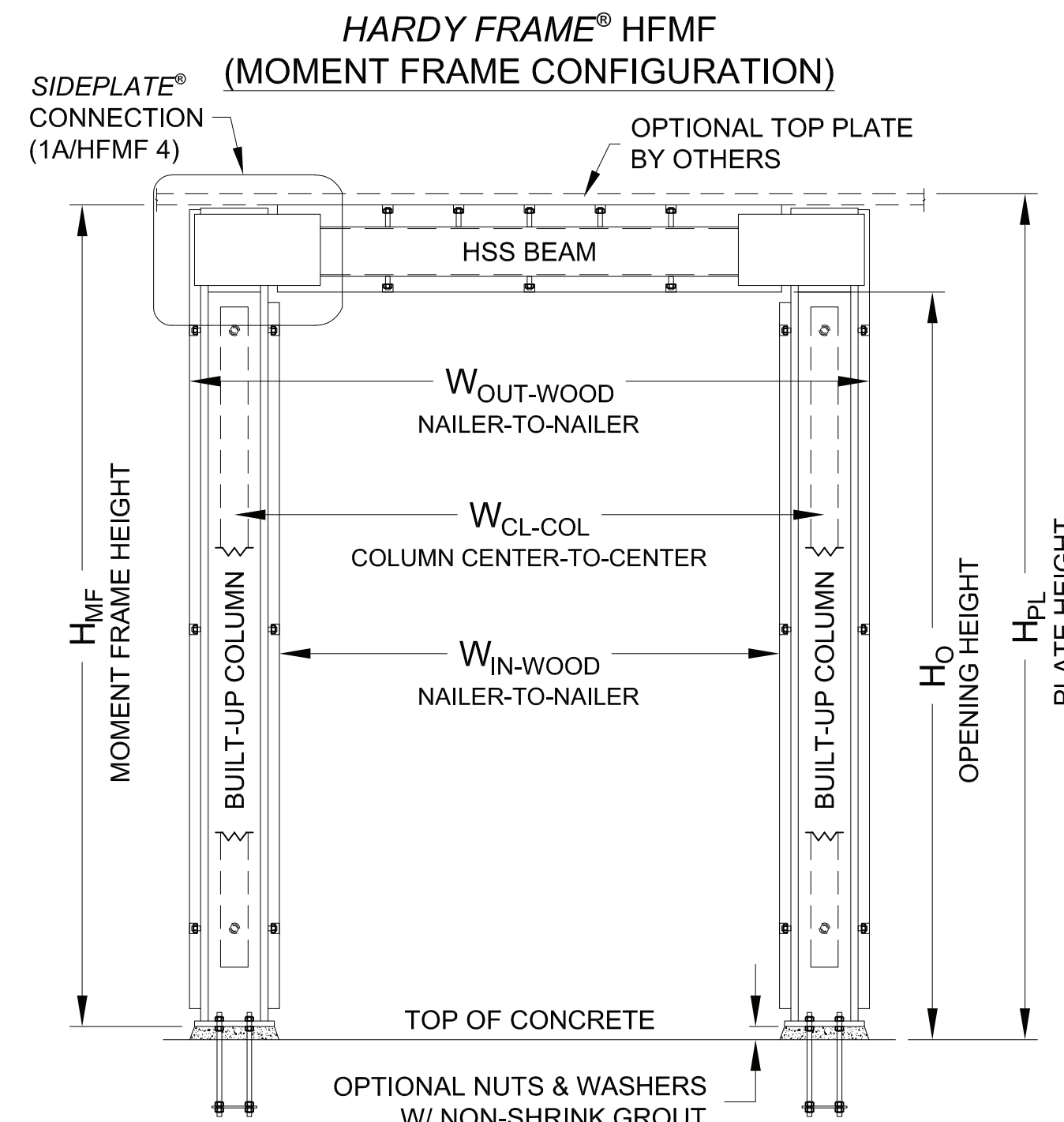
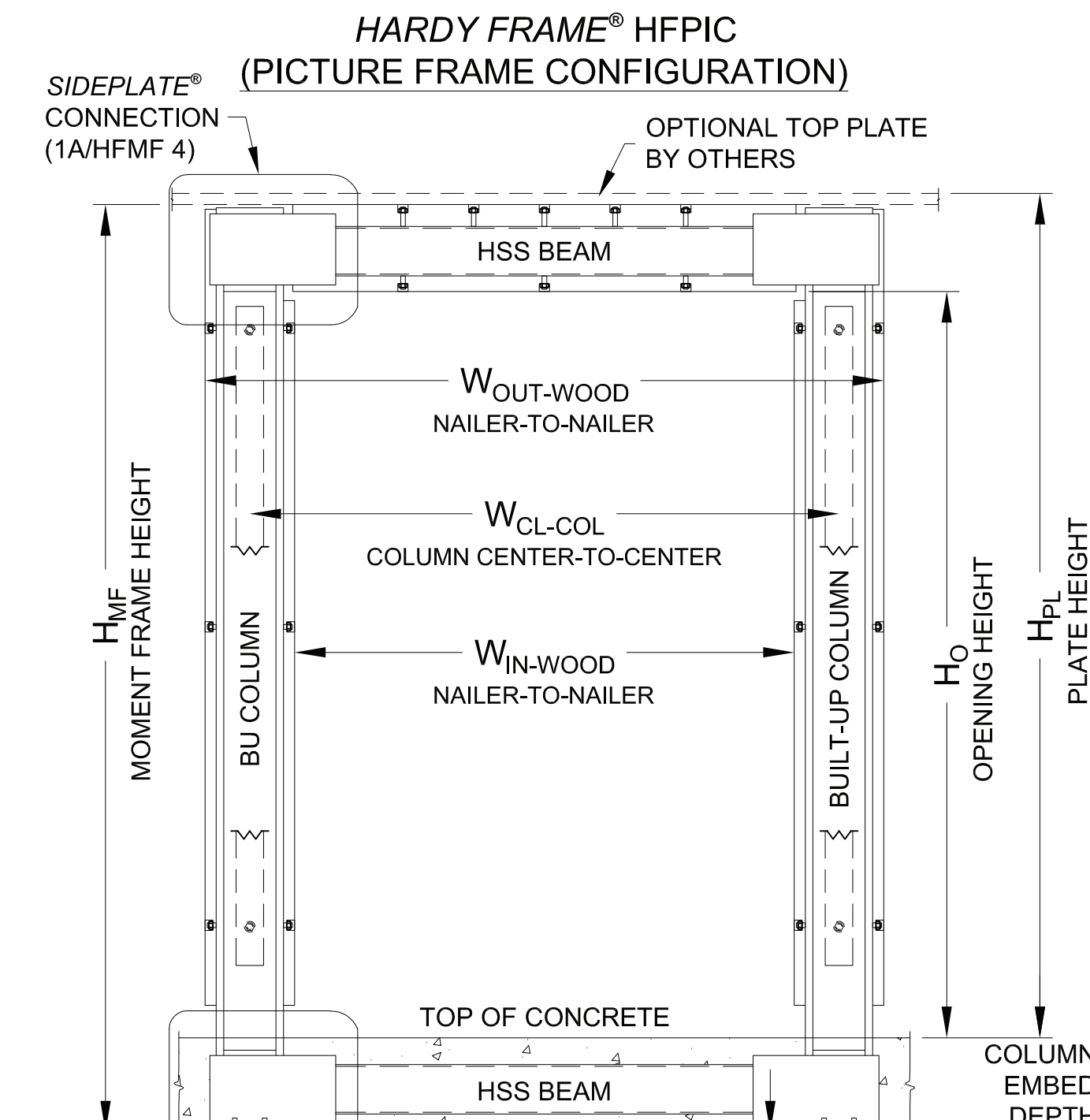


FRAME CONFIGURATIONS AND GEOMETRY						
MODEL NUMBER	BU COLUMN	HSS BEAM	W <sub>CL-COL</sub> (min)	W <sub>CL-COL</sub> (max)	H <sub>o</sub> (max)	H <sub>PL</sub> (max)
HFMF611	BU6.5x33	HSS6x4x3/8	8'-2 1/2"	17'-1 1/2"	8'-11 1/4"	10'-0 3/4"
HFPI611						
HFMF811	BU8.5x59	HSS6x6x5/8	8'-4 1/2"	15'-3 1/2"	12'-11 1/4"	14'-0 3/4"
HFPI811						
HFMF813	BU8.5x59	HSS8x6x1/2	15'-4 1/2"	25'-3 1/2"	12'-9 1/4"	14'-0 3/4"
HFPI813						
HFMF1013	BU10.5x61	HSS8x6x1/2	8'-6 1/2"	15'-5 1/2"	12'-9 1/4"	14'-0 3/4"
HFPI1013						
HFMF1014	BU10.5x61	HSS8x6x5/8	15'-6 1/2"	25'-5 1/2"	12'-8 1/4"	14'-0 3/4"
HFPI1014						
HFMF1214	BU12.5x64	HSS8x6x5/8	8'-8 1/2"	15'-7 1/2"	12'-8 1/4"	14'-0 3/4"
HFPI1214						
HFMF1216	BU12.5x64	HSS10x6x1/2	15'-8 1/2"	25'-7 1/2"	12'-6 1/4"	14'-0 3/4"
HFPI1216						
HFMF1416	BU14.5x66	HSS10x6x1/2	9'-10 1/2"	15'-9 1/2"	12'-6 1/4"	14'-0 3/4"
HFPI1416						
HFMF1416	BU14.5x66	HSS10x6x5/8	15'-10 1/2"	25'-9 1/2"	12'-6 1/4"	14'-0 3/4"
HFPI1416						

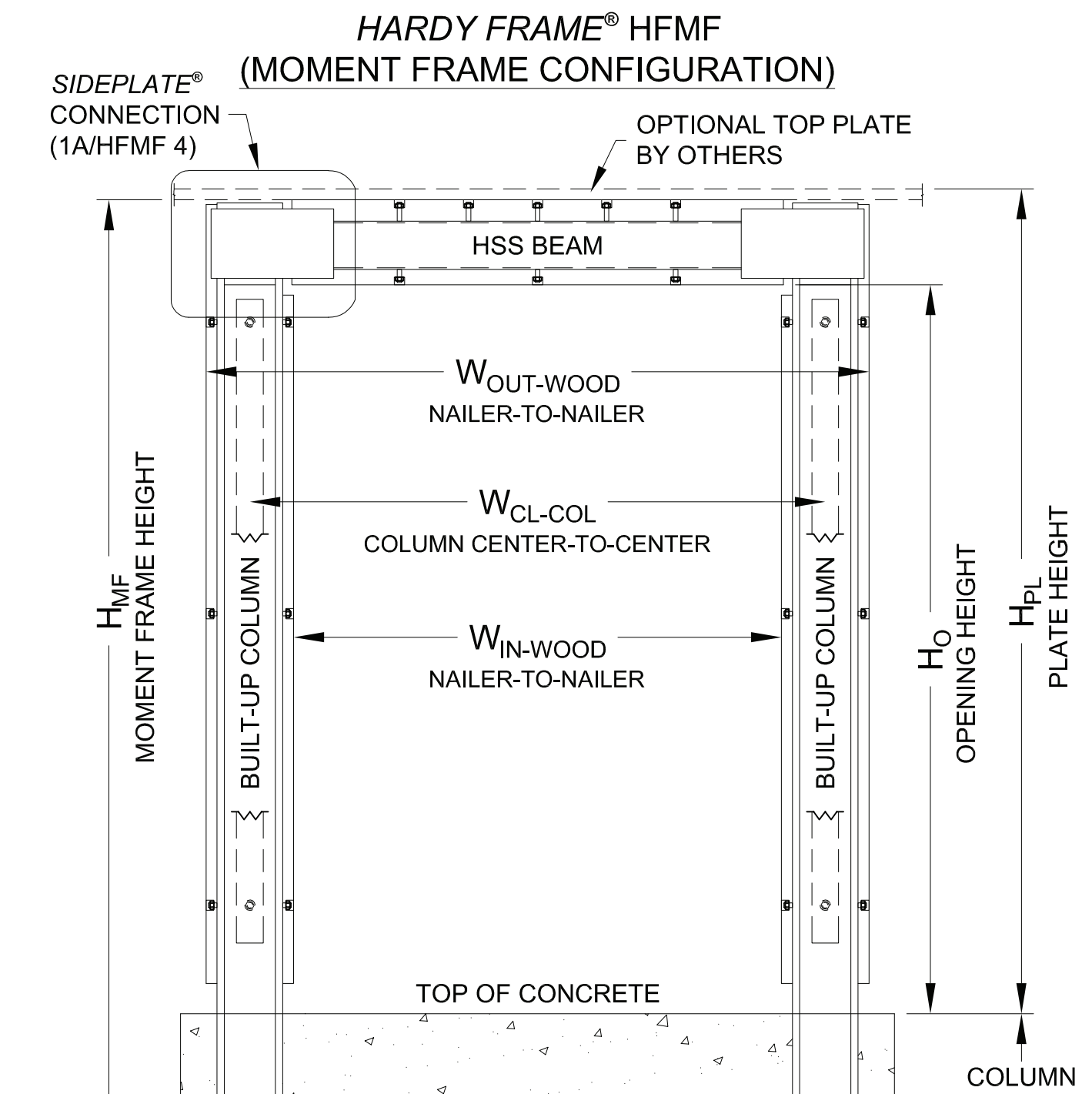
- NOTES:
- FINAL FRAME DIMENSIONS MAY BE ADJUSTED TO FIELD-SPECIFIC CONDITIONS. ANY CHANGE EXCEEDING THE NOMINAL HEIGHT OR SPAN FOR THE MODEL NUMBER SPECIFIED REQUIRES REVIEW AND APPROVAL BY THE ENGINEER OF RECORD PRIOR TO FRAME FABRICATION.
  - CUSTOM DESIGNS AVAILABLE FOR FRAMES EXCEEDING THE OVERALL LIMITATIONS OF THE MINIMUM AND MAXIMUM DIMENSIONS SHOWN ABOVE.
  - BU DESIGNATES BUILT-UP COLUMN. REFER TO 1/HFMF2 FOR COLUMN SECTION PROPERTIES.
  - LATERAL BEAM BRACING NOT REQUIRED FOR ANY MODEL AT THE SPANS SHOWN ABOVE.
  - W<sub>IN-WOOD</sub> AND W<sub>OUT-WOOD</sub> ASSUME 2x NAILERS ATTACHED TO STEEL COLUMN FLANGES.



- PINNED BASE NOMENCLATURE:
- HFMF 14 10 - 24 x 14
- NOMINAL PLATE HEIGHT (FT)
  - NOMINAL OPENING WIDTH (FT)
  - SIDEPLATE DEPTH (IN)
  - NOMINAL COLUMN DEPTH (IN)
  - MOMENT FRAME CONFIGURATION
  - HARDY FRAME<sup>®</sup> SMF

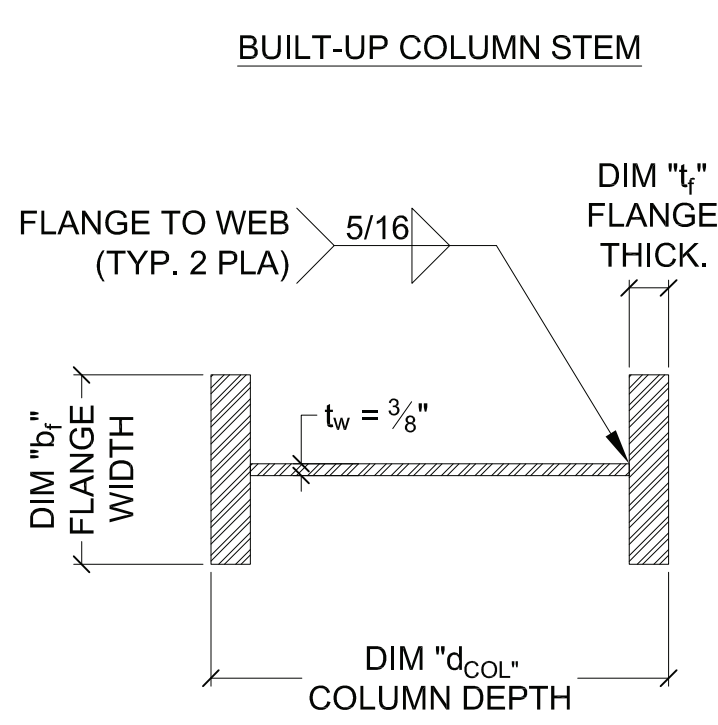


- PICTURE FRAME NOMENCLATURE:
- HFPI 14 10 - 24 x 14
- NOMINAL PLATE HEIGHT (FT)
  - NOMINAL OPENING WIDTH (FT)
  - SIDEPLATE DEPTH (IN)
  - NOMINAL COLUMN DEPTH (IN)
  - PICTURE FRAME CONFIGURATION
  - HARDY FRAME<sup>®</sup> SMF

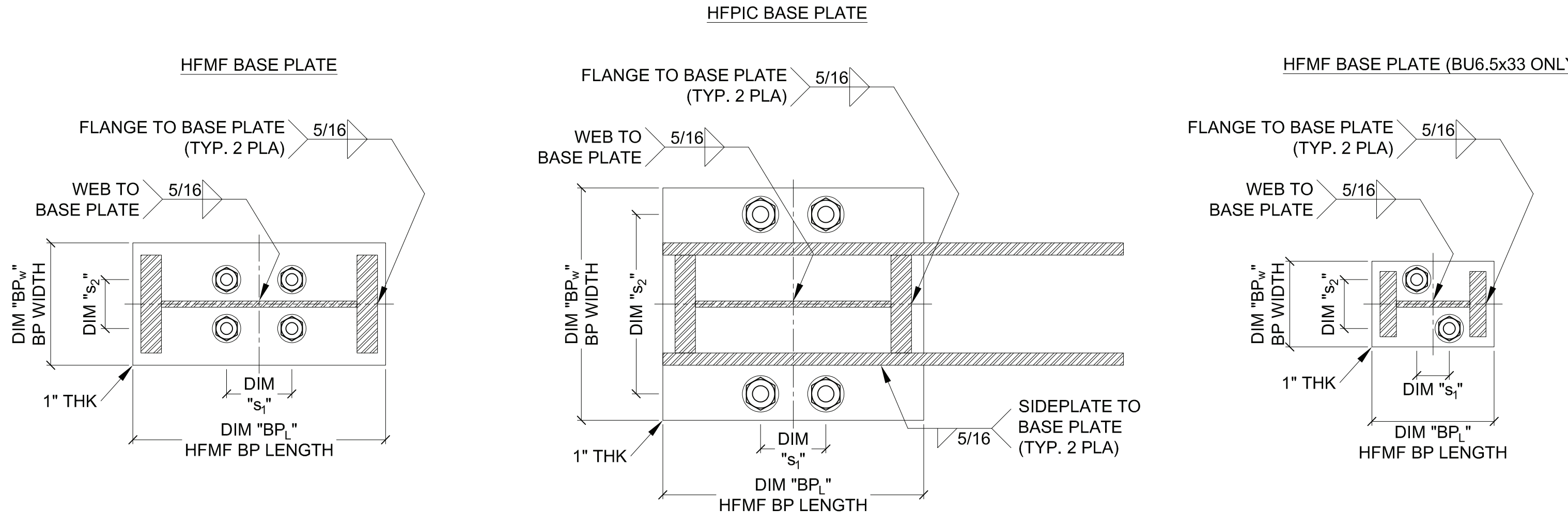
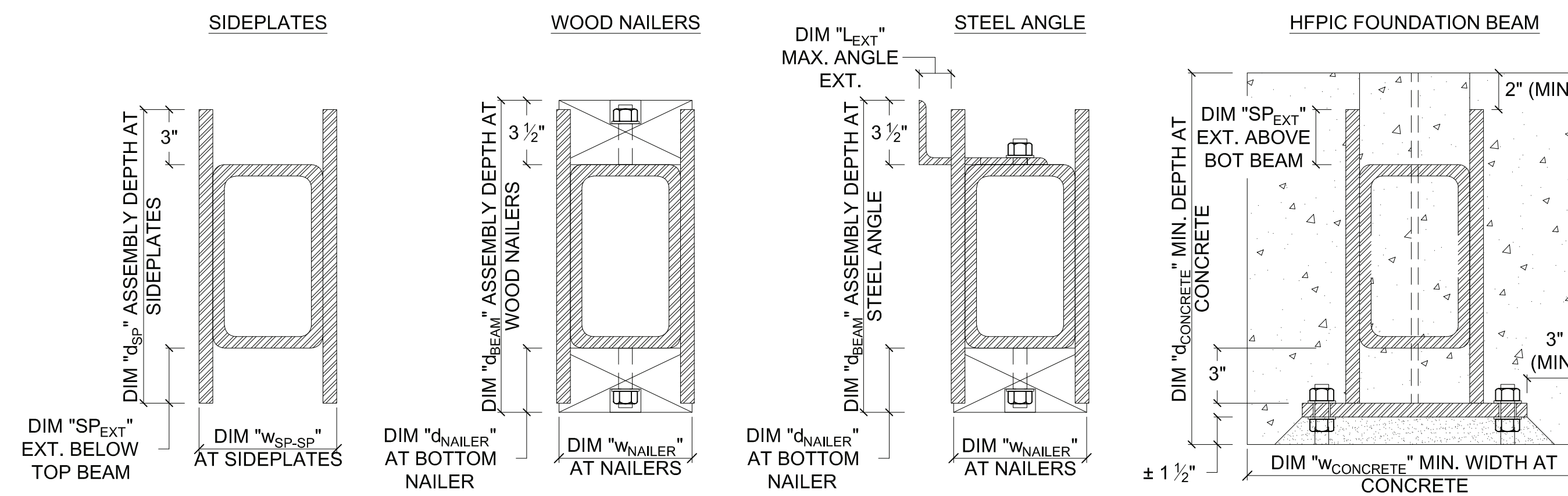
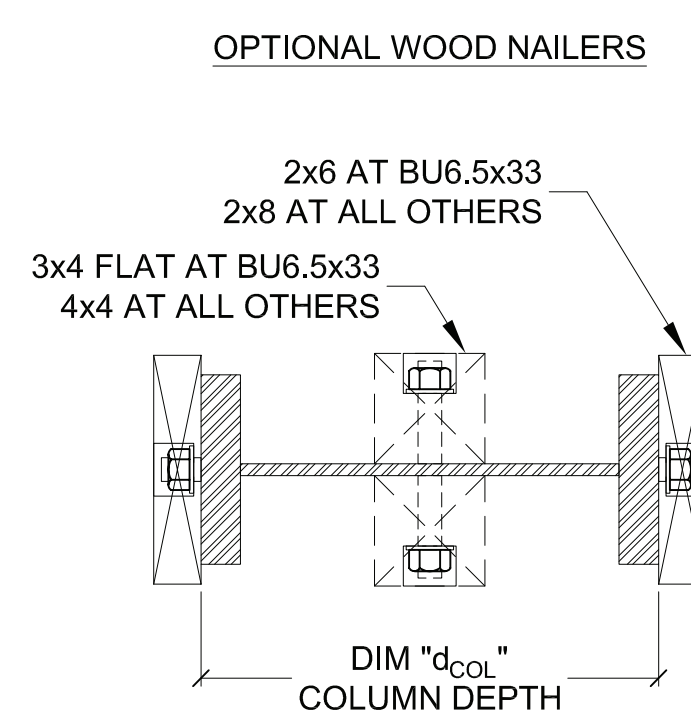


- FIXED BASE NOMENCLATURE:
- HFMF 14 10 - 24 x 14 FB
- FIXED BASE
  - NOMINAL PLATE HEIGHT (FT)
  - NOMINAL OPENING WIDTH (FT)
  - SIDEPLATE DEPTH (IN)
  - NOMINAL COLUMN DEPTH (IN)
  - MOMENT FRAME CONFIGURATION
  - HARDY FRAME<sup>®</sup> SMF

FRAME CONFIGURATIONS AND GEOMETRY



COLUMN & BASE PLATE SECTION PROPERTIES									
COLUMN SECTION	FRAME TYPE	d <sub>COL</sub>	b <sub>f</sub>	t <sub>f</sub>	BP <sub>L</sub>	BP <sub>W</sub>	s <sub>1</sub>	s <sub>2</sub>	
BU6.5x33	HFMF	6 1/2"	4"	1"	7 1/2"	5 1/4"	2"	3"	
	HFPI				8"	11 3/4"	3"	8 1/2"	
BU8.5x59	HFMF	8 1/2"	6"	1 1/4"	9 1/2"	7 1/2"	3"	3"	
	HFPI				10"	14 1/4"	3"	11"	
BU10.5x61	HFMF	10 1/2"	6"	1 1/4"	11 1/2"	7 1/2"	4"	3"	
	HFPI				12"	14 1/4"	4"	11"	
BU12.5x64	HFMF	12 1/2"	6"	1 1/4"	13 1/2"	7 1/2"	4"	3"	
	HFPI				14"	14 1/4"	4"	11"	
BU14.5x66	HFMF	14 1/2"	6"	1 1/4"	15 1/2"	7 1/2"	4"	3"	
	HFPI				16"	14 1/4"	4"	11"	



COLUMN & BASE PLATE SECTIONS

HEADER BEAM & FOUNDATION BEAM SECTION PROPERTIES											
BEAM SECTION	FRAME TYPE	d <sub>SP</sub>	W <sub>SP-SP</sub>	SP <sub>EXT</sub>	d <sub>BEAM</sub> W/ NAILER	W <sub>NAILER</sub>	d <sub>NAILER</sub>	d <sub>BEAM</sub> W/ ANGLE	L <sub>EXT</sub>	d <sub>CONCRETE</sub>	W <sub>CONCRETE</sub>
HSS6x4x3/8	HFMF	11"	5"	2"	12"	5 1/2"	2 1/2"	12"	1 1/4"	N/A	N/A
	HFPI									15 1/2"	17 3/4"
HSS6x6x5/8	HFMF	11"	7 1/2"	2"	12"	7 1/4"	2 1/2"	12"	1 3/4"	N/A	N/A
	HFPI									15 1/2"	20 1/4"
HSS8x6x1/2	HFMF	13"	7 1/2"	2"	14"	7 1/4"	2 1/2"	14"	1 3/4"	N/A	N/A
	HFPI									17 1/2"	20 1/4"
HSS8x6x5/8	HFMF	14"	7 1/2"	3"	15"	7 1/4"	3 1/2"	15"	1 3/4"	N/A	N/A
	HFPI									18 1/2"	20 1/4"
HSS10x6x1/2	HFMF	16"	7 1/2"	3"	17"	7 1/4"	3 1/2"	17"	1 3/4"	N/A	N/A
	HFPI									20 1/2"	20 1/4"
HSS10x6x5/8	HFMF	16"	7 1/2"	3"	17"	7 1/4"	3 1/2"	17"	1 3/4"	N/A	N/A
	HFPI									20 1/2"	20 1/4"

HEADER BEAM & FOUNDATION BEAM SECTIONS

MiTek USA, Inc.  
 555 S. Promenade Ave., Suite 104, Corona, CA 92879 (805) 477-0793  
 www.hardyframe.com

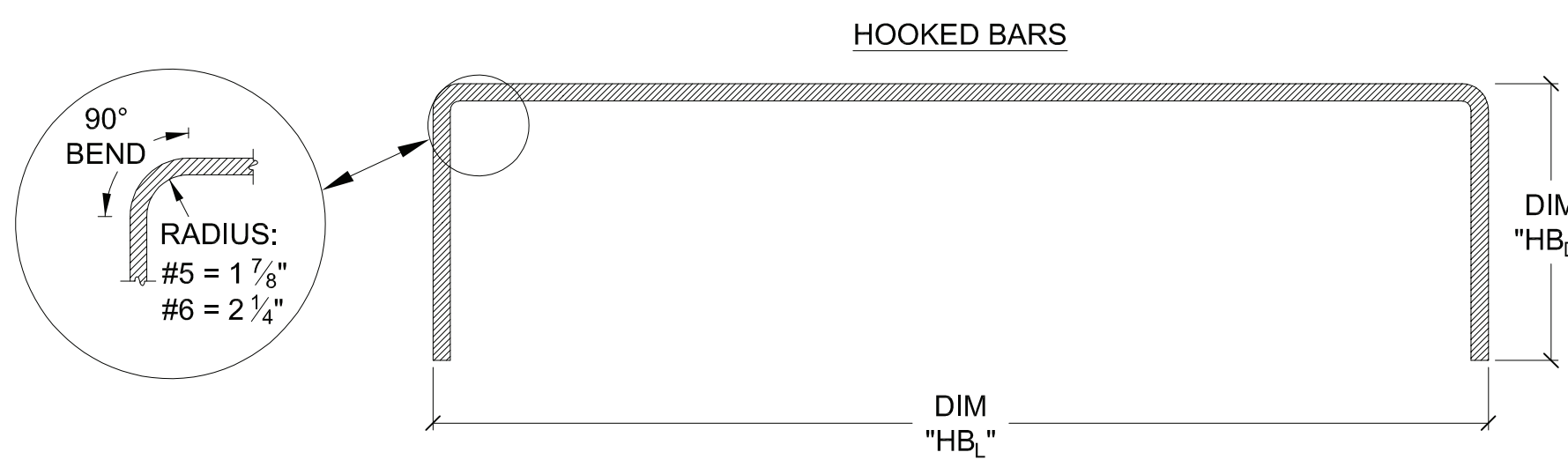
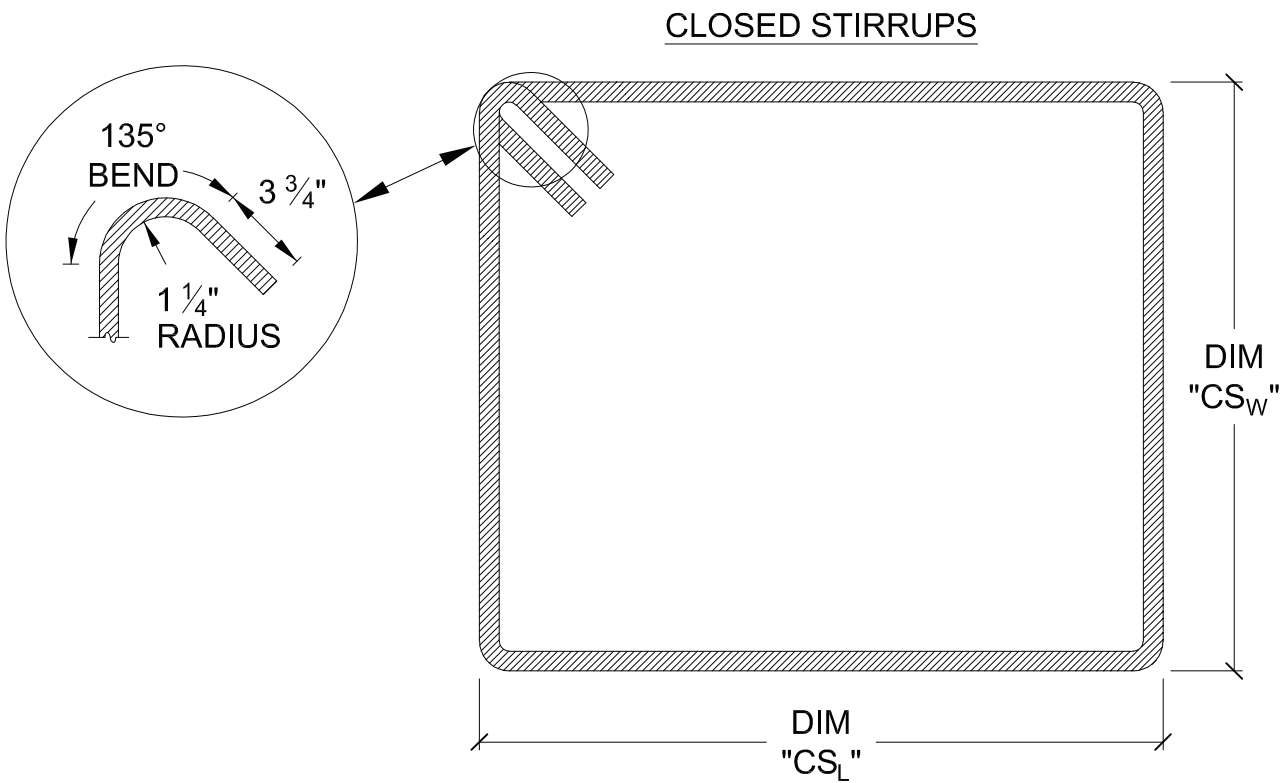
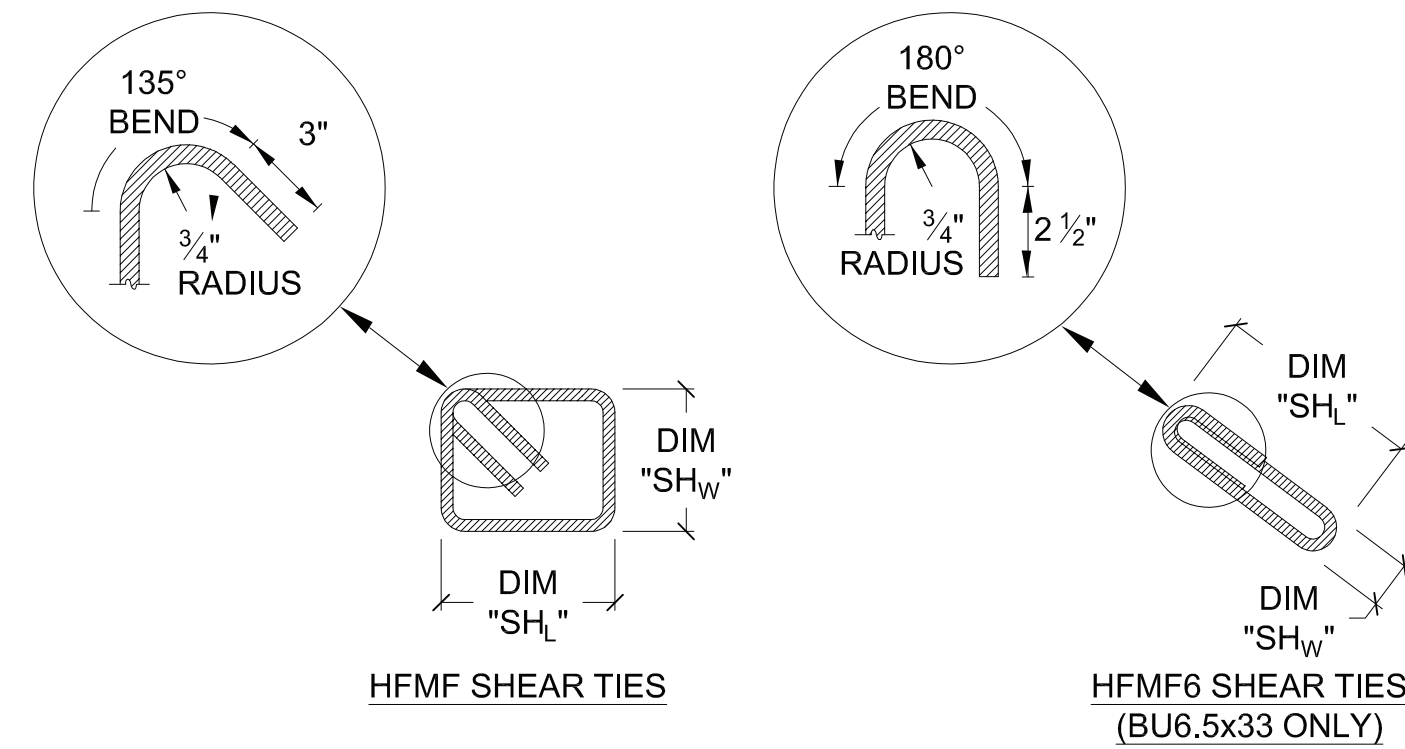
HARDY FRAME<sup>®</sup> SPECIAL MOMENT FRAME  
 TYPICAL INSTALLATION DETAILS  
 FRAME GEOMETRY & CONFIGURATIONS

REVISIONS	DATE

DATE: 05-23-19

HFMF  
1

REINFORCEMENT PARAMETERS							
COLUMN SECTION	FRAME TYPE	SHEAR TIES		CLOSED STIRRUPS		HOOKED BARS	
		SH <sub>L</sub>	SH <sub>W</sub>	CS <sub>L</sub>	CS <sub>W</sub>	HB <sub>L</sub>	HB <sub>D</sub>
BU6.5x33	HFMF	5 7/8"	2 1/4"	N/A	N/A	N/A	N/A
	HFPIC	N/A	N/A	17"		29 3/4"	10 1/2"
BU8.5x59	HFMF	5 1/4"	5 1/4"	17"		29 3/4"	10 1/2"
	HFPIC	N/A	N/A	19"		34"	12 1/2"
BU10.5x61	HFMF	6 1/4"	5 1/4"	17"	18"	30 3/4"	10 1/2"
	HFPIC	N/A	N/A	19"		35"	12 1/2"
BU12.5x64	HFMF	6 1/4"	5 1/4"	17"		30 3/4"	10 1/2"
	HFPIC	N/A	N/A	19"		35"	12 1/2"
BU14.5x66	HFMF	6 1/4"	5 1/4"	17"		30 3/4"	10 1/2"
	HFPIC	N/A	N/A	19"		35"	12 1/2"



**ANCHORAGE REINFORCEMENT**

2

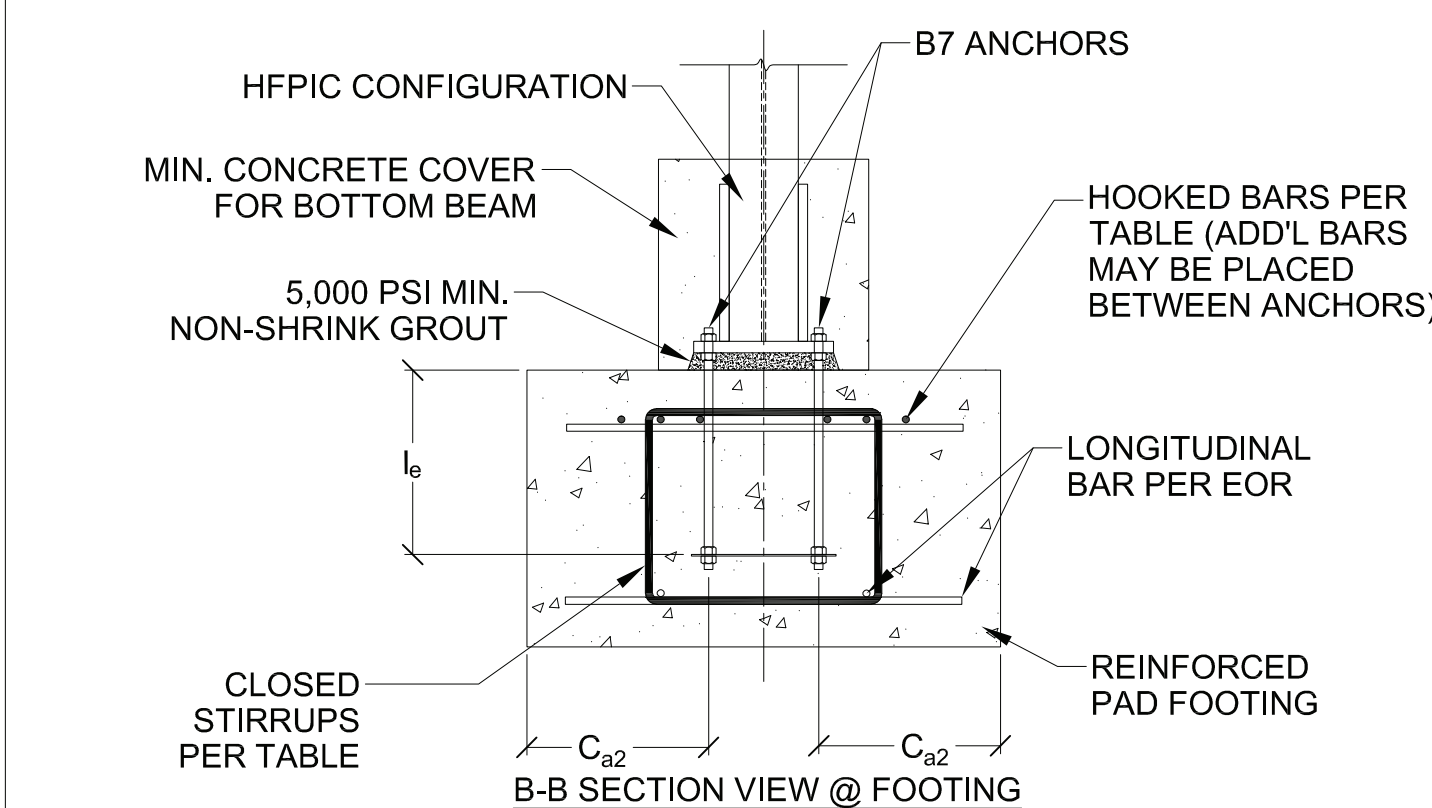
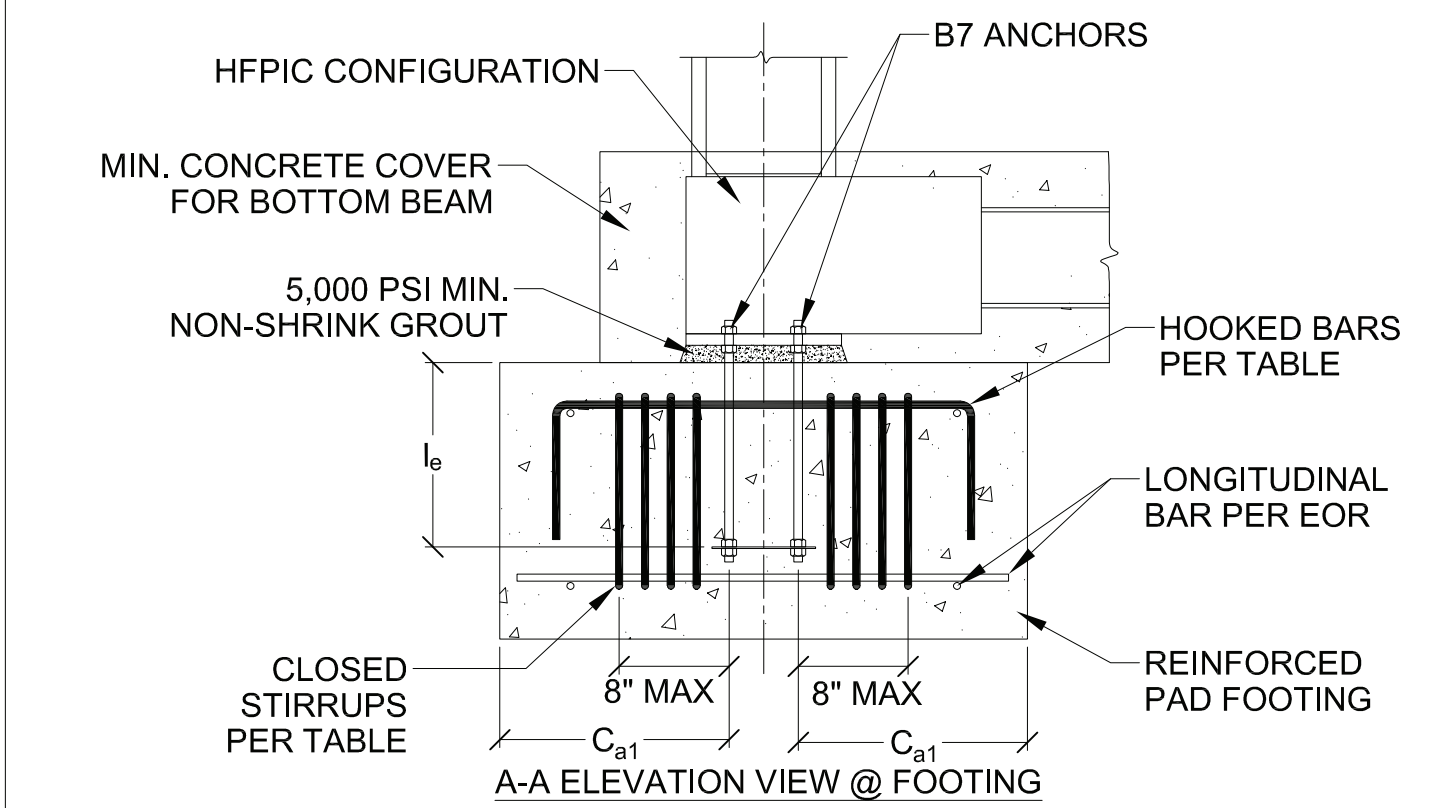
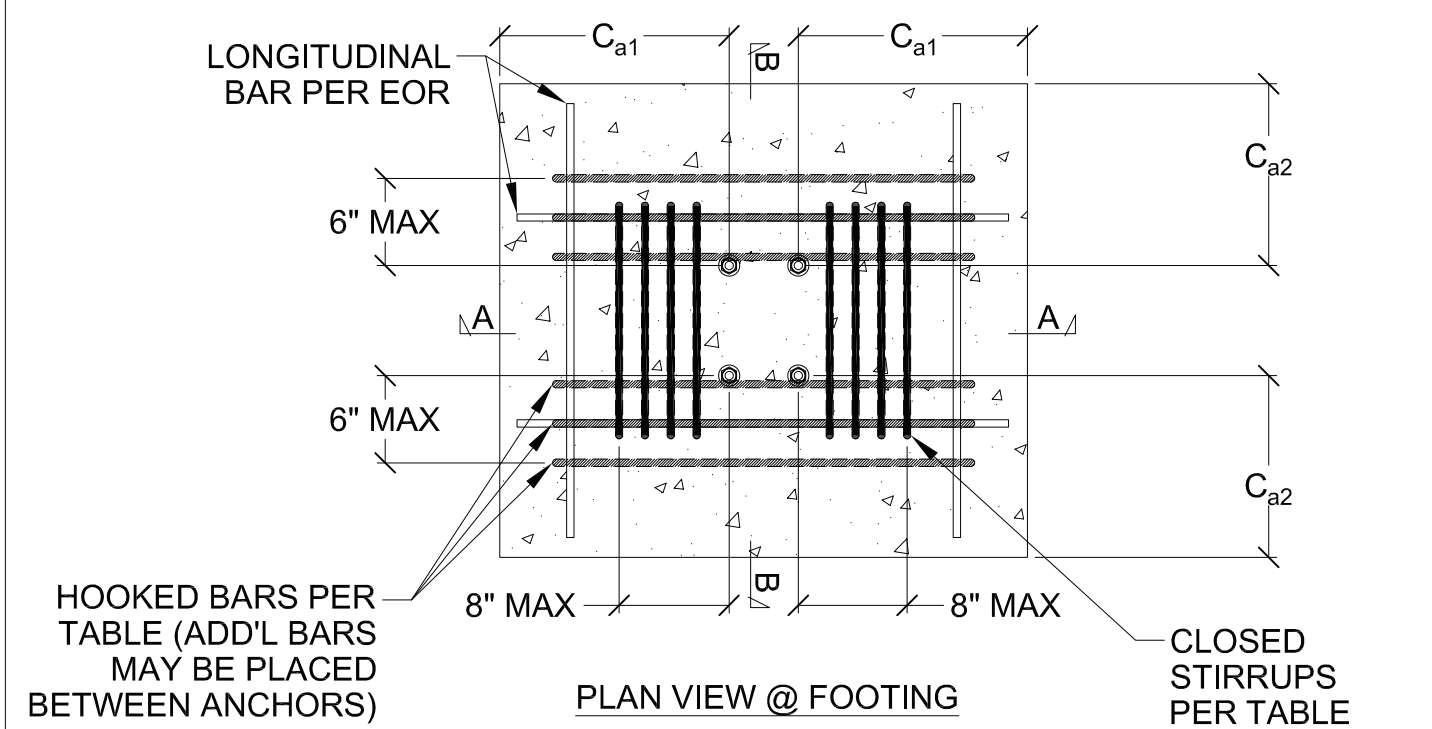
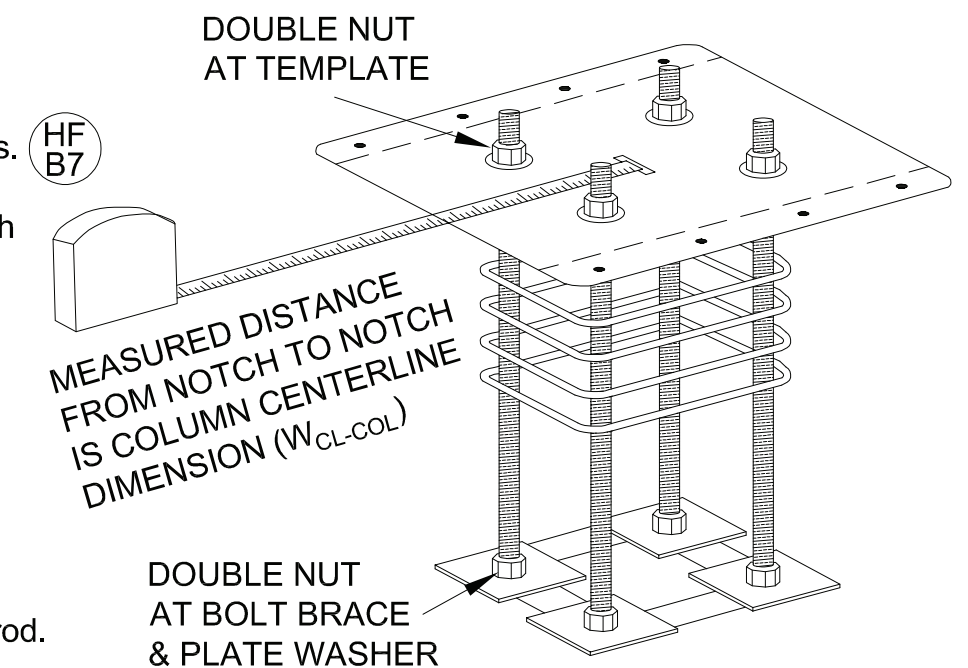
COLUMN SECTION	FRAME TYPE	ANCHORAGE & TEMPLATE KITS 1,2,3,8,9						CONCRETE FOOTING				
		ANCHORAGE		TOP OF CONCRETE		SHEAR TIES 5	EMBED DEPTH, l <sub>b</sub>	END DIST. C <sub>a1</sub>	EDGE DIST. C <sub>a2</sub>	CLOSED STIRRUPS 6	HOOKED BARS 7	
QTY-DIA 4	PLATE WASHER	MIN END DIST	MIN EDGE DIST									
BU6.5x33	HFMF	2 - 3/4"	N/A	2 3/4"	2 1/4"	#3 @ 3" o.c.	18"	27"	21"	N/A	N/A	
	HFPIC	4 - 1 1/8"	N/A	N/A	N/A	N/A				4-#5	4-#5	
BU8.5x59	HFMF	4 - 3/4"	N/A	3 1/4"	2 1/4"	#3 @ 3" o.c.				4-#5	4-#5	
	HFPIC	4 - 1 1/8"	1/2"x3"x3"	N/A	N/A	N/A				8-#5	6-#6	
BU10.5x61	HFMF	4 - 3/4"	1/2"x3"x3"	3 3/4"	2 1/4"	#3 @ 3" o.c.				4-#5	6-#5	
	HFPIC	4 - 1 1/8"	1/2"x3"x3"	N/A	N/A	N/A				8-#5	8-#6	
BU12.5x64	HFMF	4 - 3/4"	1/2"x3"x3"	4 3/4"	2 1/4"	#3 @ 3" o.c.				5-#5	6-#5	
	HFPIC	4 - 1 1/8"	1/2"x3"x3"	N/A	N/A	N/A				8-#5	8-#6	
BU14.5x66	HFMF	4 - 3/4"	1/2"x3"x3"	5 3/4"	2 1/4"	#3 @ 3" o.c.				4-#5	8-#5	
	HFPIC	4 - 1 1/8"	1/2"x3"x3"	N/A	N/A	N/A				8-#5	10-#6	

**NOTES:**

- Dimensions provided are the minimum requirement to satisfy pullout and shear transfer. Foundation, stem wall, and grade beam design by the engineer of record.
- Anchor is designed per AISC 341-10 and ACI 318-14 Chapter 17 assuming f<sub>c</sub> = 2,500 psi. min.
- Anchor to shallow podium slabs or to existing concrete shall be designed by the engineer of record.
- Anchor rods provided by *MiTek®-Hardy Frame®* comply with ASTM A193 Gr. B7 (or equal) and are stamped on both ends.
- Unless the Moment Frame is installed directly on top of the pad footing, shear ties will be required. The number of shear ties should be determined based on the curb/stem wall/pedestal height and following the maximum tabulated spacing with a minimum of 1 shear tie in the footing.
- Closed stirrups are for transferring tension from anchorage to the concrete. See table for size and number per column.
- Hooked bars are for transferring shear from anchorage to the concrete. See table for size and number per column.
- Anchor is designed assuming using *Hardy Frame®* Template Kits. For alternate anchorage designs, calculations shall be supplied by the engineer of record.
- Moment Frame Template Kits include the following accessories (see illustration for complete assembly):
  - 2- Templates (HFMF-T)
  - 2-Bolt Braces (HFMF-BB)
  - 10-#3 Grade 60 Shear Ties (Not provided for HFPIC Picture Frames)
  - 8-Anchor rods (4 for HFMF6) w/ 2 ea. Hardened Washers, 4 ea. Heavy Hex Nuts, & 1 ea. 3"x3"x1/2" plate washer per rod.

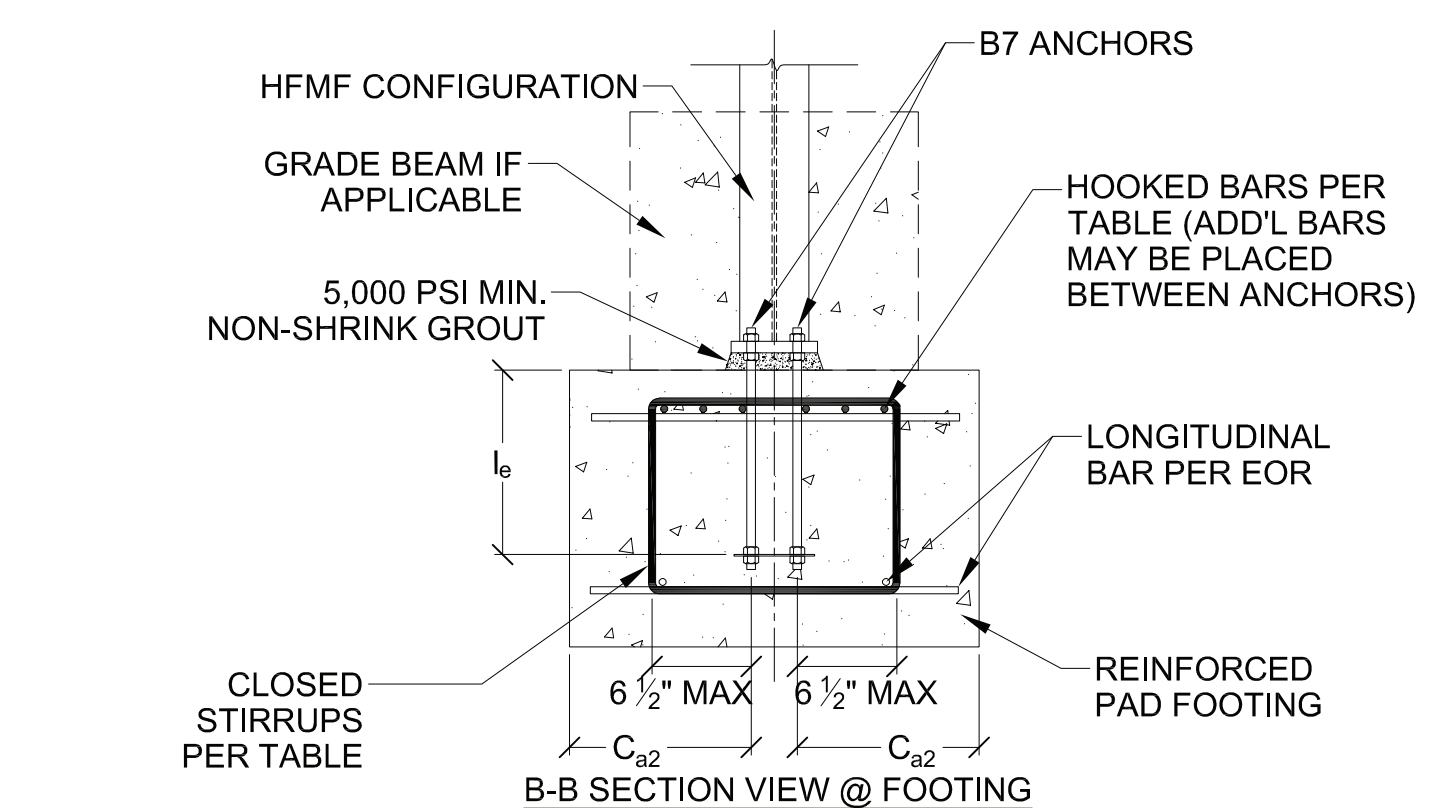
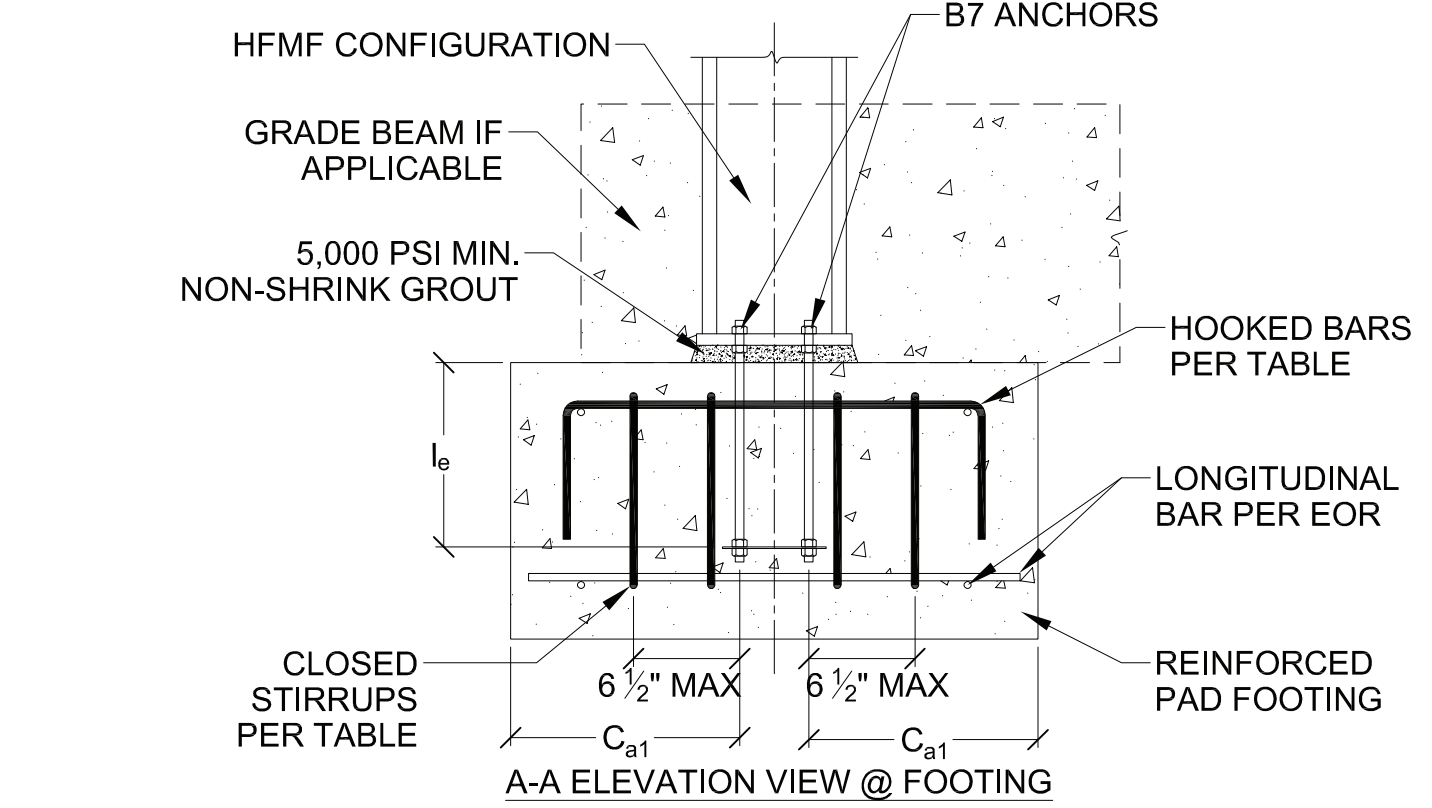
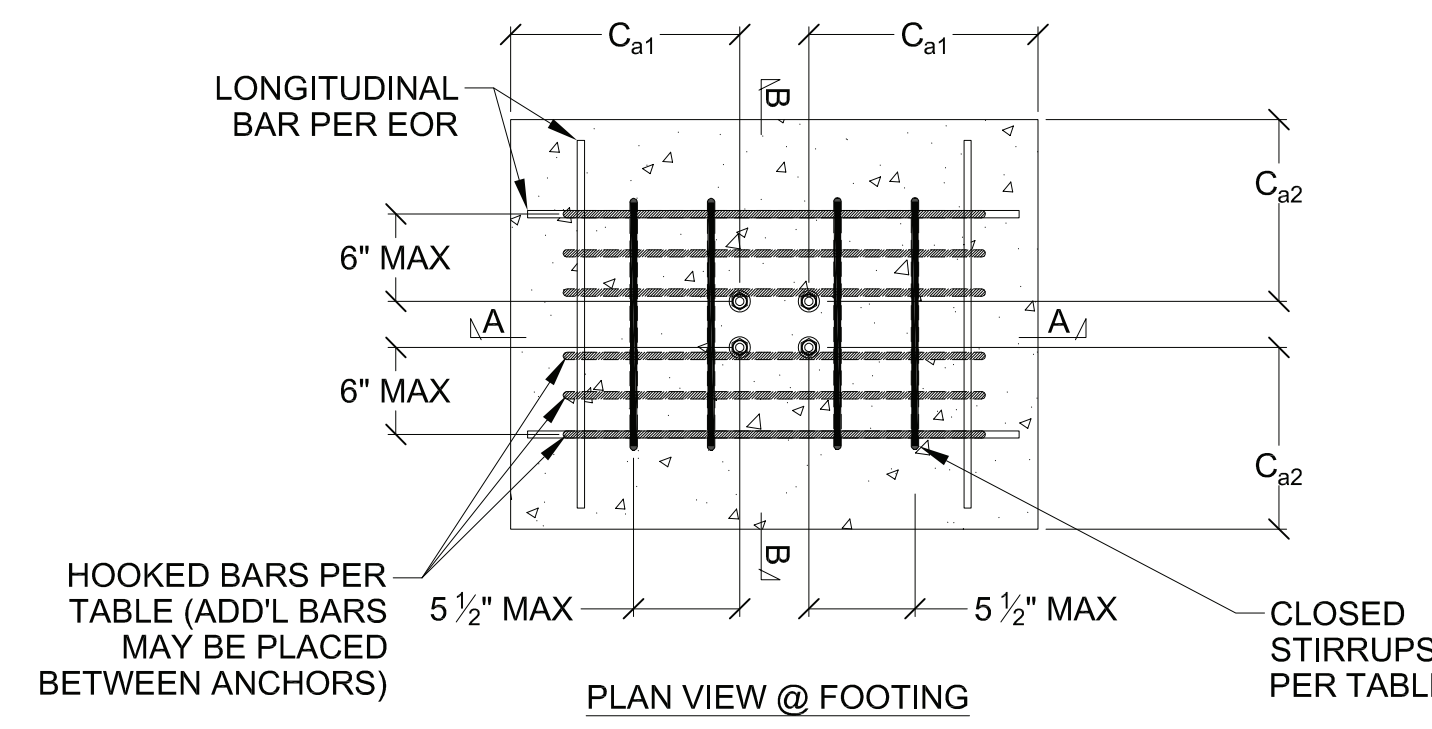
**ANCHORAGE REQUIREMENTS**

1



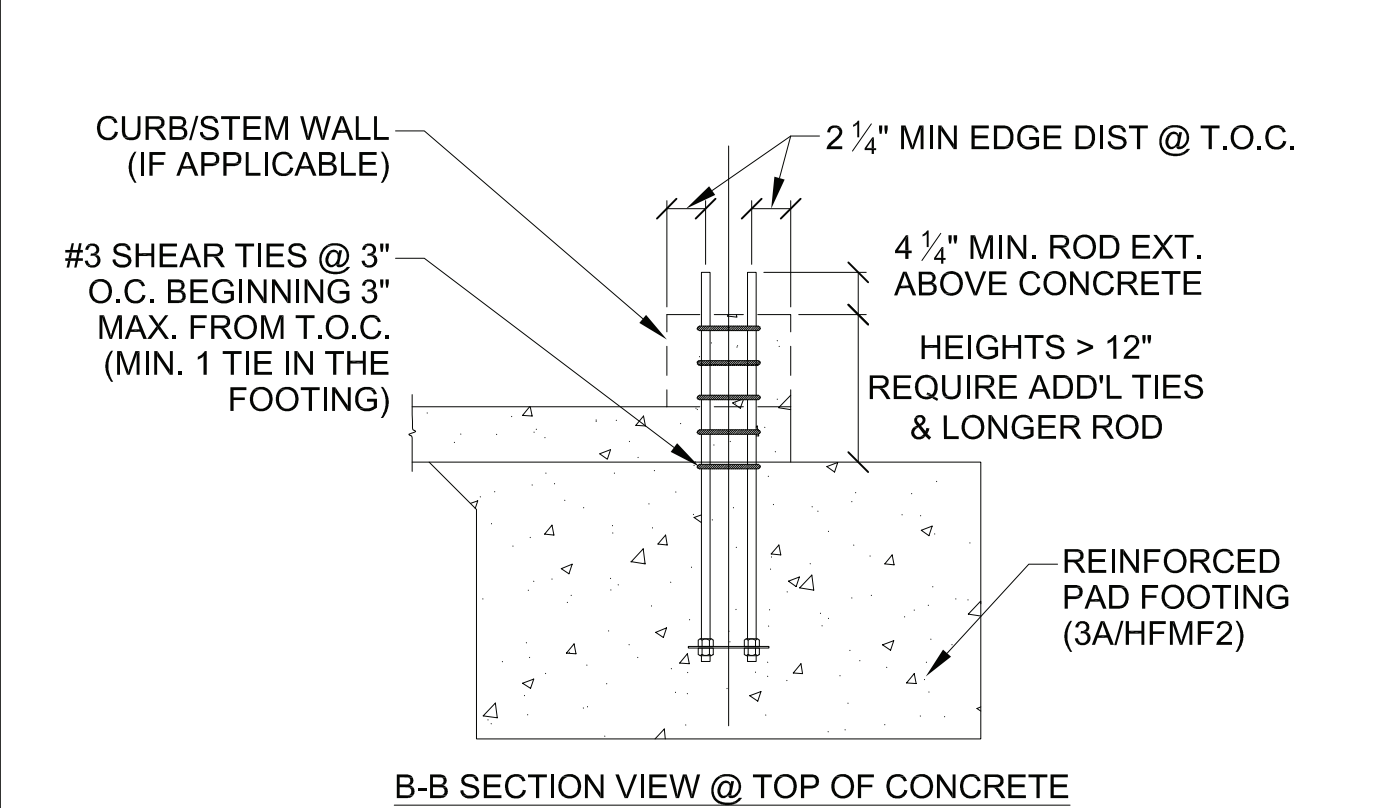
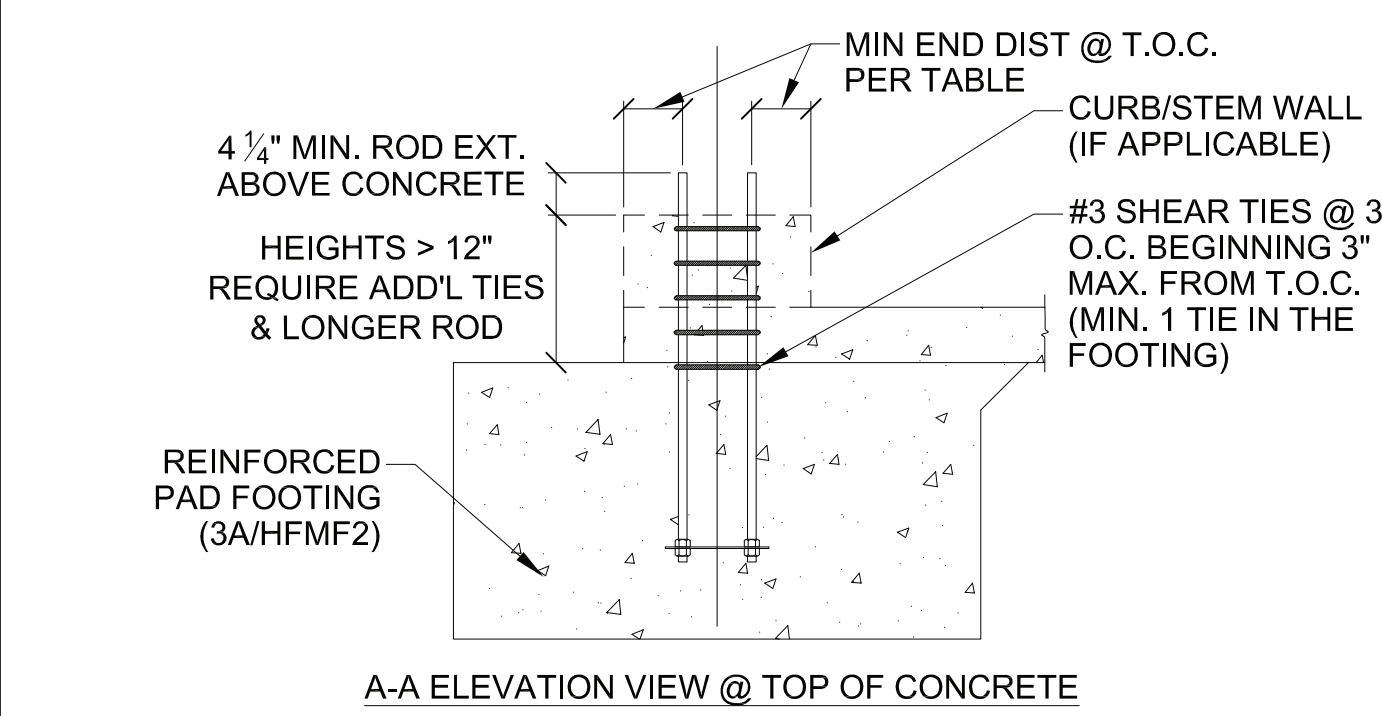
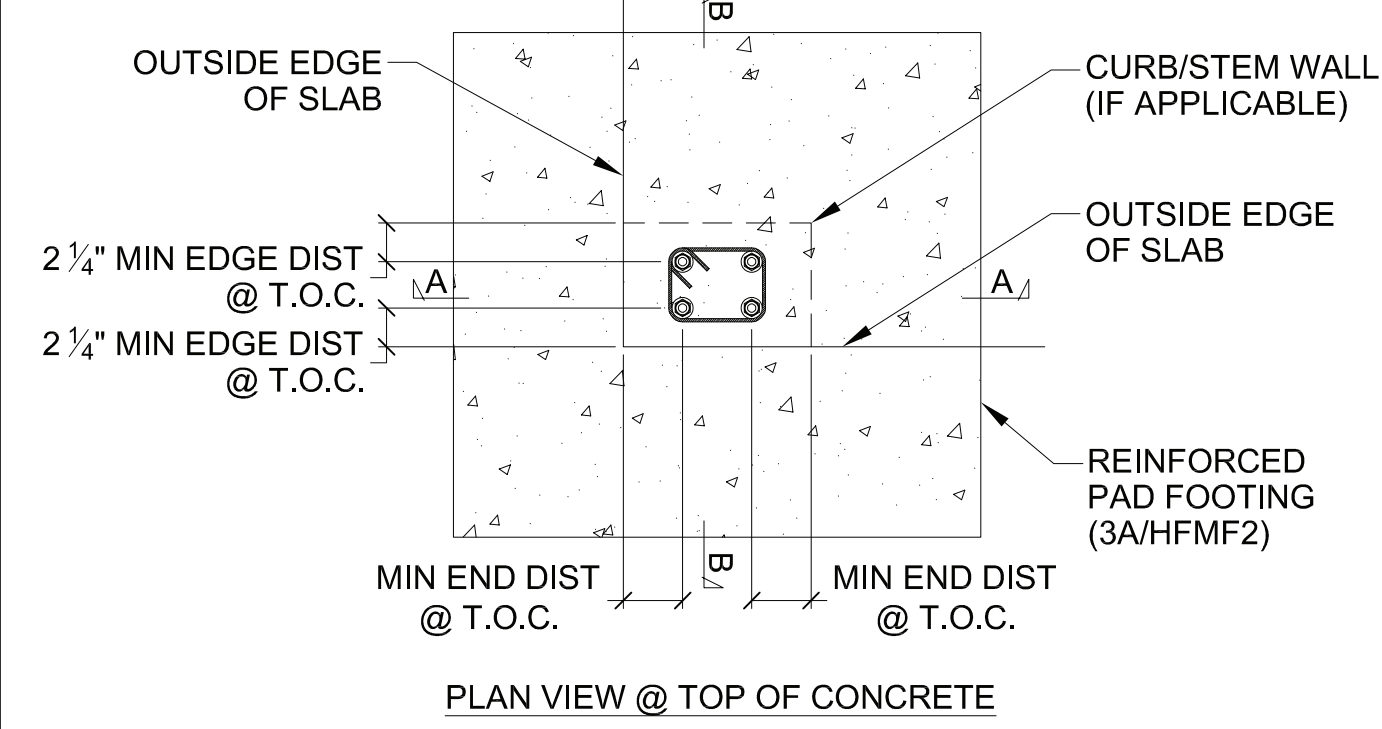
**HFPIC ANCHORAGE AT FOOTING**

4B



**HFMF ANCHORAGE AT FOOTING**

4A



**HFMF AT TOP OF CONCRETE**

3

**ORDERING AND INSTALLATION INSTRUCTIONS**

- CALL MiTek-USA, Inc. (800) 754-3030 FOR ORDERING INFORMATION.
  - PROVIDE THE FOLLOWING INFORMATION FOR PRICING AND ORDERING:
    - JOB NAME, DELIVERY ADDRESS AND REQUESTED DELIVERY DATE
    - MODEL NUMBER AND TRACKING NUMBER (TRACKING NUMBERS APPLY TO NON-STANDARD MOMENT FRAMES ONLY)
    - ORDER QUANTITY FOR EACH MODEL NUMBER
- JOBSITE CONDITIONS
  - CONSIDER JOBSITE ACCESS FOR UNLOADING, LOCATING AND INSTALLING PRE-ASSEMBLED MOMENT FRAMES
  - DETERMINE EQUIPMENT NEEDED TO UNLOAD AND INSTALL PRE-ASSEMBLED MOMENT FRAMES SUCH AS FORKLIFT, CRANE, ETC.
- ORDER *HARDY FRAME®* MOMENT FRAME TEMPLATE KITS (ALLOW 5-6 BUSINESS DAYS LEAD TIME FOR DELIVERY)
- CONCRETE PREPARATION
  - DETERMINE LOCATION AND LAYOUT OF TEMPLATES AND MOMENT FRAMES PER PLANS
  - INSTALL TEMPLATES AND EMBED ANCHORS PER PLAN DETAILS. REFER TO INSTALLATION INSTRUCTIONS FOR CORRECT TEMPLATE ORIENTATION, ROD ASSEMBLIES, ROD HEIGHT ABOVE CONCRETE AND TEMPLATE SPACING FOR FINISH FRAME WIDTH.
  - SLOTTED HOLES ARE PROVIDED IN TEMPLATES FOR PULLING THE COLUMN CENTERLINE WIDTH (W<sub>CL-COL</sub>). PRIOR TO POURING CONCRETE CONFIRM THE SLOT TO SLOT DIMENSION CORRESPONDS TO THE CORRECT W<sub>CL-COL</sub> DIMENSION FOR THE MOMENT FRAME MODEL NUMBER BEING INSTALLED.
- MOMENT FRAME INSTALLATION
  - INSTALL BOTTOM (LEVELING) NUT AND WASHER ON ALL ANCHORS.
  - AT ONE ANCHOR SET TOP OF WASHER TO BE 1-1/2 INCH ABOVE TOP OF FINISH CONCRETE. USE A LEVELING DEVICE (HAND HELD LASER RECOMMENDED) TO SET THE OTHER LEVELING NUTS AND WASHERS TO ASSURE THE FRAME WILL BE INSTALLED LEVEL AND PLUMB.
  - LIFT AND PLACE THE MOMENT FRAME ONTO THE ANCHORS ONE COLUMN AT A TIME. THE COLUMNS WILL FLEX SLIGHTLY TO ALLOW SETTING THE SECOND COLUMN.
  - INSTALL WASHERS AND NUTS ABOVE THE BASE PLATES AND FINGER TIGHTEN.
  - VERIFY THE COLUMNS ARE PLUMB, THE FRAME IS IN THE WALL PLANE AND THE HEADER IS LEVEL. MAKE NECESSARY ADJUSTMENTS BY RAISING OR LOWERING THE LEVELING NUTS BELOW THE BASE PLATES.
  - WHEN FIT AND ALIGNMENT MEET FRAMERS APPROVAL TIGHTEN ALL NUTS UNTIL "SNUG TIGHT".
  - BRACE THE INSTALLED MOMENT FRAME IN THE OUT OF PLANE DIRECTION AND RE-CHECK FOR PLUMB.
  - MAKE TOP CONNECTIONS PER PLANS AND SPECIFICATIONS.
  - INSTALL HIGH STRENGTH NON-SHRINK GROUT BELOW BASE PLATES PER DETAILS AND INSTALLATION INSTRUCTIONS.

**RECOMMENDED INSTALLATION TOOLS**

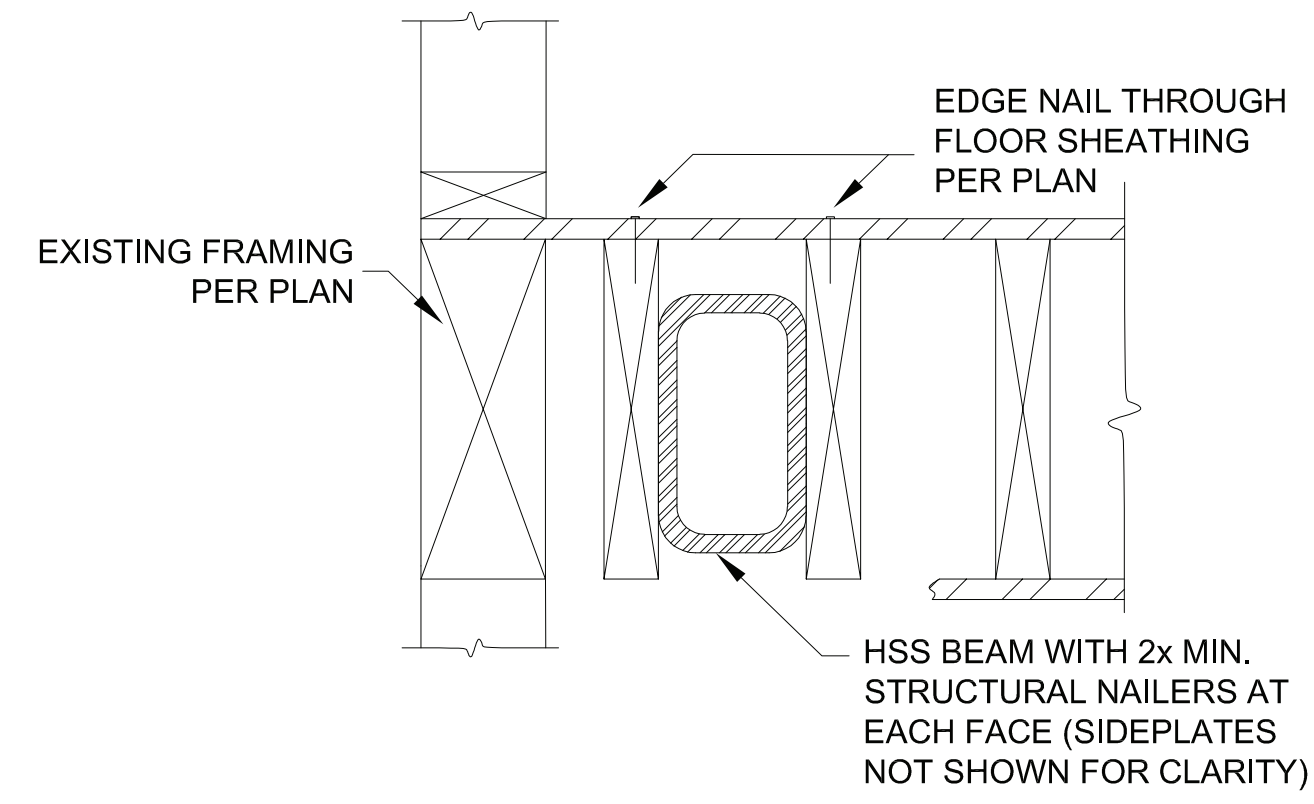
- MOMENT FRAME TEMPLATES ON HAND TO CHECK EMBED SPACING
- HAND HELD LASER AND STANDARD LEVEL (3' TO 4')
- ONE OR TWO 16"-18" CRESCENT WRENCHES
- ELECTRIC IMPACT WRENCH OR HAND RATCHET WRENCH
- IMPACT 1-1/8" SOCKETS FOR PLAIN NUTS AT 3/4" ANCHORS
- SOCKET EXTENSION AND U-JOINT (SWIVEL)
- THREAD CHASERS FOR EMBED BOLTS IN CASE THREADS ARE DAMAGED

**GENERAL NOTES**

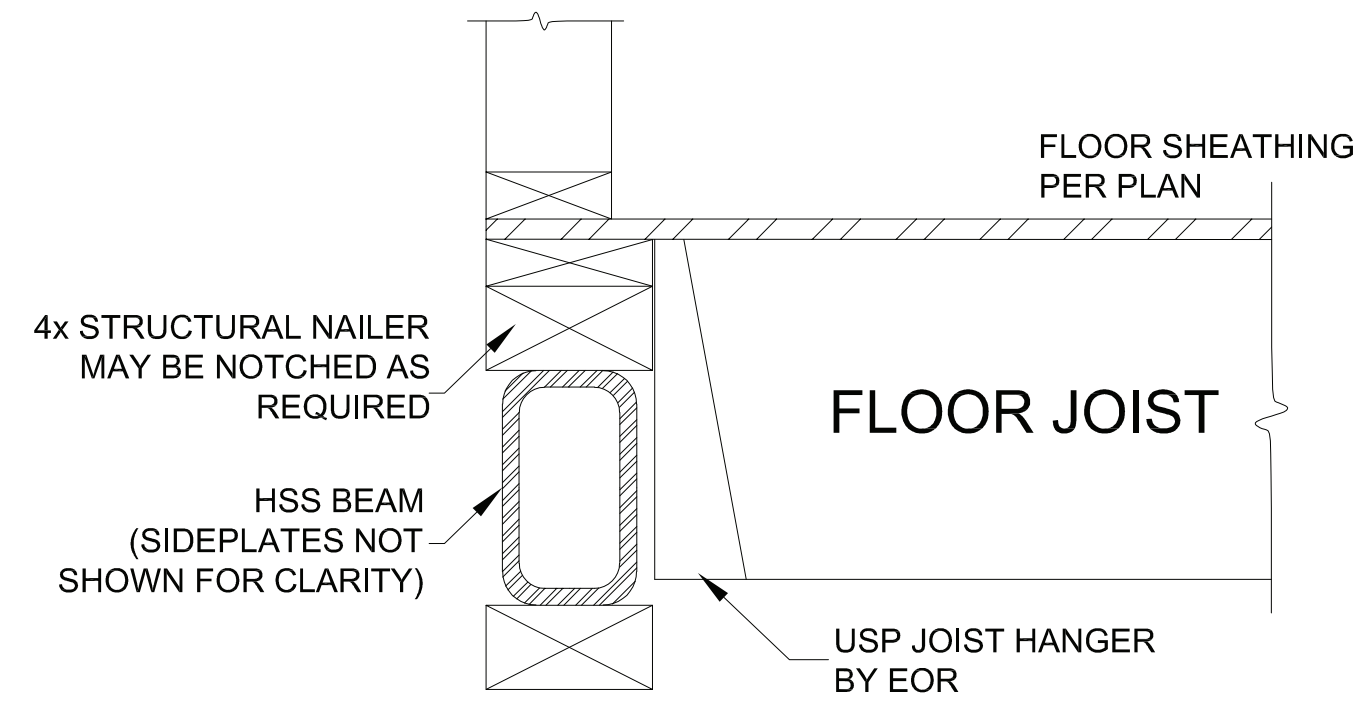
A

REVISIONS	DATE
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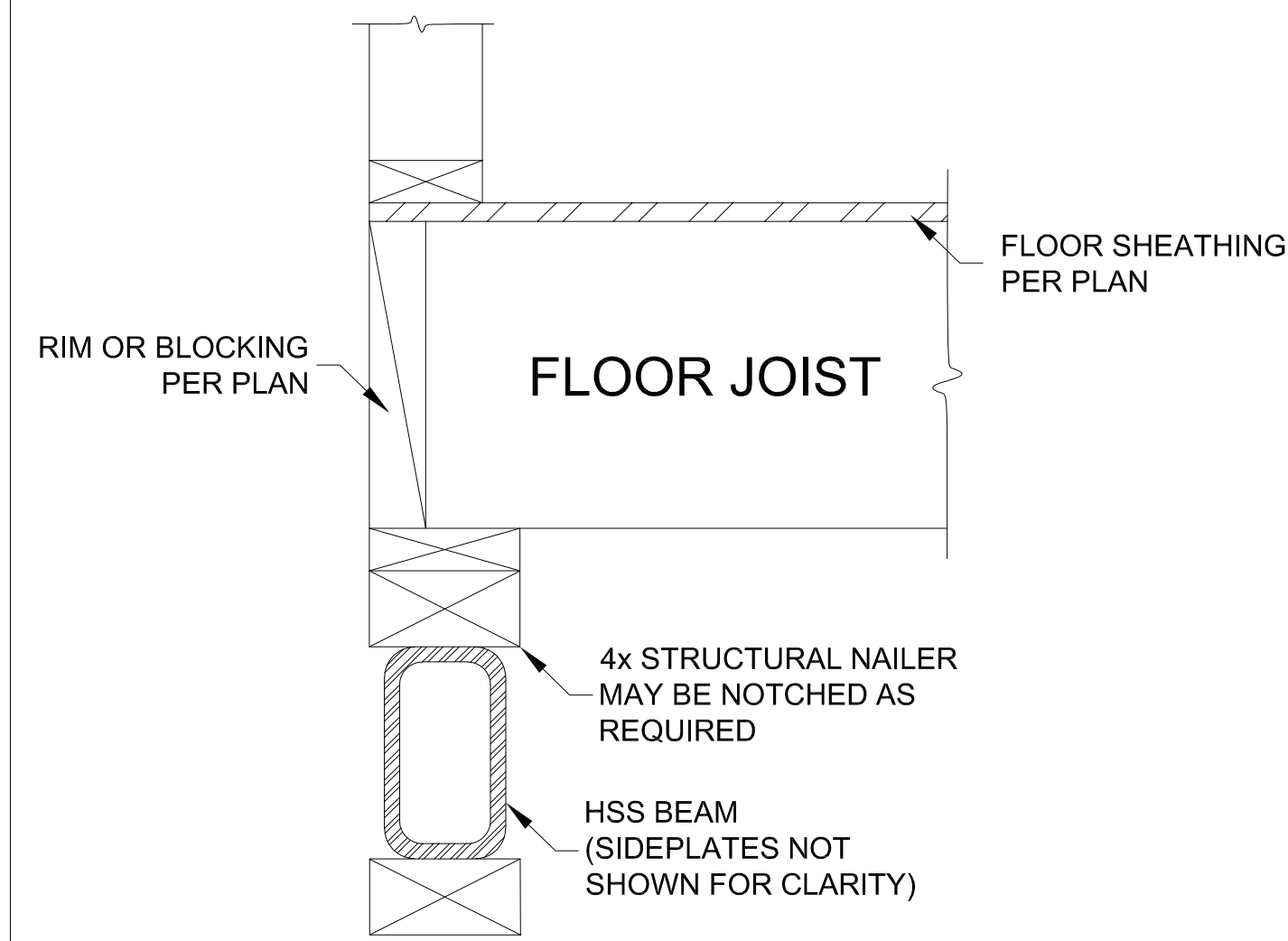
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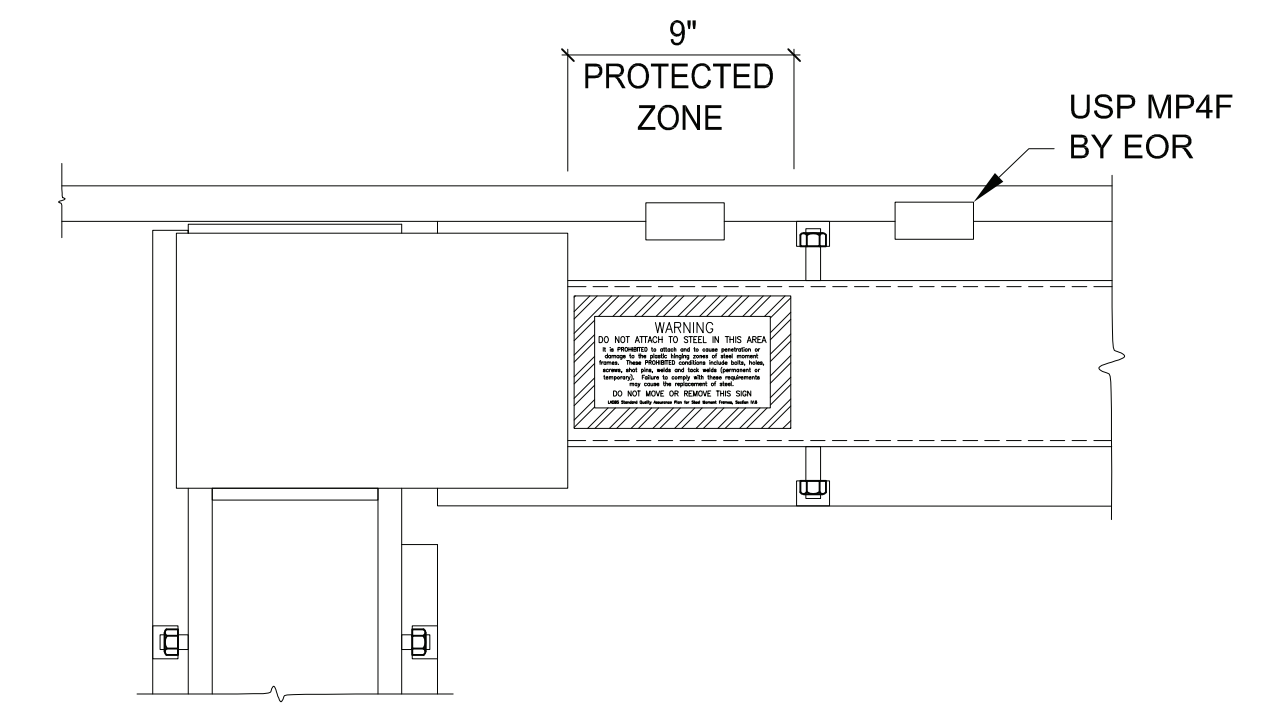
EDGE NAILING AT BEAM FACE NAILERS 4



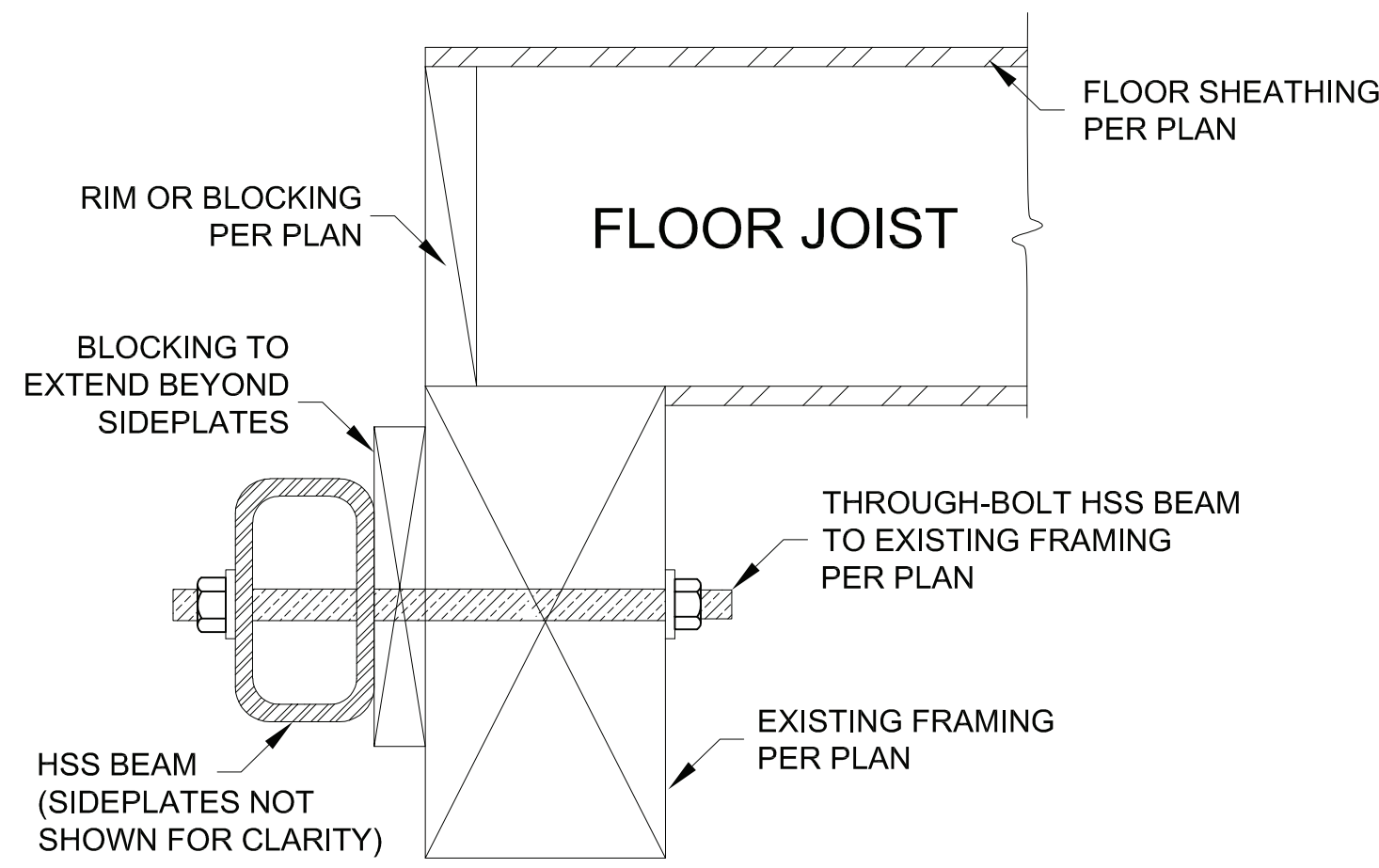
SECTION AT HEADER W/ HANGING JOISTS 3



SECTION AT HEADER W/ BEARING JOISTS 2



TOP CONNECTION AT 2x TOP PLATE 1



THROUGH-BOLT AT HSS BEAM 7

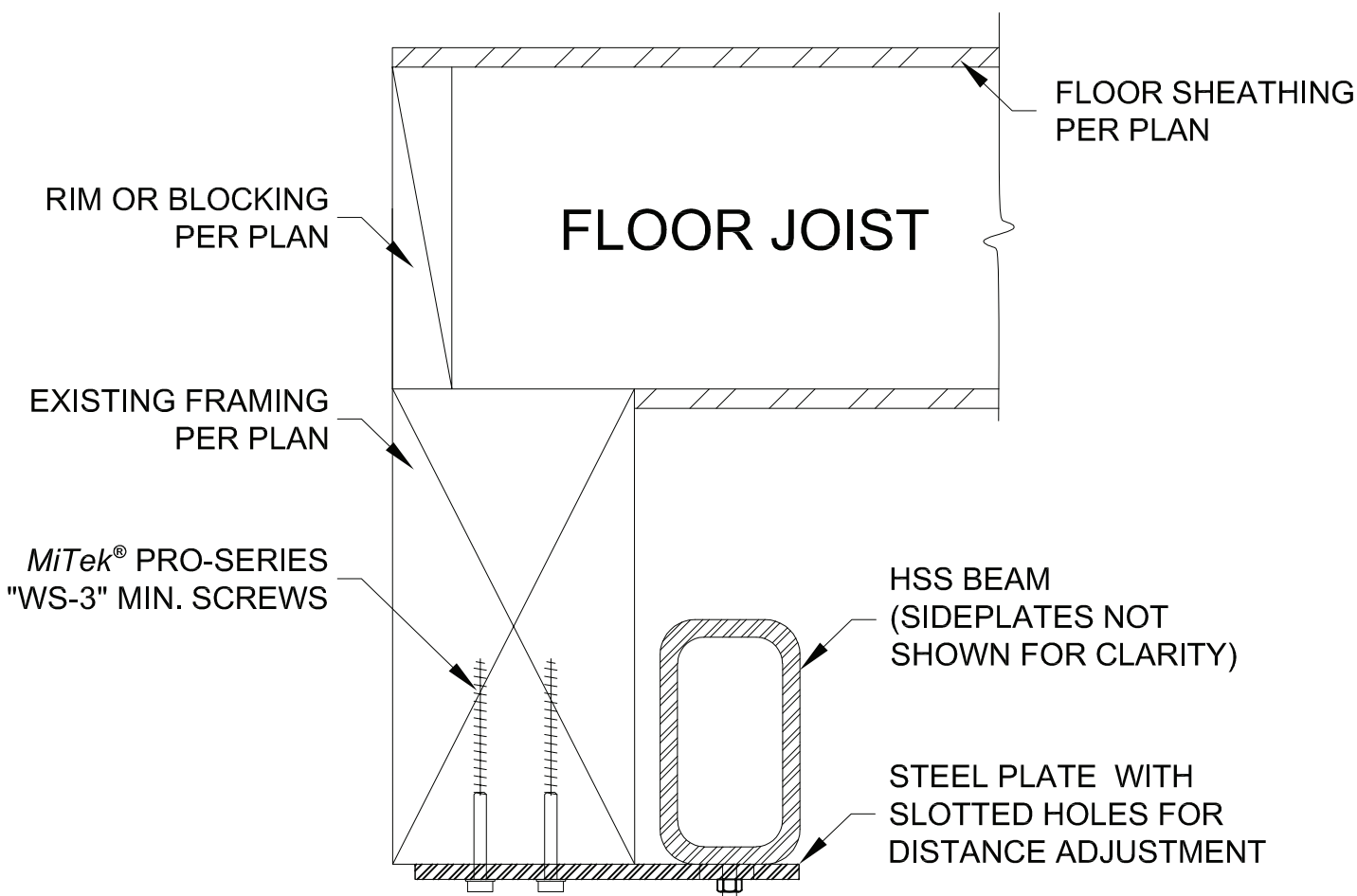
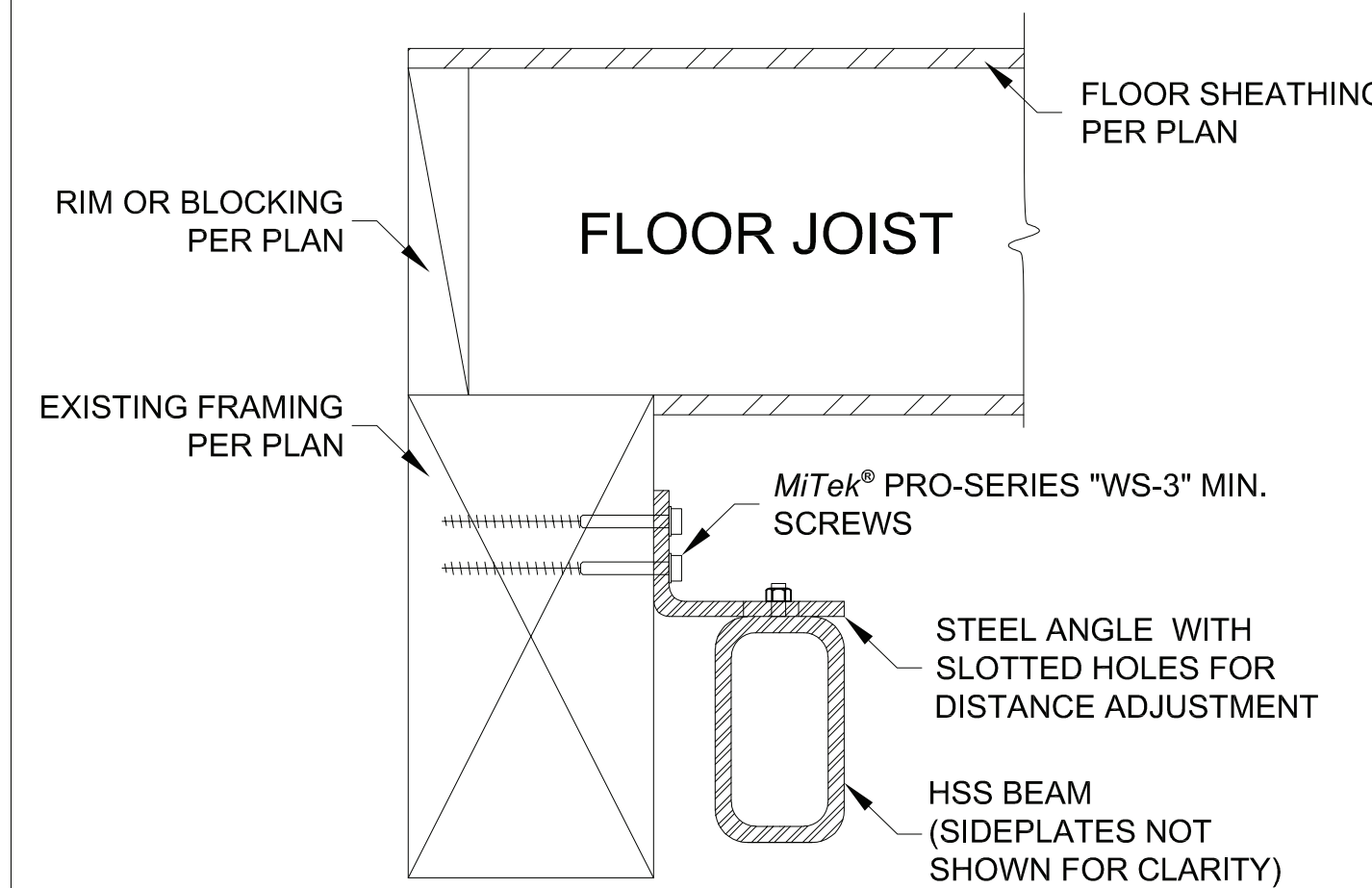
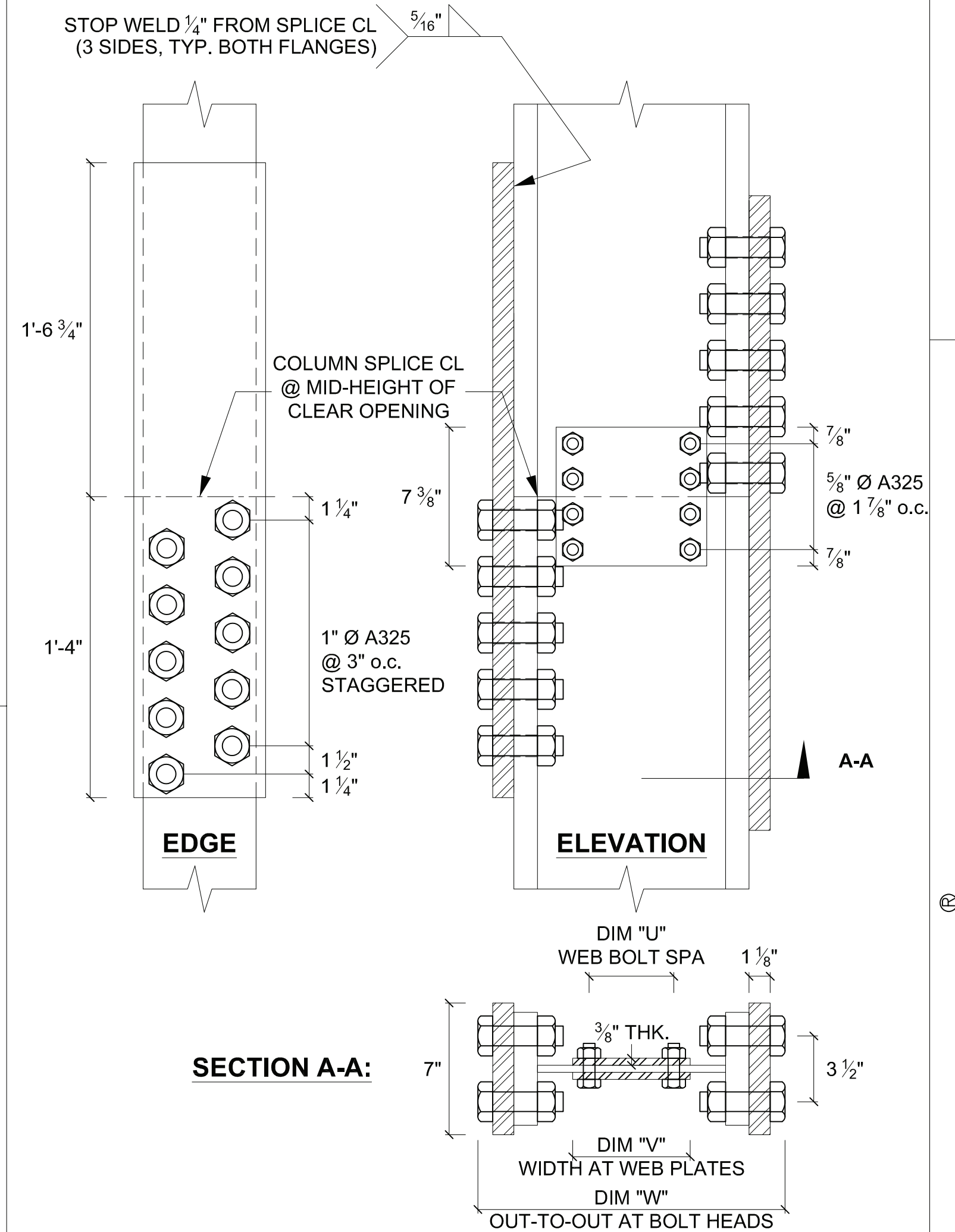


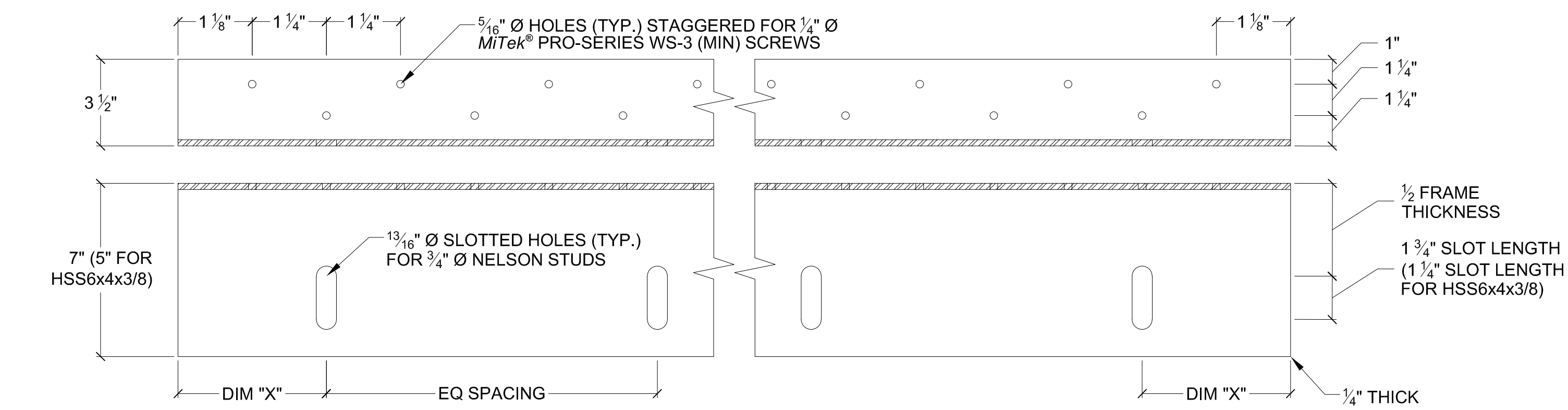
PLATE AT BOTTOM BEAM 6



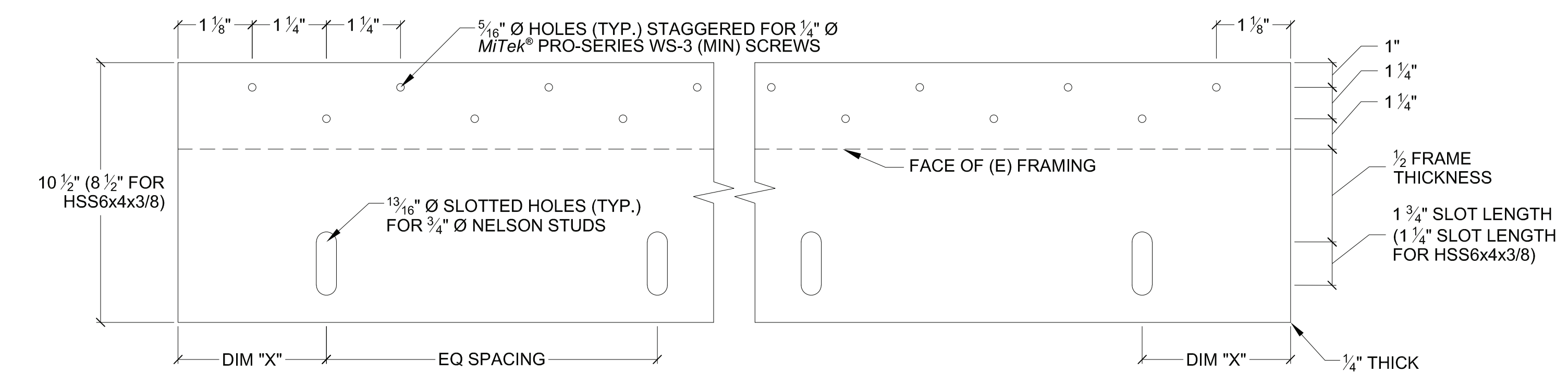
ANGLE AT TOP BEAM 5



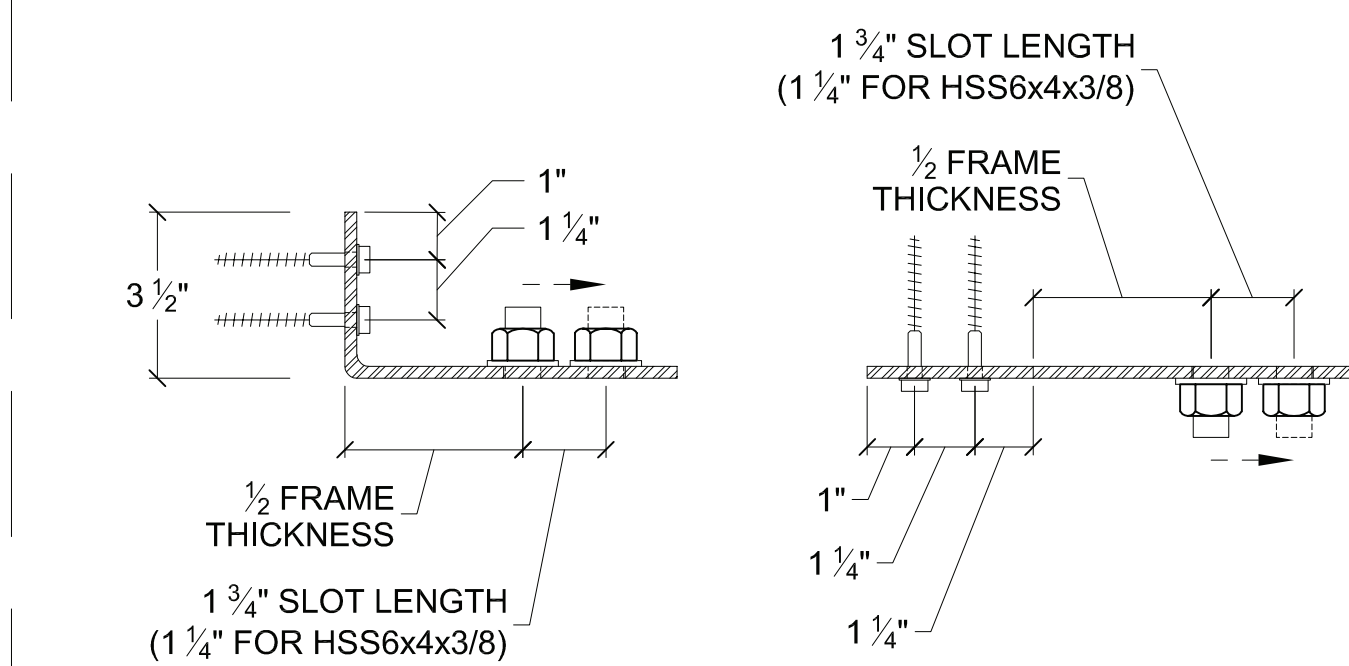
BOLTED COLUMN SPLICE 8



STEEL ANGLE 9A



STEEL PLATE 9B



STEEL ANGLE & PLATE ATTACHMENTS 9

STEEL ANGLE & STEEL PLATE ATTACHMENTS						
BEAM SECTION	FRAME TYPE	FOR $W_{IN-STEEL} <$	ANGLE/ PLATE QTY EA FRAME	STUD QTY EA ANGLE/ PLATE	*MIN. SCREW QTY EA ANGLE/ PLATE	DIM X
HSS6x4x3/8	HFMF	16'-7"	2	4	20	2 1/2"
	HFPIIC					
HSS6x6x5/8 HSS8x6x1/2 HSS8x6x5/8 HSS10x6x1/2 HSS10x6x5/8	HFMF	8'-7"	2	4	20	2 1/2"
	HFPIIC		1	8	52	8 1/2"
	HFMF		2	4	20	2 1/2"
	HFPIIC		1	8	60	10"
HSS10x6x5/8 HSS10x6x5/8	HFMF	24'-7"	3	4	20	2 1/2"
	HFPIIC					

\* DESIGN ASSUMES THE USE OF MiTek PRO-SERIES WS-3 MIN. SCREWS. FOR HFPIIC1416 AND  $W_{IN-STEEL}$  LESS THAN 10'-7", WS-45 MIN. SCREWS ARE REQUIRED.

COLUMN SPLICE PARAMETERS				
COLUMN SECTION	FRAME TYPE	DIM U	DIM V	DIM W
BU6.5x33	HFMF	N/A	N/A	N/A
	HFPIIC			
BU8.5x59	HFMF	2 1/2"	4 1/4"	12 1/4"
	HFPIIC			
BU10.5x61	HFMF	3 1/2"	5 1/4"	14 1/4"
	HFPIIC			
BU12.5x64	HFMF	4 1/2"	6 1/4"	16 1/4"
	HFPIIC			
BU14.5x66	HFMF	5 1/2"	7 1/4"	18 1/4"
	HFPIIC			

MiTek USA, Inc.  
555 S. Promenade Ave., Suite 104, Corona,  
CA 92879 (805) 477-0793  
www.hardyframe.com



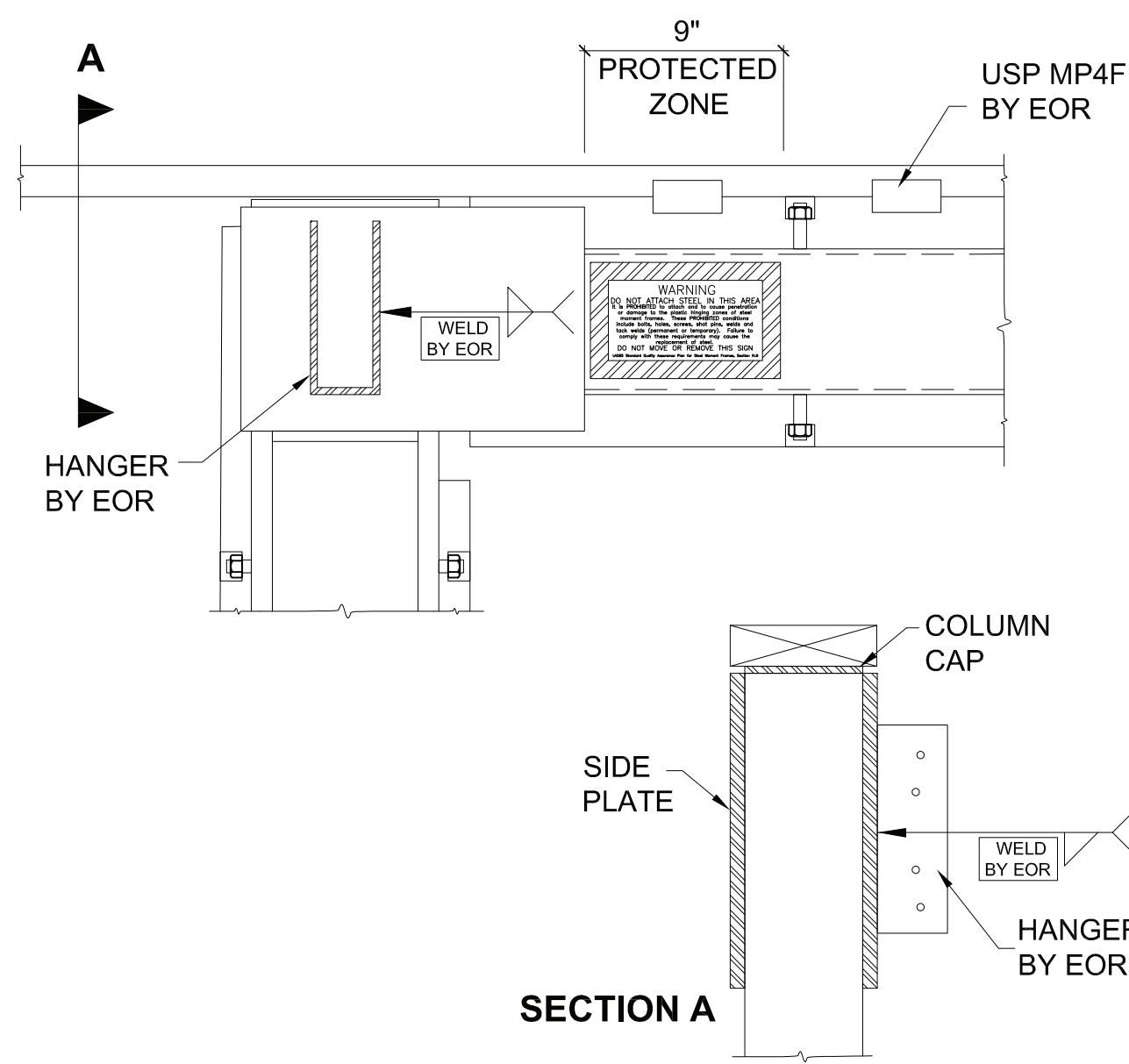
HARDY FRAME SPECIAL MOMENT FRAME  
TYPICAL INSTALLATION DETAILS  
FRAMING CONNECTIONS & ATTACHMENTS

REVISIONS	DATE

DATE:  
05-23-19

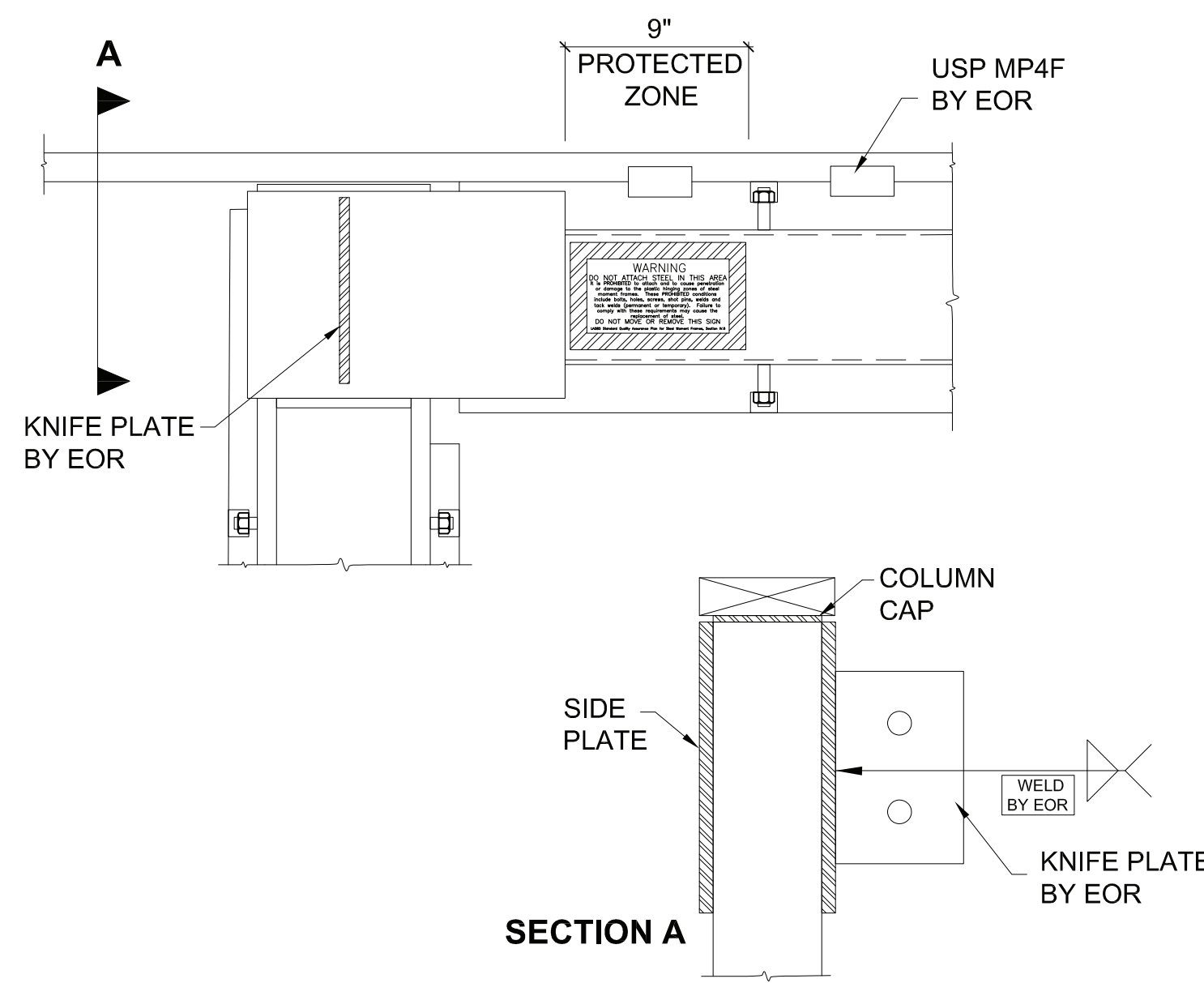
HFMF  
3





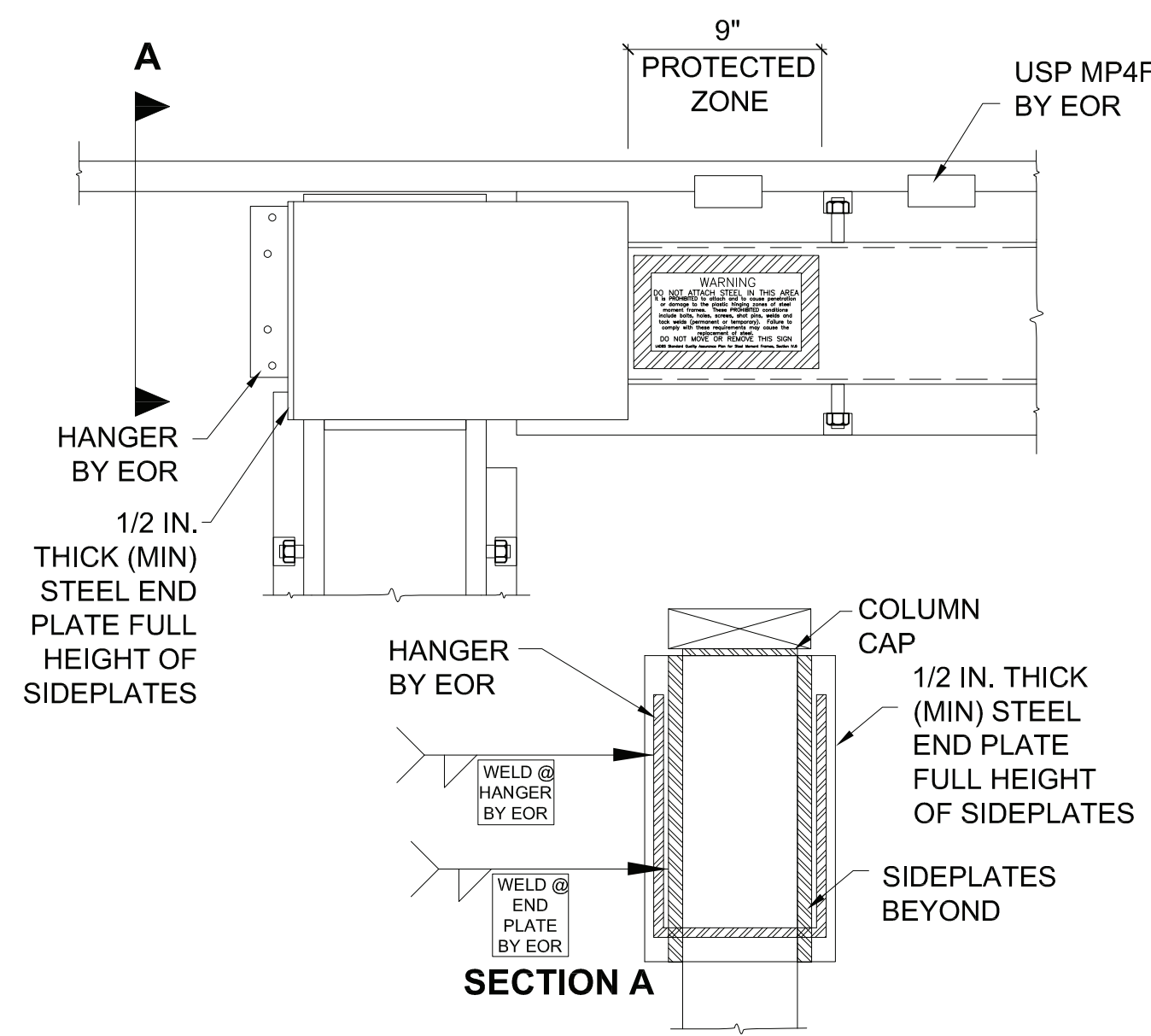
HANGER @ FACE OF SIDEPLATE FACE

4



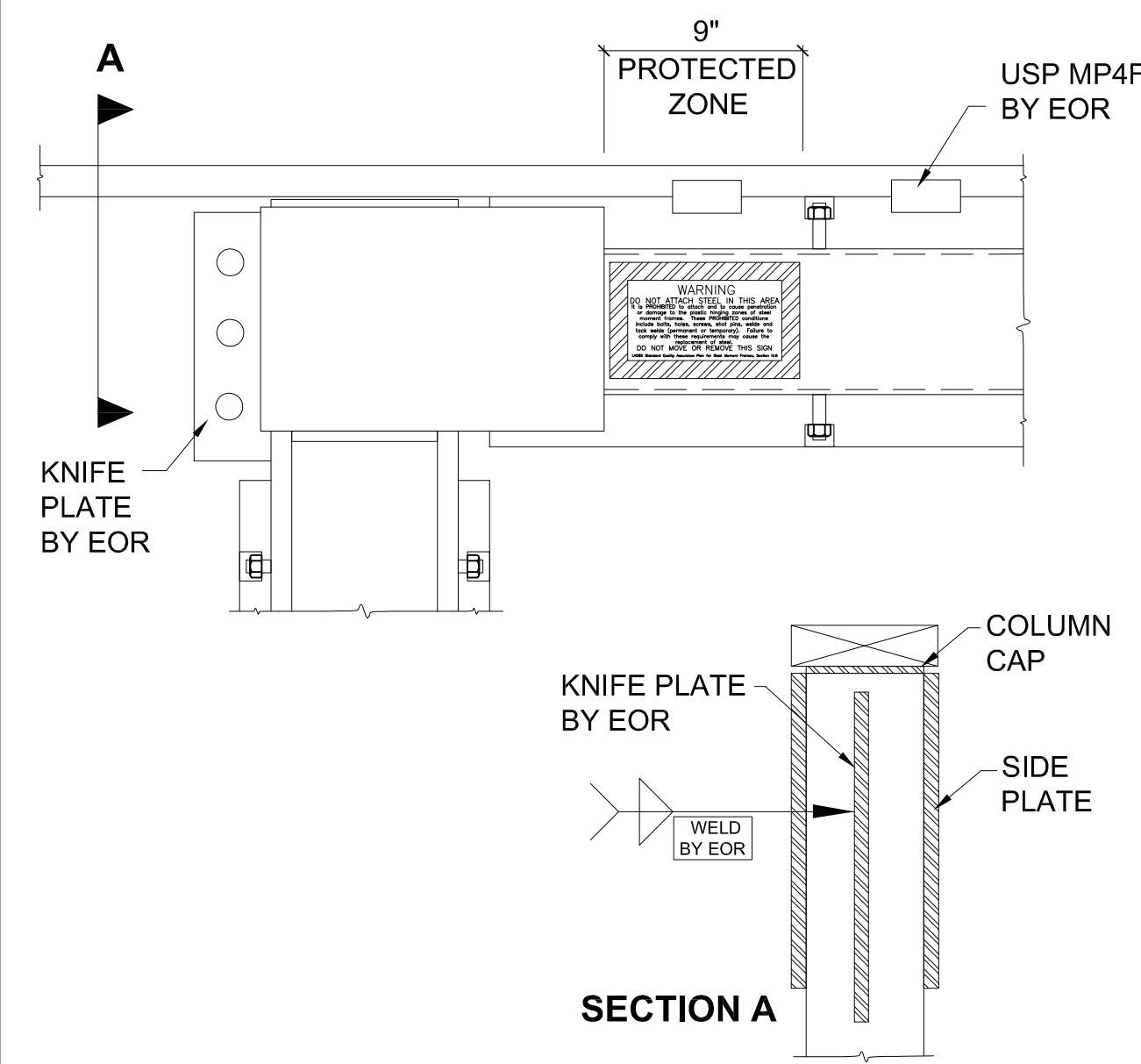
KNIFE PLATE @ FACE OF SIDEPLATE

3



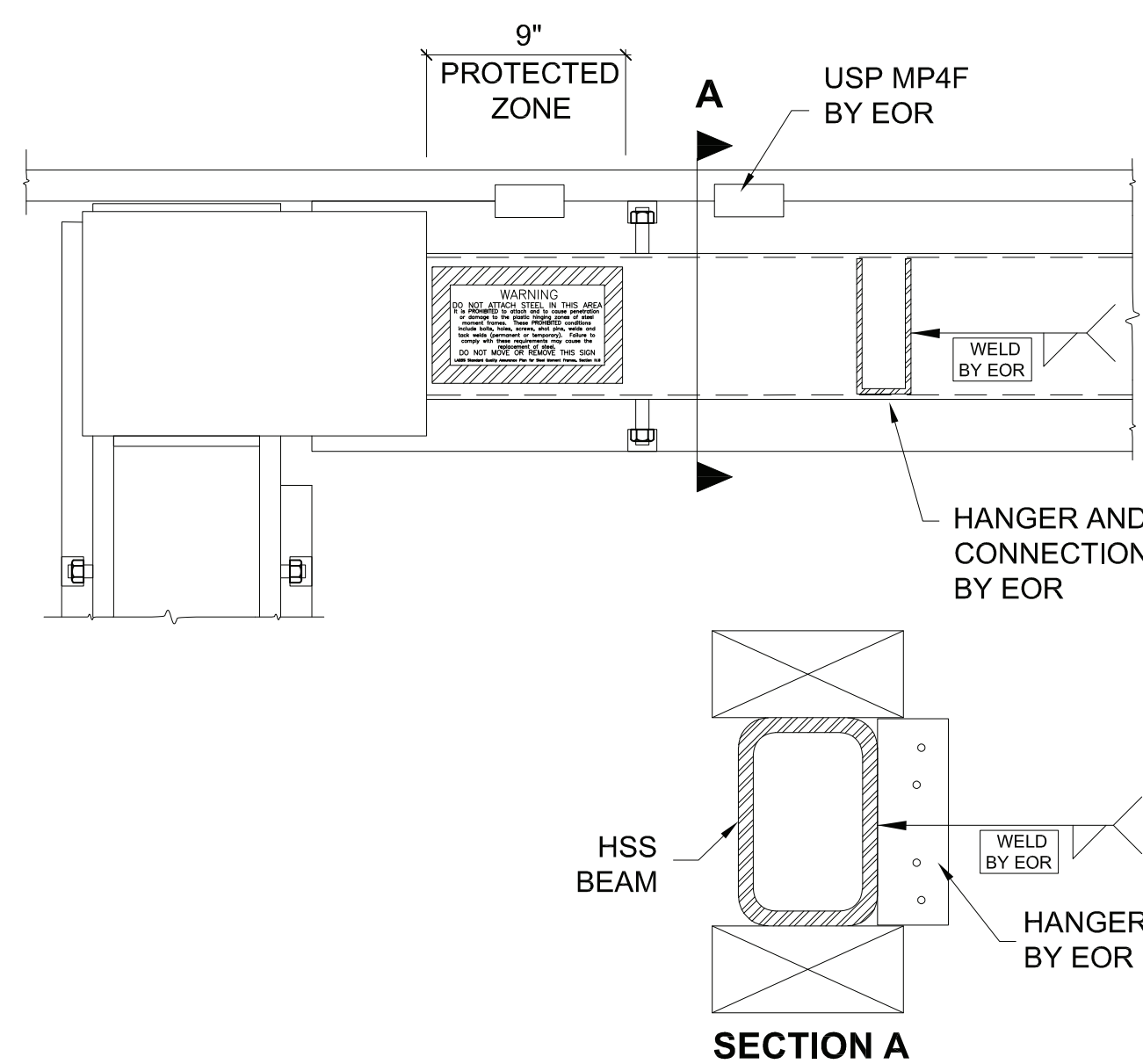
HANGER @ COLUMN TO END PLATE

2



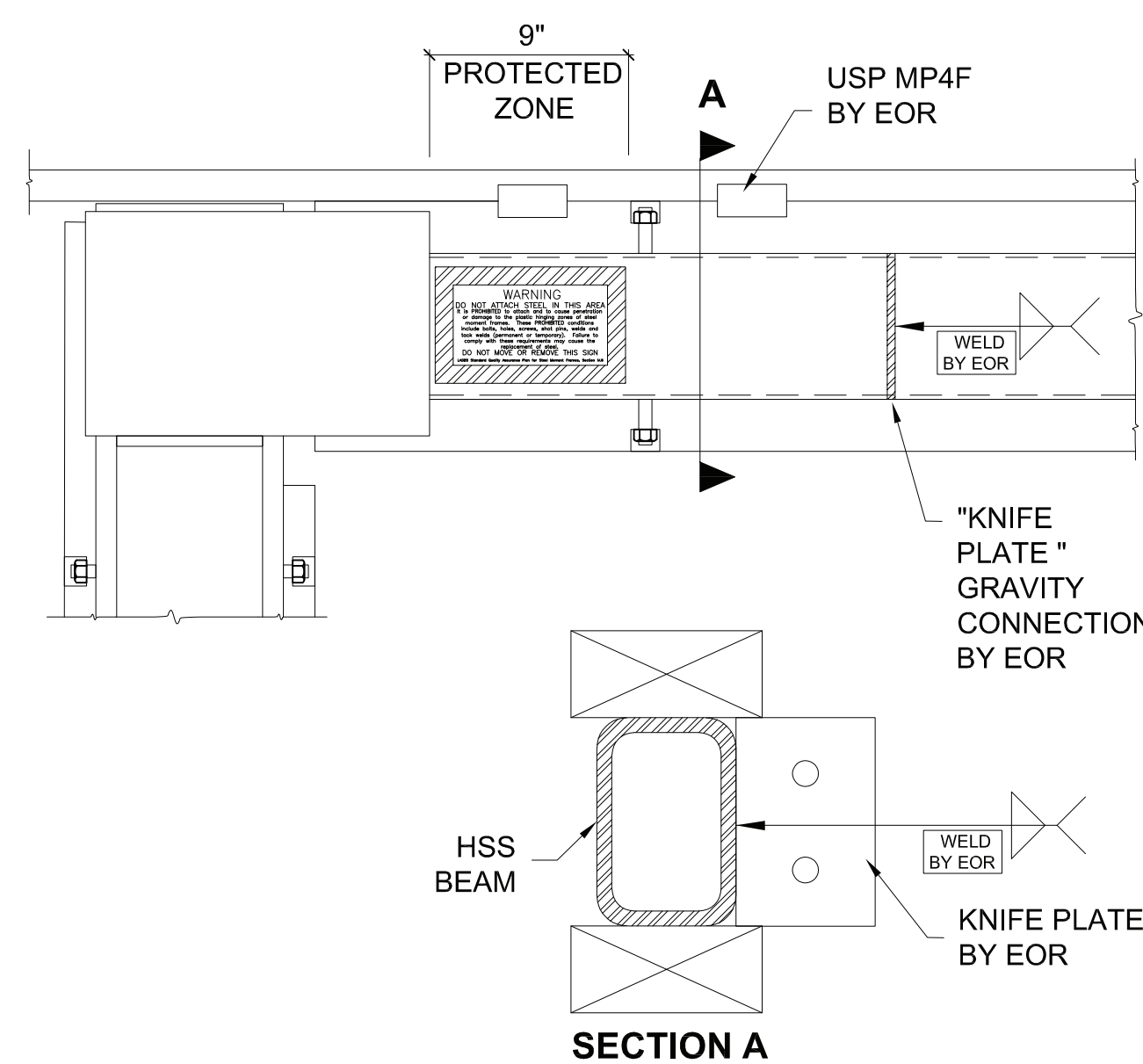
STEEL BEAM TO COLUMN FLANGE

1



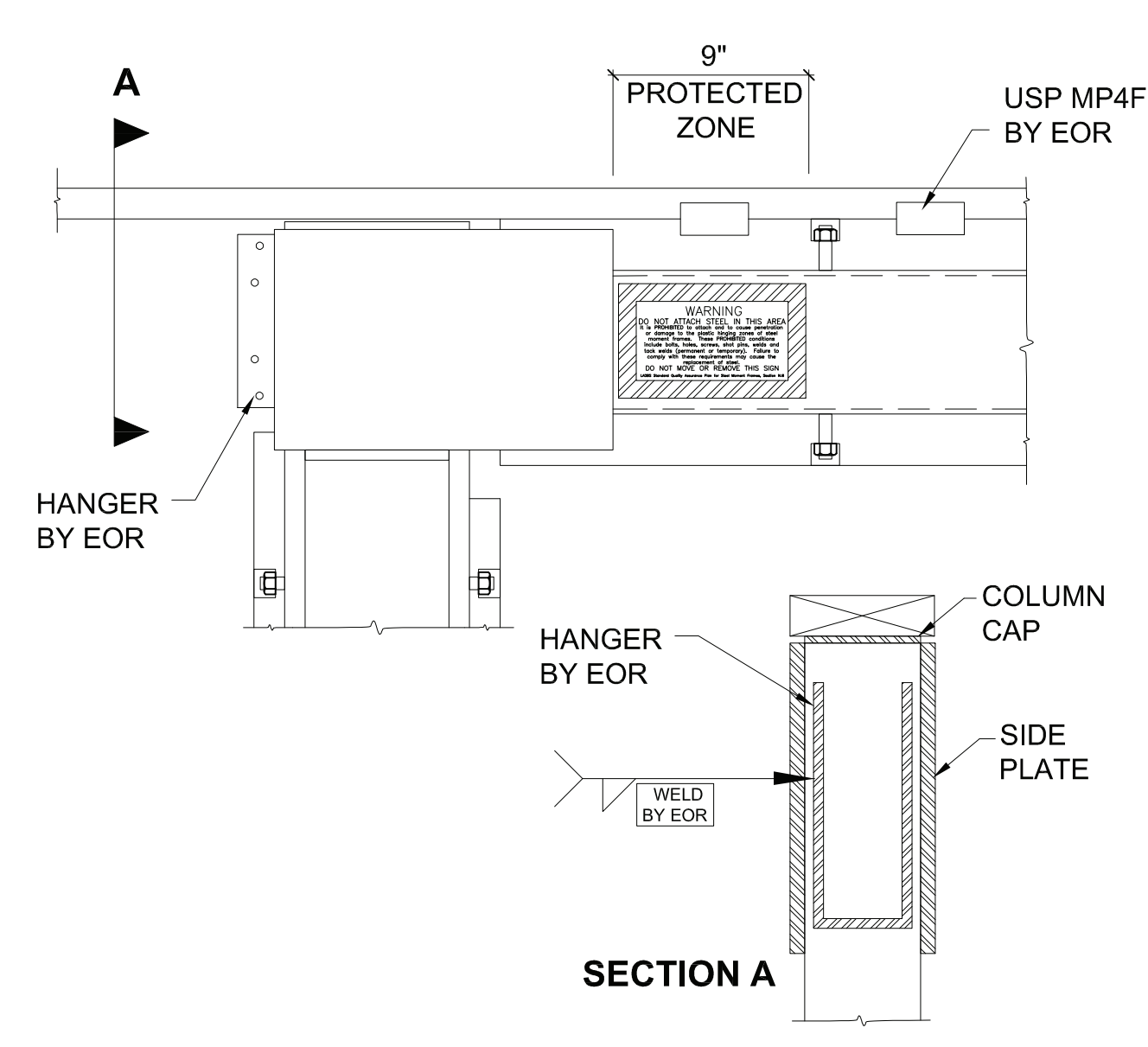
HANGER @ HEADER

8



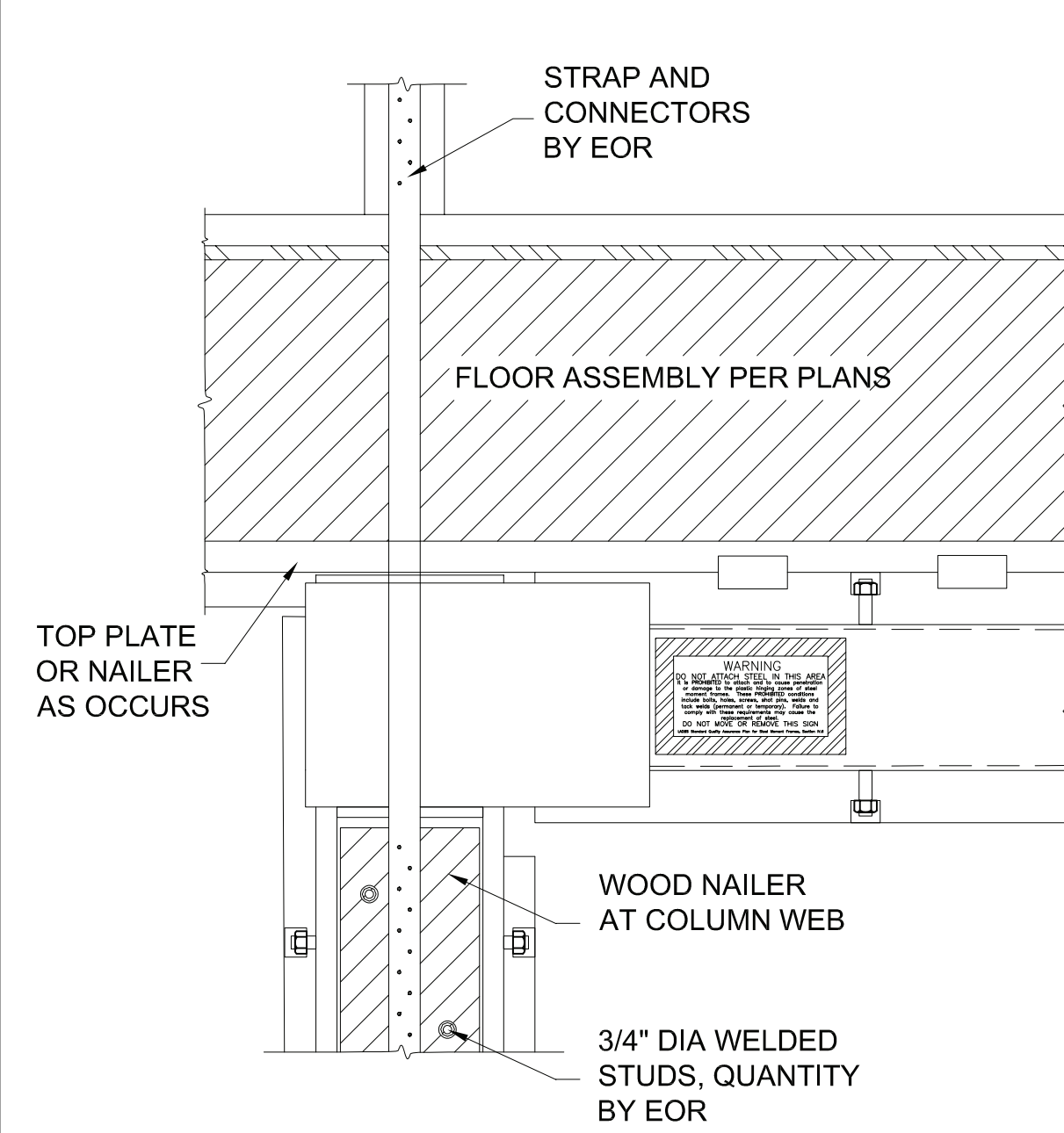
KNIFE PLATE TO HEADER

7



HANGER @ COLUMN FLANGE

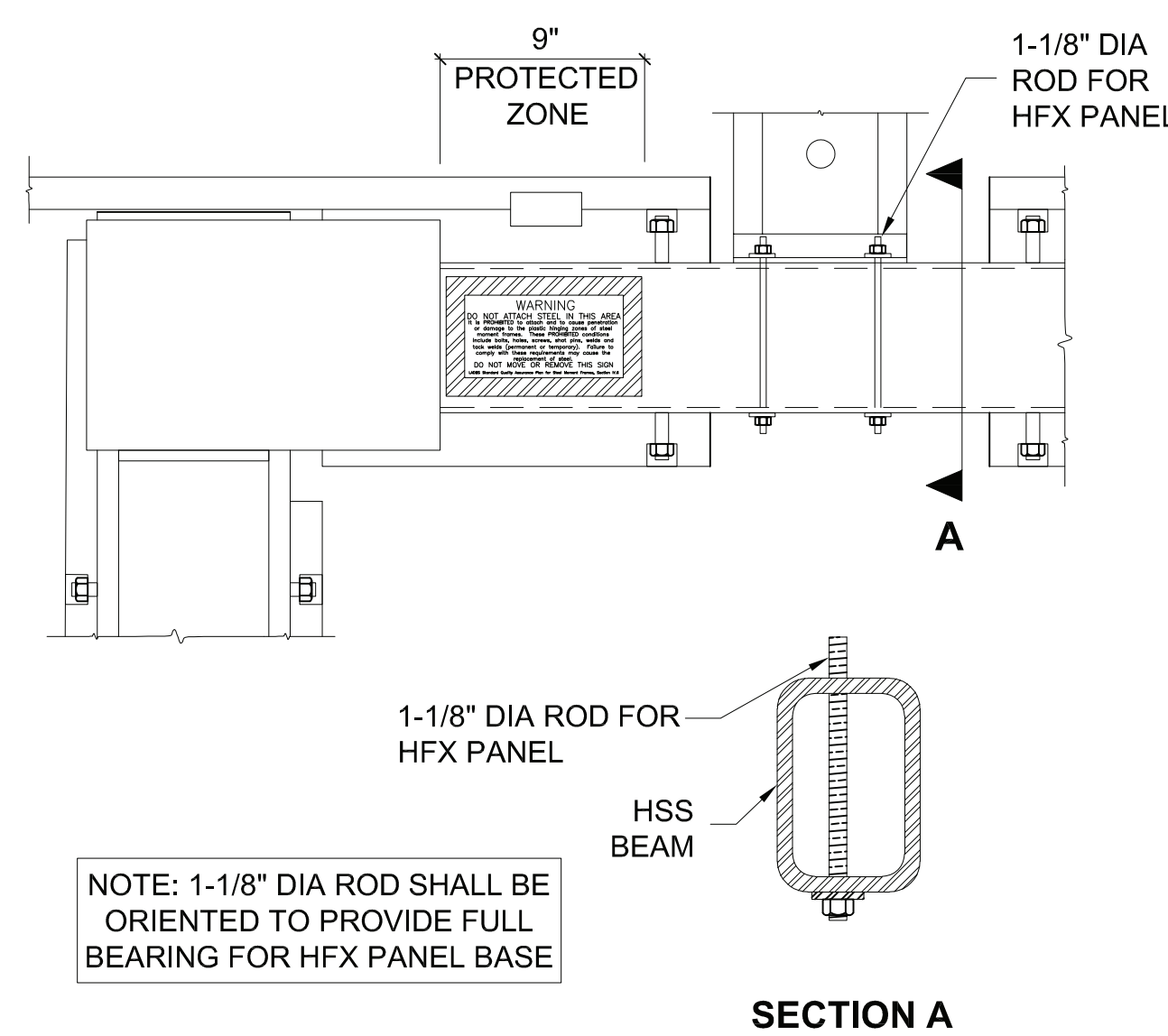
6



HOLD DOWN STRAP TO COLUMN WEB

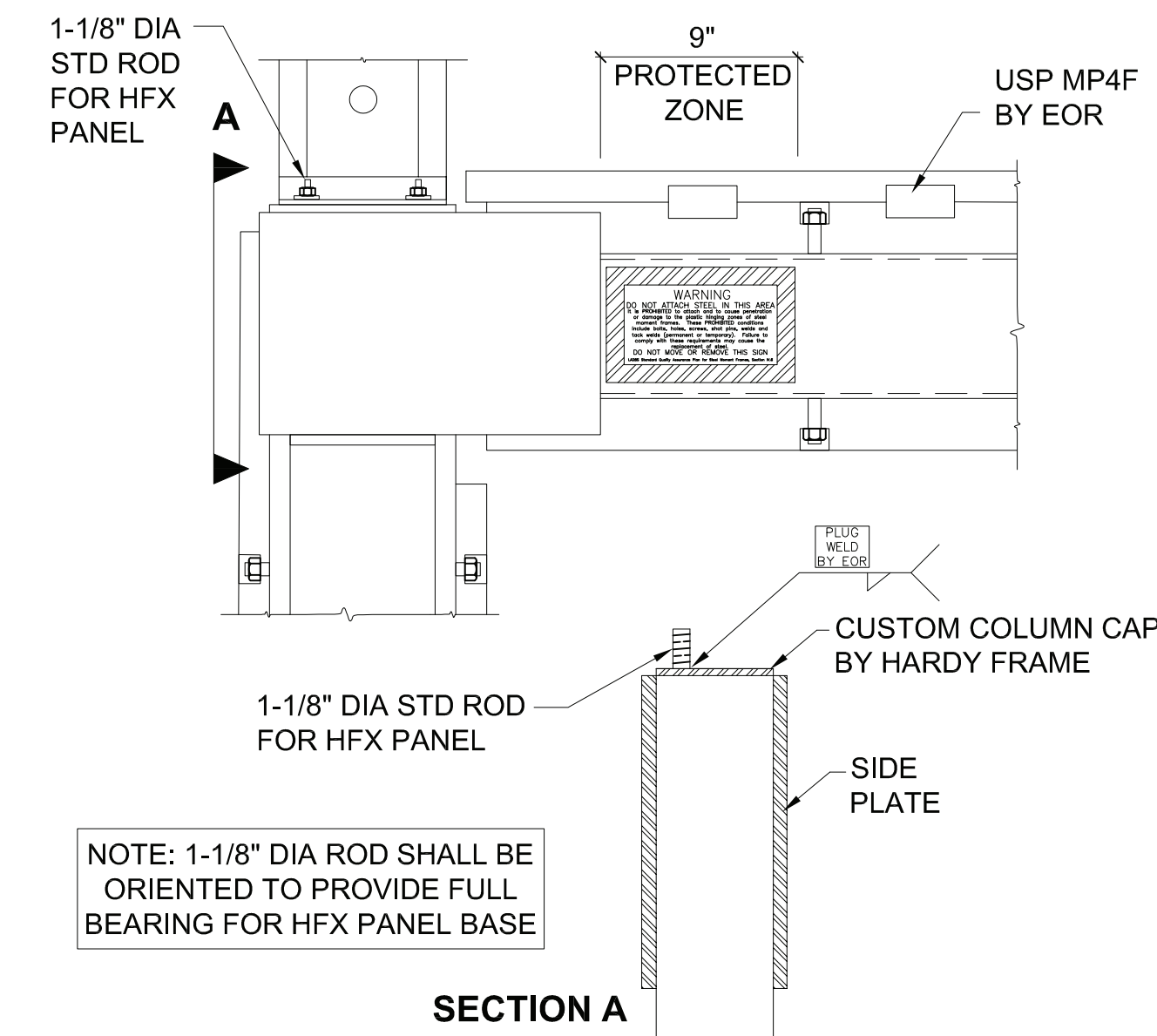
5

INFORMATION AND DETAILING ON THIS SHEET IS INTENDED FOR USE BY THE PROJECT DESIGN PROFESSIONAL AS ALTERNATES TO REMOVE AND REPLACE DETAILS ON SHEET HFMF 3.



HFX PANEL @ HEADER

10



HFX PANEL @ COLUMN CAP

9

REVISIONS	DATE

DATE:  
05-23-19

**HFMF**  
**5**