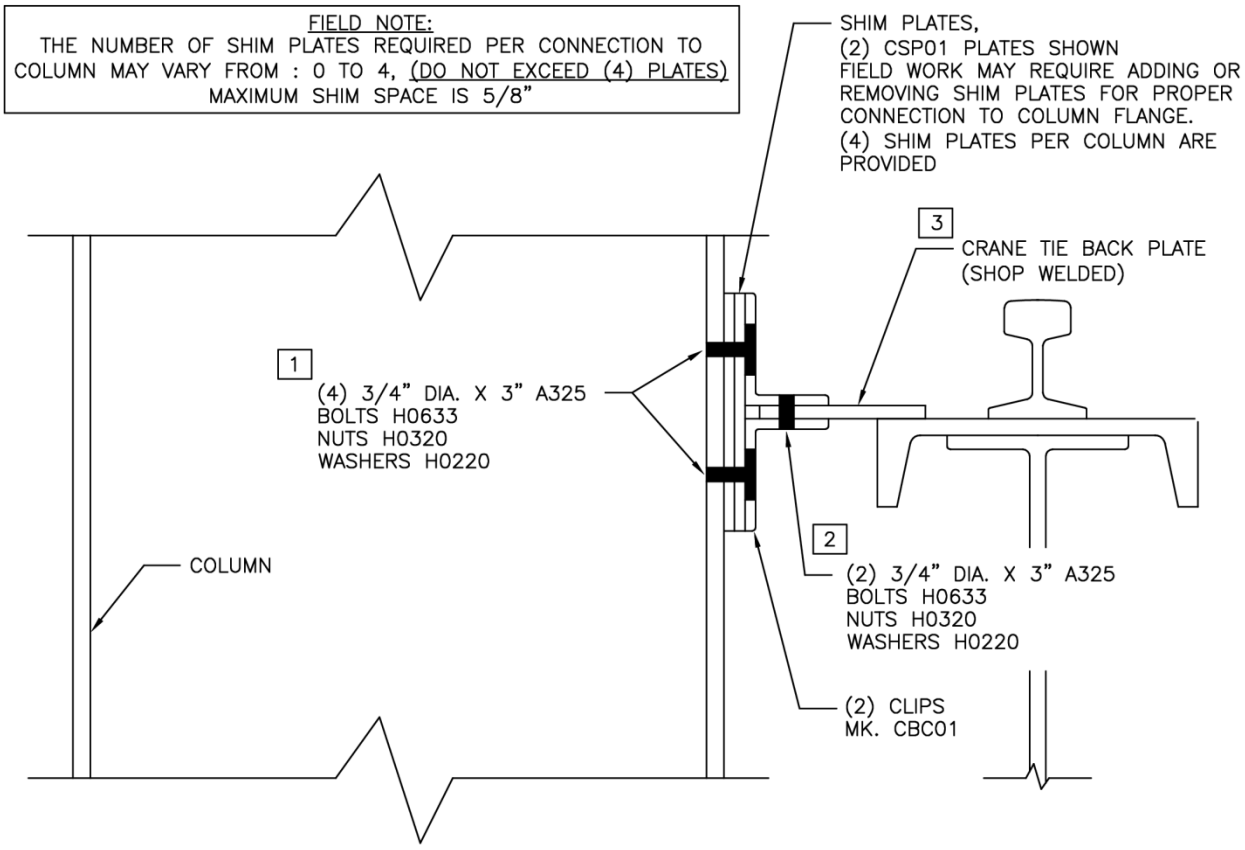
CRANES TABLE OF CONTENTS

GENERAL CRANE INFORMATION

See the MBMA Latest Edition of the Metal Building Systems Manual chapter entitled “Crane Loads” for an extensive discussion of the variables required for properly designing Metal Building systems with cranes.

CRANE TIE-BACK DETAIL

AH0008 – CRANE TIE-BACK CONNECTION



1 BOLTS MUST BE FULLY TIGHTENED.

2 BOLTS TO BE HAND TIGHTENED ONLY. THREADS MUST BE DISTORTED TO PREVENT BOLTS FROM LOOSENING.

3 FIELD SLOTTING OF LATERAL TIE BACK PLATE OR ANGLES IS NOT PERMITTED. FIELD MODIFICATION OF THIS CONNECTION WILL ADVERSELY AFFECT THE STRUCTURAL PERFORMANCE AND INTEGRITY OF THE CRANE RUNWAY SYSTEM.

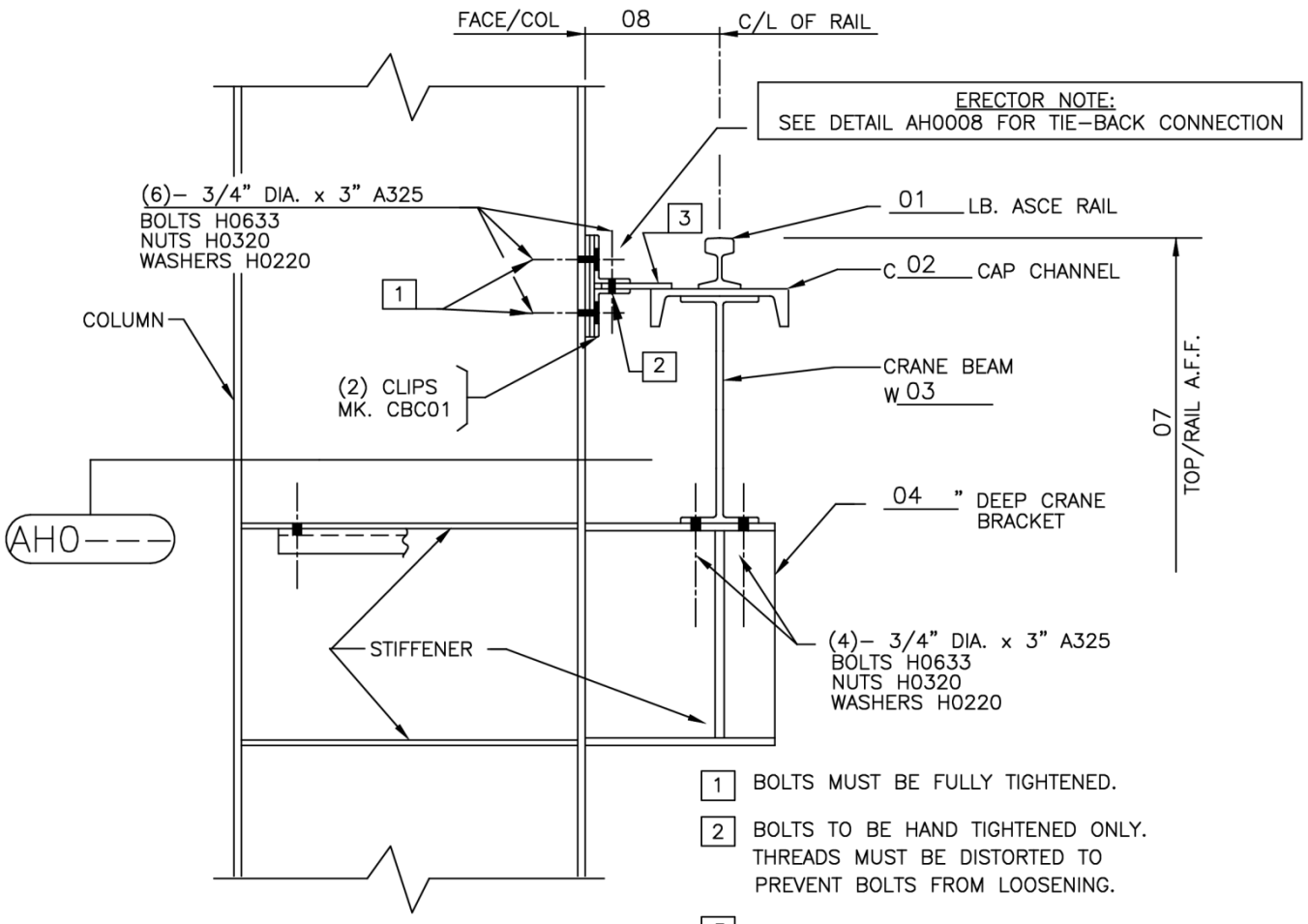
CRANE TIE BACK CONNECTION

RUNWAY BEAM TO COLUMN CONNECTION

AH0008

TOP RUNNING BRIDGE CRANE BRACKET DETAILS

AH0010 - RUNWAY BEAM TO BRACKET CONNECTION

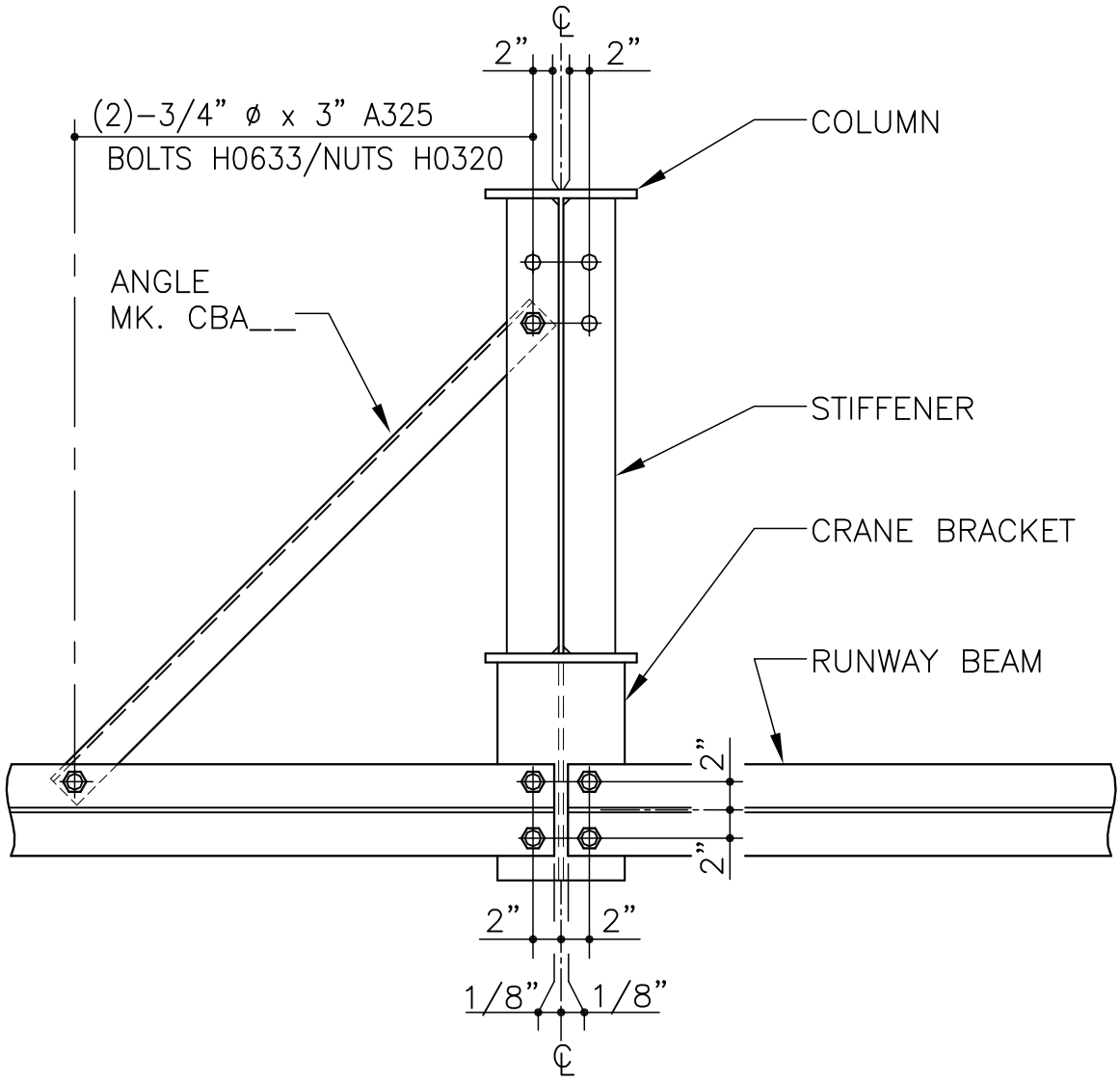


TOP RUNNING BRIDGE CRANE DETAIL

RUNWAY BEAM TO BRACKET CONNECTION

AH0010

AH0030 - RUNWAY BEAM TO COLUMN BRACING (UNBRACED BAY)

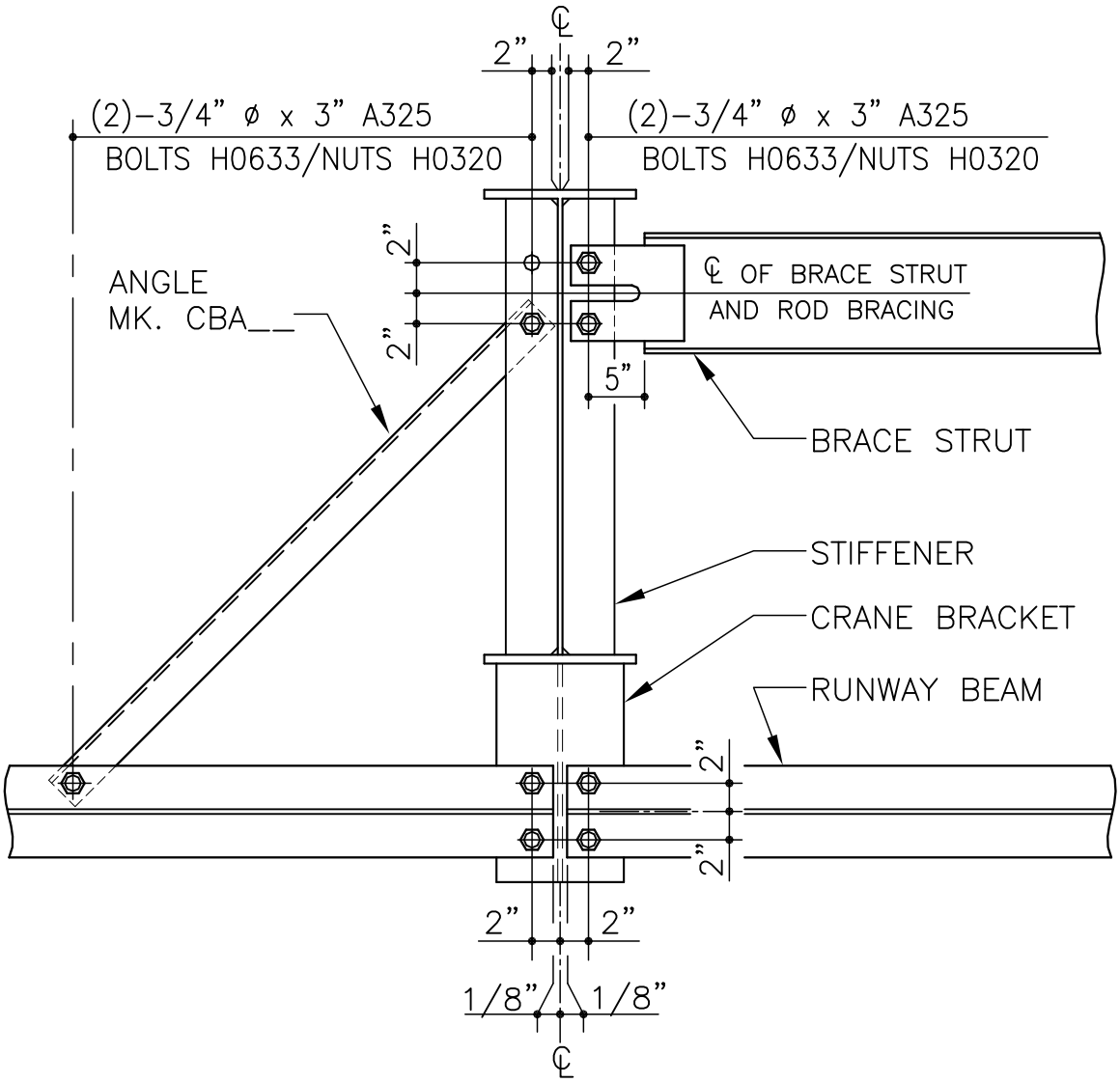


TOP RUNNING BRIDGE CRANE DETAIL

RUNWAY BEAM TO COLUMN BRACING (TYPICAL UNLESS NOTED OTHERWISE)

AH0030

AH0070 - RUNWAY BEAM TO COLUMN BRACING (BRACED BAY)

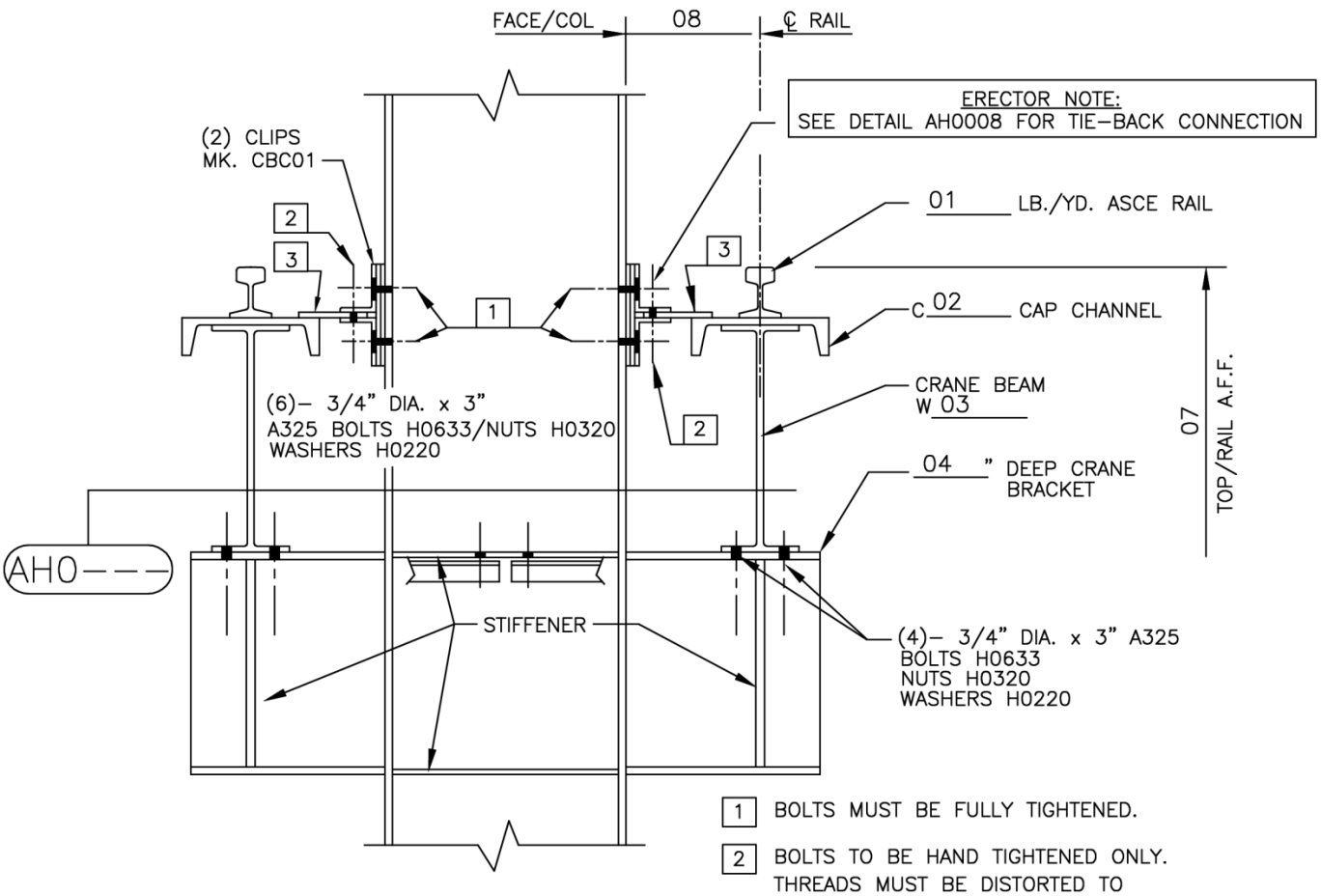


TOP RUNNING BRIDGE CRANE DETAIL

RUNWAY BEAM TO COLUMN BRACING (TYPICAL AT BRACED BAY)

AH0070

AH0090 - RUNWAY BEAM TO BRACKET CONNECTION (DOUBLE BRACKET)



NOTE: SEE RAIL TO RUNWAY BEAM CONNECTION DETAILS (EITHER HOOK BOLT OR FLOATING CLAMP DETAIL) FOR ADDITIONAL CONNECTION REQUIREMENTS.

1 BOLTS MUST BE FULLY TIGHTENED.

2 BOLTS TO BE HAND TIGHTENED ONLY. THREADS MUST BE DISTORTED TO PREVENT BOLTS FROM LOOSENING.

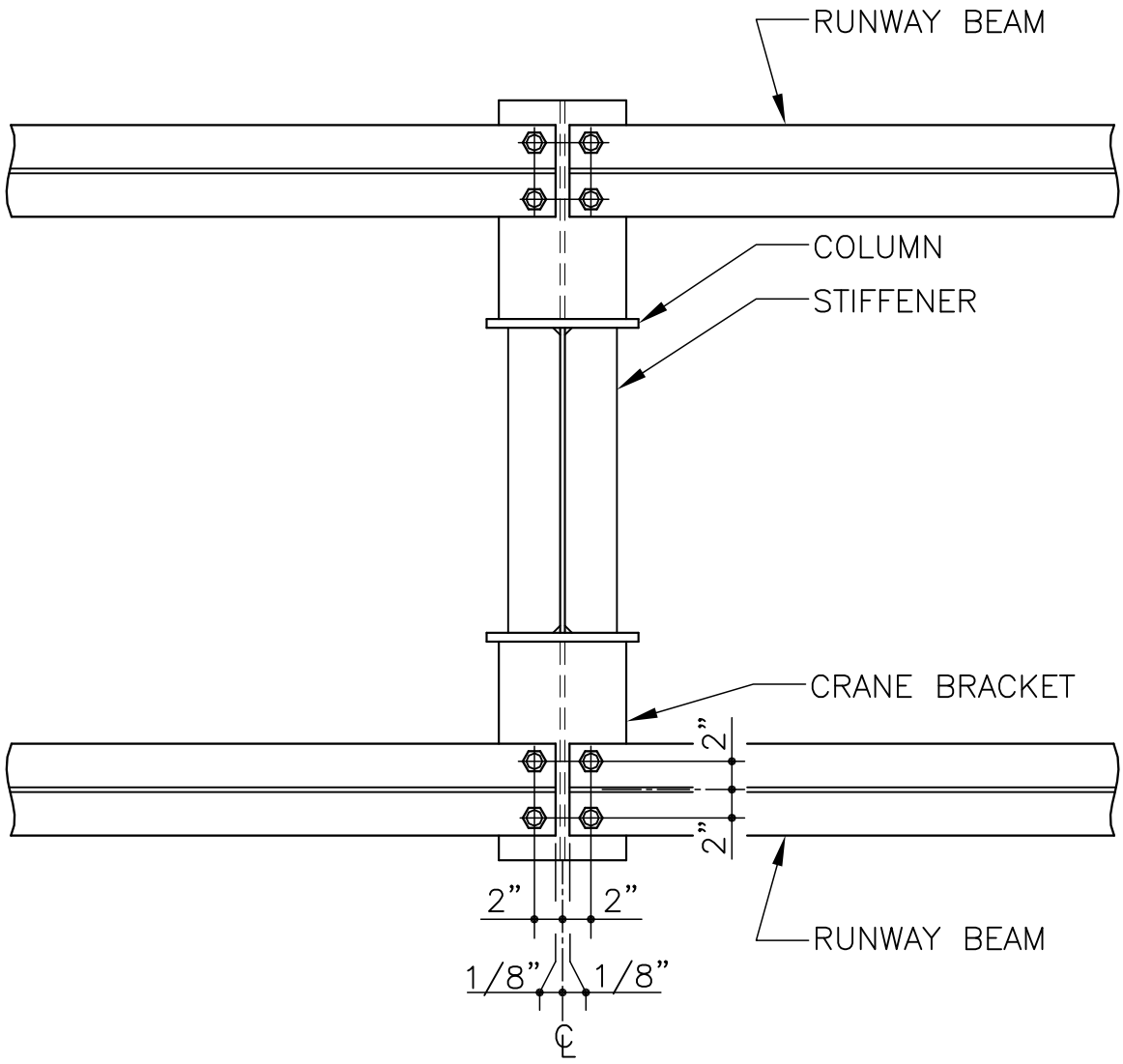
3 FIELD SLOTTING OF LATERAL TIE BACK PLATE OR ANGLES IS NOT PERMITTED. FIELD MODIFICATION OF THIS CONNECTION WILL ADVERSELY AFFECT THE STRUCTURAL PERFORMANCE AND INTEGRITY OF THE CRANE RUNWAY SYSTEM.

TOP RUNNING BRIDGE CRANE DETAIL

RUNWAY BEAM (BY NUCOR) TO BRACKET CONNECTION

AH0090

AH0110 - RUNWAY BEAM TO COLUMN BRACING (DOUBLE BRACKET IN UNBRACED BAY)



TOP RUNNING BRIDGE CRANE DETAIL

RUNWAY BEAM TO COLUMN

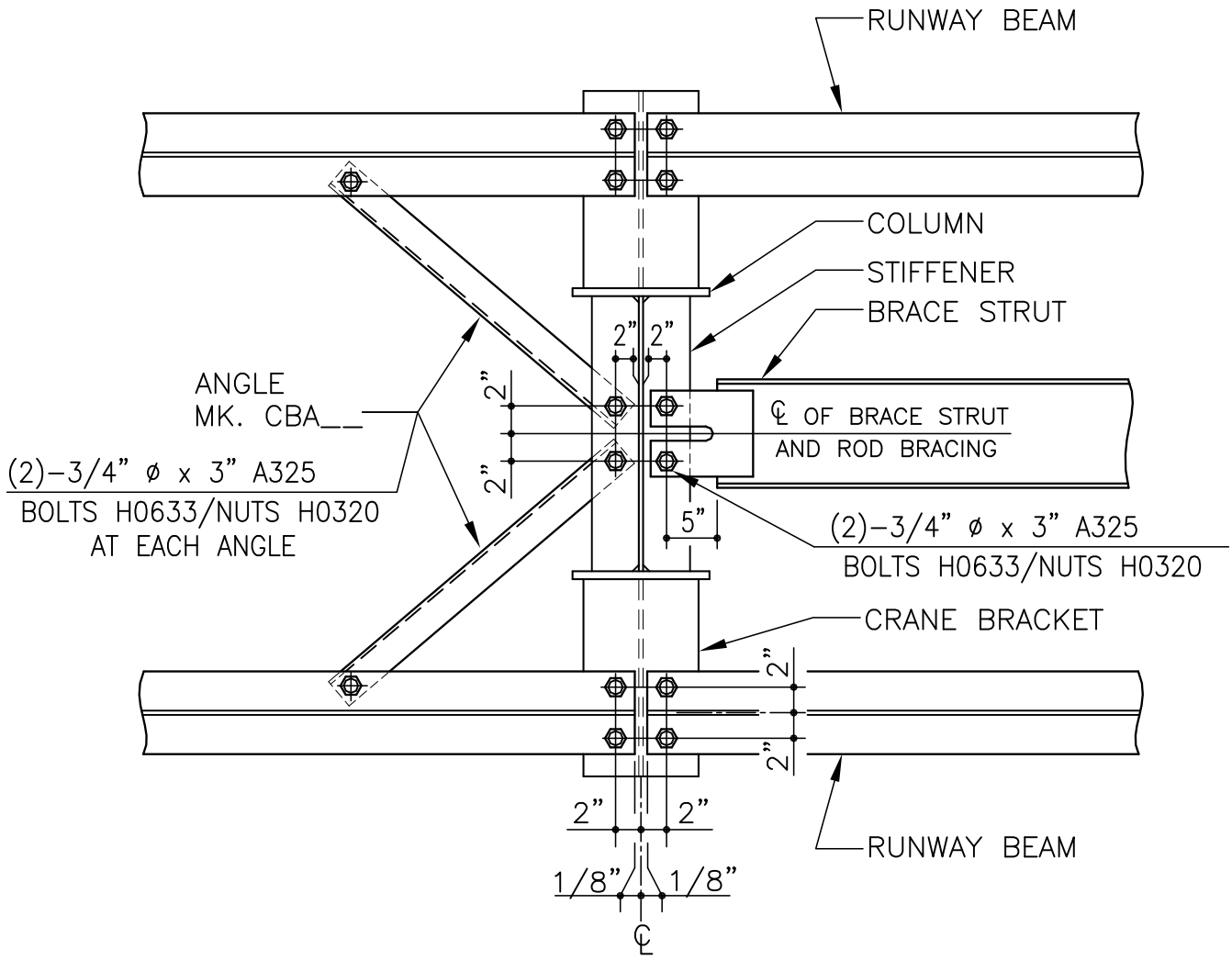
AH0110

LAST REVISION
DATE: 02/16/15
BY: AK CHK: EGB

DETAIL NAME IF APPLICABLE

AH0110.DWG

AH0120 - RUNWAY BEAM TO COLUMN BRACING (DOUBLE BRACKET IN BRACED BAY)



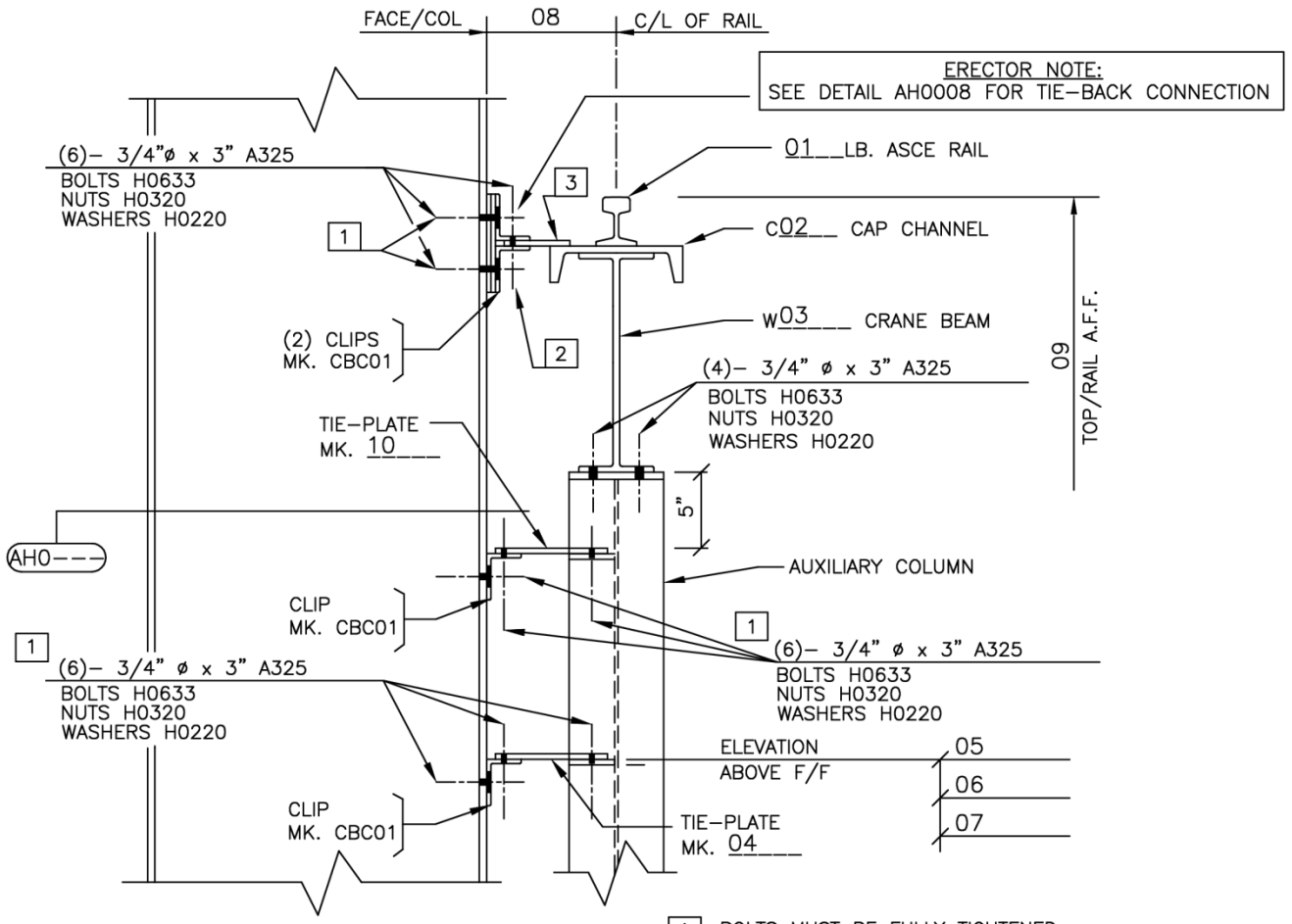
TOP RUNNING BRIDGE CRANE DETAIL

RUNWAY BEAM TO COLUMN BRACING (TYPICAL AT BRACED BAY)

AH0120

TOP RUNNING BRIDGE CRANE AUXILIARY COLUMN DETAILS

AH0150 - RUNWAY BEAM TO AUXILIARY COLUMN CONNECTION



NOTE: SEE RAIL TO RUNWAY BEAM CONNECTION DETAILS (EITHER HOOK BOLT OR FLOATING CLAMP DETAIL) FOR ADDITIONAL CONNECTION REQUIREMENTS.

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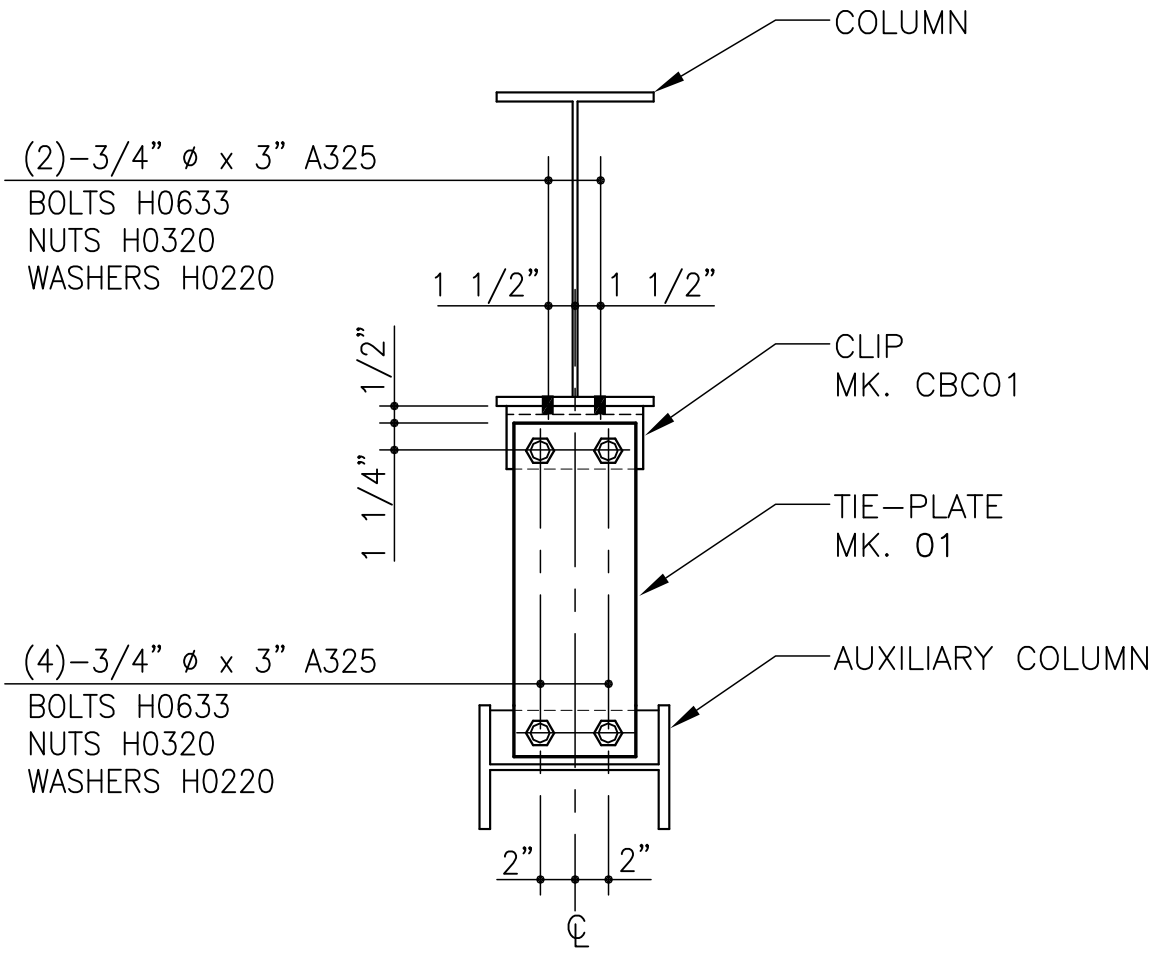
TOP RUNNING BRIDGE CRANE DETAIL
RUNWAY BEAM TO AUXILIARY COLUMN CONNECTION

AH0150

AH0170 - AUXILIARY COLUMN TO FRAME COLUMN CONNECTION



TOP RUNNING BRIDGE CRANE DETAIL

COLUMN TO AUXILIARY COLUMN ATTACHMENT

AH0170

LAST REVISION
DATE: 02/16/15
BY: AK CHK: EGB

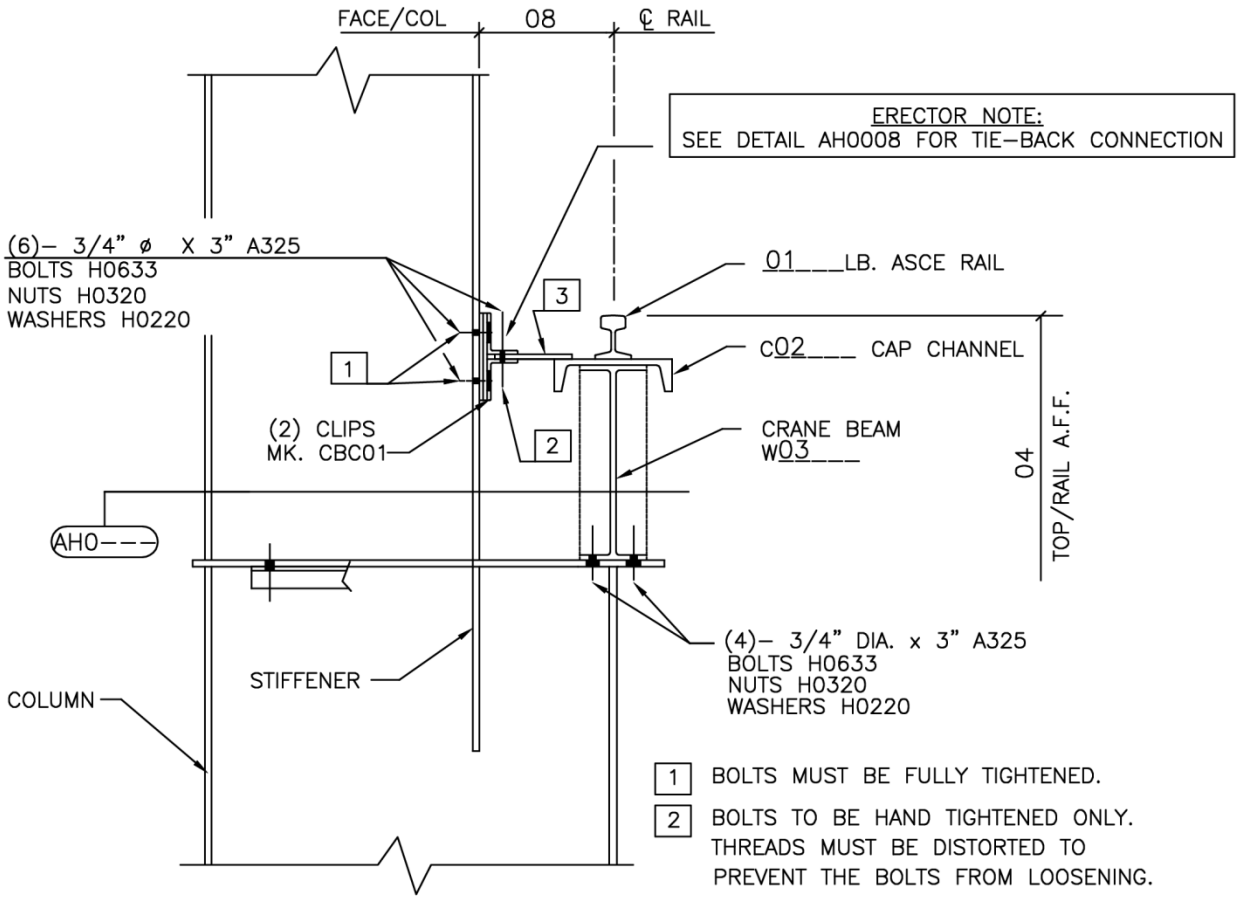
DETAIL NAME IF APPLICABLE

AH0170.DWG

4.6.11

TOP RUNNING BRIDGE CRANE STEPPED COLUMN DETAILS

AH0180 - RUNWAY BEAM TO STEPPED COLUMN CONNECTION



STEP CRANE COLUMN DETAIL

RUNWAY BEAM TO STEPPED COLUMN CONNECTION

AH0180

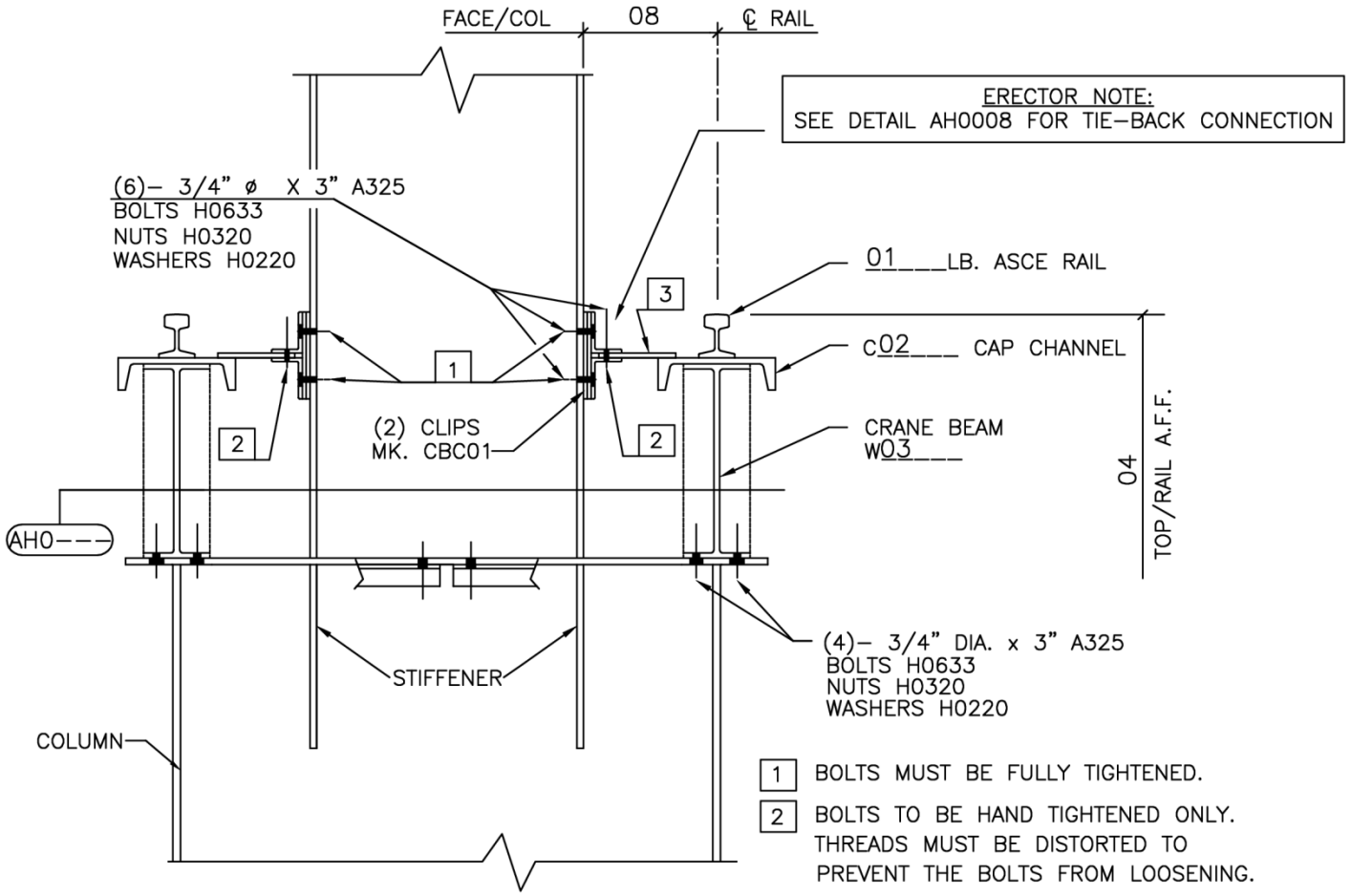
LAST REVISION
DATE: 05/22/17
BY: SDF CHK: EGB

DETAIL NAME IF APPLICABLE

AH0180.DWG

4.6.12

AH0200 - RUNWAY BEAM TO DOUBLE STEPPED COLUMN CONNECTION



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NOTE: SEE RAIL TO RUNWAY BEAM CONNECTION DETAILS (EITHER HOOK BOLT OR FLOATING CLAMP DETAIL) FOR ADDITIONAL CONNECTION REQUIREMENTS.

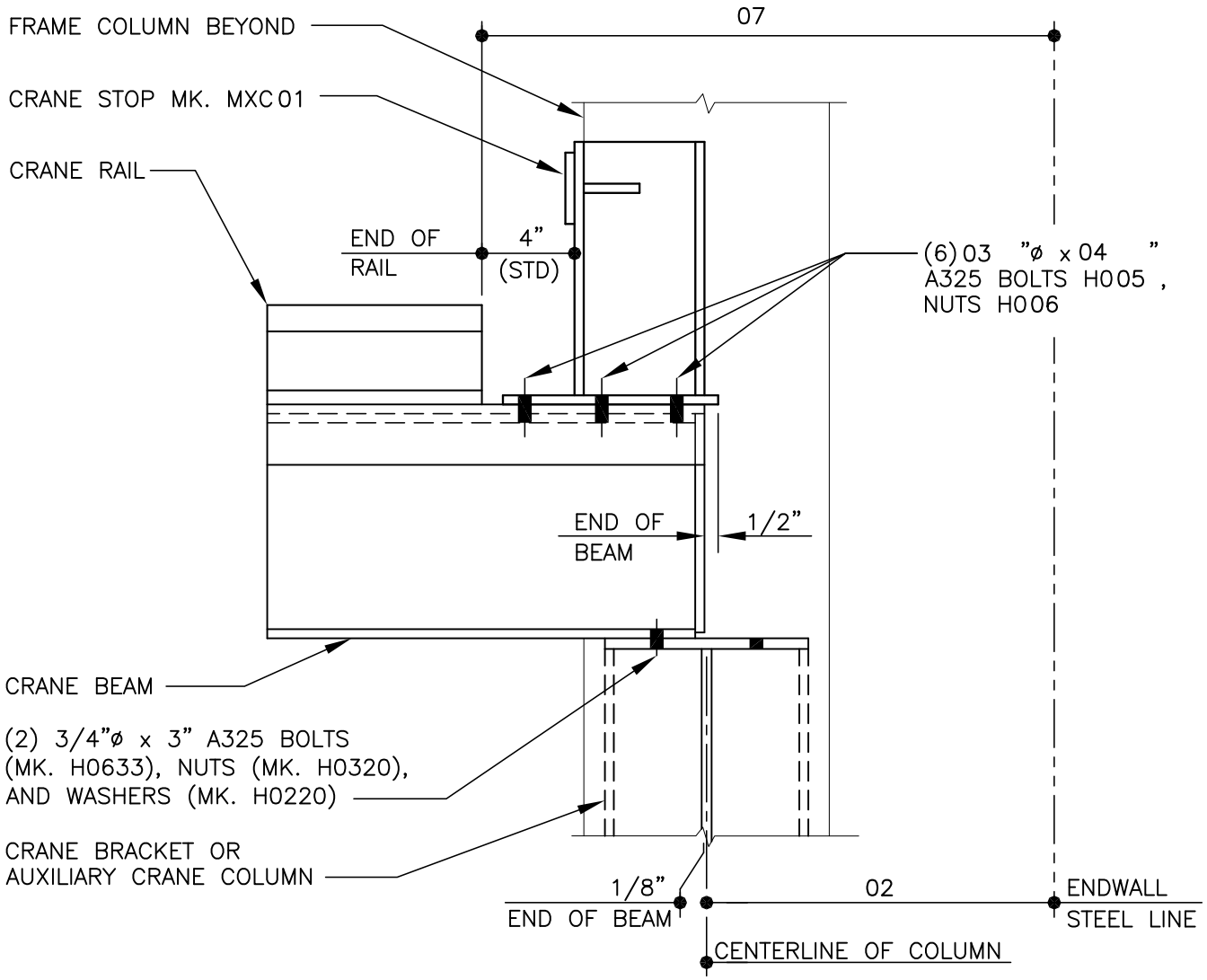
STEP CRANE COLUMN DETAIL

RUNWAY BEAM TO STEPPED COLUMN CONNECTION

AH0200

CRANE STOP DETAIL

AH0220 - CRANE STOP DETAIL

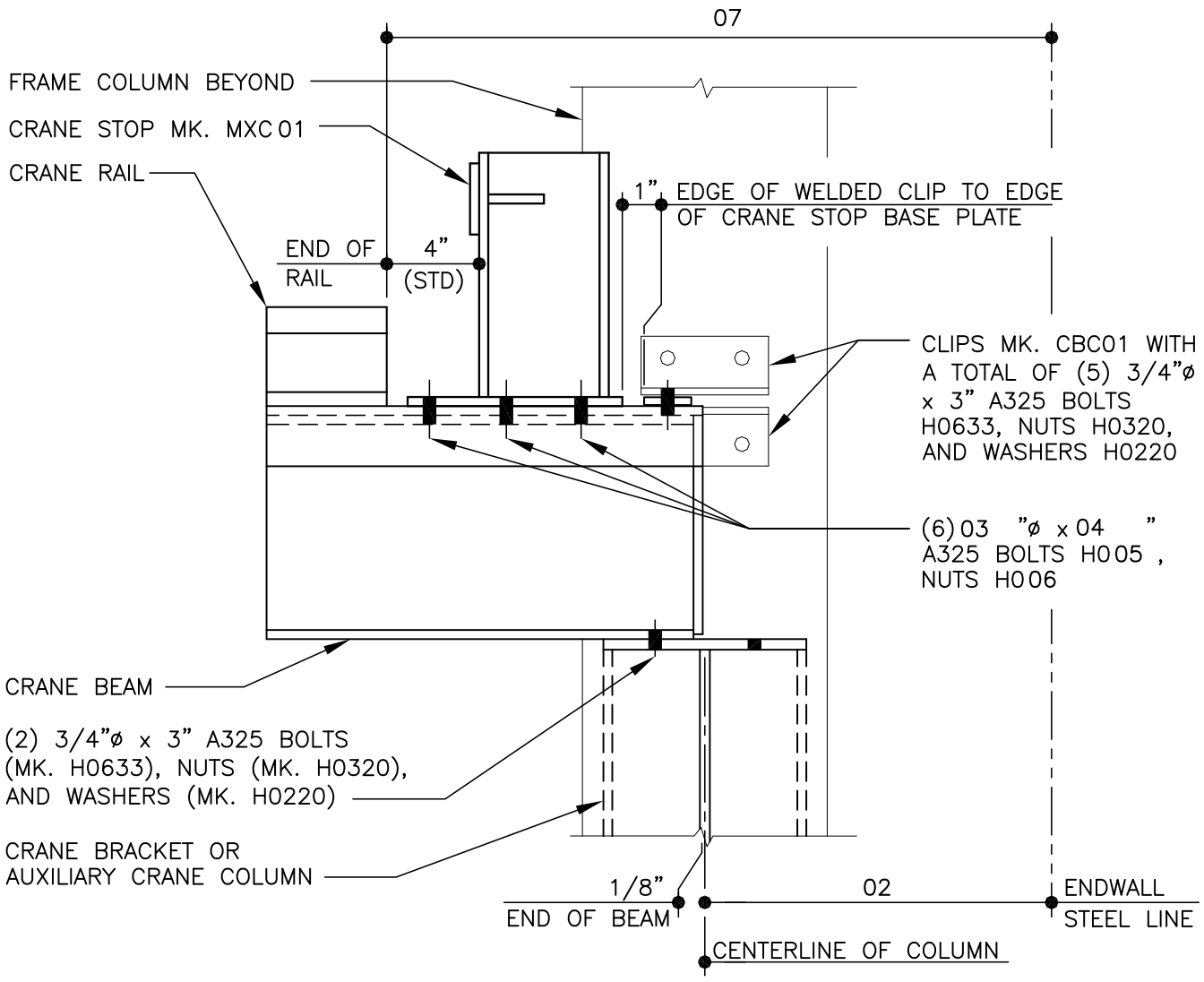


TOP RUNNING CRANE STOP

AH0220

LAST REVISION DATE: 02/16/15 BY: AK CHK: EGB	DETAIL NAME IF APPLICABLE AH0220.DWG	4.6.14

AH0225 - ALTERNATE CRANE STOP DETAIL



TOP RUNNING CRANE STOP

AH0225

LAST REVISION
DATE: 02/16/15
BY: AK CHK: EGB

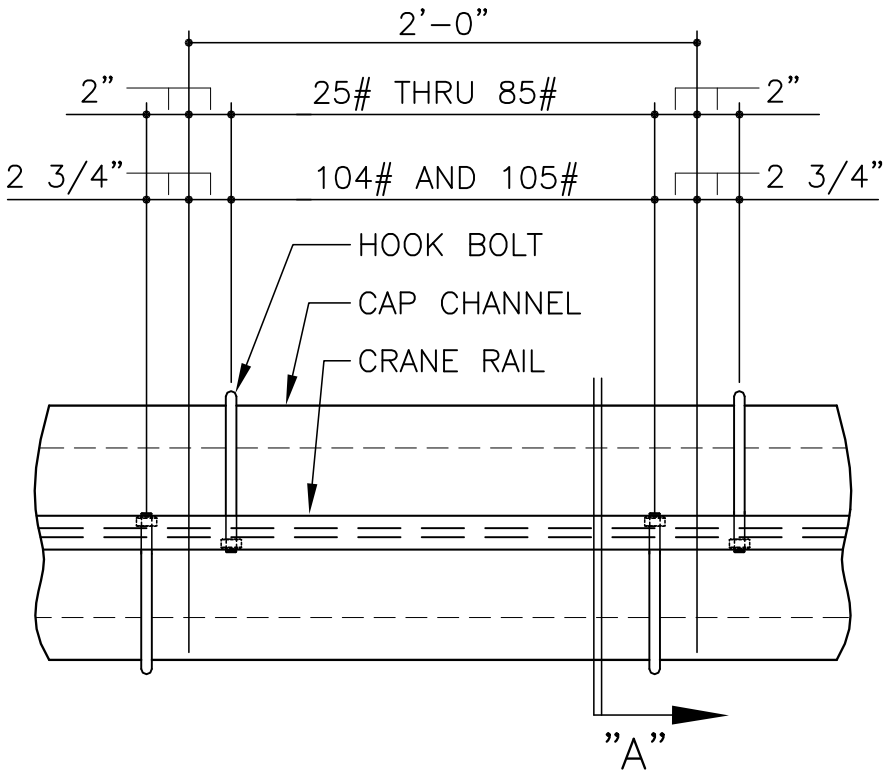
DETAIL NAME IF APPLICABLE

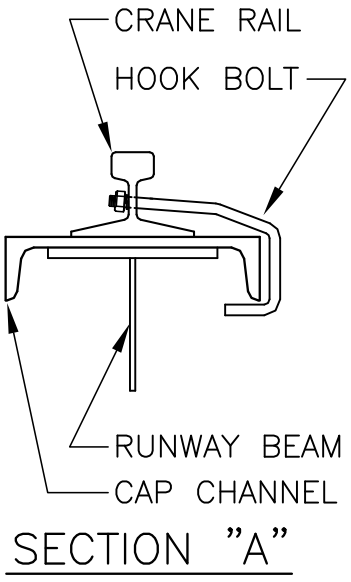
AH0225.DWG

4.6.15

HOOK BOLT AND FLOATING RAIL CLAMP DETAILS

AH0230 - RAIL TO RUNWAY HOOK BOLT CONNECTION





SECTION "A"

RAIL SIZE: 01

HOOK BOLT DIAMETER: 02

JOINT BARS: 03

RAIL	HOOK BOLT DIA.
25#–30#	5/8"
40#–60#	3/4"
80#–105#	7/8"

RAIL TO RUNWAY BEAM HOOK BOLT CONNECTION

TOP RUNNING BRIDGE CRANE DETAIL

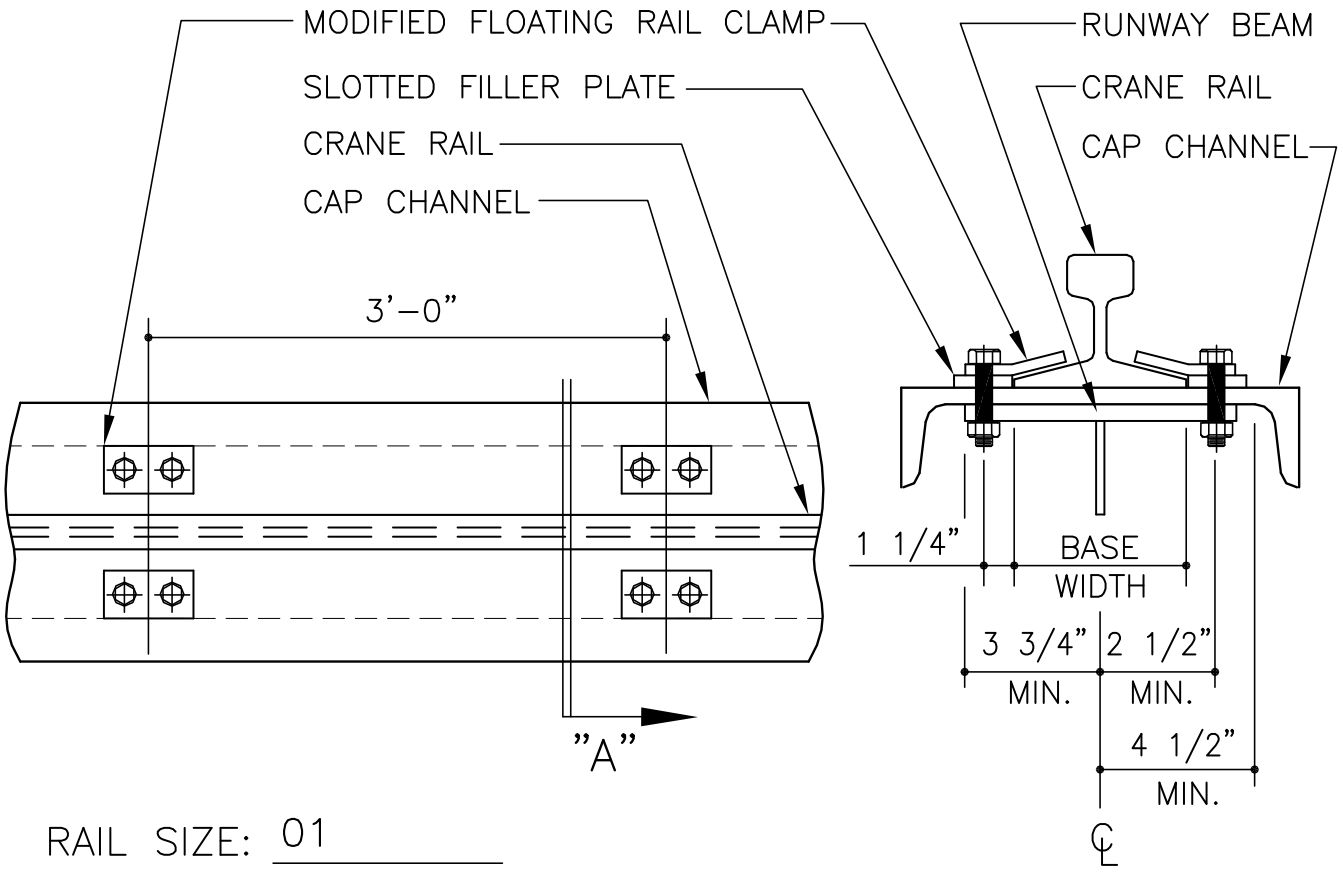
LAST REVISION
DATE: 02/16/15
BY: AK CHK: EGB

DETAIL NAME IF APPLICABLE

AH0230.DWG

4.6.16

AH0240 - RAIL TO RUNWAY BEAM FLOATING CLAMP CONNECTION



RAIL SIZE: 01

JOINT BARS: 02

RAIL CLAMPS: 03

BOLT SIZE: 1" ø A325 W/ (1) LOCK WASHER

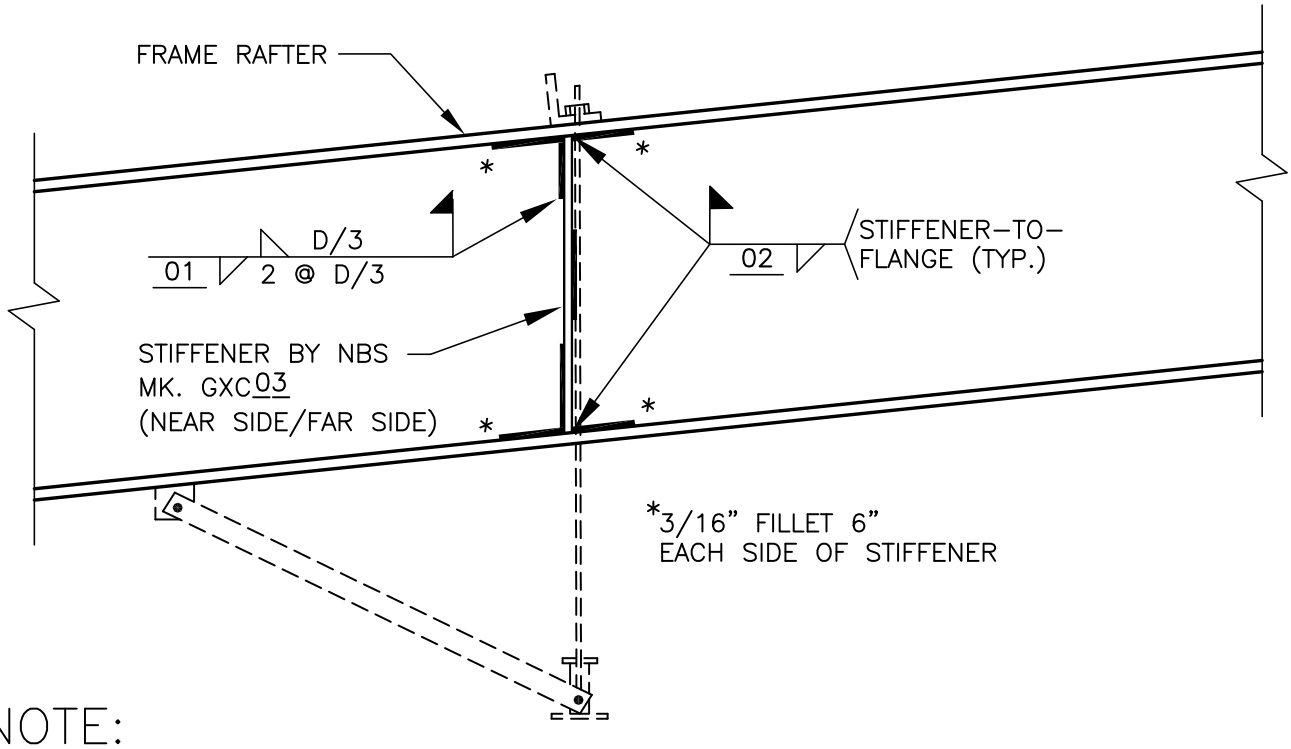
RAIL TO RUNWAY BEAM FLOATING CLAMP CONNECTION

TOP RUNNING BRIDGE CRANE DETAIL

MONORAIL/UNDERHUNG CRANES

- Underhung crane beams have rigid specifications with regard to tolerances. Many suppliers of underhung systems require hardened flanges where crane wheels come in contact with the crane beam. NBS' standard approach to underhung and monorail cranes is to design for the effects on the primary structural system only. Nucor will qualify back a maximum vertical frame deflection due to crane load combination; project engineer of record needs to review this information with crane supplier. As a standard, all beams, rails, connections to main frames, etc. are by others. NBS will design the frame of the building for the vertical and lateral loads and the building longitudinal bracing for the longitudinal loads.
- There are capacity limits for the monorail and underhung cranes. For both crane types, we will not design to a CMAA service class above C. The monorail crane capacity limit is 5 tons and the underhung capacity limit is 10 tons.
- It is important to specify clearly on the sketch of the building(s) included with the order proposal the start and stop point, direction, orientation, and capacity of each monorail or underhung crane in the structure. Please also note that NBS standard connection type designed for is the "truss" type. NBS will provide a web stiffener plate to be welded in place directly over the centerline of the crane connection in the rafter by an AWS certified welder in the field. This stiffener plate is shipped loose for the customer to place and weld because of the uncertainty of the exact end location of the crane attachment, allowing the customer more flexibility during erection to allow for unknowns.

AH0250 - STANDARD CONNECTION (CRANE STEEL NOT BY NUCOR)



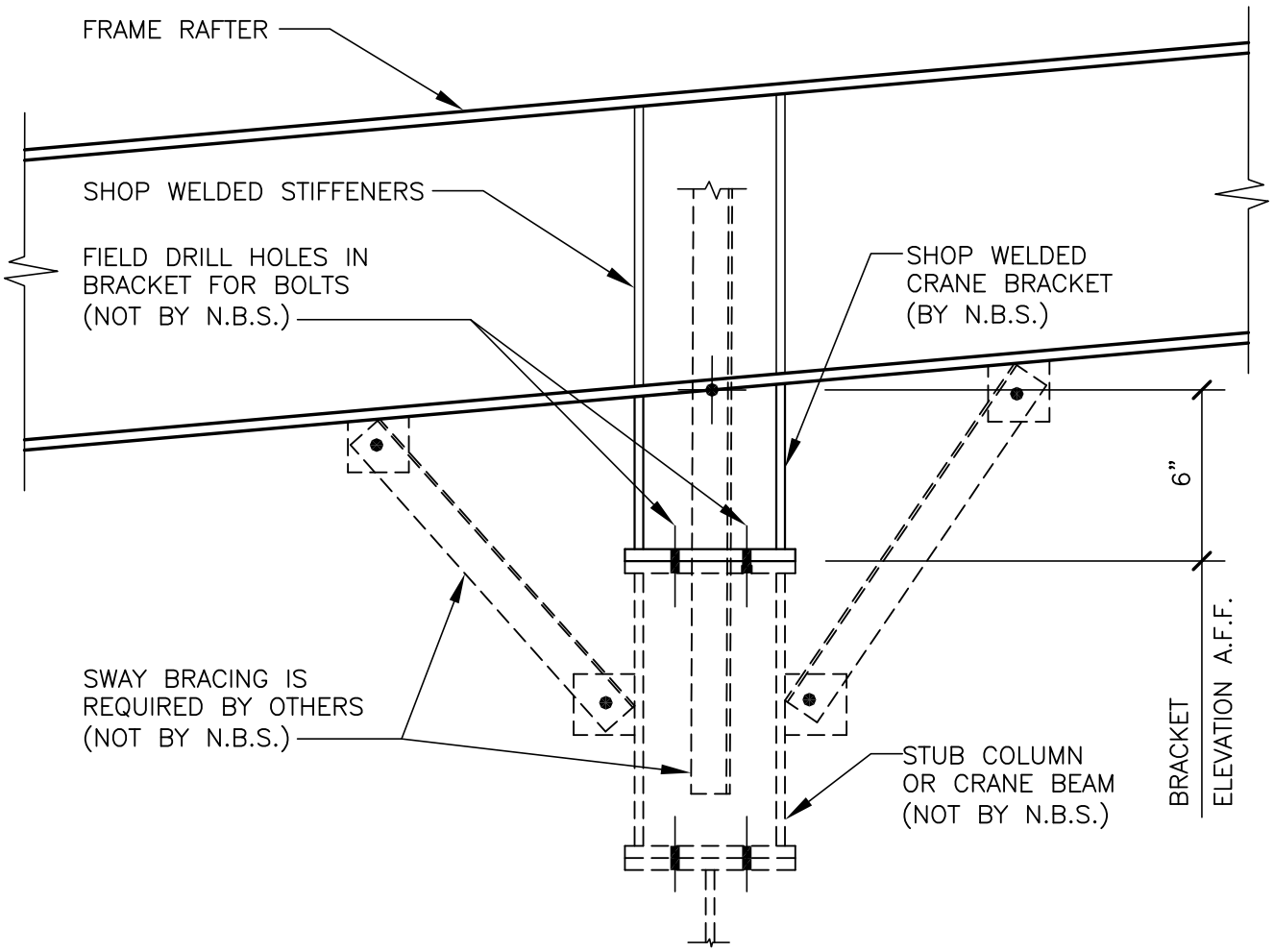
NOTE:

- NBS IS PROVIDING FOR CRANE CAPACITY ONLY. ADDITIONAL REINFORCEMENT ON RIGID FRAMES DUE TO CRANE LOADS IS NOT BY NBS. SEE DETAIL ABOVE FOR WEB REINFORCEMENT INFORMATION AT CRANE ATTACHMENT LOCATIONS.
- ALL WELDING MUST BE PERFORMED BY AWS CERTIFIED WELDERS WHO ARE QUALIFIED FOR THE WELDING PROCESSES AND POSITIONS INDICATED. ALL WORK MUST BE COMPLETED AND INSPECTED IN ACCORDANCE WITH THE APPLICABLE AWS SPECIFICATIONS. WELD ELECTRODES USED FOR THE SMAW (OR STICK) WELD PROCESS MUST BE 70 KSI STEEL AND LOW HYDROGEN CONTENT.

UNDERHUNG / MONORAIL CRANE ATTACHMENT POINT DETAIL

AH0250

AH0260 - OPTIONAL CONNECTION (CRANE STEEL NOT BY NUCOR)



UNDERHUNG / MONORAIL CRANE ATTACHMENT POINT DETAIL

RUNWAY BEAM, STUB/CRANE BEAM, SWAY BRACING AND CONNECTIONS (NOT BY NUCOR)

AH0260

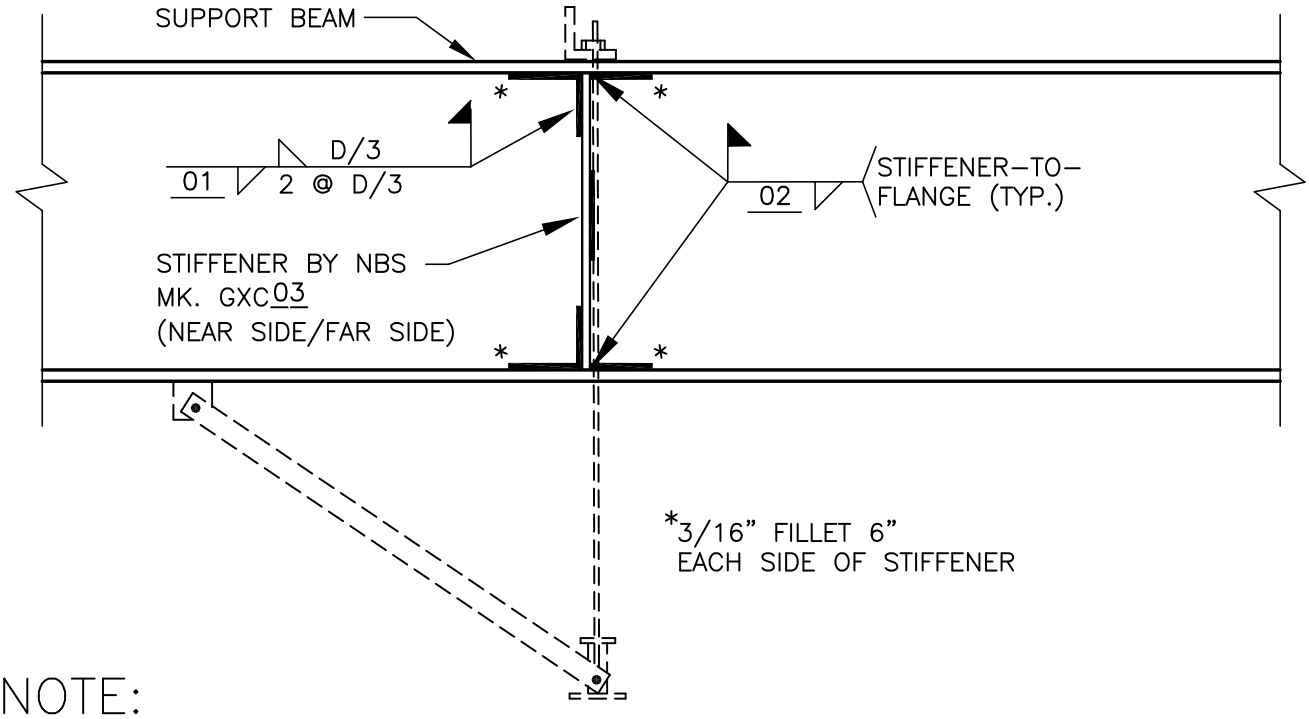
LAST REVISION
DATE: 02/16/15
BY: AK CHK: EGB

DETAIL NAME IF APPLICABLE

AH0260.DWG

4.6.20

AH0255 - STANDARD TRANSVERSE CONNECTION (CRANE STEEL NOT BY NUCOR)



NOTE:

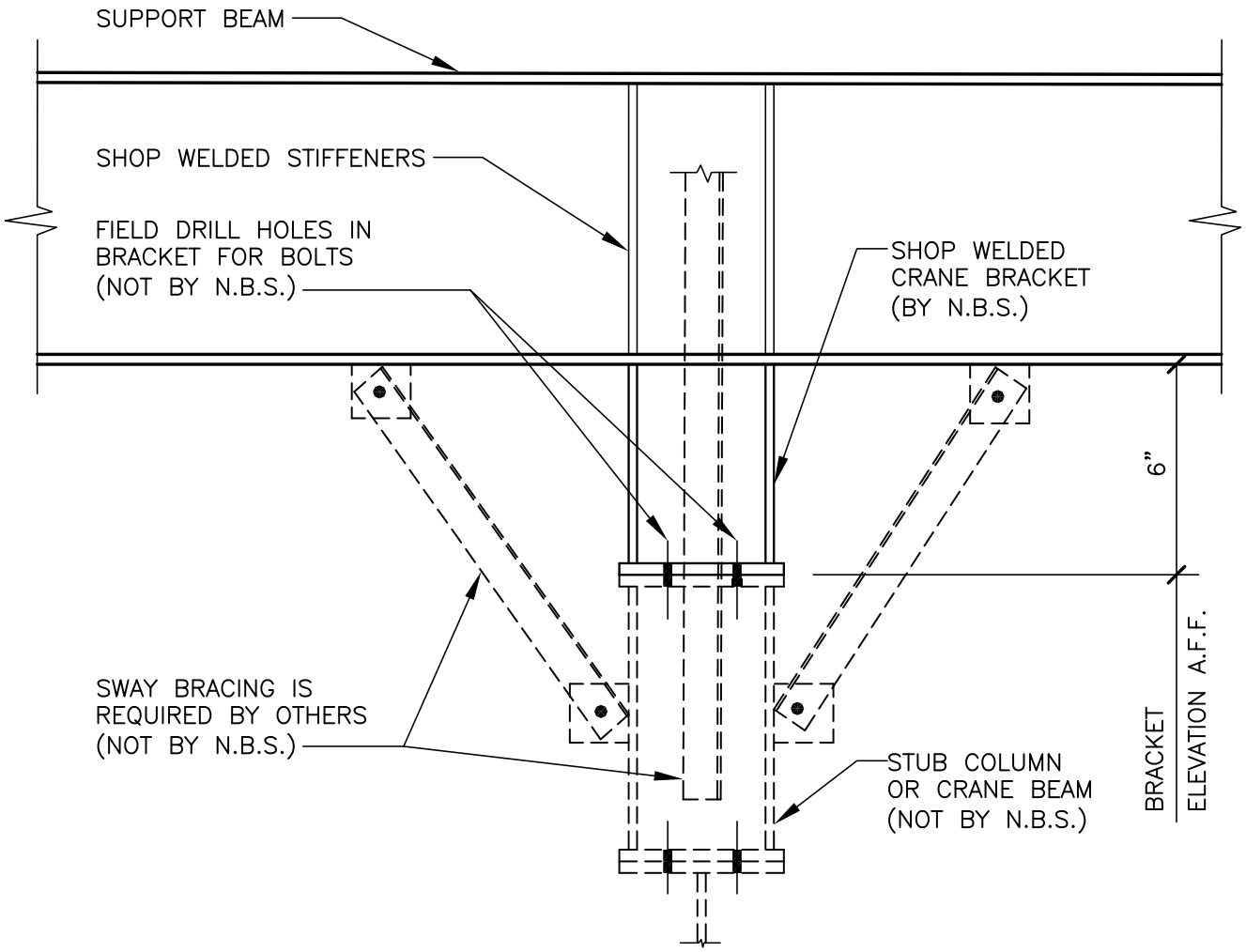
- NBS IS PROVIDING FOR CRANE CAPACITY ONLY. ADDITIONAL REINFORCEMENT ON RIGID FRAMES DUE TO CRANE LOADS IS NOT BY NBS. SEE DETAIL ABOVE FOR WEB REINFORCEMENT INFORMATION AT CRANE ATTACHMENT LOCATIONS.

- ALL WELDING MUST BE PERFORMED BY AWS CERTIFIED WELDERS WHO ARE QUALIFIED FOR THE WELDING PROCESSES AND POSITIONS INDICATED. ALL WORK MUST BE COMPLETED AND INSPECTED IN ACCORDANCE WITH THE APPLICABLE AWS SPECIFICATIONS. WELD ELECTRODES USED FOR THE SMAW (OR STICK) WELD PROCESS MUST BE 70 KSI STEEL AND LOW HYDROGEN CONTENT.

TRANSVERSE UNDERHUNG CRANE ATTACHMENT POINT DETAIL

AH0255

AH0265 - OPTIONAL TRANSVERSE CONNECTION (CRANE STEEL NOT BY NUCOR)



TRANSVERSE UNDERHUNG CRANE ATTACHMENT POINT DETAIL

RUNWAY BEAM, STUB/CRANE BEAM, SWAY BRACING AND CONNECTIONS (NOT BY NUCOR)

AH0265

LAST REVISION
DATE: 02/16/15
BY: AK CHK: EGB

DETAIL NAME IF APPLICABLE

AH0265.DWG

4.6.22