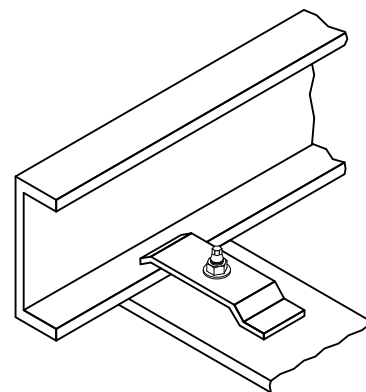
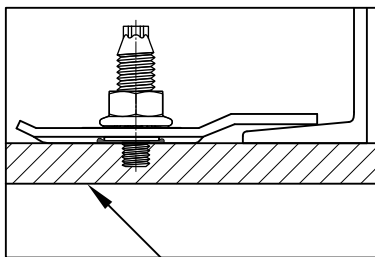


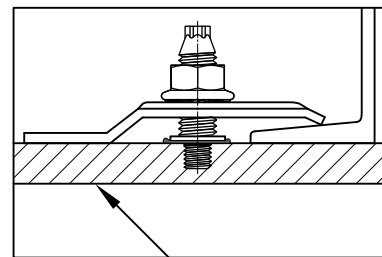
**EXPANSION GUIDE CLIP**  
(SEE NOTE 1)



**HOLD DOWN CLAMP**  
(SEE NOTE 2)



MINIMUM 1/4" THICK\*



MINIMUM 1/4" THICK\*

**NOTE:**

1. EXPANSION GUIDES SHALL BE USED IN ACCORDANCE TO DESIGN ENGINEER'S REQUIREMENTS, AND GENERALLY ON BOTH SIDES OF CABLE TRAY AT EACH SUPPORT MEMBER.
2. HOLD DOWN CLAMPS GUIDES SHALL BE USED IN ACCORDANCE TO DESIGN ENGINEER'S REQUIREMENTS, AND GENERALLY ON BOTH SIDES OF CABLE TRAY AT CENTER OF CABLE TRAY RUN.
3. EXPANSION GUIDE CLIPS/HOLD DOWN CLAMPS SHALL BE INSTALLED CLOSE ENOUGH TO TRAY FLANGE TO ENSURE TRAY REMAINS IN PLACE IF LATERAL LOAD IS APPLIED.
4. SPACE S-BT STUDS ACCORDINGLY TO ACCOMMODATE DESIGN LOADS.
5. S-BT STUDS SHALL BE INSTALLED PER HILTI INSTALLATION INSTRUCTIONS.
- \* CONTACT HILTI ENGINEERING IF THINNER BASE MATERIAL.

THIS DRAWING REPRESENTS A COMMON APPLICATION USED ON PETROCHEMICAL PROJECTS IN UPSTREAM OR DOWNSTREAM TO THE BEST OF HILTI'S KNOWLEDGE. THIS DRAWING IS NEITHER A TECHNICAL DOCUMENTATION NOR AN ENGINEERING JUDGMENT. PLEASE REFER TO PRODUCT TECHNICAL DATA OF EACH HILTI PRODUCT TO CHECK FOR APPLICABLE LIMITATIONS.



Information and loads are recommendations for static application, and based on the published data in the Hilti Technical Guide (including allowable load values, factors of safety, methods of calculation and limiting factors). The responsible project engineer must verify suitability for any specific application. Modification to design may alter performance and should be evaluated by engineer of record.

Drawn JGB/HAM Developer RPB

Date 23 NOV 2016

Project

DETAILS FOR ELECTRICAL ENGINEERS

Description

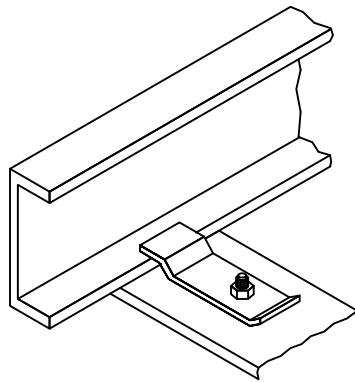
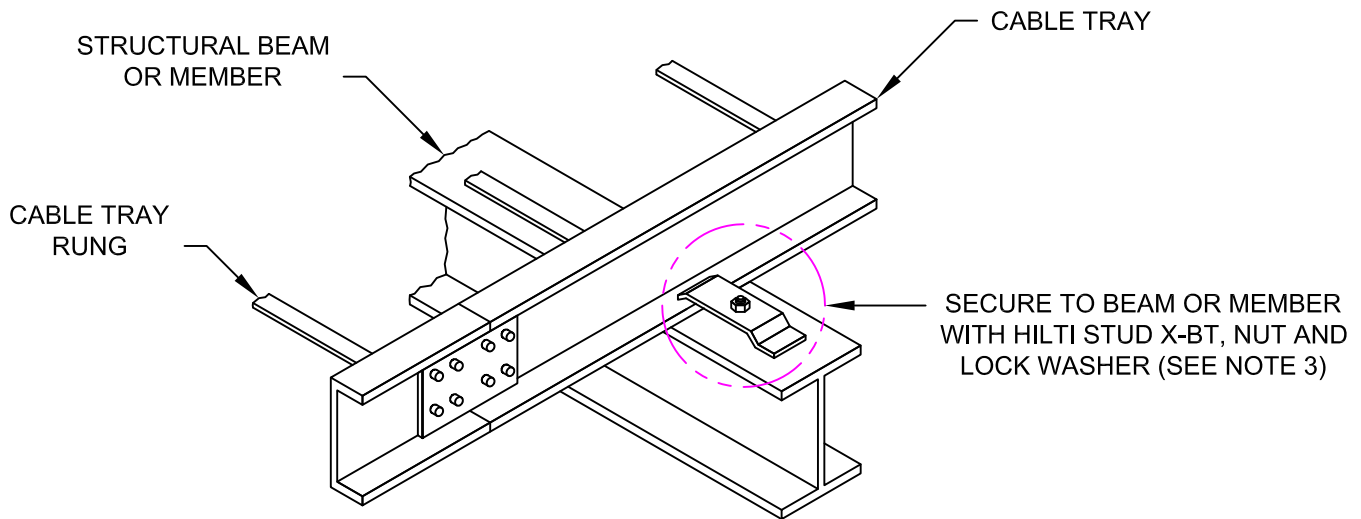
CABLE TRAY EXPANSION GUIDE AND HOLD-DOWN CLAMP INSTALLATION WITH S-BT DETAIL

Drawing No.

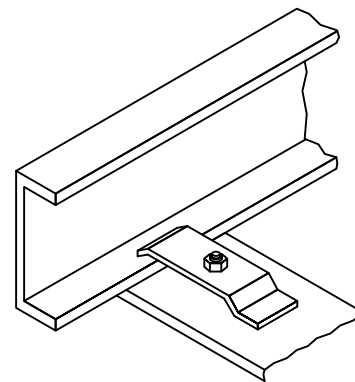
12-122-07

Index E

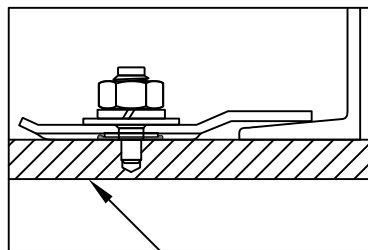
Sheet 1/1



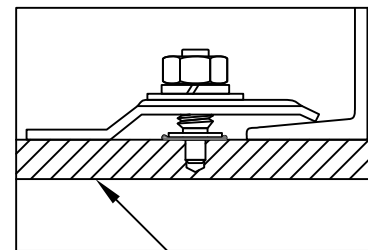
**EXPANSION GUIDE CLIP**  
(SEE NOTE 1)



**HOLD DOWN CLAMP**  
(SEE NOTE 2)



MINIMUM 5/16" THICK\*



MINIMUM 5/16" THICK\*

**NOTE:**

1. EXPANSION GUIDES SHALL BE USED IN ACCORDANCE TO DESIGN ENGINEER'S REQUIREMENTS, AND GENERALLY ON BOTH SIDES OF CABLE TRAY AT EACH SUPPORT MEMBER.
  2. HOLD DOWN CLAMPS GUIDES SHALL BE USED IN ACCORDANCE TO DESIGN ENGINEER'S REQUIREMENTS, AND GENERALLY ON BOTH SIDES OF CABLE TRAY AT CENTER OF CABLE TRAY RUN.
  3. EXPANSION GUIDE CLIPS/HOLD DOWN CLAMPS SHALL BE INSTALLED CLOSE ENOUGH TO TRAY FLANGE TO ENSURE TRAY REMAINS IN PLACE IF LATERAL LOAD IS APPLIED.
  4. SPACE POWDER-ACTUATED STUDS ACCORDINGLY TO ACCOMMODATE DESIGN LOADS.
  5. POWDER-ACTUATED STUDS SHALL BE INSTALLED PER HILTI INSTALLATION INSTRUCTIONS.
- \* CONTACT HILTI ENGINEERING IF THINNER BASE MATERIAL.

THIS DRAWING REPRESENTS A COMMON APPLICATION USED ON PETROCHEMICAL PROJECTS IN UPSTREAM OR DOWNSTREAM TO THE BEST OF HILTI'S KNOWLEDGE. THIS DRAWING IS NEITHER A TECHNICAL DOCUMENTATION NOR AN ENGINEERING JUDGMENT. PLEASE REFER TO PRODUCT TECHNICAL DATA OF EACH HILTI PRODUCT TO CHECK FOR APPLICABLE LIMITATIONS.

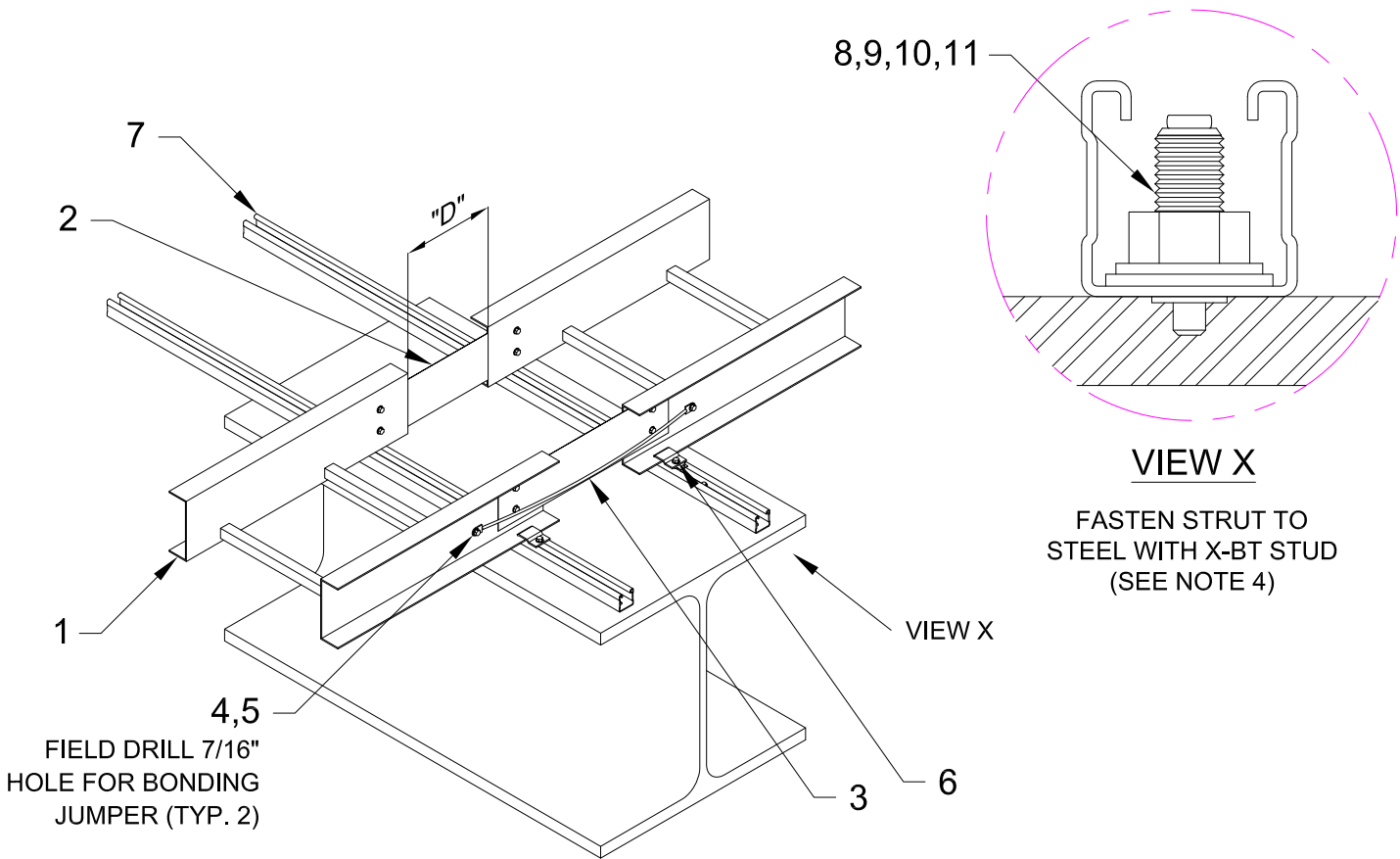


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Drawn	JGB/HAM	Developer	RPB
Date	25 JUN 12		
Drawing No.	12-122-07		
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Project  
**DETAILS FOR ELECTRICAL ENGINEERS**

Description  
**CABLE TRAY EXPANSION GUIDE AND HOLD-DOWN CLAMP INSTALLATION DETAIL**



FIELD DRILL 7/16"  
HOLE FOR BONDING  
JUMPER (TYP. 2)

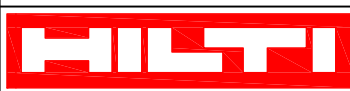
**VIEW X**  
FASTEN STRUT TO  
STEEL WITH X-BT STUD  
(SEE NOTE 4)

**NOTE:**

1. FIELD TO SET "D" DIMENSION IN ACCORDANCE WITH AMBIENT TEMPERATURE AT TIME OF INSTALLATION.
2. EXPANSION JOINT ASSEMBLY COMPLETE WITH ALL NECESSARY BOLTS, NUTS, AND CAPTIVE LOCK WASHERS.
3. EXPANSION JOINTS TO BE LOCATED AS PER DESIGN ENGINEER'S REQUIREMENTS.
4. SPACE POWDER-ACTUATED STUDS ACCORDINGLY TO ACCOMMODATE DESIGN LOADS. MINIMUM OF TWO STUDS SHALL BE USED PER STRUT SECTION.
5. POWDER-ACTUATED STUDS SHALL BE INSTALLED PER HILTI INSTALLATION INSTRUCTIONS.

AMBIENT TEMP.	"D" DIM. INCHES
110°F	1/16
90°F	3/8
70°F	3/4
50°F	1-1/8
30°F	1-1/2

No.	Unit Qty	Unit	Description	Box Qty	# Boxes Needed	Item No.
1	AS REQ'D	-	CABLE TRAY, SEE PLANS FOR TYPE (BY OTHERS)	-	-	-
2	1	-	EXPANSION CONNECTOR, (PAIR) (BY OTHERS)	-	-	-
3	1	-	BONDING JUMPER, 800 AMP (BY OTHERS)	-	-	-
4	4	-	3/8"-16 x 3/4" CADMIUM PLATED MACHINE BOLT W/NUT (BY OTHERS)	-	-	-
5	4	-	3/8" CADMIUM PLATED LOCKWASHER (BY OTHERS)	-	-	-
6	4	-	CABLE TRAY CLIP ASSEMBLY (BY OTHERS)	-	-	-
7	AS REQ'D	EA	STRUT HS-158-12/HDG 10'	1	AS REQ'D	407570
8	AS REQ'D	EA	X-BTW10-24-6 SN12-R	100	AS REQ'D	377076
9	AS REQ'D	EA	HEX NUT STANDARD 3/8" SS316	100	AS REQ'D	411775
10	AS REQ'D	EA	WASHER 3/8" SS316	200	AS REQ'D	411780
11	AS REQ'D	EA	HELICAL SPRING LOCK WASHER 3/8" SS316	-	AS REQ'D	-



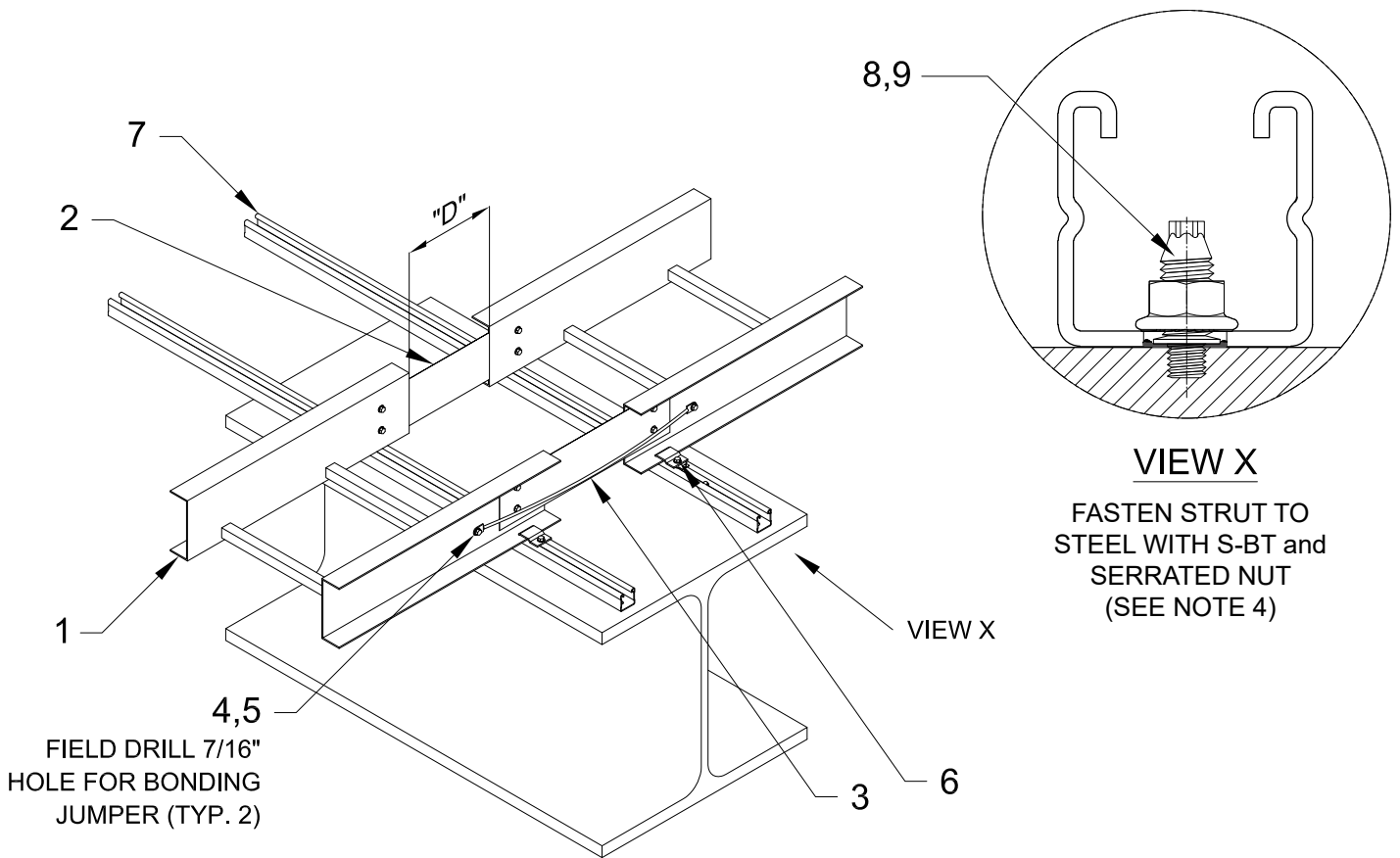
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Drawn	Developer
HAM/JGB	RPB
Date	
25 JUN 12	
Drawing No.	
12-122-01	
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Project  
**DETAILS FOR ELECTRICAL ENGINEERS**

Description  
**CABLE TRAY EXPANSION GUIDE ASSEMBLY/STRUT TO STEEL WITH X-BT**

L:\Projects\2011\12-122 XBT Details\CAD\12-122-01r.dwg, 8/15/2012 2:19:16 PM



**NOTE:**

1. FIELD TO SET "D" DIMENSION IN ACCORDANCE WITH AMBIENT TEMPERATURE AT TIME OF INSTALLATION.
2. EXPANSION JOINT ASSEMBLY COMPLETE WITH ALL NECESSARY BOLTS, NUTS, AND CAPTIVE LOCK WASHERS.
3. EXPANSION JOINTS TO BE LOCATED AS PER DESIGN ENGINEER'S REQUIREMENTS.
4. SPACE S-BT STUDS ACCORDINGLY TO ACCOMMODATE DESIGN LOADS. MINIMUM OF TWO STUDS SHALL BE USED PER STRUT SECTION.
5. S-BT STUDS SHALL BE INSTALLED PER HILTI INSTALLATION INSTRUCTIONS.

AMBIENT TEMP.	"D" DIM. INCHES
110°F	1/16
90°F	3/8
70°F	3/4
50°F	1-1/8
30°F	1-1/2

No.	Unit Qty	Unit	Description	Box Qty	# Boxes Needed	Item No.
1	AS REQ'D	-	CABLE TRAY, SEE PLANS FOR TYPE (BY OTHERS)	-	-	-
2	1	-	EXPANSION CONNECTOR, (PAIR) (BY OTHERS)	-	-	-
3	1	-	BONDING JUMPER, 800 AMP (BY OTHERS)	-	-	-
4	4	-	3/8"-16 x 3/4" CADMIUM PLATED MACHINE BOLT W/NUT (BY OTHERS)	-	-	-
5	4	-	3/8" CADMIUM PLATED LOCKWASHER (BY OTHERS)	-	-	-
6	4	-	CABLE TRAY CLIP ASSEMBLY (BY OTHERS)	-	-	-
7	AS REQ'D	EA	STRUT HS-158-12/HDG 10'	1	AS REQ'D	407570
8	AS REQ'D	EA	S-BT-MR W10/15 SN6 STUD	100	AS REQ'D	2140741
9	AS REQ'D	EA	HILTI SERRATED FLANGE NUT	100	AS REQ'D	*

\* S-BT-MR W10/15 SN6 PACKAGE INCLUDES SERRATED FLANGE NUTS



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Drawn: HAM/JGB  
Developer: RPB

Date: 23 NOV 2016

Project: DETAILS FOR ELECTRICAL ENGINEERS

Description: CABLE TRAY EXPANSION GUIDE ASSEMBLY/STRUT TO STEEL WITH S-BT

Drawing No.: 12-122-01

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