

NOTE:
FOR ANCHOR BOLT NOTES AND
ANCHOR BOLT QUANTITIES,
SEE SHEET F2.

THE ANCHOR BOLT SETTINGS SHOWN ON THESE DRAWINGS NOT ONLY INDICATE WHERE THE ANCHOR BOLTS ARE TO BE PLACED, BUT ALSO THE FOOTPRINT OF THE METAL BUILDING. IT IS ESSENTIAL THAT THESE BOLT PATTERNS BE FOLLOWED. IN THE EVENT THAT THESE SETTINGS DIFFER FROM THE ARCHITECTURAL FOUNDATION PLANS, THE METAL BUILDING MANUFACTURER MUST BE CONTACTED IMMEDIATELY, BEFORE CONCRETE IS PLACED.

BOTTOM OF BASEPLATE
ELEV. = 100'-0"
AT FINISHED FLOOR

— CROSS BRACING

PROJECT NAME:				DATE
CANAM STEEL BUILDING CORPORATION				5-19-11
BOX 746509, ARVADA, CO 80006				5-25-11
TELEPHONE: (303) 953-3250				6-7-11
FACSIMILE: (303) 953-3251				
CUSTOMER:				
JOB NUMBER:				
SHEET NO:				
F1 of 2				
THIS SEAL PERTAINS ONLY TO THE MATERIALS DESIGNED AND SUPPLIED BY THE METAL BUILDING MANUFACTURER. THE DRAWINGS AND THE METAL BUILDING WHICH THEY REPRESENT ARE THE PRODUCT OF THE METAL BUILDING MANUFACTURER. THE REGISTERED PROFESSIONAL ENGINEER WHOSE SEAL APPEARS ON THESE DRAWINGS IS EMPLOYED BY THE METAL BUILDING MANUFACTURER AND DOES NOT SERVE AS OR REPRESENT THE PROJECT ENGINEER OF RECORD AND SHALL NOT BE CONSTRUED AS SUCH.				
ISSUE	CONSTRUCTION	ANCHOR BOLT	PERMITS	
DWN	CLS	JSA	JSA	
CHK	RAH			
ENG	PMT			
P.E.				
DATE				

ANCHOR BOLT PLAN GENERAL NOTES

1. THE SPECIFIED ANCHOR ROD DIAMETER ASSUMES F1554 GRADE 36 UNLESS NOTED OTHERWISE. ANCHOR ROD MATERIAL OF EQUAL DIAMETER MEETING OR EXCEEDING THE STRENGTH REQUIREMENTS SET FORTH ON THESE DRAWINGS MAY BE UTILIZED AT THE DISCRETION OF THE FOUNDATION DESIGN ENGINEER. ANCHOR ROD EMBEDMENT LENGTH SHALL BE DETERMINED BY THE FOUNDATION DESIGN ENGINEER.
2. METAL BUILDING MANUFACTURER IS NOT RESPONSIBLE FOR PROJECT FOUNDATION DESIGN. THE FOUNDATION DESIGN IS THE RESPONSIBILITY OF A REGISTERED PROFESSIONAL ENGINEER, FAMILIAR WITH LOCAL SITE CONDITIONS.
3. ALL ANCHOR RODS, FLAT WASHERS FOR ANCHOR RODS, EXPANSION BOLTS, AS WELL AS ALL CONCRETE/MASONRY EMBEDMENT PLATES ARE NOT BY METAL BUILDING MANUFACTURER.
4. THIS DRAWING IS NOT TO SCALE.
5. FINISHED FLOOR ELEVATION = 100'-0" UNLESS NOTED OTHERWISE.
6. "SINGLE" CEE COLUMNS SHALL BE ORIENTED WITH THE "TOES" TOWARD THE LOW EAVE UNLESS NOTED OTHERWISE.
7. THE ANCHOR BOLT LOCATIONS PROVIDED BY METAL BUILDING MANUFACTURER SATISFY PERTINENT REQUIREMENTS FOR THE DESIGN OF THE MATERIALS SUPPLIED BY THE METAL BUILDING MANUFACTURER. PLEASE NOTE THAT THESE REQUIREMENTS MAY NOT SATISFY ALL ANCHOR BOLT CONCRETE EDGE DISTANCE REQUIREMENTS DEPENDING ON THE DETAILS OF THE FOUNDATION DESIGN. BECAUSE FOUNDATION DESIGN IS NOT WITHIN THE METAL BUILDING MANUFACTURER SCOPE OF WORK, IT IS THE RESPONSIBILITY OF THE QUALIFIED PROFESSIONAL DESIGNING THE FOUNDATION TO MAKE CERTAIN THAT SUFFICIENT CONCRETE EDGE DISTANCE IS PROVIDED FOR THE ANCHOR BOLTS IN THE DETAILS OF THE FOUNDATION DESIGN.

ANCHOR BOLT SCHEDULE		
QUANTITY	SIZE	PROJECTION
48	3/4"	3" FROM BOTTOM OF BASE PLATE
24	1"	3" FROM BOTTOM OF BASE PLATE
0	1 1/4"	3" FROM BOTTOM OF BASE PLATE



OHDFO

BPFFNG

BU4LX

BU4RX

BU4TX

BU4BX

BU4LX

BU4RX

CANAM STEEL BUILDING CORPORATION

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TELEPHONE: (303) 953-3250
FACSIMILE: (303) 953-3251

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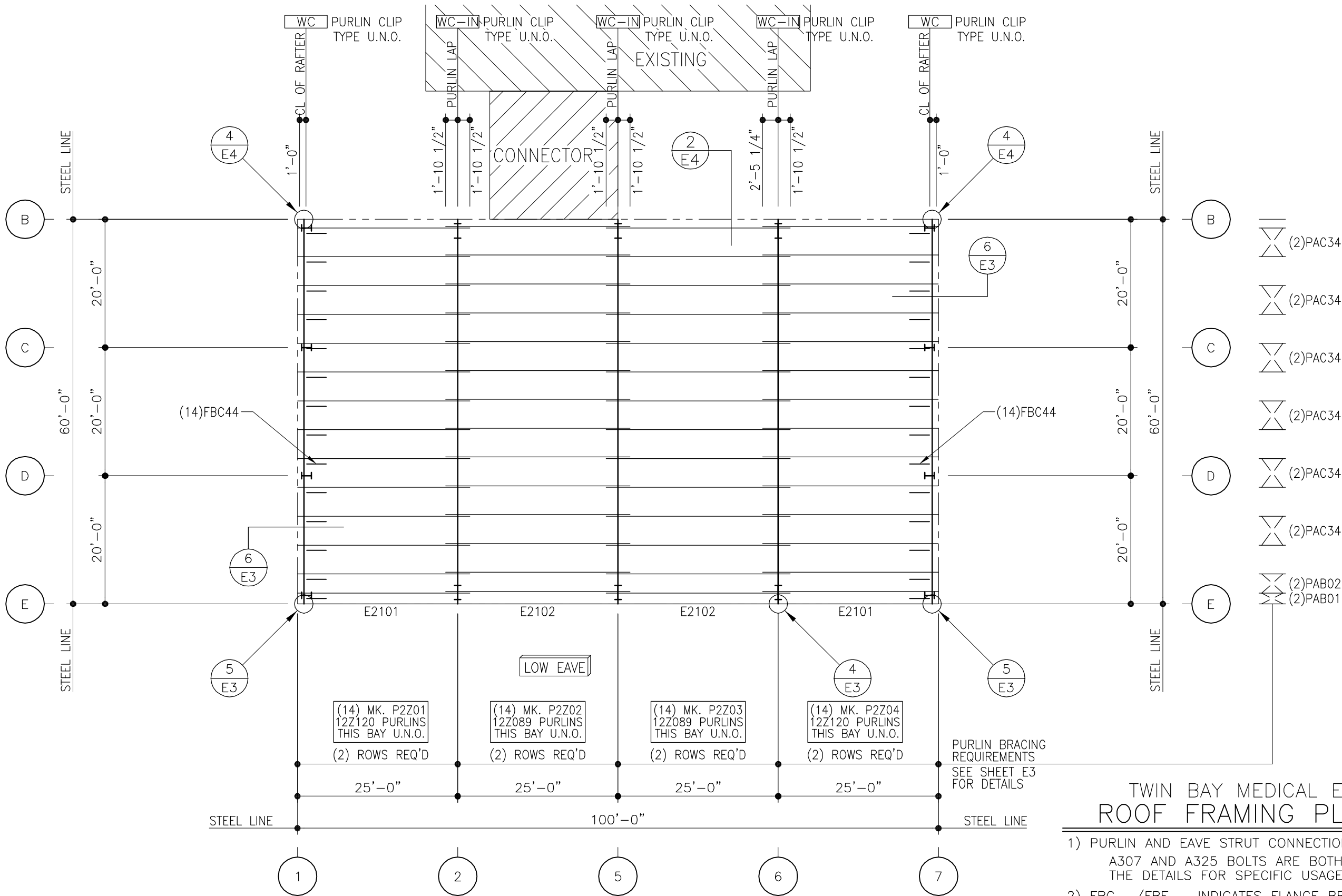
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F2 of 2

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TWIN BAY MEDICAL EXPANSION ROOF FRAMING PLAN (R01)

- 1) PURLIN AND EAVE STRUT CONNECTION BOLT REQUIREMENTS:
A307 AND A325 BOLTS ARE BOTH USED. REFER TO THE DETAILS FOR SPECIFIC USAGE REQUIREMENTS.
- 2) FBC__/_FBE__ INDICATES FLANGE BRACING.
- 3) SEE SHEET E8 FOR MAIN FRAME FLANGE BRACING.
- 4) SEE SHEET E3 FOR PURLIN BRACING DETAIL.
- 5) ALL EAVE STRUTS ARE 12E075 U.N.O.

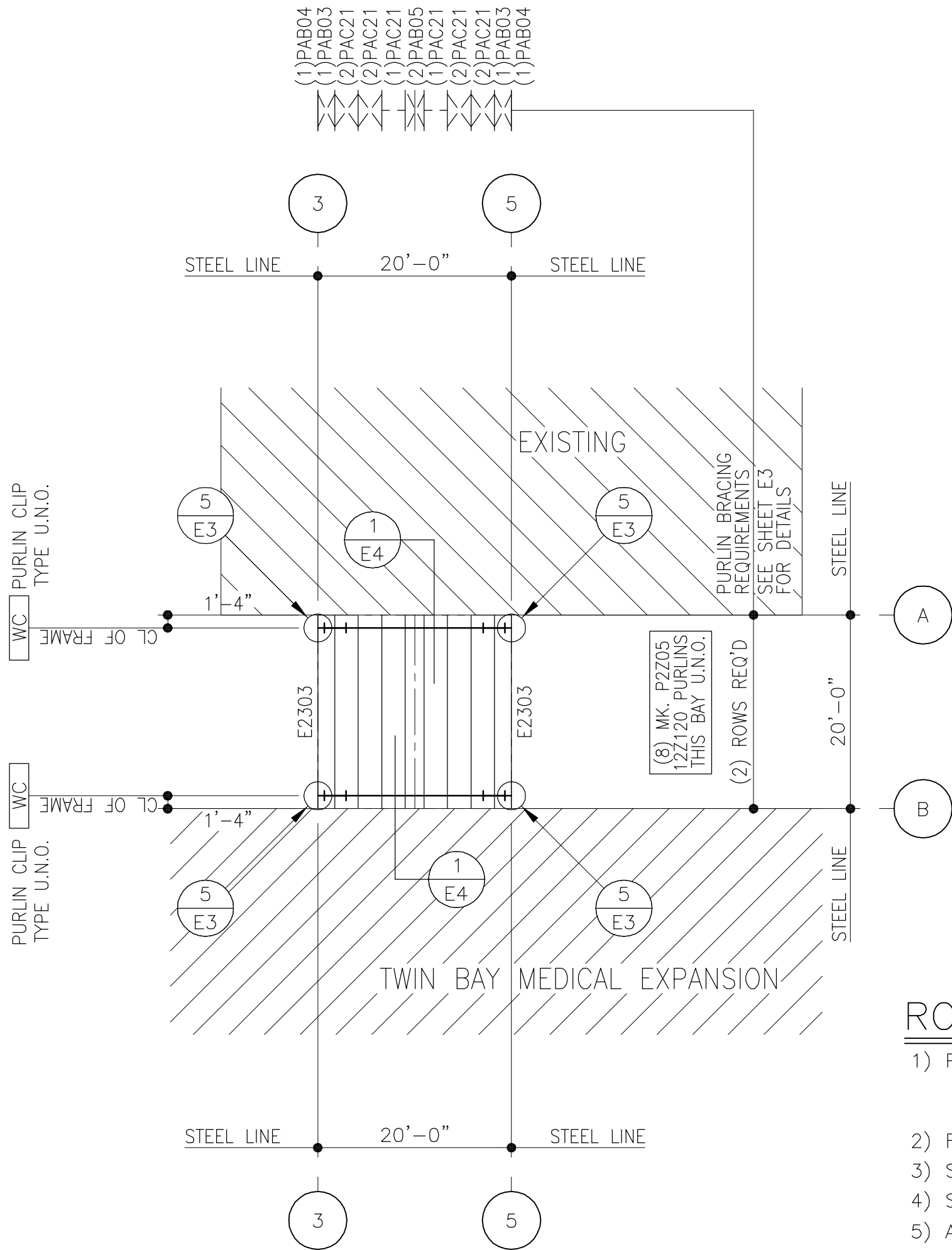
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5-25-11		PMT	AGA	JSA		
6-7-11			AGA	JSA	FINAL ERECTIONS	

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E1 of 14

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ROOF FRAMING PLAN (R03/R04)

- 1) PURLIN AND EAVE STRUT CONNECTION BOLT REQUIREMENTS:
A307 AND A325 BOLTS ARE BOTH USED. REFER TO THE DETAILS FOR SPECIFIC USAGE REQUIREMENTS.
- 2) FBC__ / FBE__ INDICATES FLANGE BRACING.
- 3) SEE SHEET E7 FOR MAIN FRAME FLANGE BRACING.
- 4) SEE SHEET E3 FOR PURLIN BRACING DETAIL.
- 5) ALL EAVE STRUTS ARE 12E075 U.N.O.

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JOB NUMBER:

SHEET NO:

E2 of 14

PERMITS
FINAL ERECTIONS

DWN

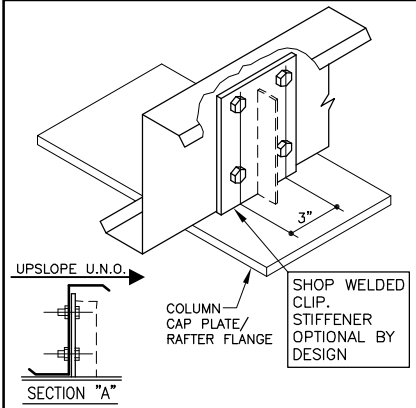
CHK

ENG

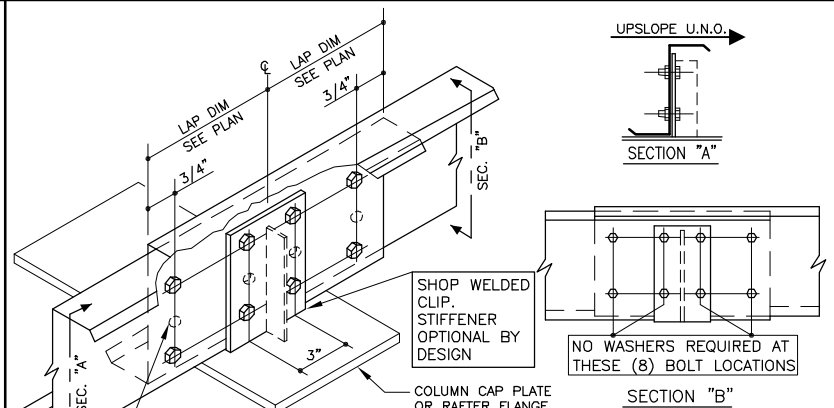
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DATE

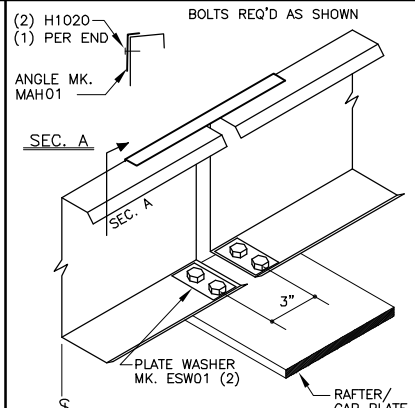
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6-7-11



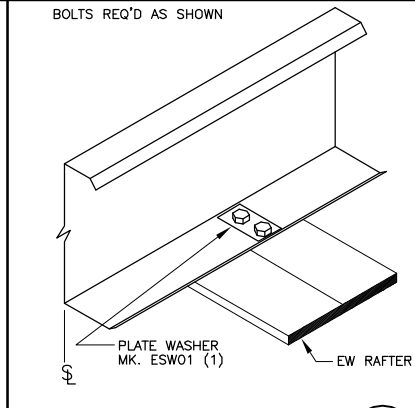
AC		BB0050(K)
WC	WELDED CLIP @ END FRAME	
WS	USE (4) 1/2" x 1 1/4" A307 BOLTS H0500/NUTS H0400 U.N.O. REFERENCE ERECTOR NOTE FOR TYP. WASHER REQUIREMENTS	



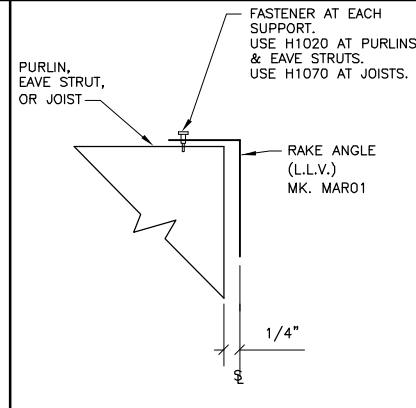
AC-IN		BB0055(K)
WC-IN	WELDED CLIP @ INTERIOR FRAME	
WS-IN	USE (8) 1/2" x 1 1/4" A307 BOLTS H0500/NUTS H0400 U.N.O.	



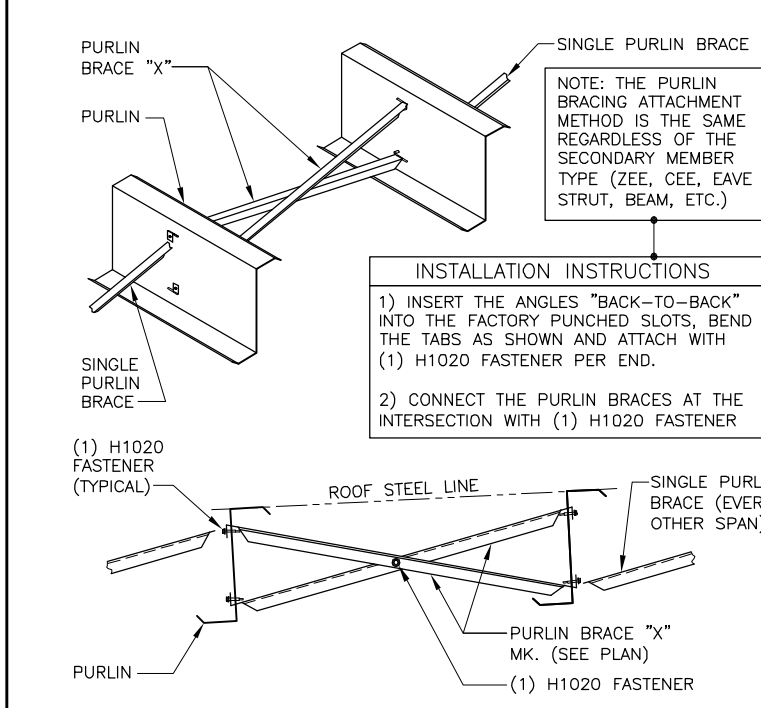
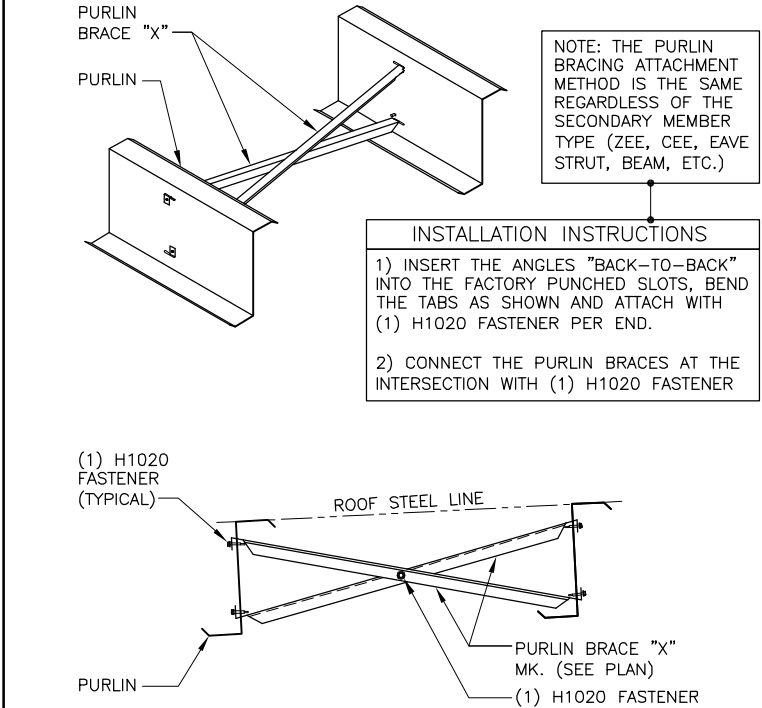
	EAVE STRUT	4
	LOW EAVE BY-PASS SW GIRT CONDITION	E3
	USE (4) 1/2"x 2" A325 BOLT H0603/NUT H0300 U.N.O.	



	EAVE STRUT	5
	BYPASS SIDEWALL CONDITION	E3
	LOW EAVE BUILT-UP EW CONDITION	
	USE (2) 1/2" x 2" A325 BOLT H0603/NUT H0300 U.N.O.	



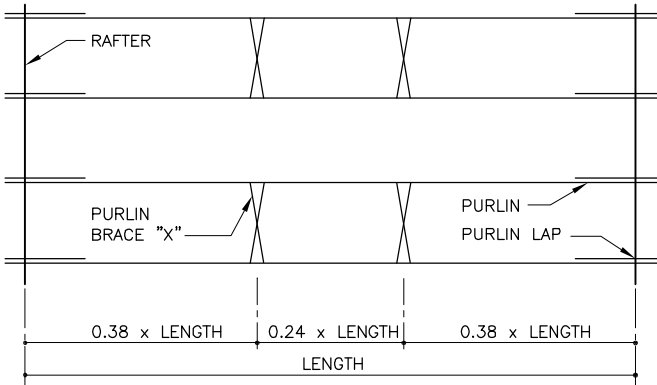
	RAKE ANGLE ATTACHMENT	6
	AT ENDWALL STEEL LINE	E3
	RAKE_ANG	BD0120



PLAN VIEW OF PURLIN BRACING LOCATIONS PER BAY

1) THERE ARE ALWAYS (2) ROWS OF PURLIN BRACING REQUIRED REGARDLESS OF THE BAY LENGTH.

2) THE PURLIN BRACING IS ALWAYS SPACED AS SHOWN IN THE DETAIL BELOW.



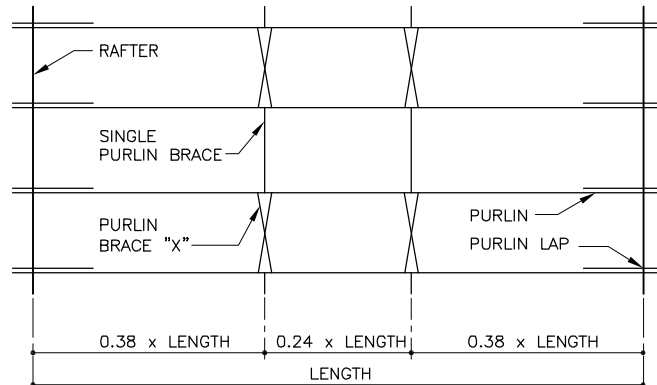
PURLIN BRACING ATTACHMENT <2:12 SLOPE

SEE ROOF FRAMING PLAN(S) FOR PURLIN BRACING MARK NUMBERS, QUANTITIES, AND LOCATIONS

PLAN VIEW OF PURLIN BRACING LOCATIONS PER BAY

1) THERE ARE ALWAYS (2) ROWS OF PURLIN BRACING REQUIRED REGARDLESS OF THE BAY LENGTH.

2) THE PURLIN BRACING IS ALWAYS SPACED AS SHOWN IN THE DETAIL BELOW.



PURLIN BRACING ATTACHMENT CFR > 2:12 SLOPE

PURLIN BRACING ATTACHMENT CLASSIC > = 3:12 SLOPE

SEE ROOF FRAMING PLAN(S) FOR PURLIN BRACING MARK NUMBERS, QUANTITIES, AND LOCATIONS

DATE	5-25-11
P.E.	
ENG	PMT
CHK	AGA
DWN	JSA
ISSUE	
PERMITS	
FINAL ERECTIONS	

CANAM STEEL BUILDING CORPORATION

BOX 748509, ARVADA, CO 80006
TELEPHONE: (303) 953-3250
FACSIMILE: (303) 953-3251

PROJECT NAME:

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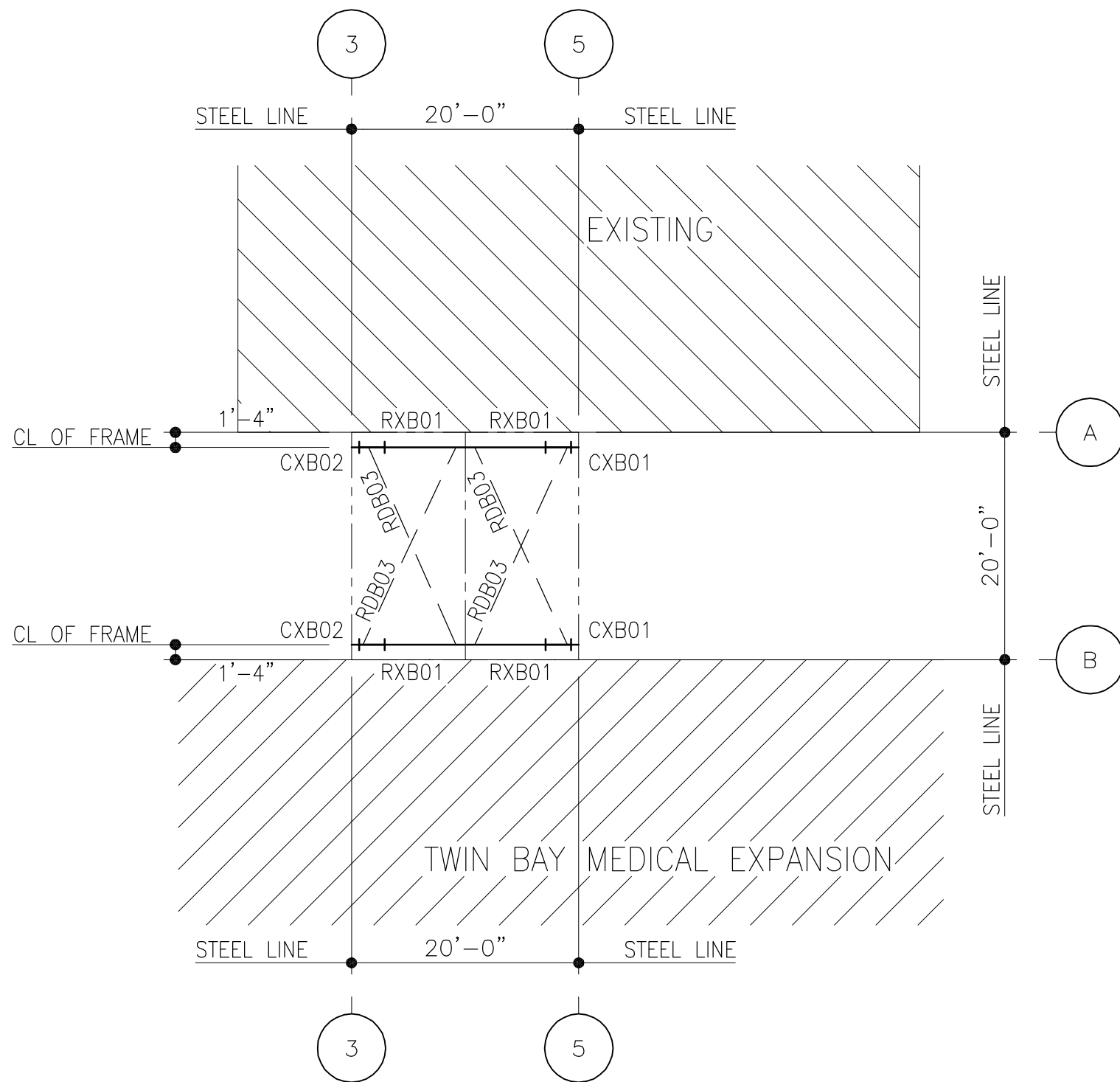
SHEET NO:
E3 of 14

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[illegible]



MARK NUMBER AND BRACING PLAN

- 1) PLACE TAGGED END OF RAFTERS TOWARD THE LOW EAVE.
- 2) ROD-BRACING: SEE SHEET D1 FOR DETAIL
RDB__ - INDICATES 5/8" ϕ ROD

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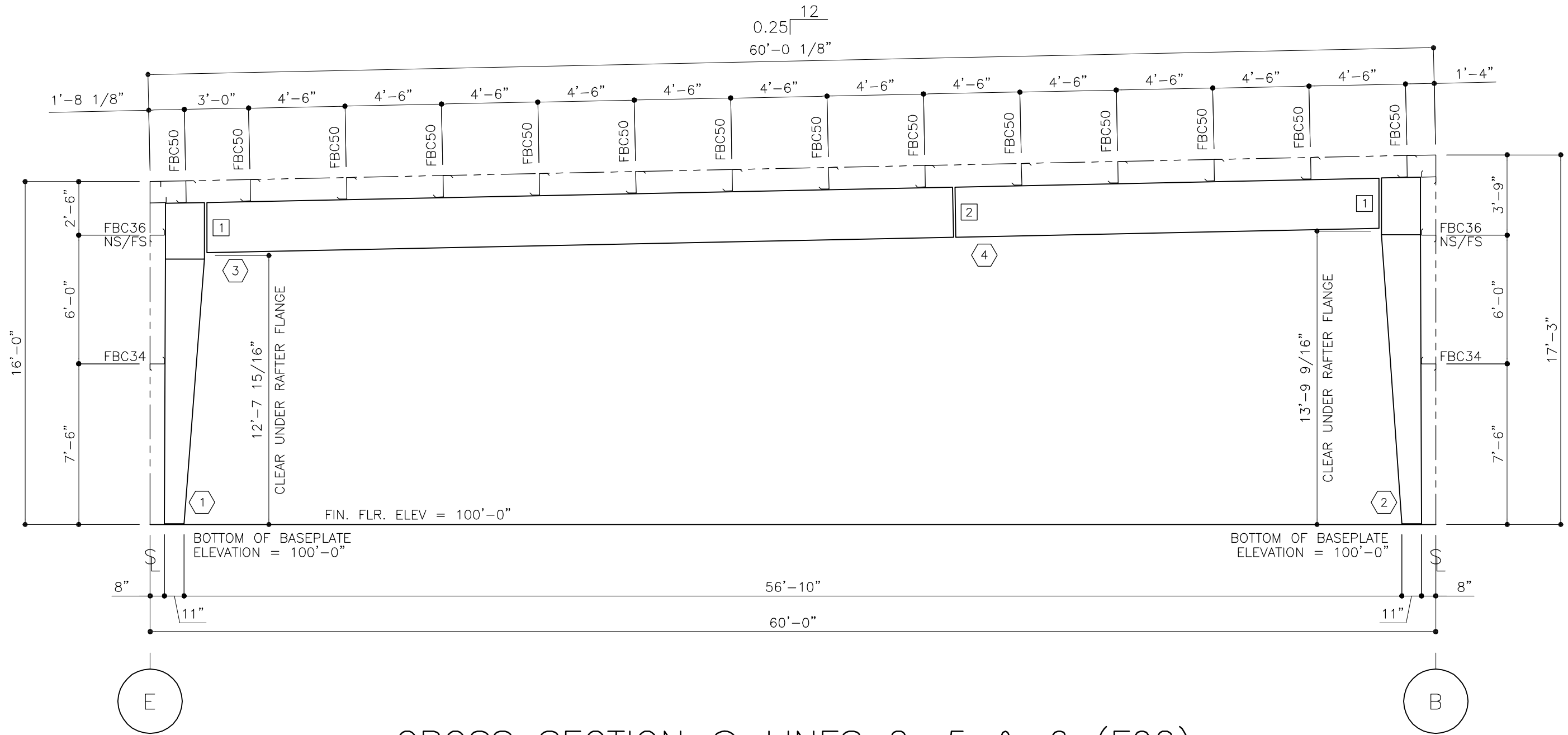
CANAM STEEL BUILDING CORPORATION
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PROJECT NAME:	CUSTOMER:
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E6 of 14

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CROSS SECTION @ LINES 2, 5 & 6 (F02)

MBR ID	LOW PLATE WIDTH THICK	HIGH PLATE WIDTH THICK	OUTSIDE FLANGE WIDTH THICK LENGTH	INSIDE FLANGE WIDTH THICK LENGTH	MEMBER WEB DEPTH1 THICK LENGTH DEPTH2
1	8.00 0.38	8.00 0.63	8.00 0.50	8.00 0.50	10.00 0.25 22.00 22.00 0.31 22.00
2	8.00 0.38	8.00 0.63	8.00 0.50	8.00 0.50	10.00 0.25 22.00 22.00 0.31 22.00
3	6.00 0.63	6.00 0.63	6.00 0.50	6.00 0.50	28.00 0.31 28.00 28.00 0.31 28.00
4	6.00 0.63	6.00 0.75	6.00 0.50	6.00 0.50	28.00 0.31 28.00 28.00 0.31 28.00

NOTES:

- 1) FOR COLUMN AND RAFTER MARK NUMBERS, SEE SHEET E5 (MARK NUMBER PLAN).
- 2) FBC___ INDICATES FLANGE BRACING LOCATIONS. FBD___ INDICATES FLANGE BRACING LOCATIONS ON JOIST ROOFS.
- 3) NS/FS INDICATES THAT FLANGE BRACING IS REQUIRED ON BOTH SIDES OF THE FRAME LINE. NOTE FOR EXPANDABLE ENDWALL RIGID FRAMES: IF FLANGE BRACING IS REQUIRED ON BOTH SIDES OF AN EXPANDABLE ENDFRAME, THE OPPOSITE SIDE FLANGE BRACE WILL HAVE TO BE INSTALLED AT THE TIME OF EXPANSION. THESE FLANGE BRACES HAVE BEEN PROVIDED, AS REQUIRED, FOR THIS FUTURE CONDITION.
- 4) IF NS/FS FLANGE BRACING IS NOT INDICATED, ONLY ONE FLANGE BRACE IS REQUIRED AND CAN BE LOCATED ON EITHER SIDE OF THE FRAME.
- 5) "*" INDICATES THE LONG SIDE OF THE INTERIOR COLUMNS. IF THE INTERIOR COLUMNS ARE REQUIRED, ORIENT AND ERECT THOSE COLUMNS ACCORDINGLY.
- NOTE: COLUMNS LOCATED AT THE RIDGE ARE TYPICALLY "FLAT-TOP" COLUMNS, UNLESS INDICATED BY THE "*" SYMBOL.
- 6) RIGID FRAMES SHALL HAVE 50% OF THEIR BOLTS INSTALLED AND TIGHTENED ON BOTH SIDES OF THE WEB ADJACENT TO EACH FLANGE BEFORE THE HOISTING EQUIPMENT IS RELEASED.

BOLT SCHEDULE				
CON ID	BOLT QTY	BOLT DESCRIPTION	BOLT PART#	NUT PART#
1	8	BOLT/NUT 1" x 3 1/4" A325	H0640	H0330
2	8	BOLT/NUT 7/8" x 3" A325	H0635	H0325

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5-25-11		PMT	AGA	JSA			
6-7-11			AGA	JSA			

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FACSIMILE: (303) 953-3251

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E8 of 14



- | ISSUE | DWN | CHK | ENG | P.E. | DATE |
|-----------------|-----|-----|-----|------|---------|
| PERMITS | USA | AGA | PMT | | 5-25-11 |
| FINAL ERECTIONS | USA | AGA | | | 6-7-11 |
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CANAM STEEL BUILDING CORPORATION

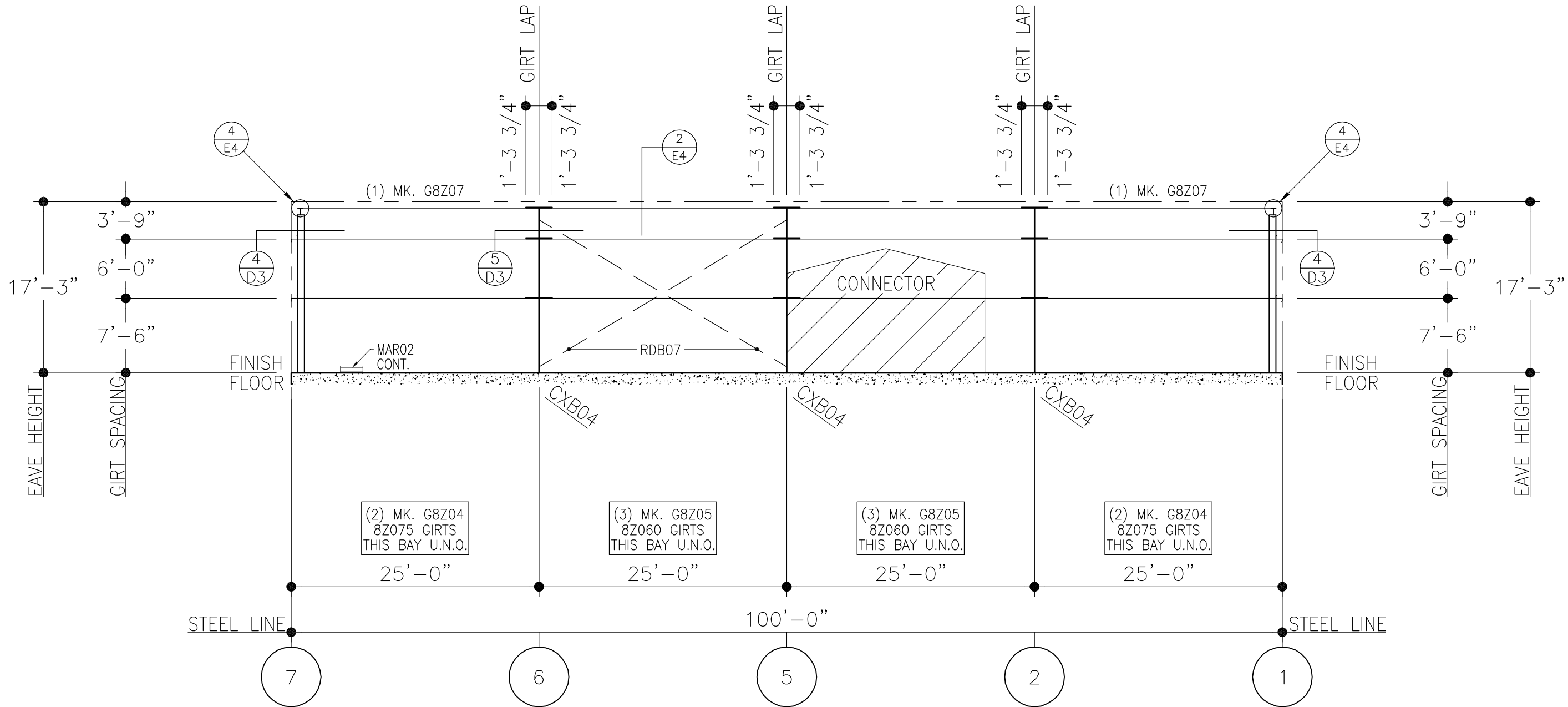
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E11 of 14

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SIDEWALL ELEVATION AT LINE B FOR TWIN BAY MEDICAL EXPANSION (M04)

1) RDB__ INDICATES 5/8" DIA ROD BRACING. SEE SHEET D1 FOR DETAIL.

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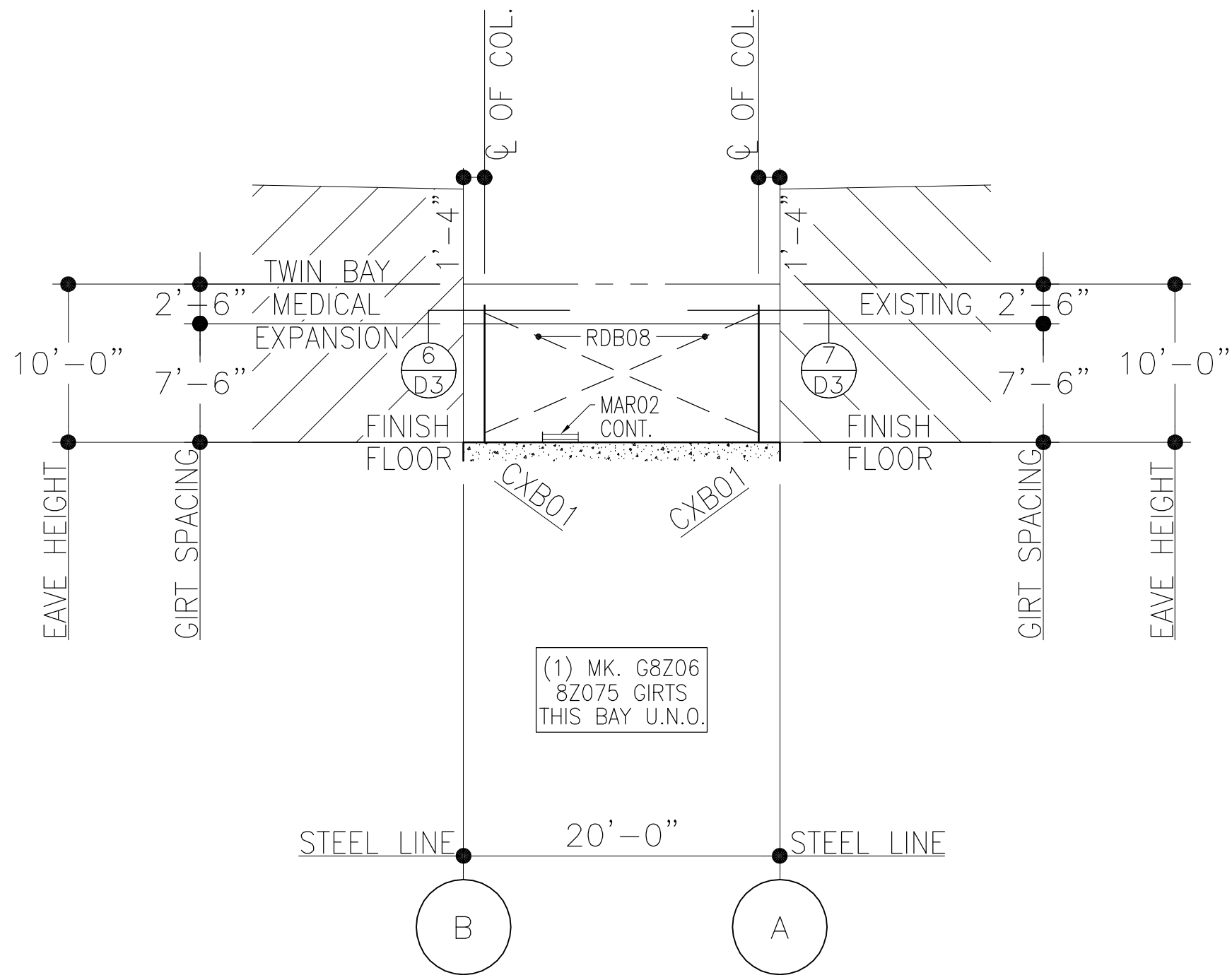
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E12 of 14

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SIDEWALL ELEVATION AT LINE 5 FOR CONNECTOR (M06)

1) RDB__ INDICATES 5/8" DIA ROD BRACING. SEE SHEET D1 FOR DETAIL.

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E13 of 14

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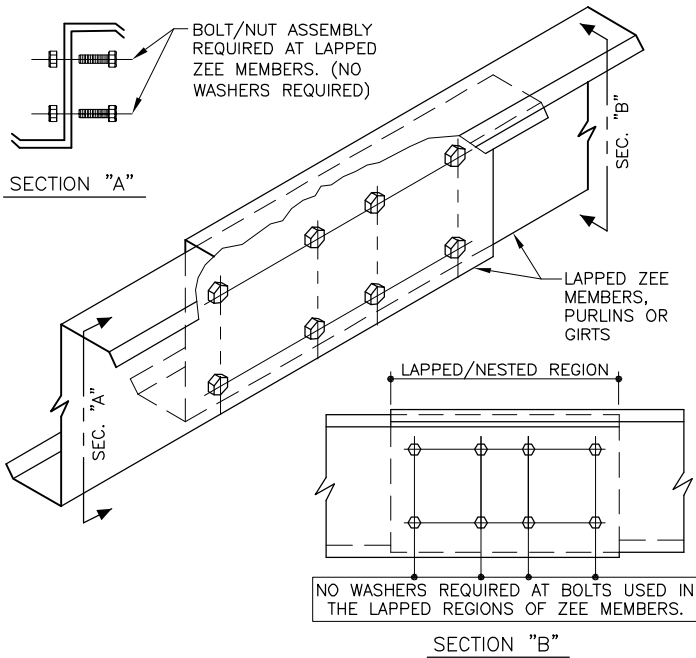
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(UNLESS NOTED OTHERWISE ON DRAWINGS)

SLOT TO HOLE CONNECTIONS
ONE WASHER REQUIRED ON
SLOTTED SIDE ONLY.

HOLE TO HOLE CONNECTIONS
NO WASHERS ARE REQUIRED WHEN
SLOTS ARE NOT USED.

H0200 - 1/2" FLAT WASHER	H0240 - 1" FLAT WASHER
H0210 - 5/8" FLAT WASHER	H0250 - 1 1/8" FLAT WASHER
H0220 - 3/4" FLAT WASHER	H0260 - 1 1/4" FLAT WASHER
H0230 - 7/8" FLAT WASHER	

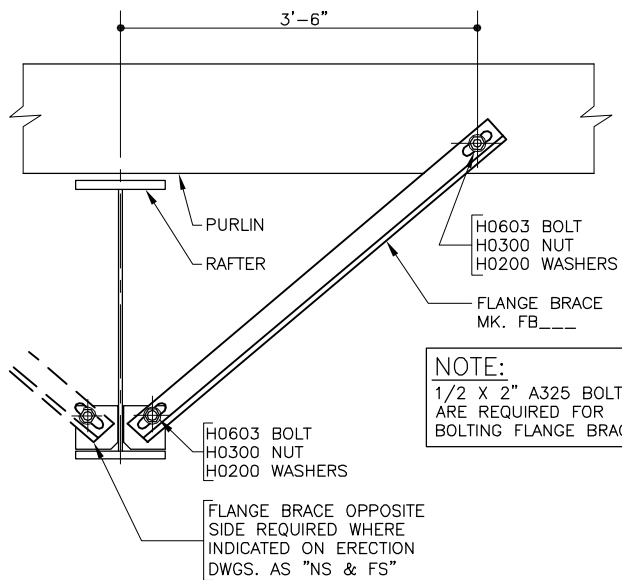


ACTUAL FLANGE BRACES DO NOT HAVE MARK NUMBERS ON THEM

COUNTER	LENGTH
01	35 7/8"
02	37 1/8"

COUNTER	LENGTH
01	35 7/8"
02	37 1/8"
03	49 1/2"
04	50 1/4"

Diagram illustrating the geometry of the plate. The plate is rectangular with two circular holes. The dimension line above the plate is labeled "LENGTH".



NOTE:
1/2 X 2" A325 BOLTS
ARE REQUIRED FOR
BOLTING FLANGE BRACES.

SEE PLANS AND ELEVATIONS FOR FLANGE BRACE PART MARKS

(UNLESS NOTED OTHERWISE ON DRAWINGS)

ALL FIELD WELDING MUST BE PERFORMED BY AWS/CWB 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/CWB SPECIFICATIONS. WELD ELECTRODES USED FOR THE SMAW (OR STICK) WELD PROCESS MUST BE 70 KSI/483 MPa MATERIAL AND LOW HYDROGEN CONTENT.

PREPARATION OF WELD AREA

AWS D-19.0, WELDING ZINC COATED STEEL, CALLS FOR WELDS TO BE MADE ON STEEL THAT IS FREE OF ZINC IN THE AREA TO BE WELDED. FOR GALVANIZED STRUCTURAL COMPONENTS, THE ZINC COATING SHOULD BE REMOVED AT LEAST ONE TO FOUR INCHES (2.5-10 CM) FROM EITHER SIDE OF THE INTENDED WELD ZONE AND ON BOTH SIDES OF THE WORKPIECE. GRINDING BACK THE ZINC COATING IS THE PREFERRED AND MOST COMMON METHOD; BURNING THE ZINC AWAY OR PUSHING BACK THE MOLTEN ZINC FROM THE WELD AREA ALSO ARE EFFECTIVE.

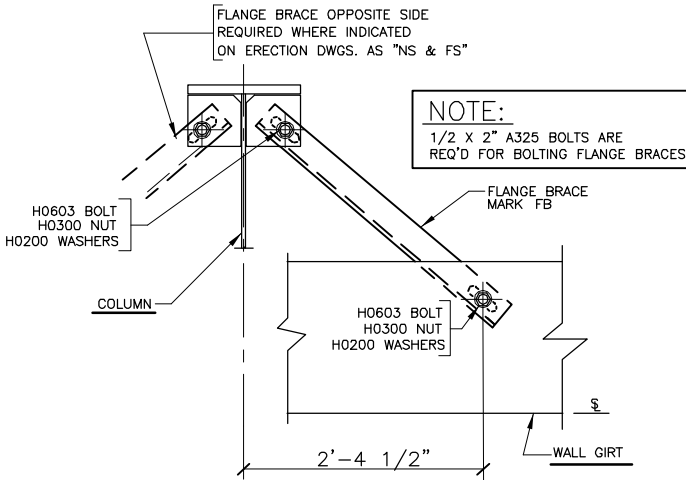
TOUCH-UP OF WELD AREA

WELDING ON GALVANIZED SURFACES DESTROYS THE ZINC COATING ON AND AROUND THE WELD AREA. RESTORATION OF THE AREA WILL BE PERFORMED IN ACCORDANCE WITH ASTM A 780, STANDARD PRACTICE FOR REPAIR OF DAMAGED AND UNCOATED AREAS OF HOT-DIP GALVANIZED COATINGS, WHICH SPECIFIES THE USE OF PAINTS CONTAINING ZINC DUST, ZINC-BASED SOLDERS OR SPRAYED ZINC. ALL TOUCHUP AND REPAIR METHODS ARE CAPABLE OF BUILDING A PROTECTIVE LAYER TO THE THICKNESS REQUIRED BY ASTM A 780.

SAFETY & HEALTH

WHEN WELDING DIRECTLY ON GALVANIZED STEEL IS UNAVOIDABLE, OSHA PERMISSIBLE EXPOSURE LIMITS (PELS) MAY BE EXCEEDED AND EVERY PRECAUTION, INCLUDING HIGH-VELOCITY CIRCULATING FANS WITH FILTERS, AIR RESPIRATORS AND FUME-EXTRACTION SYSTEMS SUGGESTED BY AWS, SHOULD BE EMPLOYED. FUMES FROM WELDING GALVANIZED STEEL CAN CONTAIN ZINC, IRON AND LEAD. FUME COMPOSITION TYPICALLY DEPENDS ON THE COMPOSITION OF MATERIALS USED, AS WELL AS THE HEAT APPLIED BY THE PARTICULAR WELDING PROCESS. IN ANY EVENT, GOOD VENTILATION MINIMIZES THE AMOUNT OF EXPOSURE TO FUMES.

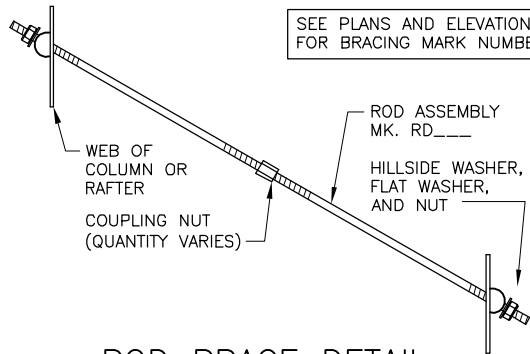
PRIOR TO WELDING ON ANY METAL, CONSULT ANSI/ASC Z49.1, SAFETY IN WELDING, CUTTING AND ALLIED PROCESSES, WHICH CONTAINS INFORMATION ON THE PROTECTION OF PERSONNEL AND THE GENERAL AREA, VENTILATION AND FIRE PREVENTION.



NOTE: SEE PLANS AND ELEVATIONS FOR
FLANGE BRACE PART MARKS

ROD DIAMETER	MARK NUMBER	HILLSIDE WASHERS	FLAT WASHERS	A307/A325 NUTS	COUPLING NUTS
5/8" ϕ	RDB ____	(2) H0930	(2) H0210	(2) H0310	H0810
3/4" ϕ	RDC ____	(2) H0930	(2) H0220	(2) H0320	H0820
7/8" ϕ	RDD ____	(2) H0930	(2) H0230	(2) H0430	H0830
1" ϕ	RDE ____	(2) H0960	(2) H0240	(2) H0330	H0840
1 1/8" ϕ	RDF ____	(2) H0960	(2) H0250	(2) H0450	H0850
1 1/4" ϕ	RDG ____	(2) H0960	(2) H0260	(2) H0340	H0860

SEE PLANS AND ELEVATIONS
FOR BRACING MARK NUMBERS

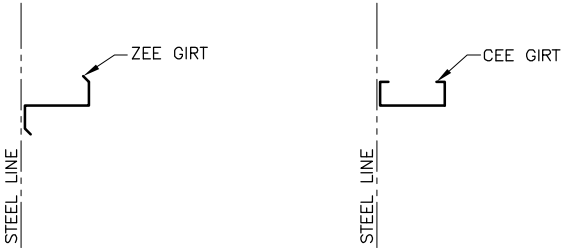


(WEB TO WEB)

ERECTOR NOTE: UNLESS SPECIFICALLY NOTED OTHERWISE, STANDARD ZEE GIRT ORIENTATION IS TO HAVE THE GIRT TOED DOWN AT THE STEEL LINE AS SHOWN IN THE DETAIL BELOW.

UNLESS SPECIFICALLY NOTED OTHERWISE, STANDARD CEE GIRT ORIENTATION IS TO HAVE THE GIRT TOED UP AS SHOWN IN THE DETAIL BELOW. STANDARD CLIP ATTACHMENT IS BELOW THE GIRT, HOWEVER SOME DETAILS REQUIRE THAT THE CLIP BE ABOVE THE GIRT OR THAT THE GIRT BE TOED DOWN.

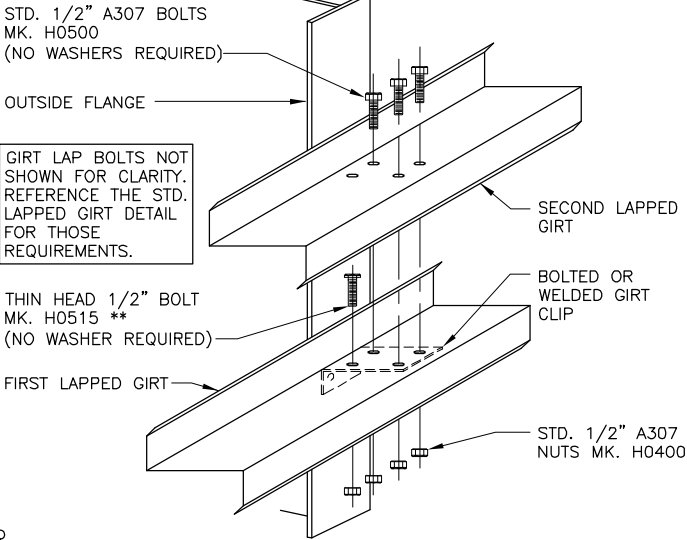
(REFER TO THE GIRT DETAILS FOR SPECIFIC CONNECTION REQUIREMENTS).



ZEE GIRT ORIENTATION CEE GIRT ORIENTATION

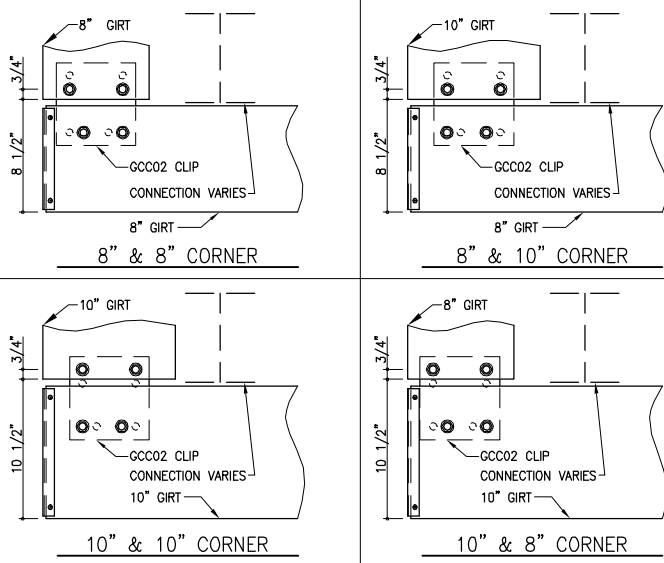
STANDARD GIRT ORIENTATION DETAIL

SEE GIRT DETAILS FOR GIRT CONNECTIONS (COLUMNS NOT SHOWN)



LAPPED GIRT DETAIL

LAPPED GIRTS @ INTERIOR BAY COLUMNS
** THE THIN HEAD 1/2" A307 BOLT MUST BE INSTALLED INTO THE FIRST GIRT AND CLIP OF A LAPPED CONDITION. THE BOLT/NUT ASSEMBLY MUST BE WRENCH TIGHT PRIOR TO THE SECOND LAPPED GIRT BEING INSTALLED.

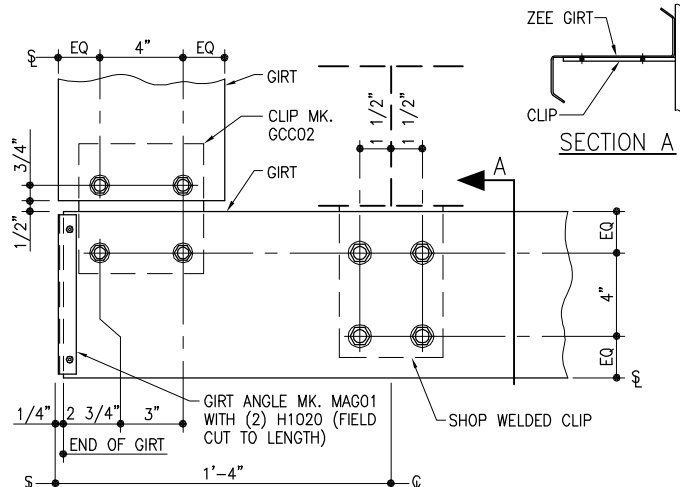


BYPASS GIRT BOLT PLACEMENT DETAIL

REFERENCE WASHER DETAIL FOR TYPICAL WASHER REQUIREMENTS
GIRT CLIPS ARE FACTORY PUNCHED TO BE USED WITH MULTIPLE GIRT DEPTHS. REFER TO THE DETAILS ABOVE TO DETERMINE WHICH HOLES ARE UTILIZED.

ERECTOR NOTE

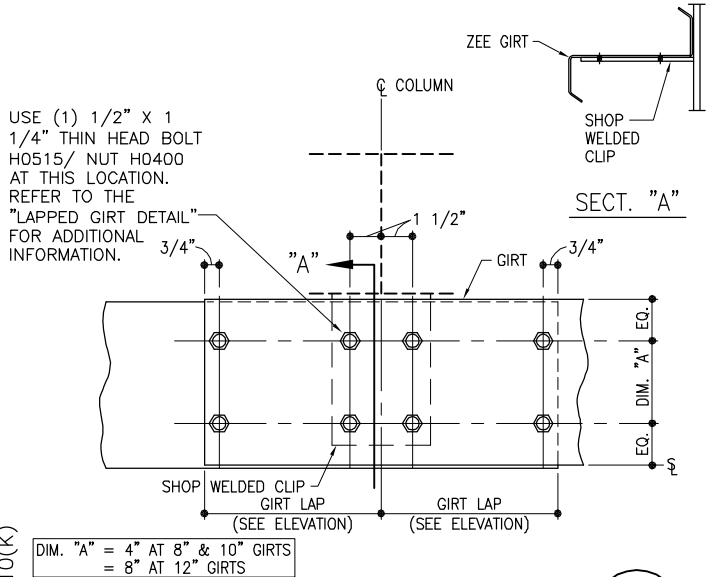
GIRT CLIPS ARE FACTORY PUNCHED TO BE USED WITH MULTIPLE GIRT DEPTHS. REFER TO THE STANDARD BOLT PLACEMENT DETAIL(S) FOR PROPER BOLT PLACEMENT.



BYPASS GIRT CORNER DETAIL

LEFT HAND DETAIL SHOWN, RIGHT HAND OPPOSITE
NOTE: USE (8) 1/2" x 1 1/4" A307 BOLTS H0500/NUTS H0400
REFERENCE STANDARD WASHER DETAIL FOR TYPICAL WASHER REQUIREMENTS

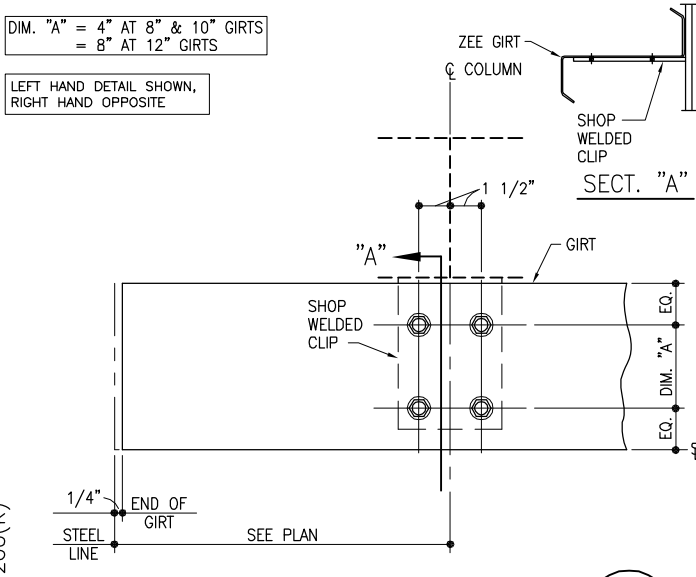
4
D3



SW OR EW GIRT DETAIL

LAPPED BYPASS GIRTS AT INTERIOR BAY COLUMNS
NOTE: USE (7) 1/2"x 1 1/4" A307 BOLTS H0500/NUTS H0400
REFERENCE ERECTOR NOTE FOR TYPICAL WASHER REQUIREMENTS

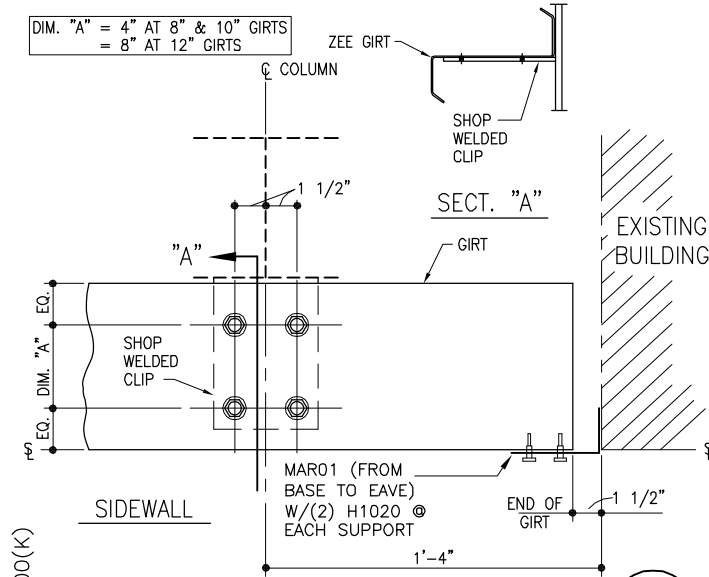
5
D3



GIRT TERMINATION DETAIL

LEFT HAND DETAIL SHOWN, RIGHT HAND OPPOSITE
NOTE: USE (4) 1/2" x 1 1/4" A307 BOLTS H0500/NUTS H0400
REFERENCE STANDARD WASHER DETAIL FOR TYPICAL WASHER REQUIREMENTS

6
D3



GIRT TERMINATION DETAIL

RIGID FRAME
NOTE: USE (4) 1/2"x 1 1/2" A307 BOLTS H0500/NUTS H0400
REFERENCE ERECTOR NOTE FOR TYPICAL WASHER REQUIREMENTS

7
D3

DATE	P.E.	ENG	CHK	DWN	PERMITS	FINAL ERECTIONS
5-25-11		PMT	ACA	JSA		
6-7-11			ACA	JSA		

CANAM STEEL BUILDING CORPORATION
BOX 748509, ARVADA, CO 80006 TELEPHONE: (303) 953-3250 FACSIMILE: (303) 953-3251

PROJECT NAME:	CUSTOMER:
JOB NUMBER:	
SHEET NO:	

JOB NUMBER:

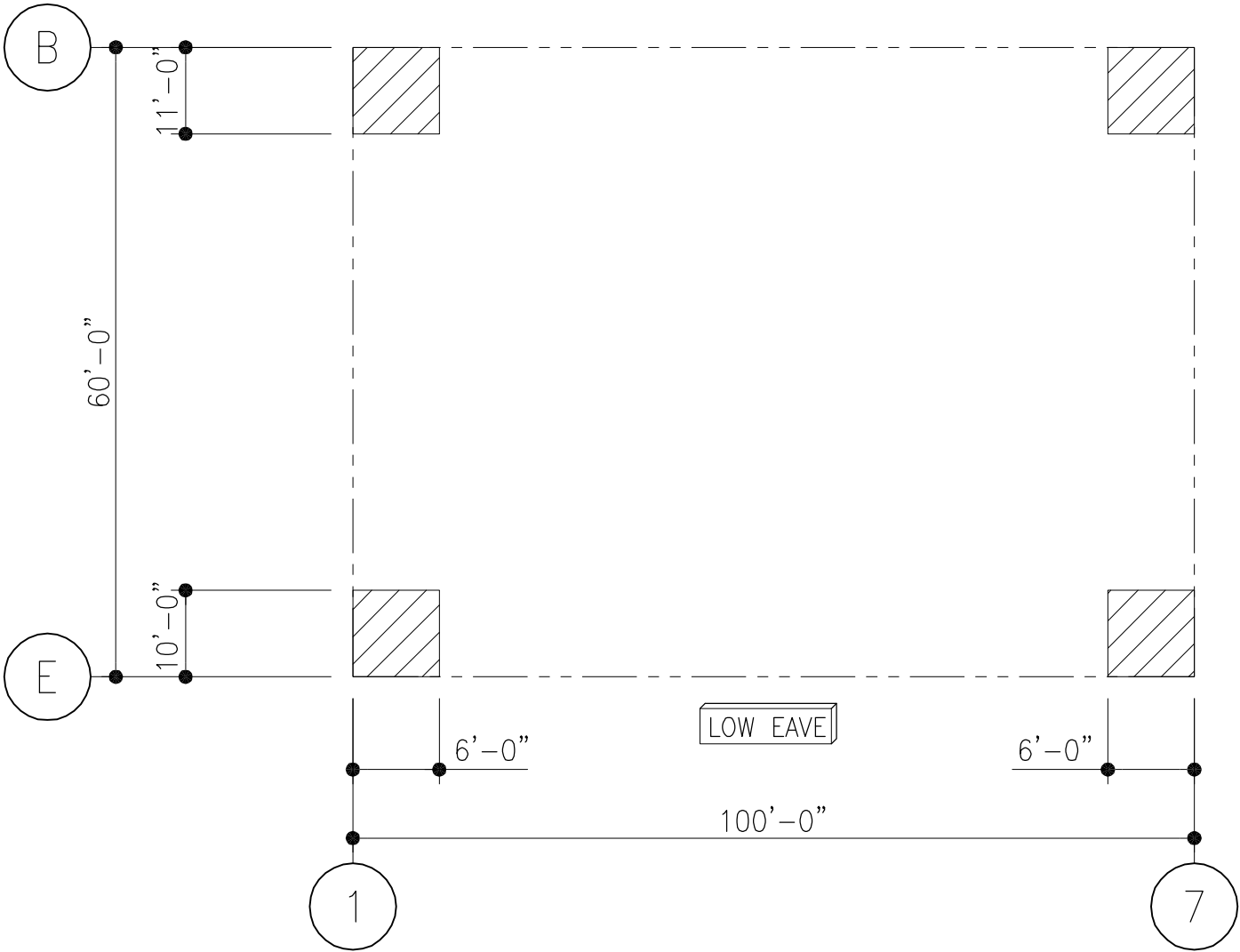
SHEET NO:

D3 of 4

THIS SEAL PERTAINS ONLY TO THE MATERIALS DESIGNED AND SUPPLIED BY THE METAL BUILDING MANUFACTURER. THE DRAWINGS AND THE METAL BUILDING WHICH THEY REPRESENT ARE THE PRODUCT OF THE METAL BUILDING MANUFACTURER. THE REGISTERED PROFESSIONAL ENGINEER WHOSE SEAL APPEARS ON THESE DRAWINGS IS EMPLOYED BY THE METAL BUILDING MANUFACTURER AND DOES NOT SERVE AS OR REPRESENT THE PROJECT ENGINEER OF RECORD AND SHALL NOT BE CONSTRUED AS SUCH.

ERECTOR NOTE:

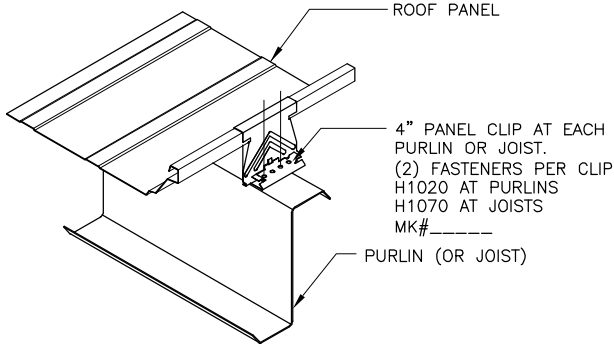
THIS BUILDING HAS SPECIFIC ROOF CLIP AND FASTENER REQUIREMENTS. PLEASE REVIEW THIS DETAIL PRIOR TO ERECTING THE ROOF PANEL. FAILURE TO FOLLOW THESE SPECIFIC REQUIREMENTS COULD RESULT IN LOSS OF ROOF PANEL(S).



ROOF SEAMING PLAN

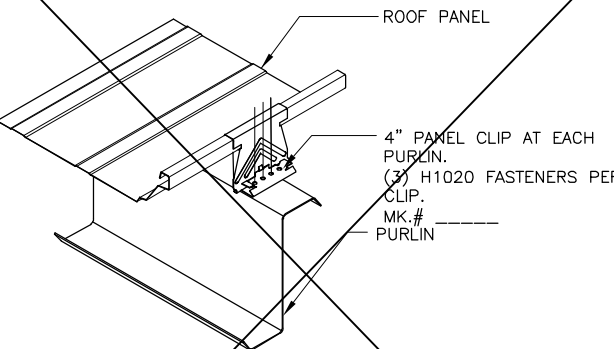
- 1) ROLL LOCK™ U.N.O.
- 2) INDICATES VISE LOCK™.
- 3) INDICATES VISE LOCK 360™.

STD. 4" PANEL CLIP ATTACHMENT DETAIL
SEE CFR ROOF ERECTION NOTES FOR PANEL CLIP MARK NUMBER



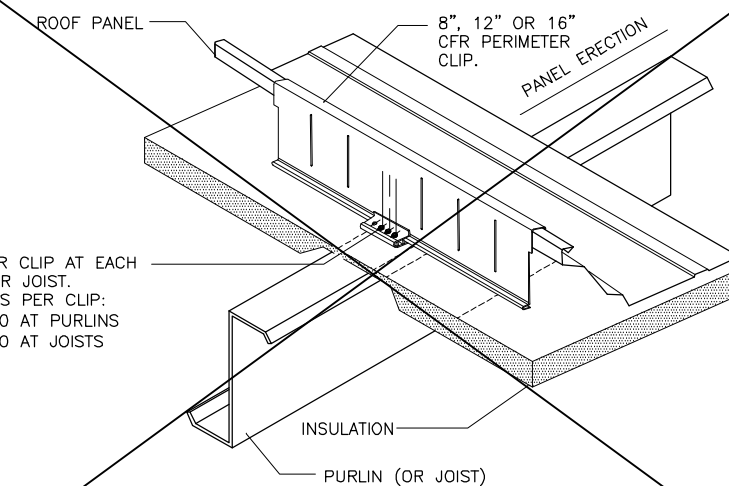
EA1027 (2) FASTENERS PER CLIP AT PURLIN/JOIST

STD. 4" PANEL CLIP ATTACHMENT DETAIL
SEE CFR ROOF ERECTION NOTES FOR PANEL CLIP MARK NUMBER



(3) FASTENERS PER CLIP AT PURLIN

PERIMETER PANEL CLIP ATTACHMENT DETAIL
SEE CFR ROOF ERECTION NOTES FOR PANEL CLIP MARK NUMBER



(3) FASTENERS PER CLIP AT PURLIN
(2) FASTENERS PER CLIP AT JOIST

STD 4" CFR CLIP PART NUMBERS	
MARK #	PART DESCRIPTION
H2500	SHORT FIXED CLIP
H2510	TALL FIXED CLIP
H2520	SHORT SLIDING CLIP
H2530	TALL SLIDING CLIP

CFR PERIMETER CLIP PART NUMBERS	
MARK #	PART DESCRIPTION
H2720	SHORT SLIDING 8" CLIP
H2730	TALL SLIDING 8" CLIP
H2740	SHORT SLIDING 12" CLIP
H2750	TALL SLIDING 12" CLIP
H2760	SHORT SLIDING 16" CLIP
H2770	TALL SLIDING 16" CLIP

DATE	P.E.	ENG	CHK	DWN	ISSUE
6-7-11			ACA	JSA	FINAL ERECTIONS

CANAM STEEL BUILDING CORPORATION
BOX 746509, ARVADA, CO 80006
TELEPHONE: (303) 953-3250
FACSIMILE: (303) 953-3251

PROJECT NAME:
CUSTOMER:

JOB NUMBER:

SHEET NO:
G1 of 9

THIS SEAL PERTAINS ONLY TO THE MATERIALS DESIGNED AND SUPPLIED BY THE METAL BUILDING MANUFACTURER. THE DRAWINGS AND THE METAL BUILDING WHICH THEY REPRESENT ARE THE PRODUCT OF THE METAL BUILDING MANUFACTURER. THE REGISTERED PROFESSIONAL ENGINEER WHOSE SEAL APPEARS ON THESE DRAWINGS IS EMPLOYED BY THE METAL BUILDING MANUFACTURER AND DOES NOT SERVE AS OR REPRESENT THE PROJECT ENGINEER OF RECORD AND SHALL NOT BE CONSTRUED AS SUCH.

ROOF SHEETING PLAN (R03/R04)

PANELS: 24 GA. STANDING SEAM – GALVALUME
NOTE: PRE-DRILLING FOR STRUCTURAL FASTENERS MAY BE REQUIRED AT PURLIN LAPS
ROLL LOCK™ SEAMING ONLY ON THIS BUILDING.

FASTENER SUBSTITUTION CHART				DATE					
STD. PART # ON DETAILS	SPECIAL PART #	COLOR	DESCRIPTION	P.E.					
H1040	H1041	PW	WF 12-14 x 1 1/4" TEK 2 W/ WASHER	ENG					
H1040	H1041	BS	WF 12-14 x 1 1/4" TEK 2 W/ WASHER	CHK DWN	AGA JSA				
H1060	H1061	PW	WF 12-14 x 3/4" SP W/ WASHER						
H1060	H1061	BS	WF 12-14 x 3/4" SP W/ WASHER	ISSUE	CTIONS				

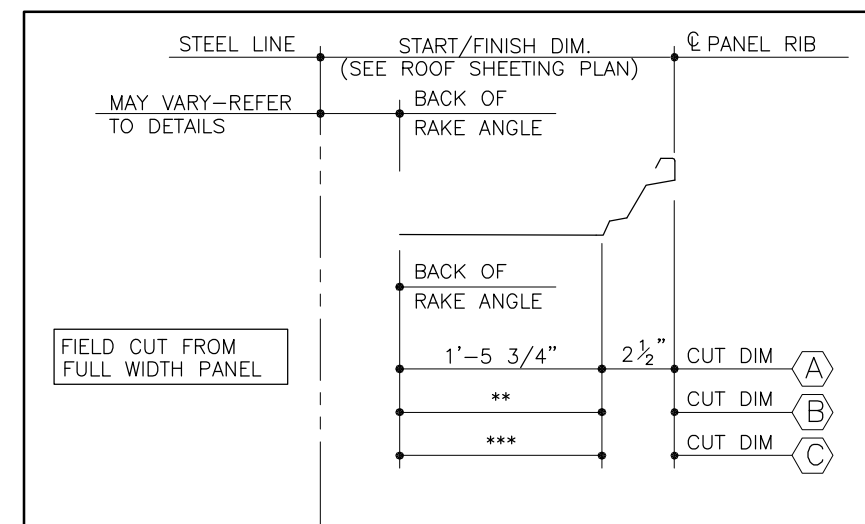
BOX 746509, ARVADA, CO 80006
TELEPHONE: (303) 953-3250
FACSIMILE: (303) 953-3251

DB NUMBER:

SHEET NO:

63 of 9

THIS SEAL PERTAINS ONLY TO THE MATERIALS DESIGNED AND SUPPLIED BY THE METAL BUILDING MANUFACTURER. THE DRAWINGS AND THE METAL BUILDING WHICH THEY REPRESENT ARE THE PRODUCT OF THE METAL BUILDING MANUFACTURER. THE REGISTERED PROFESSIONAL ENGINEER WHOSE SEAL APPEARS ON THESE DRAWINGS IS EMPLOYED BY THE METAL BUILDING MANUFACTURER AND DOES NOT SERVE AS OR REPRESENT THE PROJECT ENGINEER OF RECORD AND SHALL NOT BE CONSTRUED AS SUCH.



START PANEL WIDTH DETAIL (FIELD CUT)

NOTE: THE FINISH PANEL ALSO NEEDS TO BE CUT TO THE REQUIRED WIDTH FROM A FULL SHEET

WHEN FIELD CUTTING OR MITERING CFR ROOF PANELS, NON-ABRASIVE CUTTING TOOLS SUCH AS NIBBLERS OR TIN-SNIPS SHALL BE USED. ABRASIVE CUTTING TOOLS SUCH AS MECHANICAL GRINDERS, SAWS, SHEARS, OR SCISSORS CAN DAMAGE THE GALVALUME FINISH AND CREATE EXCESS METAL SHAVINGS THAT CAN CORRODE THE PANELS. THE USE OF NON-APPROVED CUTTING DEVICES MAY VOID YOUR FACTORY WARRANTY.

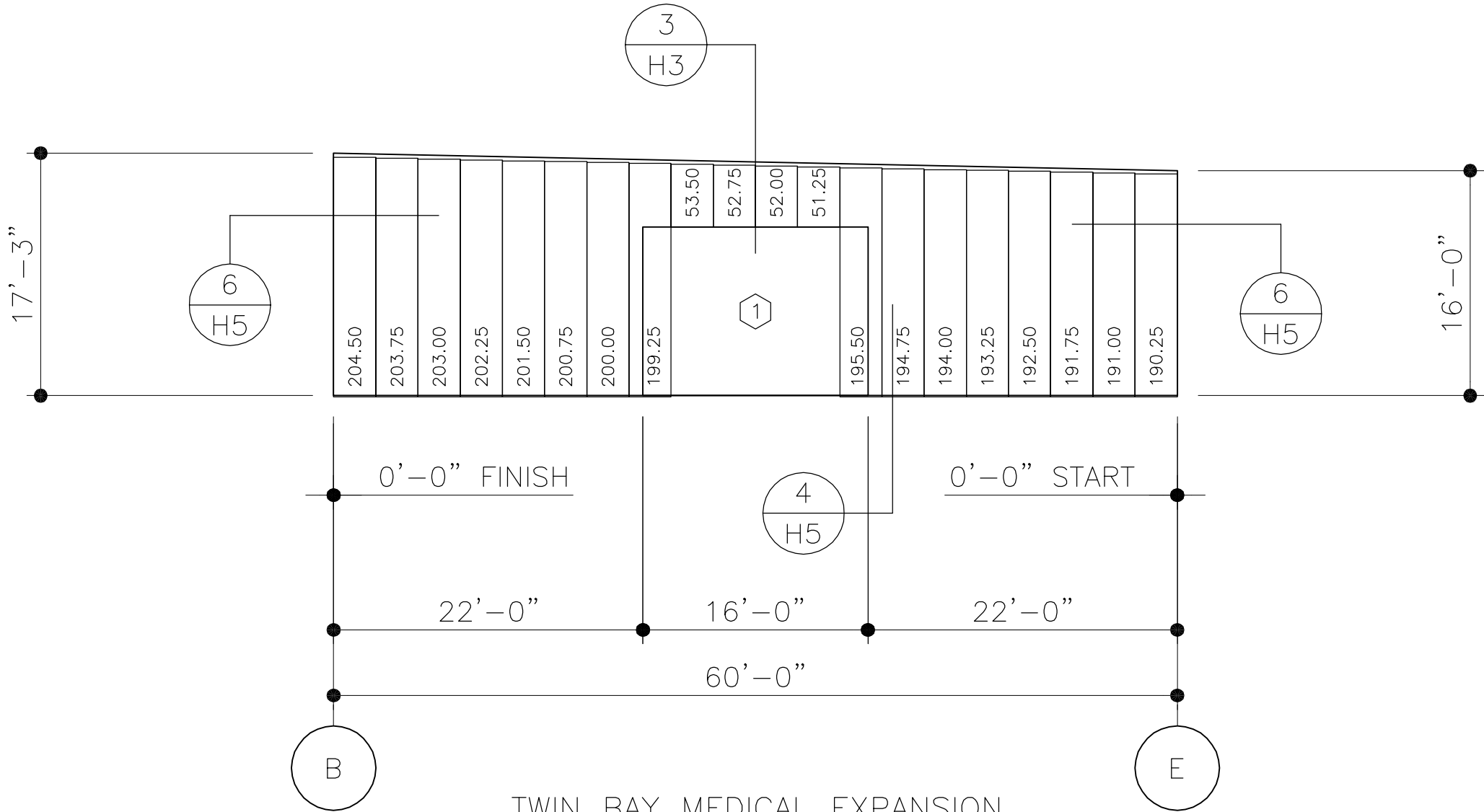
EA1035

FASTENER SUBSTITUTION CHART			
STD. PART # ON DETAILS	SPECIAL PART #	COLOR	DESCRIPTION
H1040	H1041	PW	WF 12-14 x 1 1/4" TEK 2 W/ WASHER
H1040	H1041	BS	WF 12-14 x 1 1/4" TEK 2 W/ WASHER
H1060	H1061	PW	WF 12-14 x 3/4" SP W/ WASHER
H1060	H1061	BS	WF 12-14 x 3/4" SP W/ WASHER

FRAMED OPENING SCHEDULE								
ID NUMBER	QTY	SIZE		TRIM REQUIREMENTS			COVER TRIM REQ'MENTS	
		WIDTH	HEIGHT	JAMB TRIM	HEAD TRIM	SILL TRIM	JAMB TRIM	HEAD TRIM
1	1	16'-0"	12'-0"	JTA04	HTA07	N/A	CCA02	CCA04

FOR FRAMED OPENING TRIM DETAILS, SEE SHEET H5.

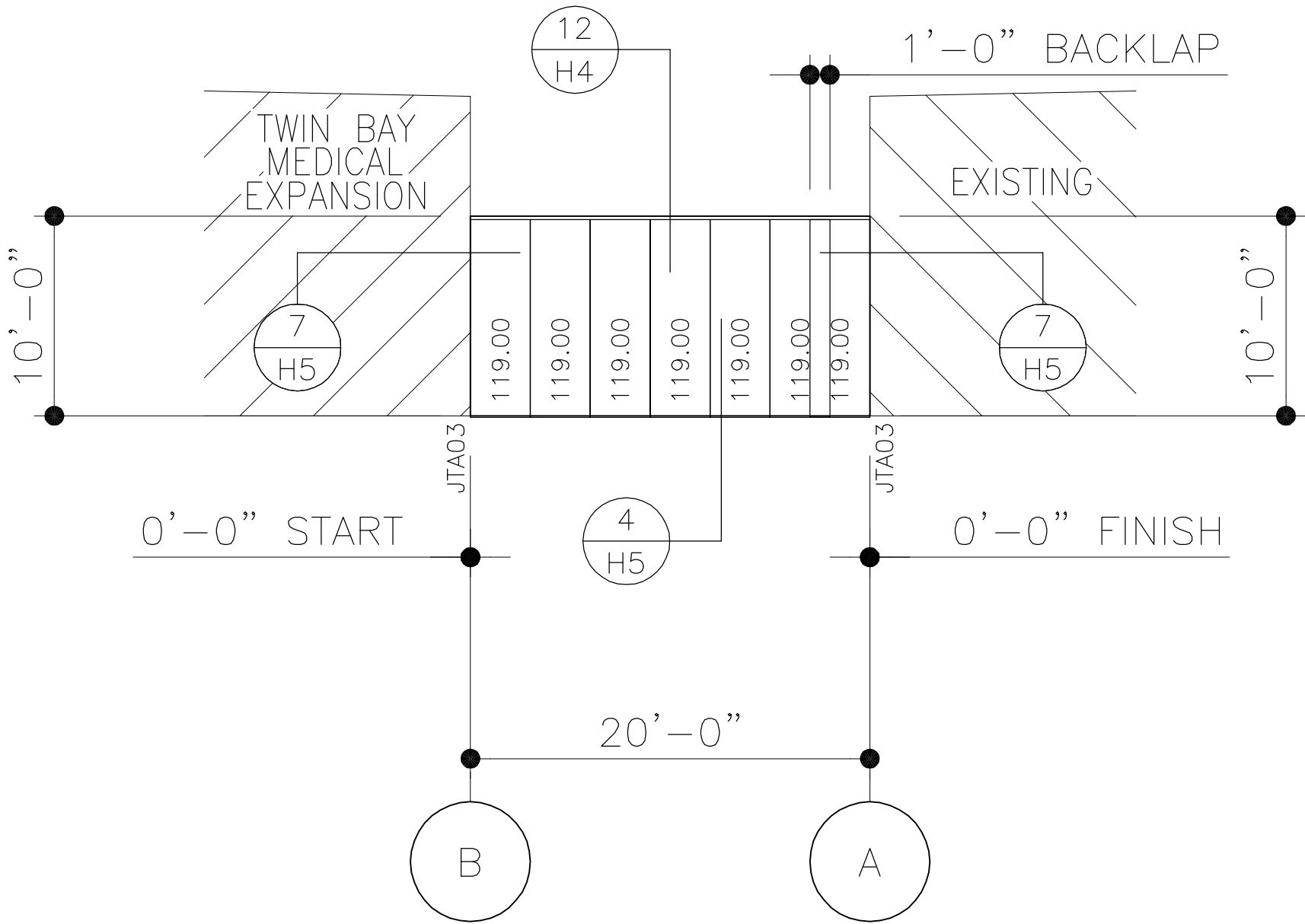
ISSUE	DATE	P.E.	ENG	CHK	DWN	JSA	AGA	6-7-11
FINAL ERECTIONS								



TWIN BAY MEDICAL EXPANSION
WALL SHEETING AT LINE 1 (M01)
PANELS: 26 GA. CLASSIC WALL – POLAR WHITE (SILICONE POLYESTER)

CANAM STEEL BUILDING CORPORATION BOX 746509, ARVADA, CO 80006 TELEPHONE: (303) 953-3250 FACSIMILE: (303) 953-3251	
PROJECT NAME:	CUSTOMER:
JOB NUMBER:	
SHEET NO:	G4 of 9
THIS SEAL PERTAINS ONLY TO THE MATERIALS DESIGNED AND SUPPLIED BY THE METAL BUILDING MANUFACTURER. THE DRAWINGS AND THE METAL BUILDING WHICH THEY REPRESENT ARE THE PRODUCT OF THE METAL BUILDING MANUFACTURER. THE REGISTERED PROFESSIONAL ENGINEER WHOSE SEAL APPEARS ON THESE DRAWINGS IS EMPLOYED BY THE METAL BUILDING MANUFACTURER AND DOES NOT SERVE AS OR REPRESENT THE PROJECT ENGINEER OF RECORD AND SHALL NOT BE CONSTRUED AS SUCH.	

FASTENER SUBSTITUTION CHART			
STD. PART # ON DETAILS	SPECIAL PART #	COLOR	DESCRIPTION
H1040	H1041	PW	WF 12-14 x 1 1/4" TEK 2 W/ WASHER
H1040	H1041	BS	WF 12-14 x 1 1/4" TEK 2 W/ WASHER
H1060	H1061	PW	WF 12-14 x 3/4" SP W/ WASHER
H1060	H1061	BS	WF 12-14 x 3/4" SP W/ WASHER



WALL SHEETING AT LINE 5 (M06)
PANELS: 26 GA. CLASSIC WALL – POLAR WHITE (SILICONE POLYESTER)

ISSUE	DATE		P.E.	ENG	CHK	DWN	JSA	AGA						
FINAL ERECTIONS	6-7-11													

CANAM STEEL BUILDING CORPORATION
BOX 746509, ARVADA, CO 80006 TELEPHONE: (303) 953-3250 FACSIMILE: (303) 953-3251

PROJECT NAME:	CUSTOMER:
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JOB NUMBER:

SHEET NO: G8 of 9

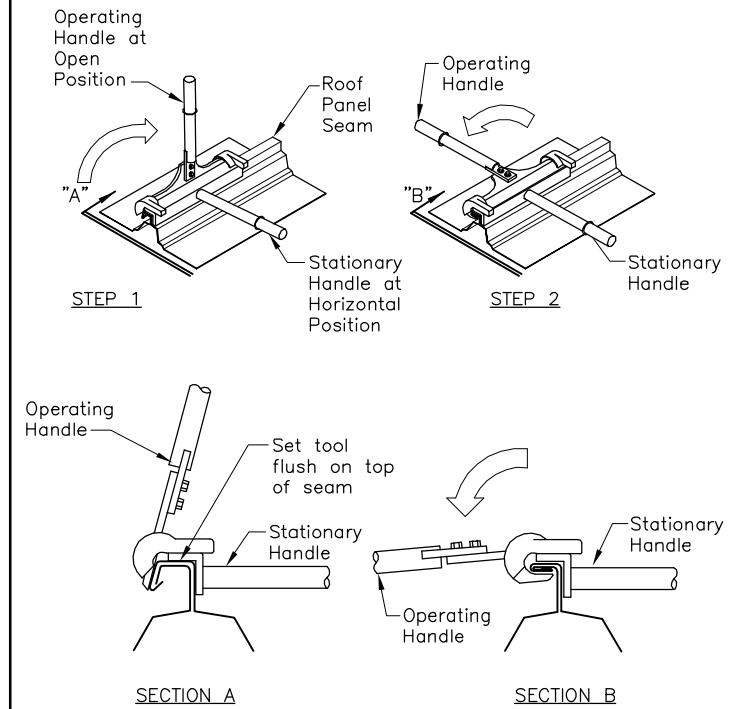
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CFR HAND CRIMPING INSTRUCTIONS

IMPORTANT NOTE: THE INSTRUCTIONS ON THE PAGE ONLY ADDRESS THE USE OF THE HAND CRIMPING TOOLS. THE INSTRUCTIONS FOR MECHANICAL SEAMING, IF REQUIRED, ARE OUTLINED IN THE CFR SEAMING MANUAL, WHICH IS INCLUDED WITH THE MECHANICAL SEAMER KIT.

SPECIALIZED SEAMING AND HAND CRIMPING TOOLS.
The finished seam of the CFR roof panels requires special seaming tools that are available only through MBM.
CAUTION: The use of other seaming/crimping equipment will result in faulty and/or damaged seams and shall invalidate the roof system's material and weathertightness warranties.

SEAMING TOOL SOURCE
The seaming tools are provided in accordance with the terms and conditions of the contract documents. Contact the Quality Service Representative to arrange scheduling, delivery and return of the seaming tools.



MANUAL CRIMPING TOOL OPERATION

NOMENCLATURE
The detail above identifies the operational parts of the Vise Lock Crimping Tool. This crimping tool is shown for the manually producing the Vise Lock Seam. If your job requires a Vise Lock 360 seam then you will need to manually crimp at the eave of your building with a Vise Lock 360 crimper to start the second pass seamer. Instructions on how to do this operation are in the CFR SEAMER MANUAL.

NOTE: It is now possible to hand crimp small areas of the roof with a Standup Vise Lock 360 Crimper. Contact the Quality Service Representative for purchase information of this tool.

TOOL ORIENTATION TO SEAM
Orient the tool to fit correctly onto the roof panel seam as shown in Section A above.

NOTE: The detail shows a short handled crimping tool, the tool you receive may be the long handled type, with either tool the orientation on the seam is the same.

FORMING THE SEAM
When the tool is correctly positioned on the panel, push the stationary blade solidly against the top of the seam. While holding the stationary handle in the horizontal position, rotate the operating handle down to the horizontal position. This will form the seam.

CFR SEAMING REQUIREMENTS

THE DESIGN OF THIS STRUCTURE REQUIRES THAT THE FOLLOWING SEAMING METHOD BE UTILIZED AS A MINIMUM:

- 1) **ROLL LOCK™ SEAM** (SEE NOTE 1 AND 2 BELOW)
- 2) **MODIFIED "ROLL LOCK"™ SEAM** (SEE DETAIL ON FOLLOWING SHEET)
- 3) **"VISE LOCK"™ SEAM** (SEE NOTE 1, 2 AND 3 BELOW)
- 4) **"VISE LOCK 360"™ SEAM** (SEE NOTE 2 AND 3 BELOW)

NOTE 1: ADDITIONAL SEAMING MAY BE NECESSARY AS SPECIFIED BY THE BUILDER.

NOTE 2: MULTIPLE SEAMING TYPES MAY BE REQUIRED. REVIEW THE ROOF SEAMING PLAN CAREFULLY FOR SEAMING REQUIREMENTS.

NOTE 3: NOT ALL ROOF SYSTEMS REQUIRE MECHANICAL SEAMING. THE BUYER, OWNER, OR ARCHITECT MAY ELECT TO SPECIFY A MECHANICALLY SEAMED PANEL. OFTEN, FACTORY MUTUAL RATINGS ALSO REQUIRE A SECOND PASS MECHANICAL SEAMER.

SEE IMPORTANT ERECTOR NOTE BELOW ON "VISE LOCK 360" SEAMER REQUIREMENTS.

WHEN TO SEAM

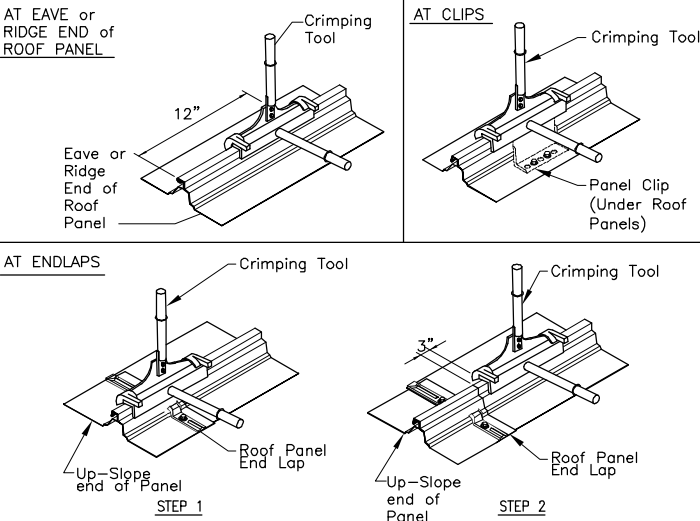
Whenever possible, the installed roof panels should be seamed at the completion of each day's work. If high winds or rain/snow conditions are imminent, the installed roof panels must be seamed before such conditions occur.

Refer to the project erection drawing Roof Seaming Plan and/or Detail pages to determine what seaming option is required. The above detail conveys the MINIMUM seaming requirements based upon the design of the project. Additional seaming may be necessary as specified by the builder. NOTE: multiple seaming types may be required on a project, review the Roof Seaming Plan and details carefully.

For roofs requiring "Vise Lock™" or "Vise Lock 360™" seaming, it may not always be practical to mechanically seam the panels until after the roof installation is complete. In such cases, it may be desirable to temporarily "Roll Lock™" seam the panels with the Hand Crimping Tool. The panels can then be mechanically seamed at a later date.

IMPORTANT: It shall be the erector's responsibility to apply the "Roll Lock™" hand crimping method in such a way as to ensure that the panels have been adequately secured until mechanical seaming can occur.

IMPORTANT "Vise Lock 360"™ seamer Note:
In order to achieve a good VL360 seam, the erector must have first successfully seamed the roof with the primary seamer ("Vise Lock"™). Before running the VL360™ seamer, the erector needs to hand crimp the "Vise Lock" seam into the "Vise Lock 360"™ seam. See the CFR seamer erection manual for your specific hand crimping application.
NOTE: It is now possible to hand crimp small areas of the roof with a Standup Vise Lock 360 crimper. Contact the Quality Service Representative for purchase information of this tool.



MANUAL CRIMPING AT EAVE, ENDLAP, RIDGE AND AT EACH CLIP

TOOL POSITION AT THE END OF THE ROOF PANEL When hand crimping at the eave or ridge end of the roof panel, crimp panel a full 12" up from the eave and down from the ridge.

TOOL POSITION AT PANEL CLIPS When crimping at a panel clip location, center the tool over the panel clip and crimp that area, as shown in Detail above.

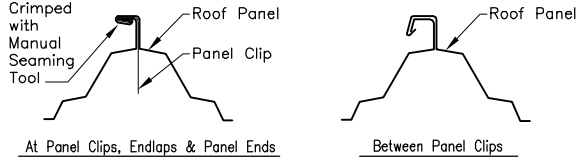
TOOL POSITION AT AN END LAP When crimping at an end lap, the crimping must be done in two steps.
STEP 1 Center the end of the crimping tool over the end lap and seam that area.

STEP 2 Position the end of the crimping tool 3" from the edge of the end lap and seam that area to ensure that the panel clip at this location is also crimped.

CFR SEAM TYPES

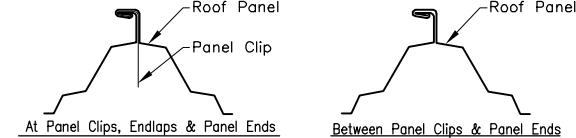
The CFR roof system has three seam type options. The project design and performance requirements govern which seam type is required. Different seam types may be required on specific areas of the roof. In all cases, refer to the Roof Seaming Plan in erection drawings set to determine the required seam type and locations.

"ROLL LOCK"™ SEAM



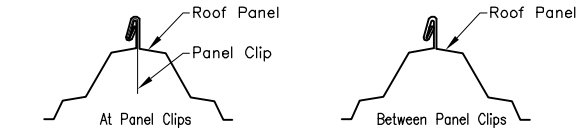
The "Roll Lock" Seam requires the roof panels be crimped with the hand crimping tool only at the panel clips, the eave, the high side of the roof panels, and the end laps. The Motorized Seaming Machine is not required for this seam type.
NOTE: Continually hand crimping along the seam will produce a Vise Lock Seam.

"VISE LOCK"™ SEAM

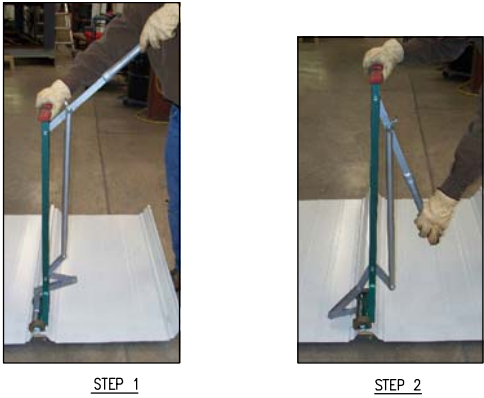


The "Vise Lock" seam requires crimping the roof panel with the VL Crimping Tool at the starting eave or ridge end of the panel, and at the end laps, then seaming the full length of the roof panels with the Motorized Seaming Machine. Refer to the CFR SEAMING MANUAL for specific instructions. This manual is included in the Mechanical Seamer Kit.

"VISE LOCK 360"™ SEAM



The "Vise Lock 360" seam requires that the panels be previously "Vise Lock" seamed and or hand crimped. Refer to the CFR SEAMING MANUAL for specific motorized seaming instructions. This manual is included in the Motorized Seamer Kit.
NOTE: It is now possible to hand crimp small areas of the roof with a Standup Vise Lock 360 Crimper. Contact the Quality Service Representative for purchase information of this tool.



MANUAL CRIMPING WITH THE STAND-UP VISE LOCK CRIMPER

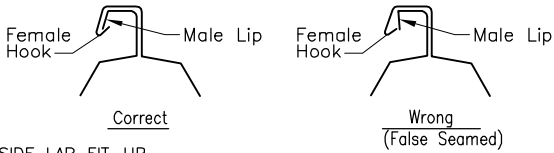
The Manual Crimping procedure for this stand-up Vise Lock crimper is the same procedure as the small Vise Lock hand crimper. This crimper is designed to be used in conjunction with the stand-up Vise Lock 360 crimper. Continually crimping with this crimper will result in a Vise Lock Seam.

TOOL OPERATION

STEP 1 With the handle in the upward position, place the VL crimper on panel rib. Make sure the crimper head is completely down on the top of the panel rib before crimping. Improper placement of crimper on the panel may result in panel and/or crimper damage.

STEP 2 Push down on the handle until it stops. Release and move the crimper approximately 4" and repeat step #1.

CHECK PANEL ASSEMBLY



SIDE LAP FIT-UP

Before seaming and/or crimping, inspect the full length of each roof panel side lap. Check that the lip at the panel's male edge is enclosed by the hook of the adjacent panel's female edge, as shown in the detail above. Any conditions where the male lip is not positioned inside of the female hook must be corrected before attempting to seam/crimp the roof panels.

CAUTION: False seaming may occur where the female lip does not hook the roof panel's male edge. False seamed roof panels cannot provide their designed wind load and weather resistance.

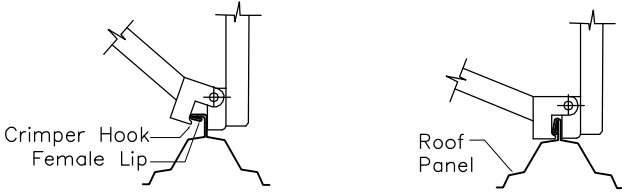
CLIP ALIGNMENT

Before seaming and or crimping, check that each roof panel clip is properly seated in the roof side lap assembly. Any displaced clips must be corrected before attempting to seam the roof panels.

CAUTION: Panel clips that are not properly aligned can cause faulty seaming/crimping and objectionable seam appearance.

SEAM DAMAGE

Before seaming, check that the male and female edges do not have kinks or other distortions. Any such distortions must be corrected before attempting to seam the roof panels.



MANUAL CRIMPING WITH THE STAND-UP VISE LOCK 360 CRIMPER

TOOL OPERATION

Step 1 After the area has been completely seamed or crimped to form the VISE LOCK SEAM, place the VISE LOCK 360 crimper over the area with the handle in the upward position.

Step 2 Push the handle down until it stops. Release handle and move the crimper approximately 4", repeat step #1.

IMPORTANT: If the 360 tool does not form the VISE LOCK 360 seam correctly, then stop and check the seam to see if you have a good continuous VISE LOCK SEAM. If not, then re-crimp the area with the VISE LOCK CRIMPER.

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CANAM STEEL BUILDING CORPORATION
BOX 746509, ARVADA, CO 80006
TELEPHONE: (303) 963-3250
FACSIMILE: (303) 963-3251

PROJECT NAME:
JOB NUMBER:
SHEET NO:
H1 of 5
CUSTOMER:

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CFR ROOF SYSTEM ERECTION AND APPLICATION REQUIREMENTS

I. GENERAL ERECTION NOTES

1.1 UNLOADING AND STORING.

- 1.1.1 CHECK THE QUANTITIES AND CONDITION OF CFR BUNDLES AND TRIM CRATES ON ARRIVAL. NOTE ON THE DELIVERY TICKETS ANY SHORTAGES, DAMAGE OR DISCREPANCIES. MBS BUILDING SYSTEMS SHALL NOT BE LIABLE FOR DAMAGE OR SHORTAGES WHICH ARE NOT NOTED ON THE DELIVERY TICKETS.
- 1.1.2 EXTREME CARE SHOULD BE EXERCISED WHEN UNLOADING AND HANDLING THE PANEL BUNDLES AND ACCESSORY CRATES TO PREVENT DAMAGE. THE WEIGHT OF THE PANEL BUNDLE IS PRINTED ON THE BUNDLE TAG ON THE END OF EACH BUNDLE. IF THE TAG IS NOT ON THE BUNDLE, YOU MAY CALCULATE THE WEIGHT OF THE BUNDLE WITH THE FORMULA:
(QTY. OF PANELS X BUNDLE LENGTH X 2.5lbs. PER FOOT)
- 1.1.3 BUNDLES UP TO 25 FEET LONG CAN BE LIFTED WITH A FORKLIFT. BUNDLES OVER 25 FEET IN LENGTH SHALL BE LIFTED WITH A CRANE UTILIZING A SPREADER BAR WITH 4 INCH MINIMUM WIDTH NYLON STRAPS. STRAPS SHOULD BE 15 TO 20 FEET APART. TO AVOID DAMAGE TO THE PANELS, STEEL CABLES, CHAINS, OR CHOKERS SHALL NOT BE USED.
- 1.1.4 THE CFR PANELS AND ACCESSORIES SHALL BE STORED ON HIGH GROUND, SLOPED TO DRAIN, AND TARPED TO PROTECT FROM MOISTURE FORMATION. THE TARP SHOULD BE OPEN AT EACH END TO ALLOW CONSISTENT AIR FLOW THROUGH THE BUNDLES. THE RECOMMENDED PROCEDURES ARE OUTLINED IN THE CFR ERECTION MANUAL. MBS WILL NOT BE HELD RESPONSIBLE FOR DAMAGE OR DISCOLORATION OF PANELS CAUSED BY IMPROPER STORAGE.

1.2 ERECTION SEQUENCE.

- 1.2.1 THE CFR ROOF SYSTEM IS DESIGNED TO BE ERECTED FROM EITHER END OF THE BUILDING. IN RARE CASES, DUE TO THE BUILDING LAYOUT, IT MAY BE REQUIRED TO START ERECTION FROM A SPECIFIC END. IN THOSE CASES, THIS WILL BE NOTED AS SUCH ON THE ROOF SHEETING PLAN.
- 1.2.2 FULL-WIDTH PANELS ARE PROVIDED FOR START PANELS TO BE FIELD CUT TO THE PROPER WIDTH. THIS MAY CAUSE THE RIBS TO BE OUT OF ALIGNMENT ACROSS THE RIDGE. THIS IS NORMAL PRACTICE FOR THE CFR ROOF SYSTEM AND DOES NOT AFFECT THE PERFORMANCE OF THE ROOF SYSTEM. PLEASE CHECK THE ROOF SHEETING PLAN AND DETAILS FOR DIMENSIONS OF START PANELS PRIOR TO ERECTING THE ROOF.
- 1.2.3 FOR BUILDINGS WITH ROOF TRANSLUCENT PANELS: IN ORDER TO ALIGN THE TRANSLUCENT PANELS ACROSS THE RIDGE, IT IS SUGGESTED TO ERECT THE ROOF PANELS ON BOTH SIDES OF THE RIDGE FROM THE SAME END OF THE BUILDING – UTILIZING THE SAME WIDTH START PANEL. PANEL RUNS WITH TRANSLUCENT PANELS HAVE BEEN PLACED AS SPECIFIED IN THE ORDER DOCUMENTS.

1.3 COORDINATION WITH OTHER TRADES.

- 1.3.1 SUPPORTS FOR THE CFR ROOF SYSTEM SHALL BE PROVIDED AND ARE REQUIRED AS SHOWN IN THE SECTIONS AND AS NOTED IN THESE SPECIFICATIONS. ALL NECESSARY CLEARANCE DIMENSIONS FOR PROPER ELEVATIONS RELATIVE TO THE ROOF PANELS HAVE BEEN SHOWN. THE ERECTOR SHALL BE RESPONSIBLE FOR COORDINATING THESE DIMENSIONAL REQUIREMENTS WITH OTHER TRADES ASSOCIATED WITH THE BUILDING ROOF SYSTEM.

1.4 ERECTION CARE.

- 1.4.1 THE ERECTOR MUST BE SKILLED IN THE ERECTION OF METAL BUILDING SYSTEMS AND IS RESPONSIBLE FOR COMPLYING WITH ALL APPLICABLE LOCAL, FEDERAL, AND STATE CONSTRUCTION AND SAFETY REGULATIONS INCLUDING OSHA REGULATIONS AS WELL AS ANY APPLICABLE REQUIREMENTS OF LOCAL, NATIONAL, OR INTERNATIONAL UNION RULES OR PRACTICES. THE ERECTOR REMAINS SOLELY RESPONSIBLE FOR THE SAFETY AND APPROPRIATENESS OF ALL TECHNIQUES AND METHODS UTILIZED BY ITS CREWS IN THE ERECTION OF THE METAL BUILDING SYSTEM AND/OR THE CFR ROOF SYSTEM. THE ERECTOR IS ALSO RESPONSIBLE FOR SUPPLYING ANY SAFETY DEVICES SUCH AS SCAFFOLDS, RUNWAYS, NETS, ETC. WHICH MAY BE REQUIRED TO SAFELY ERECT THE METAL BUILDING SYSTEM AND/OR CFR ROOF SYSTEM.

- 1.4.2 THE ERECTOR OF THE CFR ROOF SYSTEM SHALL EXERCISE GREAT CARE AND ATTENTION TO THE DETAILS AS SHOWN ON THESE DRAWINGS AND IN THE CFR ERECTION MANUAL TO INSURE A SECURE AND PROPER FIT OF ALL COMPONENTS. MBS SHALL NOT BE RESPONSIBLE FOR SUPERVISING AND/OR COORDINATING THE ERECTION OF THE CFR ROOF SYSTEM WITH OTHER TRADES.

- 1.4.3 DUE CONSIDERATION MUST BE GIVEN BY THE ERECTOR TO THE EFFECTS OF THERMAL EXPANSION AND CONTRACTION WHEN ERECTING A ROOF TIE-IN TO AN EXISTING STRUCTURE TO INSURE A SAFE, SECURE, WEATHERTIGHT CONDITION. FLASHING FOR TIE-INS TO EXISTING BUILDINGS IS TYPICALLY NOT INCLUDED AS PART OF THE MATERIAL PROVIDED BY MBS BUILDING SYSTEMS. REFER TO THE SECTIONS AND DETAILS FOR SPECIFIC MATERIALS PROVIDED BY MBS.

1.5 FIELD CUTTING OF PANELS.

- 1.5.1 WHEN FIELD CUTTING OR MITERING CFR ROOF PANELS, NON-ABRASIVE CUTTING TOOLS SUCH AS NIBBLERS, OR TIN-SNIPS SHALL BE USED. ABRASIVE CUTTING TOOLS SUCH AS MECHANICAL GRINDERS, SAWS, SHEARS, OR SCISSORS, CAN DAMAGE THE GALVALUME FINISH AND CREATE EXCESS METAL SHAVINGS THAT CAN CORRODE THE PANELS. THE USE OF NON-APPROVED CUTTING DEVICES MAY VOID YOUR FACTORY WARRANTY.

II. DESIGN AND PERFORMANCE CRITERIA

2.1 ROOF SYSTEM.

- 2.1.1 THE CFR ROOF SYSTEM CONSISTS OF 24 GAGE PANELS WITH A NOMINAL COVERAGE OF 2'-0" AND A PANEL SEAM THAT IS BETWEEN 3 1/2" AND 4 1/2" HIGH DEPENDING ON CLIP TYPE USED. REFER TO THE DETAILS AND SECTIONS FOR SPECIFIC PANEL CLIP TYPE.

2.2 PANEL CLIP SPACING.

- 2.2.1 THE CFR ROOF SYSTEM USES A CLIP TO ATTACH THE PANELS TO THE ROOF SECONDARY MEMBERS. PANEL CLIP SPACING REQUIREMENTS ARE AS FOLLOWS:
FOR CFR ROOF ON A MBS BUILDING: _____ CLIPS ARE REQUIRED AT EVERY PURLIN AND/OR ROOF JOIST.
FOR CFR ROOF ON A NON-MBS BUILDING: _____ MAXIMUM CLIP SPACING IS TO BE 5'-0" FOR PURLIN ROOFS AND 5'-6" FOR JOIST ROOFS.

II. DESIGN AND PERFORMANCE CRITERIA (CONTINUED)

2.3 PANEL CLIP FASTENING REQUIREMENTS.

- 2.3.1 MBS STANDARD CLIP FASTENERS ARE DESIGNED TO FASTEN TO A STEEL STRUCTURAL MEMBER OF 60" MINIMUM THICKNESS (16 GA.) TWO FASTENERS ARE REQUIRED TO ENGAGE THE STRUCTURAL MEMBER AT EVERY PANEL CLIP LOCATION. REQUIRED FASTENER PULLOUT VALUES ARE DEPENDENT UPON PROJECT LOCATION, SIZE, BUILDING CODE, AND LOADING. CONSULT MBS ENGINEERING FOR PROJECT-DEPENDENT FASTENER SPECIFICATIONS.

2.4 ROOF TOP UNITS AND CURB SUPPORTS.

- 2.4.1 THE CFR ROOF SYSTEM IS ELEVATED ABOVE THE TOP OF THE ROOF SECONDARY STRUCTURAL MEMBERS. ROOF CURB SUB-FRAMING MUST BE ELEVATED ABOVE THE SECONDARY MEMBERS TO THE ELEVATION OF THE ROOF PANEL TO AVOID POTENTIAL LEAK PROBLEMS. REFER TO THE DETAILS FOR PROPER DIMENSIONS. SHORT ROOF CLIPS REQUIRE 1/2" OF ELEVATION, WHILE TALL ROOF CLIPS REQUIRE 1 1/2" OF ELEVATION.
- 2.4.2 THE CFR ROOF SYSTEM IS DESIGNED AS A FLOATING SYSTEM. CURB FRAMING AND FLASHING MUST BE DESIGNED ACCORDINGLY TO ALLOW THE CURB SYSTEM TO FLOAT WITH THE CFR ROOF DURING THERMAL EXPANSION AND CONTRACTION. ROOF CURBS SHALL NOT SPAN THE RIDGE OF A BUILDING.

2.5 INSULATION REQUIREMENTS.

- 2.5.1 MBS RECOMMENDS THAT INSULATION BE USED IN ALL CFR ROOF APPLICATIONS TO AVOID PROBLEMS WITH CONDENSATION FORMING ON THE UNDERSIDE OF THE SHEETING. THIS ALSO PROVIDES A BUFFER BETWEEN THE PURLINS AND THE CFR ROOF TO ELIMINATE NOISE AND POSSIBLE DAMAGE DUE TO METAL-TO-METAL CONTACT. MBS CAN SUPPLY A NOISE REDUCING FOAM TAPE FOR USE IN LIMITED APPLICATIONS (CANOPIES, ETC.) WHEN INCLUDED AS PART OF THE ROOF ORDER. REFER TO THE DETAILS FOR FOAM TAPE REQUIREMENTS.

2.6 PAINTED CFR ROOF.

- 2.6.1 PAINTED STANDING SEAM ROOF PANELS ARE OFTEN PROVIDED BY MBS. IN THIS CASE, THE CINCH STRAPS, COMPRESSION HOODS, GUTTER BRACKETS, END DAMS, AND OTHER ACCESSORIES WILL BE PROVIDED IN THEIR NORMAL UNPAINTED FINISH. FIELD PAINTING MAY BE REQUIRED; IF SO, PAINT IS NOT PROVIDED BY MBS.

III. COMPOSITE CFR ROOF SYSTEM

(APPLICABLE FOR COMPOSITE CFR ROOF SYSTEMS)

3.1 PRODUCT DEFINITION.

- 3.1.1 REFER TO THE SECTIONS AND DETAILS IN THESE DRAWINGS FOR SPECIFIC CLIP FASTENING REQUIREMENTS, INSULATION THICKNESS REQUIREMENTS AND LINER DECK TYPE.

- 3.1.2 COMPOSITE CFR ROOF WITHOUT THE USE OF A LINER DECK IS NOT A MBS STANDARD PRODUCT APPLICATION. DUE CONSIDERATION MUST BE GIVEN TO THE EFFECTS OF CONDENSATION BY THE ENGINEER OF RECORD OR ARCHITECT WHEN THIS OCCURS. IN ADDITION, GREAT CARE MUST BE TAKEN BY THE ERECTOR TO INSURE THAT THE ROOF SYSTEM IS ERECTED IN A SAFE, QUALITY MANNER.

3.2 VAPOR BARRIER.

- 3.2.1 VAPOR BARRIER MUST BE USED BETWEEN THE LINER DECKING AND THE INSULATION TO PREVENT CONDENSATION. REFER TO THE ERECTION DRAWING DETAILS.

3.3 INSULATION.

- 3.3.1 RIGID BOARD INSULATION CAN BE USED IN CONJUNCTION WITH A COMPOSITE CFR ROOF SYSTEM. THE RIGID BOARD INSULATION MUST BE CUT TO ALLOW FREE MOVEMENT OF THE BACK-UP PLATE AT PANEL SPLICES, SINGLE SLOPE HIGH EAVES AND RIDGE LOCATIONS.
- 3.3.2 UNFACED FIBERGLASS (BATT) INSULATION CAN BE USED IN CONJUNCTION WITH A COMPOSITE CFR ROOF SYSTEM.

IV. CFR ROOF COMPONENTS WITH ENGINEERING

(APPLICABLE FOR CFR ROOF COMPONENTS WITH ENGINEERING ORDERS)

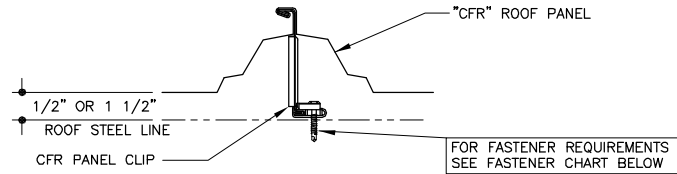
4.1 COMPONENTS WITH ENGINEERING DEFINITION.

- 4.1.1 IN A CASE WHERE MBS IS PROVIDING THE CFR ROOF SYSTEM TO BE USED IN CONJUNCTION WITH A NON-MBS STRUCTURE, MBS REFERS TO THAT AS A "COMPONENTS WITH ENGINEERING." THIS SIMPLY MEANS THAT MBS SHALL CALCULATE THE QUANTITIES AND LENGTHS FOR THE MATERIAL REQUIRED. MBS IS PERFORMING NO ENGINEERING STUDY OF THE EXISTING STRUCTURE. THE ENGINEER OF RECORD ON THE PROJECT SHALL BE RESPONSIBLE FOR COORDINATING THE CFR ROOF SYSTEM WITH THE OTHER TRADES OF THE PROJECT TO INSURE A SAFE, QUALITY, AND PROPER APPLICATION OF THE ROOF SYSTEM.
- 4.2 DIAPHRAGM.
- 4.2.1 THE MBS ROOF IS DESIGNED TO ACCOMMODATE THERMAL EXPANSION AND CONTRACTION AND WILL NOT ACT AS A DIAPHRAGM FOR RESISTING LATERAL LOAD FORCES OR PROVIDING LATERAL STABILITY TO THE ROOF STRUCTURAL MEMBERS. DUE CONSIDERATION FOR THIS MUST BE ADDRESSED BY THE PROJECT ENGINEER OF RECORD. IN ADDITION, THE CFR ROOF, BECAUSE IT IS DESIGNED TO FLOAT, WILL NOT SUPPORT STRUCTURAL MEMBERS Laterally. WHEN REPLACING AN EXISTING SCREWDOWN ROOF, ADDITIONAL BRACING MAY BE REQUIRED TO Laterally SUPPORT THE MEMBERS. ENGINEERING AND MATERIAL FOR THESE USES SHALL NOT BE PROVIDED BY MBS.

4.3 CLIP FASTENING REQUIREMENTS.

- 4.3.1 REFER TO PART II: "DESIGN AND PERFORMANCE CRITERIA" FOR CFR ROOF PANEL CLIP FASTENING REQUIREMENTS.

CFR PANEL CLIP ATTACHMENT DETAIL



STANDARD PANEL CLIP ATTACHMENT

WITH SLIDING CLIPS, CARE MUST BE TAKEN TO NOT OVER-DRIVE THE CLIP SCREWS. OVER-DRIVING CAN STRIP THE THREADS AND/OR CAUSE THE CLIP TO NOT SLIDE PROPERLY. USE SCREW GUN WITH TORQUE CONTROL SET TO FUNCTION PROPERLY FOR THE COMBINATION OF FASTENER SIZE, HOLE SIZE, AND MATERIAL THICKNESS.

STANDARD CFR CLIP

STD. 4" CFR CLIP PART NUMBERS

MARK #	PART DESCRIPTION
H2500	SHORT FIXED CLIP
H2510	TALL FIXED CLIP
H2520	SHORT SLIDING CLIP
H2530	TALL SLIDING CLIP

STD. CLIP FASTENER REQUIREMENTS

NON-FM JOBS
(2) FASTENERS PER CLIP H1070 AT JOISTS H1020 AT PURLINS
FM 1-60 JOBS
(2) FASTENERS PER CLIP H1070 AT JOISTS H1020 AT PURLINS
FM 1-90 THRU FM 1-120 JOBS
(2) H1070 AT JOISTS (3) H1020 AT PURLINS

CFR PERIMETER CLIP

CFR PERIMETER CLIP PART NUMBERS

MARK #	PART DESCRIPTION
H2720	SHORT SLIDING 8" CLIP
H2730	TALL SLIDING 8" CLIP
H2740	SHORT SLIDING 12" CLIP
H2750	TALL SLIDING 12" CLIP
H2760	SHORT SLIDING 16" CLIP
H2770	TALL SLIDING 16" CLIP

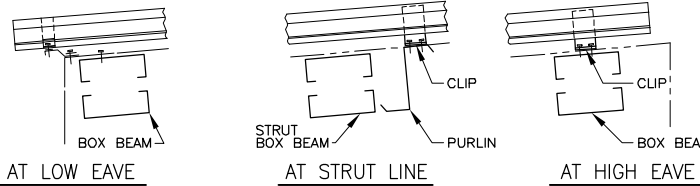
PERIMETER CLIP FASTENER REQUIREMENTS

PURLINS – (3) H1020
JOISTS – (2) H1070

SPECIAL CONDITON AT A COLD-FORMED BOX BEAM

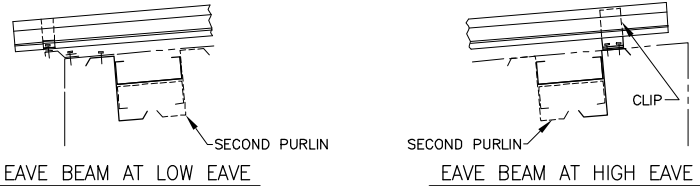
IF THIS PROJECT HAS A COLD-FORMED BOX BEAM:

- AT THE **LOW EAVE**, **DO NOT** ATTACH ROOF CLIPS TO THE BOX BEAM.
- AT A **STRUT LINE** (ADJACENT TO A PURLIN), **DO NOT** ATTACH ROOF CLIPS TO THE BOX BEAM. (NOTE: THE STRUT LINE COULD BE AT THE HIGH EAVE).
- AT THE **HIGH EAVE**, THAT IS **NOT ADJACENT** TO A PURLIN, **DO** ATTACH ROOF CLIPS TO THE BOX BEAM.



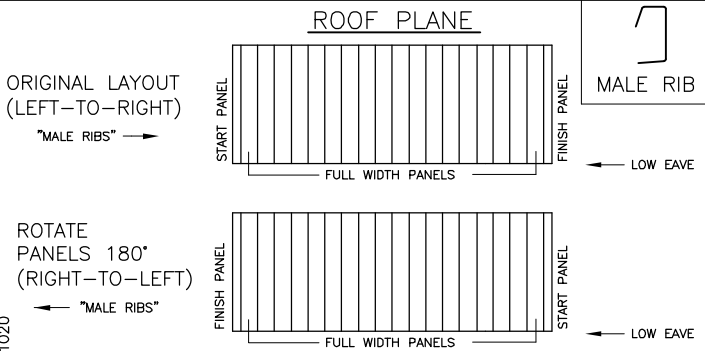
SPECIAL CONDITON AT A STRONG-BACK EAVE BEAM

IF THIS PROJECT HAS AN EAVE BEAM WITH (2) PURLINS, AS SHOWN, **DO NOT** ATTACH ROOF CLIPS TO THE "SECOND" PURLIN.



ROOF SHEETING ERECTOR NOTES

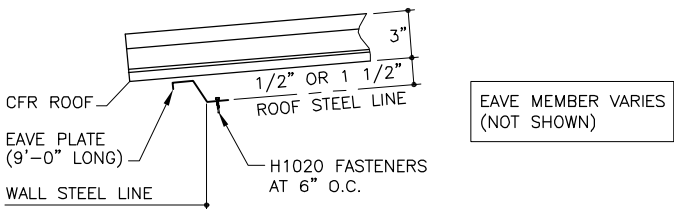
- 1.) THE ROOF SHEETING PLAN IS SHOWN WITH THE ROOF PANELS BEING ERECTED FROM "LEFT-TO-RIGHT". IF THE DESIRE IS TO ERECT THE ROOF PANELS FROM "LEFT-TO-RIGHT", FOLLOW THE ROOF SHEETING PLAN AS SHOWN. IF THE DESIRE IS TO ERECT THE ROOF PANELS FROM "RIGHT-TO-LEFT", FOLLOW THE INSTRUCTIONS SHOWN BELOW.
- 2.) START & FINISH PANEL DIMENSIONS SHOWN BELOW ARE FOR EXAMPLE ONLY.
- 3.) WHEN SETTING BUNDLES OF PANELS ON THE ROOF, THE "MALE RIB" MUST ALWAYS BE AWAY FROM THE END OF THE BUILDING WHERE THE SHEETING WILL BEGIN.



STANDARD FASTENER SCHEDULE

H1000 17-14 x 1 1/4" WITH WASHER SELF TAPPING 3/8"Ø HEAD	H1042 12-14 x 7/8" WITHOUT WASHER SELF DRILLING 5/16"Ø HEAD	H1070 12-24 x 1 1/2" WITHOUT WASHER SELF DRILLING 3/8"Ø HEAD 1/2" THK MAX DRILLING CAPACITY
H1020 1/4-14 x 1 1/4" WITHOUT WASHER SELF DRILLING 3/8"Ø HEAD 3/16" THK MAX DRILLING CAPACITY	H1045 12-14 x 2" WITHOUT WASHER SELF DRILLING 5/16"Ø HEAD	H1080 11/32" x 1 1/4" WITH WASHER GOOF SCREW SELF TAPPING 3/8"Ø HEAD
H1030 12-14 x 1 1/4" WITH WASHER SELF DRILLING 3/8"Ø HEAD	H1047 12-14 x 2" WITH WASHER SELF DRILLING 5/16"Ø HEAD	H1100 1/8" x 3/16" STAINLESS STEEL BLIND POP RIVET
H1035 12-14 x 1 1/2" WITH WASHER SELF DRILLING 3/8"Ø HEAD	H1050 12-14 x 3/4" SHARP POINT WITH WASHER SELF TAPPING 3/8"Ø HEAD	H1110 3/8"Ø STAINLESS GROMMET FASTENER
H1040 12-14 x 1 1/4" WITHOUT WASHER SELF DRILLING 5/16"Ø HEAD	H1060 12-14 x 3/4" WITHOUT WASHER SELF TAPPING 5/16"Ø HEAD	H1220 12-14 x 1" WITHOUT WASHER SELF DRILLING HARD HEAD
H1041 12-14 x 1 1/4" WITH WASHER SELF DRILLING 5/16"Ø HEAD	H1061 12-14 x 3/4" SHARP POINT WITH WASHER SELF TAPPING 5/16"Ø HEAD	

CFR EAVE PLATE DETAIL



EAVE PLATE PART NUMBERS WITH SCULPTURED RAKE TRIM			
AT SHORT CLIPS		AT TALL CLIPS	
PART #	EAVE TRIM DETAIL	PART #	EAVE TRIM DETAIL
EPA03	SIMPLE EAVE OR EAVE GUTTER	EPB03	SIMPLE EAVE OR EAVE GUTTER
EPD01	LOW EAVE EXTENSION	EPE01	LOW EAVE EXTENSION
EPD	SCULPTURED EAVE	EPE	SCULPTURED EAVE

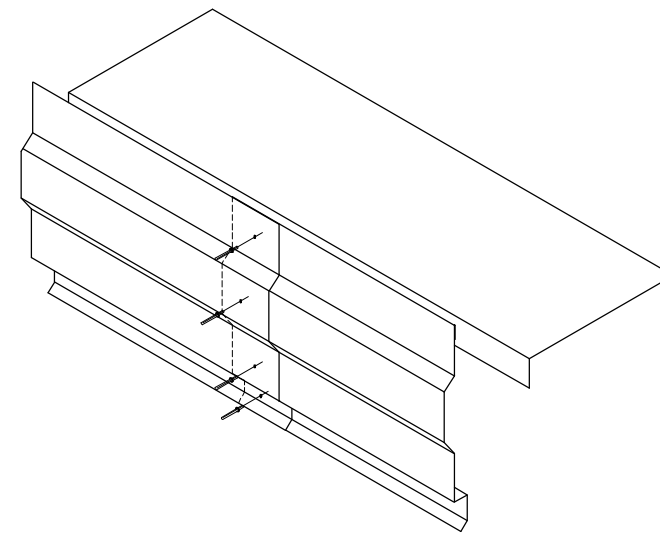
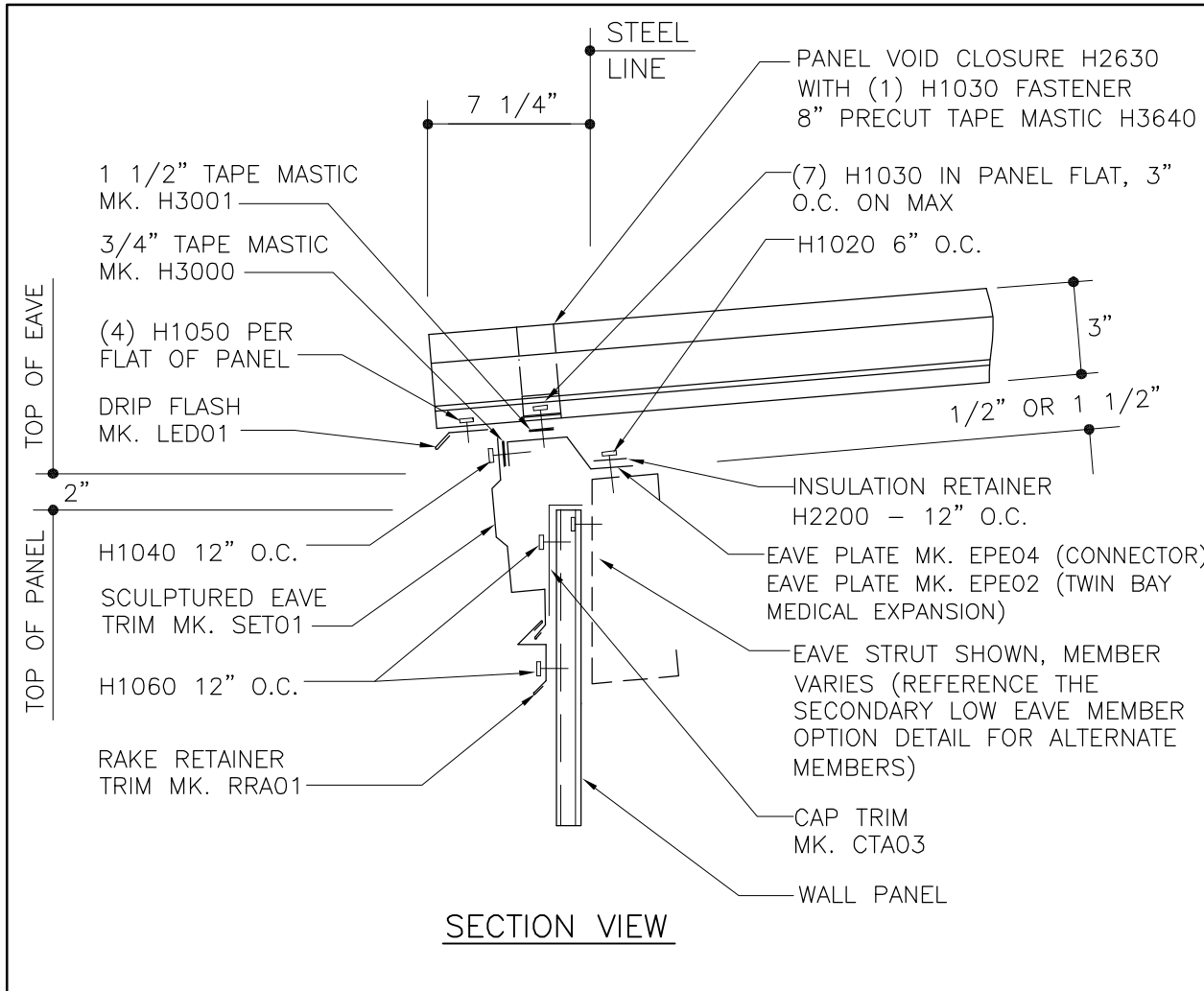
EAVE PLATE PART NUMBERS WITH SIMPLE EAVE & SIMPLE RAKE			
AT SHORT CLIPS		AT TALL CLIPS	
PART #	ROOF SLOPE	PART #	ROOF SLOPE
EPA03	< OR = 4:12	EPB03	< OR = 4:12
EPD01	> 4:12, < OR = 11:12	EPE01	> 4:12, < OR = 11:12
EPD02	12:12	EPE02	12:12

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CANAM STEEL BUILDING CORPORATION
BOX 746509, ARVADA, CO 80006 TELEPHONE: (303) 963-3250 FACSIMILE: (303) 963-3251

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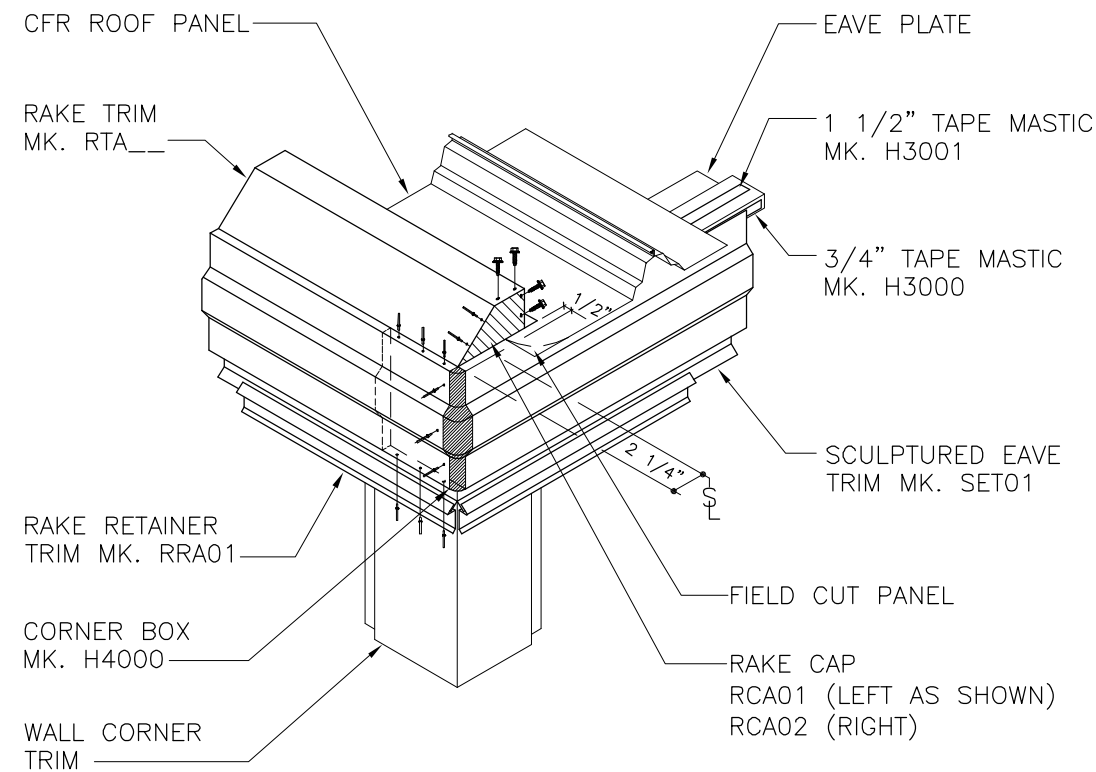
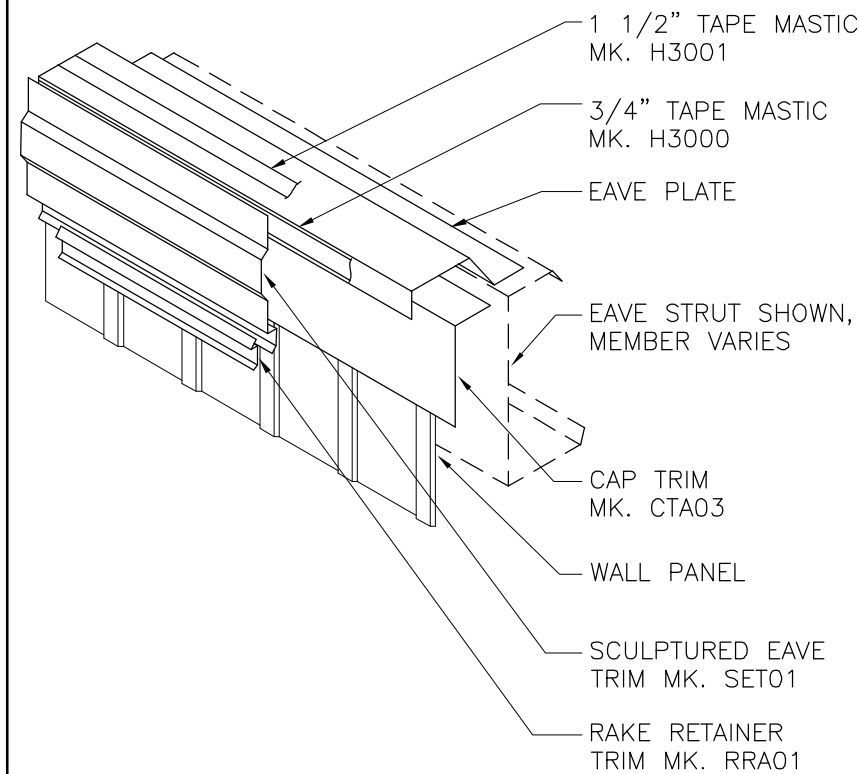


SCULPTURED EAVE TRIM SPLICE

APPLY A CONTINUOUS BEAD OF TUBE CAULK (MK. H3152) TO THE END OF THE ADJOINING TRIM PIECE AND LAP 1". FASTEN WITH (4) COLORED POP RIVETS (MK. H1100) AS SHOWN.

FOLLOW THE CFR ERECTION MANUAL WITH THE FOLLOWING EXCEPTIONS AT SCULPTURED EAVE TRIM APPLICATIONS:

- 1) WALL CAP TRIM MUST BE ERECTED FIRST PRIOR TO INSTALLING THE SCULPTURED EAVE TRIM.
- 2) EAVE PLATE AND INSULATION MUST BE FASTENED PRIOR TO INSTALLING THE SCULPTURED EAVE TRIM.
- 3) APPLY 3/4" TAPE MASTIC TO THE VERTICAL LEG OF THE EAVE PLATE.
- 4) EXTEND SCULPTURED EAVE TRIM 2 1/4" PAST ENDWALL STEEL LINE (1" PAST EDGE OF WALL CORNER TRIM). COPE BOTTOM VERTICAL LEG FLUSH WITH EDGE OF CORNER TRIM. FASTEN TRIM TO EAVE PLATE WITH H1040 12" O.C.
- 5) APPLY A CONTINUOUS BEAD OF TUBE CAULK (H3152) AROUND PERIMETER OF CORNER CAP, CLOSE TO INSIDE EDGE.
- 6) INSERT CORNER CAP INTO SCULPTURED RAKE TRIM LEAVING 1/2" EXPOSURE ALL AROUND. FASTEN WITH (3) H1100 COLORED POP RIVETS AT FRONT ONLY.
- 7) INSTALL THE RAKE CAP AT THE RAKE EDGE OF THE SCULPTURED EAVE TRIM AND 1/2" FROM THE FIRST VERTICAL FACE OF THE SCULPTURED EAVE (AS SHOWN AT LEFT). UTILIZE TUBE CAULK (MK. H3152) AROUND THE PERIMETER OF EDGE OF THE RAKE CAP.
- 8) APPLY A BEAD OF TUBE CAULK (MK. H3152) 1 1/2" FROM THE FACE OF THE EAVE TRIM ALONG THE RAKE SIDE OF THE CORNER CAP. THIS BEAD SHOULD INCLUDE BOTH THE TOP & BOTTOM EDGES OF THE CORNER CAP.
- 9) INSTALL THE RAKE TRIM RTA___ PER THE ERECTION MANUAL, 1/2" FROM THE FACE OF THE SCULPTURED EAVE TRIM.
- 10) FASTEN THE CORNER CAP AND THE RAKE CAP AS SHOWN AT LEFT, WITH (11) COLORED POP RIVETS (MK. H1100) & (4) COLORED, SELF-TAPPING SCREWS (MK. H1050).
- 11) INSTALL THE RAKE RETAINER TRIM PER THE ERECTION MANUAL.



SCULPTURED EAVE TRIM DETAIL

SEE WALL SHEETING ERECTION NOTES FOR WALL PANEL FASTENER LOCATIONS

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H4

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CANAM STEEL BUILDING CORPORATION	
BOX 746509, ARVADA, CO 80006	
TELEPHONE: (303) 963-3250	
FACSIMILE: (303) 963-3251	

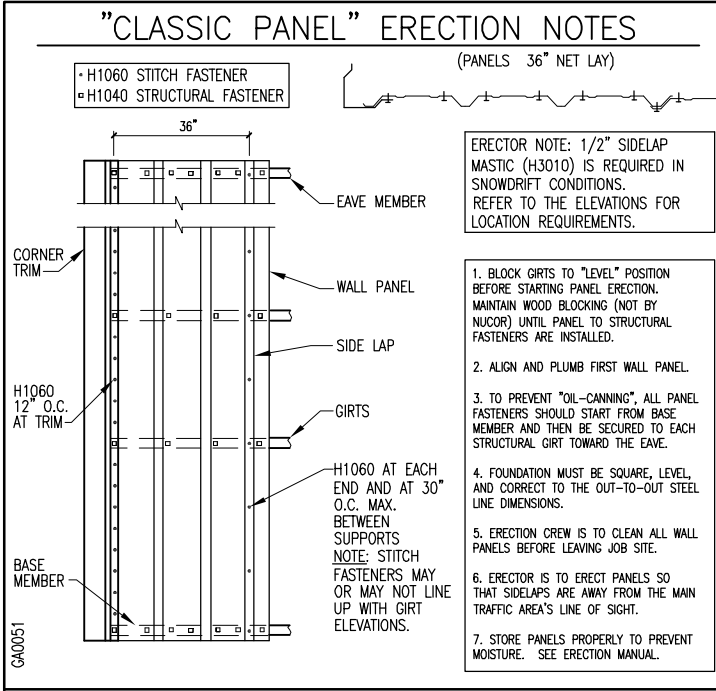
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JOB NUMBER:

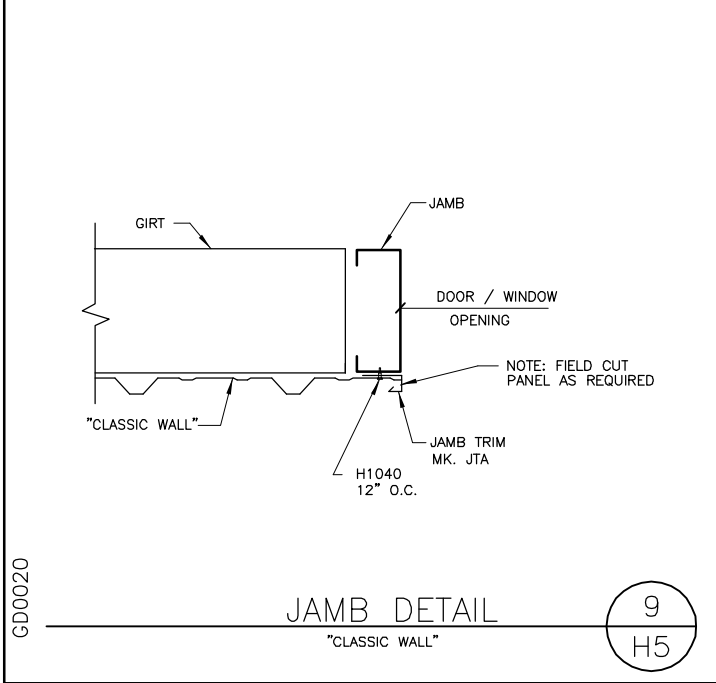
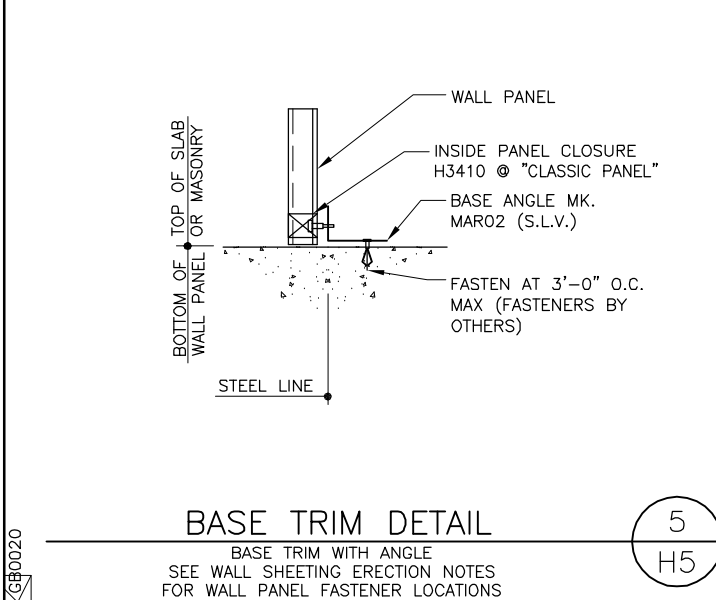
SHEET NO:

H4 of 5

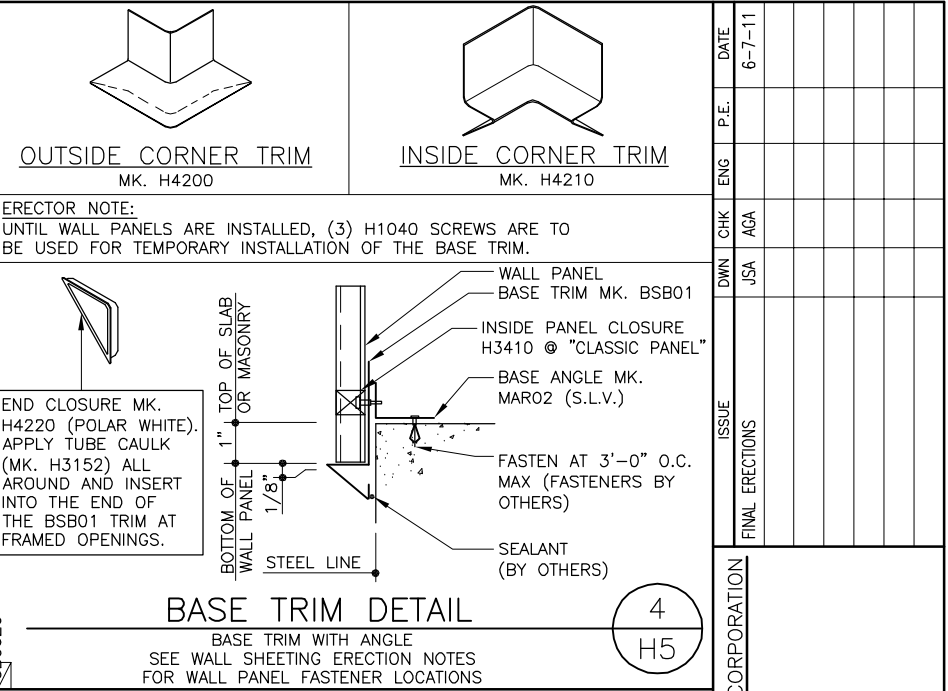
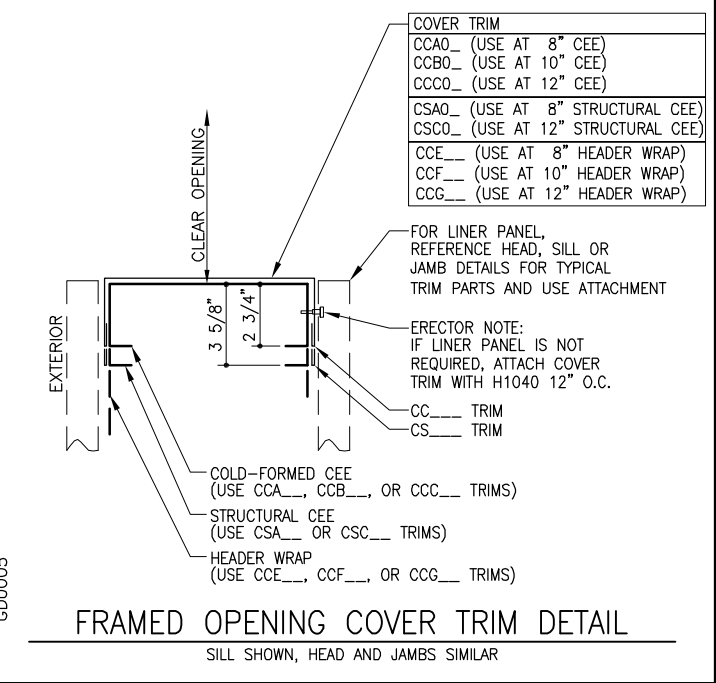
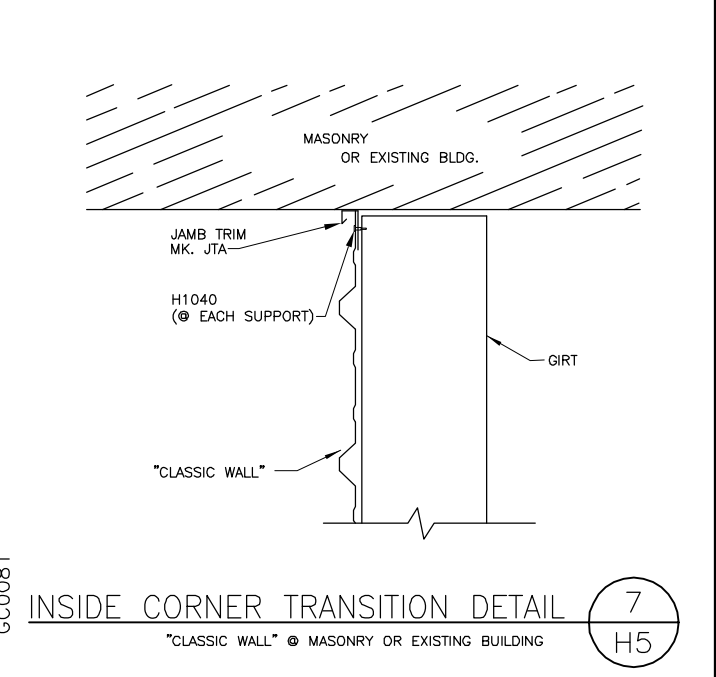
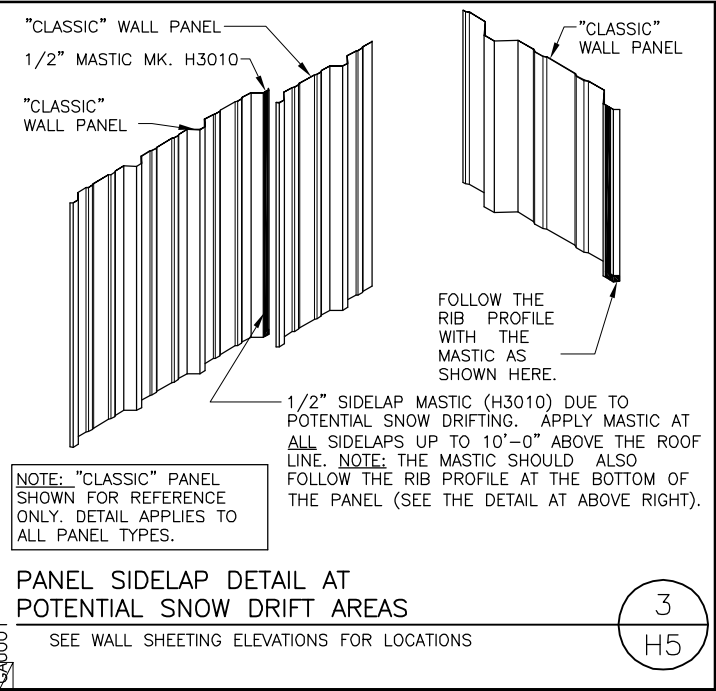
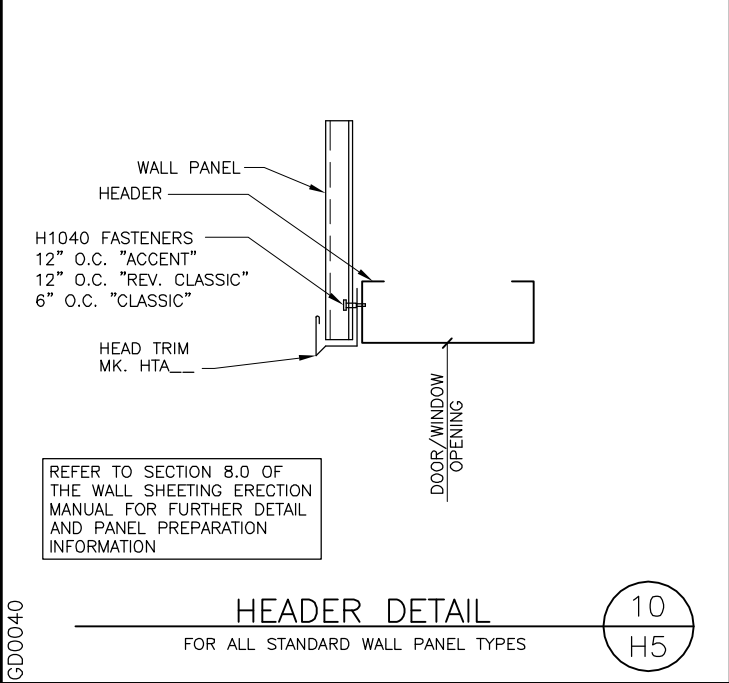
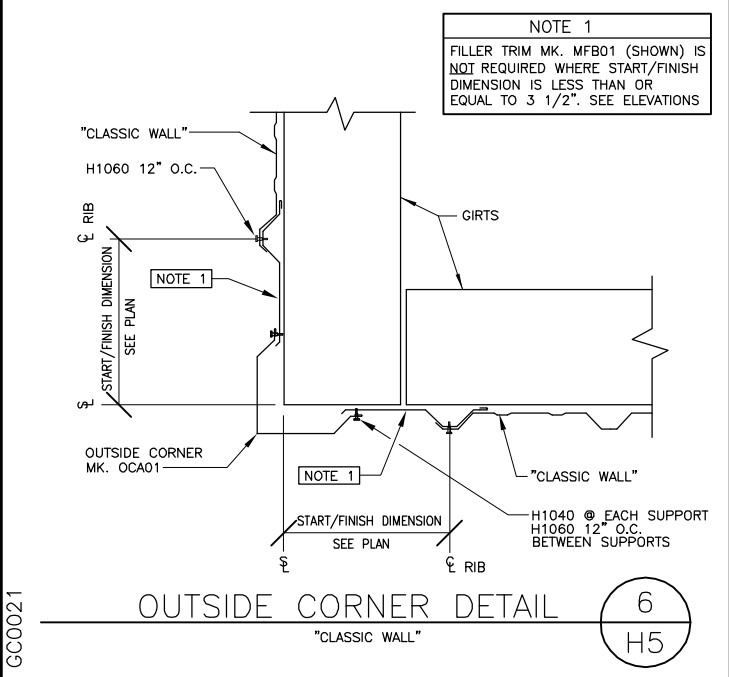
CUSTOMER:



ERECTOR NOTE:
UNTIL WALL PANELS ARE INSTALLED, (3) H1040 SCREWS ARE TO BE USED FOR TEMPORARY INSTALLATION OF THE BASE TRIM.



STANDARD FASTENER SCHEDULE			
H1000	17-14 x 1 1/4" WITH WASHER SELF TAPPING 3/8" HEAD	H1042	12-14 x 7/8" WITHOUT WASHER SELF DRILLING 5/16" HEAD
H1020	1/4-14 x 1 1/4" WITHOUT WASHER SELF DRILLING 3/8" HEAD 3/16" THK MAX DRILLING CAPACITY	H1045	12-14 x 2" WITHOUT WASHER SELF DRILLING 5/16" HEAD
H1030	12-14 x 1 1/4" WITH WASHER SELF DRILLING 3/8" HEAD	H1047	12-14 x 2" WITH WASHER SELF DRILLING 5/16" HEAD
H1035	12-14 x 1 1/2" WITH WASHER SELF DRILLING 3/8" HEAD	H1050	12-14 x 3/4" SHARP POINT WITH WASHER SELF TAPPING 3/8" HEAD
H1040	12-14 x 1 1/4" WITHOUT WASHER SELF DRILLING 5/16" HEAD	H1060	12-14 x 3/4" SHARP POINT WITHOUT WASHER SELF TAPPING 5/16" HEAD
H1041	12-14 x 1 1/4" WITH WASHER SELF DRILLING 5/16" HEAD	H1061	12-14 x 3/4" SHARP POINT WITH WASHER SELF TAPPING 5/16" HEAD
H1070	12-24 x 1 1/2" WITHOUT WASHER SELF DRILLING 3/8" HEAD 1/2" THK MAX DRILLING CAPACITY	H1100	1/8" x 3/16" STAINLESS STEEL BLIND POP RIVET
H1080	11/32" x 1 1/4" WITH WASHER GOOF SCREW SELF TAPPING 3/8" HEAD	H1110	3/8" STAINLESS GROMMET FASTENER
H1220	12-14 x 1" WITHOUT WASHER SELF DRILLING PHILLIPS HEAD		



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JOB NUMBER:	
SHEET NO: H5 of 5	
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