



1) The general contractor and/or erector is responsible to safely and properly erect the metal building system in conformance with these drawings, OSHA requirements and metal building system in conformance with these drawings, OSHA requirements and either MBMA or CSA S16 standards pertaining to proper erection. This includes, but is not limited to, the correct use of temporary guys and bracing where needed for squaring, plumbing, and securing the structural and secondary framing. Secondary roof framing members (girts or bar joists) are designed to function as a work platform and provide safety tie-off attachment in accordance with OSHA requirements. Secondary roof framing members (purlins or bar joists) are not designed to provide safety tie-off attachment in accordance with OSHA requirements.

- It is the responsibility of the erector to ensure proper bolt tightness in accordance with applicable regulations. See the RCSC Specification for Structural Joints Using A325 or A490 Bolts for more information.

A) All A490 bolts shall be "fully-pretensioned".
B) All A325 bolts in primary framing (rigid frames and bracing) may be "snug-tight", except as follows:
"Fully-pretension" A325 bolts if:

- a) Building supports a crane system with a capacity greater than 5 tons.
 - b) Building supports machinery that creates vibration, impact or stress-reversals on the connections. The Engineer-of-Record for the project should be consulted to evaluate for this condition.
 - c) The project site is located in a high seismic area. For IBC-based codes, "High Seismic Area" is defined as "Seismic Design Category" of "D", "E", or "F." See the "Building Loads" section of this page for the defined seismic design category for the project.
 - d) Any connection designated in these drawings as "A325-SC", "Slip-Critical (SC)" connections must be free of paint, oil, or other materials that reduce friction at contact surfaces. Galvanized or lightly rusted surfaces are acceptable.
 - e) In Canada, all A325 and A490 bolts shall be "fully pre-tensioned", except for secondary members (purlins, girts, opening framing, etc.) and flange braces.
 - f) Secondary members (purlins, girts, opening framing, etc.) and flange brace connections may always be "snug-tight", unless indicated otherwise in these drawings.
- 3) The metal building supplier shall be notified prior to any field modifications. Modifications shall be approved by the metal building supplier before work is undertaken.
- 4) Common Abbreviations:
- | | |
|---|----------------------------------|
| a) TYP UNO - Typical Unless Noted Otherwise | f) SIM - Similar |
| b) SLV - Short Leg Vertical | g) NIC - Not In Contract |
| c) LLV - Long Leg Vertical | h) SL - Steel Line |
| d) NS & FS - Near Side and Far Side | i) N/A - Not Applicable |
| e) O.A.L. - Overall Length | j) MBS - Metal Building Supplier |
- 5) Construction loads should not be placed on any structural steel framework unless such framework is safely bolted, welded, or otherwise adequately secured.
- 6) Purlins and girts should not be used as an anchorage point for a fall arrest system unless their approval is obtained from the metal building supplier.
- 7) Purlins may only be used as a walking/working surface when installing safety systems, after all permanent bridging has been installed and fall protection is provided.
- 8) Construction loads may be placed only within a zone that is within 8 feet of the center line of the primary support member. CFR bundles should be placed directly over the rigid frames.
- 9) All lifting devices must meet OSHA or MSHA standards and in no case is it acceptable to use structural members supplied by the MBS as a spreader bar or lifting device.

- 1) All structural steel sections and welded plate members are designed in accordance with ANSI/AISC 360 "Specifications for Structural Steel Buildings" or the CAN/CSA S16 "Limit States Design of Steel Structures", as required by the specified building code.
- 2) All welding of structural steel is based on either AWS D1.1 "Structural Welding Code - Steel" or CAN/CSA W59 "Welded Steel Construction (Metal Arc Welding)", as required by the specified building code.
- 3) All cold formed members are designed in accordance with ANSI/AISI S11 or CAN/CSA S136 "Specifications for the Design of Cold Formed Steel Structural Members", as required by the specified building code.
- 4) All welding of cold formed steel is based on AWS D1.3 "Structural Welding Code - Sheet Steel" or CAN/CSA W59 "Welded Steel Construction (Metal Arc Welding)", as required by the specified building code.
- 5) This Metal Building Supply Facility is IAS AC-472 Accredited and CAN/CSA A680 and W47.1 Certified (if applicable) for the design and manufacturing of Metal Building Systems.
- 6) If joists are included with this project, they are supplied as a part of the systems engineered metal building and are fabricated in accordance with the requirements of Section 1926.758 of the OSHA safety standards for steel erection, dated January 18, 2001.

Plate and Flange Material:	
5" - 12" Wide, to 1 1/4" Th.	A529 Grade 55
Others	A572 Grade 50
Built-Up Structural Web	A1011 SS (or HSLAS Class 1) Grade 55
Hot-Rolled Structural	A36 or A572 Grade 50 or A992 Grade 50
Structural Tube	A500 Grade B (46 KSI)
Structural Pipe	A500 Grade B (42 KSI)
Cold-Formed Structural	A1011 or A1013 SS (or HSLAS Class 1) or A653 Grade 55
Classic Roof Panel	A792 Grade 80
CFR / VR16 II Roof Panel	A792 Grade 50, Class 1
All Wall Panel Profiles	A653 Grade 80, Class 1 or A792 Grade 80, Class 1
Rod Bracing	A529 Grade 50
Welds	AWS D1.1/D1.3 or CSA W59 per Building Code
High-Strength Bolts	A325 Type 1 or A490 Type 1 Heavy Hex
Machine Bolts	A307 Grade A Hex

TRADEMARK 1998, NUCOR BUILDING SYSTEMS

PROJECT NUMBER:	W18J0142A
PROJECT NAME:	Wolverine co. llc
PROJECT LOCATION:	Morenci, MI 49256
CUSTOMER:	S.E.A. Builders, Inc.



DESIGN CODE: MBC 15

ROOF LIVE LOAD: 20.00 PSF MBMA OCC. CLASS: II

LIVE LOAD REDUCIBLE No

GROUND SNOW LOAD: 20.0 PSF SNOW EXP. FACTOR, Ce: 1.00

SNOW IMPORTANCE FACTOR, Is: 1.00

WIND: 115 / 89 MPH
(V_{ult}) / (V_{sust})

C & C PRESSURES (PSF): 27 / -36

UL 90 NO
Classic Roof—Const. No. 161; Classic Roof w/ Translucent Panel—Const. No. 167
CFR Roof—Const. No. 552; CFR Roof w/ Translucent Panel—Const. No. 590;
Composite CFR Roof—Const. No. 552A; VR16 II Roof—Const. No. 332.

SEISMIC INFORMATION Ss:0.141 S1:0.051
 Design Sds/Sd1: 0.150 / 0.082 Site Class: D
 Seismic Imp. Factor: 1.00 Seismic Design Category: B
Analysis Procedure: Equivalent Lateral Force Method
Basic SFRS: Not Detailed for Seismic

1) COLLATERAL DEAD LOADS, UNLESS OTHERWISE NOTED, ARE ASSUMED TO BE UNIFORMLY DISTRIBUTED. WHEN SUSPENDED SPRINKLER SYSTEMS, LIGHTING, HVAC EQUIPMENT, CEILINGS, ETC., ARE SUSPENDED FROM ROOF MEMBERS, CONSULT THE M.B.S. IF THESE CONCENTRATED LOADS EXCEED 500 POUNDS (USING THE WEB MOUNT DETAIL) OR 200 POUNDS (USING THE FLANGE MOUNT DETAIL), OR IF INDIVIDUAL MEMBERS ARE LOADED SIGNIFICANTLY MORE THAN OTHERS.

2) THE DESIGN OF STRUCTURAL MEMBERS SUPPORTING GRAVITY LOADS IS CONTROLLED BY THE MORE CRITICAL EFFECT OF ROOF LIVE LOAD OR ROOF SNOW LOAD, AS DETERMINED BY THE APPLICABLE CODE.

3) P_m IS BASED ON THE MINIMUM ROOF SNOW LOAD CALCULATED PER BUILDING CODE OR THE CONTRACT SPECIFIED SNOW LOAD, WHICHEVER IS GREATER. THIS VALUE, P_m , IS ONLY APPLIED IN COMBINATION WITH THE DEAD AND COLLATERAL LOADS. ROOF SNOW IN OTHER LOADING CONDITIONS IS DETERMINED PER THE SPECIFIED BUILDING CODE.

	BUILDING
ROOF DEAD (PSF):	3.50
PRI. COL. (PSF):	8
SEC. COL. (PSF):	8
SNOW Ct:	1.10
SNOW Cs:	1.000
ROOF SNOW Ps (PSF):	15.4
ROOF SNOW Pm (PSF):	20.0000
WIND ENCLOSURE:	Closed
GC _{pi} :	0.18
SEISMIC R:	3
SEISMIC Cs:	0.05
BASE SHEAR (KIPS):	31.78

ERECTION MANUALS REQUIRED			
(ERECTION MANUALS ARE SHIPPED WITH THE BUILDING IN A WAREHOUSE PACKING CRATE)			
☒ CFR ROOF	☒ H9700 OR	☐ H8260	☐ SINGLE CURB (H9850)
☐ CLASSIC ROOF	☐ H9420 OR	☐ H8201	☐ DOUBLE CURB (H9800)
☒ WALL SHEETING	☒ H9430 OR	☐ H8300	☐ VR16 II (H9925)

DRAWING INDEX

COVERSHEET	C1
ANCHOR BOLT DRAWINGS	F1, F2
COLUMN BASE REACTIONS	F3
STRUCTURAL/SHEETING DRAWINGS	E1, E2, E3, E4, E5, E6, E7
DETAILS	D1, D2, D3, D4, D5, D6, D7, D8, D9

This seal pertains only to the materials designed and supplied by Nucor Building Systems, a division of Nucor Corporation. The drawings and the metal buildings which they represent are the product of Nucor Building Systems. The registered professional engineer whose seal appears on these drawings is employed by Nucor Building Systems and does not serve as or represent the project engineer of record and shall not be construed as such.

C1 of 1



- Dia= 3/4"

ANCHOR BOLT SUMMARY				
Qty	Locate	Dia (in)	Type	Proj (in)
○ 80	Endwall	3/4"	F1554	3.00
○ 160	Frame	3/4"	F1554	3.00

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. ANCHOR RODS ARE REQUIRED ONLY IN THE QUANTITIES SPECIFIED. BASEPLATES MAY BE FABRICATED WITH MORE HOLES THAN NEEDED FOR THIS PROJECT.
8. 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'S 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.

ISSUE	DWIN	CHK	ENG	PE	DATE
ANCHOR BOLTS	MBS	WDY	CMI		3-1-18
PERMITS	MBS	WDY	CMI		3-1-18
FINALS	MBS	WDY	CMI		3-6-18

NUCOR

BUILDING SYSTEMS

305 INDUSTRIAL PARKWAY, WATERLOO, IN 46783
PHONE: (260) 837-7891 FAX: (260) 837-7384

PO BOX 1008, 200 WHEISTONE RD, SWINAGE, SC 29160
PHONE: (803) 568-2100 FAX: (803) 568-2121

600 APACHE TRAIL, TERRELL, TX 75160
PHONE: (972) 524-5407 FAX: (972) 524-5417

1050 WATER LINE, BRIGHAM CITY, UT 84302
PHONE: (435) 919-3100 FAX: (435) 919-3101

PROJECT NAME
WOLVERINE CO. LLC
, MORENCI, MI 49256

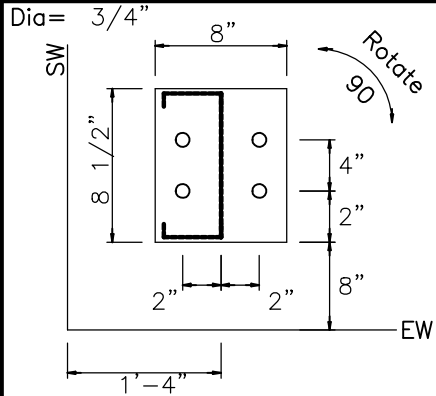
CUSTOMER NAME
S.E.A. BUILDERS, INC.
PETTISVILLE, OH 43553

JOB NUMBER	SHEET TITLE
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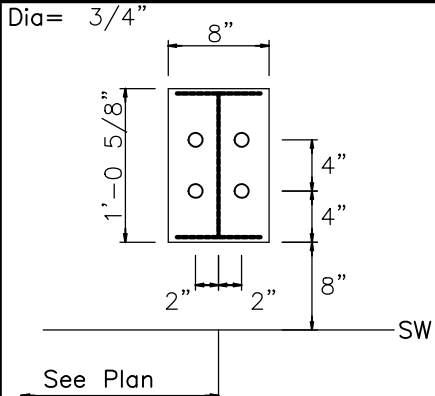
W18J0142A



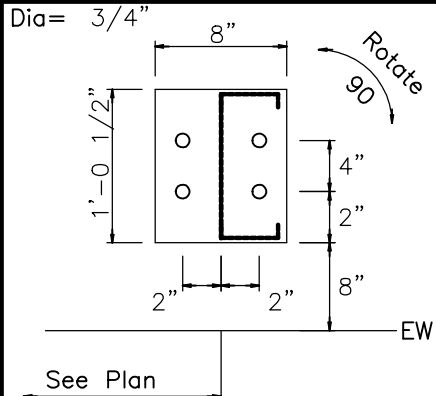
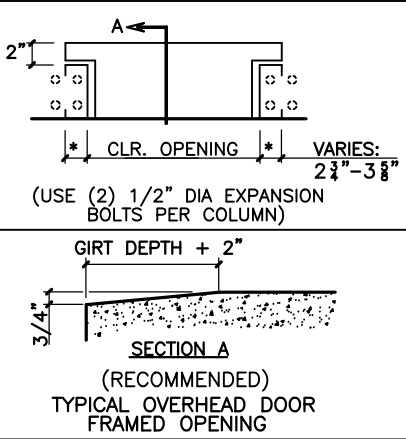
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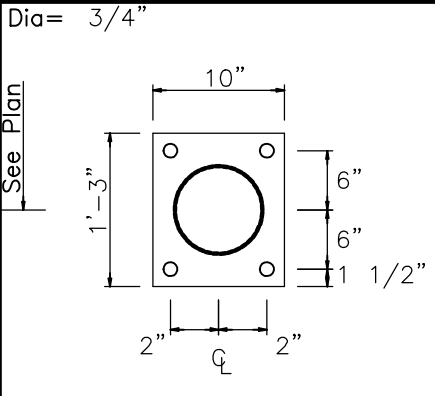
DETAIL A



DETAIL E

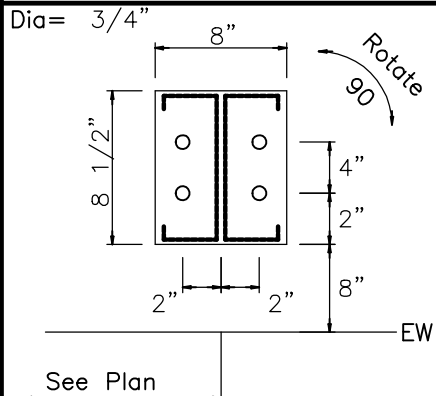


DETAIL B

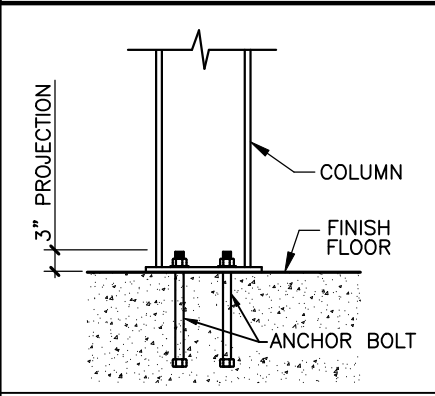


DETAIL F Base EL. 99'-6"

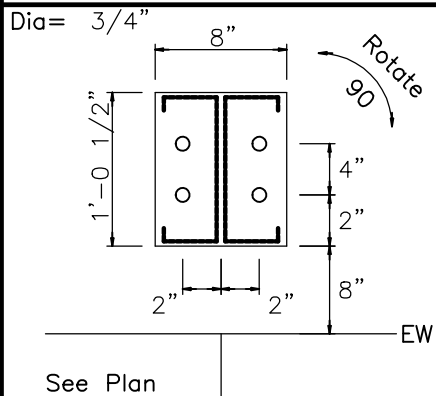
- FOUNDATION DESIGN NOTES:**
1. THE ORIENTATION OF THE ANCHOR BOLT DETAILS SHOWN ON THIS PAGE MAY NOT COINCIDE WITH THE ACTUAL COLUMN ORIENTATION SHOWN ON PAGE F1. PLEASE REFERENCE THE SIDEWALL (SW) AND ENDWALL (EW) STEEL LINES SHOWN ON THE ANCHOR BOLT DETAILS WITH THE ANCHOR BOLT PLAN ON PAGE F1 DURING LAYOUT OF COLUMN AND ANCHOR BOLT LOCATIONS.
 2. COLUMN BASE PLATES MAY HAVE MORE HOLES THAN ARE REQUIRED DUE TO PRODUCTION LIMITATIONS. PLEASE FOLLOW ANCHOR BOLT DETAILS FOR QUANTITY OF ANCHOR BOLTS REQUIRED. EXTRA BASE PLATE HOLES DO NOT NEED INFILLED PER THE MBS DESIGN SPECIFICATIONS.



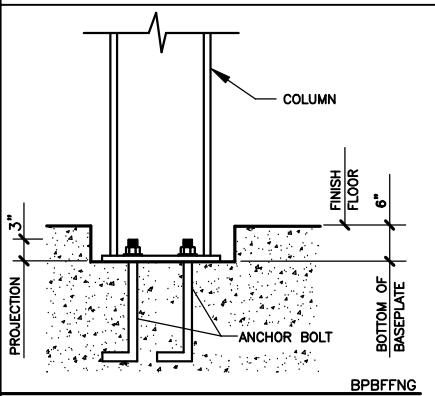
DETAIL C



TYPICAL COLUMN BASE PLATE DETAIL



DETAIL D

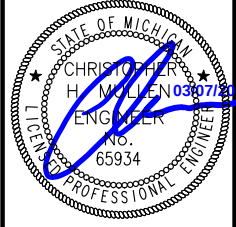


TYPICAL COLUMN BASE PLATE DETAIL

DATE	PE	ENG	CHK	DWN	ISSUE	ANCHOR BOLTS	PERMITS	FINALS
3-1-18		CMI	WDY	MBS				
3-1-18		CMI	WDY	MBS				
3-6-18		CMI	WDY	MBS				

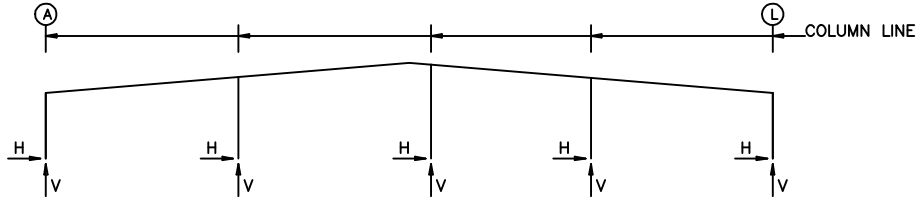
NUCOR BUILDING SYSTEMS
300 INDUSTRIAL PARKWAY, WATERLOO, IN 46783
PHONE: (260) 837-7891 FAX: (260) 837-7384
PO BOX 1006, 200 WHISTON RD, SHANSEA, SC 29160
PHONE: (803) 588-2100 FAX: (803) 588-2121
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CUSTOMER NAME
S.E.A. BUILDERS, INC.
PETTISVILLE, OH 43553
JOB NUMBER
W18J0142A



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FRAME LINES: 2 3 4 5 6 7 8 9



RIGID FRAME: ANCHOR BOLTS & BASE PLATES

Frm Line	Col Line	Anc. Bolt Qty	Bolt Dia	Base_Plate Width	Base_Plate Length	Base_Plate Thick	Elev. (in)
2*	A	4	0.750	8.000	12.63	0.375	0.0
2*	L	4	0.750	8.000	12.63	0.375	0.0
2*	53.0	4	0.750	10.00	15.00	0.625	-6.0
2*	106.0	4	0.750	10.00	15.00	0.500	-6.0
2*	150.0	4	0.750	10.00	15.00	0.500	-6.0

2* Frame lines: 2 3 4 5 6 7 8 9

ENDWALL COLUMN: BASIC COLUMN REACTIONS (k)

Frm Line	Col Line	Dead Vert	Collat Vert	Live Vert	Snow Vert	Wind Left1 Vert	Wind Right1 Vert	Wind Left2 Vert	Wind Right2 Vert	Wind Press Horiz	Wind Suct Horiz	Wind Long1 Vert	Wind Long2 Vert
1	A	0.6	0.9	2.2	1.7	-3.2	-2.1	-3.2	-2.1	-1.9	2.3	-3.3	-1.9
1	B	1.5	2.3	5.8	4.5	-9.1	-5.1	-9.1	-5.1	-4.1	4.5	-8.9	-5.1
1	C	1.4	2.2	5.6	4.3	-7.2	-4.9	-7.2	-4.9	-4.8	5.3	-8.6	-4.8
1	D	1.7	2.4	6.0	4.6	-5.9	-5.6	-5.9	-5.6	-5.9	6.5	-9.9	-6.0
1	E	2.0	2.8	7.1	5.4	-5.5	-5.5	-5.5	-5.5	-6.8	7.5	-9.3	-5.6
1	F	2.0	2.8	7.1	5.4	-5.5	-5.5	-5.5	-5.5	-6.8	7.5	-9.3	-5.6
1	G	1.7	2.4	6.0	4.6	-5.6	-5.9	-5.6	-5.9	-5.9	6.5	-6.0	-9.9
1	J	1.4	2.2	5.6	4.3	-4.9	-7.2	-4.9	-7.2	-4.8	5.3	-4.8	-8.6
1	K	1.5	2.3	5.8	4.5	-5.1	-9.1	-5.1	-9.1	-4.1	4.5	-5.1	-8.9
1	L	0.6	0.9	2.2	1.7	-2.1	-3.2	-2.1	-3.2	-1.9	2.3	-1.9	-3.3

Frm Line	Col Line	Seis Left Vert	Seis Right Vert	-MIN_SNOW- Horiz	-MIN_SNOW- Vert	E1UNB_SL_L- Horiz	E1UNB_SL_L- Vert	E1UNB_SL_R- Horiz	E1UNB_SL_R- Vert
1	A	0.0	0.0	0.0	2.2	0.0	1.7	0.0	0.5
1	B	0.0	0.0	0.0	5.8	0.0	4.6	0.0	1.3
1	C	0.0	0.1	0.0	5.6	0.0	3.9	0.0	1.8
1	D	-0.1	0.0	0.0	5.7	0.0	6.5	0.0	1.3
1	E	0.0	0.0	0.0	7.1	0.0	9.2	0.0	1.7
1	F	0.0	0.0	0.0	7.1	0.0	1.7	0.0	9.2
1	G	0.0	-0.1	0.0	5.7	0.0	1.3	0.0	6.5
1	J	0.1	0.0	0.0	5.6	0.0	1.8	0.0	3.9
1	K	0.0	0.0	0.0	5.8	0.0	1.3	0.0	4.6
1	L	0.0	0.0	0.0	2.2	0.0	0.5	0.0	1.7

Frm Line	Col Line	Dead Vert	Collat Vert	Live Vert	Snow Vert	Wind Left1 Vert	Wind Right1 Vert	Wind Left2 Vert	Wind Right2 Vert	Wind Press Horiz	Wind Suct Horiz	Wind Long1 Vert	Wind Long2 Vert
10	L	0.6	0.8	2.2	1.7	-3.2	-2.1	-3.2	-2.1	-1.9	2.3	-3.6	-1.9
10	K	1.5	2.3	5.8	4.5	-9.4	-5.1	-9.4	-5.1	-4.1	4.5	-8.9	-5.5
10	J	1.4	2.2	5.6	4.3	-7.2	-4.8	-7.2	-4.8	-4.8	5.3	-8.3	-4.8
10	G	1.7	2.4	6.0	4.6	-5.5	-5.6	-5.5	-5.6	-5.9	6.5	-9.8	-5.5
10	F	2.0	2.8	7.1	5.4	-5.6	-5.6	-5.6	-5.6	-6.8	7.5	-9.5	-5.8
10	E	2.0	2.8	7.1	5.4	-5.6	-5.6	-5.6	-5.6	-6.8	7.5	-9.5	-5.8
10	D	1.7	2.4	6.0	4.6	-5.6	-5.5	-5.6	-5.5	-5.9	6.5	-9.8	-5.5
10	C	1.4	2.2	5.6	4.3	-4.8	-7.2	-4.8	-7.2	-4.8	5.3	-4.8	-8.3
10	B	1.5	2.3	5.8	4.5	-5.1	-9.4	-5.1	-9.4	-4.1	4.5	-5.5	-8.9
10	A	0.6	0.8	2.2	1.7	-2.1	-3.2	-2.1	-3.2	-1.9	2.3	-1.9	-3.6

Frm Line	Col Line	Seis Left Vert	Seis Right Vert	-MIN_SNOW- Horiz	-MIN_SNOW- Vert	E2UNB_SL_L- Horiz	E2UNB_SL_L- Vert	E2UNB_SL_R- Horiz	E2UNB_SL_R- Vert
10	L	0.0	0.1	0.0	2.2	0.0	1.7	0.0	0.9
10	K	-0.1	0.0	0.0	5.8	0.0	4.9	0.0	1.3
10	J	0.0	0.0	0.0	5.6	0.0	3.9	0.0	1.3
10	G	0.0	0.0	0.0	5.7	0.0	6.0	0.0	1.2
10	F	0.0	0.0	0.0	7.1	0.0	9.4	0.0	1.9
10	E	0.0	0.0	0.0	7.1	0.0	1.9	0.0	9.4
10	D	0.0	0.0	0.0	5.7	0.0	1.2	0.0	6.0
10	C	0.0	0.0	0.0	5.6	0.0	1.3	0.0	3.9
10	B	0.0	-0.1	0.0	5.8	0.0	1.3	0.0	4.9
10	A	0.1	0.0	0.0	2.2	0.0	0.9	0.0	1.7

BUILDING BRACING REACTIONS

Wall Loc	Line	Col Line	± Reactions(k)				Panel_Shear (lb/ft)		Note
			Wind Horiz	Seismic Vert	Wind Horiz	Seismic Vert	Wind	Seis	
L_EW	1	C,D	1.8	1.7	1.1	1.0			
		G,J	1.8	1.7	1.1	1.0			
F_SW	L	2,3	10.5	6.7	8.3	5.3			
		6,7	10.5	6.7	8.3	5.3			
R_EW	10								
B_SW	A	7,6	10.5	6.7	8.3	5.3			(i)
		3,2	10.5	6.7	8.3	5.3			

(i)Bracing in roof to rigid frame

RIGID FRAME: BASIC COLUMN REACTIONS (k)

Frame Line	Column Line	Dead Horiz	Dead Vert	Collateral Horiz	Collateral Vert	Live Horiz	Live Vert	Snow Horiz	Snow Vert	Wind_Left1 Horiz	Wind_Left1 Vert	Wind_Right1 Horiz	Wind_Right1 Vert
2*	A	1.1	3.2	2.1	5.2	5.2	12.9	4.0	10.0	-11.3	-16.7	3.1	-7.8
2*	L	-1.1	3.2	-2.1	5.2	-5.2	13.1	-4.0	10.1	-2.6	-8.2	10.8	-16.4
2*	53.0	0.0	7.2	0.0	12.3	0.0	30.6	0.0	23.6	0.0	-23.9	0.0	-23.6
2*	106.0	0.0	5.3	0.0	9.0	0.0	22.5	0.0	17.4	0.0	-13.9	0.0	-13.7
2*	150.0	0.0	5.8	0.0	10.3	0.0	25.7	0.0	19.8	0.0	-20.0	0.0	-21.1

Frame Line	Column Line	Wind_Left2 Horiz	Wind_Left2 Vert	Wind_Right2 Horiz	Wind_Right2 Vert	Wind_Long1 Horiz	Wind_Long1 Vert	Wind_Long2 Horiz	Wind_Long2 Vert	Seismic_Left Horiz	Seismic_Left Vert	Seismic_Right Horiz	Seismic_Right Vert
2*	A	-11.4	-10.4	3.0	-1.5	-0.4	-13.6	-2.5	-10.7	-3.1	-1.4	3.1	1.4
2*	L	-2.5	-1.8	10.9	-10.0	2.2	-10.7	0.7	-13.9	-2.7	1.2	2.7	-1.2
2*	53.0	0.0	-10.0	0.0	-9.7	0.0	-35.5	0.0	-19.5	0.0	1.8	0.0	-1.8
2*	106.0	0.0	-4.4	0.0	-4.2	0.0	-18.2	0.0	-20.1	0.0	0.0	0.0	0.0
2*	150.0	0.0	-8.2	0.0	-9.4	0.0	-16.4	0.0	-30.1	0.0	-1.5	0.0	1.5

Frame Line	Column Line	MIN_SNOW Horiz	MIN_SNOW Vert	F1UNB_SL_L Horiz	F1UNB_SL_L Vert	F1UNB_SL_R Horiz	F1UNB_SL_R Vert
2*	A	5.2	13.0	2.1	7.9	2.6	4.1
2*	L	-5.2	13.1	-2.3	4.0	-2.5	8.8
2*	53.0	0.0	30.7	0.0	31.0	0.0	4.5
2*	106.0	0.0	22.5	0.0	17.9	0.0	23.1
2*	150.0	0.0	25.8	0.0	3.3	0.0	23.7

2* Frame lines: 2 3 4 5 6 7 8 9

ENDWALL COLUMN: ANCHOR BOLTS & BASE PLATES

Frm Line	Col Line	Anc. Bolt Qty	Bolt Dia	Base_Plate Width	Base_Plate Length	Base_Plate Thick	Elev. (in)
1	A	4	0.750	8.000	8.500	0.375	0.0
1	B	4	0.750	8.000	12.50	0.375	0.0
1	C	4	0.750	8.000	12.50	0.375	0.0
1	D	4	0.750	8.000	8.500	0.375	0.0
1	E	4	0.750	8.000	12.50	0.375	0.0
1	F	4	0.750	8.000	12.50	0.375	0.0
1	G	4	0.750	8.000	8.500	0.375	0.0
1	J	4	0.750	8.000	12.50	0.375	0.0
1	K	4	0.750	8.000	12.50	0.375	0.0
1	L	4	0.750	8.000	8.500	0.375	0.0
10	L	4	0.750	8.000	8.500	0.375	0.0
10	K	4	0.750	8.000	12.50	0.375	0.0
10	J	4	0.750	8.000	12.50	0.375	0.0
10	G	4	0.750	8.000	8.500	0.375	0.0
10	F	4	0.750	8.000	12.50	0.375	0.0
10	E	4	0.750	8.000	12.50	0.375	0.0
10	D	4	0.750	8.000	8.500	0.375	0.0
10	C	4	0.750	8.000	12.50	0.375	0.0
10	B	4	0.750	8.000	12.50	0.375	0.0
10	A	4	0.750	8.000	8.500	0.375	0.0

GENERAL NOTES

- ALL LOADING CONDITIONS ARE EXAMINED. THE MAXIMUM AND MINIMUM HORIZONTAL (H) AND VERTICAL (V) REACTIONS AND THE CORRESPONDING VERTICAL (V) OR HORIZONTAL (H) REACTIONS ARE REPORTED.
- REACTIONS ARE PROVIDED BY LOAD CASE IN ORDER TO AID THE FOUNDATION ENGINEER IN DETERMINING THE APPROPRIATE LOAD FACTORS AND COMBINATION TO BE USED WITH EITHER WORKING STRESS OR ULTIMATE STRENGTH DESIGN METHODS. WIND LOAD CASES ARE GIVEN FOR EACH PRIMARY WIND DIRECTION.
- FOR ASCE7-10 BASED BUILDING CODES THE UNFACTORED LOAD CASE REACTIONS DUE TO WIND ARE GENERATED USING ULTIMATE DESIGN WIND SPEEDS (Vult).
- POSITIVE (+) REACTIONS ARE AS SHOWN ABOVE. FOUNDATION LOADS ARE IN OPPOSITE DIRECTIONS.
- BRACING REACTIONS ARE IN THE PLANE OF THE BRACE WITH THE HORIZONTAL REACTION (H) ACTING AWAY FROM THE BRACED BAY AND THE VERTICAL REACTION (V) ACTING DOWNWARD.

***** RIGID FRAME LOAD CASE ABBREVIATIONS: *****

Wind_L1/Wind_R1: LATERAL WIND FROM THE LEFT/RIGHT, CASE 1
Wind_L2/Wind_R2: LATERAL WIND FROM THE LEFT/RIGHT, CASE 2
Wind_Ln1/Wind_Ln2: LONGITUDINAL WIND, CASE 1/2
Seismic_L/Seismic_R: LATERAL SEISMIC LOAD FROM LEFT/RIGHT
LWIND#_L/E/LWIND#_R/E: LONGITUDINAL WIND EDGE ZONES
F#UNB_SL_L/F#UNB_SL_R: UNBALANCED ROOF SNOW WITH WIND FROM LEFT/RIGHT
F#PAT_LL #/F#PAT_SL #: PARTIAL LIVE/SNOW LOADING FOR CONTINUOUS BEAM SYSTEMS

***** ENDWALL COLUMN LOAD CASE ABBREVIATIONS: *****

Collat: COLLATERAL LOAD
Rafter Wind_L/Rafter Wind_R: LATERAL WIND FROM THE LEFT/RIGHT
Brace Wind_L/Brace Wind_R: LATERAL WIND FROM THE LEFT/RIGHT
Wind_P/Wind_S: LONGITUDINAL WIND PRESSURE/SUCTION ON COLUMNS
Wind_Ln: LONGITUDINAL WIND SUCTION ON ROOF
Seis_L/Seis_R: LATERAL SEISMIC LOAD FROM LEFT/RIGHT
E#UNB_SL_L/E#UNB_SL_R: UNBALANCED ROOF SNOW WITH WIND FROM LEFT/RIGHT
E#PAT_LL #/E#PAT_SL #: PARTIAL LIVE/SNOW LOADING FOR CONTINUOUS BEAM SYSTEMS

DATE	3-1-18	3-1-18	3-6-18
PER			
ENG	CMI	CMI	CMI
CHK	WDY	WDY	WDY
DWN	MBS	MBS	MBS
ISSUE	ANCHOR BOLTS	PERMITS	FINALS

NUCOR BUILDING SYSTEMS
305 INDUSTRIAL PARKWAY, WATERLOO, IN 46783
PHONE: (260) 837-7891 FAX: (260) 837-7384
PO BOX 1006, 200 WHISTON RD, SHANSEA, SC 29160
PHONE: (803) 588-2100 FAX: (803) 588-2121
600 APACHE TRAIL, TERRELL, TX 75160
PHONE: (972) 524-5407 FAX: (972) 524-5417
PHONE: (972) 524-5418 FAX: (972) 524-5419
PHONE: (435) 919-3100 FAX: (435) 919-3101

PROJECT NAME
WOLVERINE CO. LLC
MORENCI, MI 49256

CUSTOMER NAME
S.E.A. BUILDERS, INC.
PETTISVILLE, OH 43553

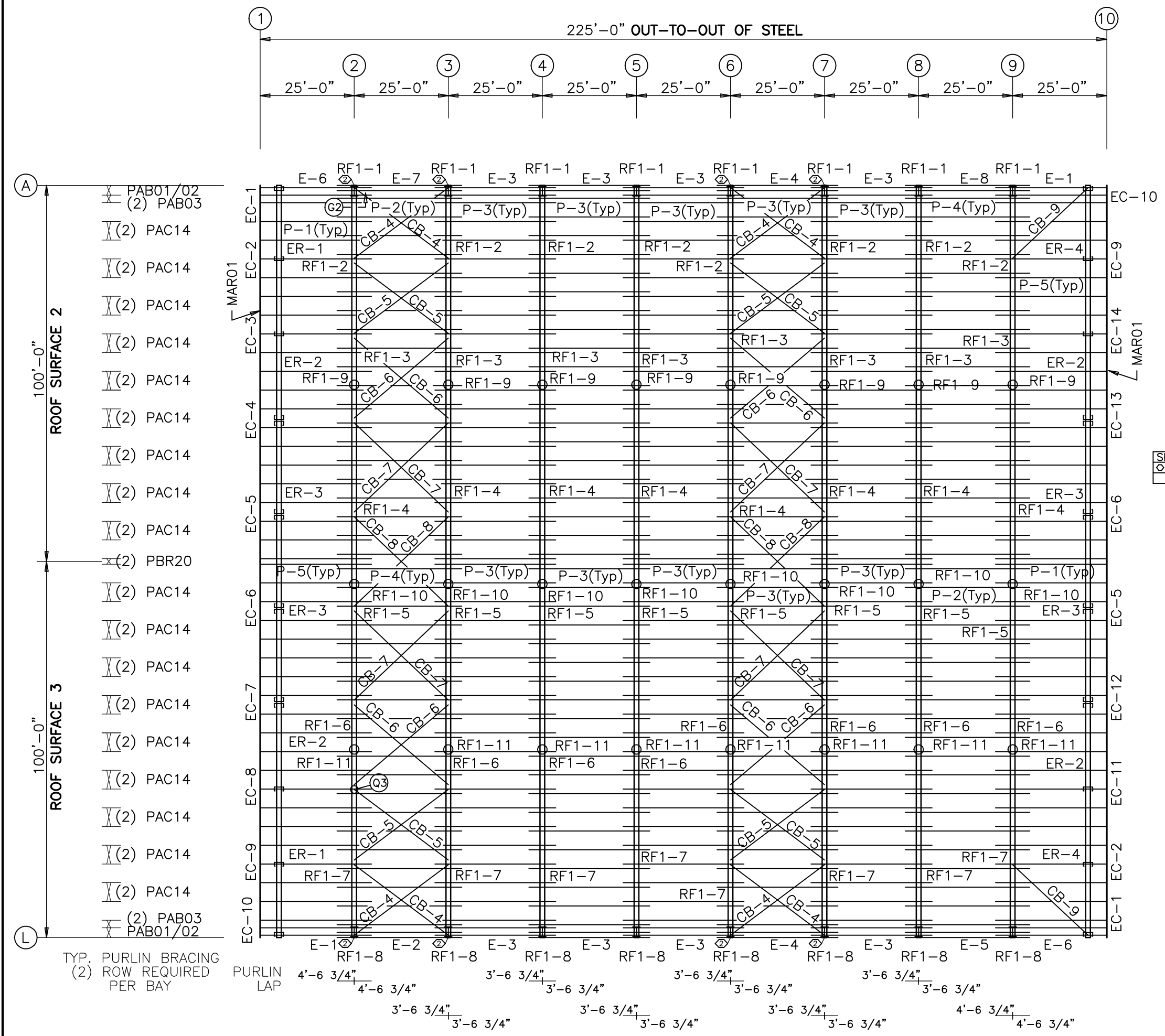
JOB NUMBER
W18J0142A

SHEET TITLE



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SHEET
F3 of 3



MEMBER TABLE	
ROOF PLAN	
MARK	PART
P-1	10Z075
P-2	10Z075
P-3	10Z067
P-4	10Z075
P-5	10Z075
E-1	10Z060
E-2	10Z105
E-3	10Z060
E-4	10Z105
E-5	10Z060
E-6	10Z060
E-7	10Z105
E-8	10Z060
CB-4	RDC-
CB-5	RDC-
CB-6	RDB-
CB-7	RDB-
CB-8	RDB-
CB-9	RDB-

SPECIAL BOLTS					
Q ID	QUAN	TYPE	DIA	LENGTH	WASH
2	8	A325	1/2"	2"	1

ROOF FRAMING PLAN

GENERAL NOTES

- PLACE TAGGED END OF RAFTERS TOWARDS THE LOW EAVE.
- STD. ROD/CABLE SIZES PER PART PREFIX ARE:

ROD	CABLE
RDB- = 5/8" ROD	CAA- = 1/4" CABLE
RDC- = 3/4" ROD	CAB- = 3/8" CABLE
RDD- = 7/8" ROD	CAC- = 1/2" CABLE
RDE- = 1" ROD	
RDF- = 1 1/8" ROD	
RDG- = 1 1/4" ROD	
- PURLIN AND EAVE STRUT CONNECTIONS UTILIZE BOTH A307 AND A325 BOLTS. REFER TO THE DETAILS FOR SPECIFIC USAGE REQUIREMENTS.
- THIS DRAWING IS NOT TO SCALE.

DATE

3-1-18

DES

CMI

CHK

WDY

APP

CMI

ISSUE

ANCHOR BOLTS

PERMITS

3-1-18

FINALS

3-6-18

NUCOR BUILDING SYSTEMS
305 INDUSTRIAL PARKWAY, WATERLOO, IN 46783
PHONE: (260) 837-7891 FAX: (260) 837-7384
PO BOX 1006, 200 WHISTON RD, SWANSEA, SC 29160
PHONE: (803) 588-2100 FAX: (803) 588-2121
600 APACHE TRAIL, TERRELL, TX 75160
PHONE: (972) 524-5407 FAX: (972) 524-5417
1000 WILSON ROAD, WILSON, NC 27157
PHONE: (435) 919-3100 FAX: (435) 919-3101

PROJECT NAME

WOLVERINE CO. LLC
MORENCI, MI 49256

CUSTOMER NAME

S.E.A. BUILDERS, INC.
PETTISVILLE, OH 43553

JOB NUMBER

W18J0142A

SHEET TITLE

E1 of 7

STATE OF MICHIGAN

CHRISTOPHER H. MULLEN

ENGINEER

NO. 65934

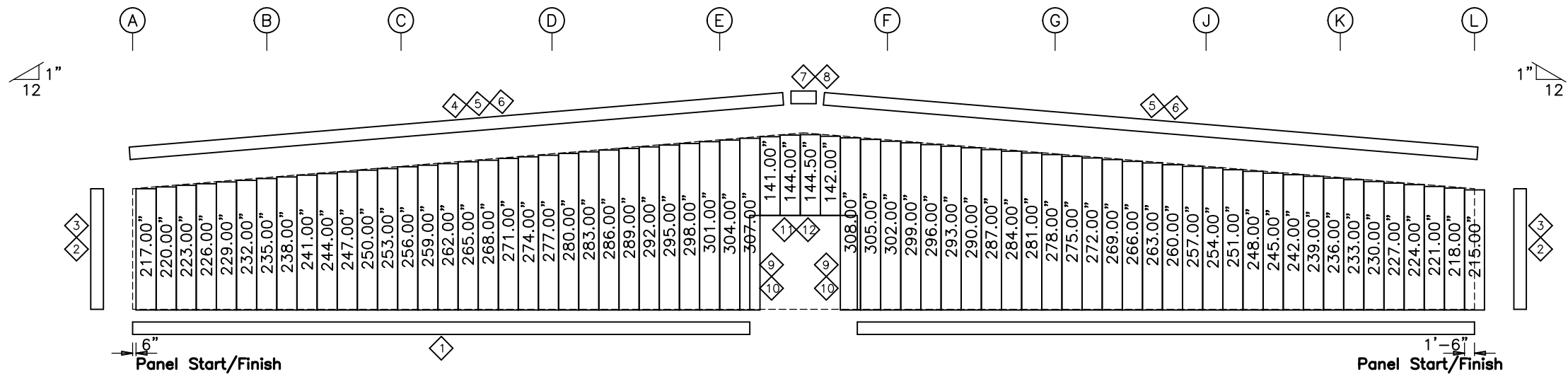
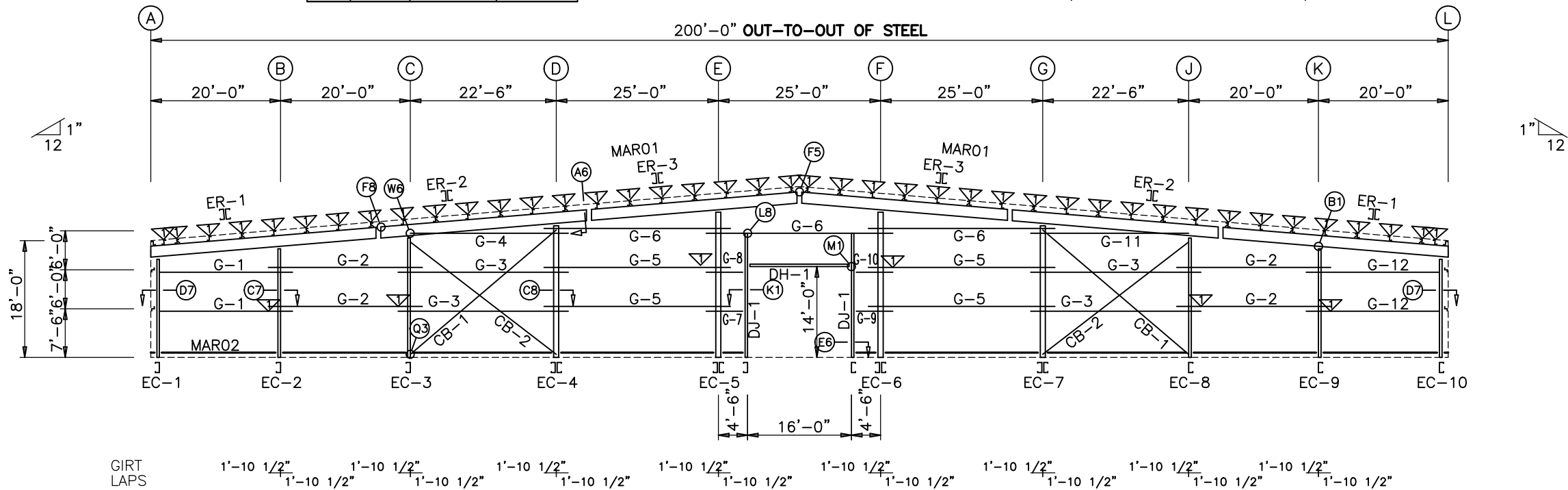
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BOLT TABLE				
FRAME LINE 1				
LOCATION	QUAN	TYPE	DIA	LENGTH
ER-1/ER-2	8	A325	5/8"	2 1/4"
ER-2/ER-3	8	A325	5/8"	2 1/4"
ER-3/ER-3	4	A325	1/2"	2"
Columns/Raf	6	A325	1/2"	2"

MEMBER TABLE	
FRAME LINE 1	
MARK	PART
EC-1	W08S075
EC-2	W12S089
EC-3	W12S105
EC-4	W08SD105
EC-5	W12SD089
EC-6	W12SD089
EC-7	W08SD105
EC-8	W12S105
EC-9	W12S089
EC-10	W08S075
ER-1	W12SD105
ER-2	W12SD105
ER-3	W12SD105
DJ-1	F08C089
DH-1	F08C060
G-1	08Z054
G-2	08Z054
G-3	08Z054
G-4	08Z054
G-5	08Z054
G-6	08Z067
G-7	08Z060
G-8	08Z054
G-9	08Z060
G-10	08Z054
G-11	08Z054
G-12	08Z054
CB-1	RDB-
CB-2	RDB-

TRIM TABLE			
FRAME LINE 1			
◇ID	PART	LENGTH	DETAIL
1	BSB01	122.000	TRIM_301
2	OCA01	242.000	
3	MFA01	121.000	TRIM_8
4	RTA01	121.000	TRIM_952
5	RTA02	242.000	TRIM_952
6	RRA01	121.000	TRIM_952
7	M0101	26.440	
8	MPP01	14.380	
9	CCA169	169.000	TRIM_19
10	JTA169	169.000	TRIM_98
11	CCA193	193.000	TRIM_19
12	HTA196	196.000	TRIM_98

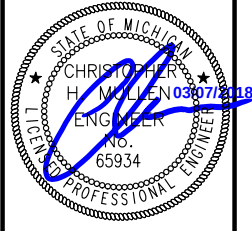


ENDWALL SHEETING & TRIM: FRAME LINE 1
PANELS: 26 Ga. AW - Burnished Slate SP

ENDWALL FRAMING PLAN

GENERAL NOTES

1. STD. ROD/CABLE SIZES PER PART PREFIX ARE:
- | <u>ROD</u> | <u>CABLE</u> |
|-------------------|-------------------|
| RDB— = 5/8" ROD | CAA— = 1/4" CABLE |
| RDC— = 3/4" ROD | CAB— = 3/8" CABLE |
| RDD— = 7/8" ROD | CAC— = 1/2" CABLE |
| RDE— = 1" ROD | |
| RDF— = 1 1/8" ROD | |
| RDG— = 1 1/4" ROD | |
2. ROD/CABLE BRACING THAT OCCURS IN FLUSH OR INSET GIRT CONDITIONS WILL REQUIRE FIELD SLOTTING OF GIRT WEBS TO ALLOW FOR BRACING.
3. FRAMED OPENINGS WHICH ARE FIELD LOCATED WILL REQUIRE FIELD CUTTING OF GIRTS AND SHEETING.
4. THIS DRAWING IS NOT TO SCALE.



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ISSUE	DWN	CHK	ENG	PE	DATE
ANCHOR BOLTS	MBS	WDY	CMI		3-1-18
PERMITS	MBS	WDY	CMI		3-1-18
FINALS	MBS	WDY	CMI		3-6-18

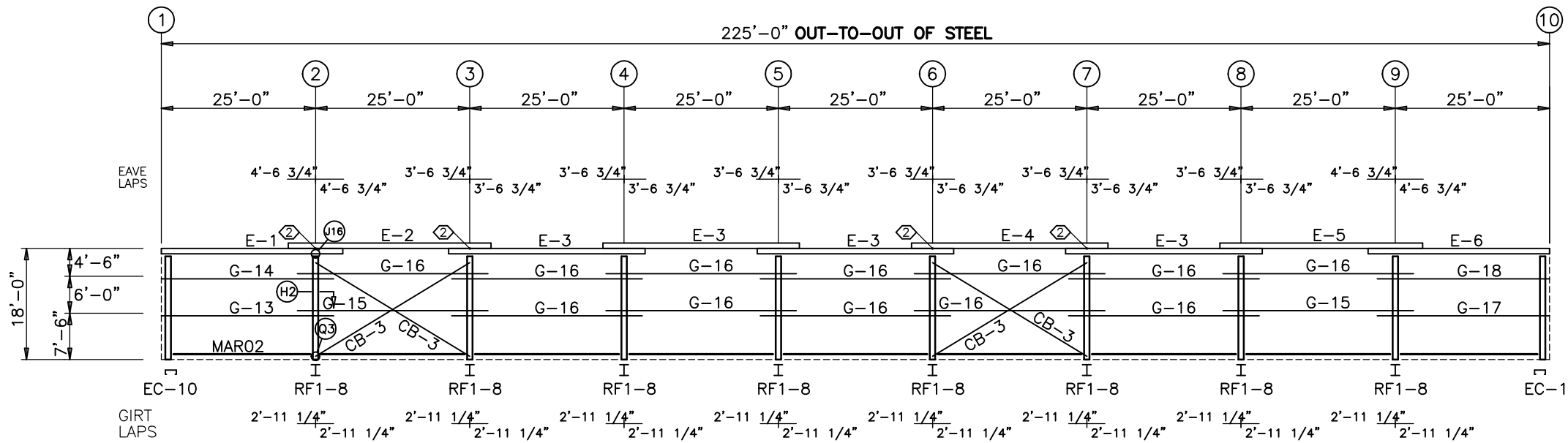
NUCOR **BUILDING SYSTEMS**
305 INDUSTRIAL PARKWAY, WATERLOO, IN 46783
PHONE: (260) 837-7891 FAX: (260) 837-7394
PO BOX 1008, 200 WHEISTONE RD, SWANSEA, SC 29160
PHONE: (803) 568-2100 FAX: (803) 568-2121
600 APACHE TRAIL, TERRELL, TX 75160
PHONE: (972) 524-5407 FAX: (972) 524-5417
1050 WATER LANE, BRIGHAM CITY, UT 84302

PROJECT NAME
WOLVERINE CO. LLC
, MORENCI, MI 49256

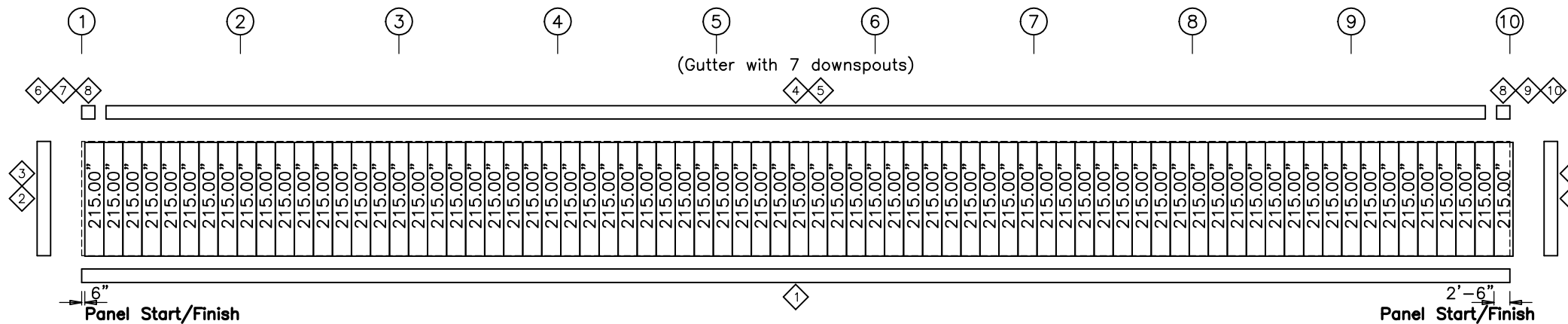
CUSTOMER NAME
S.E.A. BUILDERS, INC.
PETTISVILLE OH 43553

JOB NUMBER
W18J0142A

E3 of 7



SIDEWALL FRAMING: FRAME LINE L



SIDEWALL SHEETING & TRIM: FRAME LINE L
PANELS: 26 Ga. AW - Burnished Slate SP

SPECIAL BOLTS				
◇ ID	QUAN	TYPE	DIA	LENGTH WASH
2	8	A325	1/2"	2" 1

MEMBER TABLE	
FRAME	LINE L
MARK	PART
E-1	10Z060
E-2	10Z105
E-3	10Z060
E-4	10Z105
E-5	10Z060
E-6	10Z060
G-13	08Z075
G-14	08Z060
G-15	08Z060
G-16	08Z054
G-17	08Z075
G-18	08Z060
CB-3	RDE-

TRIM TABLE			
◇ ID	PART	LENGTH	DETAIL
1	BSB01	122.000	TRIM_301
2	OCA01	242.000	
3	MFA01	121.000	TRIM_8
4	GTA01	121.000	TRIM_951
5	GTA02	242.000	TRIM_951
6	H4000	5.000	TRIM_21
7	RCA01	9.250	
8	GRA01	8.000	
9	H4000	5.000	
10	RCA02	9.250	

SIDEWALL FRAMING PLAN

GENERAL NOTES

- STD. ROD/CABLE SIZES PER PART PREFIX ARE:
ROD = 5/8" ROD
RDB- = 3/4" ROD
RDC- = 7/8" ROD
RDE- = 1" ROD
RDF- = 1 1/8" ROD
RDG- = 1 1/4" ROD
CABLE = 1/4" CABLE
CAB- = 3/8" CABLE
CAC- = 1/2" CABLE
- ROD/CABLE BRACING THAT OCCURS IN FLUSH OR INSET GIRT CONDITIONS WILL REQUIRE FIELD SLOTTING OF GIRT WEBS TO ALLOW FOR BRACING.
- FRAMED OPENINGS WHICH ARE FIELD LOCATED WILL REQUIRE FIELD CUTTING OF GIRTS AND SHEETING.
- THIS DRAWING IS NOT TO SCALE.

DATE
3-1-18

PE
CMI

CHK
WDY

DWG
MBS

ISSUE
ANCHOR BOLTS

DATE
3-1-18

PE
CMI

CHK
WDY

DWG
MBS

ISSUE
PERMITS

DATE
3-6-18

PE
CMI

CHK
WDY

DWG
MBS

ISSUE
FINALS

NUCOR BUILDING SYSTEMS
305 INDUSTRIAL PARKWAY, WATERLOO, IN 46783
PHONE: (260) 837-7891 FAX: (260) 837-7384
PO BOX 1006, 200 WHISTON RD, SHANSEA, SC 29160
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WOLVERINE CO. LLC
MORENCI, MI 49256
CUSTOMER NAME
S.E.A. BUILDERS, INC.
PETTISVILLE, OH 43553

PROJECT NAME
WOLVERINE CO. LLC
MORENCI, MI 49256

CUSTOMER NAME
S.E.A. BUILDERS, INC.
PETTISVILLE, OH 43553

SHEET TITLE
W18J0142A

SHEET
E4 of 7

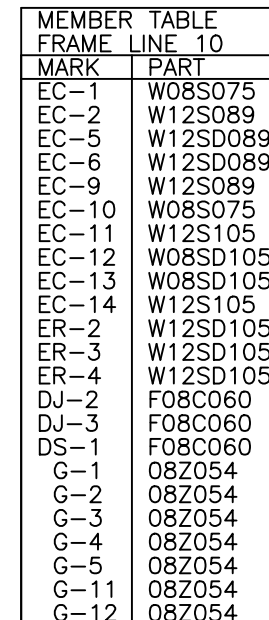
STATE OF MICHIGAN
CHRISTOPHER H. MULLEN
ENGINEER
NO. 65934

03/07/2018

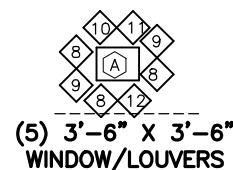
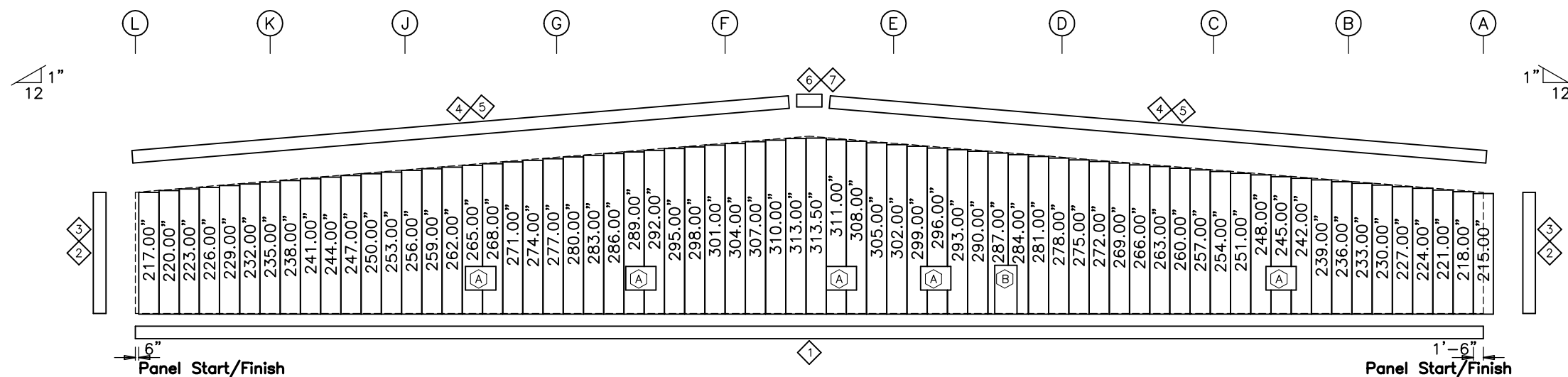
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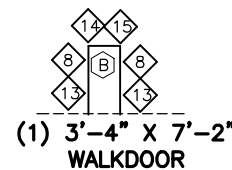
BOLT TABLE				
FRAME LINE 10				
LOCATION	QUAN	TYPE	DIA	LENGTH
ER-2/ER-4	8	A325	5/8"	2 1/4"
ER-2/ER-3	8	A325	5/8"	2 1/4"
ER-3/ER-3	4	A325	1/2"	2"
Columns/Raf	6	A325	1/2"	2"



TRIM TABLE			
FRAME LINE 10			
◇ID	PART	LENGTH	DETAIL
1	BSB01	122.000	TRIM_301
2	OCA01	242.000	
3	MFA01	121.000	TRIM_8
4	RTA02	242.000	TRIM_952
5	RRA01	121.000	TRIM_952
6	M0101	26.440	
7	MPP01	14.380	
8	CCA121	121.000	TRIM_19
9	JTA087	87.000	TRIM_99
10	CCE076	76.000	TRIM_19
11	HTA080	80.000	TRIM_99
12	STA076	76.000	TRIM_99
13	JTA087	87.000	TRIM_98
14	CCE040	40.000	TRIM_19
15	HTA044	44.000	TRIM_98



ENDWALL SHEETING & TRIM: FRAME LINE 10
PANELS: 26 Ga. AW – Burnished Slate SP



ENDWALL FRAMING PLAN

GENERAL NOTES

1. STD. ROD/CABLE SIZES PER PART PREFIX ARE:
- | <u>ROD</u> | <u>CABLE</u> |
|-------------------|-------------------|
| RDB- = 5/8" ROD | CAA- = 1/4" CABLE |
| RDC- = 3/4" ROD | CAB- = 3/8" CABLE |
| RDD- = 7/8" ROD | CAC- = 1/2" CABLE |
| RDE- = 1" ROD | |
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| RDG- = 1 1/4" ROD | |
2. ROD/CABLE BRACING THAT OCCURS IN FLUSH OR INSET GIRT CONDITIONS WILL REQUIRE FIELD SLOTTING OF GIRT WEBS TO ALLOW FOR BRACING.
3. FRAMED OPENINGS WHICH ARE FIELD LOCATED WILL REQUIRE FIELD CUTTING OF GIRTS AND SHEETING.
4. THIS DRAWING IS NOT TO SCALE.

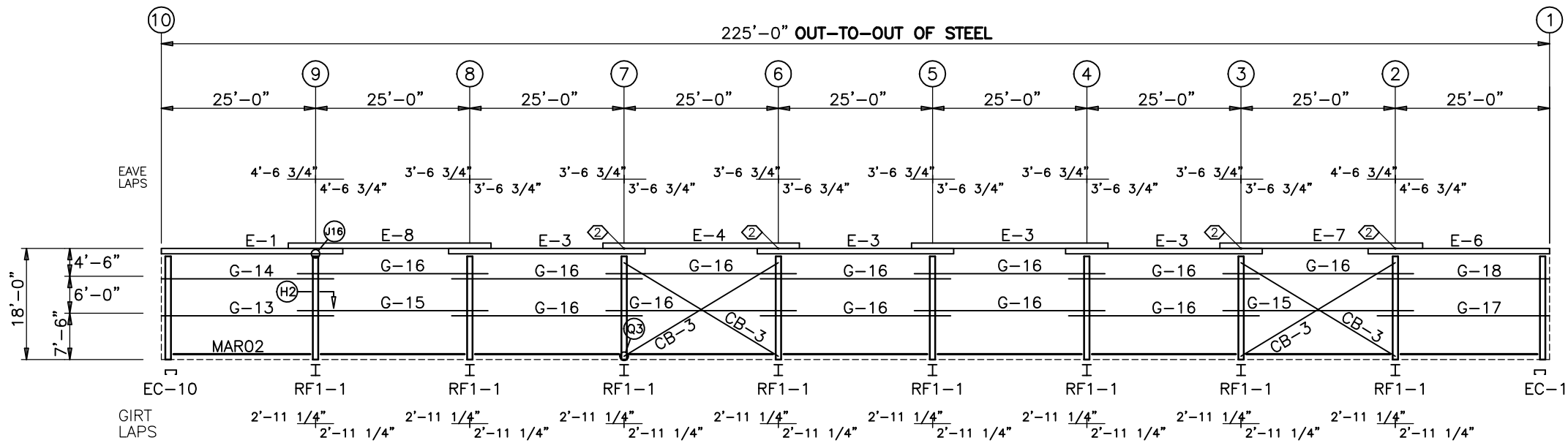
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E5 of 7

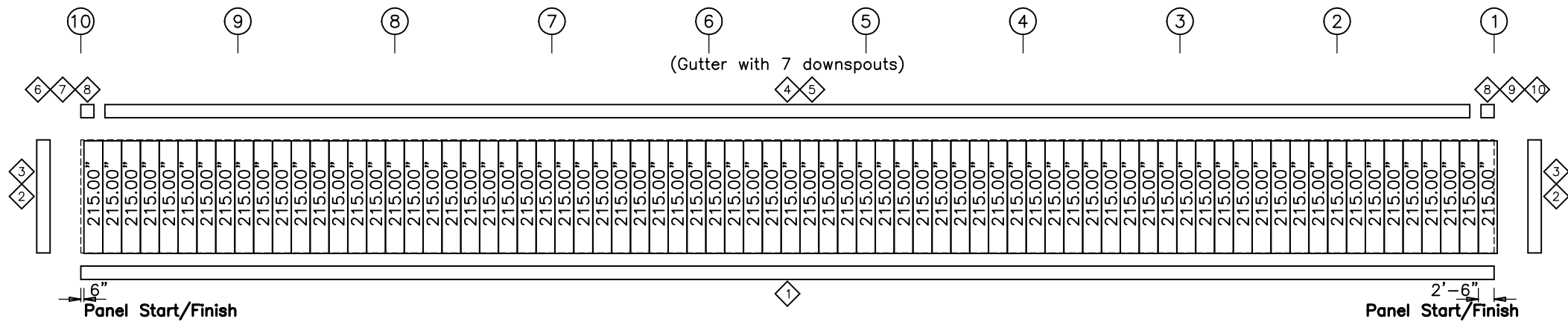
PROJECT NAME
WOLVERINE CO. LLC
, MORENCI, MI 49256

CUSTOMER NAME
S.S.E.A. BUILDERS, INC.
PETTISVILLE, OH 43553

JOB NUMBER W18J0142A	SHEET TITLE
--------------------------------	-------------



SIDEWALL FRAMING: FRAME LINE A



SIDEWALL SHEETING & TRIM: FRAME LINE A
PANELS: 26 Ga. AW – Burnished Slate SP

SPECIAL BOLTS					
◇ ID	QUAN	TYPE	DIA	LENGTH	WASH
2	8	A325	1/2"	2"	1

MEMBER TABLE	
FRAME LINE A	
MARK	PART
E-1	10Z060
E-3	10Z060
E-4	10Z105
E-6	10Z060
E-7	10Z105
E-8	10Z060
G-13	08Z075
G-14	08Z060
G-15	08Z060
G-16	08Z054
G-17	08Z075
G-18	08Z060
CB-3	RDE-

TRIM TABLE			
FRAME LINE A			
◇ ID	PART	LENGTH	DETAIL
1	BSB01	122.000	TRIM_301
2	OCA01	242.000	
3	MFA01	121.000	TRIM_8
4	GTA01	121.000	TRIM_951
5	GTA02	242.000	TRIM_951
6	H4000	5.000	TRIM_21
7	RCA01	9.250	
8	GRA01	8.000	
9	H4000	5.000	
10	RCA02	9.250	

SIDEWALL FRAMING PLAN

GENERAL NOTES

- STD. ROD/CABLE SIZES PER PART PREFIX ARE:
ROD = 5/8" ROD
RDB- = 5/8" ROD
RDC- = 3/4" ROD
RDD- = 7/8" ROD
RDE- = 1" ROD
RDF- = 1 1/8" ROD
RDG- = 1 1/4" ROD
CABLE = 1/4" CABLE
CAB- = 3/8" CABLE
CAC- = 1/2" CABLE
- ROD/CABLE BRACING THAT OCCURS IN FLUSH OR INSET GIRT CONDITIONS WILL REQUIRE FIELD SLOTTING OF GIRT WEBS TO ALLOW FOR BRACING.
- FRAMED OPENINGS WHICH ARE FIELD LOCATED WILL REQUIRE FIELD CUTTING OF GIRTS AND SHEETING.
- THIS DRAWING IS NOT TO SCALE.

DATE
3-1-18

PE
CMI

CHK
WDY

DWN
MBS

ISSUE
ANCHOR BOLTS

DATE
3-1-18

PE
CMI

CHK
WDY

DWN
MBS

ISSUE
PERMITS

DATE
3-6-18

PE
CMI

CHK
WDY

DWN
MBS

ISSUE
FINALS

NUCOR BUILDING SYSTEMS
305 INDUSTRIAL PARKWAY, WATERLOO, IN 46783
PHONE: (260) 837-7891 FAX: (260) 837-7384
PO BOX 1006, 200 WHISTON RD, SHANESHA, SC 29160
PHONE: (803) 588-2100 FAX: (803) 588-2121
600 APACHE TRAIL, TERRELL, TX 75160
PHONE: (972) 524-5467 FAX: (972) 524-5417
10000 WILLOW CREEK, DALLAS, TX 75243
PHONE: (435) 919-3100 FAX: (435) 919-3101

WOLVERINE CO. LLC
MORENCI, MI 49256
CUSTOMER NAME
S.E.A. BUILDERS, INC.
PETTISVILLE, OH 43553

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SHEET TITLE
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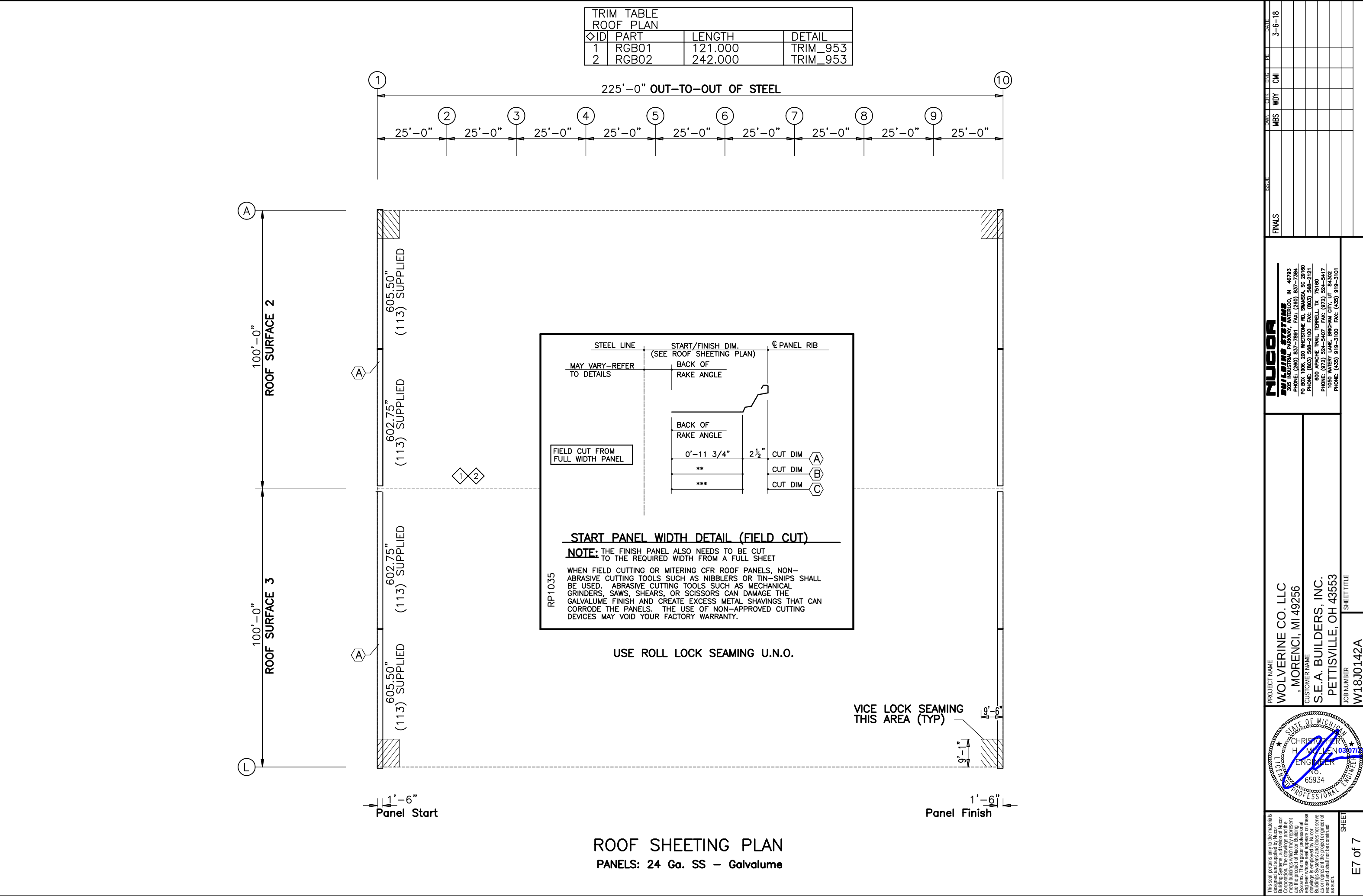
JOB NUMBER
W18J0142A

STATE OF MICHIGAN
CHRISTOPHER H. MULLEN
ENGINEER
NO. 65934
PROFESSIONAL ENGINEER

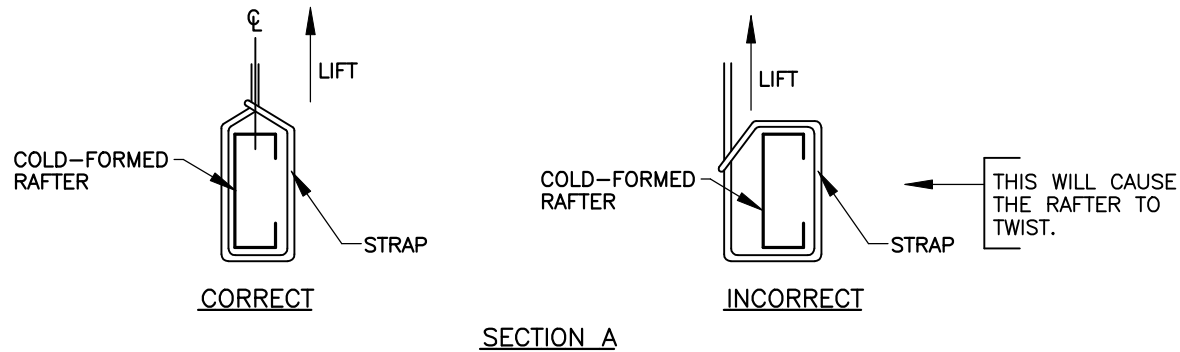
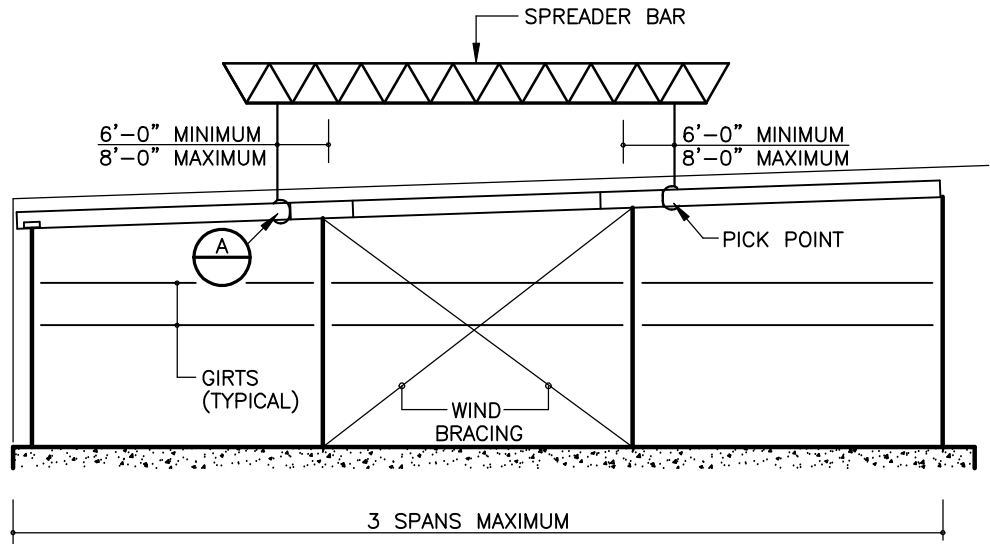
03/07/2018

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SHEET
E6 of 7



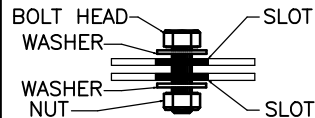
440005



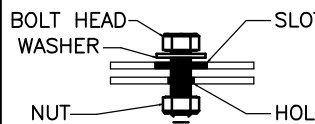
COLD FORMED ENDWALL ERECTOR DETAIL

- 1) GIRTS, CLIPS, RAFTERS AND COLUMNS MUST BE SECURELY AND TIGHTLY BOLTED TOGETHER PRIOR TO STANDING UP THE ENDWALL SECTION. (NOTE: THE GIRTS PROVIDE STABILITY TO THE ENDWALL SYSTEM DURING THE ERECTION PROCESS)
- 2) BUILT-UP COLUMNS/RAFTERS MUST BE ERECTED INDIVIDUALLY WHEN USED WITH COLD FORMED ENDWALL PARTS
- 3) THIS DETAIL IS SUGGESTED IN ORDER TO MAINTAIN STRUCTURAL INTEGRITY OF ENDWALL PARTS AFTER ERECTION. SOUND JUDGEMENT BASED ON ERECTION KNOWLEDGE AND EXPERIENCE SHOULD BE APPLIED REGARDING SAFETY AND PRACTICALITY OF INDIVIDUAL SITUATIONS.
- 4) REGULATIONS SET FORTH BY THE OCCUPATIONAL SAFETY AND HEALTH ACT, LOCAL, STATE, AND/OR FEDERAL AGENCIES SHOULD BE ADHERED TO AT ALL TIMES. THE METAL BUILDING MANUFACTURER IS NOT RESPONSIBLE FOR INJURY, DAMAGE, OR FAILURE WHICH MAY RESULT FROM FAILING TO MEET ANY OF THESE REGULATIONS.

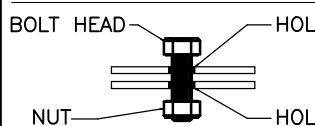
TYPICAL WASHER REQUIREMENTS ERECTOR NOTE: (UNLESS NOTED OTHERWISE ON DRAWINGS)



SLOT TO SLOT CONNECTIONS
WASHERS ARE REQUIRED ON BOTH SIDES OF MATERIAL IF SLOTS ARE USED ON BOTH SIDES (NOTE LAPPED ZEE MEMBER EXCEPTION).



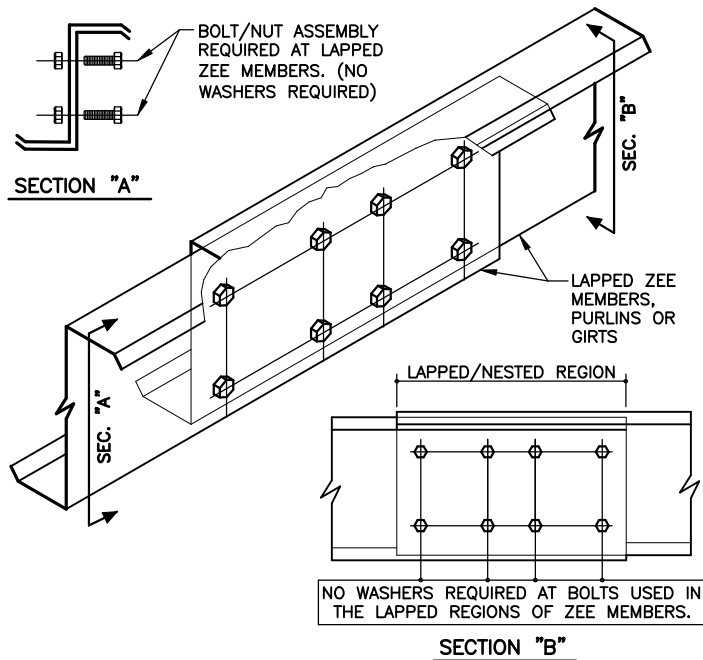
SLOT TO HOLE CONNECTIONS
ONE WASHER REQUIRED ON SLOTTED SIDE ONLY.



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

WASHER PART NUMBERS

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		



TYPICAL FIELD WELD REQUIREMENTS ERECTOR NOTE: (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.

GALVANIZED STEEL FIELD WELDING RECOMMENDATIONS

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 ARE ALSO 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

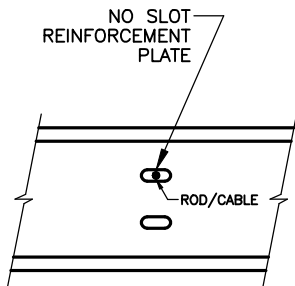
WHEN WELDING DIRECTLY ON GALVANIZED STEEL IS UNAVOIDABLE, OSHA PERMISSIBLE EXPOSURE LIMITS (PELS) MAY BE EXCEEDED AND EVERY PRECAUTION, INCLUDING HIGH-VELOCITY CIRCULATING FANS WITH FILTERS, AIR RESPIRATORS AND FUME-EXTRACTION SYSTEMS SUGGESTED BY AWS, SHOULD BE EMPLOYED. FUMES FROM WELDING GALVANIZED STEEL CAN CONTAIN ZINC, IRON, AND LEAD. FUME COMPOSITION TYPICALLY DEPENDS ON THE COMPOSITION OF THE 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 Z-49.1, SAFETY IN WELDING, CUTTING AND ALLIED PROCESSES, WHICH CONTAINS INFORMATION ON THE PROTECTION OF PERSONNEL AND THE GENERAL AREA, VENTILATION AND FIRE PREVENTION.

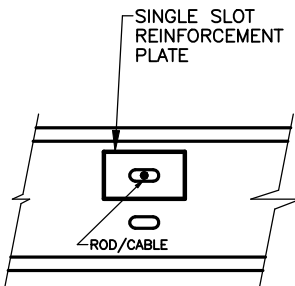
INFORMATION COURTESY OF AMERICAN GALVANIZERS ASSOCIATION

ERECTOR NOTE:

WHEN SLOT REINFORCEMENT PLATES ARE PRESENT IN 12" COLD-FORMED MEMBERS, ROD/CABLE BRACE MUST UTILIZE REINFORCED SLOT LOCATION.



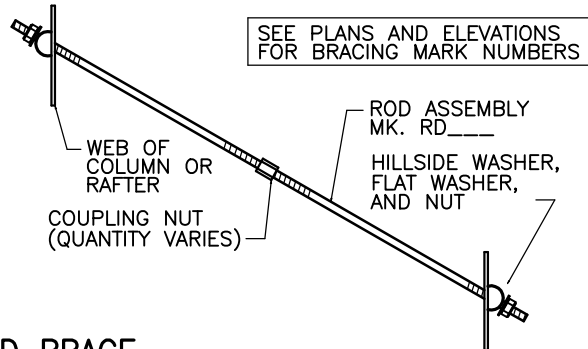
SLOT PATTERN w/ NO SLOT REINFORCEMENT PLATES



SLOT PATTERN WITH SLOT REINFORCEMENT PLATE

12" COLD-FORMED MEMBER

ROD DIAMETER	MARK NUMBER	HILLSIDE WASHERS	FLAT WASHERS	A307/A325 NUTS	COUPLING NUTS
5/8" Ø	RDB ____	(2) H0930	(2) H0210	(2) H0310	H0810
3/4" Ø	RDC ____	(2) H0930	(2) H0220	(2) H0320	H0820
7/8" Ø	RDD ____	(2) H0930	(2) H0230	(2) H0325	H0830
1" Ø	RDE ____	(2) H0960	(2) H0240	(2) H0330	H0840
1 1/8" Ø	RDF ____	(2) H0960	(2) H0250	(2) H0450	H0850
1 1/4" Ø	RDG ____	(2) H0960	(2) H0260	(2) H0340	H0860



ROD BRACE

WEB TO WEB

Q3



PROJECT NAME
WOLVERINE CO. LLC
MORENCI, MI 49256

CUSTOMER NAME
S.E.A. BUILDERS, INC.
PETTISVILLE, OH 43553

JOB NUMBER
W18J0142A

SHEET TITLE

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SHEET
D1 of 9

DATE
3-6-18

FINALS

Nucor
BUILDING SYSTEMS
305 INDUSTRIAL PARKWAY, WATERLOO, IN 46783
PHONE: (260) 837-7891 FAX: (260) 837-7384
PO BOX 1006, 200 WHEATSTONE RD, SHARPSBURG, SC 29160
PHONE: (803) 588-2100 FAX: (803) 588-2121
600 APACHE TRAIL, TERRELL, TX 75160
PHONE: (972) 524-5467 FAX: (972) 524-5417
COLUMBIA, MO 65201
PHONE: (417) 875-1100 FAX: (417) 875-1101



- 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.



B00010



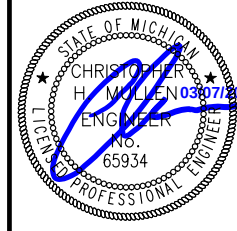
BUILDING SYSTEMS
 305 INDUSTRIAL PARKWAY, WATERLOO, IN 47393
 PHONE: (800) 837-7891 FAX: (202) 837-7384
 PO BOX 1060, 200 WHEATSTONE RD, SWANSEA, SC 29160
 PHONE: (803) 568-2100 FAX: (803) 568-2121

600 ACACIA TRAIL, TERRELL, TX 75160
 PHONE: (972) 524-3474 FAX: (972) 524-5417

1050 WATERLY LANE, BRIGHAM CITY, UT 84302
 PHONE: (435) 919-3100 FAX: (435) 919-3101

NUCOR

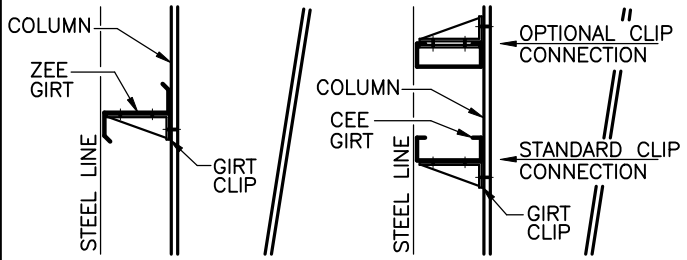
PROJECT NAME	WOLVERINE CO. LLC	SHEET TITLE
	, MORENCI, MI 49256	
CUSTOMER NAME	S.E.A. BUILDERS, INC.	JOB NUMBER
	PETTISVILLE, OH 43553	
		W18J0142A



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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. (REFER TO THE GIRT DETAILS ON THE ERECTION DRAWINGS FOR REQUIREMENTS) BOTH CLIP ATTACHMENTS ARE SHOWN IN THE DETAIL BELOW.



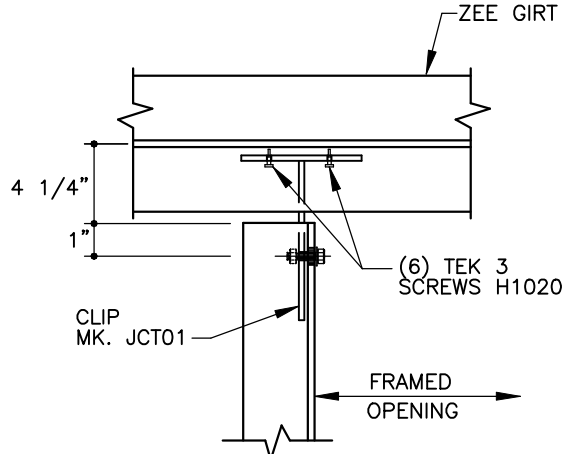
ZEE GIRT ORIENTATION CEE GIRT ORIENTATION

STANDARD GIRT ORIENTATION DETAIL

NOTE: BYPASS GIRT CONDITION IS SHOWN FOR REFERENCE ONLY. YOUR PROJECT MAY HAVE FLUSH OR INSET GIRTS.

ERECTOR NOTES:

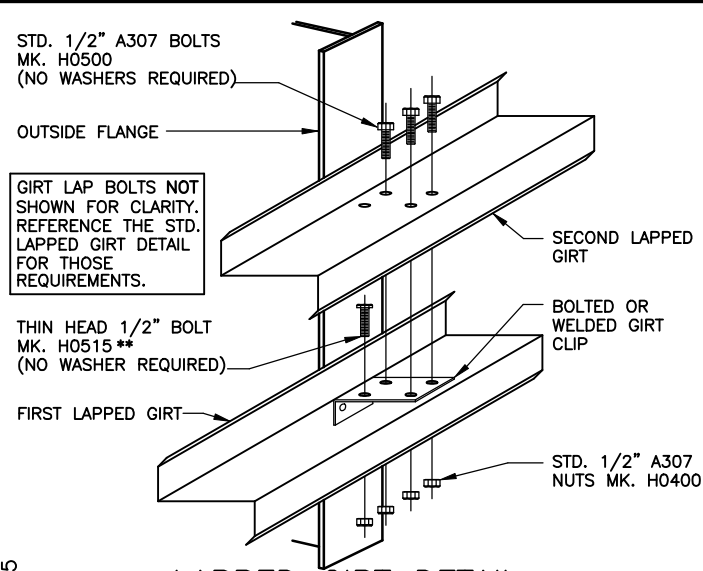
- IF THE T-CLIP IS LOCATED IN THE SAME LOCATION AS NESTED GIRT BOLTS, THE NESTED GIRT BOLTS CAN BE REMOVED.
- PRE-DRILL HOLES AT NESTED ZEE GIRTS AND DOUBLE CEE GIRTS AS REQUIRED.



DOOR JAMB TO GIRT

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

L8



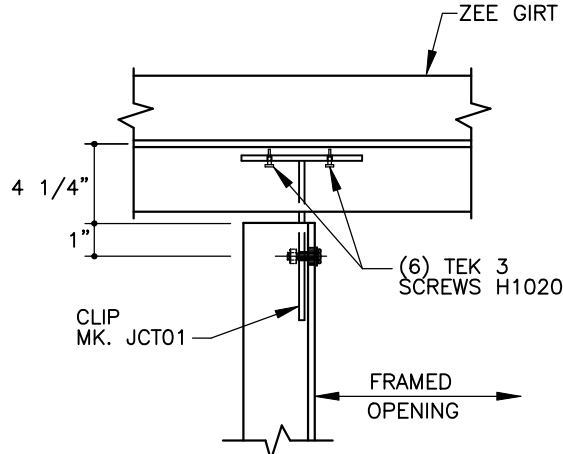
LAPPED GIRT DETAIL

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.

ERECTOR NOTES:

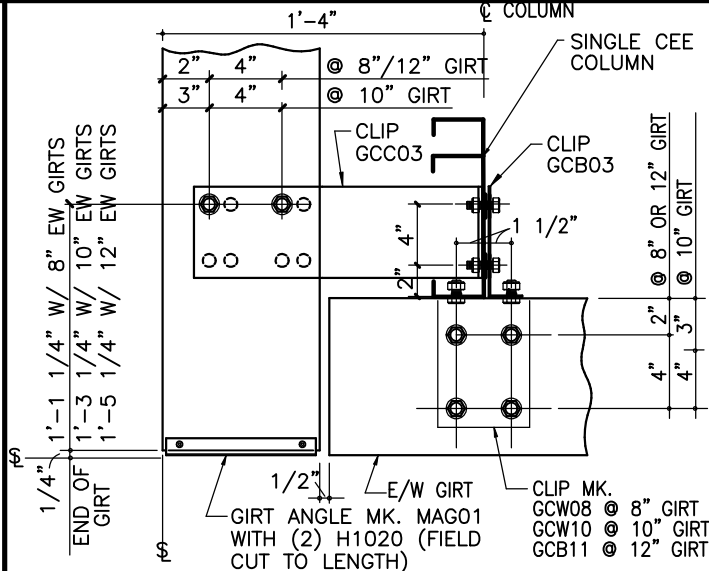
- IF THE T-CLIP IS LOCATED IN THE SAME LOCATION AS NESTED GIRT BOLTS, THE NESTED GIRT BOLTS CAN BE REMOVED.
- PRE-DRILL HOLES AT NESTED ZEE GIRTS AND DOUBLE CEE GIRTS AS REQUIRED.



DOOR JAMB TO GIRT

USE (2) 1/2" x 1 1/4" A307 THIN-HEAD BOLTS H0515 / NUTS H0400
REFERENCE ERECTOR NOTE FOR TYPICAL WASHER REQUIREMENTS

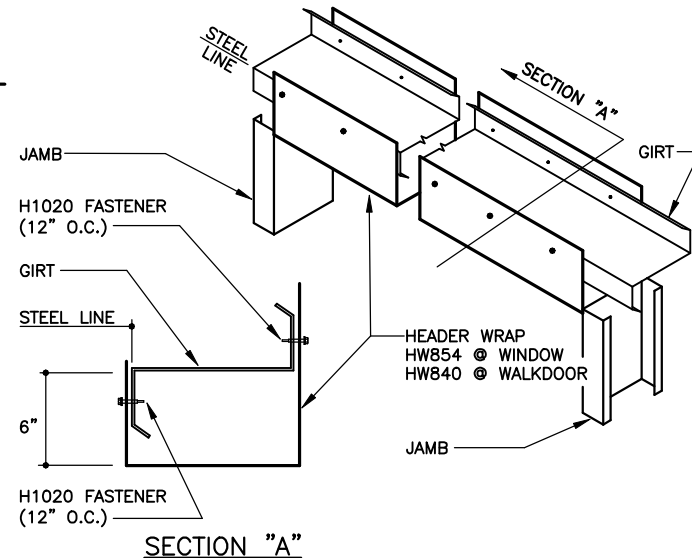
L9



BYPASS ENDWALL GIRT AT CORNER

USE (10) 1/2" x 1 1/4" A307 BOLTS H0500 / NUTS H0400
REFERENCE ERECTOR NOTE FOR TYPICAL WASHER REQUIREMENTS

D7

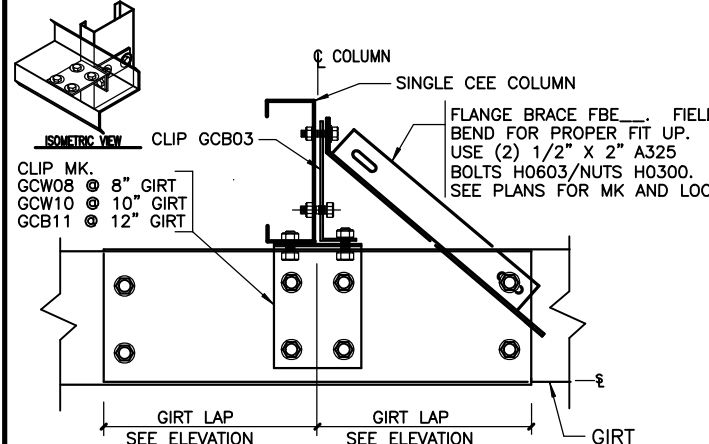


SECTION "A"

HEADER WRAP DETAIL

ERECTOR NOTE:

AT EACH LAPPED GIRT CONNECTION, (1) 1/2" x 1 1/4" THIN HEAD BOLT H0515/NUT H0400 MUST BE USED TO ATTACH THE FIRST GIRT TO THE GIRT CLIP. THE BOLT/NUT ASSEMBLY MUST BE WRENCH TIGHT PRIOR TO THE LAPPED GIRT BEING INSTALLED. REFERENCE THE STANDARD "LAPPED GIRT DETAIL" FOR MORE INFORMATION.



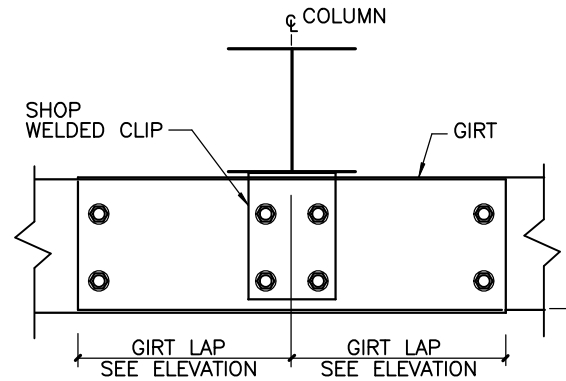
WALL GIRT TO COLUMN

USE (11) 1/2" x 1 1/4" A307 BOLTS H0500 / NUTS H0400
REFERENCE ERECTOR NOTE FOR TYPICAL WASHER REQUIREMENTS

C7

ERECTOR NOTE:

AT EACH LAPPED GIRT CONNECTION, (1) 1/2" x 1 1/4" THIN HEAD BOLT H0515/NUT H0400 MUST BE USED TO ATTACH THE FIRST GIRT TO THE GIRT CLIP. THE BOLT/NUT ASSEMBLY MUST BE WRENCH TIGHT PRIOR TO THE LAPPED GIRT BEING INSTALLED. REFERENCE THE STANDARD "LAPPED GIRT DETAIL" FOR MORE INFORMATION.

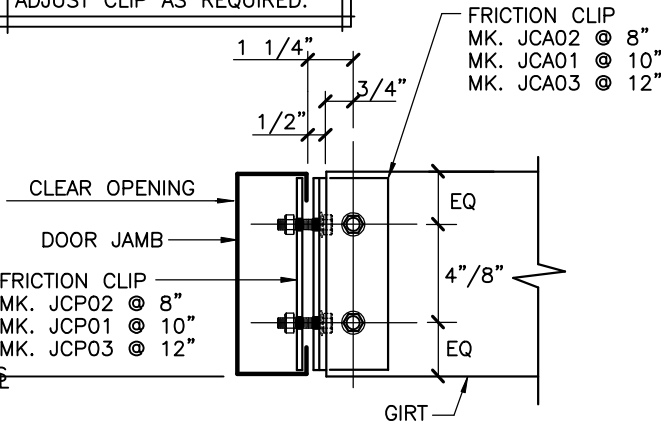


GIRT TO COLUMN

USE (7) 1/2" x 1 1/4" A307 BOLTS H0500 / NUTS H0400
REFERENCE ERECTOR NOTE FOR TYPICAL WASHER REQUIREMENTS

H2

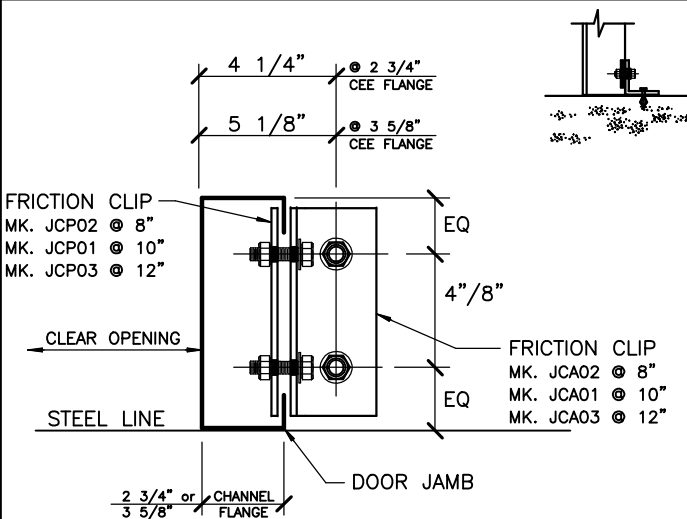
NOTE:
INSTALL CLIPS ON JAMB BEFORE STANDING JAMB. USE LEVEL TO ALIGN GIRTS
ADJUST CLIP AS REQUIRED.



GIRT TO JAMB

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

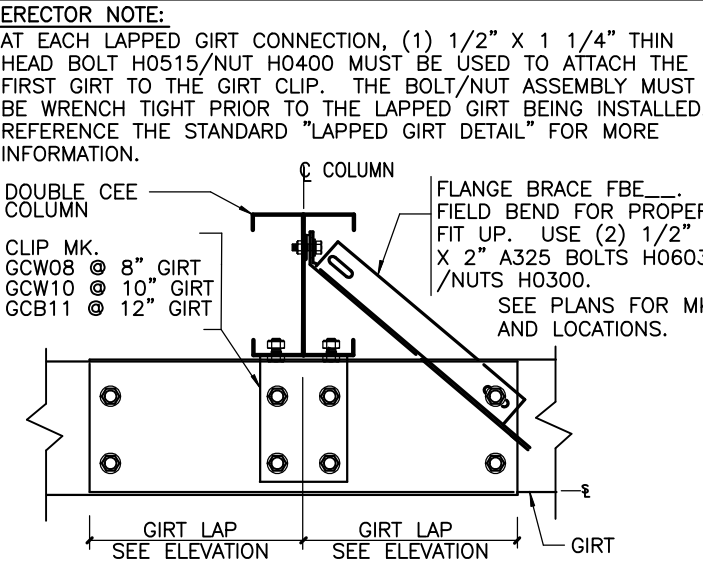
K1



JAMB TO FINISHED FLOOR

USE (2) 1/2" x 1 1/4" A307 BOLTS H0500 / NUTS H0400
ATTACHMENT TO SLAB BY OTHERS
REFERENCE ERECTOR NOTE FOR TYPICAL WASHER REQUIREMENTS

E6



WALL GIRT TO COLUMN

USE (9) 1/2" x 1 1/4" A307 BOLTS H0500 / NUTS H0400
REFERENCE ERECTOR NOTE FOR TYPICAL WASHER REQUIREMENTS

C8

BYPASS GIRT to CEE RAFTER WEB

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

W6

DATE	3-6-18
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FINALS	
DATE	
ISSUE	
FINALS	
DATE	
ISSUE	
FINALS	

NUCOR BUILDING SYSTEMS
300 INDUSTRIAL PARKWAY, WATERLOO, IN 46783
PHONE: (260) 837-7891 FAX: (260) 837-7384
PO BOX 1006, 200 WHISTON RD, SHARPSVILLE, SC 29160
PHONE: (803) 588-2100 FAX: (803) 588-2121
600 APACHE TRAIL, TERRELL, TX 75160
PHONE: (972) 524-5407 FAX: (972) 524-5417
PHONE: (435) 919-5100 FAX: (435) 919-5101

WOLVERINE CO. LLC
MORENCI, MI 49256
CUSTOMER NAME: S.E.A. BUILDERS, INC.
PETTISVILLE, OH 43553
JOB NUMBER: W18J0142A
SHEET TITLE: D4 of 9

STATE OF MICHIGAN
CHRISTOPHER H. MULLEN
ENGINEER
No. 65934
Professional Engineer

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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 NBS.

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 by NBS in accordance with the terms and conditions of the NBS contract documents. Contact the NBS Quality Service Representative to arrange scheduling, delivery and return of the seaming tools OR to purchase other roof accessory tools (crimpers, modularity tools and clamps.)

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

CFR CRIMPING/SEAMING

REQUIREMENTS

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

- ☐ NUCOR ROLL LOCK™ SEAM (SEE NOTE 1 AND 2 BELOW)
- ☐ MODIFIED NUCOR ROLL LOCK™ SEAM (SEE DETAIL ON FOLLOWING SHEET)
- ☐ NUCOR VISE LOCK® SEAM (SEE NOTE 1, 2 AND 3 BELOW)
- ☐ NUCOR 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 SEALED PANEL. OFTEN, FACTORY MUTUAL RATINGS ALSO REQUIRE A VL360 MECHANICAL SEAMER.

SEE THE CFR SEAMING MANUAL FOR IMPORTANT ERECTOR INFO ABOUT VISE LOCK 360 SEAMER REQUIREMENTS.

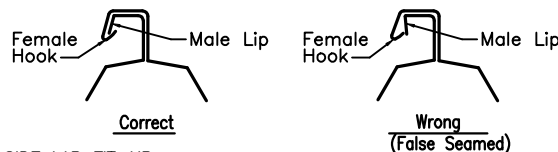
WHEN TO CRIMP/SEAM

As work progress's, it shall be the erector's responsibility to apply the Nucor Roll Lock™ hand crimping method in such a way as to ensure that the panels have been adequately secured until mechanical seaming can occur.

Whenever possible, the installed roof panels should be mechanically seamed as work progress's OR 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.

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.

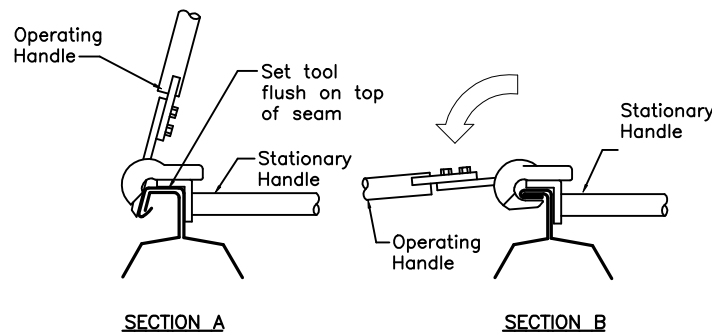
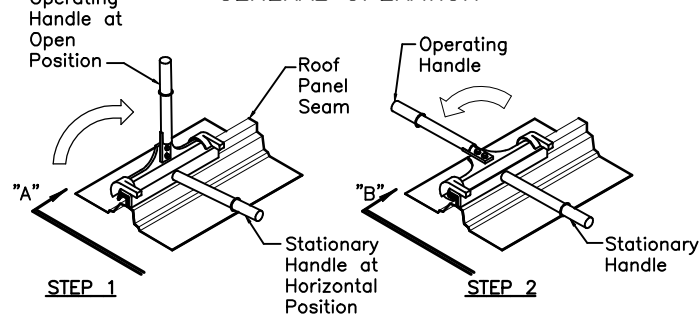
CAUTION: Panel clips that are not properly aligned can cause faulty seaming/crimping and objectionable seam appearance.

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 TOOL OPERATION

GENERAL OPERATION



NOMENCLATURE

The detail above identifies the operational parts of the Roll Lock/Vise Lock Crimping Tool. This crimping tool is shown for the manually producing the Roll Lock Seam.

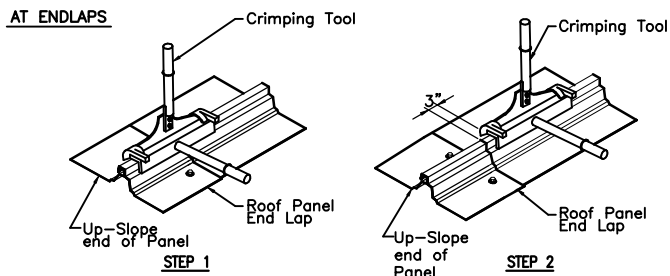
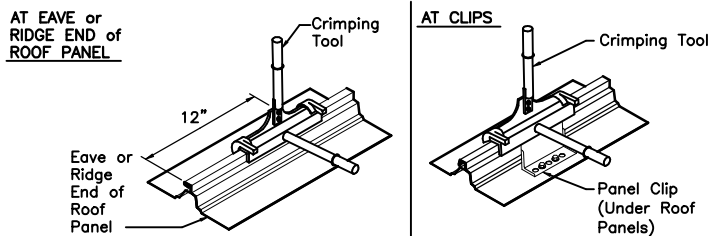
TOOL ORIENTATION & FORMING THE SEAM

Orient the tool to fit correctly onto the roof panel seam as shown in Sec A above.

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.

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

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.

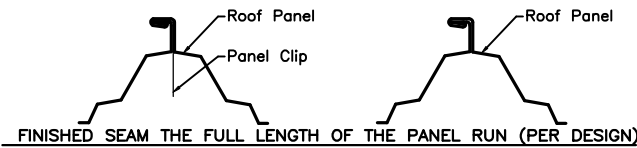
STEP 1 Center the end of the crimping tool over the end lap and seam that area.

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

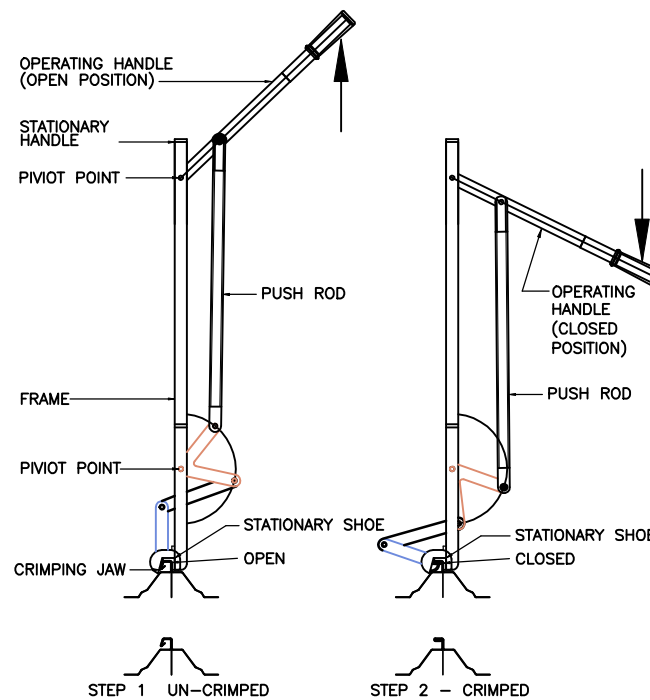
The NBS CFR roof system has three seam type options. The project design and performance requirements govern which seam type is required. Different seam types may be required on specific areas of the roof. In all cases, refer to the Roof Seaming Plan in erection drawings set to determine the required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

NUCOR VISE LOCK® SEAM



The Vise Lock seam can be achieved by two different methods:
1. Continually hand crimping the seam with the Vise Lock Hand Crimper.
2. Mechanically seaming with a Vise Lock Seaming Machine.

Refer to the CFR SEAMING MANUAL for specific motorized seaming instructions. This manual is included in the Motorized Seamer Kit.



MANUAL CRIMPING WITH THE STAND-UP VISE LOCK CRIMPER

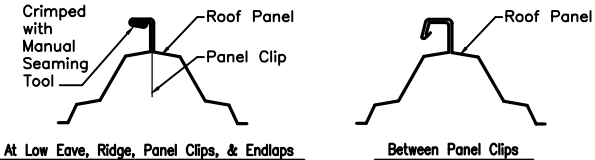
The Manual Crimping procedure for this stand-up Vise Lock crimper is the same procedure as the small Vise Lock hand crimper. This crimper could be used in conjunction with the stand-up Vise Lock 360 crimper. Continually crimping with this crimper will result in a Vise Lock Seam.

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.**

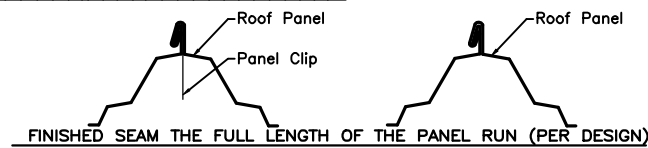
STEP 2 Push down on the handle until it stops. Release and move the crimper approximately 4" and repeat step #1 (as needed).

NUCOR ROLL LOCK™ SEAM



The "Roll Lock" Seam requires the roof panels be crimped with the hand crimping tool 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.

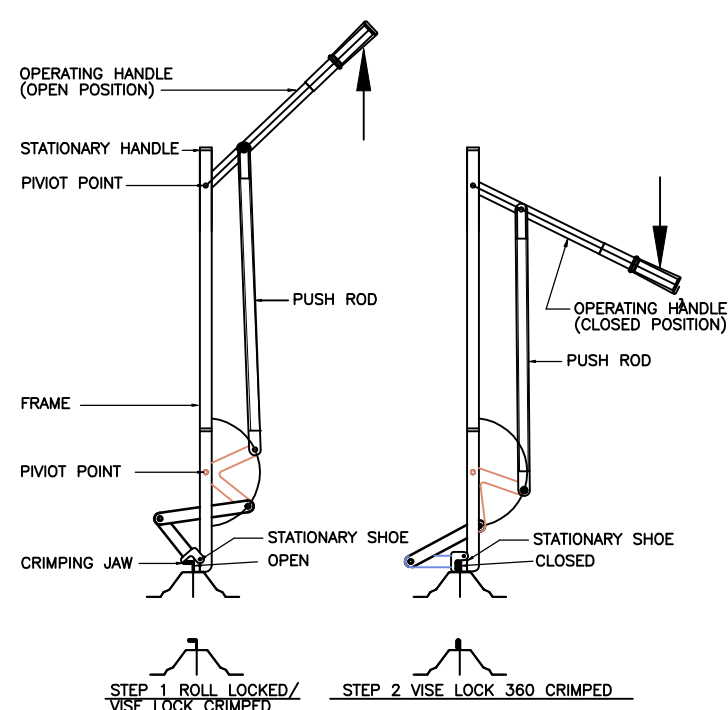
NUCOR VISE LOCK 360® SEAM



The Vise Lock 360 seam can be achieved by three different methods:

- Continually hand crimping the seam with the Vise Lock 360 Hand Crimper. Seam needs to be hand crimped or seamed into a Vise Lock Seam prior to using the Vise Lock 360 crimper. This crimper is a buy-out tool and is used to hand crimp small edge and corner zones.
- Utilizing a two pass (separate seamers) seamer method. Meaning the first pass seamer would be a Vise Lock Seamer and the second seamer would be a Vise Lock 360 Seamer.
- Utilizing a Single directional Vise Lock 360 Seamer.

Refer to the CFR SEAMING MANUAL for specific motorized seaming instructions. This manual is included in the Motorized Seamer Kit.



MANUAL CRIMPING WITH THE STAND-UP VISE LOCK 360 CRIMPER

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

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/seam the area with the proper VISE LOCK tool.

NOTE: DO NOT USE THE VISE LOCK 360 CRIMPER FOR TEMPORARY CRIMPING

DATE	3-6-18
TIME	
ENG	
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MBS	
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FINALS	

NUCOR BUILDING SYSTEMS
300 INDUSTRIAL PARKWAY, WATERLOO, IN 46783
PHONE: (260) 837-7891 FAX: (260) 837-7384
PO BOX 1006, 200 WHISTON RD, SWANSEA, SC 29160
PHONE: (803) 588-2100 FAX: (803) 588-2121
600 APACHE TRAIL, TERRELL, TX 75760
PHONE: (972) 524-5407 FAX: (972) 524-5417
1400 W. WILSON AVE., WILSON, NC 27157
PHONE: (435) 919-3100 FAX: (435) 919-3101

WOLVERINE CO. LLC
MORENCI, MI 49256
CUSTOMER NAME
S.E.A. BUILDERS, INC.
PETTISVILLE, OH 43553
JOB NUMBER
W18J0142A
SHEET TITLE
D5 of 9

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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 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 SOISORS 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.

III. 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 .060" MINIMUM THICKNESS (16 GA.). A MINIMUM OF TWO FASTENERS ARE REQUIRED TO ENGAGE THE STRUCTURAL MEMBER AT EVERY PANEL CLIP LOCATION. IN CERTAIN INSTANCES, THREE FASTENERS MAY BE REQUIRED PER CLIP REQUIRED. LOOK ON CHART AT RIGHT AND IN THE ERECTION DRAWINGS FOR YOUR SPECIFIC FASTENER REQUIREMENTS. FASTENER PULLOUT VALUES ARE DEPENDENT UPON PROJECT LOCATION, SIZE, BUILDING CODE, AND LOADING.
- 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. THE ROOF CURB SUB-FRAMING IS LEVEL WITH THE SECONDARY STRUCTURAL MEMBERS. REFER TO THE DETAILS FOR PROPER JAMB LOCATIONS AND DIMENSIONS.
- 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, 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)

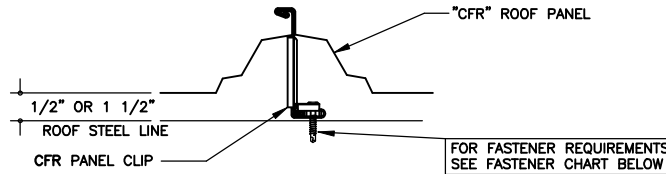
- 3.1 PRODUCT DEFINITION.
- 3.1.1 REFER TO THE SECTIONS AND DETAILS IN THESE DRAWINGS FOR SPECIFIC CLIP FASTENING REQUIREMENTS, INSULATION THICKNESS REQUIREMENTS AND LINER DECK TYPE.
- 3.1.2 COMPOSITE CFR ROOF WITHOUT THE USE OF A LINER DECK IS NOT A MBS STANDARD PRODUCT APPLICATION. DUE CONSIDERATION 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. THIS BARRIER IS NOT MY MBS. 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

CLIP FASTENING NOTES:

- ? NUCOR CLIPS ARE DESIGNED WITH (4) HOLES.
- ? WORK FOR EITHER A PURLIN OR BAR JOIST SYSTEM.
- ? FASTENER REQUIREMENTS VARY PER JOB.
- ? FAILURE TO COMPLY WITH YOUR JOBS SPECIFIC FASTENER REQUIREMENTS MAY CAUSE THE ROOF TO BE REMOVED AND REPLACED.
- ? **DO NOT OVERDRIVE FASTENERS ON SLIDING CLIPS.** OVER DRIVING CAN STRIP THE THREADS, CAUSE THE CLIP NOT TO ENGAGE THE SUPPORT MEMBER PROPERLY AND/OR THE CLIP NOT TO SLIDE PROPERLY. USE SCREW GUNS WITH TORQUE CONTROL SET TO FUNCTION PROPERLY FOR THE COMBINATION OF FASTENER SIZE, HOLE SIZE, AND MATERIAL THICKNESS.
- ? SPREAD FASTENERS OUT AS FAR AS POSSIBLE. **AVOID** PLACING FASTENERS SIDE BY SIDE.

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 (U.N.O.) 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 1-180 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

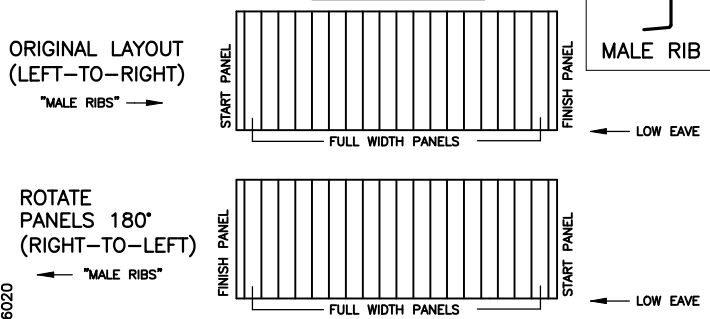
PERIMETER CLIP FASTENER REQUIREMENTS

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

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.

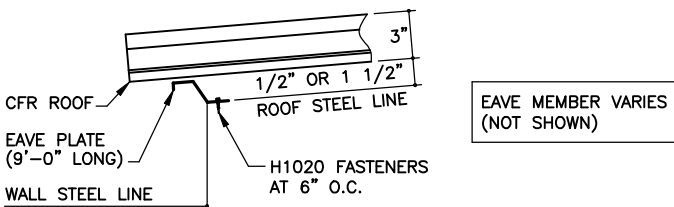
ROOF PLANE



STANDARD FASTENER SCHEDULE

H1000 SELF-TAPPING SCREW (GOOF SCREW) 17-14 x 1 1/4" WITH WASHER LONG LIFE FASTENER 3/8" HEAD	H1042 SELF-DRILLING SCREW 12-14 x 7/8" TCP3 W/O WASHER 5/16" HEAD	H1070 SELF-DRILLING SCREW 12-24 x 1 1/2" TCP5 W/O WASHER 5/16" HEAD 1/2" THK MAX DRILLING CAPACITY
H1020 SELF-DRILLING SCREW 1/4-14 x 1 1/4" TCP3 W/O WASHER 5/16" HEAD 3/16" THK MAX DRILLING CAPACITY	H1045 SELF-DRILLING SCREW 12-14 x 2" TCP3 W/O WASHER 5/16" HEAD	H1100 1/8" x 3/16" STAINLESS STEEL BLIND POP RIVET
H1030 SELF-DRILLING SCREW 12-14 x 1 1/4" TCP2 WITH WASHER LONG LIFE FASTENER 5/16" HEAD	H1047 SELF-DRILLING SCREW 1/4-14 x 2" TCP3 FLAT TOP WITH WASHER 5/16" HEAD	H1110 3/8" STAINLESS GROMMET FASTENER
H1035 SELF-DRILLING SCREW 12-14 x 1 1/2" TCP2 WITH WASHER LONG LIFE FASTENER 5/16" HEAD	H1050 SELF-DRILLING SCREW 1/4-14 x 7/8" TCP1 WITH WASHER LONG LIFE FASTENER 5/16" HEAD	H1220 SELF-DRILLING SCREW 12-14 x 1" TCP3 W/O WASHER PHILLIPS HEAD
H1040 SELF-DRILLING SCREW 12-14 x 1 1/4" TCP2 W/O WASHER 5/16" HEAD	H1060 SELF-DRILLING SCREW 1/4-14 x 7/8" TCP1 W/O WASHER 5/16" HEAD	
H1041 SELF-DRILLING SCREW 12-14 x 1 1/4" TCP2 FLAT TOP WITH WASHER 5/16" HEAD	H1061 SELF-DRILLING SCREW 1/4-14 x 7/8" TCP1 FLAT TOP WITH WASHER 5/16" HEAD	

CFR EAVE PLATE DETAIL



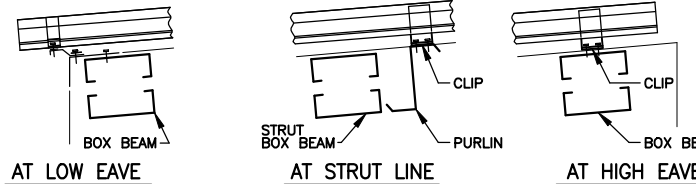
EAVE PLATE PART NUMBERS WITH SCULPTURED RAKE TRIM			
AT SHORT CLIPS		AT TALL CLIPS	
PART #	EAVE TRIM DETAIL	PART #	EAVE TRIM DETAIL
EPA03	SIMPLE EAVE OR EAVE GUTTER	EPB03	SIMPLE EAVE OR EAVE GUTTER
EPD01	LOW EAVE EXTENSION	EPE01	LOW EAVE EXTENSION
EPD	SCULPTURED EAVE	EPE	SCULPTURED EAVE

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

SPECIAL CONDITON AT A COLD-FORMED BOX BEAM

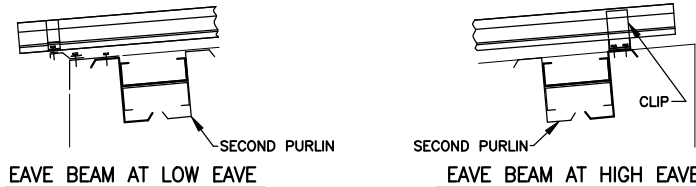
IF THIS PROJECT HAS A COLD-FORMED BOX BEAM:

- 1) AT THE **LOW EAVE**, **DO NOT** ATTACH ROOF CLIPS TO THE BOX BEAM.
- 2) 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).
- 3) 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.



DATE
3-6-18

TIME
CM

CRK
WDY

DRAWN
MBS

ISSUE

FINALS

NUCOR BUILDING SYSTEMS
300 INDUSTRIAL PARKWAY, WATERLOO, IN 46783
PHONE: (260) 837-7891 FAX: (260) 837-7384
PO BOX 1006, 200 WHISTONE RD, SHAWNEE, SC 29160
PHONE: (803) 588-2100 FAX: (803) 588-2121
600 APACHE TRAIL, TERRELL, TX 75760
PHONE: (972) 524-5467 FAX: (972) 524-5417
1000 W. WILSON AVENUE, WILSON, NC 27157
PHONE: (435) 919-3100 FAX: (435) 919-3101

PROJECT NAME
WOLVERINE CO. LLC
MORENCI, MI 49256

CUSTOMER NAME
S.E.A. BUILDERS, INC.
PETTISVILLE, OH 43553

JOB NUMBER
W18J0142A

SHEET TITLE
D6 of 9

STATE OF MICHIGAN
CHRISTOPHER H. MULLEN
ENGINEER
NO. 03907818
65934
PROFESSIONAL ENGINEER

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SEE ERECTION MANUALS FOR FURTHER INSTALLATION INSTRUCTIONS

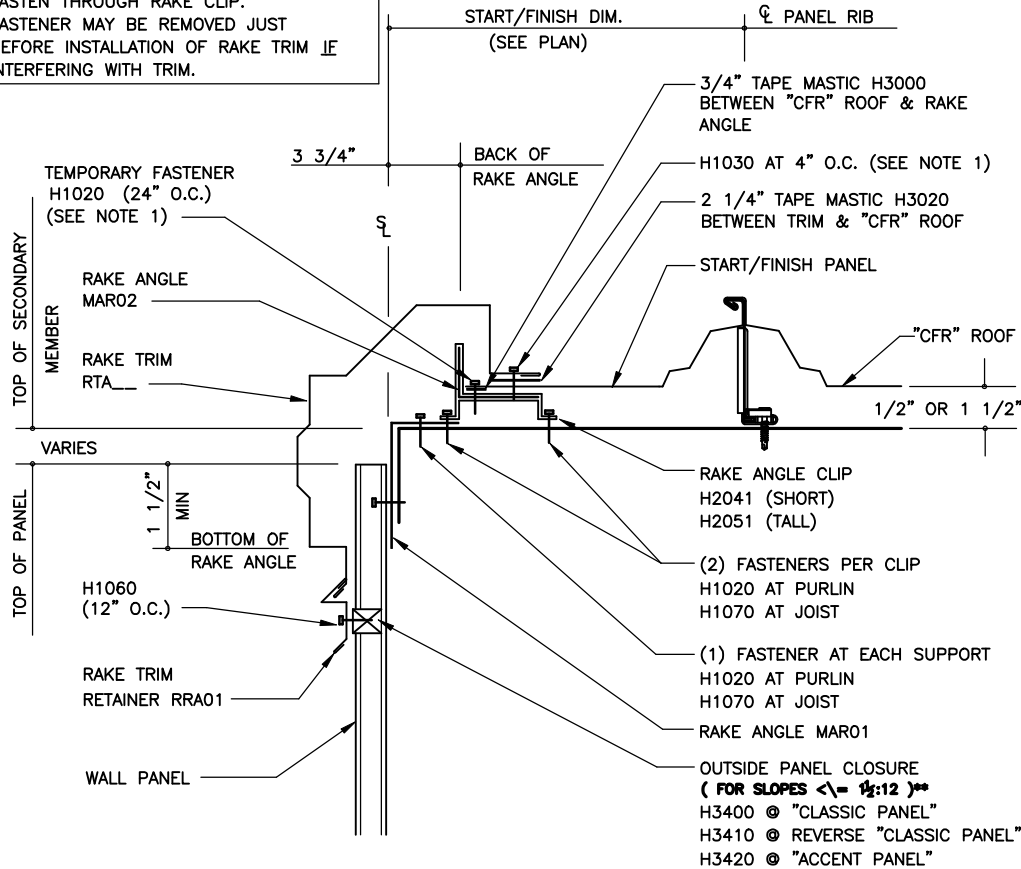
CFR ERECTION MANUAL QUICK REFERENCE:

SECTION(S)	DESCRIPTION
10.5; 10.6	UNDERSTANDING RAKE CLIP/ANGLE INSTRUCTIONS
10.8; 10.9	RAKE CLIP/RAKE ANGLE INSTALLMENT INSTRUCTIONS
10.12	FINAL PRE-PANEL INSTRUCTIONS
11.2-11.4	CFR START PANEL INSTRUCTIONS
16.6-16.9	RAKE TRIM INSTRUCTIONS

WALL SHEETING ERECTION MANUAL QUICK REFERENCE:

SECTION(S)	DESCRIPTION
7	WALL FASTENER REQUIREMENTS

NOTE 1: KEEP FASTENER A MINIMUM OF 2" AWAY FROM ANY RAKE CLIP. DO NOT FASTEN THROUGH RAKE CLIP. FASTENER MAY BE REMOVED JUST BEFORE INSTALLATION OF RAKE TRIM IF INTERFERING WITH TRIM.



SCULPTURED RAKE with CFR ROOF

"CFR" ROOF
SEE WALL SHEETING ERECTION NOTES FOR WALL PANEL FASTENER LOCATIONS
** - FOR SLOPES GREATER THAN 1 1/2:12, REFER TO DETAIL MASTIC_200 FOR CLOSURE PART NUMBERS.

TRIM_952

STANDARD FASTENER SCHEDULE

H1000 SELF-TAPPING SCREW (GOOF SCREW) 17-14 x 1 1/4" WITH WASHER LONG LIFE FASTENER 3/8" HEAD	H1042 SELF-DRILLING SCREW 12-14 x 1 1/2" TCP3 W/O WASHER 5/16" HEAD	H1070 SELF-DRILLING SCREW 12-24 x 1 1/2" TCP5 W/O WASHER 5/16" HEAD 1/2" THK MAX DRILLING CAPACITY
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H1040 SELF-DRILLING SCREW 12-14 x 1 1/4" TCP2 W/O WASHER 5/16" HEAD	H1060 SELF-DRILLING SCREW 12-14 x 7/8" TCP1 W/O WASHER 5/16" HEAD	
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PLEASE REFER TO THE ROOF AND WALL SHEETING ERECTION MANUALS FOR FURTHER ASSEMBLY INSTRUCTIONS

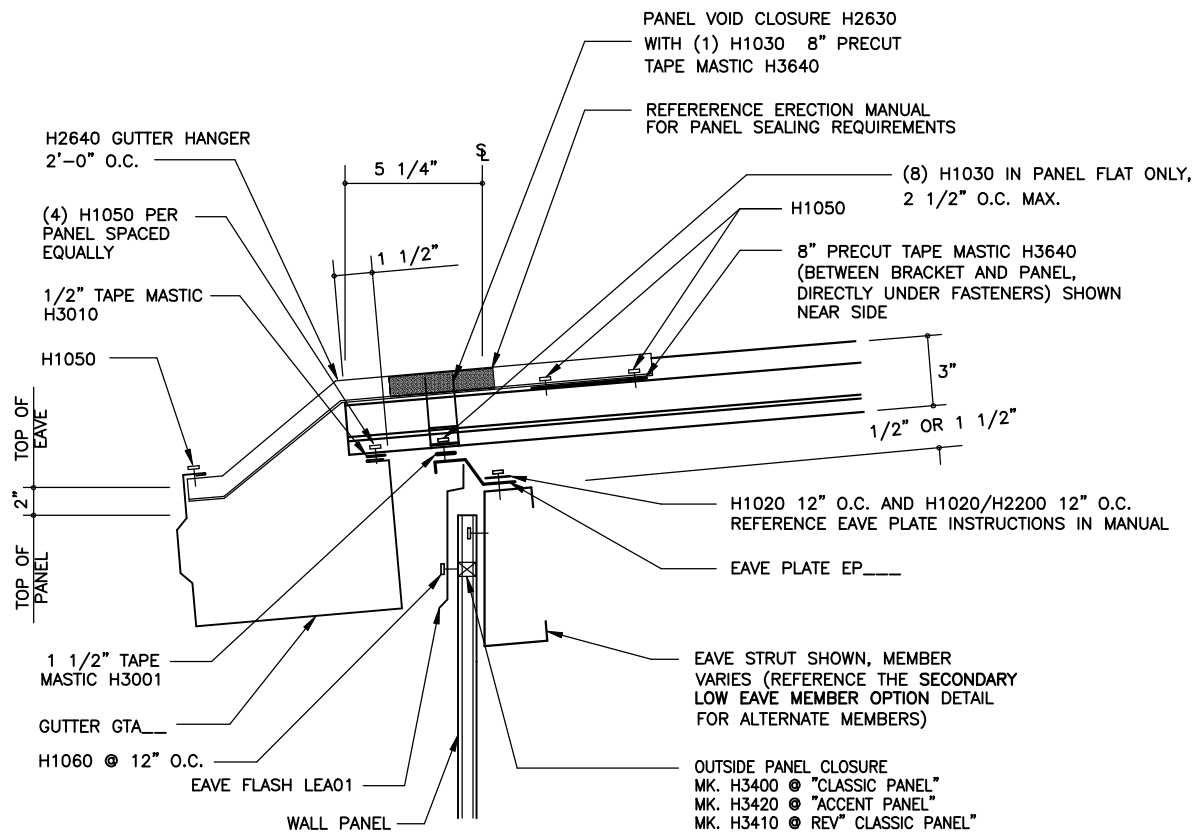
SEE ERECTION MANUALS FOR FURTHER INSTALLATION INSTRUCTIONS

CFR ERECTION MANUAL QUICK REFERENCE:

SECTION(S)	DESCRIPTION
10.4	EAVE PLATE INSTRUCTIONS
10.6	INSULATION TIE-OFF INSTRUCTIONS
10.8; 10.9	RAKE CLIP/RAKE ANGLE INSTRUCTIONS
11.3	VOID CLOSURE/SEALANT
16.1; 16.2	LOW EAVE FLASH INSTRUCTIONS
16.3-16.5; 16.7	GUTTER INSTRUCTIONS

WALL SHEETING ERECTION MANUAL QUICK REFERENCE:

SECTION(S)	DESCRIPTION
7	WALL FASTENER REQUIREMENTS



EAVE GUTTER with CFR ROOF

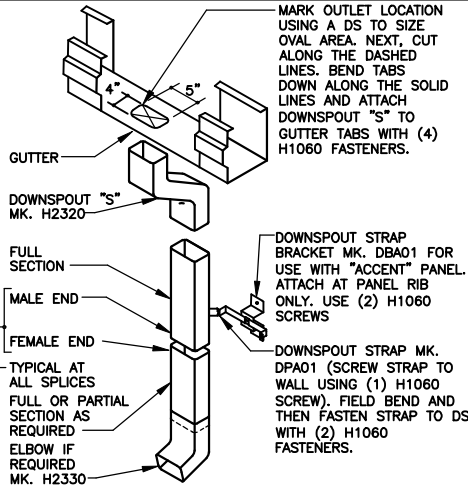
"CFR" ROOF
SEE WALL SHEETING ERECTION NOTES FOR WALL PANEL FASTENER LOCATIONS

TRIM_951

USE (4) POP RIVETS MK. H1100 AT ALL ELBOW, "S", AND DOWNSPOUT CONNECTIONS U.N.O.

ERECTOR NOTES:

- MITERING OF THE "S" WILL BE REQUIRED AT SLOPES OVER 4:12 FOR PROPER LINE UP WITH THE DOWNSPOUT.
- IF THIS PROJECT CONTRACT SPECIFIES "S" SHAPES AT THE BOTTOM OF THE DOWNSPOUT IN LIEU OF ELBOWS, SEE DETAIL.
- FIELD WORK (2) ELBOWS AS REQUIRED AT INSET/OUTSET WALL CONDITION.
- LOCATE DS STRAPS ONE AT EVERY "S", ELBOW AND DS SPLICE.



DOWNSPOUT STRAP (MK. # DPA01) AND STRAP BRACKETS (MK. DBA01) ARE ALSO PROVIDED FOR MASONRY WALL APPLICATIONS AS WELL AS FOR ATTACHMENT TO COLUMNS. FASTENERS TO MASONRY ARE NOT PROVIDED BY THE M.B.S. H1060 FASTENERS ARE PROVIDED FOR COLUMN ATTACHMENT APPLICATIONS, PRE-DRILLING WILL BE REQUIRED.

STANDARD GUTTER AND DOWNSPOUT

REFERENCE GUTTER AND DOWNSPOUT SCHEDULE FOR DOWNSPOUT MARK NUMBERS

TRIM_21

DATE	3-6-18
ISSUE	
FINALS	

NUCOR BUILDING SYSTEMS
305 INDUSTRIAL PARKWAY, WATERLOO, IN 46783
PHONE: (260) 837-7891 FAX: (260) 837-7384
PO BOX 1006, 200 WHEATSTONE RD, SHARPSVILLE, IN 46783
PHONE: (803) 588-2100 FAX: (803) 588-2121
600 APACHE TRAIL, TERRELL, TX 75160
PHONE: (972) 524-5407 FAX: (972) 524-5417
PHONE: (435) 919-3100 FAX: (435) 919-3101

PROJECT NAME
WOLVERINE CO. LLC
MORENCI, MI 49256
CUSTOMER NAME
S.E.A. BUILDERS, INC.
PETTISVILLE, OH 43553
JOB NUMBER
W18J0142A

STATE OF MICHIGAN
CHRISTOPHER H. MULLEN
ENGINEER
NO. 65934
PROFESSIONAL ENGINEER

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SHEET
D7 of 9

SEE ERECTION MANUALS FOR FURTHER INSTALLATION INSTRUCTIONS

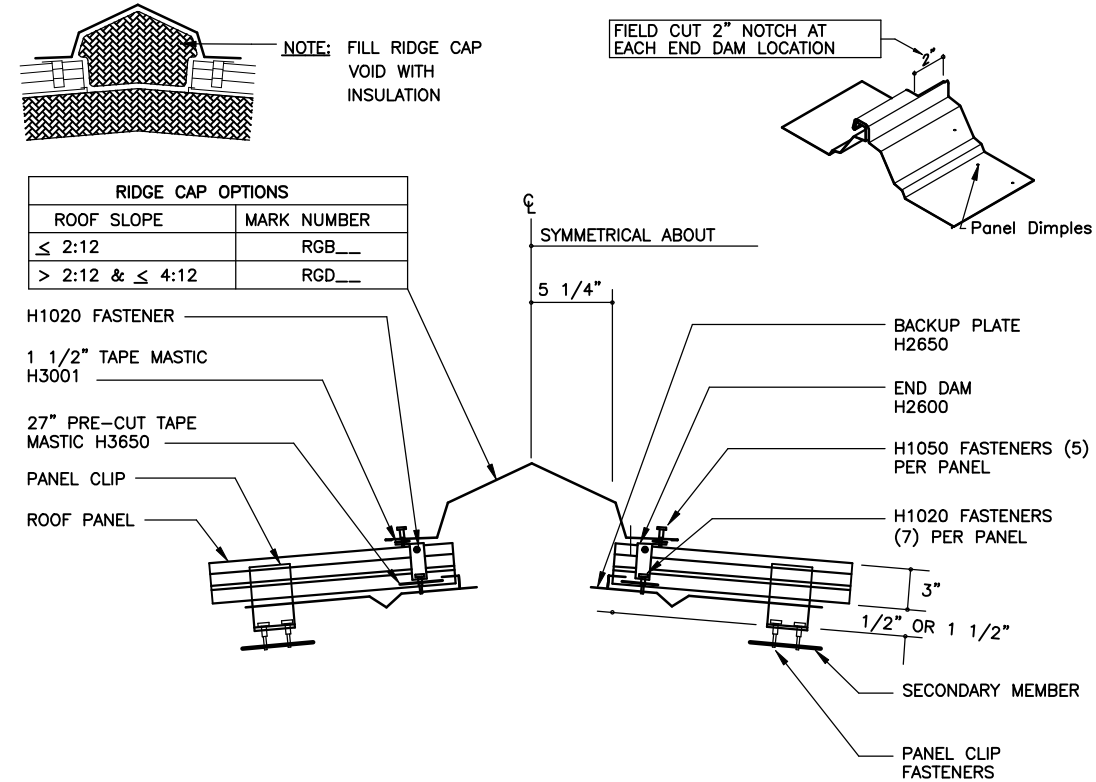
CFR ERECTION MANUAL QUICK REFERENCE:

SECTION(S)	DESCRIPTION
12.5	CFR PANEL SEALANT
13.8-13.10	END DAM INSTALLMENT INSTRUCTIONS CHECK LIST: 2" FIELD NOTCH, HAND CRIMP, PIG TAIL, BACK-UP PLATE, SEALANTS, END DAM, & FILL ALL VOIDS WITH INSULATION
16.20-16.24	RIDGE CAP

WALL SHEETING ERECTION MANUAL QUICK REFERENCE:

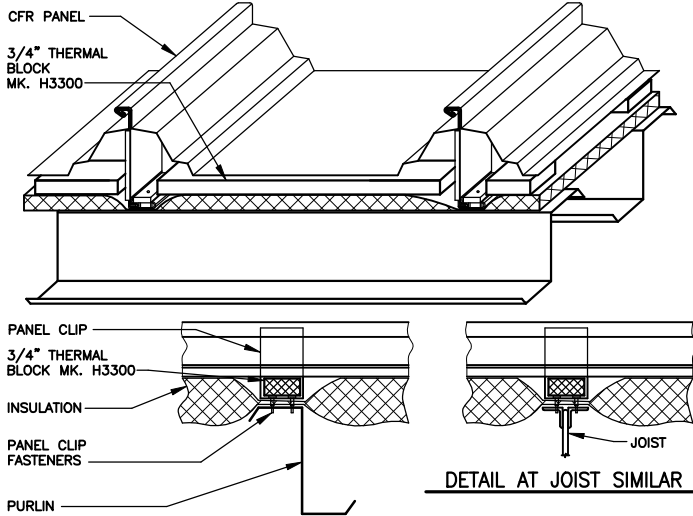
SECTION(S)	DESCRIPTION
7	WALL FASTENER REQUIREMENTS

ERECTOR NOTE: H1020 FASTENERS AT PURLINS/H1070 FASTENERS AT JOISTS & H2200 INSULATION WASHERS HAVE BEEN SUPPLIED AT 12" O.C. FOR INSULATION ATTACHMENT AT THE RIDGE. FIELD NOTCH PANELS AS NEEDED TO ALLOW FOR PROPER END DAM FIT UP.



RIDGE CAP with CFR ROOF

TRIM_953

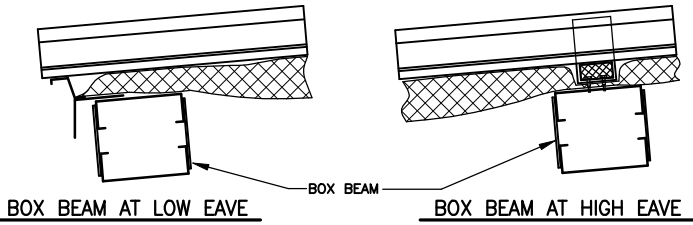


THERMAL BLOCK DETAIL AT TALL CFR CLIPS

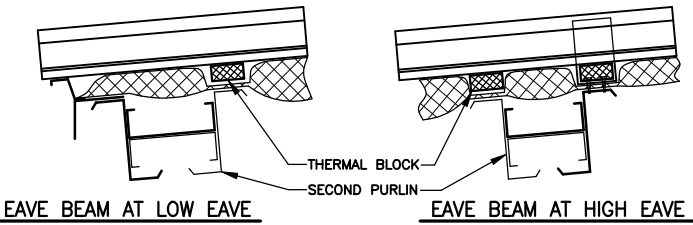
CFR ROOF WITH BATT INSULATION

**

SPECIAL CONDITION AT A BOX BEAM



SPECIAL CONDITION AT AN EAVE BEAM



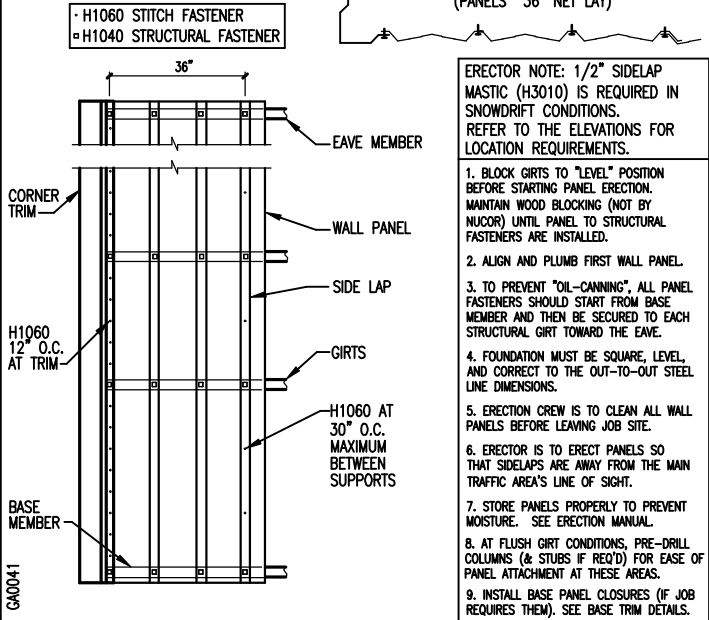
IF THIS PROJECT HAS AN EAVE BEAM WITH (2) PURLINS, AS SHOWN, DO NOT ATTACH ROOF CLIPS TO THE "SECOND" PURLIN. HOWEVER, THERMAL BLOCKS ARE PROVIDED FOR INSTALLATION AT THE SECOND PURLIN.

INSULATION TIE-OFF AT THE EAVES VARIES BASED ON THE EAVE CONDITION. REFER TO THE ROOF PANEL ERECTION MANUAL FOR DETAILS.

RP1022

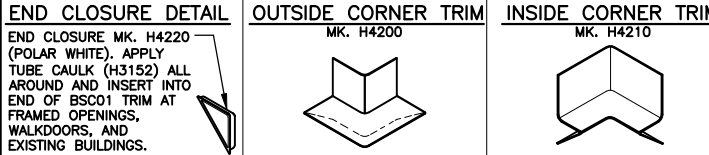
"ACCENT PANEL" ERECTION NOTES

(PANELS 36" NET LAY)

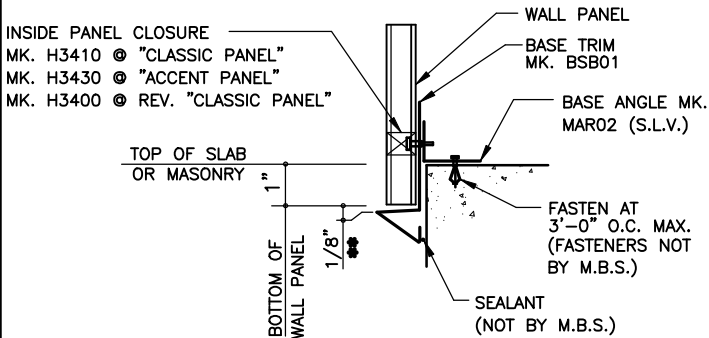


ERECTOR NOTE: 1/2" SIDELAP MASTIC (H3010) IS REQUIRED IN SNOWDRIFT CONDITIONS. REFER TO THE ELEVATIONS FOR LOCATION REQUIREMENTS.

1. BLOCK GIRTS TO "LEVEL" POSITION BEFORE STARTING PANEL ERECTION. MAINTAIN WOOD BLOCKING (NOT BY NUJOR) UNTIL PANEL TO STRUCTURAL FASTENERS ARE INSTALLED.
2. ALIGN AND PLUMB FIRST WALL PANEL.
3. TO PREVENT "OIL-CANNING", ALL PANEL FASTENERS SHOULD START FROM BASE MEMBER AND THEN BE SECURED TO EACH STRUCTURAL GIRT TOWARD THE EAVE.
4. FOUNDATION MUST BE SQUARE, LEVEL, AND CORRECT TO THE OUT-TO-OUT STEEL LINE DIMENSIONS.
5. ERECTION CREW IS TO CLEAN ALL WALL PANELS BEFORE LEAVING JOB SITE.
6. ERECTOR IS TO ERECT PANELS SO THAT SIDELAPS ARE AWAY FROM THE MAIN TRAFFIC AREA'S LINE OF SIGHT.
7. STORE PANELS PROPERLY TO PREVENT MOISTURE. SEE ERECTION MANUAL.
8. AT FLUSH GIRT CONDITIONS, PRE-DRILL COLUMNS (& STUDS IF REQ'D) FOR EASE OF PANEL ATTACHMENT AT THESE AREAS.
9. INSTALL BASE PANEL CLOSURES (IF JOB REQUIRES THEM). SEE ERECTION MANUAL.



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

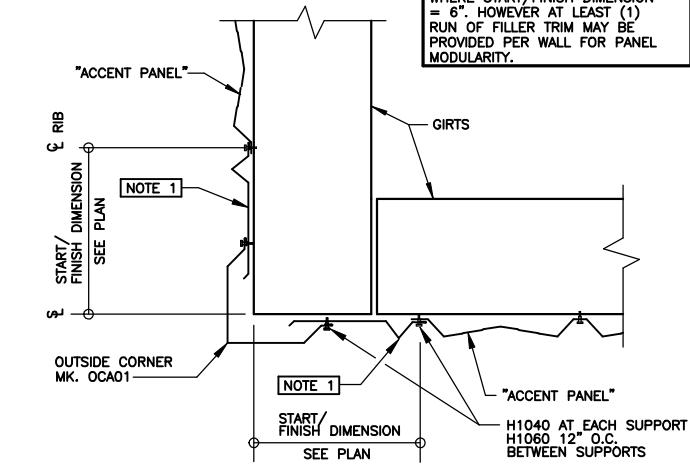


BASE TRIM WITH ANGLE

SEE WALL PANEL ERECTION NOTES FOR FASTENER LOCATIONS
• - 1/8" GAP RECOMMENDED FOR WATER DRAINAGE

TRIM_301

GB0020



OUTSIDE CORNER AT "ACCENT" WALL

TRIM_8

EG6050

GC0011

DATE: 3-6-18
TIME: 10:00 AM
MBS: 1000
WDY: 1000
FINALS: 1000
PROJECT NAME: WOLVERINE CO. LLC
CUSTOMER NAME: S.E.A. BUILDERS, INC.
JOB NUMBER: W18J0142A
SHEET TITLE: SHEET 18
SHEET: D8 of 9

NUCOR BUILDING SYSTEMS
305 INDUSTRIAL PARKWAY, WATERLOO, IN 46783
PHONE: (260) 837-7891 FAX: (260) 837-7384
PO BOX 1006, 200 WHISTON RD, SHANSEA, SC 29160
PHONE: (803) 588-2100 FAX: (803) 588-2121
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STATE OF MICHIGAN
CHRISTOPHER H. MULLEN
ENGINEER
No. 65934
PROFESSIONAL ENGINEER

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