FOUNDATION CALCULATIONS

65'x70' Metal Building

MVE #23-0706

REVIEWED
FOR
CODE
COMPLIANCE
09/18/2023

CLAY HOCKEL C&B HOLDINGS
Hayden, Colorado

Metal Building Supplied By:

METAL BUILDING OUTLET CORP.
7651 Shaffer Pkwy, Ste. A
Littleton, CO 80127

JUL 31 2023

Foundation Design by:

MOUNTAIN VIEW ENGINEERING, INC.
345 No. Main, Suite A • Brigham City, Utah 84302
Phone (435) 734-9700 • Fax (435) 734-9519

12 pages of Calculations

MOUNTAIN VIEW ENGINEERING, INC.
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Job: MVE #23-0706 METAL BUILDING OUTLET CORP.
Subject: CLAY HOCKEL C&B HOLDINGS

Date: 07/26/23
By: BLC

DESIGN CRITERIA :

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Ground Snow Load	80	psf
Roof Snow Load	60	psf
Roof Live Load	20	psf
Roof Collateral Load	1	psf

Code: 2018 IBC

S_{DS}	0.409	Wind Speed	115 mph
Seismic Design Category	C	Exposure	C
Site Class	D	Importance Factor	1.0

Other Loads:

Soil Bearing	3500	psf (Per Geotech)
Minimum Bearing	1500	psf (Per Geotech)
Frost Depth	48	inches (Per Geotech)
Passive Pressure	250	psf/ft (Assumed)
Coefficient of Friction	0.25	(Assumed)

Notes:

Reactions per METAL BUILDING OUTLET CORP. drawings.

The foundation has been designed, and the site soils should be prepared for the foundation, in accordance with the recommendations in the geotechnical investigation report by:

Erika K. Hill, P.E., P.G. of NWCC, Inc.
2580 Copper Ridge Drive, Steamboat Springs, CO 80487
Phone: (970) 879-7888 Job Number: 22-12817

Concrete and Reinforcement:

Concrete Strength
3000 P.S.I. for Foundations
3500 P.S.I. for Slabs
2500 P.S.I. Used for design, no special inspection required.

Rebar - ASTM A615 grade 60

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Job: MVE #23-0706 METAL BUILDING OUTLET CORP. Date: 07/31/23

Subject: CLAY HOCKEL C&B HOLDINGS By: BLC

Sidewall Footings
(Lines 2 & 3 / Grids A & E)

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P_{D+L} = 53.7 kips
F_H = 30.3 kips
Uplift = 9.3 kips

Use 5.0 ft. x 5.0 ft. x 30 inch deep footing

Horizontal Force *Use rebar tension ties across the building to resist horizontal force at the column base.*

Top of Pier to Center of Ties =	18	in	Number of Ties =	4	ties
Tensile Strength of Rebar =	24	ksi	Tie Size =	#6	rebar
Area Required =	1.263	in^2			

Use (4) #6 tension ties.

Weights

Weight of Pier =	1.36	kips
Weight of Soil Above Footing =	3.58	kips
Weight of Spot Footing =	9.06	kips
Weight of Continuous Wall =	0.00	kips
Weight of Continuous Ftg. =	0.00	kips
Use Passive Res. to Resist Moment?	YES	

Passive Soil Resistance

Wall Length for Passive Res. =	1.5	ft
Ftg. Width for Passive Res. =	5	ft
Passive Earth Pressure =	200	psf/ft
Passive Res. (Spot Footing) =	8.13	kips
Passive Res. (Wall & Pier) =	0.30	kips
Passive Res. (Cont. Ftg.) =	0.00	kips
Total Passive Resistance =	**8.43**	**kips**

Check Soil Bearing

Moment Arm =	1.5	ft	Allowable Bearing Pressure =	3500	psf
P (total) =	53.70	kips	Top of Wall to Grade =	6	in
Overturning Moment =	45.45	kip*ft	OS Conc. to CL A.R. =	16.25	in
OTM Eccentricity =	10.2	inches	Pier Width =	18	in
Footing Offset =	3.25	inches	Pier Depth (wall included) =	30	in
Offset Resisting Moment =	- 14.54	kip*ft	Pier Height =	30	in
Passive Resisting Moment =	- 7.72	kip*ft	Wall Thickness =	8	in
Net Eccentricity =	5.2	inches	Wall Height =	48	in
B/6 = 10 inches **OK**			Footing Width =	16	in
			Footing Depth =	8	in

Bearing Pressure, q (max.) = 3261 psf OK

Minimum Bearing Pressure = 1763 psf OK

Offset footing 3.25 inches.

Uplift

Weight of Footing and Pier =	10.42	kips	Wall Length used for Uplift =	23	ft
Weight of Soil Above Footing =	3.58	kips	Cont. Ftg. Length for Uplift =	23.0	ft
Weight of Cont. Wall & Footing =	10.63	kips			
Total =	24.64	kips	**Factor of Safety =**	**2.65**	**> 1.0 OK**

Check Footing Flexure (Reinforcing in Direction of Horizontal Force)

q (min.) =	1035	psf	Rebar d' =	3.5	in
OS Footing Edge from Wall =	1.417	ft	Rebar d =	26.5	in
q (at face of wall) =	2630	psf	Rebar fy =	60000	psi
Moment in Footing (Mu, ULT) =	20.74	k*ft	Concrete f'c =	2500	psi
As (req'd by calc.) =	0.174	in^2	ACI 7.12 As (min) =	3.240	in^2

Opposite Direction Reinforcing

Min. Steel Ratio = 0.0018
As per ACI 7.12

Use (6) #5 bars each way at top of footing and use (6) #5 bars each way at bottom of footing.

Check Footing Shear

Shear in Footing (Vu, ULT) =	29.27	kips	
Required Thickness =	10.01	in	**OK**

For Pier Design
****See pier calculation on page 3.**

Nu =	**86**	**kips**
Mu =	**73**	**kip*ft**
Vu =	**48**	**kips**

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Subject: CLAY HOCKEL C&B HOLDINGS

Date: 07/31/23
By: BLC

REVIEWED FOR CODE COMPLIANCE 09/18/2023

Concrete Column Analysis (ACI 318)

For X-Axis Flexure with Axial Compression or Tension Load
Assuming "Short", Non-Slender Member with Symmetric Reinforcing

Input

f_c' =	2500	psi
f_y =	60	ksi
d' =	2.375	in
b =	18	in
h =	30	in
ϕ =	0.65	

Loading

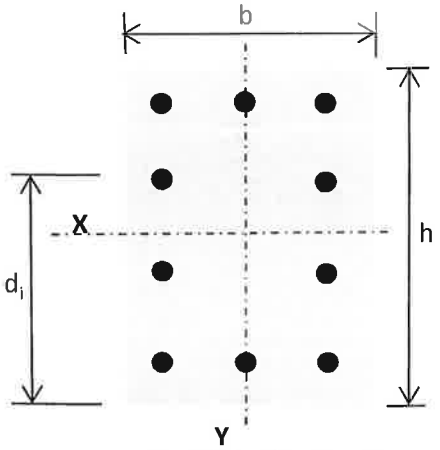
P_{ux} =	51.6	kips
M_{ux} =	13.2	kip-ft
V_{ux} =	3.3	kips

Column Geometry

Bar Size =	5	Total # of Bars	14
# of Bars b Face	4	Tie Size =	4
# of Bars h Face	5		

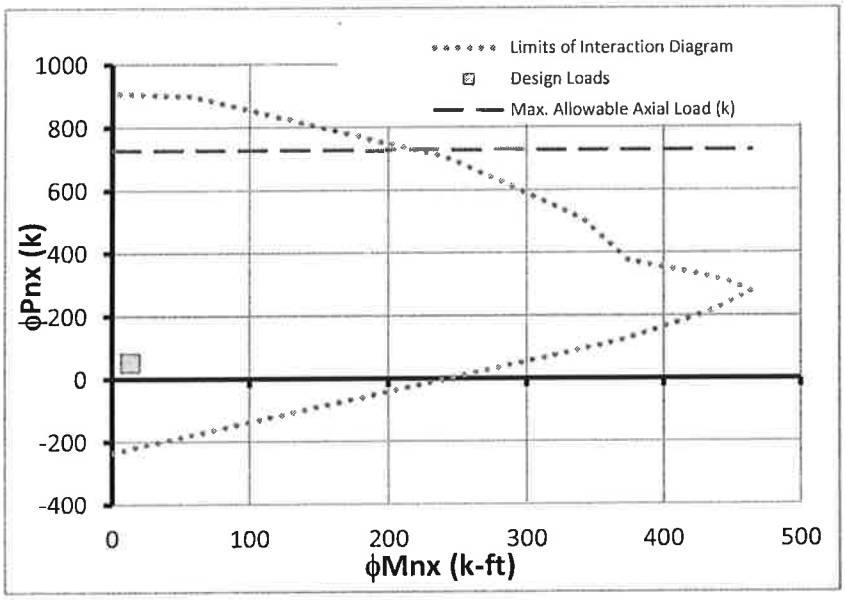
Placement of Reinforcement Steel

	d_i	A_{st}
Edge Layer (d_1)	27.63	1.24
Interior Layer (d_2)	21.31	0.62
Interior Layer (d_3)	15.00	0.62
Interior Layer (d_4)	8.69	0.62
Interior Layer (d_5)	0.00	0.00
Edge Layer (d_6)	2.38	1.24



Typical Member Section

X-AXIS INTERACTION DIAGRAM



DESIGN LOADS FALL WITHIN THE LIMITS OF THE INTERACTION DIAGRAM, THEREFORE, USE (14) # 5 VERTICAL BARS IN COLUMN.

Shear Design ϕV_c = 39.076 $\phi V_c/2$ = 19.538 $V_u < \phi V_c/2$

If $V_u < \phi V_c/2$ then Vertical Spacing of ties shall not exceed the least of:

16 x (longitudal bar diameters)	=	10	in
48 x (tie bar diameter)	=	24	in
Least dimension of column	=	18	in

If $V_u > \phi V_c/2$ then vertical spacing of ties shall not exceed the least of:

s max =	$A_v f_y/(0.75\sqrt{f_c'}b)$	=	35.556	in
s max =	$A_v f_y/(50b)$	=	26.667	in
s max =	$d/2 \le 24$ in	=	13.813	in

USE # 4 TIES AT 8.00 INCHES ON CENTER WITH (3) IN THE TOP SIX INCHES OF PIER.

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Endwall Footings

(Line 1 / Grids B, D, & E and Line 4 / Grids B, C, & E)

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P_{D+L} = 25.3 kips
F_H = 2.9 kips
Uplift = 5.9 kips

Use 3.5 ft. x 3.5 ft. x 12 inch deep footing

Check Soil Bearing

Moment Arm =	5	ft	Allowable Bearing Pressure =	3500	psf
P (total) =	25.30	kips	Top of Wall to Grade =	6	in
Overturning Moment =	14.5	kip*ft	OS Conc. to CL A.R. =	4	in
OTM Eccentricity =	6.9	inches	Pier Width =	12	in
Footing Offset =	0	inches	Pier Depth (wall included) =	8	in
Offset Resisting Moment =	- 0.00	kip*ft	Pier Height =	48	in
Passive Resisting Moment =	- 4.34	kip*ft	Wall Thickness =	8	in
Net Eccentricity =	4.8	inches	Wall Height =	48	in
B/6 = 7 inches **OK**			Footing Width =	16	in
			Footing Depth =	8	in

Bearing Pressure, q (max.) = 3487 psf OK

Minimum Bearing Pressure = 1783 psf OK

Offset footing 0 inches.

Sliding Resistance

Coefficient of Friction =	0.25		Wall Length for Sliding =	4.0	ft
Weight of Pier =	0.39	kips	Wall Length for Passive Res. =	4.0	ft
Weight of Soil Above Footing =	3.24	kips	Ftg. Width for Sliding/Passive =	4.0	ft
Weight of Spot Footing =	1.78	kips	Passive Earth Pressure =	200	psf/ft
Weight of Continuous Wall =	1.16	kips	Passive Res. (Spot Footing) =	2.80	kips
Weight of Continuous Ftg. =	0.06	kips	Passive Res. (Wall & Pier) =	1.40	kips
Sliding Resistance from Footing & Pier =	0.54	kips	Passive Res. (Cont. Ftg.) =	0.26	kips
Sliding Resistance from Soil above Ftg. =	0.81	kips	**Total Passive Resistance =**	**4.46**	**kips**
Sliding Resistance from Vertical Load =	6.33	kips	**Total Sliding Resistance =**	**7.98**	**kips**
Sliding Resistance from Wall & Ftg. =	0.31	kips	**Factor of Safety =**	**4.29**	**> 1.0 OK**

Uplift

Weight of Footing and Pier =	2.16	kips	Wall Length used for Uplift =	14.5	ft
Weight of Soil Above Footing =	3.24	kips	Cont. Ftg. Length for Uplift =	14.5	ft
Weight of Cont. Wall & Footing =	6.64	kips			
Total =	12.04	kips	**Factor of Safety =**	**2.04**	**> 1.0 OK**

Check Footing Flexure (Reinforcing in Direction of Horizontal Force)

q (min.) =	644	psf	Rebar d' =	3.5	in	**Options**	
OS Footing Edge from Wall =	1.417	ft	Rebar d =	8.5	in	**5**	#4 bars
q (at face of wall) =	2336	psf	Rebar fy =	60000	psi	**3**	#5 bars
Moment in Footing (Mu, ULT) =	15.55	k*ft	Concrete f'c =	2500	psi	**3**	#6 bars
As (req'd by calc.) =	0.411	in^2	ACI 7.12 As (min) =	0.907	in^2		

Opposite Direction Reinforcing

Min. Steel Ratio = 0.0018
As per ACI 7.12

Options	
5	#4 bars
3	#5 bars
3	#6 bars

Use (5) #4 bars in direction of horizontal force and use (5) #4 bars in the opposite direction.

Check Footing Shear

Shear in Footing (Vu, ULT) =	21.95	kips	
Required Thickness =	10.47	in	**OK**

For Pier Design

Nu =	**40**	**kips**	****See pier calculation**
Mu =	**19**	**kip*ft**	**on page 5.**
Vu =	**5**	**kips**	

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Concrete Column Analysis (ACI 318)

For X-Axis Flexure with Axial Compression or Tension Load
Assuming "Short", Non-Slender Member with Symmetric Reinforcing

Input

f_c' =	2500	psi
f_y =	60	ksi
d' =	2	in
b =	12	in
h =	8	in
ϕ =	0.65	

Loading

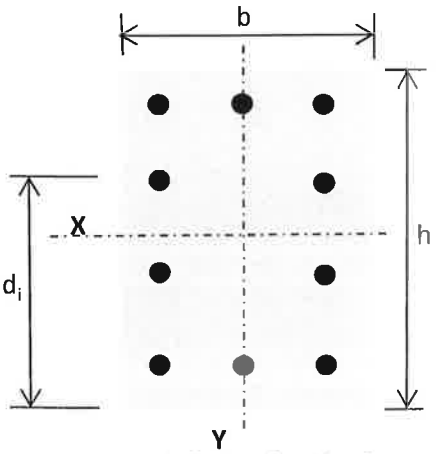
P_{ux} =	51.6	kips
M_{ux} =	13.2	kip-ft
V_{ux} =	3.3	kips

Column Geometry

Bar Size =	4	Total # of Bars	6
# of Bars b Face	3	Tie Size =	3
# of Bars h Face	2		

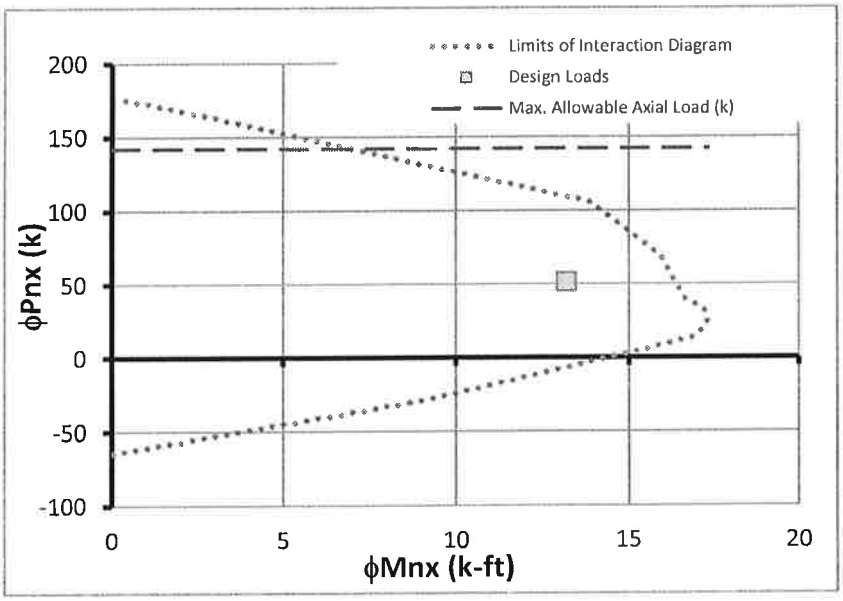
Placement of Reinforcement Steel

	d_i	A_{st}
Edge Layer (d_1)	6.00	0.60
Interior Layer (d_2)	0.00	0.00
Interior Layer (d_3)	0.00	0.00
Interior Layer (d_4)	0.00	0.00
Interior Layer (d_5)	0.00	0.00
Edge Layer (d_6)	2.00	0.60



Typical Member Section

X-AXIS INTERACTION DIAGRAM



DESIGN LOADS FALL WITHIN THE LIMITS OF THE INTERACTION DIAGRAM, THEREFORE, USE (6) # 4 VERTICAL BARS IN COLUMN.

Shear Design ϕV_c = 6.8513 $\phi V_c/2$ = 3.4256 $V_u < \phi V_c/2$

If $V_u < \phi V_c/2$ then Vertical Spacing of ties shall not exceed the least of:

16 x (longitudal bar diameters)	=	8	in
48 x (tie bar diameter)	=	18	in
Least dimension of column	=	8	in

If $V_u > \phi V_c/2$ then vertical spacing of ties shall not exceed the least of:

s max =	$A_v f_y/(0.75\sqrt{(f_c')}b)$	=	29.333	in
s max =	$A_v f_y/(50b)$	=	22	in
s max =	$d/2 \le 24$ in	=	3	in

USE # 3 TIES AT 8.00 INCHES ON CENTER WITH (3) IN THE TOP FIVE INCHES OF PIER.

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Corner Footings
(Lines 1 & 4 / Grids A & E)

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P_{D+L} = 9.3 kips
Uplift = 4.3 kips

Check Soil Bearing

Allowable Pressure = 3500 psf
Minimum Pressure = 1500 psf
B req'd = **1.63** ft

Use 2.5 ft^2 x 12 inch deep footing
reinforced with (4) #4 bars each way.

q = **3355** psf **OK**
q_{min} = **1867** psf **OK**

Uplift

Design uplift = **4.3** kips
Slab Thickness = 0 inches
Depth to top of Ftg. = 42 inches
(EW) OS Conc. to CL Footing = 4 inches
(SW) OS Conc. to CL Footing = 9.8 inches
(EW) Length of Wall for Uplift = 7.5 feet
(SW) Length of Wall for Uplift = 11.5 feet
Wall Thickness = 8 inches

Weight of Footing and Soil = 3.13 kips
Weight of Concrete Slab = 0.00 kips
Weight of Foundation Wall & Ftg. = 8.54 kips
Total = 11.67 kips

Factor of Safety = **2.71 > 1.0 OK**

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Endwall Footings
(Lines 2 & 3 / Grid D.1)

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P_{D+L} = 0.6 kips
F_H = 2.1 kips
Uplift = 0.0 kips

Use 2.5 ft. x 2.5 ft. x 12 inch deep footing

Check Soil Bearing

Moment Arm =	1	ft	Allowable Bearing Pressure =	3500	psf
P (total) =	14.8	kips	Top of Wall to Grade =	6	in
Overturning Moment =	2.058	kip*ft	OS Conc. to CL A.R. =	4	in
OTM Eccentricity =	1.7	inches	Pier Width =	12	in
Footing Offset =	0	inches	Pier Depth (wall included) =	8	in
Offset Resisting Moment =	- 0.00	kip*ft	Pier Height =	48	in
Passive Resisting Moment =	- 0.00	kip*ft	Wall Thickness =	8	in
Net Eccentricity =	1.7	inches	Wall Height =	48	in
B/6 = 5 inches **OK**			Footing Width =	16	in
			Footing Depth =	8	in

Bearing Pressure, q (max.) = 3159 psf OK

Minimum Bearing Pressure = 3159 psf OK

Offset footing 0 inches.

Sliding Resistance

Coefficient of Friction =	0.25		Wall Length for Sliding =	2.0	ft
Weight of Pier =	0.40	kips	Wall Length for Passive Res. =	2.0	ft
Weight of Soil Above Footing =	1.51	kips	Ftg. Width for Sliding/Passive =	2.0	ft
Weight of Spot Footing =	0.94	kips	Passive Earth Pressure =	200	psf/ft
Weight of Continuous Wall =	0.39	kips	Passive Res. (Spot Footing) =	2.00	kips
Weight of Continuous Ftg. =	-0.07	kips	Passive Res. (Wall & Pier) =	0.70	kips
Sliding Resistance from Footing & Pier =	0.33	kips	Passive Res. (Cont. Ftg.) =	-0.26	kips
Sliding Resistance from Soil above Ftg. =	0.38	kips	**Total Passive Resistance =**	**2.44**	**kips**
Sliding Resistance from Vertical Load =	0.16	kips	**Total Sliding Resistance =**	**0.95**	**kips**
Sliding Resistance from Wall & Ftg. =	0.08	kips	**Factor of Safety =**	**1.65**	**> 1.0 OK**

Uplift

Weight of Footing and Pier =	1.34	kips	Wall Length used for Uplift =	23.33	ft
Weight of Soil Above Footing =	1.51	kips	Cont. Ftg. Length for Uplift =	23.33	ft
Weight of Cont. Wall & Footing =	11.32	kips			
Total =	14.16	kips	**Factor of Safety =**	**na**	

Check Footing Flexure (Reinforcing in Direction of Horizontal Force)

q (min.) =	1578	psf	Rebar d' =	3.5	in
OS Footing Edge from Wall =	0.917	ft	Rebar d =	8.5	in
q (at face of wall) =	2579	psf	Rebar fy =	60000	psi
Moment in Footing (Mu, ULT) =	4.58	k*ft	Concrete f'c =	2500	psi
As (req'd by calc.) =	0.120	in^2	ACI 7.12 As (min) =	0.648	in^2

Opposite Direction Reinforcing

Min. Steel Ratio = 0.0018
As per ACI 7.12

Use (4) #4 bars in direction of horizontal force and use (4) #4 bars in the opposite direction.

Check Footing Shear

Shear in Footing (Vu, ULT) = 9.99 kips
Required Thickness = 7.94 in **OK**

For Pier Design

Nu = 1 kips
Mu = 13 kip*ft
Vu = 3 kips

****See pier calculation on page 8.**

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Subject: CLAY HOCKEL C&B HOLDINGS

Date: 07/31/23
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Concrete Column Analysis (ACI 318)

For X-Axis Flexure with Axial Compression or Tension Load
Assuming "Short", Non-Slender Member with Symmetric Reinforcing

Input

f_c' =	2500	psi
f_y =	60	ksi
d' =	2	in
b =	12	in
h =	8	in
ϕ =	0.65	

Loading

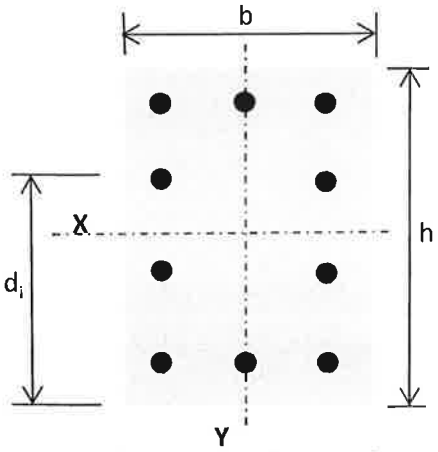
P_{ux} =	51.6	kips
M_{ux} =	13.2	kip-ft
V_{ux} =	3.3	kips

Column Geometry

Bar Size =	4	Total # of Bars	4
# of Bars b Face	2	Tie Size =	3
# of Bars h Face	2		

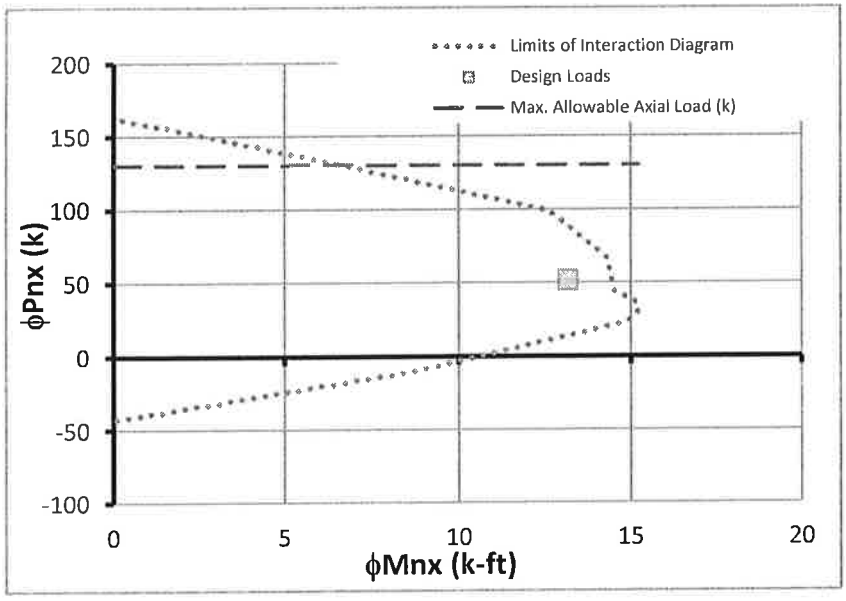
Placement of Reinforcement Steel

	d_i	A_{st}
Edge Layer (d_1)	6.00	0.40
Interior Layer (d_2)	0.00	0.00
Interior Layer (d_3)	0.00	0.00
Interior Layer (d_4)	0.00	0.00
Interior Layer (d_5)	0.00	0.00
Edge Layer (d_6)	2.00	0.40



Typical Member Section

X-AXIS INTERACTION DIAGRAM



DESIGN LOADS FALL WITHIN THE LIMITS OF THE INTERACTION DIAGRAM, THEREFORE, USE (4) # 4 VERTICAL BARS IN COLUMN.

Shear Design ϕV_c = 6.8513 $\phi V_c/2$ = 3.4256 $V_u < \phi V_c/2$

If $V_u < \phi V_c/2$ then Vertical Spacing of ties shall not exceed the least of:

16 x (longitudal bar diameters)	=	8	in
48 x (tie bar diameter)	=	18	in
Least dimension of column	=	8	in

If $V_u > \phi V_c/2$ then vertical spacing of ties shall not exceed the least of:

s max =	$A_v f_y/(0.75\sqrt{(f_c')}b)$	=	29.333	in
s max =	$A_v f_y/(50b)$	=	22	in
s max =	$d/2 \le 24$ in	=	3	in

USE # 3 TIES AT 8.00 INCHES ON CENTER WITH (3) IN THE TOP FIVE INCHES OF PIER.

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Worst Case: Sidewall Anchors (Tension and Shear)

ANCHOR ROD GROUP CHECK (per ACI 318-14 Chapter 17, headed anchors)

Tensile Force on Anchors (N_U) =	14.88	kips	
Shear Force on Anchors (V_U) =	48.48	kips	
Seismic Design Category =	C		
Number of Anchors (n) =	6		
Number of Anchors in Tension (n) =	6		
Anchor Diameter (d_a) = 1 in	A_{SE} = 0.606	in^2	
Anchor Spacing Perpendicular to Load (s_1) =	4	in	
Anchor Spacing Parallel to Load (s_2) =	4	in	
Spacing of outer Anchors (s_0) =	8	in	
Embedment Depth (h_{EF}) =	22	in	
Yield Strength of Anchors (Fy) =	36	ksi	
Tensile Strength of Anchors (F_{uta}) =	58	ksi	
Edge Distance in Load Direction (c_{a1}) =	12.25	in	
Edge Distance Perpendicular to Load (c_{a2}) =	7	in	
Concrete Strength (f'_C) =	2500	psi	
Axial Eccentricity (e'_N) =	0	in	
Shear Eccentricity (e'_V) =	0	in	

Steel Strength of Anchors in Tension (17.4.1.2)

$N_{sa} = nA_{SE}F_{uta}$ = 210.89 kips

ϕ = 0.75 ϕN_{sa} = 158.17 kips

Concrete Breakout Strength of Anchors in Tension (17.4.2)

A_{Nc} = 540 in^2 $A_{Nco} = 9h_{ef}^2$ = 4356 in^2

$\Psi_{ec,N} = 1/(1+2e'_N/3h_{EF}) <= 1.0$ $\Psi_{ec,N}$ = 1.000

$c_{a(min.)} < 1.5h_{EF}$? YES $\Psi_{ed,N}$ = 0.764

Cracking at Service Loads ? YES $\Psi_{c,N}$ = 1.000

Headed anchors used, therefore $\Psi_{cp,N}$ = 1.000

$h_{EF} >= 11$ in. ? YES k_C = 24

$N_b = k_C\lambda_a f'^{0.5}_C h^{5/3}_{EF}$ = 138.19 kips

$N_{cbg} = \frac{A_{Nc}}{A_{Nco}} \Psi_{ec,N}\Psi_{ed,N}\Psi_{c,N}\Psi_{cp,N}N_b$ = 13.08 kips

Anchor bolts are tied into the footings with rebar cages, so concrete breakout will be limited by the tensile strength of the rebar verticals in the cage.

Number of Verticals = 8 Size of rebar = # 5

Tensile strength of the reinforcement = 148.8 kips (ULT)

ϕ = 0.75 ϕN_{CBG} = 111.60 kips

Pullout Strength of Anchors in Tension (17.4.3)

A_{BRG} = 1.163 in^2

$N_P = 8A_{BRG}f'_C$ = 23.26 kips

Cracking at Service Loads? YES $\Psi_{c,P}$ = 1

N_{PN} (group) = $n\Psi_{c,P}N_P$ = 139.56 kips

ϕ = 0.7 ϕN_{PN} (group) = 97.69 kips

Side-face Blowout of Anchors in Tension (17.4.4)

$h_{EF} > 2.5\ c_{a1}$ NO **SIDE-FACE BLOWOUT WILL**

$s_1 < 6c_{a1}$? YES **NOT CONTROL**

$c_{a2} < 3c_{a1}$? YES R = 0.39

$N_{sb} = 160c_{a1}A_{BRG}^{0.5}\lambda_a f'^{0.5}_C R$ = 41.52 kips

Therefore, $N_{sbg} = (1+s_0/6c_{a1})N_{sb}$ = 46.04 kips

ϕ = 0.75 ϕN_{sbg} = 34.53 kips

Steel Strength of Anchors in Shear (17.5.1)

Built-up grout pads used? NO

$V_S = 0.6nA_{SE}F_{uta}$ = 126.53 kips

ϕ = 0.65 ϕV_S = 82.25 kips

Concrete Breakout Strength of Anchors in Shear (17.5.2)

A_{Vc} = 616 in^2 $A_{Vco} = 4.5(c_{a1})^2$ = 675.281 in^2

$\Psi_{ec,V} = 1/(1+2e'_V/3c_{a1}) <= 1.0$ $\Psi_{ec,V}$ = 1.000

$c_{a2} >= 1.5c_{a1}$? NO $\Psi_{ed,V}$ = 0.814

Cracking at Service Loads ? YES $\Psi_{c,V}$ = 1.200

Thickness: h_a = 48 in $\Psi_{h,V}$ = 1.000

$V_b = 7(L_e/d_a)^{0.2}d_a^{0.5}f'^{0.5}_C c_{a1}^{1.5}$ = 22.75 kips

$V_b = 9\lambda_a f'^{0.5}_C c_{a1}^{1.5}$ = 19.29 kips CONTROLS

$V_{cbg} = \frac{A_{Vc}}{A_{Vco}} \Psi_{ec,V}\Psi_{ed,V}\Psi_{c,V}\Psi_{h,V}V_b$ = 17.20 kips

Concrete breakout in shear will be resisted by rebar ties at the top of the footing, tensile capacity of the bars will control.

Tie Size = # 4 bar Bar Area = 0.2 in^2

Number of Ties at top = 3 Fy = 60 ksi

Tensile Capacity of Ties = 108 kips

Therefore, V_{cbg} = 108.00 kips

ϕ = 0.75 ϕV_{cbg} = 81.00 kips

Concrete Pryout Strength of Anchors in Shear (17.5.3)

Concrete pryout of anchors in shear will only occur where anchors are relatively stiff and short.

$\frac{h_{EF}}{d_0}$ = 22 > 6

THEREFORE, CONCRETE PRYOUT WILL NOT CONTROL SHEAR DESIGN OF ANCHORS.

ANCHOR ROD GROUP CAPACITY

SDC = C, D, E, & F REDUCE CONCRETE ALLOW. TENSION BY 0.75

ALLOW. TENSION (ΦN_N) = 73.27 kips > 14.9 kips OK

ALLOW. SHEAR (ΦV_N) = 81.00 kips > 48.5 kips OK

CHECK SHEAR/TENSION INTERACTION

$N_{UA} > 0.2\Phi N_N$? YES

$V_{UA} > 0.2\Phi V_N$? YES

UNITY CHECK REQUIRED

$\frac{N_{UA}}{\Phi N_N} + \frac{V_{UA}}{\Phi V_N}$ = **0.80 < 1.20 OK**

MOUNTAIN VIEW ENGINEERING, INC.
345 No. Main, Suite A • Brigham City, Utah 84302
Phone (435) 734-9700 • Fax (435) 734-9519

Job: MVE #23-0706 METAL BUILDING OUTLET CORP.
Subject: CLAY HOCKEL C&B HOLDINGS

Date: 07/31/23
By: BLC

Worst Case: Endwall Anchors (Tension and Shear)(Wind Controls)

ANCHOR ROD GROUP CHECK (per ACI 318-14 Chapter 17, headed anchors)

REVIEWED FOR CODE COMPLIANCE 09/18/2023

Tensile Force on Anchors (N_U) =		9.44	kips	
Shear Force on Anchors (V_U) =		4.64	kips	
Seismic Design Category =		C		
Number of Anchors (n) =		4		
Number of Anchors in Tension (n) =		4		
Anchor Diameter (d_a) =	0.625 in	A_{SE} = 0.226	in^2	
Anchor Spacing Perpendicular to Load (s_1) =		4	in	
Anchor Spacing Parallel to Load (s_2) =		3	in	
Spacing of outer Anchors (s_0) =		3	in	
Embedment Depth (h_{EF}) =		12	in	
Yield Strength of Anchors (Fy) =		36	ksi	
Tensile Strength of Anchors (F_{uta}) =		58	ksi	
Edge Distance in Load Direction (c_{a1}) =		2.5	in	
Edge Distance Perpendicular to Load (c_{a2}) =		12	in	
Concrete Strength (f'_C) =		2500	psi	
Axial Eccentricity (e'_N) =		0	in	
Shear Eccentricity (e'_V) =		0	in	

Steel Strength of Anchors in Tension (17.4.1.2)

$N_{sa} = nA_{SE}F_{uta}$ = 52.43 kips
ϕ = 0.75 ϕN_{sa} = 39.32 kips

Concrete Breakout Strength of Anchors in Tension (17.4.2)

A_{Nc} = 96 in^2 $A_{Nco} = 9h_{ef}^2$ = 1296 in^2
$\Psi_{ec,N} = 1/(1+2e'_N/3h_{EF}) <= 1.0$ $\Psi_{ec,N}$ = 1.000
$c_{a(min)} < 1.5h_{EF}$? YES $\Psi_{ed,N}$ = 0.742
Cracking at Service Loads ? YES $\Psi_{c,N}$ = 1.000
Headed anchors used, therefore $\Psi_{cp,N}$ = 1.000
$h_{EF} >= 11$ in. ? YES k_C = 24

$N_b = k_C\lambda_a f'^{0.5}_C h^{5/3}_{EF}$ = 50.32 kips

$N_{cbg} = \frac{A_{Nc}}{A_{Nco}} \Psi_{ec,N}\Psi_{ed,N}\Psi_{c,N}\Psi_{cp,N}N_b$ = 2.76 kips

Anchor bolts are tied into the footings with rebar cages, so concrete breakout will be limited by the tensile strength of the rebar verticals in the cage.
Number of Verticals = 6 Size of rebar = # 4
Tensile strength of the reinforcement = 72 kips (ULT)

ϕ = 0.75 ϕN_{CBG} = 54.00 kips

Pullout Strength of Anchors in Tension (17.4.3)

A_{BRG} = 0.454 in^2
$N_P = 8A_{BRG}f'_C$ = 9.08 kips
Cracking at Service Loads? YES $\Psi_{c,P}$ = 1
N_{PN} (group) = $n\Psi_{c,P}N_P$ = 36.32 kips
ϕ = 0.7 ϕN_{PN} (group) = 25.42 kips

Side-face Blowout of Anchors in Tension (17.4.4)

$h_{EF} > 2.5\ c_{a1}$ YES
$s_1 < 6c_{a1}$? YES
$c_{a2} < 3c_{a1}$? NO R = 1
$N_{sb} = 160c_{a1}A_{BRG}^{0.5}\lambda_a f'^{0.5}_C R$ = 13.48 kips
Therefore, $N_{sbg} = (1+s_0/6c_{a1})N_{sb}$ = 16.17 kips
ϕ = 0.75 ϕN_{sbg} = 12.13 kips

Steel Strength of Anchors in Shear (17.5.1)

Built-up grout pads used? NO
$V_S = 0.6nA_{SE}F_{uta}$ = 31.46 kips
ϕ = 0.65 ϕV_S = 20.45 kips

Concrete Breakout Strength of Anchors in Shear (17.5.2)

A_{Vc} = 28.125 in^2 $A_{Vco} = 4.5(c_{a1})^2$ = 28.125 in^2
$\Psi_{ec,V} = 1/(1+2e'_V/3c_{a1}) <= 1.0$ $\Psi_{ec,V}$ = 1.000
$c_{a2} >= 1.5c_{a1}$? YES $\Psi_{ed,V}$ = 1.000
Cracking at Service Loads ? YES $\Psi_{c,V}$ = 1.200
Thickness: h_a = 48 in $\Psi_{h,V}$ = 1.000
$V_b = 7(L_e/d_a)^{0.2}d_a^{0.5}f'^{0.5}_C c_{a1}^{1.5}$ = 1.66 kips CONTROLS
$V_b = 9\lambda_a f'^{0.5}_C c_{a1}^{1.5}$ = 1.78 kips

$V_{cbg} = \frac{A_{Vc}}{A_{Vco}} \Psi_{ec,V}\Psi_{ed,V}\Psi_{c,V}\Psi_{h,V}V_b$ = 1.99 kips

Concrete breakout in shear will be resisted by rebar ties at the top of the footing, tensile capacity of the bars will control.
Tie Size = # 3 bar Bar Area = 0.11 in^2
Number of Ties at top = 3 Fy = 60 ksi
Tensile Capacity of Ties = 39.6 kips
Therefore, V_{cbg} = 39.60 kips
ϕ = 0.75 ϕV_{cbg} = 29.70 kips

Concrete Pryout Strength of Anchors in Shear (17.5.3)

Concrete pryout of anchors in shear will only occur where anchors are relatively stiff and short.

$\frac{h_{EF}}{d_0}$ = 19.2 > 6

THEREFORE, CONCRETE PRYOUT WILL NOT CONTROL SHEAR DESIGN OF ANCHORS.

ANCHOR ROD GROUP CAPACITY

ALLOW. TENSION (ΦN_N) = **12.13** kips > 9.44 kips **OK**
ALLOW. SHEAR (ΦV_N) = **20.45** kips > 4.64 kips **OK**

CHECK SHEAR/TENSION INTERACTION

$N_{UA} > 0.2\Phi N_N$? YES
$V_{UA} > 0.2\Phi V_N$? YES

UNITY CHECK REQUIRED

$\frac{N_{UA}}{\Phi N_N} + \frac{V_{UA}}{\Phi V_N}$ = **1.01 < 1.20 OK**

MOUNTAIN VIEW ENGINEERING, INC.
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Phone (435) 734-9700 • Fax (435) 734-9519

Project Title: Clay Hockel C&B Holdings
Engineer: BLC
Project ID: 23-0706
Project Descr: 65'x70' Metal Building

Concrete Beam

Project File: 23-0706.ec6

REVIEWED FOR CODE COMPLIANCE 09/18/2023

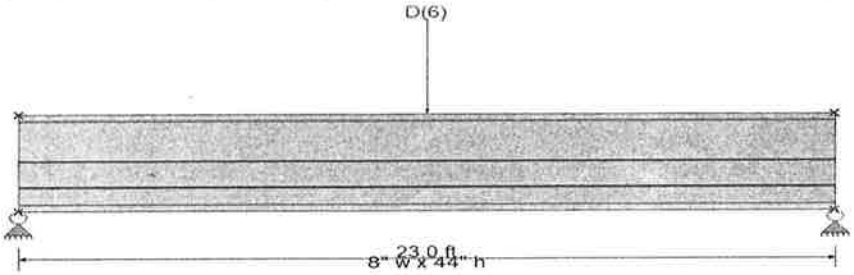
DESCRIPTION: Grade Beam

CODE REFERENCES

Calculations per ACI 318-14, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : IBC 2018

General Information

f'c	=	2.50 ksi	φ Phi Values	Flexure :	0.90
fr = f'c^1/2 * 7.50	=	375.0 psi		Shear :	0.750
ψ Density	=	145.0 pcf	β 1	=	0.850
λ LtWt Factor	=	1.0			
Elastic Modulus	=	2,850.0 ksi	Fy - Stirrups		60.0 ksi
fy - Main Rebar	=	60.0 ksi	E - Stirrups	=	29,000.0 ksi
E - Main Rebar	=	29,000.0 ksi	Stirrup Bar Size #		4
			Number of Resisting Legs Per Stirrup	=	1.0



Cross Section & Reinforcing Details

Inverted Tee Section, Stem Width = 8.0 in, Total Height = 44.0 in, Top Flange Width = 16.0 in, Flange Thickness = 8.0 in
Span #1 Reinforcing....
2-#4 at 3.0 in from Bottom, from 0.0 to 23.0 ft in this span
1-#4 at 11.0 in from Bottom, from 0.0 to 23.0 ft in this span
1-#4 at 3.0 in from Top, from 0.0 to 23.0 ft in this span
1-#4 at 21.0 in from Top, from 0.0 to 23.0 ft in this span

Beam self weight calculated and added to loads
Point Load : D = 6.0 k @ 11.50 ft

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio =	**0.742**	: 1
Section used for this span	**Typical Section**	
Mu : Applied	86.991	k-ft
Mn * Phi : Allowable	117.297	k-ft
Location of maximum on span	11.521	ft
Span # where maximum occurs	Span # 1	

Maximum Deflection

Max Downward Transient Deflection	0.000 in	Ratio =	0 <360.0	
Max Upward Transient Deflection	0.000 in	Ratio =	0 <360.0	
Max Downward Total Deflection	0.025 in	Ratio =	11159 >=240.0	Span: 1 : D Only
Max Upward Total Deflection	0.000 in	Ratio =	0 <240.0	Span: 1 : D Only

Vertical Reactions

Support notation : Far left is #1

Load Combination	Support 1	Support 2
Max Upward from all Load Conditions	7.817	7.817
Max Upward from Load Combinations	4.690	4.690
Max Upward from Load Cases	7.817	7.817
D Only	7.817	7.817
+0.60D	4.690	4.690

Shear Stirrup Requirements

Entire Beam Span Length : Vu < Phi*Vc / 2, Req'd Vs = Not Reqd per 9.6.3.1, Stirrups are not required.

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Project Title: Clay Hockel C&B Holdings
Engineer: BLC
Project ID: 23-0706
Project Descr: 65'x70' Metal Building

12

Concrete Beam

Project File: 23-0706.ecb

LIC# : KW-06014791, Build:20.23.07.20 MOUNTAIN VIEW ENGINEERING, INC.

DESCRIPTION: Grade Beam

Maximum Forces & Stresses for Load Combinations

Load Combination Segment	Span #	Location (ft) along Beam	Bending Stress Results (k-ft) Mu : Max	Phi*Mnx	Stress Ratio
MAXimum BENDING Envelope					
Span # 1	1	23.000	86.99	117.30	0.74
+1.40D					
Span # 1	1	23.000	86.99	117.30	0.74
+1.20D					
Span # 1	1	23.000	74.56	117.30	0.64
+0.90D					
Span # 1	1	23.000	55.92	117.30	0.48

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl (in)	.ocation in Span (ft	Load Combination	Max. "+" Defl (in)	ocation in Span (ft
D Only	1	0.0247	11.500		0.0000	0.000

FOUNDATION NOTES

1. Design Information and Loads

A. Foundation design in accordance with 2018 International Building Code using the reactions provided by the metal building manufacturer for the following design criteria.
B. Ground Snow Load . . . . . 80 psf
Roof Snow Load . . . . . 60 psf
C. Wind Speed . . . . . 115 mph
Exposure C
D. S_{DS} 0.409
E. SDC C
F. Frost Depth . . . . . 4'–0"

2. Earthwork

A. The foundation has been designed and the site soils should be prepared for the foundation, in accordance with the recommendations in the geotechnical investigation report by:
Erika K. Hill, P.E. of NWCC, Inc.
2580 Copper Ridge Drive, Steamboat Springs, CO 80487
Phone: (970) 879–7888 Job Number: 22–12817
B. Foundation Design Values
i. Allowable Soil Bearing Pressure – 3500 psf
ii. Minimum Soil Bearing Pressure – 1500 psf
iii. Coefficient of Friction – 0.25 (Assumed)
iiii. Passive Earth Pressure – 250 psf/ft of depth (Assumed)
C. The site soils shall be prepared for the foundation in accordance with the geotechnical report referenced above. The contractor shall verify that soil under footings is suitable to support footings.
D. It is the responsibility of the contractor to ensure that the depth of the bottom of the foundation is far enough below the adjacent grade to ensure adequate frost protection.

3. Concrete and Reinforcement

A. Material Standards
i. Concrete
a. Footings: Exposure Classes F0, S0, W0, C0
f'c = 3000 p.s.i., max. w/cm ratio = 0.55
b. Exterior Walls: Exposure Classes F1, S0, W0, C1
f'c = 3500 p.s.i., max. w/cm ratio = 0.55
c. Interior Walls: Exposure Classes F0, S0, W0, C0
f'c = 3000 p.s.i., max. w/cm ratio = N.A.
d. Interior Slabs: Exposure Classes F0, S0, W0, C0
f'c = 3500 p.s.i., max. w/cm ratio = 0.55
e. Air content for Exposures F1–F3 must meet the requirements of Table 19.3.3.1 of ACI 318–14. Air–entraining admixtures shall conform to ASTM C260
f. Use Type II cement for Exposure Class S0. For Exposure Classes S1, S2 and S3 use Type II or Type V as required in Table 19.3.2.1 of ACI 318–14. Cement shall conform to ASTM C150
g. Calcium Chloride admixture shall not be used in Exposures S2 and S3
h. Normal weight aggregates – ASTM C33
ii. Reinforcing
a. Rebar – ASTM A615 Grade 60 (Fy = 60 ksi)
b. Welded wire – ASTM A1064
c. Epoxy/Adhesive – Simpson SET–XP (ICC–ES ESR–2508), Hilti RE–500V3 (ICC–ES ELC–3814), or Dewalt Pure110+ (ICC–ES ESR–3298) unless noted otherwise in the drawings.
iii. Anchor Rods/Bolts
a. All anchor rods shall be cast–in–place headed anchor rods. Use of post–installed (epoxy, adhesive, expansion, screw, etc.) anchors is not allowed without written permission from MVE or unless specifically noted in the drawings.
b. Steel column anchor rods/bolts – ASTM F1554 Grade 36 with ASTM A563 heavy hex nuts and hardened washers (unless noted otherwise)
c. Wood framing anchors – ASTM A307 with A36 plate washers
d. Headed stud anchors (HSA) – ASTM A108
e. Deformed bar anchors (DBA) – ASTM A496
f. Screw Anchors for jambs as indicated in the typical anchor rod schedule – Simpson Titen HD (ICC–ES ESR–2713), Hilti Kwik HUS–TZ (ICC–ES ESR–3027), or Dewalt Screwbolt+ (ICC–ES ESR–2526)
g. Use of hooked anchor rods/bolts is limited under the ACI and the IBC. Headed anchor rods/bolts must be used where indicated in the details.
h. The symbols ℄ A.R./℄ A.B. as shown in the drawings indicate the center line of the anchor rod/bolt pattern, not the center line of any individual anchor rod/bolt.
B. Detail reinforcing to comply with ACI 315 "Manual of Standard Practice for Detailing Reinforcing Concrete Structures" and the Concrete Reinforcing Steel Institute (CRSI) recommendations.
i. Minimum clear concrete cover for reinforcement shall be as follows unless noted otherwise:
a. Concrete cast directly against and permanently exposed to earth – 3"
b. Concrete exposed to weather or earth:
1. #5 bars or smaller – 1½"
2. #6 bars or larger – 2"
c. Concrete not exposed to weather or in contact with the ground – ¾"
d. Slabs on grade – as shown in details, ¾" min. from top of slabs not exposed to weather
ii. Lap Splice Lengths with 1½" minimum clear cover
a. f'c = 2500–3500 p.s.i.
1. #6 and smaller – 49 bar diameters
2. #7 and larger – 76 bar diameters
b. f'c = 4000 p.s.i. or greater
1. #6 and smaller – 38 bar diameters
2. #7 and larger – 60 bar diameters
c. Increase lap splice lengths by 50% where epoxy coated bars are used.
iii. Stagger splices in walls so that no two adjacent bars are spliced in the same location, unless shown otherwise.
iv. Make all bars continuous around corners or provide corner bars of equal size and spacing.
v. Where 12 inches or less of fresh concrete is placed below horizontal reinforcing lap splice length may be reduced by 30%.
vi. Vertical bars in walls, grade beams, and piers to terminate in footings with ACI standard hooks (12 bar diameters) to within 4" of the bottom of the footing unless noted otherwise.
vii. Horizontal wall reinforcing shall terminate at the ends of walls with a 90 degree hook plus a 6 bar diameter extension, unless shown otherwise.
viii. Horizontal wall reinforcing shall be continuous through construction and control joints.
ix. Splices in horizontal reinforcement shall be staggered. Splices in two curtains (where used) shall not occur in the same location.
x. Use chairs or other support devices as required for proper clearance.
xi. Rebar hairpins shall be centered in slabs and shall be wire tied to the slab reinforcing (if any). Rebar hairpins shall be continuous through walls and piers; lap splices in hairpins may only occur in the floor slab unless noted otherwise.
C. Control joints in slabs on grade are recommended to control cracking. See plans for control joint spacing and details.
D. Slabs and grade beams shall not have joints in a horizontal plane. All reinforcement shall be continuous through all construction joints.
E. Floor slab thickness and reinforcing shown in these drawings are adequate to support typical uniform loads only. Mountain View Engineering has not designed the slab for any specific concentrated forces such as those from vehicles, storage racks, or heavy equipment (unless noted otherwise).
F. Welding of rebar is not allowed unless specifically indicated in the drawings. All embedments, reinforcing, and dowels shall be securely tied to framework or to adjacent reinforcing prior to placement of the concrete. Tack welding of rebar joints in grade beams, walls, or cages is not allowed. Where welding of rebar is shown in the drawings, all rebar to be welded shall be ASTM A706 Grade 60.

4. Special Inspections

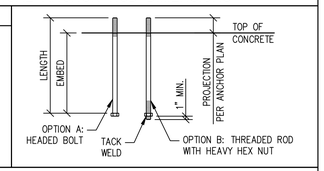
A. Concrete
i. Spot Footings – Not required (IBC 1705.3 Exception 1)
ii. Continuous Ftgs. – Not required (IBC 1705.3 Exception 2.3)
iii. Slabs – Not required (IBC 1705.3 Exception 3)
iv. Grade Beams – Not required (IBC 1705.3 Exception 4)
v. Walls – Not required (IBC 1705.3 Exception 4)
vi. Anchor rods/bolts – Required (IBC Table 1705.3) Special inspection may be waived subject to the approval of the building official.
B. Steel Reinforcement
i. Placement – Third party special inspection of reinforcing placement need only be performed where specifically required by the building official.
ii. Welding – Special inspection of rebar welding is required (if any is used).

5. Miscellaneous

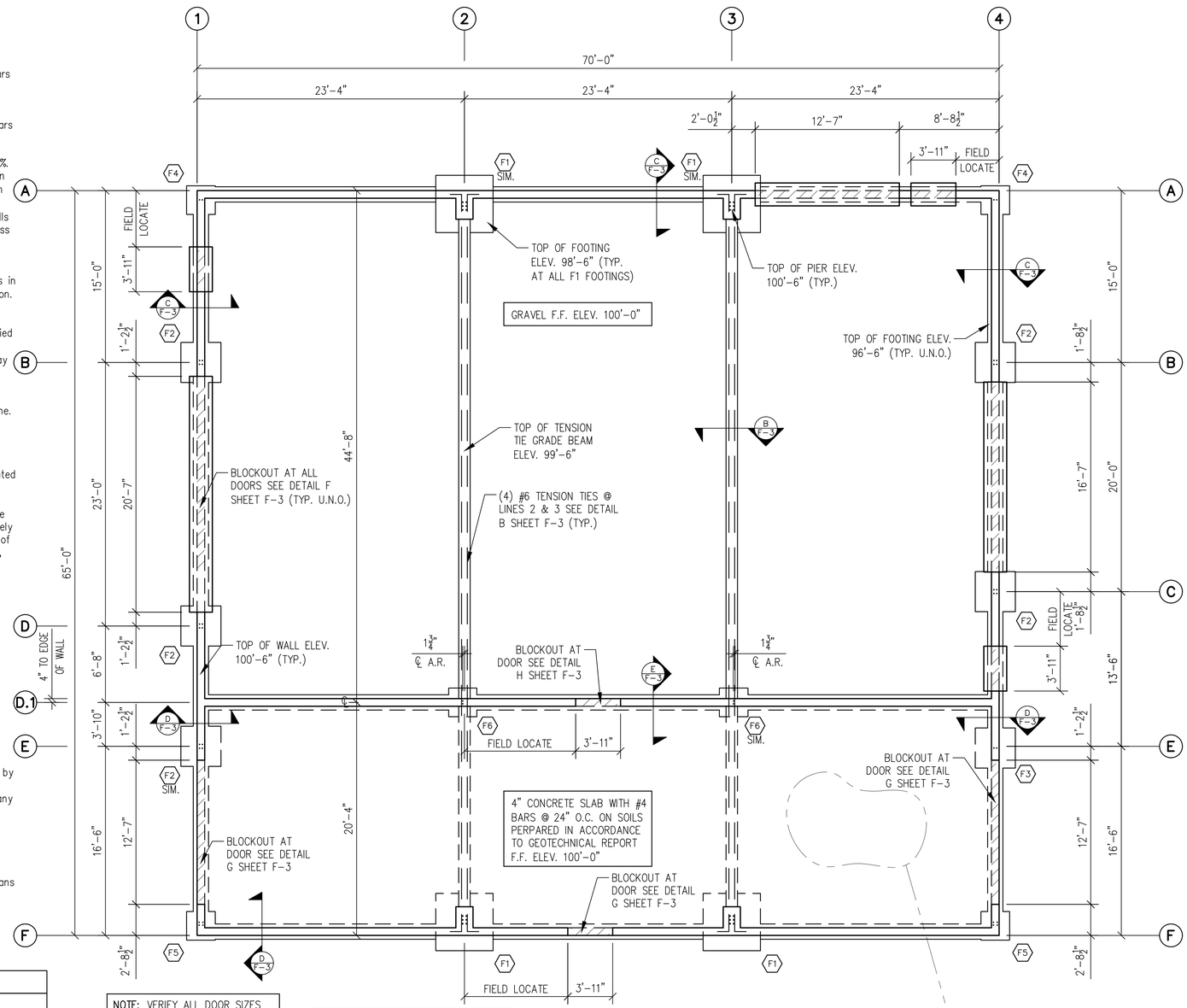
A. The contractor shall notify engineer of any variations in dimensions.
B. The engineer is not responsible for any deviations from these plans unless such changes are authorized in writing by the engineer.

TYPICAL ANCHOR ROD DIMENSIONS

DIA.	EMBED
⅜"*	10"
½"*	12"
⅝"*	14"
¾"	18"
1"	22"
1⅛"	24"
1¼"	24"



*AT OPENING JAMBS, ⅜"ø x 4" OR ⅝"ø x 4" SCREW ANCHORS MAY BE USED IN LIEU OF CAST–IN–PLACE ANCHORS. OPENING JAMB ANCHORS ARE NOT SHOWN ON THIS DRAWING, SEE METAL BUILDING ANCHOR PLAN.



NOTE: VERIFY ALL DOOR SIZES AND LOCATIONS WITH METAL BUILDING OUTLET CORP. PRIOR TO CONSTRUCTION. BLOCKOUT AT ALL DOORS SEE DETAILS F, G, AND H SHEET F–3.

NOTE: COORDINATE THIS DRAWING WITH THE METAL BUILDING OUTLET CORP. ANCHOR BOLT PLAN.

FOUNDATION PLAN

SCALE: 3/16"=1'–0"

F1 INDICATES APPLICABLE FOOTING DETAIL.

REVIEWED FOR CODE COMPLIANCE
09/18/2023

MOUNTAIN VIEW ENGINEERING, INC.
Structural Engineering Consulting Design
345 North Main Street Ste. A, Brigham City, Utah 84302 (435) 734–9700 Fax (435) 734–9519

SHEET TITLE: FOUNDATION PLAN
JOB NAME: CLAY HOCKEL C & B HOLDINGS
LOCATION: HAYDEN, COLORADO
CONTRACTOR: -

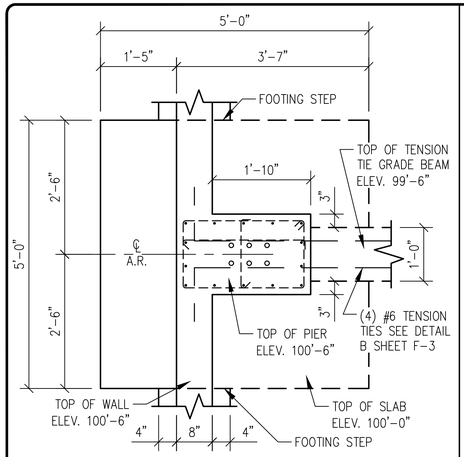
PLAN ISSUE DATES

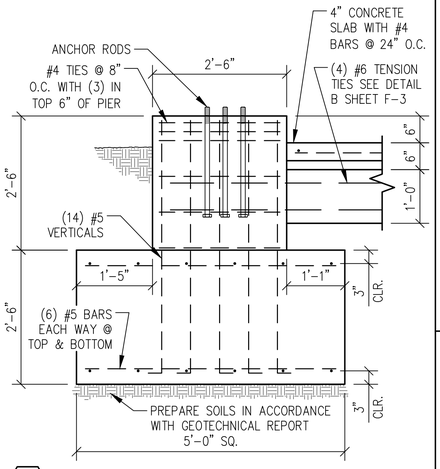
	DATE:	BY:	DESCRIPTION:
1	7–31–23	J.D.	FOR PERMIT

COLORADO LICENSED 57594 PROFESSIONAL ENGINEER
JUL 31 2023

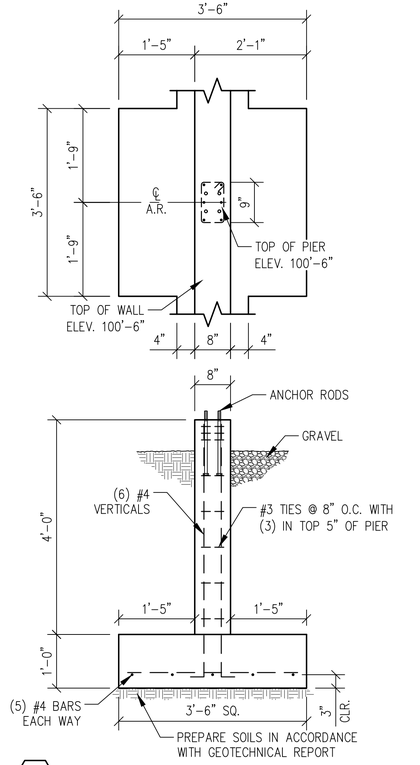
SHEET NUMBER: F-1

DRAWN BY:	J.D.
ENGINEER:	B. COX
MVE JOB NUMBER:	23-0706

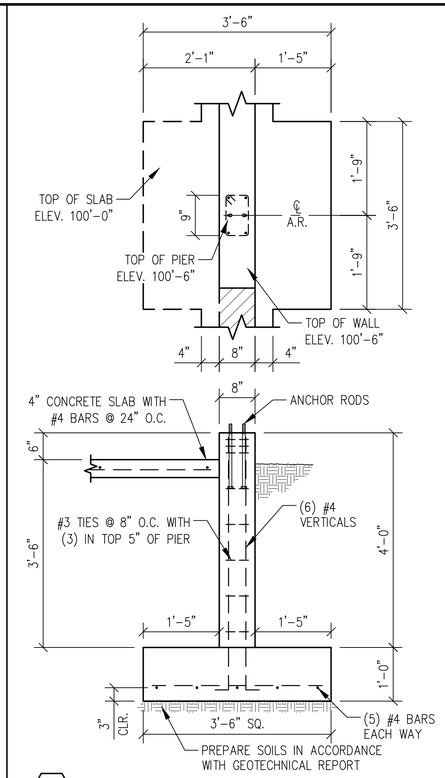




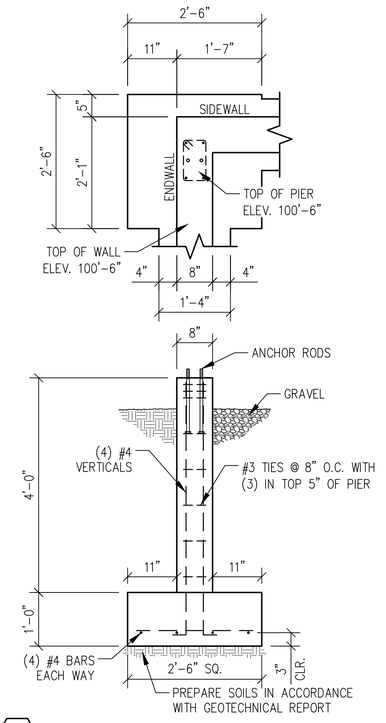
F1 SIDEWALL FOOTING DETAIL
3/4"=1'-0"



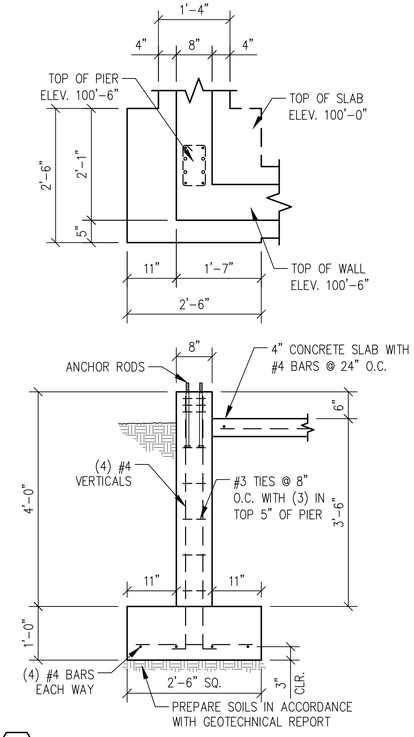
F2 ENDWALL FOOTING DETAIL
3/4"=1'-0"



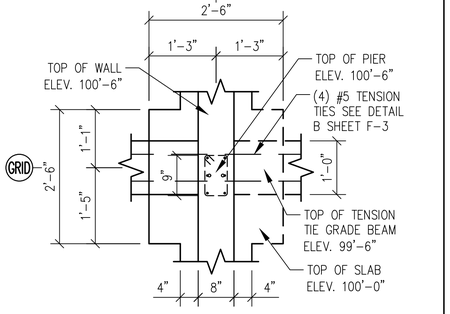
F3 ENDWALL FOOTING DETAIL
3/4"=1'-0"

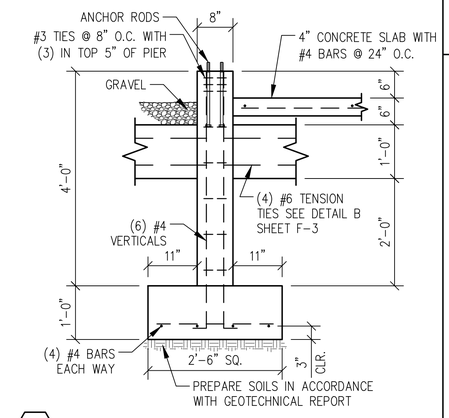


F4 CORNER FOOTING DETAIL
3/4"=1'-0"



F5 CORNER FOOTING DETAIL
3/4"=1'-0"





F6 INTERIOR FOOTING DETAIL
3/4"=1'-0"

MOUNTAIN VIEW ENGINEERING, INC.
Structural Engineering Consulting Design
345 North Main Street, Ste. A, Brigham City, Utah 84302 (435) 734-9700 Fax (435) 734-9519

SHEET TITLE: FOUNDATION DETAILS
JOB NAME: CLAY HOCKEL C & B HOLDINGS
LOCATION: HAYDEN, COLORADO
CONTRACTOR: -

PLAN ISSUE DATES

	DATE:	BY:	DESCRIPTION:
1	7-31-23	J.D.	FOR PERMIT

COLORADO LICENSED 57994 PROFESSIONAL ENGINEER
JUL 31 2023

SHEET NUMBER: F-2

REVIEWED FOR CODE COMPLIANCE
09/18/2023

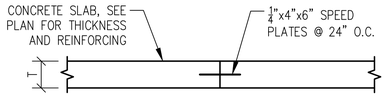
DRAWN BY:	J.D.
ENGINEER:	B. COX
MVE JOB NUMBER:	23-0706

CONTROL JOINT NOTES:

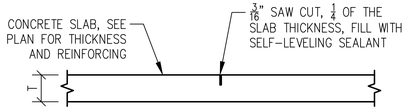
1. Control joints shall be field located by the contractor.
2. Control joints shall be located to limit the frequency and width of random cracks in the concrete slab.
3. Locate and install control joints in accordance with ACI 360R "Design of Slabs on Ground" and the details shown.
4. Maximum spacing of joints shall be per the table below.
5. Saw cuts should be made as soon as possible.

MAXIMUM SPACING OF CONTROL JOINTS

Slab thickness (T), in.	Slump 4 in. to 6 in.	
	Maximum-size aggregate less than 3/4 in.	Maximum-size aggregate 3/4 in. and larger
4	8 ft.	10 ft.
5	10 ft.	13 ft.
6	12 ft.	15 ft.
7	14 ft.	18 ft.
8	16 ft.	20 ft.



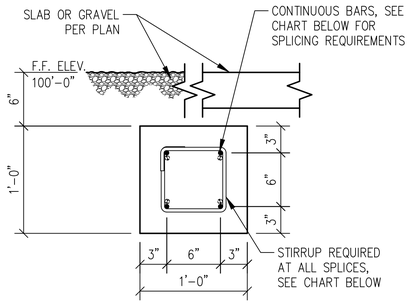
CONSTRUCTION JOINT



CONTROL JOINT

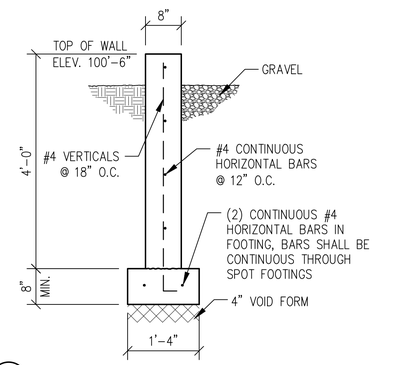
A CONTROL JOINTS
N.T.S.

(4) #6 REBAR TENSION TIES CONTINUOUS ACROSS BUILDING, TYPICAL @ LINES 2 & 3. TIES TO TERMINATE IN COLUMN PIERS WITH 90° BEND (16d_b MIN). NO MORE THAN 50% OF BARS MAY BE SPLICED AT ONE LOCATION. STAGGER SPLICES A DISTANCE AT LEAST EQUAL TO SPLICE LENGTH. SEE CHART BELOW FOR SPLICE LENGTH AND STIRRUP REQUIREMENTS.

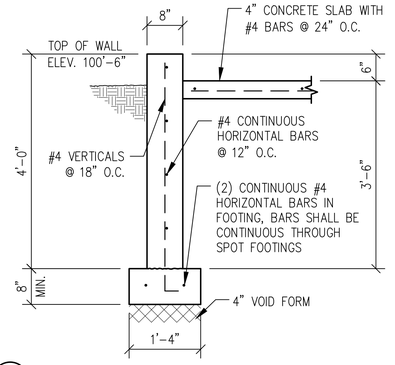


BAR SIZE	LAP LENGTH	STIRRUPS	
		SIZE	NO. & SPACING
#5	24"	#3	8 @ 3 1/2"
#6	30"	#3	11 @ 3"
#7	42"	#4	9 @ 5 1/4"
#8	48"	#4	11 @ 4 3/4"

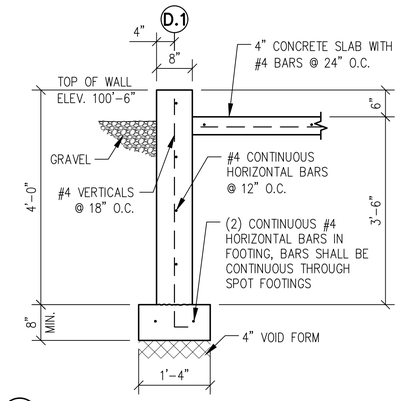
B TENSION TIE GRADE BEAM DETAIL
1 1/2"=1'-0"



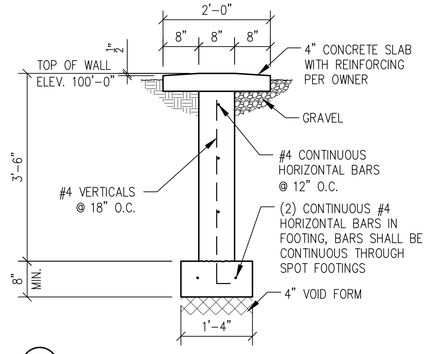
C GRADE BEAM DETAIL
3/4"=1'-0"



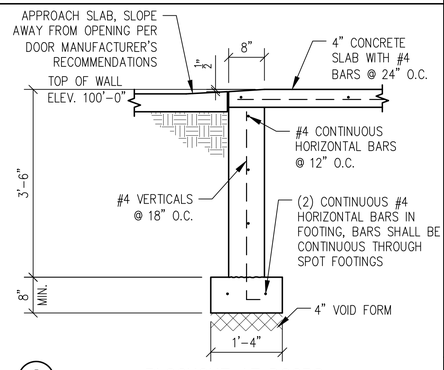
D GRADE BEAM DETAIL
3/4"=1'-0"



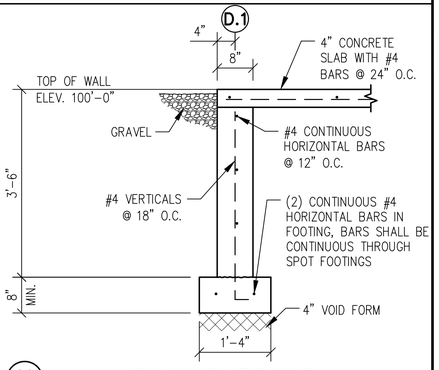
E GRADE BEAM DETAIL
3/4"=1'-0"



F BLOCKOUT AT DOORS
3/4"=1'-0"



G BLOCKOUT AT DOORS
3/4"=1'-0"



H BLOCKOUT AT DOORS
3/4"=1'-0"

REVIEWED FOR CODE COMPLIANCE
09/18/2023

MOUNTAIN VIEW ENGINEERING, INC.
Structural Engineering Consulting Design
345 North Main Street Ste. A, Brigham City, Utah 84302 (435) 734-9700 Fax (435) 734-9519

SHEET TITLE: FOUNDATION DETAILS
JOB NAME: CLAY HOCKEL C & B HOLDINGS
LOCATION: HAYDEN, COLORADO
CONTRACTOR: -

PLAN ISSUE DATES

	DATE:	BY:	DESCRIPTION:
1	7-31-23	J.D.	FOR PERMIT

COLORADO LICENSED PROFESSIONAL ENGINEER 57894
JUL 31 2023

SHEET NUMBER: F-3

DRAWN BY:	J.D.
ENGINEER:	B. COX
MVE JOB NUMBER:	23-0706

ERECTION NOTES

1. All bracing shown and provided by the Metal Building Provider (MBP) for this building is required and shall be installed by the erector as a permanent part of the structure ("Code of Standard Practice for Steel Buildings" in the ANSI/AISC 303–16; Section 7.10).
2. Temporary supports, such as guys, braces, falsework, cribbing or other elements required for the erection operation shall be determined and furnished by the erector ("Code of Standard Practice for Steel Buildings and Bridges " in the ANSI/AISC 303–16; Section 7.10.3).
3. Normal erection operations include the correction of minor misfits by moderate amounts of reaming, grinding, welding or cutting, and the drawing of elements into line through use of drift pins. Errors which require major changes in the member configuration are to be reported immediately to the Metal Building Provider by the customer to enable whoever is responsible either to correct the error or to approve the most efficient and economic method of correction to be used by others ("Code of Standard Practice for Steel Buildings and Bridges "in the ANSI/AISC 303–16; Section 7.14).
4. Erection tolerances are set forth in the "Code of Standard Practice for Steel Buildings and Bridges "in the ANSI/AISC 303–16; Section 7.13 note that individual members are considered plump, level and aligned if the deviation does not exceed 1:500. Variations in finished overall dimensions of structure steel framing are deemed within the limits of good practice when they do not exceed the cumulative effect of rolling, fabricating, and erection tolerances.
   4.1. When crane support systems are part of the metal building system erection tolerances Section 6.8, Erection Tolerances, 2018 MBMA Metal Building Systems manual shall apply. To achieve the required tolerances grouting of the columns and shimming of the runway beams may be required. The customer shall provide grout if required. The contractor erecting the runway beams is responsible for shimming, plumbing, and leveling of the runway system. When aligning the runway beams the alignment shall be with respect to the beam webs so that the center of the aligned rail is over the runway web.
5. As a general rule field welding is not used to assemble a metal building system. In cases where the drawings indicate field welding and in cases where approved corrections are to be made by field welding the following requirements shall be met;
   5.1. welders must be qualified by an independent testing agency, with suitable documentation to AWS D1.1 Structural Welding Code – Steel or AWS D1.3 Structural Welding Code – Sheet as applicable, for the processes, positions, and materials involved.
   5.2. All welds must be made in conformance to a documented and approved Welding Procedure Specification (WPS). All joints which are not prequalified must be supported by a certified Procedure Qualification Record (PQR) by an independent testing agency.
6. All documentation and records shall be the responsibility of the customer.
7. Any claims or shortages by buyer must be made to the Metal Building Provider within seven (7) working days after delivery, or such claims will be considered to have been waived by the customer and disallowed. All claims should be directed to the Metal Building Provider's Customer Service Department.
8. Claims for correction of alleged misfits will be disallowed unless the Metal Building Provider shall have received prior notice thereof and allowed reasonable inspection of such misfits. Ordinary inaccuracies of shop work shall not be construed as misfits. No part of the building may be returned or charges assessed for alleged misfits without prior approval from the Metal Building Provider.
9. Neither the Metal Building Provider nor the customer will cut, drill or otherwise after their work, or the work of other trades to accommodate other trades unless such work is clearly specified in the contract documents. Whenever such work is specified the customer is responsible for furnishing complete information as to materials, size, location, and number of alterations prior to preparation of shop drawings ("Code of Standard Practice for Steel Buildings and Bridges "in the ANSI/AISC 303–16, Section 7.15).
10. The Metal Building Provider Field Modifications Policy:
    10.1. The Metal Building Provider will only be responsible for the field–modified parts designed and approved by the Metal Building Provider's Customer Service Department.
    10.2. Any field modifications designed by third parties may not be approved by the Metal Building Provider and may limit the Metal Building Provider's warranty and liability.
    10.3. The Metal Building Provider makes no warranty and hereby disclaims any responsibility with respect to the design, engineering, or construction of any field–modified parts performed by third parties.
11. WARNING – SOME PANELS AND TRIM PARTS ARE FURNISHED WITH A PROTECTIVE PEEL–OFF FILM. PARTS PROVIDED WITH THIS FILM CANNOT BE EXPOSED TO SUNLIGHT WITHOUT FIRST REMOVING THE FILM. THIS FILM MUST BE REMOVED PRIOR TO INSTALLATION. FILM MUST ALSO BE REMOVED FROM ALL NON EXPOSED PARTS WITHIN SIX MONTHS FROM FILM APPLICATION OR IRREPARABLE DAMAGE WILL OCCUR TO THE SURFACE CLAIMS WILL NOT BE ACCEPTED FOR THIS ISSUE.

RESPONSIBILITIES

1. The Metal Building Provider Customer, hereafter referred to as the "customer, " obtains and pays for all building permits, licenses, public assessments, paving or utility pro rata, utility connections, occupancy fees and other fees required by any governmental authority or utility in connection with the work provided for in the Contract Documents. The customer provides at his expense all plans and specifications required to obtain a building permit. it is the customer's responsibility to ensure that all plans and specifications comply with the applicable requirements of any governing building authorities.
2. The customer is responsible for identifying all applicable building codes, zoning codes, or other regulations applicable to the Construction Project, including the Metal Building system.
3. It is the responsibility of the customer to interpret all aspects of the End User's specifications and incorporate the appropriate specifications, design criteria, and design loads into the Order Documents submitted to the Metal Building Provider.
4. It is the responsibility of the Metal Building Provider to furnish the metal building system to meet the specifications including the design criteria and design loads incorporated by the Contractor into the Order Documents. The Metal Building Provider is not responsible for making an independent determination of any local codes or any other requirements not part of the Order Document.
5. The Metal Building Provider's standard specifications apply unless stipulated otherwise in the Contract Documents. The Metal Building Provider design, fabrication, quality criteria, standards, practice, methods and tolerances shall govern the work any other interpretations to the contrary not with standing. it is understood by both parties that the customer is responsible for clarifications of inclusions or exclusions from the Architectural plans.
6. In case of discrepancies between the Metal Building Provider's structural steel plans and plans for other trades, the Metal Building Provider's shall govern ("Code of Standard Practice for Steel Buildings and Bridges" in the AISC 303–16; Section 3.3).
7. The customer is responsible for overall project coordination. All interface, compatibility and design considerations concerning any materials not furnished by the Metal Building Provider and the Metal Building Provider's steel system are to be considered and coordinated by the customer. Specific design criteria concerning this interface between materials must be furnished by the customer before release for fabrication or the Metal Building Provider's assumptions will govern.
8. Foundations, anchor rods, and anchor rod embedment are designed, furnished, and set by the customer in accordance with an approved drawing. Dimensional accuracy shall satisfy the requirements of Section 7.5 1 of "Code of Standard Practice for Steel Buildings and Bridges" in the AISC 303–16.
9. All other embedded items or connection materials between the structural steel and the work of other trades are located and set by the customer in accordance with approved location on erection drawings. Accuracy of these items must satisfy the erection tolerance requirements.
10. The Metal Building Provider does not investigate the influence of the metal building system on existing buildings or structures. The End Customer assures that such buildings and structures are adequate to resist snow drifts, wind loads, or other conditions as a result of the presence of the metal building system.

GENERAL SPECIFICATIONS

1. Wall and liner panels are an integral part of the structural system. Unauthorized removal of panels or cutting panels for framed openings not shown is prohibited.
2. Oil–canning, a perceived waviness inherent to light gauge metal, may exist. This condition does not affect the structural integrity or the finish of the panel, and therefor is not a cause for rejection.
3. The Metal Building Provider's red–oxide and gray–oxide primer are designed for short term field protection from exposure to ordinary atmospheric conditions. Primed steel which is stored in the field pending erection should be kept free of the ground, and so positioned as to minimize water–holding pockets, dust, mud, and other contamination of the primer film. Repairs of damage to primed surfaces and/or removal of foreign material due to transportation (e.g. road salt, de–icing chemicals and other substances encountered during transportation that may accelerate deterioration of the primer or corrosion of the underlying steel), improper field storage, or site conditions are not the responsibility of the Metal Building Provider. (MBMA, 2018 MBSM, Section 4.2.4)
4. All bolts are 1/2" x 1–1/4" A307 unless noted. Refer to the erection drawings for specific framing connections and the cross–section(s) for main frame connections.
5. Unless noted otherwise on the frame cross section(s), all bolted joints with ASTM F3125 Grade A325 bolts are specified as snug–tightened joints in accordance with the specification for Structural Joints Using High–Strength Bolts, June 11, 2020. Installation Inspection requirements for Snug–Tight Bolts (Specification for Structural joints, Section 9.1) is suggested.
6. Unless noted otherwise, all bolted connections are designed as bearing type connections with bolt threads not excluded from the shear plane.
7. Any type of suspended or load inducing system(s) is prohibited if zero collateral and zero sprinkler loads are designated on the contract. This would include lights, duct work, piping, and insulation types other than 3" standard duty fiberglass blanket insulation, etc.

BUILDING DESIGN CODES

Building Code:	IBC 18
Hot–rolled version:	AISC 360–16
Cold–formed version:	AISI S100–16

GENERAL LOADS

Dead Load:	3.10 psf	
Roof Collateral Load:	1.00 psf	(Misc.)
Sprinkler Load:	0.00 psf	
Roof Live Load:	20.00 psf	
Tributary Live Load Reduction:	NO	
Rainfall Intensity:	4.00 in/hr	(5–minute duration 5–year recurrence)

WIND LOAD

Wind Load (3–sec gust) Vult:	115 mph
Vasd:	89 mph
V service:	77 mph
Exposure Factor:	C
Wind Condition:	Enclosed
Internal Pressure Coefficient :	+/– 0.18
Edge Zone Width:	6.50 Ft

SNOW LOAD

Ground Snow Load :	80.00 psf
Roof Snow Load :	60.00 psf
Importance Factor:	1.00
Exposure Factor:	1.00
Thermal Factor:	1.00
Slope Factor:	1.00

DEFLECTION CRITERIA

Main Frames Horizontal:	H/60	Roof Panels:	L/60
Main Frames Vertical:	L/180	Purlins:	L/180
Bearing Frame Rafter:	L/180	Wall Panels:	L/60
Endwall Columns:	L/120	Girts:	L/90
Wind Frame Horizontal :	H/60		

For components,claddings and MWFRS, deflections involving wind are based on 10 year serviceability wind pressures.

SEISMIC LOAD

Risk Category:	II – Normal	
Seismic Importance Factor :	1.0000	
Structural Response Acceleration (Ss):	0.4190	
Structural Response Acceleration(S1):	0.0862	
Site Class:	D	
Design Spectral Response (Sds):	0.4092	
Design Spectral Response (Sd1):	0.1376	
Seismic Design Category:	C	
Framing Direction:	Lateral	Longitudinal
Structural Syst:	'Structural Steel Systems Not Specifically Detailed for Seismic Resistance'	
Response Modification Factor(s) :	3.0	3.0
Deflection Amplification:	3.0	3.0
Sesimic Response Coefficient(s) (Cs):	0.1365	0.1365
Design Base Shear V :	14.14 (kips)	14.12 (kips)
Analysis Procedure:	Equivalent Lateral Force	

ROOF PANEL

Profile: Super Span X Gauge: 26 Color: SMP Royal Blue
UL580 Class 90: Yes
Clip Type if Standing Seam: NO

WALL PANEL

Profile: Super Span X Gauge: 26 Color: SMP Steel Gray

SOFFIT PANEL

Profile: Reverse Rolled Super Span X Gauge: 26 Color: SMP Steel Gray

PARTITION PANEL

Profile: Super Span X Gauge: 26 Color: SMP Steel Gray

PRIMARY FRAMING

Built–Up & Hot–Rolled: Gray Oxide Primer

SECONDARY FRAMING

Purlins, Eave Struts:	Pre–Galvanized
Girts, Light Gage Columns:	Pre–Galvanized
Light Gage Jambs & Headers:	Pre–Galvanized
Base Angle Finish:	Pre–Galvanized

Hot–Dip Galvanizing conforms to the ASTM A123 specification.
Pre–Galvanized members conform to the ASTM A653, Grade 50, Coating G–90 specification.

APPROVAL SPECIFICATIONS

1. Approval of the Metal Building Provider drawings and/or calculations indicate that the Metal Building Provider has correctly interpreted the contact requirements. This approval constitutes the customer acceptance of the Metal Building Provider design, concepts, assumptions, and loadings.
2. Failure to respond to clouded areas and areas to verify may result in additional costs and/or schedule delays for which the Metal Building Provider will not be responsible.
3. Any changes made after the Metal Building Provider's customer has signed and returned the Metal Building Provider drawings and/or calculations and the project is released for fabrication shall be billed to the Metal Building Provider customer including material, engineering, and other costs. An additional fee may be charged if the project must be moved in the fabrication and/or the shipping schedule.
4. It is the responsibility of the customer to field verify all existing conditions prior to fabrication.
5. It is imperative that any changes to these drawings:
   5.1. Be made in contrasting ink.
   5.2. Be legible and unambiguous.
   5.3. Have all instances of changes clearly indicated.
6. A dated signature, in the designated areas, is required on all pages. The signature must be from the person authorized on the contract or a person authorized, in writing, by the Metal Building Provider customer.
7. The Metal Building Provider reserves the right to resubmit drawings with extensive or complex changes required to avoid misfabrication. This may impact the delivery schedule.
8. Any changes noted on the drawings not in conformance with the terms and requirements of the contract between the Metal Building Provider and its customer are not binding on the Metal Building Provider unless subsequently acknowledged and agreed to in writing by change order or separate documentation.
9. Waiving the approval process by designating the order "For Production" supercedes notes 1,2,5,6, and 8 in this section, and constitutes the customer acceptance of the Metal Building Provider's design, concepts, assumptions, and loadings.

DRAWING SCHEDULE

DWG NO.	ISSUE	DATE	DESCRIPTION
C1	0	08.02.23	COVER SHEET
F1	1	07.20.23	ANCHOR BOLT PLAN
F2	1	07.20.23	ANCHOR BOLT DETAILS
F3	1	07.20.23	ANCHOR BOLT REACTIONS
F4	1	07.20.23	ANCHOR BOLT REACTIONS
P1	0	08.02.23	RIGID FRAME ELEVATION
E1	0	08.02.23	ROOF FRAMING PLAN
E2	0	08.02.23	ROOF SHEETING PLAN
E3	0	08.02.23	ENDWALL FRAME & SHEETING ELEVATION
E4	0	08.02.23	ENDWALL FRAME & SHEETING ELEVATION
E5	0	08.02.23	SIDEWALL FRAME & SHEETING ELEVATION
E6	0	08.02.23	SIDEWALL FRAME & SHEETING ELEVATION
E7	0	08.02.23	PARTITION FRAME & SHEETING ELEVATION
E8	0	08.02.23	BUILDING SECTIONS
E9	0	08.02.23	BUILDING SECTIONS
D1	0	08.02.23	STANDARD DETAILS PAGE
D2	0	08.02.23	STANDARD DETAILS PAGE
D3	0	08.02.23	STANDARD DETAILS PAGE
D4	0	08.02.23	STANDARD DETAILS PAGE

TRIM COLOR:

Shadow Rake:	SMP Royal Blue	GAUGE: 26
Shadow Eave:	SMP Royal Blue	GAUGE: 26
CORNER:	SMP Royal Blue	GAUGE: 26
ACCESSORY:	SMP Royal Blue	GAUGE: 26
SOFFIT TRIM:	SMP Royal Blue	GAUGE: 26
PARTITION TRIM:	SMP Royal Blue	GAUGE: 26
BASE Trim:	SMP Royal Blue	GAUGE: 26

☐ FOR APPROVAL:
These drawings, being for approval, are by definition not final and are for conceptual representation only. Their purpose is to confirm the proper interpretation of the project documents. Only drawings issued "For Erector Installation" can be considered complete.
☐ FOR CONSTRUCTION PERMIT:
These drawings, being for permit, are by definition not final. Only drawings issued "For Erector Installation" can be considered complete.
☒ FOR ERECTOR INSTALLATION:
Final drawings for construction.

METALBUILDING OUTLET CORP.
7651 SHAFFER PARKWAY LITTLETON, CO 80127

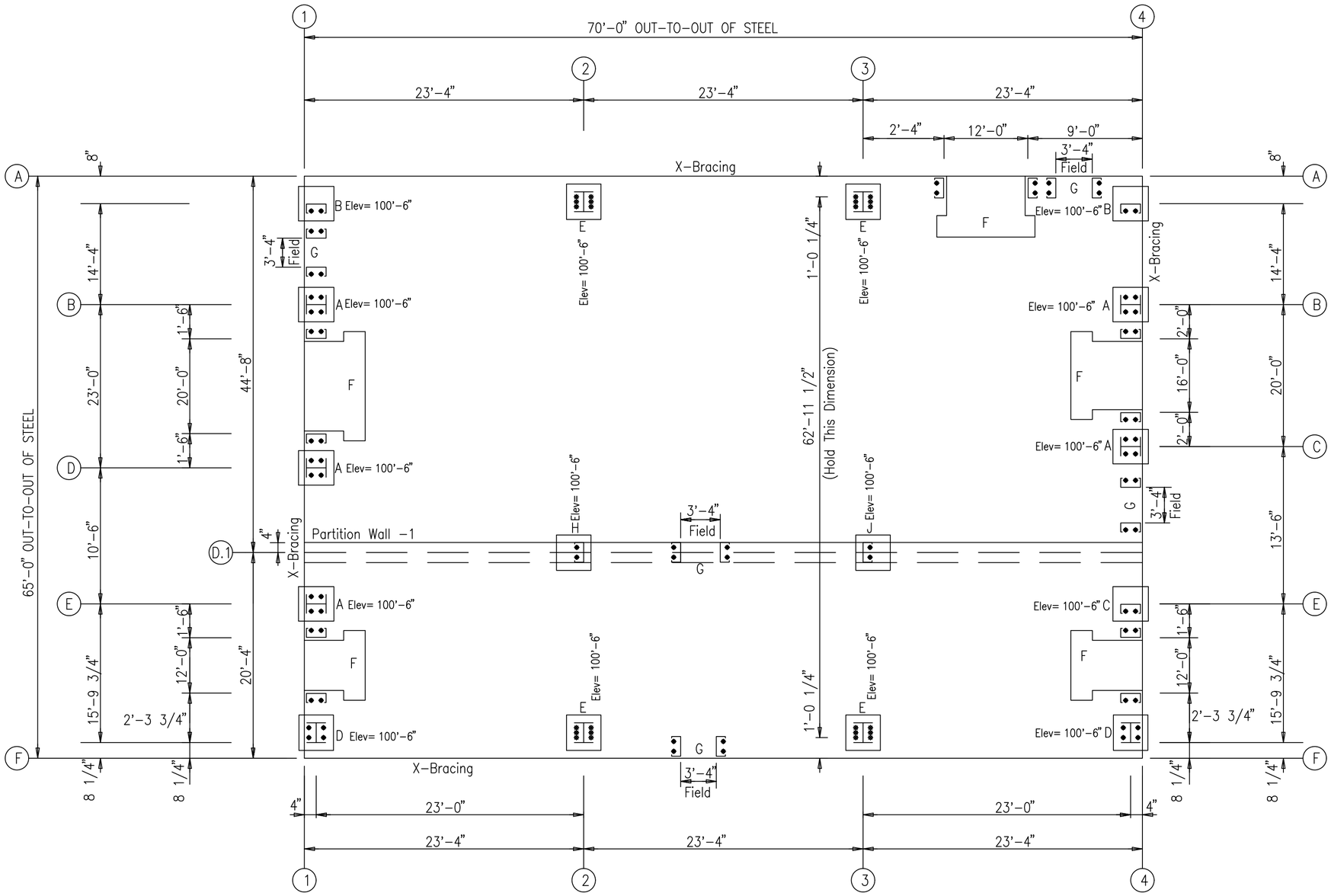
ISSUE	DATE	DESCRIPTION	BY	CHK
P1	06.19.23	FOR CONSTRUCTION PERMIT	PND	PNC
P2	07.20.23	REV.FOR CONSTRUCTION PERMIT	PND	PNC
0	08.02.23	FOR ERECTOR INSTALLATION	PND	PNC

SHEET DESCRIPTION: COVER SHEET						BLDG SIZE: 65'–0" x 70'–0" x 18'–0"/14'–3"	
CUSTOMER: THUNDERSTRUCK / C&B HOLDINGS						CUSTOMER LOCATION: HAYDEN, CO 81639	
PROJECT REFERENCE: THUNDERSTRUCK / C&B HOLDINGS							
JOBSITE LOCATION: HAYDEN, CO 81639						JOBSITE COUNTY: ROUTT	
DWN: PND	CHK: PNC	DATE: 08.02.23	ENG: KMO	JOB NO: 11217–32005	DWG NO: C1	ISSUE: 0	

REVIEWED FOR CODE COMPLIANCE
09/18/2023

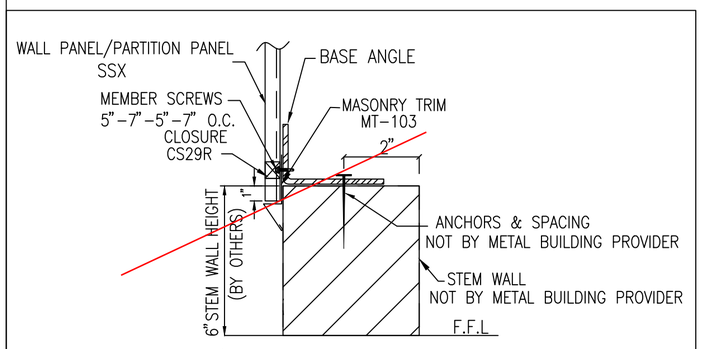
Dia= 5/8"

Dia=1"



ANCHOR BOLT PLAN

NOTE: All Base Plates @ 100'-0" (U.N.)



MASONRY TRIM W/BASE ANGLE CONDITION NO RECESS

NTS

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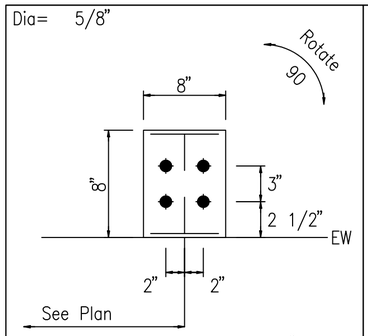
☒ FOR ERECTOR INSTALLATION:
Final drawings for construction.

METAL BUILDING OUTLET CORP.
7651 SHAFFER PARKWAY LITTLETON, CO 80127

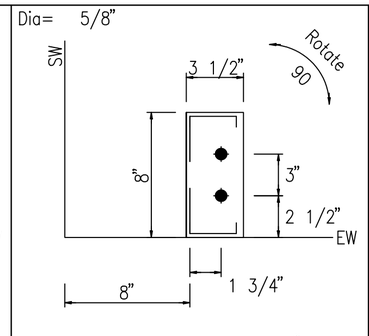
ISSUE	DATE	DESCRIPTION	BY	CHK
0	06.19.23	FOR ERECTOR INSTALLATION	PND	PNC
1	07.20.23	REV.FOR ERECTOR INSTALLATION	PND	PNC

SHEET DESCRIPTION: ANCHOR BOLT PLAN					BLDG SIZE: 65'-0" x 70'-0" x 18'-0"/14'-3"	
CUSTOMER: THUNDERSTRUCK / C&B HOLDINGS					CUSTOMER LOCATION: HAYDEN, CO 81639	
PROJECT REFERENCE: THUNDERSTRUCK / C&B HOLDINGS						
JOBSITE LOCATION: HAYDEN, CO 81639					JOBSITE COUNTY: ROUTT	
DWN: PND	CHK: PNC	DATE: 07.20.23	ENG: KMO	JOB NO: 11217-32005	DWG NO: F1	ISSUE: 1

REVIEWED FOR CODE COMPLIANCE
09/18/2023



DETAIL A Base EL. 100'-6"



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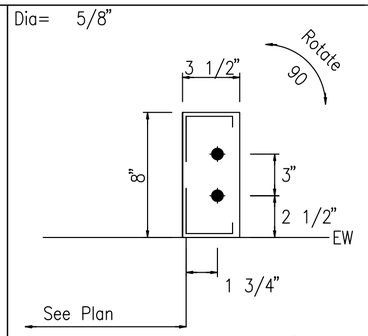
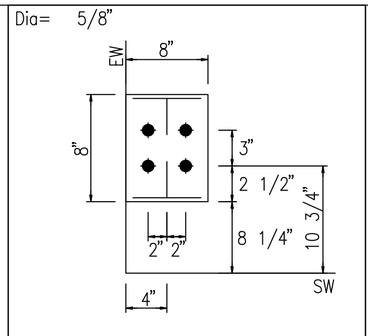
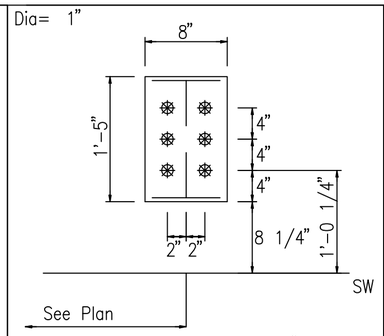


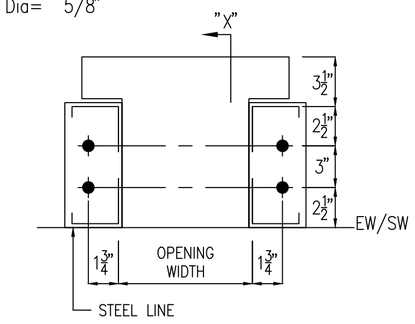
DETAIL C Base EL. 100'-6"



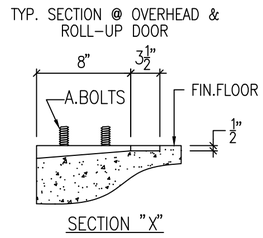
DETAIL D Base EL. 100'-6"

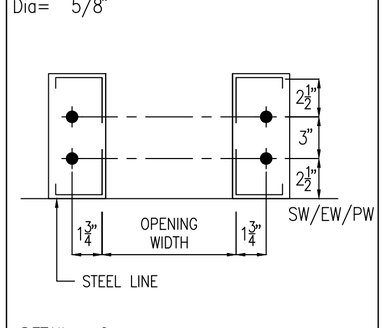


DETAIL E Base EL. 100'-6"

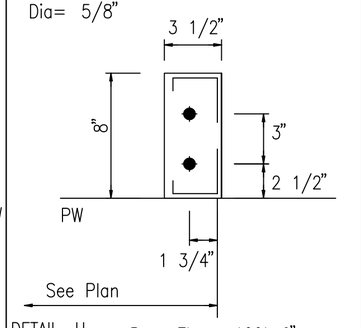


DETAIL F

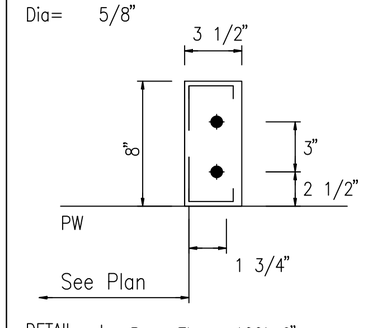




DETAIL G



DETAIL H Base EL. 100'-6"



DETAIL J Base EL. 100'-6"

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JOBSITE LOCATION: HAYDEN, CO 81639	JOBSITE COUNTY: ROUTT

DWN:	CHK:	DATE:	ENG:	JOB NO:	DWG NO:	ISSUE:
PND	PNC	07.20.23	KMO	11217-32005	F2	1

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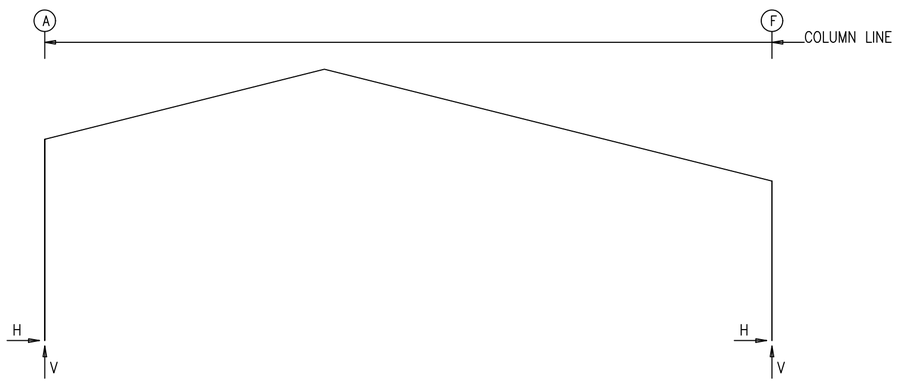
09/18/2023

FRAME LINES: 2 3



RIGID FRAME: MAXIMUM REACTIONS, ANCHOR BOLTS, & BASE PLATES

Frm Line	Col Line	Column_Reactions(k) Load Id	Hmax H	V Vmax	Load Id	Hmin H	V Vmin	Bolt(in) Qty	Dia	Base_Plate(in) Width	Length	Thick	Elev. (in)
2*	A	1	30.3	53.7	2	−5.7	−8.5	6	1.000	8.000	17.00	0.500	6.0
					4	−1.1	−9.2						
2*	F	3	5.6	−8.9	1	−30.3	53.1	6	1.000	8.000	17.00	0.500	6.0
		7	−28.3	53.6	5	1.6	−9.3						

2* Frame lines: 2 3

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	2.1	4.4	0.5	0.8	9.2	16.2	27.7	48.5	−11.7	−18.6	−4.7	−14.0
2*	F	−2.1	4.2	−0.5	0.8	−9.2	16.0	−27.7	48.1	3.4	−12.8	11.5	−19.1

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	−9.4	−11.5	−2.7	−7.0	−4.0	−19.7	−6.7	−19.0	−1.8	−0.9	1.8	0.9
2*	F	1.1	−5.7	9.5	−12.0	5.4	−15.8	4.8	−19.6	−2.5	0.9	2.5	−0.9

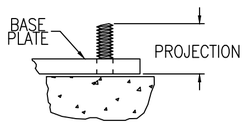
Frame Line	Column Line	Seismic_Long Horiz	Seismic_Long Vert	MIN_SNOW Horiz	MIN_SNOW Vert	F1UNB_SL_L Horiz	F1UNB_SL_L Vert	F1UNB_SL_R Horiz	F1UNB_SL_R Vert
2*	A	0.0	−4.7	9.2	16.1	20.0	48.0	25.7	31.3
2*	F	0.0	−3.5	−9.2	16.0	−20.0	22.6	−25.7	48.6

2* Frame lines: 2 3

GENERAL NOTES

1. All anchor bolts (by others) to have nuts and flat washers.
2. All anchor bolts are designed to full S.A.E. diameters with cut threads. No substitutions are allowed.
3. The Metal Building Provider is not responsible for the design, materials and workmanship of the foundation. Anchor bolt plans prepared by the Metal Building Provider are intended to show only location, diameter, and projection of anchor bolts required to attach the Metal Building System to the foundation. The Metal Building Provider is responsible for providing to the Builder the loads imposed by the Metal Building System on the foundation. It is the responsibility of the End Customer to ensure that adequate provisions are made for specifying bolt embedment, bearing angles, tie rods, and/or other associated items embedded in the concrete foundation, as well as foundation design for the loads imposed by the Metal Building System, other imposed loads, and the bearing capacity of the soil and other conditions of the building site. This is typically the responsibility of the Design Professional or Engineer of Record, which is another reason that their involvement in the Construction Project from the outset is highly recommended. (2012 MBMA Metal Building Systems Manual, Section 3.2.2)
4. The projection is based from the bottom of the base plate. Adjustments must be made for grout and/or leveling plates.

THREADED ANCHOR BOLT



NOTE: PROJECTION BASED FROM BOTTOM OF BASE PLATE. ADJUSTMENTS SHOULD BE MADE FOR GROUT AND/OR LEVELING PLATES.

ENDWALL COLUMN: BASIC COLUMN REACTIONS (k)

Frm Line	Col Line	Dead Vert	Collat Vert	Live Vert	Snow Vert	Wind_Left1 Horz	Wind_Left1 Vert	Wind_Right1 Horz	Wind_Right1 Vert	Wind_Left2 Horz	Wind_Left2 Vert	Wind_Right2 Horz	Wind_Right2 Vert
1	A	0.5	0.1	2.0	5.9	0.0	−3.6	0.0	−2.9	0.0	−2.5	0.0	−1.7
1	B	1.5	0.3	6.1	18.2	0.0	−8.6	0.0	−5.0	0.0	−6.2	0.0	−2.8
1	D	1.3	0.3	5.1	15.4	−2.8	−10.2	0.0	−2.9	−2.5	−7.8	0.0	−1.0
1	E	0.9	0.2	3.4	10.3	0.0	1.9	1.9	−10.0	0.0	3.3	2.0	−8.0
1	F	0.7	0.1	2.7	8.0	−10.88	−3.0	2.12	−4.3	−10.88	−1.9	2.12	−3.0

Frm Line	Col Line	Wind_Press Horz	Wind_Press Vert	Wind_Suct Horz	Wind_Suct Vert	Wind_Long1 Horz	Wind_Long1 Vert	Wind_Long2 Horz	Wind_Long2 Vert	Seis_Left Horz	Seis_Left Vert	Seis_Right Horz	Seis_Right Vert	Seis_Long Horz	Seis_Long Vert
1	A	0.0	0.0	0.0	0.0	0.0	−3.1	0.0	−1.7	0.0	0.1	0.0	−0.1	0.0	0.0
1	B	−4.4	0.0	4.9	0.0	0.0	−7.7	0.0	−5.4	0.0	−0.2	0.0	0.2	0.1	0.0
1	D	−3.8	0.0	4.2	0.0	0.0	−2.7	−2.4	−11.0	−2.8	−5.5	0.0	4.8	0.1	0.0
1	E	−2.6	0.0	2.9	0.0	0.6	−4.8	0.0	−1.6	0.0	5.6	2.8	−4.9	0.0	0.0
1	F	−6.4	−3.2	0.0	3.2	0.0	−2.2	0.0	−3.6	0.0	−0.1	0.0	0.1	−7.0	−3.5

Frm Line	Col Line	MIN_SNOW Horz	MIN_SNOW Vert	E1UNB_SL_L Horz	E1UNB_SL_L Vert	E1UNB_SL_R Horz	E1UNB_SL_R Vert
1	A	0.0	2.0	0.0	6.8	0.0	0.8
1	B	0.0	6.1	0.0	23.5	0.0	9.7
1	D	0.0	5.1	0.0	7.4	0.0	19.5
1	E	0.0	3.4	0.0	1.9	0.0	9.3
1	F	0.0	2.7	0.0	2.5	0.0	8.4

Frm Line	Col Line	Dead Vert	Collat Vert	Live Vert	Snow Vert	Wind_Left1 Horz	Wind_Left1 Vert	Wind_Right1 Horz	Wind_Right1 Vert	Wind_Left2 Horz	Wind_Left2 Vert	Wind_Right2 Horz	Wind_Right2 Vert	Wind Press Horz
4	F	0.7	0.1	2.6	7.8	−1.83	−4.2	2.12	−2.9	−1.83	−3.0	2.12	−1.8	0.0
4	E	1.0	0.2	4.3	12.8	0.0	−7.5	0.0	−4.9	0.0	−5.1	0.0	−2.5	−2.9
4	C	1.2	0.2	4.8	14.3	0.0	−5.8	0.0	−3.8	0.0	−4.3	0.0	−2.2	−4.0
4	B	1.4	0.3	5.5	16.5	−1.9	−7.6	0.0	−4.1	−2.0	−5.7	0.0	−2.2	−4.1
4	A	0.5	0.1	2.1	6.3	0.0	0.1	2.8	−7.7	0.0	1.5	2.5	−6.2	0.0

Frm Line	Col Line	Wind Suct Horz	Wind_Long1 Horz	Wind_Long1 Vert	Wind_Long2 Horz	Wind_Long2 Vert	Seis_Left Horz	Seis_Left Vert	Seis_Right Horz	Seis_Right Vert	Seis Long Horz	MIN_SNOW Horz	MIN_SNOW Vert
4	F	0.0	0.0	−3.5	0.0	−2.2	0.0	0.1	0.0	−0.1	0.0	0.0	2.6
4	E	3.2	0.0	−7.9	0.0	−4.3	0.0	0.3	0.0	−0.3	0.0	0.0	4.3
4	C	4.4	0.0	−5.4	0.0	−3.5	0.0	−0.4	0.0	0.4	0.1	0.0	4.8
4	B	4.5	0.0	−1.4	−0.6	−8.3	−2.8	−4.5	0.0	3.8	0.1	0.0	5.5
4	A	0.0	2.4	−5.3	0.0	−2.2	0.0	4.5	2.8	−3.8	0.0	0.0	2.1

Frm Line	Col Line	E2UNB_SL_L Horz	E2UNB_SL_L Vert	E2UNB_SL_R Horz	E2UNB_SL_R Vert
4	F	0.0	8.2	0.0	2.4
4	E	0.0	12.6	0.0	3.0
4	C	0.0	18.1	0.0	7.1
4	B	0.0	7.6	0.0	22.6
4	A	0.0	1.4	0.0	7.0

ENDWALL COLUMN: MAXIMUM REACTIONS, ANCHOR BOLTS, & BASE PLATES

Frm Line	Col Line	Column_Reactions(k) Load Id	Hmax H	V Vmax	Load Id	Hmin H	V Vmin	Bolt(in) Qty	Dia	Base_Plate(in) Width	Length	Thick	Elev. (in)
1	A	2	0.0	−1.8	2	0.0	−1.8	2	0.625	3.500	8.000	0.250	6.0
		8	0.0	7.4									
1	B	9	2.9	−4.3	10	−2.7	−3.7	4	0.625	8.000	8.000	0.375	6.0
		8	0.0	25.3	9	2.9	−4.3						
1	D	11	2.5	−5.9	12	−2.3	−5.9	4	0.625	8.000	8.000	0.375	6.0
		13	0.0	21.0	11	2.5	−5.9						
1	E	14	1.7	−5.5	10	−1.6	−2.4	4	0.625	8.000	8.000	0.375	6.0
		1	0.0	11.3	14	1.7	−5.5						
1	F	3	0.0	−2.1	6	−4.9	−2.1	4	0.625	8.000	8.000	0.375	6.0
		13	0.0	9.3	12	−3.9	−3.7						
4	F	2	0.0	−2.1	2	0.0	−2.1	4	0.625	8.000	8.000	0.375	6.0
		15	0.0	9.0									
4	E	16	1.9	−4.1	10	−1.7	−4.1	2	0.625	3.500	8.000	0.250	6.0
		1	0.0	14.0	16	1.9	−4.1						
4	C	9	2.6	−2.8	10	−2.4	−2.5	4	0.625	8.000	8.000	0.375	6.0
		15	0.0	19.5	9	2.6	−2.8						
4	B	11	2.7	−4.2	12	−2.5	−4.2	4	0.625	8.000	8.000	0.375	6.0
		17	0.0	24.2	11	2.7	−4.2						
4	A	3	0.0	−4.3	3	0.0	−4.3	2	0.625	3.500	8.000	0.250	6.0
		17	0.0	7.7									

BUILDING BRACING REACTIONS

Wall Loc	Col Line	Col Line	± Reactions(k) Wind Horz	Wind Vert	Seismic Horz	Seismic Vert	Panel_Shear (lb/ft) Wind	Seis
L_EW	1	D,E	2.8	5.0	2.8	4.9		
F_SW	F	1,2	6.5	3.2	7.0	3.5		
R_EW	4	B,A	2.8	3.8	2.8	3.8		
B_SW	A	3,2	7.2	4.8	7.1	4.7		

Reactions for seismic represent shear force, Eh

ANCHOR BOLT SUMMARY (GRADE 36)

Qty	Locate	Dia (in)	Type	Proj (in)
● 36	Jamb	5/8"	F1554	2.50
● 34	Endwall	5/8"	F1554	2.50
❄ 24	Frame	1"	F1554	3.50
● 4	Partition Column	5/8"	F1554	2.50
● 4	Partition Jamb	5/8"	F1554	2.50

Partition column reactions

Frame Line	Column	Dead Load	Wind Press Horz.	Wind Suct Horz.
2	H	0.64	−3.43	3.43
3	J	0.64	−3.43	3.43

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SHEET DESCRIPTION: ANCHOR BOLT REACTIONS					BLDG SIZE: 65'−0" x 70'−0" x 18'−0"/14'−3"	
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PROJECT REFERENCE: THUNDERSTRUCK / C&B HOLDINGS						
JOBSITE LOCATION: HAYDEN, CO 81639					JOBSITE COUNTY: ROUTT	
DWN: PND	CHK: PNC	DATE: 07.20.23	ENG: KMO	JOB NO: 11217−32005	DWG NO: F3	ISSUE: 1

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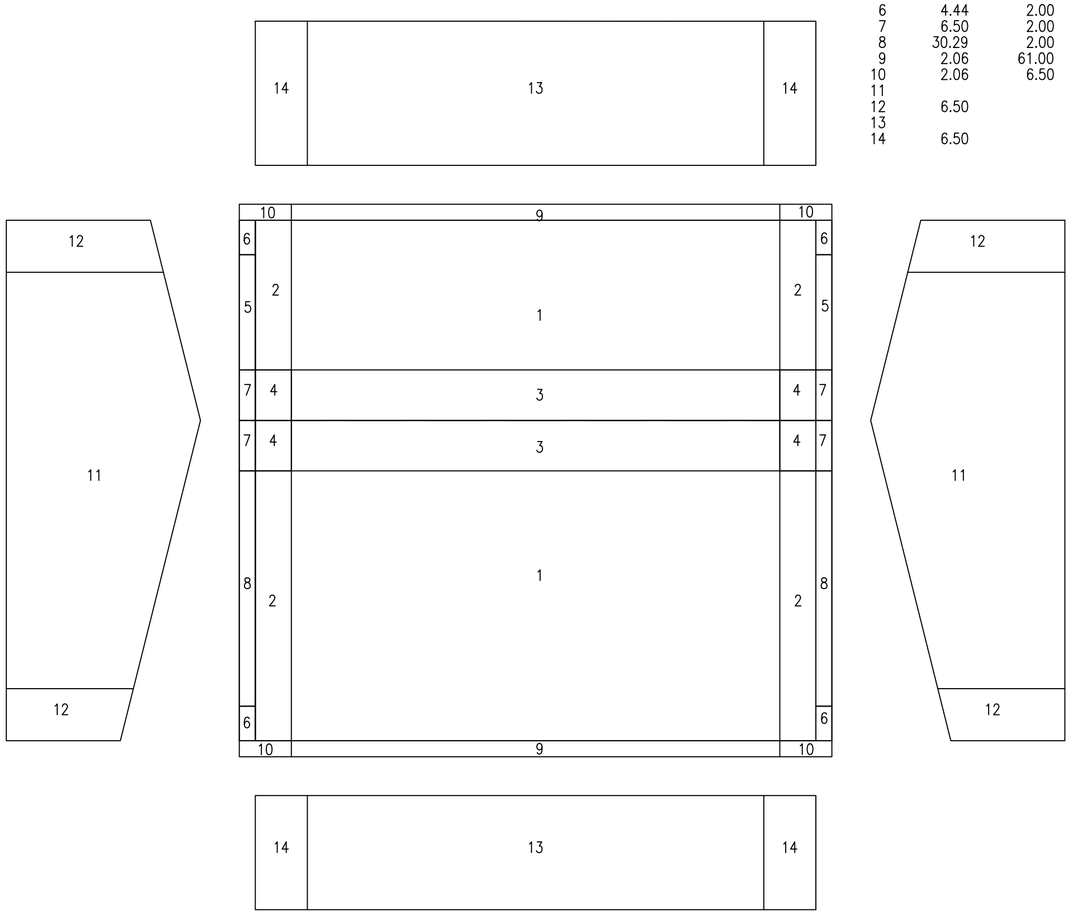

Components & Cladding

Zone	Width (ft)	Length (ft)	Pressure(psf) Member	Pressure(psf) Panel	Suction(psf) Member	Suction(psf) Panel
1			16.00	18.56	−17.64	−56.56
2		4.50	16.00	18.56	−34.22	−82.58
3	6.50		16.00	18.56	−34.22	−82.58
4	6.50	4.50	16.00	18.56	−51.33	−97.85
5	14.83	2.00	16.00	18.56	−82.38	−91.06
6	4.44	2.00	16.00	18.56	−91.90	−106.3
7	6.50	2.00	16.00	18.56	−103.2	−122.2
8	30.29	2.00	16.00	18.56	−82.38	−91.06
9	2.06	61.00	16.00	16.00	−38.92	−64.86
10	2.06	6.50	16.00	16.00	−43.59	−106.4
11			24.65	30.61	−27.25	−33.21
12	6.50		24.65	30.61	−29.16	−40.85
13			24.70	30.60	−27.20	−33.20
14	6.50		24.70	30.60	−29.10	−40.84

(+) wind towards surface
(−) wind away from surface

NOTES FOR REACTIONS

1. All loading conditions are examined and only maximum/minimum H or V and the corresponding H or V are reported.
2. Positive reactions are as shown in the sketch. Foundation loads are in opposite directions.
3. Bracing reactions are in the plane of the brace with the H pointing away from the braced bay. The vertical reaction is downward.
4. Building reactions are based on the following building data:

Width (ft)	= 65.0
Length (ft)	= 70.0
Eave Height (ft)	= 18.0/ 14.3
Roof Slope (rise/12)	= 3.0/ 3.0
Dead Load (psf)	= 3.1
Collateral Load (psf)	= 1.0
Live Load (psf)	= 20.0
Snow Load (psf)	= 60.0
Wind Speed (mph)	= 115.0
Wind Code	= IBC 18
Exposure	= C
Closure	= Enclosed
Importance Wind	= 1.00
Importance Seismic	= 1.00
Seismic Zone	= C
Seismic Coeff (Fa*Ss)	= 0.61

5. Loading conditions are:

1 Dead+Collateral+Snow+Slide_Snow
2 0.6Dead+0.6Wind_Left1
3 0.6Dead+0.6Wind_Right1
4 0.6Dead+0.6Wind_Long1L
5 0.6Dead+0.6Wind_Long2L
6 0.54Dead+0.7Seismic_LongL
7 Dead+Collateral+F1UNB_SL_R
8 Dead+Collateral+E1UNB_SL_L
9 0.6Dead+0.6Wind_Left1+0.6Wind_Suction
10 0.6Dead+0.6Wind_Pressure+0.6Wind_Long1L
11 0.6Dead+0.6Wind_Suction+0.6Wind_Long2L
12 0.6Dead+0.6Wind_Pressure+0.6Wind_Long2L
13 Dead+Collateral+E1UNB_SL_R
14 0.6Dead+0.6Wind_Right1+0.6Wind_Suction
15 Dead+Collateral+E2UNB_SL_L
16 0.6Dead+0.6Wind_Suction+0.6Wind_Long1L
17 Dead+Collateral+E2UNB_SL_R

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☒ FOR ERECTOR INSTALLATION:
Final drawings for construction.

METALBUILDING OUTLET CORP.
7651 SHAFFER PARKWAY LITTLETON, CO 80127

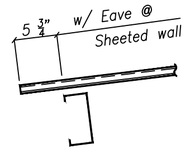
ISSUE	DATE	DESCRIPTION	BY	CHK
0	06.19.23	FOR ERECTOR INSTALLATION	PND	PNC
1	07.20.23	REV.FOR ERECTOR INSTALLATION	PND	PNC

SHEET DESCRIPTION: ANCHOR BOLT REACTIONS					BLDG SIZE: 65'-0" x 70'-0" x 18'-0"/14'-3"	
CUSTOMER: THUNDERSTRUCK / C&B HOLDINGS					CUSTOMER LOCATION: HAYDEN, CO 81639	
PROJECT REFERENCE: THUNDERSTRUCK / C&B HOLDINGS						
JOBSITE LOCATION: HAYDEN, CO 81639					JOBSITE COUNTY: ROUTT	
DWN: PND	CHK: PNC	DATE: 07.20.23	ENG: KMO	JOB NO: 11217-32005	DWG NO: F4	ISSUE: 1

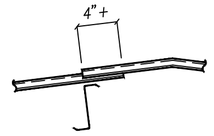
REVIEWED FOR CODE COMPLIANCE
09/18/2023

SPLICE PLATE & BOLT TABLE									
Mark	Qty Top	Bot	Int	Type	Dia	Length	Width	Thick	Length
SP-1	4	4	2	A325	1"	3 1/4"	8"	1"	3'-8 1/4"
SP-2	4	4	2	A325	3/4"	2"	8"	1/2"	2'-9 3/4"
SP-3	4	4	2	A325	1"	2 1/2"	8"	5/8"	3'-8 1/4"

FLANGE BRACE TABLE FRAME LINE 2 3						
▽ ID	# SIDES	MARK	LENGTH	OFFSET	DETAIL	CLIP
1	1	FB15C	4'-8 1/8"	4'-0"	–	–
2	2	FB13C	4'-4 1/8"	3'-0"	–	–
3	2	FB14C	4'-6 7/8"	3'-0"	–	–
4	1	FB10C	4'-1 3/4"	3'-0"	–	–
5	1	FB7C	3'-5 7/8"	2'-4"	–	–
6	1	FB4A	3'-4 5/8"	2'-4"	–	–
7	1	FB2A	3'-2 1/4"	2'-4"	–	–
8	1	FB3A	3'-3 5/8"	2'-4"	–	–
9	1	FB5A	3'-5"	2'-4"	–	–
10	1	FB6A	3'-5 5/8"	2'-4"	–	–
11	1	FB8A	4'-0"	3'-0"	–	–
12	1	FB9C	4'-1 5/8"	3'-0"	–	–
13	1	FB12C	4'-2 1/2"	3'-0"	–	–
14	1	FB11C	4'-2"	3'-4"	–	–



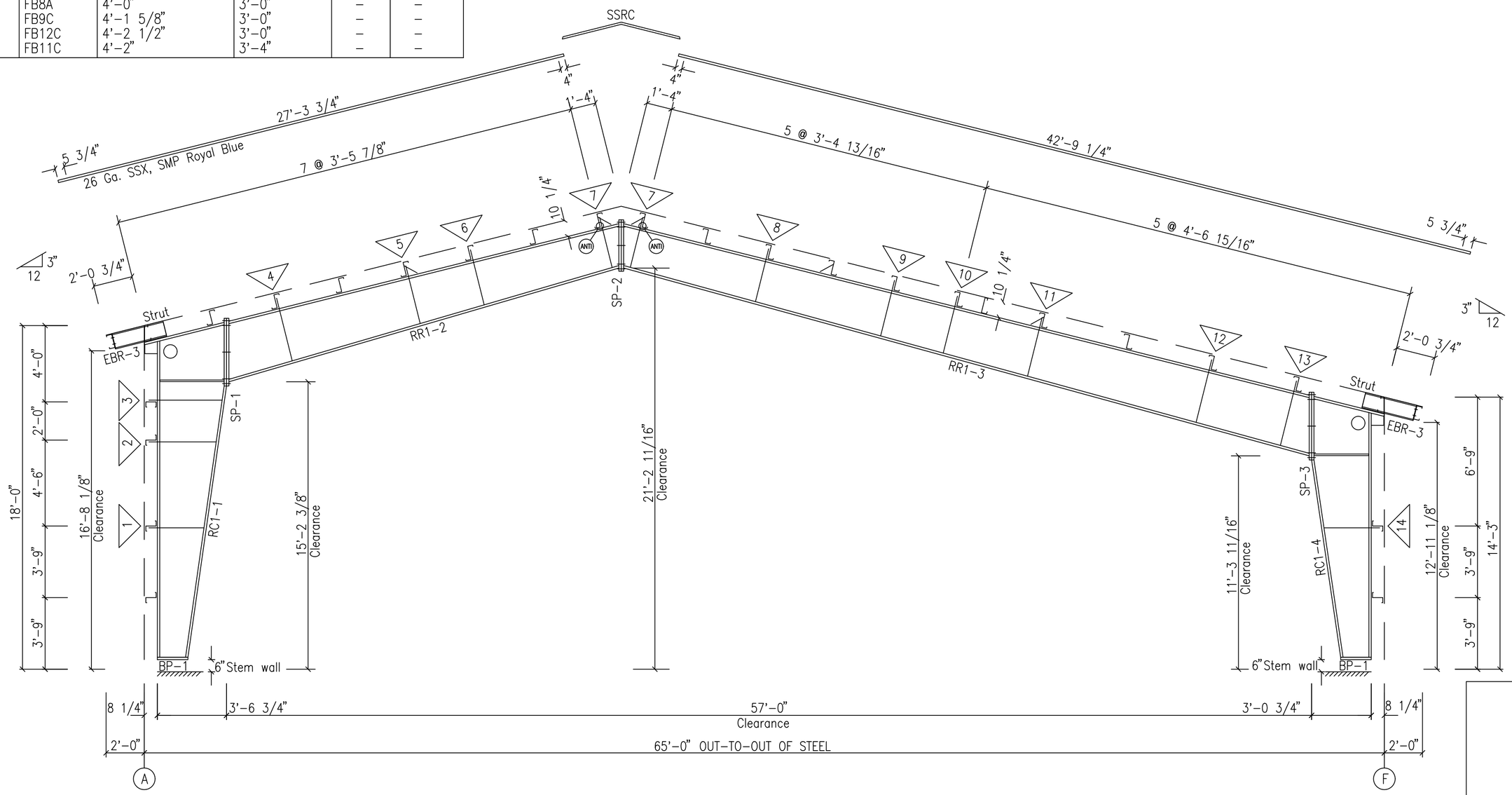
DETAIL @ PANEL END
ROOF EXTENSION



DETAIL @ RIDGE CAP

MEMBER TABLE				
Mark	Web Depth Start/End	Web Plate Thick	Outside Flange W x Thk	Inside Flange W x Thk
RC1-1	16.0/34.2	0.164	8 x 1/4"	8 x 1/2"
	34.2/42.0	0.250	8 x 5/8"	
RR1-2	34.0/30.8	0.188	8 x 5/16"	8 x 1/2"
	30.8/24.0	0.164	8 x 1/4"	8 x 3/8"
RR1-3	24.0/26.7	0.164	8 x 3/8"	8 x 1/4"
	26.7/32.0	0.164	8 x 3/8"	8 x 1/4"
	32.0/34.0	0.188	8 x 5/16"	8 x 1/2"
			8 x 1/4"	
RC1-4	36.0/36.0	0.250	8 x 1/2"	8 x 1/2"
	36.0/16.0	0.188	8 x 1/4"	
EBR-3	W10X12			

BASE PLATE TABLE			
Col Mark	Plate Size Width	Thick	Length
BP-1	8"	1/2"	1'-5"



RIGID FRAME ELEVATION: FRAME LINE 2 3

BOLT TIGHTENING (Snug-Tight)

All bolted joints with ASTM F3125 Grade A325 bolts are specified as Snug-Tightened Joints in accordance with the Specification of Structural Joints Using High-Strength Bolts, June 11, 2020, installation as given in Section 7.1 Washers are not required for Snug-Tightened Joints using standard standard size holes per Section 6.1 of the Specification

Pretensioning methods, including Turn-of-Nut, calibrated wrench, twist-off tension control bolts or direct tension indicator are not required. Installation inspection requirements for Snug-Tight Bolt is found in Section 9.1 of the Specification.

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☒ FOR ERECTOR INSTALLATION:
Final drawings for construction.

METALBUILDING OUTLET CORP.
7651 SHAFFER PARKWAY LITTLETON, CO 80127

ISSUE	DATE	DESCRIPTION	BY	CHK
P1	06.19.23	FOR CONSTRUCTION PERMIT	PND	PNC
P2	07.20.23	REV.FOR CONSTRUCTION PERMIT	PND	PNC
0	08.02.23	FOR ERECTOR INSTALLATION	PND	PNC

SHEET DESCRIPTION: RIGID FRAME ELEVATION					BLDG SIZE: 65'-0" x 70'-0" x 18'-0"/14'-3"	
CUSTOMER: THUNDERSTRUCK / C&B HOLDINGS					CUSTOMER LOCATION: HAYDEN, CO 81639	
PROJECT REFERENCE: THUNDERSTRUCK / C&B HOLDINGS						
JOBSITE LOCATION: HAYDEN, CO 81639					JOBSITE COUNTY: ROUTT	
DWN: PND	CHK: PNC	DATE: 08.02.23	ENG: KMO	JOB NO: 11217-32005	DWG NO: P1	ISSUE: 0

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FOR
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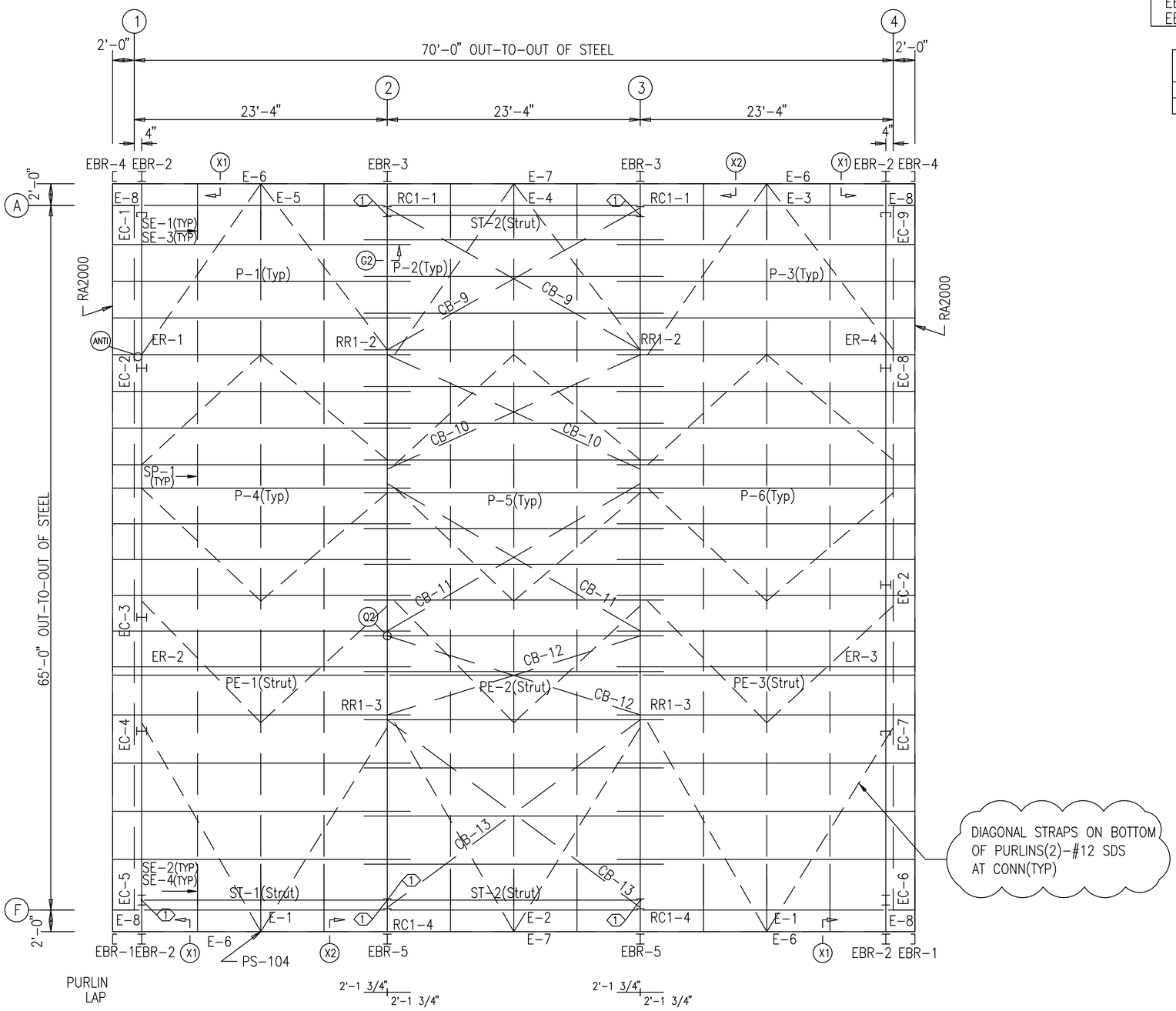
COMPLIANCE
09/18/2023

EXTENSION/CANOPY BOLTS ROOF PLAN				
MARK	QUAN	TYPE	DIA	LENGTH
EBR-2	8	A325	1/2"	1 3/4"
EBR-3/EBR-5	8	A325	5/8"	2 1/4"

SPECIAL BOLTS ROOF PLAN					
◇ ID	QUAN	TYPE	DIA	LENGTH	WASH
1	2	A325	5/8"	1 3/4"	0

MEMBER TABLE ROOF PLAN	
MARK	PART
EBR-1	10X2CH16
EBR-2	W10X12
EBR-3	W10X12
EBR-4	10X2CH16
EBR-5	W10X12
PE-1	10HES143
PE-2	10HES143
PE-3	10HES143
P-1	10X35Z12
P-2	10X35Z12
P-3	10X35Z12
P-4	10X25Z12
P-5	10X25Z12
P-6	10X25Z12
E-1	10ES143
E-2	10ES143
E-3	10ES143
E-4	10ES143
E-5	10ES143
E-6	10X35C12
E-7	10X35C12
E-8	10ES143
ST-1	P0450337
ST-2	P0450237
CB-9	0.31_CBL
CB-10	0.25_CBL
CB-11	0.25_CBL
CB-12	0.25_CBL
CB-13	0.31_CBL
SP-1	10X25C16
SE-1	M-1-1
SE-2	M-1-1
SE-3	M-1-1
SE-4	M-1-1



ROOF FRAMING PLAN

UL580, CLASS 90 CONST. NUMBER 167

REVIEWED FOR CODE COMPLIANCE
09/18/2023

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METALBUILDING OUTLET CORP.
7651 SHAFFER PARKWAY LITTLETON, CO 80127

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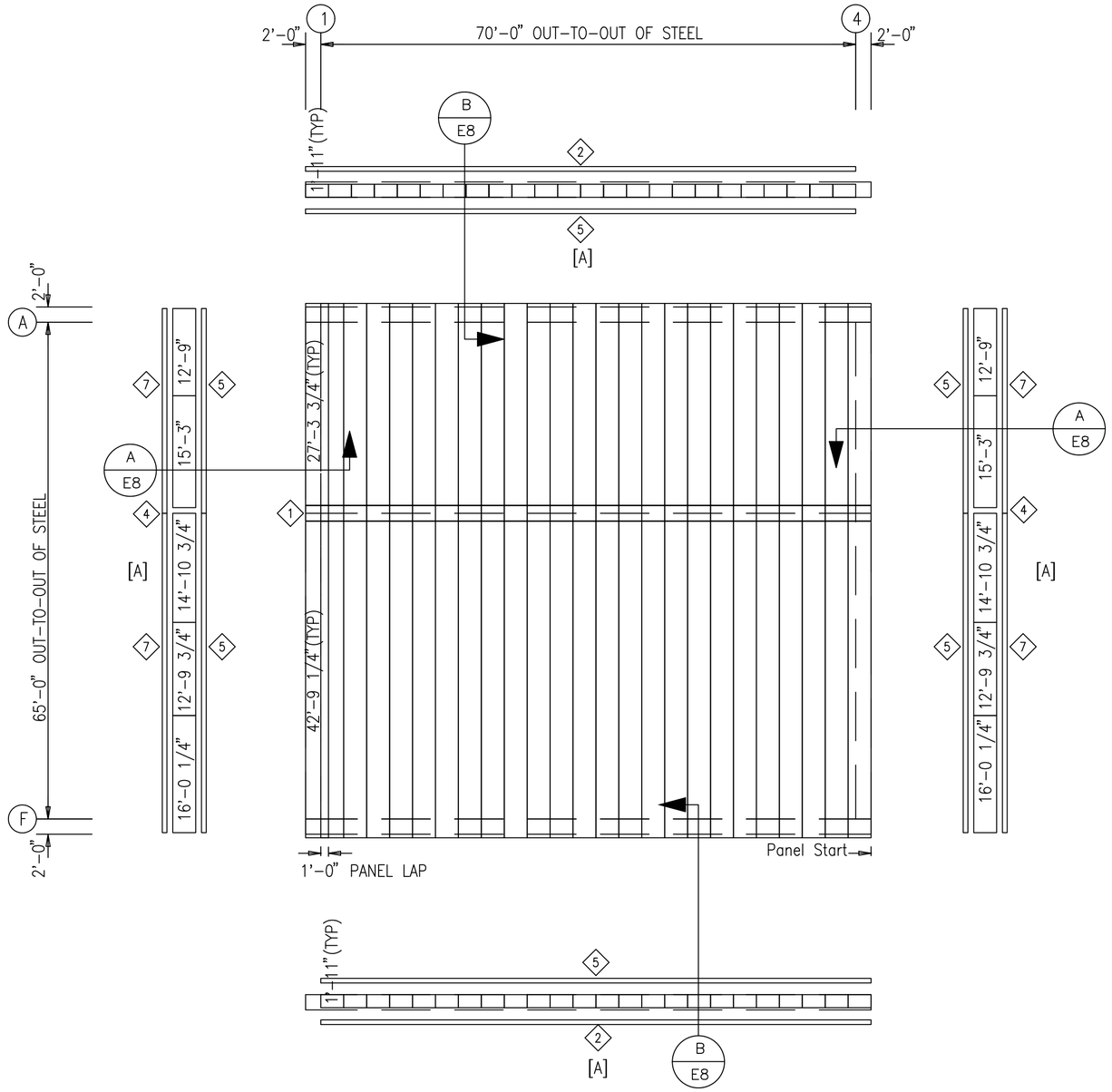
P2	07.20.23	REV.FOR CONSTRUCTION PERMIT	PND	PNC
0	08.02.23	FOR ERECTOR INSTALLATION	PND	PNC

SHEET DESCRIPTION: ROOF FRAMING PLAN					BLDG SIZE: 65'-0" x 70'-0" x 18'-0"/14'-3"	
CUSTOMER: THUNDERSTRUCK / C&B HOLDINGS					CUSTOMER LOCATION: HAYDEN, CO 81639	
PROJECT REFERENCE: THUNDERSTRUCK / C&B HOLDINGS						
JOBSITE LOCATION: HAYDEN, CO 81639					JOBSITE COUNTY: ROUTT	
DWN: PND	CHK: PNC	DATE: 08.02.23	ENG: KMO	JOB NO: 11217-32005	DWG NO: E1	ISSUE: 0

ROOF SHEETING TRIM TABLE		
◇ID	PART	LENGTH
1	SSRC30	3'-0"
2	SF-12	15'-3"
4	CF-110	10'-3"
5	CF-116	15'-3"
7	SF-11	15'-3"



ROOF SHEETING PLAN

PANELS: 26 Ga. SSX – SMP Royal Blue

[A] SOFFIT PANELS: 26 Ga. Reverse Rolled SSX – SMP Steel Gray

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METALBUILDING OUTLET CORP.
7651 SHAFFER PARKWAY LITTLETON, CO 80127

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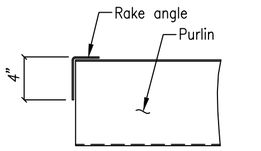
P1	06.19.23	FOR CONSTRUCTION PERMIT	PND	PNC
P2	07.20.23	REV.FOR CONSTRUCTION PERMIT	PND	PNC
0	08.02.23	FOR ERECTOR INSTALLATION	PND	PNC

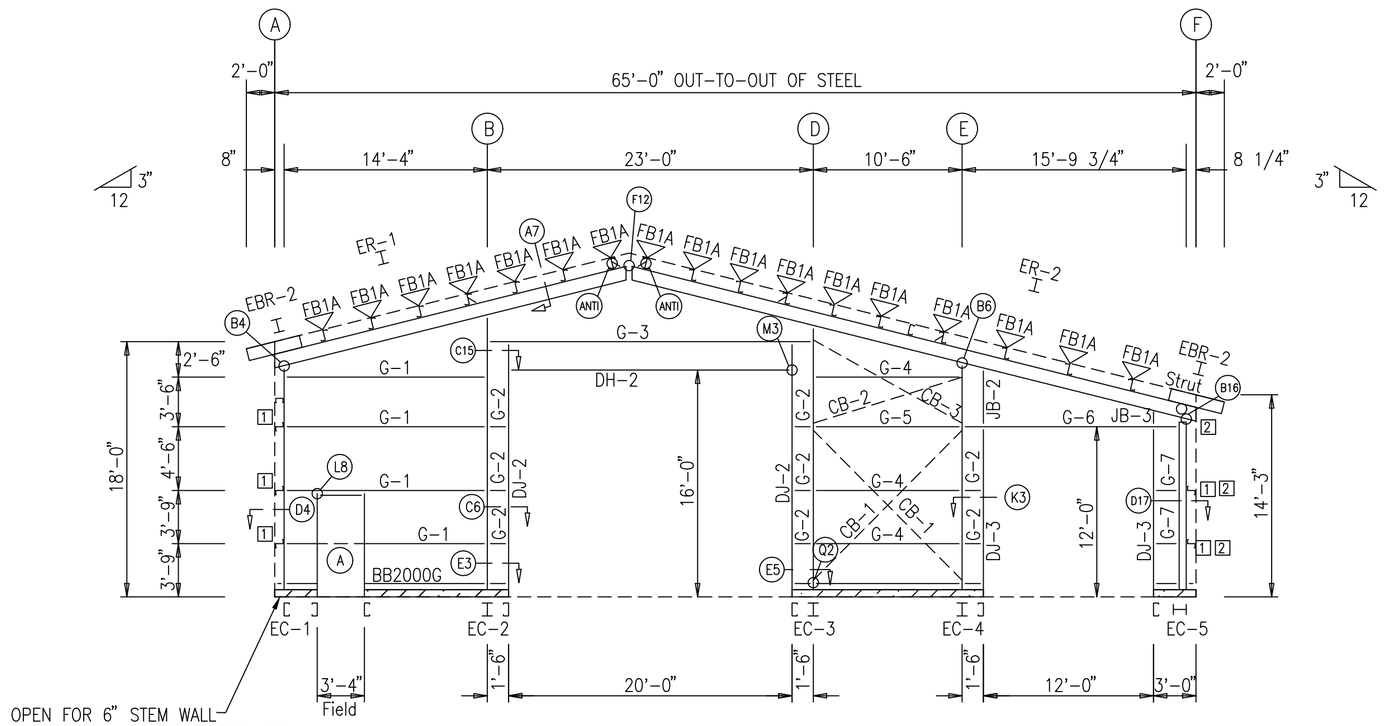
SHEET DESCRIPTION: ROOF SHEETING PLAN					BLDG SIZE: 65'-0" x 70'-0" x 18'-0"/14'-3"	
CUSTOMER: THUNDERSTRUCK / C&B HOLDINGS					CUSTOMER LOCATION: HAYDEN, CO 81639	
PROJECT REFERENCE: THUNDERSTRUCK / C&B HOLDINGS						
JOBSITE LOCATION: HAYDEN, CO 81639					JOBSITE COUNTY: ROUTT	
DWN: PND	CHK: PNC	DATE: 08.02.23	ENG: KMO	JOB NO: 11217-32005	DWG NO: E2	ISSUE: 0

REVIEWED FOR CODE COMPLIANCE
09/18/2023



Detail at Rake Angle

TRIM TABLE – THIS WALL ONLY FRAME LINE –1		
◇ID	PART	LENGTH
1	CT–102	18'–4"
2	CT–102	14'–7"
3	MT–103	20'–3"
5	RT–101	15'–3"
7	SPB	
8	SPCB–3L	
9	SPCB–3R	
10	JT–101	7'–6"
12	HT–101	3'–8"
13	MT–116B	16'–4"
14	JT–101	15'–10"
15	MT–116B	20'–3"
16	HT–101	20'–3"
17	MT–116B	12'–4"
18	JT–101	11'–10"
19	MT–116B	12'–4"
20	HT–101	12'–4"
21	SF–3L	
22	SF–3R	



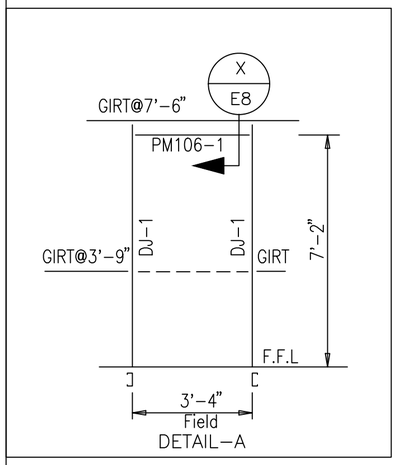
ENDWALL FRAMING: FRAME LINE 1

BOLT TABLE FRAME LINE 1				
LOCATION	QUAN	TYPE	DIA	LENGTH
ER–1/ER–2	8	A325	5/8"	2"
EC–1/ER–1	4	A325	5/8"	1 1/2"
Int_Column/Raf	4	A325	5/8"	1 1/2"
EC–5/ER–2	4	A325	5/8"	2"
JB–2 & JB–3/ER–2	2	A325	5/8"	1 1/2"

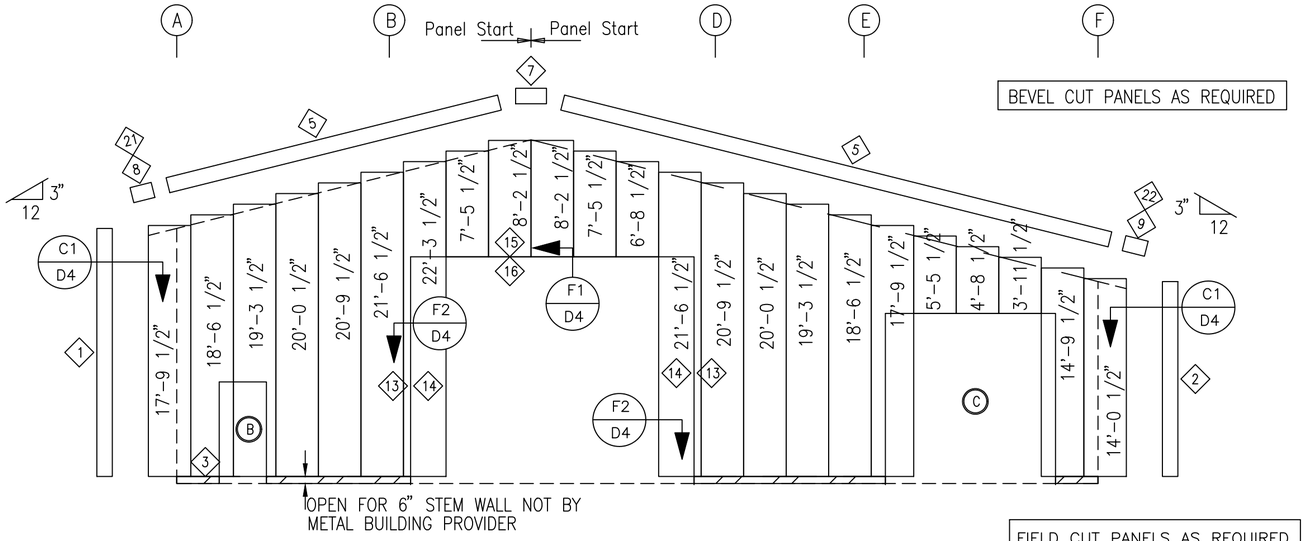
FLANGE BRACE TABLE FRAME LINE 1		
▽ID	MARK	LENGTH
1	FB1A	2'–6 3/4"

CONNECTION PLATES FRAME LINE 1	
□ID	MARK/PART
1	SC–5
2	Z–1

MEMBER TABLE FRAME LINE 1	
MARK	PART
EBR–2	W10X12
EC–1	8M35C14
EC–2	W8X10
EC–3	W8X10
EC–4	W8X10
EC–5	W8X10
ER–1	W12X14
ER–2	W12X14
DJ–1	8M25C14
DJ–2	8M35C12
DJ–3	8M35C14
JB–2	8M35C14
JB–3	8M35C14
PM106–1	PM106
DH–2	8M25C14
G–1	8X25Z16
G–2	8X25Z16
G–3	8X25Z12
G–4	8X25Z16
G–5	8X25Z12
G–6	8X25C14
G–7	8X25Z16
CB–1	0.50_CBL
CB–2	0.38_CBL
CB–3	0.38_CBL

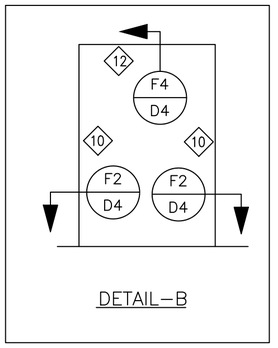


DETAIL–A

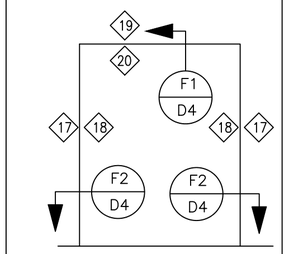


BEVEL CUT PANELS AS REQUIRED

FIELD CUT PANELS AS REQUIRED



DETAIL–B



DETAIL–C

GENERAL SHEETING & TRIM NOTES

1. Refer to erection drawings for rake angle locations.
2. Roof member screws are at 12" o.c. Eave end lap and peak screws are as shown.
3. Wall member screws are at 6" o.c. at the base member and 12" o.c. at all remaining members.
4. Roof stitch screws are located at each member with two between members (20" max. spacing).
5. Wall stitch screws are located at each member with one between members (20" max. spacing).
6. Skylight stitch screws are at 6" o.c.
7. Start endwall panels at centerline of bldg. unless noted.
8. Gutter, rake, & eave trim lap 2". All other trims lap 1".
9. Field cut or lap panels as required to fit.
10. Field cut panels for all openings.
11. Pop rivet gutter counterflashing to wall panel on 3'–0 centers and caulk all laps.
12. Gutter support strap spacing: Super Span 3'–0, Super Seam 4'–0, Weather Lok–16 2'–8".
13. Corner and/or peak boxes are not furnished with special rake or gutter profiles. Field miter as req'd.
14. Downspout straps are located 6" from base and at every girt location.
15. Hot–rolled or built–up members must be pre–drilled before attaching members screws.
16. Metal shavings must be swept from the roof each day to avoid surface rusting.
17. Windows and louvers must be installed before sheeting the walls.
18. For clarity, tape sealant, closures, etc. may not be shown. Refer to the standing seam erection manual or standard pull out for screw–down type roof for additional installation instructions.

GENERAL FRAMING NOTES

1. Angles are marked by their length in feet and inches.
2. Field cut or lap angles as required to fit.
3. Flange braces are marked by their length in decimal inches.
4. Outside flange of girt turns down unless noted.
5. Endwall girts and eave struts do not lap.
6. Field cut and self–tap girts at walk doors.
7. Field slot girts for brace rods or cables.
8. Field locate windows and walk doors.
9. Field weld all splices at 14 gauge valley gutters.
10. Field bolt AK400 base clip to endwall columns:
    (2) 5/8" x 1–1/2" A325 bolts if (1) AK400 req'd
    (2) 5/8" x 1–3/4" A325 bolts if (2) AK400 req'd
11. Locate top of roof framed openings flush with the pan of the roof panel.
12. Some field drilling at framed openings may be required. Field drill 9/16" diameter holes.
13. For clarity, tape sealant, closures, etc. may not be shown. Refer to the standing seam erection manual or standard pull out for screw–down type roof for additional installation instructions.
14. Sub–jambs for overhead doors, if required, is not furnished by Metal Building Provider

ENDWALL SHEETING & TRIM: FRAME LINE 1

PANELS: 26 Ga. SSX – SMP Steel Gray

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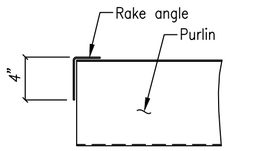
Final drawings for construction.

METAL BUILDING OUTLET CORP
7651 SHAFFER PARKWAY LITTLETON, CO 80127

ISSUE	DATE	DESCRIPTION	BY	CHK
P1	06.19.23	FOR CONSTRUCTION PERMIT	PND	PNC
P2	07.20.23	REV.FOR CONSTRUCTION PERMIT	PND	PNC
0	08.02.23	FOR ERECTOR INSTALLATION	PND	PNC

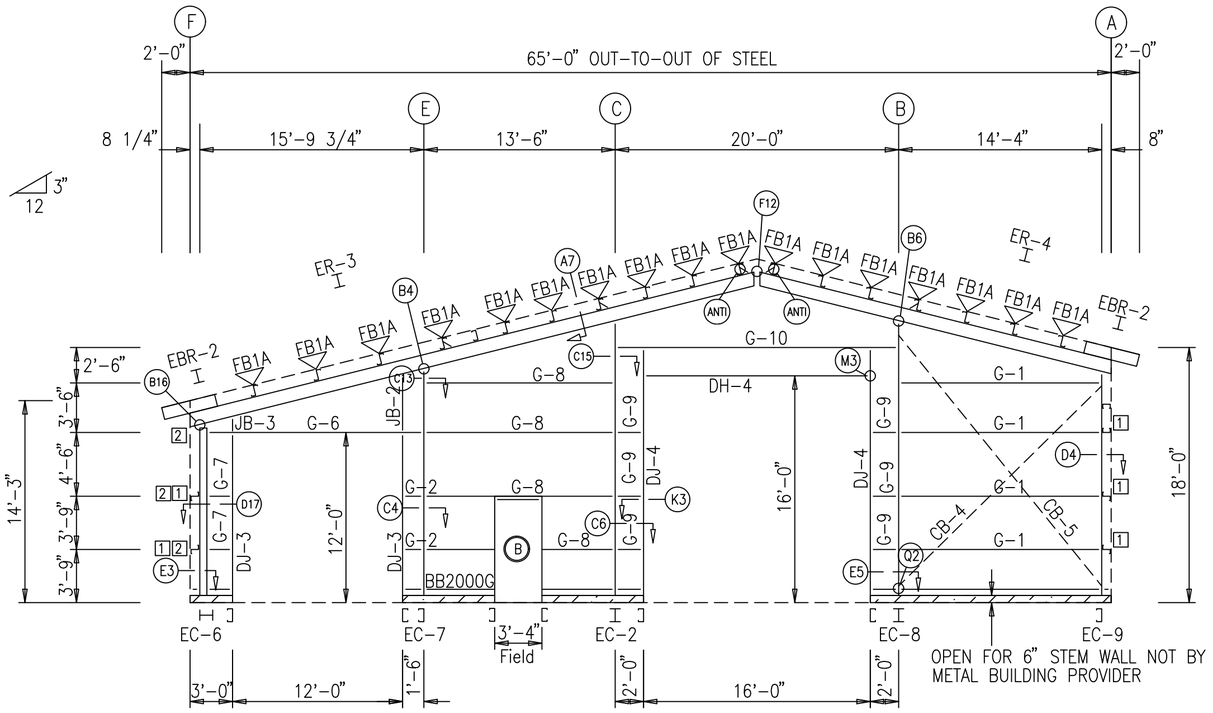
SHEET DESCRIPTION: ENDWALL FRAME & SHEETING ELEVATION					BLDG SIZE: 65'–0" x 70'–0" x 18'–0"/14'–3"
CUSTOMER: THUNDERSTRUCK / C&B HOLDINGS					CUSTOMER LOCATION: HAYDEN, CO 81639
PROJECT REFERENCE: THUNDERSTRUCK / C&B HOLDINGS					
JOBSITE LOCATION: HAYDEN, CO 81639					JOBSITE COUNTY: ROUTT
DWN: PND	CHK: PNC	DATE: 08.02.23	ENG: KMO	JOB NO: 11217–32005	DWG NO: E3 / ISSUE: 0

REVIEWED FOR CODE COMPLIANCE
09/18/2023



Detail at Rake Angle

TRIM TABLE – THIS WALL ONLY FRAME LINE –4		
◇ID	PART	LENGTH
1	CT–102	14'–7"
2	CT–102	18'–4"
3	MT–103	20'–3"
5	RT–101	15'–3"
7	SPB	
9	MT–116B	12'–4"
10	JT–101	11'–10"
11	MT–116B	12'–4"
12	HT–101	12'–4"
14	JT–101	7'–6"
16	HT–101	3'–8"
17	MT–116B	16'–4"
18	JT–101	15'–10"
20	HT–101	16'–4"
21	SPCB–3L	
22	SPCB–3R	
23	SF–3L	
24	SF–3R	

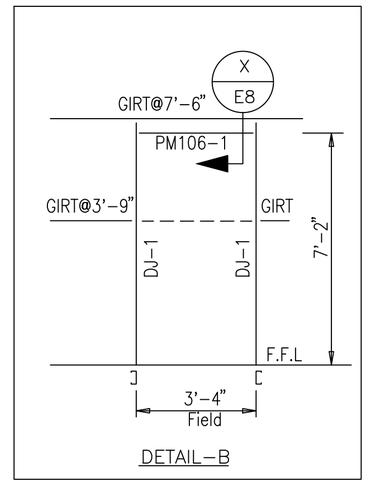


ENDWALL FRAMING: FRAME LINE 4

BOLT TABLE FRAME LINE 4				
LOCATION	QUAN	TYPE	DIA	LENGTH
ER–3/ER–4	8	A325	5/8"	2"
EC–6/ER–3	4	A325	5/8"	2"
Int_Column/Raf	4	A325	5/8"	1 1/2"
EC–9/ER–4	4	A325	5/8"	1 1/2"
JB–2 & JB–3/ER–2	2	A325	5/8"	1 1/2"

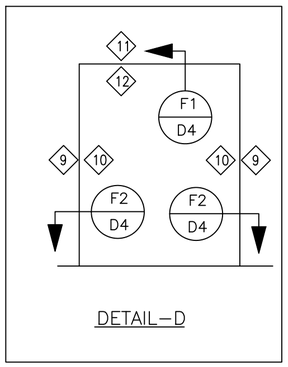
FLANGE BRACE TABLE FRAME LINE 4		
▽ID	MARK	LENGTH
1	FB1A	2'–6 3/4"

CONNECTION PLATES FRAME LINE 4	
□ID	MARK/PART
1	SC–5
2	Z–1

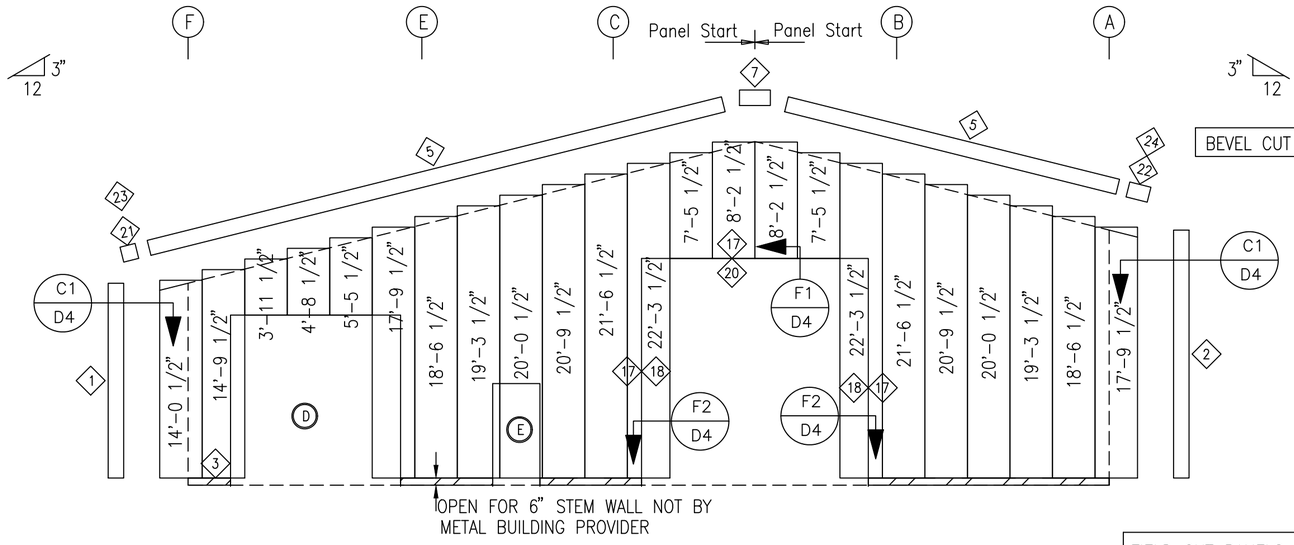


DETAIL–B

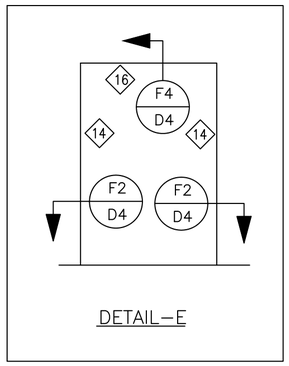
MEMBER TABLE FRAME LINE 4	
MARK	PART
EBR–2	W10X12
EC–2	W8X10
EC–6	W8X10
EC–7	8M35C12
EC–8	W8X10
EC–9	8M35C14
ER–3	W12X14
ER–4	W12X14
DJ–1	8M25C14
DJ–3	8M35C14
DJ–4	8M35C14
PM106–1	PM106
DH–4	8M25C14
JB–2	8M35C14
JB–3	8M35C14
G–1	8X25Z16
G–2	8X25Z16
G–6	8X25C14
G–7	8X25Z16
G–8	8X25Z16
G–9	8X25Z16
G–10	8X25Z12
CB–4	0.50_CBL
CB–5	0.50_CBL



DETAIL–D



BEVEL CUT PANELS AS REQUIRED



DETAIL–E

FIELD CUT PANELS AS REQUIRED

ENDWALL SHEETING & TRIM: FRAME LINE 4

PANELS: 26 Ga. SSX – SMP Steel Gray

GENERAL SHEETING & TRIM NOTES

1. Refer to erection drawings for rake angle locations.
2. Roof member screws are at 12" o.c. Eave end lap and peak screws are as shown.
3. Wall member screws are at 6" o.c. at the base member and 12" o.c. at all remaining members.
4. Roof stitch screws are located at each member with two between members (20" max. spacing).
5. Wall stitch screws are located at each member with one between members (20" max. spacing).
6. Skylight stitch screws are at 6" o.c.
7. Start endwall panels at centerline of bldg. unless noted.
8. Gutter, rake, & eave trim lap 2". All other trims lap 1".
9. Field cut or lap panels as required to fit.
10. Field cut panels for all openings.
11. Pop rivet gutter counterflashing to wall panel on 3'–0 centers and caulk all laps.
12. Gutter support strap spacing: Super Span 3'–0, Super Seam 4'–0, Weather Lok–16 2'–8".
13. Corner and/or peak boxes are not furnished with special rake or gutter profiles. Field miter as req'd.
14. Downspout straps are located 6" from base and at every girt location.
15. Hot–rolled or built–up members must be pre–drilled before attaching members screws.
16. Metal shavings must be swept from the roof each day to avoid surface rusting.
17. Windows and louvers must be installed before sheeting the walls.
18. For clarity, tape sealant, closures, etc. may not be shown. Refer to the standing seam erection manual or standard pull out for screw–down type roof for additional installation instructions.

GENERAL FRAMING NOTES

1. Angles are marked by their length in feet and inches.
2. Field cut or lap angles as required to fit.
3. Flange braces are marked by their length in decimal inches.
4. Outside flange of girt turns down unless noted.
5. Endwall girts and eave struts do not lap.
6. Field cut and self–tap girts at walk doors.
7. Field slot girts for brace rods or cables.
8. Field locate windows and walk doors.
9. Field weld all splices at 14 gauge valley gutters.
10. Field bolt AK400 base clip to endwall columns:
    (2) 5/8" x 1–1/2" A325 bolts if (1) AK400 req'd
    (2) 5/8" x 1–3/4" A325 bolts if (2) AK400 req'd
11. Locate top of roof framed openings flush with the pan of the roof panel.
12. Some field drilling at framed openings may be required. Field drill 9/16" diameter holes.
13. For clarity, tape sealant, closures, etc. may not be shown. Refer to the standing seam erection manual or standard pull out for screw–down type roof for additional installation instructions.
14. Sub–jambs for overhead doors, if required, is not furnished by Metal Building Provider

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☒ FOR ERECTOR INSTALLATION:
Final drawings for construction.

METAL BUILDING OUTLET CORP.
7651 SHAFFER PARKWAY LITTLETON, CO 80127

ISSUE	DATE	DESCRIPTION	BY	CHK
P1	06.19.23	FOR CONSTRUCTION PERMIT	PND	PNC
P2	07.20.23	REV.FOR CONSTRUCTION PERMIT	PND	PNC
0	08.02.23	FOR ERECTOR INSTALLATION	PND	PNC

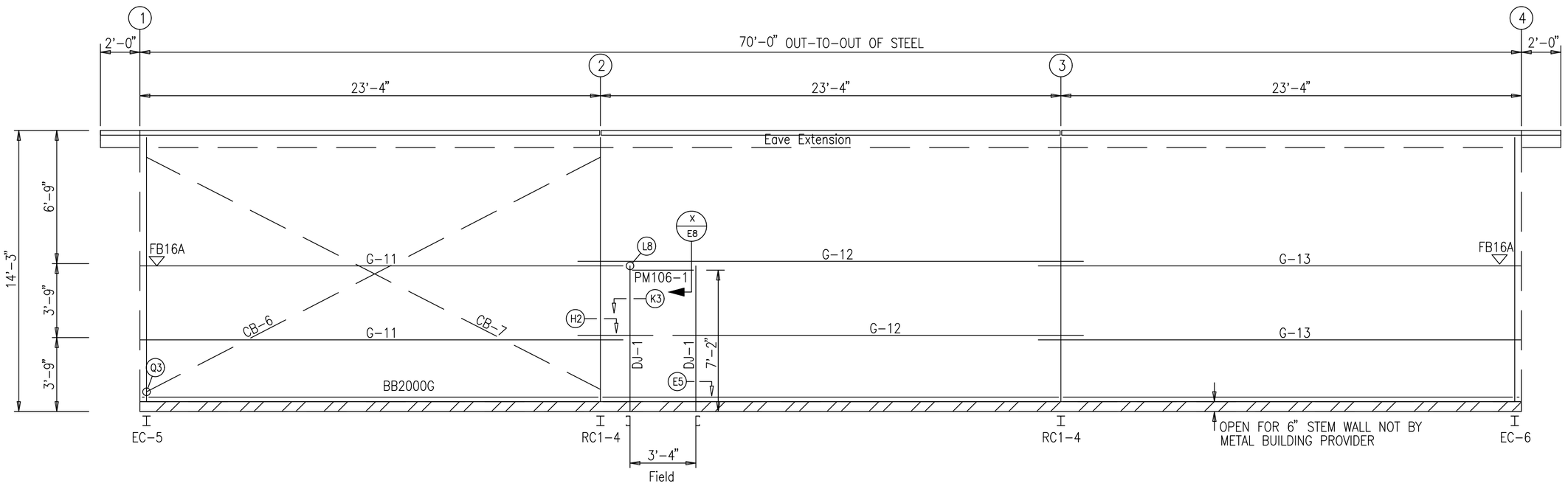
SHEET DESCRIPTION: ENDWALL FRAME & SHEETING ELEVATION					BLDG SIZE: 65'–0" x 70'–0" x 18'–0"/14'–3"	
CUSTOMER: THUNDERSTRUCK / C&B HOLDINGS					CUSTOMER LOCATION: HAYDEN, CO 81639	
PROJECT REFERENCE: THUNDERSTRUCK / C&B HOLDINGS						
JOBSITE LOCATION: HAYDEN, CO 81639					JOBSITE COUNTY: ROUTT	
DWN: PND	CHK: PNC	DATE: 08.02.23	ENG: KMO	JOB NO: 11217–32005	DWG NO: E4	ISSUE: 0

REVIEWED FOR CODE COMPLIANCE
09/18/2023

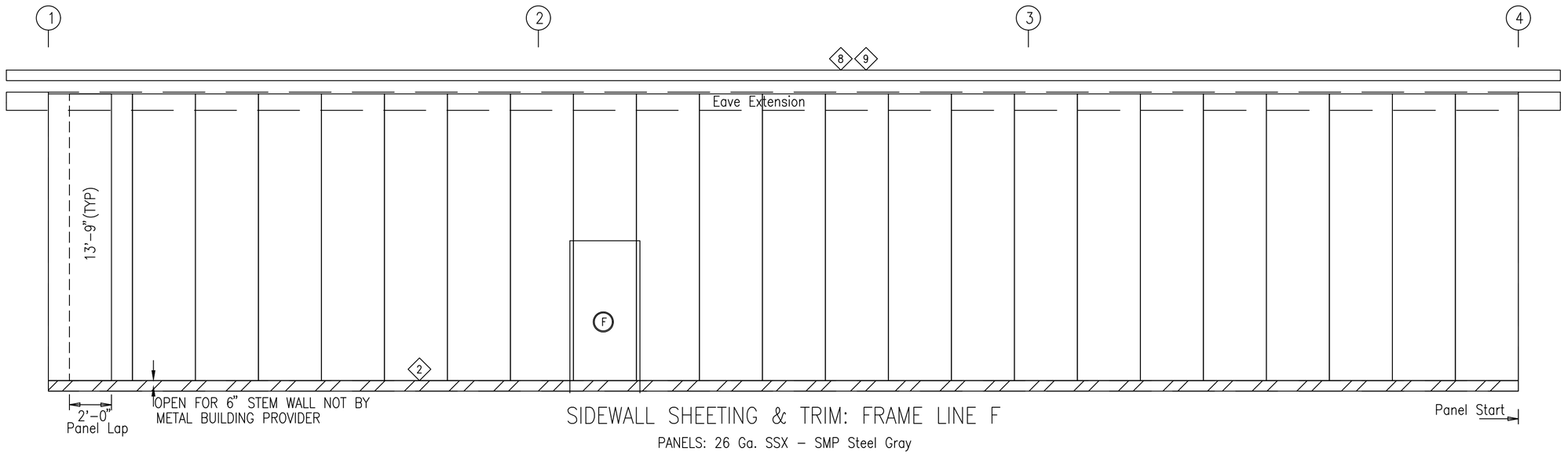
TRIM TABLE – THIS WALL ONLY FRAME LINE – F		
◇ID	PART	LENGTH
2	MT–103	20'–3"
4	JT–101	7'–6"
6	HT–101	3'–8"
8	ET–103	20'–3"
9	ET–103	15'–3"

MEMBER TABLE FRAME LINE F	
MARK	PART
DJ–1	8M25C14
PM106–1	PM106
G–11	8X25Z16
G–12	8X25Z16
G–13	8X25Z16
CB–6	1.00_ROD
CB–7	1.00_ROD

FLANGE BRACE TABLE FRAME LINE F		
▽ID	MARK	LENGTH
1	FB16A	2'–5"

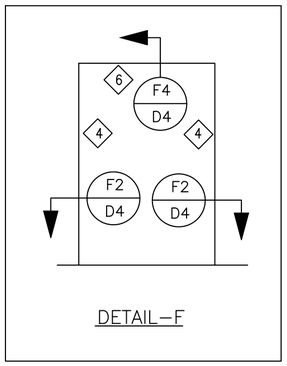


SIDEWALL FRAMING: FRAME LINE F



SIDEWALL SHEETING & TRIM: FRAME LINE F

PANELS: 26 Ga. SSX – SMP Steel Gray



DETAIL–F

GENERAL SHEETING & TRIM NOTES

1. Refer to erection drawings for rake angle locations.
2. Roof member screws are at 12" o.c. Eave end lap and peak screws are as shown.
3. Wall member screws are at 6" o.c. at the base member and 12" o.c. at all remaining members.
4. Roof stitch screws are located at each member with two between members (20" max. spacing).
5. Wall stitch screws are located at each member with one between members (20" max. spacing).
6. Skylight stitch screws are at 6" o.c.
7. Start endwall panels at centerline of bldg. unless noted.
8. Gutter, rake, & eave trim lap 2". All other trims lap 1".
9. Field cut or lap panels as required to fit.
10. Field cut panels for all openings.
11. Pop rivet gutter counterflashing to wall panel on 3'–0 centers and caulk all laps.
12. Gutter support strap spacing: Super Span 3'–0, Super Seam 4'–0, Weather Lok–16 2'–8".
13. Corner and/or peak boxes are not furnished with special rake or gutter profiles. Field miter as req'd.
14. Downspout straps are located 6" from base and at every girt location.
15. Hot–rolled or built–up members must be pre–drilled before attaching members screws.
16. Metal shavings must be swept from the roof each day to avoid surface rusting.
17. Windows and louvers must be installed before sheeting the walls.
18. For clarity, tape sealant, closures, etc. may not be shown. Refer to the standing seam erection manual or standard pull out for screw–down type roof for additional installation instructions.

GENERAL FRAMING NOTES

1. Angles are marked by their length in feet and inches.
2. Field cut or lap angles as required to fit.
3. Flange braces are marked by their length in decimal inches.
4. Outside flange of girt turns down unless noted.
5. Endwall girts and eave struts do not lap.
6. Field cut and self–tap girts at walk doors.
7. Field slot girts for brace rods or cables.
8. Field locate windows and walk doors.
9. Field weld all splices at 14 gauge valley gutters.
10. Field bolt AK400 base clip to endwall columns:
    (2) 5/8" x 1–1/2" A325 bolts if (1) AK400 req'd
    (2) 5/8" x 1–3/4" A325 bolts if (2) AK400 req'd
11. Locate top of roof framed openings flush with the pan of the roof panel.
12. Some field drilling at framed openings may be required. Field drill 9/16" diameter holes.
13. For clarity, tape sealant, closures, etc. may not be shown. Refer to the standing seam erection manual or standard pull out for screw–down type roof for additional installation instructions.
14. Sub–jambs for overhead doors, if required, is not furnished by Metal Building Provider

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Final drawings for construction.

METAL BUILDING OUTLET CORP.
7651 SHAFFER PARKWAY LITTLETON, CO 80127

ISSUE	DATE	DESCRIPTION	BY	CHK
P1	06.19.23	FOR CONSTRUCTION PERMIT	PND	PNC
P2	07.20.23	REV.FOR CONSTRUCTION PERMIT	PND	PNC
0	08.02.23	FOR ERECTOR INSTALLATION	PND	PNC

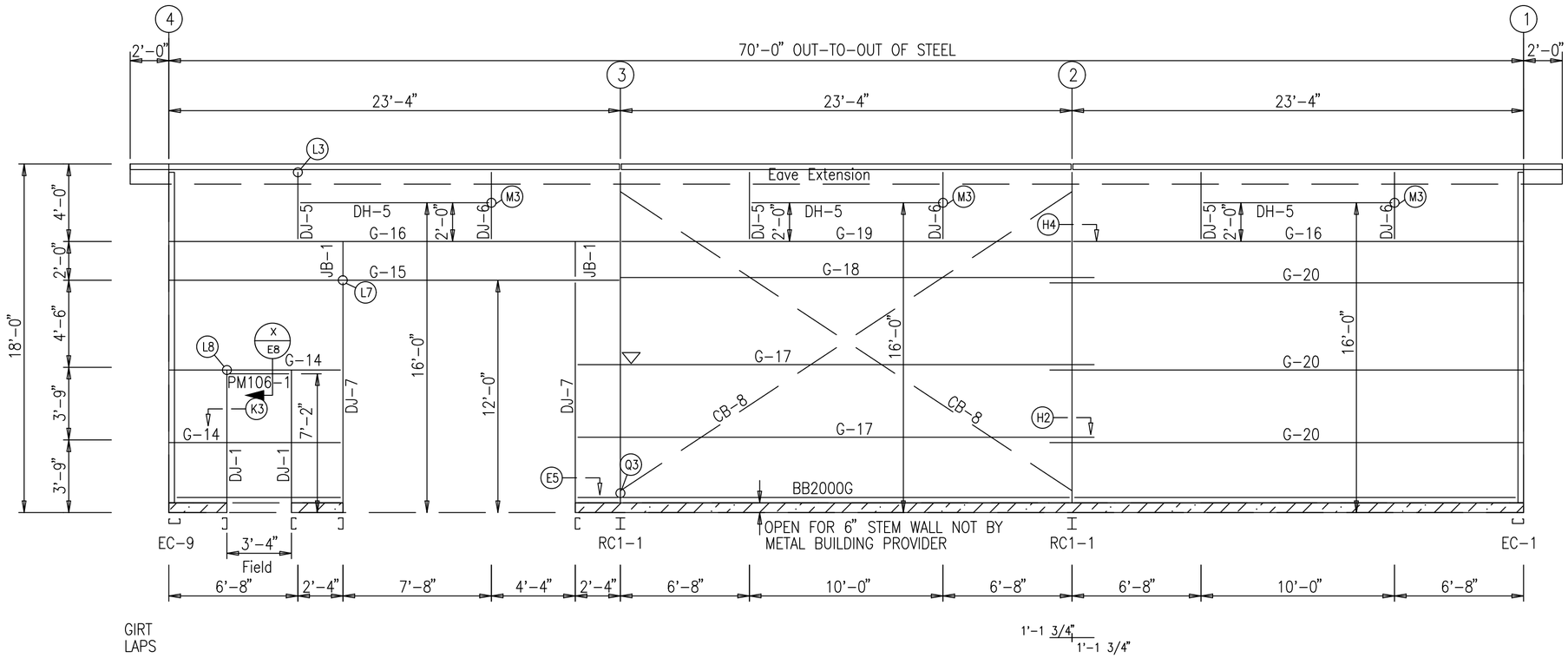
SHEET DESCRIPTION: SIDEWALL FRAME & SHEETING ELEVATION						BLDG SIZE: 65'–0" x 70'–0" x 18'–0"/14'–3"
CUSTOMER: THUNDERSTRUCK / C&B HOLDINGS						CUSTOMER LOCATION: HAYDEN, CO 81639
PROJECT REFERENCE: THUNDERSTRUCK / C&B HOLDINGS						
JOBSITE LOCATION: HAYDEN, CO 81639						JOBSITE COUNTY: ROUTT
DWN: PND	CHK: PNC	DATE: 08.02.23	ENG:	KMO	JOB NO: 11217–32005	DWG NO: E5 / ISSUE: 0

The Engineer whose seal and signature appear on these documents represents Whirlwind Steel Buildings, Inc., and is not the Engineer of Record for the overall project. The Engineer's responsibility is limited to material designed and manufactured by Whirlwind Steel Buildings, Inc., and excludes part such as doors, windows, foundation design, and erection of the building.

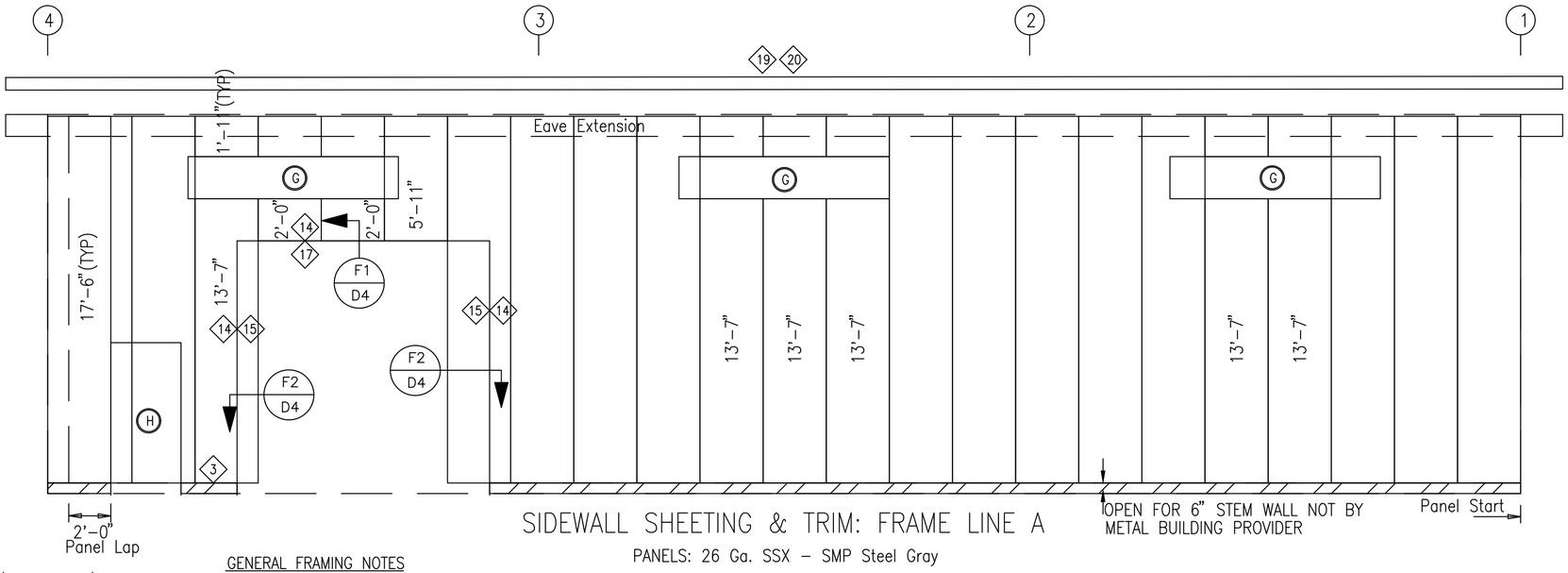
REVIEWED FOR CODE COMPLIANCE
09/18/2023

TRIM TABLE – THIS WALL ONLY FRAME LINE –A		
◇ID	PART	LENGTH
3	MT–103	20’–3”
5	JT–101	7’–6”
7	HT–101	3’–8”
9	JT–101	2’–4”
11	HT–101	10’–4”
13	MT–114	10’–4”
14	MT–116B	12’–4”
15	JT–101	11’–10”
17	HT–101	12’–4”
19	ET–103	20’–3”
20	ET–103	15’–3”

MEMBER TABLE FRAME LINE A	
MARK	PART
DJ–1	8M25C14
DJ–5	8M25C14
DJ–6	8M25C14
DJ–7	8M35C14
JB–1	8M35C14
PM106–1	PM106
DH–5	8M25C14
G–14	8X25Z16
G–15	8X25C12
G–16	8X25C14
G–17	8X25Z16
G–18	8X25Z16
G–19	8X25C14
G–20	8X25Z16
CB–8	1.00_ROD

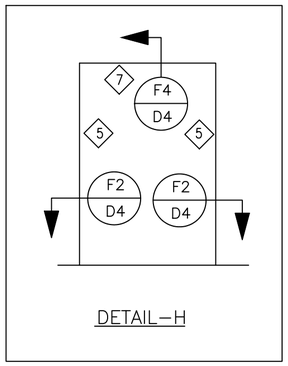


SIDEWALL FRAMING: FRAME LINE A

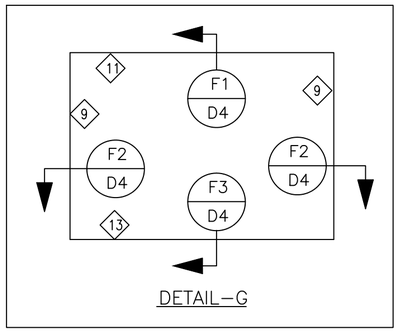


SIDEWALL SHEETING & TRIM: FRAME LINE A

PANELS: 26 Ga. SSX – SMP Steel Gray



DETAIL–H



DETAIL–G

GENERAL SHEETING & TRIM NOTES

1. Refer to erection drawings for rake angle locations.
2. Roof member screws are at 12” o.c. Eave end lap and peak screws are as shown.
3. Wall member screws are at 6” o.c. at the base member and 12” o.c. at all remaining members.
4. Roof stitch screws are located at each member with two between members (20” max. spacing).
5. Wall stitch screws are located at each member with one between members (20” max. spacing).
6. Skylight stitch screws are at 6” o.c.
7. Start endwall panels at centerline of bldg. unless noted.
8. Gutter, rake, & eave trim lap 2”. All other trims lap 1”.
9. Field cut or lap panels as required to fit.
10. Field cut panels for all openings.
11. Pop rivet gutter counterflashing to wall panel on 3’–0 centers and caulk all laps.
12. Gutter support strap spacing: Super Span 3’–0, Super Seam 4’–0, Weather Lok–16 2’–8”.
13. Corner and/or peak boxes are not furnished with special rake or gutter profiles. Field miter as req’d.
14. Downspout straps are located 6” from base and at every girt location.
15. Hot–rolled or built–up members must be pre–drilled before attaching members screws.
16. Metal shavings must be swept from the roof each day to avoid surface rusting.
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GENERAL FRAMING NOTES

1. Angles are marked by their length in feet and inches.
2. Field cut or lap angles as required to fit.
3. Flange braces are marked by their length in decimal inches.
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5. Endwall girts and eave struts do not lap.
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7. Field slot girts for brace rods or cables.
8. Field locate windows and walk doors.
9. Field weld all splices at 14 gauge valley gutters.
10. Field bolt AK400 base clip to endwall columns:
    (2) 5/8” x 1–1/2” A325 bolts if (1) AK400 req’d
    (2) 5/8” x 1–3/4” A325 bolts if (2) AK400 req’d
11. Locate top of roof framed openings flush with the pan of the roof panel.
12. Some field drilling at framed openings may be required. Field drill 9/16” diameter holes.
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14. Sub–jambs for overhead doors, if required, is not furnished by Metal Building Provider

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METAL BUILDING OUTLET CORP.
7651 SHAFFER PARKWAY LITTLETON, CO 80127

ISSUE	DATE	DESCRIPTION	BY	CHK
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SHEET DESCRIPTION: SIDEWALL FRAME & SHEETING ELEVATION						BLDG SIZE: 65’–0” x 70’–0” x 18’–0”/14’–3”	
CUSTOMER: THUNDERSTRUCK / C&B HOLDINGS						CUSTOMER LOCATION: HAYDEN, CO 81639	
PROJECT REFERENCE: THUNDERSTRUCK / C&B HOLDINGS							
JOBSITE LOCATION: HAYDEN, CO 81639						JOBSITE COUNTY: ROUTT	
DWN:	CHK:	DATE:	ENG:	JOB NO:		DWG NO:	ISSUE:
PND	PNC	08.02.23	KMO	11217–32005		E6	0

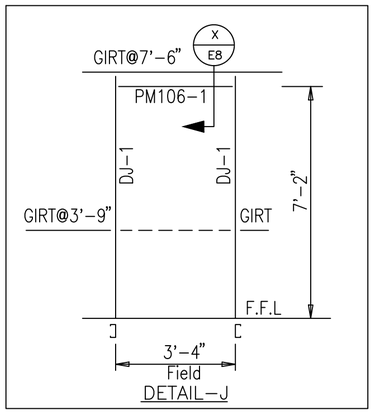
REVIEWED FOR CODE COMPLIANCE
09/18/2023

BOLT TABLE PARTITION 1				
LOCATION	QUAN	TYPE	DIA	LENGTH
PC-1/RAFTER	2	A325	5/8"	1 1/2"

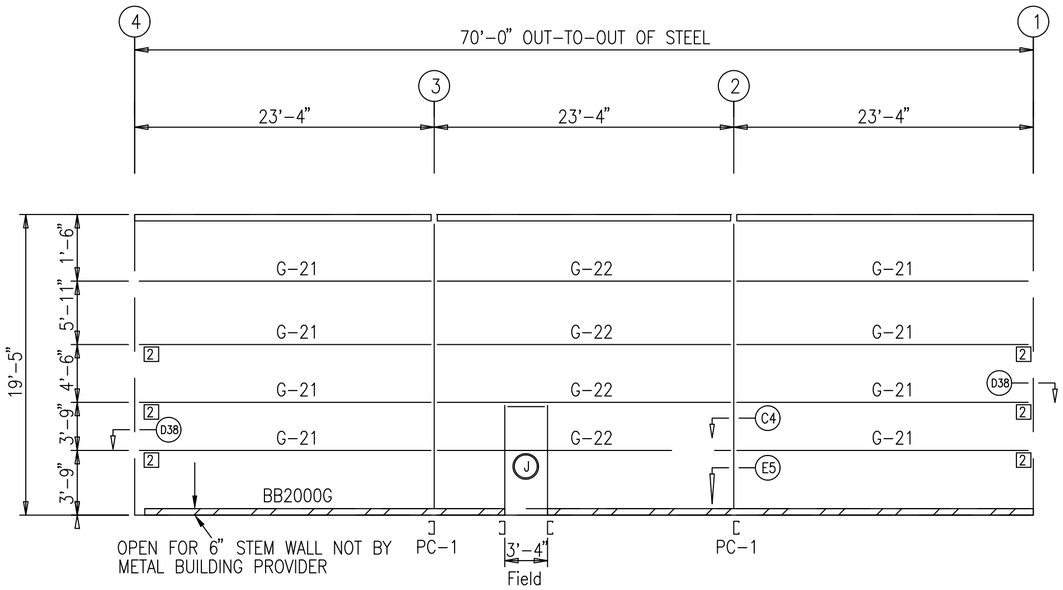
MEMBER TABLE PARTITION 1	
MARK	PART
PC-1	8M35C12
DJ-1	8M25C14
PM106-1	PM106
G-21	8X25Z16
G-22	8X25Z16

TRIM TABLE - THIS WALL ONLY PARTITION 1		
◇ID	PART	LENGTH
2	JT-101	7'-6"
4	HT-101	3'-8"
5	MT-103	20'-3"
6	SF-10	20'-3"
7	MT-106C	15'-3"
8	MT-106C	20'-3"

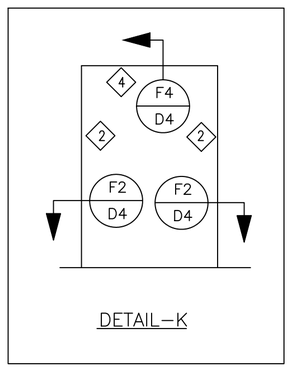
CONNECTION PLATES PARTITION 1	
□ID	MARK/PART
2	AK244



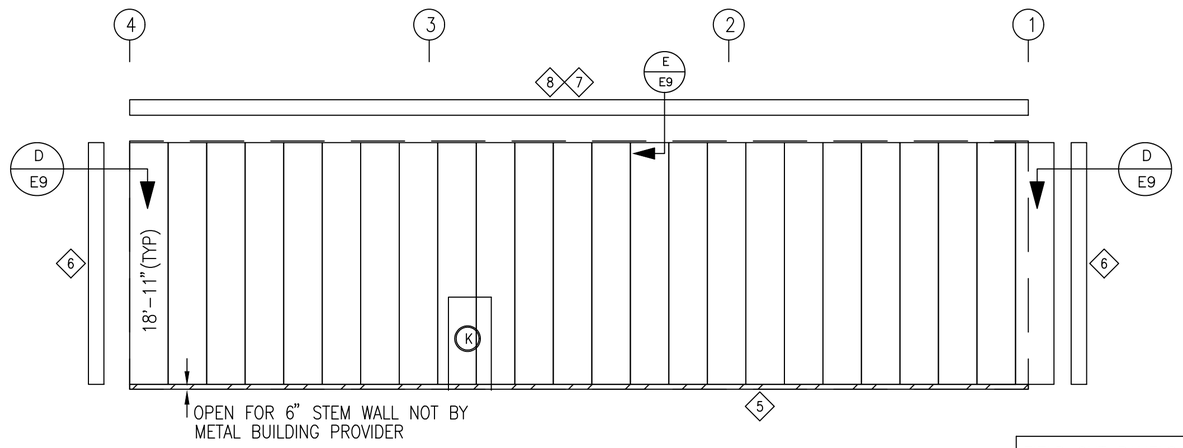
DETAIL-J



PARTITION 1 FRAMING



DETAIL-K



PARTITION 1 FRONT SHEETING & TRIMS

PANELS: 26 Ga. SSX - SMP Steel Gray

FIELD CUT PANELS AS REQUIRED

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Final drawings for construction.

METALBUILDING OUTLET CORP.
7651 SHAFFER PARKWAY LITTLETON, CO 80127

ISSUE	DATE	DESCRIPTION	BY	CHK
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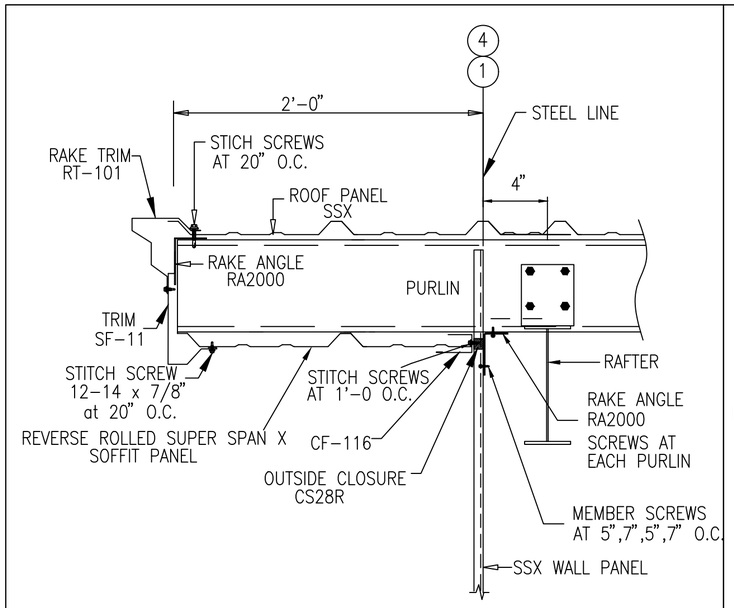
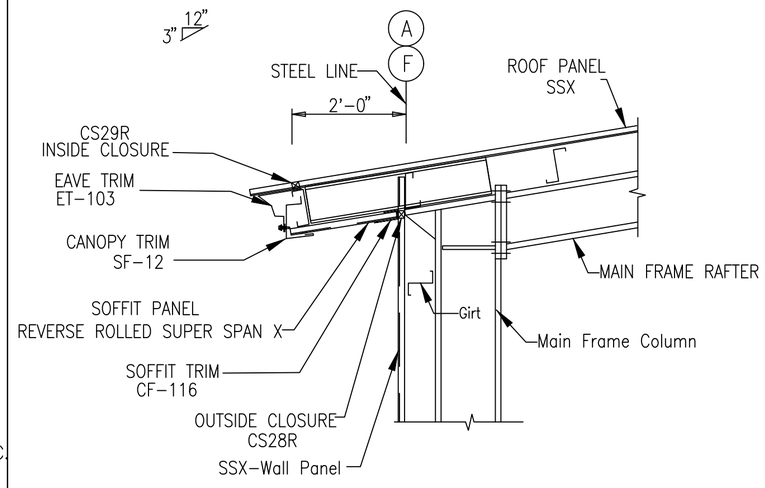
P2	07.20.23	REV.FOR CONSTRUCTION PERMIT	PND	PNC
0	08.02.23	FOR ERECTOR INSTALLATION	PND	PNC

SHEET DESCRIPTION: PARTITION FRAME & SHEETING ELEVATION						BLDG SIZE: 65'-0" x 70'-0" x 18'-0"/14'-3"	
CUSTOMER: THUNDERSTRUCK / C&B HOLDINGS						CUSTOMER LOCATION: HAYDEN, CO 81639	
PROJECT REFERENCE: THUNDERSTRUCK / C&B HOLDINGS							
JOBSITE LOCATION: HAYDEN, CO 81639						JOBSITE COUNTY: ROUTT	
DWN: PND	CHK: PNC	DATE: 08.02.23	ENG: KMO	JOB NO: 11217-32005		DWG NO: E7	ISSUE: 0

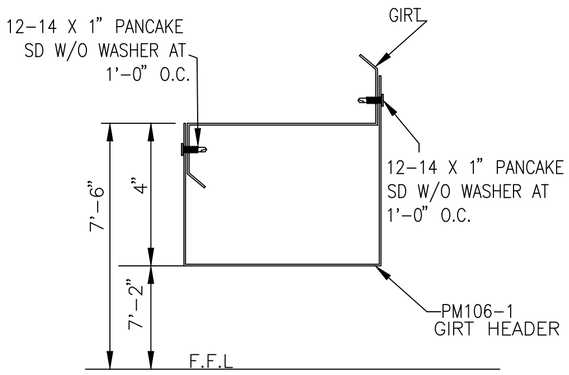
REVIEWED FOR CODE COMPLIANCE
09/18/2023



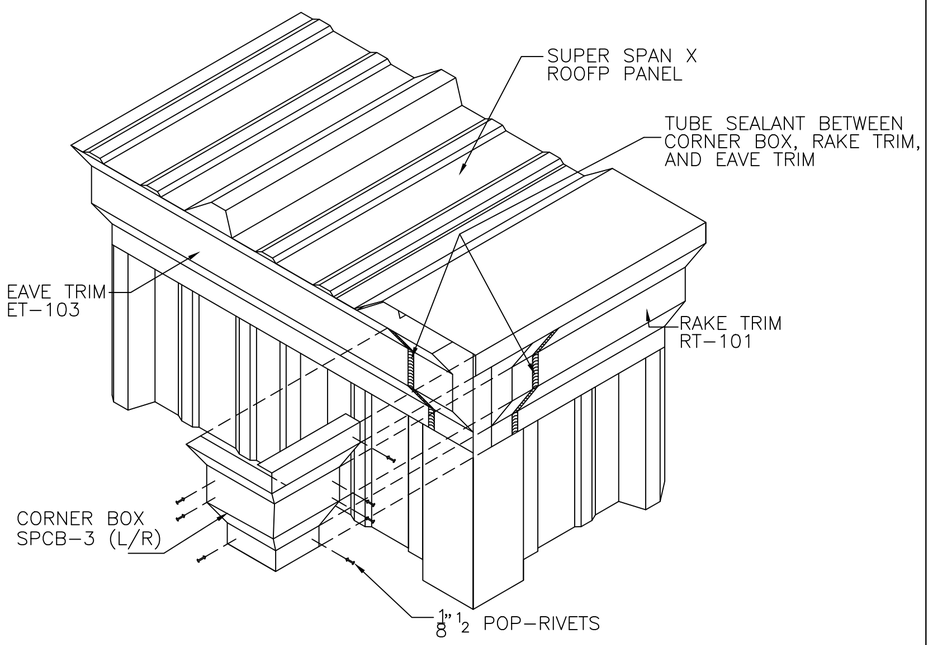
SECTION "A"



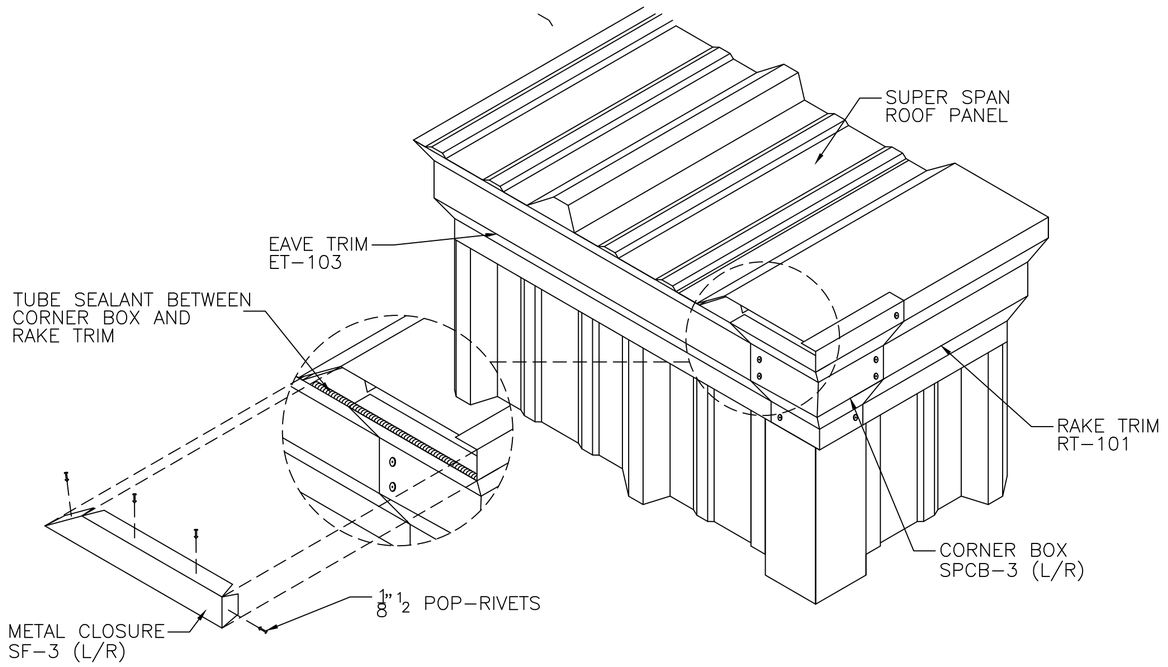
SECTION "B"



SECTION-X



EAVE TRIM CORNER BOX TRIM INSTALLATION



EAVE TRIM CORNER BOX TRIM INSTALLATION

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☒ FOR ERECTOR INSTALLATION:
Final drawings for construction.

METAL BUILDING OUTLET CORP.
7651 SHAFFER PARKWAY LITTLETON, CO 80127

ISSUE	DATE	DESCRIPTION	BY	CHK
P1	06.19.23	FOR CONSTRUCTION PERMIT	PND	PNC
P2	07.20.23	REV.FOR CONSTRUCTION PERMIT	PND	PNC
0	08.02.23	FOR ERECTOR INSTALLATION	PND	PNC

SHEET DESCRIPTION: BUILDING SECTIONS						BLDG SIZE: 65'-0" x 70'-0" x 18'-0"/14'-3"
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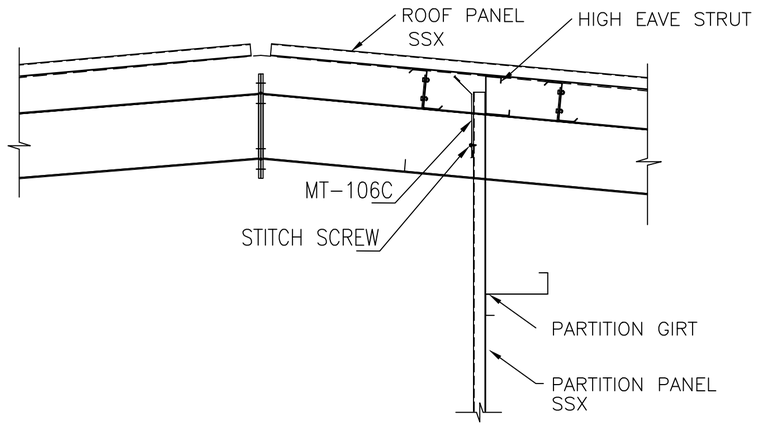
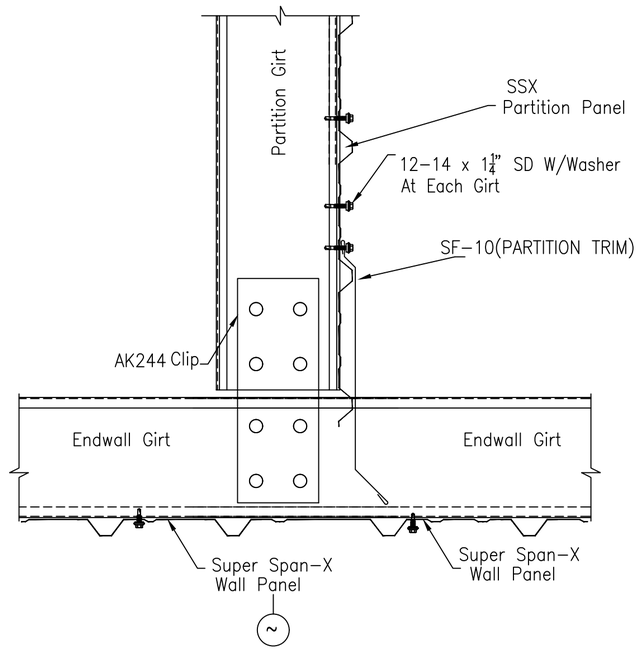
PROJECT REFERENCE: THUNDERSTRUCK / C&B HOLDINGS						
JOBSITE LOCATION: HAYDEN, CO 81639						JOBSITE COUNTY: ROUTT
DWN: PND	CHK: PNC	DATE: 08.02.23	ENG: KMO	JOB NO: 11217-32005	DWG NO: EB	ISSUE: 0

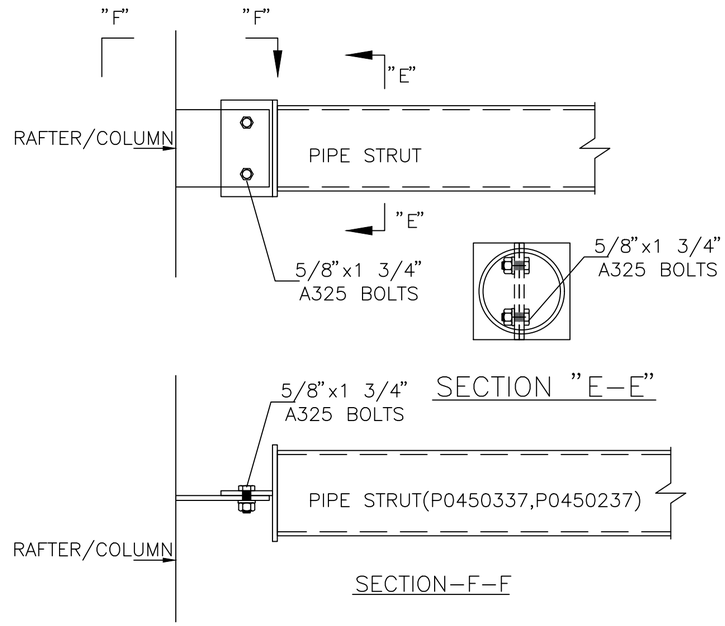
REVIEWED FOR CODE COMPLIANCE
09/18/2023



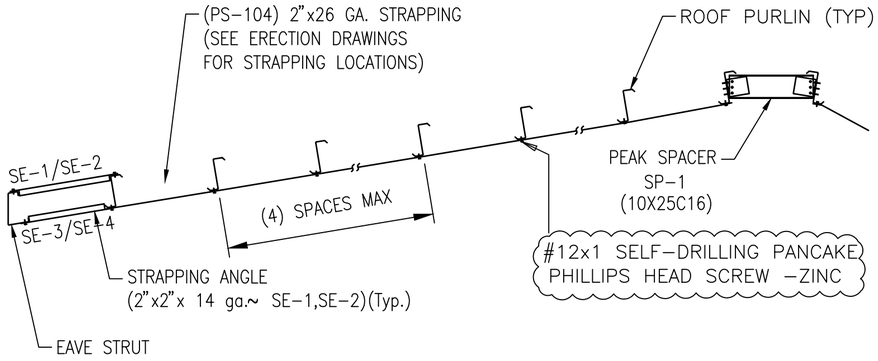
SECTION "E"



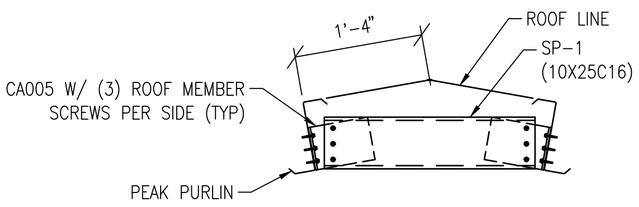
PARTITION WALL CORNER TRIM INSTALLATION
SECTION "D"



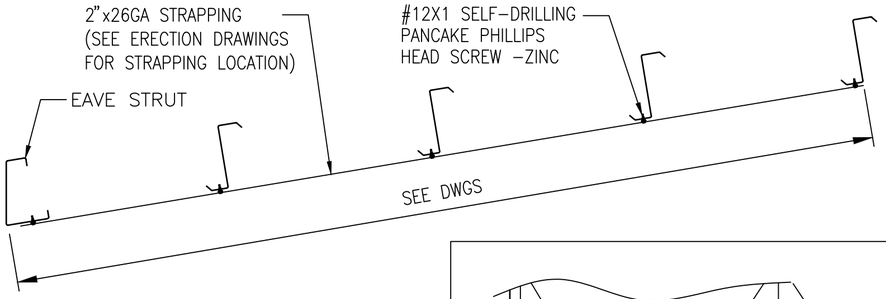
TYP. PIPE STRUT CONN. DETAIL

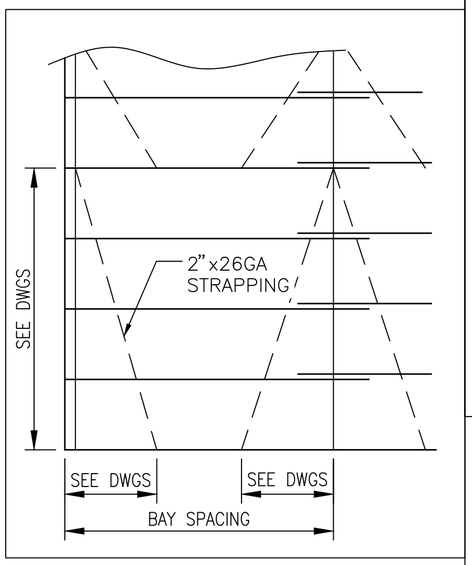


ROOF STRAPPING DETAIL

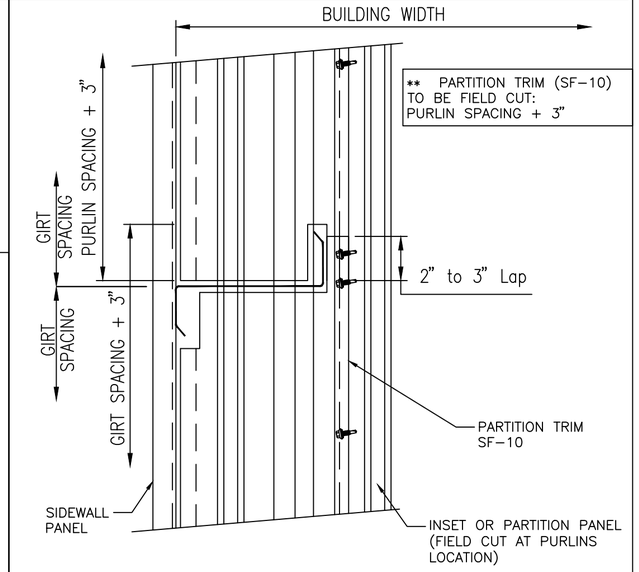


TYPICAL PEAK SPACER ATTACHMENT DETAIL





TYPICAL DIAGONAL STRAPPING INSTALLATION.
FOR SUPER SPAN X ROOF SYSTEMS



INSET OR PARTITION WALL TRIM
INSTALLTION

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METAL BUILDING OUTLET CORP.
7651 SHAFFER PARKWAY LITTLETON, CO 80127

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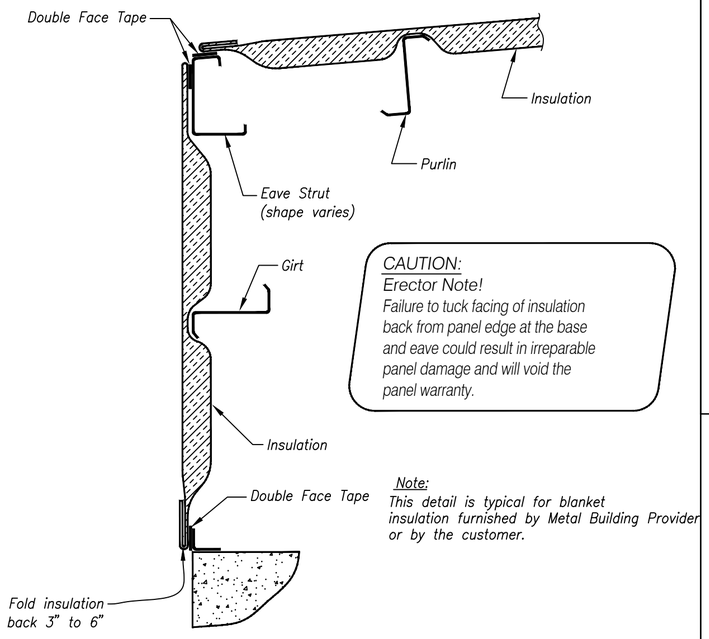
DWN: PND	CHK: PNC	DATE: 08.02.23	ENG: KMO	JOB NO: 11217-32005		DWG NO: E9	ISSUE: 0

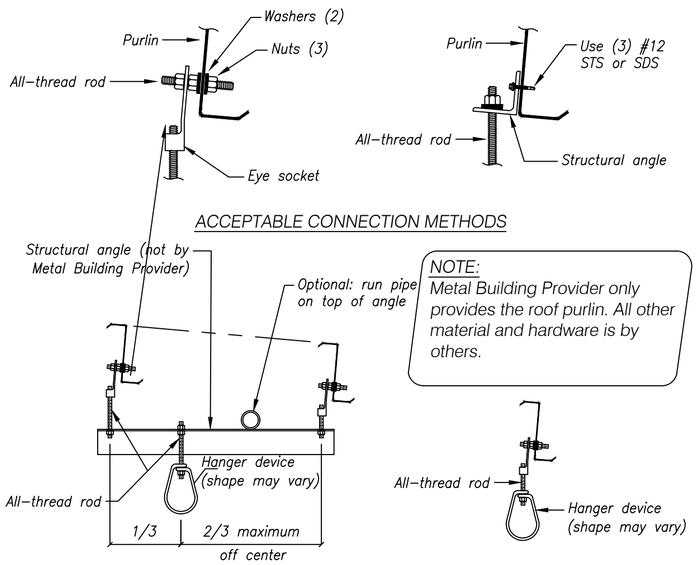
REVIEWED
FOR
CODE
COMPLIANCE
09/18/2023



CAUTION:
Erector Note!
Failure to tuck facing of insulation back from panel edge at the base and eave could result in irreparable panel damage and will void the panel warranty.

Note:
This detail is typical for blanket insulation furnished by Metal Building Provider or by the customer.

STANDARD DETAIL @ BLANKET INSULATION

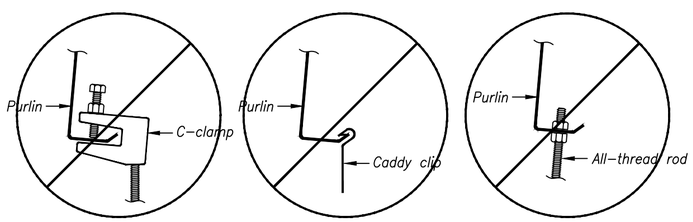


ACCEPTABLE CONNECTION METHODS

NOTE:
Metal Building Provider only provides the roof purlin. All other material and hardware is by others.

TRAPEZE HANGER ~ 4" MAX. PIPE

HANGER ~ 2-1/2" MAX. PIPE

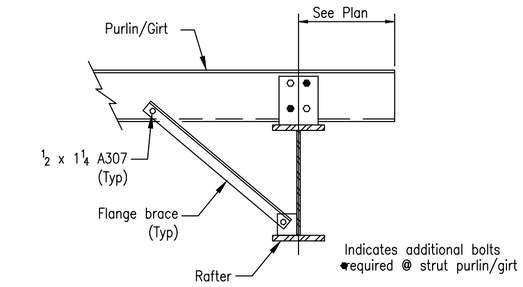


Flange C-Clamp is not an acceptable connection

Caddy clip attached to lip is not an acceptable connection

Connection through the flange is not acceptable

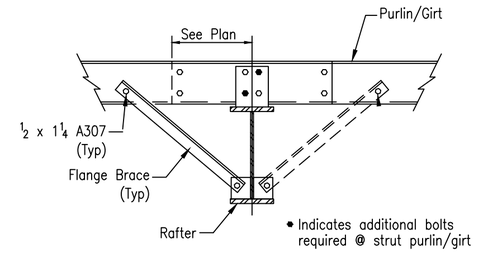
ACCEPTABLE CONNECTIONS FOR ALL COLLATERAL LOADS FOR HANGER ATTACHMENT



(6) 1/2" x 1-1/4 A-307 required at standard laps.
(8) 1/2" x 1-1/4 Required at strut members.
(A strut member is a purlin or girt at the bracing points. The struts continue across the length of the building.)
See E-drawing for exceptions to size and quantity of bolts.

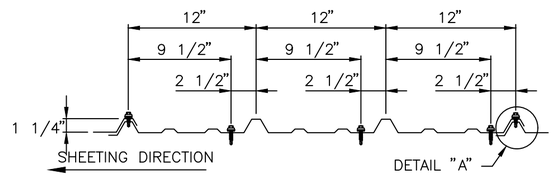
END DETAIL

Note: Flange braces may be on one or both sides. See frame cross-section for locations.

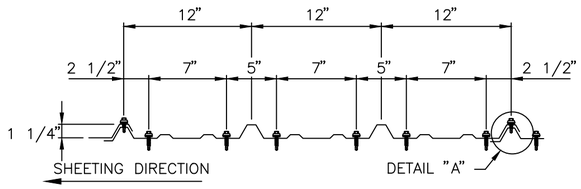


(6) 1/2" x 1-1/4 A-307 required at standard laps.
(8) 1/2" x 1-1/4 Required at strut members.
(A strut member is a purlin or girt at the bracing points. The struts continue across the length of the building.)
See E-drawing for exceptions to size and quantity of bolts.

LAP DETAIL

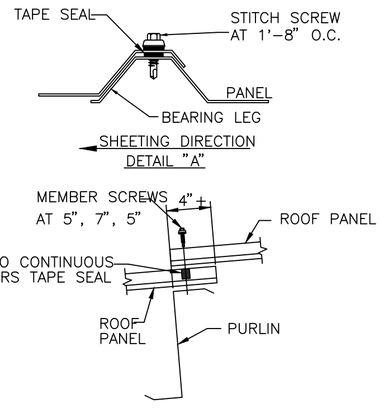


ALL ROOF MEMBERS EXCEPT AS NOTED BELOW



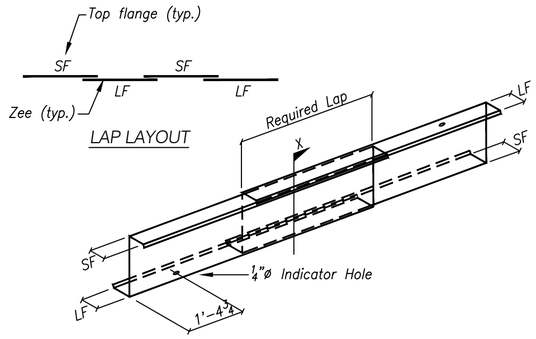
AT EAVE STRUT, PANEL END LAP, AND PEAK PURLIN

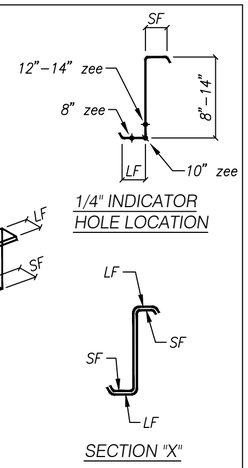
FASTENER LOCATION FOR "SUPER SPAN X" ROOF PANEL



SECTION THRU PANEL END LAPS

Notes:
1. Rotate each zee as required to alternate between long and short flanges.
2. The 1/4"ø hole 1'-4 3/4 from each end is located nearest the long flange.
3. Lap connection bolts are omitted for clarity.

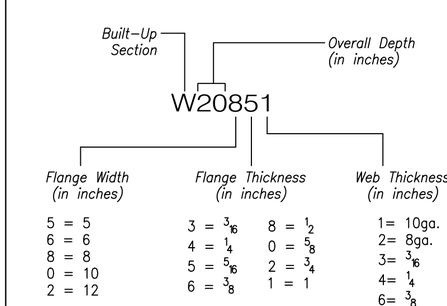


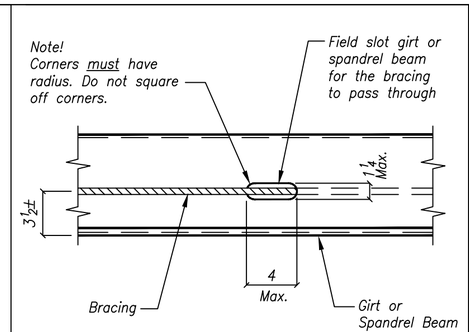


LF = Long Flange
SF = Short Flange

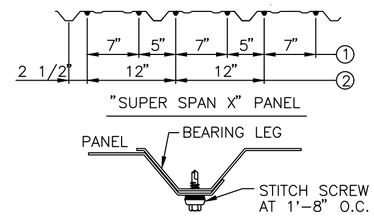
ZEE LAP DETAIL @ THE LONG AND SHORT FLANGES

BUILT-UP SECTION LEGEND





DETAIL @ FIELD LOCATED BRACING SLOT



FASTENER LOCATION FOR WALL PANEL (SUPER SPAN X)

1/4-14 X 1-1/4" HWH TCP2 5/16" HEAD SELF-DRILLER
NO SEALING WASHER - ZINC-PLATED

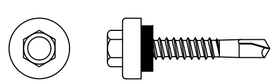
1/4-14 X 1-1/4" HWH SHOULDERED TCP3 5/16" HEAD
SELF-DRILLER - NO SEALING WASHER - ZINC-PLATED

#12 x 1" PANCAKE HEAD SDS
QUADREX DRIVE, ZINC-PLATED

NOTES:
Seating Torque: 30 - 60 in-lbs
Recommended Driving Tool:
1800 RPM screw gun with depth sensing nosepiece to prevent overdriving and stripout

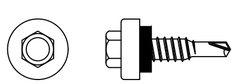
STANDARD FASTENERS MISCELLANEOUS

Description: 12-14 x 1 1/4 Hex Head Undercut (#12 x 1 1/4 Long-Life #3 Long Pilot Point Self-Drilling Long-Life Zinc Die Cast Head S.D.S.)
Seating Torque: 30 to 60 in-lbs
Recommended Driving Tool: 1800 RPM electric screw gun with depth sensing nosepiece to prevent overdriving and stripout
Suggested Pre-Drill: None



Actual Size

Description: 1/4-14 x 7/8 Hex Head Undercut (#14 x 7/8 Long-Life #1 Point Self-Drilling Lap Long-Life Zinc Die Cast Head Lap-Tek S.D.S.)
Seating Torque: 30 to 60 in-lbs
Recommended Driving Tool: 1800 RPM electric screw gun with depth sensing nosepiece to prevent overdriving and stripout
Suggested Pre-Drill: None



Actual Size

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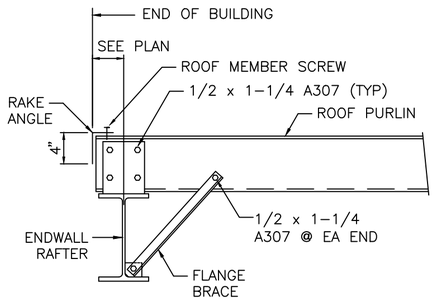
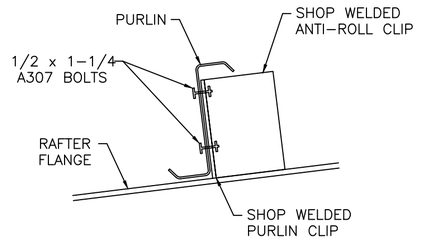
DWN: PND	CHK: PNC	DATE: 08.02.23	ENG: KMO	JOB NO: 11217-32005	DWG NO: D1	ISSUE: 0



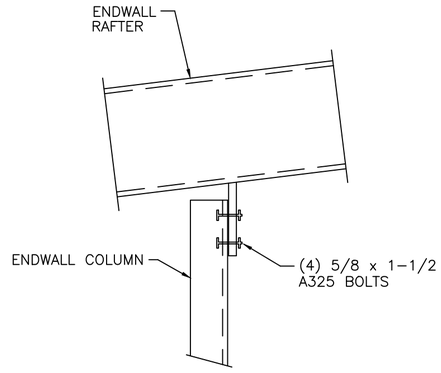
IN CERTAIN CONDITIONS DIFFERENT BOLTS SIZES MAY BE REQUIRED. IN THESE INSTANCES THE REQUIRED BOLTS WILL BE SHOWN ON THE ERECTION PLANS.

A7 ROOF PURLIN CONNECTION AT I-SHAPE ENDWALL RAFTER

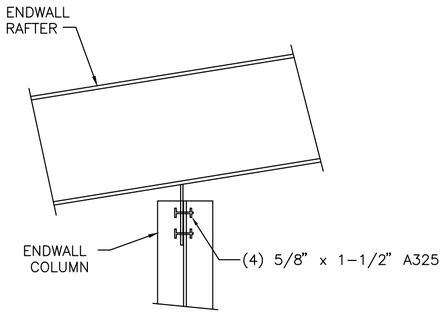


SOME PURLIN CLIPS WILL HAVE AN ADDITIONAL ANTI-ROLL CLIP ATTACHED. THE QUANTITY AND SPACING OF THESE CLIPS IS DETERMINED BY THE DESIGN FOR EACH SPECIFIC BUILDING.

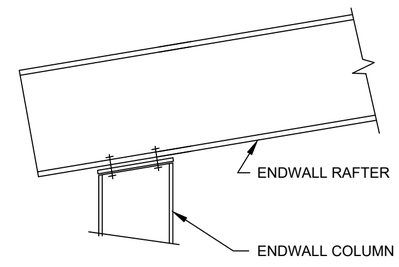
ANTI DETAIL AT ANTI-ROLL CLIP



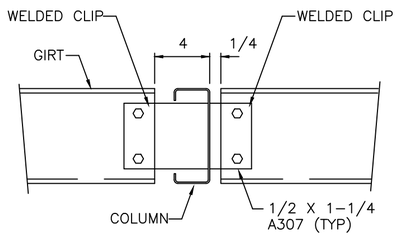
B4 ENDWALL RAFTER TO COLUMN



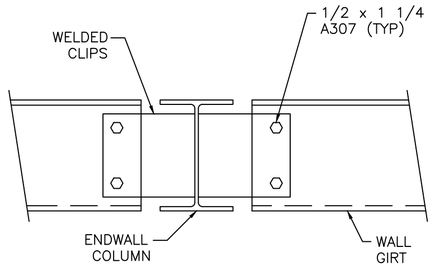
B6 ENDWALL RAFTER TO COLUMN



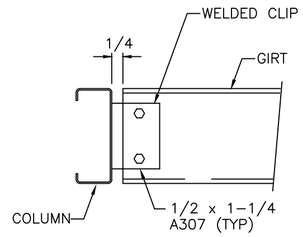
B16 CORNER COLUMN TO ENDWALL RAFTER



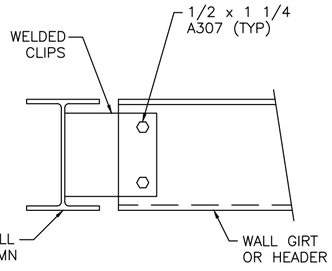
C4 GIRT TO COLUMN



C6 ENDWALL GIRT TO COLUMN

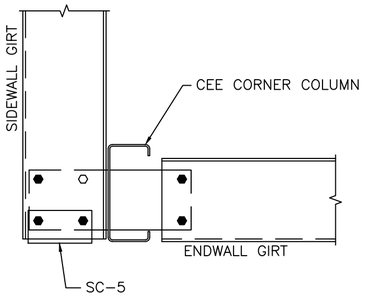


C13 GIRT/HEADER TO CEE COLUMN



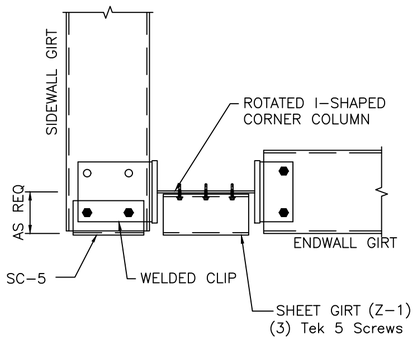
C15 GIRT/HEADER TO COLUMN

● REQ'D 1/2 x 1 1/4 A307 U.N. ON THE DRAWINGS

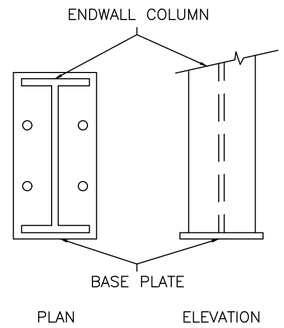


D4 GIRT TO CEE CORNER COLUMN

● REQ'D 1/2 x 1 1/4 A307 U.N. ON THE DRAWINGS

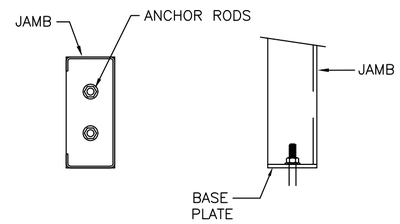


D17 CORNER COLUMN TO WALL GIRT



SEE BOLT SETTING PLAN FOR ACTUAL BOLT QTY.

E3 BASE PLATE FOR ENDWALL COLUMN



– ALL ANCHOR RODS (BY OTHERS) TO HAVE NUTS AND FLAT WASHERS.

E5 BASE PLATE FOR DOOR JAMB

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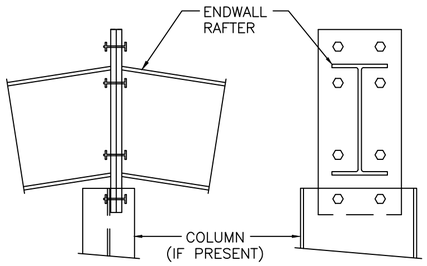
Final drawings for construction.

METAL BUILDING OUTLET CORP.
7651 SHAFFER PARKWAY LITTLETON, CO 80127

ISSUE	DATE	DESCRIPTION	BY	CHK
P1	06.19.23	FOR CONSTRUCTION PERMIT	PND	PNC
P2	07.20.23	REV.FOR CONSTRUCTION PERMIT	PND	PNC
0	08.02.23	FOR ERECTOR INSTALLATION	PND	PNC

SHEET DESCRIPTION: STANDARD DETAIL PAGE					BLDG SIZE: 65'-0" x 70'-0" x 18'-0"/14'-3"	
CUSTOMER: THUNDERSTRUCK / C&B HOLDINGS					CUSTOMER LOCATION: HAYDEN, CO 81639	
PROJECT REFERENCE: THUNDERSTRUCK / C&B HOLDINGS						
JOBSITE LOCATION: HAYDEN, CO 81639					JOBSITE COUNTY: ROUTT	
DWN: PND	CHK: PNC	DATE: 08.02.23	ENG: KMO	JOB NO: 11217-32005	DWG NO: D2	ISSUE: 0

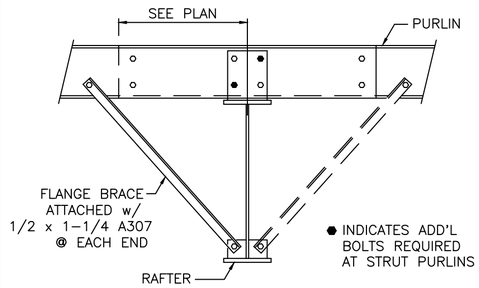
REVIEWED FOR CODE COMPLIANCE
09/18/2023



SEE ENDWALL DRAWING FOR BOLT SIZE AND TYPE

F12 RAFTER SPLICE AT SURFACE CHANGE

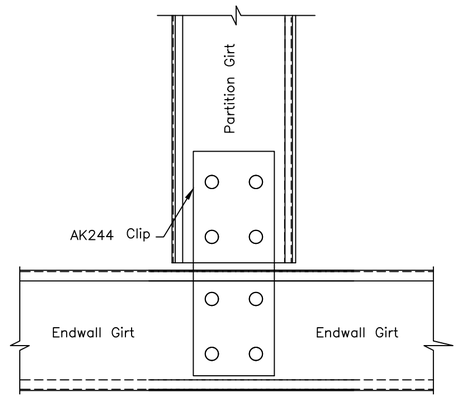
FLANGE BRACES MAY BE ON ONE OR BOTH SIDES
SEE FRAME CROSS-SECTION FOR LOCATIONS



(6) 1/2 x 1-1/4 A307 REQUIRED AT STANDARD LAPS
(8) 1/2 x 1-1/4 REQUIRED AT STRUT MEMBERS

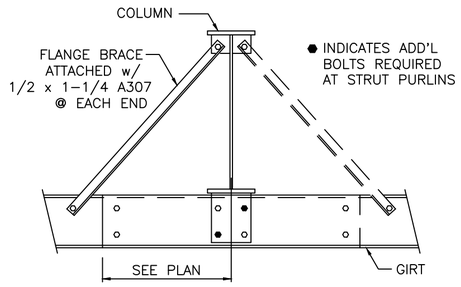
A STRUT MEMBER IS A PURLIN LOCATED AT THE BRACE POINTS.
SEE PLANS FOR EXCEPTIONS TO SIZE & QTY OF BOLTS.

G2 ROOF PURLIN TO INTERIOR FRAME RAFTER



D38 CORNER COLUMN TO WALL GIRT

FLANGE BRACES MAY BE ON ONE OR BOTH SIDES
SEE FRAME CROSS-SECTION FOR LOCATIONS

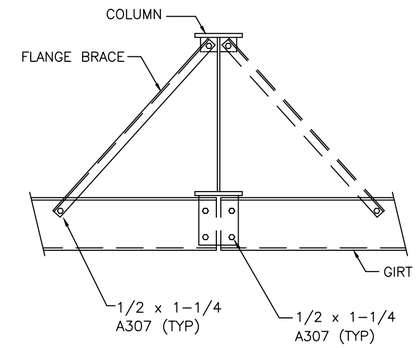


(6) 1/2 x 1-1/4 A307 REQUIRED AT STANDARD LAPS
(8) 1/2 x 1-1/4 A307 REQUIRED AT STRUT MEMBERS

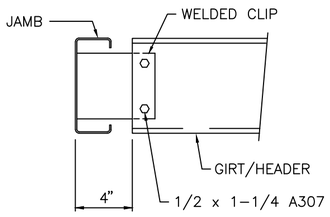
A STRUT MEMBER IS A PURLIN LOCATED AT THE BRACE POINTS.
SEE PLANS FOR EXCEPTION TO SIZE & QTY OF BOLTS.

H2 WALL GIRT TO FRAME COLUMN

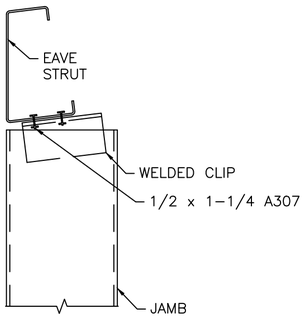
FLANGE BRACES MAY BE ON ONE OR BOTH SIDES
SEE FRAME CROSS-SECTION FOR LOCATIONS



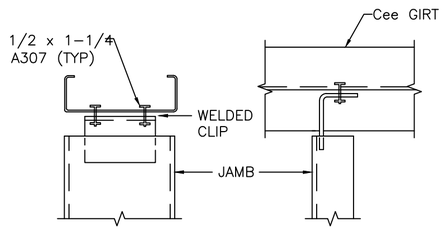
H4 WALL GIRT TO INTERIOR FRAME COLUMN



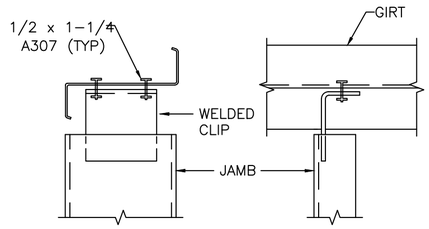
K3 WALL GIRT TO DOOR JAMB



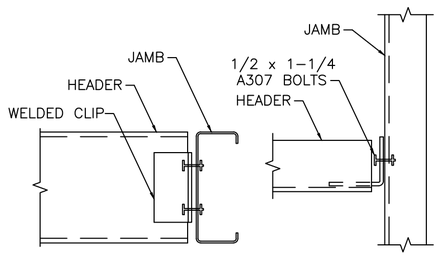
L3 DOOR JAMB TO EAVE STRUT



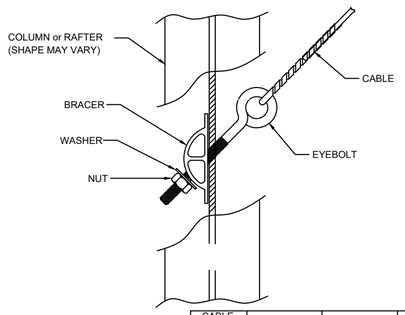
L7 DOOR JAMB TO WALL GIRT



L8 DOOR JAMB TO WALL GIRT

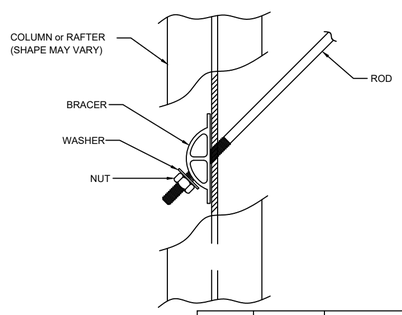


M3 HEADER TO CEE JAMB



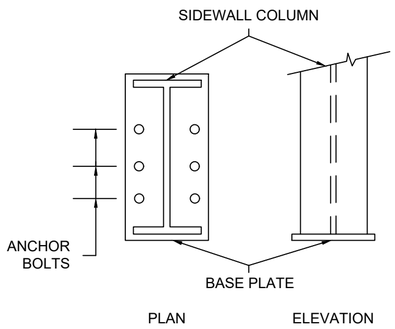
CABLE SIZE	BRACER	WASHER	NUT
1/4"	BRACER #1	F844 1/2"	A563 1/2"
5/16"	BRACER #1	F844 5/8"	A563 5/8"
3/8"	BRACER #2	F844 3/4"	A563 3/4"
1/2"	BRACER #2	F844 7/8"	A563 7/8"

Q2 DIAGONAL CABLE BRACING INSTALLATION



ROD SIZE	BRACER	WASHER	NUT
1/2"	BRACER #1	F844 1/2"	A563 1/2"
5/8"	BRACER #1	F844 5/8"	A563 5/8"
3/4"	BRACER #2	F844 3/4"	A563 3/4"
1"	BRACER #3	F844 1"	A563 1"
1 1/4"	BRACER #4	F844 1 1/4"	A563 1 1/4"

Q3 DIAGONAL ROD BRACING INSTALLATION



R3 ANCHOR BOLTS AT SIDEWALL COLUMN

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METALBUILDING OUTLET CORP.
7651 SHAFFER PARKWAY LITTLETON, CO 80127

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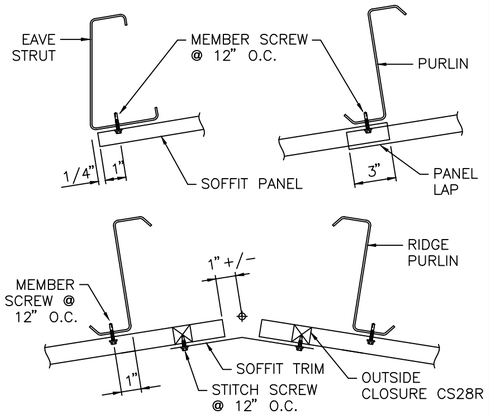
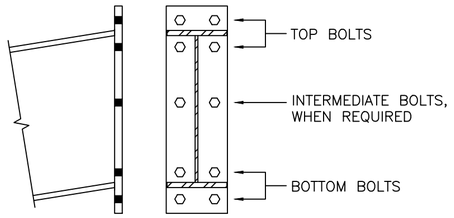
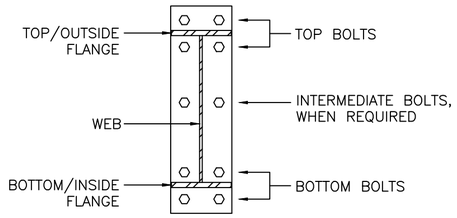


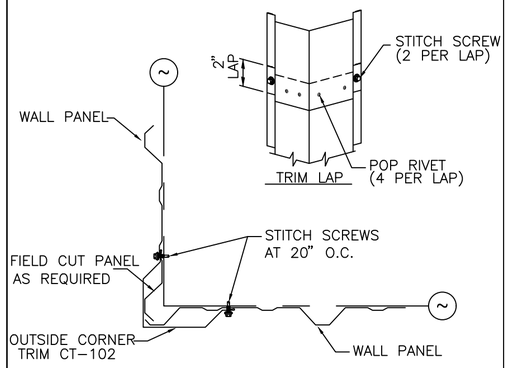
TRIM_40 SOFFIT PANEL INSTALLATION SUPER SPAN X



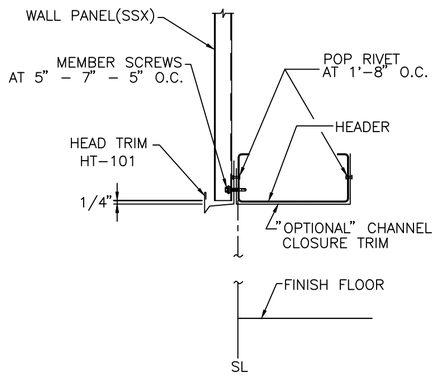
U2 BOLTED END PLATE CONNECTION AT BUILDING PEAK



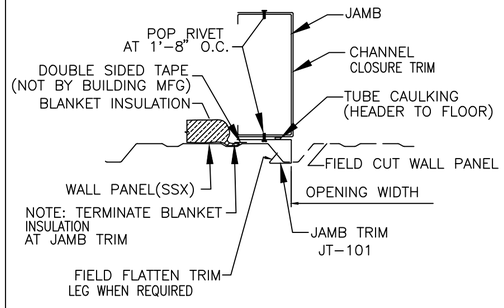
U3 BOLTS FOR RAFTER TO COLUMN CONNECTION



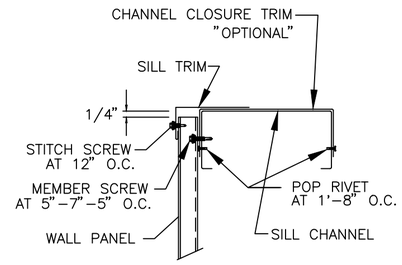
C1 CORNER TRIM INSTALLATION (SUPER SPAN X)



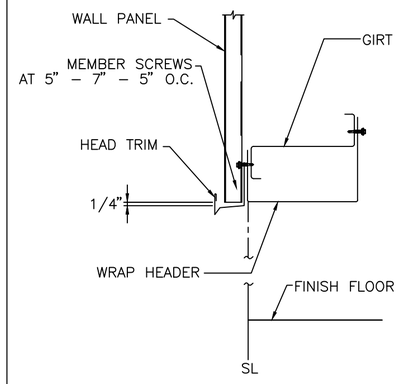
F1 HEAD TRIM INSTALLATION (SUPER SPAN X)



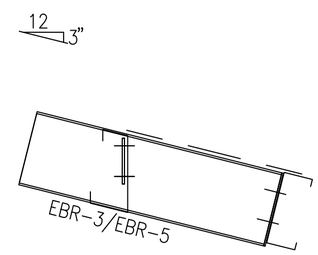
F2 JAMB TRIM INSTALLATION (SUPER SPAN X)



F3 SILL TRIM INSTALLATION (SUPER SPAN X)



F4 HEAD TRIM INSTALLATION (SUPER SPAN X PANEL)



X2

MEMBER SCREWS (SHORT, MEDIUM, & LONG)

#12 x 1-1/4" LONG-LIFE SDS WITH WASHER

STITCH SCREW

#14 x 7/8" LONG-LIFE LAP-TEK SDS WITH WASHER

#12 x 1-1/2" LONG-LIFE SDS WITH WASHER

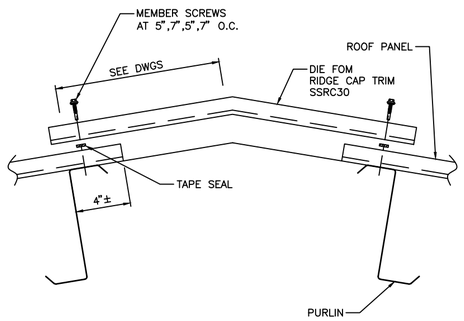
5/16" HEX HEAD

#12 x 2" LONG-LIFE SDS WITH WASHER

NOTES:
Seating Torque: 30 - 60 in-lbs
Recommended Driving Tool:
1800 RPM screw gun with depth sensing nosepiece to prevent overdriving and stripout

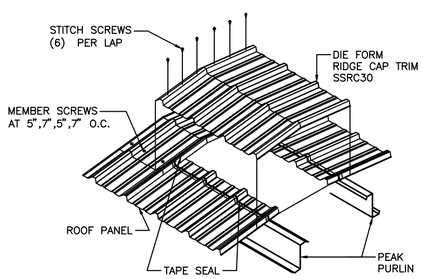
SCREW_4 STANDARD FASTENERS LONG-LIFE SELF-DRILLING

INSULATION NOT BY METAL BUILDING PROVIDER

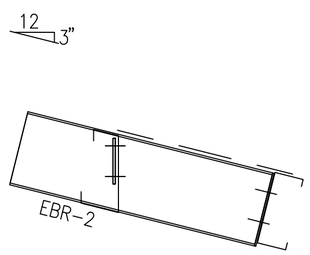


DIE FORM RIDGE CAP INSTALLATION (SUPER SPAN X)

INSULATION NOT BY METAL BUILDING PROVIDER



DIE FORME RIDGE CAP INSTALLATION (SUPER SPAN X)



X1

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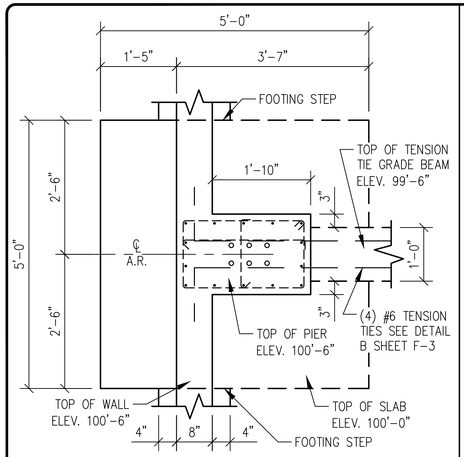
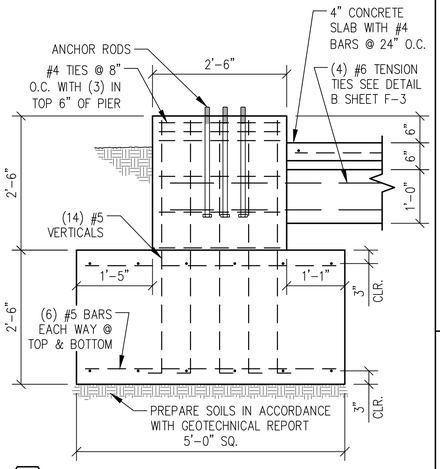
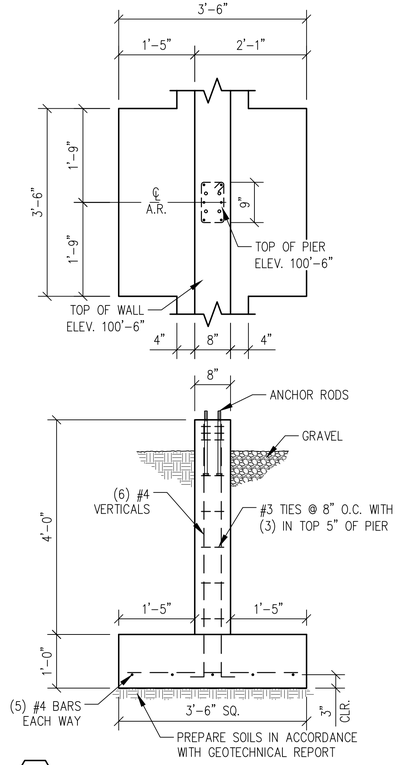
09/18/2023

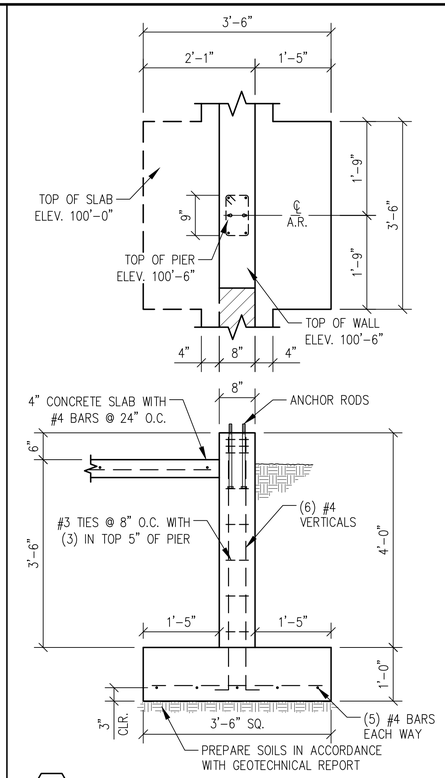




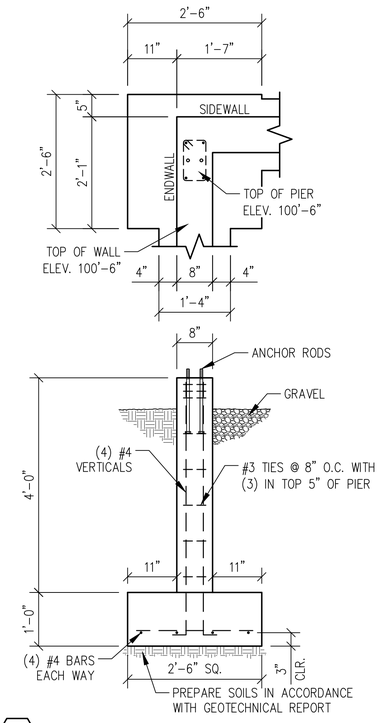
F1 SIDEWALL FOOTING DETAIL
3/4"=1'-0"



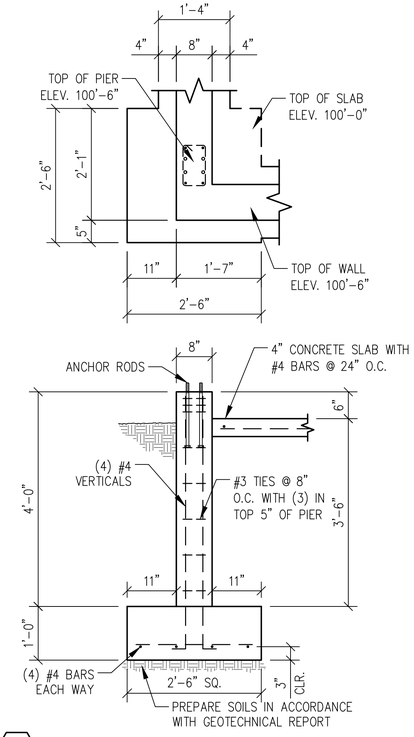
F2 ENDWALL FOOTING DETAIL
3/4"=1'-0"



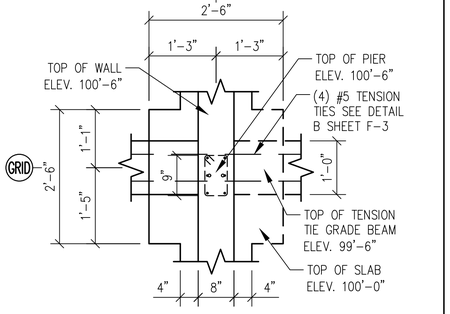
F3 ENDWALL FOOTING DETAIL
3/4"=1'-0"

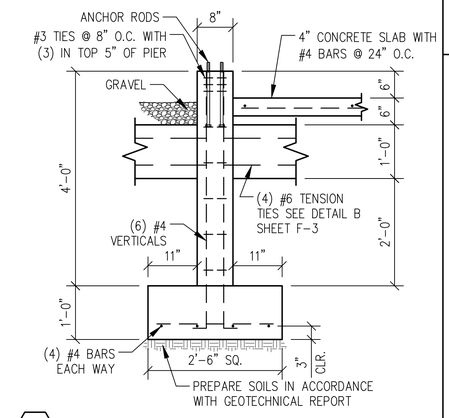


F4 CORNER FOOTING DETAIL
3/4"=1'-0"



F5 CORNER FOOTING DETAIL
3/4"=1'-0"





F6 INTERIOR FOOTING DETAIL
3/4"=1'-0"

MOUNTAIN VIEW ENGINEERING, INC.
Structural Engineering Consulting Design
345 North Main Street, Ste. A, Brigham City, Utah 84302 (435) 734-9700 Fax (435) 734-9519

SHEET TITLE: FOUNDATION DETAILS
JOB NAME: CLAY HOCKEL C & B HOLDINGS
LOCATION: HAYDEN, COLORADO
CONTRACTOR: -

PLAN ISSUE DATES

	DATE:	BY:	DESCRIPTION:
1	7-31-23	J.D.	FOR PERMIT

COLORADO LICENSED 57994 PROFESSIONAL ENGINEER
JUL 31 2023

SHEET NUMBER: F-2

REVIEWED FOR CODE COMPLIANCE
09/18/2023

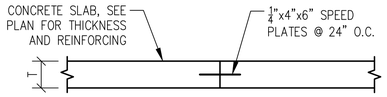
DRAWN BY:	J.D.
ENGINEER:	B. COX
MVE JOB NUMBER:	23-0706

CONTROL JOINT NOTES:

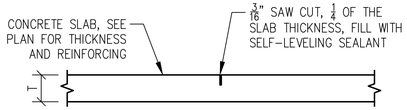
1. Control joints shall be field located by the contractor.
2. Control joints shall be located to limit the frequency and width of random cracks in the concrete slab.
3. Locate and install control joints in accordance with ACI 360R "Design of Slabs on Ground" and the details shown.
4. Maximum spacing of joints shall be per the table below.
5. Saw cuts should be made as soon as possible.

MAXIMUM SPACING OF CONTROL JOINTS

Slab thickness (T), in.	Slump 4 in. to 6 in.	
	Maximum-size aggregate less than 3/4 in.	Maximum-size aggregate 3/4 in. and larger
4	8 ft.	10 ft.
5	10 ft.	13 ft.
6	12 ft.	15 ft.
7	14 ft.	18 ft.
8	16 ft.	20 ft.



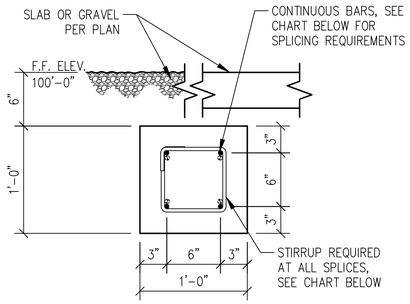
CONSTRUCTION JOINT



CONTROL JOINT

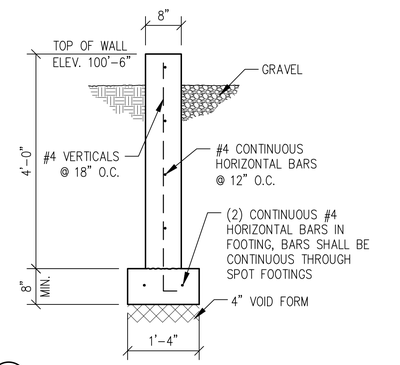
A CONTROL JOINTS
N.T.S.

(4) #6 REBAR TENSION TIES CONTINUOUS ACROSS BUILDING, TYPICAL @ LINES 2 & 3. TIES TO TERMINATE IN COLUMN PIERS WITH 90° BEND (16d_b MIN). NO MORE THAN 50% OF BARS MAY BE SPLICED AT ONE LOCATION. STAGGER SPLICES A DISTANCE AT LEAST EQUAL TO SPLICE LENGTH. SEE CHART BELOW FOR SPLICE LENGTH AND STIRRUP REQUIREMENTS.

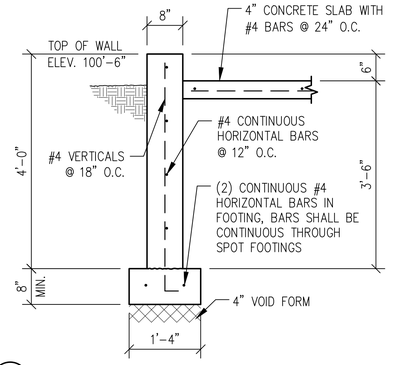


BAR SIZE	LAP LENGTH	STIRRUPS	
		SIZE	NO. & SPACING
#5	24"	#3	8 @ 3 1/2"
#6	30"	#3	11 @ 3"
#7	42"	#4	9 @ 5 1/4"
#8	48"	#4	11 @ 4 3/4"

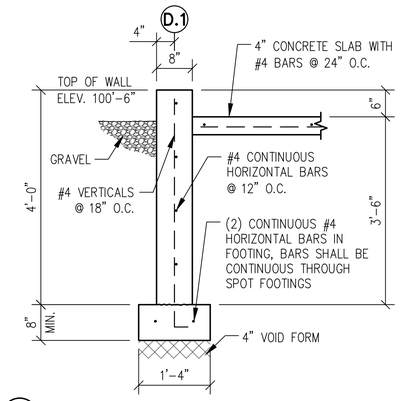
B TENSION TIE GRADE BEAM DETAIL
1 1/2"=1'-0"



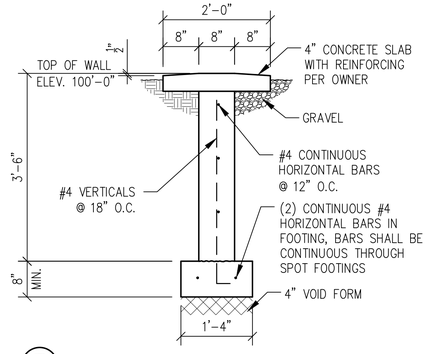
C GRADE BEAM DETAIL
3/4"=1'-0"



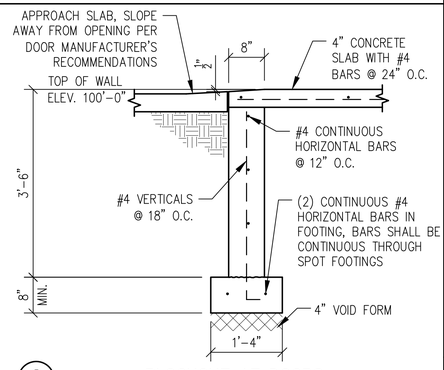
D GRADE BEAM DETAIL
3/4"=1'-0"



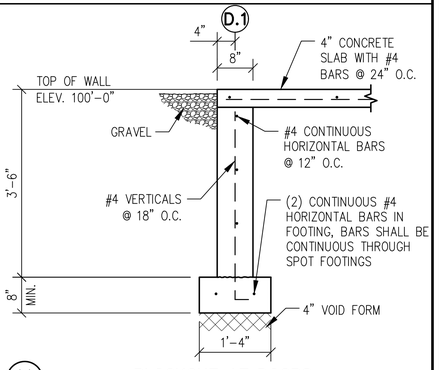
E GRADE BEAM DETAIL
3/4"=1'-0"



F BLOCKOUT AT DOORS
3/4"=1'-0"



G BLOCKOUT AT DOORS
3/4"=1'-0"



H BLOCKOUT AT DOORS
3/4"=1'-0"

REVIEWED FOR CODE COMPLIANCE
09/18/2023

MOUNTAIN VIEW ENGINEERING, INC.
Structural Engineering Consulting Design
345 North Main Street Ste. A, Brigham City, Utah 84302 (435) 734-9700 Fax (435) 734-9519

SHEET TITLE: FOUNDATION DETAILS
JOB NAME: CLAY HOCKEL C & B HOLDINGS
LOCATION: HAYDEN, COLORADO
CONTRACTOR: -

PLAN ISSUE DATES

	DATE:	BY:	DESCRIPTION:
1	7-31-23	J.D.	FOR PERMIT

COLORADO LICENSED PROFESSIONAL ENGINEER 57894
JUL 31 2023

SHEET NUMBER: F-3

DRAWN BY:	J.D.
ENGINEER:	B. COX
MVE JOB NUMBER:	23-0706