

ENERFLEX

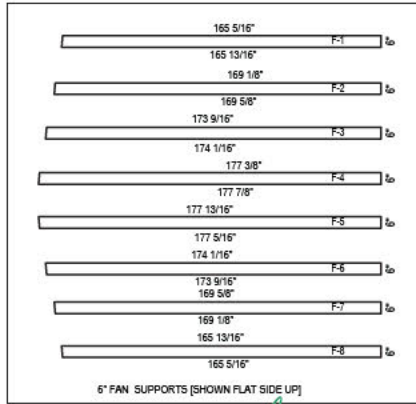
Building

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BUILDING NOTES:

1. EXTERIOR WALLS: 22GA ANTIQUE LINEN QC8696
2. EXTERIOR ROOF: 22GA HERON BLUE QC8330
3. EXTERIOR TRIM: 22GA HERON BLUE QC8330, INCL. BASE FLASHING & RIDGE CAP
4. MAN DOOR(S) COLOUR: ANTIQUE LINEN QC8696/DOOR FRAMES: HERON BLUE QC8330
5. ROLL-UP DOOR(S) COLOUR: HERON BLUE QC8330
6. INTERIOR LINER: 24GA WHITE FLUTED ALUMINUM
7. WALL INSULATION: PRO ROX SL930 [3"] R-12
8. ROOF INSULATION: PRO ROX SL930 [6"] R-20
9. VAPOUR BARRIER: 6 MIL
10. SURFACE AREA: 2829 SQR/FT
11. APPROX. SHIP WEIGHT: 11,900 LBS BUILDING ONLY

12. 2 - 19" EXHAUST PIPE THIMBLES
13. 2 - 18GA DOUBLE DOOR CANOPIES: HERON BLUE QC8330 (SHIP LOOSE)
14. 2 - TEMPORARY HOARDING WALLS FOR SHIPPING
15. COLOR MATCH FASTENERS THROUGHOUT
16. EXTERIOR FASTENERS c/w NEOPRENE WASHERS
17. P.ENG. STAMPED BLDG. DWG. REQ'D (BC REGISTERED)
18. BC SCHEDULES [B1, B2, CB ONLY]
19. A-660 CERTIFICATE OF DESIGN & MANUFACTURING CONFORMANCE WITH NBC



IN THIS PROJECT WE USED:
3"WP NO R FOR WALLS
4"RP- 10 22GA FOR ROOF.

SCHEDULE OF FASTENERS:

- BASE CHANNEL ANCHORING: (1) #14 x 1 1/2" SCREW OR WELDED WASHER 1 PER PANEL MIN.
- WALL PANEL TO BASE CHANNEL: (4) #10 x 3/4" w/ WASHER
- WALL PANEL RIB TO BASE CHANNEL & TOP CHANNEL: (1) #8 x 1/2"
- WALL PANEL TO TOP CHANNEL: (4) #8 x 1/2"
- ROOF PANEL TO DRIP CHANNEL: (4) #10 x 3/4" w/ WASHER
- ROOF PANEL TO CENTER SUPPORT: (4) #12 x 1" TEK 5 w/ WASHER
- ROOF PANEL TO END WALL TOP CHANNEL: (1) #10 x 3/4" EVERY 12"
- EAVE TIE ANGLE TO RIB & CLIP: (NA) #10 x 3/4" EACH RIB & CLIP
- DRIP CHANNEL TO TOP CHANNEL: (1) #8 x 1/2" EVERY 12" STAGGERED
- CROSS BRACE: (NA) 1/2" Ø x 1 1/4" BOLTS (GRADE 8.2) EA. END
- ICE RAKES: (1) #14 x 1 1/2" PER PANEL RIB
- STITCH SCREWS:**
 - WALL PANELS: (1) #8 x 1/2" EVERY 21"
 - ROOF PANELS: (1) #10 x 3/4" EVERY 25" TOP & SIDE OR RIB

09/27/2018 B.C. P.ENG STAMP:

CHETWYND BC.
1/50 SNOW = 2.4 kPa
1/50 RAIN = 0.2 kPa
1/50 WIND = 0.40 kPa

DOOR LEGEND

DS = DOUBLE GLAZED	CC = CHECK CHAIN
IWG = INDUSTRIAL WIRE GLASS	WS = WEATHERSTRIPPING
RH = RIGHT HAND SWING	DC = HYDRAULIC CLOSURE
LH = LEFT HAND SWING	SG = INTERIOR SLIDE GATE
PH = PANIC HARDWARE	GA = GAUGE
LC = LOCK CYLINDER	INS = INSULATED
R-12 = CORE INSULATION (R-12)	LS = LOCK SET

SEISMIC: Sa(0.2)=0.24, Sa(0.5)=0.14, Sa(1.0)=0.064, Sa(2.0)=0.035, PGA=0.12
CEILING COLLATERAL LOAD (MECHANICAL, ELECTRICAL, ETC.) = 0.15 kPa
BUILDING IS DESIGNED TO COMPLY WITH THE B.C.B.C. 2012 AS PER THE WIND AND SNOW LOAD SPECIFIED ON THE DRAWING AND THAT THE BUILDING IS CLASSIFIED TO BE INDUSTRIAL OCCUPANCY. OWNER SHALL CONTACT WARWICK STRUCTURES GROUP IF ACTUAL BUILDING LOCATION & DESIGN LOADS DIFFERS FROM THOSE SHOWN, IN ORDER TO VALIDATE THE SUITABILITY OF DESIGN FOR THE INTENDED LOCATION.

NO.	DATE	REVISION	DRN	CHK	ENG	APR
A	6/12/18	FOR REVIEW & APPROVAL	AD	AD	EW	JA
B	07/19/18	INCREASED BUILDING LENGTH	AD	AD	EW	JA
C	07/24/18	ADDED BUILDING COLORS	AD	AD	EW	JA
D	09/10/18	REV. PER SEPT. 7 MARK-UPS	AD	AD	EW	JA
E	09/11/18	LOCATED FANS PER MARK-UP	AD	AD	EW	JA
F	09/12/18	REMOVED LOUVER STORM HOODS	AD	AD	EW	JA
G	09/18/18	REV. ROLL UP DOOR COLOR	AD	AD	EW	JA
O	09/26/18	FOR CONSTRUCTION	AD	AD	EW	JA

GENERAL NOTES

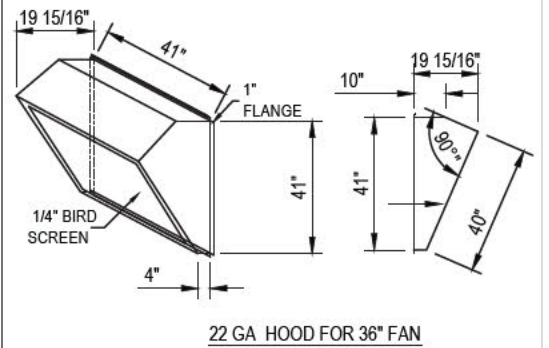
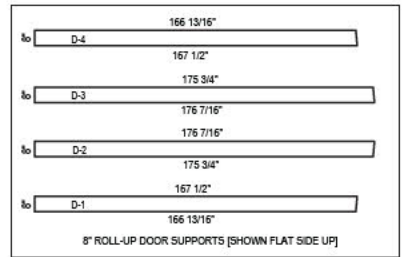
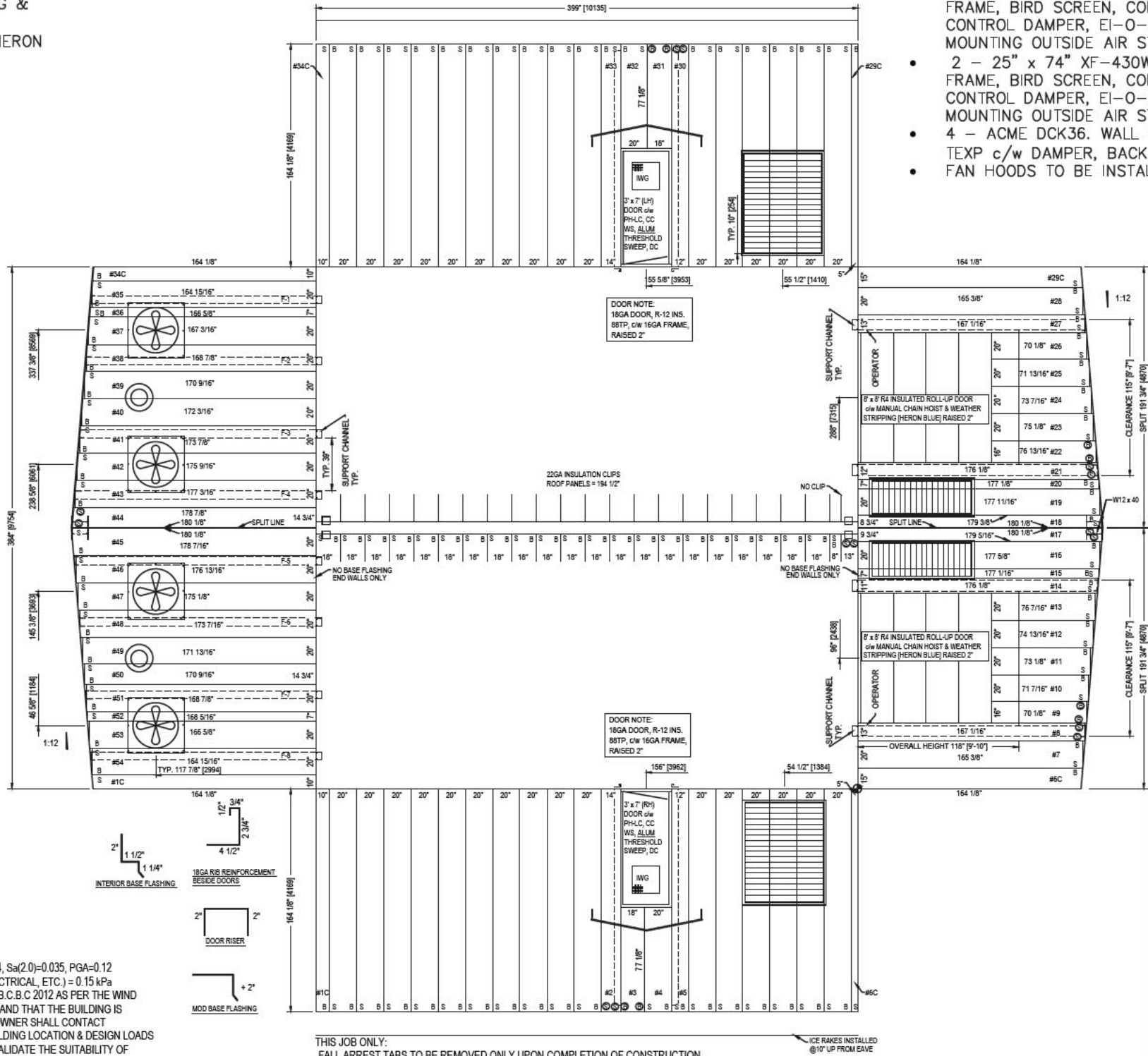
1. ALL WALL PANELS ARE TO BE TYPICAL B/S (BIG/SMALL) PANELS UNLESS NOTED OTHERWISE.
2. ALL DIMENSIONS ARE IN IMPERIAL FOR SHOP USE. METRIC DIMENSIONS ARE REFERENCE ONLY.
3. ALL DIMENSIONS TO WINDOWS AND DOORS ARE TO ROUGH OPENINGS.
4. DO NOT SCALE DRAWING.
5. CONFIRM LOCATIONS OF ANY FANS AND LOUVERS PRIOR TO INSTALLATION.
6. CENTRE BUILDING ON SKID.
7. BUILDING INSTALLATION AND ASSEMBLY SHALL BE AS PER WARWICK STRUCTURES GROUP LTD SELF-FRAME INSTALLATION MANUAL AND DETAILS. WHERE THERE ARE CONFLICTS INFORMATION ON DRAWINGS SHALL BE TAKEN AS CORRECT.
8. "POST CONSTRUCTION DRAWINGS" ARE GENERATED FROM CONSTRUCTION CHANGE INFORMATION FORWARDED TO WARWICK STRUCTURES GROUP LTD. BY THE OWNERS FIELD SUPERVISORS AND/OR HIRED CONTRACTORS. ANY CHANGES NOT DOCUMENTED WILL NOT APPEAR ON THE DRAWINGS AND THEREFORE THE DRAWING MAY NOT BE AN ACCURATE REPRESENTATION OF THE CONSTRUCTED FACILITY.
9. PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION AND/OR EXCAVATION IT SHALL BE THE RESPONSIBILITY OF THE OWNERS REPRESENTATIVE TO VERIFY THE LOCATION AND STATUS OF ANY PIPING, ELECTRICAL EQUIPMENT OR BUILDINGS.
10. ANY REVISIONS MADE TO EXISTING EQUIPMENT, ELECTRICAL OR INSTRUMENTATION ON A FACILITY NOT DESIGNED BY WARWICK STRUCTURES GROUP LTD. IS ONLY SHOWN AS REPRESENTATION OF WHAT EXISTS AND MUST BE VERIFIED BY THE OWNER.

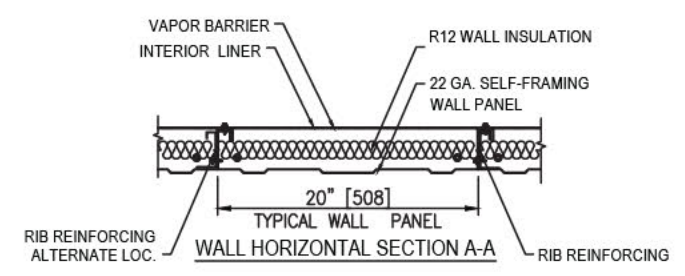
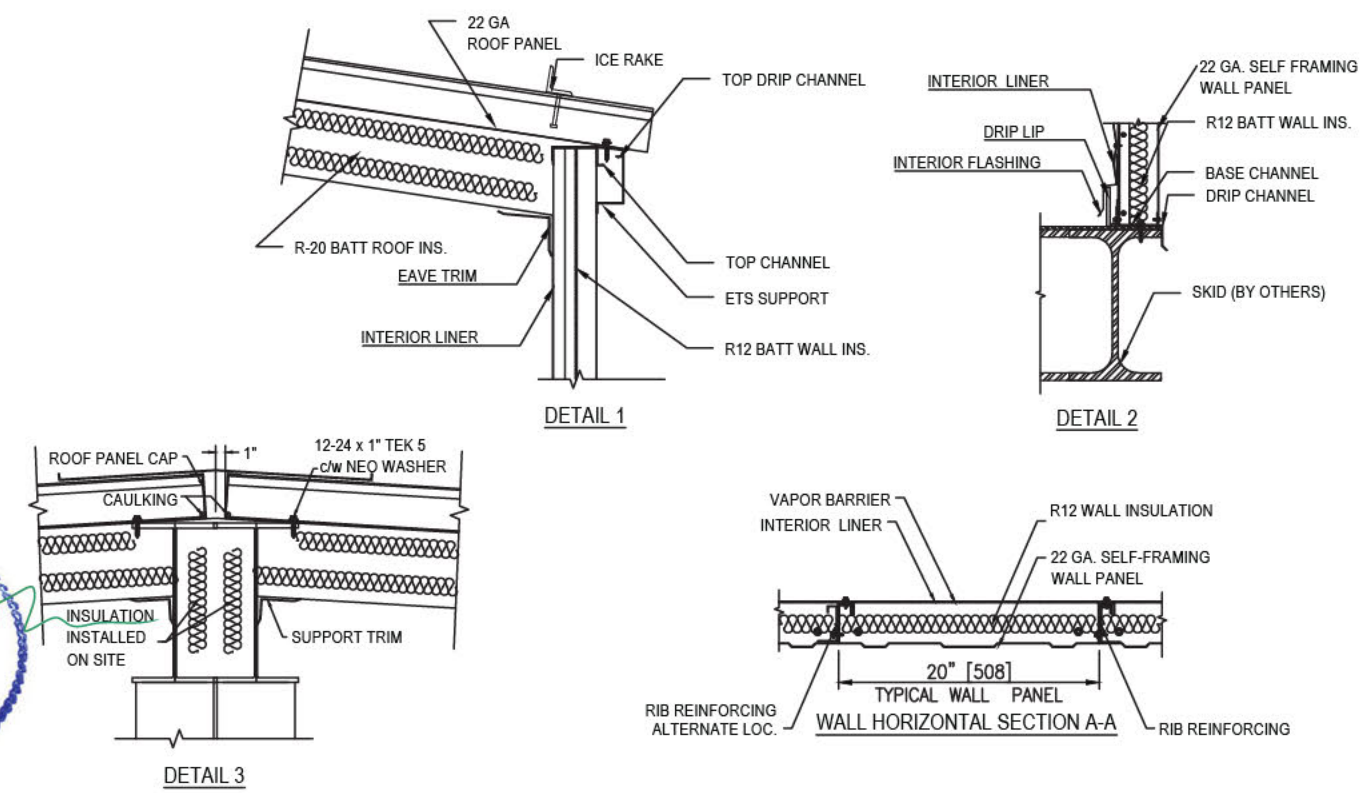
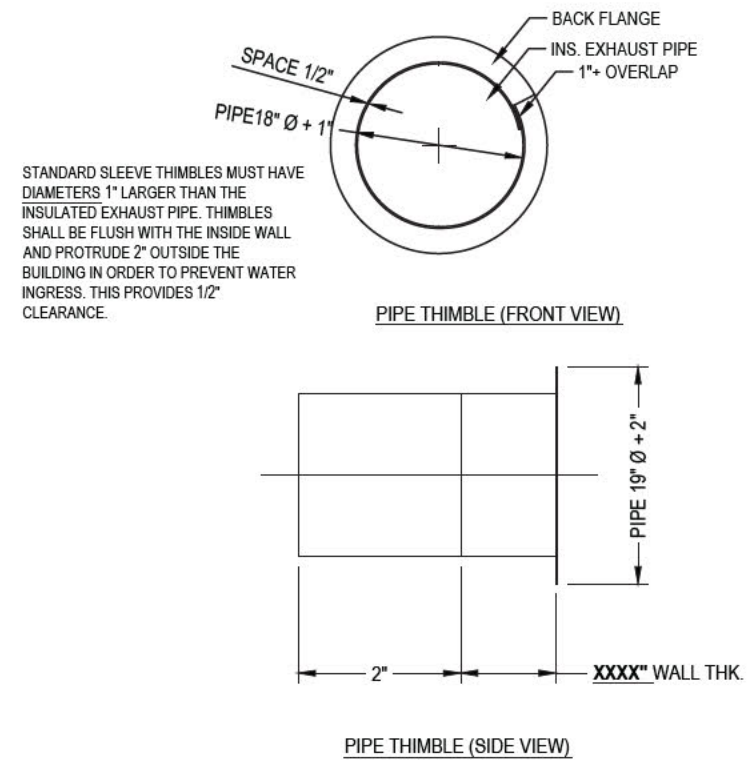
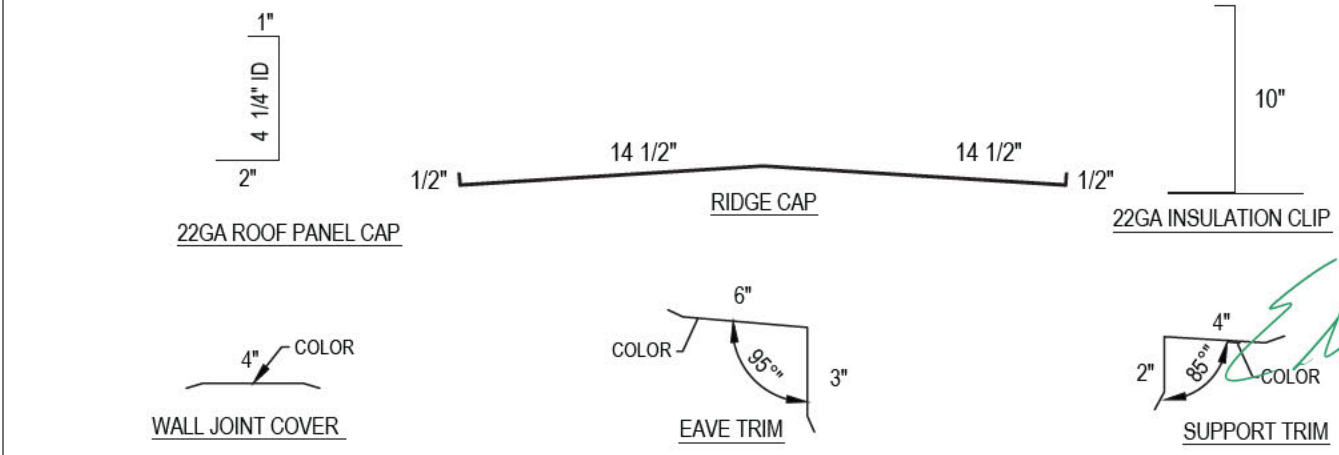
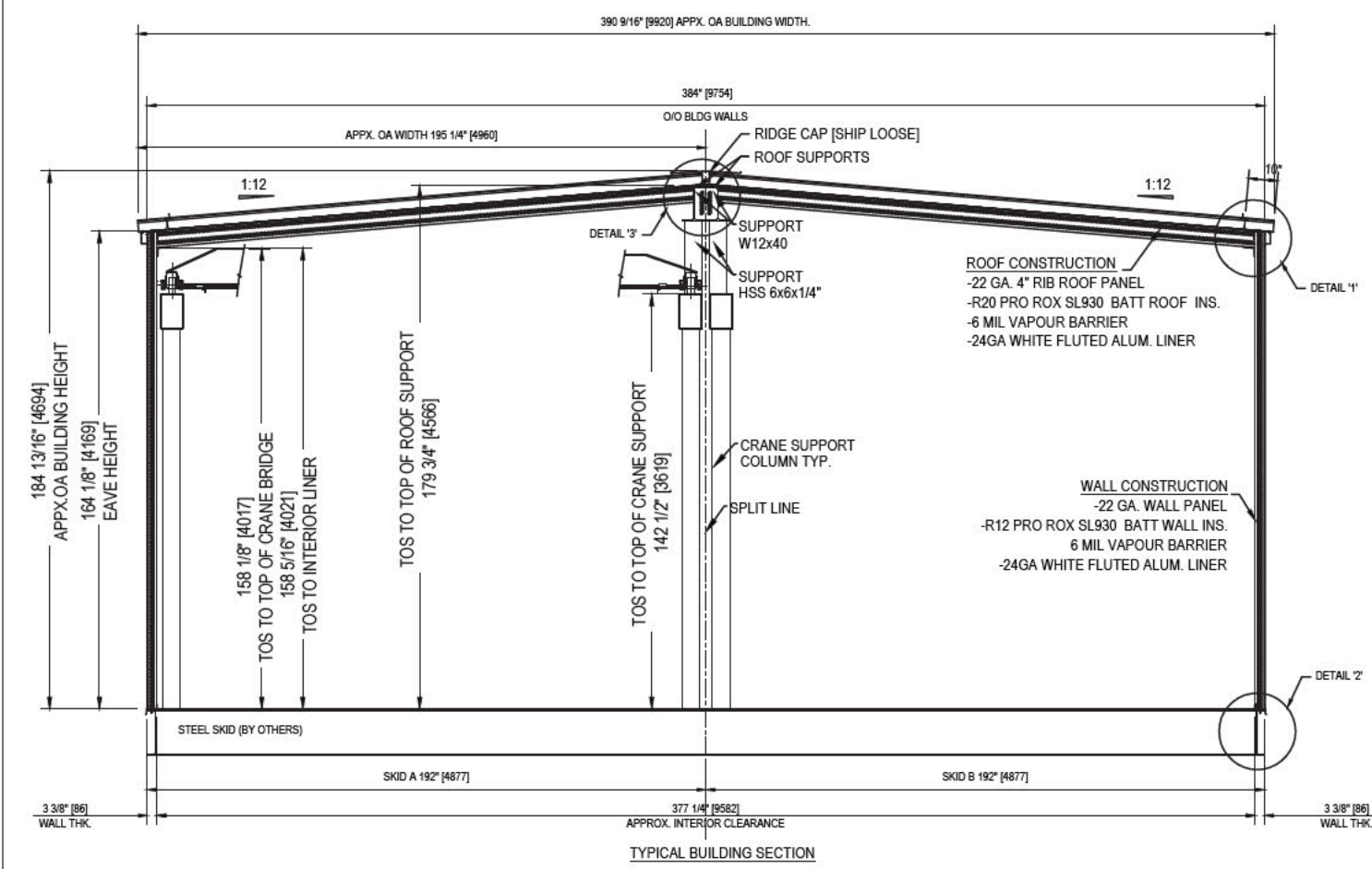
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HVAC SUPPLIED:

- ALL EQUIPMENT IS RATED CLASS1, DIV1, GROUP C & D
- 2 - 58" x 74" XF-430W FIXED INTAKE AIR LOUVERS c/w FLANGE FRAME, BIRD SCREEN, COMMON SLEEVE, INX-6C6-LS INSULATED CONTROL DAMPER, EI-O-MATIC RACK & PINION PNEUMATIC ACTUATOR, MOUNTING OUTSIDE AIR STREAM, LIMIT SWITCH.
- 2 - 25" x 74" XF-430W FIXED INTAKE AIR LOUVERS c/w FLANGE FRAME, BIRD SCREEN, COMMON SLEEVE, INX-6C6-LS INSULATED CONTROL DAMPER, EI-O-MATIC RACK & PINION PNEUMATIC ACTUATOR, MOUNTING OUTSIDE AIR STREAM, LIMIT SWITCH.
- 4 - ACME DCK36. WALL MOUNTED EXHAUST FANS 480v,3ph, 60hz TEXP c/w DAMPER, BACKGUARD & STORM HOOD
- FAN HOODS TO BE INSTALLED





09/27/2018

PROFESSIONAL
E. O. WILSON
174780
BRITISH COLUMBIA
ENGINEER

www.warwicksg.com



NO.	DATE	REVISION	DRN	CHK	ENG	APR
A	6/12/18	FOR REVIEW & APPROVAL	AD	AD	EW	JA
B	09/10/18	REMOVED EAVESTROUGH & DS	AD	AD	EW	JA
O	09/26/18	FOR CONSTRUCTION	AD	AD	EW	JA

- GENERAL NOTES**
- ALL WALL PANELS ARE TO BE TYPICAL B/S (BIG/SMALL) PANELS UNLESS NOTED OTHERWISE.
 - ALL DIMENSIONS ARE IN IMPERIAL FOR SHOP USE. METRIC DIMENSIONS ARE REFERENCE ONLY.
 - ALL DIMENSIONS TO WINDOWS AND DOORS ARE TO ROUGH OPENINGS.
 - DO NOT SCALE DRAWING.
 - CONFIRM LOCATIONS OF ANY FANS AND LOUVERS PRIOR TO INSTALLATION.
 - CENTRE BUILDING ON SKID.
 - BUILDING INSTALLATION AND DETAILS WHERE THERE ARE CONFLICTS INFORMATION ON DRAWINGS SHALL BE TAKEN AS CORRECT.
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ENGINEERING RECORD		
	BY	DATE
DRAWN	AD	6/12/2018
CHECKED	AD	6/12/2018
DESIGNED	EW	6/12/2018
REVIEWED	AD	6/12/2018
QUOTE No.	Quote# 17-45738	
CONTRACT No.	PO# 4500450272	
PROJECT No.	W38587	

ENERFLEX		
E002662-02		
SPRUCE RIDGE EXP. SECTION/DETAILS		
DRAWING NUMBER	W38587-02	REV
		0

BUILDING NOTES:

1. EXTERIOR WALLS: 22GA ANTIQUE LINEN QC8696
2. EXTERIOR ROOF: 22GA HERON BLUE QC8330
3. EXTERIOR TRIM: 22GA HERON BLUE QC8330, INCL. BASE FLASHING & RIDGE CAP
4. MAN DOOR(S) COLOUR: ANTIQUE LINEN QC8696/DOOR FRAMES: HERON BLUE QC8330
5. INTERIOR LINER: 24GA WHITE FLUTED ALUMINUM
6. WALL INSULATION: PRO ROX SL930 [3"] R-12
7. ROOF INSULATION: PRO ROX SL930 [6"] R-20
8. VAPOUR BARRIER: 6 MIL
9. SURFACE AREA: 1605 SQR/FT
10. APPROX. SHIP WEIGHT: 6,800 LBS BUILDING ONLY

11. 2 - 18GA DOUBLE DOOR CANOPY: HERON BLUE QC8330 (SHIP LOOSE)
12. COLOR MATCH FASTENERS THROUGHOUT
13. EXTERIOR FASTENERS c/w NEOPRENE WASHERS
14. P.ENG. STAMPED BLDG. DWG. REQ'D (BC REGISTERED)
15. BC SCHEDULES [B1, B2, CB ONLY]
16. A-660 CERTIFICATE OF DESIGN & MANUFACTURING CONFORMANCE WITH NBC

HVAC SUPPLIED:

- BASED ON 20kW HEAT GAIN IN SWITCH GEAR BLDG.
- 2-6 TON WALL MOUNTED BARD HVAC UNITS [W72AA-C09]
- c/w - ELECTRIC HEAT
 - ECONOMIZER
 - LOW AMBIENT CONTROL
 - R410 REFRIGERANT
 - 2" FILTERS
 - SUPPLY & RETURN GRILLS
 - 460/3/60
 - 1 - TEC 40 DUAL UNIT CONTROLLER

IN THIS PROJECT WE USED:
3"WP NO R FOR WALLS
3"RP- 9 FOR ROOF.

SCHEDULE OF FASTENERS:

- BASE CHANNEL ANCHORING: (1) #14 x 1 1/2" SCREW OR WELDED WASHER 1 PER PANEL MIN.
- WALL PANEL TO BASE CHANNEL: (4) #10 x 3/4" w/ WASHER
- WALL PANEL RIB TO BASE CHANNEL & TOP CHANNEL: (1) #8 x 1/2"
- WALL PANEL TO TOP CHANNEL: (4) #8 x 1/2"
- ROOF PANEL TO DRAIN CHANNEL: (5) #10 x 3/4" w/ WASHER
- ROOF PANEL TO RIDGE: (5) #10 x 3/4" w/ WASHER
- ROOF PANEL TO END WALL TOP CHANNEL: (1) #10 x 3/4" EVERY 12"
- EAVE TIE ANGLE TO RIB & CLIP: (NA) #10 x 3/4" EACH RIB & CLIP
- DRIP CHANNEL TO TOP CHANNEL: (1) #8 x 1/2" EVERY 12" STAGGERED
- CROSS BRACE: (3) 1/2" Ø x 1 1/4" BOLTS (GRADE 8.2) EA. END
- ICE RAKES: (1) #14 x 1 1/2" PER PANEL RIB

STITCH SCREWS:

- WALL PANELS: (1) #8 x 1/2" EVERY 26"
- ROOF PANELS: (1) #10 x 3/4" EVERY 31" TOP & SIDE OR RIB

DOOR LEGEND

DS = DOUBLE GLAZED	CC = CHECK CHAIN
IWG = INDUSTRIAL WIRE GLASS	WS = WEATHERSTRIPPING
RH = RIGHT HAND SWING	DC = HYDRAULIC CLOSURE
LH = LEFT HAND SWING	SG = INTERIOR SLIDE GATE
PH = PANIC HARDWARE	GA = GAUGE
LC = LOCK CYLINDER	INS = INSULATED
R-12 = CORE INSULATION (R-12)	LS = LOCK SET

SITE LOADS FOR B.C. P.ENG STAMP:

CHETWYND BC.
1/50 SNOW = 2.4 kPa
1/50 RAIN = 0.2 kPa
1/50 WIND = 0.40 kPa
SEISMIC: Sa(0.2)=0.24, Sa(0.5)=0.14, Sa(1.0)=0.064, Sa(2.0)=0.035, PGA=0.12
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THIS JOB ONLY:

FALL ARREST TABS TO BE REMOVED ONLY UPON COMPLETION OF CONSTRUCTION

NO.	DATE	REVISION	DRN	CHK	ENG	APR
A	6/12/18	FOR REVIEW & APPROVAL	AD	AD	EW	JA
B	07/19/18	REVISED BUILDING SIZE	AD	AD	EW	JA
C	07/24/18	ADDED BUILDING COLORS	AD	AD	EW	JA
D	08/14/18	ADDED BARD MODEL #	AD	AD	EW	JA
E	09/10/18	REV. PER SEPT. 7 MARK-UPS	AD	AD	EW	JA
F	09/18/18	ADDED REMOVABLE WALL PANEL	AD	AD	EW	JA
O	09/18/18	FOR CONSTRUCTION	AD	AD	EW	JA

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WARWICK
STRUCTURES GROUP
A PTW COMPANY

ENGINEERING RECORD

	BY	DATE
DRAWN	AD	6/12/2018
CHECKED	AD	6/12/2018
DESIGNED	EW	6/12/2018
REVIEWED	AD	6/12/2018
QUOTE No.	Quote# 17-45740	
CONTRACT No.	PO# 4500450272	
PROJECT No.	W38588	

ENERFLEX

E002662-02 E-HOUSE
SPRUCE RIDGE EXP.
BUILDING LAYOUT

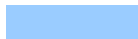
DRAWING NUMBER	REV
W38588-01	0

Shed Building Design Spreadsheet



User Input Required

Input only on ShedBldg Page



Calculation Output

General Design Notes:

Location: Chetwynd British_Columbia

Design Loads:

Snow Load, 1/50	Hourly Wind Pressure				Seismic				One day rain	
Ss (Kpa)	Sr (Kpa)	q (1/10) Kpa	q(1/50)Kpa	Sa(0.2)	Sa(0.5)	Sa(1.0)	Sa(2.0)	PGA	1/50 (mm)	
2.4	0.2	0.32	0.4	0.24	0.14	0.064	0.035	0.12	75	

Design Standards:

2010 National Building Code of Canada
Provincial Codes as Required - 2014 Alberta Building Code, 2012 British Columbia Building Code
CAN/CSA S16-09, Limit States Design of Steel Structures
CAN/CSA S136-07, North American Specification for the Design of Cold-Formed Steel Structural Members

Material:

Light Gauge Steel - 18ga, 22ga, 26ga Galvanized Steel, Grade 37, ASTM A653, 37ksi
Structural Steel - Angles - ASTM A36, 36ksi, HSS - ASTM A500 46ksi

This building is constructed with	No Reinf (R12)	Wall Panels
	4RP-10(22ga)	Roof Panels

Fasteners:

Bolts:
SAE Grade 5 or ASTM A325
Minimum Spacing - 1 1/4"
Minimum Edge Distance - 1"

Concrete Anchors:
UCAN Sleeve Anchor
3/8" diameter
Embedment - 1 1/2"
Spacing - 3 3/4"
Edge Distance - 2"

Screws:
ITW Buildex
Minimum Spacing - 3/4"
Minimum Edge Distance - 1"

Notes:

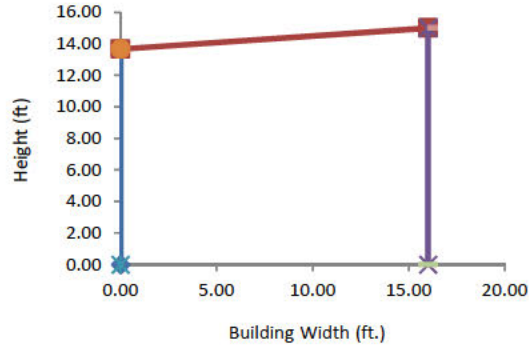
1. Verify building location in relation to other structures to verify drifting and sliding snow requirements
2. Verify importance category with project specifications
3. Verify Exposure condition with final site location

Reference: XXX
 Job/Quote No.: XXX
 Client: XXX
 Date: 12-Jun-18
 Originated by: xxx
 Checked by: EW
 Province: British_Columbia



Site/Location: Chetwynd
 Importance Category: Normal

Input Data:
 Roof Dead Load: 7.0 psf
 Building Width: 16 ft.
 Low Eave Height: 13.67 ft.
 Building Length: 33.3 ft.
 Roof Slope: 1 :12



Exposure Condition (O/R): Open terrain
 Building Category: 1

Wall Panels: No Reinf (R12)
 Roof Panels: 4RP-10(22ga)

Bldg Site Class: D
 Type of Structure: Other cold-formed SFRS

REPORT SUMMARY

Roof Panels Bending $\Phi M_n = 4.754$ ft-k $M_u = 4.017$ ft-k **Ratio** 0.85
 OK

Wall Panels Axial Compression & Bending $\Phi P_n = 6.82$ Kips $P_u = 0.601$ Kips
 $\Phi M_n = 1.322$ ft-k $M_u = 0.887$ ft-k **Ratio** 0.69
 OK

Deflections:

	Walls		Roof
Service Load Deflection:	0.358 in.		0.427 in.
Allow. Deflection $h/180$:	0.911 in.		0.800 in.
Deflection Ratio h/Δ :	502.9 OK		449.9 OK

Fastener Schedule:

Schedule of Fasteners

Base Channel Anchoring:
 Wall Panel to Base Channel:
 Roof Panel to drip Channel:
 Drip Channel to Top channel:

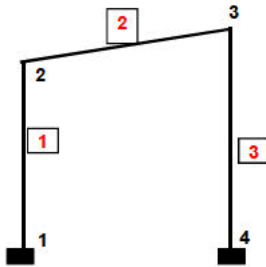
Fastener	Spacing	Screw/Panel
#14 x 1-1/2"	20 in.	1
#8x1/2"		4
#10x3/4"		4
#8x1/2"	12in	

Stitch Screws

Wall Panels:	#8x1/2"	21in
Roof Panels:	#10x3/4"	25in

Reference: XXX
Job No.: XXX
Client: XXX

Date: 12-Jun-18
Originated by: xxx
Checked by: EW



Nomenclature

Seismic Design Parameters

Sa(0.2): 0.240
Sa(0.5): 0.140
Sa(1.0): 0.064
Sa(2.0): 0.035

Occupancy Importance Factor Ie: 1.00

Seismic:

Force Modification Factor Rd: 1.00
Force Modification Factor Ro: 1.00
Higher Mode Factor Mv: 1.00
Base overturning Reduction J: 1.00

Site Soil Classification: D

Type of Structure:

4.1.8.11(3) Building Period Ta: 0.148 sec
Fa: 1.30
Fv: 1.50
S(T): 0.156 sec.
Higher Mode Factor Mv: 1.00
Overturning Reduction J: 1.00
IEFaSa(.2) 0.312
IEFvSa(.1) 0.096

Building reference Ht: 14.00 ft

Snow Loads

Ground Snow Load 1/50: 2.4 Kpa
Associated rain Load 1/50: 0.2 Kpa

Importance Factor Is: 1.00
Wind Exposure Factor Cw: 1.00

Roof configuration:

Slippery roof (y/n): y

Shape Factor Ca: 1.0
Slope factor Cs: 1.0

Basic roof snow load factor Cb: 0.8

Characteristic Length lc: 24.31 ft

Roof Slope α : 4.76 degrees

Snow Load S: 2.120 Kpa

Wind Load

Wind Load 1/50: 0.40 Kpa

Wind Load 1/10: 0.32 Kpa

Importance factor Iw: 1.00

One Day rain, 1/50: 75 mm

Exposure Factor Ce: 0.90

End Zone Z: 1.6 ft

End Zone Y: 19.69 ft

Member	E (Ksi)	A (in ²)	I (in ⁴)	L (ft.)	λ_x	λ_y
1	29000	0.82379	1.103	13.67	0.000	1.000
2	29000	#N/A	#N/A	8.03	0.997	0.083
3	29000	0.82379	1.103	15.00	0.000	-1.000

Joint	x (ft)	y (ft)
1	0.00	0.00
2	0.00	13.67
	8.00	14.34
3	16.00	15.00
4	16.00	0.00

Design Loads:

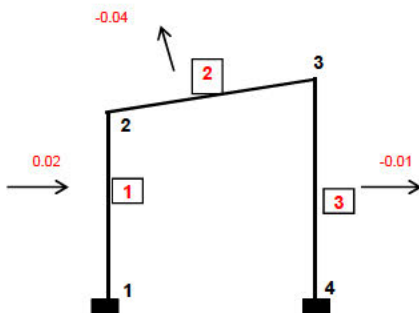
Wind Factored Loads (1.4)

Member #1: 0.020 Kip/panel
Member #2: -0.035 Kip/panel
Member #3: -0.014 Kip/panel

Snow Loads (1.5)

Factored Snow Load: 0.066 Kip/ft
Factored Total Load: 0.075 Kip/ft

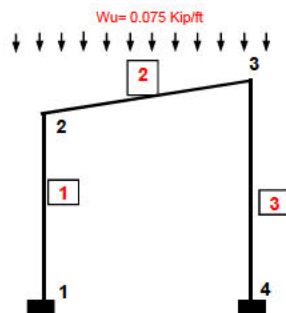
Factored reaction at Panel: 0.601 Kip/ft



Nomenclature

C. Support Reactions (1.4WL)

Joint No.	Rx (K/pnl)	Ry (K/pnl)
1	0.096	-0.241
4	0.152	0.241



Nomenclature

C. Support Reactions (1.25DL+1.5Snow)

Joint No.	Ry (K/ft)
1	0.601
4	0.601

NBC 2010 Section 4.1.6.2

$$S = I_s \cdot (S_s \cdot (C_b \cdot C_w \cdot C_s \cdot C_a) + S_r)$$

Values of Fa as a Function of Site Class and Sa(0.2)

Site Class	0.25	0.5	0.75	1	1.25	
A	0.7	0.7	0.8	0.8	0.8	
B	0.8	0.8	0.9	1	1	
C	1	1	1	1	1	
D	1.3	1.2	1.1	1.1	1	
E	2.1	1.4	1.1	0.9	0.9	
F	0	0	0	0	0	Site class F requires site specific evaluation

Values of Fv as a Function of Site Class and Sa(1.0)

Site Class	0.1	0.2	0.3	0.4	0.5	
A	0.5	0.5	0.5	0.6	0.6	
B	0.6	0.7	0.7	0.8	0.8	
C	1	1	1	1	1	
D	1.4	1.3	1.2	1.1	1.1	
E	2.1	2	1.9	1.7	1.7	
F	0	0	0	0	0	Site class F requires site specific evaluation

Seismic Base Shear

$$4.1.8.11(2) \quad V = S \cdot T_a \cdot M_v \cdot I_E \cdot W / (R_d \cdot R_o) \quad 0.323025 \text{ kips} \quad 323.0254 \text{ lbs}$$

$$W = 13.94625 \text{ kips}$$

$$\text{Roof area} = 532.8 \text{ ft}^2$$

$$\text{End wall area} = 240.05 \text{ ft}^2$$

$$\text{Side wall area} = 499.611 \text{ ft}^2$$

$$25\% \text{ snow load} = 5897.731 \text{ lbs}$$

Unfactored Wind Base Shear

$$7.325107 \text{ kips}$$

$$\begin{aligned} \text{End zone area} &= 499.611 \text{ ft}^2 \\ \text{Interior zone area} &= 0 \text{ ft}^2 \end{aligned}$$

Windward Side

$$4.319935 \text{ kips}$$

Leeward Side

$$3.005172 \text{ kips}$$

Wind Governs

$$\text{Wind on end wall} = 2.581019 \text{ kips}$$

Diaphragm and chord force calculations

$$\text{Building plan dimensions} = 16 \text{ ft} \quad \times \quad 33.3 \text{ ft}$$

$$\text{Factored wind load at eave line} = 247.773 \text{ lb/ft} \quad 90.80944 \text{ lb/ft} \quad 156.9638 \text{ lb/ft}$$

$$\text{Moment at roof diaphragm} = 34.34416 \text{ k-ft}$$

$$\text{Chord force at sidewalls} = 2.14651 \text{ kips} \quad 64.45976 \text{ lb/ft}$$

$$\text{Max shear in diaphragm} = 257.839 \text{ lb/ft}$$

$$\text{Shear in plane of side walls} = 19.37702 \text{ lb/ft}$$

Wind loads parallel to wall panel

$$\text{Load at end wall panels} = 430.5912 \text{ lbs}$$

$$\text{shear between panels} = 257.839 \text{ lbs/ft}$$

Certificate of Design and Manufacturing Conformance with NBC, 2010

This Certificate is to affirm that all components of the steel building system described below, to be supplied by the named Manufacturer certified in accordance with CSA A660, have been or will be designed and fabricated in accordance with the following Standards to carry the loads and load combinations specified.

1. DESCRIPTION

Manufacturer's Name and Address	Warwick Structures Group, 285188 Frontier Rd, Rocky View County, AB, T1X0V9
Manufacturer's Certificate No. under CSA A660	WARWI0
Customer Order Number	XXX
Building Type and Size	Gable, 16 ft x 33 ft x 15.00 ft
Intended Use and Occupancy	XXX
Importance Category (NBC, Sentence 4.1.2.1.(3))	Normal
Site Location	Chetwynd, British Columbia
Applicable Building Code	British Columbia Building Code 2012
Builder's Name and Address	Warwick Structures Group, 285188 Frontier Rd, Rocky View County, AB, T1X0V9
Owner's Name and Address	

2. DESIGN STANDARDS**Engineer's Initials***

National Building Code of Canada, 2010 Part 4; Structural Design	EW
CAN / CSA-S16-09, Limit States Design of Steel Structures	
CAN / CSA-S136-07, North American Specification for the Design of Cold-Formed Steel Structural Members	
Other	British Columbia Building Code 2012

3. MANUFACTURING STANDARDS**EW**

- (a) Fabrication has been or will be in accordance with CAN / CSA-S16 and CAN / CSA-S136, as applicable.
- (b) Welding has been or will be performed in accordance with CSA W59 and CAN / CSA-S136, as applicable.
- (c) The Manufacturer has been certified in accordance with CSA W47.1, for Division 1 or 2, and /or CSA W55.3, if applicable
- (d) Welders have been qualified in accordance with CSA W47.1.

4. PURLIN STABILITY**n/a**

Purlin braces are provided in accordance with CAN / CSA-S136, Clause D3 and Appendix B, Clause D3.2.3. In particular, for a standing seam roof supported on movable clips, braces providing lateral support to both top and bottom purlin flange have been or will be provided. The number of rows is determined by analysis but in no case is less than 1 for spans up to 7 m inclusive or less than 2 for

5. LOADS**EW****(a) Snow and Rain**

1-in-50 year ground snow	2.4 (kPa)
1-in-50 year associated rain	0.2 (kPa)
Wind exposure factor, C _w ,	1.00
Importance factor, I _s ,	1.00
Roof snow load, S,	2.12 (kPa)
Drift load considered (NBC Sub-section 4.1.6.2.8) refer to drawing of specific building	
Specific rain load (NBC,	75 (mm)

(Continued)

*Initial each true statement. Mark N/A if

Engineer's Initials*

(b) Full and Partial Snow

n/a

- (i) Applied on any one and any two adjacent spans of continuous purlins.
(ii) Applied on any one and any two adjacent spans of modular rigid frames with continuous roof beams.
(iii) Applied as described for the building geometry in NBC, Part 4, and in the User's Guide NBC 2005 Structural Commentaries 9Part 4), Commentary G: Snow Loads –

(c) Wind Load

EW

1-in-50 year reference velocity 0.40 (kPa)
Importance factor, I_w 1.00

(d) Wind Load Application

EW

- (i) Applied as per NBC, Part 4, Sub-section 4.1.7
(ii) Pressure coefficients as per User's Guide – NBC 2010 Structural Commentaries (Part 4), Commentary I; Wind Loads, Figures 13 through I12
(iii) Building internal pressure 1.0 per User's Guide – NBC 2010 Structural Commentaries (Part 4), Commentary I; Wind Loads

(e) Crane Loads (where

n/a

Type _____ (top running)(under-running)(jib)
Capacity _____ (tonnes)
Wheel base _____ (m)
Maximum static, vertical wheel load _____ (kN)
Vertical impact factor _____ %
Lateral factor _____ % Lateral wheel load _____ (kN)
Longitudinal factor _____ % Maximum longitudinal load _____ (kN/side)

(f) Mezzanine Level Load _____ (kPa)

n/a

(g) Seismic Load :

EW

Applied as per NBC, Part 4, Sub-section

$S_a(0.2)$ 0.24 $S_a(0.5)$ 0.14 $S_a(1.0)$ 0.064 $S_a(2.0)$ 0.035
 F_a 1.30 F_v 1.50 I_E 1.00

(h) Other Live Loads

n/a

(Continued)

**Initial each true statement. Mark N/A if*

Engineer's Initials*

(i) Dead Loads

EW

Dead load of building components is incorporated in the design

Collateral load (mechanical, electrical, ceiling, sprinklers,

0.15 (kPa)

Mezzanine

n/a (kPa)

Other (specify)

n/a ()

(j) Load Combinations

EW

Applied in accordance with NBC, Part 4, Section 4.1

6. GENERAL REVIEW DURING

The Manufacturer does not provide general review during construction for regulatory purposes.

**Initials each true statement. Mark N/A if statement does not apply.*

7. CERTIFICATION BY ENGINEER

I, Edward Wilson a Professional Engineer registered or licensed to practice in
The Province or Territory of British Columbia, hereby certify that I have reviewed
the design, and manufacturing process for the steel building system described. I certify that the
foregoing statements initialed by me, are true.

Name Edward O. Wilson

Signature

Title Professional Engineer

Affiliation Wilson Engineering, PLLC Permit to Practice #P12198

Date June 12, 2018

Professional Seal



Gable Building Design Spreadsheet



User Input Required

Input only on GableBldg Page

Calculation Output

General Design Notes:

Location: Chetwynd British_Columbia

Design Loads:

Snow Load, 1/50		Hourly Wind Pressure		Seismic				One day rain	
Ss (Kpa)	Sr (Kpa)	q (1/10) Kpa	q(1/50)Kpa	Sa(0.2)	Sa(0.5)	Sa(1.0)	Sa(2.0)	PGA	1/50 (mm)
2.4	0.2	0.32	0.4	0.24	0.14	0.064	0.035	0.12	75

Design Standards:

2010 National Building Code of Canada

Provincial Codes as Required - 2014 Alberta Building Code, 2012 British Columbia Building Code

CAN/CSA S16-09, Limit States Design of Steel Structures

CAN/CSA S136-07, North American Specification for the Design of Cold-Formed Steel Structural Members

Material:

Light Gauge Steel - 18ga, 22ga, 26ga Galvanized Steel, Grade 37, ASTM A653, 37ksi

Structural Steel - Angles - ASTM A36, 36ksi, HSS - ASTM A500 46ksi

This building is constructed with	22ga Reinf (R12)	Wall Panels
	3RP-9(22ga)	Roof Panels

Fasteners:

Bolts:

SAE Grade 5 or ASTM A325

Minimum Spacing - 1 1/4"

Minimum Edge Distance - 1"

Concrete Anchors:

UCAN Sleeve Anchor

3/8" diameter

Embedment - 1 1/2"

Spacing - 3 3/4"

Edge Distance - 2"

Screws:

ITW Buildex

Minimum Spacing - 3/4"

Minimum Edge Distance - 1"

Notes:

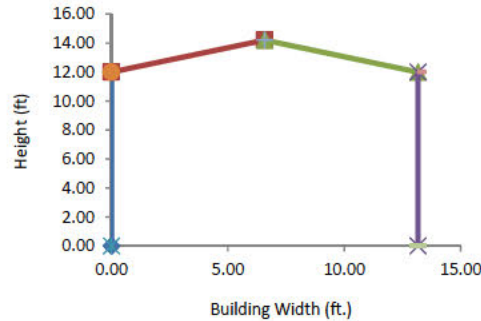
1. Verify building location in relation to other structures to verify drifting and sliding snow requirements
2. Verify importance category with project specifications
3. Verify Exposure condition with final site location

Reference: **E-House**
 Quote No. **xxx** Date: **19-Sep-18**
 Job No. **W38586 588**
 Client **Enerflex**
 Originated by: **AD**
 Checked by: **EW**
 Province: **British Columbia**



Site/Location: **Chetwynd**
 Importance Category: **Normal**

Input Data:
 Roof DL+Collateral **7.00** psf
 Building Width **13.17** ft.
 Low Eave Height: **12.00** ft.
 Building Length: **33.25** ft.
 Roof Slope: **4 :12**



Exposure Condition (O/R): **Open terrain**
 Building Category: **1**

Wall Panels: **22ga Reinf (R12)**
 Roof Panels: **3RP-9(22ga)**
 Wall Base Attach To: **Steel Skid**

Bldg Site Class: **D**
 Type of Structure: **Other cold-formed SFRS**

REPORT SUMMARY

Roof Panels Bending $\Phi M_n = 4.442$ ft-k $M_u = 0.680$ ft-k Ratio **0.18**
OK

Wall Panels Axial Compression & Bending $\Phi P_n = 12.91$ Kips $P_u = 0.495$ Kips
 $\Phi M_n = 1.715$ ft-k $M_u = 0.669$ ft-k Ratio **0.40**
OK

Deflections:

	Walls		Roof
Service Load Deflection:	0.218 in.		0.015 in.
Allow. Deflection $h/180$:	0.800 in.		0.659 in.
Deflection Ratio h/Δ :	659.6		5118.5
	OK		OK

Fastener Schedule:

Cross Tie Requirement: **L2x2x3/16**
 Spacing S: **10.00** ft 10ft. Max Spacing
 No. of bolts required: **3** 1/2 dia. bolts with L2x2x3/16x1'-6" **2.33 Crossties @ 10 ft. o.c.**

Schedule of Fasteners

Base Channel Anchoring:
 Wall Panel to Base Channel:
 Roof Panel to drip Channel:
 Drip Channel to Top channel:
 Roof Panel to Ridge:

Fastener	Spacing	Screw/Panel
#14 x 1-1/2	20 in.	1
#10x3/4"		4
#10x3/4"		5
#8x1/2"	12in	
#10x3/4"		5

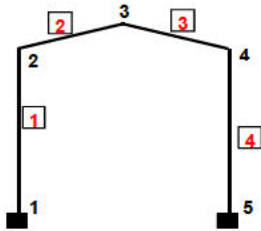
Stitch Screws

Wall Panels:	#8x1/2"	26in
Roof Panels:	#10x3/4"	31in

If number of crossties is not a whole number, adjust crosstie spacing

Reference: **E-House**
 Job No.: **xxx**
 Client: **W38586 588**

Date: **19-Sep-18**
 Originated by: **AD**
 Checked by: **EW**



Nomenclature

Seismic Design Parameters

Sa(0.2): **0.240**
 Sa(0.5): **0.140**
 Sa(1.0): **0.064**
 Sa(2.0): **0.035**
 Occupancy Importance Factor Ie: **1.00**

Seismic:

Force Modification Factor Rd: **1.00**
 Force Modification Factor Ro: **1.00**
 Higher Mode Factor Mv: **1.00**
 Base overturning Reduction J: **1.00**

Site Soil Classification: **D**

Type of Structure:

4.1.8.11(3) Building Period Ta: **0.141 sec**
 Fa: **1.30**
 Fv: **1.50**
 S(T): **0.156 sec.**
 Higher Mode Factor Mv: **1.00**
 Overturning Reduction J: **1.00**
 IEFaSa(.2) **0.312**
 IEFvSa(.1) **0.096**
 Building reference Ht: **13.10 ft**

Snow Loads

Ground Snow Load 1/50: **2.4 Kpa**
 Associated rain Load 1/50: **0.2 Kpa**
 Importance Factor Is: **1.00**
 Wind Exposure Factor Cw: **1.00**

Roof configuration:

Slippery roof (y/n): **y**
 Shape Factor Ca: **1.0**
 Slope factor Cs: **1.0**
 Basic roof snow load factor Cb: **0.8**
 Characteristic Length lc: **21.12 ft**
 Roof Slope α: **18.43 degrees**
 Snow Load S: **2.120 Kpa**

Wind Load

Wind Load 1/50: **0.40 Kpa**
 Wind Load 1/10: **0.32 Kpa**
 Importance factor Iw: **1.00**
 One Day rain, 1/50: **75 mm**
 Exposure Factor Ce: **0.90**
 End Zone Z: **1.317 ft**
 End Zone Y: **19.69 ft**

Member	E (Ksi)	A (in^2)	I (in^4)	L (ft.)	λ_x	λ_y
1	29000	0.97141	1.362	12.00	0.000	1.000
2	29000	#N/A	#N/A	6.94	0.949	0.316
3	29000	#N/A	#N/A	6.94	0.949	-0.316
4	29000	0.97141	1.362	12.00	0.000	-1.000

Joint	x (ft)	y (ft)
1	0.00	0.00
2	0.00	12.00
3	6.59	14.20
4	13.17	12.00
5	13.17	0.00

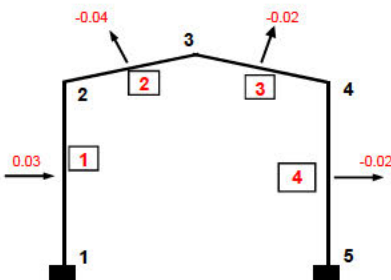
Design Loads:

Wind Factored Loads (1.4)

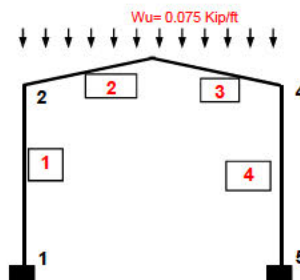
Member #1: **0.026 Kip/ft**
 Member #2: **-0.035 Kip/ft**
 Member #3: **-0.022 Kip/ft**
 Member #4: **-0.021 Kip/ft**

Snow Loads (1.5)

Factored Snow Load: **0.066 Kip/ft**
 Factored Total Load: **0.075 Kip/ft**
 Factored reaction at Panel: **0.495 Kip/ft**



Wind



Snow Loads

C. Support Reactions (1.4WL)

Joint No.	Rx (K/ft)	Ry (K/ft)
1	0.155	-0.254
5	0.123	0.254

C. Support Reactions (1.25DL+1.5Snow)

Joint No.	Ry (K/ft)
1	0.495
5	0.495

NBC 2010 Section 4.1.6.2

$$S=I_s*(S_s*(C_b*C_w*Cs*Ca)+S_r)$$

Values of Fa as a Function of Site Class and Sa(0.2)

Site Class	0.25	0.5	0.75	1	1.25	
A	0.7	0.7	0.8	0.8	0.8	
B	0.8	0.8	0.9	1	1	
C	1	1	1	1	1	
D	1.3	1.2	1.1	1.1	1	
E	2.1	1.4	1.1	0.9	0.9	
F	0	0	0	0	0	Site class F requires site specific evaluation

Values of Fv as a Function of Site Class and Sa(1.0)

Site Class	0.1	0.2	0.3	0.4	0.5	
A	0.5	0.5	0.5	0.6	0.6	
B	0.6	0.7	0.7	0.8	0.8	
C	1	1	1	1	1	
D	1.4	1.3	1.2	1.1	1.1	
E	2.1	2	1.9	1.7	1.7	
F	0	0	0	0	0	Site class F requires site specific evaluation

Seismic Base Shear

$$4.1.8.11(2) \quad V=S*Ta*Mv*IE*W/(Rd*Ro) \quad 0.246084 \text{ kips} \quad 246.0838 \text{ lbs}$$

$$W= \quad 11.17084 \text{ kips}$$

$$\text{Roof area} \quad 437.9025 \text{ ft}^2$$

$$\text{Gable wall area} \quad 172.49 \text{ ft}^2$$

$$\text{Side wall area} \quad 399 \text{ ft}^2$$

$$25\% \text{ snow load} \quad 4847.281 \text{ lbs}$$

Unfactored Wind Base Shear

$$7.919982 \text{ kips}$$

$$\text{End zone area} \quad 399 \text{ ft}^2$$

$$\text{Interior zone area} \quad 0 \text{ ft}^2$$

Windward Side

$$4.41599 \text{ kips}$$

Leeward Side

$$3.503992 \text{ kips}$$

Wind Governs

$$\text{Wind on end wall} \quad 1.840503 \text{ kips}$$

Diaphragm and chord force calculations

$$\text{Building plan dimensions} = \quad 13.17 \text{ ft} \quad \times \quad 33.25 \text{ ft}$$

$$\text{Factored wind load at eave line} \quad 166.7365 \text{ lb/ft} \quad 92.96821 \text{ lb/ft} \quad 73.76825 \text{ lb/ft}$$

$$\text{Moment at roof diaphragm} \quad 23.0422 \text{ k-ft}$$

$$\text{Chord force at sidewalls} \quad 1.749597 \text{ kips} \quad 52.61947 \text{ lb/ft}$$

$$\text{Max shear in diaphragm} \quad 210.4779 \text{ lb/ft}$$

$$\text{Shear in plane of side walls} \quad 13.83837 \text{ lb/ft}$$

Wind loads parallel to wall panel

$$\text{Load at end wall panels} \quad 351.4981 \text{ lbs}$$

$$\text{shear between panels} \quad 210.4779 \text{ lbs/ft}$$

Certificate of Design and Manufacturing Conformance with NBC, 2010

This Certificate is to affirm that all components of the steel building system described below, to be supplied by the named Manufacturer certified in accordance with CSA A660, have been or will be designed and fabricated in accordance with the following Standards to carry the loads and load combinations specified.

1. DESCRIPTION

Manufacturer's Name and Address	Warwick Structures Group, 285188 Frontier Rd, Rocky View County, AB, T1X0V9
Manufacturer's Certificate No. under CSA A660	WARWI0
Customer Order Number	W38586 588
Building Type and Size	Gable, 13.2 ft x 33 ft x 12 ft
Intended Use and Occupancy	E-House
Importance Category (NBC, Sentence 4.1.2.1.(3))	Normal
Site Location	Chetwynd, British Columbia
Applicable Building Code	British Columbia Building Code 2012
Builder's Name and Address	Warwick Structures Group, 285188 Frontier Rd, Rocky View County, AB, T1X0V9
Owner's Name and Address	

2. DESIGN STANDARDS**Engineer's Initials***

National Building Code of Canada, 2010 Part 4; Structural Design	EW
CAN / CSA-S16-09, Limit States Design of Steel Structures	
CAN / CSA-S136-07, North American Specification for the Design of Cold-Formed Steel Structural Members	
Other	British Columbia Building Code 2012

3. MANUFACTURING STANDARDS

EW

- (a) Fabrication has been or will be in accordance with CAN / CSA-S16 and CAN / CSA-S136, as applicable.
- (b) Welding has been or will be performed in accordance with CSA W59 and CAN / CSA-S136, as applicable.
- (c) The Manufacturer has been certified in accordance with CSA W47.1, for Division 1 or 2, and /or CSA W55.3, if applicable
- (d) Welders have been qualified in accordance with CSA W47.1.

4. PURLIN STABILITY

n/a

Purlin braces are provided in accordance with CAN / CSA-S136, Clause D3 and Appendix B, Clause D3.2.3. In particular, for a standing seam roof supported on movable clips, braces providing lateral support to both top and bottom purlin flange have been or will be provided. The number of rows is determined by analysis but in no case is less than 1 for spans up to 7 m inclusive or less than

5. LOADS

EW

(a) Snow and Rain

1-in-50 year ground snow	2.4 (kPa)
1-in-50 year associated rain	0.2 (kPa)
Wind exposure factor, C _w ,	1.00
Importance factor, I _s ,	1.00
Roof snow load, S,	2.12 (kPa)
Drift load considered (NBC Sub-section 4.1.6.2.8) refer to drawing of specific building	
Specific rain load (NBC,	75 (mm)

(Continued)

*Initial each true statement. Mark N/A if

Engineer's Initials*

(b) Full and Partial Snow

n/a

- (i) Applied on any one and any two adjacent spans of continuous purlins.
(ii) Applied on any one and any two adjacent spans of modular rigid frames with continuous roof beams.
(iii) Applied as described for the building geometry in NBC, Part 4, and in the User's Guide NBC 2010 Structural Commentaries 9Part 4), Commentary G: Snow Loads –

(c) Wind Load

EW

1-in-50 year reference velocity 0.40 (kPa)
Importance factor, I_w 1.00

(d) Wind Load Application

EW

- (i) Applied as per NBC, Part 4, Sub-section 4.1.7
(ii) Pressure coefficients as per User's Guide – NBC 2010 Structural Commentaries (Part 4), Commentary I; Wind Loads, Figures 13 through I12
(iii) Building internal pressure 1.0 per User's Guide – NBC 2010 Structural Commentaries (Part 4), Commentary I; Wind Loads

(e) Crane Loads (where

n/a

Type _____ (top running)(under-running)(jib)
Capacity _____ (tonnes)
Wheel base _____ (m)
Maximum static, vertical wheel load _____ (kN)
Vertical impact factor _____ %
Lateral factor _____ % Lateral wheel load _____ (kN)
Longitudinal factor _____ % Maximum longitudinal load _____ (kN/side)

(f) Mezzanine Level Load _____ (kPa)

n/a

(g) Seismic Load :

EW

Applied as per NBC, Part 4, Sub-section

$S_a(0.2)$ 0.24 $S_a(0.5)$ 0.14 $S_a(1.0)$ 0.064 $S_a(2.0)$ 0.035
 F_a 1.30 F_v 1.50 I_E 1.00

(h) Other Live Loads

n/a

(Continued)

**Initial each true statement. Mark N/A if*

Engineer's Initials*

(i) Dead Loads

EW

Dead load of building components is incorporated in the design

Collateral load (mechanical, electrical, ceiling, sprinklers,

0.15 (kPa)

Mezzanine

n/a (kPa)

Other (specify)

n/a ()

(j) Load Combinations

EW

Applied in accordance with NBC, Part 4, Section 4.1

6. GENERAL REVIEW DURING

The Manufacturer does not provide general review during construction for regulatory purposes.

**Initials each true statement. Mark N/A if statement does not apply.*

7. CERTIFICATION BY ENGINEER

I, Edward Wilson a Professional Engineer registered or licensed to practice in
The Province or Territory of British Columbia, hereby certify that I have reviewed
the design, and manufacturing process for the steel building system described. I certify that the
foregoing statements initialed by me, are true.

Name Edward O. Wilson

Signature

Title Professional Engineer

Affiliation Wilson Engineering, PLLC Permit to Practice #P12198

Date September 19, 2018

Professional Seal



ENERFLEX

Suggested Support Layout

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Drawing #: C16-E002662-01-351-001
Rev. A

ENERFLEX

Project: E002662-351 DWG Rev 1
Customer: [REDACTED] Spruce Ridge Expansion
Location: CS-2 Willow Flats & CS-N5 Mackie Creek
Suggested Pile Locations: Pile Loadings Report
Issued For Reference Only


Design Loads:

All loads are unfactored (KN)
Equipment weights, per Enerflex Excel sheet
Wind Load= 0.4 kPa
Snow Load=2.12 kPa
Seismic Load=
Sa(0.2)=0.176
Sa(0.5)=0.121
Sa(1.0)=0.068
Sa(2.0)=0.033
PGA=0.082
+Ve in vertical direction= uplift

Received

AUG 14 2018

SMCI-DC

SOLARIS MANAGEMENT CONSULTANTS INC.		
Project#	VDD#	PO#
EB17-03226	B5-001	2850052404
1	PROCEED	AS NOTED - ADDITIONAL PILES BY SMCI
2	PROCEED, CHANGE AS NOTED & RESUBMIT	
3	DO NOT PROCEED, CHANGE AS NOTED & RESUBMIT	
4	PROCEED AND RESUBMIT CERTIFIED	
10	DATA RECEIVED FOR INFORMATION ONLY	
By: 	Date:	30-AUG-18
ACCEPTANCE OF THIS DOCUMENT BY SOLARIS DOES NOT RELIEVE THE VENDOR OF ANY RESPONSIBILITY UNDER THE TERMS AND CONDITIONS OF THE APPLICABLE CONTRACT OR PURCHASE ORDER		

P1	Dead Load	0	-16.204	-0.007
	Live Load	0.003	-52.736	0.005
	Snow Load	-0.002	-6.188	-0.006
	Wind Load X Direction	±0.332	±1.775	±0.845
	Wind Load Y Direction	±0.097	±0.001	±0.075
	Seismic Load X Direction	±0.854	±0.308	±0.546
	Seismic Load Y Direction	±0.041	±0.000	±0.029
P2	Dead Load	0.056	-22.14	0.657
	Live Load	-0.058	-71.618	0.373
	Snow Load	0.007	-16.406	0.156
	Wind Load X Direction	±3.629	±1.786	±0.004
	Wind Load Y Direction	±0.436	±0.003	±3.400
	Seismic Load X Direction	±1.782	±0.310	±0.038
	Seismic Load Y Direction	±0.179	±0.002	±1.410
P3	Dead Load	0.073	-15.392	-0.079
	Live Load	0.056	-64.588	-0.161
	Snow Load	0.036	-19.535	-0.028
	Wind Load X Direction	±1.565	±0.007	±0.093
	Wind Load Y Direction	±0.133	±0.006	±5.291
	Seismic Load X Direction	±0.995	±0.000	±0.074
	Seismic Load Y Direction	±0.051	±0.003	±1.771
P4	Dead Load	-0.116	-19.881	0.109
	Live Load	-0.135	-75.38	0.203
	Snow Load	-0.077	-19.793	-0.001
	Wind Load X Direction	±0.799	±0.001	±0.045
	Wind Load Y Direction	±0.222	±0.004	±8.583
	Seismic Load X Direction	±0.368	±0.000	±0.021
	Seismic Load Y Direction	±0.105	±0.002	±4.036
P5	Dead Load	-0.011	-18.616	0.545
	Live Load	0.129	-81.422	0.619
	Snow Load	0.028	-18.617	0.225
	Wind Load X Direction	±2.901	±0.001	±0.074
	Wind Load Y Direction	±0.550	±0.002	±4.331
	Seismic Load X Direction	±0.999	±0.000	±0.025
	Seismic Load Y Direction	±0.270	±0.001	±2.072
P6	Dead Load	-0.001	-7.388	0
	Live Load	0	-60.003	-0.001
	Snow Load	0.001	-9.794	-0.001
	Wind Load X Direction	±0.389	±0.000	±0.139
	Wind Load Y Direction	±0.061	±0.000	±0.073
	Seismic Load X Direction	±0.137	±0.000	±0.049
	Seismic Load Y Direction	±0.030	±0.000	±0.044

P7	Dead Load	-0.003	-19.502	0.003
	Live Load	0.005	-16.331	0.006
	Snow Load	-0.003	-1.197	-0.001
	Wind Load X Direction	±7.361	±0.000	±0.316
	Wind Load Y Direction	±0.103	±0.000	±6.282
	Seismic Load X Direction	±4.375	±0.000	±0.200
	Seismic Load Y Direction	±0.039	±0.000	±2.412
P8	Dead Load	0	-17.039	0
	Live Load	0	-6.964	0
	Snow Load	-0.001	0.016	0
	Wind Load X Direction	±0.665	±0.025	±0.185
	Wind Load Y Direction	±0.001	±0.008	±0.005
	Seismic Load X Direction	±0.449	±0.006	±0.126
	Seismic Load Y Direction	±0.005	±0.004	±0.001
P9	Dead Load	0	-10.885	-0.002
	Live Load	0.002	4.254	-0.009
	Snow Load	0	-2.294	0
	Wind Load X Direction	±0.408	±0.017	±0.023
	Wind Load Y Direction	±0.051	±0.001	±3.817
	Seismic Load X Direction	±0.255	±0.003	±0.012
	Seismic Load Y Direction	±0.026	±0.000	±1.191
P10	Dead Load	-0.002	-31.41	0.001
	Live Load	0.002	-36.294	0.005
	Snow Load	0.002	-6.957	0
	Wind Load X Direction	-±6.290	-±0.015	-±0.021
	Wind Load Y Direction	-±0.141	-±0.002	-±5.800
	Seismic Load X Direction	-±2.297	-±0.002	-±0.010
	Seismic Load Y Direction	-±0.060	-±0.001	-±2.462
P11	Dead Load	-0.001	-20.438	-0.001
	Live Load	-0.004	-17.912	-0.001
	Snow Load	-0.002	0.54	0
	Wind Load X Direction	±9.165	±0.136	±0.210
	Wind Load Y Direction	±0.009	±0.000	±0.819
	Seismic Load X Direction	±5.143	±0.024	±0.133
	Seismic Load Y Direction	±0.040	±0.000	±2.394
P12	Dead Load	0	-18.189	-0.003
	Live Load	-0.001	-8.563	-0.001
	Snow Load	0	0.217	0.001
	Wind Load X Direction	±0.853	±0.015	±0.192
	Wind Load Y Direction	±0.013	±0.003	±0.009
	Seismic Load X Direction	±0.480	±0.003	±0.118

	Seismic Load Y Direction	±0.006	±0.003	±0.153
P13	Dead Load	0	-10.248	0.003
	Live Load	-0.001	4.455	-0.001
	Snow Load	0	2.896	-0.002
	Wind Load X Direction	±0.609	±0.017	±0.097
	Wind Load Y Direction	±0.027	±0.001	±0.321
	Seismic Load X Direction	±0.324	±0.003	±0.046
	Seismic Load Y Direction	±0.028	±0.000	±1.199
P14	Dead Load	-0.001	-30.622	-0.001
	Live Load	-0.004	-37.222	0.003
	Snow Load	0.003	3.733	0.001
	Wind Load X Direction	±7.328	±0.028	±0.051
	Wind Load Y Direction	±0.011	±0.002	±1.389
	Seismic Load X Direction	±2.705	±0.005	±0.023
	Seismic Load Y Direction	±0.036	±0.000	±2.449
P15	Dead Load	0.019	-53.003	0.007
	Live Load	-0.031	-112.225	-0.009
	Snow Load	-0.099	-17.066	-0.003
	Wind Load X Direction	±2.703	±7.363	±0.384
	Wind Load Y Direction	±0.039	±0.000	±0.004
	Seismic Load X Direction	±2.176	±1.293	±0.135
	Seismic Load Y Direction	±0.059	±0.000	±0.032
P16	Dead Load	-0.015	-64.837	-0.081
	Live Load	-0.107	-156.587	-0.069
	Snow Load	-0.333	-79.05	-0.093
	Wind Load X Direction	±4.575	±7.120	±0.486
	Wind Load Y Direction	±0.152	±0.001	±1.301
	Seismic Load X Direction	±2.683	±1.254	±0.194
	Seismic Load Y Direction	±0.230	±0.001	±2.757
P17	Dead Load	0.065	-24.178	0.013
	Live Load	0.011	-130.847	0.002
	Snow Load	-0.011	3.727	0.017
	Wind Load X Direction	±4.902	±0.112	±0.003
	Wind Load Y Direction	±0.052	±0.001	±0.189
	Seismic Load X Direction	±2.646	±0.017	±0.002
	Seismic Load Y Direction	±0.040	±0.001	±3.295
P18	Dead Load	-0.078	-39.252	-0.013
	Live Load	-0.061	-167.359	-0.032
	Snow Load	0.029	2.229	0.003
	Wind Load X Direction	±3.561	±0.018	±0.006
	Wind Load Y Direction	±0.000	±0.001	±5.584

MAX ALLOWABLE

200KN COMBINED

ADDITIONAL PILES REQ'D

	Seismic Load X Direction	±1.553	±0.005	±0.004
	Seismic Load Y Direction	±0.026	±0.002	±7.445
P19	Dead Load	0.037	-55.23	-0.042
	Live Load	0.18	-191.697	-0.09
	Snow Load	0.338	-91.71	-0.079
	Wind Load X Direction	±3.689	±0.002	±0.017
	Wind Load Y Direction	±0.211	±0.001	±3.049
	Seismic Load X Direction	±1.381	±0.001	±0.008
	Seismic Load Y Direction	±0.266	±0.001	±3.859
P20	Dead Load	-0.007	-21.857	0
	Live Load	0.01	-135.793	0
	Snow Load	0.087	-28.094	0.003
	Wind Load X Direction	±2.243	±0.001	±0.039
	Wind Load Y Direction	±0.060	±0.000	±0.180
	Seismic Load X Direction	±0.818	±0.000	±0.016
	Seismic Load Y Direction	±0.041	±0.000	±0.123
P21	Dead Load	0.008	-19.53	0.001
	Live Load	-0.007	-17.096	0.001
	Snow Load	0.001	0.801	0
	Wind Load X Direction	±7.292	±0.036	±0.234
	Wind Load Y Direction	±0.016	±0.000	±0.826
	Seismic Load X Direction	±4.191	±0.006	±0.158
	Seismic Load Y Direction	±0.047	±0.000	±2.402
P22	Dead Load	0.002	-16.805	0.003
	Live Load	-0.002	-6.27	0.001
	Snow Load	0	0.073	0.001
	Wind Load X Direction	±0.661	±0.031	±0.174
	Wind Load Y Direction	±0.017	±0.003	±0.004
	Seismic Load X Direction	±0.422	±0.005	±0.114
	Seismic Load Y Direction	±0.008	±0.003	±0.088
P23	Dead Load	0.001	-10.968	-0.004
	Live Load	-0.002	2.119	0.001
	Snow Load	0	2.18	0
	Wind Load X Direction	±0.388	±0.001	±0.052
	Wind Load Y Direction	±0.025	±0.001	±0.313
	Seismic Load X Direction	±0.232	±0.000	±0.027
	Seismic Load Y Direction	±0.028	±0.000	±1.208
P24	Dead Load	0	-29.068	0.001
	Live Load	-0.006	-35.314	-0.003
	Snow Load	-0.002	3.414	-0.001
	Wind Load X Direction	±6.150	±0.002	±0.015

	Wind Load Y Direction	±0.024	±0.002	±1.389
	Seismic Load X Direction	±2.227	±0.000	±0.007
	Seismic Load Y Direction	±0.052	±0.000	±2.449
P25	Dead Load	-0.011	-20.164	-0.002
	Live Load	0.011	-16.896	-0.005
	Snow Load	0	-1.088	0
	Wind Load X Direction	±9.225	±0.054	±0.390
	Wind Load Y Direction	±0.078	±0.000	±6.268
	Seismic Load X Direction	±5.215	±0.010	±0.216
	Seismic Load Y Direction	±0.028	±0.000	±2.407
P26	Dead Load	-0.002	-17.732	0
	Live Load	0.001	-7.8	0
	Snow Load	0	-0.002	0
	Wind Load X Direction	±0.863	±0.014	±0.209
	Wind Load Y Direction	±0.001	±0.007	±0.004
	Seismic Load X Direction	±0.493	±0.004	±0.129
	Seismic Load Y Direction	±0.003	±0.004	±0.001
P27	Dead Load	-0.001	-11.33	0.001
	Live Load	0.002	4.046	0.009
	Snow Load	0	-2.099	0
	Wind Load X Direction	±0.598	±0.004	±0.029
	Wind Load Y Direction	±0.050	±0.001	±3.798
	Seismic Load X Direction	±0.324	±0.001	±0.015
	Seismic Load Y Direction	±0.027	±0.000	±1.182
P28	Dead Load	-0.004	-30.921	-0.001
	Live Load	0.003	-34.012	-0.004
	Snow Load	0.002	-5.453	-0.001
	Wind Load X Direction	±7.269	±0.001	±0.032
	Wind Load Y Direction	±0.106	±0.002	±5.796
	Seismic Load X Direction	±2.678	±0.000	±0.012
	Seismic Load Y Direction	±0.042	±0.001	±2.458
P29	Dead Load	-0.002	-15.808	0.013
	Live Load	0.005	-51.906	-0.013
	Snow Load	0	-5.742	0.001
	Wind Load X Direction	±0.449	±2.667	±0.457
	Wind Load Y Direction	±0.078	±0.000	±0.078
	Seismic Load X Direction	±1.038	±0.470	±0.411
	Seismic Load Y Direction	±0.033	±0.000	±0.029
P30	Dead Load	0.054	-22.345	-0.596
	Live Load	-0.056	-69.642	-0.276
	Snow Load	0.008	-15.325	-0.066

	Wind Load X Direction	±3.877	±2.691	±0.482
	Wind Load Y Direction	±0.389	±0.003	±3.376
	Seismic Load X Direction	±1.704	±0.474	±0.189
	Seismic Load Y Direction	±0.160	±0.002	±1.376
P31	Dead Load	0.076	-16.281	0.077
	Live Load	0.068	-65.943	0.146
	Snow Load	0.043	-20.182	0.023
	Wind Load X Direction	±2.183	±0.011	±0.114
	Wind Load Y Direction	±0.129	±0.005	±5.309
	Seismic Load X Direction	±1.225	±0.001	±0.081
	Seismic Load Y Direction	±0.051	±0.002	±1.777
P32	Dead Load	-0.123	-19.83	-0.099
	Live Load	-0.143	-74.431	-0.181
	Snow Load	-0.083	-19.738	0.011
	Wind Load X Direction	±1.149	±0.000	±0.052
	Wind Load Y Direction	±0.204	±0.003	±8.388
	Seismic Load X Direction	±0.519	±0.000	±0.025
	Seismic Load Y Direction	±0.095	±0.002	±3.864
P33	Dead Load	-0.01	-17.827	-0.502
	Live Load	0.13	-78.528	-0.516
	Snow Load	0.029	-17.657	-0.16
	Wind Load X Direction	±3.138	±0.003	±0.081
	Wind Load Y Direction	±0.500	±0.002	±4.221
	Seismic Load X Direction	±1.088	±0.001	±0.028
	Seismic Load Y Direction	±0.243	±0.001	±1.980
P34	Dead Load	-0.001	-6.792	0
	Live Load	0	-58.09	0
	Snow Load	0.001	-8.772	0
	Wind Load X Direction	±0.493	±0.000	±0.128
	Wind Load Y Direction	±0.062	±0.000	±0.069
	Seismic Load X Direction	±0.176	±0.000	±0.045
	Seismic Load Y Direction	±0.030	±0.000	±0.041

Drawing#: C16-E002662-01-352-001
REV. A

ENERFLEX

Project: E002662-352 DWG Rev 1

Customer: [REDACTED] Spruce Ridge Expansion

Location: CS-2 Willow Flats & CS-N5 Mackie Creek

Suggested Pile Locations: Pile Loadings Report

Issued For Reference Only

Design Loads:

All loads are unfactored (KN)

Equipment weights, per Enerflex Excel sheet

Wind Load= 0.4 kPa

Snow Load=2.12 kPa

Seismic Load=

Sa(0.2)=0.176

Sa(0.5)=0.121

Sa(1.0)=0.068

Sa(2.0)=0.033

PGA=0.082

+Ve in vertical direction= uplift

Received

AUG 14 2018

SMCI-DC

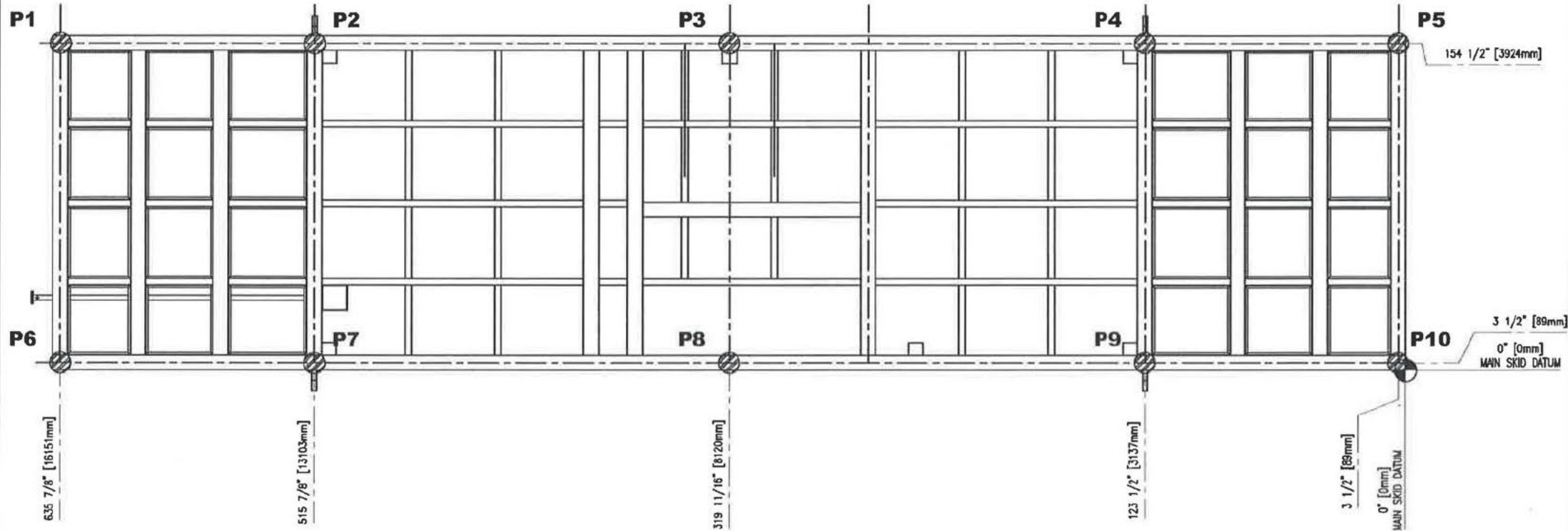
SOLARIS MANAGEMENT CONSULTANTS INC.		
Project#	VDD#	PO#
EB17-03226	B5-002	2850052404
1	<input checked="" type="checkbox"/>	PROCEED
2	<input type="checkbox"/>	PROCEED, CHANGE AS NOTED & RESUBMIT
3	<input type="checkbox"/>	DO NOT PROCEED, CHANGE AS NOTED & RESUBMIT
4	<input type="checkbox"/>	PROCEED AND RESUBMIT CERTIFIED
10	<input type="checkbox"/>	DATA RECEIVED FOR INFORMATION ONLY
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P1	Dead Load	0	-6.732	0
	Live load	0	-18.788	0.001
	Snow Load	0	-10.475	0
	Wind Load X Direction	±1.862	±1.245	±1.098
	Wind Load Y Direction	±0.018	±0.353	±0.529
	Seismic Load X Direction	±2.290	±0.000	±1.119
	Seismic Load Z Direction	±0.176	±0.001	±0.171
P2	Dead Load	0.389	-29.895	0.312
	Live load	0.033	-47.402	0.357
	Snow Load	0.022	-25.64	0.074
	Wind Load X Direction	±3.835	±1.294	±0.325
	Wind Load Y Direction	±0.689	±2.585	±6.350
	Seismic Load X Direction	±3.264	±0.000	±0.328
	Seismic Load Z Direction	±0.403	±0.002	±2.112
P3	Dead Load	-0.02	-40.874	0.262
	Live load	0.004	-51.825	-0.035
	Snow Load	0.003	-24.352	0.013
	Wind Load X Direction	±1.987	±0.009	±0.044
	Wind Load Y Direction	±1.045	±5.496	±19.846
	Seismic Load X Direction	±2.045	±0.000	±0.040
	Seismic Load Z Direction	±0.378	±0.007	±7.574
P4	Dead Load	-0.365	-36.317	0.318
	Live load	-0.002	-47.618	0.355
	Snow Load	-0.014	-26.411	0.072
	Wind Load X Direction	±4.809	±2.479	±0.426
	Wind Load Y Direction	±0.639	±2.594	±7.806
	Seismic Load X Direction	±3.557	±0.000	±0.559
	Seismic Load Z Direction	±0.538	±0.004	±2.346
P5	Dead Load	-0.001	-10.803	0.001
	Live load	-0.007	-17.558	0.005
	Snow Load	0	-9.723	0
	Wind Load X Direction	±2.730	±2.421	±0.662
	Wind Load Y Direction	±0.120	±0.355	±0.748
	Seismic Load X Direction	±2.924	±0.000	±1.059
	Seismic Load Z Direction	±0.318	±0.000	±0.223
P6	Dead Load	0	-5.94	0
	Live load	-0.001	-18.899	0.001
	Snow Load	0	-10.488	0
	Wind Load X Direction	±1.825	±1.202	±1.089
	Wind Load Y Direction	±0.080	±0.350	±0.560
	Seismic Load X Direction	±2.316	±0.000	±1.117

	Seismic Load Z Direction	±0.139	±0.001	±0.150
P7	Dead Load	0.369	-32.042	-0.43
	Live load	0.194	-47.205	-0.29
	Snow Load	0.086	-25.713	-0.076
	Wind Load X Direction	±3.869	±1.250	±0.330
	Wind Load Y Direction	±0.683	±2.605	±6.290
	Seismic Load X Direction	±3.303	±0.000	±0.343
	Seismic Load Z Direction	±0.380	±0.003	±2.093
P8	Dead Load	0.017	-53.495	-0.027
	Live load	-0.023	-42.652	-0.077
	Snow Load	-0.004	-24.168	0
	Wind Load X Direction	±1.789	±0.012	±0.039
	Wind Load Y Direction	±1.119	±5.452	±11.105
	Seismic Load X Direction	±1.844	±0.000	±0.032
	Seismic Load Z Direction	±0.411	±0.008	±4.228
P9	Dead Load	-0.389	-40.063	-0.439
	Live load	-0.202	-47.618	-0.321
	Snow Load	-0.093	-26.475	-0.083
	Wind Load X Direction	±4.874	±2.485	±0.432
	Wind Load Y Direction	±0.552	±2.604	±7.728
	Seismic Load X Direction	±3.580	±0.000	±0.563
	Seismic Load Z Direction	±0.473	±0.004	±2.324
P10	Dead Load	0.001	-9.705	0.001
	Live load	0.004	-17.635	0.003
	Snow Load	0	-9.758	0
	Wind Load X Direction	±2.728	±2.425	±0.660
	Wind Load Y Direction	±0.051	±0.346	±0.778
	Seismic Load X Direction	±2.967	±0.000	±1.055
	Seismic Load Z Direction	±0.270	±0.000	±0.200

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PLAT DATE: Aug 08, 2018, TOS/GRS



PLAN VIEW

MAJOR COMPONENT WEIGHTS
MAIN SKID

DESCRIPTION	WEIGHT (LBS)
MAIN SKID:	18,347
CABLE TRAY SUPPORTS:	2,729
SWITCHGEAR 1:	1,480
SWITCHGEAR 2:	1,480
SWITCHGEAR 3:	1,050
SWITCHGEAR 4:	1,740
SWITCHGEAR 5:	1,610
LOAD BANK:	660
DIESEL GENERATOR:	4,565
HVAC UNIT 1:	500
HVAC UNIT 2:	500
SCPA:	1,500
MISC:	2,000
BUILDING:	7,000
TOTAL PACKAGE:	44,437

FOR
REFERENCE
ONLY
DATE: AUG 8/18

				DATE JUN 12/18	SCALE NTS		SPRUCE RIDGE EXPANSION CS-2 & CS-N5 PCE10000	
DRAWN BY T.GOLUBIC		CHECKED BY D.ADDINGTON		APPROVED BY D.ADDINGTON				
PROJECT MANAGER J.GARCIA		PROJECT ENGINEER D.ADDINGTON						
				CUST PO 2850052404				
A	ISSUED FOR REFERENCE			AUG 8/18	TBG	DA		
REV	DESCRIPTION			DATE	BY	APR		
				APRCA PERMIT No: P8651		OPER CODE 400		WORK ORDER E002662-01

SPRUCE RIDGE EXPANSION
CS-2 & CS-N5
PCE10000

ENERFLEX
Calgary, Alberta,
Canada

SUGGESTED PILE LOCATIONS
E-HOUSE

DWG NO E002662-352	SHT 1	REV A
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PLEASE READ CAREFULLY

USE OF THIS DIAGRAM INDICATES OWNER'S/OPERATOR'S ACCEPTANCE OF THE FOLLOWING PROVISIONS NOT WITHSTANDING ANY OTHER AGREEMENT OR PROVISION BETWEEN ENERFLEX LTD. ("EFX") AND THE OWNER/OPERATOR ("O/O").

1. THE DESIGN OF THE FOUNDATION FOR THIS PACKAGE IS NOT IN THE SCOPE OF SUPPLY BY EFX. AS SUCH, THE DESIGN AND ADEQUACY OF THE FOUNDATION IS ENTIRELY THE RESPONSIBILITY OF THE O/O AND/OR ITS ENGINEERING FIRM AND THEIR REPRESENTATIVES.
2. PACKAGES INCORPORATING ENVIRONMENTAL PANS (DRIP) IN THE WINGS WILL RESTRICT ACCESS TO SUPPORTS BELOW. IT WILL BE NECESSARY TO CUT THE SEAL PAN TO GAIN ACCESS TO THESE AREAS FOR WELDING PURPOSES.
3. IT IS ALWAYS RECOMMENDED TO PERFORM A GEO-TECHNICAL INVESTIGATION OF THE SUB-SURFACE CONDITIONS OF THE SOIL AT THE INSTALLATION SITE.
4. THIS PACKAGE HAS BEEN LEVELED VIA TRANSIT INSTRUMENTS, AND READINGS DOCUMENTED ON DWG. NO. E002662-351, SHEET 2. TO MINIMIZE THE RISK OF EQUIPMENT FIELD ALIGNMENT CHALLENGES, IT IS RECOMMENDED THAT THESE ALIGNMENT READINGS BE REFERENCED WHEN SETTING THE PACKAGE ONTO THE FOUNDATION.
5. SKID DEFLECTION CAN CAUSE EQUIPMENT ALIGNMENT PROBLEMS, PIPE STRAIN AND VIBRATION. ONCE EQUIPMENT HAS BEEN PLACED ON THE FOUNDATION, IT MUST BE CHECKED FOR ALIGNMENT AND PIPE STRAIN. ALIGN AS REQUIRED TO MEET ROTATING EQUIPMENT MANUFACTURER'S SPECIFICATIONS.
6. REFERENCE THE GENERAL ARRANGEMENT DRAWING FOR LOCATION OF MAJOR EQUIPMENT.
7. FOUNDATION DESIGN AND INSTALLATION BY OTHERS.
8. FOUNDATION CONNECTION DETAILS BY OTHERS.

ICON	DESCRIPTION	QTY
●	SUPPORT POINT FOR DISCHARGE BOTTLE WEDGE SUPPORTS.	
⊙	SUPPORT POINT FOR SPLIT SKID JOINT (ASSIST FIELD ASS'Y)	
⊗	GENERAL SUPPORT POINT	10
○	OFF SKID PIPING SUPPORT - CLAMPING BY OTHERS	

FILE NAME: P:_SAP SAP Canada Projects\E002662-01_Enhouse - Power Gen\1. Drafting\E002662-01-352.dwg

ENERFLEX

P.Eng Stamped Line List

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Template Version 3, 27-May-2014

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03/10/2020

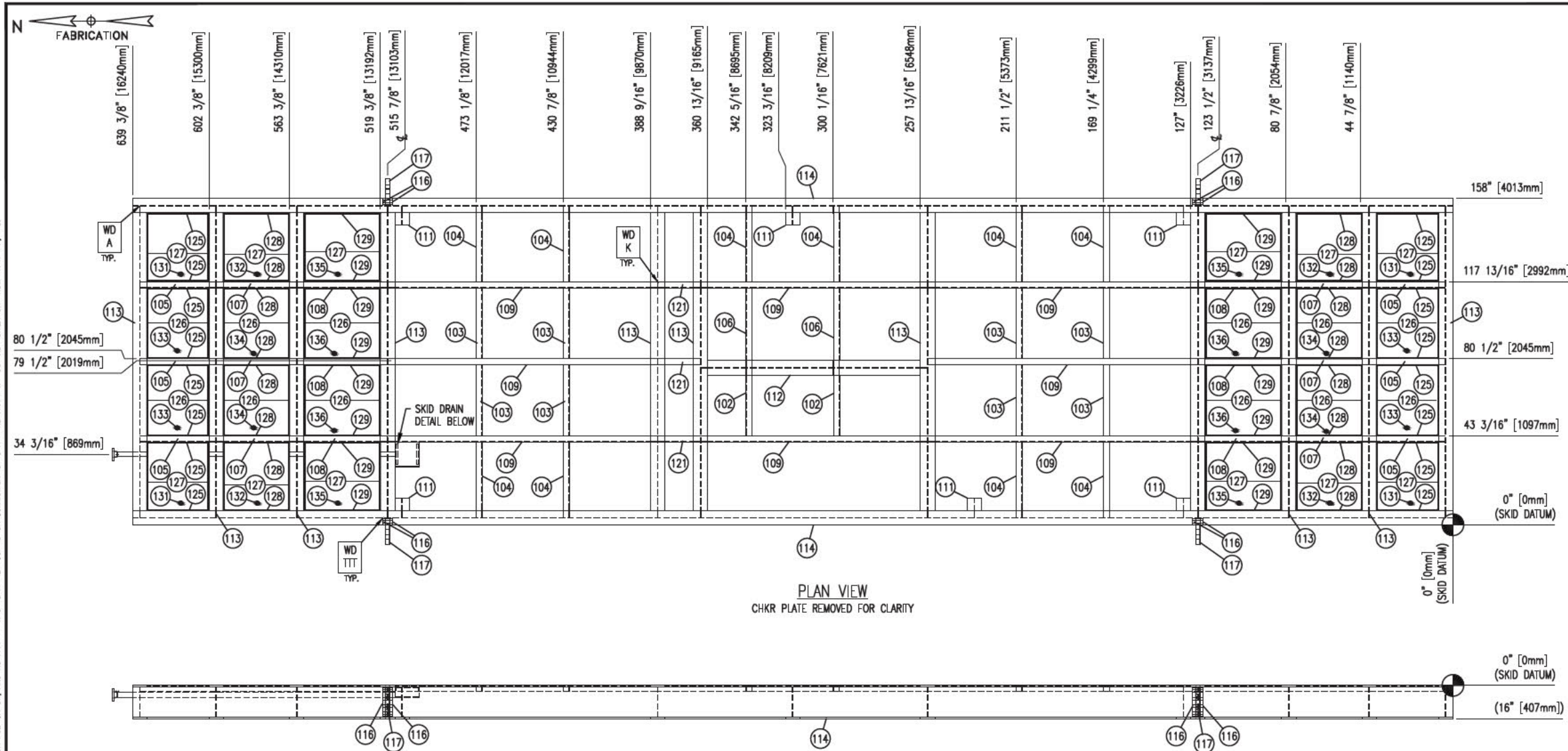
ENERFLEX

Skid Drawings

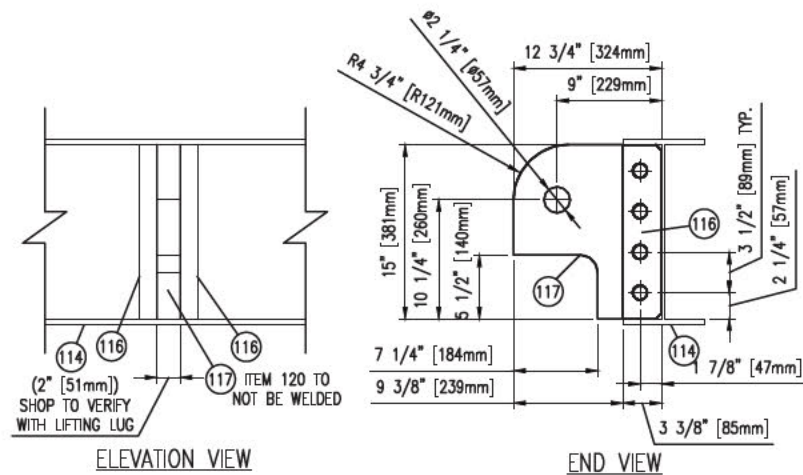
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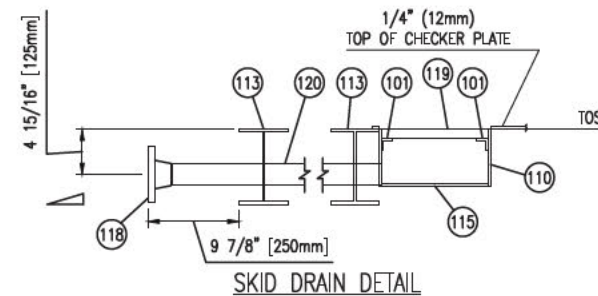
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ELEVATION VIEW



REMOVABLE LIFTING LUG DETAIL
(4) LOCATIONS



SKID DRAIN DETAIL

BILL OF MATERIAL				
ITEM	QTY	DESCRIPTION	MATERIAL	L/A/V
101	2	ANGLE, 1-1/4" X 1-1/4", 1/4" THK	G40.21350W	9 7/8"
102	2	TUBING, 3"x3", 1/8" THK	G40.21350W	32 5/8"
103	8	TUBING, 3"x3", 1/8" THK	G40.21350W	34 5/16"
104	10	TUBING, 3"x3", 1/8" THK	G40.21350W	36 9/16"
105	6	TUBING, 3"x3", 1/8" THK	G40.21350W	36 11/16"
106	2	TUBING, 3"x3", 1/8" THK	G40.21350W	38 5/8"
107	6	TUBING, 3"x3", 1/8" THK	G40.21350W	38 11/16"
108	6	TUBING, 3"x3", 1/8" THK	G40.21350W	43 11/16"
109	8	TUBING, 3"x3", 1/8" THK	G40.21350W	130 1/2"
110	1	TUBING, 12"x12", 1/4" THK	G40.21350W	5 11/16"
111	6	WIDE FLANGE, 16" X 40#	G40.21350W	9 3/8"
112	1	WIDE FLANGE, 16" X 40#	G40.21350W	109 3/4"
113	11	WIDE FLANGE, 16" X 40#	G40.21350W	150 11/16"
114	2	WIDE FLANGE, 16" X 40#	G40.21350W	639 3/8"
115	1	PLATE, 1/4", SMOOTH X 11 1/2" X 11 1/2"	G40.21350W	
116	8	PLATE, 1-1/2", SMOOTH X 15" X 3 5/8"	350WT Cat.4	
117	4	PLATE, 2", SMOOTH X 15" X 12 3/4"	350WT Cat.4	
118	1	FLANGE, 2", CL-150, RF, WN, XS/80	SA-105N	
119	1	GRATING, BLACK, 1"x3/16" (19-4) X 11 1/2" X 11 1/2"	G40.2144W	
120	1	PIPE, 2", XS/80, SMLS	SA-106-B	134 1/2"
121	3	TUBING, 3"x3", 1/8" THK	G40.21350W	20 7/16"
125	16	ANGLE, 1-1/4" X 1-1/4", 1/4" THK	G40.2144W	30
126	24	ANGLE, 1-1/4" X 1-1/4", 1/4" THK	G40.2144W	34 5/16"
127	24	ANGLE, 1-1/4" X 1-1/4", 1/4" THK	G40.2144W	33 3/16"
128	16	ANGLE, 1-1/4" X 1-1/4", 1/4" THK	G40.2144W	32
129	16	ANGLE, 1-1/4" X 1-1/4", 1/4" THK	G40.2144W	37
131	4	GRATING, UNPAINTED, 1"x3/16" (19-4) X 32 3/16" X 29"	G40.2144W	N/A
132	4	GRATING, UNPAINTED, 1"x3/16" (19-4) X 32 3/16" X 31"	G40.2144W	N/A
133	4	GRATING, UNPAINTED, 1"x3/16" (19-4) X 33 5/16" X 29"	G40.2144W	N/A
134	4	GRATING, UNPAINTED, 1"x3/16" (19-4) X 33 5/16" X 31"	G40.2144W	N/A
135	4	GRATING, UNPAINTED, 1"x3/16" (19-4) X 36" X 32 3/16"	G40.2144W	N/A
136	4	GRATING, UNPAINTED, 1"x3/16" (19-4) X 36" X 33 5/16"	G40.2144W	N/A

- NOTES:
- ALL TAIL DIMENSIONS FROM REFERENCE POINT.
 - CONSTRUCT STRUCTURE FLUSH TO TOP OF SKID UNLESS OTHERWISE NOTED.
 - FOR ALL WELDS & COPING DETAILS, REFER TO DWG. E002662-399.
 - WEIGHT: 18,347 LBS.

ISSUED FOR
CONSTRUCTION

Feb.07.2020



REV	DESCRIPTION	DATE	BY	APR
2	MOVED SWITCHGEAR AND FLOOR DRAIN	JUL 13/18	DLI	DA
1	INCREASED SKID LENGTH BY 1M & REDUCED WIDTH	JUN 15/18	TBG	DA
0	ISSUED FOR CONSTRUCTION	JUN 5/18	TBG	DA

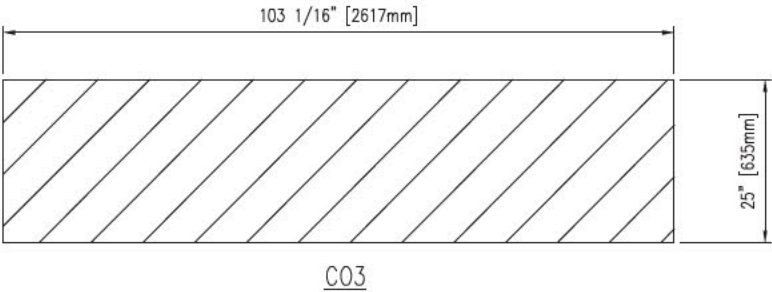
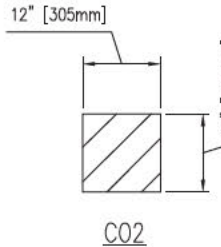
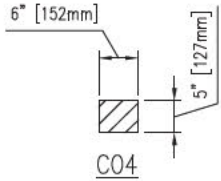
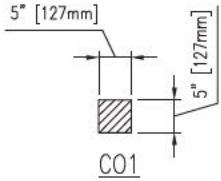
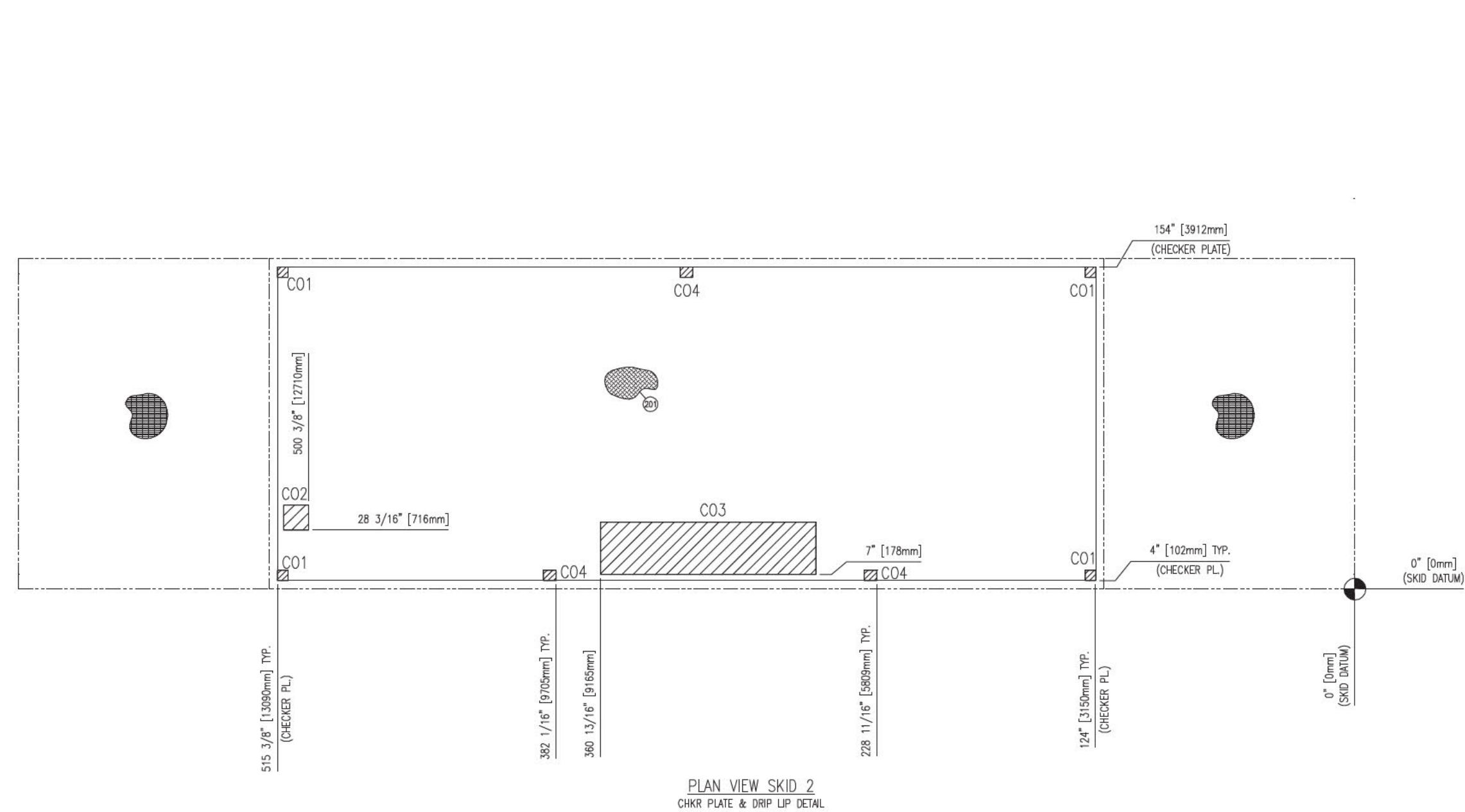
DATE	MAY 16/18	SCALE	NTS
DRAWN BY	T.GOLUBIC	CHECKED BY	D.ADDINGTON
PROJECT MANAGER	J.GARCIA	PROJECT ENGINEER	D.ADDINGTON
CUST PO	2850052404		
APR 2018 PERMIT NO.	P8651	OPER. CODE	400
WORK ORDER	E002662-01&02		

ENERFLEX Calgary, Alberta, Canada		STRUCTURAL STEEL E-HOUSE SKID	
DWG NO	E002662-302	SHT	1
REV	2		

FILE NAME: P:\SAP_CAD_Consult Projects\E002662-01 E-house - Westcott - Power Gen\A. Drafting\E002662-01-302.dwg



BILL OF MATERIAL (PER SKID)				
ITEM	QTY	DESCRIPTION		MATERIAL
201	1	PLATE,1/4",CHECKER X 391 3/8" X 150"		ASTM A786



PLAN VIEW SKID 2
CHKR PLATE & DRIP LIP DETAIL

CUT OUT DETAILS

- NOTES:
- ALL TAIL DIMENSIONS FROM REFERENCE POINT.
 - CONSTRUCT STRUCTURE FLUSH TO TOP OF SKID UNLESS OTHERWISE NOTED.
 - FOR ALL WELDS & COPING DETAILS, REFER TO DWG. E002662-399.

Feb.07,2020



REV	DESCRIPTION	DATE	BY	APR
2	MOVED SWITCHGEAR AND FLOOR DRAIN	JUL 13/18	DLJ	DA
1	INCREASED SKID LENGTH BY 1M & REDUCED WIDTH	JUN 15/18	TBG	DA
0	ISSUED FOR CONSTRUCTION	JUN 5/18	TBG	DA

DATE	MAY 16/18	SCALE	NTS
DRAWN BY	T.GOLUBIC	CHECKED BY	D.ADDINGTON
PROJECT MANAGER	J.GARCIA	PROJECT ENGINEER	D.ADDINGTON
CUST PO	2850052404		
APEGA PERMIT No:	P8651	OPER. CODE	400

SPRUCE RIDGE EXPANSION
CS-2 & CS-N5
PCE1000D

ENERFLEX
Calgary, Alberta,
Canada

ISSUED FOR
CONSTRUCTION
NAME DAVID U. DATE JUL 13/18

CHCKR PLATE
E-HOUSE SKID

DWG NO E002662-302

SHT 2

REV 2

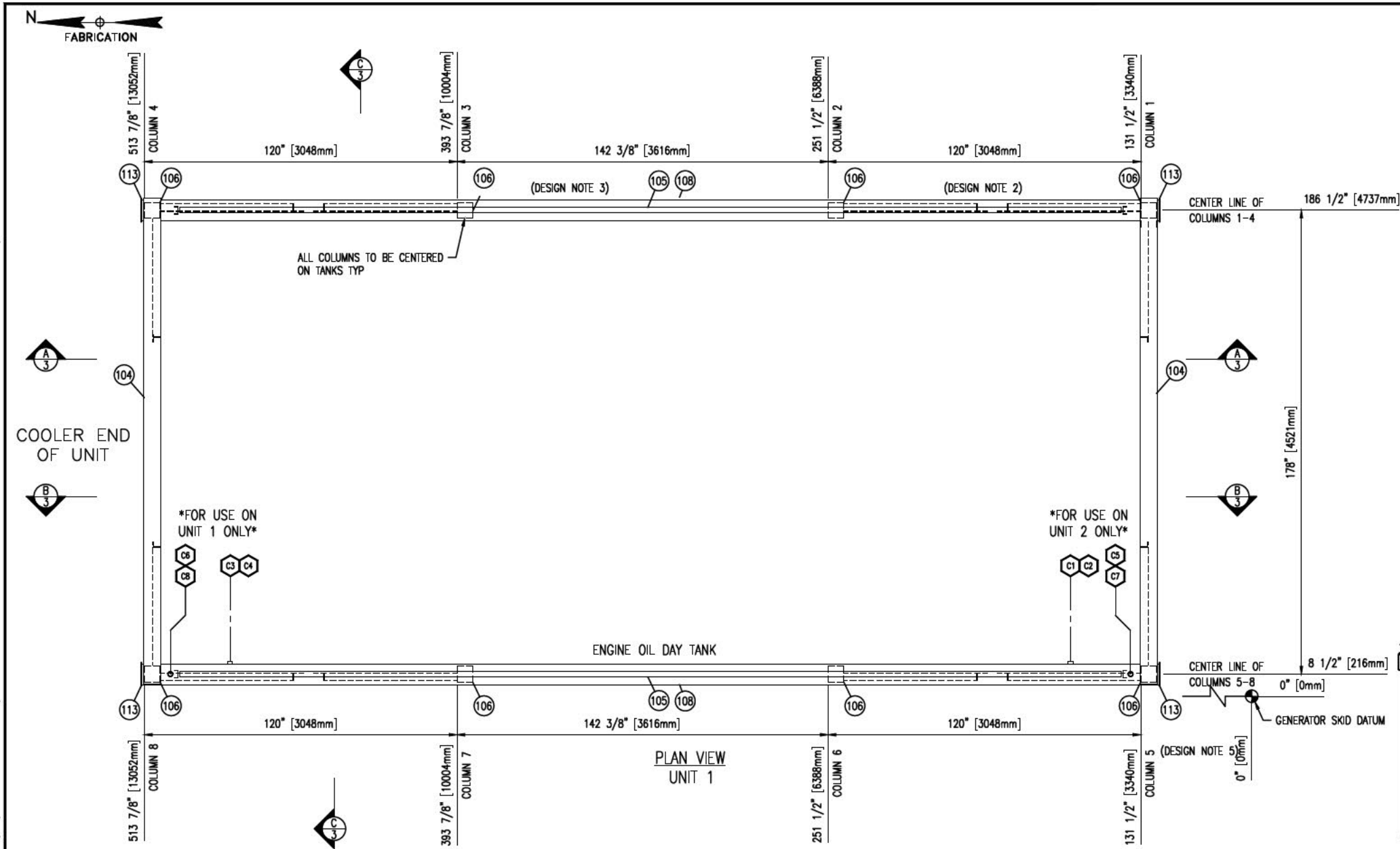
ENERFLEX

Support, Bridge, Crane & Rail

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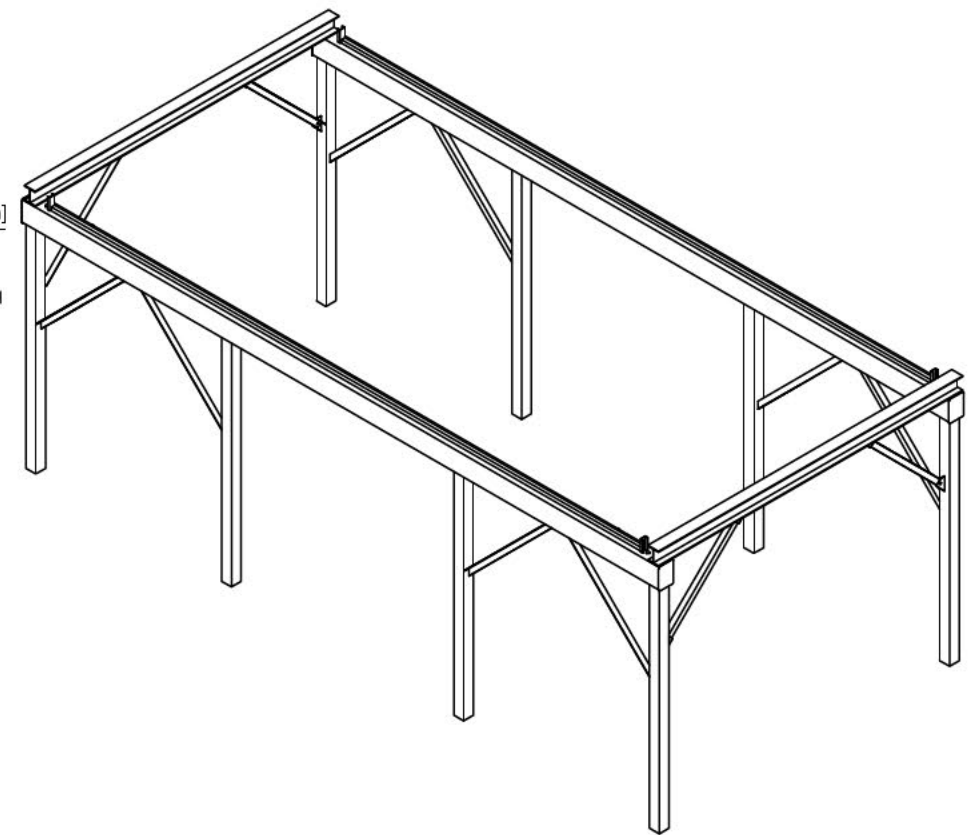
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BILL OF MATERIAL				
ITEM	QTY	DESCRIPTION	MATERIAL	L/A/V
101	4	ANGLE, 3" X 3", 1/4" THK	G40.2144W	64"
102	8	ANGLE, 3" X 3", 1/4" THK	G40.2144W	77 15/16"
103	4	CHANNEL, 3" X 4, 1/4"	G40.2144W	7"
104	2	WIDE FLANGE, 8" X 28#	G40.2150W	186 1/2"
105	2	SQUARE BAR, 2"	G40.2144W	361 3/8"
106	8	TUBING, 6"x6", 1/4" THK	G40.21350W	130 1/2"
108	1	TUBING, 12"x8", 1/4" THK	G40.21350W	
109	2	COUPLING, 1", 3000#, NPT, HALF	SA-105N	
110	6	COUPLING, 3/4", 3000#, NPT, HALF	SA-105N	
111	2	PLUG, 1", 3000#, NPT, HEX	SA-105N	
112	3	PLUG, 3/4", 3000#, NPT, HEX	SA-105N	
113	4	PLATE, 1/4", SMOOTH X 13" X 9"	G40.2144W	
114	8	PLATE, 3/8", SMOOTH X 6 1/2" X 3 5/8"	G40.2144W	

MARK	SERVICE	SIZE	RATING	TYPE
C1-4	DAY TANK LEVEL GAUGE	3/4"		NPT
C5-6	DAY TANK VENTS	3/4"	3000#	NPT
C7-8	ENGINE DAY OIL TANK FILL/DRAIN			

NOTE: TWO (2) CRANE RAILS REQ'D EACH FOR COMPLETE E002662-01&02 UNITS



ISOMETRIC VIEW

NOTES

- ALL FABRICATION TO BE IN ACCORDANCE TO W59-M.
- CRANE RAIL IS DESIGNED TO CSA S16-01 AND CMAA SPECIFICATION #74.
- GRIND ALL ROUGH EDGES & WELD SPLATTER.
- INTERNAL SANDBLASTING NOT REQUIRED; PREFORM VISUAL INSPECTION PRIOR TO CLOSING. INTERNAL SURFACE DEBRIS CONCERNS ARE TO BE FORWARDED TO PROJECT ENGINEER FOR CONSIDERATION.
- AIR PRESSURE TEST DAY TANKS TO 7 PSIG. & HOLD FOR 10 MINUTES MINIMUM.
- DURING PRESSURE TEST KEEP A SAFE WORKING DISTANCE OF 17 FEET.
- FOR ALL WELD & COPING DETAILS NOT SHOWN REFER TO DWG. E002662-399.
- ALL TAIL DIMENSIONS FROM REFERENCE POINT.
- WEIGHT OF BRIDGE CRANE RAILS (EMPTY) 3,626 lbs.
- WEIGHT OF BRIDGE CRANE RAILS (FULL) ____ lbs.
- ALLOWABLE MATERIAL SUBSTITUTIONS: SA-105N FOR SA-105, SA-516-70N FOR SA-516-70, SA-516-70 FOR SA-36

ISSUED FOR CONSTRUCTION

NAME: T.GOLUBIC DATE: AUG 13/18

BRIDGE CRANE RATING

5 TONNE (11,023 lbs)

DATE	JUN 18/18	SCALE	NTS
DRAWN BY	T.GOLUBIC	CHECKED BY	D.ADDINGTON
PROJECT MANAGER	J.GARCIA	PROJECT ENGINEER	D.ADDINGTON
CUST PO	2850052404	OPER CODE	415
ISSUED FOR CONSTRUCTION	AUG 13/18	TBG	DA
REV	DESCRIPTION	DATE	BY

SPRUCE RIDGE EXPANSION
CS-2 & CS-N5
PCE1000D

ENERFLEX
Calgary, Alberta,
Canada

5 TONNE STATIONARY
BRIDGE CRANE RAIL DETAILS

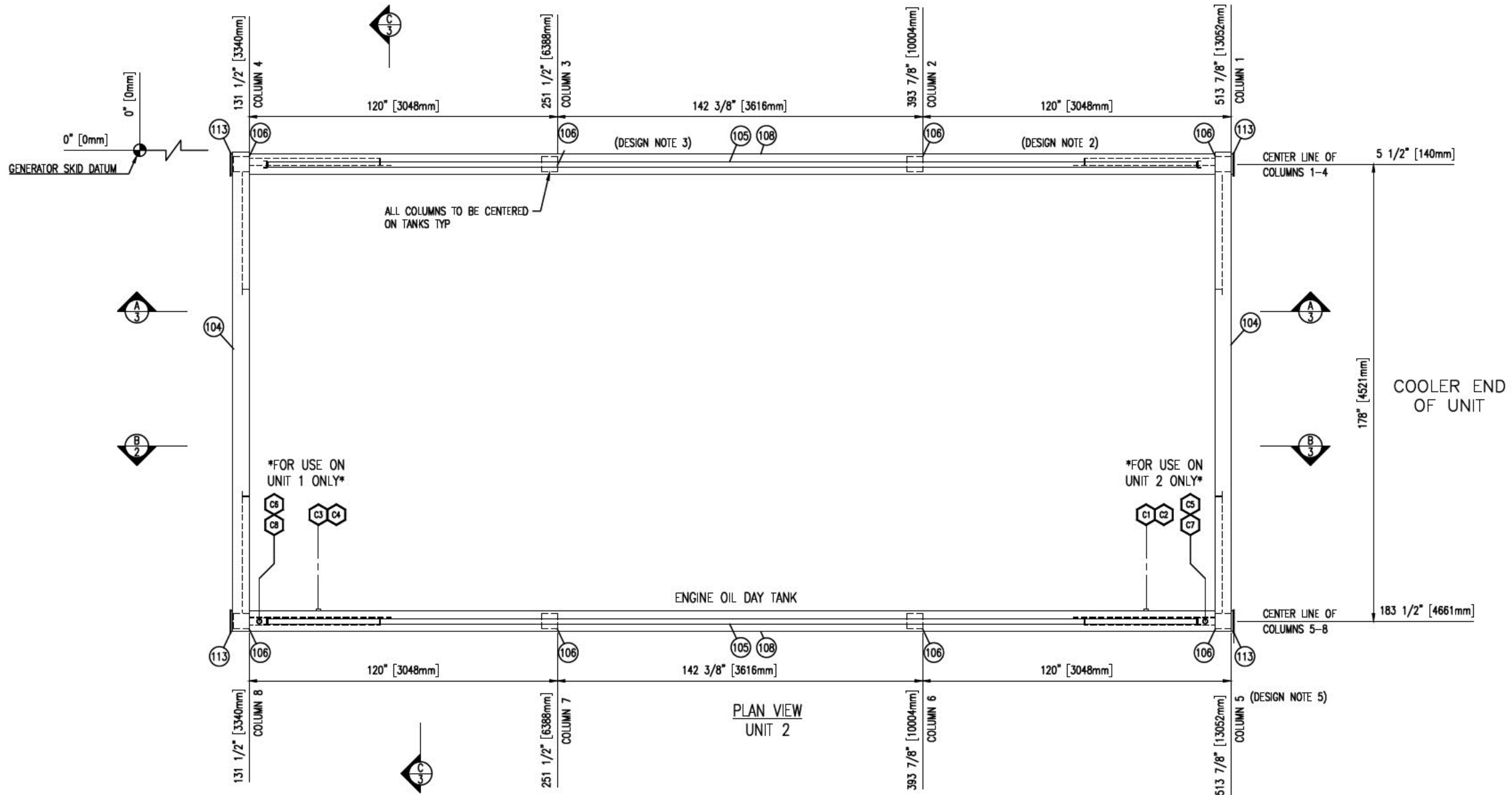
DWG NO E002662-CRANE RAIL

SHT 1

REV 0

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NOTES

- ALL FABRICATION TO BE IN ACCORDANCE TO W59-M.
- CRANE RAIL IS DESIGNED TO CSA S16-01 AND CMAA SPECIFICATION #74.
- GRIND ALL ROUGH EDGES & WELD SPLATTER.
- INTERNAL SANDBLASTING NOT REQUIRED; PREFORM VISUAL INSPECTION PRIOR TO CLOSING. INTERNAL SURFACE DEBRIS CONCERNS ARE TO BE FORWARDED TO PROJECT ENGINEER FOR CONSIDERATION.
- AIR PRESSURE TEST DAY TANKS TO 7 PSIG. & HOLD FOR 10 MINUTES MINIMUM.
- DURING PRESSURE TEST KEEP A SAFE WORKING DISTANCE OF 17 FEET.
- FOR ALL WELD & COPING DETAILS NOT SHOWN REFER TO DWG. E002662-399.
- ALL TAIL DIMENSIONS FROM REFERENCE POINT.
- WEIGHT OF BRIDGE CRANE RAILS (EMPTY) 3,626 lbs.
- WEIGHT OF BRIDGE CRANE RAILS (FULL) _____ lbs.
- ALLOWABLE MATERIAL SUBSTITUTIONS: SA-105N FOR SA-105
SA-516-70N FOR SA-516-70
SA-516-70 FOR SA-36

**ISSUED FOR
CONSTRUCTION**

NAME T.GOLUBIC DATE AUG 13/18

BRIDGE CRANE RATING
5 TONNE (11,023 lbs)

REV	DESCRIPTION	DATE	BY	APR
0	ISSUED FOR CONSTRUCTION	AUG 13/18	TBG	DA

DATE	JAN 15/18	SCALE	NTS
DRAWN BY	T.GOLUBIC	CHECKED BY	D.ADDINGTON
PROJECT MANAGER	J.GARCIA	APPROVED BY	D.ADDINGTON
CUST PO	2850052404	PROJECT ENGINEER	D.ADDINGTON

SPRUCE RIDGE EXPANSION
CS-2 & CS-N5
PCE10000

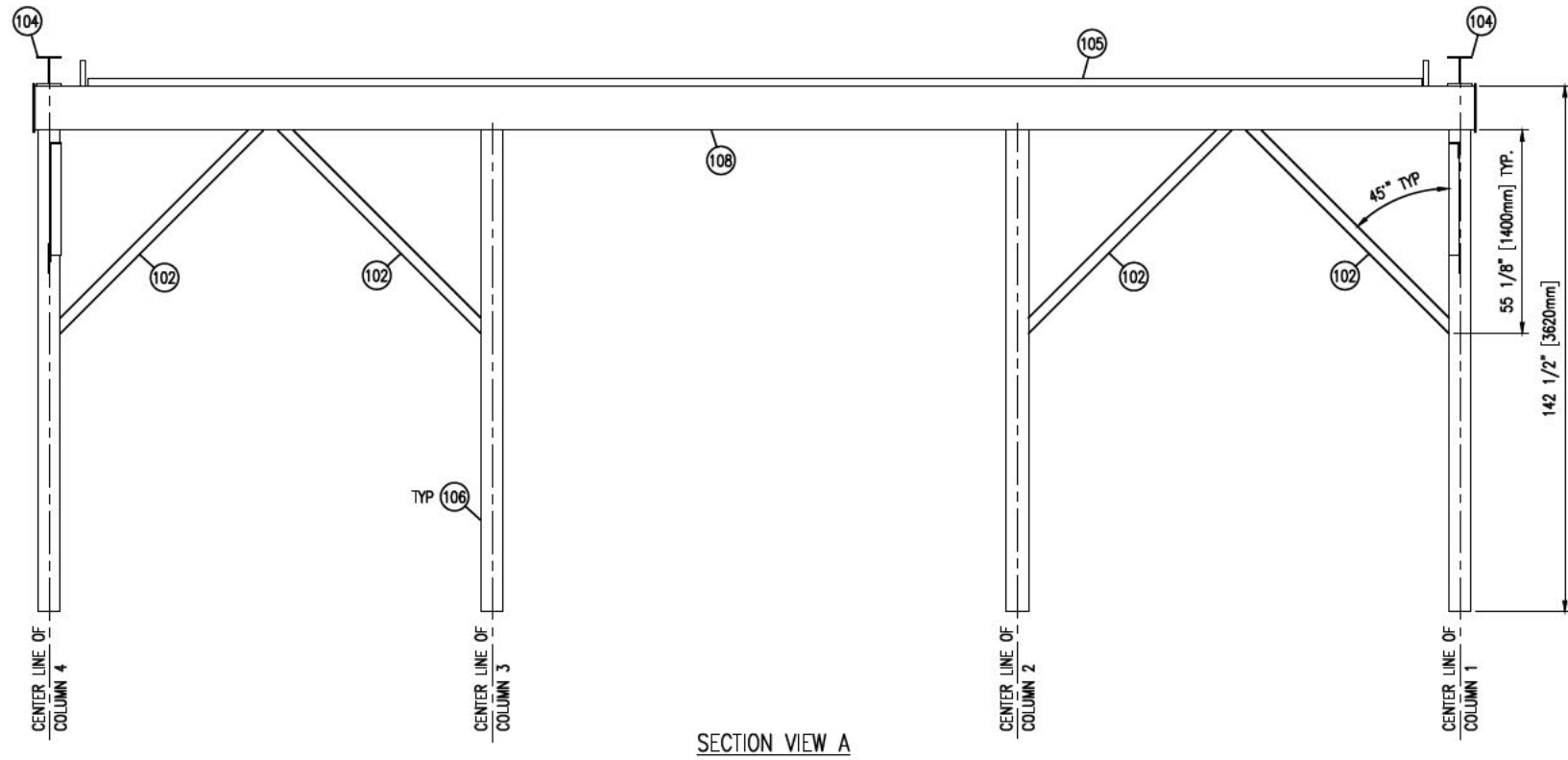
ENERFLEX
Calgary, Alberta,
Canada

5 TONNE STATIONARY
BRIDGE CRANE RAIL DETAILS

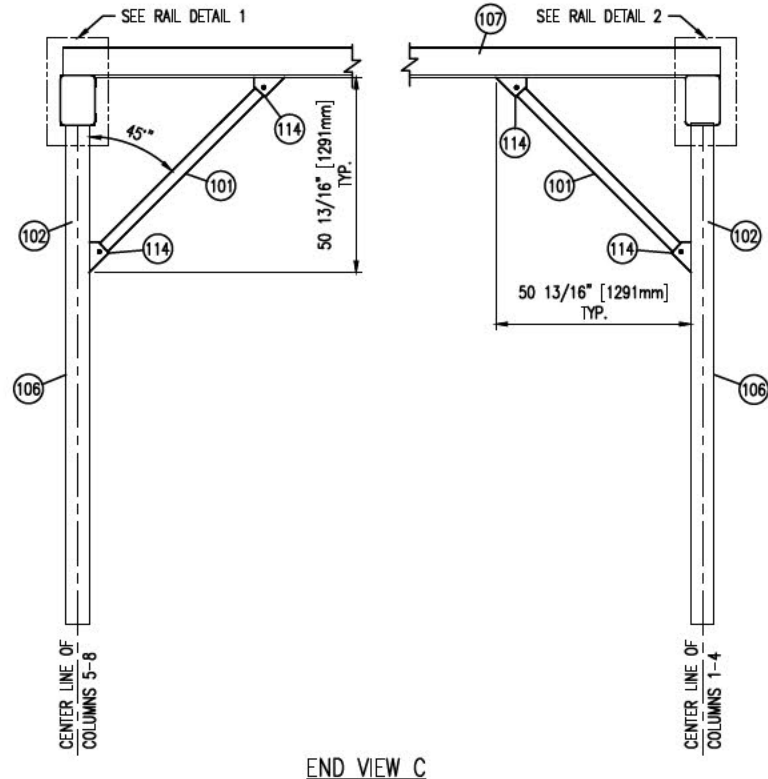
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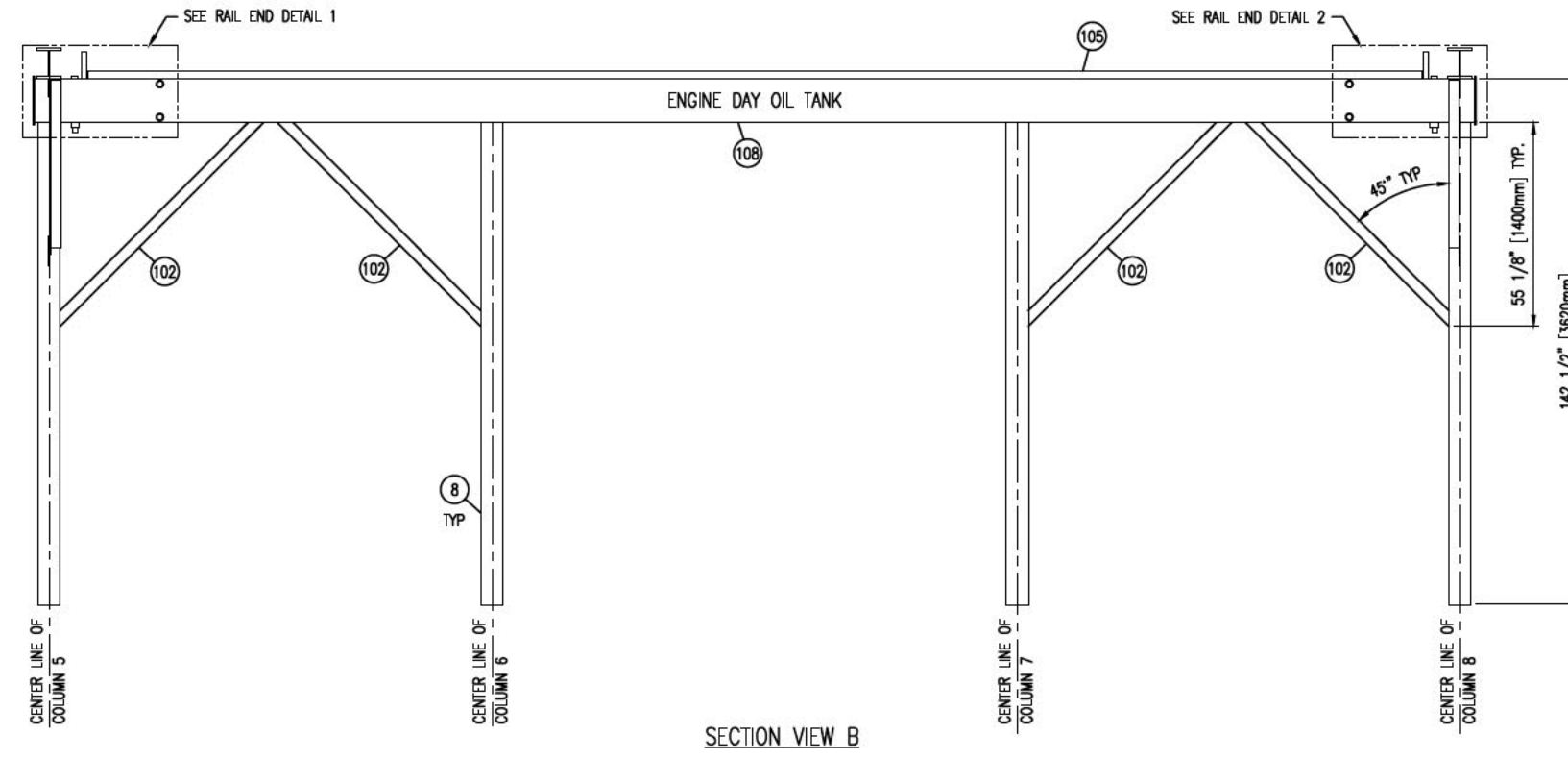
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SECTION VIEW A



END VIEW C



SECTION VIEW B

ISSUED FOR
CONSTRUCTION
NAME: T.GOLUBIC DATE: AUG 13/18

REV	DESCRIPTION	DATE	BY	APR
0	ISSUED FOR CONSTRUCTION	AUG 13/18	TBG	DA

DATE: JUN 18/18	SCALE: NTS
DRAWN BY: T.GOLUBIC	CHECKED BY: D.ADDINGTON
PROJECT MANAGER: J.GARCIA	PROJECT ENGINEER: D.ADDINGTON
CUST PO: 2850052404	OPER. CODE: 415

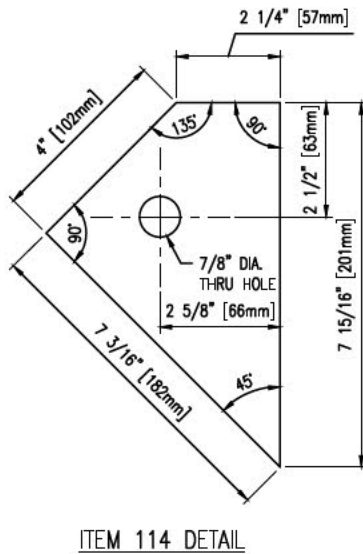
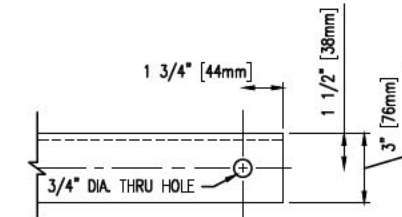
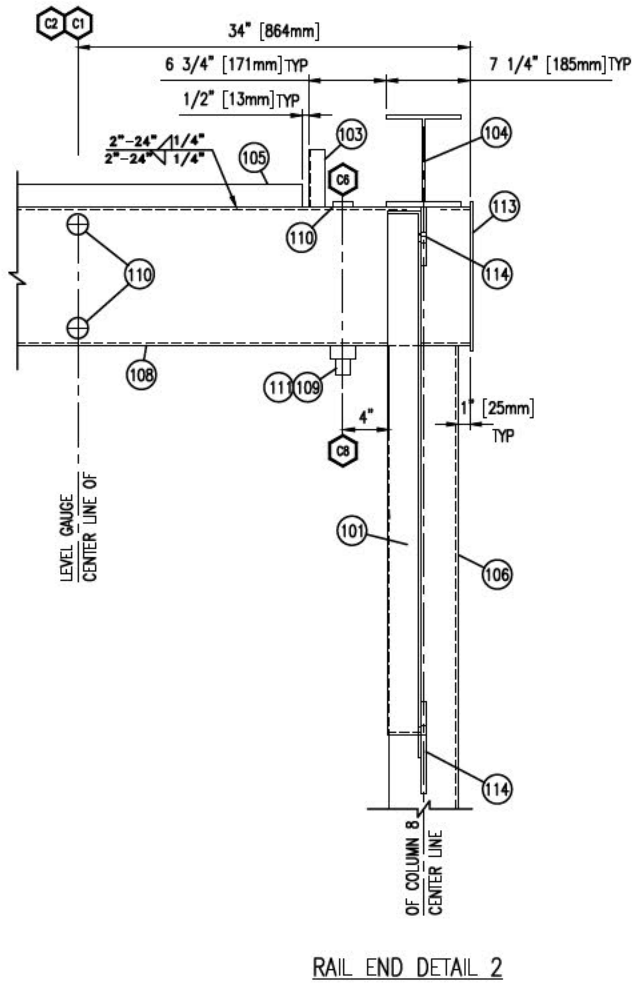
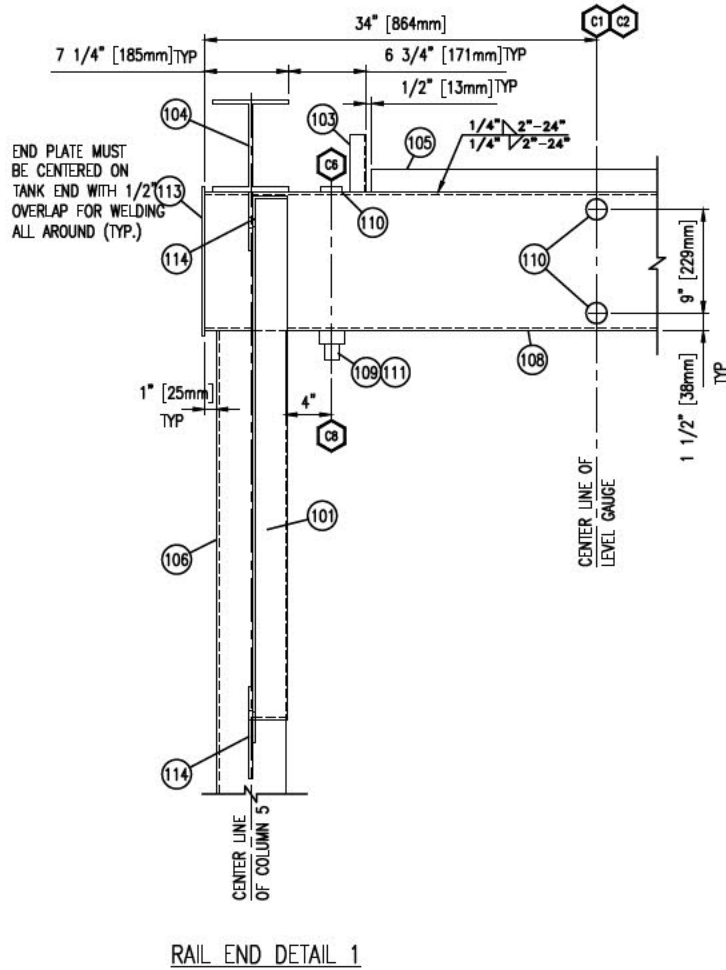
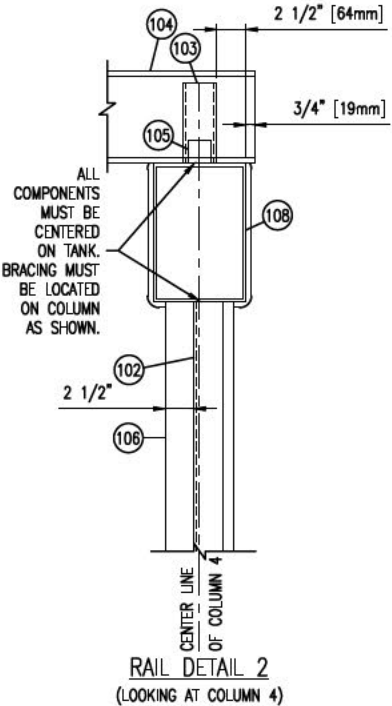
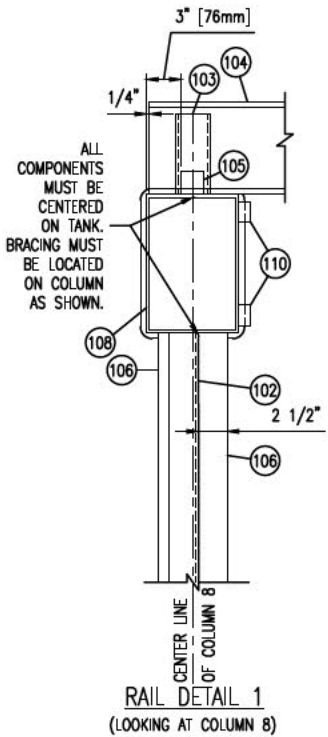
SPRUCE RIDGE EXPANSION CS-2 & CS-N5 PCE1000D	WORK ORDER: E002662-01&02
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ENERFLEX
Calgary, Alberta,
Canada
DWG NO: E002662-CRANE RAIL

5 TONNE STATIONARY
BRIDGE CRANE RAIL DETAILS
SHT: 3
REV: 0

FILE NAME: P:\SWP\GAP Canada Projects\E002662-01 Spruce Ridge - Power Gen\4. Drafting\E002662-01-201.DWG

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ISSUED FOR CONSTRUCTION
NAME: T.GOLUBIC DATE: AUG 13/18

REV	DESCRIPTION	DATE	BY	APR
0	ISSUED FOR CONSTRUCTION	AUG 13/18	TBG	DA

DATE JUN 18/18	SCALE NTS
DRAWN BY T.GOLUBIC	CHECKED BY D.ADDINGTON
PROJECT MANAGER J.GARCIA	PROJECT ENGINEER D.ADDINGTON
CUST PO	TBA

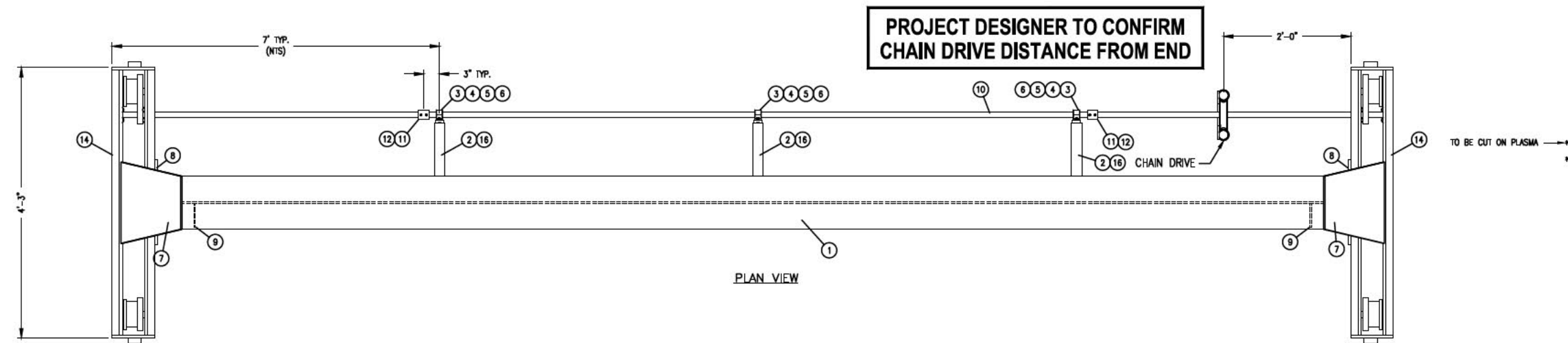
SPRUCE RIDGE EXPANSION
CS-2 & CS-N5
PCE1000D

ENERFLEX
Calgary, Alberta,
Canada

5 TONNE STATIONARY
BRIDGE CRANE RAIL DETAILS

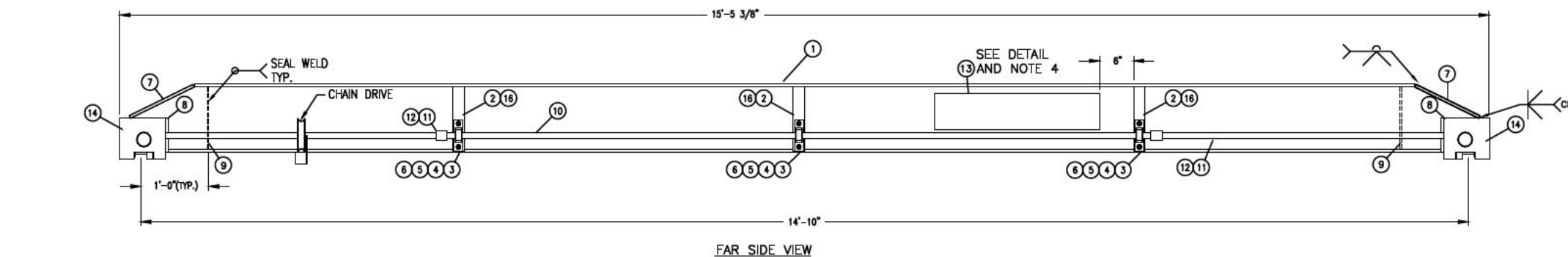
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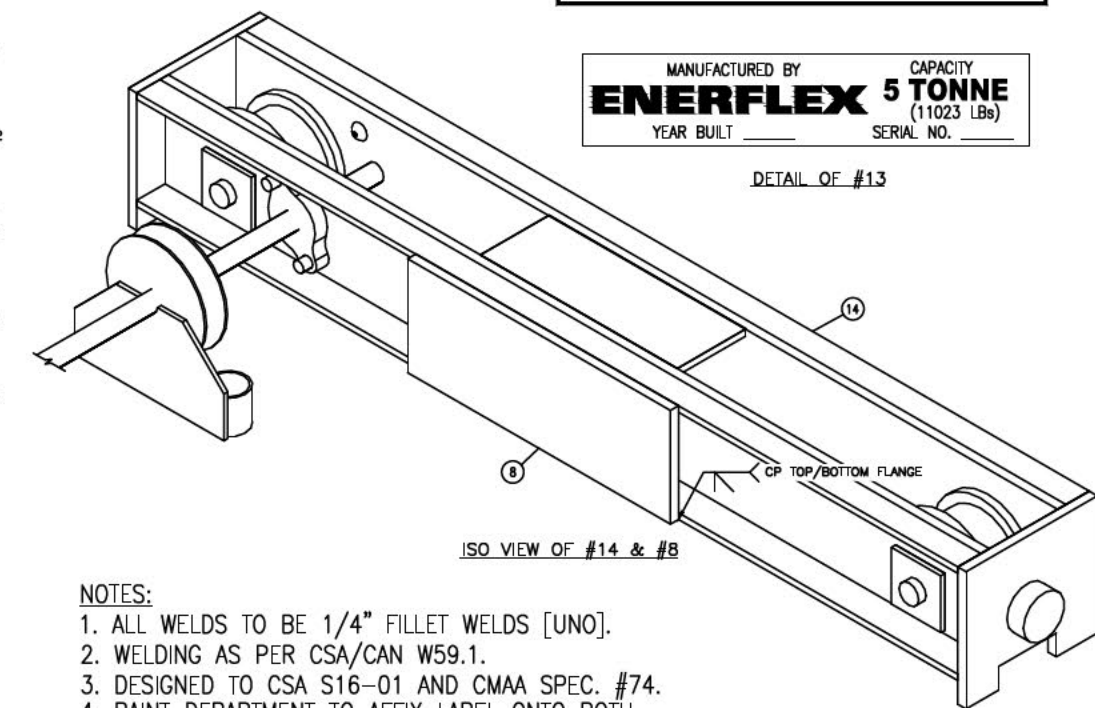
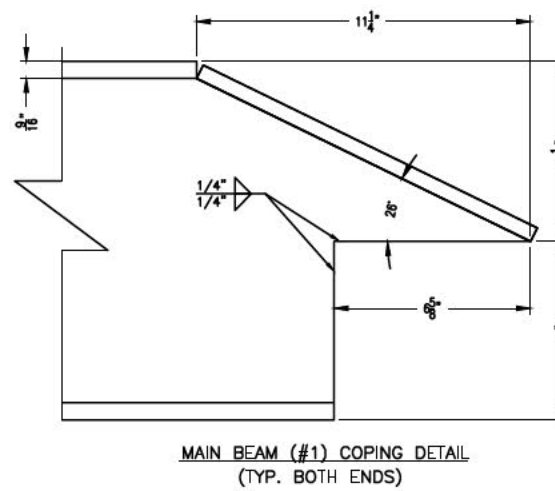
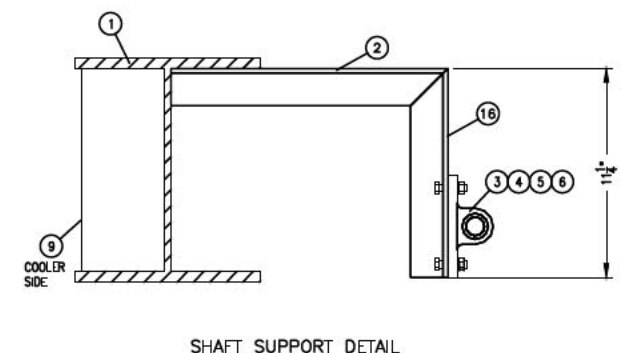
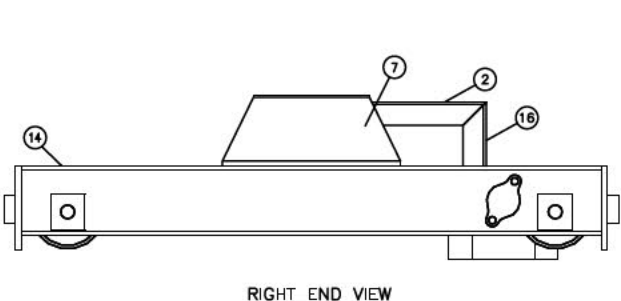
BILL OF MATERIAL					
MARK	PART NUMBER	QTY	LONG ANNOTATION	MATERIAL	LENGTH
1	034-HE-1200-0530	1	WIDE FLANGE, 12" X 53#	G40.2150W	15'-1 9/16"
2	005-HD-0200-0200-0025	3	ANGLE, 2" X 2", 1/4" THK	G40.2144W	1'-2 7/8"
3	WPB-0100M311-D00G	3	PILLOW BLOCK, DODGE	-	-
4	402-LOGC-0037	6	LOCK WASHER, 3/8" STD. PLTD.	-	-
5	CONSUMABLE	6	3/8" NUT, HEX HEAD, NC, GR. 8	-	-
6	CONSUMABLE	6	3/8" BOLT, NC GR.8	-	1 1/2"
7	040-HD-0050	2	PLATE, 1/2" SMOOTH X 1'-3 5/16" X 1'-0 1/2"	G40.2144W	1'-3 5/16"
8	040-HD-0050	2	PLATE, 1/2" SMOOTH X 1'-4" X 6"	G40.2144W	1'-4"
9	010-HD-0450-0025	2	FLAT BAR, 4-1/2" X 1/4" THK	G40.2144W	10 7/8"
10	012-ML-0100	1	ROUND BAR, 1"	C1018	12'-8 1/2"
11	121-HRB-0075	2	3/4"- 3000# SCRD COUPLING (DRILLED OUT TO 1")	SA-105-N	-
12	CONSUMABLE	4	SPRING PIN - SLOTTED, 1/4" DIA	-	1 1/4"
13	CONSUMABLE	2	ENERFLEX 5-TONNE/21-3/4 X 6, 300LR CRANE (1 PER SIDE)	-	-
14	HYDR-ENRTRUCKS 5 TONNE	1	ENDTRUCKS, SET OF 2, 5 TONNE RATED, TOP RUNNING	-	-
15	Consumable	1	PAINT - NEW CAT YELLOW	-	4 LITERS
16	005-HD-0200-0200-0025	3	ANGLE, 2" X 2", 1/4" THK	G40.2144W	11 1/4"
17	HYDR-HGTST-TBD 5 TONNE	1	TROLLEY, CHAIN DRIVE, TBD DROP, 5 TONNE RATED	-	-
18	HYDR-HBST-TBD 5 TONNE	1	HOIST, CHAIN, TBD DROP, 5 TONNE RATED	-	-

NOTE: TWO (2) BRIDGE CRANES REQ'D EACH FOR COMPLETE E002662-01&02 UNITS



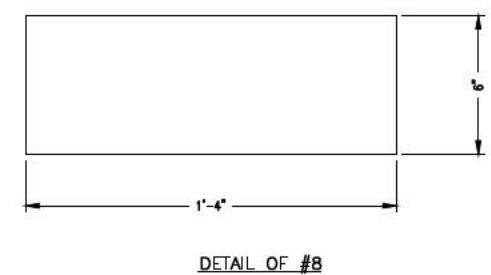
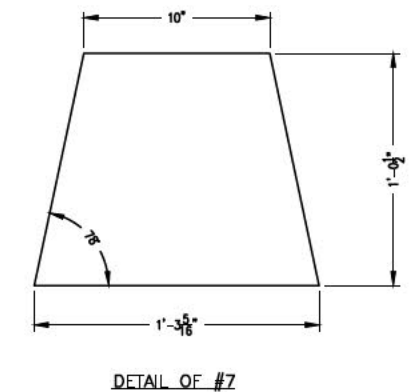
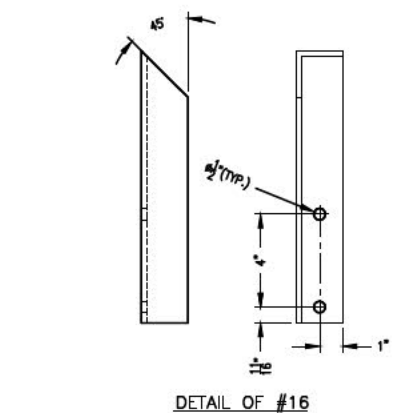
NOTE: "A" HAND GEAR PULLEY CHAIN LENGTH
CRANE HEIGHT - 2 FT = LENGTH OF DROP
TOTAL LENGTH = 2 x LENGTH OF DROP
"B" LENGTH OF HOIST DRIVE/LIFT CHAIN
CRANE HEIGHT - 3 FT = LENGTH OF DROP

IMPORTANT NOTE
CENTER TO CENTER RAILS
DIMENSION PERMITTED
14'-0" TO 26'-6"



MANUFACTURED BY
ENERFLEX
YEAR BUILT _____
CAPACITY
5 TONNE
(11023 LBS)
SERIAL NO. _____

DETAIL OF #13



- NOTES:
- ALL WELDS TO BE 1/4" FILLET WELDS [UNO].
 - WELDING AS PER CSA/CAN W59.1.
 - DESIGNED TO CSA S16-01 AND CMAA SPEC. #74.
 - PAINT DEPARTMENT TO AFFIX LABEL ONTO BOTH SIDES OF ITEM #1.
 - SKID SHOP TO STENCIL SERIAL NO. (PROJECT NO.) ON ITEM #7 (ONE END ONLY)

ISSUED FOR CONSTRUCTION
NAME T.GOLUBIC DATE MAR 23/18

				DATE JAN 23/18	SCALE NTS	SPRUCE RIDGE EXPANSION CS-2 & CS-N5 PCE1000D				ENERFLEX Calgary, Alberta, Canada		ENERFLEX LTD. STOCK BRIDGE CRANE 5-TONNE (11023 LBS)				
				DRAWN BY T.GOLUBIC	CHECKED BY D.DADDINGTON											APPROVED BY D.DADDINGTON
				PROJECT MANAGER J.GARCIA	PROJECT ENGINEER D.DADDINGTON											
				CUST PO 2850052404												
0 ISSUED FOR CONSTRUCTION				JAN 26/18	TBG	DA	APEGA PERMIT No:				STEP CODE 414	WORK ORDER E002662-01&02	DWG NO E002662-BRIDGE CRANE			
REV DESCRIPTION				DATE	BY	APR										
												SHT 1				
												REV 1				

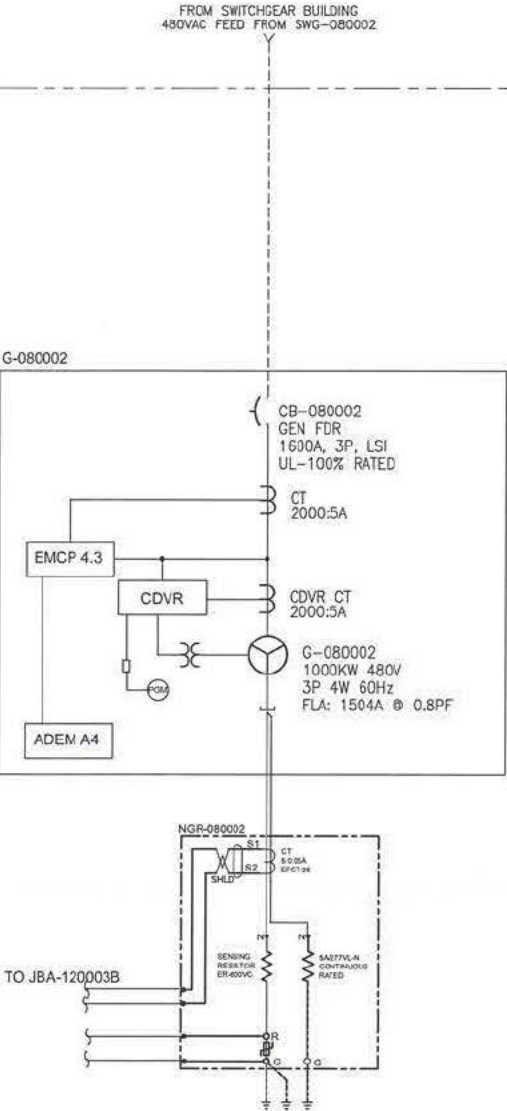
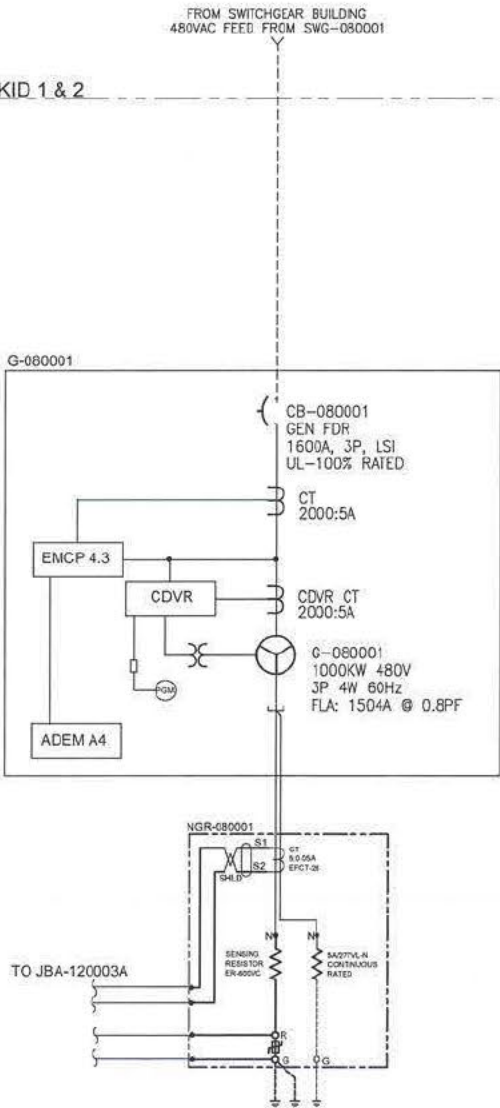
ENERFLEX

Building Electrical Layout

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-----	FIELD CABLING (DONE BY OTHERS)
-----	INTERNAL CABLING/WIRING

GAS GENERATOR SKID 1 & 2
BLDG-030003



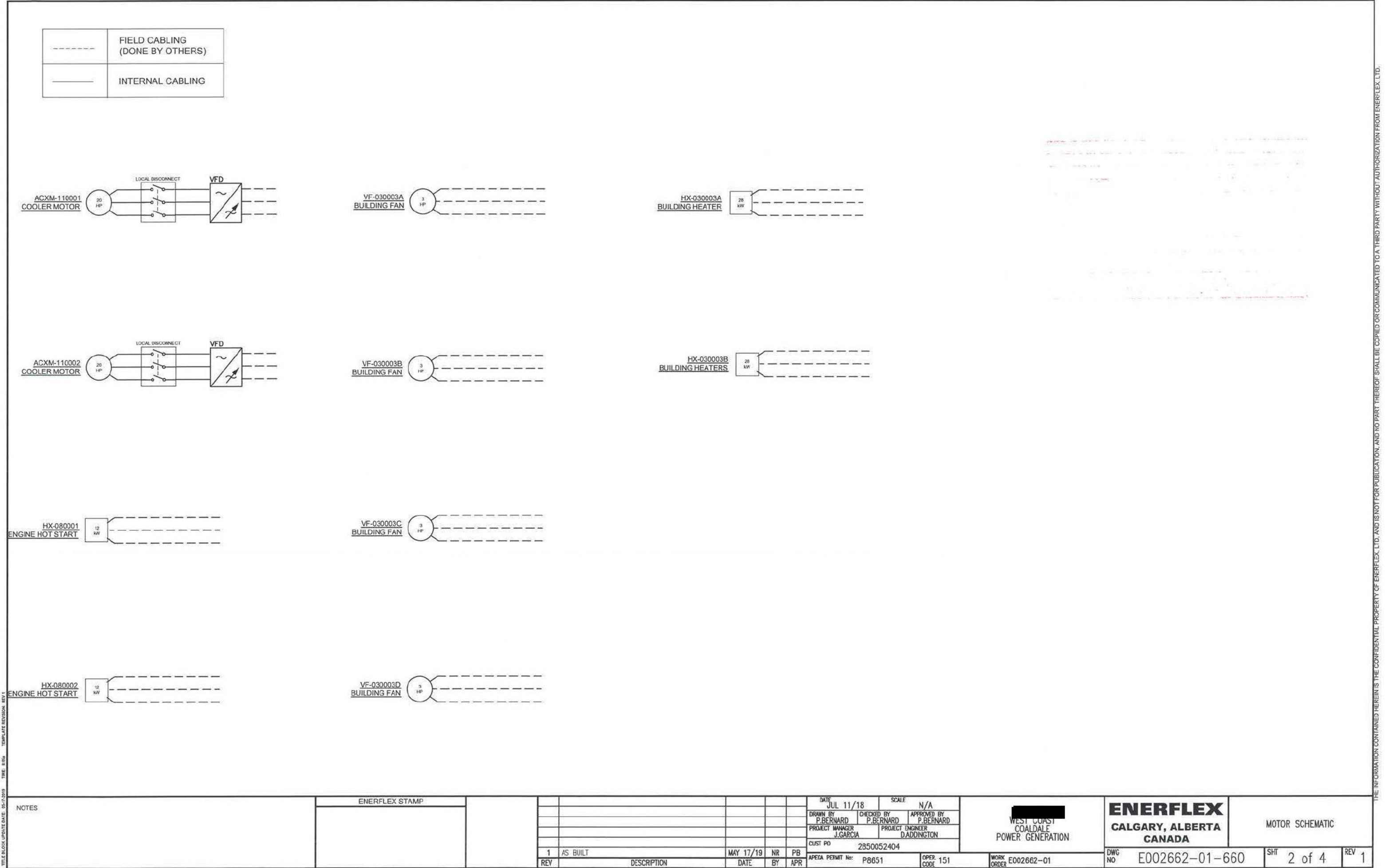
SOLARIS MANAGEMENT CONSULTANTS INC.		
Project	VDD#	PO#
EBR-0326	D2-002	2850052404
1	PROCEED	
2	PROCEED, CHANGE AS NOTED & RESUBMIT	
3	DO NOT PROCEED, CHANGE AS NOTED & RESUBMIT	
4	PROCEED AND RESUBMIT CERTIFIED	
10	DATA RECEIVED FOR INFORMATION ONLY	
By:	G. No	Date: 11 MAR 2020
ACCEPTANCE OF THIS DOCUMENT BY SOLARIS DOES NOT RELIEVE THE VENDOR OF ANY RESPONSIBILITY UNDER THE TERMS AND CONDITIONS OF THE APPLICABLE CONTRACT OR PURCHASE ORDER.		

Received
MAY 24 2019
SMCI-DC

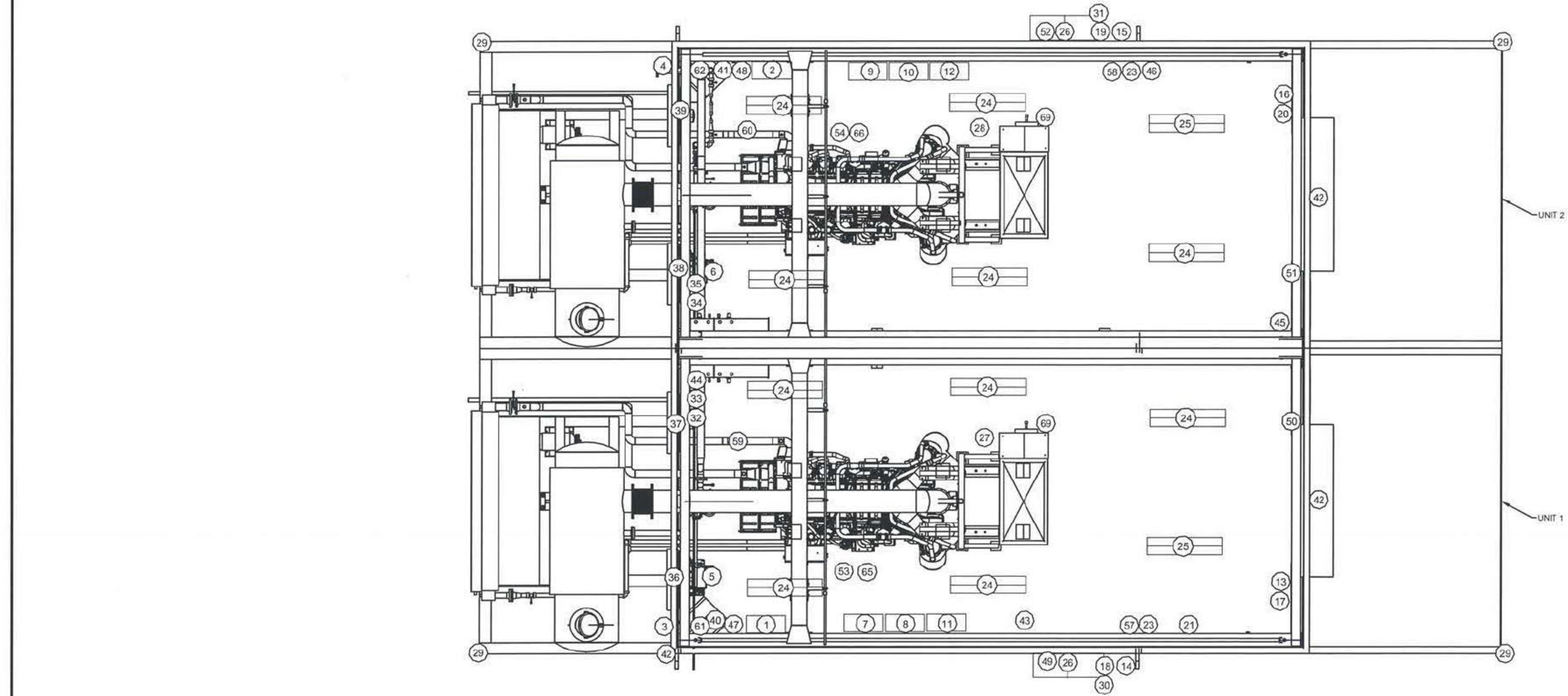
TITLE BLOCK UPDATE DATE: 05/17/2018 TIME: 8:55a TEMPLATE REVISION: REV 1

NOTES	ENERFLEX STAMP						DATE JUL 11/18		SCALE N/A		WEST COAST COALDALE POWER GENERATION		ENERFLEX CALGARY, ALBERTA CANADA		SINGLE LINE								
							DRAWN BY P. BERNARD		CHECKED BY P. BERNARD									APPROVED BY P. BERNARD					
							PROJECT MANAGER J. GARCIA		PROJECT ENGINEER D. ADDINGTON														
							CUST PO 2850052404																
				1 AS BUILT		MAY 17/19		NR		PB		APEGA PERMIT No: P8651		OPER CODE 151		WORK ORDER E002662-01		DWG NO E002662-01-660		SHT 1 of 4		REV 1	
				REV DESCRIPTION		DATE		BY		APR													

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TITLE BLOCK UPDATE DATE: 05-07-2019 TIME: 8:00a TEMPLATE REVISION: REV 1



- NOTES
1. ALL CONDUIT TO BE RIGID ALUMINUM
 2. ESD STATION, STROBES, AND EXTERIOR LIGHTS TO BE INSTALLED AS PER TYPICAL DRAWING

ENERFLEX STAMP

1	AS BUILT	MAY 17/19	NR	PB
REV	DESCRIPTION	DATE	BY	APR

DATE	JUL 11/18	SCALE	N/A
DRAWN BY	P. BERNARD	CHECKED BY	P. BERNARD
PROJECT MANAGER	J. GARCIA	PROJECT ENGINEER	D. ADDINGTON
CUST PO	2850052404		
APERSA PERMIT No:	P8651	OPER. CODE	151

WEST COAST
COALDALE
POWER GENERATION

ENERFLEX
CALGARY, ALBERTA
CANADA

BUILDING LAYOUT

DWG NO E002662-01-660

SHT 3 of 4

REV 1

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3.4 UPDATE DATE: 05-17-2019 T.M.E. E005 TEMPLATE REVISION: REV 1

NOTES

LEGEND			LEGEND		
ITEM	DESCRIPTION	TAG	ITEM	DESCRIPTION	TAG
1	COOLER MOTOR VFD	VFD-110001	42	FLOOD LIGHTS	-
2	COOLER MOTOR VFD	VFD-110002	43	CONVENIENCE RECEPTACLES 1	-
3	COOLER MOTOR DISCONNECT	DS-110001	44	CONVENIENCE RECEPTACLES 2	-
4	COOLER MOTOR DISCONNECT	DS-110002	45	CONVENIENCE RECEPTACLES 3	-
5	ENGINE HOT START	HX-080001	46	CONVENIENCE RECEPTACLES 4	-
6	ENGINE HOT START	HX-080002	47	BATTERY CHARGER	BC-080004
7	ANALOG JUNCTION BOX	JBA-120003A	48	BATTERY CHARGER	BC-080005
8	DISCRETE JUNCTION BOX	JBD-120003A	49	INTRUSION SWITCH	INT-120003A
9	ANALOG JUNCTION BOX	JBA-120003B	50	INTRUSION SWITCH	INT-120003B
10	DISCRETE JUNCTION BOX	JBD-120003B	51	INTRUSION SWITCH	INT-120003C
11	120V/208 JUNCTION BOX	JBP-080003A	52	INTRUSION SWITCH	INT-120003D
12	120V/208 JUNCTION BOX	JBP-080003B	53	HEAT DETECTOR	HD-120003A
13	AMBER STROBE LIGHT	YI-120003A	54	HEAT DETECTOR	HD-120003B
14	AMBER STROBE LIGHT	YI-120006C	55	-	-
15	AMBER STROBE LIGHT	YI-120003E	56	-	-
16	AMBER STROBE LIGHT	YI-120003G	57	GAS DETECTOR TRANSMITTER	GDC-120003A
17	RED STROBE LIGHT	YI-120003B	58	GAS DETECTOR TRANSMITTER	GDC-120003B
18	RED STROBE LIGHT	YI-120003D	59	GAS DETECTOR ELEMENT	GDCE-120003A
19	RED STROBE LIGHT	YI-120003F	60	GAS DETECTOR ELEMENT	GDCE-120003B
20	RED STROBE LIGHT	YI-120003H	61	FIRE DETECTOR	FD-120003A
21	BUILDING TEMPERATURE	TE-120003A	62	FIRE DETECTOR	FD-120003B
22	-	-	63	-	-
23	FIRE EXTINGUISHERS	-	64	-	-
24	INTERIOR LIGHT	-	65	SMOKE DETECTOR	SD-120003A
25	EMERGENCY INTERIOR LIGHT	-	66	SMOKE DETECTOR	SD-120003B
26	EXTERIOR LIGHT	-	67	-	-
27	NGR	NGR-080001	68	-	-
28	NGR	NGR-080002	69	COPPER GROUND BAR	-
29	GROUND POST	-			
30	EMERGENCY SHUTDOWN STATION	MESD-120006A			
31	EMERGENCY SHUTDOWN STATION	MESD-120006B			
32	BUILDING FANS LOCAL CONTROL STATION	HS-030003AA			
33	BUILDING FANS LOCAL CONTROL STATION	HS-030003BA			
34	BUILDING FANS LOCAL CONTROL STATION	HS-030003CA			
35	BUILDING FANS LOCAL CONTROL STATION	HS-030003DA			
36	BUILDING FAN	VF-030003A			
37	BUILDING FAN	VF-030003B			
38	BUILDING FAN	VF-030003C			
39	BUILDING FAN	VF-030003D			
40	BUILDING HEATER	HX-030003A			
41	BUILDING HEATER	HX-030003B			

ENERFLEX STAMP

1

AS BUILT

MAY 17/19

NR

PB

APR

DESCRIPTION

DATE

BY

APR

DATE

JUL 11/18

SCALE

N/A

DRAWN BY

P.BERNARD

CHECKED BY

P.BERNARD

APPROVED BY

P.BERNARD

PROJECT MANAGER

J.GARCIA

PROJECT ENGINEER

D.ADDINGTON

CUST PO

2850052404

APECA PERMIT No: P8651

OPER. 151

CODE

WORK ORDER E002662-01

ENERFLEX
CALGARY, ALBERTA
CANADA

DWG NO E002662-01-660

BUILDING LAYOUT
BOM

SHT 4 of 4

REV 1

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HVAC Calculations

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E002662-01/02 HVAC Calculations

Based on only one unit running (transfer switch scheme):

Cat G3512 Genset radiant heat output: 549355 btu/hr

Fan Model: ACME DCK35, 3hp

Max Air Flow: 13000 CFM

Quantity: 4 (four) in package, 2 (two) per genset

Scenario 1: unit running 100%, 2 fans on

$$\Delta T_{\text{across building } ^\circ\text{F}} = \frac{\text{Radiant Output (btu/hr)}}{1.08 \text{ (Total Airflow CFM)}}$$

$$\Delta T_{\text{across building } ^\circ\text{F}} = \frac{549355 \text{ btu/hr}}{1.08 \text{ (2 x 13000 CFM)}} = 19.5 ^\circ\text{F (10.8 } ^\circ\text{C)}$$

For example, at max ambient of 27°C the building should not exceed 37.8°C

Scenario 2: unit running 100%, 4 fans on

$$\Delta T_{\text{across building } ^\circ\text{F}} = \frac{\text{Radiant Output (btu/hr)}}{1.08 \text{ (Total Airflow CFM)}}$$

$$\Delta T_{\text{across building } ^\circ\text{F}} = \frac{549355 \text{ btu/hr}}{1.08 \text{ (4 x 13000 CFM)}} = 9.8 ^\circ\text{F (5.4 } ^\circ\text{C)}$$

For example, at max ambient of 27°C the building should not exceed 32.4°C