Builder/Contractor Responsibilities

Drawing Validity – These drawings, supporting structural calculations and design certification are based on the order documents as of the date of these drawings. These documents describe the material supplied by the manufacturer as of the date of these drawings. Any changes to the order documents after the date on these drawings may void these drawings, supporting structural calculations and design certification. The Builder/Contractor is responsible for notifying the building authority of all changes to the order documents which result in changes to the drawings, supporting structural calculations and design certification.

Builder Acceptance of Drawings – Approval of the manufacturer's drawings and design data affirms that the manufacturer has correctly interpreted and applied the requirements of the order documents and constitutes Builder/Contractor acceptance of the manufacturer's interpretations of the order documents and standard product specifications, including its design, fabrication and quality criteria standards and tolerances. (April 2010 Section 4.4.1)

Code Official Approval – It is the responsibility of the Builder/Contractor to ensure that all project plans and specifications comply with the applicable requirements of any governing building authority. The Builder/Contractor is responsible for securing all required approvals and permits from the appropriate agency as required.

Building Erection – The Builder/Contractor is responsible for all erection of the steel and associated work in compliance with the Metal Building Manufacturers drawings. Temporary supports, such as temporary guys, braces, false work or other elements required for erection will be determined, furnished and installed by the erector (April 2010 Section 7.10.3) (CSA/S16–09 Section 29).

Discrepancies – Where discrepancies exist between the Metal Building plans and plans for other trades, the Metal Building plans will govern. (April 2010 Section 3.3)

Materials by Others – All interface and compatibility of any materials not furnished by the manufacturer are the responsibility of and to be coordinated by the Builder/Contractor or A/E firm. Unless specific design criteria concerning any interface between materials if furnished as a part of the order documents, the manufacturers assumptions will govern.

Modification of the Metal Building from Plans – The Metal Building supplied by the manufacturer has been designed according to the Building Code and specifications and the loads shown on this drawing. Modification of the building configuration, such as removing wall panels or braces, from that shown on these plans could affect the structural integrity of the building. The Metal Building Manufacturer or a Licensed Structural Engineer should be consulted prior to making any changes to the building configuration shown on these drawings. The Metal Building Manufacturer will assume no responsibility for any loads applied to the building not indicated on these drawings.

Foundation Design
The Metal Building Manufacturer is not responsible for the design, materials and workmanship of the foundation. Anchor rod plans prepared by the manufacturer are intended to show only location, diameter and projection of the anchor rods required to attach the Metal Building System to the foundation. It is the responsibility of the end customer to ensure that adequate provisions are made for specifying rod embedment, bearing values, 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. (MBMA 06 Sections 3.2.2 and A3)

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For questions regarding the interpretation of the drawings, materials provided, or assembly of the parts:
- Call 1–800–879–7827 and ask for the "Field Service" department.
- Before or after normal hours, you may send an email to OKCSField.Service@StarBuildings.net. Please include the order no., brief description of the question, & contact name and phone number.

Drawing Index

Page	Description
E1	Cover Sheet
E2	Roof Framing BLDGA
E3	Roof Sheeting
E4	Soffit Sheeting
E5	Sidewall BLDGA WALLSWA
E6	Sidewall BLDGA WALLSWC
E7	Endwalls BLDGA WALLEWB and WALLEWD
E8–E11	Main Frame Cross Sections
E12	Connection Detail
R1–R4	Erection Guides
R5–R14	Construction Drawings
R15	Trim Profiles

ENGINEERING DESIGN CRITERIA

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Building Code ......................   2012 IBC
Building Risk Category .............   Normal (Risk Category II)
Roof Dead Load
     Superimposed ..................   6.49 psf
     Collateral ....................   5.00 psf
     (5.00 psf other)
Roof Live Load ....................   20.00 psf no reduction

Snow
     Ground Snow Load (Pg) .........   150.00 psf
     Snow Load Importance Factor (I)   1.00
     Flat Roof Snow Load (Pf) ......   113.40 psf
     Snow Exposure Factor (Ce) .....   0.90
     Thermal Factor (Ct) ...........   1.20

Wind
     Ultimate Wind Speed (Vult) ....   134.00 mph
     Nominal Wind Speed (Vasd) .....   103 mph (IBC section 1609.3.1)
     Serviceability Wind Speed .....   92 mph
     Wind Exposure Category ........   D
     Internal Pressure Coef (GCpi) .   0.18/-0.18
     Loads for components not provided by building manufacturer
     Corner Areas (within 3.43' of corner) 50.30 psf pressure -67.35 psf suction
     Other Areas                           50.30 psf pressure -54.56 psf suction
     These values are the maximum values required based on a 10 sq ft area.
     Components with larger areas may have lower wind loads.

Seismic
     Seismic Importance Factor (Ie)    1.00
     Seismic Design Category .......   D
     Soil Site Class ...............   D Stiff Soil
     Ss ............................   1.773 g          Sds .....  1.182 g
     S1 ............................   0.674 g          Sd1 .....  0.674 g
     Analysis Procedure ............   Equivalent Lateral Force
     Column Line                            1-4          SWA & SWC
     Basic Force Resisting System           C4           B3
     Response Modification Coefficient (R)  3.50         3.25
     Seismic Response Coefficient (Cs)      0.286        0.308
     Design Base Shear in kips (V)          35.24        29.66
     Basic Structural System (from ASCE 7-10 Table 12.2-1)
       B3 - Ordinary Steel Concentrically Braced Frame
       C4 - Ordinary Steel Moment Frame
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DEFLECTION CRITERIA

The material supplied by the manufacturer has been designed with the following minimum deflection criteria. The actual deflection may be less depending on actual load and actual member length.

BUILDING DEFLECTION LIMITS.....: BLDG-A

Roof Limits		Rafters	Purlins	Panels
Live:	L/	240	240	240
Snow:	L/	240	240	240
Serviceability Wind:	L/	240	240	240
Total Gravity:	L/	240	240	240
Total Uplift:	L/	N/A	240	240

Frame Limits		Sidesway
Live:	H/	240
Snow:	H/	240
Serviceability Wind:	H/	240
Seismic Drift:	H/	40
Total Gravity:	H/	240
Service Seismic:	H/	240

Wall Limits		Limit
Total Wind Panels:	L/	180
Total Wind Girts:	L/	240
Total Wind EW Columns:	L/	120

The Service Seismic limit as shown here is at service level loads.

PROJECT NOTES

BOLT TIGHTENING - Bolted joints with A325 Type 1 bolts greater than 1/2" diameter are specified as pretensioned joints in accordance with the Specification for Structural Joints Using ASTM A325 or A490 Bolts, December 31, 2009. Pre-Tensioning can be accomplished by using the turn-of-nut method of tightening, calibrated wrench, twist off type tension control bolts or direct tension indicator as acceptable to the Inspecting Agency and Building Official. Installation Inspection requirements for Pre-Tensioned joints (Specification for Structural Joints Section 9.2) using turn-of-nut method is suggested.
The connections on this project are not slip critical.

Material properties of steel bar, plate, and sheet used in the fabrication of built-up structural framing members conform to ASTM A529, ASTM A572, ASTM A1011 SS, or ASTM A1011 HSLAS with a minimum yield point of 50 ksi. Material properties of hot rolled structural shapes conform to ASTM A992, ASTM A529, or ASTM A572 with a minimum specified yield point of 50 ksi. Hot rolled angles, other than flange braces, conform to ASTM 36 minimum. Hollow structural shapes conform to ASTM A500 grade B, minimum yield point is 42 ksi for round HSS and 46 ksi for rectangular HSS. Material properties of cold-formed light gage steel members conform to the requirements of ASTM A1011 SS Grade 55, ASTM A1011 HSLAS Grade 55 Class 1, ASTM A653 SS Grade 55, or ASTM A653 HSLAS Grade 55 Class 1 with a minimum yield point of 55 ksi. For Canada, material properties conform to CAN/CSA G40.20/G40.21 or equivalent.

Design criteria as noted is as given within order documents and is applied in general accordance with the applicable provisions of the model code and/or specification indicated. Neither the manufacturer nor the certifying engineer declares or attests that the loads as designated are proper for local provisions that may apply or for site specific parameters. The design criteria is supplied by the builder, project owner, or an Architect and/or Engineer of Record for the overall construction project.

This metal building system is designed as enclosed. All exterior components (i.e. doors, windows, vents, etc.) must be designed to withstand the specified wind loading for the design of components and cladding in accordance with the specified building code.

The metal building manufacturer has not designed the structure for snow accumulation loads at the ground level which may impose snow loads on the wall framing provided by the manufacturer.

Framed openings, walk doors, and open areas shall be located in the bay and elevation as shown in the erection drawings. The cutting or removal of girts shown on the erection drawings due to the addition of framed openings, walk doors, or open areas not shown may void the design certifications supplied by the metal building manufacturer.

Base Angle provided above wall system not by the metal building manufacturer is not designed to sustain transverse wind or seismic loading from the wall system.

The wall construction by others at building A side A, B, C, D has a self weight of 100 psf. This weight has been utilized in the design considerations for the building's seismic design.

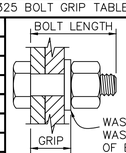
The seismic design uses 20% of code calculated roof snow in the seismic mass calculation.

BUILDING DESCRIPTIONS

Building ID	Width	Length	Height	Slope
Building A	34'–4	64'–4	18'–0	4:12

1/2"ø A325 BOLT GRIP TABLE

GRIP	LENGTH
0 TO 9/16"	1 1/4" F.T.
Over 9/16" TO 1 1/16"	1 3/4" F.T.
Over 1 1/16" TO 1 5/16"	2"
Over 1 5/16" TO 1 9/16"	2 1/4"
Over 1 9/16" TO 1 13/16"	2 1/2"
Over 1 13/16" TO 2 1/16"	2 3/4"
LOCATIONS OF BOLTS LONGER THAN 2 3/4" NOTED ON ERECTION DRAWINGS	
F.T. DENOTES FULLY THREADED	



NOTE: FULL THREAD ENGAGEMENT IS DEEMED TO HAVE BEEN MET WHEN THE END OF THE BOLT IS FLUSH WITH THE FACE OF THE NUT.

WASHER REQUIRED ONLY WHEN SPECIFIED. WASHER MAY BE LOCATED UNDER HEAD OF BOLT, UNDER NUT, OR AT BOTH AT LOCATIONS NOTED ON ERECTION DRAWINGS. ADD 5/32" FOR EACH WASHER TO MATERIAL THICKNESS TO DETERMINE GRIP.

Revision	Date	Description	By	Ck'd

STAR BUILDING SYSTEMS® AN NCI COMPANY
8600 SOUTH I-35 SERVICE RD. OKLAHOMA CITY, OK 73149 (405) 636-2010

Customer: NORTHERN MANAGEMENT SERVICES INC SANDPOINT, ID

Project Name & Location: ALASKA RAILROAD CORPORATION GIRDWOOD, AK

Drawing Status:
☐ Preliminary (Not For Construction)
☐ For Approval (Not For Construction)
☐ For Construction Permit
☒ For Erector Installation

Scale:	NOT TO SCALE
Drawn by:	EBF 5/17/18
Checked by:	CLS 5/17/18
Project Engineer:	SSY
Job Number:	16–B–42908
Sheet Number:	E1 of 12

The engineer whose seal appears hereon is an employee for the manufacturer for the materials described herein. Said seal or certification is limited to the products designed and manufactured by manufacturer only. The undersigned engineer is not the overall engineer of record for this project.

Allen D. Hurtz, P.E.
Alaska P.E. CE–10209
DRSTIC ENSTIA

STATE OF ALASKA 49TH ALLEN D. HURTZ No. CE-10209 REGISTERED PROFESSIONAL ENGINEER

May 25, 2018