



FRONTIER STEEL BUILDINGS

Manufacturer's General Standards

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Frontier Steel Buildings, Corp - 3 generations continuing to set the standards for excellence.



FRONTIER STEEL BUILDINGS

About Us

Frontier Steel Buildings, Corp is a group of top engineers, detailers, and project managers who provide engineering analysis, customer service, project management, fabrication, field support, AISC & MBMA certified fabricators, AWS certified welding facilities, and manufactured buildings worldwide.

Capabilities

We can build practically any shape that you want—gabled, unsymmetrical gable, symmetrical gable, single slope, lean to, etc. We have pre-engineering technicians to answer all your questions and to design your buildings to your specifications. All buildings are produced in facilities with certification from the American Welding Society (AWS), American Institute of Standards & Certification (AISC), and Metal Building Manufacturers Association (MBMA). Our plants are ICBO approved fabricators with superior safety and quality control programs!

We can offer you quotes for the following items:

- Walk doors
- Frame outs
- Louver doors
- Coil up doors
- Insulation
- Roof
- Walls
- Composite panels

We stand firmly behind our products and performance. Our components are guaranteed to meet or exceed all specifications and codes required for your building.

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We would like to thank all of our past customers and welcome all of our new customers to the family.

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SECTION 1: GENERAL**Drawings & Certifications**

Drawings: FRONTIER STEEL BUILDINGS shall furnish complete erection drawings for the proper identification and assembly of all building components. These drawings will show anchor bolt setting, transverse cross-sections, sidewall, endwall and roof framing, flashing and sheeting, and accessory installation details.

Certifications: Standard drawings and design analysis shall bear the seal of a registered professional engineer Licensed in the state where the building is to be placed. Design analysis shall be on file and furnished by FRONTIER STEEL BUILDINGS upon request.

SECTION 2: STRUCTURAL STEEL DESIGN**General**

FRONTIER STEEL BUILDINGS shall use standards, specifications, recommendations, findings, and/or interpretations of professionally recognized groups such as AISC, AISI, AAMA, AWS, ASTM, MBMA, Federal Specifications, and unpublished research by MBMA as the basis for establishing design, drafting, fabrication, and quality criteria, practices, and tolerances. For convenience, one or more sources may be referenced in a particular portion of these specifications. In all instances, however, FRONTIER STEEL BUILDINGS design, drafting, fabrication and quality criteria, practices, and tolerances shall govern, unless specifically countermanded by the contract documents. Structural mill sections or welded up plate sections will generally be designed in accordance with the 9th edition of AISC's "Specification for the Design, Fabrication and Erection Of structural Steel for Buildings," ASD method. Cold-Formed steel structural members will generally be designed in accordance with the latest edition of AISC's "Specifications for the Design of Cold-Formed Steel Structural Members."

Design Loads

Design loads shall be as specified and set forth in the contract, and shall be in accordance with FRONTIER STEEL BUILDINGS' standard design practices. Design loads may include dead load, roof live loads, seismic loads, collateral loads, auxiliary equipment loads, and/or other applied or specified loads.

Dead Load The actual weight of the building system supported by a given member.

Roof Live Loads Loads produced by maintenance activities, rain, erection activities, and other movable or moving loads by not including wind, snow, seismic, crane, or dead loads.

Roof Snow Load Gravity load induced by the weight of snow or ice on the roof, assumed to act on the horizontal projection of the roof.

Wind Loads The loads on a structure induced by the forces of wind blowing from any horizontal direction.

Collateral Loads The weight of any non-moving equipment or material such ceilings, electrical or mechanical equipment, sprinkler system, or plumbing.

Auxiliary Loads Dynamic loads induced by cranes, conveyors, or other material handling systems.

Seismic Loads Horizontal loads acting in any direction a structural system due to action of any earthquake. *Floor*

Live Loads Loads induced on a floor system by occupants of a building and their furniture, equipment, etc.

SECTION 3: BASIC MATERIAL SPECIFICATIONS**Primary Framing Steel**

- Steel for hot rolled shapes shall conform to the requirements of ASTM Specifications A-36, with Minimum yield strength of 36,000, 42,000 or 50,000 psi.
- Steel for built-up sections shall generally conform to the physical requirements of ASTM D529, ASTM 572 or ASTM A36 as applicable, with minimum yield strength of 42,000, 50,000, or 55,000 psi as required by design.
- Steel for endwall "C" sections shall generally conform to the physical requirements of ASTM A607 GR55M or Equivalent, and have minimum yield strength of 55,000 psi.

SECTION 4: STRUCTURAL FRAMING

General

All framing members shall be shop fabricated for field bolted assembly. The surfaces of the bolted connections shall be smooth and free from burrs or distortions.

All shop connections shall be in accordance with FRONTIER STEEL BUILDINGS standard design practices as specified in paragraph 2.1.1. Certification of welder qualifications will be furnished when required and specified in advance. All framing members, where necessary, shall carry an easily recognizable identifying mark.

Primary Framing

Rigid Frame: All rigid frames shall be welded built-up "I" sections or hot -rolled sections. The columns and the rafters may be either uniform depth or tapered. Flanges shall be connected to webs by means of a continuous fillet weld on one side.

Endwall Frames: All endwall roof beams and endwall columns shall be cold-formed "C" sections, mill-rolled sections, or built-up "I" sections depending on design requirements.

Plates, Stiffeners, etc: All base plates, splice plates, cap plates, and stiffeners shall be factory welded into place on the structural members.

Bolt Holes, etc: All base plates, splice and flanges shall be shop fabricated to include bolt connection holes. Webs shall be shop fabricated to include bracing holes. Connections for secondary structural (purlins and girts) shall be by means of welded clips.

Secondary Framing Steel

Steel used to form purlins, girts, eave struts and "C" sections shall be Republic Steel P-55 or equivalent, comparable to the requirements of ASTM A607 Grade 55. Minimum yield strength shall be 55,000 psi.

Roof and Wall Panel Material

Roof panel material as specified shall be 26 or 24 gauge Galvalume as manufactured by Bethlehem Steel Corp. or equal, conforming to the requirements of ASTM A709 grade 80 or Grade 50. Minimum yield strength shall be 80ksi for Grade 80 and 50ksi for Grade 50. Panel material as specified shall be 26 or 24 gauge Galvalume, conforming to the requirements of ASTM A792 Grade. See 5.1.4 for additional material used.

Secondary Framing

Purlins and Girts: Purlins and Girts shall be cold-formed "Z" sections with stiffened flanges. Flange stiffeners shall be sized to comply with the requirements of the latest edition of AISC. Purlin and flanges shall be unequal in width to allow for easier nesting during erection. They shall be pre-punched at the factory to provide for field bolting to the rigid frames. They shall be simple or continuous span as required by design. Connection bolts will install through the webs not flanges.

Eave Struts: Eave Struts shall be unequal flange cold-formed "C" sections.

Base Angle: A base member will be supplied by which the base of the wall covering may be attached to the perimeter of the slab. This member shall be secured to the concrete slab with ram-sets, expansion bolts, or equivalent anchors as shown on the drawings.

Bracing

Diagonal Bracing: Diagonal bracing in the roof and sidewalls shall be used to remove longitudinal loads (wind, crane, etc.) from the structure. This bracing will be finished to length and equipped with bevel washers and nuts at each end. It may consist of rods threaded each end or galvanized cable with suitable threaded end anchors. If load requirements so dictate, bracing may be of structural angle and for pipe, bolted in place.

Flange Braces: The compression flange of all primary framing shall be braced laterally with angles connecting to the webs of purlins or girts so that the flange compressive stress is within allowable limits for any combination of loads.

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Special Bracing: When diagonal bracing is not permitted in the sidewall, a rigid frame type portal or fixed base columns will be used. Wind bracing in the roof and/or walls need not be braced where it can be shown that the diaphragm strength of the roof and/or wall covering is adequate to resist the applied wind forces.

SECTION 5: ROOF & WALL COVERING

General

Roof panels shall be any of the following: "PBR", or Standing Seam. "PBR" panels shall have an extended purlin bearing leg. Wall panels may be any of the following: "R", "U", "A", "AM", "PBR", "ShadowRib", or "NuWall" profiles. "A", "AM", "ShadowRib", and "NuWall" are considered Architectural panels. "PBR" panels shall have an extended purlin bearing leg. Panels "R", "PBR", "U", "A", or "AM", shall either be 26 or 24 gauge Galvalume Plus or pre-coated Galvalume steel. Agricultural Panel "Stormproof" liner panels as specified shall be 29 gauge (.014 minimum) Galvalume Plus or pre-painted Galvalume steel. Retro-Fit panel—"Retro R" roof or wall panels as specified shall be 29 gauge Galvalume Plus or pre-painted Galvalume steel.

Panel Description "R"

Panel shall have major ribs 1 "A" high spaced 12" on center. In the flat area between the major ribs are two smaller minor ribs. Each panel shall provide 36" net coverage in width. A11 side laps shall be at least one major rib. "U" Panel shall have ribs 1/8" high spaced 6" on center. Each panel shall provide 36" net coverage in width. All sidelaps shall be at least one rib. "PBR" (Purlin bearing leg) panels shall have major ribs 1 1/4 high spaced 12" centers. In the flat area between the major ribs are two smaller minor ribs. Each panel shall provide 36" net coverage in width. All side laps shall be at least one major rib. Architectural ("A" or "AM") panel shall have a configuration consisting of ribs 1 1/8" or 1 3/16" deep. Major corrugations shall be spaced 12" on center. Panel design produces a decorative smooth shadow line with semi-concealed fasteners. Architectural panels shall provide a 36" net coverage in width. All side laps shall be at least one major rib. Architectural ShadowRib panel shall have a configuration consisting of a 5% flat area with 1/4" deep indentation in the middle of the panel. The panel coverage is to be 36" with a panel depth of 3".

"Accent" liner/soffit panel shall be flat 1" high and provide 12" net coverage width. Panels shall be interlocking and be fastened with a concealed fastener. Panels are also available with two stiffening ribs.

Panel Length: All wall panels shall be continuous from sill to roofline and all roof panels shall be continuous from eave to ridge except where lengths become prohibitive for handling purposes. All end laps shall be at least 6" on roof and 4" on walls.

Endwall Edge Cuts: All endwall panels for buildings with 1:12 or less roof slope shall be square cut. The erector in the field shall level cut all endwall panels for buildings with more than 1:12 roof slope.

Roofing

Standing Seam Roof Panel Type: Standing Seam Roof Panels shall be UL-90 rated, roll-formed, 24 or 22 gauge Galvalume, Galvalume Plus or pre-painted. Galvalume sheets shall have a coating weight of .5 oz./sq. ft. with a minimum yield strength of 50,000 ksi and conform to ASTM-792. Pre-painted finish shall be a premium Floropoly coating produced with either Kynar 500 or Hylar 5000 resins and have a full 20-year warranty. Panels shall be 12" or 16" wide with two minor ribs in between seams. Panel seam is 3" high.

Weather Snap Roof (Snap-Lock): One side of the panel shall be female in configuration, which will have factory applied hot-melt mastic (5.3.9) inside the female seam. The female seam will snap over the male side. When using Weather Snap Roof Standing Seam, this procedure will form a self-locking snap system.

Weather Lock Roof (Machine Seamed)

If choosing Weather Lock Roof Standing Seam the male and female seams will be continuously locked together by an electrically powered seamer, forming a 360-degree Pittsburgh Seam.

The panels shall be factory notched at both ends so that field installation can commence or terminate from either end of the building. Panels cannot start at both ends of the building and work towards each other.

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Maximum panel length shall be no more than 45' 0" unless otherwise discussed and approved by FRONTIER STEEL BUILDINGS sales or the manufacturing manager.

Endlaps shall have a 16 gauge backup plate. The panel shall have five pre-punched holes in the flat and dimples in the trapezoidal legs for proper placement of fasteners.

Mastic shall be applied between the panels and secured with #14 x 1 1/4 self-drilling fasteners through the panels, and backup plate to form a compression joint.

Endlaps and eaves shall be the only places in the roof system where through the roof fasteners can be used inside the building envelope.

Fasteners

- *Eave:* #14 x 1-1/4" long life self- drilling with sealing washer.
- *Endlaps:* #14 x 1-1/4 long life self- drilling with sealing washer.
- *Ridge:* #14 x 7/8" lap Tek long life self-drilling with sealing washer.
- *Clips to Purlin:* #14 x 1" Tek 2 long life self-drilling with Hex Washer Head and 5/8" O.D. washer.
- *Clips/floating to bar joist:* #12-24 x 1-1/4" Tek 4.5 self drilling with Washer Head and 5/8" O.D. washer.
- *Long Life Fasteners:* where exposed, are standard when using a Galvalume Plus roof panel.

Special applications may require the use of other fastener types than what are listed above. Review Erection Manual.

Clips

- All clips shall have factory-applied mastic and be designed so that movement between the panel and the clip does not occur.
- Low fixed clips shall be 3 3/8" clearance for insulation between the panel and the purlin.
- High fixed clips shall be 4 3/8" in height to accommodate a thermal spacer for added insulation at the purlins.
- Low or high floating clips -shall be either 3 3/8" or 4 3/8" in height. Floating clips shall provide a minimum 2" travel to allow for expansion and contraction.

Sealants and Closures

- Factory applied sealant used in panel side laps shall be a hot melt, formable mastic -Q41A.
- Field applied sealant used at the endlaps, eave, ridge assembly, and gable flashing shall be 100% solid butyl-based elastomeric tape sealant, furnished in roll form or pre-cut to length. See manual for application.
- Outside closures shall be manufactured from the same material as the roof panels.
- Inside closures shall be 18 gauge metal.

Standing Seam Roof, Architectural Panel Type, SS216 and SuperLok (machine seamed)

Panel Description

Standing Seam Roof Panels shall be UL-90 rated, roll-formed, 24 or 22 gauge Galvalume, whether Galvalume Plus or pre-painted. Galvalume sheets shall have a coating weight of .5 oz/sq.ft with a minimum yield strength of 50 ksi and conform to ASTM-792. Pre-painted finish shall be a premium Fluoropoly coating produced with Kynar 500 or Hylar 500 resins and have a full 20-year warranty.

Panel profiles shall be 2" high x 12, 18" or 24" wide. Panel seam is 2" high. All panels shall be striated. One side of the panel shall be female in configuration, which will have factory applied hot melt mastic inside the female seam. The female side will fit over the male side and be continuously locked together by an electrically powered mechanical seamer.

Maximum panel length shall be no more than 45'0" unless otherwise discussed and approved by FRONTIER STEEL BUILDINGS sales or manufacturing manager.

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Endlaps

Endlaps shall have pre-punched holes in panels and a 16 gauge backup plate for proper placement of fasteners.

Mastic shall be applied between the panels and secured with #14 x 1" Long Life self-drilling fasteners with sealing washer, through the upper panel mastic lower panel and backup plate to form a compression joint.

Endlaps and eaves shall be the only places in the roof system where through -the-roof exposed fasteners will be used inside the building envelope.

SECTION 6: MISCELLANEOUS MATERIAL SPECIFICATIONS

Fasteners

Structural Bolts: All bolts used in connections of secondary framing to primary framing shall be zinc plated ASTM A-307 or ASTM A-325 as required by design.

Fasteners for Roof Panels: All panels shall be attached to the secondary framing members by means of:

Option 1: self-drilling structural screws for roofs shall be carbon steel #12-14 x 1/2" Hex Washer Head, cadmium or zinc plated, with or without painted head, assembled with EPDM washer. These fasteners are applicable for use with fiberglass blanket insulation from 1" to 3" thick.

Option 2: Self-drilling structural screws shall be carbon steel #12-14, 1/2" Hex Washer Head, cadmium or zinc plated, with or without painted head, assembled with EPDM washer. These fasteners are applicable for use with fiberglass blanket insulation from 3" to 6" thick.

Option 3: Self-tapping screws shall be #14 x 1/2" type "A" or "AB", zinc plated, painted or plain head assembled with a bonded or separate EPDM washer. These fasteners are applicable for use with fiberglass blanket insulation from 1" to 3" thick. Longer lengths are available. Pre-drilling is required.

Option 4: Optional Long Life fastener, in either self-tapping or self-drilling fasteners. Recommended when using Galvalume Plus panels.

Fasteners for Roof Panel Sidelaps are as follows:

Option 1: Self-drilling #14 x 7/8" Lap Tek zinc plated, painted or plain head assembled with sealing washer.

Option 2: Above fasteners in a Long Life finish, either in self-drilling or self-tapping. Corrosion resistant head with a long life extended warranty. These fasteners are recommended when using Galvalume Plus panels.

Option 3: Self-tapping #14 x 7/8" type "A", or "AR", zinc plated, painted or plain head assembled with sealing washer.

Fasteners for the Standing Seam Roof and Clips: See SSR Specs.

Fasteners for wall panels: All "R", "PBR", "A", and "AM", panels shall be attached to the secondary framing members by means of:

Option 1: Self-drilling fasteners or carbon steel #12 x 1" without washers as herein described for fiberglass insulation up to 3" thick and #12 x 1 1/4" for fiberglass insulation 3" to 6" thick

Option 2: Corrosion resistant type Long Life fasteners with sealing washers, either self-tapping or self-drilling as herein described.

Option 3: Self-tapping #12 x 1" carbon steel fasteners as herein described. These fasteners are applicable with fiberglass insulation up to 3" thick; #14, 1 1/4" fasteners are required for 3" to 6" thick insulation. Pre-drilling is required.

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Fasteners for wall panel sidelaps:

Option 1: Self-drilling #14 x 7/8" carbon steel screws as herein described.

Option 2: Corrosion resistant type Long Life fasteners with sealing washers, either self-drilling or self-tapping, as herein described.

Option 3: Self-tapping #14 x 1 1/4" carbon steel screws as herein described. Pre-drilling is required.

Blind Rivets: All blind rivets shall be 1/8" diameter, high strength stainless steel pull rivet type ADH.

Fasteners for "Retro R" panel are as follows:

Roof and wall sidelaps: Self-tapping fasteners shall be #14 x 3/4" type "A" Long Life corrosion resistant plain or painted head with a bonded EPDM washer. Also available is a 3/16" TLR rivet, with a bonded EPDM washer. Pre-drilling of panel sidelaps will be required. These will also be used at the roof eave, endlap, ridge, and at intermediate ribs. If being used as wall panel, the fasteners would be used at wall base, eave, endlap, and intermediate ribs. See erection manual for locations.

Sealants & Closures

Closure Strips: the corrugations of the roof and wall panels shall be filled with solid or closed cell, performed rubber, neoprene or polyethylene closures along the eave, ridge, rake or base when required for weather tightness.

Standing Seam Roof Closures: See section 5.4.4. Sealant: Roof panels shall be sealed with 3/32" x 3/8" wide tape sealant. The material shall be a Butyl base elastic compound with a minimum solid content of 99% Schnee-Moorehead #522 or equal. The sealant shall have good adhesion to metal and be non-staining, non-corrosive, non-shrinking, non-oxidizing, non-toxic and non-volatile. The service temperature shall be from -60F to +300F. Optional 3/32" x 1" tape is available.

Standing Seam Sealant: See section 5.4.4.

Caulk: All gutter and downspout joints, rake flashing laps, ridge flashing laps, doors, windows, and louvers shall be sealed with white, burnished slate, or gray pigmented caulk of butyl rubber base, or clear silicone.

Gutter, Flashing & Downspouts

Gutters and Flashing: All standard exterior gutters are 26 gauge Galvalume Plus steel or with painted finish in standard colors. Standard rake flashing is 26-gauge Galvalume Plus steel or with painted finish in standard colors.

Downspouts: All downspouts shall be 26 gauge Galvalume steel, rectangular in shape.

Flashing and Trim

Flashing at the rake (parallel to roof panels) and high eave shall not compromise the integrity of the roof system by constricting movement due to thermal expansion and contraction. All flashing shall be manufactured from Galvalume steel, whether pre-painted or Galvalume Plus.

SECTION 7: PAINTING

Painting

All uncoated structural steel shall be cleaned of all foreign matter and loose scale in accordance with SSPC-2 and given a one-mill coat of red oxide primer, Primer shall be applied by the use of airless handguns. Primer generally meets or exceeds the performance requirements of Federal Specification TT-P-636D.

Light gauge steel members shall be shot blasted and pre-coated with one coat of red oxide primer. Some hand sprayed shop touch-up may be employed.

Abrasions caused by handling after painting are to be expected. Primer shall be furnished to touch-up or field painting as specified in the contract documents.

Painted Steel Panels

Base metal shall be 29, 26, 24, or 22 gauge Galvalume Steel. The base metal shall be pre-painted and then primed with an epoxy type primer for superior adhesion and superior resistance to corrosion.

SECTION 8: ACCESSORIES

Windows

Standard Windows shall be horizontal slide units, polished aluminum finish 3'0" x 3'0", 4'0"x3'0", 6'0"x 3'0".

Glazing will be DSB or optional 7/16" thick hermetically sealed insulated glass. They shall be furnished complete with hardware and half screen. Windows shall be self-flashing to wall panels. Architectural Aluminum Manufacturers Association for performance requirements of ANSI/AAMA 101-85 shall certify them.

Slim-Line windows are 2'0" wide x 7'0" high with a bronze frame finish. These windows are self-framing to the wall panel. Bronze frame finish is available in sliding windows. All windows are available with insulated and/or bronze glass.

Personnel Doors

Standard personnel doors shall be 3'0", 4'0" and 6'0" x 7'0", manufactured from 20 gauge galvanized steel. Door shall have square edges for non-handed installation. Doors shall have an embossed finish with a white or bronze prime coat. Doors shall be flush and have vertical mechanical interlocking seams on both hinge and lock edges. Doors shall be provided with top and bottom inverted 16 gauge galvanized steel channels spot-welded with the door.

Doors shall be reinforced, stiffened, and sound deadened with resin impregnated kraft fiber honeycomb core with a nominal 1" cell size. Honeycomb core shall fill the inside faces of the door and be laminated to the inside faces of the panels by means of moisture resistant, contact type adhesive. Doors shall be reinforced for applicable hardware. Doors shall be solid, half glass, or side vision (narrow lite). All glazing shall be done in the field. FRONTIER STEEL BUILDINGS does not provide Glass. Door frames shall be 16 gauge galvanized steel, pre-painted white. Door jambs shall be constructed for non-hand installation.

Door frames shall have optional head and jamb flashing and optional weather strip. Door frames shall be reinforced with 7 gauge hinge reinforcements. Standard cylindrical lever locksets (levers both sides) shall meet ANSI #A1 56.2, series 4000, grade 2. The lock-set selected by owner should be chosen in accordance with all current federal, state and local laws for the type of access required and the nature of use of the building. Door threshold shall be aluminum, supplied with flat head fasteners and expansion shields for attachment to masonry floor.

Overhead Door Framing

Overhead door framing support framing shall be designed to resist applicable wind loads and shall consist of channel jambs with a structural header at the top of the opening. Twenty-six gauge galvanized steel flashing, color coordinated, will be provided to conceal panel edges and wholly wrap around the framing members opening unless otherwise specified.

Gravity Ridge Ventilators

Gravity ridge ventilators shall be manufactured from galvanized steel and painted white. The ventilator body shall be 26 gauge and the skirt shall match the roof slope. Chain operated damper will be furnished when specified. Ventilators shall be equipped with standard bird screens and riveted end caps. Ventilators shall be 10" long and have 9" throat. Twelve-inch throat ventilators are available as an option.

Louvers

Standard louvers shall have a 26 gauge galvanized steel frame, painted, with 26 gauge blades. Heavy Duty Louver frames shall be 18 gauge galvanized steel frame, painted, with 20 gauge blades. Both standard and heavy-duty louvers shall be self-framing and self-flashing. They shall be equipped with adjustable or fixed blades as specified. Nominal sizes shall be 2'0" x 2'0", 3'0" x 2'0", 3'0" x 3'0", 4'0" x 3'0", and 3'0" x 4'0".

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Skylights

High strength translucent panels are glass fiber reinforced polyester, high strength and may be either:

Type I: Structural (general purpose) conforming to commercial standard CS-214-57, or

Type 11: having a burn rate of 2" per minute or less when tested in accordance with UL R3870SA.

High strength translucent panels match standard panel profiles, are 1/16" thick weight 8 ounces per square foot, and are white with a granitized top surface.

Insulated translucent panels are available in type 1, "R panel and standing seam profiles only.

SECTION 9: ERECTION AND INSTALLATION

Erection and Installation

A qualified erector, using proper tools and equipment shall perform the erection of the FRONTIER STEEL BUILDINGS building. Erector shall follow well, sound, safe procedures and guidelines in accordance with any applicable federal, state or local law. It shall be the responsibility of the erector to comply with all appropriate legal and safety requirements.

SECTION 10: BUILDING ANCHORAGE AND FOUNDATIONS

Building Anchorage and Foundations

The building anchor bolts shall be designed to resist the maximum column reactions resulting from the specified combinations of loads. FRONTIER STEEL BUILDINGS shall specify these designs and sizes. Anchor bolts will be supplied by the contractor and not by FRONTIER STEEL BUILDINGS.

Foundations shall be adequately designed by a qualified foundation engineer to support the building reactions and other loads, which may be imposed by the building use. The design shall be based on the specific soil conditions of the building site. The foundation engineer shall be retained by other than FRONTIER STEEL BUILDINGS. FRONTIER STEEL BUILDINGS assumes no responsibility for the integrity of the foundation.

Contract Documents

The documents that define the material and work to be provided by the Contractor or the General Contractor (or Dealer, if acting in these capacities for a Construction Project). The party that orders and purchases the Building System from the Manufacturer for resale. Dealer is an independent contractor and is not an agent for Manufacturer. For purposes of this definition, Dealer means any buyer of a Building System and additional materials other than the End Customer. In those situations where Dealer also meets the definition of End customer, his relationship to Manufacturer remains that of a Dealer, not End customer.

In any event, Dealer is responsible for the preparation and suitability of the Order Documents. A "Builder" is a dealer who has executed a Builder Agreement with Manufacturer.

Design Professional

An engineer or architect retained by the End Customer, General Contractor or Dealer to assist in the preparation of design drawings and specifications for the Construction Project including the Building System and its erection, and where appropriate, to assist in supervising the construction process for compliance with the contract documents.

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End Customer

The party who will be the initial owner of the Construction Project for the purpose of occupying the building or leasing or reselling the completed structure for purposes of occupancy by others. As used herein, the term includes any agent of the End Customer including any Design Professional or General Contractor retained by the End Customer. In those situations where Dealer also meets the definition of End Customer, his relationship to the Manufacturer remains that of a Dealer, not End Customer. For a specific Construction Project, End Customer may act as its own General Contractor. If End Customer acts as General Contractor, it may purchase materials only from Dealer or may purchase the Building System from a Contractor. If End Customer purchases material only from Dealer, End Customer also has the responsibility for erection of the Building System as provided herein.

Erector

The party that erects the Building System. Erector is responsible for the safety and appropriateness of all techniques and methods of erection. Erector is also responsible for supplying all temporary bracing and safety devices that may be required to safely erect the Building System.

General Contractor

The party that has overall responsibility for providing all materials and work for the Construction Project (including the Building System), as specified by the Contract Documents.

Manufacturer

The party that designs and fabricates the materials included in the Building System and additional materials or components, as specified by the Order Documents.

Order Documents

The documents required by Manufacturer to enter and process a Building System Order. Order Documents include: Purchase Order. Term and Conditions of Sale. System Specifications, System Layout, and if applicable. Crane System Specifications. Floor System Specifications, Acknowledgement of Change Or any other document provided by Manufacturer for Dealer's use.

Manufacturer relies solely on the information specified in the Order Documents to design, fabricate and deliver the Building System. No other information including drawings, details, and specifications prepared by any party are part of the Order Documents unless such information is specifically identified on the Order Documents.

Quotation Documents

Documents provided by Manufacturer define the items and conditions included in an offer to sell. In the event of conflict between Quotation Documents and Order Documents, the provisions in the Order Documents prevail. Quotation Documents are not part of the Order Documents.

Manufacturer relies solely on the information specified in the Quotation Documents to develop the price of the Building System. No other information including drawings, details, and specifications prepared by any party are part of the Quotation Documents unless such information is specifically identified in the Quotation Documents. In the event of conflict between the Quotation Documents and any other information, the provisions of the Quotation Documents shall prevail.

Future Additions or Extensions

Where End Customer's plans include expansion of the Building System, such requirements should be provided to Dealer for inclusion in the Quotation Or Order Documents. Unless otherwise specified, the Building System is not specifically designed for expansion.

Additions to Existing Buildings

Additions to existing buildings are supplied as incomplete Buiding Systems unless otherwise specified in the Quotation or Order Documents. Materials required for connection to existing buildings are not included in the Building System and are supplied by Manufacturer only when explicitly specified on the Quotation or Order Documents.

Orders are supplied using current standards. All special requirements necessary to match existing buildings must be specified on the Quotation or Order Documents.

FRONTIER STEEL BUILDINGS

Manufacturer's General Standards

Attachments

End Customer must ensure that no load exceeding the specified design loads is applied to the Building System. If collateral or auxiliary loads are specified, End Customer must ensure that the attachments of such items are compatible with the specified loads and are made in a manner that prevents twisting or local distortion of the Building System framing. Manufacturer does not investigate the suitability of attachments.

Special Requirements

Manufacturer's Quotation and Order Documents are designed to simplify Dealer's specification of a Building System, including special requirements provided by End Customer or otherwise required by the specific application, location or condition of use.

The phrase "unless otherwise specified" used in Manufacturer's documents identifies commonly specified items that may be specified implicitly or by default on the Quotation or Order Documents. Special requirements are always specified explicitly on Quotation and Order Documents. Dealer is solely responsible for insuring that all appropriate specifications—both implicit and explicit—are incorporated into the Quotation or Order Documents.

Manufacturer does not investigate the suitability of special materials and details specified by Dealer or End Customer, and is not responsible for the direct or consequential performance of such details and materials. End Customer must ensure that all special details and materials are compatible with Manufacturer's standard materials and are suitable for the intended use.

Manufacturer is not responsible for the suitability or adequacy of design when the materials are fabricated using designs, drawings or details provided by Dealer or End Customer.

Additional Materials or Components

In the event the Quotation or Order Documents require Manufacturer to supply speck Collateral Materials, see Section 3.2. Such materials are provided as additional materials or components and are not included in the Building System. Only these additional materials or components expressly specified on the Quotation or Order Documents are provided by Manufacturer.

Manufacturer does not investigate the suitability or adequacy of items specified on the Order Documents as additional materials or components. Manufacturer is not responsible for the design of additional materials or components or for their compatibility with any other materials.

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BY ACTION OF THE BOARD OF DIRECTION

Frontier Steel Building Corp.

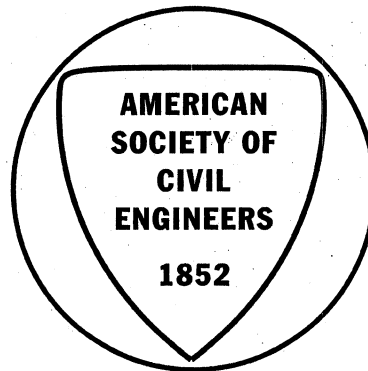
HAS BEEN ELECTED

Affiliate Member

WHO IS ENTITLED TO ALL THE PRIVILEGES GRANTED BY THE CONSTITUTION OF THE SOCIETY, AN ORGANIZATION
FOR THE ADVANCEMENT OF PROFESSIONAL KNOWLEDGE AND THE IMPROVEMENT OF CIVIL ENGINEERING.

Patrick J. Natale

PATRICK J. NATALE, P.E., F.ASCE
EXECUTIVE DIRECTOR



David G. Mongan

DAVID G. MONGAN, P.E., F.ASCE
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