



VALOR STEEL BUILDINGS **STANDARD SPECIFICATIONS**

For Rigid/I-Beam Construction as designed, engineered, and fabricated by Valor Steel Buildings.

General

- 1.1) Valor shall use standards, specifications, recommendations, findings, and/ or interpretations of professionally recognized groups such as American Institute of Steel Construction (AISC), American Iron and Steel Institute (AISI), American Welding Society (AWS), ASTM International (formerly the American Society for Testing & Materials, ASTM), Metal Building Manufacturer's Association (MBMA), and the Society for Protective Coatings (SSPC) as the basis for establishing engineering, design, fabrication, and the quality criteria, practices, and tolerances. Valor Steel Buildings Engineering, design, fabrication and quality criteria, practices, and tolerances shall govern, unless specifically stated otherwise in the contract documents.
- 1.2) These specifications describe Valor Steel Buildings standard metal building systems. In the absence of contract requirements or restrictions to the contrary, these specifications accurately describe the product provided by Valor Steel Buildings. However, these specifications are in no way intended to limit the available options associated with Valor Steel Metal Buildings.
- 1.3) These specifications are intended for use by Architects, Engineers, building code officials and Valor Steel employees, customers and vendors.
- 1.4) Because of a continuing program of research and development these specifications are subject to change without notice.
- 1.5) Valor Steel Buildings engineering designs are performed by a licensed professional engineer using the latest programs and methods for designs and calculations.

Description

- 2.0) All primary Framing Members are I-Beam/ Rigid Frame.
Straight Column Rigid Frame Building with a roof slope of 1:12-6:12.
Single Slope Rigid Frame Buildings with a roof slope of 1/2": 12.
- 2.1) The building "Width & Length" shall be measured from inside to inside face of the wall covering.
- 2.2) The building "Eave Height" shall be measured from the bottom of the base plate for the rigid frame columns to the intersection of lines representing the inside wall covering and the inside of the roof covering.
- 2.3) The "Roof Slope" shall be the angle that the roof surface makes with the horizontal, expressed in the units of vertical rise to 12 units of horizontal run.
- 2.4) The " Bay Spacing" between frame centerlines shall be 20', 25'.
- 2.5) Wall girts are placed at 4'-0", 7'-3", 11'-4", 15'-4", 19'-4", 23'-4", 27'-4", 31'-4".
- 2.6) Roof spacing is 1'-0" at the peak, then 4'-0" on center.



BUILDING NOMENCLATURE

3.1) **PRIMARY FRAMES** Form the backbone of the building. They are constructed from either hot-rolled wide flange beams or built-up welded steel I shaped members. Valor Steel Buildings never uses light gauge to construct its primary framing.

3.2) **SECONDARY FRAMING** Typically consists of purlins, girts and eave struts that are made from 12, 14 and 16 gauge cold-rolled. Secondary framing spans between the primary framing and, among other things, supports the wall and roof panels and carries the building loads to the primary framing.

3.3) **ROOF SLOPE** is expressed as inches of rise for each 12" of horizontal run.

3.4) **BUILDING WIDTH** is measured from outside to outside face of sidewall girts.

3.5) **EAVE HEIGHT** is the nominal dimension measured from the level of the finished floor to the intersections of the inside of the roof and sidewall sheets.

Definitions

4.1) Traditional Metal Building System: Building system using either continuous or simple span "Z" purlins for support covering material.

4.2) Long Bay System (LBS): Building system using simple span, cold-formed, open web purlins to support roof-covering material.

4.3) Gable Symmetrical: Continuous frame building with ridge in center of building, consisting of tapered or straight columns and tapered or straight rafters. Sidewall girts may be continuous (by-passing columns) or simple span (flush in column line). Rafters may or not have interior columns.

4.4) Gable Unsymmetrical: Continuous frame building with an off-center ridge, consisting of tapered or straight rafters. Sidewall girts may be continuous (by-passing columns) or simple span (flush in column line). Rafters may or may not have interior columns.

4.5) Single Slope: Continuous frame building, which does not contain ridge, but consists of one continuous slope from side to side. Building consists of straight or tapered columns and or straight rafters. Sidewall girts may not be continuous (by-passing columns) or simple span (flush in column line). Rafters may or may not have interior columns.

4.6) Lean-to (LT): Building Extension, which does not contain ridge, but consists of one continuous slope from side to side, usually with the same roof-slope and girt design as building to which attached.

4.7) Roof Slope: Pitch expressed as inches or rise for 12 inches (305 mm) of horizontal run.

4.8) Acrylic-Coated Galvalume- Aluminum-Zinc coated steel with a thin clear acrylic finish coating eliminating the need for roll-forming oil and reducing incidence of field marking by handling or foot traffic.

4.9) Building Eave Height: Normal dimension measured from finished floor to top flange of eave strut.

4.10) Building Width: Measured from outside to outside of sidewall secondary structural member.

4.11) Building Length: Measured from outside to outside of end wall secondary structural member.

4.12) Auxiliary Loads: Dynamic loads induced by cranes, conveyors, or material handling systems.

4.13) Collateral Loads: Weight of any non-moving equipment or material, such as ceilings, electrical or mechanical equipment, sprinkler systems, plumbing, or ceilings.

4.14) Dead Load: Actual weight of building system as supplied by manufacturer supported by given member.

4.15) Floor Live Loads: Loads induced in floor system by building occupants and possessions including but not limited to furniture and equipment.

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

4.17) Roof Snow Loads: Gravity load induced by weight of snow or ice on roof, assumed to act on horizontal projection of roof.

4.18) Seismic Loads: Loads acting in any direction on structural system due to action of an earthquake.

4.19) Wind Loads: Loads on structure induced by forces of wind blowing from any horizontal direction.



DRAWINGS

5.1) Valor Steel Buildings shall furnish the following drawings with all metal building systems for the proper identification and assembly components.

5.2) Anchor Bolt Plan: Shows the diameter, length location and projection of all anchor bolts for the components of the metal building system. Column reactions will also be shown.

5.3) Erection Drawings: Roof and wall erection (framing) drawings that identify individual components and accessories furnished by Valor in in sufficient detail to permit proper erection of the metal building system.

5.4) Certifications: All drawings sets will contain summarized engineering data and will bear the seal of a registered professional engineer. Detailed design calculations will be kept on file by Valor and will be available on request.

5.5) Foundation Drawings

The building foundation is designed by a qualified Valor Engineer to support the building reactions in addition to the other loads imposed by the building use or occupancy. The design shall be based on general job site conditions. Foundation design shall include provisions for bolt embedment, length, hook, bearing angles, Hair Pins, tie rods, and any other associated items embedded in the concrete.

Specifications cover buildings manufactured by Valor in keeping with Valor policy of continuous product improvement, specifications are subject to change without notice. Foundation drawings with stamp seal are included as a standard unless otherwise. Block Foundations & existing slab will be an additional cost.

5.6) Foundation design based on a soil bearing capacity of 1,500 P.S.F. Owner shall verify soil bearing capacity and if necessary, owner shall prepare existing soils to achieve the noted bearing capacity.

5.7) Concrete and Reinforcement Steel

Design, material, workmanship shall be in accordance with the following standards unless noted otherwise:

ACI 318 "Building code requirements for reinforced concrete"

ACI 315 "Manual of standard practice for detailing reinforced concrete structures"

ACI 301 "Specifications for structural concrete for building"

CRSI "Recommend practice for placing reinforcing steel"

5.8) Concrete shall develop 3,000 PSI compressive in 28 days unless noted otherwise.

5.9) Unless noted otherwise, reinforcing steel shall be deformed bars conforming to ASTM A615 S1, Grade 60 #5 Rebar

5.10) Welded wire fabric shall conform to ASTM A185 10 Gauge wire mesh

5.11) Unless noted otherwise, the minimum lap for bar splices.

5.12) Re-bar size: Splice Length embedment

#3	1'-1"
#4	1'-3"
#5	1'-6"
#6	2'-1"

5.13) A 6 mil polyethylene vapor barrier is required under all slabs.

5.14) If Valor Steel Buildings is pouring the foundations then anchor bolts will be provided by Valor.



DESIGN LOADS

6.1) The following criteria for live loads and wind loads shall be followed in the design of standard building components permitted under the state in which the building is sold.

6.2) Wind Loads shall be assured to act horizontally and shall be applied as pressure and suction in accordance with ASCE 798, sections 6.0. Wind loads are given in terms of 3-second gust and range from 100mph to 150mph.

6.3) Broward and Miami-Dade Counties are categorized as high velocity. Buildings designated at high velocity shall comply with the requirements of sections 1611-1626, inclusive. 12" Rib panels have been tested and passed PA202-94, PA201-94 and PA-203-94 and carry product approval 01-0618.04. 12" Rib panels have been tested and passed PA125, PA201, PA100, PA114, UL580, ASTM G23 and ASTM B117 and carry product approval 01-0618.03.

6.4) The following criteria for live loads and wind loads shall be followed in the design of standard building components permitted under the international & Florida building Code.

6.5) The roof live load shall be applied to the horizontal roof projection according to specification 1607.11.12 psf is typically applied to the frames and 20psf to the purlins.

6.6) Wind Loads shall be assumed to act horizontally and shall be applied as pressure and suction in accordance with ASCE7-98, section 6.0. Wind Loads are given in terms of 3-second gust

and range from 90mph to 150mph. Exposure B is assumed unless otherwise indicated.

6.7) Buildings may be designed to other building codes such as BOCA IBC, FBC, ASCE7 as required by local jurisdictions. Please call for availability of codes not listed.

6.8) The building shall be designed to the load combinations specified in the applicable building code or the MBMA “ Low Rise Building Systems Manual”, 1996 edition.

6.9) Designs shall include the building dead load, roof live load, wind, snow and seismic load in accordance with Valor Steel’s interpretation of the building code. Additional collateral and auxiliary loads shall be included when specified by the buyer.

STRUCTURAL FRAMING GENERAL

7.1) All framing members shall be shop- fabricated for bolted field assembly.



7.2) PRIMARY FRAMING STEEL

7.3) Steel for wide-flange beams shall conform to the requirements of ASTM Specification A992 Grade 50, with a minimum yield of 50 ksi. All other hot-rolled shapes, including channels and S-Beams, shall conform to ASTM A-36 or A-572, with a minimum yield of 36ksi.

7.4) Steel for the web and flange portions of built-up sections shall conform to ASTM A-1011, A 529, A 572 or ASTM A-36 as applicable, with a minimum yield of from 42 to 55ksi as indicated by the design requirements.

7.5) Pipe shall conform to the requirements of ASTM A 53 Grade B with minimum yield strength of 35 ksi.

7.6) X-Bracing shall conform to ASTM A 36 for rod bracing and ASTM A 475 for cable bracing.

8.0) Secondary Framing Steel

8.1) Steel for purlins, girts, eave struts, and "C" sections shall conform to the requirements of ASTM A-1011 Grade 55. Minimum yield shall be 55ksi.

8.2) Steel used to form galvanized purlins, girts, eave struts, and "C" sections shall conform to the requirements of ASTM-A 653 G90 Grade 55. Minimum yield shall be 55ksi.

9.0) Roof and wall panel material

9.1) Panel material specified as 26 gauge (.0185 min.) shall be Galvalume or Galvalume Plus material conforming to the requirements of ASTM A972 Grade 80. Minimum yield stress shall be 80 ksi (industry standard Grade E.)

9.2) Panel material specified as a 24 gauge (.023 min.) shall be Galvalume or Galvalume Plus material conforming to the requirements of ASTM A792 Grade 50. Minimum yield stress shall be 50 ksi (industry standard Grade D.)

9.3) Panel material specified as 22 gauge (.029 min.) shall be Galvalume or Galvalume Plus material conforming to the requirements of ASTM A792 Grade 50. Minimum yield stress shall be 50 ksi (industry standard Grade D.)

10.0) General

10.1) 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 distractions.

10.2) All shop-welded connections shall be accordance with the American Welding Society (AWS) Code for Building Construction.

10.3) All framing members, where necessary, shall have an identifying mark.

10.4) Visual inspection methods will be used for verification of weld quality as outlined by the AWS Structural Steel Welding Code, Visual Inspection Acceptance Criteria, Table 6.1.

11.0) Primary Framing

11.1) Rigid Frame: All rigid frames shall be welded built-up sections or mill shapes as required by design specifications. The built-up columns and rafters may be either constant or tapered depth. Flanges shall be connected to webs by means of a continuous fillet weld on one side.



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

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

11.4) Bolt Holes: All base plates, splices, and flanges shall be shops fabricated to include bolt connections holes. Webs shall be shop fabricated to include bracing holes.

12.0) **SECONDARY FRAMING**

12.1) Minimum decimal equivalent thicknesses for gauges are as follows:

16 Gauge	0.059 inches
14 Gauge	0.070 inches
12 Gauge	0.105 inches

12.2) Purlins and Girts shall be cold-formed "Z" sections with stiffened flanges. They shall be pre-punched at the factory to provide for field bolting to. They shall be flush or by-pass as required by design and the contract documents. Connection bolts will install the webs and flanges as necessary.

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

12.4) 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. Base Angle shall be secured to the concrete slab with expansion anchors.

13.0) BRACING

13.1) 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 furnished to length and equipped with a bevel washer, flat washer, and nut at each end. It may consist of rods threaded at each end or galvanized cable with suitable threaded-end eyebolts. If load requirements so dictate, bracing may be of structural angle and/or pipe, bolted in place.

13.2) Flange Bracing: 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.

13.3) Special Bracing: When load requirements or window and door placements do not allow diagonal bracing, a wind bent frame, wind column, or fixed base columns will be used.

14.0) ROOF AND WALL COVERING

GENERAL

14.1) Standard roof and wall panels shall be "PBR" profile.

Valor Steel Buildings offers a wide variety of other panel profiles and panel coating systems. For specific details and costs, contact Valor Steel Buildings @ (251)-379-8042

15.0) STANDARD PANEL DISCRPTION

15.1) "PBR" profile panels shall have major ribs 1-1/4" high spaced 12" center, with a purlin bearing leg. In the flat area between the major ribs are smaller ribs. Each panel shall provide 36" net coverage in width. All side laps shall be at least one major rib.



15.2) 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, 4" on walls, and 3" on wall lights.

15.3) Endwall Edge Cuts: All endwall panels for buildings with 1:12, or less, roof slope shall be square cut. All endwall panels for buildings with more than a 1:12 roof slope shall be level cut in the field by the building erector if necessary.

16.0) MISCELLANEOUS MATERIAL SPECIFICATIONS

16.1) FASTENERS

Structural Bolts:

16.2) All bolts used in frame splices shall comply with ASTM A325 or A325T. The nuts used shall comply with ASTM 563, and washers, when specified, shall comply with ASTM A436.

16.3) All bolts used in connections of secondary framing to primary framing shall be zinc plated ANSI Grade 2, A307. The nuts used shall comply with ASTM 563, and the washers, when specified, shall comply with ASTM 844.

16.4) Fasteners for Roof Panels: All panels shall be attached to the secondary framing members by means of #12-14 x 1-1/4" self-drilling structural carbon steel screws with a long-life zinc-alloy head, with or without paint, assembled with an EPDM washer. These fasteners are applicable for use with fiberglass blanket insulation up to 4" thick. If no insulation is present, #12 x 1 self-drilling screws with a long-life zinc alloy head and EPDM washers will be used. All self-drilling lap screws are 1/4"-14 x 7/8" with a long-life zinc alloy head and EPDM washer, regardless of structural screw length.

16.5) Fasteners for Wall Panels: Wall panels shall be attached to the secondary framing members by means of a self-drilling fastener made of carbon steel, #12 x 1-1/4" hex washer head with EPDM washers for fiberglass insulation up to 3" thick and #12 x 1-1/2" for fiberglass insulation 4" to 6" thick. If no wall insulation is present, #12 x 3/4" hex washer head screws with EPDM washers will be used. Screws for panel laps shall be with self-drilling 1/4"-14 x 7/8" hex washer head with EPDM washers.

16.6) Anchor Bolts: All anchor bolts shall comply with ASTM F1554.

17.0) SEALANTS AND CLOSURES

17.1) Closure strips: The corrugations of the roof and wall panels shall be filled with a solid or closed-cell, performed rubber, neoprene or polyethylene closures where required. Closures are an additional cost.

17.2) Sealants: Roof panels shall be installed with a tape sealer. This material shall be a butyl base elastic compound with a minimum solid content of 99%, and shall be Schnee-Morehead #5227 or equal. The sealer shall have a good adhesion to metal and be non-staining, non-corrosive, non-shrinking, non-oxidizing, nontoxic and non-volatile.

18.0) GUTTER, FLASHING & DOWNSPOUTS

18.1) Gutters and Flashing: Gutters and rake shall be 26 (.0185 min. gauge Galvalume or Galvalume Plus steel conforming to ASTM A792, with a minimum yield of 50 ksi (industry standards Grade D).

18.2) Downspouts: All downspouts shall be rectangular in shape and shall be 26 Gauge (.0185 min. Galvalume or Galvalume Plus steel conforming to ASTM A792, with a minimum yield of 50 ksi (industry standards Grade D).



19.0) PAINTING

STRUCTURAL PAINTING

19.1) All uncoated structural steel shall be cleaned and primed as required by the Society for Protective Coatings (SSPC) as follows:

19.2) Primary framing steel preparation specification shall be SSPC-SP 2.

19.3) Primary framing will be painted with Valor Steel Buildings standard red oxide primer.

19.4) Pre-coated cold-formed members shall be cleaned according to SSPC-SP 8 or SSPC-SP 6, and then chemically pretreated before coated with a minimum of .5 mils of polyester based red primer. The primer contains a "wax" type lubricant to facilitate roll forming and deterring during these operations. Hairline crazing, which may occur during forming operations, is considered normal. Special preparations are required before a finish coat can be applied over this "wax" finish.

Note: Primer systems are not intended as finish coat systems and do not offer the uniformity of appearance, durability or corrosion resistance of a top coat applied over a primer. Primers are designed to promote the wetting actions and adhesion of a top coat and offer only short-term corrosion protection from ordinary atmospheric exposure. Primer is compatible only for top coating with solvent-based alkyd and modified alkyd top coat paints. Abrasions caused by handling after painting as well as the flaking of tight mill scale are to be expected.

20.0) PAINTED PANELS

20.1) The painted panel exterior finish shall be either Siliconized Polyester, or Kynar 500 specified in the contract documents.

20.2) Interior Finish: The painted panel interior finish shall have a white or parchment top coat over epoxy primer or an epoxy base coat, white or parchment, with a clear polyester top coat.

20.3) ACCESSORIES

20.4) WINDOWS

Standard windows shall be self-framing horizontal slide; vertical hung or fixed narrow lite units. They are available in a variety of sizes.

21.0) PERSONAL DOORS

21.1) Personal door shall be 3' x 7' single leaf, 4' x 7' single leaf or 6' x 7' double leaf manufactured from 20 gauge-galvanized steel.

21.2) Door leafs shall have an embossed finish with a white prime coat.

21.3) Door leafs shall be solid, half glass, or side vision (narrow line).

21.4) Doors shall be constructed for non-hand installation.

21.5) The standard lockset have a level passage handle.

22.0) OVERHEAD DOORS

22.1) Doors will be Windloaded Model 790 unless otherwise specified.

22.2) Doors shall be designed to resist applicable wind loads and available in a variety of sizes.

23.3) Door Framing: Overhead door support framing shall be designed to resist applicable wind loads and shall typically consist of cold-formed "C" jambs with a cold-formed "C" header at the top of the opening. Cold-formed "C" framing will be R-0 unless specified otherwise. If wind loads are sufficiently high or other factors warrant it, mill-rolled channels will be used in lieu of cold-rolled "C" sections. Mill-rolled channels will be primer painted unless otherwise specified. All framed openings will be covered with trim.



23.0) GRAVITY VENTILATORS

23.1) Gravity ridge ventilators shall be manufactured from Galvalume A972 Grade 50 pre-painted or bare. The ventilator body shall be 26 Gauge (.0185 min.) with flat skirts and shall be pre-formed for a 1:12 pitch. Ventilators shall be equipped with birdscreens, dampers, and riveted end caps. Ventilators shall be 10' long and have a 9" throat. Twelve-inch throat ventilators are available as an option.

23.2) Round ventilators shall be 24-gauge and shall have an adjustable base for ridge mounting or a pitched base for a on-slope mounting.

24.0) LOUVERS

24.1) Louver frames shall be 18-gauge galvanized steel frame 20-gauge blades, and shall be self-framing and self-flashing. The color shall be as specified by the customer. They shall be equipped with adjustable or fixed blades as specified.

25.0) LIGHT TRANSMITTING PANELS

25.1) High strength light transmitting panels are fiberglass-reinforced polyester and shall comply with ASTM D3841, Type CC2, and Grade 2. Standard light transmitting panels will match Valor Steel Buildings standard "PBR" roof panels.

26.0) INSULATION

26.1) Fiberglass Blanket Insulation shall conform to ASTM specification C991 NAIMA 404. Standard insulation shall be 3" and 4" thick. (R-10 and R-13 respectively.) Other insulation systems with higher R-values are available.

26.2) The standard facing for fiberglass insulation shall be reinforced white vinyl-WMP-VR. Other facings are available.

27.0) ERECTION AND INSTALLATION

27.1) Building erection and the installation of accessories shall be performed in accordance with erection drawings by a Valor Steel Buildings erection crew, or and otherwise qualified erector using proper tools and equipment. Erection practices shall conform to MBMA's Metal Building Systems Manual, latest edition.

27.2) There shall be no field modifications to primary structural members except as authorized and specified by Valor Steel Buildings.

28.0) Warranties

28.1) Valor Steel Buildings provides a variety of warranties for panels coating, structural, walk-in doors: roll-up doors, Insulation, screws, and labor. These warranties are provided at the completion of the job. Some exclusion applies as stated on the contract. Please Contact Valor Steel Buildings for details. (251)-379-0842