



1 Product data consisting of metal building system manufacturer's product information for building  
2 components and accessories.

3 Shop drawings for metal building structural framing system, siding panels, and other metal building  
4 system components and accessories that are not fully detailed or dimensioned in manufacturer's  
5 product data.

6 Structural Framing: Furnish complete erection drawings prepared by or under the supervision  
7 of a Professional Engineer legally authorized to practice in the jurisdiction where the Project is  
8 located. Include details showing fabrication and assembly of the metal building system. Show  
9 anchor bolts settings and sidewall, endwall, and roof framing. Include transverse cross-  
10 sections.

11 Siding Panels: Provide layouts of panels on walls and roofs, details of edge conditions, joints,  
12 corners, custom profiles, supports, anchorages, trim, flashings, closures, and special details.  
13 Include transverse cross-sections.

14 Building Accessory Components: Provide details of metal building accessory components to  
15 clearly indicate methods of installation.

16 Samples for initial selection purposes in form of manufacturer's color charts or chips showing full  
17 range of colors, textures, and patterns available for metal siding panels with factory-applied finishes.

18 Samples for verification purposes of roofing and siding panels. Provide sample panels 12 inch (300  
19 mm) long by actual panel width, in the profile, style, color, and texture indicated. Include clips, battens,  
20 fasteners, closures, and other panel accessories.

21 Installer certificates signed by metal building manufacturer written certification certifying that the  
22 installer complies with requirements included under the "Quality Assurance" Article.

23 Professional Engineer's certificate prepared and signed by a Professional Engineer, legally authorized to  
24 practice in the jurisdiction where Project is located, verifying that the structural framing and covering  
25 panels meet indicated loading requirements and codes of authorities having jurisdiction.

26 Submit final component design calculations and drawings as required by local, state, and federal rules  
27 and regulations applicable to work and project location. Minimum of five (5) copies shall be submitted.

28 Submit fees for local and state review. Local and state acceptance of component design is mandatory  
29 prior to fabricating components. Submittal shall include required forms, fees, calculations, registered  
30 stamps, and signatures.

## 31 **QUALITY ASSURANCE**

32 Installer Qualifications: Engage an experienced Installer to erect the pre-engineered metal building  
33 components who has specialized in the erection and installation of types of metal buildings systems  
34 similar to that required for this Project and who is certified in writing by the metal building system  
35 manufacturer as qualified for erection of the manufacturer's products.

36 Manufacturer's Qualifications: Provide pre-engineered metal building components manufactured by a  
37 firm experienced in manufacturing metal buildings systems that are similar to those indicated for this  
38 project and have a record of successful in-service performance.

39 Single-Source Responsibility: Obtain the metal building system components, including secondary  
40 structural framing, wall covering, and accessory components, from one source from a single  
41 manufacturer.

42 Design Criteria: The Drawings indicate sizes, profiles, and dimensional requirements of the pre-  
43 engineered metal building system. Metal building systems having equal performance characteristics  
44 with deviations from indicated dimensions and profiles may be considered, provided deviations do not  
45 change the design concept or intended performance. The burden of proof for equality is on the proposer.

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1 **DELIVERY, STORAGE, AND HANDLING**

2 Deliver prefabricated components, sheets, panels, and other manufactured items so they will not be  
3 damaged or deformed. Package wall panels for protection against transportation damage.

4 Handling: Exercise care in unloading, storing, and erecting wall and roof covering panels to prevent  
5 bending, warping, twisting, and surface damage.

6 Stack materials on platforms or pallets, covered with tarpaulins or other suitable weather-tight ventilated  
7 covering. Store metal wall and roof panels so that water accumulations will drain freely. Do not store  
8 panels in contact with other materials that might cause staining, denting or other surface damage.

9 **WARRANTY**

10 Siding Panel Finish Warranty: Furnish the siding panel manufacturer's written warranty, covering  
11 failure of the factory-applied exterior finish on metal wall panels within the warranty period. This  
12 warranty shall be in addition to and not a limitation of other rights the Owner may have against the  
13 Contractor under the Contract Documents.

14 Warranty period for factory-applied exterior finishes on wall panels is 20 years after the date of  
15 Substantial Completion.  
16

17 **PART 2 - PRODUCTS**

18 **MANUFACTURERS**

19 Manufacturer: Subject to compliance with specified requirements, provide metal building systems provided by  
20 one of the following:

- 21 A & S Building Systems, Inc., Caryville, TN, (800) 274-2100
- 22 American Buildings Co., Eufaula, AL, (334) 687-2032
- 23 American Steel Building Co., Inc., Houston, TX, (800) 877-8335
- 24 Armco/Steelox Systems, Inc., Mason, OH, (800) 783-3569
- 25 Behlen Manufacturing Co., Columbus, NE, (800) 228-0340
- 26 Butler Manufacturing Co., Kansas City, MO, (816) 968-3000
- 27 Ceco Building Systems, Columbus, MS, (662) 328-6722
- 28 Chief Industries, Inc., Grand Island, NE, (308) 389-7200
- 29 Dean Steel Buildings, Inc., Ft. Myers, FL, (239) 334-1051
- 30 Foremost Buildings, Jefferson, WI (920)674-6746
- 31 Garco Building Systems, Airway Heights, WA, (800) 941-2291
- 32 Gulf States Manufacturers, Inc., Starkville, MS, (800) 844-4853
- 33 Kirby Building Systems, Inc., Portland, TN, (615) 325-4165
- 34 Mesco Metal Buildings, Southlake, TX, (800) 556-3726
- 35 Metallic Building Company, Houston, TX (866) 800-6353
- 36 Nucor Building Systems, Waterloo, IN (888) 314-0930
- 37 Southern Structures, Inc., Lafayette, LA, (800) 264-5981
- 38 Space Buildings, E. Taunton, MA, (508) 823-7777
- 39 Star Building Systems, Oklahoma, OK, (800) 654-3921
- 40 VP Buildings, Memphis, TN, (800) 238-3246
- 41 Whirlwind Building Systems, Houston, TX, (800) 324-9992

42 **MATERIALS**

43 Steel Members Fabricated by Cold Forming: Comply with ASTM A 1008/ A 1008M, Grade 50.

1 Cold-Rolled Carbon Steel Sheet: Comply with requirements of ASTM A 1008/A 1008M or  
2 ASTM A 568/A 568M.  
3 Hot-Rolled Carbon Steel Sheet: Comply with requirements of ASTM A 568/A 568M.  
4 Structural Quality Zinc-Coated (Galvanized) Steel Sheet: Comply with ASTM A 653 with G90  
5 (ASTM A 653M with Z275) coating. Grade to suit manufacturer's standards.  
6 Commercial Quality Zinc-Coated (Galvanized) Steel Sheet: Comply with ASTM A 653 with G60  
7 (ASTM A 653M with Z180) coating.  
8 Bolts for Structural Framing: Comply with ASTM A 307 or ASTM A 325/ A 325M as necessary for  
9 design loads and connection details.  
10 Thermal Insulation: Glass fiber condensation control blanket insulation, complying with ASTM C553,  
11 of 0.75 lb per cu. ft. (12 kg/cu. m) density, 2" thickness, with UL flame spread classification of 25 or  
12 less, and 2 inch (50 mm) wide continuous vapor-tight edge tabs.  
13 Vapor Barrier: Vinyl-reinforced scrim.  
14 Retainer Strips: 26 gauge (0.55 mm) formed galvanized steel retainer clips colored to match the  
15 insulation facing.

## 16 FINISHES

### 17 General:

18 Comply with NAAMM "Metal Finishes Manual" for recommendations relative to applying and  
19 designing finishes.  
20 Finish metal fabrications after shop assembly.

### 21 Shop Finish

#### 22 Surface Preparation:

23 SSPC-SP1: The Society for Protective Coatings "Surface Preparation Specification No.  
24 1 – Solvent Cleaning", September 1, 2000 Edition and SSPC-SP2: "Surface Preparation  
25 Specification No. 6 – Commercial Blast Cleaning", September 1, 2000 Edition.

#### 26 Primer:

27 Fast curing, universal modified alkyd, rust inhibiting shop coat with good resistance to  
28 normal atmospheric corrosion compatibility with finish paint systems indicated, and  
29 capability to provide a sound foundation for field-applied topcoats despite prolonged  
30 exposure. Primer shall comply with all federal standards for VOC, lead, and chromate  
31 levels. Color shall be manufacturer's standard unless noted otherwise.

32 Shop prime immediately after surface preparation, applying according to manufacturer's  
33 instructions to provide a dry film thickness of not less than 2.0 mils. Use priming  
34 methods that result in full coverage of joints, corners, edges, and exposed surface.

35 Galvanizing: For those items indicated for galvanizing, apply zinc coating by the hot-dip process  
36 complying with the following requirements:

37 ASTM A 153/A 153M for galvanizing hardware.

38 ASTM A 123/A 123M for galvanizing both fabricated and unfabricated products made  
39 of uncoated rolled, pressed, and forged shapes, plates, bars, and strip 0.0299 inch (0.76  
40 mm) thick or thicker.

### 41 Touch-Up Painting

42 Immediately after erection, clean field welds, bolted connections, and abraded areas of the shop  
43 paint and paint all exposed areas with the same material as used for shop painting. Apply by  
44 brush or spray to provide a minimum dry film thickness of 2.0 mils.

45 Galvanizing Repair Paint: High-zinc-dust-content paint for galvanizing welds and repair-  
46 painting galvanized steel, with dry film containing not less than 90 percent zinc dust by weight,  
47 and complying with DOD-P-21035 or SSPC-Paint 20.

### 48 Finish Painting

1 Finish Painting shall be performed under Division 9 Section 09 90 00 – Paints and Coatings.

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#### 4 **STRUCTURAL FRAMING**

5 Primary Framing: Provide primary framing members of either hot rolled sections or built-up welded  
6 members.

7 Secondary Framing: Provide the following secondary framing members:

8 Roof purlins: "C"-or "Z"-shaped sections fabricated from minimum 14 gage (1.5 mm) shop-  
9 painted roll-formed steel.

10 Purlin roll bracing.

11 Sidewall and endwall girts: "C"-or "Z"-shaped sections fabricated from minimum  
12 14 gage (1.5 mm) shop-painted roll-formed steel.

13 Girt sag bracing.

14 Flange bracing. Flange braces for roof rafters shall be connected to purlins by using brace clips,  
15 not by connecting to the sides of the "C" or "Z" shaped section; thus eliminating penetrations  
16 through the vapor barrier and allowing faster installation when a simple saver insulation system  
17 is installed.

18 Bolts: Provide shop-painted bolts except when structural framing components are in direct contact with  
19 roofing and siding panels. Provide zinc-plated or cadmium-plated bolts when structural framing  
20 components are in direct contact with roofing and siding panels.

21 Shop Painting: Clean surfaces to be primed of loose mill scale, rust, dirt, oil, grease, and other matter  
22 precluding paint bond. Follow procedures of SSPC-SP3 for power-tool cleaning.

23 Prime structural steel secondary framing members with the manufacturer's standard rust-  
24 inhibitive primer. Color shall match structural steel.

#### 25 **ROOFING**

26 Roof Panel:

27 Standing Seam Metal Roofing system provided by Metal Building System supplier.

28 See section 07 61 13 for Standing Seam Sheet Metal Roof and snow guard specifications.

29 See section 07 61 30 for Metal Roofing Warranty requirements.

#### 30 **SIDING PANELS**

31 Face Sheets: Fabricate wall panel face sheets to the profile or configuration indicated from 24 gage  
32 (0.55 mm), structural quality, Grade C, zinc-coated steel sheets.

33 Exterior Metal Wall Panel Profile: Panel 'R' as manufactured by MBCI, or equal.

34 (2) Colors as indicated on elevations.

35 Liner Panel at Underside of Exterior Overhang: Profile 'R' as manufactured by MBCI, or equal.

36 Fasteners: Self-tapping screws, bolts, nuts, self-locking rivets, self-locking bolts, end-welded studs, and  
37 other suitable fasteners designed to withstand design loads.

38 Provide metal-backed neoprene washers under heads of fasteners bearing on weather side of  
39 panels.

40 Use aluminum or stainless steel fasteners for exterior application and galvanized or cadmium-  
41 plated fasteners for interior applications.

42 Locate and space fastenings in true vertical and horizontal alignment. Use proper tools to obtain  
43 controlled uniform compression for positive seal without rupture of neoprene washer.

44 Provide fasteners with heads matching color of roofing or siding sheets by means of plastic caps  
45 or factory-applied coating.

46 Accessories: Provide the following sheet metal accessories factory-formed of the same material in the  
47 same finish as wall panels:

- 1 Flashings.
- 2 Closures.
- 3 Fillers.
- 4 Metal expansion joints.
- 5 Gutters and downspouts.

6 Flexible Closure Strips: Closed-cell, expanded cellular rubber, self-extinguishing flexible closure strips.  
7 Cut or pre-mold to match configuration of roofing and siding sheets. Provide closure strips where  
8 indicated or necessary to ensure weather-tight construction.

9 Sealing Tape: Pressure-sensitive 100 percent solids grey polyisobutylene compound sealing tape with  
10 release paper backing. Provide permanently elastic, non-sag, non-toxic, non-staining tape 1/2 inch (13  
11 mm) wide and 1/8 inch (3 mm) thick.

12 Joint Sealant: One-part elastomeric polyurethane, polysulfide, or silicone rubber sealant as  
13 recommended by the building manufacturer.

14 **GUTTERS, DOWNSPOUTS AND SHEET METAL ACCESSORIES**

15 General: Provide coated steel sheet metal with coated steel siding panels.

16 Gutters: Form in 96-inch long sections, complete with end pieces, outlet tubes, and other special pieces  
17 as required. Size in accordance with SMACNA. Join sections with riveted and soldered or sealed joints.  
18 Provide expansion-type slip joint at center of runs. Furnish gutter supports spaced 24 inches on-center,  
19 constructed of the same metal as gutters. Finish to match siding panel finish. Gutter system with  
20 accessories as manufactured by Perimeter Systems, or equal, Division of Southern Aluminum Finishing  
21 Company, Inc. Profile to be no. G-2/R 6", 0.032", Kynar 500 Finish, manufactured of aluminum with  
22 expansion joints at 40' - 0" intervals.

23 Downspouts: 4" x 6" closed face or open faced style, Form in 10-foot long sections or shorter, complete  
24 with elbows and offsets. Join sections with 1-1/2 inch telescoping joints. Provide fasteners designed to  
25 hold downspouts securely 1 inch away from walls; locate fasteners at top and bottom and approximately  
26 60 inches center to center. Finish to match wall panels. The downspouts shall be constructed of 18-  
27 gauge aluminum with Kynar 500 finish.

28 Splash Blocks: Provide at each downspout discharge location, per plans.

29 Gray, Concrete, 8 inch width, 23.5 inch length, 30 pound.

30 Sheet Metal Accessories: Install gutters, downspouts, roof curbs. Louver openings and accessories in  
31 accordance with manufacturer's recommendations for positive anchorage to building and weather-tight  
32 mounting. Adjust operating mechanism for precise operation.

33 **INSULATION**

34 Condensate Blanket Below Metal Roof Panels:

35 Thickness: 2", Knauf or equal

36 Width: 72"

37 K-Value: 0.29

38 Density: 0.75 PCG

39 Facing: Vapor Retardant Vinyl Scrim

40 **FABRICATION**

41 General: Design prefabricated components and necessary field connections required for erection to  
42 permit easy assembly and disassembly.

43 Fabricate components in such a manner that once assembled, they may be disassembled,  
44 repackaged, and reassembled with a minimum amount of labor.

1 Clearly and legibly mark each piece and part of the assembly to correspond with previously  
2 prepared erection drawings, diagrams, and instruction manuals.

3 Structural Framing: Shop-fabricate framing components to indicated sizes for erection, welded in place.  
4 Provide holes for anchoring or connections shop-drilled or punched to template dimensions.

5 Shop Connections: Provide power riveted, bolted, or welded shop connections.

6 Field Connections: Provide bolted field connections.

### 7 **PART 3 - EXECUTION**

#### 8 **ERECTION**

9 Girts: Locate and space wall girts to suit door and window arrangements and heights. Secure girts to  
10 structural framing and hold rigidly to a straight line by sag rods.

11 Framed Openings: Provide shapes of proper design and size to reinforce openings and to carry loads and  
12 vibrations imposed, including equipment furnished under mechanical and electrical work. Securely attach  
13 to building structural frame.

#### 14 **SIDING**

15 General: Arrange and nest sidelap joints so prevailing winds blow over, not into, lapped joints. Lap ribbed  
16 or fluted sheets one full rib corrugation. Apply panels and associated items for neat and weather-tight  
17 enclosure. Avoid "panel creep" or application not true to line. Protect factory finishes from damage.

18 Field cutting of exterior panels by torch shall not be permitted.

19 Wall Sheets: Apply elastomeric sealant continuously between metal base channel (sill angle) and concrete  
20 and elsewhere as necessary for weather-proofing. Handle and apply sealant and backup in accordance  
21 with the sealant manufacturer's recommendations.

22 Align bottom of wall panels and fasten panels with blind rivets, bolts, or self-tapping screws.  
23 Fasten flashings and trim around openings and similar elements with self-tapping screws. When  
24 building height requires two rows of panels align lap of panels over wall panels.

25 Install screw fasteners with power tools having controlled torque adjusted to compress neoprene  
26 washer tightly without damage to washer, screw threads, or panels. Install screws in predrilled  
27 holes.

28 Provide weatherproof escutcheons for pipe and conduit penetrating exterior walls.

29 Sheet Metal Accessories: Install sheet metal accessories in accordance with manufacturer's  
30 recommendations for positive anchorage to building and weather-tight mounting. Adjust operating  
31 mechanism for precise operation.

32 Cleaning and Touch-Up: Clean component surfaces of matter that could preclude paint bond. Touch up  
33 abrasions, marks, skips, or other defects to shop-primed surfaces with same type material as shop primer.

#### 34 **END OF SECTION**

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