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TRANSMITTAL COVER SHEET

DATE: **November 16, 2022**

PAGE: **1 of 19 (INCLUDING THIS PAGE)**

TO: **ALL CONTRACTORS**

FROM: **Cedric Campbell, PE**

PROJECT: **ALABAMA DEPARTMENT OF PUBLIC HEALTH SOUTHWESTERN DISTRICT FACILITY IMPROVEMENTS BALDWIN CO., CLARKE CO., CONECUH CO., ESCAMBIA CO., MARENGO CO., MONROE CO., WASHINGTON CO., AND WILCOX CO.**
FOR ALABAMA PUBLIC HEALTH CARE AUTHORITY
GMC PROJECT NO. CMGM220008

RE: **ADDENDUM #2**

PLEASE COMPLETE BELOW AND RETURN IMMEDIATELY.

I, the undersigned, hereby acknowledge receipt of this Addendum.

_____ _____
Authorized Representative of Contractor Date

_____ _____ _____
Company Name Telephone Fax

_____
Contractor's License Number (if applicable)

ADDENDUM NUMBER 2

November 16, 2022

PROJECT: **ALABAMA DEPARTMENT OF PUBLIC HEALTH SOUTHWEST DISTRICT FACILITY IMPROVEMENTS**
FOR THE ALABAMA PUBLIC HEALTH CARE AUTHORITY
MONTGOMERY ALABAMA
GMC PROJECT NO. CMGM220008

AD2-1 GENERAL:

A. The following revisions and/or additions to the Drawings and Project Manual are hereby made a part of same, and shall be incorporated in the Work of the Contract the same as if originally included in the Bid and Construction Documents.

B. Bidders shall acknowledge receipt of this Addendum in writing, as provided on the Proposal Form.

C. When a revision and/or addition is called for to the Drawings or Project Manual, they shall be fully coordinated with and carried through all applicable Drawings and portions of the Project Manual, including in part, all related Civil, Architectural, Structural, Mechanical, Electrical, and other Documents.

AD2-2 PROJECT MANUAL AND SPECIFICATIONS:

A. Add the attached new Section 13122 – Pre-Engineered Metal Building Systems.

AD2-3 DRAWINGS:

A. None.

AD2-4 MISCELLANEOUS:

A. None.

END OF ADDENDUM NUMBER 2

Attachments: Section 13122 – Pre-Engineered Metal Building Systems

PREPARED BY:

GMC

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Tel 334.271.3200 | GMCNETWORK.COM
Goodwyn Mills Cawood, LLC

SECTION 13122

PRE-ENGINEERED METAL BUILDING SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

B. Related work specified elsewhere includes:

1. Section 03310 - "Concrete"
2. Section 04200 - "Unit Masonry"
3. Section 05120 - "Structural Steel"
4. Section 05500 - "Metal Fabrications"
5. Section 06100 - "Rough Carpentry"
6. Section 07210 - "Building Insulation"
7. Section 07600 - "Flashing and Sheet Metal"
8. Section 07900 - "Joint Sealers"
9. Section 08110 - "Steel Doors and Frames"
10. Section 09250 - "Gypsum Drywall"

1.2 SUMMARY:

A. This Section includes a single-story, multi-span, rigid-frame-type **with straight columns**, clear span, insulated, pre-engineered metal building system frame, of the nominal length, width, eave height, and roof pitch, as indicated on the Drawings.

1. Exterior walls are vertical metal profile wall panels supported on wall girt framing, unless specifically indicated otherwise, and all related work. Metal building soffit panel system, where indicated only for soffit(s) of metal building.
2. Roof System consists of the manufacturer's standard standing-seam, **machine-seamed**, insulated roof, and trim, with gutters and downspouts, soffits, and all related work.
3. Manufacturer's standard building components and accessories may be used, provided components, accessories, and complete structure conform to design indicated and specified requirements.

1.3 SYSTEM PERFORMANCE REQUIREMENTS:

A. General: Engineer, design, fabricate and erect the pre-engineered metal building system to withstand loads from winds, gravity, structural movement including movement thermally induced, and to resist in-service use conditions that the building will experience, including exposure to the weather, without failure.

1. Design each member to withstand stresses resulting from combinations of loads that produce the maximum allowable stresses in that member as prescribed in MBMA's "Design Practices Manual."

2. Provide grounding system for lightening protection, in compliance with building manufacturer's recommendations.

B. Design Loads: Basic design loads, as well as auxiliary and collateral loads, are indicated on the drawings, and shall in addition be as required by project conditions.

1. Basic design loads include live load, and wind load, in addition to the dead load.
2. The Owner has indicated that auxiliary loads including dynamic live loads such as those generated by cranes and material handling equipment, will not be added to the structure under this Contract or in the future.
3. Collateral loads shall include additional dead loads over and above the weight of the metal building system, such as roof-mounted and suspended mechanical systems, gymnasium equipment, finished ceilings, sprinkler piping, light fixtures, conduits, ductwork, piping, equipment, overhead doors, etc.
4. All frames shall be designed to limit lateral drift per Drawings.
5. Minimum wind speed / load at the project site is **110 mph, unless a greater wind load is indicated on Structural Drawings**, or otherwise required by applicable codes and/or authorities having jurisdiction.
6. Minimum uniform pressure of **20 psf**, acting inward or outward.

C. Structural Framing, and Roofing and Siding / Wall Construction: Design primary and secondary structural members and exterior covering materials for applicable loads and combinations of loads in accordance with the Metal Building Manufacturers Association's (MBMA) "Design Practices Manual," in accordance with notes and requirements on Structural Drawings, and the following. Where a conflict in requirements may occur, the more stringent requirements shall apply. Comply with requirements for **U.L. Class 90 wind uplift rating**, minimum.

1. AISC "Code of Standard Practice for Steel Buildings and Bridges":

   a. Paragraph 4.2.1 of the above code is hereby modified by deletion of the following sentence: "This approval constitutes the Owner's acceptance of all responsibility for the design adequacy of any connections designed by the fabricator as a part of his preparation of these shop drawings."

2. Structural Steel: Comply with the American Institute of Steel Construction's (AISC) "Specifications for the Design, Fabrication and Erection of Structural Steel for Buildings" for design requirements and allowable stresses, including the "Commentary" and Supplements thereto, as issued.
3. Light Gage Steel: Comply with the American Iron and Steel Institute's (AISI) "Specification for the Design of Cold Formed Steel Structural Members" and "Design of Light Gage Steel Diaphragms" for design requirements and allowable stresses.
4. Welded Connections: Comply with the American Welding Society's (AWS) "Standard Code for Arc and Gas Welding in Building Construction" for welding procedures, and AWS D1.1 "Structural Welding Code."
5. AISC "Specifications for Structural Joints using ASTM A 325 or A 490 Bolts" approved by the Research Council on Riveted and Bolted Structural Joints of the Engineering Foundation.
6. ASTM A 6 "General Requirements for Delivery of Rolled Steel Plates, Shapes, Sheet Piling and Bars for Structural Use."

1.4 SUBMITTALS:

A. General: Submit the following in accordance with Conditions of the Contract and Division 1 Specification Sections.

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

C. Shop drawings prepared by or under the supervision of a registered Professional Engineer experienced in the design of pre-engineered metal buildings and currently registered in the State of Alabama, for metal building structural framing system, any roofing and siding panels, and other metal building system components and accessories that are not fully detailed or dimensioned in manufacturer's product data. The responsible design engineer shall place their signed and dated Alabama seal on all Shop Drawings.

1. Structural Framing: Furnish complete erection drawings prepared by or under the supervision of a professional engineer legally authorized to practice in the jurisdiction where the Project is located and where the system components are manufactured. Include details showing fabrication and assembly of the metal building system. Show anchor bolts settings and sidewall, endwall, and roof framing. Include transverse cross-sections. Design analysis shall be included, to show all design loads, load combinations, foundation reactions and lateral deflections.
2. Building Accessory Components: Provide details of metal building accessory components to clearly indicate methods of installation.

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

E. Professional engineer's certificate prepared and signed by the responsible design Engineer, legally authorized to practice in the jurisdiction where Project is located and where the system components are manufactured, verifying that the structural framing and covering panels meet indicated loading requirements and codes of authorities having jurisdiction.

F. Qualification data for manufacturer, Design Engineer, fabricator and installer.

1.5 QUALITY ASSURANCE:

A. Installer Qualifications: Engage an experienced Installer to erect the pre-engineered metal building who has specialized in the erection and installation of types of metal buildings systems similar to that required for this project and who is certified in writing by the metal building system manufacturer as qualified for erection of the manufacturer's products. Refer to Section 01015 - "Special Conditions" for additional information and minimum experience requirements.

B. Manufacturer's Qualifications: Provide pre-engineered metal buildings manufactured by a firm with no less than 5-years experience in manufacturing metal buildings systems that are similar to those indicated for this project and have a record of successful in-service performance.

C. Qualifications for Welding Work: Qualify welding processes and welding operators in accordance with AWS "Standard Qualification Procedures". Provide certification that welders to be employed in work have satisfactorily passed AWS qualification tests within previous 12-months. If recertification of welders is required, retesting will be Contractor's responsibility.

D. Refer to Section 01015 - "Special Conditions" for additional information and minimum experience requirements.

E. Single-Source Responsibility: Obtain the metal building system components, including structural framing, any wall and roof covering, and accessory components, from one source from a single manufacturer.

F. Design Criteria: The drawings indicate size, profiles, and dimensional requirements of the pre-engineered metal buildings and are based on the specific type and model indicated. Metal building systems having equal characteristics by other manufacturers may be considered provided that deviations in dimensions and profiles are minor and do not change the design concept or intended performance as judged by the Architect. The burden of proof of equality is on the proposer.

G. **Pre-Roofing Conference:** A pre-roofing conference is required before any roofing materials are installed. This conference shall be conducted by a representative of the Architect and attended by representatives of the Owner, Building Commission Inspector, General Contractor, Roofing Contractor, Roof Deck Manufacturer (if applicable), and the Roofing Materials Manufacturer (if warranty is required of this manufacturer). If equipment of substantial size is to be placed on the roof, the Mechanical Contractor must also attend this meeting.

1. The pre-roofing conference is intended to clarify demolition (for renovation or re-roofing projects) and application requirements for work to be completed before roofing operations can begin. This would include a detailed review of the specifications, roof plans, roof deck information, flashing details, and approved shop drawings, submittal data, and samples. If conflict exists between the specifications and the Manufacturer's requirements, this shall be resolved. If this pre-roofing conference cannot be satisfactorily concluded without further inspection and investigation by any of the parties present, it shall be reconvened at the earliest possible time to avoid delay of the work. In no case should the work proceed without inspection of all roof deck areas and substantial agreement on all points.

2. The following are to be accomplished during the conference:

    a. Review all Factory Mutual and Underwriters Laboratories requirements listed in the specifications and resolve any questions or conflicts that may arise.
    b. Establish trade-related job schedules, including the installation of roof-mounted mechanical equipment.
    c. Establish roofing schedule and work methods that will prevent roof damage.
    d. Require that all roof penetrations and walls be in place prior to installing the roof.
    e. Establish those areas on the job site that will be designated as work and storage areas for roofing operations.
    f. Establish weather and working temperature conditions to which all parties must agree.
    g. Establish acceptable methods of protecting the finished roof if any trades must travel across or work on or above any areas of the finished roof.

3. The Architect shall prepare a written report indicating actions taken and decisions made at this pre-roofing conference. This report shall be made a part of the project record and copies furnished the General Contractor, the Owner, the Building Commission, and the Building Commission Inspector.

1.6 DELIVERY, STORAGE, AND HANDLING:

A. Comply with manufacturer's current written instructions and recommendations.

B. Deliver prefabricated components, any sheets, any panels, and other manufactured items so they will not be damaged or deformed.

C. Deliver anchor bolts and anchorage devices, which are to be embedded in cast-in-place concrete, in ample time to not delay that work.

D. Handling: Exercise care in unloading, storing, and erecting metal building system, and any wall and roof covering panels, to prevent bending, warping, twisting, and surface damage.

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

F. Do not store materials on structure in a manner that might cause distortion or damage to members or supporting structures. Repair or replace damaged materials or structures as directed.

G. Refer to Division 1 Sections "Summary of Work" and "Special Conditions" for additional information and requirements regarding stored materials.

1.7 WARRANTY AND GUARANTEE:

A. Metal Building System and Wind Warranty: The manufacturer/installer shall jointly, in writing, warrant that the Pre-Engineered Metal Building System shall remain intact (without perceptible deformation or failure of the metal wall and roof panels or structure within the warranty period) and completely leak free for a period of **20-years** from the date of project Substantial Completion

1. Note: This warranty need not cover damage from winds exceeding the velocities and/or loading required by the International Building Code as generated by a design velocity based on the 100-year probability wind speed, unless otherwise indicated and/or normally provided for the products specified.
2. Warranty Periods (from date of project "Substantial Completion"):

    a. Wind and Weathertightness: **20-years**.
    b. Metal Panel Finishes - 2-Coat "Kynar 500": **20-years**.
    c. Metal Panel Finishes - Siliconized Polyester: **10-years**; Interior liner panels only, if any.
    d. Materials and Workmanship: **3-years**.
    e. Incidental Warranties by Manufacturers of Components: Manufacturer's standard warranties, passed on to the Owner.

B. Special Project Guarantee: Provide General Contractor's Roofing Guarantee, on form included at General Conditions section of this Project Manual.

C. Repairs that become necessary, such as for leaks, wind damage or temperature stress while building, roofing and siding systems are under warranty and/or guarantee, shall be performed by the installer within 7-days of notification. Should for any reason, the installer not be able to perform

the repairs, it shall be incumbent upon the manufacturer to do so. If repairs are not begun on time, Owner shall have work done by others and costs will be charged to the Contractor, with no detrimental effect on the remaining warranty and no termination of warranty.

D. The above warranty and guarantee shall be in addition to, shall be in effect simultaneously with, and shall not alter or limit other project or product warranties or guarantees, nor shall they serve as limitations to other remedies available to the Owner.

E. Standard manufacturer's roofing warrantees and guarantees which contain language regarding the governing of the warrantees and guarantees by any state other than the State of Alabama, must be amended to exclude such language, and substituting the requirement that the Laws of the State of Alabama shall govern all such warrantees and guarantees.

1.8 EXTRA MATERIALS:

A. Maintenance Stock: Furnish at least 5-percent excess over required amount of nuts, bolts, screws, washers, and other required fasteners for metal building. Pack in cartons labeled to identify the contents and store on the site where directed.

PART 2 - PRODUCTS

2.1 MANUFACTURERS:

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

1. A&S Building Systems
2. ACI Building Systems, Inc.
3. American Buildings Co. *(Basis for Design)*
..4. Architectural Integrated Metals, Inc.
5. Armco Steelox Building Systems.
6. Atlantic Building Systems.
7. Bigbee Steel Buildings, Inc.
8. Butler Manufacturing Co.
9. Ceco Buildings Division.
10. Gulf States Manufacturers, Inc.
11. Mesco Building Solutions
12. Metal Building Components, Inc.
13. O.S.I., Inc.
14. Star Buildings Division, H. H. Robertson Co.
15. Varco-Pruden Buildings.

2.2 MATERIALS:

A. Hot-Rolled Structural Steel Shapes: Comply with ASTM A 572 or A 529.

B. Steel Tubing or Pipe: Comply with ASTM A 500, Grade B, ASTM A 501, or ASTM A 53.

C. Steel Members Fabricated from Plate or Bar Stock: Provide 42,000 psi minimum yield strength. Comply with ASTM A 529, ASTM A 570, or ASTM A 572.

D. Steel Members Fabricated by Cold Forming: Comply with ASTM A 607, Grade 50.

E. Cold-Rolled Carbon Steel Sheet: Comply with requirements of ASTM A 366 or ASTM A 568.

F. Hot-Rolled Carbon Steel Sheet: Comply with requirements of ASTM A 568 or ASTM A 569.

G. Structural Quality Zinc-Coated (Galvanized) Steel Sheet: Comply with ASTM A 446 with G90 coating complying with ASTM A 525. Grade to suit manufacturer's standards.

H. Aluminum-Zinc Alloy Coated Steel Sheets ("Galvalume"): Comply with ASTM A 428, latest edition.

I. Thermal Insulation: Glass fiber blanket insulation, complying with ASTM C 991, of 0.5 lb per cu. ft. density, thickness as indicated, with UL flame spread classification of 25 or less, and 2 inch wide continuous vapor-tight edge tabs where integral vapor barrier occurs.

1. Integral Vapor Barrier: Manufacturer's standard reinforced vinyl film; White color.
   a. Modify as required for flame spread requirements.
   b. Perm Rating: No more than 0.1, as per ASTM E-96, Procedure A, latest edition.
   c. All joints lapped and sealed.
2. Insulation Thickness: Continuous nominal 2-inches thick maximum at metal roof/wall panels installed on typical roof purlins/wall girts/metal building framing; Thermal spacer blocks required at roof purlins and metal building wall panel support framing in accordance with manufacturer's current written instructions.
3. Refer to Drawings for any additional insulation, and additional information; and Division 7 Section "Building Insulation" for additional information and requirements for building envelope insulation, sound batts, etc.

J. Bolts for Structural Framing: Comply with ASTM A 307 or ASTM A 325 as necessary for design loads and connection details.

K. Anchor Bolts: ASTM F 1554, headed type unless otherwise indicated.

L. Non-Metallic Shrinkage-Resistant Grout: Pre-mixed, non-metallic, non-corrosive, non-staining product containing selected silica sands, portland cement, shrinkage compensating agents, plasticizing and water reducing agents, complying with CRD-C621.

1. Products offered by manufacturers to comply with requirements for non-metallic, non-shrink grout include the following:

   a. Euco N.S.; Euclid Chemical Company
   b. Crystex; L&M Construction Chemicals
   c. Masterflow 713; Master Builders
   d. Five Star Grout; U.S. Grout Corp.
   e. Upcon; Upco Chemical Division, USM Crop.
   f. Propak; Protex Industries, Inc.

M. Paint and Coating Materials: Comply with performance requirements of the federal specifications indicated. Unless specifically indicated otherwise, compliance with compositional requirements of federal specifications indicated is not required.

1. Shop Primer for Ferrous Metal: Fast-curing, lead-free, abrasion- resistant, rust-inhibitive primer selected by the manufacturer for compatibility with substrates with types of alkyd finish paint systems indicated and for capability to provide a sound foundation for field-applied topcoats despite prolonged exposure. Comply with FS TT-P-86, Types I, II, or III.
2. Shop Primer for Galvanized Metal Surfaces: Zinc dust-zinc oxide primer selected by the manufacturer for compatibility with substrate. Comply with FS TT-P-641.

2.3 STRUCTURAL FRAMING:

A. Rigid Frames: Fabricate from hot-rolled structural steel shapes. Provide factory-welded, shop-painted, built-up "I-beam"-shape or open-web-type frames consisting of tapered or parallel flange beams and straight columns. Furnish frames with attachment plates, bearing plates, and splice members. Factory drill for field-bolted assembly.

1. Provide length of span and spacing of frames indicated. Slight variations in length of span and frame spacing may be acceptable if necessary to meet manufacturer's standards, and proposed in writing by manufacturer and accepted in writing by Architect prior to Bid Date.
2. Provide rigid frames at end walls where indicated.

B. Primary Endwall Framing: Provide the following primary endwall framing members fabricated for field-bolted assembly:

1. Endwall Columns: Manufacturer's standard shop-painted, built-up factory-welded "I"-shape or cold-formed "C" sections, fabricated from 14-gage (0.0747-inch) steel.
2. Endwall Beams: Manufacturer's standard shop-painted "C"-shape roll-formed sections fabricated from 16-gage (0.0598-inch) steel.

C. Secondary Framing: Provide the following secondary framing members:

1. Roof Purlins, Sidewall and Endwall Girts: "C"-or "Z"-shaped sections fabricated from 16-gage (0.0598-inch) shop-painted roll-formed steel. Purlin spacers shall be fabricated from 14-gage (0.0747-inch) cold-formed galvanized steel sections.
2. Eave Struts: Unequal flange "C"-shaped sections formed to provide adequate backup for both wall and roof panels. Fabricate from 16-gage (0.0598-inch) shop-painted roll-formed steel.
3. Flange and Sag Bracing: 1-5/8-inches by 1-5/8-inch angles fabricated from 16-gage (0.0598-inch) shop-painted roll-formed steel, unless indicated otherwise on Structural Drawings.
4. Base or Sill Channels: Fabricate from 14-gage (0.0747-inch) cold-formed galvanized steel sections.
5. Secondary endwall structural members, except columns and beams, shall be the manufacturer's standard sections fabricated from 14-gage (0.0747-inch) cold-formed galvanized steel.

    a. Provide similar members at jambs and headers of Doors, Louvers and Windows.

D. Wind Bracing: Provide adjustable wind bracing using 2-inch with ASTM A 36 or ASTM A 572, Grade D. Locate interior end bay bracing only where indicated, or required by project conditions.

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

2.4 SHOP PAINTING:

A. General: Clean surfaces to be primed of loose mill scale, rust, dirt, oil, grease, and other matter precluding paint bond. Follow procedures of SSPC-SP3 for power-tool cleaning, SSPC-SP7 for brush-off blast cleaning, and SSPC-SP1 for solvent cleaning, unless specific procedures are indicated otherwise. Shop paint structural steel, except those members or portions of members to be embedded in concrete or mortar. Paint embedded steel which is partially exposed on portions and initial 2-inch of embedded areas only.

1. Do not paint surface which are to be welded or high-strength bolted with friction-type connections.
2. Prime structural steel primary and secondary framing members with the manufacturer's standard rust-inhibitive primer.
3. Prime galvanized members, after phosphoric acid pretreatment, with manufacturer's standard zinc dust-zinc oxide primer.
4. **Apply 2-coats of paint to surfaces which are inaccessible after assembly or erection**. Change color of second coat to distinguish it from the first coat.

B. Surface Preparation: After inspection and before shipping, clean steelwork to be painted. Remove loose rust, loose mill scale, and spatter, slag or flux deposits. Clean steel in accordance with Steel Structures Painting Council (SSPC) as follows:

1. SP-1 "Solvent Cleaning," followed by SP-3 "Power Tool Cleaning."

C. Painting: Immediately after surface preparation, apply structural steel primer paint in accordance with manufacturer's instructions. Use painting methods which result in full coverage of joints, corners, edges and exposed surfaces.

2.5 PREFINISHED ROOFING AND SIDING PANELS:

A. Face Sheets: Fabricate wall, roof and liner panel face sheets to the profile or configuration indicated from minimum 24-gage (0.00179-inch), 50,000 p.s.i. yield steel sheet. Finish shall be manufacturer's standard **2-coat** (i.e.: primer and color coat) "Kynar 500" 70% resin coating, with a minimum dry film thickness (DFT) of 1.6-mils (*except 10-year warranted siliconized polyester coating at any interior liner panels only*). Base metal shall be one of the following:

1. ASTM A 792 aluminum-zinc allow coated steel sheet ("Galvalume"), or
2. ASTM A 653, G-90 (galvanized) zinc-coated steel sheet.

B. Profiled and Any Ribbed Wall Panels and Flat Soffit Panels - Only Where Other Soffit Panels or Systems Are Not Indicated: Fabricate wall panel system face sheets and sheet metal accessories to the profile or configuration indicated, designed for mechanical attachment of panels to wall girts and base and eave channels using exposed fasteners and sealants.

1. Horizontal and Vertical Profile Metal Wall Panels: As indicated on the Drawings by one of the above named manufacturers.

2. Soffit Panels: "Moduleze", flat profile, perforated / vented panel system and trim, from edge to edge of soffits, and at recessed entries and similar conditions.

    a. Provide unperforated, with provisions for drainage and with matching fascia at locations where any suspended and wall-anchored canopies are indicated.

3. Finish: "Kynar 500" 70% resin coating system; Manufacturer's standard 20-year warranted **2-coat** system at wall and soffit panels.
4. Colors: As selected by Owner and Architect after bidding, from manufacturer's full line of standard non-metallic color selections, to include a minimum of 12 colors to select from and color to match metal roofing or windows.

C. Standing Seam Roof Panels: Manufacturer's standard factory-formed roof panel system and accessories designed for mechanical attachment of panels to roof purlins and framing, and machine seaming.

1. Roof Panels - Basis of Design: "**Loc-Seam 360**" roofing system, as manufactured by American Buildings Co.; Eufaula, Alabama; Phone: 334/687-2032; or approved equivalent by one of the above named manufacturers, with concealed anchorage and sealant systems; **Machine seamed.**
2. Finish: Manufacturer's standard 20-year warranted **2-coat** "Kynar 500" 70% resin coating system.
3. Colors: As selected by Owner and Architect after bidding, from manufacturer's full line of standard non-metallic color selections, to include a minimum of 12 colors to select from and color to match metal roofing or windows.

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

1. Provide metal-backed neoprene washers under heads of fasteners bearing on weather side of panels.
2. Use only aluminum or stainless steel fasteners for exterior application and galvanized or cadmium-plated fasteners for interior applications.
3. Locate and space fastenings in true vertical and horizontal alignment. Use proper tools to obtain controlled uniform compression for positive seal without rupture of neoprene washer.
4. Provide fasteners with heads matching color of roofing or siding sheets by means of factory-applied coating. Caps or covers will not be acceptable.

E. Accessories: Provide the following sheet metal accessories factory-formed of the same material (except 50,000 p.s.i. yield) in the same finish as roof and wall panels:

1. Flashings.
2. Closures.
3. Fillers.
4. Metal expansion joints.
5. Ridge caps.
6. Fascias and trim.
7. Gutters and downspouts.

F. Flexible Closure Strips: Closed-cell, expanded cellular rubber, self-extinguishing flexible closure strips. Cut or premolded to match configuration of roofing and siding sheets. Provide closure strips where indicated or necessary to ensure weathertight construction.

G. Sealing Tape: Pressure-sensitive 100-percent solids gray polyisobutylene compound sealing tape with release paper backing. Provide permanently elastic, non-sag, nontoxic, nonstaining tape 2-inch wide and 1/8-inch thick.

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

1. Refer to Section 07900 - "Joint Sealers," for additional information.

2.6 SHEET METAL ACCESSORIES:

A. General: Provide coated steel sheet metal accessories with coated steel roofing and siding panels.

B. Gutters: Refer to Division 7 Section "Flashing and Sheet Metal". Form in 10-foot-long (minimum) sections, complete with end pieces, outlet tubes, and other special pieces as required. Size in accordance with SMACNA. Join sections with riveted and soldered or sealed joints. Provide expansion-type slip joint at center of runs. Furnish gutter supports spaced 36-inches on center, constructed of same metal as gutters. Provide bronze, copper, or aluminum wire ball strainers at outlets. Finish to match roof fascia and rake.

C. Downspouts: Refer to Division 7 Section "Flashing and Sheet Metal". Form in 10-foot-long sections, complete with elbows and offsets. Join sections with 1-1/2-inch telescoping joints. Provide fasteners designed to hold downspouts securely 1-inch away from walls; locate fasteners at top and bottom and at approximately 5-feet on center in between. Finish to match gutters or wall panels, as selected by Architect.

1. Provide off-set wall anchor straps at top, bottom, and no more than 5'-0" o.c.
2. Provide precast concrete splashblock with 3 raised edges, approximately 12" x 24", for each downspout that would otherwise spill out onto grade or paving, and metal pan for any downspout that would otherwise spill out onto roofing below.

2.7 FABRICATION:

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

1. Fabricate components in such a manner that once assembled, they may be disassembled, repackaged, and reassembled with a minimum amount of labor.
2. Clearly and legibly mark each piece and part of the assembly to correspond with previously prepared erection drawings, diagrams, and instruction manuals.

B. Structural Framing: Shop-fabricate framing components to indicated size and section with base plates, bearing plates, and other plates required for erection, welded in place. Provide holes for anchoring or connections shop-drilled or punched to template dimensions.

1. Shop Connections: Provide power riveted, bolted, or welded shop connections.
2. Field Connections: Provide bolted field connections.

2.8 METAL FINISHES:

A. General: Comply with the NAAMM "Metal Finishes Manual" for recommendations relative to application and designations of finishes.

B. Finish designations prefixed by "AA" conform to the system established by the Aluminum Association for designating aluminum finishes.

C. Apply coatings either before or after forming and fabricating panels, as required by coating process and as required for maximum coating performance capability. Protect coating either by application of strippable film or by packing plastic film or other suitable material between panels in a manner to properly protect the finish. Furnish air-drying spray finish in matching color for touch-up, in the event touch-up is allowed by the Architect; However, it is probable that the Architect will require replacement of any materials which exhibit any damage to finishes.

1. Durability: Provide coating that has been field tested under normal range of weathering conditions for minimum of 20-years without significant peel, blister, flake, chip, crack, or check in finish; without chalking in excess of No. 8 in accordance with ASTM D 659; and without fading in excess of 5-NBS units.

D. Finishes: Roof Panels, Closures, Exposed Trim, Gutters, Downspouts, and Similar Items.

1. High Performance Organic Coating: AA-C12C42R1x (Chemical Finish: cleaned with inhibited chemicals; Chemical Finish: chemical conversion coating, acid chromate-fluoride-phosphate pretreatment; Organic Coating: as specified below); Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturer's instructions.

2. Fluorocarbon Coating System: Manufacturer's standard **2-coat** "Kynar 500" thermo-cured system composed of specially formulated inhibitive primer and fluorocarbon color coat, containing not less than 70 percent polyvinylidene resin by weight, and 30 percent reflective gloss when tested in accordance with ASTM D 523; Minimum total dry film thickness of 1.6-mils; Note that the finish system may be a traditional liquid or powder coat complying with AAMA 2605.

3. Except 10-year warranted siliconized polyester coating at interior liner panels only.

4. Colors: As selected by Architect after Bid Date, from manufacturer's **full line** of non-metallic colors, to include in part, color(s) to match metal roofing or window colors.

a. The interior color finish shall consist of a backer coat with a minimum dry film thickness of 0.5-mil "Kynar 500".

PART 3 - EXECUTION

3.1 ERECTION:

A. Surveys: Employ a registered professional engineer or and surveyor, experienced in survey work, to establish permanent bench marks as shown and as necessary for accurate erection of pre-engineered steel structures. Check elevations of concrete bearing surfaces, and locations of anchor bolts and similar devices, before erection work proceeds, and report discrepancies to Architect. Do not proceed with erection until corrections have been made, or until compensating adjustments to structural steel work have been agreed upon with Architect.

B. Temporary Shoring and Bracing: Provide temporary shoring and bracing members with connections of sufficient strength to bear imposed loads. Remove temporary members and connections when permanent members are in place and final connections are made. Provide temporary guy lines to achieve proper alignment of structures as erection proceeds.

C. Temporary Planking: Provide temporary planking and working platforms as necessary to effectively complete work.

D. Anchor Bolts: Furnish anchor bolts and other connectors required for securing structural steel to foundations and other in-place work.

1. Furnish templates and other devices as necessary for presetting bolts and other anchors to accurate location.
2. Refer to Division 3 of these specifications for anchor bolt installation requirements in concrete.

E. Setting Bases and Bearing Plates: Clean concrete bearing surfaces of bond-reducing materials and roughen to improve bond to surfaces. Clean bottom surface of base and bearing plates.

1. Set loose and attached base plates and bearing plates for structural members on steel wedges or shims or other adjusting devices.
2. Tighten anchor bolts after supported members have been positioned and plumbed. Do not remove steel wedges or shims, but if protruding, cut off flush with edge of base or bearing plate prior to packing with grout.
3. Pack grout solidly between bearing surfaces and bases of plates to ensure that no voids remain. Finish exposed surfaces, protect installed materials and allow to cure. For proprietary grout materials, comply with manufacturer's instructions.

    a. Moist cure grout for not less than 7-days after placement.

F. Field Assembly: Set structural frames accurately to lines and elevations indicated. Align and adjust various members forming a part of a complete frame or structure before permanently fastening. Clean bearing surfaces and other surfaces which will be in permanent contact before assembly. Perform necessary adjustments to compensate for discrepancies in elevations and alignment.

1. Level and plumb individual members of structure within specified AISC tolerances.
2. See base plates with double-nutted anchor bolts, and as otherwise required.
3. Splice members only where indicated and accepted on shop drawings.
4. Purlins and Girts: Provide rake or gable purlins with tight-fitting closure channels and fascias. Locate and space wall girts to suit door and window arrangements and heights. Secure purlins and girts to structural framing and hold rigidly to a straight line by sag rods.
5. Bracing: Provide diagonal rod or angle bracing in roof and sidewalls as indicated.

a. Movement-resisting frames may be used in lieu of sidewall rod bracing, to suit manufacturer's standards.
b. Where diaphragm strength of roof or wall covering is adequate to resist wind forces, rod or angle bracing will not be required, except when indicated on Structural Drawings.

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

7. Roofing and Siding:

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

1) Field cutting of exterior panels by torch is not permitted.
2) Provide weatherseal under ridge cap. Flash and seal roof panels at eave, rake, ventilators, and similar locations with rubber, or neoprene, or other acceptable closures to exclude weather and in compliance with warranty requirements.
3) Install roof fall protection and finished ceiling/insulation support system in compliance with manufacturer's current written instructions and recommendations. Replace support system which is damaged, and at any location where it is improperly installed or anchored; Install thermal blocks in compliance with same requirements, at walls and roofs.
4) Install roof and wall insulation as the roofing and siding work progresses. Replace insulation which becomes wet or is otherwise damaged. Adjust insulation so that no bowing or other deformation occurs in roofing and/or siding panels. Install so that there is a continuous thermal barrier between the building interior and exterior. "Shingle" laps in insulation vapor barrier, to direct water and/or condensation down and out of the building without reaching the building interior. Seal joints and laps in strict accordance with manufacturer's current written instructions and recommendations.

b. Roof Sheets: Provide sealant tape at lapped joints of ribbed or fluted roof sheets and between roof sheets and skylights, protruding equipment, roof ventilators, vents, and accessories. Seal joints in roof panels in accordance with roof manufacturer's current written recommendations and requirements. **Machine-seam** joints in roof panels in accordance with roof manufacturer's written recommendations and requirements.

1) Apply a continuous ribbon of sealant tape to clean, dry surface of the weather side of fastenings on end laps, and on side laps of corrugated nesting-type, ribbed, or fluted panels and elsewhere as needed to make roof sheets weatherproof to driving rains.
2) Align with corrugations in wall panels.

c. Wall Sheets: Apply elastomeric sealant continuously between metal base channel (sill angle) and concrete and elsewhere as necessary for waterproofing. Handle and apply sealant and backup in accordance with the sealant manufacturer's current written instructions and recommendations.

1) Align bottom of wall panels and fasten panels with blind rivets, bolts, or self-tapping screws. Fasten flashings and trim around openings and similar elements with self-tapping screws. Fasten window and door frames with machine screws or bolts. When building height requires two rows of panels at gable ends, align lap of gable panels over wall panels at eave height.
2) Install screw fasteners with power tools having controlled torque adjusted to compress neoprene washer tightly without damage to washer, screw threads, or panels. Install screws in predrilled holes.
3) Provide weatherproof flashing, and weatherproof counterflashing escutcheons for pipe and conduit penetrating exterior walls.
4) Align with corrugations in roof panels.

G. Erection Bolts: On exposed welded construction, remove erection bolts, fill holes with plug welds and grind smooth at exposed surfaces.

1. Comply with AISC Specifications for bearing, adequacy of temporary connections, alignment, and removal of paint on surfaces adjacent to field welds.
2. Do not enlarge unfair holes in members by burning or by use of drift pins, except in secondary bracing members. Ream holes that must be enlarged to admit bolts.

H. Gas Cutting: Do not use gas cutting torches in field for correcting fabrication errors in structural framing. Cutting will be permitted only on secondary members which are not under stress, as acceptable to Architect. Finish gas-cut sections equal to a sheared appearance when permitted.

I. Sheet Metal Accessories: Refer to Division 7 Section "Flashing and Sheet Metal" and Division 10 Section "Louvers and Vents." Install gutters, downspouts, ventilators, louvers, and other sheet metal accessories in accordance with manufacturer's recommendations for positive anchorage to building and weathertight mounting. Adjust operating mechanism for precise operation.

1. Provide 1-precast concrete splashblock at each downspout which drains onto grade, and 1-preformed metal pan at each downspout which drains onto roof below.

a. Size: Approximately 12-inches wide x 28-inches long x 3-inches high, including raised edge at sides and one end.

J. Touch-Up Painting: Immediately after erection, clean field welds, bolted connections and abraded areas of shop paint. Apply paint to exposed areas with same material as used for shop painting.

1. Apply by brush or spray to provide a minimum dry fill thickness of 2.0-mils.

3.2 FIELD QUALITY CONTROL:

A. The Contractor shall engage an independent testing and inspection agency to inspect high-strength bolted connections and welded connections and to perform tests and prepare test reports. It shall be the responsibility of the Contractor to notify testing laboratory with sufficient information and in sufficient time for the laboratory to perform inspections and tests.

1. Testing agency shall conduct and interpret tests and state in each report whether test specimens comply with requirements, and specifically state any deviations therefrom.
2. Contractor shall provide access for testing agency to places where structural steel work is being fabricated or produces so that required inspection and testing can be accomplished.
3. Testing agency may inspect structural steel at plant before shipment; however, Architect reserves right, at any time before final acceptance, to reject material not complying with specified requirements.
4. Contractor shall correct deficiencies in structural steel work which inspections and laboratory test reports have indicated to be not in compliance with requirements. Perform additional tests, at Contractor's expense, as may be necessary to reconfirm any non-compliance of original work, and as may be necessary to show compliance of corrected work.

B. Shop Bolted Connections: Inspect in accordance with AISC specifications.

C. Shop Welding: Inspect during fabrication of structural steel assemblies, as follows:

1. Certify welders and conduct inspections as required. Record types and locations of defects found in work. Record work required and performed to correct deficiencies.
2. Perform visual inspection of all welds.

D. Field Bolted Connections: Inspect in accordance with AISC specifications.

E. Field Welding: Inspect during erection of structural steel as follows:

1. Certify welders and conduct inspections as required. Record types and locations of defects found in work. Record work required and performed to correct deficiencies.
2. Perform visual inspection of all welds.

F. Special Inspections: As required by Building Code, shall be coordinated by the Contractor and conducted by a qualified, independent testing agency, employed and paid by the Owner. Refer to Structural Drawings and Building Code for additional information and requirements.

END OF PRE-ENGINEERED METAL BUILDING SYSTEMS