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AGREEMENT AND GENERAL CONDITIONS -- AIA

1.1 AGREEMENT

A. AIA Document A101-current edition, Standard Form of Agreement Between Owner and Contractor Where the Basis of Payment is a Stipulated Sum, forms the basis of Agreement between the Owner and Contractor.

1.2 GENERAL CONDITIONS

A. AIA Document A201-current edition, General Conditions of the Contract for Construction, is the General Conditions of the Contract.

B. A Copy of AIA Document A201-current edition is available for viewing at the office of the Architect during normal business hours.

1.3 SUPPLEMENTARY CONDITIONS

A. Refer to Document 00811 for modifications to General Conditions.

END OF DOCUMENT

SECTION 03 05 00

BASIC CONCRETE MATERIALS AND METHODS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
1. Formwork.
2. Reinforcement.
3. Accessories.
4. Cast-in place concrete.
5. Finishing and curing.

1.2 SUBMITTALS

A. Product Data: Indicate admixtures, anchors, and reinforcement.

B. Design Data: Submit mix designs.

1.3 QUALITY ASSURANCE

A. Construct and erect concrete formwork in accordance with ACI 301 and ACI 318

B. Perform concrete reinforcing work in accordance with ACI 301, ACI 318 CRSI 63, 65, and Manual of Practice.

C. Perform cast-in-place concrete work in accordance with ACI 301, ACI 318 and ACI 306.1.

PART 2 PRODUCTS

2.1 FORM MATERIALS AND ACCESSORIES

A. Form Materials: At discretion of Contractor.

B. Dovetail Anchor Slots: Galvanized steel, foam filled non-filled, release tape sealed slots; bend tab anchors; manufactured by.

C. Flashing Reglets: Galvanized steel Rigid PVC, with alignments splines for joints; manufactured by.

D. Form Release Agent: Colorless mineral oil not capable of staining concrete or impairing natural bonding characteristics of coating intended for use on concrete.

E. Formed Construction Joints for Slab-on-Grade: Galvanized steel, tongue and groove type profile, knockout holes to receive doweling.

F. Slab Edge Joint Filler: ASTM D1751, Premolded asphaltic board, 1/2 inch thick.

G. Vapor Retarder: ASTM E1745 Class A; 6 mil thick clear polyethylene film; type recommended for below grade application. Furnish joint tape recommended by manufacturer.

2.2 REINFORCEMENT MATERIALS

A. Reinforcing Steel: ASTM A615/A615M 60 ksi yield grade deformed billet steel bars, plain finish.

B. Welded Steel Wire Fabric: ASTM A185 Plain type, in coiled rolls, unfinished.

C. Chairs, Bolsters, Bar Supports, Spacers: Sized and shaped for support of reinforcing; plastic tipped or non-corroding for supports in slabs forming finished ceilings or where supports are exposed to weather.

D. Fabricate concrete reinforcing in accordance with ACI 315.

2.3 CONCRETE MATERIALS

A. Cement: ASTM C150, Normal-Type I Portland type.

B. Fine and Coarse Aggregates: ASTM C33.

C. Water: Clean and not detrimental to concrete.

D. Air Entrainment Admixture: ASTM C260.

E. Bonding Agent: Polymer resin emulsion.

F. Non-shrink Grout: Premixed compound consisting of non-metallic aggregate, cement, water reducing and plasticizing agents.

2.4 COMPOUNDS, HARDENERS AND SEALERS

A. Curing Compound: ASTM C309, Acrylic type; translucent.

2.5 CONCRETE MIX

A. Mix and deliver concrete in accordance with ASTM C94, Option A. Furnish concrete of the following strength:
   1. Compressive strength 3000 psi (28 day).
   2. Slump 4 to 6 inches

B. Select admixture proportions for normal weight concrete in accordance with ACI 301 Method 1

C. Add air entraining agent to concrete mix for concrete work exposed to exterior.

PART 3 EXECUTION

3.1 FORMWORK ERECTION

A. Erect formwork, shoring and bracing to achieve design requirements.

B. Camber slabs and framing to achieve ACI 301 tolerances.

C. Provide bracing to ensure stability of formwork.

D. Form external corners of beams, joists, and columns, with 1 inch chamfer.

E. Apply form release agent to formwork prior to placing form accessories and reinforcement.

F. Do not apply form release agent where concrete surfaces will receive special finishes or applied coverings affected by agent.

G. Clean forms as erection proceeds, to remove foreign matter.

3.2 INSERTS, EMBEDDED COMPONENTS, AND OPENINGS

A. Provide formed openings where required for work to be embedded in and passing through concrete members.

B. Coordinate work of other sections in forming and setting openings, slots, recesses, chases, sleeves, bolts, anchors, and other inserts.

C. Install concrete accessories straight, level, and plumb.

D. Install water stops continuous without displacing reinforcement.

E. Place formed construction joint device in pattern pouring sequence.

F. Install void forms. Protect forms from moisture before concrete placement and from crushing during concreting.

3.3 REINFORCEMENT PLACEMENT

A. Place reinforcement, supported and secured against displacement.

B. Ensure reinforcing is clean, free of loose scale, dirt, or other foreign coatings.

3.4 PLACING CONCRETE

A. Prepare previously placed concrete by cleaning with steel brush and applying bonding agent.

B. Install vapor retarder under interior slabs on grade in accordance with ASTM E1643. Lap joints minimum 6 inches and seal watertight.

C. Repair damaged vapor retarder with vapor retarder material, lap over damaged areas minimum 6 inches and seal watertight.

D. Separate slabs-on-grade from vertical surfaces with 1/2 inch thick joint filler, extended from bottom of slab to within 1/4 inch of finished slab surface.

E. Place concrete continuously between predetermined expansion, control and construction joints.

F. Place floor slabs in every-other lane-placement pattern.

G. Where new concrete is doweled to existing work, drill holes in existing concrete, insert steel dowels and pack with non-shrink grout.

H. Screed slabs-on-grade level.

3.5 FORM REMOVAL

A. Do not remove forms or bracing until concrete has gained sufficient strength to carry its own weight and imposed loads.

B. Remove formwork progressively and in accordance with code requirements.

3.6 SEPARATE FLOOR TOPPINGS

A. Place concrete floor toppings to required lines and levels.

B. Prior to placing, roughen concrete base course and remove deleterious material. Broom and vacuum clean.

C. Place required dividers edge strips reinforcing and other items to be cast in.

D. Apply bonding agent base course.

3.7 FLOOR FINISHING

A. Finish concrete floor surfaces in accordance with ACI 301 and ACI 302.1.

B. Uniformly spread, screed, and float concrete.

C. Steel trowel surfaces receiving carpeting resilient flooring thin set quarry tile thin set ceramic tile or remaining exposed to view in finished construction.

D. Maintain surface flatness, with maximum variation of 1/8 inch in 10 ft.

E. In areas with floor drains, maintain floor level at walls and slope surfaces uniformly to drains.

3.8 CURING

A. Apply sealer on floor surfaces.

B. Immediately after placement, protect concrete from premature drying.

C. Maintain concrete with minimal moisture loss at relatively constant temperature for period necessary for hydration of cement and hardening of concrete for not less than 7 days.

3.9 FORMED SURFACES

A. Provide concrete surfaces to be left exposed concrete walls columns beams joists with smooth rubbed finish.

3.10 FIELD QUALITY CONTROL

A. Three (3) Concrete Test Cylinders: Taken for every 75 or less cu yds of each class of concrete placed.

B. One (1) Additional Test Cylinder: Taken during cold weather concreting, and cured on job site under same conditions as concrete incorporated into the Work.

C. One (1) Slump Test: Taken for each set of test cylinders taken.

3.11 DEFECTIVE CONCRETE

A. Modify or replace concrete not conforming to required lines, details and elevations, as directed by Architect/Engineer/Owner.

END OF SECTION

SECTION 03 11 00

CONCRETE FORMING AND ACCESSORIES

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
1. Formwork for cast-in place concrete.
2. Shoring, bracing, and anchorage.
3. Architectural form liners.
4. Form accessories.
5. Form stripping.

B. Related Sections:
1. Section 03200 - Concrete Reinforcement.
2. Section 03300 - Cast-in-Place Concrete.

1.2 REFERENCES

A. American Concrete Institute:
1. ACI 117 - Standard Specifications for Tolerances for Concrete Construction and Materials.
2. ACI 301 - Specifications for Structural Concrete.
3. ACI 318 - Building Code Requirements for Structural Concrete.
4. ACI 347 - Guide to Formwork for Concrete.

B. American Forest and Paper Association:
1. AF&PA - National Design Specifications for Wood Construction.

C. The Engineered Wood Association:
1. APA/EWA PS 1 - Voluntary Product Standard for Construction and Industrial Plywood.

D. American Society of Mechanical Engineers:
1. ASME A17.1 - Safety Code for Elevators and Escalators.

E. ASTM International:
1. ASTM D1751 - Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types).
2. ASTM E96 - Standard Test Methods for Water Vapor Transmission of Materials.

F. West Coast Lumber Inspection Bureau:
1. WCLIB - Standard Grading Rules for West Coast Lumber.

1.3 DESIGN REQUIREMENTS

A. Design, engineer and construct formwork, shoring and bracing in accordance with ACI 318 to conform to design and applicable code requirements to achieve concrete shape, line and dimension as indicated on Drawings.

1.4 PERFORMANCE REQUIREMENTS

A. Vapor Retarder Permeance: Maximum 1 perm when tested in accordance with ASTM E96, Procedure A.

1.5 SUBMITTALS

A. Shop Drawings:
   1. Submit formwork, shoring, and reshoring shop drawings.
   2. Indicate the following:
      a. Pertinent dimensions, openings, methods of construction, types of connections, materials, joint arrangement and details, ties and shores, location of framing, studding and bracing, and temporary supports.
      b. Means of leakage prevention for concrete exposed to view in finished construction.
      c. Sequence and timing of erection and stripping assumed compressive strength at time of stripping, height of lift and height of drop during placement.
      d. Vertical, horizontal and special loads in accordance with ACI 347, Section 2.2 and camber diagrams, when applicable.
      e. Notes to formwork erector showing size and location of conduits and piping embedded in concrete in accordance with ACI 318, Section 6.3.
      f. Procedure and schedule for removal of shores and installation and removal of reshores.

B. Product Data: Submit data on void form materials and installation requirements.

1.6 QUALITY ASSURANCE

A. Perform Work in accordance with ACI 318.

B. For wood products furnished for work of this Section, comply with AF&PA.

1.7 QUALIFICATIONS

A. Design formwork under direct supervision of Professional Engineer experienced in design of this Work and licensed in State of Georgia.

PART 2 PRODUCTS

2.1 WOOD FORM MATERIALS

A. Softwood Plywood: APA/EWA PS 1, C Plugged Grade.

B. Lumber Forms:

1. Application: Use for edge forms and unexposed finish concrete.
2. Boards: 6 inches or 8 inches in width, ship lapped or tongue and groove, "Standard" Grade Douglas Fir, conforming to WCLIB Standard Grading Rules for West Coast Lumber. Surface boards on four sides.

C. Plywood Forms:
1. Application: Use for exposed finish concrete.
2. Forms: Conform to PS 1; full size 4 x 8 feet panels; each panel labeled with grade trademark of APA/EWA.
3. Plywood for Surfaces to Receive Membrane Waterproofing: Minimum of 5/8 inch thick; APA/EWA "B-B Plyform Structural I Exterior" grade.
4. Plywood where "Smooth Finish" is required, as indicated on Drawings: APA/EWA "HD Overlay Plyform Structural I Exterior" grade, minimum of 3/4 inch thick.

2.2 PREFABRICATED FORMS

A. Preformed Steel Forms: Minimum 16 gage matched, tight fitting, stiffened to support weight of concrete without deflection detrimental to tolerances and appearance of finished surfaces.

B. Glass Fiber Fabric Reinforced Plastic Forms: Matched, tight fitting, stiffened to support weight of concrete without deflection detrimental to tolerances and appearance of finished concrete surfaces.

C. Pan Type: Steel of size and profile required.
a. Tubular Column Type: Round, spirally wound laminated fiber material, surface treated with release agent, non-reusable, sizes as indicated on Drawings

D. Steel Forms: Sheet steel, suitably reinforced, and designed for particular use indicated on Drawings.

E. Form Liners: Smooth, durable, grainless and non-staining hardboard, unless otherwise indicated on Drawings.

F. Framing, Studding and Bracing: Stud or No. 3 structural light framing grade.

2.3 FORMWORK ACCESSORIES

A. Form Ties: Snap-off type, galvanized metal, adjustable length, cone type, with waterproofing washer, free of defects capable of leaving holes larger than 1 inch in concrete surface.

B. Spreaders: Standard, non-corrosive metal form clamp assembly, of type acting as spreaders and leaving no metal within 1 inch of concrete face. Wire ties, wood spreaders or through bolts are not permitted.

C. Form Anchors and Hangers:

1. Do not use anchors and hangers exposed concrete leaving exposed metal at concrete surface.
2. Symmetrically arrange hangers supporting forms from structural steel members to minimize twisting or rotation of member.
3. Penetration of structural steel members is not permitted.

D. Form Release Agent: Colorless mineral oil that will not stain concrete, or absorb moisture, or impair natural bonding or color characteristics of coating intended for use on concrete.

E. Corners: Fillet, wood strip type; 11 inch size; maximum possible lengths.

F. Dovetail Anchor Slot: Galvanized steel, 22 gage thick, foam filled, release tape sealed slots, anchors for securing to concrete formwork.

G. Vapor Retarder: Where indicated on Drawings, 8 mil thick polyethylene sheet.

H. Bituminous Joint Filler: ASTM D1751.

I. Nails, Spikes, Lag Bolts, Through Bolts, Anchorages: Size, strength and character to maintain formwork in place while placing concrete.

J. Water Stops: Rubber, minimum 1,750 psi tensile strength, minimum 50 degrees F to plus 175 degrees F working temperature range, 1/2" inch wide, maximum possible lengths, ribbed profile, preformed corner sections, heat welded jointing.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify lines, levels, and centers before proceeding with formwork. Verify dimensions agree with Drawings.

B. When formwork is placed after reinforcement resulting in insufficient concrete cover over reinforcement before proceeding, request instructions from Architect/Engineer/Owner.

3.2 INSTALLATION

A. Earth Forms:
1. Earth forms are not permitted.

B. Formwork - General:
1. Provide top form for sloped surfaces steeper than 1.5 horizontal to 1 vertical to hold shape of concrete during placement, unless it can be demonstrated that top forms can be omitted.
2. Construct forms to correct shape and dimensions, mortar-tight, braced, and of sufficient strength to maintain shape and position under imposed loads from construction operations.

3. Camber forms where necessary to produce level finished soffits unless otherwise shown on Drawings.
4. Carefully verify horizontal and vertical positions of forms. Correct misaligned or misplaced forms before placing concrete.
5. Complete wedging and bracing before placing concrete.

C. Forms for Smooth Finish Concrete:
1. Use steel, plywood or lined board forms.
2. Use clean and smooth plywood and form liners, uniform in size, and free from surface and edge damage capable of affecting resulting concrete finish.
3. Install form lining with close-fitting square joints between separate sheets without springing into place.
4. Use full size sheets of form lines and plywood wherever possible.
5. Tape joints to prevent protrusions in concrete.
6. Use care in forming and stripping wood forms to protect corners and edges.
7. Level and continue horizontal joints.
8. Keep wood forms wet until stripped.

D. Forms for Surfaces to Receive Membrane Waterproofing: Use plywood or steel forms. After erection of forms, tape form joints to prevent protrusions in concrete.

E. Framing, Studding and Bracing:
1. Space studs at 16 inches on center maximum for boards and 12 inches on center maximum for plywood.
2. Size framing, bracing, centering, and supporting members with sufficient strength to maintain shape and position under imposed loads from construction operations.
3. Construct beam soffits of material minimum of 2 inches thick.
4. Distribute bracing loads over base area on which bracing is erected.
5. When placed on ground, protect against undermining, settlement or accidental impact.

F. Erect formwork, shoring, and bracing to achieve design requirements, in accordance with requirements of ACI 318.

G. Arrange and assemble formwork to permit dismantling and stripping. Do not damage concrete during stripping. Permit removal of remaining principal shores.

H. Obtain Architect/Engineer/Owners approval before framing openings in structural members not indicated on Drawings.

I. Install fillet and chamfer strips on external corners of beams joists columns and wall ends.

J. Install void forms in accordance with manufacturer's recommendations.

K. Do not reuse wood formwork more than 3 times for concrete surfaces to be exposed to view. Do not patch formwork.

3.3 APPLICATION - FORM RELEASE AGENT

A. Apply form release agent on formwork in accordance with manufacturer's recommendations.

B. Apply prior to placement of reinforcing steel, anchoring devices, and embedded items.

C. Do not apply form release agent where concrete surfaces are indicated to receive special finishes or applied coverings that are affected by agent. Soak inside surfaces of untreated forms with clean water. Keep surfaces coated prior to placement of concrete.

D. Reuse and Coating of Forms: Thoroughly clean forms and reapply form coating before each reuse. For exposed work, do not reuse forms with damaged faces or edges. Apply form coating to forms in accordance with manufacturer's specifications. Do not coat forms for concrete indicated to receive "scored finish". Apply form coatings before placing reinforcing steel.

3.4 INSTALLATION - INSERTS, EMBEDDED PARTS, AND OPENINGS

A. Install formed openings for items to be embedded in or passing through concrete work.

B. Locate and set in place items required to be cast directly into concrete.

C. Coordinate with Work of other sections in forming and placing openings, slots, reglets, recesses, sleeves, bolts, anchors, other inserts, and components of other Work.

D. Install accessories straight, level, and plumb. Ensure items are not disturbed during concrete placement.

E. Install water stops continuous without displacing reinforcement. Heat seal joints watertight.

F. Provide temporary ports or openings in formwork where required to facilitate cleaning and inspection. Locate openings at bottom of forms to allow flushing water to drain.

G. Close temporary openings with tight fitting panels, flush with inside face of forms, and neatly fitted so joints will not be apparent in exposed concrete surfaces.

H. Form Ties:
1. Use sufficient strength and sufficient quantity to prevent spreading of forms.
2. Place ties at least 1 inch away from finished surface of concrete.
3. Leave inner rods in concrete when forms are stripped.
4. Space form ties equidistant, symmetrical and aligned vertically and horizontally unless otherwise shown on Drawings.

I. Arrangement: Arrange formwork to allow proper erection sequence and to permit form removal without damage to concrete.

J. Construction Joints:

1. Install surfaced pouring strip where construction joints intersect exposed surfaces to provide straight line at joints.
2. Just prior to subsequent concrete placement, remove strip and tighten forms to conceal shrinkage.
3. Show no overlapping of construction joints. Construct joints to present same appearance as butted plywood joints.
4. Arrange joints in continuous line straight, true and sharp.

K. Embedded Items:
1. Make provisions for pipes, sleeves, anchors, inserts, reglets, anchor slots, nailers, water stops, and other features.
2. Do not embed wood or uncoated aluminum in concrete.
3. Obtain installation and setting information for embedded items furnished under other Specification sections.
4. Securely anchor embedded items in correct location and alignment prior to placing concrete.
5. Verify conduits and pipes, including those made of coated aluminum, meet requirements of ACI 318 for size and location limitations.

L. Openings for Items Passing Through Concrete:
1. Frame openings in concrete where indicated on Drawings. Establish exact locations, sizes, and other conditions required for openings and attachment of work specified under other sections.
2. Coordinate work to avoid cutting and patching of concrete after placement.
3. Perform cutting and repairing of concrete required as result of failure to provide required openings.

M. Screeds:
1. Set screeds and establish levels for tops of concrete slabs and levels for finish on slabs.
2. Slope slabs to drain where required or as shown on Drawings.
3. Before depositing concrete, remove debris from space to be occupied by concrete and thoroughly wet forms. Remove freestanding water.

N. Screed Supports:
1. For concrete over waterproof membranes and vapor retarder membranes, use cradle, pad or base type screed supports which will not puncture membrane.
2. Staking through membrane is not be permitted.

O. Cleanouts and Access Panels:
1. Provide removable cleanout sections or access panels at bottoms of forms to permit inspection and effective cleaning of loose dirt, debris and waste material.
2. Clean forms and surfaces against which concrete is to be placed. Remove chips, saw dust and other debris. Thoroughly blow out forms with compressed air just before concrete is placed.

3.5 FORM CLEANING

A. Clean forms as erection proceeds, to remove foreign matter within forms.

B. Clean formed cavities of debris prior to placing concrete.

C. Flush with water or use compressed air to remove remaining foreign matter. Ensure that water and debris drain to exterior through clean-out ports.

D. During cold weather, remove ice and snow from within forms. Do not use de-icing salts. Do not use water to clean out forms, unless formwork and concrete construction proceed within heated enclosure. Use compressed air or other means to remove foreign matter.

3.6 FORM REMOVAL

A. Do not remove forms or bracing until concrete has gained sufficient strength to carry its own weight and imposed loads and removal has been approved by Architect/Engineer/Owner.

B. Loosen forms carefully. Do not wedge pry bars, hammers, or tools against finish concrete surfaces scheduled for exposure to view.

C. Store removed forms in manner that surfaces to be in contact with fresh concrete will not be damaged. Discard damaged forms.

D. Leave forms in place for minimum number of days as specified in ACI 347.

3.7 ERECTION TOLERANCES

A. Construct formwork to maintain tolerances required by ACI 318.

B. Camber slabs and beams 1/4 inch per 10 feet in accordance with ACI 318.

3.8 FIELD QUALITY CONTROL

A. Inspect erected formwork, shoring, and bracing to ensure that work is in accordance with formwork design, and that supports, fastenings, wedges, ties, and items are secure.

B. Notify Architect/Engineer/Owner after placement of reinforcing steel in forms, but prior to placing concrete.

C. Schedule concrete placement to permit formwork inspection before placing concrete.

END OF SECTION

SECTION 03 20 00

CONCRETE REINFORCING

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
1. Reinforcing bars.
2. Welded wire fabric.
3. Reinforcement accessories.

B. Related Sections:
1. Section 03100 - Concrete Forms and Accessories.
2. Section 03300 - Cast-in-Place Concrete.
3. Section 03350 - Concrete Finishing

1.2 REFERENCES

A. American Concrete Institute:
1. ACI 301 - Specifications for Structural Concrete.
2. ACI 318 - Building Code Requirements for Structural Concrete.
3. ACI 530.1 - Specifications for Masonry Structures.
4. ACI SP-66 - ACI Detailing Manual.

B. ASTM International:
1. ASTM A82 - Standard Specification for Steel Wire, Plain, for Concrete Reinforcement.
2. ASTM A184/A184M - Standard Specification for Fabricated Deformed Steel Bar Mats for Concrete Reinforcement.
3. ASTM A496 - Standard Specification for Steel Wire, Deformed, for Concrete Reinforcement.
4. ASTM A497 - Standard Specification for Steel Welded Wire Fabric, Deformed, for Concrete Reinforcement.
5. ASTM A615/A615M - Standard Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement.
6. ASTM A704/A704M - Standard Specification for Welded Steel Plain Bar or Rod Mats for Concrete Reinforcement.
7. ASTM A706/A706M - Standard Specification for Low-Alloy Steel Deformed and Plain Bars for Concrete Reinforcement.
8. ASTM A767/A767M - Standard Specification for Zinc-Coated (Galvanized) Steel Bars for Concrete Reinforcement.
9. ASTM A775/A775M - Standard Specification for Epoxy-Coated Reinforcing Steel Bars.
10. ASTM A884/A884M - Standard Specification for Epoxy-Coated Steel Wire and Welded Wire Fabric for Reinforcement.

11. ASTM A934/A934M - Standard Specification for Epoxy-Coated Prefabricated Steel Reinforcing Bars.
12. ASTM A996/A996M - Standard Specification for Rail-Steel and Axle-Steel Deformed Bars for Concrete Reinforcement.
13. ASTM D3963/D3963M - Standard Specification for Fabrication and Jobsite Handling of Epoxy-Coated Reinforcing Steel Bars.

C. American Welding Society:
1. AWS D1.4 - Structural Welding Code - Reinforcing Steel.

D. Concrete Reinforcing Steel Institute:
1. CRSI - Manual of Standard Practice.
2. CRSI - Placing Reinforcing Bars.

1.3 SUBMITTALS

A. Shop Drawings: Indicate bar sizes, spacings, locations, and quantities of reinforcing steel and welded wire fabric, bending and cutting schedules, and supporting and spacing devices.

B. Certificates: Submit AWS qualification certificate for welders employed on the Work.

C. Manufacturer's Certificate: Certify Products meet or exceed specified requirements.
1. Submit certified copies of mill test report of reinforcement materials analysis.

1.4 QUALITY ASSURANCE

A. Perform Work in accordance with CRSI - Manual of Standard Practice.

B. Prepare shop drawings in accordance with ACI SP-66.

1.5 QUALIFICATIONS

A. Welders: AWS qualified within previous 12 months.

1.6 COORDINATION

A. Coordinate with placement of formwork, formed openings and other Work.

PART 2 PRODUCTS

2.1 REINFORCEMENT

A. Deformed and Plain Reinforcement: ASTM A615/A615M; 60 ksi yield strength, steel bars, unfinished.

B. Deformed Bar Mats: ASTM A184/A184M; fabricated from ASTM A615/A615M or ASTM A706/A706M; 60 ksi yield strength, steel bars, unfinished.

C. Deformed Wire: ASTM A496; unfinished.

D. Welded Deformed Wire Fabric: ASTM A497; in coiled rolls; unfinished.

2.2 ACCESSORY MATERIALS

A. Tie Wire: Minimum 16 gage annealed type.

B. Chairs, Bolsters, Bar Supports, Spacers: Sized and shaped for strength and support of reinforcement during concrete placement conditions including load bearing pad on bottom to prevent vapor retarder puncture.

C. Special Chairs, Bolsters, Bar Supports, Spacers Adjacent to Weather Exposed Concrete Surfaces: Plastic tipped steel type; size and shape to meet Project conditions.

D. Epoxy Coating Patching Material: Type as recommended by coating manufacturer.

2.3 FABRICATION

A. Fabricate concrete reinforcement in accordance with CRSI Manual of Practice.

B. Form standard hooks for 180 degree bends, 90 degree bend, stirrup and tie hooks, and seismic hooks as indicated on Drawings.

C. Form reinforcement bends with minimum diameters in accordance with ACI 318.

D. Fabricate column reinforcement with offset bends at reinforcement splices.

E. Form spiral column reinforcement from minimum 3/8 inch diameter continuous deformed bar or wire.

F. Form ties and stirrups from the following:
   1. For bars No. 10 and Smaller: No. 3 deformed bars.
   2. For bars No. 11 and Larger: No. 4 deformed bars.

G. Weld reinforcement in accordance with AWS D1.4.

H. Locate reinforcement splices not indicated on Drawings, at point of minimum stress.

PART 3 EXECUTION

3.1 PLACEMENT

A. Place, support and secure reinforcement against displacement. Do not deviate from required position beyond specified tolerance.
   1. Do not weld crossing reinforcement bars for assembly.

B. Do not displace or damage vapor retarder.

C. Accommodate placement of formed openings.

D. Space reinforcement bars with minimum clear spacing in accordance with ACI 318.
   1. Where bars are indicated in multiple layers, place upper bars directly above lower bars.

E. Maintain concrete cover around reinforcement as follows:

Reinforcement Location		Minimum Concrete Cover
Footings and Concrete Formed Against Earth		3 inches
Concrete exposed to earth or weather	No. 6 bars and larger	2 inches
	No. 5 bars and smaller	1-1/2 inches
Supported Slabs, Walls, and Joists	No. 14 bars and larger	1-1/2 inches
	No. 11 bars and smaller	3/4 inches
Beams and Columns		1-1/2 inches
Shell and Folded Plate Members	No. 6 bars and larger	3/4 inches
	No. 5 bars and smaller	1/2 inches

3.2 ERECTION TOLERANCES

A. Install reinforcement within the following tolerances for flexural members, walls, and compression members:

Reinforcement Depth	Depth Tolerance	Concrete Cover Tolerance
Greater than 8 inches	plus or minus 3/8 inch	minus 3/8 inch
Less than 8 inches	plus or minus 1/2 inch	minus 1/2 inch

B. Install reinforcement within the tolerances specified in ACI 530.1 for foundation walls.

3.3 FIELD QUALITY CONTROL

A. Field inspection and testing will be performed by Owner's testing laboratory in accordance with ACI 318.

B. Provide free access to Work and cooperate with appointed firm.

C. Reinforcement Inspection:

1. Placement Acceptance: Specified and ACI 318 material requirements and specified placement tolerances.
2. Welding: Inspect welds in accordance with AWS D1.1.
3. Periodic Placement Inspection: Inspect for correct materials, fabrication, sizes, locations, spacing, concrete cover, and splicing.
4. Weldability Inspection: Inspect for reinforcement weldability when formed from steel other than ASTM A706/A706M.
5. Continuous Weld Inspection: Inspect reinforcement as required by ACI 318.
6. Periodic Weld Inspection: Other welded connections.

END OF SECTION

SECTION 03 35 00

CONCRETE FINISHING

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
1. Finishing concrete floors and floor toppings.
2. Floor surface treatment.

B. Related Sections:
1. Section 03300 - Cast-in-Place Concrete: Prepared concrete floors ready to receive finish; control and formed expansion and contraction joints and joint devices.
2. Section 03390 - Concrete Curing.

1.2 REFERENCES

A. American Concrete Institute:
1. ACI 301 - Specifications for Structural Concrete.
2. ACI 302.1 - Guide for Concrete Floor and Slab Construction.

1.3 SUBMITTALS

A. Product Data: Submit data on sealer, and curing compounds, compatibilities, and limitations.

1.4 QUALITY ASSURANCE

A. Perform Work in accordance with ACI 301 and ACI 302.1.

1.5 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing Products specified in this section with minimum three years documented experience.

B. Applicator Installer: Company specializing in performing work of this section with minimum years documented experience.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials in manufacturer's packaging including application instructions.

1.7 ENVIRONMENTAL REQUIREMENTS

A. Temporary Heat: Ambient temperature of 50 degrees F minimum.

B. Ventilation: Sufficient to prevent injurious gases from temporary heat or other sources affecting concrete.

1.8 COORDINATION

A. Coordinate the Work with concrete floor placement and concrete floor curing.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers:
1. Cresset Chemical Company
2. Davis Colors
3. Dayton Superior Corp.
4. Euclid Chemical Co.
5. L & M Construction Chemicals.
6. Master Builders Inc.
7. Nox-Crete Chemicals
8. Scofield: L M Scofield Co.
9. Sika Corp.
10. Substitutions: Permitted with prior approval of Architect.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify floor surfaces are acceptable to receive the Work of this section.

3.2 FLOOR FINISHING

A. Finish concrete floor surfaces in accordance with ACI 301 and ACI 302.1.

B. Steel trowel surfaces receiving carpeting, resilient flooring, seamless flooring, thin set terrazzo, thin set quarry tile, thin set ceramic tile, and wood flooring.

C. Broom finish surfaces which are indicated to be exposed.

D. In areas with floor drains, maintain design floor elevation at walls; slope surfaces uniformly to drains at 1/8 inch per foot nominal.

3.3 TOLERANCES

A. Maximum Variation of Surface Flatness For Exposed Concrete Floors: 1/8 inch in 10 ft.

B. Maximum Variation of Surface Flatness Under Seamless Resilient Flooring: 1/8 inch in 10 ft.

C. Maximum Variation of Surface Flatness Under Carpeting: 1/8 inch in 10 ft.

D. Correct defects in defined traffic floor by grinding or removal and replacement of defective Work. Areas requiring corrective Work will be identified. Re-measure corrected areas by same process.

END OF SECTION

SECTION 03 39 00

CONCRETE CURING

PART 1 GENERAL

1.1 SUMMARY

A. Section includes initial and final curing of horizontal and vertical concrete surfaces.

B. Related Sections:
1. Section 03300 - Cast-In-Place Concrete.
2. Section 03350 - Concrete Finishing.

1.2 REFERENCES

A. American Concrete Institute:
1. ACI 301 - Specifications for Structural Concrete.
2. ACI 302.1 - Guide for Concrete Floor and Slab Construction.
3. ACI 308.1 - Standard Specification for Curing Concrete.
4. ACI 318 - Building Code Requirements for Structural Concrete.

B. ASTM International:
1. ASTM C309 - Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete.
2. ASTM C1315 - Standard Specification for Liquid Membrane-Forming Compounds Having Special Properties for Curing and Sealing Concrete.

1.3 SUBMITTALS

A. Product Data: Submit data on curing compounds, compatibilities, and limitations.

1.4 QUALITY ASSURANCE

A. Perform Work in accordance with ACI 318.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver curing materials in manufacturer's packaging including application instructions.

PART 2 PRODUCTS

2.1 MATERIALS

A. Membrane Curing Compound: ASTM C1315 Type I, Class A.

B. Water: Potable, not detrimental to concrete.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify substrate surfaces are ready to be cured.

3.2 INSTALLATION - HORIZONTAL SURFACES

A. Cure concrete in accordance with ACI 308.1 using Non-Membrane Forming Curing Compound method.

B. Non-Membrane Forming Curing Compound: Apply curing compound in one coat Scrub compound into surface. Maintain surface wet with curing compound, without ponding for time recommended by manufacturer.

3.3 INSTALLATION - VERTICAL SURFACES

A. Cure concrete in accordance with ACI 308.1 using Non-Membrane Forming Curing Compound method.

B. Non-Membrane Forming Curing Compound: Apply curing compound in one coat Scrub compound into surface. Maintain surface wet with curing compound, without ponding for time recommended by manufacturer.

3.4 PROTECTION OF FINISHED WORK

A. Do not permit traffic over unprotected floor surface.

END OF SECTION

SECTION 08 33 00

CHAIN OPERATED OVERHEAD ROLLING DOORS

1.0 GENERAL

1.1 SUMMARY

A. Section Includes: Manual operated overhead rolling door.

B. Related Sections:
1. 05 50 00 Metal Fabrications. Door opening jamb and head members.
2. 06 10 00 Rough Carpentry. Door opening jamb and head members.
3. 08 71 00 Hardware. Padlocks. Masterkeyed cylinder.
5. 09 91 00 Painting. Field painting.

C. Alternates:
1. Cornell Iron Works
2. Amarr
3. Clopay

1.2 SUBMITTALS

A. Reference Section 01 33 00 Submittal Procedures; submit the following items:
1. Product Data.
2. Shop Drawings: Include special conditions not detailed in Product Data. Show interface with adjacent work.
3. Quality Assurance/Control Submittals:
   a. Provide proof of manufacturer ISO 9001:2008 registration.
   b. Provide proof of manufacturer and installer qualifications - see 1.3 below.
   c. Provide manufacturer's installation instructions.
4. Closeout Submittals:
   a. Operation and Maintenance Manual.
   b. Certificate stating that installed materials comply with this specification.

1.3 QUALITY ASSURANCE

A. Qualifications:
1. Manufacturer Qualifications: ISO 9001:2008 registered and a minimum of five years experience in producing counter doors of the type specified.
2. Installer Qualifications: Manufacturer's approval.

1.4 DELIVERY STORAGE AND HANDLING

A. Reference Section 01 66 00 Product Storage and Handling Requirements.

B. Follow manufacturer's instructions.

1.5 WARRANTY

A. Standard Warranty: Two years from date of shipment against defects in material and workmanship.

B. Maintenance: Submit for owner's consideration and acceptance of a maintenance service agreement for installed products.

PART 2 PRODUCTS

2.1 MANUFACTURER

A. Manufacturer: The Cookson Company, Inc., 2417 S 50th Avenue, Phoenix, AZ 85063-3880. Telephone: (800) 294-4358, Fax: (866) 448-6798. Underwriters Laboratories, Inc. (UL), ISO 9001:2008 Registered.

B. Model: ESD10

C. Substitutions: Reference Section 01 25 13 Product Substitution Procedures.

2.2 MATERIALS

A. Curtain:
1. Slats: Galvanized Steel: No. 5F, [22 gauge], [20 gauge], and [18 gauge] Grade 40 steel, ASTM A 653 galvanized steel zinc coating with Bottom Bar:
2. Slat Finish: GalvaNex™ Coating System (Stock Colors): ASTM A 653 galvanized base coating treated with dual process rinsing agents in preparation for chemical bonding baked-on base coat and **brown** baked-on polyester enamel finish coat

B. Endlocks:
1. Galvanized cast iron: Required if above 21'-5" width (DBG - Distance Between Guides)

C. Bottom Bar

1. Configuration:
a. Standard Bottom Bar larger than 21.5' DBG: 2 structural steel angles minimum 2"x2"x1/8"

2. Finish:
   a. Powder Coat (Stock Colors): Zirconium pre-treatment followed by a **brown** baked-on polyester powder coat; minimum 2.5 mils (0.065 mm) cured film thickness

D. Guides:
   1. Fabrication:
      a. Minimum 3/16 inch (4.76 mm) structural steel angles. Provide windlock bars of same material when windlocks are required to meet specified wind load. Top of inner and outer guide angles to be flared outwards to form bellmouth for smooth entry of curtain into guides. Provide removable guide stoppers to prevent over travel of curtain and bottom bar.

   2. Configuration:
      a. Standard guide configuration

   3. Finish:
      a. Powder Coat (Stock Colors): Zirconium pre-treatment followed by a **brown** baked-on polyester powder coat; minimum 2.5 mils (0.065 mm) cured film thickness

E. Counterbalance Shaft Assembly:
   1. Barrel: Steel pipe capable of supporting curtain load with maximum deflection of 0.03 inches per foot (2.5 mm per meter) of width

   2. Spring Balance: Oil-tempered, heat-treated steel helical torsion spring assembly designed for proper balance of door to ensure that maximum effort to operate will not exceed 25 lbs (110 N). Provide wheel for applying and adjusting spring torque

F. Brackets:
   Fabricate from minimum 3/16 inch (5 mm) steel plate with permanently lubricated ball or roller bearings at rotating support points to support counterbalance shaft assembly and form end closures
   1. Finish:
      a. Powder Coat (Stock Colors): Zirconium pre-treatment followed by a **brown** baked-on polyester powder coat; minimum 2.5 mils (0.065 mm) cured film thickness

G. Hood:

Minimum 24 gauge [galvanized steel] [stainless steel] [0.040 inch (1.016 mm) aluminum] with reinforced top and bottom edges. Provide minimum 1/4 inch (6.35 mm) steel intermediate support brackets.

1. Finish:
   a. GalvaNex™ Coating System (Stock Colors): ASTM A 653 galvanized base coating treated with dual process rinsing agents in preparation for chemical bonding baked-on base coat and **brown** baked-on polyester enamel finish coat

2.3 ACCESSORIES

A. Locking: Padlockable chain keeper on guide.

B. Manual Chain Hoist: Provide chain hoist operator with endless steel chain, chain pocket wheel and guard, geared reduction unit, and chain keeper secured to guide.

2.4 OPERATION

A. Manual Crank Hoist: Provide crank hoist operator including crank gear box, steel crank drive shaft and geared reduction unit. Fabricate gear box to completely enclose operating mechanism and be oil-tight.

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine substrates upon which work will be installed and verify conditions are in accordance with approved shop drawings.

B. Coordinate with responsible entity to perform corrective work on unsatisfactory substrates.

C. Commencement of work by installer is acceptance of substrate.

3.2 INSTALLATION

A. General: Install door and operating equipment with necessary hardware, anchors, inserts, hangers and supports.

B. Follow manufacturer's installation instructions.

3.3 ADJUSTING

A. Following completion of installation, including related work by others, lubricate, test, and adjust doors for ease of operation, free from warp, twist, or distortion.

3.4 CLEANING

A. Clean surfaces soiled by work as recommended by manufacturer.

B. Remove surplus materials and debris from the site.

3.5 DEMONSTRATION

A. Demonstrate proper operation to Owner's Representative.

B. Instruct Owner's Representative in maintenance procedures.

END OF SECTION

SECTION 09 90 00

PAINTS AND COATINGS

PART 1 GENERAL

1.1 SUMMARY

A. Section includes surface preparation and field application of paints stains, varnishes, and other coatings.

1.2 SUBMITTALS

A. Product Data: Submit data on finishing products.

B. Samples: Submit two paper chip samples, 3 x 3 inch in size illustrating range of colors and textures available for each surface finishing product scheduled.

1.3 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: Submit maintenance and cleaning instructions.

1.4 QUALITY ASSURANCE

A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years documented experience, and with service facilities within 100 miles of Project.

B. Installer: Company specializing in performing Work of this section with minimum three years documented experience approved by manufacturer.

1.5 ENVIRONMENTAL REQUIREMENTS

A. Store and apply materials in environmental conditions required by manufacturer's instructions.

PART 2 PRODUCTS

2.1 PAINTS AND COATINGS

A. Manufacturers:

1. Duron Inc. Model.
2. The Glidden Co.
3. PPG Architectural Finishes.
4. Sherwin Williams.

5. Stonhard.
6. Substitutions: Permitted with prior approval of Architect.

2.2 COMPONENTS

A. Coatings: Ready mixed except field catalyzed coatings of good flow and brushing properties, capable of drying or curing free of streaks or sags.

B. Accessory Materials: Linseed oil, shellac, turpentine, paint thinners and other materials required to achieve finishes specified.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify substrate conditions are ready to receive Work.

B. Measure moisture content of porous surfaces using electronic moisture meter. Do not apply finishes unless moisture content is less than 15 percent.

3.2 PREPARATION

A. Correct minor defects and clean surfaces affecting work of this section.

B. Remove electrical plates, hardware, light fixture trim, escutcheons, and fittings prior to preparing surfaces or applying finishes.

C. Gypsum Board Surfaces: Fill minor defects with filler compound. Spot prime defects after repair.

D. Galvanized Surfaces: Remove surface contamination and oils and wash with solvent. Apply coat of etching primer.

E. Concrete and Unit Masonry Surfaces Scheduled to Receive Paint Finish: Remove foreign matter. Remove oil and grease with solution of tri-sodium phosphate, rinse well and allow to dry.

F. Uncoated Steel and Iron Surfaces: Remove scale by wire brushing, sandblasting, clean by washing with solvent. Apply treatment of phosphoric acid solution. Prime paint after repairs.

G. Shop Primed Steel Surfaces: Sand and scrape to remove loose primer and rust. Clean surfaces with solvent. Prime bare steel surfaces.

H. Interior Wood Items Scheduled to Receive Paint Finish: Wipe off dust and grit prior to priming. Seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes and cracks after primer has dried; sand between coats.

I. Interior Wood Items Scheduled to Receive Transparent Finish: Wipe off dust and grit prior to sealing, seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes and cracks after sealer has dried; sand lightly between coats.

J. Exterior Wood Scheduled to Receive Paint Finish: Remove dust, grit, and foreign matter. Seal knots, pitch streaks, and sappy sections. Fill nail holes with tinted exterior paintable caulking compound after prime coat has been applied.

K. Exterior Wood Scheduled to Receive Transparent Finish: Remove dust, grit, and foreign matter; seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes with tinted exterior caulking compound after sealer has been applied.

3.3 APPLICATION

A. Sand wood and metal surfaces lightly between coats to achieve required finish.

B. Where clear finishes are required, tint fillers to match wood.

C. Prime concealed surfaces of interior and exterior woodwork with primer paint.

D. Prime concealed surfaces of interior wood surfaces scheduled to receive stain or varnish finish with gloss varnish reduced 25 percent with thinner.

E. Finishing Mechanical And Electrical Equipment:
1. Refer to Section 15050 and Section 16050 for schedule of color coding, identification banding of equipment, duct work piping, and conduit.
2. Color code items in accordance with requirements indicated. Color band and identify with flow arrows, names, and numbering.
3. Paint shop primed equipment.
4. Remove unfinished louvers, grilles, covers, and access panels and paint separately. Paint dampers exposed behind louvers, grilles, convector and baseboard cabinets to match face panels.
5. Prime and paint insulated and exposed pipes, insulated and exposed ducts, hangers, brackets, collars and supports, except where items are prefinished.
6. Paint interior surfaces of air ducts and convector and baseboard heating cabinets visible through grilles and louvers with one coat of flat black paint to visible surfaces.
7. Paint exposed conduit and electrical equipment occurring in finished areas.
8. Paint both sides and edges of plywood backboards.
9. Reinstall electrical cover plates, hardware, light fixture trim, escutcheons, and fittings removed prior to finishing.

F. Cleaning: As work proceeds, promptly remove finishes where spilled, splashed, or spattered.

3.4 SCHEDULE - SHOP PRIMED ITEMS FOR SITE FINISHING

A. Metal Fabrications Section 05500: Exposed surfaces of lintels, prefabricated ornamental handrails.

3.5 SCHEDULE - EXTERIOR SURFACES (SEE 09000 FOR MORE DETAILS)

A. Wood - Painted (Opaque):
1. One coat of latex primer sealer.
2. Two coats of alkyd enamel, semigloss.

B. Steel - Shop Primed:
1. Touch-up with zinc chromate primer.
2. Two coats of alkyd enamel, semi-gloss.

3.6 SCHEDULE - INTERIOR SURFACES (SEE 09000 FOR MORE DETAILS)

A. Wood - Painted:
1. One coat of latex primer sealer.
2. One coat of latex enamel, gloss.

B. Wood - Stained:
1. One coat of alkyd oil stain, gloss.
2. Two coats of polyurethane, gloss.

C. Concrete, Concrete Block,:
1. Two coats of block filler.
2. One coat of latex enamel, semi-gloss.

D. Steel - Unprimed:
1. One coat of alkyd primer.
2. Two coats of alkyd enamel, gloss.

E. Steel - Primed:
1. Touch-up with alkyd primer.
2. Two coats of alkyd enamel, gloss.

F. Gypsum Board:
1. One coat of alkyd primer sealer.
2. One coat of latex acrylic enamel, eggshell.

END OF SECTION

SECTION 13 34 00

PRE-ENGINEERED METAL BUILDING SYSTEMS

PART 1 GENERAL

1.01 - General Information

A. The Building System for this project will be a Ridged Frame Building System. The Building System includes the structural steel system primary and secondary, metal roof system, wall system, and all roof and wall insulation, canopies, trim and accessories as required by the drawings.

1.02 - Building Description

A. Building Size: The building size will be defined as structural line to structural line.

B. Primary Structurals: Frames will consist of welded up plate section columns and roof beams or trusses complete with necessary splice plates for bolted field assembly as described in the TECHNICAL SPECIFICATIONS. All bolts for field assembly of frame members will be high strength bolts as indicated on erection drawings.

Beam and post endwall frames will consist of endwall corner posts, endwall roof beams, and endwall posts as required by design criteria.

Exterior columns will be welded-up "H" sections.

Interior columns will be pipe or tube columns.

Connection of all major structural members will be made with A 325 high-tensile bolts through prepunched or predrilled holes for exact alignment.

All structurals will be painted with manufacturer's standard primer with manufacturer's standard surface preparation as specified in the Framing System Section.

C. Secondary Structurals: Secondary structurals shall be purlins, or girts with a Gray primer finish applied by a coil coater or joists with factory applied gray primer.

D. Roof System: The roof system shall be 24 gage galvalume standing seam roof system.

E. The metal panel coating system shall be a full strength, 50% Kynar 500®/Hylar 5000® fluoropolymer coating. Manufacturer warrants that coating shall not blister, peel, crack, chip, or experience material rust through for 25 years. For a period of 25 years chalking shall not exceed #8 - ASTM and fading shall be 5 D.E Color Difference Units or less.

1.03 - Quality Assurance

A. AISC Certification

Building System Manufacturer shall be American Institute of Steel Construction - Category MB certified.

B. Letter of Certification

Certification: Submit written certification prepared and signed by a Professional Engineer, registered to practice in Georgia verifying that the building system design and metal roof system design (including panels, clips, and support system components) meet indicated loading requirements and codes of authorities having jurisdiction. The certification must reference specific dead loads, live loads, snow loads, wind loads/speeds, tributary area load reductions (if applicable), concentrated loads, collateral loads, seismic loads, end use categories, governing code bodies including year, and load applications.

C. Material Testing

In addition to mill certifications of structural steel, the manufacturer shall provide, upon request, evidence of compliance with specifications through testing independent of the manufacturer's suppliers. This quality assurance testing to include structural bolts, nuts, screw fasteners, mastics, and metal coatings (primers, metallic coated products, and painted coil products).

D. Design Loads

1. Governing Design Code

Structural design for the building structural system will be provided by the building manufacturer for the following design criteria;

Governing Building Code: IBC 2006 w/ Georgia Amendments

Importance factor to be applied based on code, if applicable, based on type of occupancy and type of load.

2. Roof Live Load: 20 psf

3. Wind Load: 90 mph

4. Snow Load: 5 psf

5. Dead Load: As Determined by Manufacturer

6. Collateral Load: 6 psf

7. Auxiliary Loads: As called out on Drawings for Wind Beams, and Gym Equipment.

8. UL Requirements: UL 90 wind uplift

E. Structural Design Practice – Deflections Horizontal; H/400, Vertical; L/240

Calculations for deflections shall be done using only the bare frame method. Reductions based on engineering judgment using the assumed composite stiffness of the building envelope shall not be allowed. Drift shall follow AISC's "Serviceability Design Considerations for Low-Rise Buildings." The use of composite stiffness for deflection calculations is permitted only when actual calculations for the stiffness are included with the design for the specific project. When maximum deflections are specified, calculations shall be included in the design data.

1.04 - Warranties

A. Provide manufacturer's standard written warranty for twenty-five (25) years against perforation of metal roof panels due to corrosion under normal weather and atmospheric conditions. Warranty shall be signed by metal roofing system manufacturer.

B. Provide manufacturer's standard paint film written warranty for twenty-five (25) years against cracking, peeling, chalking, and fading of the coating (in standard colors) on painted wall panels, painted roof panels and soffit panels. Warranty shall be signed by building system or roof system manufacturer and state that the coating contains 50% Kynar 500® and Hylar 5000® resin. Manufacturer warrants that coating shall not peel, crack, or chip for 25 years. For a period of 25 years chalking shall not exceed #8 - ASTM and fading shall be 5 DE Color Difference Units or less.

1.05 - Submittals

A. Product Data: Submit manufacturer's product information, specifications, and installation instructions for building components, accessories.

B. Erection Drawings: Submit complete erection drawings showing roof framing, transverse cross sections, covering and trim details, and accessory installation details to clearly indicate proper assembly of building components.

C. Submit certification verifying that the metal roofing system has been tested and approved by Underwriter's Laboratory as Class 90. Submit certification that the metal roofing system has been tested and approved by the US Army Corp of Engineers Guide Specification 07416 (Test Method for Structural Performance of Standing Seam Metal Roof Systems by Uniform Static Air Pressure.

F. Dealer Certification: Submit certification that the building system supplier or metal roof system supplier is a manufacturer's authorized and franchised dealer of the system to be furnished. Certification shall state date on which authorization was granted.

G. Installer Certification: Submit certificate that the building or roof system installer has been regularly engaged in the installation of buildings systems of the same or equal construction to the system specified.

H. Samples: Submit two (2) each of the following for Architect's review. Samples will be used as basis for evaluating quality of finished roof and wall systems.

1. Twelve inch long by actual width of roofing, liner panel, and siding panels, with required finishes.

2. Fasteners (including standing seam roof clips) for application of roofing, siding, and soffit panels.

3. Twelve inch long min. x twelve inch wide min. of actual standing seam side lap seams for both sides of a typical panel including sealants and closures.

END OF SECTION

SECTION 31 00 00

SITE CLEARING & DEMOLITION

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
1. Removing surface debris, paving, curbs.
2. Removing designated plant life.
3. Removing topsoil.
4. Removing subsoil.
5. Rough grading and site contouring.

1.2 SUBMITTALS

A. Product Data: Submit data for herbicide.

B. The Contractor shall submit a written request, to include a detailed demolition procedure, to the Owner for approval at least 10 days before demolition is started. The demolition procedure shall include a detailed description of the methods and equipment to be used for each operation and the sequence of work. The demolition procedures shall provide for safe conduct of work, protection of the property and new work, which is to remain undisturbed and coordination with other work or operation that may be in progress. Sequencing of demolition shall be coordinated with Contractor's construction sequencing to ensure existing facilities remain operational until replaced by new facilities.

PART 2 PRODUCTS

2.1 SITE CLEARING

A. Herbicide: Spray type, approved by authority having jurisdiction.

PART 3 EXECUTION

3.1 PREPARATION

A. Call Local Utility Line Information service not less than four working days before performing Work.
1. Request underground utilities to be located and marked within and surrounding construction areas.

3.2 PROTECTION

A. Locate, identify, and protect utilities indicated to remain, from damage.

B. Protect trees, plant growth, and features designated to remain, as final landscaping.

C. Protect bench marks, survey control points, and existing structures from damage or displacement.

3.3 CLEARING

A. Clear areas required for access to site and execution of Work to minimum depth of six inches.

B. Remove paving, curbs, surface rock, and debris.

C. Remove trees and shrubs within marked areas. Remove stumps, main root ball and root system.

D. Apply herbicide to remaining stumps or plant life to inhibit growth.

3.4 DEMOLITION

A. All material to be demolished shall be completely removed.

B. The Contractor will be responsible for any damage caused to other structures, and shall be held liable for any and all repairs, replacement of parts or renovations required to restore any structure, portion of structure, equipment or items, not intended for demolition. The Contractor shall restore any damaged facilities to their condition prior to demolition provided the damage was result of the demolition. If the Contractor does not repair any such damage immediately, or if the repairs are not suitable to the Owner, the Owner reserves the right to have such repairs made by another party and deduct the cost of required repairs from money due Contractor.

3.5 ROUGH GRADING

A. Identify required lines, levels, contours, and datum.

B. Identify known underground, above ground, and aerial utilities. Stake and flag locations.

C. Notify utility company o remove and relocate utilities.

D. Excavate topsoil from areas to be further excavated, re-landscaped or re-graded.

E. Stockpile topsoil and subsoil in area designated on site.

F. Remove excess topsoil and subsoil not being reused, from site.

3.6 CLEAN UP & DISPOSAL

A. Remove debris, rock larger than two cu ft, and extracted plant life from site.

B. Refer to Section 01740 for the site maintenance requirements while performing the Work of the project.

C. All materials, which are not delivered to the Owner as specified herein, shall become the property of the Contractor, and shall be demolished, moved or otherwise disposed of at the option of the Contractor by a method approved by the Owner.

D. All demolished structures, equipment and materials shall be removed from the work site by the Contractor.

END OF SECTION