Project:

A NEW CAFETERIA ADDITION TO THE UNION HILL SCHOOL FOR THE MORGAN COUNTY BOARD OF EDUCATION SOMERVILLE, ALABAMA

MCKEE PROJECT NO. 18-237 ALABAMA BUILDING COMMISSION NO. 2019075

The following changes and/or substitutions to the plans and specifications are hereby made a part of same and are incorporated in full force as part of the contract.

Bidders shall acknowledge receipt of this Addendum in writing on his Proposal Form.

A5.1 GENERAL MODIFICATIONS:
A. None

A5.2 SPECIFICATION MODIFICATIONS:
A. Refer to Revised Section 02513 Bituminous Paving (Revised 4.26.19), herein.
B. Refer to Revised Section 04200 Unit Masonry with Cavity Wall and CMU Fill Insulation and Split faced CMU (Revised 4.26.19), herein.
C. Refer to Revised Section 03310 Concrete (Revised 4.26.19)
D. Refer to Revised Section 10800 Toilet Accessories (Revised 4.26.19)
E. Refer to Added Section 02740 Wheel Stops (dated 4.26.19)
F. Refer to Added Section 02831 Vinyl Coated Chain Link Fences and Gates (dated 4.26.19)
G. Refer to Added Section 08310 Coiling Counter Doors (dated 4.26.19)
H. Refer to Added Section 10100 Markable Boards (dated 4.26.19)
I. Refer to Added Section 12500 Window Treatment (dated 4.26.19)
J. Delete the following Spec Sections:
   a. 08332 Insulated Coiling Door
   b. 08817 Fire rated Glass and Glazing

A5.3 DRAWING MODIFICATIONS:
A. None

B5.1 CLARIFICATIONS & RESPONSES:
A. None

END OF ADDENDUM
SECTION 02513 - BITUMINOUS PAVING (Revised 4.26.19)

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 - General Requirements are hereby made a part of this Section.

1.02 DESCRIPTION OF WORK

A. Extent of Work is indicated on the drawings, and shall include furnishing all labor, materials, equipment and services required to complete all bituminous paving shown on plans and as hereinafter specified.

1. Crushed stone base in two courses, as required.

2. Plant mix bituminous concrete binder surface layer.

3. Plant mix bituminous concrete wearing surface layer.

3. Pavement markings.

1.03 RELATED WORK SPECIFIED ELSEWHERE

A. Sub-grade construction, compaction and testing as specified in Earthwork Section.

B. Curbs and gutters are specified in Site Concrete Work.

1.04 JOB CONDITIONS

A. Base shall not be placed on muddy or frozen ground.

B. Bituminous concrete surface layers shall be applied when temperature is above 40 deg. F., and when temperature will stay safely above freezing and when base is dry.

1.05 GRADE CONTROL

A. Establish accurately and maintain grade and line control.

1.06 EXISTING PARKING LOT

A. Contractor shall sawcut all proposed joints with existing asphalt.

B. Areas noted shall be sawcut and repaired in accordance with the pavement repair detail provided in the Drawings at the Unit Price provided.

PART 2 - PRODUCTS

2.01 MATERIALS
A. Crushed Stone Base: Crushed Aggregate Base Material, Type B in accordance with Alabama Dept. of Transportation (ALDOT) Specification, Section 825.

B. Bituminous Concrete Binder Surface Layer: ALDOT 424-B as indicated on Typical Section(s).

C. Bituminous Concrete Wearing Surface Layer: ALDOT Section 424-A as indicated on Typical Section(s).

D. Pavement Marking Paint: ALDOT 701, Class 1 permanent paint.

PART 3 - EXECUTION

3.01 SURFACE PREPARATION

A. Inspect areas to be based and remove any loose or foreign materials from surface.

B. Proof-roll prepared sub-base surface to check for any soft areas requiring additional compaction. Contractor shall comply with recommendations of Geotechnical Engineer for correcting and/or repairing soft areas.

3.02 BASE

A. Base course shall be placed to the thickness of crushed stone as indicated on the Typical Section(s), ALDOT Section 825, placed in loose layer to produce net full compacted thickness.

B. Base course shall be constructed in accordance with ALDOT Section 30l.03. Compaction shall be 100% of Standard Proctor Maximum Dry Density (SPMDD).

C. Base course may be placed immediately after completion of sub-grade completion and compaction to line and grade. This base course shall extend under curbs and gutters. This would provide a "clean" area for materials and vehicles. Remainder of base and paving could be completed nearer completion of entire project. (Contractor's Option).

3.03 BITUMINOUS CONCRETE BINDER SURFACE LAYER

A. ALDOT Section 424-B, (rate as shown on Typical Section(s)).

3.04 BITUMINOUS CONCRETE WEARING SURFACE LAYER

A. ALDOT Section 424-A, (rate as shown on Typical Section(s)). Roll smooth and uniform with no cold layers or course marks and with minimum grain. Construction in accordance with ALDOT Section 410.03.

B. Compaction shall be 95% of the maximum theoretical density (MTD) by the Marshall Method.

3.05 PAVEMENT REPAIR

A. Repairs to paved areas damaged during construction shall be the responsibility of the Contractor at no additional expense to the Owner. Saw the ends of the existing pavement to provide straight end sections for paving repair. Perform paving repair with hot asphalt plant mix (ALDOT 424).
3.06 TRAFFIC LANE AND STALL MARKING

A. After pavement is well-cured, paint directional and lane markings and stall lines as indicated on plans. Lines shall be 4" wide (unless otherwise indicated), uniformly neat and straight, two (2) coats, of manufacturer's recommended rates.

B. At Handicapped Parking Spaces, paint international "Handicapped Parking Symbols" in each parking space in accordance with the Americans With Disabilities Act (ADA) requirements, and as indicated on the drawings.

C. Lane / Parking Marking Paint: Paint Stripes shall be equal to KRYLON INDUSTRIAL LINE-UP PAINT SB Pavement Striping Paint for Parking Lots - Solvent-Based Pavement Striping alkyd paint or equal. Color: White at typical spaces, Blue at handicapped spaces and symbol.

D. Do not apply pavement-marking paint until layout, colors, and placement have been verified with Architect.

E. Allow paving to age for a minimum of 14 days before starting pavement marking.

F. Sweep and clean surface to eliminate loose material and dust.

G. Apply paint in accordance with ALDOT 701.

H. Provide markings and legends in drives and other areas as noted on the drawings, and/or as directed by the Architect.

3.07 TESTING

A. Contractor shall coordinate and schedule testing with Owner’s testing agency.

B. Tests shall be made on each compacted layer at the rate of one per 2,000 square feet on parking areas and one per 150 linear feet on drives.

3.08 PROTECTION

A. This Contractor shall be responsible for protection and soiling of surfaces until final acceptance of his work. Curb faces and gutters shall be protected against bituminous staining and paved surfaces against mud stain. Surfaces shall be cleaned to satisfaction of the Architect, if soiled.

END OF SECTION
PART 1 - GENERAL

1.1 DESCRIPTION
A. Section includes specifications for precast concrete wheel stops for vehicular parking stalls in parking structures and parking lots as indicated.

1.2 SUBMITTALS
A. Shop Drawings: Submit shop drawings of stops, including installation details and attachment details to at-grade concrete and asphalt pavement, for approval.
B. Product Data: Submit manufacturers' product data of precast stops and epoxy adhesive for approval.

1.3 QUALITY ASSURANCE:
A. Precast wheel stops shall be manufactured for the intended purpose by a company or firm specializing in the manufacture of precast concrete parking appurtenances.

PART 2 - PRODUCTS

2.1 MATERIALS
A. Wheel Stops: Precast, 3.5% minimum air-entrained concrete; 4000 psi minimum compressive strength. Each stop shall be reinforced with two No. 4 deformed steel reinforcing bars, minimum. Provide chamfered corners and drainage slots on underside, and provide holes for dowel-anchoring to substrate. Unless indicated otherwise, provide stops of half octagonal configuration and 36-inch length.
B. Adhesive for Anchoring Stops to Parking Structure Slabs, At-Grade Concrete Pavements, and At-Grade Asphalt Pavements: Epoxy adhesive manufactured for the purpose.
C. Adhesive for Bonding Dowel to Wheel Stop: As proposed by Contractor and approved by the Engineer, suitable for application.
D. Steel Bars for Installation: Galvanized 5/8" diameter steel dowels or galvanized No. 5 steel reinforcing bars.

PART 3 - EXECUTION

3.1 INSTALLATION
A. Securely attach wheel stops into at-grade concrete and at-grade asphalt pavement with not less than two galvanized steel dowels embedded in holes cast into wheel stops. Firmly bond each dowel to wheel stop and to pavement.
B. At concrete pavement, drill holes in pavement for dowels.

C. At parking structure slabs, epoxy to slab.

END OF SECTION
SECTION 02831 - VINYL COATED CHAIN LINK FENCES AND GATES (Date: 4.26.19)

PART 1 – GENERAL

RELATED DOCUMENTS:

Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification sections apply to work of this section.

DESCRIPTION OF WORK:

1. Extent of chain link fences and gates is indicated on drawings.

SECTION INCLUDES

1. Fence framework, fabric, and accessories.
2. Excavation for post bases; concrete foundation for posts gate assemblies.

REFERENCES

2. ASTM A116 - Zinc-Coated (Galvanized) Steel Woven Wire Fence Fabric.
3. ASTM A153 - Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
4. ASTM A569 - Steel, Carbon (0.15 Maximum Percent), Hot-Rolled Sheet and Strip Commercial Quality.
5. ASTM C94 - Ready-mixed Concrete.

SYSTEM DESCRIPTION

Fence Height: As indicated on drawings, otherwise 4 feet.

Fence Length: As indicated on drawings.

Location: As indicated on drawings.

Intervals not exceeding 10 feet on center in straight runs and 8 feet on center curves.

SUBMITTALS

Product Data: Provide data on fabric, posts, accessories, fittings and hardware.

Qualifications:

Manufacturer: Company specializing in manufacturing the products specified in this Section to have minimum three years documented experience.
FIELD MEASUREMENTS

Verify that field measurements are as shown on Drawings prior to installation.

PART 2 – PRODUCTS

Manufacturer: The following manufacturers’ products have been used to establish minimum standards for materials, workmanship and function:

1. American Fence Corp.
2. Anchor Fence, Inc.
3. United States Steel.

Equal products of other manufacturers may be used in the work provided, such products have been approved, by the Architect, not less than Ten (10) days prior to scheduled bid opening.

Fence Framework:

1. Allied Tube; Product SS 40.
2. Century Tube; Product CMT 40.

Chain Link Fabric:

1. Merchants Metals.
2. Cargill.

Materials and Components

Framing Materials: Round SS 40, steel pipe, vinyl coated per ASTM F1234 outside. Post to have tops to exclude moisture.

Fabric: 9 gage fused bonded fabric shall have PVC coating of 7 to 12 mils per ASTM F668 Class 2B.

Swing Gates: Size as shown on Drawings covered with chain link fabric. Gates shall be complete with industrial type, fixed pin, 180 degree hinges and drop latch(s)

Components:

1. Line Posts: 2.0 inch outside diameter.
2. Corner and Terminal Posts: 3.0 inch outside diameter.
3. Swing Gate Posts: 3.0 inch minimum outside diameter for less than 6 foot gate leaf. 4.0 inch minimum outside diameter for 6 foot gate leaf or greater or outside diameter as required by design. Posts shall be of sufficient diameter and weight to prevent deflection or gate sagging.
4. **Top and Bottom Rail**: 1-5/8 inch diameter, plain end, sleeve coupled with 0.111 inch wall thickness. Provide Mid-Rails at fences and gates in excess of 5 feet in height.

5. **Swing Gate Frame**: 1-5/8 inch minimum diameter welded or fitting type fabrication. Welded fabrication shall be vinyl coated after weld connections are made. The frame components shall be of sufficient diameter, weight and design to avoid sagging and allow easy operation.

6. **Fabric**: 2 inch vinyl coated (Black-color) diamond mesh interwoven wire, 9 gage thick, top selvage twisted tight, bottom selvage knuckle end closed.

7. **Tie Wire**: Aluminum alloy steel wire, vinyl coated.

**Accessories**:

1. **Caps**: Cast steel vinyl coated; sized to post diameter, set screw retainer.

2. **Fittings**: Sleeves, bands, clips, rail ends, tension bars, fasteners and fittings; steel, vinyl coated.

3. **Swing Gate Hardware**: Fork latch with gravity drop, center gate stop and drop rod; three 180 degree gate hinges per leaf.

**Finishes**:

1. **Components**: Vinyl coated to ASTM F123, 10-14 mil coating.

2. **Hardware**: Vinyl coated.

3. **Accessories**: Same finish as fabric.

4. **Color**: Shall be selected by Architect and Owner.

### PART 3 – EXECUTION

**INSTALLATION**

Install framework, fabric, accessories and gates in accordance with ANSI/ASTM F567 and manufacturer's instructions.

Set all posts plumb, in concrete footings with top of footing 1 inch above finish grade. Slope top of concrete for water runoff.

**Line Post Footing Depth Below Finish Grade**: Minimum three feet (18 inches in solid rock) and not less than 12 inches in diameter.

**Corner, Gate and Terminal Post Footing Depth Below Finish Grade**: Minimum three feet (18 inches in solid rock) and not less than 12 inches in diameter.
Brace each gate and corner post to adjacent line post with horizontal center brace rail and diagonal truss rods. Install brace rail, one bay from end and gate posts.

Provide top rail through line post tops and splice with 6 inch long rail sleeves.

Stretch fabric between terminal posts or at intervals of 100 feet maximum, whichever is less.

Position bottom of fabric 2 inches above finished grade.

Fasten fabric to top, bottom and mid- rails, line posts, braces, and bottom tension wire with tie wire at maximum 15 inches on centers.

Attach fabric to end, corner, and gate posts with tension bars and tension bar clips. Install bottom tension wire stretched taut between terminal posts.

Do not swing gate from building wall; provide gate posts.

Install gates with fabric to match fence. Install three hinges per leaf, latch, catches, drop bolt, foot bolts and sockets, torsion spring, retainer and locking clamp.

Provide concrete center drop to footing depth and drop rod retainers at center of double gate openings.

Clean all excess grout, concrete, grease, paint, etc., from fence.

**Erection Tolerances:**

1. **Maximum Variation From Plumb:** 1/4 inch.
2. **Maximum Offset From True Position:** 1 inch.
3. Components shall not infringe adjacent property lines.

**Schedule:**

Fence and gate location(s) as indicated on Drawings.

Fence and gate size(s) as indicated in this section, otherwise as indicated on drawings.

**END OF SECTION**
SECTION 03310 - CONCRETE WORK (Revised 4.26.19)

PART 1 – GENERAL

RELATED DOCUMENTS:

Drawings and general provisions of the contract including General and Supplementary Conditions and Division 1 Specification Sections apply to work of this section.

DESCRIPTION OF WORK:

Extent of concrete work is shown on drawings.

QUALITY ASSURANCE:

Codes and Standards: Comply with provisions of following codes, specifications and standards, except where more stringent requirements are shown or specified:

1. ACL 301 "Specifications for Structural Concrete for Buildings".
2. ACI 318 "Building Code Requirements for Reinforced Concrete"
3. Concrete Reinforcing Steel Institute, "Manual of Standard Practice".

Concrete Testing Service: The Owner will engage and pay a testing laboratory to perform material evaluation tests.

Materials and installed work may require retesting, as directed by Architect, at anytime during progress of work. Provide free access to material stockpiles and facilities. Retesting of rejected materials and installed work, shall be done at Contractor's expense.

SUBMITTALS:

Product Data: Submit data for proprietary materials and items, including reinforcement and forming accessories, admixtures, patching compounds, joints systems, curing compounds, dry-shake finish materials and others as requested by Architect.

Shop Drawings Reinforcements: Submit shop drawings for fabrication, bending and placement of concrete reinforcement. Comply with ACI 315 "Manual of Standard Practice for Detailing Reinforced Concrete Structures" showing bar schedules, stirrup spacing, diagrams of bent bars, arrangement of concrete reinforcement.

Material Certificates: Provide materials certificates in lieu of materials laboratory test reports when permitted by Architect. Material certificates shall be signed by manufacturer and Contractor, certifying that each material item complies with, or exceeds, specified requirements.

FORM MATERIALS:

Forms for Exposed Finish Concrete: Unless otherwise indicated, construct formwork for exposed concrete surfaces with plywood, metal, metal-framed plywood faced or other acceptable panel-type surfaces. Furnish in largest practicable sizes to minimize number of
joints and to conform to joint system shown on drawings. Provide form material with sufficient thickness to withstand pressure of newly-placed concrete without bow or deflection.

Use plywood complying with U. S. Product Standard PS-1 "B-B (Concrete Form) Plywood", Class I, Exterior Grade or better, mill-oiled and edge-sealed, with each piece bearing legible inspection trademark.

Forms for Unexposed Finish Concrete: Form concrete surfaces which will be unexposed in finished structure with plywood, lumber, metal, or other acceptable material. Provide lumber dressed on at least two (2) edges and one (1) side for tight fit.

Form Coatings: Provide commercial formulation form-coating compounds that will not bond with, stain nor adversely affect concrete surfaces, and will not impair subsequent treatments of concrete surfaces.

REINFORCING MATERIALS:

1. Reinforcing Bars: ASTM A 615, Grade 60, deformed, unless otherwise noted.
2. Steel Wire: ASTM A 82, plain, cold-drawn, steel.

Supports for Reinforcement: Provide supports for reinforcement including bolsters, chairs, spacers and other devices for spacing, supporting and fastening reinforcing bars and welded wire fabric in place. Use wire bar type supports complying with CRSI specifications, unless otherwise acceptable.

For slabs-on-grade, use supports with sand plates or horizontal runners where base material will not support chair legs.

For exposed to view concrete surfaces, where legs of supports are in contact with forms, provide support with legs which are plastic protected (CRSI, Class I) or stainless steel protected (CRSI, Class 3).

CONCRETE MATERIALS:

Portland Cement: ASTM C 150, Type 1, unless otherwise acceptable to Architect.

Use one brand of cement throughout project, unless otherwise acceptable to Architect.

Normal Weight Aggregate: ASTM C 33, and as herein specified. Provide aggregate from a single source for all concrete.

Do not use fine or coarse aggregates containing spalling-causing deleterious substances.

Water: Drinkable.


Manufacturers: The following manufacturers’ products have been used to establish minimum standards for materials, workmanship and function:

"Air-Mix", Evclid Chemical Co.
"Sika-Air", Sika Corp.
"Darex AEA", W. R. Grace

Equal products of other manufacturers may be used in the work, provide such products have been approved, by the Architect, not less than Ten (10) days prior to scheduled bid opening.

**Water-Reducing, Non-Chloride Accelerator Admixture:** ASTM C 494, Type E, and containing not more than 0.1% chloride ions.

**Manufacturers:** The following manufacturers' products have been used to establish minimum standards for materials, workmanship and function:

- "Accelguard 80"; Euclid Chemical Company
- "Pozzolith High Gally"; Master Builders

Equal products of other manufacturers may be used in the work, provide such products have been approved, by the Architect, not less than Ten (10) days prior to scheduled bid opening.

**Water-Reducing, Retarding Admixture:** ASTM C 494, Type D, and contain not more than 0.1% chloride ions.

**Manufacturers:** The following manufacturers' products have been used to establish minimum standards for materials, workmanship and function:

- "Edoco 20006"; Edoco Technical Products
- "Pozzolith 300-R"; Master Builders
- "Eucon Retarder 75"; Euclid Chemical Company
- "Daratard"; W. R. Grace
- "Plastiment"; Sika Chemical Company

Equal products of other manufacturers may be used in the work, provide such products have been approved, by the Architect, not less than Ten (10) days prior to scheduled bid opening.

**Certification:** Provide admixture manufacturer's written certification that chloride ion content complies with specified requirements.

Calcium chloride or admixtures containing more than 0.1% chloride ions are not permitted.

**RELATED MATERIALS:**

**Moisture Barrier:** Provide moisture barrier cover over prepared base material where indicated. Use only materials which are resistant to decay when tested in accordance with ASTM E 154, as follows:

1. Polyethylene sheet not less than 10 mils thick.

**Absorptive Cover:** Burlap cloth made from jute or kenaf, weighing approximately 9 oz. per sq. yd., complying with AASHTO M 182, Class 2.

**Moisture-Retaining Cover:** One of the following, complying with ASTM C 171.

1. Waterproof paper
2. Polyethylene film.
3. Polyethylene-coated burlap.

**Liquid Membrane Forming Curing Compound:** Liquid type membrane forming curing compound complying with ASTM C 309, Type 1-D, Class A unless other type acceptable to Architect. Moisture loss not more than 0.055 gr./sq. cm. when applied at 200 sq. ft./gal. Equal to "Kure-N-Seal" - 30; Sonneborn-Contech

**Manufacturers:** The following manufacturers' products have been used to establish minimum standards for materials, workmanship and function:

- Master Builders
- Euclid Chemical Company
- A.C. Horn
- The Burke Company

Equal products of other manufacturers may be used in the work, provided such products have been approved, by the Architect, not less than Ten (10) days prior to scheduled bid opening.

**Bonding Compound:** Polyvinyl acetate or acrylic base, re-wettable type.

**Manufacturers:** The following manufacturers' products have been used to establish minimum standards for materials, workmanship and function:

- "Welcrete"; Larsen Products
- "EucoWeld"; Euclid Chemical Company
- "Hornweld"; A. C. Horn
- "Sonocrete"; Sonneborn-Contech
- "Acrylic Bondcrete"; The Burke Company

Equal products of other manufacturers may be used in the work, provided such products have been approved, by the Architect, not less than Ten (10) days prior to scheduled bid opening.

**Epoxy Adhesive:** ASTM C 881, two component material suitable for use on dry or damp surfaces. Provide material "Type", "Grade", and "Class" to suit project requirements.

**Manufacturers:** The following manufacturers' products have been used to establish minimum standards for materials, workmanship and function:

- "Epoxite"; A. C. Horn
- "Sikadur Hi-Mod"; Sika Chemical Corporation
- "Euco Epoxy 463 or 615"; Euclid Chemical Company
- "Patch and Bond Epoxy"; The Burke Company
- "Sure-Poxy"; Kaufman Products, Inc.

Equal products of other manufacturers may be used in the work, provided such products have been approved, by the Architect, not less than Ten (10) days prior to scheduled bid opening.
Subfloor Patching and Leveling: The following manufacturers' products have been used to establish minimum standards for materials, workmanship and function:

1. Ardex K-15 or equivalent.
   a. Ardex Engineered Cements 400 Ardex Park Drive Aliquippa, PA 15001
      (724) 203-5000

Equal products of other manufacturers may be used in the work, provide such products have been approved, by the Architect, not less than Ten (10) days prior to scheduled bid opening.

PROPORTIONING AND DESIGN OF MIXES:

Prepare design mixes for each type and strength of concrete by either laboratory trial batch or field experience methods as specified in ACI 301. If trial batch method used, use an independent testing facility acceptable to Architect for preparing and reporting proposed mix designs. The testing facility shall not be the same as used for field quality control testing unless otherwise acceptable to Architect.

Submit written reports to Architect of each proposed mix for each class of concrete at least 15 days prior to start of work. Do not begin concrete production until mixes have been reviewed by Architect.

Design mixes to provide normal weight concrete as indicated on drawings and schedules.

Adjustment to Concrete Mixes: Mix design adjustments may be requested by Contractor when characteristics of materials, job conditions, weather, test results, or other circumstances warrant; at no additional cost to Owner and as accepted by Architect. Laboratory test data for revised mix design and strength results must be submitted to and accepted by Architect before using in work.

Admixtures:

Use water-reducing admixture in all concrete for ease of placement and workability.

Use non-chloride accelerating admixture in concrete slabs placed at ambient temperatures below 50 degrees F.

Use air-entraining admixture in all concrete, unless otherwise indicated. Add air-entraining admixture at manufacturer's prescribed rate to result in concrete at point of placement having total air content of 6% with a tolerance of plus-or-minus 1-1/2%.

Slump Limits: Proportion and design mixes to result in concrete slump at point of placement as follows:

1. Ramps, slabs and sloping surfaces:  3" to 5".
2. Reinforced foundation systems:  2" to 5".
3. Other concrete:  3" to 5".
CONCRETE MIXES:

Ready-Mix Concrete: Comply with requirements of ASTM C 94, and as herein specified.

During hot weather, or under conditions contributing to rapid setting of concrete, a shorter mixing time than specified in ASTM C 94 may be required.

When air temperature is between 85 degrees F and 90 degrees, reduce mixing and delivery time from 1-1/2 hours to 75 minutes, and when air temperature is above 90 degrees F, reduce mixing and delivery time to 60 minutes.

FORMS:

Design, erect, support, brace and maintain formwork to support vertical and lateral loads that might be applied until such loads can be supported by concrete structure. Construct formwork so concrete members and structures are of correct size, shape, alignment, elevation and position.

Design formwork to be readily removable without impact, shock or damage to cast-in-place concrete surfaces and adjacent materials.

Construct forms to sizes, shapes, lines and dimensions shown and to obtain accurate alignment, location, grades, level and plumb work in finished structures. Provide for openings, off-sets, sinkages, keyways, recesses, moldings, rustications, reglets, chamfers, blocking, screeds, bulkheads, anchorages and inserts and other features required in work. Use selected materials to obtain required finishes. Solidly butt joints and provide back-up at joints to prevent leakage of cement paste.

Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush plates or wrecking plates where stripping may damage cast concrete surfaces. Provide top forms for inclined surfaces where slope is too steep to place concrete with bottom forms only. Kerf wood inserts for forming keyways, reglets, recesses and the like, to prevent swelling and for easy removal.

Provide temporary openings where interior area of formwork is inaccessible for cleanout, for inspection before concrete placement, and for placement of concrete. Securely brace temporary openings and set time to forms to prevent loss of concrete mortar. Locate temporary openings on forms at inconspicuous locations.

Chamfer exposed corners and edges as indicated, using wood, metal, PVC or rubber chamfer strips fabricated to produce uniform smooth lines and tight edge joints.

Form Ties: Factory-fabricated, adjustable-length, removable, or snap-off metal form ties, designed to prevent form deflection, and to prevent spalling concrete surfaces upon removal.

Unless otherwise indicated, provide ties so portion remaining within concrete after removal is 1" inside concrete and will not leave holes larger than 1" diameter in concrete surface.

Provisions for Other Trades: Provide openings in concrete formwork to accommodate work of other trades. Determine size and location of openings, recesses and chases from trades providing such items. Accurately place and securely support items built into forms.
Cleaning and Tightening: Thoroughly clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt or other debris just before concrete is placed. Retighten forms and bracing after concrete placement is required to eliminate mortar leaks and maintain proper alignment.

PLACING REINFORCEMENT:

Comply with Concrete Reinforcing Steel Institute's recommended practice for "Placing Reinforcing Bars" for details and methods of reinforcement placement and supports, and as herein specified.

Clean reinforcement of loose rust and mill scale, earth, ice and other materials which reduce or destroy bond with concrete.

Accurately position, support and secure reinforcement against displacement by formwork, construction or concrete placement operations. Locate and support reinforcing by metal chairs, runners, bolsters, spacers and hangers as required.

Place reinforcement to obtain at least minimum coverages for concrete protection. Arrange, space and securely tie bars and bar supports to hold reinforcement in position during concrete placement operations. Set wire ties so ends are directed into concrete, not toward exposed concrete surfaces.

Install welded wire fabric in as long lengths as practicable. Lap adjoining pieces at least one full mesh and lace splices with wire. Offset end laps in adjacent widths to prevent continuous laps in either direction.

JOINTS:

Construction Joints: Locate and install construction joints as indicated, or if not indicated, locate so as not to impair strength and appearance of the structure, as acceptable to Architect.

Place construction joints perpendicular to main reinforcement. Continue reinforcement across construction joints.

Isolation Joints in Slabs-On-Ground: Construct isolation joints in slabs-on-ground at points of contact between slabs on ground and vertical surfaces, such as column pedestals, and elsewhere as indicated.

Joint filler and sealant materials are specified in Division-7 sections of these specifications.

Construction Joints in Slabs-On-Ground: Construct construction joints in slabs-on-ground to form panels of patterns no larger than 600 square feet and as shown and as detailed. An alternative control joint detail may be inserts 1/8” to 1/4” wide x 1/4 of slab depth.

Form contraction joints by inserting premolded plastic, hardboard strip into fresh concrete until top surface of strip is flush with slab surface. Tool slab edges round on each side of insert. After concrete has cured, remove inserts and clean groove of loose debris, fill groove with joint sealant.

Joint sealant material is specified in Division-7 sections of these specifications.
INSTALLATION OF EMBEDDED ITEMS:

General: Set and build into work anchorage devices and other embedded items required for other work that is attached to, or supported by, cast-in-place concrete. Use setting drawings, diagrams, instructions and directions provided by suppliers of items to be attached thereto.

Edge Forms and Screed Strips for Slabs: Set edge forms or bulkheads and intermediate screed strips for slabs to obtain required elevations and contours in finished slab surface.

Provide and secure units sufficiently strong to support types of screed strips by use of strike-off templates or accepted compacting type screeds.

PREPARATION OF FORM SURFACES:

Clean re-used forms of concrete matrix residue, repair and patch as required to return forms to acceptable surface condition.

Coat contact surfaces of forms with a form-coating compound before reinforcement is placed.

Thin form-coating compounds only with thinning agent of type, and in amount, and under conditions of form-coating compound manufacturer's directions. Do not allow excess form-coating material to accumulate in forms or to come into contact with in-place concrete surfaces against which fresh concrete will be placed. Apply in compliance with manufacturer's instructions.

CONCRETE PLACEMENT:

Replacement Inspection: Before placing concrete, inspect and complete formwork installation, reinforcing steel, and items to be embedded or cast-in. Notify other crafts to permit installation of their work; cooperate with other trades in setting such work. Moisten wood forms immediately before placing concrete where form coatings are not used.

Coordinate the installation of joint materials and moisture barriers with placement of forms and reinforcing steel.

General: Comply with ACI 304 "Recommended Practice for Measuring, Mixing, Transporting and Placing Concrete", and as herein specified.

Deposit concrete continuously or in layers of such thickness that no concrete will be placed on concrete which has hardened sufficiently to cause the formation of seams of planes of weakness. If a section cannot be placed continuously, provide construction joints as herein specified. Deposit concrete as nearly as practicable to its final location to avoid segregation.

Placing Concrete in Forms: Deposit concrete in forms in horizontal layers not deeper than 24" and in a manner to avoid inclined construction joints. Where placement consists of several layers, place each layer while preceding layer is still plastic to avoid cold joints.

Consolidate placed concrete by mechanical vibrating equipment supplemented by hand-spading, rodding or tamping. Use equipment and procedures for consolidation of concrete in accordance with ACI recommended practices.
Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations not farther than visible effectiveness of machine. Place vibrators to rapidly penetrate placed layer at least 6" into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to set. At each insertion limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing segregation of mix.

**Placing Concrete Slabs:** Deposit and consolidate concrete slabs in a continuous operation, within limits of construction joints, until the placing of a panel or section is completed.

Consolidate concrete during placing operations so that concrete is thoroughly worked around reinforcement and other embedded items and into corners.

Bring slab surfaces to correct level with straightedge and strike-off. Use bull floats or darbies to smooth surface, free of humps or hollows. Do not disturb slab surfaces prior to beginning finishing operations.

Maintain reinforcing in proper position during concrete placement operations.

**Cold Weather Placing:** Protect concrete work from physical damage or reduced strength which could be caused by frost, freezing actions, or low temperatures, in compliance with ACI 306 and as herein specified.

When air temperature has fallen to or is expected to fall below 40 degrees F uniformly heat water and aggregates before mixing to obtain a concrete mixture temperature of not less than 50 degrees F. and not more than 80 degrees F at point of placement.

Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.

Do not place concrete when air temperature has fallen to or is expected to fall below 35°F.

Do not use calcium chloride, salt and other materials containing antifreeze agents or chemical accelerators, unless otherwise accepted in mix designs.

**Hot Weather Placing:**

When hot weather conditions exist that would seriously impair quality and strength of concrete, place concrete in compliance with ACE 305 and as herein specified.

Cool ingredients before mixing to maintain concrete temperature at time of placement below 90 degrees F. Mixing water may be chilled, or chopped ice may be used to control temperature provided water equivalent of ice is calculated to total amount of mixing water. Use of liquid nitrogen to cool concrete is Contractor's option.

Cover reinforcing steel with water-soaked burlap if it becomes too hot, so that steel temperature will not exceed the ambient air temperature immediately before embedment in concrete.

Fog spray forms, reinforcing steel and subgrade just before concrete is placed.

Use water-reducing retarding admixture (Type D) when required by high temperatures, low humidity, or other adverse placing conditions.

**For the Morgan County Schools**

**Decatur, Alabama**

**Project No: 18-237**
FINISH OF FORMED SURFACES:

Rough Form Finish: For formed concrete surfaces not exposed-to-view in the finish work or by other construction, unless otherwise indicated. This is the concrete surface having texture imparted by form facing material used, with tie holes and defective areas repaired and patched and fins and other projections exceeding 1/4" in height rubbed down or chipped off.

Smooth Form Finish: For formed concrete surfaces or that are to be covered with a coating material applied directly to concrete, or a covering material applied directly to concrete such as waterproofing, dampproofing. This is as-cast concrete surface obtained with selected form facing material, arranged orderly and symmetrically with a minimum of seams. Repair and patch defective areas with fins or other projections completely removed and smoothed.

Smooth Rubbed Finish: For formed concrete surfaces exposed to view provide smooth rubbed finish, not later than one day after form removal.

Moisten concrete surfaces and rub with carborundum brick or other abrasive until a uniform color and texture is produced. Do not apply cement grout other than that created by the rubbing process.

Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces occurring adjacent to formed surfaces, strike-off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces, unless otherwise indicated.

MONOLITHIC SLAB FINISHES:

Finish surfaces to the following tolerances, measured within 24 hours according to ASTM E 1155/E 1155M for randomly trafficked floor surfaces:

1. Specified overall values of flatness, F(F) 38: and levelness, F(L) 25: with minimum local values of flatness, F(F) 19: levelness, F(L) 13: for slabs on grade.

Scratch Finish: Apply scratch finish to monolithic slab surfaces that are to receive concrete floor topping or mortar setting beds for tile, portland cement terrazzo and other bonded applied cementious finish flooring material, and as otherwise indicated.

Slope surface uniformly to drains where required. After leveling, roughen surfaces before final set, with stiff brushes, brooms or rakes.

Float Finish: Apply float finish to monolithic slab surfaces to receive trowel finish and other finishes as hereinafter specified, and slab surfaces which are to be covered with membrane or elastic waterproofing membrane or elastic roofing, or sand-bend terrazzo, and as otherwise indicated.

After screeding consolidating, and leveling concrete slabs, do not work surface until ready for floating. Begin floating when surface water has disappeared or when concrete has stiffened sufficiently to permit operation of power-driven floats, or both. Consolidate surface with power-driven floats or by hand-floating if area is small or inaccessible to power units. Cut down high spots and fill low spots. Uniformly slope surfaces to drains. Immediately after leveling, refloat surface to a uniform, smooth, granular texture.
Trowel Finish: Apply trowel finish to monolithic slab surfaces to be exposed-to-view and slab surfaces to be covered with resilient flooring, carpet, ceramic or quarry tile, paint or other thin film finish coating system.

After floating, begin first trowel finish operation using a power-driven trowel. Begin final troweling when surface produces a ringing sound as trowel is moved over surface. Consolidate concrete surface by final hand-troweling operation, free of trowel marks, uniform in texture and appearance. Grind smooth surface defects which would telegraph through applied floor covering system.

Non-Slip Broom Finish: Apply non-slip broom finish to exterior concrete platforms, steps and ramps and elsewhere as indicated.

Immediately after trowel finishing, slightly roughen concrete surface by brooming with fiber bristle broom perpendicular to main traffic route. Coordinate required final finish with Architect before application.

CONCRETE CURING AND PROTECTION:

General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures.

Start initial curing as soon as free water has disappeared from concrete surface after placing and finishing. Keep continuously moist for not less than 7 days.

Begin final curing procedures immediately following initial curing and before concrete has dried. Continue final curing for at least seven (7) days in accordance with ACI 301 procedures. Avoid rapid drying at end of final curing period.

Curing Methods: Perform curing of concrete by curing and sealing compound, by moist curing, by moisture-retaining cover curing, and by combinations thereof, as herein specified.

Provide moisture curing by one of the following methods or by a combination of the following methods:

1. Keep concrete surface continuously wet by covering with water.
2. Continuous water-fog spray.
3. Covering concrete surface with specified absorptive cover, thoroughly saturating cover with water and keeping continuously wet. Place absorptive cover to provide coverage of concrete surfaces and edges, with 4" lap over adjacent absorptive covers.

Provide moisture-cover curing as follows:

1. Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width with sides and ends lapped at least 3" and sealed by waterproof tape or adhesive. Immediately repair any holes or tears during curing period using cover material and waterproof tape.

Provide curing and sealing compound to interior slabs with resilient flooring, carpet over cushion, or left exposed; and to exterior slabs, walks, and curbs as follows:
1. Apply specified curing and sealing compound to concrete slabs as soon as final finishing operations are complete (within two hours). Apply uniformly in continuous operation by power-spray or roller in accordance with manufacturer's directions. Recoat areas subjected to heavy rainfall within three (3) hours after initial application. Maintain continuity of coating and repair damage during curing period.

Do not use membrane curing compounds on surface which are to be covered with coating material applied directly to concrete, liquid floor hardener, waterproofing, dampproofing, membrane roofing, flooring (such as ceramic or quarry tile, glue-down carpet), painting and other coatings and finish materials, unless otherwise acceptable to Architect.

Curing Formed Surfaces: Cure formed concrete surfaces, by moist curing with forms in place for full curing period or until forms are removed. If forms are removed, continue curing by methods specified above, as applicable.

Curing Unformed Surfaces: Cure unformed surfaces, such as slabs, floor topping, and other flat surfaces by application of appropriate curing method.

Final cure concrete surfaces to receive liquid floor hardener or finish flooring by use of moisture-retaining cover, unless otherwise directed.

Sealer and Dustproofer: Apply a second coat of specified curing and sealing compound only to surfaces given a first coat.

REMOVAL OF FORMS:

Formwork not supporting weight of concrete, such as sides of walls, and similar parts of the work, may be removed after cumulatively curing at not less than 50 degrees F for twenty-four (24) hours after placing concrete, provided concrete is sufficiently hard to not be damaged by form removal operations, and provided cutting and protection operations are maintained.

Formwork supporting weight of concrete, may not be removed in less than fourteen (14) days and until concrete has attained design minimum compressive strength of in place concrete by testing field-cured specimens representative of concrete location in members.

Form facing material may be removed four (4) days after placement, only if shores and other vertical supports have been arranged to permit removal of form facing material without loosening or disturbing shores and supports.

RE-USE OF FORMS:

Clean and repair surfaces of forms to be re-used in work. Split, frayed, delaminated or otherwise damaged form facing material will not be acceptable for exposed surfaces. Apply new form coating compound as specified for new formwork.

When forms are extended for successive concrete placement, thoroughly clean surfaces, remove fins and laitance, and tighten forms to close joints. Align and secure joint to avoid offsets. Do not use "patched" forms for exposed concrete surfaces.
except as acceptable to Architect.

**MISCELLANEOUS CONCRETE ITEMS:**

**Filling-In:** Fill-in holes and openings left in concrete structures for passage of work by other trades, unless otherwise shown or directed, after work of other trades is in place. Mix, place and cure concrete as herein specified, to blend with in-place construction. Provide other miscellaneous concrete filling shown or required to complete work.

**Curbs:** Provide monolithic finish to interior curbs by stripping forms while concrete is still green and steel-troweling surfaces to a hard, dense finish with corners, intersections and terminations slightly rounded.

**Equipment Bases and Foundations:** Provide machine and equipment bases and foundations, as shown on drawings. Set anchor bolts for machines and equipment to template at correct elevations, complying with certified diagrams or templates of manufacturer furnishing machines and equipment.

**Reinforced Masonry:** Provide concrete grout for reinforced masonry, masonry lintels and bond beams where indicated on drawings and as scheduled. Maintain accurate location of reinforcing steel during concrete placement.

**CONCRETE SURFACE REPAIRS:**

**Patching Defective Areas:** Repair and patch defective areas with cement mortar immediately after removal of forms when acceptable to Architect.

Cut out honeycomb, rock pockets, voids over 1/4" in any dimension, and holes left by tie rods and bolts, down to solid concrete but, in no case to a depth of less than 1". Make edges of cuts perpendicular to the concrete surface. Thoroughly clean, dampen with water and brush-coat the area to be patched with specified bonding agent. Place patching mortar after bonding compound has dried.

For exposed to view surfaces, blend white portland cement and standard portland cement so that when dry, patching mortar will match color surrounding. Provide test areas at inconspicuous location to verify mixture and color match before proceeding with patching. Compact mortar in place and strike-off slightly higher than surrounding surface.

**Repair of Formed Surfaces:** Remove and replace concrete having defective surfaces if defects cannot be repaired to satisfaction of Architect. Surface defects, as such, include color and texture irregularities, cracks, spalls, air bubbles, honeycomb, rock pockets; fins and other projections on surface; and stains and other discolorations that cannot be removed by cleaning. Flush out form tie holes, fill with dry pack mortar, or precast cement cone plugs secured in place with bonding agent.

Repair concealed formed surfaces, where possible, that contain defects that affect the durability of concrete. If defects cannot be repaired, remove and replace concrete.

**Repair of Unformed Surfaces:** Test unformed surfaces, such as monolithic slabs, for smoothness and verify surface plane to tolerances specified for each surface and
finish. Correct low and high areas as herein specified. Test unformed surfaces sloped to drain for trueness of slope, in addition to smoothness using a template having required slope.

Repair finished unformed surfaces that contain defects which affect durability of concrete. Surface defects, as such, include crazing, cracks in excess of 0.01" wide or which penetrate to reinforcement or completely through non-reinforced sections regardless of width, spalling, popouts, honeycomb, rock pockets and other objectionable conditions.

Correct high areas in unformed surfaces by grinding, after concrete has cured at least 14 days.

Correct low areas in unformed surfaces during, or immediately after, completion of surface finishing operations by cutting out low areas and replacing with fresh concrete. Finish repaired areas to blend into adjacent concrete. Proprietary patching compounds may be used when acceptable to Architect.

Repair defective areas, except random cracks and single holes not exceeding 1" diameter, by cutting out and replacing with fresh concrete. Remove defective areas to sound concrete with clean, square cuts and exposed reinforcing steel with at least 3/4" clearance all around.

Dampen concrete surfaces in contact with patching concrete and apply bonding compound. Mix patching concrete of same materials to provide concrete of same type or class as original concrete. Place, compact and finish to blend with adjacent finished concrete. Cure in same manner as adjacent concrete.

Repair isolated random cracks and single holes not over 1" in diameter by dry-pack method. Groove top of cracks and cut-out holes to sound concrete and clean of dust, dirt and loose particles. Dampen cleaned concrete surfaces and apply bonding compound. Mix dry-pack, consisting of one part portland cement to 2-1/2 parts fine aggregate passing a No. 16 mesh sieve, using only enough water as required for handling and placing.

Place dry pack after bonding compound has dried. Compact dry-pack mixture in place and finish to match adjacent concrete. Keep patched area continuously moist for not less than seventy-two (72) hours.

Perform structural repairs with prior approval of Architect for method and procedure, using specified epoxy adhesive and mortar.

Repair methods not specified above may be used, subject to acceptance of Architect.

QUALITY CONTROL TESTING DURING CONSTRUCTION:

The Owner will employ and pay for a testing laboratory to perform tests and to submit test reports. The Contractor shall notify testing agency 24 hours in advance of requirements.

Sampling and testing for quality control during placement of concrete may include the following, as directed by Architect.
The Owner shall maintain equipment on site to cast cylinders, perform slump and air tests, and field cure specimens. Should the project testing agency be absent from the site, the Contractor will be responsible for performing the field tests below.

**Sampling Fresh Concrete:** ASTM C 172, except as modified for slump to comply with ASTM C 94.

1. **Slump:** ASTM C 143; one test at point of discharge for each day’s pour of each type of concrete; additional tests when concrete consistency seems to have changed.
2. **Concrete Temperature:** Test hourly when air temperature is 40 degrees F. and below, and when 80 degrees F. and above; and each time a set of compression test specimens made.
3. **Compression Test Specimen:** ASTM C 31; one set of four (4) standard cylinders for each compressive strength test, unless otherwise directed. Mold and store cylinders for laboratory cured test specimens except when field-cure test specimens are required.

**Compressive Strength Tests:** ASTM C 39; one set for each day's pour plus additional sets for each 50 cu. yds. over and above the first 25 cu. yds. of each concrete class placed in any one day; one specimen tested at seven (7) days, two specimen tested at twenty-eight (28) days, and one specimen retained in reserve for later testing if required. Minimum compressive strength of concrete shall be 3,000 psi at 28 days unless otherwise indicated.

When frequency of testing will provide less than five (5) strength tests for a given class of concrete, conduct testing from at least five (5) randomly selected batches or from each batch if fewer than five (5) are used.

When total quantity of a given class of concrete is less than 50 cu. yds., strength test may be waived by Architect if, in his judgment, adequate evidence of satisfactory strength is provided.

When strength of field-cured cylinders is less than 85% of companion laboratory-cured cylinders, evaluate current operations and provide corrective procedures for protecting and curing the in-place concrete.

Test results shall be reported in writing to Architect and Contractor within twenty-four (24) hours that tests are made. Reports of compressive strength tests shall contain the project identification name and number, date of concrete placement, name of concrete testing service, concrete type and class, location of concrete batch in structure, design compressive strength at twenty-eight (28) days, concrete mix proportions and materials; compressive breaking strength and type of break for both 7-day tests and 28-day tests.

**Nondestructive Testing:** Impact hammer, sonoscope, or other non-destructive device may be permitted but shall not be used as the sole basis for acceptance or rejection.

**Additional Tests:** The testing service will make additional tests of in-place concrete when test results indicate specified concrete strengths and other characteristics have not been attained in the structure, as directed by Architect. Testing service may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42, or by other methods as directed.

Contractor shall pay for such tests conducted, and any other additional testing as may
be required, when unacceptable concrete is verified.

END OF SECTION
SECTION 04200 - UNIT MASONRY (Revised 4.26.19)

PART 1 - GENERAL

RELATED DOCUMENTS:

Drawings and general provisions of Contract including General and Supplementary Conditions and Division 1 Specification sections apply to work of this section.

DESCRIPTION OF WORK:

Extent of each type of masonry work is indicated on drawings and schedule.

Types of masonry work required include.

1. Concrete unit masonry.
2. Brick masonry.

QUALITY ASSURANCE:

Fire Performance Characteristics: Where indicated, provide materials and construction which are identical to those of assemblies whose fire endurance has been determined by testing in compliance with ASTM E 119 by a recognized testing and inspecting organization or by another means, as acceptable to authority having jurisdiction.

Single Source Responsibility for Masonry Units: Obtain exposed masonry units of uniform texture and color, or a uniform blend within the ranges accepted for these characteristics, from one manufacturer for each different product required for each continuous surface or visually related surfaces.

Single Source Responsibility for Mortar Materials: Obtain mortar ingredients of uniform quality, including color for exposed masonry, from one manufacturer for each cementitious component and from one source and producer for each aggregate.

Samples: Submit the following samples:

1. Unit masonry samples for each type of exposed masonry unit required; include in each set the full range of exposed color and texture to be expected in completed work.
2. Include size variation data verifying that actual range of sizes for brick falls within ASTM C652 dimension tolerances for brick where modular dimensioning is indicated. The grade shall be SW and the type HBS.

Field Constructed Mock-Up Panel: Prepare mock-up panel for the following types of masonry. Purpose of mock-up is further verification of selections made for color and finish under sample submittals and establishing standard of quality for aesthetic effects expected in completed work. Build mock-up panel to comply with the following requirements:

1. Locate mock-up panel on site where directed by the Architect.
2. Build mock-up panel of typical exterior masonry wall, approximately 4'-0" long by 4'-0" high, showing all typical components, connections, attachments to building structure and methods of installation.

3. Retain mock-up panel during construction as standard for judging completed masonry work. When directed, demolish mock-up panel and remove from site.

DEVELOPMENT, STORAGE AND HANDLING:

Deliver masonry materials to project in undamaged condition.

Store and handle masonry units to prevent their deterioration or damage due to moisture, temperature changes, contaminants, corrosion or other causes. Store masonry units off the ground.

Store cementitious materials off the ground, under cover and in dry location.

Store aggregates where grading and other required characteristics can be maintained.

Store masonry accessories including metal items to prevent deterioration by corrosion and accumulation of dirt.

PROJECT CONDITIONS:

Protection of Work: During erection, cover top of walls with waterproof sheeting at end of each day's work. Cover partially completed structures when work is not in progress.

Extend cover a minimum of 24 inches down both sides and hold cover securely in place.

Do not apply uniform floor or roof loading for at least 24 hours after building masonry walls or columns.

Staining: Prevent grout or mortar or soil from staining the face of masonry to be left exposed or painted. Remove immediately grout or mortar in contact with such masonry.

Protect base of walls from rain-splashed mud and mortar splatter by means of coverings spread on ground and over wall surface.

Protect sills, ledges and projections from droppings of mortar.

Environmental Protection:

Maintain air temperature and materials to a minimum of 40 degrees F and a maximum of 90 degrees F prior to and during masonry work.

Do not lay masonry units which are wet or frozen.

Remove masonry damaged by freezing conditions.

For clay masonry units with initial rates of absorption (suction) which require them to be wetted before laying, comply with the following requirements.

1. For units with surface temperatures above 32°F wet with water heated to above 70°F.
2. For units with surface temperatures below 32°F wet with water heated to above 130°F.

PART 2 – PRODUCTS

CONCRETE MASONRY UNITS:

General: Comply with referenced standards and other requirements indicated below applicable to each form of concrete masonry unit required.

1. Provide special shapes where required for lintels, corners, jambs, sash, control joints, headers, bonding and other special conditions.
2. Provide bullnose units for outside corners, except where indicated as square-edged.

Concrete Block: Provide units complying with characteristics indicated below for Grade, Type, face size, exposed face and under each form of block included, for weight classification.

1. Grade N
2. Size: Manufacturer's standard units with nominal face dimensions of 16" long x 8" high x thickness indicated.
3. Type I: moisture-controlled units.
4. Exposed Faces: Manufacturer's standard color and texture, unless otherwise indicated.
5. Hollow Loadbearing Block: ASTM C 90 and as follows:
   a. Weight Classification: Lightweight

BRICK MADE FROM CLAY OR SHALE:

General: Comply with referenced standards and other requirements indicated below applicable to each form of brick required.

Provide special molded shapes where indicated and for application requiring brick of form, size and finish on exposed surfaces which cannot be produced from standard brick sizes by sawing.

For sills, caps and similar applications resulting in exposure of brick surfaces which otherwise would be concealed from view, provide uncored or unfrogged units with all exposed surfaces finished.

Facing Brick: Submit samples for approval of equals prior to bids. Eased edge brick shall not be allowed.

Approved Manufacturers:
1. ACME Brick Company, Montgomery, AL
2. Boral Bricks, Phenix City, AL
3. Henry Brick Company, Selma, AL

Equal products of other manufacturers may be used in the work provided such products have been approved by the Architect, not less than Ten (10) days prior to scheduled bid opening.
1. **Field and Accent:**

   Brick shall have a value of **$500.00 dollars per thousand** (Allowances shall be for material only, based on actual number of bricks purchased for the project. Installation, profit, overhead, shipping and taxes shall be included in the Contractors Bid Proposal). If Architect chooses brick of lesser value after Bid Process, Contractor shall issue a deductive Change Order for the difference.

**MORTAR AND GROUT MATERIALS:**

Manufacturers: The following manufacturers' products have been used to establish minimum standards for materials, workmanship and function:

- "Atlas"
- "Citadel"
- "Lone Star"
- "Magnolia"

Equal products of other manufacturers may be used in the work provided such products have been approved by the Architect, not less than Ten (10) days prior to scheduled bid opening.

**Masonry Cement:** ASTM C 91.

1. Type S for CMU walls
2. Type N for face brick.

A. **Field:**
   1. Exterior Brick: Type N mortar - color pigment.
   2. To have a value of **$17.00 dollars per bag**. (Allowances shall be for material only, based on actual number of bags purchased for the project. Installation, profit, overhead, shipping and taxes shall be included in the Contractors Bid Proposal). If Architect chooses mortar of lesser value after Bid Process, Contractor shall issue a deductive Change Order for the difference.

B. **Accent:**
   1. None

**Hydrated Lime:** ASTM C 207, Type S.

**Aggregate for Mortar:** ASTM C 144, except for joints less than 1/4" use aggregate graded with 100% passing the No. 16 sieve.

**Water:** Clean and potable.

**JOINT REINFORCEMENT, TIES AND ANCHORING DEVICES:**

Materials: Comply with requirements indicated below for basic materials and with requirements indicated under each form of joint reinforcement, tie and anchor for size and other characteristics.
Use individual galvanized steel metal ties installed in horizontal joints to bond wythes together **only** where wood or metal stud backup occurs. Provide ties as shown, but not less than one metal tie for 4 sq. ft. of wall area spaced not to exceed 24" o.c. horizontally and vertically. Stagger ties in alternate courses. Provide additional ties within 1'-0" of all openings and space not more than 3'-0" apart around perimeter of openings. At intersecting and abutting walls, provide ties at no more than 24" o.c. vertically.

**Hot-Dip Galvanized Steel Wire:** ASTM A 82 for uncoated wire and with ASTM A 123, Class B-2 (1.5 oz. per sq. ft. of wire surface) for zinc coating applied after prefabrication into units.

**Application:** Use where indicated.

**Joint Reinforcement:** Provide truss-type, welded-wire units prefabricated with deformed continuous side rods and plain cross rods into straight lengths of not less than 10', with prefabricated corner and tee units, and complying with requirements indicated below:

1. **Width:** Fabricate joint reinforcement in units with widths of approximately 2" less than nominal width of walls and partitions as required to provide mortar coverage of not less than 5/8" on joint faces exposed to exterior and 1/2" elsewhere.

**Manufacturers:** The following manufacturers' products have been used to establish minimum standards for materials, workmanship and function:

1. Dur-O-Wall, Inc.
2. Heckman Building Products, Inc.
3. Masonry Reinforcing Corp. of America.

Equal products of other manufacturers may be used in the work provided such products have been approved by the Architect, not less than Ten (10) days prior to scheduled bid opening.

**EMBEDDED FLASHING MATERIALS**

**Metal Flashing:** Provide metal flashing, where flashing is exposed or partly exposed and where indicated, complying with SMACNA's "Architectural Sheet Metal Manual" and as follows:

1. Fabricate continuous flashings in sections 96 inches long minimum, but not exceeding 12 feet
2. Provide splice plates at joints of formed, smooth metal flashing.
3. Fabricate through-wall metal flashing embedded in masonry from, with ribs at 3-inch intervals along length of flashing to provide an integral mortar bond.
4. Fabricate through-wall flashing with snaplock receiver on exterior face where indicated to receive counterflashing.
5. Fabricate through-wall flashing with drip edge where indicated. Fabricate by extending flashing 1/2 inch out from wall, with outer edge bent down 30 degrees.
6. Fabricate through-wall flashing with sealant stop unless otherwise indicated. Fabricate by bending metal back on itself 3/4 inch at exterior face of wall and down into joint 3/8 inch to form a stop for retaining sealant backer rod.
7. Fabricate metal drip edges and sealant stops for ribbed metal flashing from plain metal flashing of the same metal as ribbed flashing and extending at least 3 inches into wall with hemmed inner edge to receive ribbed flashing and form a hooked seam. Form hem on upper surface of metal so that completed seam will shed water.

8. Metal Drip Edges: Fabricate from stainless steel. Extend at least 3 inches into wall and 1/2 inch out from wall, with outer edge bent down 30 degrees.

9. Metal Flashing Terminations: Fabricate from stainless steel. Extend at least 3 inches into wall and out to exterior face of wall. At exterior face of wall, bend metal back on itself for 3/4 inch and down into joint 3/8 inch to form a stop for retaining sealant backer rod.

10. Metal Expansion-Joint Strips: Fabricate from stainless steel to shapes indicated.

Flexible Flashing: For flashing not exposed to the exterior, use one of the following, unless otherwise indicated:

1. Elastomeric Thermoplastic Flashing: Composite flashing product consisting of a polyester-reinforced ethylene interpolymer alloy as follows:
   a. Monolithic Sheet: Elastomeric thermoplastic flashing, 0.040 inch thick.
   b. Self-Adhesive Sheet: Elastomeric thermoplastic flashing, 0.025 inch thick, with a 0.015-inch thick coating of rubberized-asphalt adhesive.
   c. Self-Adhesive Sheet with Drip Edge: Elastomeric thermoplastic flashing, 0.025 inch thick, with a 0.015-inch thick coating of rubberized-asphalt adhesive. Where flashing extends to face of masonry, rubberized-asphalt coating is held back approximately 1-1/2 inches from edge.
   d. Accessories: Provide preformed corners, end dams, other special shapes, and seaming materials produced by flashing manufacturer.

2. EPDM Flashing: Sheet flashing product made from ethylene-propylene-dieneterpolymer, complying with ASTM D 4637, 0.040 inch thick.

Adhesives, Primers, and Seam Tapes for Flashings: Flashing manufacturer's standard products or products recommended by flashing manufacturer for bonding flashing sheets to each other and to substrates.

Manufacturers: The following manufacturers' products have been used to establish minimum standards for materials, workmanship, and function:

Vinyl Sheet Flashing: (Thickness: 20 mils)

1. Vi-Seal Plastic Flashing; Afco Products, Inc.
2. BFG Vinyl Water Barrier; B.F. Goodrich Co.
3. Nuflex; Sandell Manufacturing Co., Inc.
4. Wascosea”; York Manufacturing, Inc.

Equal products of other manufacturers may be used in the work, provided such products have been approved by the Architect, not less than Ten (10) days prior to scheduled bid opening.

MISCELLANEOUS MASONRY ACCESSORIES:

See drawings for locations of all required control joints.
Non-Metallic Expansion Joint Strips: Pre-molded, flexible cellular neoprene rubber filler strips complying with ASTM D 1056, Grade RE41E1, capable of compression up to 35%, of width and thickness indicated.

Premolded Control Joint Strips: Material as indicated below designed to fit standard sash block and to maintain lateral stability in masonry wall; size and configuration as indicated.

1. Polyvinyl chloride complying with ASTM D 2287, General Purpose Grade, Designation PVC-63506.

Bond Breaker Strips: Asphalt-saturated organic roofing felt complying with ASTM D 226, Type I (No. 15 asphalt felt).

MASONRY CLEANERS:

Job-Mixed Detergent Solution: Solution of trisodium phosphate (1/2 cup dry measure) and laundry detergent (1/2 cup dry measure) dissolved in one gallon of water.

MORTAR AND GROUT MIXES:

General: Do not add admixtures including air-entraining agents, accelerators, retarders, water repellent agents, anti-freeze compounds or other admixtures, unless otherwise indicated.

1. Do not use calcium chloride in mortar or grout.

Mixing: Combine and thoroughly mix cementitious, water and aggregates in a mechanical batch mixer; comply with referenced ASTM standards for mixing time and water content.

Mortar for Unit Masonry: Comply with ASTM C 270, Proportion Specification, for types of mortar required, unless otherwise indicated.

1. For Exterior Brick, use Type N mortar, equal to Flamingo, Blue Circle or Lehigh.

2. For Other Masonry Units use Type S mortar without coloring pigment.

PART 3 – EXECUTION

INSTALLATION, GENERAL:

Wetting Clay Brick: Wet brick made from clay or shale which have ASTM C 67 initial rates of absorption (suction) of more than 30 grams per 30 sq. in. per minute. Use wetting methods which ensure each clay masonry unit being nearly saturated but surface dry when laid.

Do not wet concrete masonry units.

Cleaning Reinforcing: Before placing, remove loose rust, ice and other coatings from reinforcing.

Thickness: Build cavity and composite walls, floors and other masonry construction to the full thickness shown. Build single wythe walls (if any) to the actual thickness of the masonry units, using units of nominal thickness indicated.
Build chases and recesses as shown or required for the work of other trades. Provide not less than 8" of masonry between chase or recess and jamb of openings, and between adjacent chases and recesses.

Leave openings for equipment to be installed before completion of masonry work. After installation of equipment, complete masonry work to match work immediately adjacent to the opening.

Cut masonry units using motor-given saws to provide clean, sharp, unchipped edges. Cut units as required to provide continuous pattern and to fit adjoining work. Use full-size units without cutting where possible.

1. Use dry cutting saws to cut concrete masonry units.

Laying Masonry Walls:

Layout walls in advance for accurate spacing of surface bond patterns with uniform joint widths and to accurately locate openings, movement-type joints, returns and offsets. Avoid the use of less-than-half-size units at corners, jambs and wherever possible at other locations.

Coursing and Bonding: All CMU shall be Running Bond unless otherwise indicated on structural drawings.

Stopping and Resuming Work: Rack back 1/2-unit length in each course; do not tooth. Clean exposed surfaces of set masonry, wet units lightly (if required) and remove loose masonry units and mortar prior to laying fresh masonry.

Built-in Work: As the work progresses, build-in items specified under this and other sections of these specifications. Fill in solidly with masonry around built-in items.

1. Fill space between hollow metal frames and masonry solidly with mortar, unless otherwise indicated.

Mortar Bedding and Jointing:

Lay masonry units with completely filled bed and head joints; butter ends with sufficient mortar to fill head joints and shove into place. Do not slush head joints.

Lay hollow concrete masonry units with full mortar coverage on horizontal and vertical face shells. Bed webs in mortar in starting course on footings and in all courses of piers, columns and pilasters, and where adjacent to cells or cavities to be reinforced or filled with concrete or grout. For starting course on footings where cells are not grouted, spread out full mortar bed including areas under cells.

Maintain joint width shown, except for minor variations required to maintain bond alignment. If not shown, lay walls with 3/8" joints.

Cut joints flush for masonry walls which are to be concealed or to be covered by other materials, unless otherwise indicated.

Tool all exposed joints, except where otherwise indicated, slightly concave using a jointer larger than joint thickness, unless otherwise indicated.
Remove masonry units disturbed after laying; clean and reset in fresh mortar. Do not pound corners or jambs to shift adjacent stretcher units which have been set in position. If adjustments are required, remove units, clean off mortar and reset in fresh mortar.

STRUCTURAL BONDING OF MULTI-WYTHE MASONRY:

Use continuous horizontal joint reinforcement installed in horizontal mortar joints for bond tie between wythes. Install at not more than 16" o.c. vertically.

Corners: Provide interlocking masonry unit bond in each course at corners, unless otherwise shown.

1. For horizontally reinforced masonry, provide continuity at corners with prefabricated "L" units, in addition to masonry bonding.

Intersecting and Abutting Walls: Unless vertical expansion or control joints are shown at juncture, provide same type of bonding specified for structural bonding between wythes and space as shown below:

1. At juncture of interior partitions and exterior walls, rake and caulk vertical joint.
2. Provide metal ties as shown below.
3. Provide individual metal ties at not more than 16" o.c. vertically.
4. Provide continuity with horizontal joint reinforcement using prefabricated "T" units.

Intersecting Load-bearing Walls: If carried up separately, block or tooth vertical joint with 8" maximum offsets and provide rigid steel anchors spaced not more than 4'-0" o.c. vertically, or omit blocking and provide rigid steel anchors at not more than 2'-0" o.c. vertically. Form anchors of galvanized steel not less than 1-1/2" x 1/4" x 2'-0" long with ends turned up not less than 2" or with cross-pins. If used with hollow masonry units, embed ends in mortar-filled cores.

Non-bearing Interior Partitions: Build full height of story to underside of roof structure above, unless otherwise shown.

CAVITY WALLS:

Keep cavity clean of mortar droppings and other materials during construction. Strike joints facing cavity flush.

Tie exterior wythe to new back-up with continuous horizontal joint reinforcing, installed in mortar joints at not more than 16" o.c. vertically.

Provide weep holes (Open Head Joints) in exterior wythe of cavity wall located as directed on the drawings, spaced 32" o.c., unless otherwise indicated.

CAVITY WALL INSULATION:

On units of plastic insulation, install small pads of adhesive spaced approximately 1'-0" o.c. both ways on inside face. Fit courses of insulation between wall ties and other confining obstructions in cavity, with edges butted tightly both ways. Press units firmly against inside wythe of masonry or other construction as shown.
1. Fill all cracks and open gaps in insulation with crack sealer compatible with insulation and masonry.

HORIZONTAL JOINT REINFORCEMENT:

General: Provide continuous horizontal joint reinforcement as indicated. Install longitudinal side rods in mortar for their entire length with a minimum cover of 5/8" on exterior side of walls, 1/2" elsewhere. Lap reinforcing a minimum of 6".

Cut or interrupt joint reinforcement at control and expansion joints, unless otherwise indicated.

Reinforce walls with continuous horizontal joint reinforcing unless specifically noted to be omitted.

Reinforce masonry openings greater than 1'-0" wide, with horizontal joint reinforcement placed in 2 horizontal joints approximately 8" apart, immediately above the lintel and immediately below the sill. Extend reinforcement a minimum of 2'-0" beyond jambs of the opening except at control joints.

1. In addition to wall reinforcement, provide additional reinforcement at openings as required to comply with the above.

CONTROL AND EXPANSION JOINTS:

General: Provide vertical and horizontal expansion, control and isolation joints in masonry where shown. Build-in related items as the masonry work progresses.

LINTELS:

Install steel lintels where indicated.

Provide masonry lintels where shown and wherever openings of more than 1'-0" for brick size units and 2'-0" for block size units are shown without structural steel or other supporting lintels. Provide formed-in-place masonry lintels. Temporarily support formed-in-place lintels.

Provide minimum bearing of 8" at each jamb, unless otherwise indicated.

FLASHING OF MASONRY WORK:

General: Provide concealed flashing in masonry work at, or above shelf angles, lintels, ledges and other obstructions to the downward flow of water in the wall so as to divert such water to the exterior. Prepare masonry surfaces smooth and free from projections which could puncture flashing. Place through-wall flashing on sloping bed of mortar and cover with mortar. Seal penetrations in flashing with mastic before covering with mortar. Extend flashings through exterior face of masonry and turn down to form drip.

Extend flashing the full length of lintels and shelf angles and minimum of 4" into masonry each end. Extend flashing from exterior face of outer wythe of masonry, through the outer wythe, turned up a minimum of 4", and through the inner wythe to within 1/2" of the interior face of the wall in exposed work. Where interior surface of inner wythe is concealed by furring, carry
flashing completely through the inner wythe and turn up approximately 2”. At heads and sills turn up ends not less than 2” to form a pan.

Interlock end joints of deformed metal flashings by over-lapping deformations not less than 1-1/2” and seal lap with elastic sealant.

Install flashing to comply with manufacturer's instructions.

Provide weep holes (open head joints) in the head joints of the first course of masonry immediately above concealed flashings. Space weep holes 32” o.c., unless otherwise indicated.

REPAIR, POINTING AND CLEANING:

Remove and replace masonry units which are loose, chipped, broken, stained or otherwise damaged, or if units do not match adjoining units as intended. Provide new units to match adjoining units and install in fresh mortar or grout, pointed to eliminate evidence of replacement.

Pointing: During the tooling of joints, enlarge any voids or holes, except weep holes, and completely fill with mortar. Point-up all joints including corners, openings and adjacent work to provide a neat, uniform appearance, prepared for application of sealants.

Final Cleaning: After mortar is thoroughly set and cured, clean masonry as follows:

1. Remove large mortar particles by hand with wooden paddles and non-metallic scrape hoes or chisels.
2. Test cleaning methods on sample wall panel; leave 1/2 panel uncleaned for comparison purposes. Obtain Architect's approval of sample cleaning before proceeding with cleaning of masonry.
3. Protect adjacent non-masonry surfaces from contact with cleaner by covering them with liquid strippable masking agent, polyethylene film or waterproof masking tape.
4. Saturate wall surfaces with water prior to application of cleaners; remove cleaners promptly by rinsing thoroughly with clean water.
5. Use bucket and brush hand cleaning method described in BIA "Technical Note No. 10 Revised" to clean brick masonry made from clay or shale, except use masonry cleaner indicated below.
   a. Detergent
6. Clean concrete unit masonry to comply with masonry manufacturer's directions and applicable NCMA "Tek" bulletins.

END OF SECTION
SECTION 08310 - COILING COUNTER DOOR (Date: 4.26.19)

PART 1 - GENERAL

RELATED DOCUMENTS:

Drawings and general provisions of the Contract including General and Supplementary Conditions and Division 1 Specification sections apply to work of this section.

Section 05500 - Metal Fabrications: Support framing and framed opening.

Section 08710 - Door Hardware: Product Requirements for cylinder core and keys.

Section 16100 - Electrical

DESCRIPTION OF WORK

Extent of Coiling Counter Doors is shown on drawings.

Provide complete operating door assemblies including door curtains, guides, counterbalance mechanism, hardware, operators and installation accessories.

REFERENCES

ASTM A 653 - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.

ASTM A 666 - Standard Specification for Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar.


ASTM B 221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes. (Metric)

NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum).

NEMA ICS 2 - Industrial Control and Systems: Controllers, Contactors, and Overload Relays, Rated Not More Than 2000 Volts AC or 750 Volts DC.

NEMA MG 1 - Motors and Generators.

DESIGN / PERFORMANCE REQUIREMENTS

Overhead Coiling Counter Doors with Integral Frame:
Single-Source Responsibility: Provide doors, tracks, motors, and accessories from one manufacturer for each type of door. Provide secondary components from source acceptable to manufacturer of primary components.

Products Requiring Electrical Connection: Listed and classified by Underwriters Laboratories, Inc. acceptable to authority having jurisdiction as suitable for purpose specified.

SUBMITTALS

Submit under provisions of Section 01300.

Product Data: Manufacturer’s data sheets on each product to be used, including:
   1. Preparation instructions and recommendations.
   2. Storage and handling requirements and recommendations.
   3. Details of construction and fabrication.
   4. Installation instructions.

Shop Drawings: Include detailed plans, elevations, details of framing members, anchoring methods, required clearances, hardware, and accessories. Include relationship with adjacent construction.

Selection Samples: For each finish product specified, two complete sets of color chips representing manufacturer’s full range of available colors and patterns.

Verification Samples: For each finish product specified, two samples, minimum size 6 inches (150 mm) long, representing actual product, color, and patterns.

Manufacturer’s Certificates: Certify products meet or exceed specified requirements.

Operation and Maintenance Data: Submit lubrication requirements and frequency, and periodic adjustments required.

QUALITY ASSURANCE

Furnish each overhead coiling counter door as a complete unit produced by one manufacturer, including hardware, accessories, mounting and installation components.

Unless otherwise acceptable to Architect, furnish overhead overhead coiling counter door units by one manufacturer for entire project.

Manufacturer Qualifications: Company specializing in performing Work of this section with a minimum of five years experience in the fabrication and installation of security closures.

Installer Qualifications: Installer Qualifications: Company specializing in performing Work of this section with minimum three years and approved by manufacturer.

Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.

   1. Finish areas designated by Architect.
2. Do not proceed with remaining work until workmanship, color, and sheen are approved by Architect.
3. Refinish mock-up area as required to produce acceptable work.

**Anchorages:** Furnish all anchoring devices and provide setting drawings, templates, instructions and directions for installation of anchoring devices. Coordinate delivery with other work to avoid delay.

**DELIVERY, STORAGE, AND HANDLING**

Store products in manufacturer's unopened packaging until ready for installation.

Protect materials from exposure to moisture. Do not deliver until after wet work is complete and dry.

Store materials in a dry, warm, ventilated weathertight location.

**PROJECT CONDITIONS**

Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

**COORDINATION**

Coordinate Work with other operations and installation of adjacent materials to avoid damage to installed materials.

**WARRANTY**

**Warranty:** OEM Limited

**PART 2 – PRODUCTS**

**Manufacturer:** The following manufacturers’ products have been used to establish minimum standards for materials, workmanship, and function:

- Overhead Door Corporation
- Rayner
- The Cookston Company

Equal products of other manufacturers may be used in the work, provided such products have been approved by the Architect, not less than five (5) days prior to scheduled bid opening.

**OVERHEAD COILING COUNTER DOORS WITH INTERGRAL FRAME**

Stainless Steel Counter Doors with Integral Frame: **Overhead Door Corporation, Model 657 Series.**
1. **Curtain**: Interlocking stainless steel slats with a No. 4 finish and with endlock for curtain alignment. Slats, 22 gauge stainless steel with stainless steel bottom bar with lift handle, concealed slide bolts and vinyl astragal.

2. **Integral Frame**: Integral stainless steel frame with a No. 4 finish. Frame consists of 16 gauge jambs and header.

3. **Counterbalance**: Helical torsion spring type housed in a steel tube or pipe barrel, supporting the curtain with deflection limited to 0.03 inch (0.8 mm) per foot of span. Counterbalance shall be adjustable by means of an adjusting tension wheel.

4. **Hood**: Stainless steel and provided with intermediate support brackets as required.

5. **Operation**: Manual push up.

6. **Locking**: Cylinder lock.

7. **Wall Mounting Condition**: Between jambs mounting installed in opening.

---

**PART 3 – EXECUTION**

**EXAMINATION**

Verify opening sizes, tolerances and conditions are acceptable.

Examine conditions of substrates, supports, and other conditions under which this work is to be performed.

If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

**PREPARATION**

Clean surfaces thoroughly prior to installation.

Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

**INSTALLATION**

Install in accordance with manufacturer’s instructions.

Use anchorage devices to securely fasten assembly to wall construction and building framing without distortion or stress.

Securely and rigidly brace components suspended from structure. Secure guides to structural members only.

Fit and align assembly including hardware; level and plumb, to provide smooth operation.

Coordinate installation of sealants and backing materials at frame perimeter as specified in Section 07900.

Install perimeter trim and closures.
Instruct Owner’s personnel in proper operating procedures and maintenance schedule.

**ADJUSTING**

Test for proper operation and adjust as necessary to provide proper operation without binding or distortion.

Adjust hardware and operating assemblies for smooth and noiseless operation.

**CLEANING**

Clean curtain and components using non-abrasive materials and methods recommended by manufacturer.

Remove labels and visible markings.

Touch-up, repair or replace damaged products before Substantial Completion.

**PROTECTION**

Protect installed products until completion of project.

**END OF SECTION**
SECTION 10100 - MARKABLE BOARDS AND TACKBOARDS

PART 1 – GENERAL

RELATED DOCUMENTS:

Drawings and general provisions of Contract including General and Supplementary Conditions and Division 1 Specification sections apply to work of this section.

DESCRIPTION OF WORK:

Extent of markable boards (M.B.) and tackboards (T.B.) is shown on drawings.

Types of markable boards and tackboards specified in this section include the following:

1. Markable Boards

QUALITY ASSURANCE:

Manufacturer: Unless otherwise acceptable to Architect, furnish all markable boards and tackboards by one manufacturer for entire project.

SUBMITTALS:

Product Data: Submit manufacturer's technical data and installation instructions for each material and component part, including data substantiating that materials comply with requirements.

Samples: Submit full range of color samples for each type of markable board, tackboard, trim and accessories required. Provide 12” square samples of sheet materials and 12” lengths of trim members for color verification after selections have been made.

Shop Drawings: Submit for each type of markable board and tackboard. Include sections of typical trim members and dimensioned elevations. Show anchors, grounds, reinforcement, accessories, and installation details.

SPECIAL PROJECT WARRANTY:

Warranty on Porcelain Enamel Markable Boards: Provide written warranty, signed by manufacturer, agreeing to replace, within warranty period, porcelain enamel remarkable boards which do not retain original writing and erasing qualities, defined to include surfaces which become slick and shiny, or exhibit crazing, cracking or flaking; provided manufacturer's instructions for handling, installing, protecting and maintaining markable boards have been adhered to during the warranty period. Replacement is limited to material replacement only and does not include labor for removal and reinstallation.

1. Warranty Period: 50 years from date of substantial completion or lifetime of the building.
PART 2 – PRODUCTS

Manufacturer: The following manufacturers’ products have been used to establish minimum standards for materials, workmanship and function:

Manufacturers of Markable Boards:

1. Claridge Products and Equipment, Inc.; [www.claridgeproducts.com](http://www.claridgeproducts.com); 601 Highway 62-65 South, P.O. Box 910, Harrison, AR. 72602-0910; Phone: 800.434.4610 or 870.743.2200.

2. PolyVision, Inc.; [www.polyvision.com](http://www.polyvision.com); 10700 Abbotts Bridge Road, Suite 100, Johns Creek, GA. 30097; Phone: 888.325.6351 or 678.542.3100.


Equal products of other manufacturers may be used in the work, provided such products have been approved by the Architect not less than Ten (10) days prior to scheduled bid opening.

MATERIALS:

Colors and Textures: Color to be selected from manufactures standards.

Markable Boards (M.B.) - Markable boards shall be porcelain enamel writing surface as manufactured by PolyVision, Inc. Writing surface shall have magnetic properties and perform as follows:

1. As a Writing Surface: The writing surface shall accept various writing medium including but not limited to chalk, pencil, water base marker, ball point pen, and fiber tip pen. All markings shall be clearly visible and easily cleaned.

2. As a Projection Surface: Projected images shall be clearly visible from any angle.

3. Board Construction shall include the following:
   a. Facing sheet shall be porcelain enamel (P3 ceramicsteel) fused to 28 gauge steel face at approximately 1500 degrees F. Core shall be 1/2:" particleboard with 0.005" aluminum backing sheet.
   b. Provide single piece units up to 4’ x 16’. Where overall sizes exceed manufacturer's maximum size, provide two or more panels of equal size as acceptable to the Architect.
Trim and Accessories:

General: Fabricate frames and trim of not less than 0.062" thick aluminum alloy, size and shape as indicated, to suit type of installation. Provide straight, single-length units wherever possible and keep joints to minimum. Miter corners to neat, hairline closure.

Aluminum Finish: Furnish exposed aluminum trim, accessories and fasteners with the following finish:

1. Finish: Manufacturer’s standard satin aluminum finish.

Chalktrough: Furnish continuous aluminum chalktroughs for each markable board, unless otherwise indicated, as follows:

1. Solid extrusion, manufacturer’s standard ribbed section, enclosed chalk tray with solid end caps, smoothly curved with concealed mounting.

Maprails and Maphooks: Furnish continuous aluminum maprails with cork tackstrip inserts for each markable board. Provide one pair of paper holders and one pair of maphooks for each 4 foot of remarkable board length. Provide flag holder and 1 pair of roller brackets.

FABRICATION:

Assembly: Provide factory-assembled markable board and tackboard units unless field-assembled units indicated.

Make joints only where total length exceeds maximum manufactured length. Fabricate with minimum number of joints, balanced around center of board, as acceptable to Architect. Provide manufacturer’s standard vertical joint system between abutting sections of markable board.

1. Provide mullion trim at joints between markable board and tackboard.

PART 3 – EXECUTION

INSTALLATION: Verify mounting heights with Owner prior to installation.

Deliver factory-built markable board and tackboard units completely assembled in one piece without joints, whenever possible. Where dimensions exceed panel size, provide 2 or more pieces of equal length as acceptable to Architect. When overall dimensions require delivery in separate units, prefilt at factory, disassembled for delivery, and make final joints at site. Use splines at joints to maintain surface alignment.

Install units in locations as shown on drawings and mounted at heights as directed by the Owner, keeping perimeter lines straight, plumb, and level. Provide all grounds, clips, backing materials, adhesives, brackets, anchors, trim, and accessories for complete installation.
ADJUST AND CLEAN:

Verify accessories required for each unit properly installed and operating units properly functioning.

Clean units in accordance with manufacturer's instructions, breaking in only as recommended.

END OF SECTION
SECTION 10800 - TOILET ACCESSORIES (Revised 4.26.19)

PART 1 – GENERAL

GENERAL

RELATED DOCUMENTS:

Drawings and general provisions of contract including General and Supplementary Conditions and Division 1 Specification sections apply to work of this section.

DESCRIPTION OF WORK:

Extent of each type of toilet accessory is indicated on drawings and schedules.

Types of toilet accessories required include the following:

Furnished and installed by the Contractor:

1. Soap Dispensers
2. Toilet Tissue Dispensers
3. Grab Bars
4. Mirror Units
5. Utility Shelf/Mop Rack
6. Paper Towel Dispensers - Roll Type
7. Electric Hand Dryers

QUALITY ASSURANCE:

Inserts and Anchorages: Furnish inserts and anchoring devices which must be set in concrete or built into masonry; coordinate delivery with other work to avoid delay.

Accessory Locations: Coordinate accessory locations with other work to avoid interference and to assure proper operation and servicing of accessory units.

Products: Provide products of same manufacturer for each type of accessory unit and for units exposed in same areas, unless otherwise acceptable to Architect.

SUBMITTALS:

Product Data: Submit manufacturer's technical data and installation instructions for each toilet accessory.

PART 2 – PRODUCTS

The following manufacturer's products have been used to establish minimum standards for materials, workmanship and function.
1. **Soap Dispensers:**

   Wall Mounted over each sink
   a. Approved Products
      i. Bobrick #B-2112
      ii. ASI #0-343
      iii. Bradley #6562

2. **Toilet Tissue Dispensers:**

   a. Roll Type: (One each water closet)
   b. Approved Projects
      i. Bradley #5425
      ii. ASI #0040

3. **Grab Bars:**

   a. Where shown on Plans with Safety-Grip Finish.
   b. Approved Products
      i. Bradley Corporation #8122
      ii. Series ASI #3200P
      iii. Bobrick #B6806.99

4. **Mirror Units:**

   a. 18” x 38” One over each lavatory
   b. 24” x 48” One at each Gang Toilet
   c. Approved Products
      i. Bradley #780
      ii. Bobrick #B290
      iii. ASI #0600

5. **Utility Shelf/Mop Rack:**

   a. At locations indicated on drawings
   b. Approved Products
      a. ASI #1308-4 (44”)
      b. Bradley #9934 (44’)
      c. Bobrick #B239 x 44

6. **Paper Towel Dispensers:**

   a. Roll Type
   b. Surface Mounted
   c. Approved Products
      i. Bobrick #B52860
7. **Electrical Hand Dryers:**

   a. As shown on Plans
      i. Excel – Hand Activated #HO-IW

   Equal products of other manufacturers may be used in the work provided such products have been approved by the Architect not less than Ten (10) days prior to scheduled bid opening.

**MATERIALS, GENERAL:**

**Stainless Steel:** AISI Type 302/304, with polished No. 4 finish, 22 gage minimum, unless otherwise indicated.

**Mirror Units:** Mirror glass shall be FS DD-G-451, Type I, Class I, Quality q2, 1/4" thick, with silver coating, copper protective coating, and non-metallic paint coating complying with FS DD-M-411. Mirror shall be provided in stainless steel frames.

**Fasteners:** Screws, bolts, and other devices of same material as accessory unit or of galvanized steel where concealed.

**FABRICATION:**

**General:** Stamped names or labels on exposed faces of toilet accessory units are not permitted, except where otherwise indicated; in obtrusive labels on surfaces not exposed to view are acceptable. Where locks are required for a particular type of toilet accessory, provide same keying throughout project. Furnish two keys for each lock.

**Surface Mounted Toilet Accessories General:** Except where otherwise indicated, fabricate units with tight seams and joints, exposed edges rolled. Hang doors or access panels with continuous stainless steel piano hinge. Provide concealed anchorage wherever possible.

**Recessed Toilet Accessories, General:** Except where otherwise indicated, fabricate units of all welded construction, without mitered corners. Hang doors or access panels with full-length stainless steel piano hinge. Provide anchorage which is fully concealed when unit is closed.

**PART 3 – EXECUTION**

**INSTALLATION:**

Install toilet accessory units in accordance with manufacturer's instructions, using fasteners which are appropriate to substrate and recommended by manufacturer of unit. Install units plumb and level, firmly anchored in locations and at heights indicated.

**ADJUSTING AND CLEANING:**

Adjust toilet accessories for proper operation and verify that mechanisms function smoothly. Replace damaged or defective items.
Clean and polish all exposed surfaces after removing labels and protective coatings.

END OF SECTION
SECTION 12500 - WINDOW TREATMENT

PART 1 - GENERAL

RELATED DOCUMENTS:

Drawings and general provisions of Contract including General and Supplementary Conditions and Division 1 Specification sections apply to work of this section.

DESCRIPTION OF WORK:

The extent of window treatment is indicated on drawings and in schedules. Types of window treatment work in this section include:

1. Horizontal slat blinds and operating hardware.

Location: All exterior windows.

QUALITY ASSURANCE:

General: Provide window treatment units which are complete assemblies produced by one manufacturer for each type required, including hardware, accessory items, mounting brackets, and fastenings.

Furnish materials in colors and patterns as indicated, or, if not indicated, as selected by Architect from manufacturer's standard colors/patterns.

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

REFERENCE STANDARDS

1. WCMA A100.1 - Safety of Corded Window Covering Products; Window Covering Manufacturers Association; 2010. (ANSI/WCMA A101.1)

SUBMITTALS:

Product Data: Submit manufacturer's specifications and installation instructions for each type of window treatment unit required. Include methods of installation for each type of opening and supporting structure.

Shop Drawings: Submit shop drawings for special components and application conditions of window treatment units which are not fully dimensioned or detailed in manufacturer's product data. Show relationship to adjoining work.
1. Include typical elevation layout indicating proposed division between blind units and meeting edges at corners. Provide sections and details at head and sill between blind units and corners including inclined installations.

2. Provide schedule of all units to be furnished, including field measurements at each location.

Samples:

For selection of colors, submit manufacturer's color charts consisting of sections of exposed components with integral or applied finishes showing full range of colors, materials, etc. available for each type of window treatment assembly required.

WARRANTY

Products shall be manufactured exempt of any sharp edges, burrs, or other defects.

Provide manufacturer's limited lifetime warranty on head rail and other components.

Provide 5 year manufacturer's warranty for slats.

PART 2 – PRODUCTS

HORIZONTAL FAUX WOOD BLINDS:

Manufacturers: The following manufacturers' products have been used to establish minimum standards for materials, workmanship and function:

   Basis of Design: CACO Inc., Custom Signature Series, 2" Avalon Fauxwood horizontal blinds.

Equal products of other manufacturers may be used in the work, provided such products have been approved by the Architect not less than five (5) days prior to scheduled bid opening.

BLINDS AND BLIND COMPONENTS

Head Rail:

1. U shaped configuration
2. 2 1/2" deep by 2" high with rolled edges at the top.
3. Fabricate from 0.024 inch thick iron phosphate treated steel.
4. Acrylic primed with a finish coat of baked on polyester enamel in color selected by Architect.
5. Provide reinforcing end caps in color to match head rail.

Slats:
1. Extrude to a flat rigid form from PVC foam.
2. Provide an anti-static dust inhibiting coating to surface to minimize dust accumulation.
3. Nominal Width: 2 inches wide
4. Nominal Thickness: .122 inches
5. PVC foam to meet or exceed requirements of NFPA 701.

**Bottom Rail:**

1. Profile: Trapezoidal
2. Nominal Thickness: 7/8 inches
3. Nominal Width: 2 inches
4. Fabricate from extruded PVC, finish to match slats.

**Valance:**

1. Provide manufacturer's standard valance.
2. Nominal Thickness: 3/8 inch
3. Nominal Width: 2 1/2 inches

**ACCESSORIES:**

**Tapes and Ladders:**

1. Standard color coordinate braided ladders shall be constructed of polyester yarn with a double crossed inter-braided cable thread design.
2. Supported latter ladders using ladder tape without any visible distortion.
3. Ladder rung distances shall not exceed 44mm.
4. Distances between ladders shall not exceed 12-inches.
5. Distance from end of ladder to end of slat shall not exceed 5-inches.

**Tape Rolls and Supports:**

1. Fabricate from low friction thermoplastic which are self lubricating and maintenance free for smooth operation and diminished wear on lift cords and braded ladders.
2. Tape rolls shall be designed to hold tape end by means of a "U" shaped brass grommet which shall be inserted into tape rolls, allowing for a more precise placement of ladders when secured.
3. Tape rolls shall include a projecting thermoplastic cylindrical collar integrated on each end. Tilt rod is centered though both tape drum and collar project.
4. Self lubricating thermoplastic collars are designed to snap securely into tape drum supports for near effortless tilting operation.

**Crash Proof Cord Lock:**

1. Snap-in design with nylon roller. Provided a secured steel roller on a hinged lock to facilitate "crash-proof" feature.
Tilt Wand:

1. Standard wand tilter.
   a. Self-lubricating thermoplastic worm and gear mechanism with fully encased plastic housing.
   b. Color coordinate plastic.
   c. 3/8” diameter
   d. Length as required to coordinate with window sizes.
   e. Provide corrosion resistant metal clip for attachment of wand to tilter shaft.

Lift Cords:

1. Color coordinate lift cords constructed of braided polyester jacket with a rayon center core.
2. Provide in lengths required to properly facilitate the raising and lowering of blinds.
3. 1.8mm diameter.
4. End Support Brackets:
5. Galvanized steel bracket with riveted hinged cover.
6. Nominal thickness: 0.038 inch
7. Baked polyester enamel finish.
8. Color to coordinate with blind assembly.
9. Coordinate bracket anchorage with jamb and sill conditions.

FABRICATION AND OPERATION:

Prior to fabrication, verify actual opening dimensions by accurate site measurements. Adjust dimensions for proper fit at openings. Cooperate with other trades for securing tracks to substrates and other finished surfaces.

Fabricate window treatment components from non-corrosive, non-staining, non-fading materials which are completely compatible with each other, and which do not require lubrication during normal expected life.

Fabricate blind units to completely fill the openings as shown, from head-to-sill and jamb-to-jamb.

For continuous window wall installations, fabricate blinds so that ends occur only over mullions or other defined vertical separation, unless otherwise indicated.

Space supporting ladders to comply with manufacturer’s standards, unless otherwise indicated.

Space louver blades to provide a minimum overlap of 3/8” for light exclusion when in fully-closed position. Gear operating equipment for reduction of the ratio of hand-movement to louver position, so that blinds operate easily and can be set accurately and smoothly.
Equip horizontal blind units, unless otherwise indicated for the following operation.

1. Full-tilting operation with slats rotating approximately 180°. Place tilt operating controls on left-hand side of blind units, unless otherwise indicated.
2. Full-height raising to manufacturer's minimum stacking dimension, with lifting cord locks for stopping blind at any point of ascending or descending travel.
3. Place pull cords on right-hand side of blind units, unless otherwise indicated.

PART 3 – EXECUTION

INSTALLATION:

General: Install window treatment units in manner indicated to comply with manufacturer's instructions. Position units level, plumb, secure, at proper height and location relative to adjoining window units and other related work. Securely anchor units with proper clips, brackets, anchorages, suited to type of mounting indicated.

Coordinate the placement of concealed blocking to support blinds.

Verify that openings are ready to receive the work.

Ensure structural blocking and supports are correctly placed.

Provide adequate clearance between sash and blinds to permit unencumbered operation of sash hardware.

Isolate metal parts from concrete and mortar to prevent galvanic action. Use tape or thick coating or other means recommended by manufacturer to effect separation.

Protect installed units to ensure their being in operating condition, without damage, blemishes, or indication of use at completion of project. Repair or replace damaged units as directed by Architect.

Adjust blinds for smooth operation.
Clean blind surfaces just prior to occupancy.

Maintenance Materials:

Furnish the following for the Owner's use in maintenance of project:

1. Extra Blind Assemblies: One of each size.
2. Extra Slats: 20 of each type and size.
3. Extra Lift Cords, Control Cords, and Wands: Two of each type.