

9 November, 2009

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4335 South Lee Street
Suite E
Buford, Georgia 30518

Addition and Renovations
First Chinese Baptist Church
Duluth, Georgia

ADDENDUM NUMBER TWO:

The plans and specifications for the construction of an addition and renovations for the First Chinese Baptist Church of Duluth, Georgia, dated 13 October 2009 prepared by Barker, Cunningham, Barrington, P.C. Architects, 4335 South Lee Street, Suite E, Buford, Georgia 30518 are hereby amended.

This addendum is issued to institute the following changes, deletions, additions or clarifications and thereby becomes a part of the plans and specifications.

Where any original item is amended, voided or superseded hereby, the provisions of such item not specifically amended, voided, or superseded shall remain in effect.

Changes/Clarifications:

1. Civil Sheet C3.0, Note 2; If hazardous waste is encountered at the site all testing and removal cost will be considered as 'Additional Services'.
2. Civil Sheet C6.0, Delete the note regarding the contractor to remove the underground phone service to the cell tower at the new detention pond. This work is to be completed by the local 'T-Mobile sub-contractor.
3. Civil Sheet C7.0, Note 5; All soils testing will be paid by the owner and coordinated by the contractor.
4. Civil Sheet C9.0, all 'NPDES' testing fees shall be paid by the owner and coordinated by the contractor.
5. Civil Note: Provide a 6 foot high chain-link fence along the perimeter of the new detention pond with a Dbl. gate access. (See attached Specification Section 02821).
6. Sheet A2.1; Remove all existing downspouts and reinstall after brick and EIFS are installed over existing metal siding.
7. Sheet A3.1; Paint wood trim located at 12 foot AFF in the Multi-purpose Room.
8. Sheet A1.2; The owner is responsible for the layout and installation of the court markings for

the basketball and badminton courts in the Multi-purpose Room.

9. Sheet A3.2; The nailable, ventable rigid roof insulation shall be a minimum of 3.5 inches thick.

10. Sheet A3.1, Detail 1; Delete steel frame structure at Bell Tower. Construct Bell Tower using metal stud framing; refer to specification section 05400.

11. Sheet A5.1, Finish Schedule; Provide 4" rubber base in the following rooms: room # 001, 002, 003, 004 and 005. Paint all exposed structure in Multi-purpose Room, room # 001. Carpet flooring in Corridor #005 shall be provided by owner and installed by the contractor.

12. Sheet A1.2, Detail 1; Owner is responsible for providing dishwasher, freezer and refrigerator; contractor is responsible for installing equipment in Kitchenette.

13. Sheet A2.2 and A2.3, Elevations; Delete curved roof panels and install a 4:12 slope over the Bell Tower.

14. Sheet S-1, 'Foundation and Slab-on-grade', Note #9; Revise 6 mil poly vapor barrier to 10 mil, per specification Section 03300.

15. Specification Section 03300, 3.16A; Owner is responsible for all costs related to testing and inspecting.

16. Provide 2 fire extinguishers and cabinets; location to be determined by the Architect.

17. Specification Section 02300, 3.4A; Replace the term 'Unclassified' with 'Classified'.

18. Specification Section 03300, 2.6 E1; There will be no colored concrete in the project.

19. Specification Section 03300, 2.14 C6; There is no synthetic fiber in this project; refer to sheets S-1 and S-2 for concrete reinforcement requirements.

20. General Note: All testing required by IBC 2006 and the Local Governing Authority shall be paid by the owner.

21. Add the following Specification Sections to the project: (See Attached).

- Section 02821: Chain-link Fences and Gates
- Section 04720: Cast Stone
- Section 08311: Access Doors and Frames
- Section 10200: Louvers and Vents

22. Revise the following Specification Section 05310: Steel Deck. (See Attached).

End of RFI #2

SECTION 02821 - CHAIN-LINK FENCES AND GATES**PART 1 - GENERAL**

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Chain-Link Fences: Industrial.
 - 2. Gates: Horizontal swing.
- B. Related Sections include the following:
 - 1. Division 2 Section "Earthwork" for site excavation, fill, and backfill where chain-link fences and gates are located.
 - 2. Division 3 Section "Cast-in-Place Concrete" for concrete post concrete fill.

1.3 PERFORMANCE REQUIREMENTS

- A. Structural Performance: Provide chain-link fences and gates capable of withstanding the effects of gravity loads and the following loads and stresses within limits and under conditions indicated:
 - 1. Minimum Post Size and Maximum Spacing for Wind Velocity Pressure: Determine based on mesh size and pattern specified, and on the following minimum design wind pressures and according to CLFMI WLG 2445:
 - a. Wind Speed: 80 mph.
 - b. Fence Height: 6 feet.
 - c. Line Post Group: ASTM F 1043, Schedule 40 steel pipe.
 - 2. Determine minimum post size, group, and section according to ASTM F 1043 for framework up to 6 feet high, and post spacing not to exceed 10 feet.
- B. Lightning Protection System: Maximum grounding-resistance value of 25 ohms under normal dry conditions.

1.4 SUBMITTALS

- A. Product Data: Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for chain-link fences and gates.
 - 1. Fence and gate posts, rails, and fittings.
 - 2. Chain-link fabric, reinforcements, and attachments.

3. Gates and hardware.

- B. Shop Drawings: Show locations of fences, gates, posts, rails, tension wires, details of extended posts, extension arms, gate swing, hardware, and accessories. Indicate materials, dimensions, sizes, weights, and finishes of components. Include plans, gate elevations, sections, details of post anchorage, attachment, bracing, and other required installation and operational clearances.
- C. Product Certificates: For each type of chain-link fence and gate, signed by product manufacturer.
 - 1. Strength test results for framing according to ASTM F 1043.
- D. Qualification Data: For Installer.
- E. Field quality-control test reports.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: An experienced installer who has completed chain-link fences and gates similar in material, design, and extent to those indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.
- B. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Management and Coordination."

1.6 PROJECT CONDITIONS

- A. Field Measurements: Verify layout information for chain-link fences and gates shown on Drawings in relation to property survey and existing structures. Verify dimensions by field measurements.
- B. Interruption of Existing Utility Service: Do not interrupt utility services to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:
 - 1. Do not proceed with interruption of utility services without Architect's written permission.

PART 2 - PRODUCTS

2.1 CHAIN-LINK FENCE FABRIC

- A. General: Height 6 feet. Provide fabric in one-piece heights measured between top and bottom of outer edge of selvage knuckle or twist. Comply with ASTM A 392, CLFMI CLF 2445, and requirements indicated below:
 - 1. Steel Wire Fabric: Metallic-coated wire with a diameter of 0.148 inch, minimum.
 - a. Mesh Size: 2 inches, nominal.
 - b. Weight of Metallic (Zinc) Coating: ASTM A 392, Type II, Class 1, 1.2 oz./sq. ft. with zinc coating applied before weaving.

2. Selvage: Twisted top and knuckled bottom.

2.2 INDUSTRIAL FENCE FRAMING

- A. Posts and Rails: Comply with ASTM F 1043 for framing, ASTM F 1083 for Group IC round pipe, and the following:
 1. Group: IA, round steel pipe, Schedule 40.
 2. Fence Height: 6 feet.
 3. Strength Requirement: Light industrial according to ASTM F 1043.
 4. Post Diameter and Thickness: According to ASTM F 1043 or ASTM F 1083.
 5. Post Size and Thickness: According to ASTM F 1043.
 - a. Top Rail: 1.25 by 1.63 inches.
 - b. Line Post: 1.875 by 1.63 inches.
 - c. End, Corner and Pull Post: 2.875 inches.
 - d. Swing Gate Post: According to ASTM F 900
 - 1) Openings up to 12 Feet: Steel post, 2.875-inch diameter, and 4.64-lb/ft. weight.
 6. Coating for Steel Framing:
 - a. Metallic Coating:
 - 1) Type A, consisting of not less than minimum 2.0-oz./sq. ft. average zinc coating per ASTM A.

2.3 TENSION WIRE

- A. General: Provide horizontal tension wire at the following locations:
 1. Location: Extended along bottom of fence fabric.
- B. Metallic-Coated Steel Wire: 0.177-inch- diameter, marcelled tension wire complying with ASTM A 817, ASTM A 824, and the following:
 1. Metallic Coating: Type hot-dip process, with the following minimum coating weight:
 - a. Class 2: Not less than 1.2 oz./sq. ft. of uncoated wire surface.

2.4 INDUSTRIAL SWING GATES

- A. General: Comply with ASTM F 900 for double swing gate types.
 1. Metal Pipe and Tubing: Galvanized steel. Comply with ASTM F 1043 and ASTM F 1083 for materials and protective coatings.
- B. Frames and Bracing: Fabricate members from round tubing with outside dimension and weight according to ASTM F 900 and the following:
 1. Gate Fabric Height: 2 inches less than adjacent fence height.

2. Leaf Width: 36 inches, minimum, or as indicated.

C. Frame Corner Construction:

1. Welded and 5/16-inch- diameter, adjustable truss rods for panels 5 feet wide or wider.

D. Hardware: Latches permitting operation from both sides of gate, hinges, center gate stops and keepers for each gate leaf. Fabricate latches with integral eye openings for padlocking.

2.5 FITTINGS

A. General: Comply with ASTM F 626.

B. Post and Line Caps: Provide for each post.

1. Line post caps with loop to receive top rail.

C. Rail and Brace Ends: Attach rails securely to each gate, corner, pull, and end post.

D. Rail Fittings: Provide the following:

1. Top Rail Sleeves: Pressed-steel or round-steel tubing not less than 6 inches long.

E. Tension and Brace Bands: Pressed steel.

F. Tension Bars: Steel, length not less than 2 inches shorter than full height of chain-link fabric. Provide one bar for each gate and end post, and two for each corner and pull post, unless fabric is integrally woven into post.

G. Tie Wires, Clips, and Fasteners: According to ASTM F 626.

1. Standard Round Wire Ties: For attaching chain-link fabric to posts, rails, and frames, complying with the following:

a. Aluminum: ASTM B 211; Alloy 1350-H19; 0.192-inch- diameter, mill-finished wire.

H. Finish:

1. Metallic Coating for Pressed Steel or Cast Iron: Not less than 1.2 oz. /sq. ft. zinc.

2. Aluminum: Mill finish.

2.6 CAST-IN-PLACE CONCRETE

A. Materials: Portland cement complying with ASTM C 150, Type I aggregates complying with ASTM C 33, and potable water for ready-mixed concrete complying with ASTM C 94.

1. Concrete Mixes: Normal-weight concrete air entrained with not less than 3000-psi compressive strength (28 days), 3-inch slump, and 1-inch maximum size aggregate.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas and conditions, with Installer present, for compliance with requirements for a verified survey of property lines and legal boundaries, site clearing, earthwork, pavement work, and other conditions affecting performance.
 - 1. Do not begin installation before final grading is completed, unless otherwise permitted by Architect.
 - 2. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Stake locations of fence lines, gates, and terminal posts. Do not exceed intervals of 500 feet or line of sight between stakes. Indicate locations of utilities, lawn sprinkler system, underground structures, benchmarks, and property monuments.

3.3 INSTALLATION, GENERAL

- A. Install chain-link fencing to comply with ASTM F 567 and more stringent requirements specified.

3.4 CHAIN-LINK FENCE INSTALLATION

- A. Post Excavation: Drill or hand-excavate holes for posts to diameters and spacings indicated, in firm, undisturbed soil.
- B. Post Setting: Set posts in concrete at indicated spacing into firm, undisturbed soil.
 - 1. Verify that posts are set plumb, aligned, and at correct height and spacing, and hold in position during setting with concrete or mechanical devices.
 - 2. Concrete Fill: Place concrete around posts to dimensions indicated and vibrate or tamp for consolidation. Protect aboveground portion of posts from concrete splatter.
 - a. Exposed Concrete: Extend 2 inches above grade; shape and smooth to shed water.
- C. Terminal Posts: Locate terminal end, corner, and gate posts per ASTM F 567 and terminal pull posts at changes in horizontal or vertical alignment of 15 degrees or more.
- D. Line Posts: Space line posts uniformly at 8 feet o.c.
- E. Post Bracing and Intermediate Rails: Install according to ASTM F 567, maintaining plumb position and alignment of fencing. Install braces at end and gate posts and at both sides of corner and pull posts.
 - 1. Locate horizontal braces at midheight of fabric 6 feet or higher, on fences with top rail and at 2/3 fabric height on fences without top rail. Install so posts are plumb when diagonal rod is under proper tension.

- F. Tension Wire: Install according to ASTM F 567, maintaining plumb position and alignment of fencing. Pull wire taut, without sags. Fasten fabric to tension wire with 0.120-inch-diameter hog rings of same material and finish as fabric wire, spaced a maximum of 24 inches o.c. Install tension wire in locations indicated before stretching fabric.
 - 1. Bottom Tension Wire: Install tension wire within 6 inches of bottom of fabric and tie to each post with not less than same diameter and type of wire.
- G. Top Rail: Install according to ASTM F 567, maintaining plumb position and alignment of fencing. Run rail continuously through line post caps, bending to radius for curved runs and terminating into rail end attached to posts or post caps fabricated to receive rail at terminal posts. Provide expansion couplings as recommended in writing by fencing manufacturer.
- H. Chain-Link Fabric: Apply fabric to outside of enclosing framework. Leave 1 inch between finish grade or surface and bottom selvage, unless otherwise indicated. Pull fabric taut and tie to posts, rails, and tension wires. Anchor to framework so fabric remains under tension after pulling force is released.
- I. Tension or Stretcher Bars: Thread through fabric and secure to end, corner, pull, and gate posts with tension bands spaced not more than 15 inches o.c.
- J. Tie Wires: Use wire of proper length to firmly secure fabric to line posts and rails. Attach wire at 1 end to chain-link fabric, wrap wire around post a minimum of 180 degrees, and attach other end to chain-link fabric per ASTM F 626. Bend ends of wire to minimize hazard to individuals and clothing.
 - 1. Maximum Spacing: Tie fabric to line posts at 12 inches o.c. and to braces at 24 inches o.c.
- K. Fasteners: Install nuts for tension bands and carriage bolts on the side of the fence opposite the fabric side. Peen ends of bolts or score threads to prevent removal of nuts.

3.5 GATE INSTALLATION

- A. Install gates according to manufacturer's written instructions, level, plumb, and secure for full opening without interference. Attach fabric as for fencing. Attach hardware using tamper-resistant or concealed means. Install ground-set items in concrete for anchorage. Adjust hardware for smooth operation and lubricate where necessary.

3.6 ADJUSTING

- A. Gate: Adjust gate to operate smoothly, easily, and quietly, free of binding, warp, excessive deflection, distortion, nonalignment, misplacement, disruption, or malfunction, throughout entire operational range. Confirm that latches and locks engage accurately and securely without forcing or binding.
- B. Lubricate hardware and other moving parts.

END OF SECTION 02821

SECTION 04720 - CAST STONE**PART 1 - GENERAL**

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes the following:

- 1. Cast stone medallions.

- B. Related Sections include the following

- 1. Division 4 Section "Unit Masonry" for installing cast stone units in unit masonry.

1.3 DEFINITIONS

- A. Cast Stone: Architectural precast concrete building units intended to simulate natural cut stone.

1.4 SUBMITTALS

- A. Product Data: Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for cast stone units.

- B. Shop Drawings: Show fabrication and installation details for cast stone units. Include dimensions; details of reinforcement and anchorages, if any; and indication of finished faces.

- 1. Include building elevations showing layout of units and locations of joints and anchors.

- C. Samples: For each color and texture of cast stone required, 10 inches square in size.

- D. Samples for Initial Selection: For colored mortar, showing the full range of colors available.

- E. Samples for Verification: For each mortar color required, showing the full range expected in the finished construction. Make samples using the same sand and mortar ingredients to be used on Project. Label samples to indicate type and amount of colorant used.

- F. Full-Size Samples: For each type of cast stone unit required. Make available for Architect's review at Project site before installing cast stone.

- 1. Approved Samples may be installed in the Work.

- G. Qualification Data: For firms and persons specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.
 - 1. Include copies of material test reports for completed projects, indicating compliance of cast stone with ASTM C 1364.
- H. Material Test Reports: From a qualified testing agency indicating and interpreting test results for compliance of cast stone with requirements indicated.

1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications: A firm experienced in manufacturing cast stone units similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to manufacture required units.
- B. Testing Agency Qualifications: An independent testing agency qualified according to ASTM E 329 to conduct the testing indicated, as documented according to ASTM E 548.
- C. Source Limitations for Cast Stone: Obtain cast stone units through one source from a single manufacturer.
- D. Source Limitations for Mortar Materials: Obtain mortar ingredients of a uniform quality, including color, from one manufacturer for each cementitious component and from one source or producer for each aggregate.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Pack, handle, and ship cast stone units in suitable packs or pallets.
 - 1. Lift with wide-belt slings; do not use wire rope or ropes that might cause staining. Move cast stone units, if required, using dollies with wood supports.
 - 2. Store cast stone units on wood skids or pallets with nonstaining, waterproof covers. Arrange to distribute weight evenly and to prevent damage to units. Ventilate under covers to prevent condensation.
- B. Store installation materials on elevated platforms, under cover, and in a dry location.
- C. Store mortar aggregates where grading and other required characteristics can be maintained and contamination avoided.

1.7 COORDINATION

- A. Coordinate production and delivery of cast stone with unit masonry work to minimize the need for on-site storage and to avoid delaying the Work.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
1. American Artstone Co., Inc.
 2. Arban Associates, Inc.
 3. Architectural Cast Stone Corp.
 4. Architectural Molded Composites, Inc.
 5. Dura Art Stone.
 6. DuraStone.
 7. Miller Precast, Inc.
 8. Olympian Precast, Inc.
 9. Stonco.
 10. United Cast Stone.

2.2 CAST STONE MATERIALS

- A. General: Comply with ASTM C 1364 and the following:
- B. Portland Cement: ASTM C 150, Type I, containing not more than 0.60 percent total alkali when tested according to ASTM C 114.
- C. Coarse Aggregates: Granite, quartz, or limestone complying with ASTM C 33; gradation as needed to produce required textures.
- D. Fine Aggregates: Manufactured or natural sands complying with ASTM C 33, gradation as needed to produce required textures.
- E. Air-Entraining Admixture: ASTM C 260, certified by the manufacturer to be compatible with other admixtures used.
1. Add to mixes for units exposed to the exterior at manufacturer's prescribed rate to result in an air content of 5 to 7 percent.
- F. Reinforcement: Deformed steel bars complying with ASTM A 615/A 615M.
1. Galvanized Coating: ASTM A 767/A 767M.
- G. Embedded Anchors and Other Inserts: Fabricated from stainless steel complying with ASTM A 276 or ASTM A 666, Type 304.

2.3 CAST STONE UNITS

- A. Provide cast stone units complying with ASTM C 1364.
1. Provide units that are resistant to freezing and thawing as determined by laboratory testing according to ASTM C 666, Procedure A, as modified by ASTM C 1364.
- B. Reinforce units as indicated and as required by ASTM C 1364. Use galvanized reinforcement when covered with less than 1-1/2 inches of material.
- C. Fabricate units with sharp arris and details accurately reproduced with indicated texture on all exposed surfaces, unless otherwise indicated.

1. Slope exposed horizontal surfaces at least 1:12, unless otherwise indicated.
2. Provide raised fillets at backs of sills and at ends indicated to be built into jambs.
3. Provide drips on projecting elements, unless otherwise indicated.

D. Cure and finish units as follows:

1. Cure units in totally enclosed curing room under dense fog and water spray at 95 percent relative humidity for 24 hours.
2. Yard cure units until the sum of the mean daily temperatures for each day equals or exceeds 350 deg F.
3. Acid etch units to remove cement film from surfaces indicated to be finished.

E. Colors and Textures: As selected by Architect from manufacturer's full range for these characteristics.

2.4 MORTAR MATERIALS

A. Provide mortar materials that comply with Division 4 Section "Unit Masonry."

B. Portland Cement: ASTM C 150, Type I or II, except Type III may be used for cold-weather construction. Provide natural color, white, or a blend to produce mortar color indicated.

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

D. Portland Cement-Lime Mix: Packaged blend of portland cement complying with ASTM C 150, Type I or Type III, and hydrated lime complying with ASTM C 207.

1. For pigmented mortars, use colored portland cement-lime mix of formulation required to produce color indicated or, if not indicated, as selected from manufacturer's standard formulations. Pigments shall not exceed 10 percent of portland cement by weight for mineral oxides or 2 percent for carbon black.

E. Masonry Cement: ASTM C 91.

1. For pigmented mortars, use colored masonry cements of formulation required to produce color indicated or, if not indicated, as selected from manufacturer's standard formulations. Pigments shall not exceed 5 percent of masonry cement by weight for mineral oxides or 1 percent for carbon black.

F. Mortar Cement: ASTM C 1329.

1. For pigmented mortars, use colored mortar cements of formulation required to produce color indicated or, if not indicated, as selected from manufacturer's standard formulations. Pigments shall not exceed 5 percent of mortar cement by weight for mineral oxides or 1 percent for carbon black.

G. Mortar Aggregate: ASTM C 144.

1. White-Mortar Aggregates: Natural, white sand or ground, white stone.
2. Colored-Mortar Aggregates: Natural, colored sand or ground marble, granite, or other sound stone.

- H. Mortar Pigments: Natural and synthetic iron oxides and chromium oxides, compounded for use in mortar mixes. Use only pigments with record of satisfactory performance in masonry mortars.
- I. Water: Potable.

2.5 ACCESSORIES

- A. Anchors: Type and size indicated, fabricated from stainless steel complying with ASTM A 276 or ASTM A 666, Type 304.
- B. Dowels: Round stainless-steel bars complying with ASTM A 276, Type 304, 1/2-inch diameter.
- C. Job-Mixed Detergent Solution: Solution of 1/2 cup of dry-measure tetrasodium polyphosphate and 1/2 cup of dry-measure laundry detergent dissolved in 1 gal. of water.
- D. Proprietary Acidic Cleaner: Manufacturer's standard-strength, general-purpose cleaner designed for removing mortar/grout stains, efflorescence, and other construction stains from new masonry surfaces without discoloring or damaging masonry surfaces; expressly approved for intended use by cast stone manufacturer and expressly approved by cleaner manufacturer for use on cast stone and adjacent masonry materials.
 - 1. Available Products: Subject to compliance with requirements, products that may be used to clean unit masonry surfaces include, but are not limited to, the following:
 - a. 202 New Masonry Detergent; Diedrich Technologies, Inc.
 - b. 202V Vana-Stop; Diedrich Technologies, Inc.
 - c. Sure Klean No. 600 Detergent; ProSoCo, Inc.
 - d. Sure Klean Vana Trol; ProSoCo, Inc.

2.6 MORTAR MIXES

- A. Comply with requirements in Division 4 Section "Unit Masonry" for mortar mixes.
- B. Setting Mortar: Comply with ASTM C 270, Proportion Specification, Type S.
 - 1. Limit cementitious materials to portland cement and lime.
 - 2. Pigmented Mortar: Select and proportion pigments with other ingredients to produce color required. Do not exceed pigment-to-cement ratio of 1:10, by weight.
 - 3. Packaged Portland Cement-Lime Mix Mortar: Use portland cement-lime mix of selected color.
 - 4. Mortar Cement Mortar: Use mortar cement of selected color.
 - 5. Masonry Cement Mortar: Use masonry cement of selected color.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of cast stone.

- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Install cast stone units to comply with requirements in Division 4 Section "Unit Masonry" for installing stone units.
- B. Set cast stone as indicated on Drawings. Install anchors, supports, fasteners, and other attachments indicated or necessary to secure units in place. Set units accurately in locations indicated with edges and faces aligned according to established relationships and indicated tolerances.
- C. Drench units with clear water just before setting.
- D. Set units in full bed of mortar with full head joints, unless otherwise indicated. Build anchors and ties into mortar joints as units are set.
 - 1. Fill dowel holes and anchor slots with mortar.
 - 2. Fill collar joint solid as units are set.
 - 3. Build concealed flashing into mortar joints as units are set.
 - 4. Leave head joints open in coping and other units with exposed horizontal surfaces. Keep joints clear of mortar, and rake out to receive sealant.
- E. Rake out joints for pointing with mortar to depths of not less than 3/4 inch. Rake joints to uniform depths with square bottoms and clean sides. Scrub faces of units to remove excess mortar as joints are raked.
- F. Point mortar joints by placing and compacting mortar in layers not greater than 3/8 inch. Compact each layer thoroughly and allow to become thumbprint hard before applying next layer.
- G. Tool exposed joints slightly concave when thumbprint hard, using a jointer larger than joint thickness, unless otherwise indicated.
- H. Provide expansion, control, and pressure-relieving joints of widths and at locations indicated.
 - 1. Sealing joints is specified in Division 7 Section "Joint Sealants."
 - 2. Keep joints free of mortar and other rigid materials.

3.3 INSTALLATION TOLERANCES

- A. Variation from Plumb: Do not exceed 1/8 inch in 10 feet or 1/4 inch in 20 feet or more.
- B. Variation from Level: Do not exceed 1/8 inch in 10 feet (3 mm in 3 m), 1/4 inch in 20 feet, or 3/8 inch maximum.
- C. Variation in Joint Width: Do not vary joint thickness more than 1/8 inch in 36 inches or one-fourth of nominal joint width, whichever is less.
- D. Variation in Plane between Adjacent Surfaces (Lipping): Do not exceed 1/16-inch difference between planes of adjacent units or adjacent surfaces indicated to be flush with units.

3.4 ADJUSTING AND CLEANING

- A. Remove and replace stained and otherwise damaged units and units not matching approved Samples. Cast stone may be repaired if methods and results are approved by Architect.
- B. Replace units in a manner that results in cast stone matching approved Samples, complying with other requirements, and showing no evidence of replacement.
- C. In-Progress Cleaning: Clean cast stone as work progresses. Remove mortar fins and smears before tooling joints.
- D. Final Cleaning: After mortar is thoroughly set and cured, clean exposed cast stone as follows:
 - 1. Remove large mortar particles by hand with wooden paddles and nonmetallic scrape hoes or chisels.
 - 2. Protect adjacent surfaces from contact with cleaner by covering them with liquid strippable masking agent, polyethylene film, or waterproof masking tape.
 - 3. Wet wall surfaces with water before applying cleaners; remove cleaners promptly by rinsing thoroughly with clear water.
 - 4. Clean cast stone by bucket and brush hand-cleaning method described in BIA Technical Notes No. 20 Revised II, using job-mixed detergent solution.
 - 5. Clean cast stone with proprietary acidic cleaner applied according to manufacturer's written instructions.

END OF SECTION 04720

SECTION 05310 - STEEL DECK**PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

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

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Roof Deck
- B. Related Sections include the following:
 - 1. Division 3 Section "Cast-in-Place Concrete" for concrete fill and reinforcing steel.
 - 2. Division 5 Section "Structural Steel" for shop-welded shear connectors.
 - 3. Division 5 Section "Metal Fabrications" for framing deck openings with miscellaneous steel shapes.
 - 4. Division 9 Section "Painting" for painting of exposed underside of deck.

1.3 SUBMITTALS

- A. Product Data: For each type of deck, accessory, and product indicated.
- B. Shop Drawings: Show layout and types of deck panels, anchorage details, reinforcing channels, pans, deck openings, special jointing, accessories, and attachments to other construction.
- C. Product Certificates: Signed by steel deck manufacturers certifying that products furnished comply with requirements.
- D. Welding Certificates: Copies of certificates for welding procedures and personnel.
- E. Research/Evaluation Reports: Evidence of steel deck's compliance with building code in effect for Project, from a model code organization acceptable to authorities having jurisdiction.

1.4 QUALITY ASSURANCE

- A. Installer Qualifications: An experienced installer who has completed steel deck similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.
- B. Testing Agency Qualifications: An independent testing agency, acceptable to authorities having jurisdiction, qualified according to ASTM E 329 to conduct the testing indicated, as documented according to ASTM E 548.
- C. Welding: Qualify procedures and personnel according to AWS D1.1, "Structural Welding Code--Steel," and AWS D1.3, "Structural Welding Code--Sheet Steel."

- D. AISI Specifications: Calculate structural characteristics of steel deck according to AISI's "Specification for the Design of Cold-Formed Steel Structural Members."

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Protect steel deck from corrosion, deformation, and other damage during delivery, storage, and handling.
- B. Stack steel deck on platforms or pallets and slope to provide drainage. Protect with a waterproof covering and ventilate to avoid condensation.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - 1. Steel Deck:
 - a. BHP Steel Building Products USA Inc.
 - b. Consolidated Systems, Inc.
 - c. Epic Metals Corp.
 - d. Marlyn Steel Products, Inc.
 - e. Nucor Corp.; Vulcraft Div.
 - f. Roof Deck, Inc.
 - g. United Steel Deck, Inc.
 - h. Verco Manufacturing Co.
 - i. Wheeling Corrugating Co.; Div. of Wheeling-Pittsburgh Steel Corp.

2.2 STEEL ROOF DECK

- A. Steel Roof Deck: Ribbed steel sheet noncomposite form deck panels conforming to SDI publication 28 "Specification and Commentary for Noncomposite Steel Form Deck", publication 28 "Design Manual for Composite Decks, Form Decks, and Roof Decks", "Specifications for the Design of Cold-Formed Steel Structural Members" the minimum section properties indicated, and the following:
 - 1. Deck shall be 22 gauge steel conforming to ASTM A611, Grades C, D, or E or A-446 Grades A, B, C, D or E and having a minimum yield strength of 33,000 psi.
 - 2. The deck shall have integral ribs, all continuous and complete in cross section, spaced not more than 6 1/2" o.c.. Ribs shall be formed to a depth of not less than 1 1/2". Ribs shall not be less than 1 1/4" wide at point of bearing.
 - 3. Sheets shall be fabricated as to permit telescoping end laps not less than 2 1/2" long at structural supports. Supply deck sheets of three spans minimum, to maximum extent possible.
 - 4. Deck sheets shall be hot-dipped galvanized with 1 1/4 oz. Zinc coating. Galvanizing shall meet ASTM A361-85.

2.3 ACCESSORIES

- A. General: Provide manufacturer's standard accessory materials for deck that comply with requirements indicated.

- B. Mechanical Fasteners: Corrosion-resistant, low-velocity, power-actuated or pneumatically driven carbon-steel fasteners; or self-drilling, self-threading screws.
- C. Side-Lap Fasteners: Corrosion-resistant, hexagonal washer head; self-drilling, carbon-steel screws, No. 10 minimum diameter.
- D. Rib Closure Strips: Vulcanized, closed-cell, synthetic rubber.
- E. Miscellaneous Sheet Metal Deck Accessories: Steel sheet, minimum yield strength of 33,000 psi, not less than 0.0359-inch design uncoated thickness, of same material and finish as deck; of profile indicated or required for application.
- F. Steel Sheet Accessories: Steel sheet, of same material, finish, and thickness as deck, unless otherwise indicated.
- G. Pour Stops and Girder Fillers: Steel sheet, minimum yield strength of 33,000 psi, of same material and finish as deck, and of thickness and profile recommended by SDI Publication No. 29 for overhang and slab depth.
- H. Column Closures, End Closures, Z-Closures, and Cover Plates: Steel sheet, of same material, finish, and thickness as deck, unless otherwise indicated.
- I. Piercing Hanger Tabs: Piercing steel sheet hanger attachment devices for use with floor deck.
- J. Weld Washers: Uncoated steel sheet, shaped to fit deck rib, 0.0747 inch thick, with factory-punched hole of 3/8-inch minimum diameter.
- K. Flat Sump Plate: Single-piece steel sheet, 0.0747 inch thick, of same material and finish as deck. For drains, cut holes in the field.
- L. Shear Connectors: ASTM A 108, Grades 1010 through 1020 headed stud type, cold-finished carbon steel, AWS D1.1, Type B, with arc shields.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine supporting frame and field conditions for compliance with requirements for installation tolerances and other conditions affecting performance.

3.2 INSTALLATION, GENERAL

- A. Install deck panels and accessories according to applicable specifications and commentary in SDI Publication No. 29, manufacturer's written instructions, and requirements in this Section.
- B. Install temporary shoring before placing deck panels, if required to meet deflection limitations.
- C. Locate decking bundles to prevent overloading of supporting members.
- D. Place deck panels on supporting frame and adjust to final position with ends accurately aligned and bearing on supporting frame before being permanently fastened. Do not stretch or contract side-lap interlocks.
- E. Place deck panels flat and square and fasten to supporting frame without warp or deflection.

- F. Cut and neatly fit deck panels and accessories around openings and other work projecting through or adjacent to decking.
- G. Provide additional reinforcement and closure pieces at openings as required for strength, continuity of decking, and support of other work.
- H. Comply with AWS requirements and procedures for manual shielded metal arc welding, appearance and quality of welds, and methods used for correcting welding work.
Plates: Install over openings provided in roof decking and weld flanges to top of deck. Space welds not more than 12 inches apart with at least 1 weld at each corner.
- I. Miscellaneous Roof Deck Accessories: Install ridge and valley plates, finish strips, cover plates, end closures, and reinforcing channels according to deck manufacturer's written instructions. Weld to substrate to provide a complete deck installation.
- J. Flexible Closure Strips: Install flexible closure strips over partitions, walls, and where indicated. Install with adhesive according to manufacturer's written instructions to ensure complete closure.

3.3 ROOF DECK INSTALLATION

- A. Fasten roof deck panels to steel supporting members by arc spot (puddle) welds of the surface diameter indicated or arc seam welds with an equal perimeter that is not less than 1-1/2 inches long, and as follows:
 - 1. Weld Diameter: 5/8 inch, nominal.
 - 2. Weld Spacing: Weld edge and interior ribs of deck units with a minimum of two welds per deck unit at each support. Space welds as indicated.
 - 3. Weld Washers: Install weld washers at each weld location for all deck with a minimum uncoated steel thickness of 0.028 inches or less.
- B. Side-Lap and Perimeter Edge Fastening: Unless otherwise indicated, fasten side laps and perimeter edges of panels between supports, at intervals not exceeding the lesser of 1/2 of the span or 18 inches, and as follows:
 - 1. Mechanically fasten with self-drilling, No. 10 diameter or larger, carbon steel screws.
- C. End Bearing: Install deck ends over supporting frame with a minimum end bearing of 1-1/2 inches, with end joints as follows:
 - 1. End Joints: Lapped 2 inches minimum.
- D. Miscellaneous Roof-Deck Accessories: Install ridge and valley plates, finish strips, end closures, and reinforcing channels according to deck manufacturer's written instructions. Weld or mechanically fasten to substrate to provide a complete deck installation.
 - 1. Weld cover plates at changes in direction of roof-deck panels, unless otherwise noted.
- E. Flexible Closure Strips: Install flexible closure strips over partitions, walls, and where indicated. Install with adhesive according to manufacturer's written instructions to ensure complete closure.

3.4 FIELD QUALITY CONTROL

- A. Testing: Engage a qualified independent testing agency to perform field quality-control testing.

- B. Field welds will be subject to inspection.
- C. Testing agency will report test results promptly and in writing to Contractor and Architect.
- D. Remove and replace work that does not comply with specified requirements.
- E. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of corrected work with specified requirements.

3.5 REPAIRS AND PROTECTION

- A. Galvanizing Repairs: Prepare and repair damaged galvanized coatings on both surfaces of deck with galvanized repair paint according to ASTM A 780 and manufacturer's written instructions.
- B. Provide final protection and maintain conditions to ensure that steel deck is without damage or deterioration at time of Substantial Completion.

END OF SECTION 05310

SECTION 08311 - ACCESS DOORS AND FRAMES**PART 1 - GENERAL**

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Wall access doors and frames.
 - 2. Fire-rated wall access doors and frames.
 - 3. Ceiling access doors and frames.
 - 4. Fire-rated ceiling access doors and frames.
- B. Related Sections include the following:
 - 1. Division 3 Section "Cast-in-Place Concrete" for blocking out openings for access doors and frames in concrete.
 - 2. Division 4 Section "Unit Masonry Assemblies" for anchoring and grouting access door frames set in masonry construction.
 - 3. Division 8 Section "Door Hardware" for mortise or rim cylinder locks and master keying.
 - 4. Division 15 Section "Duct Accessories" for heating and air-conditioning duct access doors.

1.3 SUBMITTALS

- A. Product Data: For each type of door and frame indicated. Include construction details relative to materials, individual components and profiles, finishes, and fire ratings (if required) for access doors and frames.
- B. Shop Drawings: Show fabrication and installation details of customized doors and frames. Include plans, elevations, sections, details, and attachments to other Work.
- C. Samples: For each door face material, at least 3 by 5 inches in size, in specified finish.
- D. Schedule: Provide complete door and frame schedule, including types, general locations, sizes, construction details, latching or locking provisions, and other data pertinent to installation.
- E. Coordination Drawings: Reflected ceiling plans drawn to scale and coordinating penetrations and ceiling-mounted items with concealed framing, suspension systems, piping, ductwork, and other construction. Show the following:
 - 1. Method of attaching door frames to surrounding construction.
 - 2. Ceiling-mounted items including access doors and frames, lighting fixtures, diffusers, grilles, speakers, sprinklers, and special trim.

1.4 QUALITY ASSURANCE

- A. Source Limitations: Obtain doors and frames through one source from a single manufacturer.
- B. Fire-Rated Access Doors and Frames: Units complying with NFPA 80 that are identical to access door and frame assemblies tested for fire-test-response characteristics per the following test method and that are labeled and listed by UL, ITS, or another testing and inspecting agency acceptable to authorities having jurisdiction:
 - 1. NFPA 252 or UL 10B for vertical access doors.
 - 2. ASTM E 119 or UL 263 for horizontal access doors and frames.
- C. Size Variations: Obtain Architect's acceptance of manufacturer's standard-size units, which may vary slightly from sizes indicated.

1.5 COORDINATION

- A. Verification: Determine specific locations and sizes for access doors needed to gain access to concealed equipment, and indicate on schedule specified in "Submittals" Article.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - 1. Access Doors:
 - a. Acudor Products, Inc.
 - b. Cendrex, Inc.
 - c. Cesco Products.
 - d. Elmdor/Stoneman; Div. of Acorn Engineering Co.
 - e. Jensen Industries.
 - f. J. L. Industries, Inc.
 - g. Larsen's Manufacturing Company.
 - h. MIFAB Manufacturing, Inc.
 - i. Milcor Limited Partnership.
 - j. Nystrom Building Products Co.

2.2 MATERIALS

- A. Steel Plates, Shapes, and Bars: ASTM A 36.
- B. Hot-Rolled Steel Sheets: ASTM A 569, Commercial Steel (CS), Type B; free of scale, pitting, and surface defects; pickled and oiled; with minimum thickness indicated representing specified nominal thickness according to ASTM A 568.
- C. Cold-Rolled Steel Sheets: ASTM A 366, Commercial Steel (CS), or ASTM A 620, Drawing Steel (DS), Type B; stretcher-leveled standard of flatness; with minimum thickness indicated representing specified nominal thickness according to ASTM A 568. Electrolytic zinc-coated

steel sheet, complying with ASTM A 591, Class C coating, may be substituted at fabricator's option.

- D. Electrolytic Zinc-Coated Steel Sheet: ASTM A 591, Commercial Steel (CS), with Class C coating and phosphate treatment to prepare surface for painting; with minimum thickness indicated representing specified nominal thickness according to ASTM A 568 for uncoated base metal.
- E. Drywall Beads: Edge trim formed from 0.0299-inch zinc-coated steel sheet formed to receive joint compound and in size to suit thickness of gypsum board.

2.3 PAINT

- A. Shop Primers: Provide primers that comply with Division 9 Section "Painting."
- B. Shop Primer for Ferrous Metal: Fast-curing, lead- and chromate-free, universal modified-alkyd primer complying with performance requirements in FS TT-P-664; selected for good resistance to normal atmospheric corrosion, compatibility with finish paint systems indicated, and capability to provide a sound foundation for field-applied topcoats despite prolonged exposure.
- C. Shop Primer for Metallic-Coated Steel: Organic zinc-rich primer complying with SSPC-Paint 20 and compatible with topcoat.
- D. Galvanizing Repair Paint: High-zinc-dust-content paint for regalvanizing welds in steel, complying with SSPC-Paint 20.

2.4 ACCESS DOORS AND FRAMES

- A. Flush, Insulated, Fire-Rated Access Doors and Frames with Exposed Trim: Fabricated from steel sheet.
 - 1. Locations: Wall and ceiling surfaces.
 - 2. Fire-Resistance Rating: To match rating of wall or ceiling.
 - 3. Temperature Rise Rating: 250 deg F at the end of 30 minutes.
 - 4. Door: Flush panel with a core of mineral-fiber insulation enclosed in sheet metal with a minimum thickness of 0.036 inch.
 - 5. Frame: Minimum 0.060-inch-thick sheet metal with 1-inch-wide, surface-mounted trim.
 - 6. Hinges: Concealed pin type.
 - 7. Automatic Closer: Spring type.
 - 8. Latch: Self-latching bolt operated by flush screwdriver with interior release.
 - 9.
 - 10.

2.5 FABRICATION

- A. General: Provide access door assemblies manufactured as integral units ready for installation.
- B. Metal Surfaces: For metal surfaces exposed to view in the completed Work, provide materials with smooth, flat surfaces without blemishes. Do not use materials with exposed pitting, seam marks, roller marks, rolled trade names, or roughness.

- C. Steel Doors and Frames: Grind exposed welds smooth and flush with adjacent surfaces. Furnish attachment devices and fasteners of type required to secure access panels to types of supports indicated.
 - 1. Exposed Flanges: Nominal 1 to 1-1/2 inches wide around perimeter of frame.
 - 2. Provide mounting holes in frames to attach frames to metal or wood framing in plaster and drywall construction and to attach masonry anchors in masonry construction.
- D. Latching Mechanisms: Furnish number required to hold doors in flush, smooth plane when closed.

2.6 FINISHES, GENERAL

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Finish metal fabrications after assembly.

2.7 STEEL FINISHES

- A. Surface Preparation: Prepare uncoated ferrous-metal surfaces to comply with minimum requirements indicated below for SSPC surface-preparation specifications and environmental exposure conditions of installed metal fabrications:
 - 1. Exteriors (SSPC Zone 1B): SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."
 - 2. Interiors (SSPC Zone 1A): SSPC-SP 3, "Power Tool Cleaning."
- B. Apply shop primer to uncoated surfaces of metal fabrications. Comply with SSPC-PA 1, "Paint Application Specification No. 1," for shop painting.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Advise installers of other work about specific requirements relating to access door and floor door installation, including sizes of openings to receive access door and frame, as well as locations of supports, inserts, and anchoring devices.

3.2 INSTALLATION

- A. Comply with manufacturer's written instructions for installing access doors and frames.
- B. Set frames accurately in position and attach securely to supports with plane of face panels aligned with adjacent finish surfaces.

3.3 ADJUSTING AND CLEANING

- A. Adjust doors and hardware after installation for proper operation.

- B. Remove and replace doors and frames that are warped, bowed, or otherwise damaged.

END OF SECTION 08311

SECTION 10200 - LOUVERS AND VENTS**PART 1 - GENERAL**

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Fixed, extruded-aluminum louvers.
- B. Related Sections include the following:
 - 1. Division 7 Section "Joint Sealants" for sealants installed in perimeter joints between louver frames and adjoining construction.

1.3 DEFINITIONS

- A. Louver Terminology: Definitions of terms for metal louvers contained in AMCA 501 apply to this Section, unless otherwise defined in this Section or in referenced standards.
- B. Standard Free Area: Free area of a louver 48 inches wide by 48 inches high, identical to that provided.
- C. Maximum Standard Airflow: Airflow at point of beginning water penetration through a louver 48 inches wide by 48 inches high, identical to that provided.
- D. Drainable-Blade Louver: Louver designed to collect and drain water to exterior at sill by means of gutters in front edges of blades and channels in jambs and mullions.

1.4 PERFORMANCE REQUIREMENTS

- A. Structural Performance: Provide exterior metal louvers capable of withstanding the effects of loads and stresses from wind and normal thermal movement without evidencing permanent deformation of louver components including blades, frames, and supports; noise or metal fatigue caused by louver blade rattle or flutter; or permanent damage to fasteners and anchors.
 - 1. Wind Load: Uniform pressure (velocity pressure) of 30 lbf/sq. ft., acting inward or outward.
- 2. Thermal Movements: Provide louvers that allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures by preventing buckling, opening of joints, overstressing of components, and other detrimental effects:
 - a. Temperature Change (Range): 120 deg F, ambient; 180 deg F, material surfaces.
- B. Air-Performance, Water-Penetration, and Air-Leakage Ratings: Provide louvers complying with performance requirements indicated, as demonstrated by testing manufacturer's stock units 48 inches wide by 48 inches high. Test units according to AMCA 500.
 - 1. Perform testing on unpainted, cleaned, degreased units.
 - 2. Perform water-penetration testing on louvers without screens.

1.5 SUBMITTALS

- A. Product Data: For each type of product specified.
- B. Shop Drawings: For louver units and accessories. Include plans; elevations; sections; and details showing profiles, angles, and spacing of louver blades. Show unit dimensions related to wall openings and construction; free area for each size indicated; profiles of frames at jambs, heads, and sills; and anchorage details and locations.
 - 1. For installed louvers and vents indicated to comply with design loadings, include structural analysis data signed and sealed by the qualified professional engineer responsible for their preparation.
- C. Samples for Initial Selection: Manufacturer's color charts showing the full range of colors available for units with factory-applied color finishes.
- D. Product Certificates: Signed by manufacturers of louvers certifying that the products furnished comply with requirements and are licensed to bear the AMCA seal based on tests made according to AMCA 500 and complying with AMCA's Certified Ratings Program.
- E. Product Test Reports: Indicate compliance of products with requirements based on comprehensive testing of current products.
- F. Qualification Data: For firms and persons specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.

1.6 QUALITY ASSURANCE

- A. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of kind indicated. Engineering services are defined as those performed for installations of louvers that are similar to those indicated for this Project in material, design, and extent.
- B. Source Limitations: Obtain louvers and vents through one source from a single manufacturer where alike in one or more respects regarding type, design, or factory-applied color finish.
- C. Welding Standards: As follows:
 - 1. Comply with AWS D1.2, "Structural Welding Code--Aluminum."
 - 2. Comply with AWS D1.3, "Structural Welding Code--Sheet Steel."
 - 3. Certify that each welder has satisfactorily passed AWS qualification tests for welding processes involved and, if pertinent, has undergone recertification.
- D. SMACNA Standard: Comply with SMACNA's "Architectural Sheet Metal Manual" recommendations for fabrication, construction details, and installation procedures.

1.7 PROJECT CONDITIONS

- A. Field Measurements: Verify louver openings by field measurements before fabrication and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
 - 1. Established Dimensions: Where field measurements cannot be made without delaying the Work, establish opening dimensions and proceed with fabricating louvers without field measurements. Coordinate construction to ensure that actual opening dimensions correspond to established dimensions.

PART 2 - PRODUCTS**2.1 MANUFACTURERS**

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
1. Airline Products Co.
 2. Airolite Co.
 3. Arrow United Industries.
 4. Construction Specialties, Inc.
 5. Greenheck Fan Corporation.
 6. Hart & Cooley, Inc.; Reliable Metal Products Division.
 7. Industrial Louvers, Inc.
 8. Ruskin Manufacturing; Tomkins Industries, Inc.
 9. Sunvent Industries; Sylro Sales Corp.

2.2 MATERIALS

- A. Aluminum Extrusions: ASTM B 221, alloy 6063-T5 or T-52.
- B. Aluminum Sheet: ASTM B 209, alloy 3003 or 5005 with temper as required for forming, or as otherwise recommended by metal producer for required finish.
- C. Aluminum Castings: ASTM B 26/B 26M, alloy 319.
- D. Galvanized Steel Sheet: ASTM A 653/A 653M, G90 (Z275) zinc coating, mill phosphatized.
- E. Stainless-Steel Sheet: ASTM A 666, Type 302 or 304.
- F. Fasteners: Of same basic metal and alloy as fastened metal or 300 series stainless steel, unless otherwise indicated. Do not use metals that are incompatible with joined materials.
1. Use types and sizes to suit unit installation conditions.
 2. Use Phillips flat-head screws for exposed fasteners, unless otherwise indicated.
- G. Anchors and Inserts: Of type, size, and material required for loading and installation indicated. Use nonferrous metal or hot-dip galvanized anchors and inserts for exterior installations and elsewhere as needed for corrosion resistance. Use toothed steel or expansion bolt devices for drilled-in-place anchors.
- H. Bituminous Paint: Cold-applied asphalt mastic complying with SSPC-Paint 12 but containing no asbestos fibers, or cold-applied asphalt emulsion complying with ASTM D 1187.

2.3 FABRICATION, GENERAL

- A. Assemble louvers in factory to minimize field splicing and assembly. Disassemble units as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation.
1. Continuous Vertical Assemblies: Where height of louver units exceeds fabrication and handling limitations, fabricate units to permit field-bolted assembly with close-fitting joints in jambs and mullions, reinforced with splice plates and without interrupting blade-spacing pattern.
- B. Maintain equal louver blade spacing, including separation between blades and frames at head and sill, to produce uniform appearance.

- C. Maintain equal louver blade spacing to produce uniform appearance.
- D. Fabricate frames, including integral sills, to fit in openings of sizes indicated, with allowances made for fabrication and installation tolerances, adjoining materials' tolerances, and perimeter sealant joints.
 - 1. Frame Type: Exterior flange, unless otherwise indicated.
- E. Include supports, anchorages, and accessories required for complete assembly.
- F. Provide vertical mullions of type and at spacings indicated, but not more than recommended by manufacturer, or 72 inches o.c., whichever is less. At horizontal joints between louver units, provide horizontal mullions, unless continuous vertical assemblies are indicated.
- G. Provide sill extensions and loose sills made of same material as louvers where indicated or required for drainage to exterior and to prevent water penetrating to interior.
- H. Join frame members to one another and to fixed louver blades with fillet welds concealed from view, unless otherwise indicated or size of louver assembly makes bolted connections between frame members necessary.
- I. Join frame members to one another and to fixed louver blades with fillet welds, threaded fasteners, or both, as standard with louver manufacturer, concealed from view; unless otherwise indicated or size of louver assembly makes bolted connections between frame members necessary.

2.4 FIXED, EXTRUDED-ALUMINUM LOUVERS

- A. Louver Construction: Provide fixed-blade louvers with extruded-aluminum frames and blades.
- B. Horizontal Louvers: Drainable-blade type complying with the following:
 - 1. Louver Depth: 6 inches, unless otherwise indicated.
 - 2. Frame Thickness: 0.125 inch.
 - 3. Blade Thickness: 0.125 inch.
 - 4. Performance Requirements: Maximum standard airflow not less than 5800 cfm with not more than 0.12- inch wg static-pressure loss.

5.AMCA Seal: Mark units with AMCA Certified Ratings Seal.

2.5 LOUVER SCREENS

- A. General: Provide each exterior louver with louver screens complying with the following requirements:

- 1. Screen Location for Fixed Louvers: Interior face.

2.Screening Type: Insect screening where indicated.

- B. Secure screens to louver frames with stainless-steel machine screws, spaced a maximum of 6 inches from each corner and at 12 inches o.c.
- C. Louver Screen Frames: Fabricate screen frames with mitered corners to louver sizes indicated and to comply with the following requirements:
 - 1. Metal: Same kind and form of metal as indicated for louver to which screens are attached.
 - a. Reinforce extruded-aluminum screen frames at corners with clips.
 - 2. Finish: Same finish as louver frames to which louver screens are attached.
 - 3. Type: Rewirable frames with a driven spline or insert for securing screen mesh.

D. Louver Screening for Aluminum Louvers: As follows:

1. Insect Screening: Aluminum, 18-by-16 mesh, 0.012-inch wire.

2.6 BLANK-OFF PANELS

A. General: Fabricate blank-off panels from materials and to sizes indicated and comply with the following requirements:

1. Finish: Same as finish applied to louvers, but black color.
2. Attach blank-off panels to back of louver frames with stainless-steel sheet-metal screws.

2.7 FINISHES, GENERAL

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Finish louvers after assembly.

2.8 ALUMINUM FINISHES

- A. Finish designations prefixed by AA comply with system established by the Aluminum Association for designating aluminum finishes.
- B. Baked-Enamel Finish: AA-C12C42R1x (Chemical Finish: cleaned with inhibited chemicals; Chemical Finish: acid-chromate-fluoride-phosphate conversion coating; Organic Coating: as specified below). Apply baked enamel complying with paint manufacturer's specifications for cleaning, conversion coating, and painting.
 1. Organic Coating: Thermosetting, modified-acrylic enamel primer/topcoat system complying with AAMA 603.8, except with a minimum dry film thickness of 1.5 mils, medium gloss.
 2. Color: As selected by Architect from manufacturer's full range of colors.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Coordinate Setting Drawings, diagrams, templates, instructions, and directions for installation of anchorages that are to be embedded in concrete or masonry construction. Coordinate delivery of such items to Project site.

3.2 INSTALLATION

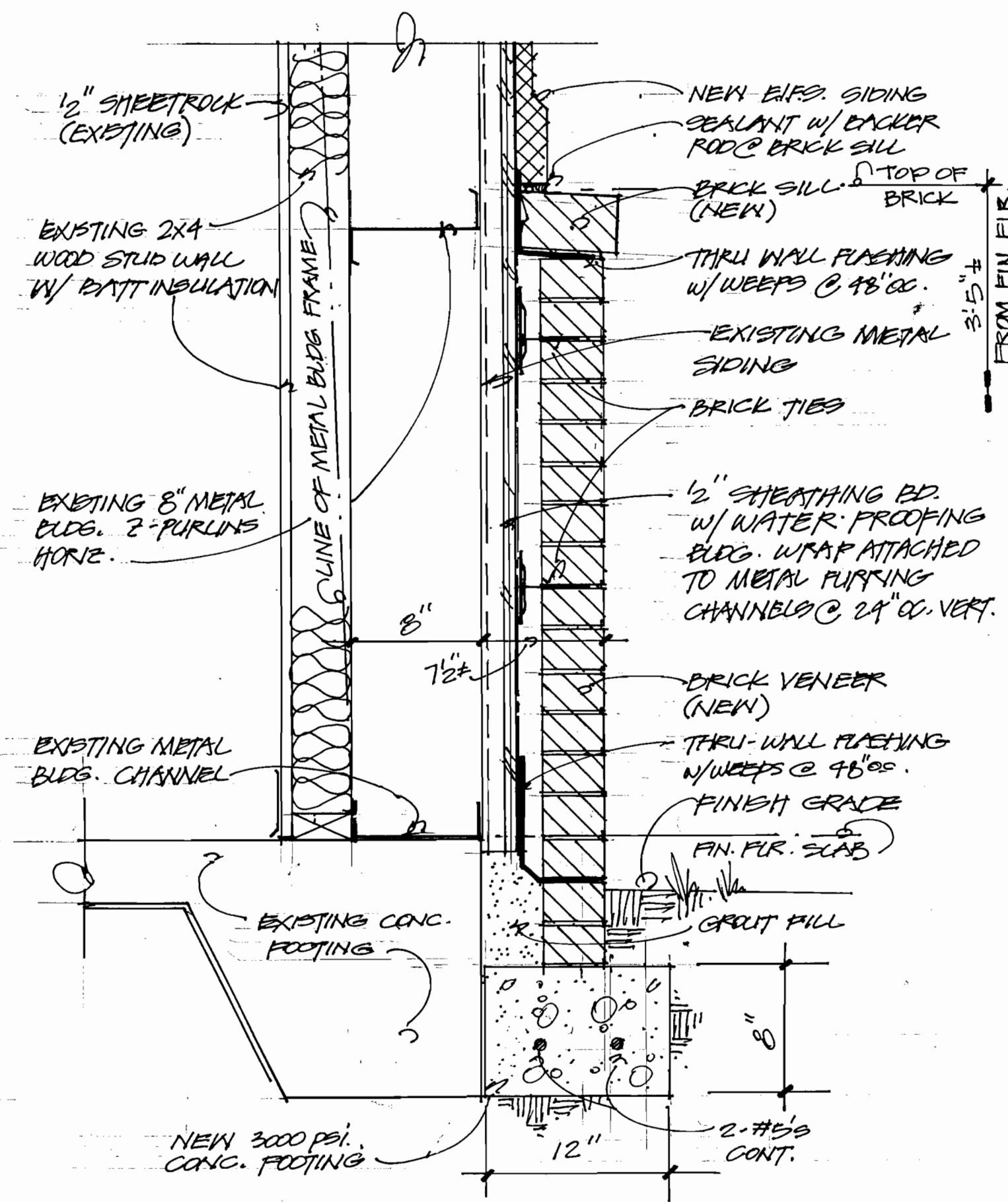
- A. Locate and place louver units level, plumb, and at indicated alignment with adjacent work.
- B. Use concealed anchorages where possible. Provide brass or lead washers fitted to screws where required to protect metal surfaces and to make a weathertight connection.
- C. Form closely fitted joints with exposed connections accurately located and secured.
- D. Provide perimeter reveals and openings of uniform width for sealants and joint fillers, as indicated.
- E. Repair finishes damaged by cutting, welding, soldering, and grinding. Restore finishes so no evidence remains of corrective work. Return items that cannot be refinished in the field to the factory, make required alterations, and refinish entire unit or provide new units.

- F. Protect galvanized and nonferrous-metal surfaces from corrosion or galvanic action by applying a heavy coating of bituminous paint on surfaces that will be in contact with concrete, masonry, or dissimilar metals.
- G. Install concealed gaskets, flashings, joint fillers, and insulation, as louver installation progresses, where weathertight louver joints are required. Comply with Division 7 Section "Joint Sealants" for sealants applied during louver installation.

3.3 ADJUSTING, CLEANING, AND PROTECTING

- A. Test operation of adjustable louvers and adjust as needed to produce fully functioning units that comply with requirements.
- B. Periodically clean exposed surfaces of louvers and vents that are not protected by temporary covering to remove fingerprints and soil during construction period. Do not let soil accumulate until final cleaning.
- C. Before final inspection, clean exposed surfaces with water and a mild soap or detergent not harmful to finishes. Thoroughly rinse surfaces and dry.
- D. Protect louvers and vents from damage during construction. Use temporary protective coverings where needed and approved by louver manufacturer. Remove protective covering at the time of Substantial Completion.
- E. Restore louvers and vents damaged during installation and construction so no evidence remains of corrective work. If results of restoration are unsuccessful, as determined by Architect, remove damaged units and replace with new units.
 - 1. Clean and touch up minor abrasions in finishes with air-dried coating that matches color and gloss of, and is compatible with, factory-applied finish coating.

END OF SECTION 10200



FIRST CHINESE BAPTIST CHURCH
 WALL DETAIL @ EXISTING BUILDING • 1/2" = 1'-0"
 DATE: NOVEMBER 4, 2009 DNG. SK-1