NOT USED

SECTION 03395 - CONCRETE SEALING AND POLISHING

1.1 General: Provide a sealed and polished concrete floor finish as shown and specified.

A. Standards
1. American Society for Testing and Materials:
a. ASTM-C779, Standard Test Method for Abrasion Resistance of Horizontal Concrete Surfaces.
b. ASTM G23-81, Ultraviolet Light & Water Spray
c. ASTMC805, Impact Strength
2. American Concrete Institute
a. ACI 302. 1R-89, Guide for Concrete Floor and Slab Construction

B. Submittals: Provide the following:
1. Manufacturer's product data, specifications and installation instructions. Include Material Safety Data Sheets (MSDS) and identify application requirements, curing time and safety requirements.
2. Certified test reports, prepared by an independent testing laboratory, confirming compliance with performance criteria.
3. Manufacturer's certification that installer is a certified applicator of special concrete floor finishes, and familiar with manufacturer's installation procedures and requirements for the specified sealed and polished concrete floor finish.
4. Manufacturer's and installer's written acceptance of substrate surface and installation conditions.

C. Quality Assurance:
1. Installer Qualifications:
a. Use a certified installer and adequate number of skilled workmen who are thoroughly trained and experienced in the necessary craft.
b. The special concrete finish manufacturer shall certify the applicator.
c. Applicator shall be familiar with the specified requirements and the methods needed for proper performance of work of this section. Applicator shall have not less than three years successful experience installing sealed and polished floor finishes similar to those required for this project.
d. Provide a letter of certification from special concrete finish manufacturer stating that installer is a certified applicator and is familiar with proper procedures and installation requirements required by the manufacturer.
2. Protection: Contractor shall provide all necessary materials, means, methods and procedures acceptable to the floor finish manufacturer and required to protect the concrete floor surface and provide a suitable substrate for the installation of the specified sealed and polished concrete floor finish.

A. Project Conditions:
1. Comply with the floor finish manufacturer's environmental limitations for substrate temperature and moisture content, ambient temperature, and humidity, ventilation and other conditions affecting the special floor finish performance.
a. Concrete must have an average Floor Flatness rating of at least 40.
b. Concrete must have an average Floor Levelness rating of at least 40.
c. Concrete must be cured a minimum of 28 days or as directed by the manufacturer before application of RetroPlate can begin. Wet cure of the concrete is preferred. No concrete sealer is necessary.
d. Application of RetroPlate shall take place prior to installation of equipment, thus providing a complete, uninhibited concrete slab for application.
2. Before general sealer/hardener application, prepare and coat a jobsite test area of size acceptable to the Architect, to verify and approve proper surface preparation, application techniques and coverage rate.
3. Close finished floor areas to traffic during floor finish application and after application for time period directed by the floor finish manufacturer.
4. The completed RetroPlated slab will be covered to prevent damage by the other trades during store completion.

2.1 Materials

A. New stained finish existing concrete floor sealer: ROCK-TRED Corp. (800) 762-8733, internet www.rocktred.com "AQUA-ROCK Clear Sealer" high solids, water based 2-component penetrating epoxy sealer coating meeting all USDA guidelines and formulated for sealing new and existing cast-in-place concrete.

B. Hardening/ Sealing Agent
1. RetroPlate 99 manufactured by Advanced Floor Products Inc. (801) 812-3420 www.retroplatesystem.com
2. RetroGuard Stain Inhibitor
3. Joint Filler: CreteFill Pro 75. Two component 100% solids non-staining Polyurea Elastomer.
4. Spall Repair: Multiple minor surface defects and irregularities: Crete Fill Spall Repair: High Strength hybrid urethane, two part 100% solids.
5. Manufacturer's Representative: Contact Curtis Turnbull at RetroPlate for a list of Certified Applicators (888)942-3144 curtis@retroplatesystem.com

3.1 Installation

A. Surface Conditions
1. Examine substrate, with installer present, for conditions affecting performance of finish. Correct conditions detrimental to timely and proper work. Do not proceed until unsatisfactory conditions are corrected.
2. Verify that base slab meets finish and surface profile requirements in Division 3 Section "Cast-In-Place Concrete," and Project Conditions above.
3. Prior to application, verify that floor surfaces are free of construction latents.

B. Application
The following RetroPlate process will be followed as listed below:
A concrete grinding machine must be used. Floors should be started using a 50, 80 or 100 grit diamond pucks depending on the condition of the slab. Current design is for a non-aggregate floor, meaning the following process is not intended to expose aggregate. Please proceed accordingly. The process is as follows:

1. Grind floor using 100 grit resin diamonds.
2. Clean the floor using automatic scrubber or comparable.
3. Grind floor using 200 grit resin diamonds.
4. Clean the floor using automatic scrubber or comparable.
5. Apply RetroPlate 99 to floor at 200 sq. ft. per gallon, scrubbing product into the floor and allowing product to soak until turning slick. If it becomes sticky, apply water to the surface as necessary, leaving the product on the floor for at least 60 minutes.
6. Grind floor using 400 grit resin diamonds.
7. Clean the floor using automatic scrubber or comparable.
8. Clean and remove any excess RetroPlate. Let the floor dry overnight.
9. Continue the polishing process using 800 grit resin diamonds.
10. Clean the floor using automatic scrubber or comparable.
11. Alternately, depending on slab condition, grind floor using 1200-1500 grit resin diamonds.
12. Clean the floor using automatic scrubber or comparable.
13. The same process will be used for new floors as well as rehab floors. Floor prep for the rehab floors will be separate.
14. Apply an even coat of RetroGuard Sealer with a brush, roller, or low-pressure sprayer, and when surface is dry, burnish the floor with a black burnishing pad. Apply a second coat of RetroGuard one hour after the initial application, and again burnish the floor with a black burnishing pad.
15. Do not walk on surface for 12 hours, and do not introduce any water or moisture for at least 48 hours, allowing for proper drying and setting of RetroPlate and RetroGuard. Water will minimize the sealing properties of RetroPlate and RetroGuard.

C. Start any of the floor finish applications win presence of manufacturer's technical representative.

D. Sealing, Hardening and Polishing of Concrete Surface
1. Concrete must be in place a minimum of 28 days or as directed by the manufacturer before application can begin.
2. Application is to take place at least 10 days to the prior to racking and other in-store accessory installation, thus providing a complete, uninhibited concrete slab for application.
3. Only a certified applicator shall apply RetroPlate 99. Procedures must be followed as recommended by the product manufacturer and as required to match approved test sample.
4. Achieve waterproofing, hardening, dust-proofing, and abrasion resistance of the surface without changing the natural appearance of the concrete, except for the sheen.
5. Polish to a level 2 shine.

E. Workmanship and Cleaning
1. The premises shall be kept clean and free of debris at all times.
2. Remove spatter from adjoining surfaces, as necessary.
3. Repair damages to surface caused by cleaning operations.
4. Remove debris from jobsite
a. Dispose of materials in separate, closed containers in accordance with local regulations.

NOT USED

SECTION 04810 - UNIT MASONRY ASSEMBLIES

1.1 General: Provide unit masonry assemblies as shown and specified.

A. Standards: Materials and construction shall conform to the following:
1. ACI 530.1-02/ASCE 6-02/TMS 602-02 "Specifications for Masonry Structures."
2. NCMA "TEK Bulletins."
3. BIA "Technical Notes on Brick Construction."

2.1 Materials:

A. Concrete Masonry Units (CMU): Size and thickness as shown on drawings.
1. ASTM C 90, load-bearing, normal weight, natural color CMU, properly cured at time of delivery, linear shrinkage not to exceed 0.065%.
2. Provide special shapes where required.
3. Provide exterior wall CMU containing an integral polymeric water-repellent admixture.
a. Manufacturer: W. R. Grace "Dry-Block® System Block Admix ".

B. Face Brick:
1. Manufacturer: Watsontown Brick Company, 800-538-2040, internet www.watsontownbrick.com
2. Type: "Sturbridge M Type I Standard" complying with ASTM C216, Grade SW, Type FBS. No efflorescence
when tested in accordance with ASTM C67.
3. Size: Modular size, laying three courses to 8" vertically.
4. Provide special shapes where required.

D. Mortar Materials:
1. Portland cement: ASTM C150, Type I or III, natural color.
2. Masonry cement: ASTM C91, Type indicated, natural color.
3. Aggregate: ASTM C144, clean masonry sand.
4. Water: Clean, fresh and potable.
5. Provide all exterior wall masonry mortar containing an integral polymeric water-repellent admixture.
a. Manufacturer W. R. Grace, "Dry-Block® Integral Water-Repellent Mortar Admixture".

F. Unit Masonry Mortar Mixes: ASTM C270 proportions by volume.
1. Face brick: Type N mortar.
2. Dye: SGS #44 by Solomon Grind Services.

G. Reinforced Unit Masonry Grout Mixes
1. Concrete fill: ASTM C94 3,000 psi concrete.

H. Joint Reinforcement, Wall Ties And Anchors: Finish, ASTM A-153 hot-dip galvanized
1. Manufacturer: Dur-O-Wal, Inc.
2. Horizontal joint reinforcement: Welded ladder type with matching corners and Tee units.
a. Single Wythe masonry: Standard single 9 gage side and cross rods. Dur-O-Wal D/A 320 Ladur.
3. Anchoring devices: Provide strap anchors, inserts, bolts and rods of type and size indicated.
a. CMU to CMU: Strap anchors 1/4" x 1-1/4" x 24" steel with bent ends.
b. CMU to structural steel: Dur-O-Wal D/A 701-708 Triangle Ties with plain steel weld-on anchor rods to receive anchors.

4. Masonry veneer to cold-formed metal framing: Dur-O-Wal D/A 210W Tri-Tie veneer anchors, with adjustable 3/16" cold-drawn steel wire tie sections and 14 gage screw-on attachment plate.
a. Fasteners: Dur-O-Wal D/A 807 self-drilling, self-tapping screws, 1-1/4" x #10, corrosion-resistant coated. Provide two screw fasteners for each attachment plate.
5. Seismic masonry veneer to cold-formed metal framing: When required, Dur-O-Wal D/A 213S 14 gage screw-on Seismic Anchor Plates with D/A 213SP 12 gage Seismic Pintels and ,D/A 870S 9 gage Pencil Rods.
a. Fasteners: Dur-O-Wal D/A 807 self-drilling, self-tapping screws, 1-1/4" x #10, corrosion-resistant coated. Provide two screw fasteners for each attachment plate.

I. Concealed Masonry Through-Wall Flashing: W. R. Grace "Perm-A-Barrier" self-adhering modified bituminous sheet, 40 mils thick.
1. Termination Mastic: W.R. Grace "Bituthene Mastic."
2. Primer: W.R. Grace "Bituthene P-300 Primer."
3. Termination bars: Extruded aluminum or stainless steel, 1" wide and .098" thick pre-punched at 6" on center, secured with stainless steel drive pins.

J. Accessories
1. Reinforcing bars: ASTM A615, Grade 60, deformed billet steel bars of sizes indicated.
2. Wall weeps: Dur-O-Wal D/A 1006 "Cell Vent", clear flexible polypropylene co-polymer.
3. Compressible joint material: Dur-O-Wal "Rapid Soft-Joint" D/A 2010.
4. Bond breaker strips: ASTM D226 No. 15 asphalt saturated roofing felt.
5. Cleaning agents:
a. Face Brick and CMU: ProSoCo, Inc., "Sure Klean New Masonry Cleaners."
b. ACMU: ProSoCo, Inc., "Sure Klean Burnished Custom Masonry Cleaner."

6. Expansion/Control joint sealants: Polyurethane-based, elastomeric joint sealant complying with ASTM C920 and Section 07900 requirements. Color matched to adjacent surfaces.

3.1 Installation

A. Preparation
1. Wet absorbent face brick masonry units requiring wetting, in accordance with BIA recommendations.
2. Lay concrete masonry units dry.
3. Establish, lines, levels and coursing. Ensure ties, anchors and flashing are correctly installed
4. Mix mortar cementitious materials and aggregate in a mechanical mixer. Add water in amount to provide satisfactory workable consistency of mortar. Retemper mortar as required within two hours of mixing to replace water lost be evaporation. Discard mortar after two and one-half hours of initial mixing. Do not use mortar after it has started to set.

B. Installation - General:
1. Build walls and other masonry construction to the full thickness shown. Build single wythe walls to the actual thickness of the masonry units, using units of nominal thickness shown.
2. Cut masonry units using motor-driven masonry saws to provide clean, sharp edges. Cut units to fit adjoining work neatly. Provide 100% solid units where cores would be exposed.
3. Cold weather construction, hot weather construction, and masonry construction tolerances: Comply with unit masonry standard ACI 530.1/ASCE 6/TMS 602 requirements.

C. Laying Masonry
1. Layout walls in advance to ensure accurate spacing of surface bond patterns, with uniform joint widths, and to properly locate openings, movement type joints, returns and offsets. Do not use less than half-size units at corners, jambs and other locations.
2. Lay up walls plumb and true to comply with ACI 530.1 tolerances. Provide square corners and angles, except as otherwise indicated, with courses level, accurately spaced and coordinated with other work.
3. Pattern bond: Running bond. Do not use units with less than 4" of horizontal face dimensions at corners or jambs.
4. Lay hollow CMU/ACMU with full mortar coverage on horizontal and vertical face shells. Bed CMU webs in mortar in starting courses. Maintain uniform 3/8" joint widths.
5. Lay face brick and solid CMU/ACMU with completely filled bed and head joints. Do not slush head joints. Maintain uniform 3/8" joint widths.
6. Compress and cut joints flush for masonry walls below grade or covered by other materials.
7. Tool joints in all exposed masonry work to a concave joint.
8. Provide interlocking masonry bond in each course at corners and intersecting walls.
9. As the work progresses, build in masonry accessories and related items. Fill in solidly with masonry around built-in items.
a. Bed hollow metal frame anchors in mortar and fill space between hollow metal frames and masonry solid with fine mortar grout.
b. Provide solid masonry bearing for all lintels, beams, joists, plates and load-bearing members.
c. Take particular care to embed all conduits and pipes within concrete masonry without fracturing exposed shells and to fit units around switch, receptacle and other boxes set in walls. Where electric conduit, outlets, switch boxes and similar items occur, grind and cut units before building in services.
d. Install anchors, plates and related work built into masonry work.
e. Install reinforcing steel and concrete fill where indicated. Comply with drawing details.

10. Horizontal joint reinforcing: Provide continuous joint reinforcing at all concrete masonry walls as follows:
a. In every second block course, 16" on center vertically, full height of wall and every block course where shown on the drawings.
b. Lap reinforcement a full width at the corners and at intersections or use special fabricated sections.
c. Fully embed side rods in mortar.

11. Anchoring masonry work: Provide anchoring devices of the type indicated or required.
12. Provide vertical expansion, control and isolation joints in masonry where indicated.
a. When not indicated, at maximum 30'-0" on center.
b. Locate control joints at points of natural weakness in masonry and acceptable to Architect.
c. Joint sealant color shall match masonry materials sealed.

13. Lintels: Install loose steel lintels furnished under structural steel work where shown. Set lintels in full bed of mortar.
14. Flashing and weeps:
a. Install concealed through wall masonry flashing at all wall sills, masonry openings in exterior walls with masonry above head, over all horizontal steel members built into masonry and elsewhere as indicated. Provide "drainage wall system" masonry construction.
b. Provide end dams and positive slope to drain. Extend flashing vertically at least 8" and built into or anchor to back-up with a termination bar for a complete watertight installation.
c. Flexible Membrane Flashing:
1.) Install membrane flashing in accordance with manufacturer's installation instructions.
2.) Fully adhere flashing to substrate.
3.) Lap flashing joints a minimum of 6", seal and roll with a hand roller.
4.) Trim bottom edge 1/4" back from exposed face of masonry.
5.) Seal edges, seams, cuts and penetrations with manufacturer's recommended mastic.

15. Install weeps in head joints of final course of exterior masonry wythe above flashing. Space weeps maximum of 24" on center horizontally and located to avoid door openings. Install weeps at head joints with outside face of weep material held 1/8" from the finish face of masonry unit.
16. Install compressible joint material at lintels and horizontal steel members. Build in joint fillers and seal with elastomeric joint sealant.

D. Masonry Veneer Walls:
1. Metal framed walls: Tie exterior masonry veneer wythe to back-up wall with individual metal ties screwed to metal stud framing.
2. Space ties 16" on center vertically and horizontally.
3. Maintain veneer wall cavity free of mortar droppings during masonry installation.

E. Architectural Concrete Masonry Units: Install ACMU in accordance with the manufacturer's installation instructions and the following:
1. Draw ACMU from more than one pallet at a time during installation.

F. Reinforced Concrete Masonry
1. Reinforce and fill CMU/ACMU wall and column masonry where indicated. Fill all cores solid with concrete fill. Comply with NCMA TEK Bulletins 3-2, 3-3A and 14-2 recommendations.
a. Comply with drawing details for reinforcing steel size and spacing.

2. Install bond beams where indicated. Reinforce and fill units solid with concrete fill. Comply with drawing details for reinforcing steel size and spacing.

G. Repair, Pointing and Cleaning
1. In process cleaning: Wipe off excess mortar as the work progresses. Dry brush with bristle brushes exposed masonry at the end of each day's work. Remove mortar spatters and joint ridges.
2. Clean all exposed masonry. Cleaning agents subject to Architect's approval. Before applying any cleaning agent to the entire wall, clean a sample wall area of approximately 20 square feet in a location acceptable to the Architect. Do not proceed with final cleaning until the sample area has been allowed to dry a minimum of 3 days and the test area cleaning approved. Protect all windows, doors, louvers, metal lintels and other corrodible parts. Damaged materials and work replaced at Contractor's expense.
3. Dry clean exposed surfaces to remove large particles of mortar using hardwood wood paddles and scrapers. Metal tools not acceptable.
4. Presoak exposed masonry surfaces by saturating with water and flush off loose mortar and dirt.

5. Apply cleaning solutions and clean masonry in accordance with the cleaning material manufacturer's cleaning instructions.
6. Muriatic acid cleaning of masonry not permitted.

H. Architectural Concrete Masonry:
1. Keep ACMU walls clean during installation. Remove excess mortar on daily basis using brushes, rags or burlap squares.
2. Clean completed walls with detergent masonry cleaner recommended by the ACMU manufacturer. Acid cleaning agents, abrasive cleaners, tools or powders and metal cleaning tools and brushes are not permitted.
3. After final clean down and when walls are dry, apply ACMU acrylic finish coating in accordance with ACMU manufacturer's application instructions.

DIVISION 5 - METALS

SECTION 05120 - STRUCTURAL STEEL

1.1 General: Provide structural steel in accordance with the General Structural Notes and structural drawings and details.

A. Standards: Materials and construction shall conform to following:
1. AISC "Specification for the Design, Fabrication, and Erection of Structural Steel for Buildings."
2. AISC "Code of Standard Practice."
3. AWS "Structural Welding Code, D1.1-Steel."

2.1 Materials:

A. Materials compliance: When requested, submit acceptable data documenting materials compliance for each type of material required.

B. Structural Shapes: ASTM A36/A36M, 36 ksi steel.

C. Tubular Steel: ASTM A500, 46 ksi yield strength steel, cold-formed welded and seamless.

D. Structural pipe: ASTM A53, type and grade selected by the fabricator as required for design loading, standard finish, standard weight (Schedule 40) except as otherwise indicated.

E. Grout: ASTM C1107, pre-mixed, shrinkage resistant, non-metallic, non-corrosive, non-staining grout.

F. Shop paint primer: Refer to Section 09900 - Paints and Coatings.

G. Fabrication: Fabricate structural steel in accordance with AISC "Specification - Structural Steel for Buildings" and "Code of Standard Practice." Provide welded or bolted connections in accordance with the Structural Drawings connection requirements.
1. Welding: Conform to AWS welding standards. Provide only continuous welds, spot welding is not acceptable.
Grind all exposed welds smooth.
2. Splicing: Material, if spliced, shall have maximum one splice per structural member. Perform splicing by full penetration butt-welding using AWS qualified welders and welding methods.
3. Shop painting: Shop paint structural metal members, except members or portions of members to be embedded in concrete or masonry, surfaces and edges to be field welded and galvanized surfaces.
Refer to Section 09900 - Paints and Coatings.

3.1 Installation:

A. Erection: Erect structural steel in accordance with AISC "Specification - Structural Steel for Buildings" and "Code of Standard Practice".
1. Plumb, level and align base plates for structural members with steel shims.
2. Grout structural steel base plates solid that bear on concrete or masonry surfaces.

B. Testing: When required, comply with drawings testing requirements.

SECTION 05400 - COLD-FORMED METAL FRAMING

1.1 General: Provide cold-formed metal framing in accordance with the General Structural Notes and structural drawings and details.

A. Standards: Materials and construction shall conform to following:
1. AISI SG02.2-01 "Design of Cold-Formed Steel Structural Members."
2. AWS "Structural Welding Codes, D1.3-Sheet Steel."

2.1 Materials:

A. Materials compliance: When requested, submit acceptable data documenting materials compliance for each type of material required.

B. Load-Bearing Cold-Formed Metal Framing: ASTM A1003, Gage, Grade and Type indicated.
1. Components: Provide sizes and shapes indicated.
2. Finish: Galvanized complying with ASTM A653, minimum G60 coating.

C. Fabrication:
1. Cold-formed metal framing may be prefabricated into panels before erection. Fabricate panels plumb, square, true to line and braced against racking with joints welded.
a. Provide one-piece full-length cold-formed metal framing members. Splicing not permitted.

2. Attach and join other components by welding or screw fasteners, as indicated. Wire tying of framing components is not permitted.
3. Cut framing to fit squarely for attachment to perpendicular members or as required for angular fit against abutting members. Hold members securely in position until properly fastened.
4. Saw cut field cut framing. Torch cutting not acceptable.

D. Installation:

1. Erection: Erect cold-formed metal framing members of gage and at spacing indicated on the Structural Drawings. Align and secure studs to top and bottom runner tracks by welding or screw fasteners at both inside and outside
flanges.
2. Tolerance Acceptance: Install cold-formed metal framing member as indicated on the plans. Install to 1/16" tolerance.

Consultant:

r e d
architecture + planning

855 GRANDVIEW AVENUE
SUITE 295
COLUMBUS, OHIO 43215
PHONE: 614.487.8770
FAX: 614.487.8777

LICENSED ARCHITECT
DAVID A. EPAW
ARC4101
STATE OF MAINE
9/15/15

CHIPOTLE MEXICAN GRILL

CHIPOTLE MEXICAN GRILL, INC.
1401 WYNKOOP STREET, SUITE 500
DENVER, COLORADO 80202
TELEPHONE: (303) 595-4000
FAX: (303) 595-4014
INTERNET: WWW.CHIPOTLE.COM

STORE NO.: 2603
PORTLAND MARGINAL WAY
195 KENNEBEC ST
PORTLAND, ME 04101

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