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SUMMARY OF THE WORK

PART 1 - GENERAL

1.01

1. The furnishing of all labor, materials, equipment, services, and transportation of Hoover High School Cafeteria floor Renovation at 651 Glenwood Road, Glendale, CA 91202, as set forth in the Contraction documents which is required for the completion of the project in accordance with the provisions of the contract.

2 Article 3 of the Bid General Conditions requires preparation of a Cost-loaded time logic schedule with a single critical path. If the Board approved lowest responsive and responsible bid Contractor and the Project Manager, on behalf of the District, cannot agree on the contract construction schedule and the project single critical path within fifteen (15) days after Notice to Proceed, the District may terminate the Contract, for convenience, as outlined in the Project General Conditions. In the event this is necessary, compensation to the General Contractor and all subcontractors or materialmen shall be limited to Mobilization costs only.

3. The liquidated damages shown in the Supplementary General Conditions shall apply to each phase of the phased construction plan, as defined by and within the plans and specifications.

4 No warranties or guarantees shall go into effect, for any trade, regardless of when completed in the sequence of the project erection, until one (1) day after the Board of Education has accepted the project at a noticed meeting. Attention: Bidders. This will require certain trades to bid for, and provide, a warranty of longer than one (1) year in length from the time of installation or furnishing of their materials to the project, depending upon the sequencing of their work within the overall schedule.

5 All project close-out/punch list items, project record documents, submittals, and operations manuals and spare parts, warranties and guarantees and Contractor's Final Verified Report (DSA6) shall be reviewed and accepted prior to the Architect/District agreed upon authorization to file the Notice of Completion with the Los Angeles County Recorder.

6 In the event that any materials requiring DSA Inspection (steel, concrete, masonry grout, etc.) are manufactured in an area located more than one hundred miles (100 miles) by air radius from the project site, all round-trip travel and all per diem costs incurred by the District on behalf of the Deputy Inspector who must perform on-site examination of the materials shall be borne 100% by the Contractor as an added expense. This charge shall be subtracted from the monthly "Application for Payment" submitted to the District on behalf of the project.

7 In the event the General Contractor or any subcontractor or materialman (on or off site) voluntarily accelerates the schedule for their own purposes, and/or voluntarily performs work in excess of eight (8) hours per day, or on the weekends or holidays, the additional cost of the Inspectors' overtime premiums which are required to inspect the work during these hours shall be paid 100% by the Contractor. This charge shall also be subtracted from the monthly "Application for Payment" submitted to the District on behalf of the project.

8 In the event that the Contractor fails to complete all punch list items and turn over all "deliverables, warranties, As-builts, etc." within sixty (60) days after acceptance of completion by the Board of Education, the full salary costs of one (1) construction Project Manager (16 hours per week @ $120.00/hour) and one DSA Inspector of record (actual hours spent @$80.00/hour) shall be back-charged to the Contractor, in addition to the liquidated

damages, if any, imposed upon the Contractor for late performance. THIS PARAGRAPH WILL BE STRICTLY ENFORCED.

9. The intent of these contract documents is that the work of alteration, rehabilitation or construction is to be accordance with Title 24, California Code of Regulations. Should any existing conditions such as deterioration or non-complying construction be discovered which is not covered by the Contract Documents wherein the finished work will not comply with Title 24, California Code of Regulations, a change order, or a separate set of plans and specifications, detailing and specifying the required

PART 2 – SCOPE OF WORK

2.01

A. Scope of Work: Contractor shall perform, within the time stipulated, the Contract including all of its component parts, and everything required to be performed, and to provide and furnish any and all of the labor, materials, tools, expendable equipment, and all applicable taxes, and all utility and transportation services necessary to perform the Contract and complete, in a workmanlike manner, all of the Work required in connection with the following titled Project in strict conformity with the Contract Documents:

2.0 B. Hoover High School Cafeteria floor Renovation at 651 Glenwood Road, Glendale, CA 91202

Hoover High School Cafeteria Floor Renovation Scope

1) Removal of existing ceramic Tiles
2) Fill in all of the cracked concrete
3) Grind concrete and Matt polish approximately 6000 square feet in cafeteria and storage area
4) Seal concrete with clear sealer.
5) Clean area and have ready for use

Additive alternate

1) Painting of the area

SECTION 01730

DEMOLITION PROCEDURES

PART 5 - GENERAL

1.01 SECTION INCLUDES

A. General requirements for special project procedures pertaining to the alteration or modification of existing construction, and are complimentary to like requirements indicated or specified elsewhere. Principals items included are:

1. Removals, cutting, alterations and repairs to existing facilities as required to complete work.

2. Relocation and reinstallation of existing construction and finish.

3. Salvage, storage and protection of existing items to be reinstalled.

4. Salvage and delivery to the District of items so designated for removal and salvaged by Contractor, as directed.

1.02 RELATED SECTIONS

A. Requirements of other Sections of this Specification apply to this Section.

1.03 PROPERTY INVENTORY

A. District property that the District intends to remove, will be removed at no cost to Contractor, before a room or space is vacated for the Work. Before performing any Work in each room or space the District and Contractor shall prepare a detailed initial written inventory of District property remaining therein and condition thereof including equipment and telephone instruments, and each shall retain a copy of the inventory dated and signed by both. In same manner, prior to the District re-occupancy of each such room or space the parties shall again inventory District property therein and all discrepancies between the inventories shall be Contractor's responsibility as specified above.

1.05 JOB CONDITIONS

A. General: Coordinate the Work of all trades and with the District to assure correct sequence, limits, methods, and times of performance. Arrange the Work to impose minimum hardship on operation and use of the facilities. Install

protection for existing facilities, contents, and new work against dust, dirt, weather, damage, and vandalism, and maintain and relocate as the Work progresses.

B. Access: Confine entrance and exit operations to access routes designated by the District.

C. Existing Conditions: Intent of Drawings is to indicate existing site and facility conditions with information developed from original construction documents, field surveys, and the District records, and to generally indicate amount and type of demolition and removals required to prepare existing areas for new work.

D. Verification of Conditions: Perform a detailed survey of existing site and building conditions pertaining of the Work before starting Work. Report to the District Inspector discrepancies or conflicts between Drawings and actual conditions in writing for clarification and instructions and do not perform Work where such discrepancies or conflicts occur prior to receipt of the Architect's instructions.

E. Special Noise Restrictions: Use care to prevent generation of unnecessary noise and keep noise levels to minimum possible. When ordered by the District Inspector, immediately discontinue such methods that produce noise disruptive or harmful to facility functions and occupants, and employ unobjectionable methods. Equip air compressors, tractors, cranes, hoists, vehicles, and other internal combustion engine equipment with "residential" grade mufflers, and muffle the unloading cycle of compressors. Remove from site any equipment producing objectionable noise as determined by the District Inspector.

F. Shoring and Bracing: Provide supports, shoring, and bracing required to preserve structural integrity and prevent collapse of existing construction that is cut into or altered as a part of the Work.

G. Overloading: Do not overload any part of structures beyond safe carrying capacity by placing of materials, equipment, tools, machinery, or any other item thereon.

H. Building Security: Secure building entrances and exits with locking or other approved method in accordance with the District's instructions.

I. Safeguarding the District Property: Contractor shall assume care, custody, and responsibility for safeguarding all the District's property of every kind, whether fixed or portable, remaining in rooms and spaces vacated and turned over to the Contractor by the District for his exclusive use in performance of the Work until the Work therein or related thereto is completed and the rooms or spaces are reoccupied by the District. Furnish all forms of security and protection necessary to protect the District's property. Regardless of cause, Contractor shall repair or replace all of the District's property under the Contractor's care, custody, and safeguarding that is damaged, injured, missing, lost, or stolen from time each such room or space is turned over the Contractor for the Work until re-occupied by the District, at Contractor's expense and as directed by the District.

    1. Covering and Cleaning: Cover and protect surfaces of rooms and spaces turned over for the Work, including the District's property remaining therein, as required to prevent soiling or damage by dust, dirt, water, fumes, or otherwise, and protect other areas where Work is performed in same manner, as deemed adequate by the District. Prior to District's re-occupancy of any such room or space, clean all surfaces including District's property in accordance with General Conditions and other cleaning instructions as may be specified in other Sections.

J. Use of District's Telephones: Do not use nor allow anyone other than District employees to use telephone in rooms and spaces turned over to Contractor for the Work except in the case of a bona fide emergency. Install temporary dial locks on telephone instruments to prevent all unauthorized use, or arrange and pay for temporary removal and reinstallation of instruments. Reimburse to the District all telephone toll charges originating from the telephones in such rooms and spaces except those arising from emergencies or use by District employees.

K. Welding: Conform to following requirements where welding is performed in or on existing facilities.

    1. Protection During Welding: Conform to Title 8, CAC. Further protect occupants and the public with portable solid vision barricades around locations where welding is performed plus signs warning against looking at welding without proper eye protection, or equivalent.

2. Fire Extinguishers: Maintain a fully charged UL-labeled minimum 6 pound 40B:C dry chemical fire extinguisher at every location where welding is performed within or on the facilities.

3. Welding Smoke Control: Verify locations of existing smoke detectors. Perform welding operations by methods that produce the minimum feasible smoke and fumes. Furnish portable type smoke collection and ventilating equipment as required to prevent smoke and fume nuisances. Notify District at least 48 hours in advance if temporary deactivation of any smoke detector is required to prevent false alarms from the welding operations. The District's personnel will deactivate detectors only for the time welding is actually in progress.

4. Fire Prevention: Before welding, examine existing construction and backing for all combustible materials and finishes and for conditions where heat conduction in metals may bring adjoining materials to ignition temperature. Use positive fire prevention measures including temporary removal and reinstallation of combustible materials, installation of temporary shields and/or heat sinks, and other necessary means. When actual field conditions are such that positive fire prevention measures cannot be achieved, notify Architect and do not proceed with the involved work until receipt of Architect's instructions.

L. Protection of Floors: Use care to protect all floor surfaces and coverings from damage. Equip mobile equipment with pneumatic tires.

PART 2 - PRODUCTS

2.01 MATERIALS:

A. General: When patching existing work in place, use materials that match existing materials in performance, thickness and finish.

PART 3 - EXECUTION

3.01 PROTECTION:

A. Glass: Provide such protection as may be required to prevent glass breakage for all glass to be reused or to remain. At no additional cost, replace in kind all broken glass.
B. Existing Work to Remain: Provide such forms of protection as may be necessary to prevent damage to and dust or dirt contamination of existing work and equipment to remain.
C. Items to be Reused: Exercise the greatest possible care when removing items scheduled for reuse. Use only mechanics skilled in the appropriate trades. Identify point of reuse, store and protect at locations directed.
D. If required due to damage, replace with new materials to match existing in same manner and technique originally utilized.

3.02 REMOVALS, ALTERATIONS, AND REPAIRS:

A. Basic Requirement: Restore and refinish all new and existing construction and improvements that are cut into, altered, damaged, relocated, reinstalled, or left unfinished by removals to original condition or to match adjoining work and finishes unless otherwise shown, specified, directed, or required. Workmanship and materials shall conform to applicable provisions of other Sections. Provide new fasteners, connectors, adhesives, and other accessory materials as required to fully complete approved reinstallations and restorations. Where restorations and refinishing are defective or are otherwise not acceptable to Architect, remove all the defective or rejected materials and provide new acceptable materials and finish at no extra cost to District.
B. Extent: Perform removals to extent required plus such additional removals as are necessary for completion even though not indicated or specified. More or less of the existing construction may be removed if such variation will expedite the work and reduce cost to the District, subject to prior approval in each case.
C. Removals: Carefully remove work to be salvaged or reinstall and store under cover.

3.03 MECHANICAL AND ELECTRICAL:

A. Demolish existing mechanical, plumbing and electrical items as indicated in the Drawings and Specifications.

3.04 REMOVED MATERIAL AND DEBRIS:

A. All removed material, not otherwise designated, and all debris becomes the property of the Contractor who shall remove it from the site and dispose of it in a legal manner.
B. Do not allow materials and debris generated by demolition activities to accumulate. Remove daily.
C. Leave all spaces broom clean with all ledges and corners properly cleaned.

END OF SECTIO

CONCRETE REINFORCEMENT

PART 1 - GENERAL

1.1 H. I. J.

A.

K.

B.

1.2 L.

A.

B.

c.

1.3

A.

B.

c.

D.

E.

F.

G.

SECTION INCLUDES

place concrete and concrete masonry units. Supports and accessories for steel reinforcement.

RELATED SECTIONS

Section 03 10 00 - Concrete Forms and Accessories. Section 03 30 00 - Cast-in-Place Concrete.

Section 03 45 00 - Architectural Precast Concrete: Reinforcement for precast concrete panels. REFERENCES

ACI 301 - Specifications for Structural Concrete for Buildings; American Concrete Institute International.

ACI 318- Building Code Requirements For Reinforced Concrete and Commentary; American Concrete Institute International.

ACI SP-66 - ACI Detailing Manual; American Concrete Institute International.

ASTM A 82- Standard Specification for Steel Wire, Plain, for Concrete Reinforcement.

ASTM A 184/A 184M - Standard Specification for Welded Deformed Steel Bar Mats for Concrete Reinforcement.

ASTM A 185- Standard Specification for Steel Welded Wire Reinforcement, Plain, for Concrete. ASTM A 497/A 497M- Standard Specification for Steel Welded Wire Reinforcement, Deformed, for Concrete.

ASTM A 615/A 615M - Standard Specification for Deformed and Plain Billet-Steel 1;3ars for Concrete Reinforcement.

ASTM A 704/A 704M - Standard Specification for Welded Steel Plain Bar or Rod Mats for Concrete Reinforcement.

ASTM A 706/A 706M- Standard Specification for Low-Alloy Steel Deformed and Plain Bars for Concrete Reinforcement.

ASTM A 996/A 996M -Standard Specification for Rail-Steel and Axle-Steel Deformed Bars for Concrete Reinforcement.

AWS D1.4 - Structural Welding Code- Reinforcing Steel; American Welding Society.

M. California Code of Regulations (CCR) Title 24 California Building Code (CBC). 2010 Edition. N. CRSI (DA4)-

Manual of Standard Practice; Concrete Reinforcing Steel Institute.

O. CRSI (P1)- Placing Reinforcing Bars; Concrete Reinforcing Steel Institute.

1.4 SUBMITTALS

A. Shop Drawings: Only when deviations are made from the contract documents, submit shop drawings under provision of Section 01 33 13 with deviations clearly identified.

1. Indicate sizes, spacings, locations and quantities of reinforcing steel, wire fabric, bending and cutting schedules, splicing, stirrup spacing, supporting and spacing devices.

B. Manufacturer's Certificate: Certify that reinforcing steel and accessories supplied for this project meet or exceed specified requirements.

C. Reports: Submit certified copies of mill test report of reinforcement materials analysis, indicate physical and chemical analysis.

D. Welders Certificates: Submit certifications for welders employed on the project, verifying AWS qualifications within the previous 12 months.

1.5 QUALITY ASSURANCE

A. Perform work of this section in accordance with CRSI (DA4), CRSI (P1), ACI 301, and ACI SP-66.

B. Tests of Reinforcing bars shall be in conformance with 2010 CBC Sections 1916A.2 and 1704A.4.1.

PART 2 - PRODUCTS

2.1 REINFORCEMENT

A. Reinforcing Steel: ASTM A 615/A 615M Grade 60.

1. Deformed billet-steel bars.

2. Unfinished.

B. Reinforcing Steel: ASTM A 706/A 706M, deformed low-alloy steel bars.

1. Unfinished.

C. Steel Welded Wire Reinforcement: ASTM A185/A 185M, plain type.

1. Welded Wire Mat Reinforcing: mesh size and gage as indicated on drawings. D. Steel

Welded Wire Reinforcement: ASTM A 497, deformed type.

1. Flat Sheets.

2. Mesh Size and Wire Gage: As indicated on drawings.

E. Reinforcement Accessories:

1. Tie Wire: Annealed, minimum 16 gage acceptable patented system.

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

3. Provide stainless steel, plastic, or plastic coated steel components for placement within 1 %" of weathering surfaces.

2.2 FABRICATION

A. Fabricate concrete reinforcing in accordance with CRSI (DA4)- Manual of Standard Practice.

B. Welding of reinforcement, in conformance with 2010 CBC Section 1903A.7 with Table 1704A.3, is permitted only with the specific approval of Structural Engineer. Perform welding in accordance with AWS D1.4.

C. Obtain approval from the architect/engineer for additional reinforcing splices not indicated on drawings.

PART 3 - EXECUTION

3.1 PLACEMENT

A. Comply with requirements of ACI 301. Clean reinforcement of loose rust and mill scale, and accurately position, support, and secure in place to achieve not less than minimum concrete coverage required for protection.

B. Install welded wire reinforcement in maximum possible lengths, and offset end laps in both directions. Splice laps with tie wire.

C. Verify that anchors, seats, plates, reinforcement and other items to be cast into concrete are accurately placed, positioned securely, and will not interfere with concrete placement.

D. Do not displace or damage vapor barrier.

E. Accommodate placement of formed openings.

3.2 FIELD QUALITY CONTROL

A. An independent testing agency, as specified in Section 01 40 00, will inspect installed reinforcement for conformance to contract documents before concrete placement.

END OF SECTION

SECTION 03 01 30 - MAINTENANCE OF CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Removal of deteriorated concrete and reinforcement and subsequent replacement and patching.
2. Floor joint repair.
3. Epoxy crack injection.
4. Corrosion-inhibiting treatment.
5. Polymer overlays.
6. Polymer sealers.
7. Steel structural reinforcement.
8. Composite structural reinforcement.

B. Related Sections include the following:

1. Section 03 10 00 - Concrete Forms and Accessories
2. Section 03 30 00 - Cast-in-place Concrete
3. Section 07 19 00 - Water Repellents

1.3 UNIT PRICES

A. Unit prices include the cost of preparing existing construction to receive the work indicated and costs of field quality-control testing required by the Work for which the unit price applies.

B. Concrete Removal and Replacement or Patching: Work will be paid for by the cubic foot computed on the basis of rectangular solid shapes approximating the actual shape of concrete removed and replaced with average depths, widths, and lengths, measured to the nearest inch.

1. Reinforcing bar replacement will be paid for separately by the pound of replacement steel with welded and mechanical splices paid for by the unit.

C. Epoxy Crack Injection: Work will be paid for by the linear foot of crack injected.

D. Polymer Overlays: Work will be paid for by the square foot of exposed overlay surface.

E. Composite Structural Reinforcement: Work will be paid for by the square foot of composite material applied.

1.4 SUBMITTALS

A. Product Data: For each type of product indicated. Include material descriptions, chemical composition, physical properties, test data, and mixing, preparation, and application instructions.

B. Formwork Drawings: Prepared by or under the supervision of a qualified professional engineer detailing formwork. Include schedule and sequence for erection and removal relative to removal of deteriorated concrete and reinforcement and subsequent repair and reinforcement.

C. Samples: Cured Samples of overlay and patching materials.

D. Qualification Data: For installers and manufacturers.

1. For products required to be installed by workers approved by product manufacturers, include letters of acceptance by product manufacturers certifying that installers are approved to apply their products.

E. Material Certificates: For each type of product indicated, signed by manufacturers.

F. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for bonding agents, patching mortars, epoxy adhesives and composite structural reinforcement.

G. Rehabilitation Program: For each phase of rehabilitation process, including protection of surrounding materials and Project site during operations. Describe in detail materials, methods, equipment, and sequence of operations to be used for each phase of the Work.

1. If alternative materials and methods to those indicated are proposed for any phase of rehabilitation work, submit substitution request complying with Section 01 60 00 Product Requirements and provide a written description of proposed materials and methods, including evidence of successful use on other comparable projects, and a testing program to demonstrate their effectiveness for this Project.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: Installer that employ workers trained and approved by manufacturer to apply corrosion-inhibiting treatments, concrete patching and rebuilding materials, epoxy crack injection materials, polymer overlays, polymer sealers, and composite structural reinforcement.

B. Manufacturer Qualifications: Manufacturer that employs factory-trained representatives who are available for consultation and Project-site inspection.

C. Source Limitations: Obtain concrete patching and rebuilding materials, epoxy crack injection materials, and composite structural reinforcement materials through one source from a single manufacturer.

D. Mockups: Build mockups for concrete removal and patching, floor joint repair, epoxy crack injection, polymer overlays, polymer sealers and composite structural reinforcement to demonstrate aesthetic effects and set quality standards for materials and execution.

1. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

E. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Section 01 31 00 Project Management and Coordination.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to Project site in manufacturer's original and unopened containers, labeled with type and name of products and manufacturers.

B. Comply with manufacturer's written instructions for minimum and maximum temperature requirements and other conditions for storage.

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

D. Store aggregates, covered and in a dry location, where grading and other required characteristics can be maintained and contamination avoided.

1.7 PROJECT CONDITIONS

A. Environmental Limitations for Epoxies: Do not apply when air and substrate temperatures are outside limits permitted by manufacturer. During hot weather, cool epoxy components before mixing, store mixed products in shade, and cool unused mixed products to retard setting. Do not apply to wet substrates unless approved by manufacturer.

1. Use only Class A epoxies when substrate temperatures are below or are expected to go below 40 deg F within 8 hours.
2. Use only Class A or B epoxies when substrate temperatures are below or are expected to go below 60 deg F within 8 hours.
3. Use only Class C epoxies when substrate temperatures are above and are expected to stay above 60 deg F for 8 hours.

B. Cold-Weather Requirements for Cementitious Materials: Do not apply unless air temperature is above 40 deg F and will remain so for at least 48 hours after completion of Work.

C. Cold-Weather Requirements for Cementitious Materials: Comply with the following procedures:

1. When air temperature is below 40 deg F, heat patching material ingredients and existing concrete to produce temperatures between 40 and 90 deg F.
2. When mean daily air temperature is between 25 and 40 deg F, cover completed Work with weather-resistant insulating blankets for 48 hours after repair or provide enclosure and heat to maintain temperatures above 32 deg F within the enclosure for 48 hours after repair.
3. When mean daily air temperature is below 25 deg F, provide enclosure and heat to maintain temperatures above 32 deg F within the enclosure for 48 hours after repair.

D. Hot-Weather Requirements for Cementitious Materials: Protect repair work when temperature and humidity conditions produce excessive evaporation of water from patching materials. Provide artificial shade and wind breaks, and use cooled materials as required. Do not apply to substrates with temperatures of 90 deg F and above.

E. Environmental Limitations for High-Molecular-Weight Methacrylate Sealers: Do not apply when concrete surface temperature is below 55 deg F or above 90 deg F. Apply only to substrates that have been dry for at least 72 hours.

PART 2 - PRODUCTS

2.1 BONDING AGENTS

A. Epoxy-Modified, Cementitious Bonding and Anticorrosion Agent: Product that consists of water-insensitive epoxy adhesive, portland cement, and water-based solution of corrosion-inhibiting chemicals that forms a protective film on steel reinforcement.

1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:
2. Products: Subject to compliance with requirements, provide one of the following:

    a. Euclid Chemical Company (The); Corr-Bond.
    b. Kaufman Products, Inc; Surepoxy HM EPL.

c. Sika Corporation; Armatec 110 EpoCem.
d. Sonneborn, Div. of ChemRex; Sonoprep.
e. Sto Corp., Concrete Restoration Division; Sto Bonding and Anti-Corrosion Agent.
f. Tamms Industries, Inc.; Duralprep A.C.

B. Epoxy Bonding Agent: ASTM C 881/C 881M.

1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:
2. Products: Subject to compliance with requirements, provide one of the following:

a. Anti-Hydro International, Inc.; Poly-Epoxy Bonding #100.
b. ChemCo Systems; CCS Bonder Liquid.
c. Dayton Superior Corporation.
d. Euclid Chemical Company (The).
e. Kaufman Products, Inc.; SurePoxy HM EPL.
f. MBT Protection and Repair, Div. of ChemRex; Concresive Liquid LPL.
g. Meadows, W. R., Inc.
h. Sika Corporation.
i. Sonneborn, Div. of ChemRex.
j. Tamms Industries, Inc.; Duralbond.
k. ThoRoc, Div. of ChemRex; Epoxy Adhesive 24LPL.
l. Unitex.
m. US MIX Products Company.

3. Thin Film Open Time: Not less than six (6) hours.

C. Latex Bonding Agent: ASTM C 1059.

1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:
2. Products: Subject to compliance with requirements, provide one of the following:

a. Latex Bonding Agent, Type I:

1) Euclid Chemical Company (The); Euco Weld.
2) Kaufman Products, Inc.; Sureweld.
3) Meadows, W. R. Inc.; Intralok.
4) Sika Corporation; Sikalatex.
5) US MIX Products Company; US Spec Bondcoat.

b. Latex Bonding Agent, Type II:

1) Dayton Superior Corporation; Day-Chem Ad Bond (J-40).
2) Euclid Chemical Company (The); Flex-Con.
3) Kaufman Products, Inc.; Surebond.
4) Meadows, W. R. Inc.; Sealtight Acry-Lok.
5) Sonneborn, Div. of ChemRex; Acrylic Additive.
6) US MIX Products Company; US Spec Acrylcoat.

D. Mortar Scrub-Coat: 1 part portland cement complying with ASTM C 150, Type I, II, or III and 1 part fine aggregate complying with ASTM C 144, except 100 percent passing a No. 16 sieve.

2.2 PATCHING MORTAR

A. Patching Mortar, General:

1. Unless otherwise indicated, use any of the products specified in this Article.
2. Overhead Patching Mortar: For overhead repairs, use patching mortar recommended by manufacturer for overhead use and as specified in this Article.
3. Coarse Aggregate for Adding to Patching Mortar: Washed aggregate complying with ASTM C 33, Size No. 8, Class 5S. Add only as permitted by patching mortar manufacturer.

B. Job-Mixed Patching Mortar: 1 part portland cement complying with ASTM C 150, Type I, II, or III and 2-1/2 parts fine aggregate complying with ASTM C 144, except 100 percent passing a No. 16 sieve.

C. Cementitious Patching Mortar: Packaged, dry mix complying with ASTM C 928.

1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:
2. Products: Subject to compliance with requirements, provide one of the following:

a. Cementitious Patching Mortar:

1) Kaufman Products, Inc.; Hicap.
2) MBT Protection and Repair, Div. of ChemRex.
3) Sika Corporation.
4) Sonneborn, Div. of ChemRex; Deep Pour Mortar.
5) Sto Corp., Concrete Restoration Division; Sto Full-Depth Repair Mortar.
6) ThoRoc, Div. of ChemRex; LA Repair Mortar.

b. Cementitious Patching Mortar, Rapid Setting:

1) CGM, Incorporated; Pro Patching Cement.
2) Dayton Superior Corporation.
3) Euclid Chemical Company (The); Euco-Speed.
4) Fox Industries, Inc.; FX-928 Rapid Hardening Mortar.
5) Kaufman Products, Inc.; Duracrete.
6) Meadows, W. R. Inc.
7) Sika Corporation; Sikaset Roadway Patch.
8) Sonneborn, Div. of ChemRex; Road Patch.
9) Sto Corp., Concrete Restoration Division; Sto Rapid Repair Mortar.
10) Tamms Industries, Inc.; Speed Crete 2028.
11) ThoRoc, Div. of ChemRex.
12) Unitex; Patch Set 928.
13) US MIX Products Company; US Spec Transpatch.
14) Watson Bowman Acme Corp., Degussa AG; Wabo Renew 100.

D. Polymer-Modified, Cementitious Patching Mortar: Packaged, dry mix complying with ASTM C 928, that contains a non-redispersible latex additive as either a dry powder or a separate liquid that is added during mixing.

1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:
2. Products: Subject to compliance with requirements, provide one of the following:

a. AQUAFIN, Inc.
b. CGM, Incorporated.
c. Dayton Superior Corporation.
d. Euclid Chemical Company (The).
e. Fox Industries, Inc.
f. Kaufman Products, Inc.
g. MBT Protection and Repair, Div. of ChemRex.
h. Meadows, W. R., Inc..
i. Sika Corporation.

j. Sonneborn, Div. of ChemRex.
k. Sto Corp., Concrete Restoration Division.
l. Tamms Industries, Inc.
m. ThorRoc, Div. of ChemRex, Inc.
n. US MIX Products Company.

E. Polymer-Modified, Silica-Fume-Enhanced, Cementitious Patching Mortar: Packaged, dry mix complying with ASTM C 928, that contains silica fume complying with ASTM C 1240 and a non-redispersible latex additive as either a dry powder or a separate liquid that is added during mixing.

1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:
2. Products: Subject to compliance with requirements, provide one of the following:

a. Euclid Chemical Company (The).
b. Fox Industries, Inc.
c. MBT Protection and Repair.
d. Meadows, W. R., Inc.
e. Sika Corporation.
f. Sonneborn, Div. of ChemRex.
g. US Mix Products Company.

2.3 CONCRETE

A. Concrete Materials and Admixtures: Comply with Section 03 30 00 Cast-in-Place Concrete.

B. Steel and Fiber Reinforcement and Reinforcement Accessories: Comply with Section 03 30 00 Cast-in-Place Concrete.

C. Form-Facing Materials: Comply with Section 03 30 00 Cast-in-Place Concrete.

D. Preplaced Aggregate: Washed aggregate complying with ASTM C 33, Class 5S.

E. Fine Aggregate for Grout Used with Preplaced Aggregate: Fine aggregate complying with ASTM C 33, but with 100 percent passing a No. 8 sieve, 95 to 100 percent passing a No. 16 sieve, 55 to 80 percent passing a No. 30 sieve, 30 to 55 percent passing a No. 50 sieve, 10 to 30 percent passing a No. 100 sieve, 0 to 10 percent passing a No. 200 sieve, and having a fineness modulus of 1.30 to 2.10.

F. Grout Fluidifier for Grout Used with Preplaced Aggregate: ASTM C 937.

G. Portland Cement for Grout Used with Preplaced Aggregate: ASTM C 150.

H. Pozzolans for Grout Used with Preplaced Aggregate: ASTM C 618.

2.4 MISCELLANEOUS MATERIALS

A. Epoxy Joint Filler: 2-component, semirigid, 100 percent solids, epoxy resin with a Type A Shore durometer hardness of at least 80 per ASTM D 2240.

1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:
2. Products: Subject to compliance with requirements, provide one of the following:

a. Anti-Hydro International, Inc.
b. ChemCo Systems; CCS Grout.

c. Euclid Chemical Company (The).
d. Kaufman Products, Inc.
e. MBT Protection and Repair.
f. Meadows, W. R., Inc.
g. Metzger/McGuire.
h. Sika Corporation. i.
Unitex.
j. US Mix Products Company.

B. Polyurea Joint Filler: 2-component, semirigid, 100 percent solids, polyurea resin with a Type A Shore durometer hardness of at least 80 per ASTM D 2240.

1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:
2. Products: Subject to compliance with requirements, provide one of the following:

a. ASTC Polymers.
b. ChemCo Systems; CCS Grout.
c. Dayton Superior Corporation.
d. Euclid Chemical Company (The).
e. MBT Protection and Repair, Div. of ChemRex.
f. Metzger/McGuire.
g. Sonneborn, Div. of ChemRex.

C. Epoxy Crack Injection Adhesive: ASTM C 881/C 881M.

1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:
2. Products: Subject to compliance with requirements, provide one of the following:

a. ChemCo Systems; CCS Grout.
b. Dayton Superior Corporation.
c. Euclid Chemical Company (The).
d. Kaufman Products, Inc.
e. MBT Protection and Repair, Div. of ChemRex.
f. Meadows, W. R., Inc.; Sealtight Rezi-Weld LV.
g. Sika Corporation.
h. Sonneborn, Div. of ChemRex.
i. Tamms Industries, Inc.; Duralcrete LV.
j. Thermal-Chem; Crack Injection.
k. ThorRoc, Div. of ChemRex, Inc.
l. Unitex.
m. US MIX Products Company; US Spec Maxi - Bond 500LV.

D. Capping Adhesive: Product manufactured for use with crack injection adhesive by same manufacturer.

E. Corrosion-Inhibiting Treatment Materials: Water-based solution of alkaline corrosion-inhibiting chemicals that penetrates concrete by diffusion and forms a protective film on steel reinforcement.

1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:
2. Products: Subject to compliance with requirements, provide one of the following:

a. Cortec Corporation.
b. Degussa Corporation; Protectosil CIT.
c. Fox industries, Inc.; FX-361 Migratory Corrosion Inhibitor.
d. Sika Corporation; Sika Ferrogard 903.
e. Sonneborn, Div. of ChemRex; Corrosion Inhibitor.

F. Polymer Overlay: Epoxy adhesive complying with ASTM C 881/C 881M, Type III.

1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:
2. Products: Subject to compliance with requirements, provide one of the following:

a. Kaufman Products, Inc.
b. Meadows, W. R., Inc.; Sealtight Rezi-Weld Type III DOT.
c. Thermal-Chem; Flexgard T, Product 309.
d. Unitex; Pro-Poxy Type III D.O.T.
e. US MIX Products Company; US SPEC Type III Epoxy Binder.

G. Aggregate for Use with Polymer Overlay: Oven-dried, washed silica sand complying with ACI 503.3.

H. Polymer Sealer: Low-viscosity epoxy penetrating sealer recommended by manufacturer for application to exterior concrete traffic surfaces.

1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:
2. Products: Subject to compliance with requirements, provide one of the following:

a. Epoxy Sealers:

1) ChemCo Systems; CCS Coating, Epoxy Healer Sealer.
2) Euclid Chemical Company (The); Euco #512 Epoxy Sealer.
3) Fox Industries, Inc.; FX-452 Epoxy Penetrating Sealer.
4) Kaufman Products, Inc.; SurePoxy Penetrating Sealer.
5) MBT Protection and Repair, Div. of ChemRex; Masterseal GP.
6) Thermal-Chem; Hairline Crack Sealer, Product 207.
7) Unitex; Pro-Seal HS.
8) US MIX Products Company; US Spec Eposeal LVS.

b. High-Molecular-Weight Methacrylate Sealers:

1) Meadows, W. R. Inc.; Sealtight Vocomp-25.
2) Sika Corporation; Sikapronto 19.
3) Transpo Industries, Inc.; Sealate T70.

I. Methylmethacrylate Sealer/Brighteners: Clear low-viscosity sealer recommended by manufacturer for sealing exterior exposed-aggregate concrete, and formulated to bring out color of aggregates and give concrete a wet look.

1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:
2. Products: Subject to compliance with requirements, provide one of the following:

a. Dayton Superior Corporation.
b. Kaufman Products, Inc.
c. Meadows, W. R., Inc.; Sealtight CS-309-25.
d. Tamms Industries, Inc.; Luster Seal 300.
e. Unitex; Bright Rock Sealer.
f. US MIX Products Company.

J. Steel Plates, Shapes, and Bars: ASTM A 36/A 36M.

1. After fabricating, prepare surfaces to comply with SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."

2. After preparation, apply one coat of lead- and chromate-free, modified-alkyd primer complying with MPI#76 and one coat of alkyd-gloss enamel complying with MPI#96.
3. After preparation, apply two-coat high-performance coating system consisting of organic zinc-rich primer, complying with SSPC-Paint 20 or SSPC-Paint 29 and topcoat of high-build, urethane or epoxy coating recommended by manufacturer for application over specified zinc-rich primer. Comply with coating manufacturer's written directions and with requirements in SSPC-PA 1, "Paint Application Specification No. 1: Shop, Field, and Maintenance Painting of Steel," for shop painting.

    a. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:
    b. Products: Subject to compliance with requirements, provide one of the following:

        1) Benjamin Moore & Co.; Epoxy Zinc-Rich Primer CM18/19 and M74/M75 Aliphatic Acrylic Urethane Semi-Gloss.
        2) Carboline Company; Carbozinc 621 and Carboguard 890 2-Component Epoxy.
        3) ICI Devoe Coatings; Catha-Coat 313 and Devthane 378 Aliphatic Urethane Semi-Gloss Enamel
        4) International Coatings Limited; Interzinc 315 Epoxy Zinc-Rich Primer and Interthane 870.
        5) PPG Architectural Finishes, Inc; Aquapon Zinc-Rich Primer ABC 97-670 and Aquapon 97-130 Epoxy.
        6) Sherwin-Williams Company (The); Corothane I GalvaPac Zinc Primer and Macropoxy HS High Solids Epoxy.
        7) Tnemec Company, Inc.; Tneme-Zinc 90-97 and Series 27 Hi-Build Epoxy.

K. Bolts, Nuts, and Washers: Carbon steel; ASTM A 307, Grade A (ASTM F 568M, Property Class 4.6), for bolts; ASTM A 563 (ASTM A 563M), Grade A, for nuts; and ASTM F 436 (ASTM F 436M) for washers; hot-dip or mechanically zinc coated.

L. Postinstalled Anchors: Expansion anchors, made from stainless-steel components complying with ASTM F 593 and ASTM F 594, Alloy Group 1 or 2 (ASTM F 738M and ASTM F 836M, Alloy Group A1 or A4) for bolts and nuts; ASTM A 666 or ASTM A 276, Type 304 or 316, for anchors, with capability to sustain, without failure, a load equal to four times the load imposed, as determined by testing per ASTM E 488, conducted by a qualified independent testing agency.

M. Composite Structural Reinforcement: Manufacturer's system consisting of carbon or glass-fiber reinforcement in the form of preimpregnated sheets or tow sheet with field-applied saturant, and epoxy primers, fillers, adhesives, saturants, and topcoats, designed for use as external structural reinforcement for concrete.

1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:
2. Products: Subject to compliance with requirements, provide one of the following:

    a. Sika Corporation; Carbodur and Sikadur 30. b.
    Sumitomo Corporation of America; Replark. c.
    Thermal-Chem; Epic Systems.
    d. VSL (VStructural, LLC), a Structural Group Company; V-Wrap C100. e.
    VSL (VStructural, LLC), a Structural Group Company; V-Wrap EG50. f.
    Watson Bowman Acme Corp., Degussa AG; Wabo MBrace.

2.5 MIXES

A. Mix products, in clean containers, according to manufacturer's written instructions.

1. Add clean silica sand and coarse aggregates to products only as recommended by manufacturer.
2. Do not add water, thinners, or additives unless recommended by manufacturer.

3. When practical, use manufacturer's premeasured packages to ensure that materials are mixed in proper proportions. When premeasured packages are not used, measure ingredients using graduated measuring containers; do not estimate quantities or use shovel or trowel as unit of measure.
4. Do not mix more materials than can be used within recommended open time. Discard materials that have begun to set.

B. Mortar Scrub-Coat: Mix with enough water to provide consistency of thick cream.

C. Dry-Pack Mortar: Mix with just enough liquid to form damp cohesive mixture that can be squeezed by hand into a ball but is not plastic.

D. Concrete: Comply with Section 03 30 00 Cast-in-Place Concrete.

E. Grout for Use with Preplaced Aggregate: Proportion according to ASTM C 938. Add grout fluidifier to mixing water followed by cementitious materials and then fine aggregate.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Notify Architect seven days in advance of dates when areas of deteriorated or delaminated concrete and deteriorated reinforcing bars will be located.

B. Locate areas of deteriorated or delaminated concrete using hammer or chain drag sounding and mark boundaries. Mark areas for removal by simplifying and squaring off boundaries as directed by Architect. At columns and walls make boundaries level and plumb, unless otherwise indicated.

C. Locate at least three reinforcing bars using a pachometer, and drill test holes to determine depth of cover. Calibrate pachometer, using depth of cover measurements, and verify depth of cover in removal areas using pachometer.

3.2 PREPARATION

A. Protect people, motor vehicles, equipment, surrounding construction, Project site, plants, and surrounding buildings from injury resulting from concrete rehabilitation work.

1. Erect and maintain temporary protective covers over pedestrian walkways and at points of entrance and exit for people and vehicles, unless such areas are made inaccessible during the course of concrete rehabilitation work. Construct covers of tightly fitted, 3/4-inch exterior-grade plywood supported at 16 inches o.c. and covered with asphalt roll roofing.
2. Protect adjacent equipment and surfaces by covering them with heavy polyethylene film and waterproof masking tape or a liquid strippable masking agent. If practical, remove items, store, and reinstall after potentially damaging operations are complete.
3. Neutralize and collect alkaline and acid wastes according to requirements of authorities having jurisdiction, and dispose of by legal means off Owner's property.
4. Dispose of runoff from wet operations by legal means and in a manner that prevents soil erosion, undermining of paving and foundations, damage to landscaping, and water penetration into building interiors.
5. Collect runoff from wet operations and dispose of by legal means off District's property.

B. Shoring: Install temporary supports before beginning concrete removal.

C. Concrete Removal:

1. Saw-cut perimeter of areas indicated for removal to a depth of at least 1/2 inch. Make cuts perpendicular to concrete surfaces and no deeper than cover on reinforcement.
2. Remove deteriorated and delaminated concrete by breaking up and dislodging from reinforcement.
3. Remove additional concrete, if necessary, to provide a depth of removal of at least 1/2 inch over entire removal area.
4. Where half or more of the perimeter of reinforcing bar is exposed, bond between reinforcing bar and surrounding concrete is broken, or reinforcing bar is corroded, remove concrete from entire perimeter of bar and to provide at least a 3/4-inch clearance around bar.
5. Test areas where concrete has been removed by tapping with hammer, and remove additional concrete until unsound and disbonded concrete is completely removed.
6. Provide fractured aggregate surfaces with a profile of at least 1/8 inch that are approximately perpendicular or parallel to original concrete surfaces. At columns and walls, make top and bottom surfaces level, unless otherwise directed.
7. Thoroughly clean removal areas of loose concrete, dust, and debris.

D. Reinforcing Bar Preparation: Remove loose and flaking rust from reinforcing bars by high-pressure water cleaning, abrasive blast cleaning or wire brushing until only tightly bonded light rust remains.

1. Where section loss of reinforcing bar is more than 25 percent, or 20 percent in 2 or more adjacent bars, cut bars and remove and replace as directed by Architect. Remove additional concrete as necessary to provide at least 3/4-inch clearance at existing and replacement bars. Splice replacement bars to existing bars according to ACI 318, by lapping, welding, or using mechanical couplings.

E. Preparation of Floor Joints for Repair: Saw-cut joints full width to edges and depth of spalls, but not less than 1 inch deep. Clean out debris and loose concrete; vacuum or blow clear with compressed air.

F. Surface Preparation for Corrosion-Inhibiting Treatment: Clean concrete by low-pressure water cleaning, detergent scrubbing or sand blasting to remove dirt, oils, films, and other materials detrimental to treatment application. Allow surface to dry before applying corrosion-inhibiting treatment.

G. Surface Preparation for Overlays: Remove delaminated material and deteriorated concrete surface material. Roughen surface of concrete by shot blasting, high-pressure water jetting or milling to produce a surface profile matching CSP per ICRI 03732. Sweep and vacuum roughened surface to remove debris followed by low-pressure water cleaning.

H. Surface Preparation for Sealers: Clean concrete by shot blasting, low-pressure water cleaning or detergent scrubbing to remove dirt, oils, films, and other materials detrimental to sealer application.

I. Surface Preparation for Sealers: Acid etch surface of concrete to produce a surface profile matching CSP 1 per ICRI 03732.

1. Remove excess acid solution, reaction products, and debris by squeegeeing or vacuuming.
2. Scrub surface with an alkaline detergent, rinse, and squeegee or vacuum.
3. Check acidity of surface with pH test paper and continue rinsing until pH is acceptable.
4. When pH is acceptable and surface is clean, vacuum dry.

J. Surface Preparation for Composite Structural Reinforcement: Remove delaminated material and deteriorated concrete surface material. Clean concrete where reinforcement and epoxy patching mortar is to be applied by low-pressure water cleaning or detergent scrubbing to remove dirt, oils, films, and other materials detrimental to epoxy application. Roughen surface of concrete by sand blasting.

3.3 APPLICATION

A. General: Comply with manufacturer's written instructions and recommendations for application of products, including surface preparation.

B. Epoxy-Modified, Cementitious Bonding and Anticorrosion Agent: Apply to reinforcing bars and concrete by stiff brush or hopper spray according to manufacturer's written instructions. Apply to reinforcing bars in two coats, allowing first coat to dry two to three hours before applying second coat. Allow to dry before placing patching mortar or concrete.

C. Epoxy Bonding Agent: Apply to reinforcing bars and concrete by brush, roller, or spray according to manufacturer's written instructions, leaving no pinholes or other uncoated areas. Apply to reinforcing bars in at least two coats, allowing first coat to dry before applying second coat. Apply patching mortar or concrete while epoxy is still tacky. If epoxy dries, recoat before placing patching mortar or concrete.

D. Latex Bonding Agent, Type II: Mix with portland cement and scrub into concrete surface according to manufacturer's written instructions. Apply patching mortar or concrete while bonding agent is still wet. If bonding agent dries, recoat before placing patching mortar or concrete.

E. Latex Bonding Agent, Type I: Apply to concrete by brush roller or spray. Allow to dry before placing patching mortar or concrete.

F. Mortar Scrub-Coat: Dampen repair area and surrounding concrete 6 inches beyond repair area. Remove standing water and apply scrub-coat with a brush, scrubbing it into surface and thoroughly coating repair area. If scrub-coat dries, recoat before applying patching mortar or concrete.

G. Patching Mortar: Unless otherwise recommended by manufacturer, apply as follows:

1. Wet substrate thoroughly and then remove standing water. Scrub a slurry of neat patching mortar into substrate, filling pores and voids.
2. Place patching mortar by troweling toward edges of patch to force intimate contact with edge surfaces. For large patches, fill edges first and then work toward center, always troweling toward edges of patch. At fully exposed reinforcing bars, force patching mortar to fill space behind bars by compacting with trowel from sides of bars.
3. For vertical patching, place material in lifts of not more than 1 inch nor less than 1/8 inch. Do not feather edge.
4. For overhead patching, place material in lifts of not more than 1 inch nor less than 1/8 inch. Do not feather edge.
5. After each lift is placed, consolidate material and screed surface.
6. Where multiple lifts are used, score surface of lifts to provide a rough surface for application of subsequent lifts. Allow each lift to reach final set before placing subsequent lifts.
7. Allow surfaces of lifts that are to remain exposed to become firm and then finish to a smooth surface with a sponge float broom.
8. Wet-cure cementitious patching materials, including polymer-modified, cementitious patching materials, for not less than seven days by water-fog spray or water-saturated absorptive cover.

H. Dry-Pack Mortar: Use for deep cavities and where indicated. Unless otherwise recommended by manufacturer, apply as follows:

1. Provide forms where necessary to confine patch to required shape.
2. Wet substrate and forms thoroughly and then remove standing water.
3. Place dry-pack mortar into cavity by hand, and compact into place with a hardwood drive stick and mallet or hammer. Do not place more material at a time than can be properly compacted. Continue placing and compacting until patch is approximately level with surrounding surface.
4. After cavity is filled and patch is compacted, trowel surface to match profile and finish of surrounding concrete. A thin coat of patching mortar may be troweled into the surface of patch to help obtain required finish.
5. Wet-cure patch for not less than seven days by water-fog spray or water-saturated absorptive cover.

I. Concrete: Place according to Section 03 30 00 Cast-in-Place Concrete and as follows:

1. Apply epoxy-modified, cementitious bonding and anticorrosion agent to reinforcement and concrete substrate.

2. Apply latex bonding agent to concrete substrate.
3. Use vibrators to consolidate concrete as it is placed.
4. At unformed surfaces, screed concrete to produce a surface that when finished with patching mortar will match required profile and surrounding concrete.
5. Place concrete by form and pump method.

    a. Design and construct forms to resist pumping pressure in addition to weight of wet concrete. Seal joints and seams in forms and junctions of forms with existing concrete.
    b. Pump concrete into place, releasing air from forms as concrete is introduced. When formed space is full, close air vents and pressurize to 14 psi.

6. Wet-cure concrete for not less than seven days by leaving forms in place or keeping surfaces continuously wet by water-fog spray or water-saturated absorptive cover.
7. Fill placement cavities with dry-pack mortar and repair voids with patching mortar. Finish to match surrounding concrete.

J. Grouted Preplaced Aggregate Concrete: Use for column and wall repairs where indicated. Place as follows:

1. Design and construct forms to resist pumping pressure in addition to weight of wet grout. Seal joints and seams in forms and junctions of forms with existing concrete.
2. Apply epoxy-modified, cementitious bonding and anticorrosion agent to reinforcement and concrete substrate.
3. Place aggregate in forms, consolidating aggregate as it is placed. Pack aggregate into upper areas of forms to achieve intimate contact with concrete surfaces.
4. Fill forms with water to thoroughly dampen aggregate and substrates. Drain water from forms before placing grout.
5. Pump grout into place at bottom of preplaced aggregate, forcing grout upward. Release air from forms at top as grout is introduced. When formed space is full and grout flows from air vents, close vents and pressurize to 14 psi.
6. Wet-cure concrete for not less than seven days by leaving forms in place or keeping surfaces continuously wet by water-fog spray or water-saturated absorptive cover.
7. Repair voids with patching mortar and finish to match surrounding concrete.

K. Joint Filler: Install in nonmoving floor joints where indicated.

1. Install filler to a depth of at least 1 inch. Use fine silica sand no more than 1/4 inch deep to close base of joint. Do not use sealant backer rods or compressible fillers below joint filler.
2. Install filler so that when cured, it is flush at top surface of adjacent concrete. If necessary, overfill joint and remove excess when filler has cured.

L. Epoxy Crack Injection: Comply with manufacturer's written instructions and the following:

1. Clean areas to receive capping adhesive of oil, dirt, and other substances that would interfere with bond, and clean cracks with oil-free compressed air or low-pressure water to remove loose particles.
2. Place injection ports as recommended by epoxy manufacturer, spacing no farther apart than thickness of member being injected. Seal injection ports in place with capping adhesive.
3. Seal cracks at exposed surfaces with a ribbon of capping adhesive at least 1/4 inch thick by 1 inch wider than crack.
4. Inject cracks wider than 0.003 inch to a depth of 8 inches or to a width of less than 0.003 inch, whichever is less.
5. Inject epoxy adhesive, beginning at widest part of crack and working toward narrower parts. Inject adhesive into ports to refusal, capping adjacent ports when they extrude epoxy. Cap injected ports and inject through adjacent ports until crack is filled.
6. After epoxy adhesive has set, remove injection ports and grind surfaces smooth.

M. Corrosion-Inhibiting Treatment: Apply by brush, roller, or airless spray in two coats at manufacturer's recommended application rate. Remove film of excess treatment by high-pressure washing before patching treated concrete.

1. Apply to areas indicated.

N. Polymer Overlay: Apply according to ACI 503.3.

1. Apply to traffic-bearing surfaces, including parking areas and walks.

O. Polymer Sealer: Apply by brush, roller, or airless spray at manufacturer's recommended application rate.

1. Apply to traffic-bearing surfaces, including parking areas and walks.

P. Methylmethacrylate Sealer/Brighteners: Apply by brush, roller, or airless spray at manufacturer's recommended application rate.

1. Apply to exterior concrete surfaces that are exposed to view, excluding traffic-bearing surfaces.

Q. Composite Structural Reinforcement Using Preimpregnated Fiber Sheet: Unless otherwise recommended by manufacturer, apply as follows:

1. Patch surface defects with epoxy mortar and allow to set before beginning reinforcement application.
2. Apply epoxy adhesive to a thickness of 1/16 inch to prepared concrete surfaces in areas where composite structural reinforcement will be applied.
3. Clean preimpregnated fiber sheet with acetone or other suitable solvent, and apply epoxy adhesive to a thickness of 1/16 inch.
4. Apply adhesive-coated fiber sheet to adhesive-coated concrete within open time of epoxy adhesive, and roll with a hard rubber roller until fiber sheet is fully embedded in adhesive, air pockets are removed, and adhesive is forced out from beneath fiber sheet at edges.
5. Apply additional layers as indicated using same procedure.

R. Composite Structural Reinforcement Using Fiber Tow Sheet and Saturant: Unless otherwise recommended by manufacturer, apply as follows:

1. Apply epoxy primer using brush or short nap roller to prepared concrete surfaces in areas where composite structural reinforcement will be applied.
2. After primer has set, patch surface defects with epoxy filler and allow to set before beginning reinforcement application.
3. Apply epoxy saturant to fiber tow sheet or primed and patched surface with 3/8-inch nap roller. Apply fiber tow sheet to primed and patched surface while saturant is still wet, using pressure roller to remove air pockets. Remove paper backing from fiber tow sheet and apply additional epoxy as needed to fully saturate tow sheet.
4. Apply additional layers as indicated, fully saturating each with epoxy.
5. After saturant has cured, apply protective topcoat by brush, roller, or spray.

3.4 FIELD QUALITY CONTROL

A. Testing Agency: Engage a qualified testing agency to sample materials and perform tests as follows:

1. Patching Mortar, Packaged Mixes: Three (3) randomly selected samples tested according to ASTM C 928.
2. Patching Mortar, Field Mixed: Three (3) randomly selected samples tested for compressive strength according to ASTM C 109/C 109M.
3. Concrete: As specified in Section 03 30 00 Cast-in-Place Concrete.
4. Grouted Preplaced Aggregate: Tested for compressive strength of grout according to ASTM C 942.

a. Testing Frequency: One sample for each 25 cu. yd. of grout or fraction thereof, but not less than one sample for each day's work.

5. Joint Filler: Core drilled samples to verify proper installation.

   a. Testing Frequency: One sample for each 100 feet of joint filled.
   b. Where samples are taken, fill holes with joint filler.

6. Epoxy Crack Injection: Core drilled samples to verify proper installation.

   a. Testing Frequency: 3 samples from mockup and 1 sample for each 100 feet of crack injected.
   b. Where samples are taken, fill holes with epoxy mortar.

END OF SECTION

SECTION 03 10 00

CONCRETE FORMS AND ACCESSORIES

PART 1 GENERAL

1.01 Provisions of Divisions 01 apply to this section

1.02 SECTION INCLUDES

A. Formwork for cast-in-place concrete as indicated.

B. Installation of items to be embedded in concrete, such as anchor bolts, inserts, embeds, and sleeves.

1.03 RELATED REQUIREMENTS

A. Section 01 42 00: Testing and Inspection.

B. Section 03 20 00: Concrete Reinforcement.

C. Section 03 30 00: Cast-In-Place Concrete

1.04 SYSTEM DESCRIPTION

A. Work shall be in accordance with CBC, Chapter 19A, Concrete.

1.05 SUBMITTALS

A. Submit Shop Drawings indicating locations of forms, joints, embedded items, and accessories.

B. Submit manufacturer's product data for form materials and accessories.

1.06 QUALITY ASSURANCE

A. As a minimum requirement, conform to ACI 347, Chapter 1: Design and Chapter 3: Materials for Formwork; ACI 301, “Specifications for Structural Concrete for Buildings”, as applicable, and for plywood, conform to tables for form design and strength in APA Form V 345.

B. Provide mock-ups for architectural exposed finishes.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials for forms in timely manner to ensure uninterrupted progress.

B. Store materials by methods that prevent damage and permit inspection and identification.

PART 2 PRODUCTS

2.01 GENERAL

A. Form materials may be reused provided they are completely cleaned and reconditioned, recoated for each use, capable of producing formwork of required quality, and are structurally sound.

B. Form Lumber: WCLIB Construction Grade or Better, WWPA No. 1 or Better.

C. Plywood: PS 1 95, Group I, Exterior Grade B-B Plyform or better.

D. For exposed painted concrete, plastic overlaid plywood of grade specified above, factory coated with a form coating and release agent Noxcrete", or equal.

E. Tube Forms: Burke "SmoothTube,” Sonoco "Seamless Sonotubes,” or Alton Building Products "Sleek Seamless Standard Wall,” of the type leaving no marks in concrete.

F. Joist Forms: Code recognized steel or molded plastic types as required.

G. Special Forms: For exposed integrally-colored concrete, plywood as above with high density overlay, plywood with integral structural hardboard or fibrous glass reinforced plastic facing.
H. For Exposed Concrete Finish, material can be the following types: plywood, glass, steel and a combination plywood formwork types.
I. Form Ties: Prefabricated rod, flat band, wire, internally threaded disconnecting type.
J. Form Coating: Non-staining clear coating free from oil, silicone, wax, not grain-raising, or "Cast-Off".
K. Form Liner: Rigid or resilient type.
L. Void Forms: Forms shall be "WallVoid" for temporary support and "SlabVoid" for creating gaps. Void forms shall be fabricated of corrugated paper with moisture resistant exterior and shall be capable of withstanding working load of 1,500 psf.

PART 3 EXECUTION

3.01 GENERAL

A. Forms shall be constructed so as to shape final concrete structure conforming to shape, lines and dimensions of members. They shall be properly braced or tied together and their supports shall be designed so that previously placed structures will not be damaged.

3.02 ERECTION

A. Plywood shall be installed with horizontal joints level, vertical joints plumb and with joints tight. Reused plywood shall bethoroughly cleaned and repaired, nail plywood to maintain alignment and prevent warping.

B. Provide temporary openings at points in formwork to facilitate cleaning and inspection.

3.03 REMOVAL OF FORMS

A. Forms shall not be removed until concrete has sufficiently hydrated and shoring shall not be removed until member has acquired sufficient strength.

B. Compressive strength of in-place concrete shall be determined by testing field-cured specimens representative of concrete location or members, as specified in Cast-In-Place Concrete.

3.04 PROTECTION

A. Protect the Work of this section until Substantial Completion.

3.05 CLEAN UP

A. Remove rubbish, debris and waste materials and legally dispose of off the Project site.

END OF SECTION

SECTION 03 25 00

CONCRETE TOPPING

PART 1 GENERAL

1.01 SUMMARY

A. This Section includes floor topping with integral color, applied over previously placed base slab at interior and exterior slabs.

1.02 REFERENCES

A. Comply with requirements of Section "Cast-In-Place Concrete" and as herein specified. B.

In addition to sample specified in “Cast-In-Place Concrete” submit 12” square samples of proposed concrete toppings with integral finish for preliminary review.

1.03 SUBMITTALS

A. Furnish laboratory test reports, and materials certificates as specified in Section “Cast-In-Place Concrete.”, submit product data for proprietary products and produce a mock-up of the concrete topping representing the specified color, finish, and joint detail and pattern.

PART 2 PRODUCTS

2.01 CEMENT AND AGGREGATES

A. Portland Cement: ASTM C150, Type I or Type III

B. Aggregate: Normal Weight, ASTM C33

C. Fly Ash will not be permitted

D. Integral Concrete Colorant is produced by natural and synthetic iron oxides and chromium oxides, compounded for use in ready-mix concrete. Mix, place, finish, cure and provide other activities to produce concrete of reasonably uniform color, texture and durability, as approved. Ready-mix concrete may be placed in 2 lifts after review of procedures to assure water-cementitious materials ratio and temperature of both lifts are identical and placement of top lift before initial set of lower lift.

E. Curing Compounds and Sealers are as recommended by colorant manufacturer.

2.02 TOPPING MIX

A. Design mix to produce topping material with f’c = 3000 psi at 28 days, slump and maximum W/C ratio as specified in Section 033000 and 150 lbs per cu. foot.

2.03 MIXING

A. Provide batch type mechanical mixer for mixing topping material at Project site and only use mixers that are capable of mixing aggregates, cement, and water into a uniform mix within specified time

B. Mix each batch after ingredients are in mixer. Ready-mixed topping may be used when acceptable to College’s Representative

PART 3 EXECUTION

3.01 CONDITION OF SURFACES

A. Remove contaminants, leaving a clean surface of hardened concrete. Roughen base slab surface of hardened concrete for acceptable bonding. Dampen slab surface prior to placing topping mixture, which should be placed after rewettable bonding compound has dried or epoxy

adhesive is still tacky.

3.02 PLACING AND FINISHING

A. Spread topping mixture evenly to the required elevation and strike off. After the topping has stiffened sufficiently and water sheen has disappeared, float the surface at least twice to a uniform sandy texture.

B. Trowel in joints as shown.

C. After floating, begin trowel finish operation using power driven trowels.

D. Perform operations as necessary to match mock-up and apply a light hand trowel finish followed by the finish indicated after final floating.

3.03 CURING AND PROTECTION

A. Cure concrete with curing compound recommended by the colorant material manufacturer.

B. Protect topping applications and finishes as specified in Section "Cast-In-Place Concrete."

3.04 PERFORMANCE

A. Failure of concrete topping to bond to substrate, or disintegration or other failure of topping to perform as a floor finish will be considered failure of materials and workmanship.

3.05 CLEAN UP

A. Remove rubbish, debris and waste materials and legally dispose of off the Project site.

END OF SECTION

SECTION 03 25 00

CONCRETE TOPPING

PART 1 GENERAL

1.01 SUMMARY

A. This Section includes floor topping with integral color, applied over previously placed base slab at interior and exterior slabs.

1.02 REFERENCES

A. Comply with requirements of Section "Cast-In-Place Concrete" and as herein specified. B.

In addition to sample specified in “Cast-In-Place Concrete” submit 12” square samples of proposed concrete toppings with integral finish for preliminary review.

1.03 SUBMITTALS

A. Furnish laboratory test reports, and materials certificates as specified in Section “Cast-In-Place Concrete.”, submit product data for proprietary products and produce a mock-up of the concrete topping representing the specified color, finish, and joint detail and pattern.

PART 2 PRODUCTS

2.01 CEMENT AND AGGREGATES

A. Portland Cement: ASTM C150, Type I or Type III

B. Aggregate: Normal Weight, ASTM C33

C. Fly Ash will not be permitted

D. Integral Concrete Colorant is produced by natural and synthetic iron oxides and chromium oxides, compounded for use in ready-mix concrete. Mix, place, finish, cure and provide other activities to produce concrete of reasonably uniform color, texture and durability, as approved. Ready-mix concrete may be placed in 2 lifts after review of procedures to assure water-cementitious materials ratio and temperature of both lifts are identical and placement of top lift before initial set of lower lift.

E. Curing Compounds and Sealers are as recommended by colorant manufacturer.

2.02 TOPPING MIX

A. Design mix to produce topping material with f’c = 3000 psi at 28 days, slump and maximum W/C ratio as specified in Section 033000 and 150 lbs per cu. foot.

2.03 MIXING

A. Provide batch type mechanical mixer for mixing topping material at Project site and only use mixers that are capable of mixing aggregates, cement, and water into a uniform mix within specified time

B. Mix each batch after ingredients are in mixer. Ready-mixed topping may be used when acceptable to College’s Representative

PART 3 EXECUTION

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A. Remove contaminants, leaving a clean surface of hardened concrete. Roughen base slab surface of hardened concrete for acceptable bonding. Dampen slab surface prior to placing topping mixture, which should be placed after rewettable bonding compound has dried or epoxy

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B. Trowel in joints as shown.

C. After floating, begin trowel finish operation using power driven trowels.

D. Perform operations as necessary to match mock-up and apply a light hand trowel finish followed by the finish indicated after final floating.

3.03 CURING AND PROTECTION

A. Cure concrete with curing compound recommended by the colorant material manufacturer.

B. Protect topping applications and finishes as specified in Section "Cast-In-Place Concret
e."

3.04 PERFORMANCE

A. Failure of concrete topping to bond to substrate, or disintegration or other failure of topping to perform as a floor finish will be considered failure of materials and workmanship.

3.05 CLEAN UP

A. Remove rubbish, debris and waste materials and legally dispose of off the Project site.

END OF
SECTION

MASONRY

1.01 SUMMARY

A. Principal Work Items Are:
   1. Masonry Work:
      a. Concrete unit masonry.
   2. Mortar.
   3. Work Installed But Furnished By Another Section:
      a. Setting steel reinforcement for masonry.
      b. Setting rough hardware and other embedded items.

B. Related Work:
   1. Requirements in Addenda, Alternates, Conditions, and Division 1 collectively apply to this work.
   2. Furnishing fabricated rebar for masonry: Section 03 21 00, Steel Reinforcement.
   3. Furnishing and setting rebar dowels in concrete for masonry: Section 03 21 00, Steel Reinforcement.
   4. Cast-In-Place Concrete: Section 03 30 00.
   5. Furnishing rough hardware and other embedded items: Respective Sections.
   6. Filled Cell Concrete Masonry High Lift Grout Method: Section 04 05 16.

1.02 SUBSTITUTIONS

Only written approval of the Architect will permit substitutions for materials specified. Refer to General Conditions and Section 01 25 13 - Product Options and Substitutions for procedure.

1.03 QUALITY ASSURANCE

A. Design Criteria; Formwork, Shoring, Scaffolding, and Protection:
   1. The Contractor shall be solely responsible for items and shall:
      a. Design, construct, and maintain items to safely support loads.
      b. Obtain Governing Agency approval, when such is required.

B. Testing Agency: District designated Testing Laboratory.

C. Requirements of Regulatory Agencies; Codes: Conform to Part 2, Title 24, CCR; and CBC, 2010 Edition.

D. Tests and Inspection; General: Refer to Section 01 45 00, Quality Control and Testing Services.

E. Allowable Tolerances; Surface Smoothness: 1/8" maximum permissible variation from a true plane measured from a 10' straight edge placed at any point on the surface.

1.04 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Storage; Mortar and Grout Materials:
   1. Cement: Store in weather tight enclosures and protect against dampness, contamination, and warehouse set.
   2. Aggregates: Stockpile and handle to prevent contamination by other materials.
   3. Admixtures:

a. Store to prevent contamination, evaporation or damage.

b. Protect liquid admixtures from freezing or harmful temperature range.

c. Agitate emulsions prior to use.

B. Masonry Units:

1. Stack on pallets to break contact with earth, and permit air circulation.
2. Protect from weather and wetting prior to use.
3. Handle to prevent chipping and damage.

1.05 JOB CONDITIONS

A. Environmental Requirements; Temperatures: Do not lay masonry units when air temperatures are below 40°F. Protect masonry construction from direct exposure to wind and sun when erected in an ambient air temperature of 90°F (37°C) in the shade with relative humidity less than 50%.

B. Protection:

1. Protect masonry work from rain or snow for 24 hours after erection.
2. Protect masonry work from too rapid drying in hot dry weather.

C. Sequencing, Scheduling: Coordinate work with concrete, foundation dowels, steel, framing, Specifications Sections furnishing embedded items, steel reinforcement, and other related work.

PART 2 - PRODUCTS

2.01 MATERIALS

A. General:

1. Conform to Codes, and additional requirements stated herein.
2. Conform to Title 24, CBC Section 2103A, Masonry Construction Materials.

B. Concrete Unit Masonry:

1. Hollow Load Bearing Units:

a. ASTM C90, Type 1, Grade N, center scored exposed faces, precision units.

b. Nominal face dimension: 8" x 16"; thickness as shown on Drawings.

c. Units shall be medium weight, open end units.

d. Units shall have a compressive strength of not less than 2,000 pounds per square inch when tested in accordance with ASTM C140-10.

e. Units shall have a net ultimate compressive strength of not less than 1,500 pounds per square inch when subjected to a prism test in accordance with ASTM C1314-10 per Section 2105A.1.2.3 of CBC, Title 24.

2. Hollow Non-Load Bearing Units:

a. ASTM C129-10, Type 1, centered scored exposed faces, precision units.

b. Nominal face dimension: 8" x 16"; thickness as shown on Drawings.

c. Medium weight units.

3. Provide all bond beams, pilasters, lintels and other shaped units as indicated on the Drawings.

4. Joint Reinforcement: All masonry is required to be reinforced. Provide required width and place at every other course, continuous around corners and though intersections - 9 gauge Dur-o-Wall in truss design.

C. Mortar and Grout for Concrete Unit Masonry:

1. Portland Cement:

a. Type II, low alkali; per Title 24, CBC 2010 Edition, Section 2103A.8, and shall conform to ASTM C210-10.

b. Use tested cement only. Use same cement brand for all exposed work. Do not use mortar cement or plastic cement.

c. Color: Gray, unless otherwise noted.

2. Aggregates:
    a. *General: Per Title 24, Section 2102A.2, 2010 CBC.*
    b. *Sand for Mortar: Based on ASTM C144.*
    c. *Coarse aggregate grout shall be used in grout spaces 2 inches (51mm) or more in width and in all filled-celled masonry construction per 2103A-12.3 CBC Title 24.*
    d. *Pea Gravel for Grout: Per CBC Section 2103A.4 for Coarse Aggregate (which is based on ASTM C404).*
3. Water: Clean, fresh, potable water, free of injurious amounts of minerals, organic substances, salts, acids, or alkali.
4. Hydrated Lime: Based on ASTM C207-06; Type
5. Admixtures: Must be approved by the Division of the State Architect.
    a. *For High-Lift Grout: Sika Grout Aid, manufactured by Sika Corp; Lyndhurst, NJ; 1-800-933-7452, or approved equivalent.*

D. Wire Wall-Ties for Concrete Unit Masonry.
1. No. 9 wire size; formed into rectangles, 4" wide, with a length which is 2" less than the wall width.
2. No kinks, deformations or water drips permitted.

E. Non-Shrink Grout:
1. Provide non-shrink grout at embeds, dowels and other steel reinforcements in concrete. New concrete shall be cured for a minimum of seven days. Surfaces coming in contact with non-shrink grout shall be completely dry and entirely free of oil, grease, laitance or other foreign substances.
2. General purpose non-shrink grouting shall be performed with Five Star Non-Shrink Grout as manufactured by Five Star Products Inc.; Fairfield, CT; 800-243-2206, or approved equivalent. Submit information verifying that the non-shrink grout submitted exhibits the following properties.
    a. *Working Life: The mixed grout system shall have a minimum working life of 45 minutes at 75°F.*
    b. *Non-shrink: No shrinkage (0.0%) and a maximum 4.0% expansion when tested in accordance with ASTM C-827/C-827M-10.*
    c. *Effective Bearing Area: The grout shall exhibit a minimum EBA of 95%. This test shall consist of filling a 2" diameter x 4" high metal cylinder mold covered with a glass plate treated with a release agent. A weight shall be placed on the glass plate. At 24 hours after casting, the weight and plate shall be removed and the surface of the grout shall be probed with a sharp instrument to locate voids.*
    d. *Peak Exotherm: The peak exotherm of a 2" diameter by 4" cylinder shall not exceed 110°F when tested with 75°F material at laboratory temperature.*
    e. *Compressive Strength: The hardened grout shall attain a minimum compressive strength of 5,500 psi in 24 hours and 7,000 psi in seven days when tested according to ASTM C-579-01 (2006), Method B.*
    f. *Thermal Coefficient: The grout shall exhibit a maximum thermal coefficient of 30 x 10-6 in./in./°F when tested according to ASTM C-531-00 (2005) or ASTM D-696-99 (2005).*
3. Epoxy grout shall be stored in a cool, dry place in accordance with the manufacturer's recommendations. Components shall be conditioned to 70°F to 80°F prior to use.

2.02 MIXES (CONCRETE UNIT MASONRY)

A. Mortar:
1. General: Per Title 24, Section 2103A.8 and 2103A.10, Type S.
2. Strength: 1,800 psi minimum at 28 days.
3. Proportions: By dry loose volume.
    a. *Portland Cement: 1 part*
    b. *Sand: 3 1/2 parts*
    c. *Water: To provide a workable mix.*
    d. *Dry Hydrated Lime: 1/4 part must be added.*

B. Grout:

1. General: Per Title 24, Section 2103A.12.2.
2. Strength: 2,000 psi minimum at 28 days.
3. Proportions: By dry loose volume.

a. Fine Grout

Portland Cement:	1 part
Sand:	3 parts
Water:	To produce consistency for pouring without admixture for high-lift grout
Admixture High-Lift Grout:	Sika Grout Aid Type II/sack cement.

b. Coarse Grout: Composed of fine grout with 2 parts pea gravel added.

c. Hydrated Lime: 0 - 1/10 by volume for masonry construction. CBC Section 2103A.12.

C. Mixing Mortar and Grout:

1. Measuring:
   - *a. Measure accurately by volume using suitable calibrated devices.*
   - *b. Do not measure by shovel.*
   - *c. Definition: 1 part cement = 94 lbs. = 1 sack.*
2. Equipment: Drum-type mechanical batch mixer, at least 1 sack capacity.
3. Mixing:
   - *a. General: Do not mix partial batches, unless partial sacks of cement are weighed.*
   - *b. First Stage Mixing:*
     1) Load sand/aggregate, then cement, then water into mixer.
     2) Mechanically mix 2 minutes minimum.
   - *c. Second Stage Mixing:*
     1) For mortar, add lime.
     2) For grout, add admixture.
     3) Mechanically mix until thoroughly blended into a uniform mass; but not less than 10 minutes.
4. Retempering (Mortar Only):
   - *a. Retemper only by forming a mortar basin, adding water, and carefully working mortar into water.*
   - *b. Do not retemper by dashing water over mortar.*

PART 3 - EXECUTION

3.01 PREPARATIONS

A. Layout: Accurately layout work to properly position all elements to lines, planes, levels, modules, and patterns.
B. Shoring: Erect shoring, bracing, centering as required to support work at openings and spans.
C. Cutting: Use masonry saws to cut and fit masonry units.

D. Preparation of Construction Joints: Prior to joining fresh masonry to set or partially set masonry construction, clean existing exposed surfaces and remove loose mortar.

3.03 INSTALLATION

A. General:

1. Lay as Reinforced Hollow Unit Masonry per Title 24, CBC Section 2104A.5.1.2; all cells filled with grout.
2. Units to be sound, clean, free of cracks, chips, defacement, dry when laid. Such imperfections in completed work are cause for rejection.
3. For exposed work, all units to be full-length typically; but in no case less than 1/2 length, unless specifically indicated otherwise.
4. Set units plumb, true to line, level courses, accurately spaced to module and pattern, plumb square corners, uniform joints.
5. Any mortar or grout unused within one hour after initial mixing shall not be used.

B. Laying Units:

1. Bottom Course:
   a. *Lay level, establish module.*
   b. *Lay with full mortar coverage on bottom of unit.*
   c. *Keep grout cell areas free of mortar, so grout will bond to foundation.*
2. Lay with full mortar coverage on horizontal and vertical face shells.
3. Fill head joints solid for a 2" minimum distance in from face of unit, and shove tight.
4. Do not furrow mortar.
5. Adjust masonry unit to final position while mortar is soft and plastic.
6. If units must be reset after mortar has stiffened, remove, clean joints and units of mortar. Relay with fresh mortar.
7. Cells:
   a. *Maintain vertical alignment.*
   b. *Keep free of overhanging mortar and droppings.*
   c. *Maintain clear unobstructed minimum area of 2" x 3" from top to bottom; 3" x 3" for high-lift grout method.*
8. Lay accent units to stacked joint alignment with 1/4" width at cast-on face.
9. Stopping Work:
   a. *If necessary to stop off a horizontal run of masonry, rack back each course.*
   b. *Toothing is not permitted.*
10. Adjust shelf angles to keep masonry level and at proper elevation.
11. Fill jambs and head of hollow metal frames with mortar.
12. Reinforce as shown on Structural Drawings.

C. Pattern and Joining:
   1. Exposed Masonry:
      a. Pattern: To match existing masonry walls.
      b. Module and Joint Dimensions: 8" face x 3/8" nominal joint.
      c. Joint Treatment: Rake to depth of score; flat tool smooth.
   2. Concealed Masonry:
      a. Pattern: Running bond.
      b. Module and Joint Dimensions: Match exposed work.
      c. Joint Treatment: Cut flush with trowel.
   3. Jointing; General:
      a. Tool when mortar is partially set, but still sufficiently plastic to bond.
      b. Use tool which compacts mortar by pressing out excess, not dragging out excess.
      c. After tooling, finished joints to have a smooth, hard, dense surface with edges well bonded to block.

minimum; but not less than 1/2" in any case.

D. Steel Reinforcement:
   1. General:
      a. Install as work progresses.
      b. Install straight bars, except where bends and hooks are indicated.
      c. Install horizontal bars in bond beam units.
      d. Center bars in grout space typically, unless otherwise detailed.
      e. Maintain required clearances and spacings.
      f. Embed all bars firmly in grout.
      g. Prior to placement and/or grouting, bars to be clean.
   2. Vertical Rebar: Hold firmly in place with frames or suitable devices; maximum spacing 192 bar diameters.
   3. Laps and Splices:
      a. Splice only where indicated.
      b. Minimum Lap: See Structural Drawings.
      c. Wire tie lap splices to prevent displacement.

4. Clearances between Masonry Unit and Rebar: One bar diameter

E. Embedded Items:
   1. Place accurately; anchor securely to prevent displacement.
   2. Coordinate, notify, and provide access for other Specifications Sections to set their required work.
   3. Solidly grout around items with minimum 1" grout surrounding.

F. Grouting:
   1. Grout Type:
      a. Fine Grout: For grout spaces 2" or less.
      b. Coarse Grout: For grout spaces exceeding 2".
   2. Grouting Method:
      a. High-Lift Method: For lifts exceeding 2'. Refer to Section 04 05 16.
   3. Grouting; General:
      a. Assure that grout cells, and foundation surfaces and/or horizontal construction joints are clean of mortar, drippings, and other deleterious material.
      b. Grout beams over openings in one continuous operation.
      c. Fully embed horizontal steel in one continuous operation.
      d. Mechanically vibrate during and after placement to ensure complete filling of all voids, and grout consolidation.
      e. Stop grout 1" below top of masonry joint when grouting is to be stopped for one hour or more.
      f. Grout all cells solid.
   4. High-Lift Method; Refer to Section 04 05 16:
      a. Conform to CBC, Section 2104A.5.1.2, and DSA IR 21-2.
      b. Provide cleanout openings at bottom of each pour.
      c. Seal cleanouts after inspection, and prior to grouting.
      d. Provide barriers to control horizontal flow of grout.

G. Curing: Keep masonry continuously damp for three days minimum after laying.

H. Bracing and Shoring Removal: Do not remove until masonry has hardened sufficiently to permit safe removal, and support imposed loads including its own weight.

I. Epoxy Grout Installation:
   1. Forms and Control Joints: Make forms liquid tight using putty or caulking compound to seal joints. Areas where bond is not desired must be treated with paste or auto wax, polyethylene, or resin release agent. Control joints should be placed on 3' to 4' centers. For pours deeper than 4" thickness, contact manufacturer.
   2. Mixing: Pour all Component B (Hardener) into pail containing Component A (Resin). Mix thoroughly by hand or low speed mixer. Pour all mixed material into mortar box, mortar mixer or wheelbarrow. Add 100 lbs. (one bag) Five Star Epoxy Grout Aggregate or approved equivalent and mix only until all aggregate is wetted and no dry pockets remain. Follow printed instructions on each package.
   3. Methods of Placing: Non-shrink grout should be placed from one side to avoid air entrapment. Rods and plungers may be used to facilitate placement.
   4. Post-Placement Procedures: Do not wet cure non-shrink grout. It is a self-curing material. Surfaces, equipment, and tools may be cleaned with lacquer thinner, trichloroethylene, ketones, or similar solvent before grout hardens, in-service operation may begin immediately after minimum required grout strengths have been achieved. Final finishing of exposed surfaces is aided by applying a very light mist of solvent just before material becomes unworkable.

3.04 MORTAR BEDS

A. Hollow Units:
   1. Lay with full mortar coverage on horizontal and vertical face shells.
   2. Provide full mortar coverage on horizontal and vertical face shells and webs in all courses of the following.
      a. Piers, columns and pilasters.
      b. Starting course on footings and solid foundation walls.
      c. Where adjacent to cells or cavities to be filled with grout.

B. Solid Units: Lay with full mortar coverage on horizontal and vertical joints.

3.05 PROTECTION OF WORK

A. Protect sills, ledges and offsets from mortar drippings or other damage during construction.

B. Remove misplaced mortar or grout immediately.

C. Cover the top of walls with non-staining waterproof coverings when work is not in progress.

D. Provide minimum 2' overhang of protective covering on each side of wall and securely anchor.

E. Protect face materials against staining.

3.06 BUILT-IN WORK

A. Avoid cutting and patching after laying units.

B. Install bolts, anchors, nailing blocks, inserts, frames, vents, flashings, conduit and other built-in items as masonry work progresses.

C. Solidly grout spaces around built-in items.

D. Provide outside joint around exterior door and windows frames and other framed wall openings:
   1. Width shall be 1/4" (6 mm.) to 3/8" (9 mm.).
   2. Rake and tool smooth to a uniform depth of 1/4".

3.07 CHASES

A. Build chases in, do not cut.
B. The minimum installation distance from jambs of openings shall be one concrete masonry unit length.

3.08 FIELD QUALITY CONTROL

A. General: Refer to Specifications Section 01 45 00, Quality Control and Testing Services, for detailed information on required inspections and tests.
B. Inspections:
   1. Placement of Steel reinforcement.
   2. Laying and grouting units.
C. Tests:
   1. Making compression tests of mortar and grout.
   2. Core tests of finished work.
   3. Masonry prism tests.

3.09 POINTING AND CLEANING

A. Keeping Glaze Clean: Wipe off mortar smears and spatters at once, using clean, soft, damp rags. Do not allow hardening.
B. Cut out and repoint defective joints.
C. Dry brush masonry surface after mortar has set, at the end of each day's work and after final pointing.
D. Leave work and surrounding surfaces clean and free of mortar spots and droppings.

3.10 FINISH
Site paint per Section 09 90 00.

END OF SECTION
SECTION 09 90 00

Finishes

PART 1 - GENERAL

1.01 SECTION INCLUDES:

A. This section covers painting of exposed elements of the project, interior and exterior, Sealing and back priming of wood in the field. Surfaces that are left unfinished by requirements of other sections shall be finished as part of this section.

1.02 SECTION EXCLUDES:

A. Control panels and control systems.

B. Fabric connections to fans.

C. Flexible conduit connections to equipment, miscellaneous name plates, stamping and instruction labels and manufacturer's data.

D. Equipment and products having a complete factory finish, except as specified or noted on drawings.

E. Flag, floodlight, parking light poles and loudspeaker poles furnished with a factory finish.

F. The following items if specified or furnished with galvanized finish shall not be painted: Metal shelving, chain link fencing, areaway and catch basin gratings and frames.

G. Brass, bronze, lead, stainless steel, and chrome or nickel-plated elements.

H. Non-metallic walking surfaces unless specifically shown or specified to be painted.

I. Fire rating labels at fire doors and frames.

J. Cement masonry units at exterior.

1.03 RELATED SECTIONS:

A. Section 05500 - Metal Fabrications.

B. Section 06200 - Finish Carpentry.

C. Section 07600 – Flashing and Sheet Metal

D. Section 08100 – Hollow Metal Doors and Frames.

E. Section 08210 - Wood Doors.

F. Section 08310 – Access Panels.

G. Section 09210 – Gypsum Plaster.

H. Section 09220 – Portland Cement Plaster.

I. Section 09250 – Gypsum Board System.

1.04 QUALITY ASSURANCE

A. Certification of Materials: With every delivery of paint materials, the manufacturer shall certify on the manufacturer's letterhead that materials comply with the requirements of this section.

B. Paint materials shall comply with the Food and Drug Administration's (F.D.A.) Lead Law and the current rules and regulations of local, state and federal agencies governing the use of paint materials.

C. Coats: The number of coats specified is the minimum number acceptable. If full coverage is not obtained with the specified number of coats, apply such additional coats as are necessary to produce the required finish.

D. Employ coats and undercoats for all types of finishes in strict accordance with the recommendations of the paint manufacturer and approved by Architect.

1.04 SUBMITTALS

A. Submittals shall be made in accordance with Section 01300.

B. List of Paint Materials: Prior to submittal of samples, submit a complete list of proposed paint materials, identifying each material by manufacturer's name, product name and number, including primers, thinners, and coloring agents, together with manufacturers' catalog data fully describing each material as to contents, recommended usage, and preparation and application methods. Identify surfaces to receive various paint materials. Do not deviate from approved list.

C. Submit manufacturer's standard color samples for each type of paint used. Once colors have been selected, submit 3 samples of each color selected for each type of paint, on standard 8-1/2 x 11 inch spray-out panel with substrate textures demonstrated.

D. For transparent and stained finishes, prepare samples on same species and quality of wood to be installed on the project, showing system used.

E. An MSDS sheet will be included with each individual submittal.

1.05 DELIVERY, STORAGE AND HANDLING

A. Materials shall be delivered to the project site in original unbroken containers bearing manufacturer's name, brand number and batch number corresponding to description on list of materials as approved.

B. Open and mix ingredients on the premises in the presence of the District Inspector. Immediately remove rejected materials from the premises.

C. Storage and Mixing of Materials: Store materials and mix only in spaces designated for the purpose by the District Inspector. Keep such spaces clean and take necessary precautions to prevent fire. Hang out oily rags flat and singly in the open air. Stack paint containers so that manufacturer's labels are clearly displayed.

1.06 ENVIRONMENTAL CONDITIONS

A. Temperature: Do not apply exterior paint in damp, rainy or foggy weather or until the surface has thoroughly dried from the effects of such weather. Do not apply paint, interior

or exterior, when the temperature is below 50 or above 90 degrees F., or dust conditions are unfavorable to proper workmanship.

1.07 GUARANTEE

A. Materials and workmanship guarantee shall be in accordance with the requirements of the Contract Documents, except that guarantee shall be furnished jointly by the Contractor and the materials manufacturer.

PART 2 - PRODUCTS

2.01 PAINT MATERIALS

A. Use the paint products of one Paint manufacturer unless otherwise specified or approved. In any case, primers, intermediate and finish coats in each painting system must all be the products of the same manufacturer, including thinners and coloring agents, except for materials furnished with shop prime coat by other trades. To the maximum extent feasible, factory mix paint materials to correct color, gloss, and consistency for application. EVR-Gard Coatings products are specified herein except as otherwise noted, to establish types and qualities. The following Paints are District standard colors for all schools except as noted in the drawings:
   1. Exterior Walls: Scotch (Evr-Gard) Dusty Taupe
   2. Exterior Trim: Scotch (Evr-Gard) Horizon Blue
   3. Interior Walls: Scotch (Evr-Gard) Pearl White #70
   4. Other Scotch (Evr-Gard) colors as designed for a particular school and as specified in the drawings, with prior approval by Administrator/Facilities Planning, Development and Support Operations.

PART 3 - EXECUTION

3.01 PREPARATION

A. Inspect surfaces to receive paint finish for surface blemishes and repair as required. Surfaces that are not properly prepared or sandpapered or cleaned or which are not in condition to receive the specified finish, shall be corrected, before priming is done. Wash and rinse walls and trim with T.P.S. before applying any primer. No priming shall be done until District IOR or the Owner’s representative approves the surfaces.

B. Protect floors and all adjacent surfaces from paint smears, spatters, and accidental droppings. Cover fixtures and remove hardware not to be painted. Mask off areas where necessary. Any accidental spills, over-painting or spatters shall be cleaned up immediately before additional work proceeds.

   Hardware: Insure that hardware is removed before painting is started and replaced only when paint finishes are thoroughly dry.

   1. Removal and reinstallation of hardware is specified in Section 06200--Finish Carpentry and Millwork.

   2. Items to be removed include, without limitation: Signs and graphics; switch and receptacle plates; escutcheons and plates; all surface-mounted equipment; free-standing equipment blocking access; grilles and louvers at ducts opening into finished spaces; all tape on doors, walls or other District property; and other items as required and directed.

C. Woodwork shall be thoroughly cleaned, hand sandpapered parallel to the grain, and dusted off. Nail holes, cracks or defects in all work shall be carefully puttied. Caulk all woodwork

joints with specified caulking. Wash and rinse trim with T.S.P. both before applying any primer. On stained woodwork the putty shall be colored to match the stain. Puttying shall be done after the first coat of paint, shellac or varnish has been applied.

D. Gypsum board: Remove all foreign matter. Fill all pits flush and smooth with spackle. Wash and rinse Gypsum board walls with T.S.P. before applying any primer.

E. Plaster surfaces shall be allowed to dry at least 3 weeks before painting, or plaster shall be allowed to dry sufficiently to receive paint as determined by moisture meter tests. Clean off dirt, dust, excess mortar, encrustation and foreign matter. Fill holes, pits and other imperfections flush and smooth. Wash and rinse Plaster walls with T.S.P. before applying primer.

F. Concrete Surfaces shall be dry, cleaned of dirt and foreign materials and in proper condition to receive paint. Neutralize spots showing effects of alkali.

G. Metal surfaces to be painted shall be thoroughly cleaned of rust, corrosion, oil, foreign materials, blisters, and loose paint removed to bright metal. Apply the metal paint preparation coating recommended by the paint manufacturer prior to applying the primer. All shop and field painted metal shall follow these procedures.

H. Surfaces Not Mentioned: Prepare surfaces according to recommendations of the paint manufacturer and as approved by the Architect or the Owner.

I. Do not apply painting materials to wet, damp, dusty, dirty, fingermarked, rough, unfinished, or defective surfaces.

J. Bond breakers and curing agents must be removed and the surface cleaned, as specified is section 3.01-A above, before primers, sealers or finish paints are applied.

3.02 APPLICATION

A. General: Employ experienced painters supervised by a foreman with a minimum of 5 years' experience in public works projects, thoroughly familiar with code requirements, and the best recommendations of the painting materials manufacturer. Utilize the following methods and procedures:

1. Apply material evenly, free from sags, runs, crawls, holidays or defects. Mix to proper consistency, brush out smooth, leaving minimum of brush marks, enamel uniformly flowed on. Sand between enamel coats.

2. Apply paint by brushes, rollers or spray except rollers shall not be used on wood surfaces or on wood floors. If rollers are used on other surfaces, then all surfaces shall be brushed out by hand. Spraying is not permitted on wood floors. Paint wood floors by using a hand brush, applying the paint at the specified application rate as recommended by the manufacturer. Apply in thin coats allowing proper drying time between coats. The use of two ventilation fans is required in each room to accelerate the drying of the floors. One fan in the door pushing air into the room and one fan in a window exhausting air out of the room. Keep fans running until all paint fume smells and non-existence in the rooms.

3. Tint all pigmented undercoats to approximately same shade as final coat. Perceptibly increase the depth of shade in successive coats.

4. Allow each coat to thoroughly dry before succeeding coat application, a minimum of 24 hours. Sand between enamel coats.

5. Finish all four edges of doors with the same number and kind of coatings as specified for their main surfaces on all new or reused doors. Where opening into rooms have different finishes, finish door edges to match the side into which it swings. The top of all doors that open to the outside shall have a continuous painted top coating to prevent moisture from penetrating the door material.

6. Finish mill or shop primed items with materials compatible with prime coat.

7. Mechanical and electrical work shall be cleaned, pretreated and painted with 3 coats or as noted:

   a. Paint that portion of ductwork or plenum spaces, the interior of which is visible through the grilles: they shall be pretreated and painted with 2 coats of flat black paint.

   b. Shop primed metal surface of all mechanical and electrical equipment shall receive two finish coats of paint to match adjoining wall or ceiling surfaces. Prime coat, in addition to above, on all unprimed surfaces.

   c. All other mechanical and electrical equipment exposed to view, such as covered and uncovered piping and ductwork, supports for piping and ductwork, pumps compressors, air conditioning equipment, tanks, etc., shall be painted as specified herein, where not supplied finished under other sections.

8. Miscellaneous painting: Surfaces to be painted and not specifically described herein shall be painted with a product specifically manufactured or prepared for the material and surface; prime coat and two finish coats and subjected to all the conditions previously mentioned above governing painting.

B. Back-painting: Immediately upon delivery to the building, exterior finish lumber and millwork shall be back-painted on surfaces that will be concealed after installation. Items to be painted shall be back-painted with the priming coat specified under "Priming".

C. Priming: Wood and metal surfaces specified to receive paint finish shall be primed as specified in section 3.01. Surfaces of miscellaneous metal and steel not embedded in concrete, and surfaces of unprimed plain sheet metal work shall be primed immediately upon delivery to the project. Galvanized metal work, and interior and exterior woodwork shall be primed immediately after erection. Priming of surfaces and priming coat shall be as follows and as specified in schedule:

1. Knots, Pitch and Sap Pockets: Shellac, or approved equivalent, before priming.

2. Exterior Woodwork: Prime with one coat of exterior water borne emulsion wood primer.

3. Interior Woodwork: Where indicated to be painted, prime with one coat of water borne wood primer.

4. Stain: Woodwork indicated to receive a stain and varnish finish shall be stained to an even color with water borne stain. On open-grained hardwood, mix stain with paste filler and completely fill pores in wood.

5. Galvanized Metal Work: Clean oil, grease and other foreign materials from surfaces. Apply the recommended muratic acid etching solution and thoroughly

wash metal. Apply pretreatment coating and follow manufacturer's instructions for drying time, and then prime with one coat of metal primer as specified in section 3.01.

6. Unprimed Iron, Steel, and Other Uncoated Metals: Where specified to be painted, prime with one coat of metal primer as specified in section 3.01..

7. Shop Primed Metal Items: Metal shall be primed as specified in section 3.01 and touch up bare and abraded areas with metal primer prior to application of second and third coats.

D. The number of paint coats specified to be applied are the minimum required. Apply additional coats if required to obtain complete coverage and approved results. Ensure acceptable paint finishes of uniform color, free from cloudy or mottled areas and evident thinness on arises. "Spot" or undercoat surfaces as necessary to produce such results. Conform to the approved Samples. Obtain approval of each coat before applying next coat. If this inspection step is missed, apply an additional coat over entire surface involved at no additional contract cost.

E. Each coat of painted woodwork and metal, except the last coat, shall be sandpapered smooth when dry. Texture-coated gypsum board shall be sanded lightly to remove surface imperfections after first coat of paint has been applied.

F. Each coat of paint or enamel shall be a slightly different shade as directed. The District Inspector will inspect each coat of paint, enamel, stain, shellac, and varnish before the next coat is applied. Notify the District Inspector that such work is ready for inspection. If this inspection step is missed, apply an additional coat over entire surface involved at no additional contract cost.

G. Do not "paint-out" underwriters' labels, fusible links, sliding surfaces and identification stamps on any new or existing materials, equipment, or structures.

H. Damaged shop prime coat shall be touched-up with metal primer prior to application of second and third coats.

I. Apply each coat of material to the manufacturers recommended dry film thickness and spread rate.

3.03 CLEANING

A. Remove rubbish, waste and surplus material and clean woodwork, hardware, floors and other adjacent work.

B. Remove paint, varnish and brush marks from glazing material and, upon completion of the painting work, wash and polish the glazing material both sides. Glazing material that is damaged shall be removed and replaced with new material at no cost to the District.

C. Clean hardware and other unpainted metal surfaces with manufacturer's approved cleaner. Do not use abrasives or edged tools.

D. Leave paint storage spaces clean and in condition required for equivalent spaces in the project. Specified shelf stock shall consist of new unopened paint containers and shall be turned over to the District per the contract documents.

3.04 SCHEDULE – Refer to District to provide Trim colors by site. All base bids shall include SCOTCH – (EVR-GARD) paint as the District Standard.

A. Exterior.

1. Concrete, Plaster.

   Scotch – (EV) 7509 water base with semi-gloss EV 700 walls;

2. Ferrous metal.

   Scotch – Ellis 4482 (oil base); Ellis 7962 (waterborne)
   First coat: Scotch – Ellis 4482 Rust Inhibitor primer
   Second Coat: Ellis 7962 Primer All
   Third coat: Scotch - EV 700

3. Galvanized metal.

   Pretreat: Ellis 688 Galva-Etch and Prep
   First Coat: Ellis 1262 Primer All
   Second coat: Ellis 1262 Primer All
   Third Coat (gloss): Scotch – EV 8000

4. Wood (pigmented)

   Scotch - EVcoatings:
   First coat: EV 300
   Second and third coats (gloss): EV 700, EV8000

B. Interior.

1. Gypsum drywall.

   Scotch – EV coatings:
   First coat: EV 78 Sealer
   Second and third coats: EV 500; EV 700

2. Wood Doors.

   Scotch - EVR-GARD coatings:
   First coat: EV 78
   Second and third coats (semi-gloss): EV700

3. Door Frames.

   Scotch – EV coatings:
   First coat: Ellis 4482
   Second coat: EV 599
   Third coat: EV 8000

4. Metal Trim:

   Scotch – EV coatings:
   First coat: EV 688 Galva etch
   Second coat: Ellis 1262 primer
   Third coat: EV 8000

5. Wood Trim:

First coat: EV 78
Second coat: EV500
Third coat: EV 8000

6. Wood Floors:

Scotch - Coatings: Consult Burbank Paints Representative

7. Cement Masonry Units:

Scotch –EV coatings:
First coat: EV 7509
Second coat: EV 500
Third and Fourth coats: EV 8000

8. Mechanical and Electrical Work:

a. Except where interior mechanical and electrical work to be painted is specified to receive another paint finish, work occurring in finished rooms and spaces shall be cleaned, pre-treated and painted with 3 coats. Items to be painted include, but are not limited to: steel and copper piping, pipes, vents, fittings, ducts, plenums, miscellaneous supports and hangers, electrical conduit, fittings, pull boxes, outlet boxes, unfinished surfaces of plumbing fixtures, miscellaneous metal cabinets, panels and access doors and panels.

First: As specified under Priming.

Second and Third: Interior enamel, semi-gloss or gloss to match adjacent wall or ceiling finish.

b. Insulation and Taping on Pipes and Ducts: 3 coats.

1. Finished Rooms:
First: Interior water borne primer.
Second and Third: Interior semi-gloss or gloss enamel to match adjoining wall or ceiling finish.

2. On Building Exterior:
First Exterior water borne primer.
Second and Third: Exterior gloss enamel.

5. Inside surfaces of ducts, vents, dampers and louvers as far back as visible from room in which they open shall be painted with 2 coats of flat black paint.

9. Anti-Graffiti Coating:

a. Shall be Life-Deck, 4001 Clear Gloss, from Burbank Paints.

b. Waterborne: A solids sealer, water soluble, should conform to Scotch-Evr-Gard from Burbank Paints.

END OF SECTION

PART 8 - EXECUTION

4.01 USE OF PREMISES

A. CONTRACTOR shall coordinate Work of all trades, Subcontractors, utility service providers, with OWNER and/or Separate Work Contract. CONTRACTOR shall sequence, coordinate, and perform the Work to impose minimum hardship on the operation and use of the existing facilities and/or Project site. CONTRACTOR shall install all necessary protection for existing improvements, Project site, property, and new Work against dust, dirt, weather, damage, vandalism, and maintain and relocate all protection to accommodate progression of the Work.

B. CONTRACTOR shall confine entrance and exiting to the Project site and/or facilities to routes designated by the DISTRICT

C. Within existing facilities, OWNER will remove portable equipment, furniture, and supplies from Work areas prior to the start of Work. CONTRACTOR shall cover and protect remaining items in areas of the Work

D. CONTRACTOR is advised school may be in session during performance of the Work. CONTRACTOR shall utilize all available means to prevent generation of unnecessary noise and maintain noise levels to a minimum. When required by the DISTRICT, CONTRACTOR shall immediately discontinue noise-generating activities and/or provide alternative methods to minimize noise generation. CONTRACTOR shall install and maintain air compressors, tractors, cranes, hoists, vehicles, and other internal combustion engine equipment with mufflers, including unloading cycle of compressors. CONTRACTOR shall discontinue operation of equipment producing objectionable noise as required by the DISTRICT.

E. CONTRACTOR shall furnish, install, and maintain adequate supports, shoring, and bracing to preserve structural integrity and prevent collapse of existing improvements and/or Work modified and/or altered as part of the Work.

F. CONTRACTOR shall secure building entrances, exits, and Work areas with locking devices as required by the DISTRICT.

G. CONTRACTOR assumes custody and control of OWNER property, both fixed and portable, remaining in existing facilities vacated during the Work.

H CONTRACTOR shall cover and protect surfaces of rooms and spaces in existing facilities turned over for the Work, including OWNER property remaining within as required to prevent soiling or damage from dust, dirt, water, and/or fumes. CONTRACTOR shall protect areas adjacent to the Work in a similar manner. Prior to OWNER occupancy, CONTRACTOR shall clean all surfaces including OWNER property.

I. CONTRACTOR shall not use or allow anyone other than OWNER employees to use facility telephones and/or other equipment, except in an emergency. CONTRACTOR shall reimburse OWNER for telephone toll charges originating from the facility except those arising from emergencies or use by OWNER employees.

J. CONTRACTOR shall protect all surfaces, coverings, materials, and finished Work from damage. Mobile equipment shall be provided with pneumatic tires.

K. CONTRACTOR is advised OWNER will award Separate Work Contracts at this Project site.

L. CONTRACTOR shall not permit the use of portable and/or fixed radio's or other types of sound producing devices including walk mans and similar devices.

4.02 PROPERTY INVENTORY

A. Property, OWNER intends to remove; will be removed by OWNER before a room or space is vacated for the Work. Before performing Work in each room or space, DISTRICT and CONTRACTOR shall prepare a detailed initial written inventory of OWNER property remaining within, including equipment and telephone instruments and the condition thereof. DISTRICT and CONTRACTOR shall retain a signed copy of the inventory dated and signed by both parties. Prior to subsequent OWNER occupancy of each such room or space, DISTRICT and CONTRACTOR shall perform a final inventory of OWNER property and all discrepancies between the initial inventory and final inventory shall be the responsibility of CONTRACTOR.

4.03 FURNITURE, FIXTURES AND EQUIPMENT (MATERIALS) OWNER FURNISHED CONTRACTOR INSTALLED (OFCI)

A. Certain materials identified in the Contract Documents as OWNER Furnished CONTRACTOR Installed, OFCI, will be delivered to the Project site by the OWNER.

B. If designated in the Contract Documents to be OWNER furnished CONTRACTOR installed, (OFCI), and **CONTRACTOR** shall unload, store, uncrate, assemble, install, and connect OWNER supplied materials.

C. Forty Eight (48) hours before the date the CONTRACTOR needs to have the OFCI materials on site, CONTRACTOR shall notify OWNER of the scheduled date for needed OFCI materials. Upon delivery to Project site, CONTRACTOR shall store OFCI materials inside rooms and/or protected spaces and will be responsible for security of OFCI materials until Substantial Completion. DISTRICT will sign receipt or bill of lading as applicable.

D. CONTRACTOR shall, within one (1) day after delivery, uncrate and/or unpack OFCI materials in presence of OWNER who shall inspect delivered items. OWNER shall prepare an inspection report listing damaged or missing parts and accessories. OWNER shall transmit one (1) copy of the report to CONTRACTOR. OWNER will procure and/or replace missing and or damaged OFCI materials, as indicated in inspection report.

E. CONTRACTOR shall install OFCI materials in the locations and orientation as indicated in the Contract Documents. CONTRACTOR shall verify exact locations with DISTRICT before final installation of OFCI materials.

F. If required, DISTRICT will furnish setting and or placement drawings for OFCI materials.

G. CONTRACTOR shall install OFCI materials by proper means and methods to ensure an installation as recommended by the manufacturer. CONTRACTOR shall furnish and install all necessary fasteners and required blocking to properly install OFCI materials.

H. CONTRACTOR shall install OFCI materials with manufacturer recommended fasteners for the type of construction to which the OFCI materials are being fastened and/or anchored.

I. CONTRACTOR shall provide final connections of any electrical, signal, gas, water, waste, venting and/or similar items to OFCI materials. CONTRACTOR shall, prior to final connection, verify the operating characteristics of OFCI materials are consistent with the designated supply.

J. . General: All such work indicated in Contract Documents and/or specified herein.

k. Coordination:

1. Contractor shall schedule and coordinate Owner work with his work; give 5 days min. advance notice of all dates; verify that Owner work has been accomplished prior to beginning his work

L. Owner Furnished Items or Products (IF ANY):

1. Owner Responsibilities:

a. Delivery of items or products to site.

b. Schedule delivery date with supplier in accord with Contractor's schedule.

c. Obtain installation drawings and instructions.

d. Submit claims for transportation damages.

e. Arrange guarantees, warranties.

2. Contractor's Responsibilities:

a. Schedule required delivery date for each product, and inform Owner.

b. Promptly inspect delivered products, report damaged or defective items.

c. Unload; handle at site, including uncrating and storage.

d. Protect from exposure to elements, from damage.

e. Repair or replace items damaged as result of Contractor's operations.

f. Install, connect, finish products.

B. The Contractor shall provide adequate storage within his fenced staging area, to store the equipment. The Contractor is solely responsible for the storage of this equipment within his staging area and all subsequent movement of this equipment. The Contractor shall be solely responsible for the maintenance and protection of all material.

C. Bidders submitting under this Contract shall include the price for all necessary coordination with the District and the equipment manufacturer, as required for proper and complete coordination between all trades and all Contractors, within their bid.

4.04 WORK BY OTHERS

A. The District reserves the right to do other work in connection with the project or adjacent thereto by contract or otherwise, and Contractor shall at all times conduct the work so as to impose no hardship on District or others engaged in District's work nor to cause any unreasonably delay or hindrance thereto.

B. Where two or more Contractors are employed on related or adjacent work, each shall conduct their operation in such a manner as not to cause delay or additional expense to the other.

C. Contractor shall be responsible to others engaged in the related or adjacent work for all damage to work, to persons, or for loss by failure to finish the work within the specified time for completion. Contractor shall coordinate his work with the work of others so that no discrepancies shall result in the project.

PART 9 – GENERAL NOTES

5.01 GENERAL NOTES

A. Work areas and detailed scope of work are shown under PART 2.01.

B. It is the responsibility of the contractor to examine the site of the work and after investigation to decide for himself the character of materials, equipment and utilities to be encountered and all other conditions affecting the work. It is also his responsibility to provide sufficient costs to cover the provisions of all items of work under the existing conditions referred to herein.

C. CONTRACTOR is responsible to review the AHERA – Inspection reports for any presence of asbestos containing materials (ACM). CONTRACTOR shall immediately notify OWNER of the presence or suspected presence of any ACM found during the course of the work, prior to the disturbance of the subject materials. At the sole direction of the OWNER, contractor may be required to stop all work on all or any portion of the project until ACM materials are properly abated by OWNER.

C. All work areas have available access. The Contractor will be issued keys for the sites through the District Facilities and Support Operations Department to allow access at the sites. Contractor will ensure they secure all areas that are accessed by their personnel to ensure the security of the site.

D. Contractor shall provide trash bins and storage facilities for use at the site. The contractor shall not use school facilities for these purposes. It will be the contractor's responsibility to maintain and keep those facilities neat and clean at all times.

E. There may be other contractors or District workers working at the job site. Contractor will be responsible to coordinate his work with their schedules.

F. The Representative will have the right to stop the work immediately in case he sees a discrepancy or work not following the specifications. The contractor will not be let to continue to work until corrections are made and approval and permission given by the District Representative.

5.02 RESTRICTIONS

A. Use of the Site: Limit use of the premises to work in areas indicated. Confine operations to areas within contract limits indicated. Do not disturb portions of the site beyond the work areas in which the work is indicated. Allow for Owner occupancy and use by the public.

B. Use of the Existing Buildings: Repair damages caused by construction operations. Take all precautions necessary to protect the existing buildings and their occupants during the construction period.

C. Driveways and Entrances: Keep driveways and entrances serving the premises clear and available to the Owner, the Owner's employees, other contractors working, and emergency vehicles at all times.

D. Full Owner Occupancy: The Owner may occupy the site and existing buildings during the entire construction period. Cooperate with the owner during construction operations to minimize conflicts and facilitate owner usage. Perform the work so as not to interfere with the Owner's operations.

5.03 PERMISSIBLE WORKING DAYS AND HOURS

A. Work may be conducted as follows:

B. This school is on a traditional school year calendar, August through June. During the period of this contract, school events and educational requirements will limit or prevent access, and will affect Contractor work hours for a portion or all of the school building (s) pertinent to the contract. Contractor shall maintain schedule with full knowledge of these times and dates to be determined. A site-specific calendar will include currently known dates of limited access, or times of the school day that noise will have to be limited, or ceased. These shall include during the time of the project, but not be limited to:

1. No work after 6:00 p.m. on six (6) weekday evenings for back-to-school, open house, and other events per school year at each school site.

2. No work between 8:00 a.m. and 10:00 a.m. on five (5) student attendance weekdays for assembly events per school year.

3. NO NOISE/WORK will be allowed on an Elementary school site between 8:00 a.m. and 12:30 p.m. on twelve (12) student attendance weekdays for testing (four (4) consecutive weekdays, three times) per school year. Second shift work may be accommodated with the request pre-approved by the District Project Manager.

4. NO NOISE/WORK will be allowed on a Middle School or High School site between 8:00 a.m. and 1:30 p.m. on twenty (20) student attendance weekdays for testing (four (4) consecutive weekdays during the first semester; sixteen (16) consecutive weekdays during the second semester) per school year. Second shift work may be accommodated with the request pre-approved by the District Project Manager.

C. It shall be noted that there are students in the Early and Extended Education Learning Program in attendance on the Elementary school sites from 6:00 a.m. through 6:00 p.m. on a daily basis throughout the school year, and on each day that Classified Staff are assigned working hours (see specific EEELP calendar for each site, per each school year).

D. Work hours for the Project shall be from 7:00 a.m. until 10:00 p.m. Monday through Saturday, unless advance permission to deviate from these hours is obtained from the City of Glendale per Glendale Municipal Code, Title 8, Chapter 36, and this request is also approved in writing five working days beforehand by the District Project Manager.

E. Subject to local ordinances, CONTRACTOR may work any hours on Saturdays, Sundays, and any non-school session days, when written notification to the District has been submitted and the anticipated schedule of work has been approved.

SECTION 01 74 10

CLEANING

PART 10 - GENERAL

10.01 SECTION INCLUDES:

A. Maintain premises and adjacent public and private properties free from accumulations of waste, debris, and rubbish, caused by operations during the project.

B. At completion of Work, remove waste materials rubbish, tools, equipment, machinery and surplus materials, and clean all exposed surfaces; leave project clean and ready for occupancy.

PART 10.2 - PRODUCTS

10.2.01 MATERIALS:

A. Use only cleaning materials recommended by the manufacturer of surface to be cleaned.

B. Use cleaning materials only on proper surfaces recommended by the manufacturer.

PART 10.3 - EXECUTION

10.3.01 DURING CONSTRUCTION:

A. Execute daily cleaning plans from each trade to ensure that buildings, grounds, and public and private properties are maintained free from accumulations of waste materials, rubbish and trash on a daily basis.

B. Wet down dry materials and rubbish to prevent blowing dust and debris on and from the construction work.

C. Daily, during progress of work, clean construction site and utilized public properties, and dispose of waste materials, debris and rubbish.

D. Provide on-site steel dump containers and appropriately sized trash containers for collection of waste materials, debris and rubbish. DO NOT USE SITE CONTAINERS.

E. Remove waste materials, debris and rubbish from site and legally dispose of at public or private dumping areas off the District's property.

F. Vacuum clean and wet wipe interior building walls, floors, doors, windows, and hardware in preparation for and when ready to receive finish preparation and painting. Continue vacuum cleaning on an as-needed basis until building is ready final inspection by the Architect, Inspector, and Project Manager and determined to be ready for substantial completion and occupancy.

G. Handle materials in a controlled manner to minimize any unnecessary waste or debris emanating from the construction areas. Do not drop or throw materials from heights: rather, a closed chute shall be used, to minimize unnecessary dust, waste or debris from the construction area.

A. Schedule cleaning operations so that dust and other contaminants resulting from cleaning process will not migrate into new equipment or furniture, or onto wet, newly painted, or finished surfaces.

10.3.02 FINAL CLEANING:

A. Employ experienced workmen, or professional cleaners, for final cleaning.

B. Exterior: Clean surfaces of the construction and site including, but not limited to, fixtures, walls, soffits, floors, hardware, roofs, window and opening ledges and sills, horizontal projections, steps and platforms, walkways, rails and all like surfaces, and adjoining private and public property to the extent soiled by the Contractor's operations.

C. Interior: Leave all horizontal and vertical surfaces in vacuum cleaned, wet-wiped condition with all dust, dirt, stains, hand marks, paint spots, droppings, and other blemishes and defects completely removed, and conform to the following requirements:

1. Hard Floors: Freshly administer specified product sealants, and Wet mop/wash and dry, concrete, Portland cement flooring, tile, elastomeric, epoxy, refinished and colored concrete, and similar hard floor surfaces free of dust, streaks or stains.

2. Resilient Flooring: Freshly wax and buff as specified in Section 09 65 00.

3. Wood Flooring: Remove defects and blemishes by sanding surface and painting according to Section 09 90 00.

4. Resilient Bases: Clean off adhesive smears and wipe clean with wet-wipe methods.

5. Unpainted and Painted Surfaces: Clean of dust, lint, streaks or stains, utilizing wet-wipe methods as necessary.

6. Tile Walls: Clean and polish per manufacturer's specifications.

7. Hardware and Metal Surfaces: Clean and polish all exposed surfaces using non-corrosive and nonabrasive materials.

8. Glass: Wash and polish both sides, and leave free of dirt, spots, streaks, and labels. Clean and polish mirrors.

9. Ceilings: Clean and free of stains, hand marks, and defacing.

10. Replace air conditioning filters as specified in Mechanical Specifications.

11. Clean ducts, blowers and coils, if air conditioning units are found to have been operated without filters during construction, and after final inspection.

12. Lighting fixtures: Replace lamps and clean fixtures and lenses if fixtures or lamps are dirty or have smudges or dust.

13. Fixtures and Equipment: Clean and polish mechanical and electrical fixtures and like items. Leave lighting fixtures free of dust, dirt, stains or waste material. Clean and service equipment and machinery, leaving ready for use.

14. Surfaces Not Mentioned: Clean according to the intent of this Section and as required for Architect's approval.

E. Contaminated Earth: Final clean-up operation includes the removal and disposal of earth that is contaminated or unsuitable for support of plant life in planting areas, and filling the resulting excavations with suitable soil as directed and approved by the Architect, Inspector, and/or Project Manager.

Contaminated areas include those used for disposal of waste concrete, mortar, plaster, masonry, paints, and similar materials, and areas in which washing out of concrete and plaster mixers or washing of tools and like cleaning operations have been performed, and all areas and adjacent areas that have been oiled, paved, or chemically treated.

Do not dispose of waste, oil, solvents, paints, solutions, or like penetrating material by depositing or burying on School property; dispose of such material in a lawful manner.

END OF SECTION