

Addendum 3

Project: Lathrop Fire Station 31
Rehabilitation
Project No: 757-01-20
Date: 12/10/2020

From Architect:

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This Addendum forms a part of the Contract Documents and modifies the original issued **November 16, 2020** as noted below.
Acknowledge receipt of this addendum in submittal of bid.

PROJECT SPECIFICATIONS:

1. Project Specification Sections are **ADDED**.

SECTION 03 36 00 - GROUND AND POLISHED CONCRETE

PROJECT PLANS:

1. Project Plan Sheets have been revised (1 sheet total):

Architectural

A9.01

Door Schedule

End of Addendum

SECTION 03 36 00 - GROUND AND POLISHED CONCRETE

PART 1 – GENERAL

1.1 SUMMARY

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification sections, apply to Work of this Section.
- B. Section Includes:
 - 1. Grinding and polishing concrete surfaces.
- C. Related Sections:
 - 1. Division 3 Section “Cast-In-Place Concrete” for general applications of concrete and coordination of sample submittal [and color selection].
 - 2. Division 7 Section “Joint Sealants” for sealant for joints.

1.2 REFERENCES

- A. American Concrete Institute (ACI):
 - 1. ACI 301 “Specification for Structural Concrete for Buildings.”
 - 2. ACI 302 IR “Recommended Practice for Concrete Floor and Slab Construction.”
 - 3. ACI 303.1 “Standard Specification for Cast-In-Place Architectural Concrete.”
 - 4. ACI 304 “Recommended Practice for Measuring, Mixing, Transporting and Placing of Concrete.”
 - 5. ACI 305R “Recommended Practice for Hot Weather Concreting.”
 - 6. ACI 306R “Recommended Practice for Cold Weather Concreting.”
- B. American Society for Testing and Materials (ASTM):
 - 1. ASTM C309 “Liquid Membrane-Forming Compounds for Curing Concrete.”
 - 2. ASTM C494 “Standard Specification for Chemical Admixtures for Concrete.”
- C. American Association of State Highway and Transportation Officials (AASHTO):
 - 1. AASHTO M194 “Chemical Admixtures.”

1.3 SUBMITTALS

- A. Product Data: Submit manufacturer’s complete technical data sheets for the following:
- B. Design Mixes: For each type of concrete.
- C. Samples for Initial Selection:
- D. Qualification Data: For firms indicated in “Quality Assurance” Article, including list of completed projects.
- E. Product data for each grinding machine, including all types of grinding heads, dust extraction system, joint filler, concrete densifying impregnator, penetrating sealer, and any other chemicals used in the process.
- F. Applicators qualification data.

1.4 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Manufacturer with experience in the production of specified products.
- B. Installer Qualifications: An installer with 2 years experience with work of similar scope and quality.
- C. Comply with the requirements of ACI 301.
- D. Obtain each specified material from same source and maintain high degree of consistency in workmanship throughout Project.
- E. Notification of manufacturer's authorized representative shall be given at least 1-week before start of Work.
- F. Pre-installation Conference: Conduct conference at project site.
- G. Installer/Applicator shall be certified by concrete finish equipment and chemical manufacturer and shall provide adequate number of skilled workmen who are thoroughly trained and experienced in the necessary craft.
- H. Manufacturer's Certification: Provide a letter of acknowledgement from both the equipment and chemical manufacturer stating that the installer is a trained applicator and is familiar with proper procedures and installation requirements recommended by the manufacturer.
- I. Ground and Polished Concrete Mockups
 - 1. Construct mockup using processes and techniques intended for use on permanent work, including curing procedures. Include samples of control, construction, and expansion joints in sample panels. Mockup shall be produced by the individual workers who will perform the work for the Project.
 - 2. Retain samples of cements, sands, aggregates and color additives used in mockup for comparison with materials used in remaining work.
 - 3. Aggregate selected must be tested to ensure it will accept polish.
 - 4. Edges should be included in mockup.
 - 5. Accepted mockup provides visual standard for work of Section.
 - 6. Mockup shall remain through completion of work for use as a quality standard for finished work.
 - 7. Remove mockup when directed.
- J. Environmental Limitations:
 - 1. Comply with manufacturer's written instructions for substrate temperature and moisture content, ambient temperature and humidity, ventilation and other conditions affecting chemical performance.
 - 2. Flatness and levelness
 - a. Finish concrete shall have a minimum Floor Flatness rating of at least 50.
 - b. Finish concrete shall have a minimum Floor Levelness rating of at least 30.
 - c. Finish concrete shall be cured a minimum of 28 days or at which point equipment can be put on the slab and does not displace aggregate.
 - 3. Application of finish shall take place a minimum of 21 days prior to fixture and trim installation and/or substantial completion.
 - 4. Finish concrete area shall be closed to traffic during finish floor application and after application for the time as recommended by the manufacturer.

1.5 PROJECT CONDITIONS

- A. Concrete Environmental Requirements:
 - 1. Schedule placement to minimize exposure to wind and hot sun before curing materials are applied.
 - 2. Avoid placing concrete if rain, snow, or frost is forecast within 24-hours. Protect fresh concrete from moisture and freezing.
 - 3. Comply with professional practices described in ACI 305R and ACI 306R.
- B. Schedule delivery of concrete to provide consistent mix times from batching until discharge. Mix times shall meet manufacturer's written recommendations.

PART 2 – PRODUCTS

2.1 ACCEPTABLE MANUFACTURER

- A. Sika-SCOFIELD COMPANY-, or approved equal.

2.2 MATERIALS

- A. Provide manufacturer's companion Lithium Densifier and guard w product to help ensure accent color.
- B. Acceptable product:
 - 2. SCOFIELD® Formula One™ Lithium Densifier by Sika SCOFIELD COMPANY.
 - 3. SCOFIELD® Formula One™ Guard w by Sika SCOFIELD COMPANY.
- C. Curing Compound for Dye Stained Concrete:
 - 1. LITHOCHROME® COLORWAX™; Sika SCOFIELD COMPANY. Use to cure exterior flatwork that will be allowed to cure naturally with only occasional maintenance.
- D. Chemical Hardener/Densifiers Manufactured by Sika SCOFIELD COMPANY:
 - 1. Materials:
 - a. Sika SCOFIELD® Formula One™-LD is a high performing hardening and dust proofing compound that is chemically reactive and permanently bonds to concrete formulated to be used in conjunction with integrally colored concrete as well as uncolored concrete. Chemically reactive, colorless densifying impregnator consisting of lithium silicate
 - b. Sika SCOFIELD® Guard W–voc compliant, transparent liquid solution .
 - 2. 3-head or 4-head counter rotating variable speed floor grinding machine with at least 600 pounds down pressure.
 - 3. Dust extraction system, pre-separator, and squeegee attachments with minimum flow rating of 322 cubic feet per minute.
 - 4. Grinding heads:
 - a. Metal bonded 16, 25, 40, 60, 80, 150 and 300 grits.
 - b. Resin bonded, phenolic diamonds, 100, 200, 400, 800grits.
 - 5. Grinding pads for edges:
 - a. 40, 60, 100 and 120 grits.
 - b. 200, 400, 800grits.
 - 6. Hand grinder with dust extraction equipment and pads.
- E. Curing Compound for Polished, Hardened Concrete: LITHOCHROME® COLORWAX™; Sika SCOFIELD COMPANY. Use to cure in the same color as the concrete directly after finishing process.
- F. Duracover- Sika Scofield- Protective cover for concrete to be ground and polished

2.4 CONCRETE MIX DESIGN

- A. Minimum Cement Content: 5sacks per cubic yard of concrete.

- B. Slump of concrete shall be consistent throughout Project at 4-inches or less. At no time shall slump exceed 5-inches.
- C. Do not add calcium chloride to mix as it causes mottling and surface discoloration.
- D. Supplemental admixtures shall not be used unless approved by manufacturer.
- E. Do not add water to the mix in the field.

PART 3 – EXECUTION

3.1 INSTALLATION

- A. Install concrete according to requirements of Division 3 Section “Cast-In-Place Concrete.”
- B. Do not add water to concrete mix in the field.
- C. Surfaces shall be finished uniformly with the following finish:
 - 1. Trowel: Precautions should be taken to ensure that the surface is uniformly troweled so that it will not be slippery. Do not over-trowel or burnish the surface.
 - 2. Ground and Polished Concrete Surface: Precautions should be taken to insure the surface is in tolerances to perform this function.

3.1.1 POLISHED CONCRETE APPLICATION

- A. Applicator shall examine the areas and conditions under which work of this section will be provided and the General Contractor shall correct conditions detrimental to the timely and proper completion of the work and the Applicator shall not proceed until unsatisfactory conditions are resolved.
- B. Grind the concrete floor to within 2 – 3 inches of walls with 16, 25, 40, 60, 80 and/or 150 grit removing construction debris, floor slab imperfections and until there is a uniform scratch pattern and desired concrete aggregate exposure.
- D. Fill construction joints and cracks with filler products as specified in accordance with manufacturer’s instructions colored to match (or contrast) with concrete color as specified by architect.
- E. Apply densifying impregnator undiluted at approximately 200 square feet per gallon using a stiff, long bristled broom. Cover the entire area liberally. Using a broom, work the densifier into the substrate for 30 minutes. During this 30-minute period, continually keep the substrate wet with densifier. Squeegee excess material off the floor. Allow 12 to 24 hours for full cure.
- F. Grind the floor to within 2 – 3 inches of walls with metal bonded diamond grits of 150 and 300—grinding 90° from each previous grind and removing all the scratches from the previous grit. Vacuum the floor thoroughly after each grind using a squeegee vacuum attachment.
- G. Grind the edges with 40, 60, 120 and 220 grit grinding pads removing all of the scratches from the previous grit. Vacuum the floor thoroughly after each grind using a squeegee vacuum attachment.
- H. Polish the floor, to desired sheen level, with phenolic resin bonded diamond grits of 100, 400, 800—first polishing the edges (if specified) with pads of the same grit and then the field of the floor removing all scratches from the previous grit. After each polish, clean the floor thoroughly using clean water and an auto scrubber or a mop and a wet vacuum.

- I. Polish with 800-resin bond grind.
- J. Apply finish coat at 750 square feet per gallon.
- K. Using a high speed (2000 – 3000 rpm) burnishing machine and hogs hair burnishing pad, buff the surface to a high shine.
- L. Upon completion, the work shall be ready for final inspection and acceptance by the Owner.

3.2 CURING

- A. Concrete: Apply [curing] [curing and sealing] compound for concrete according to manufacturer's instructions using manufacturer's recommended application techniques.
- C. Precautions shall be taken in hot weather to prevent plastic cracking resulting from excessively rapid drying at surface as described in CIP 5 *Plastic Shrinkage Cracking* published by the National Ready Mixed Concrete Association.
- D. Floor will be covered for protection after 3 days with Duracover

3.3 CLEANING

- A. The work area shall be kept clean and free of debris at all times.
- B. Remove slurry and dust from adjoining surfaces as necessary.
- C. Dispose of material containers in accordance with local regulations.
- D. Protect finished work until fully cured per manufacturer's recommendations.

3.4 APPLICATORS

- A. For a list of qualified contractors, contact your local Scofield representative

PART 4 – SCHEDULES

4.1 CUT AND SHINE LEVELS

- A. Cut Level (Depth of cut)
 - 1. Grade 1 – cream finish
 - 2. Grade 2 – light exposure of course aggregate
 - 3. Grade 3 – heavy exposure of course aggregate
- B. Shine Level
 - 1. Class 1 – 400 grit polish
 - 2. Class 2 – 800 grit polish
 - 3. Class 3 – 1500 grit polish
- C. Polished concrete finish coat
 - 1. At a distance of 100 feet, the floor will reflect images from side lighting.
 - 2. Apply two applications of SCOFIELD® Finish Coat.
- D. Specified for Fire Station 31 project
 - Grade: 2
 - Class: 2
 - Finish Coat applications: Clear

END OF SECTION

