



State of Utah

JON M. HUNTSMAN, JR.
Governor

GARY R. HERBERT
Lieutenant Governor

Department of Administrative Services

KIMBERLY K. HOOD
Executive Director

Division of Facilities Construction and Management

DAVID G. BUXTON
Director

ADDENDUM #1

Date: August 21, 2007

To: Contractors

From: Matthias Mueller, Project Manager, DFCM

Reference: Redwood Road Store Remodel and Expansion
Department of Alcoholic Beverage Control – West Valley City, Utah
DFCM Project No. 06233030

Subject: **Addendum No. 1**

Pages	Addendum	1	page
	<u>Architects Addendum</u>	<u>31</u>	<u>pages</u>
	Total	32	pages

Note: This Addendum shall be included as part of the Contract Documents. Items in this Addendum apply to all drawings and specification sections whether referenced or not involving the portion of the work added, deleted, modified, or otherwise addressed in the Addendum. Acknowledge receipt of this Addendum in the space provided on the Bid Form. Failure to do so may subject the Bidder to Disqualification.

- 1.1 **SCHEDULE CHANGES** – There are no changes to the Project Schedule.
- 1.2 **GENERAL** – Frank N. Murdock Jr. Architect & Associates - specifications.

Department of Alcoholic Beverage Control
New Riverton Liquor Store
Kimball Junction Liquor Store Remodel & Addition
Redwood Road Liquor Store Remodel & Expansion
Addendum A01

Addendum No. A01

Issued Monday, August 20, 2007

PROJECTS

Department of Alcoholic Beverage Control
New Riverton Liquor Store - DFCM Project No. 05053030
Kimball Junction Liquor Store Remodel & Addition – DFCM Project No. 06234030
Redwood Road Liquor Store Remodel & Expansion – DFCM Project No. 06233030

ARCHITECT

Frank N Murdock Jr Architect & Associates
975 East 100 South
Salt Lake City, Utah 84102
(801) 532-4441

The original Contract Documents issued for the above noted project are amended as noted in this Addendum. It shall be the sole responsibility of the bidder to appropriately disseminate this data to all concerned, prior to the assigned bid time and date.

Receipt of this Addendum shall be acknowledged by inserting its number and date in the appropriate space provided on the bid form. This Addendum consists of three (3) 8 ½” x 11” sheets, plus Appendix “A” twenty five (25) 8 ½” x 11 sheets and Appendix “B” three (3) 8 ½” x 11 sheets.

REVISED FORM OF PROPOSAL – See Attachment

CLARIFICATIONS & REQUIREMENTS:

1. **SCHEDULE:** The Contractor may access the existing facilities for limited work during the Construction of the additions. However, the existing facilities must be allowed to continue operations until the following dates:
Redwood Road ABC Store – The facility will be vacated/closed and the Contractor will have full access to the facility on January 14, 2008.
Kimball Junction ABC Store – The facility will be vacated/closed and the Contractor will have full access to the facility on February 4, 2008.
The Completion Dates for the remodeled Facilities are as follows:
Redwood Road ABC Store - Wednesday April 30, 2008
Kimball Junction ABC Store - Wednesday May 14, 2008
2. **MANAGEMENT PLAN:** The contractor may submit one management plan for the three Projects. However, the Management Plan should include separate sections addressing the three individual Projects.
3. **DRAWINGS & SPECIFICATIONS:** A maximum of fifteen (15) sets of Drawings and Specifications will be made available to the successful Contractor by DFCM. The Contractor may order additional sets at their own expense.

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4. **TINTED BLOCK:** All reinforced CMU on the Kimball Junction ABC Store is standard **non-tinted** block. See drawings for tinted block (CMU) quantities and locations for the Redwood Road and Riverton ABC Stores.
5. **ARCHITECTURAL CONCRETE FINISH:** All exposed concrete is to be Architectural Concrete. Exposed Concrete is defined for these Projects as: "A vertical concrete surface where more than 8" of the vertical surface is exposed above ground." See revised Specification Section 03310 for requirements.
6. **EXPOSED WIRING:** Exposed wiring, flex conduit, rigid conduit or "J box" cover plates will not be accepted as part of the Alarm or Electrical System except in Utility Rooms.
7. **CONSTRUCTION SUPERINTENDENT:** The Construction Superintendent assigned to the Project is required to remain with the Project until completion of the Final Punch List.

SPECIFICATIONS:

1. **Section 02753:**
 - a. 3.12 A., Change paragraph to read, "The Owner will employ a testing laboratory to perform field quality control tests and to submit test reports".
2. **Section 03310**
Delete Section 03310 Concrete Work and replace with the revised Section 03310 Concrete Work which includes requirements for Architectural Concrete. See Appendix "A"
3. **Section 03450**
Add Section 03450 Architectural Precast Concrete. See Appendix "A"
4. **Section 03600**
Add Section 03600 Grout. See Appendix "A"
5. **Section 04200:**
 - a. 3.0, Change paragraph to read, "The Owner will employ a testing laboratory to perform field quality control tests and to submit test reports".
6. **Section 05110**
Delete Section 05110 Metal Panels and replace with the revised Section 07421 Metal Panels which includes requirements for existing metal panels at the Kimball Junction ABC Store. See Appendix "A"
7. **Section 09300:**
 - a. Add metal edge strip to the list of specified products. Edge strip to be installed at all intersections of tile and carpet or concrete. Metal edge strip to be A-80 Aluminum Edge Protector, by Schluter-Schiene, or prior-approved equal.

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8. **Section 09900:**
 - a. Wood trim: interior penetrating wood stain (color to be selected by architect), with two coats of clear polyurethane, low lustre or satin finish.

End of Document

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Appendix “A”

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SPECIFICATIONS:

1. **Section 03310**
2. **Section 03450**
3. **Section 03600**
4. **Section 07421**

End of Document

**DEPARTMENT OF ALCOHOLIC BEVERAGE CONTROL
KIMBALL JUNCTION, REDWOOD ROAD AND RIVERTON LIQUOR STORES**

SECTION 03310 - CONCRETE WORK

PART 1 - GENERAL

1..1 RELATED DOCUMENTS:

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

1..2 SUMMARY:

- A. Extent of concrete work is shown on drawings.
- B. Architectural Concrete Requirements. See Section – 03310.2.1.A.
- C. Precast concrete is specified in other Division – 3 Section.
- D. Concrete bases for mechanical and electrical equipment.
- E. Recessed slabs for thick-set floor tile.
- F. Testing

1..3 SUBMITTALS:

- A. Product Data: Submit data for proprietary materials and items, including reinforcement and forming accessories, admixtures, patching compounds, waterstops, joint systems, curing compounds, dry-shake finish materials, and others as requested by Architect.
- B. Shop Drawings; Reinforcement: Submit original shop drawings for fabrication, bending, and placement of concrete reinforcement. Comply with ACI 315 "Manual of Standard Practice for Detailing Reinforced Concrete Structures" showing bar schedules, stirrup spacing, diagrams of bent bars, arrangement of concrete reinforcement. Include special reinforcement required for openings through concrete structures.
 - 1. Architect's review is for general architectural applications and features only. Design of formwork for structural stability and efficiency is Contractor's responsibility.
- C. Samples: Submit samples of materials as requested by Architect, including names, sources, and descriptions.
 - 1. Provide sample chips of concrete tints. Color to be chosen by Architect from manufacturer's standard colors.
- D. Laboratory Test Reports: Submit laboratory test reports for concrete materials and mix design test.
- E. Materials Certificates: Provide materials certificates in lieu of materials laboratory test reports when permitted by Architect. Materials certificates shall be signed by manufacturer and Contractor, certifying that each material item complies with, or exceeds, specified requirements. Provide certification from admixture manufacturers that chloride content complies with specification requirements.

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1.4 QUALITY ASSURANCE:

- A. Codes and Standards: Comply with provisions of following codes, specifications, and standards, except where more stringent requirements are shown or specified:
 - 1. UBC 1997 Edition.
 - 2. ACI 301 "Specifications for Structural Concrete for Buildings".
 - 3. ACI 318-83(95) "Building Code Requirements for Reinforced Concrete".
 - 4. Concrete Reinforcing Steel Institute (CRSI), "Manual of Standard Practice".
- B. Materials and installed work may require testing and retesting at anytime during progress of work. Retesting of rejected materials for installed work, shall be done at Contractor's expense.

1.5 PROJECT CONDITIONS:

- A. Protection of Footings Against Freezing: Cover completed work at footing level with sufficient temporary or permanent cover as required to protect footings and adjacent subgrade against possibility of freezing; maintain cover for time period as necessary.
- B. Protect adjacent finish materials against spatter during concrete placement.

1.6 ENVIRONMENTAL REQUIREMENTS

- A. Resource Management:
 - 1. Recycled Content:
 - a. Concrete: Fly ash may be used as a substitute for a maximum of 20 percent of Portland cement.

PART 2 – PRODUCTS

2.1 FORM MATERIALS:

- A. Forms for Exposed Architectural Finish Concrete: New medium density overlay forms, to provide continuous, straight, smooth, exposed surfaces. Furnish in largest practicable sizes to minimize number of joints. A plaster finish will not be acceptable. Simons forms will not be acceptable.
 - 1. Form Ties: Factory-fabricated, adjustable-length, removable or snapoff metal form ties, designed to prevent form deflection and to prevent spalling concrete upon removal. Provide units which will leave no metal closer than 1-1/2" to surface.
 - a. Provide ties which, when removed, will leave holes not larger than 1" diameter in concrete surface.
- B. Forms for Exposed Non-Architectural Finish Concrete: Plywood, metal, metal-framed plywood faced, or other acceptable panel-type materials, to provide continuous, straight, smooth, exposed surfaces. Furnish in largest practicable sizes to minimize number of joints and to conform to joint system shown on drawings.
 - 1. Use overlaid plywood complying with U.S. Product Standard PS-1 "A-C or B-B High Density Overlaid Concrete Form", Class I.

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- C. Forms for Unexposed Finish Concrete: Plywood, lumber, metal, or other acceptable material. Provide lumber dressed on at least 2 edges and one side for tight fit.
- D. Form Coatings: Provide commercial formulation form-coating compounds that will not bond with, stain, nor adversely affect concrete surfaces, and will not impair subsequent treatments of concrete surfaces.
- E. Form Ties: Factory-fabricated, adjustable-length, removable or snapoff metal form ties, designed to prevent form deflection and to prevent spalling concrete upon removal. Provide units which will leave no metal closer than 1½" to surface.
 - 1. Provide ties which, when removed, will leave holes not larger than 1" diameter in concrete surface.

2..2 REINFORCING MATERIALS:

- A. Reinforcing Bars: ASTM A 615, Grade 60, deformed.
- B. Epoxy-coated reinforcing bars: ASTM A775.
- C. Steel Wire: ASTM A 82, plain, cold-drawn steel.
- D. Welded Wire Fabric: ASTM A 185, welded steel wire fabric.
- E. Supports for Reinforcement: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire fabric in place. Use wire bar type supports complying with CRSI specifications.
 - 1. For slabs-on-grade, use supports with sand plates or horizontal runners where base material will not support chair legs.
 - 2. For exposed-to-view concrete surfaces, where legs of supports are in contact with forms, provide supports with legs which are plastic protected (CRSI, Class 1) or stainless steel protected (CRSI, Class 2).
 - 3. For post-tensioned parking slab provide epoxy-coated or plastic coated wire bar supports with a minimum thickness of 0.127 mm.

2..3 CONCRETE MATERIALS:

- A. Portland Cement: ASTM C 150, Type II.
- B. Use one brand of cement throughout project, unless otherwise acceptable to Architect.
- C. Normal Weight Aggregates: ASTM C 33, and as herein specified. Provide aggregates from a single source for exposed concrete.
 - 1. For exterior exposed surfaces, do not use fine or coarse aggregates containing spalling-causing deleterious substances.
 - 2. Local aggregates not complying with ASTM C 33 but which have shown by special test or actual service to produce concrete of adequate strength and durability may be used when acceptable to Architect.

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- D. Water: Drinkable
- E. Air-Entraining Admixture: ASTM C 260, certified by manufacturer to be compatible with other required admixtures.
 - 1. Available Products: Subject to compliance with requirements, products which may be incorporated in the work include, but are not limited to, the following:
 - a. "Air-Mix"; Euclid Chemical Co.
 - b. "Sika Aer"; Sika Corp.
 - c. "MB-VR or MB-AE"; Master Builders.
 - d. "Darex AEA" or "Daravair"; W.R. Grace.
 - e. "Edoco 2001 or 2002"; Edoco Technical Products.
 - f. "Air-Tite"; Gifford-Hill/American Admixtures.
- F. Water-Reducing Admixture: ASTM C 494, Type A, and containing not more than 0.1 percent chloride ions.
 - 1. Available Products: Subject to compliance with requirements, products which may be incorporated in the work include, but are not limited to, the following:
 - a. "WRDA Hycol"; W.R. Grace.
 - b. "PSI N"; Gifford-Hill/American Admixtures
 - c. "Eucon WR-75"; Euclid Chemical Co.
 - d. "Pozzolith Normal"; Master Builders.
 - e. "Plastocrete 160"; Sika Chemical Corp.
 - f. "Chemtard"; Chem-Masters Corp.
 - g. "Pro-Kete-N"; Protex Industries, Inc.
- G. High-Range Water-Reducing Admixture (Super Plasticizer): ASTM C 494, Type F or Type G and containing not more than 0.1 percent chloride ions.
 - 1. Available Products: Subject to compliance with requirements, products which may be incorporated in the work include, but are not limited to, the following:
 - a. "WRDA 19" or "Daracem"; W.R. Grace.
 - b. "PSP"; Protex Industries Inc.
 - c. "Super P"; Anti-Hydro.
 - d. "Sikament"; Sika Chemical Corp.
 - e. "Mighty 150"; ICI Americas Corp.
 - f. "Eucon 37"; Euclid Chemical Co.
 - g. "PSI Super"; Gifford-Hill.
 - h. "Rheobuild"; Master Builders.
- H. Water-Reducing, Non-Chloride Accelerator Admixture: ASTM C 494, Type E, and containing not more than 0.1 percent chloride ions.
 - 1. Available Products: Subject to compliance with requirements, products which may be incorporated in the work include, but are not limited to, the following:
 - a. "Accelquard 80"; Euclid Chemical Co.
 - b. "Pozzolith High Early"; Master Builders.
 - c. "Gilco Accelerator"; Gifford-Hill/American Admixtures

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- I. Water-Reducing, Retarding Admixture: ASTM C 494, Type D, and containing not more than 0.1 percent chloride ions.
 - 1. Available Products: Subject to compliance with requirements, products which may be incorporated in the work include, but are not limited to, the following:
 - a. "Edoco 20006"; Edoco Technical Products.
 - b. "Pozzolith Retarder"; Master Builders.
 - c. "Eucon Retarder 75"; Euclid Chemical Co.
 - d. "Daratard"; W.R. Grace.
 - e. "PSI R"; Gifford-Hill/American Admixtures.
 - f. "Plastiment"; Sika Chemical Co.
 - g. "Protard"; Protex Industries, Inc.
- J. Fly ash: Conform to ASTM C618. A minimum of 15 percent to a maximum of 20 percent quality fly ash is required in the post-tensioned parking slabs. The use of a quality fly ash is permitted as a cement-reducing admixture in all other concrete (maximum 20 percent). The fly ash shall meet all of the requirements of ASTM C618, Class F or Class N, with the following special requirements: The loss on ignition in Table 1 shall not exceed 3 percent. Compliance to Table 1A shall apply. The amount retained on the 325 sieve in Table 2 shall not exceed 34 percent. The chemical analysis of the fly ash shall be reported in accordance with ASTM C311. Quality assurance testing and reports for a minimum of six months shall be submitted by the fly ash supplier.
- K. Prohibited Admixtures: Calcium chloride thiocyanates or admixtures containing more than 0.1 percent chloride ions are not permitted.

2..4 RELATED MATERIALS:

- A. Waterstops: Provide flat, dumbbell type or centerbulb type waterstops at construction joints and other joints as indicated. Size to suit joints.
- B. Polyvinyl Chloride Waterstops: Corps of Engineers CRD-C 572.
 - 1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products which may be incorporated in the work include, but are not limited to, the following:
 - a. AFCO Products.
 - b. The Burke Co.
 - c. Edoco Technical Products.
 - d. Greenstreet Plastic Products.
 - e. Harbour Town Products.
 - f. W.R. Meadows.
 - g. Progress Unlimited.
 - h. Schleigel Corp.
 - i. Vinylex Corp.
- C. Rubber Waterstops: Corps of Engineers CRD-C 513.
 - 1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products which may be incorporated in the work include, but are not limited to, the following:
 - a. The Burke Co.
 - c. Williams Products

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- b. Progress Unlimited
- d. Edoco Technical Products
- D. Granular Base: Evenly graded mixture of fine and coarse aggregates to provide, when compacted, a smooth and even surface below slabs on grade.
- E. Epoxy Adhesive: ASTM C 881, two component material suitable for use on dry or damp surfaces. Provide material "Type", "Grade", and "Class" to suit project requirements.
 - 1. Available Products: Subject to compliance with requirements, products which may be incorporated in the work include, but are not limited to, the following:
 - a. "Thiopoxy"; W.R. Grace.
 - b. "Epoxite"; A.C. Horn, Inc.
 - c. "Edoco 2118 Epoxy Adhesive"; Edoco Technical Prod.
 - d. "Sikadur Hi-Mod"; Sika Chemical Corp.
 - e. "Euco Epoxy 452 or 620"; Euclid Chemical Co.
 - f. "Patch and Bond Epoxy"; The Burke Co.
 - g. "Concresive 1001"; Adhesive Engineering Co.
- F. Curing compound for colored concrete: Curing compound shall comply with ASTM C309 and be approved by pigment manufacturer for use with colored concrete.

2..5 PROPORTIONING AND DESIGN OF MIXES:

- A. Prepare design mixes for each type and strength of concrete by either laboratory trial batch or field experience methods as specified in ACI 301. If trial batch method used, use an independent testing facility acceptable to Architect for preparing and reporting proposed mix designs. The testing facility shall not be the same as used for field quality control testing.
- B. Submit written reports to Architect of each proposed mix for each class of concrete at least 15 days prior to start of work. Do not begin concrete production until mixes have been reviewed by Architect.
- C. Design mixes to provide normal weight concrete with the following properties, as indicated on drawings and schedules:
 - 1. 5000 psi 28-day compressive strength 6-1/2 bag per cubic yard, minimum W/C ratio, 0.40 maximum.
 - 2. 4000 psi 28-day compressive strength 6-bag mix cement per cubic yard, minimum; W/C ratio, 0.45 maximum.
 - 3. 3000 psi 28-day compressive strength 517 lbs. cement per cubic yard, minimum; W/C ratio, 0.50 maximum.
- D. Adjustment to Concrete Mixes: Mix design adjustments may be requested by Contractor when characteristics of materials, job conditions, weather, test results, or other circumstances warrant; at no additional cost to Owner and as accepted by Architect. Laboratory test data for revised mix design and strength results must be submitted to and accepted by Architect before using in work.
- E. Admixtures:
 - 1. Use water-reducing admixture or high range water-reducing admixture (super plasticizer) in concrete as required for placement and workability.
 - 2. Use non-chloride accelerating admixture in concrete slabs placed at ambient temperatures below 50 deg F (10 deg C).

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3. Use air-entraining admixture in exterior exposed concrete, unless otherwise indicated. Add air-entraining admixture at manufacturer's prescribed rate to result in concrete at point of placement having total air content with a tolerance of plus-or- minus 1-1/2 percent within following limits:
 - a. Concrete structures and slabs (all parking slabs) exposed to freezing and thawing, deicer chemicals, or subjected to hydraulic pressure shall have:
 - 1) 6.5 percent air with 3/4" max. aggregate.
 - b. Other Concrete (not exposed to freezing, thawing, or hydraulic pressure): 2 percent to 4 percent air.
 4. Use admixtures for water-reducing and set-control in strict compliance with manufacturer's directions.
- F. Water-Cement Ratio: Provide concrete for following conditions with maximum water-cement (W/C) ratios as follows:
1. Subjected to freezing and thawing; W/C 0.50.
 2. Subjected to deicers/watertight; W/C 0.45.
- G. Slump Limits: Proportion and design mixes to result in concrete slump at point of placement as follows:
1. Ramps, slabs, and sloping surfaces: Not more than 3".
 2. Reinforced foundation systems: Not less than 1" and not more than 3".
 3. Concrete containing HRWR admixture (super-plasticizer): Not more than 8" after addition of HRWR to site-verified 2" slump concrete.
 4. Other concrete: Not less than 1" nor more than 4".
- H. Concrete Flagpole Foundation: Provide concrete composed of portland cement, coarse aggregate, fine aggregate and water, mixed in proportions to attain 28-day compressive strength of not less than 3000 psi. Use not less than 5 sacks of portland cement complying with ASTM C 150, per cubic yard of wet concrete.
- 2..6 CONCRETE MIXING:
- A. Ready-Mix Concrete: Comply with requirements of ASTM C 94, and as herein specified.
 - B. Provide batch ticket for each batch discharged and used in work, indicating project identification name and number, date, mix type, mix time, quantity, and amount of water introduced.
 - C. During hot weather, or under conditions contributing to rapid setting of concrete, a shorter mixing time than specified in ASTM C 94 may be required.
 - D. Integrally Colored Concrete: NOT USED

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PART 3 - EXECUTION

3..1 GENERAL:

- A. Coordinate the installation of joint materials and vapor retarders with placement of forms and reinforcing steel.

3..2 FORMS:

- A. Design, erect, support, brace, and maintain formwork to support vertical and lateral, static, and dynamic loads that might be applied until such loads can be supported by concrete structure. Construct formwork so concrete members and structures are of correct size, shape, alignment, elevation, and position. Maintain formwork construction tolerances complying with ACI 347.
- B. Design formwork to be readily removable without impact, shock, or damage to cast-in-place concrete surfaces and adjacent materials.
- C. Construct forms to sizes, shapes, lines, and dimensions shown, and to obtain accurate alignment, location, grades, level and plumb work in finished structures. Provide for openings, offsets, sinkages, keyways, recesses, moldings, rustications, reglets, chamfers, blocking, screeds, bulkheads, anchorages and inserts, and other features required in work. Use selected materials to obtain required finishes. Solidly butt joints and provide back-up at joints to prevent leakage of cement paste.
- D. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush plates or wrecking plates where stripping may damage cast concrete surfaces. Provide top forms for inclined surfaces where slope is too steep to place concrete with bottom forms only. Kerf wood inserts for forming keyways, reglets, recesses, and the like, to prevent swelling and for easy removal.
- E. Provide temporary openings where interior area of formwork is inaccessible for cleanout, for inspection before concrete placement, and for placement of concrete. Securely brace temporary openings and set tightly to forms to prevent loss of concrete mortar. Locate temporary openings on forms at inconspicuous locations.
- F. Chamfer exposed corners and edges as indicated, using wood, metal, PVC, or rubber chamfer strips fabricated to produce uniform smooth lines and tight edge joints.
- G. Provisions for Other Trades: Provide openings in concrete formwork to accommodate work of other trades. Determine size and location of openings, recesses, and chases from trades providing such items. Accurately place and securely support items built into forms.
- H. Cleaning and Tightening: Thoroughly clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, or other debris just before concrete is placed. Retightening forms and bracing after concrete placement is required to eliminate mortar leaks and maintain proper alignment.
- I. Cut earth is not acceptable form material.

3..3 PLACING REINFORCEMENT:

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

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- B. Place all reinforcement in designated position and securely hold in position during the placing and compacting of concrete.
- C. Precast concrete block bar supports are only allowed when the concrete is placed in contact with the soil and then only as the support for the bottom mat of bars.
- D. Do not tack weld reinforcing bars in place.
- E. Do not damage the bars or the epoxy coating during handling and storage.
 - 1. Use systems with padded contact areas when handling coated bars.
 - 2. Pad all bundling bands.
 - 3. Lift all bundles with strong-back, multiple supports, or a platform bridge.
 - 4. Do not drop or drag bars.
- F. Repair damaged bars or coating at no additional cost.
- G. Have the coated bars inspected for damage to the coating after the bars are in place and immediately before concrete placement. Repair all visible defects using the specified patching or repair material.

3.4 JOINTS:

- A. Construction Joints: Locate and install construction joints as indicated or, if not indicated, locate so as not to impair strength and appearance of the structure, as acceptable to Architect.
- B. Provide keyways at least 1-1/2" deep in construction joints in walls, slabs, and between walls and footings; accepted bulkheads designed for this purpose may be used for slabs.
- C. Place construction joints perpendicular to main reinforcement. Continue reinforcement across construction joints, except as otherwise indicated.
- D. Waterstops: Provide waterstops in construction joints as indicated. Install waterstops to form continuous diaphragm in each joint. Make provisions to support and protect exposed waterstops during progress of work. Fabricate field joints in waterstops in accordance with manufacturer's printed instructions.
- E. Isolation Joints in Slabs-on-Ground: Construct isolation joints in slabs-on-ground at points of contact between slabs-on-ground and vertical surfaces, such as column pedestals, foundation walls, grade beams, and elsewhere as indicated.
 - 1. Joint filler and sealant materials are specified in Division-7 sections of these specifications.
- F. Contraction (Control) Joints in Slabs-on-Ground: Construct contraction joints in slabs-on-ground to form panels of patterns as shown. Use saw cuts 1/8" x 1/4 slab depth or inserts 1/4" wide x 1/4 of slab depth, unless otherwise indicated.
- G. Form contraction joints by inserting premolded plastic, hardboard or fiberboard strip into fresh concrete until top surface of strip is flush with slab surface. Tool slab edges round on each side of insert. After concrete has cured, remove inserts and clean groove of loose debris.
 - 1. Contraction joints in unexposed floor slabs may be formed by saw cuts as soon as possible after slab finishing as may be safely done without dislodging aggregate.
 - 2. Recess construction joints, new to new, and new to existing. See detail on drawing for dimension of recess. This will be typical at all concrete surfaces to receive tile as the finish surface.

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- H. If joint pattern not shown, provide joints not exceeding 15' in either direction and located to conform to bay spacing wherever possible (at column centerlines, half bays, third-bays).
 - 1. Joint sealant material is specified in Division-7 sections of these specifications.

3..5 INSTALLATION OF EMBEDDED ITEMS:

- A. General: Set and build into work anchorage devices and other embedded items required for other work that is attached to, or supported by, cast-in-place concrete. Use setting drawings, diagrams, instructions, and directions provided by suppliers of items to be attached thereto.
- B. Install reglets to receive top edge of foundation sheet waterproofing, and to receive thru-wall flashings in outer face of concrete frame at exterior walls, where flashing is shown at lintels, relieving angles, and other conditions.
- C. Edge Forms and Screed Strips for Slabs: Set edge forms or bulkheads and intermediate screed strips for slabs to obtain required elevations and contours in finished slab surface. Provide and secure units sufficiently strong to support types of screed strips by use of strike-off templates or accepted compacting type screeds.

3.6 PREPARATION OF FORM SURFACES:

- A. Clean re-used forms of concrete matrix residue, repair and patch as required to return forms to acceptable surface condition.
- B. Coat contact surfaces of forms with a form-coating compound before reinforcement is placed.
- C. Thin form-coating compounds only with thinning agent of type, amount, and under conditions of form-coating compound manufacturer's directions. Do not allow excess form-coating material to accumulate in forms or to come into contact with in-place concrete surfaces against which fresh concrete will be placed. Apply in compliance with manufacturer's instructions.
- D. Coat steel forms with a non-staining, rust-preventative form oil or otherwise protect against rusting. Rust-stained steel formwork is not acceptable.

3..7 CONCRETE PLACEMENT:

- A. Preplacement Inspection: Before placing concrete, inspect and complete formwork installation, reinforcing steel, and items to be embedded or cast-in. Notify other crafts to permit installation of their work; cooperate with other trades in setting such work. Moisten wood forms immediately before placing concrete where form coatings are not used.
 - 1. Apply temporary protective covering to lower 2' of finished walls adjacent to poured floor slabs and similar conditions, and guard against spattering during placement.
- B. General: Comply with ACI 304 "Recommended Practice for Measuring, Mixing, Transporting, and Placing Concrete", and as herein specified.
- C. Deposit concrete continuously or in layers of such thickness that no concrete will be placed on concrete which has hardened sufficiently to cause the formation of seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as herein specified. Deposit

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concrete as nearly as practicable to its final location to avoid segregation.

- D. Placing Concrete in Forms: Deposit concrete in forms in horizontal layers not deeper than 24" and in a manner to avoid inclined construction joints. Where placement consists of several layers, place each layer while preceding layer is still plastic to avoid cold joints.
- E. Consolidate placed concrete by mechanical vibrating equipment supplemented by hand-spading, rodding, or tamping. Use equipment and procedures for consolidation of concrete in accordance with ACI 309.
- F. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations not farther than visible effectiveness of machine. Place vibrators to rapidly penetrate placed layer and at least 6" into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to set. At each insertion limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing segregation of mix.
- G Placing Concrete Slabs: Deposit and consolidate concrete slabs in a continuous operation, within limits of construction joints, until the placing of a panel or section is completed.
- H. Consolidate concrete during placing operations so that concrete is thoroughly worked around reinforcement and other embedded items and into corners.
- I. Bring slab surfaces to correct level with straightedge and strikeoff. Use bull floats or darbies to smooth surface, free of humps or hollows. Do not disturb slab surfaces prior to beginning finishing operations.
- J. Maintain reinforcing in proper position during concrete placement operations.
- K. Cold Weather Placing: Protect concrete work from physical damage or reduced strength which could be caused by frost, freezing actions, or low temperatures, in compliance with ACI 306 and as herein specified.
- L. When air temperature has fallen to or is expected to fall below 40 deg F (4 deg C), uniformly heat water and aggregates before mixing to obtain a concrete mixture temperature of not less than 50 deg F (10 deg C), and not more than 80 deg F (27 deg C) at point of placement.
- M. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.
- N. Do not use calcium chloride, salt, and other materials containing antifreeze agents or chemical accelerators, unless otherwise accepted in mix designs.
- O. Hot Weather Placing: When hot weather conditions exist that would seriously impair quality and strength of concrete, place concrete in compliance with ACI 305 and as herein specified.
- P. Cool ingredients before mixing to maintain concrete temperature at time of placement below 90 deg F (32 deg C). Mixing water may be chilled, or chopped ice may be used to control temperature provided water equivalent of ice is calculated to total amount of mixing water. Use of liquid nitrogen to cool concrete is Contractor's option.
- Q. Cover reinforcing steel with water-soaked burlap if it becomes too hot, so that steel temperature will not exceed the ambient air temperature immediately before embedment in concrete.

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- R. Fog spray forms, reinforcing steel, and subgrade just before concrete is placed.
- S. Use water-reducing retarding admixture (Type D) when required by high temperatures, low humidity, or other adverse placing conditions.

3.8 FINISH OF FORMED SURFACES:

- A. Rough Form Finish: For formed concrete surfaces not exposed-to-view in the finish work or by other construction, unless otherwise indicated. This is the concrete surface having texture imparted by form facing material used, with tie holes and defective areas repaired and patched and fins and other projections exceeding 1/4" in height rubbed down or chipped off.
- B. Smooth Form Finish (Architectural Concrete): For formed concrete surfaces exposed-to-view. This is as-cast concrete surface obtained with selected form facing material, arranged orderly and symmetrically with a minimum of seams. Repair and patch defective areas with fins or other projections completely removed and smoothed.
- C. Smooth Rubbed Finish - **NOT ACCEPTABLE**
- D. Smooth Form Finish Dry Stone: Dry stone all exposed foundation walls and tops of foundation walls.
- E. Smooth Form Finish Sand Blast: Sand blast exposed concrete areas to a "medium finish" where noted on the drawings as "Architectural Concrete".
- F. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces occurring adjacent to formed surfaces, strike-off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces, unless otherwise indicated.

3.9 MONOLITHIC SLAB FINISHES:

- A. Trowel Finish: Except for parking slabs, apply trowel finish to monolithic slab surfaces to be exposed-to-view, and slab surfaces to be covered with resilient flooring, carpet, ceramic or quarry tile, paint, or other thin film finish coating system.
- B. After floating, begin first trowel finish operation using a power-driven trowel. Begin final troweling when surface produces a ringing sound as trowel is moved over surface. Consolidate concrete surface by final hand-troweling operation, free of trowel marks, uniform in texture and appearance, and with surface leveled to tolerances of $F_F 20 - F_L 17$. Grind smooth surface defects which would telegraph through applied floor covering system.
- C. Trowel and Fine Broom Finish: Where ceramic or quarry tile is to be installed with thin-set mortar, apply trowel finish as specified, then immediately follow with slightly scarifying surface by fine brooming.
- D. Non-Slip Broom Finish: Apply non-slip broom finish to all exterior parking slabs, exterior concrete platforms, steps, and ramps, and elsewhere as indicated.
- E. Chemical Sealer Finish: Apply chemical sealer finish to interior concrete floors to remain exposed.
 - 1. Other Concrete Surfaces: Penetrating sealer - 1 coat at a rate of 150 sq. ft. per gallon. Acrylic

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sealer - 1 coat 250 sq. ft. per gallon.

Manufacturer: Kure-N-Seal - Sonneborn

2. Clean-up: After final coat of chemical sealer solution is applied and dried, remove surplus sealer by scrubbing and mopping with water.

3.10 CONCRETE TOLERANCES:

- A. Class A (1/8" in 10'-0")

3.11 CONCRETE CURING AND PROTECTION:

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures.
- B. Start initial curing as soon as free water has disappeared from concrete surface after placing and finishing. Weather permitting, keep continuously moist for not less than 7 days.
- C. Begin final curing procedures immediately following initial curing and before concrete has dried. Continue final curing for at least 7 days in accordance with ACI 301 procedures. Avoid rapid drying at end of final curing period.
- D. Curing Methods: Perform curing of concrete by curing and sealing compound, by moist curing, by moisture-retaining cover curing, and by combinations thereof, as herein specified.
- E. Provide moisture-cover curing as follows:
 1. Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width with sides and ends lapped at least 3" and sealed by waterproof tape of adhesive. Immediately repair any holes or tears during curing period using cover material and waterproof tape.
- F. Provide curing and sealing compound to exposed interior slabs and to exterior slabs, walks, and curbs, as follows:
 1. Apply specified curing and sealing compound to concrete slabs as soon as final finishing operations are complete (within 2 hours). Apply uniformly in continuous operation by power-spray or roller in accordance with manufacturer's directions. Recoat areas subjected to heavy rainfall within 3 hours after initial application. Maintain continuity of coating and repair damage during curing period.
- G. Do not use membrane curing compounds on surfaces which are to be covered with coating material applied directly to concrete, liquid floor hardener, waterproofing, dampproofing, membrane roofing, flooring (such as ceramic or quarry tile, glue-down carpet), painting, and other coatings and finish materials, unless otherwise acceptable to Architect.
- H. Curing Formed Surfaces: Cure formed concrete surfaces, including undersides of beams, supported slabs, and other similar surfaces by moist curing with forms in place for full curing period or until forms are removed. If forms are removed, continue curing by methods specified above, as applicable.
- I. Curing Unformed Surfaces: Cure unformed surfaces, such as slabs, floor topping, and other flat surfaces by application of appropriate curing method.

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

3.12 REMOVAL OF FORMS:

- A. Formwork not supporting weight of concrete, such as sides of beams, walls, columns, and similar parts of the work, may be removed after cumulatively curing at not less than 50 deg F (10 deg C) for 24 hours after placing concrete, provided concrete is sufficiently hard to not be damaged by form removal operations, and provided curing and protection operations are maintained.
- B. Formwork supporting weight of concrete, such as beam soffits, joists, slabs, and other structural elements, may not be removed in less than 14 days and until concrete has attained design minimum compressive strength at 28 days. Determine potential compressive strength of in-place concrete by testing field-cured specimens representative of concrete location or members.
- C. Form facing material may be removed 4 days after placement, only if shores and other vertical supports have been arranged to permit removal of form facing material without loosening or disturbing shores and supports.

3.13 RE-USE OF FORMS:

- A. Clean and repair surfaces of forms to be re-used in work. Split, frayed, delaminated, or otherwise damaged form facing material will not be acceptable for exposed surfaces. Apply new form coating compound as specified for new formwork.
- B. When forms are extended for successive concrete placement, thoroughly clean surfaces, remove fins and laitance, and tighten forms to close joints. Align and secure joint to avoid offsets. Do not use "patched" forms for exposed concrete surfaces, except as acceptable to Architect.

3.14 MISCELLANEOUS CONCRETE ITEMS:

- A. Filling-In: Fill-in holes and openings left in concrete structures for passage of work by other trades, unless otherwise shown or directed, after work of other trades is in place. Mix, place, and cure concrete as herein specified, to blend with in-place construction. Provide other miscellaneous concrete filling shown or required to complete work.
- B. Grout base plates and foundations as indicated, using specified non-shrink grout. Use non-metallic grout for exposed conditions, unless otherwise indicated.

3.15 CONCRETE SURFACE REPAIRS:

- A. Patching Defective Areas: Repair and patch defective areas with cement mortar immediately after removal of forms, when acceptable to Architect.
- B. Cut out honeycomb, rock pockets, voids over 1/4" in any dimension, and holes left by tie rods and bolts, down to solid concrete but, in no case to a depth of less than 1". Make edges of cuts perpendicular to the concrete surface. Thoroughly clean, dampen with water, and brush-coat the area to be patched with specified bonding agent. Place patching mortar after bonding compound has dried.
- C. For exposed-to-view surfaces, blend white Portland cement and standard Portland cement so that, when dry, patching mortar will match color surrounding. Provide test areas at inconspicuous location

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to verify mixture and color match before proceeding with patching. Compact mortar in place and strike-off slightly higher than surrounding surface.

- D. Repair of Formed Surfaces: Remove and replace concrete having defective surfaces if defects cannot be repaired to satisfaction of Architect. Surface defects, as such, include color and texture irregularities, cracks, spalls, air bubbles, honeycomb, rock pockets; fins and other projections on surface; and stains and other discolorations that cannot be removed by cleaning. Flush out form tie holes, fill with dry pack mortar, or precast cement cone plugs secured in place with bonding agent.
 - E. Repair concealed formed surfaces, where possible, that contain defects that affect the durability of concrete. If defects cannot be repaired, remove and replace concrete.
 - F. Repair of Unformed Surfaces: Test unformed surfaces, such as monolithic slabs, for smoothness and verify surface plane to tolerances specified for each surface and finish. Correct low and high areas as herein specified. Test unformed surfaces sloped to drain for trueness of slope, in addition to smoothness using a template having required slope.
 - G. Repair finished unformed surfaces that contain defects which affect durability of concrete. Surface defects, as such, include crazing, cracks in excess of 0.01" wide or which penetrate to reinforcement or completely through non-reinforced sections regardless of width, spalling, pop-outs, honeycomb, rock pockets, and other objectionable conditions.
 - H. Correct high areas in unformed surfaces by grinding, after concrete has cured at least 14 days.
 - I. Correct low areas in unformed surfaces during or immediately after completion of surface finishing operations by cutting out low areas and replacing with fresh concrete. Finish repaired areas to blend into adjacent concrete. Proprietary patching compounds may be used when acceptable to Architect.
 - J. Repair defective areas, except random cracks and single holes not exceeding 1" diameter, by cutting out and replacing with fresh concrete. Remove defective areas to sound concrete with clean, square cuts and expose reinforcing steel with at least 3/4" clearance all around. Dampen concrete surfaces in contact with patching concrete and apply bonding compound. Mix patching concrete of same materials to provide concrete of same type or class as original concrete. Place, compact, and finish to blend with adjacent finished concrete. Cure in same manner as adjacent concrete.
 - K. Repair isolated random cracks and single holes not over 1/2" in diameter by dry-pack method. Groove top of cracks and cut-out holes to sound concrete and clean of dust, dirt, and loose particles. Dampen cleaned concrete surfaces and apply bonding compound. Mix dry-pack, consisting of one part Portland cement to 2-1/2 parts fine aggregate passing a No. 16 mesh sieve, using only enough water as required for handling and placing. Place dry pack after bonding compound has dried. Compact dry-pack mixture in place and finish to match adjacent concrete. Keep patched area continuously moist for not less than 72 hours.
 - L. Perform structural repairs with prior approval of Architect or Structural Engineer for method and procedure, using specified epoxy adhesive and mortar.
 - M. During the last month of the 12 month warranty period, inspect and repair all cracks in the post-tensioned parking slab by epoxy injection.
 - N. Repair methods not specified above may be used, subject to acceptance of Architect.
- 3.16 QUALITY CONTROL TESTING DURING CONSTRUCTION:
- A. The Contractor will employ a testing laboratory as approved by the Architect to perform tests and to

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submit test reports.

- B. Sampling and testing for quality control during placement of concrete may include the following, as directed by Architect.
- C. Sampling Fresh Concrete: ASTM C 172, except modified for slump to comply with ASTM C 94.
 - 1. Slump: ASTM C 143; one test at point of discharge for each 50 cu. yds. poured of each type of concrete; additional tests when concrete consistency seems to have changed.
 - 2. Air Content: ASTM C 173, volumetric method for lightweight or normal weight concrete; ASTM C 231 pressure method for normal weight concrete; one for each 50 cu. yds. poured of each type of air- entrained concrete.
 - 3. Concrete Temperature: Test hourly when air temperature is 40 deg F (4 deg C) and below, and when 80 deg F (27 deg C) and above; and each time a set of compression test specimens made.
 - 4. Compression Test Specimen: ASTM C 31; one set of 3 standard cylinders for each compressive strength test, unless otherwise directed. Mold and store cylinders for laboratory cured test specimens except when field-cure test specimens are required.
 - 5. Compressive Strength Tests: ASTM C 39; one set for each day's pour exceeding 5 cu. yds. plus additional sets for each 50 cu. yds.; one specimen tested at 7 days, one specimen tested at 28 days, and one specimen retained in reserve for later testing if required.
 - 6. When frequency of testing will provide less than 5 strength tests for a given class of concrete, conduct testing from at least 5 randomly selected batches or from each batch if fewer than 5 are used.
 - 7. When total quantity of a given class of concrete is less than 20 cu. yds., strength test may be waived by Architect if, in his judgement, adequate evidence of satisfactory strength is provided.
 - 8. When strength of field-cured cylinders is less than 85 percent of companion laboratory-cured cylinders, evaluate current operations and provide corrective procedures for protecting and curing the in-place concrete.
 - 9. Strength level of concrete will be considered satisfactory if averages of sets of three consecutive strength test results equal or exceed specified compressive strength, and no individual strength test result falls below specified compressive strength by more than 500 psi.
- D. Test results will be reported in writing to Architect, Structural Engineer and Contractor within 24 hours after tests. Reports of compressive strength tests shall contain the project identification name and number, date of concrete placement, name of concrete testing service, concrete type and class, location of concrete batch in structure, design compressive strength at 28 days, concrete mix proportions and materials; compressive breaking strength and type of break for both 7-day tests and 28-day tests.
- E. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted but shall not be used as the sole basis for acceptance or rejection.
- F. Additional Tests: The testing service will make additional tests of in-place concrete when test results indicate specified concrete strengths and other characteristics have not been attained in the structure, as directed by Architect. Testing service may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42, or by other methods as directed. Contractor shall pay for such tests when unacceptable concrete is verified.

END OF SECTION

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SECTION 03450 - ARCHITECTURAL PRECAST CONCRETE

PART 1 - GENERAL

1..1 DESCRIPTION

- A. Work included: Work consists of furnishing all labor, material, and equipment necessary for completion of the following work:
1. Furnish, fabricate, deliver, and install all **TINTED** architectural precast concrete work complete with all attaching hardware and accessories, including inserts, anchors, clip angles, dowels, nuts, bolts, washers, and all other accessories indicated on the drawings, specified, or required.
 2. Grouting under and between architectural precast concrete after erection.
 3. All other work normally related to the above or specified under this section.
 4. Note: Those portions of the work specified in this section which are integral to the unit masonry are to be provided under this section and installed as part of the Unit Masonry Specified in Section 04200.
- B. Related Work:
1. Cast-in-Place Concrete: Section 03310 Concrete Work.
 2. Structural Framing: Section 05120 Structural Steel.
 3. Caulking of Panel Joints: Section 07900 Sealants
 4. Unit Masonry: Section 04200 Unit Masonry

1..2 QUALITY ASSURANCE

- A: It is the responsibility of the architectural precast concrete manufacturer to assure that all units are designed to support their own weight, resist any gravity and/or lateral loads, and distribute those loads into the supporting structure of the building.
- B: The responsibility for the determination of adequate and proper anchorage of architectural precast concrete units shall rest with the precast manufacturer and shall be fully detailed on the shop drawings. Conform to the current Uniform Building Code Edition.
- C. Source Quality Control: Quality control of architectural precast concrete products shall be the responsibility of the manufacturer. The Architect and Owner's Testing Agency or his representative shall have access to the manufacturing plant at all times during the manufacture of precast concrete products. The Manufacturer shall cooperate with the Architect and Owner's Testing Agency will inspect panels prior to their leaving the plant.
- D. Reference Standards:
1. Precast: Architectural precast units shall conform to "Manual for Quality Control for Plants and Production of Architectural Precast Concrete Products: PCI Manual MNL 117, Latest edition.

1..3 SUBMITTAL

- A. Samples: Match Architect's sample for each type of finished facing for color and texture prior to starting manufacture. Samples shall be at least 12" by 12" in size, of appropriate thickness and representative of the proposed finished product. One of the approved samples will be returned to the General Contractor and one to the precaster prior to the manufacture.

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- B. Shop Drawings: Submit shop drawings and setting diagrams for all architectural precast concrete units. Shop drawings shall include connection, anchorage and insert details, size and location of reinforcing steel, member identification marks, and plan layout location and elevation for items to be incorporated into the work of other trades. Identification marks shall appear on the members.
- C. Test Reports: The manufacturer shall make available to the Architect and Structural Engineer, upon request, records of concrete cylinder breaks for concrete used in the precast concrete products and mill tests of reinforcing steel used.

1.4 DELIVERY, STORAGE AND HANDLING

- A. Store products utilizing good plant procedures and proper handling in such a way as to prevent damage.
- B. Use care in transporting architectural precast concrete units to the job site. Handle members in such a manner as to prevent excessive stresses, spalling, or cracking.

PART 2 - PRODUCTS

2..1 ACCEPTABLE MANUFACTURERS

- A. Manufacturers include but are not limited to the following:
 - 1. Basic Precast Company
 - 2. Eagle Precast Co
 - 3. Or Prior Approved Equivalent

2..2 MATERIALS

- A. All materials shall be in conformance with ACI 318 and applicable ASTM specifications.
 - 1. Concrete: Standard weight concrete having a minimum compressive strength of 4,000 psi at 28 days. Facing mix to consist of graded aggregate mixed with cement and pigment if required to match sample on file in Architect's office in color and texture.
 - 2. Precast concrete sills, lintels and caps at masonry walls are to have a minimum compressive strength of 4,000 PSI at 28 days.
 - 3. Precast concrete columns, cornices and fascia shall have a minimum compressive strength of 4,000 PSI at 28 days.

2..3 DESIGN

- A. Design: Design of concrete elements shall be in accordance with the Uniform Building Code.
- B. Design Loads: The manufacturer shall design his units to accommodate anticipated loading due to handling, erection, and drift.

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2..4 FABRICATION AND MANUFACTURE

- A. Allowable Tolerances: The dimensions of products shall be as shown on the plans. Products shall be fabricated and furnished to the following tolerances:
1. Length and Width: $+3/16$ or $-1/4$ " in first 20'. For each additional 10' of length, $\pm 1/16$ ".
 2. Thickness: $-1/8$ ", $+1/4$ ".
 3. Position of Anchors and Inserts: $\pm 1/2$ " from center line location as shown on drawings.
 4. Bowing, Concave or Convex: Any point on a nominally flat unit shall not deviate from a flat surface by more than the length of the unit divided by 360 or $3/4$ " maximum.
 5. Angular Deviations of Plane of Side Mold: $1/32$ " per 3" depth or $1/16$ " total, whichever is greater.
 6. Out of Square: $1/8$ " per 6' length or $1/4$ " total, whichever is greater.
 7. Location of Sleeves and Blockouts: $\pm 1/2$ " from indicated centerline location.
 8. Length and Width of Blockouts: $\pm 1/4$ ".
 9. Location of Anchors, Inserts and Embedments: ± 1 " from indicated centerline location.
 10. Tolerances on any Dimension not Specified Above: The numerically greater of $1/16$ " per 10' or $\pm 1/8$ ".
- B. Architectural Finishes: All exposed surfaces shall match samples on file in Architect's office. Where back of panels are concealed, a broom finish shall be applied. Where backs of panels are exposed, surfaces shall be troweled smooth and suitable for painting without further preparation.
- C. Patching: Minor patching in the plant will be acceptable providing the structural adequacy of the product and the appearance is not impaired. Cosmetic patching of architectural finishes will be allowed only after Architect's approval of methods and workmen to be used.
- D. Openings: The manufacturer shall provide sleeves or blockouts for those openings 6" or larger shown on drawings. No openings may be field drilled or cut in precast units without prior approval of the Architect and Structural Engineer.

2..5 STEEL PLATES AND ANCHORS

- A. All steel anchors, anchor plates and agles which are to be embedded in cast-in-place concrete or built into masonry and are used to attach precast concrete will be provided under this section and installed by the trade responsible for the material in which they are located.
- B. All steel cast into architectural precast concrete units, plates between sections of panels, and loose steel items shall be provided and installed by the precast subcontractor. Inserts and weld plates shall be located, furnished, and installed by the manufacturer in compliance with information shown on the drawings.

2..6 GROUT

- A. Acceptable manufacturers and products:
1. L & M Construction Chemicals "Crystex".
 2. Master Builders "Master Flow 713".
 3. Protex Industries "Propak".
 4. U.S. Grout Corporation "Five Star Grout".
 5. Euclid Chemical Company "Enco NS".
 6. Or Approved Equal.

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PART 3 EXECUTION

3.1 INSTALLATION:

- A. General: Installation of architectural precast concrete and GFRC panels shall be performed by the precast manufacturer except for precast sills, lintels and caps at masonry walls as noted in Section 4200 Unit Masonry. Members shall be lifted by means of suitable lifting devices at points provided by the fabricator. Temporary shoring and bracing shall comply with the manufacturer's recommendations.
- B. Alignment: Align and level members as required by the shop drawings and within allowable tolerances. Level out variations between adjacent members by jacking, loading, or any other feasible method as recommended by the manufacturer and acceptable to the Architect and Structural Engineer. Members must be positioned so that cumulative dimensional errors do not occur.
- C. Repair: Cosmetic patching of architectural finishes will be allowed only after Architect's approval of methods and workmen used.
- D. Metals: See Article 2.5
- E. Erection Tolerances:
 - 1. Architectural precast units not part of the structural framing: Erect with joints in positions indicated on the drawings and within the following tolerances:
 - a. Face width of joints: Drawing dimension $\pm 1/16$ ".
 - b. Joint taper: $1/40$ " per foot with a maximum length of tapering in one direction of 10'.
 - c. Step in face: $1/4$ " maximum.
 - d. Jog in alignment of edge: $1/4$ " maximum.
 - e. Differential bowing between adjacent members after installation: $\pm 1/4$ ".
 - f. Warpage after installation: Maximum warpage of one corner from nearest not to exceed $1/16$ " per foot.
 - 2. See "Architectural Precast Concrete" Manual for Prestressed Concrete Institute, First Edition, Page 120 and 121, for tolerance definitions and sketches.
- F. Grouting: Grout under all precast units. Grout shall be used in strict accordance with manufacturer's recommendations.

3.3 CLEANING

- A. Clean all exposed surfaces as necessary to remove dirt and stains which may be on the surfaces after erection. Clean precast units only after all installation procedures are completed. Wash and rinse surfaces in accordance with the precast manufacturer's recommendations.
- B. Clean-up after erection shall be the responsibility of the precast subcontractor. Any subsequent clean-up required shall be the responsibility of the General Contractor and the trade involved.

3.4 CAULKING

- A. Caulking will be done by the caulking subcontractor after panel cleaning is completed. See Section 07900 Sealants.

END OF SECTION

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SECTION 03600 - GROUT

PART 1 - GENERAL

1..1 DESCRIPTION

- A. Work included: Work consists of furnishing all labor, material, and equipment for installation of non-shrink grout at the following locations:
 - 1. Under steel column bearing plates.
 - 2. Under steel beam bearings.
 - 3. In erection blockouts, connection blockouts, or pockets.
 - 4. Elsewhere as indicated on the drawings.
- B. Related Work:
 - 1. Steel framing and base plates: Section 05120 Structural Steel
 - 2. Grouting of architectural precast concrete: Section 03450 Architectural Precast Concrete.

1..2 SUBMITTALS

- A. Product Data: Submit Catalog Data on Grout Proposed for use.

1..3 DELIVERY, STORAGE AND HANDLING

- A. Deliver in original unopened containers and store in a store in a dry place under cover.

1..4 JOB CONDITIONS

- A. Environmental Requirements: Maintain temperature of 40 degrees F. or above for at least 72 hours following placement.

PART 2 - PRODUCTS

2..1 NON-SHRINK GROUT OR DRYPACK

- A. Acceptable manufacturer and Products:
 - 1. Non-metallic Grout: Use one of the following where grout is exposed to view or weathering:
 - a. U.S. Grout Corporation "Five Star Grout".
 - b. Protex Industries "Propak".
 - c. Master Builders "Master Flow 713".
 - d. L & M Chemicals "Crystex".
 - e. Euclid Chemical Company "Euco NS".
 - f. Or Approved Equal.

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- B. Grout shall conform to CRD-C-621-80, Corps of Engineers "Specification for Non-Shrink Grout."
- C. Minimum Strength: 3,000 PSI

PART 3 EXECUTION

3.1 INSTALLATION:

- A. Completely fill with grout under column bearings, erection blockouts, connection blockouts or pockets, and elsewhere as required. Mix, install, and cure grout according to manufacturer's recommendations.

END OF SECTION

**DEPARTMENT OF ALCOHOLIC BEVERAGE CONTROL
KIMBALL JUNCTION, REDWOOD ROAD AND RIVERTON LIQUOR STORES**

SECTION 07421 – METAL PANELS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Remove, store in a secure location, maintain, protect and re-install existing exterior metal decorative panels, removed during demolition, in accordance with manufacturer's recommended procedures and methods,

AND/OR

Provide and install new decorative metal panels to match existing, if necessary, including types of materials, patterns, gauges, colors, etc. Coordinate all color selections with the architect.

1.3 SUBMITTALS (for new materials, if used)

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.
- B. Product data or manufacturer's specifications and installation instructions for following products. Include laboratory test reports and other data to show compliance with specifications (including specified standards).

1.4 DELIVERY, STORAGE, AND HANDLING (existing and new materials)

- A. Store existing materials and deliver all new materials to site at such intervals to ensure uninterrupted progress of work.
- B. Store materials to permit easy access for inspection and identification. Keep panels off the ground by using pallets, platforms, or other supports. Protect panels and packaged materials from damage.

PART 2 – PRODUCTS (new materials, if used)

1.1 MATERIALS (new materials)

- A. Decorative exterior metal panels, manufactured by the same supplier as the existing panels.

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1..2 FABRICATION (new materials)

- A. Shop Fabrication and Assembly: Fabricate and assemble metal panels in manufacturer's shop to greatest extent possible.
- B. Connections: Provide either manufacturer-supplied or fabricate as needed in accordance with manufacturer's recommendations.

1..3 PAINTING

- A. General: Provide on-site painting of existing panels, if required. Paint shall match existing. Any painting of new materials must only be per manufacturer's recommendations for field installation and shall not be to repair or cover any damage suffered in transit, storage or installation.

PART 3 - EXECUTION

1..1 ERECTION

- A. All installation shall be in accordance with the manufacturers recommended practices and procedures.

1..2 QUALITY CONTROL

- A. Correct deficiencies in the metal panels that inspections have indicated to be not in compliance with requirements.

END OF SECTION 074213

Department of Alcoholic Beverage Control
New Riverton Liquor Store
Kimball Junction Liquor Store Remodel & Addition
Redwood Road Liquor Store Remodel & Expansion
Addendum A01

Appendix “B”

Issued Monday, August 20, 2007

PROJECTS

Department of Alcoholic Beverage Control
New Riverton Liquor Store - DFCM Project No. 05053030
Kimball Junction Liquor Store Remodel & Addition – DFCM Project No. 06234030
Redwood Road Liquor Store Remodel & Expansion – DFCM Project No. 06233030

ARCHITECT

Frank N Murdock Jr Architect & Associates
975 East 100 South
Salt Lake City, Utah 84102
(801) 532-4441

The original Contract Documents issued for the above noted project are amended as noted in this Addendum. It shall be the sole responsibility of the bidder to appropriately disseminate this data to all concerned, prior to the assigned bid time and date.

Receipt of this Addendum shall be acknowledged by inserting its number and date in the appropriate space provided on the bid form. This Addendum consists of two (2) 8 ½” x 11” sheets and Appendix “A” twenty three (23) 8 ½” x 11 Sheets.

CCTV SYSTEM REVISIONS:

1. RIVERTON ABC CCTV SYSTEM REVISIONS
2. REDWOOD ROAD ABC CCTV SYSTEM REVISIONS
3. KIMBALL JUNCTION ABC CCTV SYSTEM REVISIONS

End of Document

8/6/2007** Revised

New Construction

INSTALLATION OF CCTV SYSTEMS FOR STATE LIQUOR STORES

**Redwoo Road Store# 003 WVC
3381 So. Redwood Road**

DESCRIPTION OF EQUIPMENT

1. 1 ea Power Supply 16 channel 5A (120VA minimum) 24VAC or 28VAC selectable output per channel with circuit breaker protection
2. ** 16 ea Camera 1/3-inch 24Vac High Resolution 520 TV lines color Camera with 3.5-8mm varifocal auto iris lens ceiling mount dome with 3 point axis adjustment capabilities.
3. 1 ea Monitor 19" CCTV-LCD High Res. RCA Component or BNC Video Inputs.
(Will be utilized as a public viewing monitor)
4. 1 ea Monitor Mount Ceiling/wall mounts for 19" LCD monitors, black
5. 1 ea Flat Screen Monitor 17" color LCD flat screen monitor.
6. 1 ea Toshiba Digital Video Recorder.
Part Number DVR16-480-500. 16 camera, 500 GB fixed disk, Current Surveillix software.
- ~~7. ** 1ea HVR-UPG2 16 Channel Upgrade for Surveillix DVR-480 PPS~~

DESCRIPTION OF WORK:

General: To provide and install a CCTV system as shown on drawings and described herein for location listed above. (See attached drawing for general layout of system).

A representative from Alcoholic Beverage Control, (Bill Garner, Inventory Auditor phone 801-977-6840) will coordinate and meet with the contractor at the store location before installation of surveillance equipment, to discuss the mounting and positions, of the cameras for a complete operating system as per specification. Coordination is critical with ABC and its IT department on these projects.

**** Line 2.added 4 more cameras/ Line 7. 16-channel upgrade no longer available. Assume cameras to be located 90' from office area. Final locations as directed by ABC.**

Digital Video Recorder will need to be delivered to the Department of Alcoholic Beverage Control for software installation and programming prior to install.

8/6/2007** Revised

New Construction

INSTALLATION OF CCTV SYSTEMS FOR STATE LIQUOR STORES

Riverton Liquor Store

DESCRIPTION OF EQUIPMENT

1. 1 ea Power Supply 16 channel 5A (120VA minimum) 24VAC or 28VAC selectable output per channel with circuit breaker protection
2. ** 16 ea Camera 1/3-inch 24Vac High Resolution 520 TV lines color camera with 3.5-8mm varifocal auto iris lens ceiling or pendant style mount dome with 3-point axis (left, right, up, down, clockwise, counter clockwise viewing capabilities)
3. 1ea Monitor 19" CCTV-LCD High Res. RCA Component or BNC Video Inputs.
(Will be utilized as a public viewing monitor)
4. 1ea Monitor Mount Ceiling/wall mounts for 19" LCD monitors, black
5. 1 ea Flat Screen Monitor 17" color LCD flat screen monitor.
6. 1 ea Toshiba Digital Video Recorder.
Part Number DVR16-480-500. 16 camera, 500 GB fixed disk, Current Surveillix software.

DESCRIPTION OF WORK:

General: To provide and install a CCTV system as shown on drawings and described herein for location listed above. Cameras to be mounted on pendants, below suspended lighting, and no higher than 10-12ft above floor.

A representative from Alcoholic Beverage Control, (Bill Garner, Inventory Auditor phone 801-977-6840) will coordinate and meet with the contractor at the store location before installation of surveillance equipment, to discuss the mounting and positions, of the cameras for a complete operating system as per specification. Coordination is critical with ABC and its IT department on this project.

**** Revised added 1 more camera for a total of 16. Assume camera to be located 90' from office area. Final location as directed by ABC.**

8/6/2007

Digital Video Recorder will need to be delivered to the Department of Alcoholic Beverage Control for software installation and programming prior to install.