2.4 CURING MATERIALS

A. Absorptive Cover: Burlap cloth made from jute to kenaf, weighing approximately 9 oz. per sq. yd. complying with AASHO M182, Class 3; or 2" of clean sand.

B. MoistureRetaining Cover: One of the following is acceptable:
1. Waterproof paper, ASTM C171-latest edition, Type 1 or 2
2. Polyethylene sheeting, AASHTO M 171
3. Polyethylene coating burlap

C. Approved Manufacturers:
"Eucobar"; Euclid Chemical Co, An RPM CompanyEuclid Chemical Co, An RPM Company; (800-321-7628)
"Confilm"; BASF Building SystemsBASF Building SystemsBASF Building Systems (800-433-9517)
"SikaFilm"; Sika Construction Products Division, Sika CorporationSika Construction Products Division, Sika Corporation (800-933-7452)
"Cimfilm"; Axim Italcementi Group, Inc. (800-899-8795)

2.5 BONDING AND REPAIR MATERIALS

A. Bonding Compounds - Rewettable: The compound shall be a polyvinyl acetate type, "Euco Weld" by The Euclid Chemical Co. or "Weldcrete" by The Larsen Co. or FX-752 by Fox Industries. Use only in areas not subject to moisture.
B. NonRewettable; Polymer modified, bonding compound Bonding Agent: ASTM C1059, Type II, non-redispersible, acrylic emulsion or styrene butadiene.

C. Epoxy-Bonding Adhesive: ASTM C881, two-component epoxy resin, capable of humid curing and bonding to damp surfaces, of class and grade to suit requirements, and as follows:
Type II, non-load bearing, for bonding freshly mixed concrete to hardened concrete.
Types I and II, non-load bearing, for bonding hardened or freshly mixed concrete to hardened concrete.
Types IV and V, load bearing, for bonding hardened or freshly mixed concrete to hardened concrete.

D. Polymer Patching Mortar: Freeflowing, polymermodified cementitious coating, "Euco Thin Coat" by The Euclid Chemical Co. or "Sikatop 121" by The Sika Chemical Corp. or FX-243/FX-273 by Fox Industries.

E. Repair Topping: Selfleveling, polymer modified high strength topping, "Thin Top SL" by The Euclid Chemical Co. or FX-281 by Fox Industries or "Duratop" by L&M Construction Chemicals, Inc.

F. Freeflowing, selfleveling, pumpable cementitious base compound, "FloTop" by The Euclid Chemical Co. or FX-280 by Fox Industries or "Levelex" by L&M Construction Chemicals, Inc.

2.6 WATERSTOPS

- Flexible PVC Waterstops: CE CRD-C 572, for embedding in concrete to prevent passage of fluids through joints. Factory fabricate corners, intersections, and directional changes.
  Profile: Ribbed with center bulb.

- Approved Manufacturers:
  PVC Waterstops:
- "PVC Waterstop"; Greenstreak, Inc., Inc.; (800-325-9504)
- "Sealtight PVC Waterstops"; W. R. Meadows, IncW. R. Meadows, Inc.; (800-342-5976)
3. Westec Barrier Technologies; Div. of Western Textile Products, Inc

PART 3 EXECUTION

3.1 FORMS

A. The design and engineering of the formwork, as well as its construction shall be the responsibility of the Contractor. Except as specifically called for otherwise herein, all formwork shall meet the "ACI Standard Recommended Practice for Concrete Formwork (ACI 347)".

B. The formwork shall be designed for the loads and lateral pressure outlined in Chapter 2, paragraph 2.2 of ACI 347R. Design considerations and allowable stresses shall meet paragraph 2.3 of the above reference and the requirements of the AISC Thirteenth Edition for Steel and the AITC Third Edition for Wood.

C. Formwork shall be constructed so as to insure that the concrete surfaces will conform to the tolerances given in paragraph 3.3 "Recommended Practice for Concrete Formwork" (ACI 347).

D. Formwork shall be constructed to the shape, lines, grades and dimensions indicated on the drawings, and shall comply with ACI 301, 347, SP4 and the "Quality Criteria" specified.
1. Provide screeds at required elevations to result in surfaces meeting project specification provisions.

E. Before placing reinforcement, apply form coating in accord with manufacturer's instructions to surface of forms to be in contact with concrete.

F. Dampen sub-grade at slabsonground immediately before placing concrete.

G. Removal of Forms:

1. Under ordinary weather conditions forms may be removed in 2 days, providing concrete is not injured by so doing.
2. Under no circumstances shall wood be buried in fill or left in contact with earth.

H. ReUse of Forms:
1. Clean and repair surfaces of forms that are to be reused except split, frayed, delaminated, patched or damaged form facing material will not be acceptable.
2. Form coating shall be reapplied to concrete contact form surfaces as specified above.

I. Construction Joints:
1. Remove plastic caps from preformed steel forms no sooner than 24 hours after casing concrete. Fill void with epoxy joint filler or elastomeric sealant as indicated on the drawings.

3.2 SITE PREPARATION

A. Where excavations exceeding a depth of five feet are to be made to install the foundations or any part of the structure of this building, or any retaining walls on the site, the back slope of such excavation shall be at an incline not exceeding one vertical to one and one half horizontal unless such back slope is sheeted and braced. If sheeting and bracing is to be provided, such sheeting and bracing shall be designed by an design professional registered in the state in which the project is being built. Such sheeting and bracing shall be designed to resist the pressures presented on ages 1422 to 1425 of the CRSI Design Handbook, 2008 Edition, unless more specific pressures are determined by a registered soils design professional. The cost of such design work shall be paid for by the Contractor.

3.3 REINFORCEMENT

A. Fabrication shall be in accord with ACI SP-66 and CRSI Manual. Bars shall be bent cold to shapes and dimensions indicated within tolerances of ACI 117.

B. Clean bars to remove rust and mill scale, earth and materials, which reduce or destroy bond with concrete. Place reinforcement and supports in accord with ACI SP-66 and CRSI Manual. Support and tie reinforcement to prevent its displacement by construction loads or placement of concrete.

C. Reinforcement shall be secured in position in compliance with ACI 117 to allow 3" clear to sides and bottom and 2" clear to top of concrete slab surface. Welded wire fabric shall be placed 1" clear to top of concrete slab surface. Tie dowels in place before concrete is placed. Do not "stick" dowels.

D. Contract drawings shall take precedence over Contractor's working drawings unless otherwise authorized by the Architect. Contract drawings shall be referred to by the steel setter for details governing placing.

E. Reinforcement must be correct in length and size and bent in accordance with the plans and structural drawings. It must be located in forms and wired together with clearance to provide concrete protection as noted herein.

F. No splicing of main reinforcing steel will be permitted unless shown otherwise on plans. Bars marked continuous shall be lapped in accordance with the ACI at splices and at corners, corner bars shall be provided.

G. Concrete covering for reinforcing steel shall be 1½" for lintels and walls and 3" for footings.

H. Wire mesh, where called for on the drawings, shall be lapped a minimum of 6" and wired together at both side and end laps.

3.4 PLACEMENT OF BLOCK WALL REINFORCING

A. The Contractor's attention is called to the sequence of installation of reinforcement in the block work. Should masonry work be permitted to proceed beyond such points as will permit the installation of the reinforcement and the filling of the cells, there will be no alternative but to remove those portions of the wall that prohibit the installation of the reinforcement. All such work of removal and rebuilding shall be done at no expense to the Owner.

B. Dowels of the same size as the vertical wall reinforcing shall be set in footings at each vertical reinforcing bar. After wall has been laid up to the course designated on plans, the vertical reinforcing shall be installed in the hollow block cell. The cell in which the reinforcing occurs shall then be filled with the "pea gravel" concrete. The vertical bar shall be "worked" to consolidate the concrete.

C. Where designated on drawings, a Ublock bond beam shall be laid. Openings in the bottom of the block shall be made to permit the vertical reinforcing to extend.

D. At the [illegible] at the roof the vertical bars shall be bent over into the top of the Ublock.

F. Horizontal reinforcing shall be placed in the Ublock, all anchor bolts or other anchoring devices set and the Ublock bond beam cast with "pea gravel" concrete.

G. At control joints and expansion joints in masonry walls the horizontal reinforcing in the Ublock bond beams shall be discontinuous.

H. A "ladder type" welded wire block wall reinforcing shall be installed horizontally in every other block course. Reinforcing shall be [illegible] at corners and lapped. Reinforcing shall be discontinuous at control joints and at expansion joints.

I. See Concrete Masonry Section for other reinforcing and anchoring devices to be used in block work.

3.5 PREPARATION

A. Before placing of any concrete, the footing trenches shall be drained of water, mud film removed and any loose dirt lifted out.

B. Before placing concrete in any forms, the forms shall be cleaned and all debris shall be removed. All reinforcing shall be checked to be sure that no reinforcing is touching the form.

C. Before placing any concrete, it shall be determined that all work that is to be built into the concrete work is located and installed. All items shall be so placed as not to interfere with the reinforcing steel.

D. Wood board forms shall be soaked with water just before the concrete is poured.

E. Workman shall be designated to lift mesh reinforcing off the ground or the bottom of forms as concrete is placed.

F. Special measures shall be taken in both severe cold and hot weather and shall be in accordance with ACI Recommended Practice (ACI 306R and ACI 305R).

3.6 PRODUCTION

A. Mixing shall be achieved by using equipment and methods in accordance with provisions of ASTM C94/C94M; however, concrete production may be on or off site. Readymixed concrete purchased from a local producer may be used.

B. Delivery tickets shall be furnished with each load of concrete. Ticket shall show class and strength, pounds of cement, size of course aggregate, time batched, slump ordered and amount and type of admixtures. Include batch water withheld if any.

3.7 CONVEYING

A. Place concrete employing experienced crew with equipment to place in a continuous unbroken operation from beginning to end. Convey concrete from mixer to place of final deposit by methods which will prevent separation of loss of materials.

B. Vehicles shall be equipped with pneumatic tires.

C. Runways shall not be supported on reinforcement or fresh concrete.

D. Equipment shall be in first class operating condition, cleaned before beginning and cleaned at frequent intervals during placing concrete.

3.8 CASTING

A. Deposit concrete as nearly as practicable in its final position to avoid segregation due to re-handling or flowing. Concreting shall be at such rate that concrete is at all times plastic and flows readily into forms. No concrete shall be deposited that has partially hardened or been contaminated by foreign material, nor shall retempered concrete be used. In no case shall concrete be used when elapsed time after addition of water and cement to batch exceed one hour. Concrete shall not be dropped freely where reinforcing will cause segregation nor shall it be dropped freely more than ten (10) feet for concrete containing the high range water reducing admixture (superplasticizer) or five (5) feet for other concrete.

B. When concreting is once started, it shall be carried on as a continuous operation until placing is complete. The top surface shall be finished to a true plane, sloping to drains as shown.

C. Consolidate concrete by vibration, spading, rodding or forking so that concrete is worked around reinforcing, embedded items, and into corners of forms, eliminating air or stone pockets which may cause honeycombing, pitting, or planes of weakness. Internal vibrators shall be used in accord with Section 7.1, ACI 309. Overvibrating and use of vibrators to transport concrete within forms shall not be allowed. Vibrators shall be inserted and withdrawn at many points, from 18" to 30" apart, from 5 to 15 seconds duration. A spare vibrator shall be kept on job site during concrete placing operations. Follow recommendations of ACI 309.

D. Internal type mechanical vibrators and hand spading shall be used to consolidate the concrete and produce a dense concrete free from voids and honeycombs. Care shall be taken that vibration is not applied long enough to separate the ingredients.

E. All floor slabs shall be screeded to an even surface by the use of a straight edge and screeding strips set at the level called for on plans. Screeds shall be of type and so arranged as not to interfere with the top slab steel. Finish is specified in a following section.

3.9 FINISHING

A. Floors, including slabs on ground, shall be finished as follows:

1. The surfaces of all concrete shall be worked with a wood float in a manner which will compact the concrete and produce a surface free of depressions or inequalities of any kind. Test for grade (or level) and correct by removing excess or adding and compacting additional concrete.
2. Except where dropped for finish, all floor slabs shall receive steel trowel finish as follows: After screeding, slab shall be woodfloated until hardened to prevent excess fines from working to surface, steel trowel to a smooth surface free from defects. A second steel troweling shall be done producing a plain, hard, dense, finished surface.
3. Troweling shall not be begun until all surface water has disappeared. The drying of the surface moisture before troweling must proceed naturally and must not be hastened by sacking or dusting on of dry sand and cement.
4. Floors that are dropped for finish shall be struck off smooth with a woodfloat and broomed with a coarse broom.
5. On all concrete stair treads provide abrasive aggregate. Materials shall be applied at the rate of 25 lbs. per 100 sq. ft.

- Tolerances in finish to concrete floor and roof slabs shall comply with ACI 302, "Guide for Concrete Floor and Slab Construction".
"Specified overall value" (SOV) is based on the composite of all measured values in a placement derived in accordance with ASTM E1155.
"Minimum local value" (MLV) describes the flatness or levelness below which repair or replacement is required. MLV is based on the results of an individual placement and applies to a minimum local area. Minimum local area boundaries may not cross a construction joint or expansion joint. A minimum local area will be bounded by construction and/or control joints, or by column lines and/or half column lines, whichever is smaller.

Finished slab flatness (FF) and levelness (FL) values comply with the following minimum requirements:

Slab on grade:	
Specified overall value	FF 36/FL 20
Minimum local value	FF 24/FL 18
Level suspended slabs (shored until after testing) and topping slabs	
Specified overall value	FF 30/FL 20
Minimum local value	FF 24/FL 18
Unshored suspended slabs:	
Specified overall value	FF 30
Minimum local value	FF 24

Level tolerance such that 80 percent of all points fall within a 20 mm (3/4 inch) envelope +10 mm, -10 mm (+3/8 inch, -3/8 inch) from the design elevation.

C. Exposed concrete surfaces shall be finished as follows:

1. Surface shall be rubbed smooth with carborundum brick within 36 hours after forms are removed. Surfaces shall be wetted and rubbed until a uniform color and texture is produced. No cement grout or slush shall be used other than the cement paste drawn from the green concrete itself by the rubbing process.
2. Corners and edges shall be pointed up to present a square appearance.
3. Consolidate concrete surface by final hand troweling operation, free of trowel marks, uniform in texture and appearance. Grind smooth surface defects which would telegraph through applied floor covering system.
4. Apply light broom finish to exterior concrete slabs.

5. Areas that will be exposed, receive thin-set tile or resilient flooring, or roof areas designed as future floors:

Slab on grade:	
Specified overall value	FF 36/FL 20
Minimum local value	FF 24/FL 18
Level suspended slabs (shored until after testing) and topping slabs	
Specified overall value	FF 30/FL 20
Minimum local value	FF 24/FL 18
Unshored suspended slabs:	
Specified overall value	FF 30
Minimum local value	FF 24

Level tolerance such that 80 percent of all points fall within a 20 mm (3/4 inch) envelope +10 mm, -10 mm (+3/8 inch, -3/8 inch) from the design elevation.

3.10 PROTECTION AND CORRECTIVE WORK

A. Workmen shall not walk on concrete during placing or finishing with any earth or foreign matter on footgear.

B. All freshly placed concrete shall be protected from damage or injury due to water, falling objects, persons or anything that might mar or injure the finish surface of the concrete. Any surfaces that are damaged shall be removed and replaced with fresh concrete at the expense of the Contractor.

C. Where concrete or concrete work does not conform to the specifications and where low strength concrete is not permitted to remain in place, procedures and plans covering all work to be rebuilt shall be submitted by the Contractor to the Architect before removal and rebuilding is begun. The cost of such plans, as well as the cost of removal and rebuilding shall be at the Contractor's expense.

D. Until such time that block walls are tied into floor and roof construction, it shall be the responsibility of the Contractor to secure walls to prevent lateral displacement from wind or other causes.

3.11 CONCRETE CURING AND PROTECTION

A. General:

1. Protect all concrete from premature drying and excessive cold or hot temperature, and maintain without drying at relatively constant temperature to uniformly provide the hydration of cement and hardening of concrete.
2. Start initial curing as soon as free water has disappeared from concrete surface after placing and finishing. If surface has dried prior to application, saturate with water. Keep continuously moist for not less than 72 hours.
3. Begin final curing procedures immediately following initial curing and before the concrete has dried. Continue final curing for at least 168 cumulative hours (not necessarily consecutive) during which the concrete has been exposed to air temperatures above 50. Avoid rapid drying at end of final curing period.

B. Curing Methods
1. Cure concrete by moist curing, by moistureretaining cover curing, by liquid membrane curing, by liquid curinghardening compound, or by combinations thereof, as herein specified.
2. Water used in curing shall be free of impurities which could etch or discolor exposed, natural concrete surfaces.

C. Provide moisture curing by any of the following methods:
1. Keeping surface of concrete continuously wet by covering with water.
2. Continuous waterfog spray.
3. Covering concrete surface with specified absorptive cover, saturating cover with water, and keeping absorptive cover continuously wet. Place absorptive cover so as to provide coverage of concrete surfaces and edges, with a 4" lap over adjacent absorptive covers.

D. Provide moistureretaining cover curing as follows: Cover concrete surfaces with specified moistureretaining cover for curing concrete, placed in widest practicable width with sides and ends lapped at least 3" and sealed by waterproof tape or adhesive. Immediately repair any holes or tears during curing period using cover material and waterproof tape.

E. Provide liquid curing and sealing compound as follows:
1. For all exposed interior slabs and troweled slabs receiving mastic applied adhesives or metallic or mineral aggregate hardeners. Exterior slabs, sidewalks, curbs, architectural concrete and any concrete where total resistance to yellowing from ultraviolet light and water exposure is required shall be cured with the specified clear, nonyellowing curing and sealing compound.

F. Cure formed surfaces of concrete, including undersides of girders, 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.

G. Curing Unformed Surfaces:
1. Initially cure unformed surfaces, such as slabs, floor toppings and other flat surfaces by moist curing.
2. Final cure unformed surfaces, unless otherwise specified, by any of the methods specified above.

3.12 DEFECTIVE CONCRETE FINISHING

A. Concrete finish which is not true to line and plane, which is not thoroughly troweled and properly surfaced as required, which varies in excess of Ff and Fl requirements, which scuffs or has rough top surface, except where required, or which does not connect properly to adjoining work, or does not slope to drains, or is not properly cured, will be deemed defective. Remove and replace with proper work and material conforming with the requirements, when so directed by the Architect.

B. Floors judged by the Architect to be unfit to receive floor covering material shall be brought to required finish by the Contractor at no additional cost to the Owner.

3.13 REPAIR OF DEFECTIVE AREAS

A. Defective Areas: Concrete which is not formed as shown on drawings or for any reason is out of alignment or level or shows a defective surface, or shows defects which reduce structural adequacy of member or members, shall be considered as not conforming with the intent of these specifications and shall be removed from job unless Architect grants permission to patch defective work.
1. Permission to repair such areas shall not be considered a waive of Architect's right to require complete removal of defective work if patching does not, in his opinion, satisfactorily restore quality and appearance of surface or structural adequacy of member or members.

B. Method of Repair: If permission to patch defective areas is granted, the repair shall be done immediately after form removal as follows:
1. Defective areas shall be chipped away to a depth of not less than 1" with edges perpendicular to surface. Area to be repaired and an area at least 6" wide surrounding it, shall be dampened to prevent absorption of water from repair mortar. After surface water has evaporated from area to be repaired, apply the specified bonding compound (rewettable) or latex bonding compound.
2. Make patching mixture of same material and of same proportions as used for the concrete, except that coarse aggregates shall be omitted and the mortar shall consist of not more than 1 part cement to 21/2 parts sand by damp loose volume. White Portland Cement shall be substituted for a part of the gray Portland Cement on exposed concrete in order to produce a color matching the color of the surrounding concrete, as determined by a trial patch.
3. The quantity of mixing water shall be no more than necessary for handling and placing. Mix patching mortar in advance and allow it to stand, giving it frequent manipulations with trowel without adding water, until it has reached stiffest consistency that will permit placing.
4. Apply the specified patching mortar after the bonding compound has dried while the bonding grout is still tacky. Consolidate the mortar into place and strike off so as to leave patch slightly higher than surrounding surface. To permit initial shrinkage, it shall be left undisturbed for at least 1 hour before being finished. Patched area shall be kept damp for 7 days. Metal tools shall be used in finishing a patch in a form wall which will be exposed.
5. Finish repaired surfaces to match the adjacent surfaces.

C. Tie Holes: After being cleaned and dampened, fill tie holes solid with patching mortar and finish same as in Paragraph B above.

D. The specified polymer patching mortar may be used in lieu of the bonding compound with prior approval of the Design professional, when color match of the adjacent concrete is not required.

E. All structural repairs shall be made with prior approval of the Design professional as to method and procedure, using the specified epoxy adhesive and/or epoxy mortar. Where epoxy injection procedures must be used, an approved low viscosity epoxy made by the manufacturers previously specified shall be used.

F. Leveling of floors for subsequent finishes shall be achieved by use of the specified underlayment material.

G. Repair Topping: All exposed floors shall be leveled, where required, with the specified selfleveling repair topping.

End of Section 03 3000

REVISIONS:

NO	DATE	COMMENTS
·	01.15.19	Permit Set

RETAIL DEVELOPMENT
POP'S WINE & SPIRITS
2-1 764 TR A-B MCFARLAND 400 IND PARK
MCFARLAND PKWY ALPHARETTA GA 30004

Specifications

PROJ. NO: 201812
DATE: 01-15-19

S7.1