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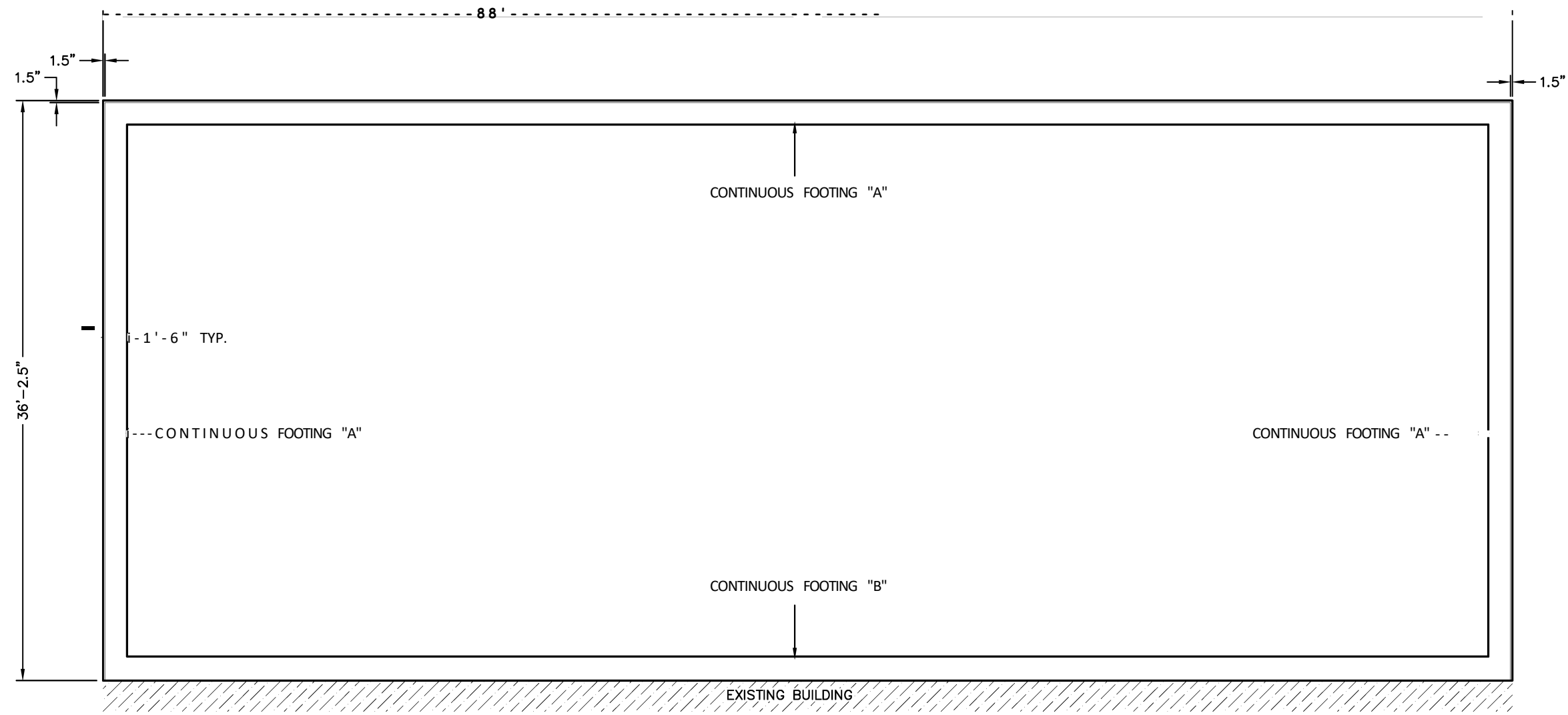
**MOORE PUBLIC SCHOOLS-  
MOORE WEST JH LOCKER ROOM ADDITION**

**ADDENDUM NO. 1**  
December 28, 2023

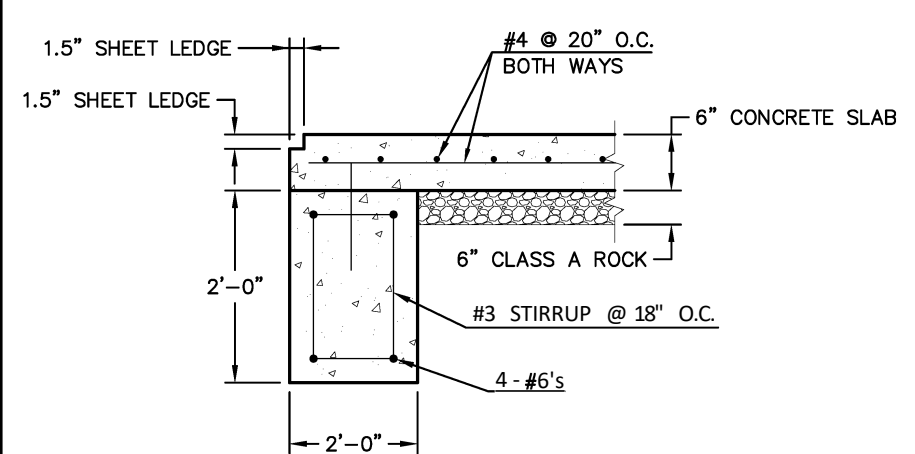
This addendum is applicable to work designated herein, shall be understood to be an Addendum, and as such shall be included in the Contract Agreement.

- A.) Added footing detail plan sheet see attached.
- B.) Concrete Specifications
- C.) Vapor Barrier Specifications

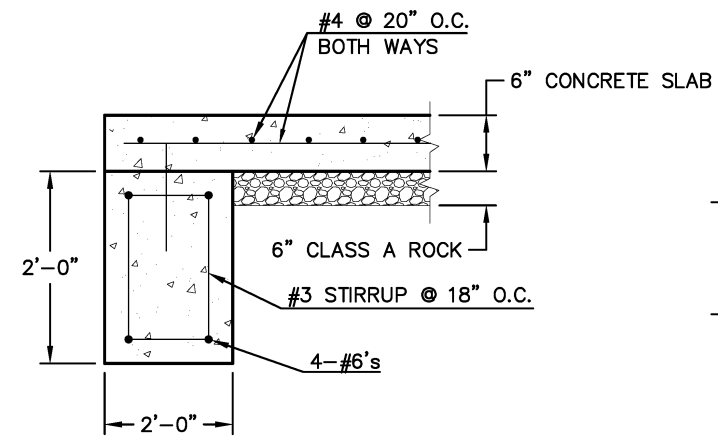
**END OF ADDENDUM NO. 1**



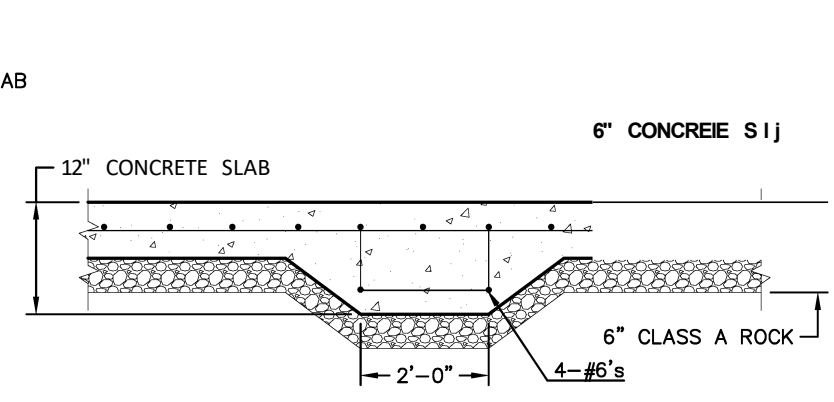
PLAN VIEW



CONTINUOUS FOOTING "A"  
TYPICAL SECTION VIEW  
NOT TO SCALE



CONTINUOUS FOOTING "B"  
TYPICAL SECTION VIEW  
NOT TO SCALE



THICKENED SLAB UNDER CONC. BLOCK  
TYPICAL SECTION VIEW  
NOT TO SCALE

**NOTE:**  
FOOTING DETAILS HAVE BEEN DEVELOPED IN ACCORDANCE WITH THE MOST CURRENT INTERNATIONAL BUILDING CODE.  
USE 15-MIL VAPOR BARRIER.

WDB ENGINEERING PLLC 6330 S.E. 74TH STREET OKC, OK 73135 PH: 405-741-7090 CERTIFICATE OF AUTHORIZATION: #3987 EXP: 6-30-2025		
<b>OMNI CONSTRUCTION, LLC</b> MOORE JR. HIGH SCHOOL LOCKER ROOM		
DATE: 10-16-23	APPROVED BY:	DRAWN BY: NL
FOOTING DETAIL		
WDB ENGINEERING P.L.L.C.		SHEET NUMBER

## DIVISION 3 - CONCRETE

### SECTION 03300 - CAST-IN-PLACE CONCRETE

#### PART 1 - GENERAL

##### 1.01 Section Includes

- A. Concrete formwork.
- B. Slabs on grade.
- C. Concrete foundation walls and retaining walls.
- D. Concrete reinforcement.
- E. Joint devices associated with concrete work.
- F. Miscellaneous concrete elements, including equipment pads and equipment pits.
- G. Concrete curing.

##### 1.02 Related Requirements

- A. Section 07900 - Joint Sealants: Products and installation for sealants and joint fillers for saw cut joints, construction joints and isolation joints in slabs.

##### 1.03 Reference Standards

- A. For all reference standards listed below, comply with the version year in the governing building code adopted by the Authority Having Jurisdiction. For those reference standards that are not directly referenced by the building code, use the latest edition unless noted otherwise.
- B. ACI 117 - Specifications for Tolerances for Concrete Construction and Materials.
- C. ACI 211.1 - Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete.
- D. ACI 301 - Specifications for Structural Concrete.
- E. ACI 302.1R - Guide to Concrete Floor and Slab Construction.
- F. ACI 302.2R - Guide for Concrete Slabs that Receive Moisture-Sensitive Flooring Materials.
- G. ACI 304R - Guide for Measuring, Mixing, Transporting, and Placing Concrete.
- H. ACI 305R - Guide to Hot Weather Concreting.
- I. ACI 305.1 - Specification for Hot Weather Concreting.
- J. ACI 306R - Guide to Cold Weather Concreting.
- K. ACI 308R - Guide to External Curing of Concrete.
- L. ACI 318 - Building Code Requirements for Structural Concrete and Commentary.
- M. ACI 347R - Guide to Formwork for Concrete.
- N. ACI SP-66 - ACI Detailing Manual.
- O. ASTM A615/A615M - Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement.
- P. ASTM A706/A706M - Standard Specification for Deformed and Plain Low-Alloy Steel Bars for Concrete Reinforcement.
- Q. ASTM A1064/A1064M - Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete.

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- R. ASTM C33/C33M - Standard Specification for Concrete Aggregates.
- S. ASTM C39/C39M - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens.
- T. ASTM C94/C94M - Standard Specification for Ready-Mixed Concrete.
- U. ASTM C143/C143M - Standard Test Method for Slump of Hydraulic-Cement Concrete.
- V. ASTM C150/C150M - Standard Specification for Portland Cement.
- W. ASTM C171 - Standard Specification for Sheet Materials for Curing Concrete.
- X. ASTM C173/C173M - Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method.
- Y. ASTM C260/C260M - Standard Specification for Air-Entraining Admixtures for Concrete.
- Z. ASTM C494/C494M - Standard Specification for Chemical Admixtures for Concrete.
- AA. ASTM C618 - Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete.
- AB. ASTM C1064/C1064M - Standard Test Method for Temperature of Freshly Mixed Hydraulic-Cement Concrete.
- AC. ASTM C1107/C1107M - Standard Specification for Packaged Dry, Hydraulic-Cement Grout (Nonshrink).
- AD. ASTM C1602/C1602M - Standard Specification for Mixing Water Used in the Production of Hydraulic Cement Concrete.
- AE. ASTM D1751 - Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types).
- AF. ASTM D2103 - Standard Specification for Polyethylene Film and Sheeting.
- AG. ASTM E1745 - Standard Specification for Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs.
- AH. CRSI (DA4) - Manual of Standard Practice.
- AI. ICC (IBC)-2015 - International Building Code.

#### 1.04 Definitions

- A. Cold Weather: A period when for more than three successive days the average daily outdoor temperature drops below 40 F. The average daily temperature is the average of the highest and lowest temperature during the period from midnight to midnight. When temperatures above 50 F occur during more than half of any 24 hr duration, the period shall no longer be regarded as cold weather.
- B. Hot Weather: Hot weather is any combination of the following conditions that tends to impair the quality of

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freshly mixed or hardened concrete by accelerating the rate of moisture loss and rate of cement hydration, or otherwise causing detrimental results:

1. High ambient temperature
2. High concrete temperature
3. Low relative humidity
4. Wind speed
5. Solar radiation

#### 1.05 Submittals

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Submit manufacturers' data on manufactured products showing compliance with specified requirements and installation instructions.
- C. Mix Design: Submit proposed concrete mix design.
  1. Indicate proposed mix design complies with requirements of ACI 301, Section 4 - Concrete Mixtures.
  2. Indicate proposed mix design complies with requirements of ACI 318, Chapter 26 - Concrete Documents and Inspection.
- D. Shop Drawings: Comply with requirements of ACI SP-66. Include bar schedules, shapes of bent bars, spacing of bars, and location of splices.
- E. Test Reports: Submit report for each test or series of tests specified.
- F. Manufacturer's Installation Instructions: For concrete accessories, indicate installation procedures and interface required with adjacent construction.
- G. Formwork Design Submittal: As required by authorities having jurisdiction.
- H. Project Record Documents: Accurately record actual locations of embedded utilities and components that will be concealed from view upon completion of concrete work.
- I. Warranty: Submit manufacturer warranty and ensure forms have been completed in Owner's name and registered with manufacturer.

#### 1.06 Quality Assurance

- A. Perform work of this section in accordance with ACI 301 and ACI 318.
- B. Follow recommendations of ACI 305R when concreting during hot weather.
- C. Follow recommendations of ACI 306R when concreting during cold weather.
- D. For slabs required to include moisture vapor reducing admixture (MVRA), do not proceed with placement unless

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manufacturer's representative is present for placement as required by the manufacturer's warranty.

#### 1.07 Warranty

- A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.
- C. Slabs with Moisture Vapor Reducing Admixture (MVRA):  
Provide warranty to cover cost of flooring failures due to moisture migration from slabs for life of the concrete.
  - 1. Include cost of repair or removal of failed flooring, placement of topical moisture remediation system, and replacement of flooring with comparable flooring system.
  - 2. Provide warranty by manufacturer of MVRA matching terms of flooring adhesive or primer manufacturer's material defect warranty.

### PART 2 PRODUCTS

#### 2.01 Formwork

- A. Formwork Design and Construction: Comply with guidelines of ACI 347R to provide formwork that will produce concrete complying with tolerances of ACI 117.
- B. Form Materials: Contractor's choice of standard products with sufficient strength to withstand hydrostatic head without distortion in excess of permitted tolerances.
  - 1. Form Facing for Exposed Finish Concrete: Contractor's choice of materials that will provide smooth, stain free final appearance.
  - 2. Earth Cuts: Do not use earth cuts as forms for vertical surfaces of trenched footings unless expressly allowed in the General Notes in the structural drawings. Natural rock formations that maintain a stable vertical edge may be used as side forms for below-grade concrete.
  - 3. Form Coating: Release agent that will not adversely affect concrete or interfere with application of coatings.
  - 4. Form Ties: Cone snap type that will leave no metal within the clear cover zone of the concrete surface as specified in the Minimum Concrete Cover for Cast-in-Place Non-Prestressed Members table included in the General Notes of the structural drawings.

#### 2.02 Reinforcement Materials

- A. Reinforcing Steel: ASTM A615/A615M, Grade 60 (60,000 psi).
  - 1. Type: Deformed billet-steel bars.
  - 2. Finish: Unfinished, unless otherwise indicated.

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- B. Reinforcing Steel: ASTM A706/A706M, deformed low-alloy steel bars, weldable.
    - 1. Unfinished.
  - C. Reinforcement Accessories:
    - 1. Joint Dowel Bars: ASTM A615/A615M, Grade 60 (60,000 psi) plain-steel bars, cut true to length with ends square and free of burrs.
    - 2. Tie Wire: Annealed, minimum 16 gauge, 0.0508 inch.
    - 3. Chairs, Bolsters, Bar Supports, Spacers: Sized and shaped for adequate support of reinforcement during concrete placement.
      - a. Continuous slab bolsters shall be used to support the bottom reinforcing bars of all reinforced slabs-on-grade.
    - 4. Provide stainless steel, galvanized, plastic, or plastic coated steel components for placement of reinforcing steel within 1-1/2 inches of weathering surfaces and for concrete surfaces that will be exposed to view.
  - D. Fabrication of Reinforcing:
    - 1. Fabricate concrete reinforcing in accordance with CRSI (DA4) - Manual of Standard Practice.
    - 2. Welding of reinforcement is permitted only with the specific approval of Architect/Engineer. Perform welding in accordance with AWS D1.4/D1.4M.
    - 3. Locate reinforcing splices not indicated on drawings at point of minimum stress.
- 2.03 Concrete Materials
- A. Cement: ASTM C150/C150M, Type I - Normal Portland type.
    - 1. Acquire cement for entire project from same source.
  - B. Fine and Coarse Aggregates: ASTM C33/C33M.
    - 1. Acquire aggregates for entire project from same source.
  - C. Fly Ash: ASTM C618, Class C or F.
  - D. Water: ASTM C1602/C1602M; clean, potable, and not detrimental to concrete.
- 2.04 Admixtures
- A. Do not use chemicals that will result in soluble chloride ions in excess of 0.1 percent by weight of cement.
  - B. Air Entrainment Admixture: ASTM C260/C260M.
  - C. Water Reducing and Retarding Admixture: ASTM C494/C494M Type D.
  - D. Water Reducing Admixture: ASTM C494/C494M Type A.
  - E. Moisture Vapor Reducing Admixture (MVRA): Liquid, inorganic admixture free of volatile organic compounds (VOCs) and formulated to close capillary systems formed

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during curing to reduce moisture vapor emission and transmission with no adverse effect on concrete properties or finish flooring.

1. Provide admixture in slabs to receive adhesively applied flooring.
2. Manufacturers:
  - a. Barrier One, Inc; Barrier One Moisture Vapor Reduction Admixture: [www.barrierone.com/#sle](http://www.barrierone.com/#sle).
  - b. Substitutions: Substitutions shall comply with the use of concrete staining/dye products.

#### 2.05 Accessory Materials

- A. Non-Shrink Cementitious Grout: Premixed compound consisting of non-metallic aggregate, cement, water reducing and plasticizing agents.

1. Grout: Comply with ASTM C1107/C1107M.

#### 2.06 Bonding And Jointing Products

- A. Latex Bonding Agent: Non-redisersable acrylic latex, complying with ASTM C1059/C1059M, Type II.

- B. Epoxy Bonding System:

1. Complying with ASTM C881/C881M and of Type required for specific application.

- C. Waterstops: Bentonite and butyl rubber, complying with NSF 61 and NSF 372.

- D. Slab Isolation Joint Filler: 1/2 inch (13 mm) thick, height equal to slab thickness.

1. Material: ASTM D1751, cellulose fiber.

#### 2.07 Evaporation Retarders

- A. Evaporation Retarder: Liquid thin film-forming compound that reduces rapid moisture loss caused by high temperature, low humidity, and high winds; intended for application immediately after concrete placement. These products provide a protective film shield over plastic concrete, dissipate as soon as the concrete is no longer plastic, and are not curing products.

1. Manufacturers:

- a. Euclid Chemical Company ; EUCOBAR:  
[www.euclidchemical.com/#sle](http://www.euclidchemical.com/#sle).
- b. SpecChem, LLC; SpecFilm Concentrate or SpecFilm:  
[www.specchemllc.com/#sle](http://www.specchemllc.com/#sle).
- c. W. R. Meadows, Inc ; Evapre or Evapre-RTU:  
[www.wrmeadows.com/#sle](http://www.wrmeadows.com/#sle).
- d. Substitutions: as approved by Architect.

#### 2.08 Curing Materials

- A. Moisture-Retaining Sheet: ASTM C171.

1. Polyethylene film, white opaque, minimum nominal thickness of 4 mil, 0.004 inch.



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- 2. White-burlap-polyethylene sheet, weighing not less than 3.8 ounces per square yard.
  - B. Polyethylene Film: ASTM D2103, 4 mil, 0.004 inch thick, clear.
  - C. Water: Potable, not detrimental to concrete.
- 2.09 Concrete Mix Design
- A. Proportioning Normal Weight Concrete: Comply with ACI 211.1 recommendations.
  - B. Concrete Strength: Establish required average strength for each type of concrete on the basis of field experience or trial mixtures, as specified in ACI 301.
    - 1. For trial mixtures method, employ independent testing agency acceptable to Architect for preparing and reporting proposed mix designs.
  - C. Admixtures: Add acceptable admixtures as recommended in ACI 211.1 and at rates recommended or required by manufacturer.
  - D. Normal Weight Concrete: Refer Structural General Notes for mix requirements for various classes of concrete.
- 2.10 Mixing
- A. Transit Mixers: Comply with ASTM C94/C94M.
  - B. Adding Water: If concrete arrives on-site with slump less than suitable for placement, do not add water that exceeds the maximum water-cement ratio or exceeds the maximum permissible slump.

### PART 3 EXECUTION

- 3.01 Examination
- A. Verify lines, levels, and dimensions before proceeding with work of this section.
- 3.02 Preparation
- A. Formwork: Comply with requirements of ACI 301. Design and fabricate forms to support all applied loads until concrete is cured, and for easy removal without damage to concrete.
  - B. Verify that forms are clean and free of rust before applying release agent.
  - C. Coordinate placement of embedded items with erection of concrete formwork and placement of form accessories.
  - D. Where new concrete is to be bonded to previously placed concrete, prepare existing surface by cleaning and applying bonding agent according to bonding agent manufacturer's instructions.
    - 1. Use epoxy bonding system for bonding to damp surfaces, for structural load-bearing applications, and where curing under humid conditions is required.

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2. Use latex bonding agent only for non-load-bearing applications.
- E. Where new concrete with integral waterproofing is to be bonded to previously placed concrete, prepare surfaces to be treated in accordance with waterproofing manufacturer's instructions. Saturate cold joint surface with clean water, and remove excess water before application of coat of waterproofing admixture slurry. Apply slurry coat uniformly with semi-stiff bristle brush at rate recommended by waterproofing manufacturer.
- F. In locations where new concrete is doweled to existing work, drill holes in existing concrete, clean out drilled holes, inject the adhesive indicated on drawings and/or General Notes, and insert steel dowels, all in accordance with adhesive manufacturer's installation instructions.
- G. Interior Slabs on Grade: Install vapor retarder under interior slabs on grade in accordance with manufacturer's instructions, ASTM E1643, ASTM F710 and ACI 302.2R.
1. Install compactible granular fill before placing vapor retarder as indicated on drawings. Do not use sand.
  2. Lap vapor retarder sheet over footings and seal to previously placed concrete foundations.
  3. Lap joints minimum 6 inches (150 mm).
  4. Seal joints, seams and penetrations watertight with manufacturer's recommended products and follow manufacturer's written instructions.
  5. No penetration of vapor retarder is allowed except for reinforcing steel and permanent utilities.
  6. Repair damaged vapor retarder before covering with other materials.
  7. Vapor Retarder Over Granular Fill: Install compactible granular fill before placing vapor retarder as indicated on drawings. Do not use sand.
- 3.03 Installing Reinforcement And Other Embedded Items
- A. Comply with requirements of ACI 301. Clean reinforcement of loose rust and mill scale, and accurately position, support, and secure in place to achieve not less than minimum concrete coverage required for protection.
- B. Install welded wire reinforcement in maximum possible lengths, and offset end laps in both directions. Splice laps with tie wire.
- C. Verify that anchors, seats, plates, reinforcement, waterstops and other items to be cast into concrete are accurately placed, positioned securely, and will not interfere with concrete placement.

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#### 3.04 Placing Concrete

- A. Place concrete in accordance with ACI 304R.
- B. Place concrete for floor slabs in accordance with ACI 302.1R.
- C. Notify Architect not less than 48 hours prior to commencement of placement operations.
- D. Maintain records of concrete placement. Record date, location, quantity, air temperature, and test samples taken.
- E. Ensure reinforcement, inserts, waterstops, embedded parts, and formed construction joint devices will not be disturbed during concrete placement.
- F. Place concrete continuously without construction (cold) joints wherever possible; where construction joints are necessary, before next placement prepare joint surface by removing laitance and exposing the sand and sound surface mortar, by sandblasting or high-pressure water jetting.
- G. Finish slab-on-grade and shored elevated floors level and flat, unless otherwise indicated, within the tolerances specified below.

#### 3.05 Slab Jointing

- A. Locate and install joints as indicated on drawings and Slab-On-Grade Schedule or as submitted by Contractor and approved by structural engineer.
- B. Anchor joint fillers and devices to prevent movement during concrete placement.
- C. Isolation Joints: Use preformed joint filler, total height equal to thickness of slab, set flush with top of slab.
  - 1. Install wherever necessary to separate slab from other building members, including columns, walls, equipment foundations, footings, stairs, manholes, sumps, and drains.
- D. Load Transfer Construction and Contraction Joints: Install load transfer devices as indicated; saw cut joint at surface as indicated for contraction joints.
- E. Saw Cut Contraction Joints: Saw cut joints shall be installed with early-entry dry-cut saw before concrete begins to cool, within 1 to 4 hours after completing the slab finishing operations; commence in approximately 1 hour in hot weather or approximately 4 hours in cold weather. Use 3/16 inch thick blade and cut at least 1 inch deep but not less than one quarter (1/4) the depth of the slab. Refer to Slab-On-Grade Schedule in drawings for additional requirements.

#### 3.06 Floor Flatness And Levelness Tolerances

- A. An independent testing agency, as specified in Section 01

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### SECTION 03300 - CAST-IN-PLACE CONCRETE

4000, will inspect finished slabs for compliance with specified tolerances.

- B. Maximum Variation of Surface Flatness:
  - 1. Exposed Concrete Floors: 1/4 inch in 10 feet.
  - 2. Under Seamless Resilient Flooring: 1/4 inch in 10 feet.
  - 3. Under Carpeting: 1/4 inch in 10 feet.
- C. Correct the slab surface if surface variations exceed specified tolerances.
- D. Correct defects by grinding or by removal and replacement of the defective work. Areas requiring corrective work will be identified. Re-measure corrected areas by the same process.

#### 3.07 Concrete Finishing

- A. Repair surface defects, including tie holes, immediately after removing formwork.
- B. Unexposed Form Finish: Rub down or chip off fins or other raised areas 1/4 inch or more in height.
- C. Exposed Form Finish: Rub down or chip off and smooth fins or other raised areas 1/4 inch or more in height. Provide finish as follows:
  - 1. Smooth Rubbed Finish: Wet concrete and rub with carborundum brick or other abrasive, not more than 24 hours after form removal.
- D. Concrete Slabs: Finish to requirements of ACI 302.1R, and as follows:
  - 1. Surfaces to Receive Thick Floor Coverings: "Wood float" as described in ACI 302.1R; thick floor coverings include quarry tile, ceramic tile, and Portland cement terrazzo with full bed setting system.
  - 2. Surfaces to Receive Thin Floor Coverings: "Steel trowel" as described in ACI 302.1R; thin floor coverings include carpeting, resilient flooring, seamless flooring, resinous matrix terrazzo, thin set quarry tile, and thin set ceramic tile.
  - 3. Decorative Exposed Surfaces: Trowel as described in ACI 302.1R; take measures necessary to avoid blackburnish marks; decorative exposed surfaces include surfaces to be stained or dyed, pigmented concrete, surfaces to receive liquid hardeners, surfaces to receive dry-shake hardeners, surfaces to be polished, and all other exposed slab surfaces.
  - 4. Other Surfaces to Be Left Exposed: Trowel as described in ACI 302.1R, minimizing burnish marks and other appearance defects.
- E. In areas with floor drains, maintain floor elevation at

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walls; pitch surfaces uniformly to drains at 1:100 nominal (approximately 1/8 inch per foot).

#### 3.08 Curing And Protection

- A. Comply with requirements of ACI 308R. Immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures, and mechanical injury.
- B. Uniformly apply evaporation retarder to concrete surfaces if hot, dry, or windy conditions cause moisture loss due to evaporation approaching 0.2 lb/sq.ft./h before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing. A methodology for calculating the moisture loss due to evaporation is provided in ACI 305.1.
- C. Maintain concrete with minimal moisture loss at relatively constant temperature for period necessary for hydration of cement and hardening of concrete.
  1. Normal concrete: Not less than seven (7) days.
- D. Formed Surfaces: Cure by moist curing with forms in place for full curing period.
- E. Surfaces Not in Contact with Forms:
  1. Initial Curing: Start as soon as free water has disappeared and before surface is dry. Keep continuously moist for not less than seven (7) days by water ponding, water-saturated sand, water-fog spray, or saturated burlap.
    - a. Ponding: Maintain 100 percent coverage of water over floor slab areas, continuously for seven (7) days.
    - b. Spraying: Spray water over floor slab areas and maintain wet.
    - c. Saturated Burlap: Saturate burlap-polyethylene and place burlap-side down over floor slab areas, lapping ends and sides; maintain in place.
  2. Final Curing: The surface shall be protected against rapid moisture loss upon the termination of initial curing by replacing wet burlap or similar coverings with plastic sheets until the surface has dried under the sheets.
    - a. Moisture-Retaining Sheet: Lap strips not less than 3 inches and seal with waterproof tape or adhesive; secure at edges.

#### 3.09 Field Quality Control

- A. An independent testing agency will perform Special Inspections and field quality control tests as required by

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Chapter 17 of ICC (IBC)-2015. The testing outlined below includes some, but not all, of the testing and observations required to meet the Special Inspection provisions of the building code. Refer to the following parts of the structural drawings for additional Special Inspection requirements:

1. Statement of Special Inspection Notes
  2. Table 1705.3 titled "Required Special Inspections and Tests of Concrete Construction"
- B. Provide free access to concrete operations at project site and cooperate with appointed firm.
  - C. Submit approved mix design of each class of concrete to inspection and testing firm for review prior to commencement of concrete operations.
  - D. Tests of concrete and concrete materials may be performed at any time to ensure compliance with specified requirements.
  - E. Compressive Strength Tests: ASTM C39/C39M, for each test, mold and cure four concrete test cylinders. Obtain test samples for every 100 cubic yards or less of each class of concrete placed each day.
  - F. Take one additional test cylinder during cold weather concreting, cured on job site under same conditions as concrete it represents.
  - G. Perform one slump test for each set of test cylinders taken, following procedures of ASTM C143/C143M.
  - H. Air Content: ASTM C173/C173M, one test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
  - I. Concrete Temperature: ASTM C1064/C1064M, one test hourly when air temperature is 40 deg F and below or 80 deg F and above, and one test for each composite sample.
  - J. Slab Testing: Cooperate with manufacturer of specified moisture vapor reducing admixture (MVRA) to allow access for sampling and testing concrete for compliance with warranty requirements.
- 3.10 Defective Concrete
- A. Test Results: The testing agency shall report test results in writing to Architect and Contractor within 24 hours of test.
  - B. Defective Concrete: Concrete not complying with required lines, details, dimensions, tolerances or specified requirements.
  - C. Repair or replacement of defective concrete will be determined by the Architect. The cost of additional testing shall be borne by Contractor when defective

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concrete is identified.

- D. Do not patch, fill, touch-up, repair, or replace exposed concrete except upon express direction of Architect for each individual area.

**3.11 Protection**

- A. Do not permit traffic over unprotected concrete floor surface until fully cured.

**END OF SECTION**

## DIVISION 7 - THERMAL AND MOISTURE PROTECTION

### SECTION 07260 - VAPOR BARRIER

#### PART 1 - GENERAL

##### 1.01 Work Included

- A. Furnish all labor, materials, services and equipment required in conjunction with or properly incidental to the installation of under-slab vapor barriers described herein and/or as shown on the drawings.

##### 1.02 Related Work

- A. Section 03300: Cast-In-Place Concrete.

##### 1.03 Job Conditions

- A. Subbase: Smooth and level, free from damaging protrusions that would puncture vapor barrier.

##### 1.04 References

- A. ASTM E 1643 - Standard Practice for Installation of Water Vapor Barriers Used in Contact with Earth or Granular Fill Under Concrete Slabs.
- B. ASTM E 1745 - Standard Specification for Plastic Water Vapor Barriers Used in Contact with Soil or Granular Fill under Concrete Slabs: Exceeds Class B
- C. ASTM E 96 - Standard Test Methods for Water Vapor Transmission of Materials.
- D. ASTM E 154 - Standard Test Methods for Water Vapor Barriers Used in Contact with Earth Under Concrete Slabs, on Walls, or as Ground Cover
- E. ASTM D 1709 - Standard Test Methods for Impact Resistance of Plastic Film by the Free-Falling Dart Method.
- F. ASTM F 1249 - Standard Test Method for Water Vapor Transmission Rate Through Plastic Film and Sheeting Using a Modulated Infrared Sensor
- G. ACI 302.1R - Vapor barrier component (plastic membrane) not less than 10 inches thick.

##### 1.05 Submittals

- A. Submit in accordance with Division 1 requirements.
- B. Product Data: Provide manufacturers printed product literature and description, including tests and standards that have been performed on the vapor barrier material.
- C. Samples: Submit two, 8 1/2 x 11 inch in size, illustrating the vapor barrier and two (2) 8-1/2-in long sample strips of the joint tape.
- D. One each of all accessories that will be used in the installation.
- E. Verification by Independent testing labs indicating that materials comply with specified requirements.
- F. Certificates: Certify that products of this section meet or exceed specified requirements.



## DIVISION 7 - THERMAL AND MOISTURE PROTECTION

### SECTION 07260 - VAPOR BARRIER

- G. Manufacturer's Instructions: Indicate complete installation instructions.

#### PART 2 - PRODUCTS

##### 2.01 Available Products

- A. Stego Wrap 15 mil Vapor Barrier by Stego Industries, L.L.C.
- B. Perminator™ 15 mil by W.R. Meadows .
- C. Vapor Block 15 (mil) by Raven Industries, Inc.
- D. Moistop Ultra 15 (mil) by Fortifiber Building Systems Group
- E. Viper Vaporcheck II 15 mil by Insulation Solutions, Inc.

##### 2.02 Source Quality Control And Testing

- A. Vapor barrier membrane shall have following properties:
  - 1. Water Vapor Barrier: Meets or exceeds Class A according to ASTM E 1745.
  - 2. Water Vapor Transmission Rate: 0.012 grains/ft<sup>2</sup>/hour or lower according to ASTM E 96.
  - 3. Water Vapor Permeance: 0.01 perms or lower according to ASTM E 154 Sec. 7 or F 1249 (max.).
  - 4. Tensile Strength: 45.0 lbf/in according to ASTM E 154 Sec. 9.
  - 5. Puncture Resistance: 2200 g according to ASTM D 1709, Method B

##### 2.03 Accessories

- A. Tape:
  - 1. High Density Polyethylene Tape with pressure sensitive adhesive. Minimum width 4".
- B. Pipe Boot:
  - 1. Construct pipe boots from vapor barrier material and pressure sensitive tape per manufacturer's instructions.

#### PART 3 - EXECUTION

##### 3.01 Examination

- A. Verify that conditions are acceptable for the placement of the vapor barrier.

##### 3.02 Preparation

- A. Ensure that subsoil is approved by Geotechnical Engineer.
  - 1. Vapor Barrier shall be installed on top of the aggregate, sand or tamped earth base or carton forms. At carton forms provide a vertical leg down to grade and adhered the vapor barrier to the grade beam at or just below the dirt line. Vapor barrier may be placed either above or beneath any carton form slip sheet.

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### SECTION 07260 - VAPOR BARRIER

#### 3.03 Installation

- A. Install vapor barrier per manufacturer's instructions, illustrations and ASTM E 1643 Standard Practice for Installation of Water Vapor Barriers Used in Contact with Earth or Granular Fill Under Concrete Slabs.
  - 1. Level and tamp or roll granular base.
  - 2. Place Vapor Barrier with the longest dimension parallel with the direction of the pour.
  - 3. Lap Vapor Barrier over footings and seal to foundation walls. Seal all penetrations.
  - 4. Lap joints 6 inches and seal with the recommended pressure sensitive tape.
  - 5. Seal pipe penetrations with pipe boot made from vapor barrier and tape.
  - 6. Protect vapor barrier from damage during installation of reinforcing steel and utilities.
  - 7. Repair damaged areas by cutting patches of vapor barrier, overlapping damaged area 6 inches and taping all four sides with pressure sensitive tape.

#### 3.04 Interface With Other Work

- A. Coordinate work of all other trades related to the slab base and utility services.

**END OF SECTION**