SECTION 033010 – VAPOR BARRIERS

PART 1 - GENERAL

1.1 SUMMARY

A. Products supplied under this section:

1. Vapor barrier and installation accessories for installation under concrete slabs.

B. Related sections:

1. Section 033000 Cast-in-Place Concrete

1.2 REFERENCES

A. ASTM International:

1. ASTM E1745-17: Standard Specification for Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill Under Concrete Slabs.
2. ASTM E1643-18a: Selection, Design, Installation, and Inspection of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs.

B. Technical Reference - American Concrete Institute (ACI):

1. ACI 302.2R-06: Guide for Concrete Slabs that Receive Moisture-Sensitive Flooring Materials.
2. ACI 302.1R-15: Guide to Concrete Floor and Slab Construction.

1.3 SUBMITTALS

A. Quality control/assurance:

1. Summary of test results per paragraph 9.3 of ASTM E1745.
2. Manufacturer’s samples and literature.
3. Manufacturer’s installation instructions for placement, seaming, penetration prevention and repair, and perimeter seal per ASTM E1643.
4. All mandatory ASTM E1745 testing must be performed on a single production roll per ASTM E1745 Section 8.1.
5. Contact vapor barrier manufacturer to schedule a pre-construction meeting and to coordinate a review, in-person or digital, of the vapor barrier installation.
6. Vapor barrier manufacturer must warrant in writing compliance with the designated ASTM E1745 classification, and no manufacturing defects in the product for, at least, the Life of the Building.
7. Manufacturer verify in writing 20 years in the industry with no reported product failures.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Vapor barrier shall have all the following qualities:

1. Maintain permeance of less than 0.01 Perms [grains/(ft2 · hr · inHg)] as tested in accordance with mandatory conditioning tests per ASTM E1745 Section 7.1 (7.1.1-7.1.5).
2. Other performance criteria:

   a. Strength: ASTM E1745 Class A.
   b. Thickness: 15 mils minimum

B. Provide third party documentation that all testing was performed on a single production roll per ASTM E1745 Section 8.1

C. Vapor barrier products:

1. Basis of Design: Stego Wrap Vapor Barrier (15-mil) by Stego Industries LLC., (877) 464-7834 www.stegoindustries.com
2. Equal Products:
    a. Vaporguard by Reef Industries, 713-507-4250. www.reefindustries.com
    b. Moistop Ultra 15 by Fortifiber 1-800-773-4777 www.buildsite.com

2.2 ACCESSORIES

A. General: Provide accessories from the same source as the primary vapor barrier product. Provide the following accessories as manufactured by the basis of design vapor barrier or equal products from the other manufacturers listed.

B. Seams: Stego Tape.

C. Sealing Penetrations of Vapor barrier:

1. Stego Mastic.
2. Stego Tape.

D. Perimeter/terminated edge seal:

1. Stego Crete Claw (textured tape).
2. Stego Term Bar.
3. StegoTack Tape (double-sided sealant tape).
4. One-sided seaming tape is not a recommended method of sealing at the terminated edge.

E. Penetration Prevention: Beast Foot.

F. Vapor Barrier-Safe Hand Screed System: Beast Screed.

PART 3 - EXECUTION

3.1 PREPARATION

A. Ensure that subsoil is approved by Architect or Geotechnical Engineer.

B. Level and compact base material.

C. Contact vapor barrier manufacturer to schedule a pre-construction meeting and to coordinate a review, in-person or digital, of the vapor barrier installation.

3.2 INSTALLATION

A. Install vapor barrier in accordance ASTM E1643.

B. Unroll vapor barrier with the longest dimension parallel with the direction of the concrete placement and face laps away from the expected direction of the placement whenever possible.

C. Extend vapor barrier to the perimeter of the slab. If practicable, terminate it at the top of the slab, otherwise

1. at a point acceptable to the structural engineer or
2. where obstructed by impediments, such as dowels, water stops, or any other site condition requiring early termination of the vapor barrier.
3. At the point of termination, seal vapor barrier to the foundation wall, grade beam or slab itself.

D. Seal vapor barrier to the entire slab perimeter using manufacturer’s textured tape with a surface that creates a mechanical seal to freshly-placed concrete, per manufacturer's instructions.

E. Overlap joints 6 inches and seal with manufacturer’s seam tape.

F. Apply seam tape/textured tape/double-sided tape to a clean and dry vapor barrier.

G. Seal all penetrations (including pipes) per manufacturer’s instructions.

H. Avoid the use of stakes driven through vapor barrier by utilizing screed and forming systems that will not leave punctures in the vapor barrier.

I. Repair damaged areas with vapor barrier material of similar (or better) permeance, puncture and tensile.

END OF SECTION 033010