#2861

with minimal bunching. Because it is so strong, less care needs to be taken to avoid damage. Also, of course, there is usually less damage to repair.

3. Low permeability. Tu-Tuf is about one-sixth as permeable as regular 4-mil polyethylene. Although this sounds impressive, it is of relatively minor importance in construction practice since even 4-mil polyethylene provides an adequate vapor transmission resistance for most applications - if it doesn't tear.

4. UV resistance. Sto-Cote calls the product "weather stabilized." According to Mark Yonker, head of sales at Sto-Cote, Tu-Tuf contains a UV inhibitor to protect it against degradation when exposed to sunlight.

DISADVANTAGES

1. Slipperiness. One has to really scrape to find fault with this product, but it is more slippery than regular polyethylene, making it a little more difficult to handle (and walk on), particularly in very cold weather.

COST

3-mil = 5 1/2¢ to 6 1/2¢ per square foot
4-mil = 6 1/2¢ to 7 1/2¢ per square foot

RECOMMENDATION

All in all, this product is so superior to common low-density 6-mil polyethylene that it is definitely recommended for use in any permanent installation such as vapor barriers and moisture barriers, above and below grade.

FOR MORE INFORMATION

Tu-Tuf is sold through a nationwide network of distributors. For the name of your closest outlet or for more information, contact: Sto-Cote Products, Drawer 310, Richmond, IL 60071; (800)435-2621. For information on other sheeting products made with Van Leer Valeron, see the Products section in this issue of EDU.

FEATURE SPECIFICATIONS FOR AIRTIGHTNESS

SPECIFICATIONS FOR AIRTIGHTNESS

The energy efficiency of a new building depends on the proper installation of an airtight air/vapor barrier. Merely specifying a polyethylene vapor barrier is not enough unless the installing contractor is aware of the necessity and techniques for creating a positive seal around the entire building envelope. To insure proper installation, both the building specifications and the working drawings should explicitly indicate where and how the air/vapor barrier is to be installed and sealed.

The Manitoba Department of Energy and Mines recently published a set of "Housing Standards" which describe, in specification format, requirements for energy-conserving house construction. Section 5 of the document, written with the assistance of Harold Orr of the Canadian National Research Council, discusses air/vapor barriers. The following is an edited version of that section. We have added standards for materials and testing.

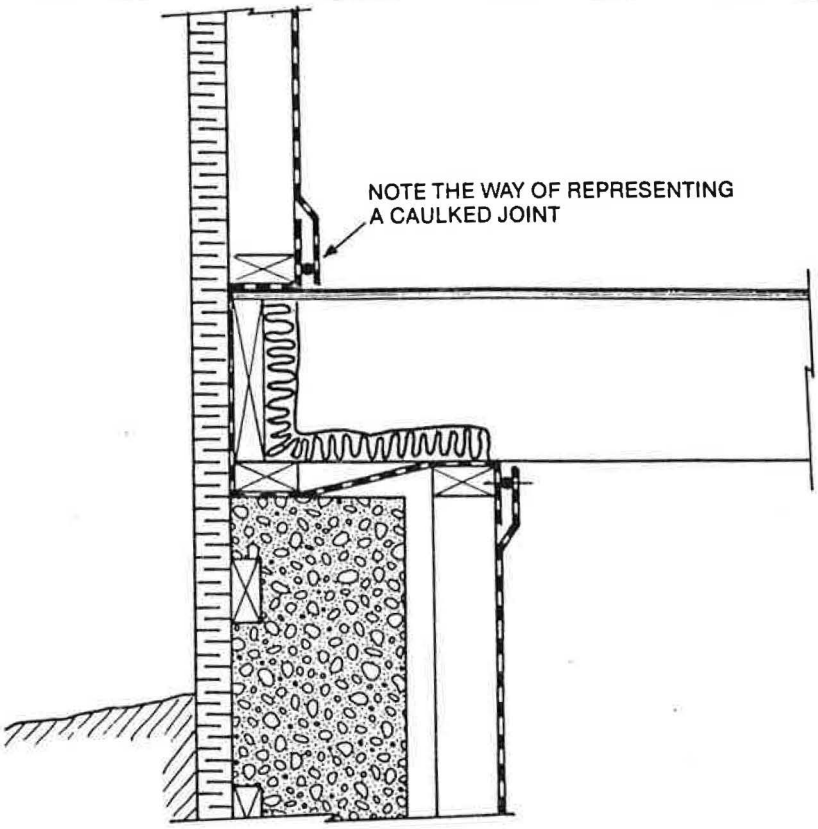
Figure 1 (from "Air-Vapour Barriers," by David Eyre and David Jennings, Energy Mines and Resources, Canada) shows an example of how the air/vapor barrier can be unambiguously illustrated on the working drawings.

1.0 VAPOR BARRIER

1.1 MATERIALS

1.1.1 Vapor barrier shall be Tu-Tuf cross-laminated polyethylene sheeting, manufactured by Sto-Cote Products, Inc. (Drawer 310, Richmond, IL 60071; 800-435-2621), or equivalent.

1.1.2 Sealant for all vapor barrier seams and sealing points shall be Tremco



Indicating the Vapor Barrier On Working Drawing

Acoustical Sealant, by Tremco, Inc. (10701 Shaker Blvd., Cleveland, OH 44104), or equivalent.

1.1.3 Tape for sealing vapor barrier shall be Contractor Sheathing Tape #SJ-8086 by 3M Canada (Box 5757, London, Ontario, Canada N6A 4T1), or equivalent. (NOTE: This product is not currently available in the U.S. but can be ordered in quantity direct from 3M Canada. See July/August 1983 EDU for descriptive details.)

1.2 INSTALLATION

1.2.1 Vapor barriers shall be installed such that no more than 33% of the unit thermal resistance in a thermal assembly is installed on the warm side of the vapor barrier.

1.2.2 Every vapor barrier shall be installed to protect the entire wall surface either at the wall surface or as provided in Section 1.2.1.

1.2.3 Where an interior partition wall meets an exterior wall required to have vapor barrier protection, the vapor barrier protection shall extend between the exterior and interior walls to form continuous protection at the wall intersection.

1.2.4 Where an interior frame wall meets a ceiling required to have vapor barrier protection, the vapor barrier protection shall extend over the top of the wall.

1.2.5 Where an interior partition wall meets a floor required to have vapor barrier protection, the vapor barrier protection shall extend under the bottom of the wall to form continuous vapor barrier protection for the floor.

1.2.6 Every vapor barrier joint shall lap not less than 2 inches, be located over supporting members, be stapled to the supporting members if the supporting members are wood, be sealed with continuous caulking, sealant or tape, and be covered with a rigid material, such as gypsum board or sheathing.

1.2.7 Wherever a vapor barrier terminates, it shall be sealed with continuous

aulking, sealant or gasket, and be overed with rigid materials such as ypsum board or sheathing.

.2.8 Holes or openings through vapor arriers for the installation of electrical wiring, electrical boxes, piping, ents, ductwork or plumbing shall be ffectively sealed with caulking or ther acceptable material to maintain he integrity of the vapor barrier.

.2.9 Plumbing vent stacks which enetrate the vapor barrier shall ncorporate an expansion joint, on he warm side of the stack, within 8 inches of the point of penetration. he gap around the stack shall be packed ith oakum to maintain vapor barrier rotection around the stack.

.2.10 Access hatches into attics should e located so that they do not penetrate he vapor barrier, such as through a gable nd. Access hatches which do penetrate he vapor barrier shall be weatherstripped round the perimeters of the hatches, hall incorporate mechanical locking evices to seal the hatches, and shall ave a unit thermal resistance of t least R-20.

.2.11 Ductwork in attic or roof spaces r crawl spaces shall have all joints aped or otherwise sealed to ensure hat the ducts are air-tight throughout heir length, and shall be sealed to the apor barrier at the point of penetration rough the vapor barrier.

.2.12 Clearances between chimneys r gas vents and the surrounding construction, which would permit air leakage from within the building into an attic, roof space, or furnace room, shall be sealed with a heat-resistant caulking to prevent such leakage.

1.2.13 Masonry walls of hollow units which penetrate through the ceiling shall be capped with masonry units without voids or be sealed with flashing material extending across the full width of the masonry at or near the ceiling adjacent to the roof space to prevent moisture within the voids from entering the roof or attic space, and shall be sealed to the vapor barrier to conform to the requirements of section 1.2.6.

1.2.14 All joints between vapor barriers on adjacent surfaces, such as the ceiling and an above-grade wall, or an above-grade wall and below-grade wall, shall be sealed as required by section 1.2.6.

1.2.15 Repairs to the vapor barrier shall be made by sealing a new piece of vapor barrier material directly over the damaged area with a continuous bead of caulking, or shall be taped with a material suitable for use with the vapor barrier to maintain the integrity of the vapor barrier.

1.3.0 TESTING AND PERFORMANCE

1.3.1 The completed vapor barrier installation shall be inspected and tested using fan pressurization-depressurization techniques.

1.3.2 Total air leakage shall not exceed 2.0 air changes per hour under 50 pascals of pressure.

FEATURE AIR-KRETE—A NEW INSULATION MATERIAL

AIR KRETE - A NEW INSULATION MATERIAL

ir Krete may be the most exciting product o hit the insulation market since plastic oam. Invented by Don Thompson, originlly with Dow Chemical, Air Krete has been ield-tested in about 800 homes during he past year. Although it resembles reaformaldehyde foam in appearance and texture, the similarity ends there - it contains absolutely no formaldehyde. Air Krete is a cementitious foam with a Magnesite (magnesium oxide) base. Except for a tiny amount of organic coloring, it is completely inorganic.

; mixed on-site with ıtalyst, and water.