

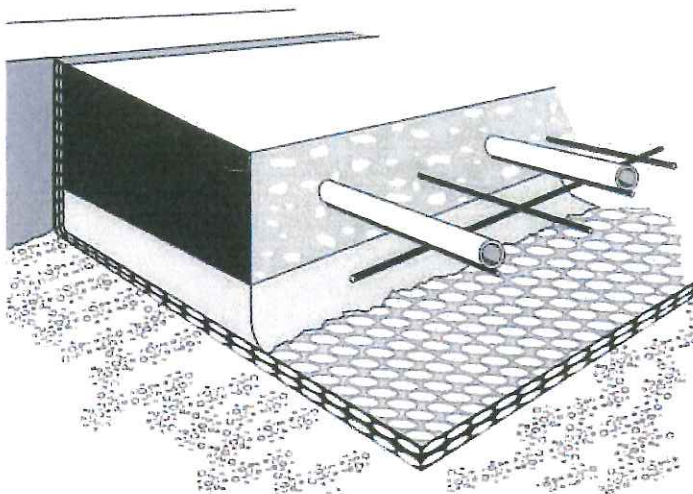


INNOVATIVE ENERGY, INC.

Your Single Source for Reflective Insulation Products

# TUFF-STUFF

## BELOW HEATED CONCRETE FLOORS For a High-Strength Insulating Moisture Barrier



Typical Slab-On-Grade Installation

### Special Features Include:

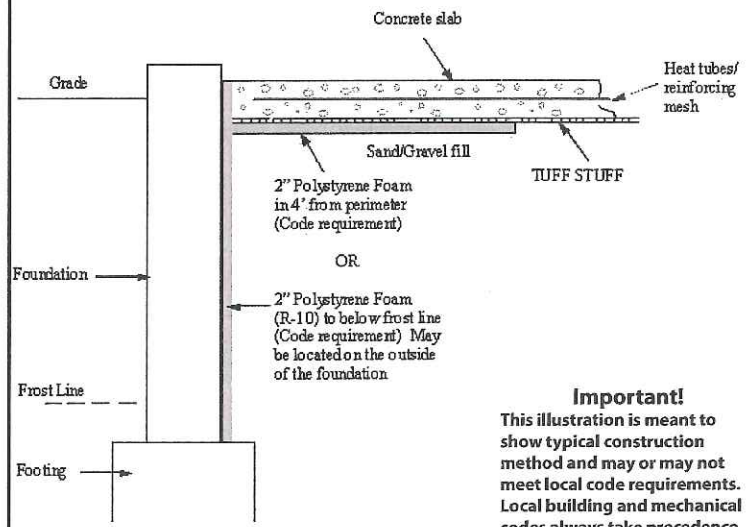
- Absolute Moisture Barrier  
Keeps heat-robbing ground moisture away from the concrete.
- Reduces Downward Heat Loss by Over 50%  
Exceeds the requirements of most HVAC load calculation programs.
- Super-Strong 388 PSI Puncture Resistance  
Will support over 6" of concrete plus floor loads indefinitely.
- Total Over 19 mil Extruded Polyethylene Film  
Withstands rough handling by installers and finishers.
- Air-Encapsulating Vacuum Formed Bubbles  
Results in a structure that will not delaminate.
- PET Coating Strengthens & Protects Foil  
Against Chemical Erosion  
TUFF-STUFF can be laid with the foil side up or down, whichever is most convenient.

## TUFF-STUFF TECHNICAL DATA

### SPECIFICATIONS:

	Rating	Test Method
Water vapor Transmission:	0.002 (Impermeable)	ASTM E 96-95
Puncture Resistance:	388 PSI	ASTM F 1306 Fed. Test Std. 101C-Method 2031
Tensile Strength:	85-95 lb/sq. in.	ASTM D 412
Flame & Smoke Rating:	Class 1, Class A	ASTM E 84
System Thermal Resistance:		
Concrete (0.10 R/inch)	0.20 R (2 in.)	ASHRAE Handbook
Sand (0.40 R/inch)	0.60 R (1.5 in.)	ASHRAE Handbook
TUFF STUFF	1.30 R	ASTM C 518
Gravel (0.15 R/inch)	0.45 R (3 in.)	ASHRAE Handbook
Total R Value	2.55 R (system)	
Insect and Fungi Resistant		

### Typical Heated Slab Cross Section



**Important!**  
This illustration is meant to show typical construction method and may not meet local code requirements. Local building and mechanical codes always take precedence.



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