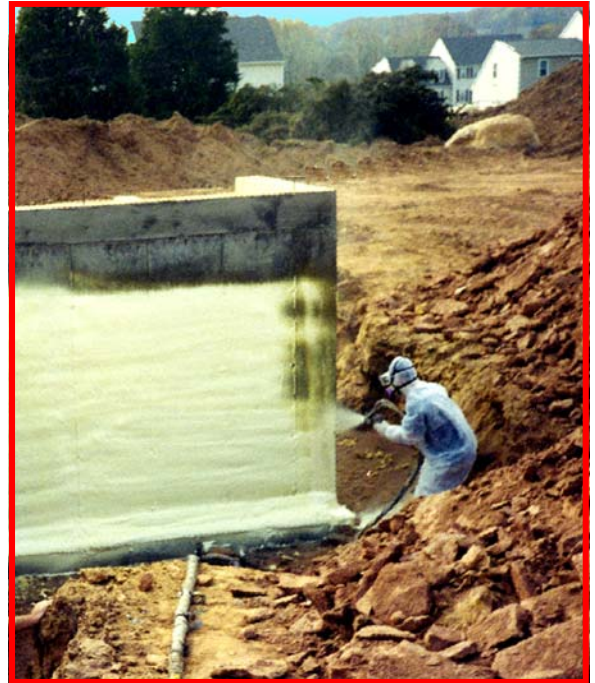




## SPRAY POLYURETHANE INSULATION FOR SUB-GRADE APPLICATIONS

NCFI spray-in-place, closed-cell polyurethane insulation can be applied to the exterior side of basement walls to provide both insulation and dampproofing. Additionally, closed cell spray polyurethane insulation may be applied to a bed of gravel prior to pouring a concrete slab.

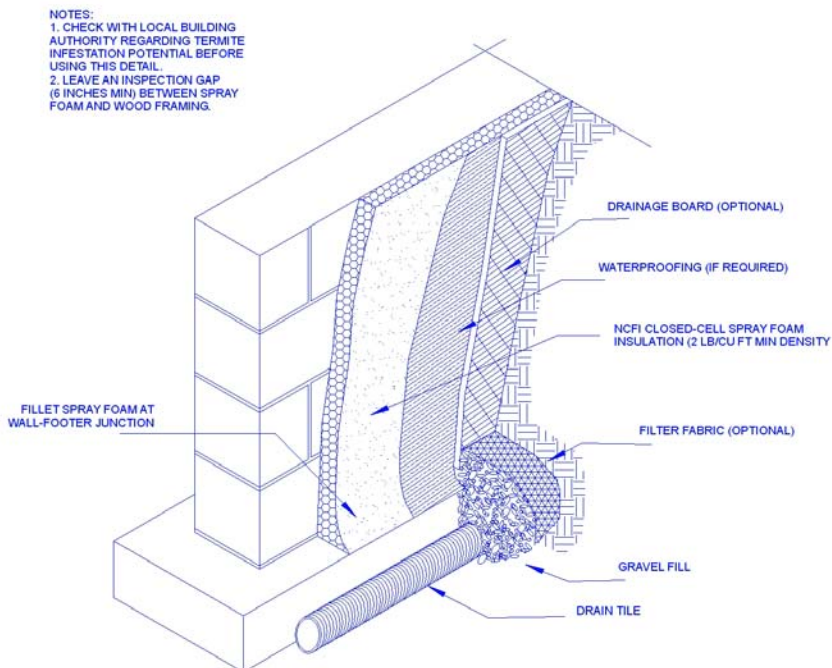
- ◆ Seamless
- ◆ Fully adhered
- ◆ Highly energy efficient
- ◆ Eliminates condensation
- ◆ Masonry/concrete becomes a thermal mass
- ◆ Seals all thru-wall penetrations
- ◆ Seals construction joints/gaps/cracks



**Spray Application to Exterior Foundation Wall**

Spray-in-place polyurethane has been the insulation of choice for masonry construction in commercial applications since the 1980's. As homeowners demand more energy efficient designs, the use of polyurethane insulation has been rapidly expanding. One of the best residential applications derived from the commercial market is below grade

(sub-grade) exterior insulation of masonry and concrete walls, floors, and slabs. Unlike other types of insulation, polyurethane insulation resists water penetration, retaining its high R-value. Because spray-in-place polyurethane insulation is both fully adhered and closed-cell, it provides dampproofing to your structure as well as insulation.



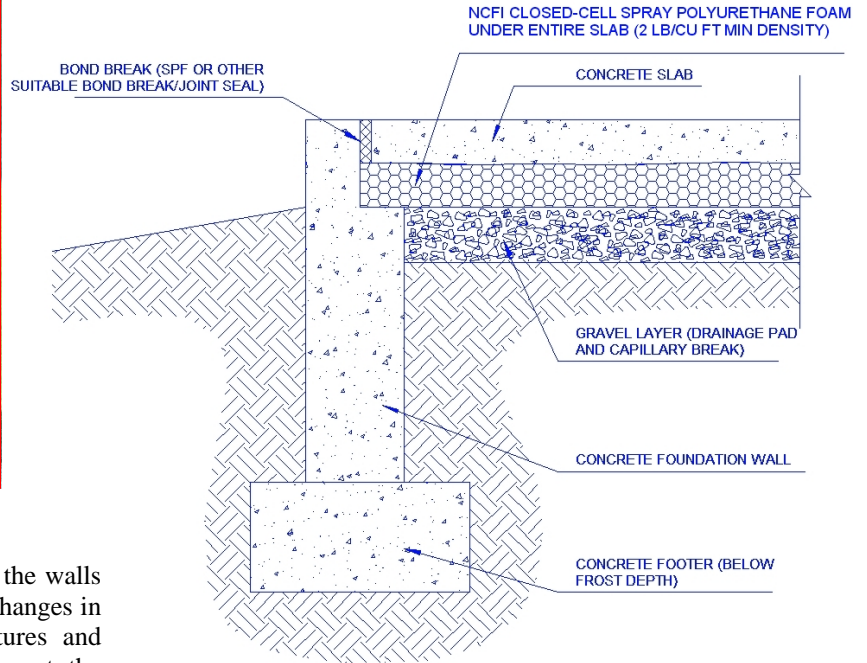
A two year sub-grade test by NRC-CNRC<sup>1</sup> concluded:

1. SPF exterior basement insulation thermal performance was stable and sustainable.
2. Moisture management capabilities of sub-grade SPF were confirmed.
3. Physical properties were retained.

<sup>1</sup>NRC-CNRC, "In-situ Performance Evaluation of Exterior Insulation Basement System (EIBS)--Spray Polyurethane Foam Summary Report."

**WHEN JUST INSULATION ISN'T ENOUGH®**

**Spray Polyurethane Insulation Application to Gravel sub-floor prior to pouring Concrete Slab**



**Thermal Mass = Energy Savings**

By insulating the **exterior** of concrete or masonry, the walls and floors function as a **thermal mass** that resists changes in temperature. This leads to stable room temperatures and reduces the energy required to maintain the room at the desired temperature. Thermal mass saves you money.

**TYPICAL PHYSICAL PROPERTIES\***

NCFI Spray Polyurethane Insulation is a two-part, closed-cell system with high R-value designed to provide an air and moisture barrier for general construction

		Thickness (inches)	R-Value (aged) (°F•hr•ft <sup>2</sup> /Btu)
Core Density	2.0 lb/ft <sup>3</sup>		
Moisture Vapor Transmission	1.3 perm · inch		
Flame Spread (ASTM E 84)	Less than 25 @ 4 inches thick	1/2	3.2
Smoke Development (ASTM E 84)	Less than 450	1	6.8
Air Leakage (ASTM E 283)	0.000 cfm/ft <sup>2</sup> @ 1.57 psf	2	13
Water Resistance (AATCC 127 –1998)	No leakage @ 56 ft H <sub>2</sub> O	3.5	22
FEMA Flood Resistant Material	Class 5		

\*Physical properties may vary dependent on the specific system used. InsulStar® and InsulBloc® systems are suitable for this application.

Winner of the  
**EPA 2004 Stratospheric  
 Ozone & Climate Protection  
 Award**  
 for extraordinary  
 accomplishments and  
 significant contributions to  
 protect the environment.



NCFI insulation systems are formulated with renewable agricultural resources.



Using products with the Energy Star® label can save energy. Saving energy reduces air pollution and lowers utility bills. As an Energy Star Partner, NCFI has determined that this product can significantly contribute to meeting the Energy Star guidelines for energy efficiency.



**NCFI POLYURETHANES**

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