



Concrete Block Insulating Systems

Thermal Performance of Single Wythe Grouted  
Reinforced Masonry Walls Insulated  
With Korfil Insulation as Compared  
to Poured in Place Scrap  
Expandable Polystyrene (EPS) Beads

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**Discussion:**

Standard Masonry Units factory insulated with Korfil U-Shaped Insulation Inserts provide several key features compared to other forms of in core insulation when block cores are grouted and reinforced for structural reasons. The advantages are:

1. Since cores are insulated at the block plant prior to delivery to the job site, each core is insulated.
2. There are specific ASTM requirements set forth for Expandable Polystyrene, the raw material Korfil Inserts are made from.
3. There is Third Party Certification Program under which inserts are produced to assure specific quality control requirements.
4. Structural tests have verified there is no structural degradation if inserts are left in place when walls are grouted and reinforced.

Tables I and II of this report provide a thermal comparison between masonry walls insulated with Korfil and those insulated with scrap EPS insulation.

**Conclusion:**

For Single Wythe Masonry Construction with grouted and reinforced cells, Korfil U-Shaped Inserts are the most thermally efficient method of insulating this type of wall. It has been proven and accepted by Code Agencies that it is not necessary, from a structural standpoint, to remove inserts in grouted cells. No other form of insulation insert has undergone the extensive structural testing undertaken by the makers of Korfil to assure the structural integrity of walls is not compromised. The tables in this report show only the results of vertical grouting at specific spacing. If walls are totally grouted, such as prison construction or if horizontal grouting and reinforcing is added, the thermal advantages of Korfil become even more evident.

Table I

Standard 8 Inch Wide Masonry Units Grouted and Reinforced with 130 lbs. per cu. ft. Grout.

Vertical Grout Spacing (Inches)	Thermal Transmittance - U Value*			
	105 lbs. per cu. ft. Masonry Units		135 lbs. per cu. ft. Masonry Units	
	With Korfil	With Scrap EPS**	With Korfil	With Scrap EPS**
16	.17	.24	.25	.39
32	.17	.20	.25	.32
48	.17	.19	.25	.30

\* Units BTU/HR/SQFT/F DEG

\*\* The thermal value of EPS used to determine the U-Value was that of EPS molded to a density of 1.0 Lbs. per Cu. Ft.

Table II

Standard 12 Inch Wide Masonry Units Grouted and Reinforced with 130 lbs. per cu. ft. Grout.

Vertical Grout Spacing (Inches)	Thermal Transmittance - U Value*			
	105 lbs. per cu. ft. Masonry Units		135 lbs. per cu. ft. Masonry Units	
	With Korfil	With Scrap EPS**	With Korfil	With Scrap EPS**
16	.14	.24	.20	.30
32	.14	.19	.20	.25
48	.14	.17	.20	.23

\* Units BTU/HR/SQFT/F DEG

\*\* The thermal value of EPS used to determine the U-Value was that of EPS molded to a density of 1.0 Lbs. per Cu. Ft.

**References:**

**A.) National Concrete Masonry Association**

**TEK No. 6-2**

**b.) Icon Engineering Report on the Thermal Efficiency of Concrete Masonry Units  
Insulated with Icon Universal Inserts.**

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**8 August 1989.**