

# Manual J Summer Calculations

## Residential Load - Component Details (continued)

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Project Title:  
Nickelson Residence

Code Only  
Professional Version  
Climate: North

Lake City, FL

5/21/2004

Floors	Type	R-Value	Size	HTM	Load
1	Slab-On-Grade Edge Insulation	0.0	276.0 ft(p)	0.0	0 Btuh
	<b>Floor Total</b>		<b>276.0</b>		<b>0 Btuh</b>
Infiltration	Type	ACH	Volume	CFM=	Load
	Natural	0.35	34190	199.8	3957 Btuh
	Mechanical			0	0 Btuh
	<b>Infiltration Total</b>			<b>200</b>	<b>3957 Btuh</b>

Internal gain	Occupants	Btuh/occupant	Appliance	Load
	6	X 300 +	3000	4800 Btuh

<b>Totals for Cooling</b>	<b>Subtotal</b>	<b>45493 Btuh</b>
	<b>Duct gain(using duct multiplier of 0.10)</b>	<b>4549 Btuh</b>
	<b>Total sensible gain</b>	<b>50043 Btuh</b>
	<b>Latent infiltration gain (for 51 gr. humidity difference)</b>	<b>6930 Btuh</b>
	<b>Latent occupant gain (6 people @ 230 Btuh per person)</b>	<b>1380 Btuh</b>
	<b>Latent other gain</b>	<b>0 Btuh</b>
	<b>TOTAL GAIN</b>	<b>58353 Btuh</b>

Key: Window types (SHGC - Shading coefficient of glass as SHGC numerical value or as clear or tint)  
(U - Window U-Factor or 'DEF' for default)  
(InSh - Interior shading device: none(N), Blinds/Daperies(B) or Roller Shades(R))  
(ExSh - Exterior shading device: none(N) or numerical value)  
(Ornt - compass orientation)



# TECHNICAL DATA SHEET

## PROFOAM Distribution

2171 Cheshire Bridge Road • Atlanta, GA 30324 • Phone: (866) 776-3626 • Fax: (404) 982-0857 • [www.profoam.com](http://www.profoam.com)

### RPF 1.8

#### PRODUCT DESCRIPTION

PROFOAM'S RPF-1.8 is a low viscosity, two component, rigid polyurethane spray-foam system designed for insulating wall foam applications. It has a Class I ASTM E84 flame rating and is processed by most commercially available, airless, two component, heat controlled, urethane spray equipment. This system yields excellent coverage with a very smooth surface.

#### CHEMICAL ANALYSIS

##### "A" Component

Viscosity, 74°F; cps. ASTM D-1638 250

Physical State Liquid

Color Dark Brown

Hygroscopicity reacts with water and evolves CO<sub>2</sub> gas

##### "B" Component

Viscosity, 74°F; cps. ASTM D-1638 185

Physical State Liquid

Color Dark Brown

Hygroscopicity absorbs water which changes ratio

#### REACTION PROFILE — Hand Mix

(100 grams, 74°F. Sample)

Cream Time, seconds 2

Tack Free Time, seconds 7

Rise Time, seconds 20

Free Rise Density, lbs/ft<sup>3</sup> 1.55

#### RECOMMENDED EQUIPMENT SETTINGS

A-component Temp. 120°F minimum

B-component Temp. 120°F minimum

Hose Temp. 120°F minimum

Hydraulic Pressure 1000 psi

#### TYPICAL PHYSICAL PROPERTIES — sprayed sample

Density, core; lbs/ft<sup>3</sup> 2.00  
—ASTM D-1622 @ 74°F

Typical Yield 3.35 ft<sup>3</sup>/lb @ 2.0" thick

Compressive strength  
—ASTM D-1621 @ 74°F.,  
parallel to rise, minimum psi 12

k — Factor, initial; BTU-in/hr-ft<sup>2</sup> - °F  
—ASTM C-177 @ 74°F 0.135 - 0.145

Closed cell content:  
% — ASTM D-1940 @ 74°F >90

Burning Characteristics (Ref #EB01201,  
Report #01-02058)  
—ASTM E84 Flame Spread Index 10  
Smoking Developed 400

#### MATERIAL METERING RATIOS

Parts by volume (total mix 100 parts)

Compound A 50 parts

Compound B 50 parts

Parts by weight (total mix 100 parts)

Compound A 51 parts

Compound B 49 parts

Since Seller exercises no control over Buyers application or use of the product manufactured by Seller ("product") and since materials used with the product may vary, it is understood that:

- There are no warranties, express or implied, including any warranties for merchantability or for any particular purpose.
- While all data presented in Seller's technical data sheet is based on the best information available to Seller and believed correct, such data is not to be construed as a warranty that the product will conform to such specifications. Such technical data sheets are subject to change without notice.
- Reported laboratory test results of fire retardancy in no way relates to the actual performance under fire conditions. Since all urethane systems are organic, they will burn.
- Reported laboratory test results of the color stability in no way relates to the actual performance upon exposure to light sources. Since all aromatic urethanes experience color degradation upon ultraviolet light exposure, Seller shall not be liable for any damages resulting from ultraviolet light color degradation of any aromatic urethane systems manufactured or sold by Seller.
- The liability of the Seller shall not exceed the purchase price and the Buyer shall not be entitled to nor the Seller be liable for any consequential, incidental, indirect or special damages resulting in any manner from the furnishings of the product.

## Polyurethane Foam Code Approval

- Building codes provide for the use of polyurethane spray foam in the "Foam Plastic Section" of the code. This section of the code also describes the use of thermal barriers.
- Even though the three major code organizations (BOCA, ICBO, SBCCI) have all been consolidated into a single building code organization (ICC), most local inspection agencies use building codes that are several years old. The following table identifies the applicable code and approval sections for polyurethane foam.

Code Body	Approval Section
International Conference of Building Officials (ICBO)	4202 1717
Southern Building Code Congress International (SBCCI)	704.2 876.5
Building Officials and Code Administrators Int'l (BOCA)	717

# US Department of Energy

## National Laboratory System

### Science and Technology Information

The following shows the equivalent "R" values of the most common types of insulation available. If the insulation collects moisture or any air is allowed to pass through it, the "R" value goes to zero.

**Fiberglass insulation.....R 3.2 per inch**

**32% Efficiency Rating**

**3 ½ inches in a 2X4 wall with a 32% ER is equivalent to R11.2**

**Collects moisture**

**Cellulose insulation.....R 3.5 per inch**

**36% Efficiency Rating**

**3 ½ inches in a 2X4 wall with a 34% ER is equivalent to R 12.74**

**Collects moisture**

**Open cell .5 lb foam insulation.....R 3.5 per inch**

**44% Efficiency Rating**

**3 ½ inches in a 2X4 wall with a 44% ER is equivalent to R 13.72**

**Collects moisture**

**Closed cell 1.8 lb foam insulation.....R 7 per inch**

**92% Efficiency Rating**

**3½ inches in a 2X4 wall with a 92% ER is equivalent to R 63.7**

**2 inches in a 2X4 wall with a 92% ER is equivalent to R 40.18**

**1 inch in a 2X4 wall with a 92% ER is equivalent to R 20.09**

**Does not collect moisture**