




INSULATION

1. PRICE: (Resource from: <https://www.homeadvisor.com/cost/insulation/#type>)

	Install Blown-In Insulation <i>(8,358 projects)</i> AVERAGE NATIONAL COST: \$1,358 VIEW COSTS IN YOUR AREA >
	Install Batt, Rolled, or Reflective Insulation <i>(4,212 projects)</i> AVERAGE NATIONAL COST: \$1,573 VIEW COSTS IN YOUR AREA >
	Install Spray Foam Insulation <i>(1,626 projects)</i> AVERAGE NATIONAL COST: \$2,180 VIEW COSTS IN YOUR AREA >

2. R-VAUE: (Resource from: <https://energy.gov/energysaver/insulation-materials>)

- Blown-in fiberglass

High-density fiberglass batts for a 2 by 4 inch (51 by 102 millimeter [mm]) stud-framed wall has an R-15 value, compared to R-11 for "low density" types. A medium-density batt offers R-13 for the same space. High-density batts for a 2 by 6 inch (51 by 152 mm) frame wall offer R-21, and high-density batts for an 8.5-inch (216-mm) spaces yield about an R-30 value. R-38 batts for 12-inch (304-mm) spaces are also available.

- Batt, Rolled, or Reflective Insulation

Plastic fiber insulation material is primarily made from recycled plastic milk bottles (polyethylene terephthalate or PET). The fibers are formed into batt insulation similar to high-density fiberglass.

The insulation is treated with a fire retardant so it doesn't burn readily, but it does melt when exposed to flame.

The R-values of plastic fiber insulation vary with the batt's density, ranging from R-3.8 per inch at 1.0 lb/ft³ density to R-4.3 per inch at 3.0 lb/ft³ density. Plastic fiber insulation is relatively non-irritating to work with, but the batts reportedly can be difficult to handle and cut with standard tools. In many areas of the United States, plastic fiber insulation might not be readily available.

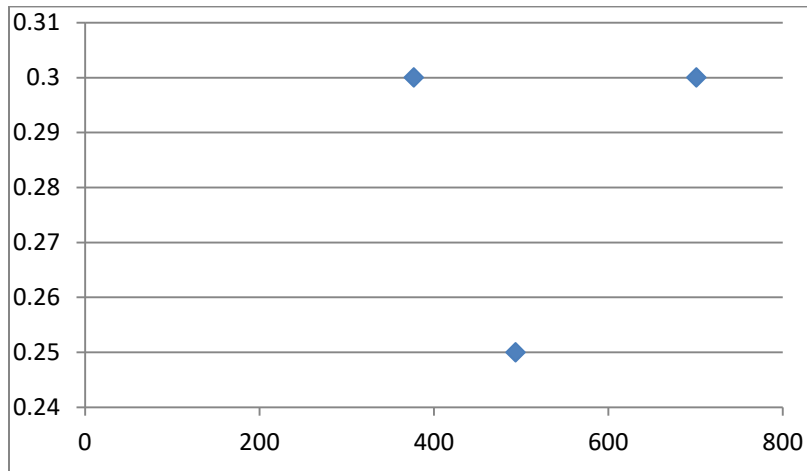
- Spray Foam Insulation

Cementitious insulation material is a cement-based foam used as sprayed-foam or foamed-in-placed insulation. One type of cementitious spray foam insulation known as air krete® contains magnesium

silicate and has an R-value of about 3.9 per inch. With an initial consistency similar to shaving cream, air krete® is pumped into closed cavities. Cementitious foam costs about as much as polyurethane foam, is nontoxic and nonflammable, and is made from minerals (like magnesium oxide) extracted from seawater.

3.

Types of Insulation	Price	R-Value (per inch)
Blown-In Insulation	\$1,358	3.5
Batt, Rolled, or Reflective Insulation	\$1,573	3.6
Spray Foam Insulation	\$2,180	6



Correlations: the higher R-value, the higher the price

WINDOW

1. U-VAUE and PRICE

Resource from: https://renoviso.com/harvey-slimline-single-hung-window/p190?utm_source=google&utm_medium=cpc&utm_campaign=shopping&utm_term=windows&utm_content=harvey_slimline_single_hung_window&gclid=CjwKCAjw7frPBRBVEiwAuDf_LTz9L-I0tZdquJZF_QLEGvMC6IDGbQNJJuDR-5ugmmuN0EwOTIzQFpBoCIYsQAvD_BwE



Harvey Slimline Vinyl Single Hung Window

INSTALLED FROM
\$377

 INSTALLATION INCLUDED

[GET YOUR PRICE](#)

- In-home consultation
- Dedicated project manager
- Removal & disposal
- Lifetime warranty
- Financing available

About the Harvey Slimline Vinyl Single Hung Window

The Harvey Slimline vinyl single hung window is custom made and delivers solid performance at an excellent value.

As one of a very select group of Harvey Elite Dealers, we are able to provide enhanced benefits including free lifetime glass breakage coverage and an upgraded service warranty option.

WINDOW FEATURES	
SPECS	
⑦ U factor	0.30
⑦ Thermal Performance	3
⑦ Visible Transmittance	.56
⑦ Solar Heat Gain Coefficient	.31



Harvey Slimline Single Hung Mullied Unit

INSTALLED FROM
\$701

 INSTALLATION INCLUDED

[GET YOUR PRICE](#)


- In-home consultation
- Dedicated project manager
- Removal & disposal
- Lifetime warranty
- Financing available

About the Harvey Slimline Single Hung Mullied Unit

A mullied window unit is when two or more windows are joined together to form a single unit. Mullied window units offer an aesthetically pleasing exterior and more expansive views from the inside. The Harvey Slimline vinyl single hung window is custom made and delivers solid performance at an excellent value.


As one of a very select group of Harvey Elite Dealers, we are able to provide enhanced benefits including free lifetime glass breakage coverage and an upgraded service warranty option.

WINDOW FEATURES	
SPECS	
⑦ U factor	0.30
⑦ Thermal Performance	3
⑦ Visible Transmittance	.56
⑦ Solar Heat Gain Coefficient	.31



Harvey Tribute Vinyl Double Hung Window

INSTALLED FROM
\$494

 INSTALLATION INCLUDED

[GET YOUR PRICE](#)

- In-home consultation
- Dedicated project manager
- Removal & disposal
- Lifetime warranty
- Financing available

About the Harvey Tribute Vinyl Double Hung Window

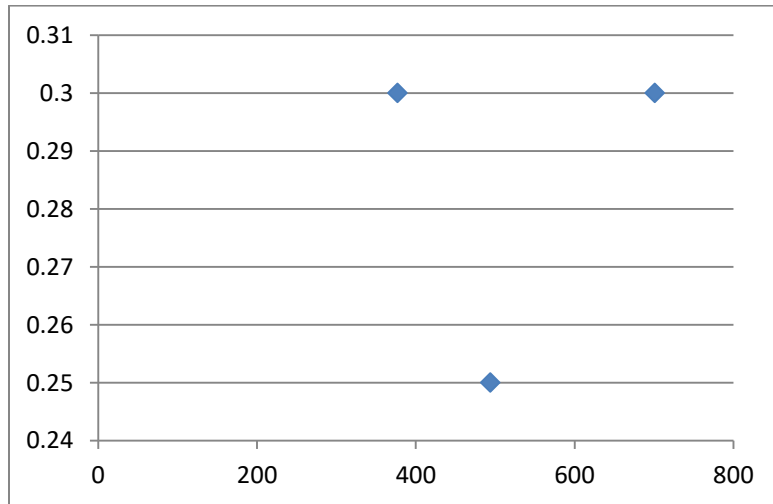
The Harvey Tribute vinyl double hung window is custom made, delivers excellent performance, and offers a variety of styles, colors and options. Relative to the Harvey Classic, the Tribute offers a contoured sash and glazing bead emulating the look of a traditional wood window, upgraded locks, a VIEWS locking screen, and integral or applied lift handles.

As one of a very select group of Harvey Elite Dealers, we are able to provide enhanced benefits including free lifetime glass breakage coverage, a more affordable triple pane option, and an upgraded service warranty option.

WINDOW FEATURES	
SPECS	
⑦ U factor	0.25
⑦ Thermal Performance	4
⑦ Visible Transmittance	0.52
⑦ Solar Heat Gain Coefficient	.29

2.

Types of Insulation	Price	U-Value
Harvey Slimline Vinyl Single Hung Window	\$377	0.3
Harvey Slimline Single Hung Mulled Unit	\$701	0.3
Heavy tribute Vinyl Double Hung Window	\$494	0.25



Correlations: Not obvious

3. What is the relationship between center-of-glass U-Value to assembly U-Value?

The U-factor of the total window assembly combines the insulating value of the glazing proper, the edge effects in the IGU, and the window frame and sash.

The center-of-glass U-factor assumes that heat flows perpendicular to the window plane, without addressing the impact of the frame edge effects and material.