

## Benefits of Havelock Wool

<b>Improves Indoor Air Quality</b>	Wool absorbs harmful chemicals such as formaldehyde, NOx and SO2.
<b>Manages Moisture</b>	Wool absorbs and releases moisture and will not support the growth of mold.
<b>Absorbs Sound</b>	Wool exceeds other forms of insulation as an acoustic buffer.
<b>Improves the Environment</b>	Wool is sustainable, renewable and removes carbon from the atmosphere.
<b>Basic Use</b>	Havelock Wool is used in residential and commercial construction as thermal and acoustic insulation. It can be used in open attic areas, enclosed walls, floors, ceilings, basements and crawl spaces.
<b>Composition &amp; Materials</b>	Havelock Wool insulation is 100% wool with no synthetic mix or chemical binders.
<b>Availability</b>	Distributed and sold throughout the United States and Canada. For availability and cost, contact Havelock Wool on +1 775 971 4870 or <a href="mailto:sales@havelockwool.com">sales@havelockwool.com</a>
<b>Durability</b>	Havelock Wool insulation will last the life of the structure.
<b>Shipping Details</b>	All pallets are 48"x48"x96". Loose fill bags are 48"x15"x15" at 30lbs each. Pallets contain 21 bags and weigh 670lbs. 16" O/C R13 batt bags are 48"x32"x16" at 35lbs each. Pallets contain 12 bags and weigh 460lbs. 16" O/C R20 batt bags are 48"x32"x16" at 35lbs each. Pallets contain 12 bags weigh 460lbs. 24" O/C R13 batt bags are 48"x40"x12" at 40lbs each. Pallets contain 12 bags and weigh 460lbs. 24" O/C R20 batt bags are 48"x40"x12" at 35lbs each. Pallets contain 12 bags and weigh 460lbs. Pallets are typically shipped via less than truckload (LTL) third party carriers on a semitruck. Deliveries include with a liftgate. Shipping quotes are <a href="#">HERE</a> .
<b>Warranty</b>	50 year warranty against material defect; product to be of stated quality and R-value.



## General Information

Havelock Wool Blow-in Insulation is the highest performance product we offer. Similarly, by R-value it is one of the best on the market. When factoring other attributes of wool, and R4.3 per inch for our blow-in product, there is simply no better way to insulate a home.

Install can be by hand for small jobs; pneumatic blowers are recommended for larger jobs and there are options for both DIYers and commercial installers. Examples of both can be found along with instructional videos on YouTube. You can also call us anytime.

The following thermal performance values are achieved at the thickness and coverage specified when insulation is properly installed. Havelock Wool Blown-in Insulation is NOT dense pack application. Other fibrous insulation lack the integrity of wool fiber and therefore need to be dense packed to perform properly. For example, cellulose will often be installed at 3.5-4 lbs per cubic foot. Wool, as stated is 1.13 lbs per cubic foot in either a vertical or horizontal application. Wool fibers trap air better than other fibers which allow for higher R-values to be achieved with less material. Also, lesser fibers will break down and slump over time. This does not happen with wool, given its inherent characteristics. The high integrity of the Havelock Wool fiber continues to expand over time, in fact, this expansion is accelerated when exposed to vapor drive, humidity and temperature swings. In short, let your wool breathe.

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## Coverage Chart

R Value	Max Coverage per S/F	Minimum Installed Thickness	Price per S/F
15	91.2	3.5	<b>\$1.98</b>
24	57.6	5.5	<b>\$3.10</b>
31	44.4	7.25	<b>\$4.10</b>
40	34.8	9.25	<b>\$5.23</b>
48	28.8	11.25	<b>\$6.36</b>

The above thermal performance values are achieved at the thickness and coverage specified when insulation is installed with pneumatic equipment. Havelock Wool Blown-in Insulation is not dense packed; therefore, density is the same when installing in a vertical (wall) or horizontal (attic/between floors) application (e.g. 0.33 lbs per s/f @ 3.5" or 1.13 lbs per cubic foot).

found along with instructional videos on YouTube. You can also call us anytime. Our [Insulation Calculator](#) will help you estimate how much insulation you need for your home project.

## The Details

Your blow-in insulation will arrive in a compressed sleeve. There is an inner bag within the sleeve. We recommended slicing the sleeve while hopefully leaving the inner bag intact. Open as many bags as possible before blowing and reintroduce as much air as you can. The fibers should be separated when going into the blower; opening the bags in advance will help with this process. The same is true for hand stuffing. Be sure to check your density matters as there is a natural tendency to overstuff.

Correct density is 1.13 pounds per cubic foot. That is a space covering 1' x 1' x 1'. A standard exterior wall cavity is 14.5"W x 5.5"H x 93"L. That is 9.4 square feet at 5.5" which calls for just shy of 4.5 lbs of wool.  $(5.5 / 12) = 0.45$ ;  $0.45 * 9.4 = 4.3$  lbs OR you can use cubic feet as follows:  $14.5 * 5.5 * 93 = 7417$  cubic inches.  $7417 / 1728 = 4.3$  lbs. (Note:  $12 \times 12 \times 12 = 1728$ ).

After you have weighed the correct amount for a few cavities, you will get a feel for how the blower and cavity respond and, simply, away you go installing blow-in insulation.



## Full Coverage Chart

The following thermal performance values are achieved at the thickness and coverage specified when insulation is installed with pneumatic equipment. Havelock Wool Blown-in Insulation is not dense packed; therefore, density is the same when installing in a vertical (wall) or horizontal (attic/between floors) application (e.g. 0.33 lbs per s/f @ 3.5" or 1.13 lbs per cubic foot).

### Link to Helpful Videos

Visit Havelock Wool Insulation's [YouTube page](#) for useful videos.

R Value	Max Coverage per S/F	Minimum Installed Thickness	Price per S/F
11	126	2.5	<b>\$1.43</b>
13	104.4	3.0	<b>\$1.72</b>
15	91.2	3.5	<b>\$1.98</b>
19	72	4.4	<b>\$2.51</b>
22	62.4	5.1	<b>\$2.90</b>
24	57.6	5.5	<b>\$3.10</b>
31	44.4	7.25	<b>\$4.10</b>
32	43.2	7.5	<b>\$4.22</b>
38	36	8.9	<b>\$5.02</b>
40	34.8	9.25	<b>\$5.23</b>
43	31.2	10.0	<b>\$5.68</b>
45	30	10.5	<b>\$5.94</b>
48	28.8	11.25	<b>\$6.36</b>
52	26.4	12.1	<b>\$6.86</b>
60	22.8	14.0	<b>\$7.92</b>



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## Coverage Chart

R Value	Thickness	Width	S/F per Bag	Retail Price per S/F
7	2"	16" O/C	100	\$1.50
13	3.5"	16" O/C, 24" O/C	90	\$1.67
20	5.5"	16" O/C, 24" O/C	60	\$2.50

## General Information

Installation procedures and techniques must be as recommended by Havelock Wool. Batts are typically cut at 48" and may need to be stretched slightly upon removal from packaging. Unfaced batts are applied with friction. A staple may be added at the installers discretion. Wire may be used in a ceiling joist or with steel framing.

## Consistency

Batts are made with a needle punch; there is no bonding agent. This proves useful in installation as batts are somewhat malleable, as opposed to rigid and difficult to manipulate. This softer texture does require a bit of care in handling. Installers should be careful to grab the whole batt with an emphasis on the needled side, which should face out from the cavity.

## A quick note on loft

Wool does not appreciate compression. Clearly we need to use some in our packaging and shipping efforts. Each of our batts are the desired height when they are born. We have never seen a batt not regain its loft over time. Environmental conditions eg moisture levels can impact the process.

## The Details

Slice the bag open from top to bottom. Grab a grouping of batts and remove them from the bag; do not pull batts from the bag one at a time. Place as desired in the cavity with no gaps; apply a staple or 'lightning rod'. For simple cutting, the [GRip Rite blade](#) works well.

Our HS code for Canada is 5603.94, which is a duty-free classification.

## Technical Data for Batt & Blown-In Insulation

### PHYSICAL PROPERTIES

Property	Performance	Tests
Surface Burning	Flame Spread (Class A)	ASTM E-84
Fire Hazard	Smoke Developed (Class A)	ASTM E-84
Thermal Conductivity	Resistance Value (see previous charts)	ASTM C-518
Acoustics	Sound Absorption Coefficient (see below)	ASTM C-423
Water Vapor Transmission	108 ng/Pa·s·m	ASTM E-96
Moisture Storage Function	Moisture content 10% at 50% RH	ASTM C-1498
Fungi Resistance (Mold)	Pass	ASTM C-1338
Flammability of Interior Materials	Pass	FMVSS 302

### SOUND ABSORPTION COEFFICIENTS AT 3.5 INCHES

#### Batts

125	250	500	1000	2000	4000	NRC
.72	0.94	0.91	0.85	0.93	0.98	0.90

#### Loose Fill

125	250	500	1000	2000	4000	NRC
0.73	1.01	0.90	0.91	1.01	1.01	0.95

\*The Noise Reduction Coefficient (commonly abbreviated NRC) is a scalar representation of the amount of sound energy absorbed upon striking a particular surface. An NRC of 0 indicates perfect reflection; an NRC of 1 indicates perfect absorption.