SHEEP WOOL INSULATION

warmer
safer
smarter

Eco-Building Products, Inc
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**Why Sheep’s Wool Insulation?**

**Warmer**
- Sheep wool insulation has a 10% greater insulating factor than many traditional glass fiber insulations.
- Sheep wool is very hygroscopic; it is unique in that it generates significant heat as moisture is absorbed. The heat generated increases the dew point and thus reduces the risk of interstitial condensation.
- Wool draws out moisture from the building and allows it to evaporate out of the building. It maintains its thermal performance even after absorbing up to 30% moisture. Traditional mineral wool thermal performance can deteriorate by up to 50% with only a few percentage points of moisture absorption leading to increased condensation.

**Safer**
- Sheep wool is unique in its ability to absorb and lock up toxic gases (sulphur dioxide, nitrogen dioxide, and formaldehyde). Man made insulations and exhausts can emit these gases.
- Wool is safe to handle and install requiring no protective clothing or equipment and exhibiting no skin or respiratory problems typically associated with mineral wool products (VOC / Carcinogen warnings).
- Wool is a Carbon sink; it actually locks up CO$_2$—man-made insulations can pollute CO$_2$ during its manufacture.
- Wool is naturally fire retardant resulting in higher ignition temperatures, low flame spreads, and ability to self extinguish.

**Smarter**
- Sheep wool is truly sustainable—a yearly clip of wool is available as a by product of the livestock farming process.
- Natural resilient and strong yet can be torn by hand across direction to facilitate faster install times.
- Wool fiber has a natural spring which ensures that the insulation doesn’t compact over time (50+ years) compared to mineral wool products that may compact and require topping after just 10 years.
- Man made insulation currently can only be disposed of into landfills whereas sheep’s wool insulation is 100% biodegradable and can be composted at the end of its life.
- Wool insulation requires very low energy to manufacture (embodied energy), requiring 85% less energy compared to man-made insulation products.
- Black Mountain sheep’s wool insulation can potentially help earn several points in registered LEED projects.
# Physical Properties

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Performance Tests</th>
<th>Test Method*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surface Burning</td>
<td>Flame Spread</td>
<td>ASTM E-84 / UL-723</td>
</tr>
<tr>
<td>Characteristics</td>
<td>Smoke Development</td>
<td></td>
</tr>
<tr>
<td>Fungi Resistance</td>
<td>Passed-No Growth</td>
<td>ASTM C1388</td>
</tr>
</tbody>
</table>

*Brochure for marketing purposes only. Contact Black Mountain USA for test reports.

## Product Selection/ Technical Information

### Residential Construction Sized SheepRoll™

<table>
<thead>
<tr>
<th>Item Number</th>
<th>Description</th>
<th>R Value*</th>
<th>Thickness (Inch)</th>
<th>Thickness (mm)</th>
<th>Width (Inch)</th>
<th>Width (mm)</th>
<th>Length (Feet)</th>
<th>Length (M)</th>
<th>Sq. Ft. Per Roll</th>
</tr>
</thead>
<tbody>
<tr>
<td>SR 100-001</td>
<td>Wool Insulation Roll</td>
<td>13</td>
<td>3.5</td>
<td>90</td>
<td>14.5</td>
<td>375</td>
<td>16</td>
<td>4.85</td>
<td>19.33</td>
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<tr>
<td>SR 100-002</td>
<td>Wool Insulation Roll</td>
<td>13</td>
<td>3.5</td>
<td>90</td>
<td>22.5</td>
<td>580</td>
<td>16</td>
<td>4.85</td>
<td>30.00</td>
</tr>
<tr>
<td>SR 100-003</td>
<td>Wool Insulation Roll</td>
<td>19</td>
<td>5.25</td>
<td>130</td>
<td>14.5</td>
<td>375</td>
<td>12</td>
<td>3.65</td>
<td>14.50</td>
</tr>
<tr>
<td>SR 100-004</td>
<td>Wool Insulation Roll</td>
<td>19</td>
<td>5.25</td>
<td>130</td>
<td>22.5</td>
<td>580</td>
<td>12</td>
<td>3.65</td>
<td>22.50</td>
</tr>
</tbody>
</table>

*R-value tested in accordance to ASTM C518. Higher R values correspond to greater insulating power. Note: Custom size rolls and batts are available upon request.
# Commercial Construction Sized SheepRoll™

<table>
<thead>
<tr>
<th>Item Number</th>
<th>Description</th>
<th>R Value*</th>
<th>Thickness (Inch)</th>
<th>Width (Inch)</th>
<th>Length (Feet)</th>
<th>SQ. Ft. Per Roll</th>
</tr>
</thead>
<tbody>
<tr>
<td>SRC 100-005</td>
<td>Wool Insulation Roll</td>
<td>13</td>
<td>3.5</td>
<td>90</td>
<td>16.0 405</td>
<td>16 4.85</td>
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<tr>
<td>SRC 100-006</td>
<td>Wool Insulation Roll</td>
<td>13</td>
<td>3.5</td>
<td>90</td>
<td>24.0 610</td>
<td>16 4.85</td>
</tr>
<tr>
<td>SRC 100-007</td>
<td>Wool Insulation Roll</td>
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<td>5.25</td>
<td>130</td>
<td>16.0 405</td>
<td>12 3.65</td>
</tr>
<tr>
<td>SRC 100-008</td>
<td>Wool Insulation Roll</td>
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<td>5.25</td>
<td>130</td>
<td>24.0 610</td>
<td>12 3.65</td>
</tr>
</tbody>
</table>

*R-value tested in accordance to ASTM C518. Higher R values correspond to greater insulating power.

Note: Custom size rolls and batts are available upon request.
## Natural Sheep’s Wool Insulation

### SheepRope™ Log Home Insulation

<table>
<thead>
<tr>
<th>Item Number</th>
<th>Description</th>
<th>R Value</th>
<th>Thickness (in)</th>
<th>Width (inch)</th>
<th>Length (feet)</th>
<th>Pcs Per Package</th>
</tr>
</thead>
<tbody>
<tr>
<td>SRO-001-12</td>
<td>Wool Insulation Rope</td>
<td>6.5</td>
<td>2.0</td>
<td>51</td>
<td>38</td>
<td>11.52</td>
</tr>
</tbody>
</table>

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### SheepFill™ Loose Fill Insulation

*(SF-001-1 sold by the lb)*

<table>
<thead>
<tr>
<th>R-Value</th>
<th>Required Thickness (in)</th>
<th>Lbs/sq ft</th>
</tr>
</thead>
<tbody>
<tr>
<td>R-13</td>
<td>3.2</td>
<td>0.24</td>
</tr>
<tr>
<td>R-14</td>
<td>3.5</td>
<td>0.27</td>
</tr>
<tr>
<td>R-21</td>
<td>4.6</td>
<td>0.36</td>
</tr>
<tr>
<td>R-22</td>
<td>5.5</td>
<td>0.42</td>
</tr>
<tr>
<td>R-25</td>
<td>6.0</td>
<td>0.46</td>
</tr>
<tr>
<td>R-30</td>
<td>7.3</td>
<td>0.59</td>
</tr>
<tr>
<td>R-37</td>
<td>9.0</td>
<td>0.69</td>
</tr>
<tr>
<td>R-38</td>
<td>9.3</td>
<td>0.71</td>
</tr>
<tr>
<td>R-45</td>
<td>11.0</td>
<td>0.84</td>
</tr>
<tr>
<td>R-49</td>
<td>12.0</td>
<td>0.92</td>
</tr>
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</table>

*R-value tested in accordance to ASTM C518. Higher R values correspond to greater insulating power.*
## Competitor Analysis

<table>
<thead>
<tr>
<th>Features</th>
<th>Sheep Wool</th>
<th>Cotton</th>
<th>Fiberglass</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does not require carcinogen warning label</td>
<td>YES</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>No VOC concerns or off gassing issues</td>
<td>YES</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>100% sustainable</td>
<td>YES</td>
<td>NO</td>
<td>NO</td>
</tr>
<tr>
<td>Does not contain formaldehyde</td>
<td>YES</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>Reduces indoor air quality issues</td>
<td>YES</td>
<td>NO</td>
<td>NO</td>
</tr>
<tr>
<td>Environmentally friendly</td>
<td>YES</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>Uses safe natural fibers</td>
<td>YES</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>Superior acoustic properties</td>
<td>YES</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>Requires less energy to manufacture</td>
<td>YES</td>
<td>NO</td>
<td>NO</td>
</tr>
<tr>
<td>Easy to handle / install</td>
<td>YES</td>
<td>NO</td>
<td>NO</td>
</tr>
<tr>
<td>Easy/safe to cut (time saver for installers)</td>
<td>YES</td>
<td>NO</td>
<td>NO</td>
</tr>
<tr>
<td>No itch/skin irritation</td>
<td>YES</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>No protective clothing required</td>
<td>YES</td>
<td>YES</td>
<td>NO</td>
</tr>
</tbody>
</table>
CORPORATE AFFILIATIONS:
Black Mountain USA is a participating member of the following institutions/organizations:

- American Made Matters
- ICC Member
- U.S. Green Building Council Member
- ASTM International Member

LEED CREDITS
Black Mountain USA’s sheep wool products save energy and can be considered an integral part of any LEED project. The following credits can be potentially claimed in all 9 current LEED versions:

ENERGY & ATMOSPHERE:
- Minimum energy performance
- Optimize energy performance

MATERIALS & RESOURCES:
- Building Reuse
- Materials Reuse
- Rapidly Renewable Materials

INDOOR ENVIRONMENTAL QUALITY:
- Low emitting materials
- Thermal comfort-design

BLACK MOUNTAIN USA’S SHEEP WOOL MAY ALSO CONTRIBUTE TO THESE SPECIFIC LEED REQUIREMENTS:

LEED FOR EXISTING BUILDINGS-OPERATIONS & MAINTENANCE
- Minimum energy efficiency performance
- Optimize energy efficiency
- Minimum indoor air quality performance
- Indoor air quality best management practice
- Regional priority

LEED FOR SCHOOLS:
- Mold & mildew control

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COSH/M.SDS data sheet

Black Mountain sheep wool insulation is a natural fibre material, not known to cause any health & safety issues. The following information provides details for any questions that might be asked.

- **Product**
    Sheep wool insulation is a general purpose thermal insulation for buildings and structures.

- **Material Content**
    The wool fibres used in production are treated with Borax salt. Black Mountain insulation contains:
    - Thorlan IW 1%
    - Polyester Mesh 1%
    - Wool 92%

- **Hazardous information**
    The product is classified as non-hazardous to health or the environment.

- **First Aid Measures**
    If the product comes into eye contact with any person handling the material it is advised to rinse with water. The product is safe to touch and cannot be inhaled however in the unlikely event of ingestion; it is advised to drink water.

    If any adverse reaction is experienced from any of the above, seek medical assistance.

- **Fire Fighting Measures**
    Black Mountain sheep wool insulation is fire resistant; however some packaging materials may be flammable.

    Suitable extinguishing media – water, CO², foam, or dry chemical.

- **Accidental Release Measures**
    No special precautions necessary. Sweep or vacuum loose material and use a dust mask if there is a significant level of dust present at site.

- **Handling and Storage**
    Care should be exercised when handling sharp tools or working at heights. Product should be stored in a dry area before use.

- **Regularity Information**
    Non hazardous.

- **Personal Protection / Exposure Control**
    Respiratory - if working in an existing dusty space use of face mask EN 149 Class FFP1 or FFP2 is recommended. No protective equipment is necessary for skin, hands and eyes.

- **Physical and Chemical Properties**
    - Appearance - grey textured colour.
    - Chemical - natural organic material.

- **Stability and Reactivity**
    Avoid oxidizing materials.

- **Toxicological Information**
    No known health or toxicological hazards.

- **Ecological Information**
    Wool fibres are biodegradable and have no negative impact on the environment.

- **Disposal Considerations**
    Sheep wool insulation can be recycled, incinerated for additional energy or composted to biodegrade.

- **Transport Considerations**
    Classified as non-hazardous for transport.

- **Other Information**
    If you have any questions please contact sales@blackmountaininsulationusa.com. We recommend that a workplace risk analysis is conducted, especially when working at heights.

- **Manufactured by**
    Black Mountain Insulation Ltd, Tir Llwyd Industrial Estate, Rhyl, Denbighshire, LL 18 5JA
    United Kingdom

    Black Mountain reserves the right to amend product specification at any time in the future without notice.

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