In the old days, most houses were poorly insulated but they were able to “breathe” freely. As a consequence, a lot of heat was lost, but the interior air quality was typically better than nowadays. On the positive side, current houses are generally much better thermally insulated than before. The downside results from the plastic foils necessary in combination with traditional insulating materials: First of all, they may have a negative influence on the indoor air quality. Secondly, moisture getting trapped in the construction can create big problems. Flax insulation offers the best of both worlds: a good thermal and acoustical insulation combined with the ability to exhale excess humidity from the wall and roof construction.
Flax insulation products and properties:
Range of application: thermal and acoustical insulation for walls, ceilings, floors and roofs
Application type: W and WL, according DIN 18165-1

Flax insulation consists of:
- Linen fibre, recycled textile binder fibre and safe & environmentally friendly flame retardant
- Thermal conductivity: \( \lambda_{\text{flax}} = 0.038 \text{ W/m\textdegree K} \), acc. ISO 8301 / DIN 52616 and WLG 040 acc. DIN 18165

Treated with environmentally friendly flame retardant for fire protection according EN-ISO 11925-2 and class B2 according DIN 4102-1 for building materials and meets Euroclass E acc. EN13501-1

Specific heat capacity: \( c = 1600 \text{ J/kg\textdegree K} \)

Water vapour diffusion coefficient: \( \mu = 1-2 \) according DIN 52615 / DIN 4108-5

Humidity sorption: according EN-ISO 12571 / DIN 52620
Air permeability \( \text{L}_{\text{p}}\text{A} \): \( 230 \times 10^{-6} \text{ m}^3/\text{m}^2\text{s.Pa} \)

Estimated service life: minimum 75 years

NIBE environmental classification: class 1a (best achievable, reference)

Environmental advantages:
* small environmental footprint:
  - no pollution of air and water,
  - no emission of harmful chemicals like formaldehydes, isocyanates, organohalogens, (H)CFCs, etc.,
  - total process: good energy balance;
* the annually regrowing crop flax is an inexhaustible resource that does not contribute to global warming; on the contrary: during its growth, it converts the greenhouse gas CO\(_2\) into oxygen, the source of human life;
* sustainable construction contribution.

Application advantages:
* roll-form reduces the amount of seams (points of heat loss) and speeds up the installation process (one piece from ceiling to floor), while plate-form can be easier in places that are difficult to reach;
* no need to wear various inconvenient personal protection means to avoid potentially harmful irritation of the eyes, skin and lungs;
* areas need not be forced ventilated during installation.

Physical advantages:
* good thermal and acoustical insulating properties;
* comfortable indoor climate due to gradual temperature changes;
* linen’s hollow-fibre structure ensures natural “breathing” characteristics, which can have beneficial effects on surrounding structures as well.

<table>
<thead>
<tr>
<th>Products</th>
<th>Thickness</th>
<th>Width</th>
<th>Length</th>
<th>Applications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insulation - roll</td>
<td>30 - 150 mm</td>
<td>565 / 865 mm</td>
<td>10 / 7.5 / 5 m</td>
<td>thermal and acoustical insulation product range, breathing, form-stable, flexible, good R-value</td>
</tr>
<tr>
<td>Insulation - plate</td>
<td>50 - 150 mm</td>
<td>565 / 870 mm</td>
<td>1170 mm</td>
<td>log, joist and sill band (pressure/noise/temperature)</td>
</tr>
<tr>
<td>Felt band</td>
<td>4 / 6 / 8 mm</td>
<td>10 - 300 mm</td>
<td>21 m</td>
<td>insulating band to close seams between logs and materials to deal with settling constructions</td>
</tr>
<tr>
<td>Insulation band</td>
<td>10 - 150 mm</td>
<td>30 - 300 mm</td>
<td>5 - 15 m</td>
<td>door and window frame expansion-band system</td>
</tr>
<tr>
<td>Frame sealing</td>
<td>30 mm</td>
<td>20 - 300 mm</td>
<td>10 m</td>
<td>layer of linen felt under parquet and wooden floors</td>
</tr>
<tr>
<td>Contact/walking</td>
<td>6 / 8 mm</td>
<td>10 - 2400 mm</td>
<td>21 m</td>
<td>humidity regulating, air blocking paper &amp; sealing tape</td>
</tr>
<tr>
<td>Building papers</td>
<td>0.3 mm</td>
<td>1300 mm</td>
<td>46 m</td>
<td></td>
</tr>
</tbody>
</table>

Contact/walking-noise insulation:
- layer of linen felt under parquet and wooden floors

For more information, visit www.isolina.com