Swedish wood – a versatile, modern material
The Swedish wood industry

With 70 percent of its land covered in forest, Sweden is the third largest exporter of sawn timber in the world. In Europe, the Swedish sawmill industry holds a prominent position, as the second-largest producer and the largest exporter of sawn softwood.

The Swedish sawmill industry has long experience of global exports and Sweden’s geographical location makes it possible to reliably deliver wood anywhere in the world.
Production

Total Swedish production of sawn and planed timber stands at 18 million m³, of which 13 million m³ is exported. Large investments in the modernisation of the Swedish sawmills have resulted in automated high-speed manufacturing technology. This enables the sawmills to produce high quality products in accordance with customer demands in an efficient way.

Swedish sawn timber consists mainly of two conifer species: pine (Pinus sylvestris) and spruce (Picea abies).

Swedish wood is used for furniture, floors, wall panels, mouldings, windows, doors, outdoor decking and as a construction material.

Pine and spruce

Replanting

The Swedish sawmill industry knows that its future is linked to the protection and expansion of its forests. This, in combination with strong, effective laws, ensures that all Swedish timber comes from sustainably managed forests. Every harvested tree is replaced by at least two planted seedlings.
Common uses for Swedish wood

Furniture

Thanks to its high quality, Swedish pine is a material that is very well suited for furniture, as it is easy to work with in the production process. The Swedish sawmill industry delivers wood adapted to the needs of the furniture industry: wood with a consistent quality, precise dimensions and a low moisture content.

The surface of Swedish pine and spruce also offers endless aesthetic possibilities. The surface can for example be brushed, sanded or carved to give the wood different textures. Swedish pine and spruce also have the advantage of being light coloured wood species, so they can easily be stained in different colours and shades.
Interior products

Swedish pine is often used for wall panelling, floorboards and mouldings, as well as for doors and windows. Panels and floorboards are available in a wide range of profiles and finishes, to create a traditional style or give a more modern appearance to the room. The Swedish sawmill industry can deliver panels and floorboards in many different styles and dimensions, and in some cases also ready-painted and treated panels and boards.

Wooden windows and doors are available in a wide variety of designs and finishes, to suit all architectural styles. The Swedish sawmill industry can produce window components ready to use by the window industry.

Outdoor use

Pressure treated wood for outdoor use is another use for Swedish pine. Pressure treated timber can be used for construction, landscaping, marine environments, railways, garden products and many other applications. It offers good moisture resistance and enjoys an extended service life. Pressure treated wood is a good alternative to non-renewable materials.
Sweden has a long tradition of building one and two-storey buildings in wood, and about 90 percent of the single-family houses are constructed in wood. Wood is a light material that can carry heavy weights and it is therefore suitable for a high degree of prefabrication.

**Glulam**

Glulam – glued laminated timber – opens up many architectural possibilities. Glulam consists of individual laminates of structural timber, providing a highly effective utilisation of the raw material. The laminates are finger-jointed to give greater lengths and then glued together to produce the desired size. In relation to its weight, glulam is one of the strongest construction materials available. This means that glulam beams can span large distances.

**Single-family houses**

Sweden has a long tradition of building one and two-storey buildings in wood, and about 90 percent of the single-family houses are constructed in wood. Wood is a light material that can carry heavy weights and it is therefore suitable for a high degree of prefabrication.
Multi-storey buildings

The interest in timber construction for multi-storey buildings is increasing worldwide due to its efficiency and climate friendliness. The construction of a multi-storey building in wood reduces the emission of carbon dioxide by approximately half compared to concrete.¹

¹ Construction and its impact on the climate, 2016, Swedish Construction Federation

Packaging

Swedish timber is also used for packaging purposes and suits various functions and quality requirements. Examples of wood packaging are pallets, pallet collars, cable drums and packaging crates.
The composition of pine and spruce

When a tree is ready for harvesting and felled, the trunk is usually debranched and cut into a butt log, a middle log and a top log.

Pine

The characteristics of Swedish pine vary across different parts of the log. There is also a distinct visual difference between the heartwood and the sapwood.

Spruce

Certain dimensions and qualities of Swedish spruce are also suitable for furniture production. Spruce has knots along the whole length of the trunk. The knots have a greater cross-section in the butt log and are smaller towards the top.

Common saw patterns

Block sawing

Reduced area
Main yield (Planks)
Side boards

Big log

Reduced area
Main yield (Planks)
Side boards

Small log
The Swedish sawmills produce a wide selection of different qualities of sawn and planed pine and spruce. The Swedish sawmills can also provide specially ordered grades of timber, and timber with special dimensions.

Quality grades of timber

Pine

Grade A1 – Pine
Grade I – Pine
Grade A2 – Pine
Grade II – Pine
Grade A3 – Pine
Grade III – Pine
Grade G4-0 – Pine
Grade A4 – Pine
Grade IV – Pine
Grade G4-1 – Pine
Grade A5 – Pine
Grade V – Pine
Grade G4-2 – Pine
Grade A6 – Pine
Grade VI – Pine

Spruce

Grade A1 – Spruce
Grade I – Spruce
Grade A2 – Spruce
Grade II – Spruce
Grade A3 – Spruce
Grade III – Spruce
Grade G4-0 – Spruce
Grade A4 – Spruce
Grade IV – Spruce
Grade G4-1 – Spruce
Grade A5 – Spruce
Grade V – Spruce
Grade G4-2 – Spruce
Grade A6 – Spruce
Grade VI – Spruce
Kiln drying

Nearly all sawn timber from Sweden is kiln dried: 50 percent is dried in compartment kilns and 50 percent in progressive kilns. Compartment kilns are becoming more common.

### Compartment kiln

- **Circulation fan**
- **Heater unit**
- **Drying batch**

### Progressive kiln

- **Heater unit**
- **Circulation fan**
- **Drying batch**

### Target moisture content

#### Allowable variation for the average moisture content in line with EN 14298

<table>
<thead>
<tr>
<th>Ordered moisture content (target moisture content) (%)</th>
<th>Allowable variation in average moisture content for wood batch (%)</th>
<th>Allowable range for the moisture content in 93.5 percent of the pieces in the batch (%)</th>
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</thead>
<tbody>
<tr>
<td>8</td>
<td>Lower limit: 7, Upper limit: 9</td>
<td>Lower limit: 5.6, Upper limit: 10.4</td>
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<tr>
<td>12</td>
<td>Lower limit: 10.5, Upper limit: 13.5</td>
<td>Lower limit: 8.4, Upper limit: 15.6</td>
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</tbody>
</table>

#### Examples of target moisture content on delivery from manufacturer for different applications

<table>
<thead>
<tr>
<th>Target moisture content (%)</th>
<th>Use</th>
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<tbody>
<tr>
<td>8</td>
<td>Floorboards indoors in heated rooms, furniture</td>
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<td>12</td>
<td>Exposed cladding, mouldings and subfloors in heated rooms</td>
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<tr>
<td>16</td>
<td>Solid wood and glulam for encasing and exterior cladding</td>
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</tbody>
</table>

When measuring the moisture content of all the pieces in a batch with a target moisture content of 16%, the average value for the moisture content of the whole batch (average moisture content) is allowed to fall between 13.5% and 18% to be approved. As regards the individual pieces in a batch, the moisture content of 93.5% of these must fall between 11.2% and 20.8%.
The tables below illustrate the dimensions of timber the Swedish sawmills normally produce for different areas of use - construction, building and joinery, and for other purposes. The cross-sectional dimensions are given in mm (thickness × width), and apply at a target moisture content of 18% for sawn timber and 16% for planed timber. Other dimensions are however also available, since the Swedish sawmills can adapt their production to both the national and international markets.

### Cross-sectional dimensions of sawn timber

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<th>Thickness (mm)</th>
<th>Width (mm)</th>
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### Cross-sectional dimensions common for planed timber

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The handling and storage of timber

Timber should be handled properly in transit, in joinery factories and on building sites in order to achieve the best possible end results. Timber can be stored outdoors if it is protected from rain, snow, the sun, dirt and ground damp. Timber intended for visible indoor use, for example panelling, flooring, pre-manufactured joinery and fitments, should, when necessary, be stored in heated and ventilated indoor premises.

For more information:
www.swedishwood.com