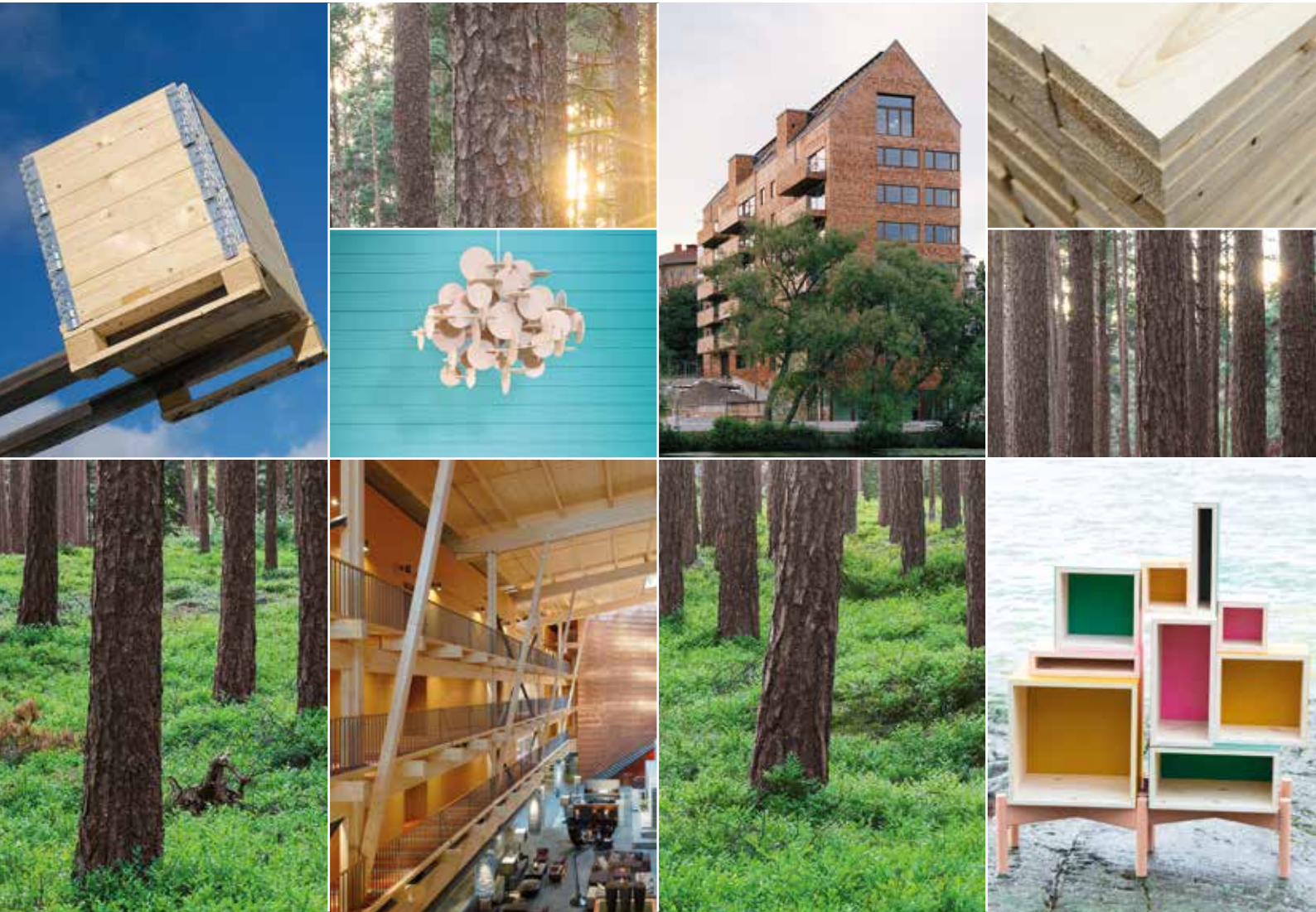


# Swedish wood – a versatile, modern material







# The Swedish wood industry

## The third largest exporter

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.





## 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.



Swedish pine,  
edged glued panel

Swedish spruce,  
edged glued panel

## Pine and spruce

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

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

## Production

Total Swedish production of sawn and planed timber stands at 18 million m<sup>3</sup>, of which 13 million m<sup>3</sup> 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.



# 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.

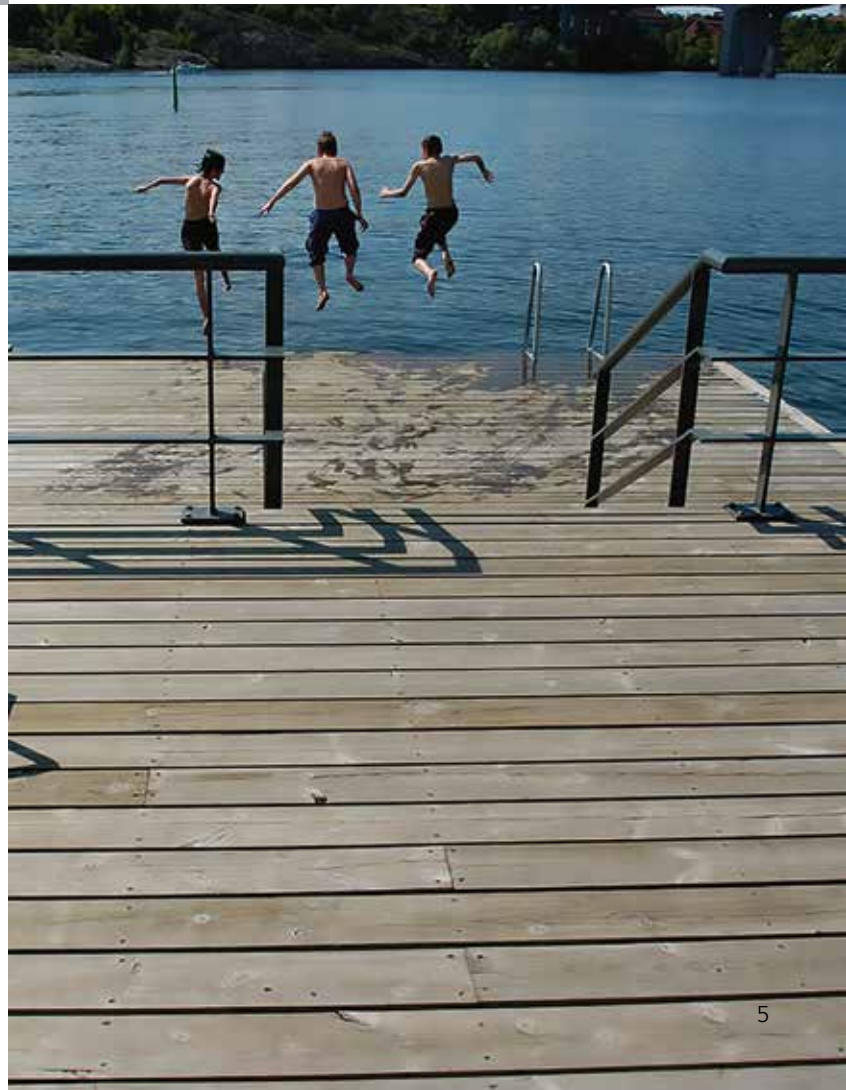
Panels and floorboards are available in a wide range of profiles and finishes, to create a traditional style or give a more modern appearance to the room. The Swedish sawmill industry can deliver panels and floorboards in many different styles and dimensions, and in some cases also ready-painted and 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.







## 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.<sup>1</sup>

<sup>1</sup> Construction and its impact on the climate, 2016, Swedish Construction Federation.

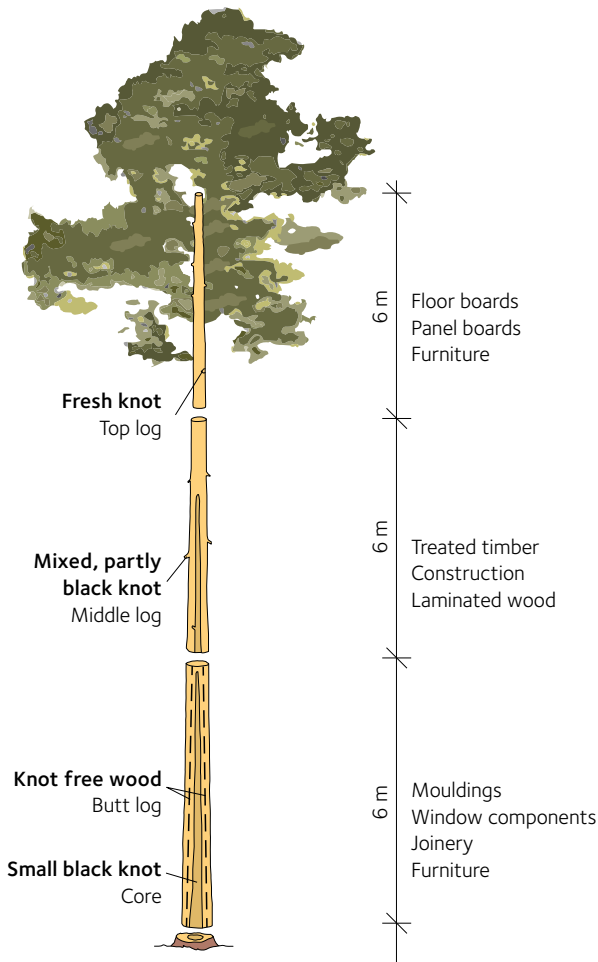


## Packaging

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.

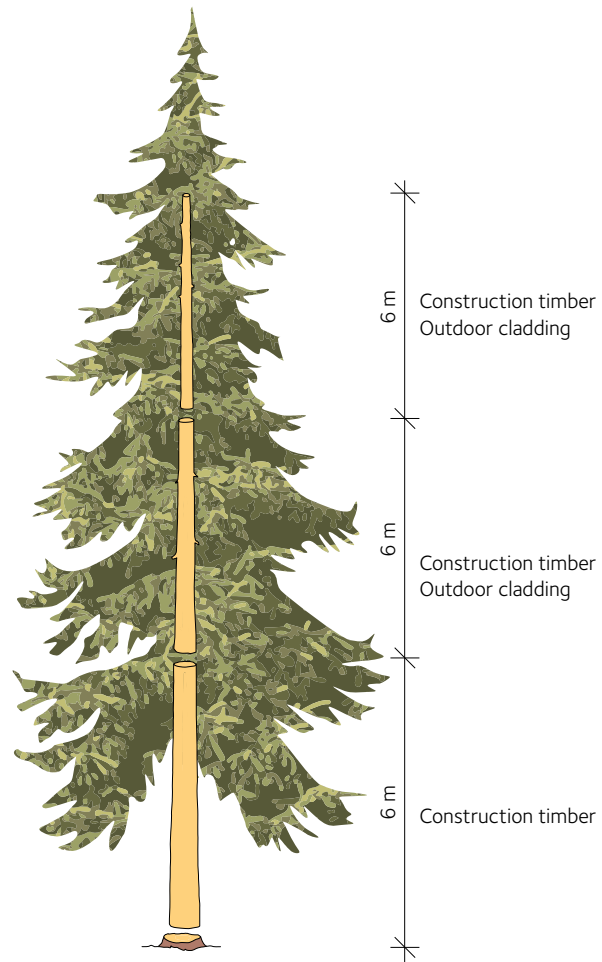
# The composition of pine and spruce

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.

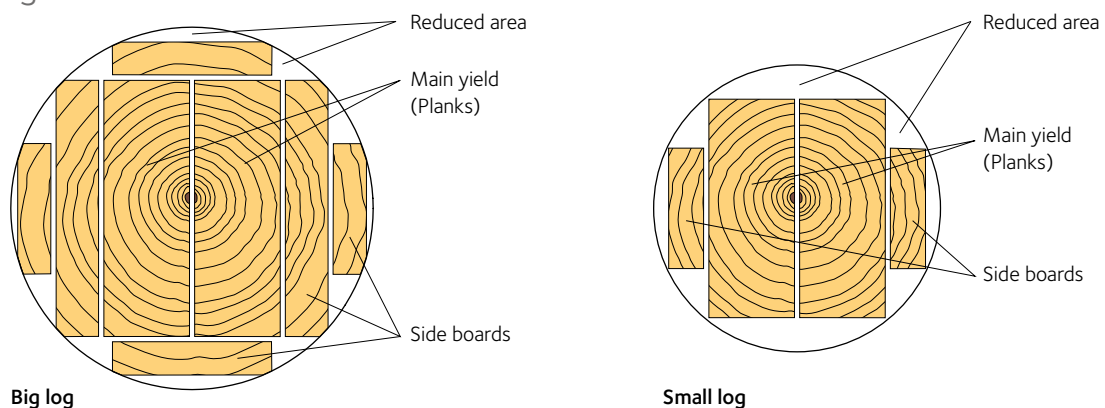


Spruce

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





# Quality grades of timber

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.

## Pine



–  
Grade A1 – Pine  
Grade I – Pine

–  
Grade A2 – Pine  
Grade II – Pine

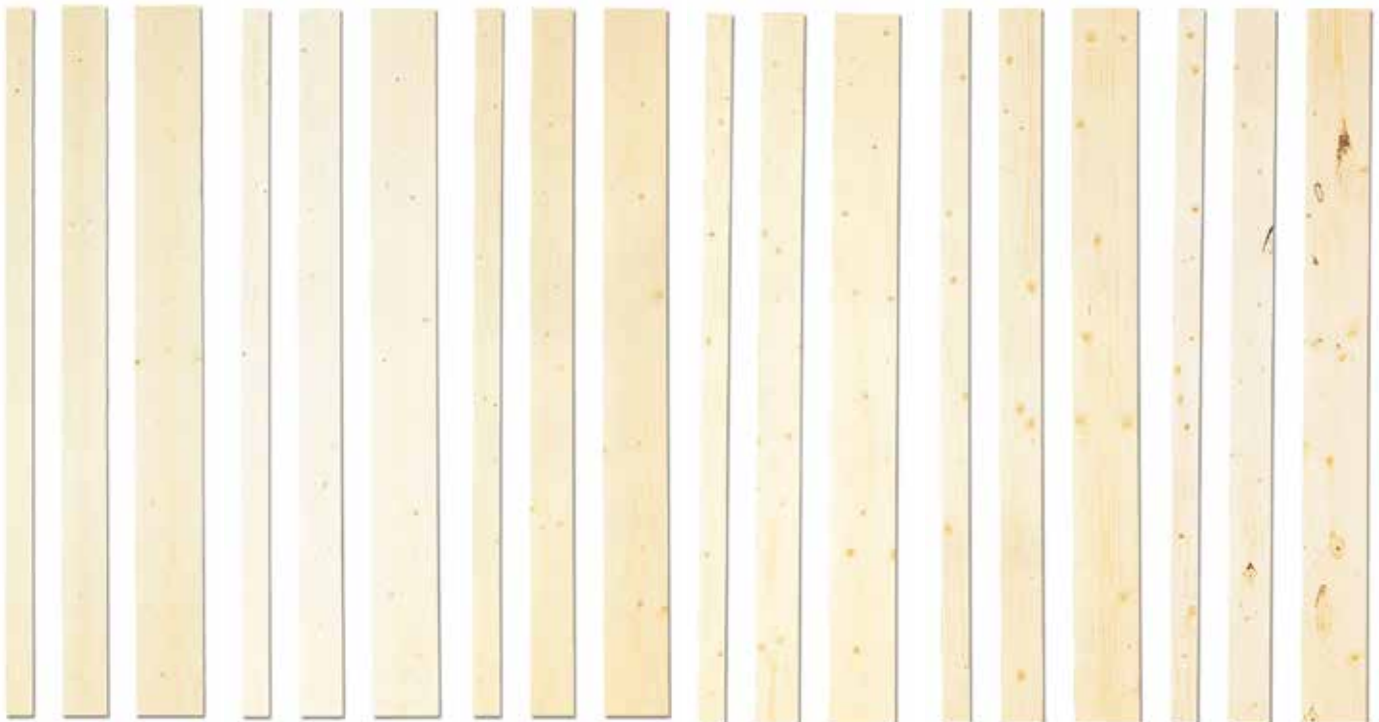
Grade G4-0 – Pine  
Grade A3 – Pine  
Grade III – Pine

Grade G4-1 – Pine  
Grade A4 – Pine  
Grade IV – Pine

Grade G4-2 – Pine  
Grade B – Pine  
Grade V – Pine

Grade G4-3 – Pine  
Grade C – Pine  
Grade VI – Pine

## Spruce



–  
Grade A1 – Spruce  
Grade I – Spruce

–  
Grade A2 – Spruce  
Grade II – Spruce

Grade G4-0 – Spruce  
Grade A3 – Spruce  
Grade III – Spruce

Grade G4-1 – Spruce  
Grade A4 – Spruce  
Grade IV – Spruce

Grade G4-2 – Spruce  
Grade B – Spruce  
Grade V – Spruce

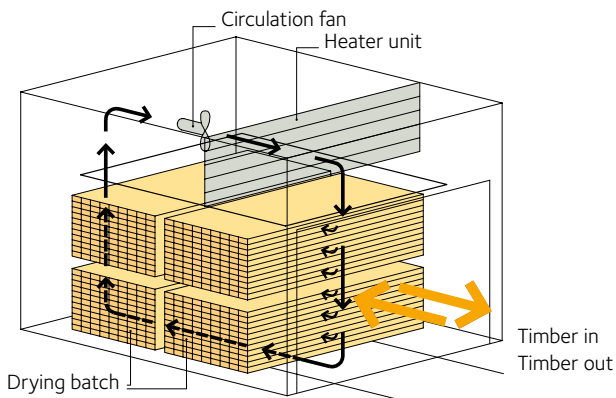
Grade G4-3 – Spruce  
Grade C – Spruce  
Grade VI – Spruce



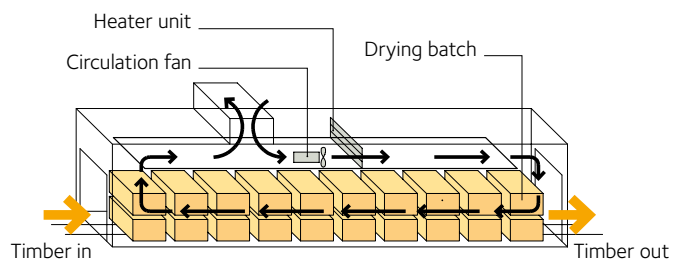
## Kiln drying

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



### Progressive kiln



## Target moisture content

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

Ordered moisture content (target moisture content)	Allowable variation in average moisture content for wood batch		Allowable range for the moisture content in 93.5 percent of the pieces in the batch	
	Lower limit (%)	Upper limit (%)	Lower limit (%)	Upper limit (%)
(%)				
8	7	9	5.6	10.4
12	10.5	13.5	8.4	15.6
16	13.5	18	11.2	20.8

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

Target moisture content (%)	Use
8	Floorboards indoors in heated rooms, furniture
12	Exposed cladding, mouldings and subfloors in heated rooms
16	Solid wood and glulam for encasing and exterior cladding

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%.



# Thicknesses and widths of timber

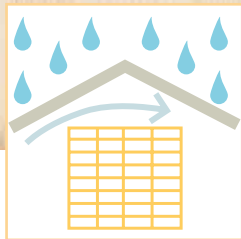
The tables below illustrate the dimensions of timber the Swedish sawmills normally produce for different areas of use - construction, building and joinery, and for other purposes. The cross-sectional dimensions are given in mm (thickness x width), and apply at a target moisture content of 18% for sawn 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

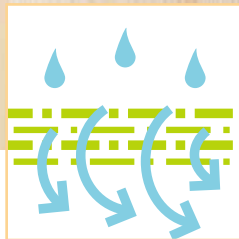
Thickness (mm)	Width (mm)										
	25	38	50	75	100	125	150	175	200	225	250
12											
16											
19											
22											
25											
32											
38											
44											
47											
50											
63											
75											
100											

Cross-sectional dimensions common for planed timber

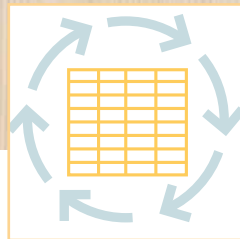
Thickness (mm)	Width (mm)									
	21/22	33/34	45	70	95	120	145	170	195	220
9										
12/13										
15/16										
18/19										
21/22										
28										
33/34										
45										
70										



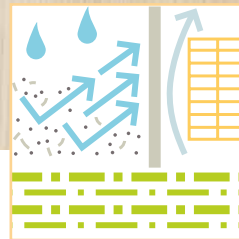
Protect from precipitation



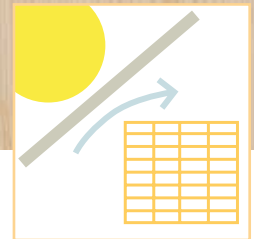
Well-drained ground



Keep glulam for outdoor use ventilated and protected



Protect from dirt



Protect from sunlight

## 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](http://www.swedishwood.com)

**Photos:** Åke E:son Lindman, page 1 apartment block and hotel, page 5 upper images, page 6 top right and lower, page 7 top right, page 10. Joakim Bergström, page 1 spruce cladding, 3, 12. Tuomas Harjumaaskola, page 4 left. Magnus Glans, page 4 top right. Olof Grind, page 4 bottom right. Martinsons Träbroar, page 5 bottom left. Martinson Group AB, page 6 top left. Johan Ardefors, page 5 bottom right, page 7 top left.

**Design page 4:** Wu Wei, left. Maja Björnsdotter, top right. Olivia Öberg, bottom right.



**Swedish Wood** spreads knowledge, provides inspiration and encourages development relating to wood, wood products and wood construction. The goal is to increase the use of wood in Sweden and in selected international markets through information and inspiration. Swedish Wood also aims to highlight wood as a competitive, eco-friendly and sustainable material.

Swedish Wood is a department within The Swedish Forest Industries Federation. Swedish Wood is supported by the Swedish sawmill and glulam industries.

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