

TreProX: Innovations in Training and Exchange of Standards for Wood Processing

(GÆÐAFJALIR)
**TIMBER QUALITY
COMMERCIAL SORTING
ENGLISH PREVIEW**

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Commercial Grading of Timber

Grading Rules

Some samples from the English version

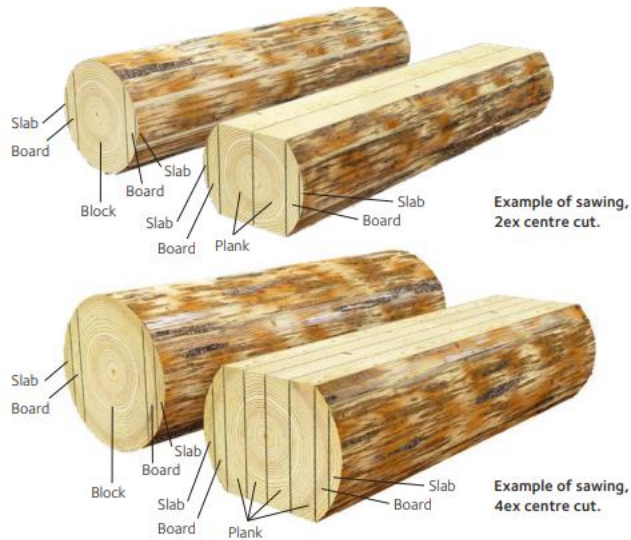
Sawing patterns

The sawing patterns described below are the desired cuts through a log. Deviations from these patterns are always possible, on the basis of the inner structure and outer shape of a log.

Sawing, 2ex and 4ex centre cut (Nordic sawing practices)

Definition

The first cut takes boards from the two opposite sides of the log. Then, the remainder of the log (the block) is turned 90 degrees and is cut into boards and planks. The block is cut through the centre (pith-sawing). The other saw-cuts result in the centre yield (planks) and side yield (boards). The centre yield consists of an even number of timber pieces, of the same width and the same or different thickness.



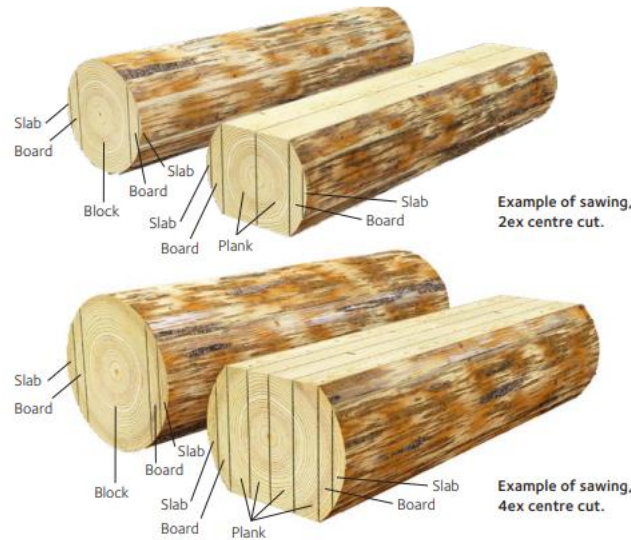
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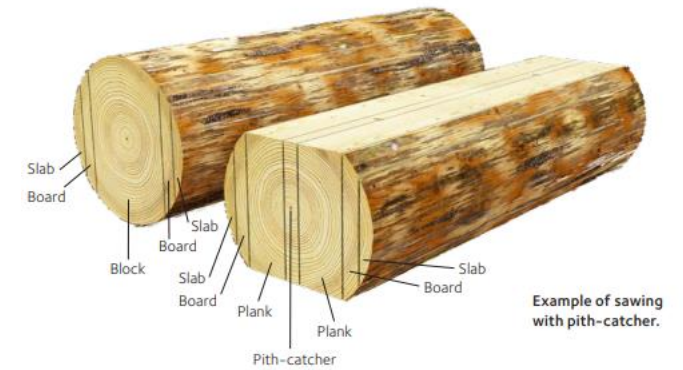
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Sawing with pith-catcher

Definition

The first cut takes boards from the two opposite sides of the log. Then, the remainder of the log (the block) is turned 90 degrees and is cut into boards and planks. The block is divided with a single saw-cut on either side of the pith, so that the pith ends up in the centre piece (the pith-catcher). The other saw-cuts result in the centre yield (planks) and side yield (boards). The centre yield consists of an even number of timber pieces, of the same width, the same or different thickness, and a thin central piece.



Location on timber piece

In order to grade a piece of timber you need to be able to locate the grade requirements to a certain side of the piece, a certain part of the length or part of the cross-section, for instance one edge.

Sides of the timber piece

Sides of the timber piece	Definition
Face	Either of the two wider, opposite longitudinal surfaces of the piece of timber, or any longitudinal surface if the piece has a square cross-section.
Outside face (external face)	The face further from the pith of the log.
Inside face (internal face)	The face that is nearer to the pith of the log.
Better face	The face that, when a particular grading rule is applied, is judged to be better than the other face.
Worse face	The face that, when a particular grading rule is applied, is judged to be worse than the other face.
Edge	Either of the two narrower, opposite longitudinal sides of a square-edged timber piece.
Arris	Line of intersection between an edge and a face, or between two faces (if the piece has a square cross-section).
Arris towards outer face	Arris between edge and outside face.
Arris towards inside face	Arris between edge and inside face.

Description of timber grading

Quality grades

Classification

Sawn timber is divided into the following quality grades, on the basis of its timber properties:

GRADES						
US				V (Fifths)	VI (Sixths)	VII
US I	US II	US III	US IV	V	VI	VII

The main groupings are the grades US, V, VI and VII.

GRADE US

GRADE US is the highest of the main grades. GRADE US includes unspecified portions of the sub-grades US I – US IV that are not sorted after sawing. Of these, GRADE US I is valued the highest (in terms of quality).

GRADE V

Falling GRADE V at the grading of the production (Fifths).

GRADE VI

Falling GRADE VI at the grading of the production (Sixths).

GRADE VII

For GRADE VII, no threshold values are specified in the tables. For GRADE VII, the properties that a given piece of timber may have are currently permitted without restrictions. However, the piece of timber must at least hold together.

The sawblade needs to have touched the larger part of all sides of the timber piece. For side yield, it is acceptable if 1/3 of the length on one face has not been touched.

Grading is to be done, by contract or agreement, either separately for each grade or by combining different grades – for example, as follows:

GRADE US + V

This designation refers to an unspecified part of GRADE US – GRADE V that is not sorted after sawing. It is also called saw falling.

GRADE US + V + VI

This designation refers to an unspecified portion of GRADE US – GRADE VI that is not sorted after sawing. It is also called saw falling, including GRADE VI.

In the above examples, the unspecified leftover portion of each grade can be bigger or smaller, depending on:

- the region
- the dimensions of the timber
- the specific sawmill within the same region.

By agreement, multiple different grade combinations can be put together.

GRADE MIXTURE

A GRADE MIXTURE is a customised combination of grades used when grading timber for a particular purpose, involving a mix of permitted timber properties from the main groupings GRADE US, V, VI and VII. The grades and the permitted timber properties included in the mix are to be specified in the relevant contract or agreement.

Example: The contract/agreement refers to a purchase of GRADE US, but check-fissures according to the criteria of GRADE US III, resin pockets according to GRADE V, wane according to GRADE VI, etcetera.

Table 2 Timber qualities. Common timber products, paired with suitable quality grades and species.

Type of timber product	Grade	Species
Dimension planed timber	V – VI	Spruce and pine
Construction timber	III – V	Spruce and pine
Tongue-and-groove underlay	V – VI	Spruce
Formwork timber	VII or better	Spruce and pine
Wooden packing material	VI – VII	Spruce and pine
Exterior panel boards and bargeboards	V or better	Spruce
Interior panel boards	IV or better	Pine and spruce
Planed timber for interior woodwork	IV or better	Pine
Floorboards	V or better	Pine and spruce
Fences and planks	V or better	Spruce, impregnated pine
Mouldings	I – II	Pine

Features – Grading Table 1

Knot type

Below is a description of the different types of knots. The properties of a knot depend on how the knot has developed in the growing tree.

- Sound knot
- Dead knot
- Encased knot
- Unsound knot
- Loose knot.

Knot shape

All knots originate in the pith and extend outwards with an increasing diameter. The shape of a knot on the surface of the timber can vary considerably, depending on how the saw has cut through the knot. These different knot shapes each require their own measurement rules and sets of requirements.

- Round knot
- Oval knot
- Traversing edge knot
- Traversing edge knot (fallen out)
- Not traversing arris knot
- Not traversing arris knot (fallen out)
- Traversing arris knot
- Spike knot
- Splay knot.

Note Knots

Definition

A part of a branch that is embedded in wood.

Features – Grading Table 2

Other natural features

A set of biological phenomena in wood, referred to as special features, that have a strong influence on the wood's quality.

- Bark pocket
- Scar
- Resin pocket
- Resin wood
- Reaction wood (compression wood)
- Curly grain
- Slope of grain
- Top rupture
- Pith.

Note Resin

Definition

The function of resin is to protect wood, in the event of damage, against micro-organisms and against drying out. It is stored under pressure in the wood's resin channels. When mechanical damage occurs, the resin begins to flow.

Features – Grading Table 3

Production related features

- Wane.

Fissures

- Check:
 - Not traversing
 - Traversing
- End shake
- Ring shake.

Warp

- Bow
- Spring
- Twist
- Cup.

Note Fissure

Definition

Opening between the wood cells.

Note Warp

Definition

Distortion of a piece of timber due to changes in its moisture content or the machining process.

Grading tables

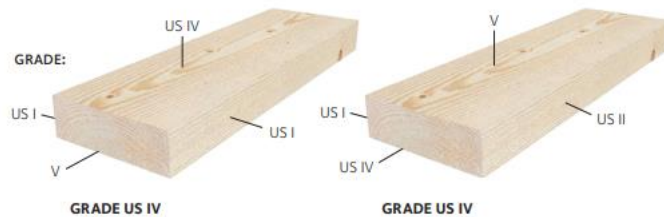
Grading methods

Features shall be evaluated and measured in accordance with the preceding section, and the GRADE shall be determined for all four sides of the timber piece in accordance with the requirements from Grading Tables 1 – 3.

Each side is to be evaluated separately and assigned its own GRADE. When determining the grade of the piece of timber as a whole, one freely selected face of the piece is allowed to be one GRADE lower than the GRADE of the piece as a whole.

Determination of grade

Example:



General

The grading rules are applicable to all sawn, or further processed, timber. The rules only specify the lower limit for each quality. A batch of timber graded according to the criteria of *Commercial Grading of Timber* should contain a reasonable distribution of quality within the grade.

Timburorðasafnið – Trétækniráðgjöf slf

Timburorðasafn sem unnið var í samvinnu Norðurlandanna má finna í [Íðorðasafni](#) hjá **Stofnun Árna Magnússonar í íslenskum fræðum** og var íslenski hlutinn unninn af Eiríki Þorsteinssyni – Trétækniráðgjöf og er sá hluti eingöngu til í þessari netútgáfu. **Orðasafnið** er ætlað fagmönnum sem eru í viðskiptum með timbur og miðast við skilgreiningar á hráefni, þ.e. hugtök og skilgreiningar fyrir barrtré. Hægt er að leita að orðum á dönsku, finnsku, íslensku, norsku eða sænsku og birtist þá skýringartexti á íslensku og svo viðkomandi orð á öllum hinum tungumálunum. Finna má í meðfylgjandi [orðalista](#) þau heiti og hugtök sem eru í safninu, í stafrófsröð á íslensku.