

Product data sheet for structural timber



Valid for strength graded timber of Norway spruce (*Picea abies*) and Scots pine (*Pinus sylvestris*) for structural purposes, graded according to NS-INSTA 142 or NS-EN 14081 and controlled by the Norwegian Strength Grading Inspection Scheme. The timber has the control scheme's mark and also the relevant strength class according to NS-EN 338, in addition to the NS-mark for the producers that have certifying licence. The dimension tolerances are given in NS-EN 336.

Normal moisture content:	14 - 20 %	Water content divided by dry weight
Heat conductivity (λ):	0,12 W/m*K	Practical λ across the fibres

Mechanical properties

(Characteristic values according to NS-EN 338)

Strength class (NS-EN 338)	Bending strength ($f_{m,k}$) [N/mm ²]	Modulus of elasticity ($E_{0,mean}$) [kN/mm ²]	Density (ρ_k) [kg/m ³]
C14	14	7	290
C18	18	9	320
C24	24	11	350
C30	30	12	380

Exterior environment

Production

The production of timber is based on the renewable source timber. Through silviculture, harvest and transport to the sawmill, and the internal transport at the sawmill and distribution of products, fossil fuel is consumed, while the major part of the energy consumption at a sawmill is made up by thermal energy to dry the timber. This energy is usually produced by in-house heating plants based on self produced bio fuel. The consumption of electricity is dominated by energy to the fans in the drying kilns and machinery and equipment for sawing- and planing machines.

Resources used in a sawmill are i.a. timber, fuel, oil, diesel, lubrication oil, hydraulic oil, marking paint, and packaging. By-products from the timber production are bark, chemical pulp chips, sawdust, shavings, stubs and rejects. This is mainly used by the timber and wood processing industry and by the plants themselves for thermal energy production. Normally less than 1 % waste bark is deposited.

Consumption and disposal

Timber in buildings has a very long lifetime if it is protected against moisture and other decomposing factors. Demolishing can usually be done in an effective way, and in principle timber can always be re-used or recycled as material or energy. Timber has an effective heat value of abt. 16 MJ/kg at 20 % moisture content. Used timber is considered a resource.

Interior environment

There is no knowledge of clean and dry wood having allergy-causing effects in an interior environment. Emission from pine and spruce is usually dominated by monoterpenes (“wood scent”). The most usual being alpha- arid beta-pinen, 3-karen, limon en and terpinolen. Wood must not be built into moist surrounding materials due to the risk for mould and rot.



Marking

Illustration of marking of structural timber visually graded according to NS-INSTA 142:

 000 C24 

Illustration of marking of structural timber machine graded according to NS-EN 14081:

 000 C24 M 

	Shows that the relevant producer has certifying license.
000	Indicates the producer's plant number in the Norwegian Strength Grading Inspection Scheme
C24	Indicates strength class
M	Only when machine graded
	CE-mark with number of the notified body. The dot refers to accompanying documentation

Reference

Mall for byggvarudeklaration av "Sagade och hyvlade travaror". Träteck/Träinformation, 1997

NS-INSTA 142 -Nordic visual strength grading rules for timber.

NS-EN 14081 – Timber structures – Strength graded structural timber with rectangular cross section. Part 1: General requirements.

NS-EN 336 - Structural timber - coniferous and poplar - sizes, permissible deviations.

NS-EN 338 - Structural timber - strength classes.

 Norsk Trelastkontroll

The product data sheet is prepared by Norwegian Strength Grading Inspection Scheme (NTI) which is the scheme's secretariat.

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