EUROPEAN BEECH

Family: Fagaceae (angiosperm)
Scientific name(s): *Fagus sylvatica*
Commercial restriction: NO commercial restriction

WOOD DESCRIPTION

Color: pale straw, light yellow
Sapwood: not demarcated
Texture: fine to medium
Grain: straight
Interlocked Grain: absent

LOG DESCRIPTION

Diameter: 3 - 5 feet
Thickness of Sapwood:
Floats: yes
Log Durability: low (must be treated)

PHYSICAL PROPERTIES

Physical and mechanical properties are based on mature heartwood specimens. These properties can vary greatly depending on origin and growth conditions.

	Mean	Std. Dev.
Specific Gravity*:	0.71	0.03
Janka Hardness (lbs):	1,450 lbf	
Volumetric Shrinkage:	17.3%	0.03%
Total Tangential Shrinkage (TS):	11.6%	0.5%
Total Radial Shrinkage (RS): 3.7%	5.7%	
TS/RS Ratio:	2.0	
Fiber Saturation Point:	32%	

MECHANICAL/ACOUSTIC

Stability: Poorly stable

	Mean
Crushing Strength*:	8,267 lbf
Static Bending Strength*:	16099lbf
Modulus of Elasticity*:	2,219,077 lbf

**At 12% moisture content.*

NATURAL DURABILITY AND TREATABILITY

Fungi and termite resistance refers to end-uses under temperate climate. Except for special comments on sapwood, natural durability is based on mature heartwood. Sapwood must always be considered as non-durable against wood degrading agents. E.N. = Euro Norm

Funghi (According to E.N. standards): class 5 – not durable
Dry Wood Borers: heartwood durable but sapwood not clearly demarcated
Termites (According to E.N. standards): class S - susceptible
Treatability (according to E.N. standards): class 1 easily permeable
Use class ensured by natural durability: class 2 – inside or under cover (dampness possible)
Species covering the use class 5: no
Note: Red heartwood is not permeable to preservative products.

REQUIREMENT OF A PRESERVATIVE TREATMENT

Against dry wood borer attacks: requires appropriate preservative treatment
In case of risk of temporary humidification: requires appropriate preservative treatment
In case of risk of permanent humidification: use not recommended

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DRYING

Drying Rate: slow
Risk of Distortion: high risk
Risk of Casehardening: yes
Risk of Checking: high risk
Risk of Collapse: yes

Possible Drying Schedule: 2

Temperature (°F)			
M.C. (%)	**Dry-Bulb**	**Wet-Bulb**	**Air Humidity (%)**
Green	122	116.6	84
40	122	113	75
30	131	116.6	67
20	158	131	47
15	167	136.4	44

This schedule is given for information only and is applicable to thickness lower or equal to 1.5 in. It must be used in compliance with the code of practice. For thickness from 1.5 to 3 in, the air relative humidity should be increased by 5% at each step. For thickness over 3 in, a 10% increase should be considered.

SAWING AND MACHINING

Blunting Effect: normal
Sawteeth Recommended: stellite-tipped
Cutting Tools: tungsten carbide
Peeling: good
Slicing: good
Note: The frequent presence of growth stresses in the logs might create a critical sawing. Beech wood has a good aptitude for bending.

ASSEMBLING

Nailing / screwing: good but pre-boring necessary
Gluing: correct

END-USES

Current furniture or furniture components
Laminated furniture
Moulding
Arched goods
Interior joinery
Flooring
Doors
Musical Instruments
Veneer for back or face of plywood
Turned goods
Seats
Boxes and crates
Wood-ware

Note: Beech wood can easily be stained.

MAIN LOCAL NAMES

Country	Local Name
Germany	**BUCHE**
France	**HETRE**
United Kingdom	**Beech**
Spain	**HAYA**
Italy	**FAGGIO**

Works Cited:

CIRAD'S *Biomass, Wood, Energy, Bioproducts Research Unit (BioWooEB)*
Meier, E. (2015), Wood, United States of America