CHARACTERISTIC OF WOODEN DECKING BOARDS

The provided numbers are average values, obtained through experiments on samples taken from a number of logs of each species. These values may differ from the average by 10-15%, and the size of deviations and their frequency depends on the characteristics of individual species.

Density

Wood density is the ratio of weight to volume of wood expressed in kg/m^3. Density depends on many factors like the species and structure of wood, moisture, a location on a cross-section, conditions of the site and growth of a tree. The density of wood, omitting the share of the water, can range significantly, even in case of the same species. The density provided in the description of each species is a density of wood with a moisture content of 12%. There are five categories:

- very light wood: less than 300 kg/m^3
- light wood: between 300 and 500 kg/m^3
- medium wood: between 500 and 700 kg/m^3
- heavy wood: between 700 and 900 kg/m^3
- very heavy wood : more than 900 kg/m^3

Hardness

Wood hardness is strongly related to its density and it is generally defined as the resistance to dents. Less dents and scratches means less points in which water and fungus can penetrate the wood. Harder wood means not only greater durability but also easier maintenance of the aesthetic appearance of the terrace. There are five steps on the hardness scale (●●●●●). The more dots, the higher the hardness of the given species.

Durability class

EN 350-2 standard distinguishes five levels of natural durability of solid wood. They correspond to heartwood resistance to fungus attacks that cause wood decay:

- class 1: very durable
- class 2: durable
- class 3: average durability
- class 4: low durability
- class 5: not durable

Durability class 1-3 wood can be used outdoors without additional protection. Class 4 or 5 wood needs to be impregnated with a wood preservative.

Wood stability

Wood stability is a property that determines to what extent and how quickly the dimensions of the timber change along with the changes of its moisture. As smaller dimension change, reduces likehood of board twisting. In case of wood there are two types of changes: contraction and swelling. Contraction (or shrinkage) reducing the dimensions and volume in the wooden element due to the decrease of its the water volume. Wood contraction occurs when it is in contact with dry air and when water contained in the wood cells is released. Due to the loss of bound water the cell wall thickness drops and the dimensions of the walls are reduced.

Swelling is an increase the size and volume of the wood, due to an increase of the water volume in the wood that is placed in moist air or in water.

There are five scale on the stability range (●●●●●). The more dots, the higher the stability of the given wood species.

Shrinkage

Volume shrinkage shows how much the given wood species shrinks, but does not indicate the direction of that shrinkage. The two main planes or surfaces of the wood on which the material shrinkage occurs are the radial and the tangent plane, where, respectively, radial and tangential shrinkage takes place. Radial shrinkage is usually much lower than tangential shrinkage and longitudinal shrinkage (along wood fibers) is so small that it can usually be omitted. Shrinkage is shown as percentile reduction of the size.

Air-Dried wood - AD

Wood that has been dried in the open air, under a roof.

Kiln dried wood - KD

Wood that has been dried in the drying kiln to a certain moisture content (in case of decking board it is often 18% +/- 2%).

Wood moisture

Moisture is the ratio of the water contained in wood to the weight of completely dry wood. Moisture depends on the conditions in which the wood is located and it has significant impact on other properties of the wood.