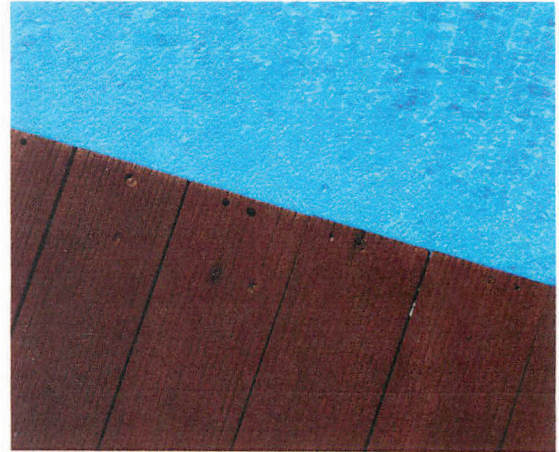


2.2 Limitations

- i) TMT is characterized by severe strength reductions. The impact strength is reduced by 30 – 50%, while the MOE is reduced by 5 – 15%.
- ii) During the thermo treatment process, the timber is dried to a moisture content approaching 0%. This can cause severe drying defects such as cracks, twisting etc, if not careful.
- iii) The process does not protect the timber against termites.
- iv) For TMT exposed to direct contact with free water, the capillary water absorption is like in untreated timber or even higher. TMT is therefore not suitable in applications where the timber is saturated in water for prolonged periods of time.
- v) Limited protection against mold fungus.
- vi) TMT contains small amount of acetic acid. Metal fasteners in contact with TMT have therefore to be made from corrosion resistant material such as stainless steel.
- vii) TMT has a characteristic smell of "burnt" wood, which is not appreciated by all, but the smell will normally disappear after the wood has been installed.



2.3 Applications

TMT is used with advantage in above ground contact applications where the timber strength is not of critical importance and where the timber is protected against direct contact with rain water such as:

- i) Indoor flooring
- ii) Exterior cladding
- iii) Window frames.



For more information

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2. THERMALLY MODIFIED TIMBER = TMT

By heating timber to a temperature of 180 – 230 degrees C under controlled conditions in an atmosphere free from oxygen, the hemi-cellulose in the cell walls is degraded. This reduces the equilibrium moisture content (EMC) and gives the timber a warm brown color similar to exotic wood.

The lower EMC makes TMT more dimensionally stable and less prone to attack by decay fungus and wood borers compared to untreated wood.

Unfortunately the high temperatures used in thermo treatment reduce the density and strength of TMT and give TMT a characteristic "burnt" smell. The density of TMT is reduced by 5 – 15%, while the impact strength is reduced by 30-50%.

Since TMT has lower strength properties compared to untreated timber, it is important not to use TMT for applications, where the strength properties are important.

TMT will absorb water when immersed in water causing the wood to decay. It is therefore important not to use TMT in ground applications or in applications with poor water run-off. It is also important to note that thermo treatment does not protect against termites or against mold fungus.

2.1 Properties

- i) The dimensional stability of TMT is improved by 40 – 50%.
- ii) Equilibrium moisture content of TMT is only half of the corresponding values of untreated timber. Examples of equilibrium moisture content at different relative air humidity at 20 degrees C:
 - 65% RH = 6 + 2%
 - 80% RH = 9 + 2%
 - 90% RM = 11 + 2%
- iii) Improves the decay resistance of timber in applications where the timber is not exposed to ground contact or is saturated in water. Durability Class 2 - 3.
- iv) The wood has an attractive warm brown color. However, the brown color will normally fade quickly into a driftwood gray color when the timber is exposed to UV-light.
- v) Both sapwood and heartwood can be treated.
- vi) No chemicals are used. Only steam and heat is used in the process.
- vii) The thermal conductivity is reduced by 5-15% compared to untreated timber.
- viii) The process removes almost all resin from the wood.



For More Information

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