

STABILITY OF TIMBER – NATURAL MOVEMENT

Softwoods are made up of a cell structure called TRACHEIDS.

SAP is conducted up the stem to the leaves through the SAPWOOD.

HEARTWOOD cells are dead and no longer contain SAP.

When a tree is growing the sapwood is usually full of sap and the heartwood is likely to contain extractives plus some water.

Both the sapwood and the heartwood cell walls contain 28% of their weight in water.

The cell water is known as BOUND WATER, the water in the cell lumens is called FREE WATER.

Once kiln drying is commenced the timber will first lose the free water from the sapwood, this is replaced by water from the heartwood, drying continues until FIBRE SATURATION POINT (FSP) is reached, which is when there is no water from the heartwood to replace the free water.

When all the free water has evaporated, BOUND WATER will begin to be lost from the cell wall.

When bound water is lost from the cell wall the timber will begin to shrink and move. This process naturally occurs when non kiln dried timber is exposed to hot / humid conditions.

If timber is dried unevenly one side may shrink, twist, bow or split. The method of packing the timber and the stacking method inside the kiln may increase the chances of timber movement at an earlier time than if wet timber is left exposed to the elements.

Whether timber is air dried or kiln dried timber needs to be kept at a constant moisture content to retain its stability.

If the air is humid the wood cells will absorb moisture from the air and swell, if the air is dry the cell walls will lose water to the air and shrink. Given sufficient time the wood moisture content will come back into balance with the humidity and stabilize. This is known as EQUILIBRIUM MOISTURE CONTENT (EMC).

As the humidity in the air fluctuates from day to day, area to area and particularly from season to season so the equilibrium moisture content of the timber will fluctuate.

When installed preserved wood will be exposed to extremes of conditions, wetting, drying from one day to the next Timber will be exposed on one side of the structure to driving rain, strong winds or strong sunlight than another.

The end result is that timber will respond to the external conditions it is exposed to and will constantly adapt to the prevailing conditions whether whilst installed or whilst being stored.

YARD STORAGE

It is critical to maintain air flow around timber products particularly small dimension sections. Generally the smaller the dimension of the product the more “movement” of the product.

Where possible store small dimension product out of direct sunlight to protect the timber from moving to the conditions.

When possible restack open packs of timber and ideally restrap the pack, by attempting to “hold” the product in place it will help to reduce the natural movement of the timber.

Placing heavy bearers or another pack on top of vulnerable packs will help to prevent movement of the timber in the natural conditions.

Allow 100 x 100 mm bearers at the base of stacks, if ground is likely to be contaminated with leaves, mud then use a larger section bearer as is practical.

If the ground storing packs of timber on is muddy, wet and near overhanging trees it is recommended that the area is jet washed and treated with a suitable anti fungal product before storing timber in the area.

It is not always possible to have a clean, tidy and concrete area to store timber on so it is recommended careful selection of products is made as where it is best to store which items.

If possible allow at least a 300mm gap between stacks of timber to allow air flow, this flow of air will reduce the possibility of mould growth. Strict rotation of stock should be followed to help prevent mould growth and timber distortion. Timber should not be stored indoors or under tarpaulins as this encourages mould growth.

MOULD GROWTH

Pine has a natural higher risk of mould growth than other species.

There are generally two types of mould growth we experience throughout different times of the year, these are surface moulds which grown on the surface sugars on the timber. Normally white or black in appearance.

These two types of mould will dry back from the surface of the timber once the sugars (sap) are exhausted.

The white mould can be easily wiped off from the product by hand which whenever possible it is advised to do before sending product to customers, by removing the white mould particularly on smaller batches on timber to be supplied it can greatly reduce customer queries and complaints.

White mould is not to be confused with the white marks that are visible on freshly treated wet sawn timber, particularly visible on the ends of product, these white marks are salts from the ACQ treatment which will fade in time.

“SPOTS” of a blueish colour visible on green treated timber is the ACQ chemical reacting to the sap present in the timber, sometimes very vibrant around large knot areas.

CONSUMER INFORMATION

ACQ preserved timber will be penetrated with preservative.

Cutting to length after treatment will expose the end grain of the timber which must be retreated with two liberal coating of ACQ Cut End Preservative.

If CUT END product has been applied to ground contact material the “cut end” must NOT be placed in the ground.

Rip-sawing, thicknessing, planning and similar will expose surfaces of the timber that will NOT be adequately protected by cut end brush coating.

ACQ treated timber can be painted, stained, glued or varnished. Surfaces must be dry and should be prepared in accordance with the paint, glue or stain manufacturer’s guidelines.

If ACQ treated timber is to be used for playground equipment, contact with fish or animals it should be held until completely dry after treatment. It should then be scrubbed and hosed with water before dispatch to ensure no surface deposits of chemical are present.

When handling ACQ preserved timber wear gloves to prevent splinters or abrasion injuries. Cover any wounds with a waterproof dressing before starting work.

Sawdust is an irritant – DO NOT breathe wood dust. If necessary to machine or sand ACQ preserved timber an appropriate dust extraction system must be used.

ACQ treated timber MUST NOT be used as domestic fuel, animal bedding, animal litter or for barbecue fuel.

ACQ Treated wood care should be taken to avoid direct contact with aluminum sheeting.

ACQ treated wood should not be used in salt water conditions.