

CONDITIONING OF WOOD-BASED PANEL PRODUCTS



The wood fibre in wood-based panel products will continue to do what wood has always done; that is, absorb moisture from its environment until it reaches equilibrium. To prevent distortion of the panel it will need conditioning.

WHAT IS CONDITIONING?

Conditioning, in relation to panel products, is the name given to the process of permitting or causing a product to reach a state of equilibrium with its surroundings in terms of its moisture content and (sometimes) temperature.

WHY IS CONDITIONING IMPORTANT?

Some boards are more prone than others to absorbing moisture from the atmosphere or soaking up water, in the event of spillage. The normal effect of moisture absorption is a marginal increase in size, which can then be lost on drying. This creates a problem when boards are fixed in the dry state and subsequently take up moisture, as there is a high probability of buckling as fixing severely restricts lateral expansion of the board. All wood based panels are susceptible to this effect, which will be more pronounced the thinner the panel.

WHICH PANELS NEED TO BE CONDITIONED?

There are two main categories of panel for which conditioning is particularly important:

1. Naturally bonded panels like hardboard, pinboard and insulation board in their normal state
2. Panels that are treated with water-soluble flame retardant chemicals

Naturally bonded panels absorb moisture freely from the atmosphere because they contain no adhesive resins to slow down the passage of moisture through the board. Even oil tempered hardboard, treated so as to improve its resistance to moisture, is not immune to water absorption and will require conditioning. The water-soluble chemicals used in flame retardant treatments are said to be "hygroscopic", that is, in the normally dry, crystalline state they will readily absorb moisture from the atmosphere. The hygroscopic effect does not diminish after impregnation into a timber products. It must be stressed that the only method of eliminating moisture movement completely in any panel is to coat it, on both faces and all edges, with a product that will provide an effective seal for the expected service life of the panel.

HOW SHOULD PANELS BE CONDITIONED? THERE ARE TWO ACCEPTED METHODS: WET AND ATMOSPHERIC

WET conditioning requires water to be spread out on one side of the panel being conditioned, about 1 litre per 2440 x 1220 board, simply poured on and worked in with a broom or mop. The boards are then stacked wet face to wet face, dry face to dry face and so on and left to stand for 24 hours prior to fixing, longer if the boards are over 6mm thick.

The WET method is suitable for hardboard and pinboard only and then provided they have NOT been treated with flame retardant chemicals, because these will leach away and the fire performance will be impaired.

ATMOSPHERIC conditioning requires the boards to be stacked vertically or horizontally, separated if necessary with timber strips, so that both sides of all the boards are exposed to air. The boards should be allowed to stand for at least three days before fixing; longer if the boards are over 6mm thick.

The ATMOSPHERIC method is the ONLY method suitable for conditioning flame retardant treated boards. Chipboard and MDF should also only be conditioned in this way, whether or not they contain flame retardant chemicals, because water will raise the surface, impair the finishing, and could degrade the integrity of the panel.

ATMOSPHERIC conditioning also provides the benefit of bringing panels to the same temperature as their surroundings. This is particularly important for composites of wood panels bonded to plastic or metal sheets because different layers expand and contract with temperature at different rates to wood. Composite panels, such as laminated worktops and laminate flooring can distort very rapidly when exposed to strong heat sources such as sunlight, especially under glass.

WOOD-BASED PANEL PRODUCTS SHOULD NOT BE BLAMED FOR THEIR NATURAL MOVEMENT!