

Importance of moisture / humidity control from delivery to occupancy



Ecomerchant Fact Sheet No1

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Ecomerchant windows and doors are manufactured from timber, a porous material, in a controlled humidified environment and supplied to site at 14% (+/- 2%) moisture content. The moisture content of timber changes constantly with variations in the ambient temperature and relative humidity. As moisture content changes, the cells in the timber swell or shrink to accommodate the changing moisture levels, producing a dimensional change in the timber section. The degree of dimensional change varies with species and grade, but as a broad rule of thumb, in typical UK conditions, timber dimensions will vary by about 1% for every 3% change in timber moisture content. Our design incorporates and allows for this movement, what it does not allow for, is excessive moisture.

Windows which are fitted in a building site environment, that is uncontrolled and unheated does mean that the moisture content can increase up to and exceeding 25%, this can cause dimensional changes as large as 3 – 4% (which would equate to 2.5mm +).

Protection

Our windows and doors are protected by Gori factory finishing systems which is water repellent, sufficiently flexible to expand and contract with the natural movement of timber, and micro porous, to allow the natural transfer of moisture vapour between the joinery and atmosphere. However, this does not mean they will not absorb moisture. Whilst protecting factory finished components from mechanical damage is well recognised, it is extremely important to ensure that basic precautions are taken to prevent excessive changes in the moisture content of the timber. Not only can this cause dimensional change through swelling or shrinkage of components, but can also cause blistering, localised failure of the surface coating, timber to bow or twist, glass to crack and operational issues.

Avoiding Problems

To avoid problems on site, we recommend that relative humidity (see fact card 2), be maintained within the range of 25-55%. This can be done by gentle internal heating, good ventilation of the building and de-humidifying during construction, and up to 6 months to 1 year after the heating has been turned on. Uncontrolled extremes below 20% or above 80% relative humidity can cause problems. Humidity control is one of the most important factors in controlling dimensional changes in timber windows and doors.

Responsibility for dimensional change and problems in timber products resulting from improper relative humidity exposure during site storage and installation, rests with contractor.

Responsibility for dimensional change and problems in timber products resulting from humidity extremes after occupancy, rests with the homeowner.

Ecomerchant cannot be held responsible for the environmental conditions in which the windows are installed. We also recommend the following guidelines are followed:

- Remove any airtight packaging, prior to storage, to allow free ventilation of the joinery.
- Store joinery off the ground on suitable bearers.

- Cover to avoid dust and other contaminants. Non-permeable sheeting, such as polythene, should be avoided, unless left sufficiently free to allow for good ventilation.
- Storage areas should be well ventilated and not subject to extremes of temperature.
- Avoid unsuitable storage such as metal box containers and areas open to the elements. These may be subject to condensation and very high temperatures in direct sunlight. Water can also collect in protective wrapping leading to saturation of some components.
- Plaster and other building materials can also cause contact damage to protective coatings. If contamination occurs then remove as soon as possible with a solution of detergent and rinse with clean water.
- Ensure that any on site coupling or modifications are fully protected. This particularly applies to cill joints and cover facings. Areas of unprotected end grain exposed by site modifications must be properly sealed and protected by brushing a generous coat of Gori paint/stain supplied as a touch up kit with your order.

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