

WORKING WITH HIGHWOOD

1.0 STORAGE

It is important to ensure that Highwood is stored inside and is not exposed to direct sunlight or excessive temperatures (e.g. close to boilers etc).

If the product has been stored in a warehouse, it should be moved to the working area at least 24 hours prior to commencement of final cut.

1.2 GENERAL

Highwood materials have many similar properties to various natural timbers when tested in the 'as made' condition. This means that some methods used for fabricating with wood can also be employed with Highwood, making it an extremely versatile material. It must be noted that modifications to the cutting tools/blades may be necessary to ensure optimum cut/joint.

It is also important to remember that fixing used longitudinally to any profile will be weaker than those in a transverse direction. It is recommended that all fixings are made from stainless steel/brass or are plated so as to retain the integrity of a long life, rot free maintenance free system or product.

2.0 GENERAL MACHINING

It is important that all drills, tools and cutters used to drill, cut or machine Highwood are kept very sharp. Blunt tools will accelerate generation of heat, which in turn will lead to softening, and melting of Highwood. Cutting tools must be selected which ensure swarf is removed immediately. Any build up of swarf will give heat generation and melt around the tool.

2.1 SAWING

Circular blades with tungsten carbide tipped blades, with a tooth pitch used for soft woods (i.e. 1-3 open type teeth per inch crosscut with positive cant) have been found to be most suitable for use with Highwood. Saw speed should be between 2,000 and 4,000 rpm and the blade should be passed through the profile as quickly as possible to avoid heat generation, whilst maintaining a quality cut.

Sawing must always be done from the presentation face to cut through to the back face of the profile. Cutting through the back face to the front face will cause chipping which is difficult to dress out. Saw blades should be sprayed with silicone lubricant or lubricating grease to reduce friction.

2.2 DRILLING

Twist drills are the most suitable for Highwood but speeds and feeds must be controlled to avoid melt of the swarf and clogging. Cordless drills with speeds of 400 – 900 rpm are preferred to high-speed drills. Titanium nitride coated bits minimise the risk of this problem (e.g. Those supplied by Dormer etc.). Holes should be a minimum of 10mm from the profile edge.

2.3 PLANING

Whilst Highwood can be planed, sometimes to pleasant cosmetic effect, the practise is not recommended because of reduction in strength, which will result from the loss of the outside skin. Asymmetrical removal of the outer skin is likely to cause bow and twist in the section.

2.4 ROUTING

Small longitudinal rebates may be routed but it is not recommended that the base of such slots incorporate radii corners. To rout the grooves, standard sharp tungsten carbide tipped blades running at up to 22,000 rpm should be used. Spray silicone on blades and router bed. For routing depths in excess of 20mm, it is recommended that an air blast be used to clean the bit. For cross cutting, again standard tungsten carbide tipped saw blades should be used.

3.0 JOINTING AND FIXING

The type of jointing method to be used with Highwood will depend on the application of the product and duty of the joint. It is likely that a joint may often incorporate more than one method of fixing. Finger type and mortice and tenon type joints can be made, using standard wood working machinery, with the appropriate cutters, then glued. (See 3.3)

3.1 SCREWING

Twin flight, parallel thread, coarse pitch screws similar to those used with wooden particle boards or hi-low screws have been found to be more suitable for use with Highwood than conventional taper thread wood screws. The greatest strength is achieved when screws are inserted at right angles to the extrusion axis. Care must be taken to avoid stripping threads when driving screws in the direction of extrusion. This risk can be overcome by using torque limiting power drills and screwdrivers.

3.2 NAILING/PINNING/STAPLING

Nailing is not recommended for joining two or more pieces of Highwood. If this type of fixing is required, e.g. to hold materials in place whilst glue sets, then panel pins should be used. Drilling pilot holes may be necessary to avoid splitting depending on the thickness and density of the material. Stapling has been found to be an effective method of joining thinner sections of low density Highwood. Pneumatically powered guns should be used on these types of fixings.

3.3. SOLVENT FUSION/GLUING

Polystyrene cement manufactured by Stelmax Limited has been found to be excellent for 'cold solvent fusion' of Highwood. The use of double sided tape is also possible, this being dependent on the bonding surfaces and grade of tape. Details of applications and recommendations are available on request from our technical department.

3.4 HEAT FUSION WELDING

Highwood can be 'hot welded' (hot plate welding) satisfactorily using machines employed for hot welding profiles.

Such machines incorporate thermostatically controlled PTFE coated heating plates, which are used to heat the surfaces to be joined. When the requisite temperature has been attained (180 – 220 c), the two surfaces are brought together and held under pressure so that they fuse together.

Some experimentation will be necessary to cover length loss due to melt back.

4.0 SURFACE FINISHING

The final finishing serves three purposes:

- 1) It removes the roughness and sharp edges on routed slots
- 2) Produces an aesthetically appealing product
- 3) End grain surfaces can be sealed using a soft wax and buffing.

4.1 CLEANING

This must be done using a dilute detergent solution. Solvents must not be used.

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