

## General:

FLAMEBREAK™ Types 430, 630, 660 cores are faced with external quality plywood and may be used as a core construction for doors that are intended for external use.

Whereas the bonding is suitable for external use, it is important to appreciate that exposed timber will absorb moisture, particularly as a consequence of capillary action through end grain. Wood will expand (or shrink) on average by 1% across the grain for every 4% variation in moisture content.

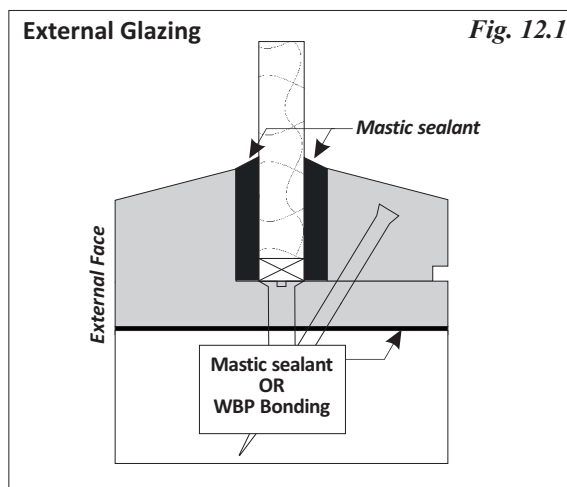
## Recommendations:

### Door Leaves:

1/ Door cores intended for external use should be pre conditioned to provide for the moisture contents recommended by reference to BS EN 942.

2/ Door leaves should be hardwood lipped on all edges using a hardwood selected by reference to BS EN 942 as 'suitable for external use without preservative treatment'. Lippings should be bonded to the door edges using a WBP grade adhesive.

3/ All apertures cut into the door blank for vision panels, louvres, letter plates etc. should be lined with minimum 6mm thickness hardwood with specifications as described for lippings. The linings may be bonded into position using WBP grade adhesives or, a non setting mastic seal can be applied to the aperture before fitting the linings with zinc coated pins or screws.

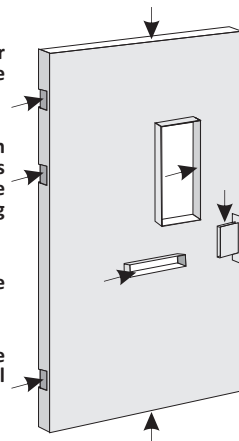


4/ All recesses for hardware should be sealed using the finishing treatment determined for the door leaf, before fitting the hardware. Alternatively, hardware recesses can be protected by use of non setting mastics.

### Seal cores to reduce risk of moisture absorption

**Fig. 12.2**

- Prime or seal all parts of the door that will become inaccessible after installation.
- Line all apertures with min. 6mm thickness hardwood with linings bonded with WBP grade adhesive or seal by use of non setting mastics.
- Seal all hardware recesses before fitting hardware.
- Apply sealer / primer coat to the door before exposing to external conditions.

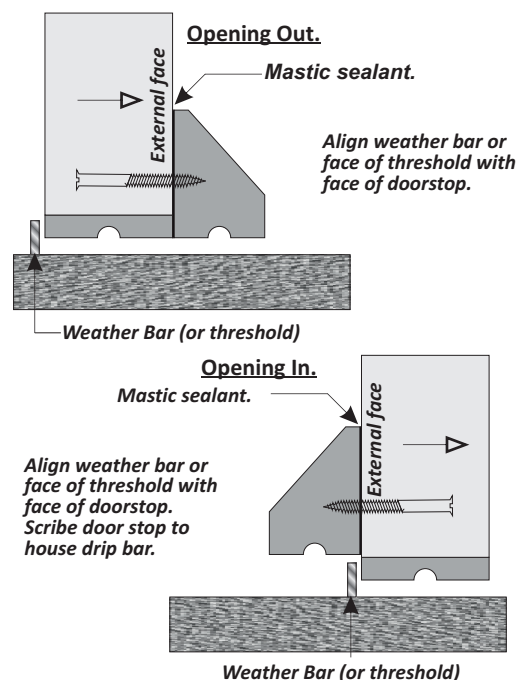


5/ All parts of the door leaf that will become inaccessible after installation should have the full finishing treatment applied before installing the door leaf in an external environment.

6/ The use of timber or aluminium drip bars is recommended to reduce the risk of entrapment of moisture in operating gaps.

### Use of Drip Bars

**Fig. 12.3**



### Recommendations contd.:

#### Frames:

**1/** Wood intended for external use should be pre conditioned to provide for the moisture contents recommended by reference to BS EN 942.

**2/** Select a suitable species for external use by reference to BS EN 942 as 'suitable for external use without preservative treatment'.

**3/** A doorstep moulded from the solid is generally recommended for external use. However, a planted doorstep may be used with mastic sealant between the doorstep and the frame lining.

**4/** All recesses for hardware should be sealed using the finishing treatment determined for the frame, before fitting the hardware. Alternatively, hardware can be protected by use of non setting mastics.

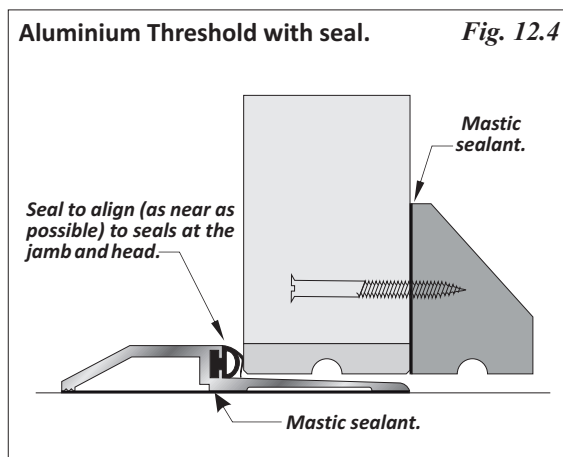
**5/** All parts of the frame that will become inaccessible after installation should have the full finishing treatment applied before installing the frame in an external environment.

**NOTE:** Particular attention should be applied to end grain.

**6/** It is recommended that the frame is set on mastic pads.

**7/** Use of timber or aluminium thresholds is recommended. Otherwise weather bars, set to align with the face of the doorstep should be used.

**NOTE:** Where applicable, reference should be made to Document 'M' of the Building Regulations - Provisions for Disabled persons. i.e. Use of low level thresholds or weather bars not exceeding 12mm above floor level should be used.



#### Finishes:

**NOTE:** The most important consideration for the extended life of external joinery (including door assemblies) is to select a good quality external finishing system that should be applied strictly in accordance with the finishing material manufacturer's recommendations.

**1/ External Opaque:** Recommended finish Dulux Weathershield Exterior Woodstain (or similar).

This is a solvent based finish incorporating ICI 'NAD' technology that improves flexibility and resistance to cracking, flaking & peeling.

Before installing the door assembly, apply Exterior Preservative base coat (coverage about 25m<sup>2</sup> per litre) plus one coat Weathershield Exterior Woodstain. (min. coverage 20m<sup>2</sup> per litre).

After installation apply two further coats Exterior Woodstain (coverage 20~25m<sup>2</sup> per litre).

**NOTE 1:** For optimum quality and for use in exposed coastal areas a further two coats of Exterior Woodstain should be applied with coverage of approx. 20m<sup>2</sup>/litre.

**2/ Semi Transparent:** The Exterior Woodstain finishes describe above are also available to provide for semi transparent finishes.

**NOTE:** Where the use of a solvent based finishing system is not acceptable, the alternative Dulux 'Aquatech' (or similar) water based system may be used.

**3/ Clear Finish:** Apply Dulux Weathershield Exterior Preservative Base coat (as described above).

Apply one coat Weathershield Exterior Varnish before installation of the doorset. (coverage approx. 20m<sup>2</sup>/litre).

Apply two coats Exterior varnish after installation of the door assembly. (coverage 12~16m<sup>2</sup>/litre per coat).

**NOTE:** The Weathershield clear varnish finish is similar to yacht varnish but with improved flexibility. Gloss levels for clear varnish finishes are typically 80~90%.

#### Other Finishes:

**1/ Oil Finishes:** e.g. Pure Tong Oil. (not to be confused with finishing systems 'containing Tong Oil').

Apply min. 3 coats before installation of the door assembly with further 3 coats applied after installation. (coverage 10~12m<sup>2</sup>/litre). Typical gloss level with 6 coats = 75~80%.

**2/ Matt Painted Finishes:** Use of a micro porous painting systems such as the Farrow & Ball 'Archive' range is recommended. Gloss levels less than 35% available

## Finishes contd.:

The brand names referred to by reference to the previous page are indicative of types and processes.

Excellent external finishing systems are available from other sources e.g. Cuprinol, Sikken's etc.

The important recommendation is that external joinery should be finished by use of a high quality finishing system selected from a single source to ensure that all components of the system are compatible. Further, that partial finishing should be applied to the door assembly before installation into the external location. This provides for the opportunity to apply protective finishes to parts of the assembly that will become inaccessible after installation.

The drying times required for most external finishes generally renders these unsuitable for application under factory conditions. The normal practice is therefore to supply external door assemblies 'in the white' for finishing on site.

## Maintenance:

**1/** The frequency for maintenance may vary according to a number of factors:

**a/** The use of dark colours is likely to reduce the intervals between refurbishment.

**b/** Generally doors facing North and West in the United Kingdom will require a higher level of maintenance.

**c/** Door located externally in coastal areas are likely to require a higher level of maintenance attention.

**d/** The nature of the species used for frames, lippings, beading etc. may influence maintenance requirements. e.g. Some Hardwoods (e.g. *Agba*) and some softwoods are likely to contain knots with resin pockets. Resins can leak and may cause problems with the finishing system. This risk can be reduced by properly treating knots with a Shellac Knotting before applying finishing treatments.

**e/** Differences in environmental conditions acting on each face of the door assembly can give rise to movements that may be beyond the flexibility of the finishing system. This is generally apparent by recognition of significant differences in the operation of the door on a seasonal basis. This risk can be diminished by the construction of a lobby resulting in a more gradual change in environmental conditions acting on the internal and external faces of the door assembly.

**f/** A door assembly provided with some protection by the building of a porch is likely to degrade at a slower rate than a fully exposed door.

**2/** A properly finished exposed external door (i.e. a door assembly finished correctly in accordance with the finishing system manufacturer's recommendations), should not require refurbishment maintenance at less than 3 yearly intervals.

Maintenance provisions should provide for cleaning at regular intervals (*determined by visual assessment*).

Clean all accessible parts of the door assembly using a mild solution of warm water containing external fungicide. Apply with a chamois leather and wipe clean with an adsorbent knap free cloth.

Refurbishment procedures should provide for:

**a/** Remove any loose / cracked finishes.

**b/** Fill any open joints with a good quality external grade wood filler (e.g. *Cuprinol High Performance Wood Filler - or similar*).

**c/** Sand all exposed parts of the door assembly.

**d/** Clean with a mild solution of warm water containing external fungicide.

**e/** Recoat the doorset using the original external finishing system (*or a compatible finishing system*).

**NOTE:** It is strongly recommended that all finishing treatments for external joinery are applied by qualified tradesmen.