SUCCESSFUL BONDING OF WOOD

Surface Preparation.

Whether bonding, fairing or applying fabrics, the success of the application depends not only on the strength of the epoxy but also on how well the epoxy adheres to the surface to which it is being applied. Unless bonding to partially cured epoxy, the strength of the bond relies on the ability of the epoxy to mechanically "key" into the surface. Thus, the following three steps of surface preparation are a critical part of any secondary bonding operation.

For good adhesion, bonding surfaces must be**:**

1. Clean
Bonding surfaces must be free of any contaminants such as grease, oil, wax or mould release. Clean contaminated surfaces with WEST SYSTEM 850 Solvent. Wipe the surface with fresh paper towels before the solvent dries. Clean surfaces before sanding to avoid abrading the contaminant into the surface. Follow all safety precautions when working with solvents.

2. Dry
All bonding surfaces must be as dry as possible for good adhesion. If necessary, accelerate drying by warming the bonding surface with a hot air gun, hair dryer or heat lamp. Use fans to move the air in confined or enclosed spaces. Be careful of condensation when working outdoors or whenever the temperature of the work environment changes.

3. Abraded
Thoroughly abrade hardwoods and non-porous surfaces with 80-grit aluminium oxide paper to provide a good mechanical "key" for the epoxy. Ensure the surface to be bonded is solid. Remove any flaking, chalking, blistering or old coating before sanding. Remove all dust after sanding.

The importance of the three operations detailed above cannot be stressed too strongly – for high strength, durable bonds, surfaces must be clean, dry and thoroughly abraded after removing previous surface coatings.

Special Prepararion.

Hardwoods - Thoroughly abrade with 80-grit paper and remove dust before coating.

Teak/oily woods - Wipe the surface with WEST SYSTEM 850 solvent or pure acetone and when the solvent has evaporated, abrade with 80-grit paper. Clean the sanding dust away and then wipe the abraded surface with solvent – the solvent dries the oil at the surface and allows the epoxy to penetrate. Ensure the solvent has evaporated before coating but apply the epoxy within 15 minutes of the solvent wipe.

Porous woods - No special preparation needed but it is advisable to abrade with a medium grit paper to open pores. Remove dust.

Two-step Bonding.

1. Apply a resin/hardener mix to the surfaces to be joined. This is called "wetting-out"or "priming" the bonding surfaces. The epoxy is applied with a disposable brush in small or tight areas; wet-out larger areas with a foam roller or by spreading the resin/hardener mix evenly over the surface with a plastic squeegee/spreader. Proceed with step two immediately or any time before the wet-out coat becomes tack free.

2. Modify the resin/hardener mix by stirring in WEST SYSTEM 403 Microfibres until it becomes thick enough to bridge any gaps between the mating surfaces and to prevent "resin-starved" joints. Apply an even coat of the thickened epoxy to **one** of the bonding surfaces, sufficient so that a small amount will squeeze out when the surfaces are joined together.

As already stated, the thickened epoxy can be applied immediately over the wet out surface or any time before the epoxy becomes tack free. For most small bonding operations, add the filler to the resin/hardener mix remaining in the batch that was used for the wet-out. Mix enough resin/hardener for both steps. Add the filler quickly after the surface is wet out and allow for a shorter working life of the mix.

3. Clamp components. Attach clamps as necessary to hold the components in place. Use only enough clamping pressure to squeeze a small amount of the thickened mix from the joint, indicating that the epoxy is making good contact with both mating surfaces. **Do not squeeze all the thickened mix from the joint by using too much clamping pressure.**

4. Remove or shape excess adhesive that squeezes out of the joint as soon as the joint is secured with clamps. A WEST SYSTEM 804 mixing stick with one end sanded to a chisel edge is an ideal tool for removing the excess. Allow to cure thoroughly before removing clamps.

Please refer to the WEST SYSTEM User Manual and Product Catalogue for further information.