



Application Summary Sheet 13

Title: Timber resin repairs using carbon fibre rod and glass fibre rod reinforcement

Target Audience: Structural engineers, heritage building specialists, conservation bodies

Keywords: timber repair, heritage buildings

Overview of application / summary

Use of carbon fibre rod and glass fibre rod as reinforcement in timber resin repair technique. The technique involves removal of decayed timber portion of a beam (for example) and splicing in a new section of timber. The joining method is via drilled out slots or grooves into which reinforcing rods are set in resin. FRP Rods have high strength and stiffness, and are corrosion resistant being unaffected by natural wood acids or preservative treatments. Epoxy glass rods have the particular advantage that they are flexible and easy to install.

A variant of the method may also be used in upgrading timber affected by shakes (fissures) and in repairs/connections to glue laminated timber (Glulam), also in timber beam strengthening (refer to Strengthening fleet).

Impact of Application

Financial:

Cost-effective repairs
Minimal disturbance
Epoxy glass lower transport costs than steel

Environmental:

Avoids wastage of materials

Social:

Maintains character and historic value of building
Avoids destruction of decorative fascias, walls ceilings etc

Engineering:

Enables deteriorated section of timber beams, columns to be replaced, whilst preserving the remainder.

Avoids extensive opening up of floors/dame to decorative floorings and ceilings
Easy to cut on site.
Lightweight.
Flexible - able to feed reinforcement through tight corners etc.

Robustness:

Proven technique, backed up by independent research study

Where to get further information

On Products:

Rotafix Ltd
www.rotafix.co.uk

see also <http://www.timber.org.uk>

Research:

Adhesive systems for structural connections in timber

Boughton J G and Hutchinson A R. (2001)
International Journal of Adhesion and Adhesives 21 (177-186)

General:

Guide to the restoration and repair of timber structures

The Institution of Structural Engineers (2000)
London. SETO/TRADA Technology limited

Resin bonded repair systems for structural timber

Mettem C J, Davis G. (1996)
Part 1 and Part 2 Construction Repair 1996 10 (2) and 10 (3)