



SPECIFICATIONS

FIBERGLASS REBAR 800

SECTION 06620 TIMBER CONNECTIONS USING EPOXY & FIBERGLASS REBAR

PART 1 GENERAL

1-1 Description:

The work in this section consists of splicing and connecting timber elements using epoxy and fiberglass reinforcing bar.

1-2 Quality Assurance:

1-3 Submittals:

- A. Submit manufacturer's product literature and product specifications.
- B. Submit a timber sample spliced with epoxy and fiberglass rebar for approval prior to application. Project Manager will provide details of sizes of timber and diameter, depth, and location of fiberglass rebar.
- C. Submit manufacturer's Safety Data Sheet (SDS)

1-4 Product Storage & Handling:

- A. Deliver epoxies in manufacturer's original, unopened containers and store inside at room temperature or as recommended by manufacturer.
- B. Do not use epoxies which have exceeded manufacturer's shelf life.
- C. Epoxy stored below freezing (it won't freeze), should have a small sample mixed to test the cure prior to use.
- D. Follow safety precautions of epoxy as defined by manufacturer or product associations or OSHA. Observe good housekeeping practices when working with epoxies.
- E. Flammable solvents may not be stored in or brought within 20'/6m of an historic structure.
- F. Store fiberglass rebar in a dry and clean area.

1-5 Project Conditions:

- A. Epoxy applications are to be performed in favorable weather conditions.
- B. Wood to be spliced must be dry and have moisture content below 20% by weight at the time of application. Protect area from moisture until epoxy has completely cured.
- C. Epoxy must not exceed 75°F/24°C at the time of mixing and application. Wood and fiberglass rebar must be within a 45°–90°F/7°–32°C range at the time of application. The connection must not be subjected to freezing temperatures within 48 hours of application. Shade the substrate from direct sun in warm weather.
- D. Area is to be secured from public use during epoxy application. Secure areas as necessary to prevent intrusion of unqualified personnel.

1-6 Cleanup:

- A. Following application leave all areas free and clean of epoxy. Discard unused epoxy, containers, tools and paper towels in accordance with local, state and federal Environmental Protection Agency regulations.

PART 2 PRODUCTS

2-1 Materials:

- A. Epoxy Adhesive: Ideally, use a high tensile and shear strength epoxy, minimum 2500 psi lap shear after 24 hour cure, but lower strength epoxies with good adhesion are more than adequate in many applications. Apply epoxy at a pasty consistency unless the location will accept and contain a low viscosity option.

- B. Fiberglass Rebar (GFRP): Vinyl ester resin impregnated continuous "E-CR" glass roving with a spiral wrap around the outside. Glass Fiber Content: > 70% by weight per ASTM D2584, shear stress 22,000 psi/152 MPa
- C. Fumed Silica: See available products below.

2-2 Available Products:

- A. Epoxy Adhesive: ConServ Epoxy Adhesive 600, 300, 200 or 100
ConServ Epoxy LLC conservepoxy.com
- B. Fiberglass Rebar: ConServ Fiberglass Rebar 800
ConServ Epoxy LLC conservepoxy.com
- C. Fumed Silica: Thickening Agent 200D
ConServ Epoxy LLC conservepoxy.com

2-3 Mixes: Follow manufacturer's instructions.

PART 3 EXECUTION

3-1 Inspection:

Verify individual conditions, proposed treatment, and design criteria for the hole size, depth, and location plus rebar diameter and length with Project Manager.

3-2 Preparation:

- A. Match timber to be spliced to each other for size, configuration and species. Duplicate surface texture and tool marks.
- B. Based on the design criteria for the given location drill matching holes in the adjacent wood elements to receive the fiberglass rebar. Avoid locating holes within 1-1/2"/38mm of checks. Relocate hole position with approval of Project Manager. Vacuum out or blow out all dust in the holes.
- C. Wood within 3" of the connection must be free of decay. Refer to sections Section 06610 and Section 06630 of the specifications for information relating to consolidating, patching, and making structural repairs with epoxy.
- D. Cut the fiberglass rebar to length according to the design criteria. Verify that rebar and adjacent timber match. Keep rebar dry, clean and free from oils from hands and tools. Scrub with acetone or sand only if necessary to prepare surface of rebar to promote adhesion. This should not be needed if rebar is kept clean.
- E. Protect splice areas from moisture until connections are complete and epoxy has cured.

3-2 Installation/Application:

- A. Mix epoxy adhesive according to manufacturer's instructions. Use epoxy at the lowest workable viscosity. For vertical or upside down applications use fumed silica as a thickening agent. Epoxy must be thick enough to hold in all holes until the rebar is inserted and the epoxy cures. Avoid entrapping air in mixture during mixing and application.
- B. Epoxy may be applied from pre-loaded cartridges, by pouring in upward facing holes, by pressing into holes with a flat putty knife, or loading it into caulk tubes for injection.
- C. Do not use epoxy which is ready to cure and won't easily accept the rebar.
- D. Bring the matching pieces together for alignment. Rotate rebar at time of insertion to reduce displacement of epoxy from holes. The new wood replacement element must come in contact with the existing wood at the contact face. There can be a gap along the spliced seam of no more than 1/4"/6mm for concealed splices and 1/16"/2mm for exposed splices. Support or shim as necessary, without damaging the surfaces so that there is no movement until the epoxy has set. Support after that for a minimum of 24 hours at a temperature above 60°F/16°C or for 48 hours at a temperature in the 50°F/10°C range.
- E. Ideally, the connection is not subjected to freezing temperatures within 48 hours of application. Shade mixing and application area from direct sunlight in warm weather.

3-4 Cleanup:

Following application leave all areas free and clean of epoxy. Discard unused epoxy, containers, tools and paper towels in accordance with local, state and federal EPA regulations.

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