

# SPECIFICATIONS

## FIBERGLASS REBAR 800

### SECTION 06620

### SPLICING/CONNECTING TIMBER USING EPOXY & FIBERGLASS REBAR

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#### 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 Material Safety Data Sheet (M.S.D.S.)

##### 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. Epoxies which have frozen since manufacture are not to be used.
- 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 feet 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 a 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 at the time of mixing and application. Wood and fiberglass rebar must be within a 45°-90° F range at the time of application. The connection must not be subjected to freezing temperatures within 48 hours of application. Shade mixing and application area from direct sunlight in warm weather.
- D. Area is to be secured from public use during epoxy application. Do not spray epoxy within 30 feet of public access. 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 towels in accordance with local, state and federal Environmental Protection Agency regulations.

#### PART 2 PRODUCTS

##### 2-1 Materials:

- A. Epoxy Adhesive: High tensile and shear strength epoxy, minimum 2500 psi lap shear after 24 hour cure is required. Apply at a pasty consistency.
- B. Fiberglass Rebar: Vinyl ester resin impregnated continuous "C" glass roving with a spiral wrap around the outside. Single transverse shear of 5000 psi, tensile strength of 80,000 psi, bending stress of 72,000 psi, and modulus of elasticity at 75° F of 4,000,000 psi.
- C. Fumed Silica: See available products below.

**2-2 Available Products:**

- A. Epoxy Adhesive: ConServ Epoxy Adhesive XP-552, 600 or 200  
ConServ Epoxy LLC, PO Box 454, Northford, CT 06472
- B. Fiberglass Rebar: ConServ Fiberglass Rebar 800  
ConServ Epoxy LLC, PO Box 454, Northford, CT 06472
- C. Fumed Silica: Cab-O-Sil Grade EH5  
ConServ Epoxy LLC, PO Box 454, Northford, CT 06472

**2-3 Mixes:** Follow manufacturer's instructions.

**PART 3 EXECUTION**

**3-1 Inspection:**

Verify individual conditions, proposed treatment, and design criteria for hole sizes, depths, and locations including rebar diameters and lengths 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 1½" of checks. Relocate hole position with approval of Project Manager. 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 until ready to use. Scrub with acetone or sand if necessary to prepare surface of rebar to promote adhesion.
- E. Protect splice areas from moisture until time of connection.

**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 or until the epoxy cures. Avoid entrapping air in mixture during mixing and application.
- B. Epoxy may be applied by pouring in upward facing holes, by pressing into holes with a flat putty knife, or loading it into caulking tube/gun for injection.
- C. Do not use epoxy which appears to be ready to cure.
- 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 ¼" for concealed splices and 1/16" 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 or for 48 hours at wood temperature in the 50° F range.
- E. The connection must not be 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 towels in accordance with local, state and federal EPA regulations.