

# SPECIFICATIONS

## STRUCTURAL EPOXY REPAIR 600

### SECTION 06630 EPOXY STRUCTURAL TIMBER REPAIRS

#### **PART 1 GENERAL**

##### **1-1 Description:**

The work in this section consists of epoxy for making structural repairs to wood timbers.

##### **1-2 Quality Assurance:**

##### **1-3 Submittals:**

- A. Submit manufacturer's product literature and product specifications.
- B. Submit small sample of epoxy patch to the Project Manager for approval prior to application.
- 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 sand and gravel 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 patched 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. 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: Epoxy should be of a type which has regular and proven use for repairing and attaching damaged wood. Use a structural low viscosity epoxy. Tensile strength must have a minimum value of 4000 psi. Epoxy must be easy to apply.
- B. Sand: Fines sharp washed aggregate conforming to ASTM C-33. Sand shall be free of organic matter.
- C. Pea Gravel: ASTM C-404. Washed and graded natural aggregate with not more than 5% passing the No. 8 sieve and with 95% to 100% passing the 3/8" sieve.

D. Fumed Silica: See available products below.

## 2-2 Available Products:

- A. Epoxy Adhesive: ConServ Structural Epoxy Repair 600  
ConServ Epoxy LLC, PO Box 454, Northford, CT 06472
- B. Fumed Silica: Cab-O-Sil Grade EH5  
ConServ Epoxy LLC, PO Box 454, Northford, CT 06472
- C. Sand: Local source
- D. Pea Gravel: Local source

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

- A. Avoid excessive working of epoxy which might cause settling or separation of aggregate from liquid epoxy.
- B. Allow epoxy to cure a minimum of 48 hours at temperatures above 60° F or for 72 hours at temperatures in the 50° F range.
- C. Do not mix epoxy in direct sunlight or allow setting epoxy to be exposed to direct sunlight at temperatures above 60° F.

## PART 3 EXECUTION

### 3-1 Inspection:

In most cases it is necessary that all decay be removed to determine if structural integrity in the member has been lost or compromised. Actual parameters may vary for each situation. Verify conditions, proposed treatment and design criteria for individual structural repairs with the Project Manager.

### 3-2 Preparation:

- A. Refer to Section 06620 if timber is to be spliced to the structural repair area or if the structural repair contains fiberglass rebar for reinforcing.
- B. Provide temporary structural support and relieve structural load as necessary.
- C. Remove all wood decay. Attempt to remove decay down to good wood. Use a drill, rotary rasp or chain saw without lubrication. Verify standard for performance with Project Manager. If not visible, 3/16" diameter holes may be drilled into the decay area approximately 2" apart for better penetration of the epoxy. Remove all wood fragments and blow out all dust.
- D. Protect treatment areas from moisture until all epoxy has cured.
- E. Protect vegetation and horizontal surfaces from damage, spills and drips.

### 3-2 Installation/Application:

- A. First prime decayed surfaces with liquid structural epoxy without aggregate. This may be applied by pouring, brushing or spraying. Saturate the treatment area for a minimum of one hour duration.
- B. Mix structural epoxy with aggregate 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 cavities until the epoxy cures. Avoid entrapping air during the mixing process.
- C. The epoxy may be contained during the curing process by constructing temporary forms or molds. Use a thick paste wax as a mold release. Potters clay may be used to seal small openings or checks.
- D. Epoxy may be applied by pouring into upward facing cavities or molds or by pressing a thickened epoxy into vertical or downward facing cavities with a trowel or putty knife. For hard to reach area use a typical builders caulk tube arrangement with extension tube if needed to inject epoxy into damaged area.
- E. Epoxy and aggregate must not exceed 75° F at time of mixing and application. Wood must be within a range of 45°-90° F during application. The connection must not be subjected to freezing temperatures within 48 hours of application. Shade mixing and application area from direct sun 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.