

SECTION 08590 – WOOD WINDOW RESTORATION AND REPLICATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:

- 1. Restoration of existing wood double and single hung windows.

- B. Related Sections include the following:

- 1. Division 4, 7, 8 and 9 Sections

1.3 DEFINITIONS

- A. Unit Prices: Door refinishing to be provided under unit prices are described in Division 1 Section "Unit Prices."

1.4 SUBMITTALS

- A. Product Data: For each product indicated. Include recommendations for application and use. Include test reports and certifications substantiating that products comply with requirements.
- B. Qualification Data: For firms and persons specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.
- C. If alternative materials and methods to those indicated are proposed for any phase of restoration work, provide a written description, including evidence of successful use on other comparable projects, and a testing program to demonstrate their effectiveness for this Project.
- D. Samples:
 - 1. Submit identification of wood species for all windows.
 - 2. Submit a sample of each wood species for Dutchman replacement.
 - 3. Submit a sample of each replacement molding profile with an example of the original profile.

1.5 QUALITY ASSURANCE

- A. Restoration Specialist: Engage a firm with at least 5 years experience in window restoration. The firm must submit Qualification Data that it has completed work similar in material, design, and extent to that indicated for this Project.
- B. Mock-Ups: Prior to beginning work, the Contractor shall prepare examples of each type of repair and refinishing to be performed for the Architect's approval.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to Project site in manufacturer's original and unopened containers, labeled with type and name of products and manufacturers.
- B. Comply with manufacturer's written instructions for minimum and maximum temperature requirements for storage.

1.7 PROJECT CONDITIONS

- A. Environmental Requirements:
 - 1. Provide environmental conditions as recommended by the Manufacturer when applying products.
 - 2. Dispose of all used solutions, finishing products, solvent residue and soiled rags in sealed noncombustible containers to prevent a fire hazard daily.
 - 3. Protect the interior of the building from the weather when restoring windows.
- B. Existing Conditions: Determine that surfaces to which finishes are to be applied are even, smooth, sound, clean, dry and free from defects affecting proper application. Correct or report defective surfaces to the Architect.

1.8 SEQUENCING AND SCHEDULING

- A. Coordinating Work: Coordinate window restoration so that it will not conflict with the work of other trades.
- B. Coordinate window restoration tasks in a timely fashion to prevent further deterioration of exposed original material.

1.9 QUALITY ASSURANCE

- A. The intent of window restoration is that at completion of the Work, all windows (including frames, sash, trim, glass and hardware) indicated to be restored shall be completely restored to premium visual and operating condition. Restore all wood frames, sash, and trim to sound condition and original profiles. Restore all hardware to an operable condition. A like new appearance is neither expected nor desired. Splotches, streaks, runs or other inconsistencies caused by improper application of finishing products will not be accepted.
- B. Regulatory Requirements: Comply with municipal and Federal regulations governing the following, but not limited to: refinishing operations, chemical and material waste disposal and scaffolding.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. The Sherwin Williams Company 101 Prospect Ave. N.W. Cleveland, OH 44101
216/566-2000
- B. 3M Company P.O. Box 33053 St. Paul, MN 55133-3053 612/737-6501 or 800/364-
3577
- C. Klean Strip, Inc. Division of W.M. Barr Inc. P.O. Box 13146 Memphis, TN
38113 901/775-0100
- D. Pyrock Chemical Co. Long Island city, NY

2.2 MATERIALS

- A. Cementitious stone crack filler such as "Jahn" or approved equal, tinted to match
existing stone color.
- B. One part polyurethane sealant for exterior:
 - 1. 25% elasticity
 - 2. Grade: NT
 - 3. Color: White
- C. Paint grade latex sealant for interior.
- D. Sika Liquid Colma-Dur Epoxy or approved equal.
- E. SikaDur thixotropic, high-modulus Gel with Union Carbide phenolic microballoons
to temper the consistency.
- F. Linseed oil wood filler putty.
- G. Linseed and Mineral oil glazing compound.
- H. Neoprene self-adhesive weatherstripping.
- I. Polyethylene foam backer rod.
- J. Commercial Stripper such as "Kwick Superfast paint and Varnish Remover" (Klean
Strip, Inc.), "Rock Miracle" (Pyrock Chemical Co.), or approved equal.
- K. Varnish: Linseed-tung-oil modified phenolic spar varnish such as "Rexpar"
(Sherwin Williams), or approved equal.
- L. Solvents: Mineral spirits, turpentine or denatured alcohol.
 - 1. Mineral Spirits: A petroleum distillate that is used especially as a paint or
varnish thinner.

2. Turpentine: Typically used as a solvent and thinner.
3. Denatured Alcohol: Other chemical or common names include Methylated spirit.
4. Toluene (C₇H₈): A liquid, aromatic hydrocarbon that resembles benzene but is less volatile,
5. Acetone (C₃H₆O): A volatile fragrant flammable liquid ketone used chiefly as a solvent and in organic synthesis. Other chemical or common names include Dimethyl ketone; Propanone
6. Detergent containing trisodium phosphate, such as "Spic n' Span", or approved equal.
7. Steel Wool: Grade 000 steel wool
8. Aluminum oxide sandpaper - 220 grit
9. Silicone carbide paper - 400 grit
10. Bronze wool
11. Sandpaper - 80 and 120 grit
12. Shellac burn-in sticks
13. Tack rag
14. Clean cotton cloths
15. Soft, natural bristle brushes
16. Mild soap such as "Ivory Liquid", "Joy", or approved equal.
17. Abrasive pad such as "Scotch-brite" (3M Company), or approved equal.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verification of Conditions: Inspect the work for any serious defects or conditions which would interfere or prevent a satisfactory application of materials under this Section.

3.2 PREPARATION

- A. Surface Preparation: Remove all non-original hardware and foreign objects, taking care not to damage the remainder of the window.
 1. Replace the non-original elements with new wood which matches the species of the original wood and which matches the cut and detailing of the original millwork.
 2. Hardware: Remove existing original hardware and other original applied elements, and store for cleaning and reinstallation.
- B. Protection:

1. Make sure work area is well-ventilated and wear protective clothing and rubber gloves. Do not allow smoking in the work area.
2. Place a fire extinguisher for Class B fires at entrances for emergency use.
3. Change clothes as often as necessary to be effective in cleaning.
4. Daily, dispose of all used solutions, finishing products, solvent residue and soiled rags in sealed noncombustible containers to prevent a fire hazard.
5. Protect all surfaces adjacent to wood being refinished.
6. Maintain a healthy level of air circulation within the space being treated. Regularly employ and maintain exhaust fans or other air moving devices to the satisfaction of the Architect.
7. Curtain off areas being treated from other trades and occupants to prevent fumes from reaching other parts of the building.
8. Wear appropriate safety devices such as respirators fitted with the correct cartridge, gloves, and other protective clothing.

3.3 APPLICATION

- A. Fill cracks and spalls at stone sills:
 1. Remove dirt and debris from cracks, voids and spalls in the stone sill
 2. Prepare approved tinted cementitious patch material to match stone sill color. Fill and shape to restore original stone sill profile.
- B. Remove Window Elements requiring repair or replacement:
 1. Remove wood stops, sash, sill, apron and trim as required. Remove only elements that cannot be repaired on site.
 2. Identify the location using the window opening number identified on the Drawings. Label the location on hidden parts of the elements so that they may be returned to the correct opening.
- C. Remove loose and deteriorated paint on the frame, sash, sill, and trim.
- D. Seal frame at window exterior:
 1. Secure any loose frame elements to the embedded wood grounds.
 2. Remove existing sealant, dirt and debris from between the frame and wall.
 3. Insert a closed cell polyethylene backer rod into gaps larger than 3/8".
 4. Fill gap with sealant until flush with surface. Tool to a flat continuous surface.
- E. Repair weather checks and gaps:
 1. Clean all cracks of dust, loose or deteriorated paint, and debris.
 2. Dry the window elements out, to allow for maximum crack and gap size.

3. Prime the edges of the checks with epoxy consolidant; inject consolidant into each check. Avoid getting consolidant on any surfaces. Most of the consolidant should soak into the wood if it is dry.
 4. Apply epoxy paste filler using a putty knife, after the consolidant has cured. Fill each check completely. Do not cover the entire surface with epoxy, as this will limit the wood's ability to breathe.
 5. Allow filler to set. Before it hardens, trim off excess so that it is flush with surface.
 6. Sand surface to prepare for painting.
- F. Replace rotted or broken sills:
1. Remove any metal sills applied over original wood sills. Do not remove original metal cornice work.
 2. Cut new sill to the same dimensions as the original sill. Prime and back prime all sides of sill before installing.
 3. Nail sill into casing from underneath. Countersink nail and fill hole with putty and seal. Seal edge of sill with latex sealant at jamb connection.
- G. Replace deteriorated or rotted areas with wood Dutchman:
1. Remove deteriorated area with a scroll or other detail saw in a geometrically shaped cavity.
 2. Bevel the edges of the cavity.
 3. Fabricate a plug from matching wood stock. Make sure the grain runs in the same direction.
 4. Glue the plug into the cavity.
 5. Allow the glue to dry, then plane and sand.
- H. "True" Sash:
1. Remove sash that are out of plumb and do not operate effectively.
 2. Remove glazing and muntins if required.
 3. Square the sash and secure in place. Replace muntins and glazing.
- I. Reinstall hardware:
1. Provide replacement hardware to replace missing or damaged original hardware, to match existing.
 2. Reinstall cleaned original hardware on the same window.
- J. Provide weatherstripping.
- K. Remove shallow scratches:
1. Lightly sand, in the direction of the grain only to remove shallow scratches, against the grain sanding, and finish damage not removed by stripper application.

2. Remove scratches using 80 grit sandpaper. Finish using 120 grit sandpaper until smooth surface is attained. Smooth surface sufficiently to ensure uniform finish application.
 3. Wipe surface with a tack rag to remove traces of steel wool, sand, and dust prior to applying new finishes.
- L. Fill deep scratches and gouges with epoxy.
- M. Replace loose and deteriorated glazing compound:
1. Remove all deteriorated glazing compound and broken or cracked glass. Replace glass and reglaze with glazing putty. Reuse original glass whenever possible.
- N. Apply the finish coating:
1. Make sure that surface is clean, level and free of defects. Feather edges of any remaining paint. Promptly report to the Architect any unanticipated conditions which may affect the quality of the finish.
 2. Apply a prime coat:
 - a. Confirm compatibility with substrate, glazing compound and finish coat.
 - b. Allow glazing compound to cure before coating.
 3. Allow prime coat to dry for time recommended by Manufacturer.
 4. Apply two coats of finish paint as scheduled.
 5. Lightly sand with #400 grit silicone carbon paper or rub with fine steel wool between coats. Vacuum surface and wipe with a dry tack rag to remove all grit and dust prior to applying last coat.
- O. Clean glazing as required:
1. Remove adhesive residues, paint splatters, and other soiling using soft cloths and detergent.
 2. Use a mild solvent and Scotch Brite pad or bristle brush to remove stubborn residues.
 3. Remove paint splatters with solvent or by scraping gently with a razor blade held at a shallow angle. Do not use tools or abrasives that will etch the glass.

3.4 ADJUSTING/CLEANING

- A. Adjust window to assure proper operation. Refinish or replace job-finished windows damaged during installation.

END OF SECTION 08590