# SECTION 02 4119 - SELECTIVE STRUCTURE DEMOLITION

## PART 1 - GENERAL

### 1.1 SUMMARY

A. This Section includes the following:

1. Demolition and removal of selected portions of building or structure.
2. Salvage of existing items to be reused or recycled.

### 1.2 DEFINITIONS

A. Remove: Detach items from existing construction and legally dispose of them off-site, unless indicated to be removed and salvaged or removed and reinstalled.

B. Remove and Salvage: Detach items from existing construction and deliver them to Owner.

C. Remove and Reinstall: Detach items from existing construction, prepare them for reuse, and reinstall them where indicated.

D. Existing to Remain: Existing items of construction that are not to be removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.

### 1.3 SUBMITTALS

A. Schedule of Selective Demolition Activities: Submit proposed demolition schedule to Owner/Architect/CM for review, discussion, coordination and approval at Pre-Construction Conference. Indicate detailed sequence of selective demolition and removal work, with starting and ending dates for each activity, any interruption of utility services, and locations of temporary barriers, partitions and means of egress.

B. Predemolition Photographs or Videotapes: Show existing conditions of adjoining construction and site improvements, including finish surfaces that might be misconstrued as damage caused by selective demolition operations.

### 1.4 QUALITY ASSURANCE

A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.

B. Standards: Comply with ANSI A10.6 and NFPA 241.

C. Pre-demolition Conference: Conduct conference at Project site.

1.5 PROJECT CONDITIONS

A. Owner will occupy portions of building immediately adjacent to selective demolition area. Conduct selective demolition so Owner's operations will not be disrupted.

B. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.

C. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.

D. Hazardous Materials: Hazardous material may be encountered in the existing paint finishes with lead content.

1. Hazardous materials will be removed by Owner under a separate contract before start of the Work.
2. If other materials suspected of containing hazardous materials are encountered, do not disturb; immediately notify Architect and Owner.

E. Storage or sale of removed items or materials on or off site is not permitted.

F. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.

1. Maintain fire-protection facilities in service during selective demolition operations.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that utilities have been disconnected and capped.

B. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.

C. When unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure the nature and extent of conflict. Promptly submit a written report to Architect.

D. Engage a professional engineer to survey condition of building to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of structure or adjacent structures during selective demolition operations.

E. Survey of Existing Conditions: Record existing conditions by use of preconstruction photographs.

## 3.2 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

A. Existing Services/Systems: Maintain services/systems indicated to remain and protect them against damage during selective demolition operations.

## 3.3 PREPARATION

A. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

1. Comply with requirements for access and protection specified in Division 01 Section "Temporary Facilities and Controls."

B. Temporary Facilities: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.

## 3.4 SELECTIVE DEMOLITION

A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:

B. Removed and Salvaged Items:

1. Salvage any and all copper material to Owner. Remove any fasteners and separate from other materials. (Does not include electrical wire.)
2. Package or bundle material for storage.
3. Transport items to the Owner's on site storage area.

C. Removed and Reinstalled Items:

1. Clean and repair items to functional condition adequate for intended reuse.
2. Protect items from damage during storage.
3. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.

D. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Architect, items may be removed to a suitable, protected storage location during selective demolition and reinstalled in their original locations after selective demolition operations are complete.

## 3.5 DISPOSAL OF DEMOLISHED MATERIALS

A. General: Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain Owner's property, remove demolished materials from Project site and legally dispose of them in an EPA-approved landfill.

1. Comply with requirements specified in Division 01 Section "Construction Waste Management and Disposal."

B. Burning: Do not burn demolished materials.

C. Disposal: Transport demolished materials off Owner's property and legally dispose of them.

## 3.6 CLEANING

A. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

END OF SECTION 02 4119

# SECTION 02 4296 - HISTORIC REMOVAL AND DISMANTLING

## PART 1 - GENERAL

### 1.1 SUMMARY

A. Section includes historic treatment procedures in the form of special types of selective demolition work for designated historic spaces and surfaces.

B. Related Requirements:

1. Section 01 3591 "Historic Treatment Procedures" for general historic treatment requirements.

### 1.2 DEFINITIONS

A. Dismantle: To disassemble or detach a historic item from a surface, or a nonhistoric item from a historic surface, using gentle methods and equipment to prevent damage to historic items and surfaces; disposing of items unless indicated to be salvaged or reinstalled.

B. Existing to Remain: Existing items that are not to be removed or dismantled, except to the degree indicated for performing required Work.

C. Remove: To take down or detach a nonhistoric item located within a historic space, area, or room, using methods and equipment to prevent damage to historic items and surfaces; disposing of items unless indicated to be salvaged or reinstalled.

D. Retain: To keep existing items that are not to be removed or dismantled.

E. Salvage: To protect removed or dismantled items and deliver them to Owner.

### 1.3 PRECONSTRUCTION MEETINGS

A. Preconstruction Conference: Conduct conference at a location to be determined.

1. Review minutes of Preliminary Historic Treatment Conference that pertain to removal and dismantling procedures and protection of historic areas and surfaces.
2. Review list of items indicated to be salvaged.
3. Review methods and procedures related to removal and dismantling work.
4. Review fire prevention.

### 1.4 INFORMATIONAL SUBMITTALS

A. Removal and Dismantling Historic Treatment Program: Submit 10 days before work begins.

1.5 QUALITY ASSURANCE

A. Removal and Dismantling Historic Treatment Program: Prepare and submit a written, description of materials, methods, equipment, and sequence of operations to be used for each phase of removal and dismantling work, including protection of surrounding and substrate materials and Project site.

1. Include the following:
   a. Removal of existing wood trim and siding.
   b. Removal of existing wood shingles and any board sheathing.
   c. Other information as needed.

1.6 FIELD CONDITIONS

A. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with removal and dismantling work.

B. Storage or sale of removed or dismantled items on-site is not permitted unless otherwise indicated.

PART 2 - PRODUCTS - (Not Used)

PART 3 - EXECUTION

3.1 EXAMINATION

A. Preparation for Removal and Dismantling: Examine construction to be removed or dismantled to determine best methods to safely and effectively perform removal and dismantling work.

1. Inventory and record the condition of items to be removed and dismantled for reinstallation or salvage. Enter this information on the submittal of inventory of salvaged items.

B. Survey of Existing Conditions: Record existing conditions by use of preconstruction photographs and preconstruction video recordings.

3.2 HISTORIC REMOVAL AND DISMANTLING

A. General: Have removal and dismantling work performed by a qualified historic removal and dismantling specialist.

B. Perform work according to the historic treatment program.

C. Water-Mist Sprinkling: Use water-mist sprinkling and other wet methods to control dust only with adequate, approved procedures and equipment according to the historic treatment program

to ensure that such water does not create a hazard or adversely affect other building areas or materials.

D. Anchorages:

1. Remove anchorages associated with removed items.
2. Dismantle anchorages associated with dismantled items.
3. In non-historic surfaces, patch holes created by anchorage removal or dismantling according to the requirements for new work.
4. In historic surfaces, patch or repair holes created by anchorage removal or dismantling according to Section that is specific to the historic surface being patched.

END OF SECTION 02 4296

# SECTION 05 0370 - HISTORIC DECORATIVE METAL REPAIR

## PART 1 - GENERAL

### 1.1 SUMMARY

A. Section includes historic treatment of decorative metal ceiling tile in the form of repair as follows:

1. Stabilizing and protecting metal.
2. Repairing metal and replacing damaged and missing components in place.
3. Removing and dismantling metal for shop repair and replacement of components; reinstalling repaired metal.

B. Related Requirements:

1. Section 01 3591 "Historic Treatment Procedures" for general historic treatment requirements.

### 1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: Include plans of each new metal item.

C. Samples: For each exposed product and for each color and texture specified.

### 1.3 QUALITY ASSURANCE

A. Historic Treatment Specialist Qualifications: Qualified historic decorative metal repair specialist shall be experienced in repairing and finishing decorative metal treatment work.

## PART 2 - PRODUCTS

### 2.1 METAL MATERIALS

A. General: Provide decorative metal materials made of the alloys, forms, and types that match existing metals and have the ability to receive finishes matching existing finishes unless otherwise indicated.

## 2.2 PREPARATORY CLEANING MATERIALS

A. Water: Potable.

B. Hot Water: Water heated to a temperature of 140 to 160 deg F

C. Detergent Solution, Job Mixed: Solution prepared by mixing 2 cups of tetrasodium pyrophosphate (TSPP), 1/2 cup of laundry detergent, and 20 quarts of hot water for every 5 gal. of solution required.

D. Abrasive Materials:

1. Abrasive Pads for Copper-Alloy Cleaning: Extra fine bronze wool or plastic abrasive pads.
2. Abrasives for Ferrous Metal Cleaning: Aluminum oxide paper, emery paper, fine steel wool, steel scrapers, and steel-wire brushes of various sizes.

E. Rust Remover: Manufacturer's standard phosphoric acid-based gel formulation, also called "naval jelly," for removing corrosion from iron and steel.

## 2.3 MISCELLANEOUS MATERIALS

A. Metal Patching Compound: Two-part, polyester-resin metal-patching compound; knife-grade formulation as recommended in writing by manufacturer for type of metal repair indicated, tooling time required for the detail of work, and site conditions. Compound shall be produced for filling metal that has deteriorated because of corrosion. Filler shall be capable of filling deep holes and spreading to feather edge.

B. Fasteners: Fasteners of the same basic metal as fastened metal unless otherwise indicated. Use metals that are noncorrosive and compatible with each metal joined.

1. Match existing fasteners in material and in type of fastener unless otherwise indicated.
2. Finish exposed fasteners to match finish of metal fastened unless otherwise indicated.

# PART 3 - EXECUTION

## 3.1 HISTORIC DECORATIVE METAL REPAIR, GENERAL

A. Execution of the Work: In repairing historic items, disturb remaining existing work as minimally as possible and as follows:

1. Stabilize decorative metal to reestablish structural integrity and weather resistance while maintaining the existing form of each item.
2. Remove deteriorated coatings and corrosion.
3. Sequence work to minimize time before protective coatings are reapplied.
4. Repair items where stabilization is insufficient to stop progress of deterioration.
5. Repair items in place unless otherwise indicated.

6. Replace or reproduce historic items where indicated or scheduled.
7. Make historic treatment of materials reversible whenever possible.
8. Install temporary protective measures to stabilize decorative metal that shall be repaired later.

B. Mechanical Coating Removal: Use only the gentlest mechanical methods, such as scraping and wire brushing, that do not abrade metal substrate. Do not use abrasive methods, such as sanding, or power tools except as approved by Architect.

C. Repair Decorative Metal Item: Match existing materials and features, retaining as much original material as possible to complete the repair.

D. Replace Decorative Metal Component: Where indicated, duplicate and replace items with new metal matching existing metal.

1. Replace heavily deteriorated or missing parts or features of decorative metal with compatible materials, using surviving prototypes to create patterns or molds for duplicate replacements.

## 3.2 PREPARATORY CLEANING

A. General: Use only those methods indicated for each type of decorative metal and its location.

1. Brushes: If using wire brushes, use brushes of same base metal composition as metal being treated. Use brushes that are resistant to chemicals being used.

2. Uniformity: Perform each cleaning method in a manner that results in uniform coverage of all surfaces, including corners, contours, and interstices, and that produces an even effect without streaks or damaging surfaces.

B. Water Cleaning: Clean with hot water scrubbing by hand. Supplement with natural-fiber or plastic bristle brush. Use small brushes to remove soil from joints and crevices.

C. Detergent Cleaning:

1. Wet surface with hot water scrubbing by hand.
2. Scrub surface with detergent solution and natural-fiber or plastic bristle brush until soil is thoroughly dislodged and can be removed by rinsing. Use small brushes to remove soil from joints and crevices. Dip brush in solution often to ensure that adequate fresh detergent is used and that surface remains wet.
3. Rinse with cold water applied by low pressure spray to remove detergent solution and soil.

D. Cleaning with Abrasive Pads: Clean surfaces to remove dirt**,** leaving uniform patina intact, by light rubbing with abrasive pads and water. Rinse with cold water to remove residue.

E. Chemical Rust Removal:

1. Remove loose rust scale with approved abrasives for ferrous metal cleaning.

2. Apply rust remover with brushes or as recommended in writing by manufacturer.
3. Allow rust remover to remain on surface for period recommended in writing by manufacturer or as determined by preconstruction testing. Do not allow extended dwell time.
4. Wipe off residue with mineral spirits and either steel wool or soft rags, or clean with method recommended in writing by manufacturer to remove residue. Dry immediately with clean, soft cloths. Follow direction of grain in metal.
5. Prime immediately to prevent rust. Do not touch cleaned metal surface until primed.

F. Mechanical Rust Removal:

1. Remove rust with approved abrasives for metal cleaning.
2. Wipe off residue with mineral spirits and either steel wool or soft rags.
3. Dry immediately with clean, soft cloths. Follow direction of grain in metal.
4. Prime immediately to prevent rust. Do not touch cleaned metal surface until primed.

## 3.3 REMOVAL, REPAIR, AND REINSTALLATION

A. General: Perform removal and dismantling work as required in Section 02 4296 "Historic Removal and Dismantling."

B. Defects in Painted Metal Surfaces: Repair non-load-bearing defects in existing metal surfaces, including dents and gouges more than 1/8 inch deep or 1/2 inch across and all holes and cracks by filling with metal patching compound and sanding smooth. Remove burrs and protruding fasteners. Prime iron and steel surfaces immediately after repair to prevent flash rusting.

C. Reinstalling Decorative Metal: Reinstall decorative metal work by fitting and attaching to blend with existing adjacent material. Provide flat fitting seams and match fastener spacing and pattern.

## 3.4 PRIMING

A. Repair Primer: Apply immediately after completing a repair.

## 3.5 HISTORIC DECORATIVE METAL SCHEDULE

A. Treatment of Decorative Metal Ceiling Tile Panels.

1. General: Perform work in the shop or in the field.
2. Cleaning, paint removal, rust removal and repair as specified above.

    a. Apply repair primer immediately after repair.

3. Painted Finish: As specified in Section 09 0391 "Historic Treatment of Plain Painting.".

END OF SECTION 05 0370

# SECTION 06 0110 – MAINTENANCE OF ROUGH CARPENTRY

## PART 1 - GENERAL

### 1.1 SUMMARY

A. This Section includes the following:

1. Maintenance of rough framing lumber by means of rehabilitation or preservation.

## PART 2 - PRODUCTS

### 2.1 WOOD PRODUCTS, GENERAL

A. Lumber: Provide lumber that complies with the applicable rules of a rules-writing agency certified by the ALSC Board of Review. Provide lumber graded by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.

1. Factory mark each piece of lumber with grade stamp of grading agency.
2. Provide dressed lumber, S4S, unless otherwise indicated.

### 2.2 DIMENSION LUMBER FRAMING

A. Maximum Moisture Content: Provide kiln dried wood with a moisture content of 19 percent or less.

B. Non-Load-Bearing Interior Partitions and miscellaneous framing: Provide Stud or No. 3 or better grade in any species.

C. Load-Bearing Framing: Load bearing dimension lumber for plates, studs, rafters, joists and headers shall be identified by a grade mark of a lumber or inspection agency that has been approved by an accreditation body that complies with DOC PS 20. Provide No. 2 or better grade in any of the following species:

1. Douglas fir.
2. Hem-fir.
3. Southern pine.
4. Spruce-pine-fir.

### 2.3 MISCELLANEOUS LUMBER

A. General: Provide miscellaneous lumber indicated and lumber for support or attachment of other construction, including the following:

1. Blocking.

2. Nailers.
3. Furring.

B. For exposed boards, provide Finish grade lumber with 19 percent maximum moisture content of eastern white pine; in B and Better, surfaced on all four sides (S4S).

## 2.4 MISCELLANEOUS PLYWOOD

A. Miscellaneous Plywood for Framing: Provide exterior grade sheathing in thicknesses as indicated in the drawings.

## 2.5 FASTENERS

A. General: Where carpentry is exposed to weather, in ground contact, preservative treated, or in area of high relative humidity, provide fasteners with hot-dip zinc coating complying with ASTM A 153/A 153M.

# PART 3 - EXECUTION

## 3.1 HISTORIC WOOD REPAIR, GENERAL

A. General: In treating historic items, disturb them as minimally as possible and as follows:

1. Stabilize and repair wood to reestablish structural integrity and weather resistance while maintaining the existing form of each item.
2. Repair items in place where possible.
3. Provide Dutchmen repairs to replace small damaged sections of historic wood members.
4. Lap splice replacement sections of wood members with like sized members.
5. Refer to Section 06 0310 “Historic Wood Repairs”.

## 3.2 INSTALLATION, GENERAL

A. Set carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit carpentry to other construction; scribe and cope as needed for accurate fit. Locate nailers, blocking, and similar supports to comply with requirements for attaching other construction.

B. Comply with AWPA M4 for applying field treatment to cut surfaces of preservative-treated lumber.

C. Securely attach carpentry work to substrate by anchoring and fastening as indicated, complying with the following:

1. Table 2304.9.1, "Fastening Schedule," in ICC's International Building Code.

END OF SECTION 06 0110

# SECTION 06 0310 - HISTORIC WOOD REPAIR

## PART 1 - GENERAL

### 1.1 SUMMARY

A. This Section includes historic treatment of wood repairs as follows:

1. Repairing wood siding and trim.

2. Replacing wood siding and trim.

B. Related Requirements:

1. Section 01 3591 "Historic Treatment Procedures" for general historic treatment requirements.
2. Section 08 0352 "Historic Treatment of Wood Windows" for historic wood window repairs, including related trim.

### 1.2 UNIT PRICES

A. Work of this Section is affected by unit prices specified in Section 01 2200 "Unit Prices."

### 1.3 SUBMITTALS

A. Product data. For each type of product.

B. Sequencing and Scheduling Work Areas.

### 1.4 PREINSTALLATION MEETINGS

A. Pre-installation Conference: Conduct a pre-installation conference to review wood repairs goals and methods. Conference location to be determined.

1. Review methods and procedures related to historic wood repair.

### 1.5 QUALITY ASSURANCE

A. Historic Treatment Specialist Qualifications: A qualified historic wood-repair specialist, experienced in repairing, refinishing, and replacing wood in whole and in part. Experience only in fabricating and installing new woodwork is insufficient experience for wood historic treatment work.

B. Wood-Repair-Material Manufacturer Qualifications: A firm regularly engaged in producing wood consolidant and wood-patching compound that have been used for similar historic wood-

treatment applications with successful results, and with factory-authorized service representatives who are available for consultation, Project-site inspection, and on-site assistance.

C. Quality Standard: Comply with applicable requirements in Section 12, "Historic Restoration Work," and related requirements in AWI/AWMAC/WI's "Architectural Woodwork Standards" for construction, finishes, grade rules, and other requirements unless otherwise indicated.

D. Mockups: Prepare mockups of historic treatment repair processes to demonstrate aesthetic effects and to set quality standards for materials and execution, and for fabrication and installation. Approved mockups can be left as part of the finished work.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

A. Abatron, Inc. www.abatron.com

B. ConServ Epoxy LLC www.conservepoxy.com

C. PC-Products. www.pcepoxy.com

D. Roux Laboratories www.rouxbeauty.com

### 2.2 WOOD-REPLACEMENT MATERIALS

A. Wood, General: Clear fine-grained lumber; kiln dried to a moisture content of 6 to 12 percent at time of fabrication; free of visible finger joints, blue stain, knots, pitch pockets, and surface checks larger than 1/32 inch deep by 2 inches wide.

1. Species: Match species of each existing type of wood component or assembly unless otherwise indicated.

### 2.3 WOOD-REPAIR MATERIALS

A. Wood Consolidant: Ready-to-use product designed to penetrate, consolidate, and strengthen soft fibers of wood materials that have deteriorated due to weathering and decay and designed specifically to enhance the bond of wood-patching compound to existing wood.

B. Wood-Patching Compound: Multiple-part, epoxy-resin, wood-patching compound; knife-grade formulation as recommended in writing by manufacturer for type of wood repair indicated, tooling time required for the detail of work, and site conditions. Compound shall be designed for filling voids in damaged wood materials that have deteriorated due to weathering and decay. Compound shall be capable of filling deep holes and spreading to featheredge.

C. Epoxy consolidant and epoxy filler, both are multiple part compounds. Purchase by the gallon unless a large amount of epoxying needs to be done. Use one of the following, or approved equal:

1. "Con Serv (T) Flexible Consolidant 100"(ConServ Epoxy LLC): Cures slowly with a 5 to 7 hour application time to allow deep penetration. Complete hardness is achieved in 3 to 6 days.

2. "Con Serv (T) Flexible Patch 200" (ConServ Epoxy LLC): A four part putty-like filler; Not easy to mix in small amounts; Consistency and hardness are easily controlled with this material.

    a. NOTE: The above products of ConServ Epoxy LLC are recommended for treatment of thicker wood such as window sills. Because of its slower curing time, it allows for deeper penetration into members.

3. "Liquidwood-1" Consolidant (Abatron): Solidifies in a short period of time.

4. "Woodepox-2" Adhesive Paste (Abatron): A two-part paste mix; final hardness is determined by varying the ratio of the two parts. The LiquidWood can be used as a thinner, but this reduces the flexibility of the filler.

    a. NOTE: The above Abatron products are recommended for use on small members such as window sashes where deep penetration of consolidant is not required. The quick drying feature provides an advantage for small repetitive jobs. Abatron provides many different types of wood consolidants with varying degrees of penetration.

## 2.4 ACCESSORIES

A. Applicator bottles: Plastic bottles in 8 fl. oz. size, with a tapered nozzle, can be used to apply the consolidant. Having many on hand is recommended, and cleaning for reuse is possible.

B. Nitrile rubber gloves or disposable vinyl gloves. Hypoallergenic to avoid an allergic reaction to latex gloves.

C. Rags of different sizes to wipe up spills before epoxy has a chance to harden, small rags are recommended for quick one time uses such as wiping off spouts and caps.

D. Thin wooden sticks, approximately 8" long for scooping out paste and mixing consolidant.

E. Goggles and a respirator for protection from fumes.

F. Putty knives for application of filler.

G. 1/8"x8"x12" Masonite board or Lexan glass for mixing paste filler.

H. Oil clay purchased from a hobby store can be used to keep consolidant from leaking through cracks.

## 2.5 HARDWARE

A. Hardware, General: Provide hardware required for each type of replicated or repaired wood, including but not limited to hinges, pulls, latches, fasteners, and accessories indicated or

required for proper operation. Hardware shall smoothly operate, tightly close, and secure units appropriately for frequency of use, unit weight, and dimensions.

B. Replacement Hardware: Replace existing damaged or missing hardware with new hardware.

## 2.6 MISCELLANEOUS MATERIALS

A. Cleaning Materials:

1. Detergent Solution: Solution prepared by mixing 2 cups of tetrasodium pyrophosphate (TSPP), 1/2 cup of laundry detergent that contains no ammonia, 5 quarts of 5 percent sodium hypochlorite bleach, and 15 quarts of warm water for each 5 gal. of solution required.
2. Mildewcide: Commercial, proprietary mildewcide or a solution prepared by mixing 1/3 cup of household detergent that contains no ammonia, 1 quart of 5 percent sodium hypochlorite bleach, and 3 quarts of warm water.

B. Borate Preservative Treatment: Inorganic, borate-based solution, with disodium octaborate tetrahydrate or boron sodium oxide as the primary ingredient; manufactured for preserving weathered and decayed wood from further damage caused by fungi and wood-boring insects; complying with AWPA P5; containing no boric acid.

1. Manufacturers:

a. Bora-Care.
b. PenaShield.
c. Pre-approved equal products. – See Substitution Request.

C. Adhesives: Wood adhesives with minimum 15- to 45-minute cure at 70 deg F in gunnable and liquid formulations as recommended in writing by adhesive manufacturer for each type of repair and exposure condition.

D. Fasteners: Use fastener metals that are noncorrosive and compatible with each material joined.

1. Match existing fasteners in material and type of fastener unless otherwise indicated.
2. Use concealed fasteners for interconnecting wood components.
3. Use concealed fasteners for attaching items to other work unless exposed fasteners are unavoidable or the existing fastening method.
4. For fastening metals, use fasteners of same basic metal as fastened metal unless otherwise indicated.
5. For exposed fasteners, use Phillips-type machine screws of head profile flush with metal surface unless otherwise indicated.

## 2.7 WOOD FINISHES

A. Unfinished Replacement Wood: Provide exposed exterior wood surfaces of replacement units unfinished; smooth, filled, and suitably prepared for on-site priming and finishing.

## PART 3 - EXECUTION

### 3.1 PREPARATION

A. Clean wood of mildew, algae, moss, plant material, loose paint, grease, dirt, and other debris by scrubbing with bristle brush or sponge and detergent solution. Scrub mildewed areas with mildewcide. After cleaning, rinse thoroughly with fresh water. Allow to dry before repairing or painting.

B. Condition replacement wood members and replacement units to prevailing conditions at installation areas before installing.

C. Dry affected wood member completely to arrest further decay. Dry in place if possible or remove the member and keep in a cool dry place until dry.

1. CAUTION: If this precaution is not taken, the epoxy can actually trap moisture underneath it in the wood fibers and accelerate the decay process.

### 3.2 HISTORIC WOOD REPAIR, GENERAL

A. General: In treating historic items, disturb them as minimally as possible and as follows:

1. Stabilize and repair wood to reestablish structural integrity and weather resistance while maintaining the existing form of each item.
2. Remove coatings and apply borate preservative treatment before repair. Remove coatings according to Section 09 0391 "Historic Treatment of Plain Painting" unless otherwise indicated.
3. Repair items in place where possible.
4. Install temporary protective measures to protect wood-treatment work that is indicated to be completed later.
5. Refinish historic wood according to Section 09 0391 "Historic Treatment of Plain Painting" unless otherwise indicated.

B. Mechanical Abrasion: Where mechanical abrasion is needed for the work, use only the gentlest mechanical methods, such as scraping and natural-fiber bristle brushing that will not abrade wood substrate, reducing clarity of detail. Do not use abrasive methods, such as sanding, wire brushing, or power tools, except as approved by Architect.

C. Repair Wood: Match existing materials and features, retaining as much original material as possible to perform repairs.

1. Unless otherwise indicated, repair wood by consolidating, patching, splicing, or otherwise reinforcing wood with new wood matching existing wood or with salvaged, sound, original wood.
2. Where indicated, repair wood by limited replacement matching existing material.

D. Replace Wood: Where indicated, duplicate and replace units with units made from salvaged, sound, original wood or with new wood matching existing wood. Use surviving prototypes to create patterns for duplicate replacements.

## 3.3 WOOD PATCH-TYPE REPAIR

A. General: Patch wood that exhibits depressions, holes, or similar voids, and that has limited amounts of rotted or decayed wood.

1. Remove rotted or decayed wood down to sound wood.
2. Apply borate preservative treatment.
3. Treat surrounding wood with wood consolidant.
4. Apply wood-patching compound to fill depressions.

B. Apply borate preservative treatment to accessible surfaces around the affected area either before applying wood consolidant or after removing rotted or decayed wood.

C. Treat wood with wood consolidant prior to application of patching compound. Coat wood surfaces by brushing, applying multiple coats until wood is saturated and refuses to absorb more. Allow treatment to harden before filling void with patching compound.

D. Apply wood-patching compound to fill depressions, nicks, cracks, and other voids created by removed or missing wood.

1. Prime patch area with application of wood consolidant or manufacturer's recommended primer.
2. Apply patching compound in layers as recommended in writing by manufacturer until the void is completely filled.
3. Sand patch surface smooth and flush with adjacent wood, without voids in patch material, and matching contour of wood member.

## 3.4 WOOD CONSOLIDANT APPLICATION

A. Repair decayed wood using epoxy wood consolidant. Always follow the recommendations for use provided by the manufacturer of the filler or consolidant chosen.

B. Remove all damaged wood from affected board or trim.

1. Remove sawdust and dirt from drilled holes by blowing or vacuuming, or use of stiff bristle brushes.

2. Drill 1/4" or 3/16" holes in affected wood to receive epoxy consolidant.

3. Drill holes at an angle and spaced approximately 2" on center in staggered rows. The top of one hole should line up with the bottom of the next hole.

4. Be sure not to drill through the entire surface or consolidant will leak out from behind.

5. Dam any surface cracks with oil clay so that epoxy will not leak.

6. Following manufacturer's instructions, thoroughly mix the consolidant components.

7. Using a large plastic syringe or squeeze bottle and tube spout, carefully squirt the consolidant into the pre-drilled holes. Completely saturate the wood, moving from hole

to hole refilling until the wood can hold no more. More than one application may be needed to force air out of voids.

8. Wipe off any excess consolidant or spills and cover the treated area to protect until cured as directed by epoxy manufacturer.

9. If severed pieces need to be re-attached, glue them in place with a mixture of consolidant and filler, according to the manufacturer's instructions.

## 3.5 WOOD FILLER APPLICATION

A. Wood Epoxy Putty:

1. When the consolidant has cured, fill the voids in the surface with epoxy filler.

2. Mix the two part epoxy filler according to manufacturer's instructions until consistency of a glazing compound is uniform and compound can be worked with a putty knife.

3. Apply the filler to the surface For large voids, apply filler in 1" thick layers to reduce heat build-up that may undermine repairs.

   a. CAUTION: As epoxies cure, heat is produced. for this reason, epoxies should be used in small quantities to deter extensive heat build-up. Care should be taken when using epoxy on a hot day. Use caution when disposing of epoxy-covered application equipment.

4. Build up filler layers slightly above the wood surface to allow for planing and sanding smooth after it has cured.

5. When the filler has cured, sand or plane the surface smooth.

6. Apply a wood preservative to the surrounding wood surfaces, prime and paint the entire surface.

## 3.6 WOOD-REPLACEMENT REPAIR

A. General: Replace parts of or entire wood items at locations indicated on Drawings and where damage is too extensive to patch.

1. Remove broken, rotted, and decayed wood down to sound wood.
2. Custom fabricate new wood to replace missing wood; either replace entire wood member or splice new wood part into existing member.
3. Secure new wood using finger joints, lap splices, wood Dutchman, multiple dowels, or splines with adhesive and nailing to ensure maximum structural integrity at each splice. Use only concealed fasteners. Fill nail holes and patch surface to match surrounding sound wood.
4. Apply borate preservative treatment to accessible surfaces after replacements are made. Apply treatment liberally by brush to joints, edges, and ends; top, sides, and bottom.
5. Repair remaining depressions, holes, or similar voids with patch-type repairs.

6. Reinstall items removed for repair into original locations.

END OF SECTION 06 0310

# SECTION 06 2013 - EXTERIOR FINISH CARPENTRY

## PART 1 - GENERAL

### 1.1 SUMMARY

A. This Section includes wood siding.

## PART 2 - PRODUCTS

### 2.1 MATERIALS, GENERAL

A. Lumber: DOC PS 20 and applicable grading rules of inspection agencies certified by ALSC's Board of Review.

### 2.2 LUMBER SIDING

A. Provide kiln-dried lumber siding complying with DOC PS 20**.**

B. Species and Grade: 1 Common spruce-pine-fir; NLGA, WCLIB, or WWPA.

C. Siding Style: Shiplap wood siding.

D. Size: Nominal 1x4. Verify existing and match.

### 2.3 EXTERIOR TRIM

A. Lumber Trim:

1. Species and Grade: Eastern white pine, eastern hemlock-balsam fir-tamarack, eastern spruce, or white woods; Finish or 1 Common NeLMA, NLGA, WCLIB, or WWPA.
2. Maximum Moisture Content: 19 percent.
3. Face Surface: Surfaced smooth.

### 2.4 MISCELLANEOUS MATERIALS

A. Fasteners for Exterior Finish Carpentry: Provide nails in sufficient length to penetrate not less than 1-1/2 inches into wood substrate.

1. For face-fastening siding, provide hot-dip galvanized steel fasteners.

B. Flashing: Comply with requirements in Section 07 6200 "Sheet Metal Flashing and Trim" for flashing materials installed in exterior finish carpentry.

1. Horizontal Joint Flashing for Siding: Preformed, prefinished galvanized-steel, Z-shaped flashing.

C. Sealants: Latex, complying with ASTM C 834, and with applicable requirements in Division 07 Section "Joint Sealants," recommended by sealant manufacturer and manufacturer of substrates for intended application.

## PART 3 - EXECUTION

### 3.1 PREPARATION

A. Prime lumber to be painted, including both faces and edges. Cut to required lengths and prime ends. Comply with requirements in Division 09 Section "Exterior Painting."

### 3.2 INSTALLATION, GENERAL

A. Install exterior finish carpentry level, plumb, true, and aligned with adjacent materials. Use concealed shims where necessary for alignment.

1. Scribe and cut exterior finish carpentry to fit adjoining work. Refinish and seal cuts as recommended by manufacturer.

B. Fit exterior joints to exclude water. Cope at returns and miter at corners to produce tight-fitting joints, with full-surface contact throughout length of joint. Plane backs of casings to provide uniform thickness across joints, where necessary for alignment.

### 3.3 HISTORIC SIDING REPAIRS

A. General: In treating historic items, disturb them as minimally as possible and as follows:

1. Stabilize and repair existing wood to reestablish structural integrity and weather resistance while maintaining the existing form of each item.
2. Repair items in place where possible.
3. Replace siding in the smallest sections necessary, splicing over wall studs. Stagger splices vertically to blend.
4. When replacing siding, take care when loosening upper course to prevent additional damage.

### 3.4 SIDING INSTALLATION

A. Install siding to comply with manufacturer's written instructions.

B. Horizontal Lumber Siding: Install first course of siding with lower edge cut flush and set on to flashing. Nail at each stud matching existing nailing methods. Do not allow nails to penetrate more than one thickness of siding.

1. Match existing weather exposure and spacing between siding to achieve a uniform appearance and blend with existing.

END OF SECTION 06 2013

# SECTION 07 6200 - SHEET METAL FLASHING AND TRIM

## PART 1 - GENERAL

### 1.1 SUMMARY

A. Section Includes:
   1. Sheet metal fabrications.

### 1.2 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Shop Drawings: Show installation layouts of sheet metal flashing and trim, including plans, elevations, sections, and edge conditions.

### 1.3 QUALITY ASSURANCE

A. To provide quality assurance for Sheet Metal Flashing and Trim comply with the following:

   1. Comply with SMACNA's "Architectural Sheet Metal Manual" unless more stringent requirements are specified or shown on Drawings.

B. Flashings and fasteners shall be designed and installed for maximum wind speed peak gusts of 55 mph measured at 10 meters above ground level.

### 1.4 WARRANTY

A. Special Warranty on Finishes: Manufacturer's standard form in which manufacturer agrees to repair finish or replace sheet metal flashing and trim that shows evidence of deterioration of factory-applied finishes within 20 years from date of Substantial Completion.

## PART 2 - PRODUCTS

### 2.1 PERFORMANCE REQUIREMENTS

A. General: Sheet metal flashing and trim assemblies shall withstand wind loads, structural movement, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction. Completed sheet metal flashing and trim shall not rattle, leak, or loosen, and shall remain watertight.

B. Sheet Metal Standard for Flashing and Trim: Comply with SMACNA's "Architectural Sheet Metal Manual" requirements for dimensions and profiles shown unless more stringent requirements are indicated.

## 2.2 SHEET METALS

A. General: Protect mechanical and other finishes on exposed surfaces from damage by applying a strippable, temporary protective film before shipping.

B. Aluminum Sheet: ASTM B 209, alloy as standard with manufacturer for finish required, with temper as required to suit forming operations and performance required.

1. Exposed Coil-Coated Finish:

a. Two-Coat Fluoropolymer: AAMA 2605. Fluoropolymer finish containing not less than 70 percent PVDF resin by weight in color coat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.

## 2.3 UNDERLAYMENT MATERIALS

A. Felt: ASTM D 226, Type II (No. 30), asphalt-saturated organic felt, nonperforated.

## 2.4 MISCELLANEOUS MATERIALS

A. General: Provide materials and types of fasteners, solder, welding rods, protective coatings, separators, sealants, and other miscellaneous items as required for complete sheet metal flashing and trim installation and recommended by manufacturer of primary sheet metal unless otherwise indicated.

B. Fasteners: Provide suitable fasteners designed to withstand wind design loads and as recommended by manufacturer of primary sheet metal.

1. General: Fasteners for Aluminum Sheet: Aluminum trim nails with prefinished heads.

C. Elastomeric Sealant: ASTM C 920, elastomeric polymer sealant; low modulus; of type, grade, class, and use classifications required to seal joints in sheet metal flashing and trim and remain watertight.

## 2.5 FABRICATION, GENERAL

A. General: Custom fabricate sheet metal flashing and trim to comply with recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to design, dimensions, geometry, metal thickness, and other characteristics of item indicated. Fabricate items at the shop to greatest extent possible.

1. Obtain field measurements for accurate fit before shop fabrication.

2. Form sheet metal flashing and trim without excessive oil canning, buckling, and tool marks and true to line and levels indicated, with exposed edges folded back to form hems.
3. Conceal fasteners and expansion provisions where possible. Exposed fasteners are not allowed on faces exposed to view.

B. Sealed Joints: Form nonexpansion but movable joints in metal to accommodate elastomeric sealant.

## PART 3 - EXECUTION

### 3.1 INSTALLATION, GENERAL

A. General: Anchor sheet metal flashing and trim and other components of the Work securely in place, with provisions for thermal and structural movement so that completed sheet metal flashing and trim shall not rattle, leak, or loosen, and shall remain watertight. Use fasteners, solder, welding rods, protective coatings, separators, sealants, and other miscellaneous items as required to complete sheet metal flashing and trim system.

1. Install sheet metal flashing and trim true to line and levels indicated. Provide uniform, neat seams with minimum exposure of solder, welds, and sealant.
2. Install sheet metal flashing and trim to fit substrates and to result in watertight performance. Verify shapes and dimensions of surfaces to be covered before fabricating sheet metal.
3. Install exposed sheet metal flashing and trim without excessive oil canning, buckling, and tool marks.
4. Torch cutting of sheet metal flashing and trim is not permitted.

B. Metal Protection: Where dissimilar metals will contact each other or corrosive substrates, protect against galvanic action by painting contact surfaces with bituminous coating or by other permanent separation as recommended by SMACNA.

1. Underlayment: Where installing metal flashing directly on cementitious or wood substrates, install a course of felt underlayment and cover with a slip sheet.

C. Fastener Sizes: Use fasteners of sizes that will penetrate wood sheathing not less than 1-1/4 inches for nails.

### 3.2 CLEANING AND PROTECTION

A. Clean exposed metal surfaces of substances that interfere with uniform oxidation and weathering.

B. Clean off excess sealants.

END OF SECTION 07 6200

# SECTION 07 9200 - JOINT SEALANTS

## PART 1 - GENERAL

### 1.1 SUMMARY

A. This Section includes exterior joint sealants for vertical surfaces and horizontal non-traffic surfaces.

### 1.2 PERFORMANCE REQUIREMENTS

A. Provide elastomeric joint sealants that establish and maintain watertight and airtight continuous joint seals without staining or deteriorating joint substrates.

### 1.3 SUBMITTALS

A. Product Data: For each joint-sealant product indicated.

### 1.4 WARRANTY

A. Manufacturer's Warranty: Manufacturer's standard form in which elastomeric sealant manufacturer agrees to furnish elastomeric joint sealants to repair or replace those that do not comply with performance and other requirements specified in this Section within specified warranty period.

1. Warranty Period: Two years from date of Substantial Completion.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

A. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, products listed in other Part 2 articles.

### 2.2 MATERIALS, GENERAL

A. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by sealant manufacturer, based on testing and field experience.

## 2.3 ELASTOMERIC JOINT SEALANTS

A. Elastomeric Sealants: Comply with ASTM C 920 and other requirements indicated for each liquid-applied chemically curing sealant specified, including those referencing ASTM C 920 classifications for type, grade, class, and uses related to exposure and joint substrates.

## 2.4 LATEX JOINT SEALANTS

A. Latex Sealant: Comply with ASTM C 834, Type O P, Grade NF.

B. Available Products:

1. Bostik Findley; Chem-Calk 600.
2. Pecora Corporation; AC-20+.
3. Schnee-Morehead, Inc.; SM 8200.
4. Sonneborn, Division of ChemRex Inc.; Sonolac.
5. Tremco; Tremflex 834.

## 2.5 MISCELLANEOUS MATERIALS

A. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants to joint substrates.

# PART 3 - EXECUTION

## 3.1 PREPARATION

A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants.

1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant. Clean porous joint substrate surfaces by brushing or scraping to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining after cleaning operations above by vacuuming or blowing out joints with oil-free compressed air.

## 3.2 INSTALLATION

A. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.

B. Install sealants using proven techniques that comply with the following and at the same time backings are installed:

1. Place sealants so they directly contact joint substrates.
2. Completely fill recesses in each joint configuration.

C. Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

## 3.3 EXTERIOR JOINT-SEALANT SCHEDULE

A. Joint-Sealant Application EJS-1: Exterior horizontal and vertical joints on painted exterior wood trim.

1. Joint Sealant: Latex sealant.
2. Joint-Sealant Color: White.

END OF SECTION 07 9200

# SECTION 08 0352 - HISTORIC TREATMENT OF WOOD WINDOWS

## PART 1 - GENERAL

### 1.1 SUMMARY

A. Section includes historic treatment of wood windows in the form of the following:

1. Repairing wood windows and trim.
2. Reglazing.
3. Repairing storm windows.
4. Replacing storm windows.

B. Related Requirements:

1. Section 01 3591 "Historic Treatment Procedures" for general historic treatment requirements.

### 1.2 UNIT PRICES

A. Work of this Section is affected by unit prices specified in Section 01 2200 "Unit Prices."

### 1.3 DEFINITIONS

A. Window: Includes window frame, sash, hardware, trim, and storm window unless otherwise indicated by context.

B. Exterior Trim: Exterior casing, sill, and drip cap.

### 1.4 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1. Review minutes of Preliminary Historic Treatment Conference that pertain to historic treatment of wood windows and fire protection.
2. Review methods and procedures related to historic treatment of wood windows.

### 1.5 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: Include plans, elevations, and sections showing locations and details of each new or repaired unit and its corresponding window locations in the building on annotated plans and elevations.

## 1.6 QUALITY ASSURANCE

A. Historic Treatment Specialist Qualifications: A qualified historic wood window specialist, experienced in repairing, refinishing, and replacing wood windows in whole and in part. Experience only in fabricating and installing new wood windows is insufficient experience for wood-window historic treatment work.

B. Wood-Repair-Material Manufacturer Qualifications: A firm regularly engaged in producing wood consolidant and wood-patching compound that have been used for similar historic wood-treatment applications with successful results, and with factory-authorized service representatives who are available for consultation and Project-site inspection and on-site assistance.

# PART 2 - PRODUCTS

## 2.1 HISTORIC TREATMENT OF WOOD WINDOWS, GENERAL

A. Quality Standard: Comply with applicable requirements in Section 12, "Historic Restoration Work," and related requirements in AWI/AWMAC/WI's "Architectural Woodwork Standards" for construction, finishes, grades of wood windows, and other requirements unless otherwise indicated.

## 2.2 STORM WINDOWS

A. General: Custom fabricated, tight fitting, replicating appearance of existing storm windows, and with matching hardware.

1. Fabricate storm windows for installation in existing exterior window locations.
2. Fabricate storm window frames and mullions to match existing.
3. Make storm windows removable for cleaning and storage.

B. Wood Storm Windows:

1. Wood Species: Match wood species of exterior trim and sash parts. Verify existing wood is Pine.
2. Wood Storm-Window Members: Match wood profiles of existing storm windows.
3. Hardware: Reuse existing unless otherwise indicated. Replace missing hardware to match existing hardware.
4. Glazing Material: Uncoated clear float glass.

## 2.3 WOOD-REPLACEMENT MATERIALS

A. Wood, General: Clear fine-grained lumber; kiln dried to a moisture content of 6 to 12 percent at time of fabrication; free of visible finger joints, blue stain, knots, pitch pockets, and surface checks larger than 1/32 inch deep by 2 inches wide.

1. Species: Match species of each existing type of wood components unless otherwise indicated.

## 2.4 WOOD-REPAIR MATERIALS

A. See Section 06 0310 Historic Wood Repair for wood repair products and installation.

B. Wood Consolidant: Ready-to-use product designed to penetrate, consolidate, and strengthen soft fibers of wood materials that have deteriorated due to weathering and decay and designed specifically to enhance the bond of wood-patching compound to existing wood.

C. Wood-Patching Compound: Two-part epoxy-resin wood-patching compound; knife-grade formulation as recommended in writing by manufacturer for type of wood repair indicated, tooling time required for the detail of work, and site conditions. Compound shall be designed for filling voids in damaged wood materials that have deteriorated due to weathering and decay. Compound shall be capable of filling deep holes and spreading to feather edge.

## 2.5 GLAZING MATERIALS

A. Glass: Provide Clear Annealed Float Glass: ASTM C 1036, Type I, 1/8 inch thick. Glass: See Section 08 8000 "Glazing."

B. Glazing Systems:

1. Modern Glazing Products: Glazing points and single-component polyurethane glazing compound; struck to match taper of existing glazing putty (removed); colored as required to match painted sash.
2. Primers and Cleaners for Glazing: As recommended in writing by glazing material manufacturer.
3. Glazier Points. Galvanized 3/8” points. Red Devil or equal.

## 2.6 HARDWARE

A. Replacement Hardware: Replace existing damaged or missing hardware with new hardware.

## 2.7 MISCELLANEOUS MATERIALS

A. Borate Preservative Treatment: Inorganic, borate-based solution, with disodium octaborate tetrahydrate as the primary ingredient; manufactured for preserving weathered and decayed wood from further damage by decay fungi and wood-boring insects; complying with AWPA P5; containing no boric acid.

B. Cleaning Materials:

1. Detergent Solution: Solution prepared by mixing 2 cups of tetrasodium pyrophosphate (TSPP), 1/2 cup of laundry detergent that contains no ammonia, 5 quarts of 5 percent sodium hypochlorite bleach, and 15 quarts of warm water for each 5 gal. of solution required.
2. Mildewcide: Commercial, proprietary mildewcide or a solution prepared by mixing 1/3 cup of household detergent that contains no ammonia, 1 quart of 5 percent sodium hypochlorite bleach, and 3 quarts of warm water.

C. Adhesives: Wood adhesives for exterior exposure, with minimum 15- to 45-minute cure at 70 deg F, in gunnable and liquid formulations as recommended in writing by adhesive manufacturer for each type of repair.

D. Fasteners: Use fastener metals that are noncorrosive and compatible with each material joined.

1. Match existing fasteners in material and type of fastener unless otherwise indicated.
2. Use concealed fasteners for interconnecting wood components.
3. Use concealed fasteners for attaching items to other work unless exposed fasteners are unavoidable or the existing fastening method.
4. For exposed fasteners, use Phillips-type machine screws of head profile flush with metal surface unless otherwise indicated.

## 2.8 WOOD WINDOW FINISHES

A. Unfinished Replacement Units: Provide exposed exterior wood surfaces of replacement units unfinished; smooth, filled, and suitably prepared for on-site priming and finishing.

B. Shop-Finished Units: Contractor’s option to provide shop painted finish. Paint finish system shall consist of primer and two finish coats on exposed exterior and interior wood surfaces.

1. Finish Coats: As specified in Section 090391 "Historic Treatment of Plain Painting."

C. Color and Gloss: Match existing paint color and gloss.

# PART 3 - EXECUTION

## 3.1 PREPARATION

A. Clean wood windows of mildew, algae, moss, plant material, loose paint, grease, dirt, and other debris by scrubbing with bristle brush or sponge and detergent solution. Scrub mildewed areas with mildewcide. After cleaning, rinse thoroughly with fresh water. Allow to dry before repairing or painting.

B. Condition replacement wood members and replacement units to prevailing conditions at installation areas before installing.

## 3.2 HISTORIC TREATMENT OF WOOD WINDOWS, GENERAL

A. General: In treating historic items, disturb them as minimally as possible and as follows:

1. Stabilize and repair wood windows to reestablish structural integrity and weather resistance while maintaining the existing form of each item.
2. Remove coatings and apply borate preservative treatment before repair. Remove coatings according to Section 09 0391 "Historic Treatment of Plain Painting" unless otherwise indicated.
3. Repair items in place where possible.

4. Install temporary protective measures to protect wood window work that is indicated to be completed later.
5. Refinish historic wood windows according to Section 09 0391 "Historic Treatment of Plain Painting" unless otherwise indicated.

B. Mechanical Abrasion: Where mechanical abrasion is needed for the work, use only the gentlest mechanical methods, such as scraping and natural-fiber bristle brushing, that will not abrade wood substrate, reducing clarity of detail. Do not use abrasive methods such as sanding, wire brushing, or power tools except as approved by Architect.

C. Repair and Refinish Existing Hardware: Dismantle window hardware; strip paint, repair, and refinish it to match finish samples; and lubricate moving parts just enough to function smoothly.

D. Repair Wood Windows: Match existing materials and features, retaining as much original material as possible to perform repairs.

1. Unless otherwise indicated, repair wood windows by consolidating, patching, splicing, or otherwise reinforcing wood with new wood matching existing wood or with salvaged, sound, original wood.
2. Where indicated, repair wood windows by limited replacement matching existing material.

E. Replace Wood Units: Where indicated, duplicate and replace units with units made from salvaged, sound, original wood or with new wood matching existing wood. Use surviving prototypes to create patterns for duplicate replacements.

F. Protection of Openings: Where sash or windows are indicated for removal, cover resultant openings with temporary enclosures so that openings are weathertight during repair period.

G. Identify removed windows, frames, sash, and members with numbering system corresponding to window locations to ensure reinstallation in same location.

## 3.3 WOOD WINDOW PATCH-TYPE REPAIR

A. General: Patch wood members that exhibit depressions, holes, or similar voids, and that have limited amounts of rotted or decayed wood.

1. Treat wood members with wood consolidant before applying patching compound. Coat wood surfaces by brushing, applying multiple coats until wood is saturated and unable to absorb more. Allow treatment to harden before filling void with patching compound.
2. Remove rotted or decayed wood down to sound wood.

B. Apply borate preservative treatment to accessible surfaces either before applying wood consolidant or after removing rotted or decayed wood.

C. Apply wood-patching compound to fill depressions, nicks, cracks, and other voids created by removed or missing wood.

1. Prime patch area with application of wood consolidant or manufacturer's recommended primer.

2. Apply patching compound in layers as recommended in writing by manufacturer until the void is completely filled.
3. Sand patch surface smooth and flush with adjacent wood, without voids in patch material, and matching contour of wood member.

## 3.4 WOOD WINDOW MEMBER-REPLACEMENT REPAIR

A. General: Replace parts of or entire wood window members at locations indicated on Drawings and where damage is too extensive to patch.

1. Remove broken, rotted, and decayed wood down to sound wood.
2. Custom fabricate new wood to replace missing wood; either replace entire wood member or splice new wood part into existing member.
3. Secure new wood using finger joints, multiple dowels, or splines with adhesive and nailing to ensure maximum structural integrity at each splice. Use only concealed fasteners. Fill nail holes and patch surface to match surrounding sound wood.

B. Apply borate preservative treatment to accessible surfaces after replacements are made. Apply treatment liberally by brush to joints, edges, and ends; top, sides, and bottom.

C. Repair remaining depressions, holes, or similar voids with patch-type repairs.

D. Glazing: Reglaze units before reinstallation.

1. Mill new and rout existing glazed members to accommodate new glass thickness.
2. Provide replacement glazing stops coordinated with glazing system indicated.
3. Provide glazing stops to match contour of sash frames.

E. Reinstall units removed for repair into original openings.

## 3.5 GLAZING

A. Remove any cracked or damaged glass and glazing compound materials from openings and prepare surfaces for reglazing.

B. Remove existing glazing compound as indicated on Drawings, and prepare surfaces for reglazing.

C. Apply primers to joint surfaces where required for adhesion of glazing system, as determined by preconstruction testing.

D. Where glass has been removed, install setting bead, side beads, and back bead against stop in glazing rabbets before setting glass.

E. Install additional glazier push points where needed. Glazier points should be spaced 4-6 inches apart.

3.6 WOOD WINDOW UNIT REPLACEMENT

A. General: Replace existing wood storm window units with new custom-fabricated units to match existing at locations indicated on Drawings and where damage is too extensive to repair.

B. Apply borate preservative treatment to accessible surfaces before finishing. Apply treatment liberally by brush to joints, edges, and ends; top, sides, and bottom.

C. Replacement storm windows are to match size of existing units. Match width, size, and profile of sash frame and mullions. Mill glazed members to accommodate glass thickness. Glaze units before installation.

D. Install units level, plumb, square, true to line, without distortion or impeding movement; anchored securely in place to structural support; and in proper relation to wall flashing, trim, and other adjacent construction.

E. Install window units into existing openings.

3.7 STORM WINDOW INSTALLATION

A. Reinstall wood storm windows at back into original window opening locations as recorded prior to removal.

1. Screw attach storm windows with zinc coated #8 Phillips screws using existing holes.

3.8 Disposal of Removed Material: Remove from Owner's property and legally dispose of properly.

END OF SECTION 08 0352

# SECTION 09 0391 - HISTORIC TREATMENT OF PLAIN PAINTING

## PART 1 - GENERAL

### 1.1 SUMMARY

A. Section includes historic treatment of plain painting as follows:

1. Removing existing paint.
2. Repairing substrates.
3. Plain painting of historic surfaces**.**

B. Related Requirements:

1. Section 01 3591 "Historic Treatment Procedures" for general historic treatment requirements.

### 1.2 DEFINITIONS

A. Gloss Level 1: Not more than 5 units at 60 degrees and 10 units at 85 degrees, according to ASTM D 523. (flat)

B. Gloss Level 2: Not more than 10 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D 523. (velvet sheen)

C. Gloss Level 3: 10 to 25 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D 523. (eggshell)

D. Gloss Level 4: 20 to 35 units at 60 degrees and not less than 35 units at 85 degrees, according to ASTM D 523. (satin)

E. Gloss Level 5: 35 to 70 units at 60 degrees, according to ASTM D 523. (semi-gloss)

F. Gloss Level 6: 70 to 85 units at 60 degrees, according to ASTM D 523. (gloss)

G. Gloss Level 7: More than 85 units at 60 degrees, according to ASTM D 523. (high gloss)

H. Modern Paint Materials: Paint materials not designed to match historic paint formulations but that may be required to match historic paint colors.

I. Plain Painting: For historic treatment, this means painting that requires attention to historic treatment requirements, but no special, decorative or artistic painting skill.

### 1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Samples: For each type of paint system and each color and gloss.

1. For each painted color being matched to a standardized color-coding system, include the color chips from the color-coding-system company with Samples.
2. Label each Sample for location and application.

## 1.4 QUALITY ASSURANCE

A. Historic Treatment Specialist Qualifications: A qualified historic painting specialist with expertise in matching and touching up existing painting. Experience only in new painting work is insufficient experience for historic treatment work.

B. Color Matching: Custom computer-match paint colors to colors indicated on Drawings. For colors indicated by a standardized coding system, obtain a color chip for each color indicated from the color-coding-system company; computer match paint colors to the color chips.

C. Mockups: Prepare mockups of historic treatment processes for each type of coating system and substrate indicated and each color and finish required to demonstrate aesthetic effects and to set quality standards for materials and execution. Duplicate appearance of approved Sample submittals.

1. Surface-preparation mockups using applicable specified methods of cleaning and other surface preparation.
2. Coating mockups to represent surfaces and conditions for application of each type of coating system.

# PART 2 - PRODUCTS

## 2.1 PREPARATORY CLEANING MATERIALS

A. Water: Potable.

B. Hot Water: Water heated to a temperature of 140 to 160 deg F.

C. Detergent Solution: Solution prepared by mixing 2 cups of tetrasodium pyrophosphate (TSPP), 1/2 cup of laundry detergent that contains no ammonia, 5 quarts of 5 percent sodium hypochlorite bleach, and 15 quarts of warm water for each 5 gal. of solution required.

D. Mildewcide: Commercial, proprietary mildewcide or a solution prepared by mixing 1/3 cup of household detergent that contains no ammonia, 1 quart of 5 percent sodium hypochlorite bleach, and 3 quarts of warm water.

E. Abrasives for Ferrous Metal Cleaning: Aluminum oxide paper, emery paper, fine steel wool, steel scrapers, and steel-wire brushes of various sizes.

F. Rust Remover: Manufacturer's standard phosphoric acid-based gel formulation, also called "naval jelly," for removing corrosion from iron and steel.

## 2.2 PAINT REMOVERS

A. Alkaline Paste Paint Remover: Manufacturer's standard alkaline paste or gel formulation for removing paint from masonry, stone, wood, plaster, or metal as required to suit Project; and containing no methylene chloride.

B. Low-Odor, Solvent-Type Paste Paint Remover: Manufacturer's standard low-odor, water-rinsable, solvent-type paste, gel, or foamed emulsion formulation for removing paint from masonry, stone, wood, plaster, or metal as required to suit Project; and containing no methanol or methylene chloride.

1. Manufacturers:
   a. Prosoco Sure Klean Heavy Duty Paint Stripper.
   b. Klean Strip Kwik Strip Paint Stripper.

## 2.3 PAINT, GENERAL

A. Material Compatibility:

1. Provide materials for use within each paint system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
2. For each coat in a paint system, provide products recommended in writing by manufacturers of topcoat for use in paint system and on substrate indicated.

B. Colors: Match existing paint.

## 2.4 MODERN PAINT MATERIALS, GENERAL

A. MPI Standards: Provide products that comply with MPI standards indicated and that are listed in its "MPI Approved Products List."

1. Paints are specified by referencing MPI paint categories and optional MPI numbers. See the historic painting schedule at the end of Part 3.

# PART 3 - EXECUTION

## 3.1 HISTORIC TREATMENT OF PAINTING, GENERAL

A. Execution of the Work: In treating historic items, disturb them as minimally as possible and as follows:

1. Remove failed coatings and corrosion and repaint.
2. Verify that substrate surface conditions are suitable for painting.
3. Allow other trades to repair items in place and retain as much original material as possible before repainting.

4. Install temporary protective measures to protect historic painted surfaces that shall be treated later.

B. Mechanical Abrasion: Where mechanical abrasion is needed for the work, use only the gentlest mechanical methods, such as scraping and lightly hand sanding, that will not abrade softer substrates, reducing clarity of detail. Do not use abrasive methods such as rotary sanding, rotary wire brushing, or power tools except as indicated as part of the historic treatment program and as approved by Architect.

C. Heat Processes: Do not use torches, heat guns, or heat plates.

## 3.2 EXAMINATION

A. Examine substrates and conditions, with historic treatment specialist present, for compliance with requirements for maximum moisture content and other conditions affecting performance of painting work. Comply with paint manufacturer's written instructions for inspection.

B. Maximum Moisture Content of Substrates: Do not begin application of coatings unless moisture content of exposed surface is below the maximum value recommended in writing by paint manufacturer and not greater than the following maximum values when measured with an electronic moisture meter appropriate to the substrate material:

C. Alkalinity: Do not begin application of coatings unless surface alkalinity is within range recommended in writing by paint manufacturer. Conduct alkali testing with litmus paper on exposed plaster, cementitious, and masonry surfaces.

## 3.3 PREPARATORY CLEANING

A. General: Use only the gentlest, appropriate method necessary to clean surfaces in preparation for painting. Clean all surfaces, corners, contours, and interstices.

B. Detergent Cleaning: Wash surfaces by hand using clean rags, sponges, and bristle brushes. Scrub surface with detergent solution and bristle brush until soil is thoroughly dislodged and can be removed by rinsing. Use small brushes to remove soil from joints and crevices. Dip brush in solution often to ensure that adequate fresh detergent is used and that surface remains wet. Rinse with water applied by clean rags or sponges.

C. Solvent Cleaning: Use solvent cleaning to remove oil, grease, smoke, tar, and asphalt from painted or unpainted surfaces before other preparation work. Wipe surfaces with solvent using clean rags and sponges. If necessary, spot-solvent cleaning may be employed just prior to commencement of paint application, provided enough time is allowed for complete evaporation. Use clean solvent and clean rags for the final wash to ensure that all foreign materials have been removed. Do not use solvents, including primer thinner and turpentine, that leave residue.

D. Mildew: Clean off existing mildew, algae, moss, plant material, loose paint, grease, dirt, and other debris by scrubbing with bristle brush or sponge and detergent solution. Scrub mildewed areas with mildewcide. Rinse with water applied by clean rags or sponges.

## 3.4 PAINT REMOVAL

A. General: Remove paint where indicated. Where cleaning methods have been attempted and further removal of the paint is required because of incompatible or unsatisfactory surfaces for repainting, remove paint to extent required by conditions.

1. Brushes: Use brushes that are resistant to chemicals being used.

    a. Metal Substrates: If using wire brushes on metal , use brushes of same metal composition as metal being treated.
    b. Wood Substrates: Do not use wire brushes.

2. Spray Equipment: Use spray equipment that provides controlled application at volume and pressure indicated, measured at nozzle. Adjust pressure and volume to ensure that spray methods do not damage surfaces.

    a. Equip units with pressure gages.
    b. Unless otherwise indicated, hold spray nozzle at least 6 inches from surface and apply material in horizontal, back-and-forth sweeping motion, overlapping previous strokes to produce uniform coverage.
    c. For water-spray application, use fan-shaped spray tip that disperses water at an angle of 25 to 50 degrees.

B. Paint Removal with Hand Tools: Remove paint manually using hand-held scrapers, wire brushes, sandpaper, and metallic wool as appropriate for the substrate material. Do not use other methods except as indicated as part of the historic treatment program and as approved by Architect.

C. Paint Removal with Alkaline Paste Paint Remover:

1. Remove loose and peeling paint using water, scrapers, stiff brushes, or a combination of these. Let surface dry thoroughly.
2. Apply paint remover to dry, painted surface with brushes.
3. Allow paint remover to remain on surface for period recommended in writing by manufacturer or as determined by preconstruction testing.
4. Rinse with cold water applied by medium pressure spray to remove chemicals and paint residue.
5. Use mechanical methods recommended in writing by manufacturer to remove chemicals and paint residue.
6. Repeat process if necessary to remove all paint.

D. Paint Removal with Low-Odor, Solvent-Type Paste Paint Remover:

1. Remove loose and peeling paint using water**,** scrapers, stiff brushes, or a combination of these. Let surface dry thoroughly.
2. Apply thick coating of paint remover to dry, painted surface with natural-fiber cleaning brush, deep-nap roller, or large paintbrush. Apply in one or two coats according to manufacturer's written instructions.
3. Allow paint remover to remain on surface for period recommended in writing by manufacturer or as determined by preconstruction testing.

4. Rinse with cold water applied by medium pressure spray to remove chemicals and paint residue.
5. Use mechanical methods recommended in writing by manufacturer to remove chemicals and paint residue.
6. Repeat process if necessary to remove all paint.

## 3.5 SUBSTRATE REPAIR

A. General: Repair substrate surface defects that are inconsistent with the surface appearance of adjacent materials and finishes.

B. Wood Substrate:

1. Repair wood defects including dents and gouges more than 1/4 inch in size and all holes and cracks by filling with wood-patching compound and sanding smooth. Reset or remove protruding fasteners.
2. Where existing paint is allowed to remain, sand irregular buildup of paint, runs, and sags to achieve a uniformly smooth surface.

## 3.6 PAINT APPLICATION, GENERAL

A. Prepare surfaces to be painted according to the Surface-Preparation Schedule and with manufacturer's written instructions for each substrate condition.

B. Apply a transition coat over incompatible existing coatings.

C. Blending Plain Painted Surfaces: When painting new substrates patched into existing surfaces or touching up missing or damaged finishes, apply coating system specified for the specific substrate. Apply final finish coat over entire surface from edge to edge and corner to corner.

## 3.7 FIELD QUALITY CONTROL

A. Manufacturer's Field Service: Engage paint-remover manufacturer's factory-authorized service representative for consultation and to provide on-site assistance when requested by Architect.

## 3.8 CLEANING AND PROTECTION

A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.

B. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.

C. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

## 3.9 SURFACE-PREPARATION SCHEDULE

A. General: Before painting, prepare surfaces where indicated on Drawings for painting according to applicable requirements specified in this schedule.

1. Examine surfaces to evaluate each surface condition according to paragraphs below.
2. Where existing degree of soiling prevents examination, preclean surface and allow it to dry before making an evaluation.
3. Repair substrate defects according to "Substrate Repair" Article.

B. Surface Preparation for MPI DSD 0 Degree of Surface Degradation:

1. Surface Condition: Existing paint film in good condition and tightly adhered.
2. Paint Removal: Not required.
3. Preparation for Painting: Wash surface by detergent cleaning; use solvent cleaning where needed. Roughen or degloss cleaned surfaces to ensure paint adhesion according to paint manufacturer's written instructions.

C. Surface Preparation for MPI DSD 1 Degree of Surface Degradation:

1. Surface Condition: Paint film cracked or broken but adhered.
2. Paint Removal: Scrape by hand-tool cleaning methods to remove loose paint until only tightly adhered paint remains.
3. Preparation for Painting: Wash surface by detergent cleaning; use other cleaning methods for small areas of bare substrate if required. Roughen, degloss, and sand the cleaned surfaces to ensure paint adhesion and a smooth finish according to paint manufacturer's written instructions.

D. Surface Preparation for MPI DSD 2 Degree of Surface Degradation:

1. Surface Condition: Paint film loose, flaking, or peeling.
2. Paint Removal: Remove loose, flaking, or peeling paint film by hand-tool or chemical paint-removal methods.
3. Preparation for Painting: Wash surface by detergent cleaning; use solvent cleaning where needed. Use other cleaning methods for small areas of bare substrate if required. Sand surfaces to smooth remaining paint film edges. Prepare bare cleaned surface to be painted according to paint manufacturer's written instructions for substrate construction materials.

E. Surface Preparation for MPI DSD 3 Degree of Surface Degradation:

1. Surface Condition: Paint film severely deteriorated, obscuring levels of paint-layer buildup and surface indicated to have paint completely removed.
2. Paint Removal: Completely remove paint film by hand-tool or chemical paint-removal methods. Remove rust.
3. Preparation for Painting: Prepare bare cleaned surface according to paint manufacturer's written instructions for substrate construction materials.

F. Surface Preparation for MPI DSD 4 Degree of Surface Degradation:

1. Surface Condition: Missing material, small holes and openings, and deteriorated or corroded substrate.

2. Substrate Preparation: Repair, replace, and treat substrate according to "Substrate Repair" Article and requirements in other Specification Sections.
3. Preparation for Painting: Sand substrate surfaces to smooth remaining paint film edges and prepare according to paint manufacturer's written instructions for substrate construction materials. Remove rust.
4. Painting: Paint as required for MPI DSD 2 degree of surface degradation.

## 3.10 EXTERIOR HISTORIC PAINTING SCHEDULE

A. Wood Siding, Trim and Wood Windows Frames and Casings.

1. Alkyd System:

a. Prime Coat: For MPI DSD 1 degree of surface degradation, touch up with topcoat.
b. Prime Coat: For MPI DSD 2 degree of surface degradation, spot prime with Primer, Alkyd for Exterior Wood, MPI #5.
c. Prime Coat: For MPI DSD 3 degree of surface degradation, fully prime coat with Primer, Alkyd for Exterior Wood**,** MPI #5.
d. Intermediate Coat: Exterior, matching topcoat.
e. Topcoat: Alkyd, exterior flat (Gloss Level 1), MPI #8.
f. Color: Match existing.

## 3.11 INTERIOR HISTORIC PAINTING SCHEDULE

A. Metal Substrates: Tin Ceiling Tile.

1. Alkyd System:

a. Prime Coat: For MPI DSD 1 degree of surface degradation, touch up with topcoat. Primer, Alkyd, Anti-Corrosive for Metal**,** MPI #79.
b. Intermediate Coat: Alkyd, matching topcoat.
c. Topcoat: Alkyd, interior, flat. Gloss Level 1**,** MPI #49.
d. Color: Match existing adjacent paint.

END OF SECTION 09 0391

VIEW OF SOUTH ENTRANCE FROM WEST


VIEW OF SOUTH ENTRANCE FROM EAST

VIEW OF EAST STEEPLE WALL

SOUTHEAST STEEPLE

EAST FACE STEEPLE

SOUTH FACE STEEPLE

WEST FACE STEEPLE

SOUTHWEST STEEPLE BASE

SOUTHEAST STEEPLE BASE

NORTHEAST STEEPLE BASE

NORTHWEST STEEPLE BASE

ATTIC RAFTER REPAIRS

ATTIC RAFTER REPAIRS

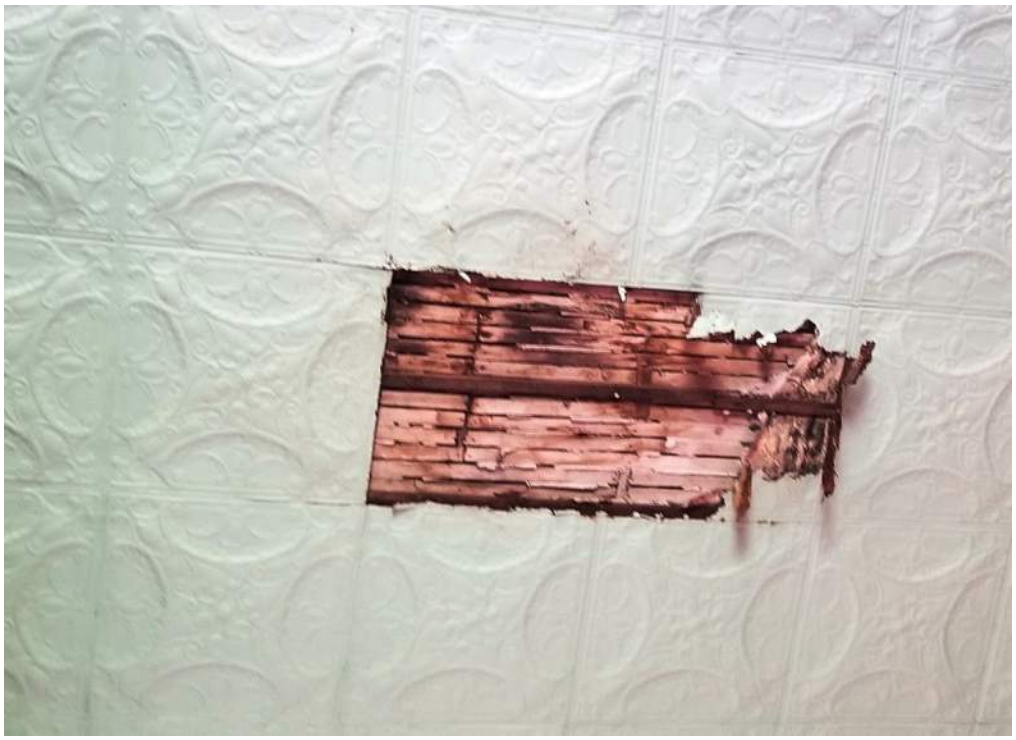
ATTIC RAFTER REPAIRS

STEEPLE ACCESS NEAR RAFTER REPAIR AREA

NORTH SIDE BELL TOWER FLOOR SCUPPER

BELL TOWER FLOOR

MISSING CEILING TILE INSIDE CHURCH



MISSING CEILING TILE INSIDE CHURCH

VIEW OF NORTH

VIEW OF EAST

VIEW OF SOUTH

VIEW OF WEST

LOWER WINDOW TYPE A

UPPER WINDOW TYPE B

LOWER WINDOW TYPE C

LOWER WINDOW TYPE D

LOWER WINDOW TYPE E

LOWER WINDOW TYPE F

LOWER WINDOW TYPE G

UPPER WINDOW TYPE H (small at left)

BASEMENT WINDOW TYPE I

BASEMENT WINDOW WELL COVERS

BASEMENT WINDOW WELL COVER AT WC-4

WINDOW SILL AT BULKHEADS

WINDOW BULKHEADS

UPPER WINDOW GLAZING AND CHIPPING PAINT

LOWER WINDOW GLAZING AND CHIPPING PAINT