

SECTION 07 01 50.19 - PREPARATION FOR REROOFING

PART I - GENERAL

I.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

I.2 SUMMARY

- A. Section Includes:

1. Full tear-off down to roof deck [**of roof system at areas indicated on Drawings**].
2. Re-cover preparation [**of entire roof area**] [**of roof areas indicated on Drawings**].
3. Removal of flashings and counterflashings.
4. Temporary roofing.

- B. Related Requirements:

1. Section 011000 "Summary" for use of premises and for phasing requirements.
2. Section 012300 "Alternates" for extent of alternates.
3. Section 015000 "Temporary Facilities and Controls" for temporary construction and environmental-protection measures for reroofing preparation.

I.3 ALLOWANCES

- A. Allowance for removal of existing wet insulation and replacement with new insulation, removal of drywall and replacement with new gwb, is specified under Section 012100 "Allowances."

I.4 UNIT PRICES

- A. Work of this Section is affected by [**insulation removal and replacement unit price**] [**metal deck removal and replacement unit price**] [**roof sheathing removal and replacement unit price**] [**and**] [**parapet wall sheathing removal and replacement unit price**] <Insert name of unit price>.

I.5 DEFINITIONS

- A. EPS: Molded (expanded) polystyrene.
- B. Full Roof Tear-off: Removal of existing roofing system down to existing [**roof deck**]
- C. OSB: Oriented strand board.

- D. Partial Roof Tear-off: Removal of selected components and accessories from existing roofing system.
- E. Roofing Terminology: Definitions in ASTM D 1079 and glossary of NRCA's "The NRCA Roofing Manual: Membrane Roof Systems" apply to work of this Section.
- F. Roof Re-Cover Preparation: Existing roofing system is to remain and be prepared for new roof installed over it.

I.6 PREINSTALLATION MEETINGS

- A. Preliminary Roofing Conference: Before starting removal Work, conduct conference at **[Project site]** <Insert location>.
 - 1. Meet with Owner, Architect, Owner's insurer if applicable, testing and inspecting agency representative, roofing Installer, and installers whose work interfaces with or affects roofing, including installers of roof accessories and roof-mounted equipment.
 - 2. Review methods and procedures related to roofing tear-off, including, but not limited to, the following:
 - a. Reroofing preparation, including roofing system manufacturer's written instructions.
 - b. Temporary protection requirements for existing roofing system components that are to remain.
 - c. Existing roof drains and roof drainage during each stage of reroofing, and roof-drain plugging and plug removal.
 - d. Construction schedule and availability of materials, Installer's personnel, equipment, and facilities needed to avoid delays.
 - e. Existing roof deck conditions requiring Architect notification.
 - f. Existing roof deck removal procedures and Owner notifications.
 - g. Condition and acceptance of existing roof deck and base flashing substrate for reuse.
 - h. Structural loading limitations of roof deck during reroofing.
 - i. Base flashings, special roofing details, drainage, penetrations, equipment curbs, and condition of other construction that affect reroofing.
 - j. HVAC shutdown and sealing of air intakes.
 - k. Shutdown of fire-suppression, -protection, and -alarm and -detection systems.
 - l. Asbestos removal and discovery of asbestos-containing materials.
 - m. Governing regulations and requirements for insurance and certificates if applicable.
 - n. Existing conditions that may require Architect notification before proceeding.

I.7 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Temporary Roofing Submittal: Product data and description of temporary roofing system.
 - 1. If temporary roof remains in place, include surface preparation requirements needed to receive permanent roof, and submit a letter from roofing manufacturer stating acceptance of the temporary roof and that its inclusion does not adversely affect the new roofing system's resistance to fire and wind **[or specified special warranty]**

I.8 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer.
 - 1. Include certificate that Installer is approved by warrantor of existing roofing system.
 - 2. Include certificate that Installer is licensed to perform asbestos abatement.
- B. Field Test Reports:
 - 1. Fastener pull-out test report.
- C. Photographs or Videotape: Show existing conditions of adjoining construction and site improvements, including exterior and interior finish surfaces, that might be misconstrued as having been damaged by reroofing operations.
 - 1. Submit before Work begins.
- D. Landfill Records: Indicate receipt and acceptance of **[demolished roofing materials and]** hazardous wastes, such as asbestos-containing materials, by a landfill facility licensed to accept them.

I.9 QUALITY ASSURANCE

- A. Installer Qualifications: **[Approved by warrantor of existing roofing system to work on existing roofing] [and] [licensed to perform asbestos abatement in the state or jurisdiction where Project is located]**.
- B. Regulatory Requirements:
 - 1. Comply with governing EPA notification regulations before beginning roofing removal.
 - 2. Comply with hauling and disposal regulations of authorities having jurisdiction.

I.10 FIELD CONDITIONS

- A. Existing Roofing System: **[Built-up roofing with marble chips** roofing.
- B. Owner **[will not]** occupy portions of building immediately below reroofing area, but will occupy space below that.
 - 1. Conduct reroofing so Owner's operations are not disrupted.
 - 2. Provide Owner with not less than **[72] <Insert number>** hours' written notice of activities that may affect Owner's operations.
 - 3. Coordinate work activities daily with Owner so Owner has adequate advance notice to place protective dust and water-leakage covers over sensitive equipment and furnishings, shut down HVAC and fire-alarm or -detection equipment if needed, and evacuate occupants from below work area.
 - 4. Before working over structurally impaired areas of deck, notify Owner to evacuate occupants from below affected area.
 - a. Verify that occupants below work area have been evacuated before proceeding with work over impaired deck area.

- C. Protect building to be reroofed, adjacent buildings, walkways, site improvements, exterior plantings, and landscaping from damage or soiling from reroofing operations.
- D. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities.
- E. Conditions existing at time of inspection for bidding will be maintained by Owner as far as practical.
 - 1. A roof moisture survey of existing roofing system is available for Contractor's reference.
 - 2. The results of an analysis of test cores from existing roofing system are available for Contractor's reference.
 - 3. Construction Drawings[**and Project Manual**] for existing roofing system are provided for Contractor's convenience and information, but they are not a warranty of existing conditions. They are intended to supplement rather than serve in lieu of Contractor's own investigations. Contractor is responsible for conclusions derived from existing documents.
- F. Limit construction loads on existing roof areas to remain, and existing roof areas scheduled to be reroofed to **<Insert load>** for rooftop equipment wheel loads and **<Insert load>** for uniformly distributed loads.
- G. Weather Limitations: Proceed with reroofing preparation only when existing and forecasted weather conditions permit Work to proceed without water entering existing roofing system or building.
 - 1. Remove only as much roofing in one day as can be made watertight in the same day.
- H. Hazardous Materials: It is not expected that hazardous materials, such as asbestos-containing materials, will be encountered in the Work.
 - 1. Hazardous materials will be removed by Owner before start of the Work.
 - 2. Existing roof will be left no less watertight than before removal.
 - 3. If materials suspected of containing hazardous materials are encountered, do not disturb; immediately notify Architect and Owner.
 - a. Hazardous materials will be removed by Owner under a separate contract.
- I. Hazardous Materials: A report on the presence of hazardous materials is on file for review and use. Examine report to become aware of locations where hazardous materials are present.
 - 1. Hazardous material remediation is specified elsewhere in the Contract Documents.
 - 2. Do not disturb hazardous materials or items suspected of containing hazardous materials except according to procedures specified elsewhere in the Contract Documents.
 - 3. Coordinate reroofing preparation with hazardous material remediation to prevent water from entering existing roofing system or building.

PART 2 - PRODUCTS

2.1 TEMPORARY PROTECTION MATERIALS

- A. EPS Insulation: ASTM C 578.
- B. Plywood: DOC PS I, Grade CD, Exposure I.

- C. OSB: DOC PS 2, Exposure I.

2.2 TEMPORARY ROOFING MATERIALS

- A. Design and selection of materials for temporary roofing are Contractor's responsibilities.
- B. Sheathing Paper: Red-rosin type, minimum **3 lb/100 sq. ft. (0.16 kg/sq. m)**.
- C. Base Sheet: ASTM D 4601/D 4601M, Type II, nonperforated, asphalt-impregnated and -coated, glass-fiber sheet.
- D. Glass-Fiber Felts: ASTM D 2178/D 2178M, Type IV, asphalt-impregnated, glass-fiber felt.
- E. Asphalt Primer: ASTM D 41/D 41M.
- F. Roofing Asphalt: ASTM D 312/D 312M, Type III or IV.
- G. Base Sheet Fasteners: Capped head, factory-coated steel fasteners, listed in FM Approvals' RoofNav.

2.3 INFILL AND REPLACEMENT MATERIALS

- A. Use infill materials matching existing roofing system materials unless otherwise indicated.
 - I. Infill materials are specified in [**Section 075423 "Thermoplastic-Polyolefin (TPO) Roofing"**] unless otherwise indicated.
- B. Wood blocking, curbs, and nailers are specified in [**Section 061000 "Rough Carpentry."**] or [**Section 061053 Miscellaneous Rough Carpentry."**]
- C. Fasteners: Factory-coated steel fasteners with metal or plastic plates listed in FM Approvals' RoofNav, and acceptable to new roofing system manufacturer.

2.4 AUXILIARY REROOFING MATERIALS

- A. General: Use auxiliary reroofing preparation materials recommended by roofing system manufacturer for intended use and compatible with components of [**existing and**]new roofing system.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Protection of In-Place Conditions:
 - 1. Protect existing roofing system that is not to be reroofed.
 - 2. Loosely lay **1-inch- (25-mm-)** minimum thick, EPS insulation over existing roofing in areas not to be reroofed.

- a. Loosely lay 15/32-inch (12-mm) plywood or OSB panels over EPS. Extend EPS past edges of plywood or OSB panels a minimum of 1 inch (25 mm).
 3. Limit traffic and material storage to areas of existing roofing that have been protected.
 4. Maintain temporary protection and leave in place until replacement roofing has been completed. Remove temporary protection on completion of reroofing.
 5. Comply with requirements of existing roof system manufacturer's warranty requirements.
- B. Seal or isolate windows that may be exposed to airborne substances created in removal of existing materials.
- C. Shut off rooftop utilities and service piping before beginning the Work.
1. Immediately notify Architect of any blockages or restrictions.
- D. Coordinate with Owner to shut down air-intake equipment in the vicinity of the Work.
1. Cover air-intake louvers before proceeding with reroofing work that could affect indoor air quality or activate smoke detectors in the ductwork.
- E. During removal operations, have sufficient and suitable materials on-site to facilitate rapid installation of temporary protection in the event of unexpected rain.
- F. Maintain roof drains in functioning condition to ensure roof drainage at end of each workday.
1. Prevent debris from entering or blocking roof drains and conductors.
 - a. Use roof-drain plugs specifically designed for this purpose.
 - b. Remove roof-drain plugs at end of each workday, when no work is taking place, or when rain is forecast.
 2. If roof drains are temporarily blocked or unserviceable due to roofing system removal or partial installation of new roofing system, provide alternative drainage method to remove water and eliminate ponding.
 - a. Do not permit water to enter into or under existing roofing system components that are to remain.

3.2 ROOF TEAR-OFF

- A. Notify Owner each day of extent of roof tear-off proposed for that day
- B. Lower removed roofing materials to ground and onto lower roof levels, using dust-tight chutes or other acceptable means of removing materials from roof areas.
- C. Remove aggregate ballast from roofing
- 1.
- D. Full Roof Tear-off: **[Where indicated on Drawings, remove] [Remove]** existing roofing and other roofing system components down to the existing **[roof deck] [concrete fill]**.
1. Remove **[substrate board] [vapor retarder] [roof insulation] [and] [cover board]**.

2. Remove base flashings and counter flashings.
3. Remove perimeter edge flashing and gravel stops.
4. Remove copings.
5. Remove expansion-joint covers.
6. Remove flashings at pipes, curbs, mechanical equipment, and other penetrations.
7. Remove roof drains indicated on Drawings to be removed.
8. Remove wood blocking, curbs, and nailers.
9. Bitumen and felts that are firmly bonded to concrete decks are permitted to remain if felts are dry.
 - a. Remove unadhered bitumen, unadhered felts, and wet felts.
10. Remove fasteners from deck[**or cut fasteners off slightly above deck surface**].

3.3 DECK PREPARATION

- A. Inspect deck after tear-off of roofing system.
- B. If broken or loose fasteners that secure deck panels to one another or to structure are observed, or if deck appears or feels inadequately attached, immediately notify Architect.
 - I. Do not proceed with installation until directed by Architect.
- C. If deck surface is unsuitable for receiving new roofing or if structural integrity of deck is suspect, immediately notify Architect.
 - I. Do not proceed with installation until directed by Architect.

3.4 TEMPORARY ROOFING

- A. Install approved temporary roofing over area to be reroofed.
- B. Remove temporary roofing before installing new roofing.
- C. Prepare temporary roof to receive new roofing [**according to approved temporary roofing proposal**] [**by patching and repairing temporary roofing**] <Insert preparation method>.
 1. Restore temporary roofing to watertight condition.
 2. Obtain approval for temporary roof substrate from roofing manufacturer and Architect before installing new roof.

3.5 ROOF RE-COVER PREPARATION

- A. Remove blisters, ridges, buckles,[**mechanically attached roofing fastener buttons projecting above roofing,**] and other substrate irregularities from existing roofing that inhibit new recover boards from conforming to substrate.
 - I. Remove loose aggregate from aggregate-surfaced, built-up bituminous roofing with a power broom.

2. Scarify surface of sprayed polyurethane foam as necessary to achieve a sufficiently uniform plane to receive new recover boards.
 3. Broom clean existing substrate.
 4. Coordinate with Owner's inspector to schedule times for tests and inspections.
 5. Verify that existing substrate is dry.
 - a. Spot check substrates with an electrical capacitance moisture-detection meter.
 6. Remove materials that are wet or damp.
 - a. Removal will be paid for by adjusting the Contract Sum according to unit prices included in the Contract Documents.
- B. Remove blisters and areas of roofing not fully adhered.
- C. Remove[**mechanically attached roofing fastener buttons projecting above roofing and other**] substrate irregularities that inhibit new recover boards from conforming to substrate.
1. Remove loose aggregate from aggregate-surfaced, built-up bituminous roofing with a power broom.
 2. Clean substrate of contaminants, such as dirt, debris, oil, and grease, that can affect adhesion of coated foamed roofing.
 3. Power vacuum the existing roof surface.
 - a. If recommended by foam manufacturer, prime dried surface at recommended rate with recommended primer.
 4. Scarify surface of coated polyurethane roofing as necessary to achieve a suitable substrate for new roofing.
 5. Provide additional uplift securement for existing roofing system with new screws and plates applied to each roof zone at the following densities:
 - a. Field of roof, one fastener for each **<Insert area>**.
 - b. Corners of roof, one fastener for each **<Insert area>**.
 - c. Perimeters of roof, one fastener for each **<Insert area>**. Width of perimeter zone of roof is **<Insert dimension>**.
 6. Verify that surface is dry by pressing litmus paper to surface areas most likely to retain moisture, such as shaded areas and low spots.
 - a. If paper changes color, surface is too wet to apply foam.
 7. Build up isolated low spots on existing roofing with sprayed foam specified in Section 075700 "Coated Foamed Roofing" to prevent ponding.
- 3.6 BASE FLASHING REMOVAL
- A. Remove existing base flashings.
 - I. Clean substrates of contaminants, such as asphalt, sheet materials, dirt, and debris.
 - B. Do not damage metal counterflashings that are to remain.

- I. Replace metal counterflashings damaged during removal with counterflashings [**of same metal, weight or thickness, and finish as existing.**] [**specified in Section 076200 "Sheet Metal Flashing and Trim."**] [**specified in Section 077100 "Roof Specialties."**]
- C. Inspect parapet sheathing, wood blocking, curbs, and nailers for deterioration and damage.
 - I. If parapet sheathing, wood blocking, curbs, or nailers have deteriorated, immediately notify Architect.
- D. Remove existing parapet sheathing and replace with new parapet sheathing to comply with Section 061600 "Sheathing."
 - I. If parapet framing, wood blocking, curbs, or nailers have deteriorated, immediately notify Architect.
- E. When directed by Architect, replace parapet framing, wood blocking, curbs, and nailers to comply with [**Section 054000 "Cold-Formed Metal Framing."**] [**Section 061000 "Rough Carpentry."**] [**Section 061053 Miscellaneous Rough Carpentry."**]

3.7 FASTENER PULL-OUT TESTING

- A. [**Perform**] [**Retain independent testing and inspecting agency to conduct**] fastener pull-out tests according to SPRI FX-I, and submit test report to [**Architect**] [**and**] [**roofing manufacturer**] before installing new roofing system.
 - I. Obtain [**Architect's**] [**roofing manufacturer's**] approval to proceed with specified fastening pattern.
 - a. [**Architect**] [**Roofing manufacturer**] may furnish revised fastening pattern commensurate with pull-out test results.

3.8 DISPOSAL

- A. Collect demolished materials and place in containers.
 1. Promptly dispose of demolished materials.
 2. Do not allow demolished materials to accumulate on-site.
 3. Storage or sale of demolished items or materials on-site is not permitted.
- B. Transport and legally dispose of demolished materials off Owner's property.

END OF SECTION 070150.19

SECTION 07 11 20 - UNDER-SLAB VAPOR BARRIER

PART I – GENERAL

I.1 SUMMARY

- A. Products supplied under this section:
 - 1. Vapor barrier, seam tape, and mastic for installation under concrete slabs.
- B. Related sections:
 - 1. Section 03 30 00 Cast-in-Place Concrete

I.2 REFERENCES

- A. American Society for Testing and Materials (ASTM):
 - 1. ASTM E 1745-09 Standard Specification for Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill Under Concrete Slabs.
 - 2. ASTM E 154-99 (2005) Standard Test Methods for Water Vapor Retarders Used in Contact with Earth Under Concrete Slabs, on Walls, or as Ground Cover.
 - 3. ASTM E 96-05 Standard Test Methods for Water Vapor Transmission of Materials.
 - 4. ASTM F 1249-06 Standard Test Method for Water Vapor Transmission Rate Through Plastic Film and Sheeting Using a Modulated Infrared Sensor.
 - 5. ASTM E 1643-09 Selection, Design, Installation, and Inspection of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs.
- B. American Concrete Institute (ACI):
 - 1. ACI 302.2R-06 Guide for Concrete Slabs that Receive Moisture-Sensitive Flooring Materials.

I.3 SUBMITTALS

- A. Quality control/assurance:
 - 1. Summary of test results as per paragraph 8.3 of ASTM E 1745.
 - 2. Manufacturer's samples, literature.
 - 3. Manufacturer's installation instructions for placement, seaming and penetration repair instructions.

PART 2 – PRODUCTS

2.1 MATERIALS

- A. Vapor barrier must have all of the following qualities:
 - 1. Permeance of less than 0.01 Perms [$\text{grains}/(\text{ft}^2 \cdot \text{hr} \cdot \text{inHg})$] as tested in accordance with ASTM E 1745 Section 7.
 - 2. Other performance criteria:
 - a. Strength: ASTM E 1745 Class A.
 - b. Thickness: 15 mils minimum
- B. Vapor barrier products:
 - 1. Basis of Design: Stego Wrap Vapor Barrier (15-mil) by Stego Industries LLC, (877) 464-7834 www.stegoindustries.com.
 - 2. Fortifiber Moistop Ultra 15 mil
 - 3. Reef Industries Griffolyn G15
 - 4. Substitutions as per Section 01 25 00.

2.2 ACCESSORIES

- A. Seam tape:
 - I. Stego Tape by Stego Industries LLC, (877) 464-7834 www.stegoindustries.com.
- B. Vapor-proofing mastic:
 - I. Stego Mastic by Stego Industries LLC, (877) 464-7834 www.stegoindustries.com.

PART 3 – EXECUTION

3.1 PREPARATION

- A. Ensure that base material is approved by Architect or Geotechnical Engineer.
 - I. Level and compact base material.

3.2 INSTALLATION

- A. Install vapor barrier in accordance with manufacturer's instructions and ASTM E 1643.
 - 1. Unroll vapor barrier with the longest dimension parallel with the direction of the concrete placement.
 - 2. Lap vapor barrier over footings and/or seal to foundation walls.
 - 3. Overlap joints 6 inches min. and seal with manufacturer's tape.
 - 4. Seal all penetrations (including pipes) per manufacturer's instructions.
 - 5. No penetration of the vapor barrier is allowed except for reinforcing steel and permanent utilities.
 - 6. Repair damaged areas by cutting patches of vapor barrier, overlapping damaged area 6 inches and taping all sides with tape.

END OF SECTION 07 11 20