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The TEXT indicated with < > is to be selected or filled in by the Specifier to meet the requirements of the project.

If any of the SECTIONS (i.e. 1.02, 1.03, etc.) below are not required for the project do NOT delete the Section, but rather change the title of the Section to “NOT USED” (i.e. 1.02 NOT USED) so that numbering of specification references is preserved, and delete the specification language in this Section below the title.

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Cutting and patching requirements.
- B. Submittals.
- C. Materials.
- D. Inspection.
- E. Preparation.
- F. Performance.

1.02 CUTTING AND PATCHING REQUIREMENTS

- A. CONTRACTOR shall be responsible for cutting, fitting, and patching, including attendant excavation and backfill, required to complete Work or to:
 - 1. Make its several parts fit together properly.
 - 2. Uncover portions of Work to provide for installation of ill-timed Work.
 - 3. Remove and replace defective Work.
 - 4. Remove and replace Work not conforming to requirements of Contract Documents.
 - 5. Remove samples of installed Work as specified for testing.
 - 6. Provide routine penetrations of nonstructural surfaces for installation of piping, electrical conduit and any other work.

1.03 SUBMITTALS

- A. CONTRACTOR shall submit a written request to UTILITIES <and Engineer> well in advance of any executing cutting or alteration which affects:
 - 1. Work of UTILITIES or any separate CONTRACTOR.
 - 2. Structural value or integrity of any element of Project.
 - 3. Integrity or effectiveness of weather-exposed or moisture-resistant elements or systems.
 - 4. Efficiency, operational life, maintenance, or safety of operational elements.
 - 5. Visual qualities of sight-exposed elements.
- B. The written request shall include:
 - 1. Identification of Project.
 - 2. Description of affected Work.
 - 3. Explanation of necessity for cutting, alteration, or excavation.

4. Effect on work of UTILITIES or separate CONTRACTOR, or structural or weatherproof integrity of Project.
 5. Description of proposed Work:
 - a. Scope of cutting, patching, alteration, or excavation.
 - b. Trades who will execute Work.
 - c. Products proposed to be used.
 - d. Extent of refinishing to be done.
 6. Alternatives to cutting and patching.
 7. Written permission of any separate CONTRACTOR whose work will be affected.
- C. No cutting or alteration for which a written request is submitted shall be performed without written acceptance of UTILITIES <and Engineer>.
- D. CONTRACTOR shall submit written notice to UTILITIES <and Engineer> designating the date and time Work will be uncovered.

PART 2 PRODUCTS

2.01 MATERIALS

- A. CONTRACTOR shall comply with specifications and standards for each specific product involved.

PART 3 EXECUTION

3.01 INSPECTION

- A. CONTRACTOR shall inspect existing conditions of Project, including elements subject to damage or to movement during cutting and patching.
- B. After uncovering Work, CONTRACTOR shall inspect conditions affecting installation of products, or performance of Work.
- C. CONTRACTOR shall report unsatisfactory or questionable conditions to UTILITIES <and Engineer> in writing and not proceed with Work until UTILITIES <and Engineer> has provided further instructions.

3.02 PREPARATION

- A. CONTRACTOR shall provide adequate temporary support as necessary to assure structural value or integrity of affected portion of Work.
- B. CONTRACTOR shall provide devices and methods to protect other portions of Project from damage and persons from injury.
- C. CONTRACTOR shall provide protection from elements for that portion of Project which may be exposed by cutting and patching Work, and maintain excavations free from water.

3.03 PERFORMANCE

- A. CONTRACTOR shall execute cutting and demolition by method which will prevent damage to other Work, and provide proper surfaces to receive installation of repairs.
- B. CONTRACTOR shall execute excavating and backfilling by methods which will prevent settlement or damage to other Work.
- C. CONTRACTOR shall employ the original installer or fabricator to perform cutting and patching for:
1. Weather-exposed or moisture-resistant elements.

2. Sight-exposed finished surfaces.
 3. Work that is currently under warranty by the original installer or fabricator.
- D. CONTRACTOR shall execute fitting and adjustment of products to provide finished installation to comply with specified products, functions, tolerances, and finishes.
- E. CONTRACTOR shall restore Work which has been cut or removed and install new products to ensure completed Work conforms to the requirements of Contract Documents.
- F. CONTRACTOR shall fit Work airtight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.
- G. CONTRACTOR shall refinish entire surfaces as necessary to provide even finish to match adjacent finishes:
1. For continuous surfaces, refinish to nearest intersection.
 2. For assembly, refinish entire unit.
- H. Openings in existing concrete and masonry:
1. CONTRACTOR shall create openings by:
 - a. Saw cutting completely through concrete or masonry or;
 - b. Scoring edges of opening with saw to at least 1-inch depth on both surfaces (when accessible) and removing concrete or masonry by chipping.
 2. CONTRACTOR shall not allow saw cuts to extend beyond limits of opening.
 3. CONTRACTOR shall make corners square and true by combination of core drilling and grinding or chipping.
 4. CONTRACTOR shall prevent debris from falling into adjacent tanks or channels in service or from damaging existing equipment and other facilities.
- I. Sizing of openings in existing concrete or masonry:
1. CONTRACTOR shall make openings sufficiently large to permit final alignment of pipe and fittings without deflections.
 2. CONTRACTOR shall allow adequate space for packing around pipes and conduit to ensure water tightness.
- J. Grouting pipes in place:
1. CONTRACTOR shall sandblast concrete surfaces and thoroughly clean sand and other foreign material from surfaces prior to placing grout.
 2. CONTRACTOR shall grout pipes, sleeves, castings, and conduits in place by pouring grout under a head of at least 4-inches and vibrate grout into place. CONTRACTOR shall completely fill the spaces occupied by pipes, sleeves, castings, and conduits.
 3. CONTRACTOR shall water cure the grout.
- K. Connections to existing pipes:
1. CONTRACTOR shall cut existing pipe square.
 2. CONTRACTOR shall properly prepare the ends for the connection indicated.
 3. CONTRACTOR shall repair any damage to existing lining and coating.
- L. CONTRACTOR shall rehabilitate all areas affected by removal of existing equipment, equipment pads and bases, piping, supports, electrical panels, electric devices, and conduits such that little or no evidence of the previous installation remains.
1. CONTRACTOR shall fill areas in existing floors, walls, and ceilings from removed piping, conduit and fasteners with non-shrink grout and finish smooth.
 2. CONTRACTOR shall remove concrete bases for equipment and supports by:
 - a. Saw cutting clean, straight lines with a depth equal to the concrete cover over reinforcement minus 1/2 inch below finished surface. Do not cut existing reinforcement on floors.
 - b. Chip concrete within scored lines and cut exposed reinforcing steel and anchor bolts.
 - c. Patch with non-shrink grout to match adjacent grade and finish.

3. CONTRACTOR shall terminate abandoned piping and conduits with blind flanges, caps, or plugs.
 4. CONTRACTOR shall refinish continuous surfaces to nearest intersection. CONTRACTOR shall refinish entire assemblies. CONTRACTOR shall finish restored surfaces to such planes, shapes, and textures that no transition between existing work and new work is evident in finished surfaces. In no case shall any new or existing surface be left in a raw, marred, or unfinished condition.
- M. CONTRACTOR shall treat existing concrete reinforcement as follows:
1. Where existing reinforcement is to remain, protect, clean, and extend into new concrete.
 2. Where existing reinforcement is not to be retained, cut off as follows:
 - a. Where new concrete joins existing concrete at the removal line, cut reinforcement flush with concrete surface at the removal line.
 - b. Where concrete surface at the removal line is the finished surface, cut reinforcement 2-inches below the surface, paint ends with epoxy, and patch holes with dry pack mortar.

END OF SECTION