SECTION 01 73 29

CUTTING AND PATCHING

PART 1 – GENERAL

1.1 DESCRIPTION

A. Scope:
   1. CONTRACTOR shall perform cutting and coring, and rough and finish patching of holes and openings in existing construction.
   2. Provide cutting, coring, fitting and patching, including attendant excavation and fill, required to complete the Work, and to:
      a. remove and replace defective Work;
      b. remove samples of installed Work as specified or required for testing;
      c. remove construction required to perform required alterations or additions to existing work;
      d. uncover the Work for ENGINEER's observation of covered Work or observation by authorities having jurisdiction;
      e. connect to completed Work not performed in proper sequence;
      f. remove or relocate existing utilities and pipes that obstruct the Work in locations where connections must be made;
      g. make connections or alterations to existing or new facilities.

1.2 SUBMITTALS

A. Action Submittals: Submit the following:
   1. Cutting and Patching Request:
      a. Submit written request to ENGINEER, well in advance of executing cutting or alteration that affects one or more of the following:
         1) Design function or intent of Project.
         2) Work of OWNER or other contractors.
         3) Structural value or integrity of an element of the Project.
         4) Integrity or effectiveness of weather-exposed or moisture-resistant elements or systems.
         5) Efficiency, operational life, maintenance, or safety of operational elements.
         6) Visual qualities of sight-exposed elements.
      b. Request shall include:
         1) Identification of Project and contract name and number.
         2) Description of affected Work of CONTRACTOR and work of others (if any).
         3) Necessity for cutting.
         4) Effect on work of OWNER, other contractors (if any), and on structural or weatherproof integrity of Project.

5) Description of proposed Work, describing: scope of cutting and patching; trades who will be executing the Work; products proposed to be used; extent of refinishing; schedule of operations; alternatives to cutting and patching, if any.
7) Designation of entity responsible for cost of cutting and patching, when applicable.
8) Written permission of other contractors (if any) whose work will be affected.

2. Recommendation Regarding Cutting and Patching:
   a. Should conditions of work, or schedule, indicate a change of materials or methods, submit written recommendation to ENGINEER including:
      1) Conditions indicating change.
      2) Recommendations for alternative materials or methods.
      3) Items required with substitution request, in accordance with the substitution request requirements of the Contract Documents.
3. Product Data:
   a. Submit manufacturer's product data for the protective compound to be applied to core-drilled surfaces and cut concrete surfaces.

B. Informational Submittals: Submit the following:
   1. Submit written indication designating the day and time that the construction associated with cutting and patching will be uncovered, to provide for observation. Do not begin cutting or patching operations until submittal is accepted by ENGINEER.
   2. X-ray Investigations:
      a. Proposed method of investigation. Submit and obtain ENGINEER's acceptance prior to performing X-ray inspections.
      b. Report of X-ray evaluation of slabs, floors, and walls to be cut or core-drilled.

C. Comply with submittal requirements in the Division 03 through Division 46 Specifications for patching materials.

PART 2 – PRODUCTS

2.1 MATERIALS

A. Materials - General:
   1. Use materials in conformance with the Contract Documents.
   2. If not shown or indicated in the Contract Documents, use materials and products that are identical to existing materials and products affected by cutting and patching Work.
   3. For exposed surfaces, use materials that visually match existing adjacent surfaces to fullest extent possible. If identical materials are unavailable or cannot be used, use materials whose installed performance will equal or surpass that of existing materials.

4. Replace, patch, and repair materials and surfaces cut or damaged during cutting and patching operations, using materials that do not void required or existing warranties.

B. Compound Applied to Core-Drilled Surfaces and Cut Concrete Surfaces:
   1. After core-drilling and before installing the utility or equipment through the penetration, coat exposed concrete and steel with solvent-free, two-component, epoxy protective coating.
   2. Product and Manufacturer: Provide one of the following:
      a. Sikagard 62, by Sika Corporation.
      b. Or equal.

PART 3 – EXECUTION

3.1 GENERAL

A. Perform cutting and coring in such manner that limits extent of patching.

B. Structural Elements: Do not cut or patch structural elements in manner that would change structural element's load-carrying capacity as load deflection ratio.

C. Operating Elements: Do not cut or patch operating elements in manner that would reduce their capacity to perform as intended. Do not cut or patch operating elements or related components in manner that would increase maintenance requirements or decrease operational life or safety.

D. Replace, patch, and repair materials and surfaces cut or damaged during cutting and patching operations, using methods that do not void required or existing warranties.

3.2 INSPECTION

A. Examine surfaces to be cut or patched and conditions under which cutting or patching are to be performed before starting cutting or patching work.

B. Report unsatisfactory or questionable conditions to ENGINEER in writing. Do not proceed with the Work until unsatisfactory conditions are corrected.

C. Non-Destructive Investigation:
   1. In advance of cutting or coring through slabs or walls, ENGINEER may require use X-ray or other non-destructive methods accepted by ENGINEER to determine location of reinforcing steel, electrical conduits, and other items embedded in slabs or walls.
   2. Submit to ENGINEER written report of findings of evaluation.
   3. Perform X-ray investigation and submit results to ENGINEER sufficiently in advance of cutting work to allow time to identify and implement alternatives if

changes to the Work are necessary because of conduit or other features in floor or wall.

3.3 PREPARATION

A. Provide temporary support required to maintain structural integrity of Project, to protect adjacent Work from damage during cutting, and to support the element(s) to be cut.

B. Protection of Existing Construction During Cutting and Patching:
   1. Protect existing construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of the Project that will be exposed during cutting and patching operations.
   2. Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.
   3. Do not cut existing pipe, conduit, ductwork, or other utilities serving facilities scheduled to be removed or relocated until provisions have been made to bypass them.

3.4 CORING

A. Core-drill holes to be cut through concrete and masonry walls, slabs, or arches, unless otherwise accepted by ENGINEER in writing.

B. Coring:
   1. Perform coring with non-impact rotary tool using diamond core-drills. Size holes for pipe, conduit, sleeves, equipment or mechanical seals, as required, to be installed through the penetration.
   2. Do not core-drill through electrical conduit or other utility lines embedded in walls or slabs without approval of ENGINEER. To extent possible, avoid cutting reinforcing steel in slabs and walls.

C. Protection:
   1. Protect existing equipment, utilities, and adjacent areas from water and other damage covered by core-drilling operations.
   2. After core-drilling and before installing the utility or equipment through the penetration, coat exposed concrete and steel with protective coating material indicated in Paragraph 2.1.B of this Section. Apply protective coating in accordance with manufacturer's instructions.

D. Cleaning:
   1. Vacuum or otherwise remove slurry and tailings from the work area following core-drilling.

3.5 CUTTING

A. Cutting – General:

1. Cut existing construction using methods least likely to damage elements retained or adjoining construction, and that provide proper surfaces to receive installation or repair.
2. In general, use hand or small power tools suitable for sawing or grinding. Avoid using hammering and chopping when possible.
3. Cut holes and slots as small as possible, neatly to the size required, and with minimum disturbance of adjacent surfaces.
4. Provide adequate bracing of area to be cut prior to start of cutting.
5. To avoid marring existing finished surfaces, cut or drill from exposed or finished side into concealed side.
6. Provide equipment of adequate size to remove cut panel.
7. Provide temporary covering over cut openings where not in use.

B. Cutting – Concrete and Masonry:
1. Cut through concrete and masonry using concrete wall saw with diamond saw blades.
2. On both the element being cut, provide for control of slurry generated during sawing.
3. After cutting concrete and before installing subsequent construction on or through the opening, coat exposed concrete and steel with protective coating material indicated in Paragraph 2.1.B of this Section. Apply protective coating in accordance with manufacturer's instructions.

3.6 PATCHING

A. Patching – General:
1. Patch construction by filling, repairing, refinishing, closing-up, and similar operations following performance of other Work.
2. Patch with durable seams that are as inconspicuous as possible. Provide materials and comply with installation requirements indicated in the Contract Documents.
3. Patch to provide airtight connections to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.
4. Where feasible, test patched areas to demonstrate integrity of installation.

B. Restoration:
1. Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in manner that eliminates evidence of patching and refinishing.
2. For continuous surfaces, refinish to nearest intersection.
3. For an assembly, refinish the entire unit that was patched.
4. Patch, repair, or rehang existing ceilings as necessary to provide an even-plane surface of uniform appearance.

3.7 CLEANING

A. Cleaning and Restoration:

1. Clean areas and spaces where cutting, coring, or patching were performed.
2. Clean piping, conduit, and similar constructions before applying paint or other finishing materials.
3. Restore damaged coverings of pipe and other utilities to original condition.

+ + END OF SECTION + +