SECTION 01 73 29

CUTTING AND PATCHING

PART 1 – GENERAL

1.1 DESCRIPTION

A. Scope:
   1. This Section includes general requirements for cutting and patching Work.
   2. CONTRACTOR shall perform cutting and coring, and rough and finish patching of holes and openings in existing construction.
   3. 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 construction;
      d. uncover the Work for ENGINEER's observation of covered Work, testing or inspection by testing entities, or observation by authorities having jurisdiction;
      e. connect to completed Work not performed in proper sequence;
      f. remove or relocate existing utilities and piping that obstruct the Work in locations where connections are to be made;
      g. make connections or alterations to existing or new facilities.

B. Coordination:
   1. Cutting, coring, and rough patching shall be performed by the prime contractor requiring the opening. Finish patching shall be responsibility of General CONTRACTOR and shall be performed by trade associated with application of the particular finish.

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 designation.
2) Description of affected Work of CONTRACTOR and work of others (if any).
3) Necessity for cutting.
4) Effect on work or operations 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; materials and equipment to be used; extent of refinishing; schedule of operations; alternatives to cutting and patching, if any, and net effect on aesthetics following completion of finishing Work.
7) Designation of entity responsible for cost of cutting and patching, when applicable.
8) Written permission of other prime contractors (if any) whose work will or may 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 request for approval of substitute, in accordance with the substitution request requirements of the Contract Documents.
3. Product Data:
   a. Submit manufacturer's data for the protective compound to be applied to core-drilled surfaces and cut concrete surfaces.
   b. When not required under other Sections, submit manufacturer's data on materials to be used for finishing around the cut or patched area.
   c. Furnish submittals for patching materials under the associated Specifications Section.

B. Informational Submittals: Submit the following:
1. Written Notification of Cutting and Patching:
   a. Submit written indication designating the day and time that the construction associated with cutting and patching will be uncovered to allow 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.

PART 2 – PRODUCTS

2.1 MATERIALS

A. Materials - General:
   1. Use materials that comply with the Contract Documents.
   2. If not shown or indicated in the Contract Documents, use materials that are identical to existing materials 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, protective, epoxy resin coating.
   2. Color shall approximate the finish color of the existing surface to be coated.
   3. 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 required.

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

C. Operating Elements:
   1. Do not cut or patch operating elements in manner that would reduce their capacity to perform as intended.
   2. 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 will be performed before starting cutting or patching Work.

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

C. Non-Destructive Investigation:
   1. In advance of cutting or coring through existing slabs or walls, 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 facilities, 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 and facility 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. Use core-drilling to make penetrations 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 utilities 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 caused by or resulting from 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. After core-drilling, vacuum or otherwise remove slurry and tailings from the work area.

3.5 CUTTING

A. Cutting – General:
   1. Cut existing construction using methods least-likely to damage elements retained and adjoining construction and that provide proper surfaces to receive subsequent installation or repair.
   2. In general, use hand tools or small power tools suitable for sawing or grinding. When possible, avoid using hammering and avoid chopping.
   3. Cut holes and slots as small as possible, neatly to the size required, and with minimum disturbance of adjacent surfaces.
   4. Prior to starting to cut, provide adequate bracing of area to be cut.
   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 the cut panel or "coupon".
   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 of 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 and watertight 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 + +