# SECTION 01732

# CUTTING AND PATCHING REQUIREMENTS

## PART 1 - GENERAL

### 1.1 RELATED DOCUMENTS

A. Construction Drawings, Technical Specifications, Addenda, and general provisions of the Contract, including Contract General Conditions and Supplementary General Conditions and other Division 1 Specification Sections, apply to this Section.

### 1.2 SECTION INCLUDES

A. Requirements and procedural requirements for cutting and patching, including:
   1. Cutting and patching not required to be performed as part of the Work specified in other Sections.
   2. Cutting and patching existing construction altered or disturbed to accommodate new construction.
   3. Cutting and patching existing construction damaged or defaced during new construction as required to restore to existing or better condition at the time of award of Contract.
   4. Cutting and patching required to:
      a. Install or correct non-coordinated Work.
      b. Remove and replace defective and non-conforming Work.
      c. Remove samples of installed Work for testing.

B. Refer to other Sections and drawings for specific requirements of the extent and limitations applicable to cutting and patching, demolishing, or altering existing construction of individual parts of the Work.
   1. Requirements of this Section also apply to mechanical and electrical installations. (Refer to Division-15 and Division-16 Sections for other requirements and limitations applicable to cutting and patching mechanical and electrical installations).

### 1.3 RELATED SECTIONS

A. Section 01010 - Summary of the Work: Work by University's construction forces or by others under separate contract with University.

B. Section 01560 - Temporary Barriers and Enclosures: Dust-control barriers at cutting and patching locations.

C. Section 01740 - Cleaning Requirements: Cleaning after cutting and patching Work.

D. Section 024116 - Building Demolition: Cutting and removal of existing construction.

E. Individual Division 02 through 33 Product Specification Sections:
   1. Cutting and patching incidental to Work specified in the Section.
   2. Coordination with Work specified in other Sections for openings required to accommodate Work specified in those other Sections.

### 1.4 SUBMITTALS

A. Written Requests for Cutting and Alteration: Coordinate with requirements specified in *Section 024116 - Building Demolition.*
   1. Contractor shall submit written request in advance of cutting or alteration which affects:
      a. Structural integrity of any element of new or existing construction.
      b. Integrity of weather-exposed or moisture-resistant elements.
      c. Efficiency, maintenance, or safety of operational elements.
      d. Visual qualities of elements exposed to view in the completed construction.
      e. Work by University's construction forces or by others under separate contract with University.
      f. Existing construction not otherwise indicated to be revised by Work under the Contract.

   2. Contractor shall include in requests for cutting and alteration:
      a. Identification of Project.

b. Location and description of affected Work. Include shop drawings as necessary to identify locations and communicate descriptions.
c. Explanation of necessity for cutting and patching.
d. Description of proposed Work and products to be used.
e. Alternatives to cutting and patching.
f. Effect on existing construction.
g. Effect on work by University's construction forces or by separate contractors performing work for University.

3. Contractor shall include written evidence that those performing work under separate contract for University have been notified and acknowledge that cutting and patching work will be occurring. Contractor shall include written permission for intended cutting and patching, included scheduled times.

4. Contractor shall indicate date and time cutting and patching Work will be performed, including duration.

5. Contractor shall describe the extent of cutting and patching required and how it is to be performed.

6. Contractor shall describe anticipated results in terms of changes to existing construction; include changes to structural elements and operating components as well as changes in the building's appearance and other significant visual elements.

7. Contractor shall list products to be used and firms or entities that will perform work.

8. Contractor shall list utilities that will be disturbed or affected, including those that will be relocated and those that will be temporarily out-of-service. Contractor shall indicate how long service will be disrupted.

9. Where cutting and patching involves addition of reinforcement to structural elements, Contractor shall submit details to show how reinforcement is integrated with the original structure.

10. Approval by the Architect to proceed with cutting and patching does not waive the Architect's right to later require complete removal and replacement of a part of the Work found to be unsatisfactory.

11. Contractor shall minimize effects on University operations and on concurrent operations construction by other contractors.

## 1.5 QUALITY ASSURANCE

A. Requirements for Structural Work: Contractor shall not cut and patch structural elements in a manner that would reduce their load-carrying capacity or load-deflection ratio.
   1. Contractor shall obtain approval from the Architect of the cutting and patching proposal before cutting and patching the following structural elements:
      Bearing and retaining walls
      Structural concrete
      Structural steel
      Lintels
      Timber and primary wood framing
      Structural decking
      Stair systems
      Miscellaneous structural metals
      Equipment supports
      Piping, ductwork, vessels and equipment

B. Operational and Safety Limitations: Contractor shall not cut and patch operating elements or safety-related

components in a manner that would result in reducing their capacity to perform as intended, or result in increased maintenance, or decreased operational life or safety.

1. Contractor shall obtain approval of the cutting and patching proposal before cutting and patching the following operating elements or safety-related systems:
   - Primary operational systems and equipment
   - Air or smoke barriers
   - Water, moisture, or vapor barriers
   - Membranes and flashings
   - Fire protection systems
   - Noise and vibration control elements and systems
   - Control systems
   - Communication systems
   - Electrical wiring systems

C. Visual Requirements: Contractor shall not cut and patch construction exposed on the exterior or in occupied spaces, in a manner that would, in the Architect's opinion, reduce the building's aesthetic qualities, or result in visual evidence of cutting and patching. Contractor shall remove and replace work cut and patched in a visually unsatisfactory manner.

D. If possible Contractor shall retain the original installer or fabricator throughout construction phases to cut and patch the following categories of exposed work, or if it is not possible to engage the original installer or fabricator, Contractor shall engage another recognized experienced and specialized firm:
   - Concrete finishes
   - Masonry
   - Stucco and ornamental plaster
   - Acoustical ceilings
   - Painting
   - Wall covering
   - HVAC enclosures, cabinets or covers

## PART 2 - PRODUCTS

### 2.1 PATCHING MATERIALS

A. Patching Materials, General: As required for original installation and to match surrounding construction.
   1. Contractor shall provide same products or types of construction as that in existing structure, as needed to patch, extend or match existing.
   2. Generally the Contract Documents will not define products or standards of workmanship present in existing construction; Contractor shall determine products by inspection and necessary testing, and determine quality of workmanship by using existing as a sample for comparison.
   3. The presence of a product, finish, or type of construction requires that patching, extending or matching shall be performed as necessary to make work complete and consistent with identical standards of quality.

B. Patching at Paving: At portland cement concrete paving, Contractor shall use concrete mix with maximum 3/8-inch aggregate and minimum 3000 psi 28-day compressive strength. Contractor shall provide dowels to existing paving and reinforce new paving with minimum No. 3 reinforcing steel bars at 16-inches on center each way. Welded wire fabric reinforcement will not be acceptable.

C. Patching of Lawns and Grasses: Contractor shall restore areas trenched, disturbed or damaged. Contractor shall provide sod or seeded planting mix, to match existing lawn or grass area.

D. Patching of Building Finish Materials: Contractor shall match existing products and finishes. Contractor shall confirm colors, patterns and textures with Architect. Contractor shall custom cut new materials to fit and to match joint patterns with existing materials.

1. Ceramic tile and acoustical panels: Contractor shall custom cut new materials to size to match existing construction.

E. Product Substitutions: For each proposed change in materials, Contractor shall submit request for substitution under provisions of Section 01610 - Basic Product Requirements.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

A. Examination, General: Before cutting existing surfaces, Contractor shall examine surfaces to be cut and patched and conditions under which cutting and patching is to be performed. Contractor shall take corrective action before proceeding, if unsafe or unsatisfactory conditions are encountered. Contractor shall inspect existing conditions prior to commencing Work, including elements subject to damage or movement during cutting and patching.
   1. Before proceeding, Contractor shall meet at the site with parties involved in cutting and patching, including asbestos abatement, mechanical and electrical trades. Contractor shall review areas of potential interference and conflict. Contractor shall coordinate procedures and resolve potential conflicts before proceeding.
   2. Beginning of cutting or patching shall be interpreted to mean that existing conditions were found by Contractor to be acceptable.
   3. After uncovering existing Work, Contractor shall inspect conditions affecting proper accomplishment of Work.

### 3.2 PREPARATION

A. Temporary Supports: Contractor shall provide supports to ensure structural integrity of the Work. Contractor shall provide devices and methods to protect other portions of Project from damage.

B. Protection: Contractor shall protect existing construction during cutting and patching to prevent damage. Contractor shall provide protection from adverse weather conditions for portions of the Project that might be exposed during cutting and patching operations.

C. Contractor shall avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.

D. Contractor shall take all precautions necessary to avoid cutting existing pipe, conduit or ductwork serving the building, but scheduled to be removed or relocated until provisions have been made to bypass them.

E. Weather Protection: Contractor shall provide protection from elements for areas which may be exposed by uncovering Work. Contractor shall maintain excavations free of water.

### 3.3 CUTTING AND PATCHING

A. Cutting and Patching, General: Contractor shall execute cutting, fitting, and patching, excavation and fill, as necessary to complete the Work. Contractor shall employ skilled workers to perform cutting and patching. Contractor shall proceed with cutting and patching at the earliest feasible time and complete without delay. Contractor shall:
   1. Coordinate installation or application of products for integrated Work. Avoid having to cut and patch new substrates and finishes.
   2. Uncover completed Work as necessary to install or apply products out of sequence.
   3. Cut, remove and replace defective and non-conforming Work.
   4. Cut and patch as necessary to provide openings in the Work for penetration of plumbing, fire protection, HVAC and electrical Work.
   5. Where partitions are removed, patch floors, walls, and ceilings with finish materials to match existing.

a. Where removal of partitions results in adjacent spaces becoming one, re-work floors and ceilings to provide smooth and clean planes without breaks, steps, or bulkheads.
b. Where extreme change of plane of one inch or more occurs, request instructions from Architect as to method of making transition.

6. Trim and refinish existing doors as necessary to clear new floor finishes.
7. By-pass utility services such as pipe or conduit, before cutting, where services are shown or required to be removed, relocated or abandoned. Cut-off pipe or conduit in walls or partitions to be removed. Cap, valve or plug and seal the remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after by-passing and cutting.

B. Cutting: Contractor shall:
1. Cut existing construction using methods least likely to damage elements to be retained or adjoining construction. Where possible review proposed procedures with the original installer; comply with the original installer's recommendations. Provide appropriate surfaces to receive final finishing.
2. Execute cutting and patching of weather-exposed, moisture-resistant elements and surfaces exposed to view by methods to preserve weather, moisture and visual integrity.
3. Cut rigid materials using carbide tip saw blades, diamond grit abrasive saw blades, diamond core drills and hole saws, and similar cutters for smooth edges. Do not overcut corners.
   a. Core drill holes through concrete and masonry.
   b. Pneumatic tools will not be allowed without prior approval.
4. Provide fire and smoke seals at new penetrations to maintain fire rating at all penetrations.

C. Patching: Contractor shall patch with durable seams that are as invisible as possible. Contractor shall comply with specified tolerances. Contractor shall restore substrates and finishes with products to match existing construction and as specified in product Sections of the Specifications for new construction. Contractor shall:
1. Where feasible, inspect and test patched areas to demonstrate integrity of the installation.
2. Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.
3. Where removal of walls or partitions extends one finished area into another, patch and repair floor and wall surfaces in the new space to provide an even surface of uniform color and appearance. Remove existing floor and wall coverings and replace with new materials, if necessary to achieve uniform color and appearance.
   a. Where patching occurs in a smooth painted surface, extend final paint coat over entire unbroken containing the patch, after the patched area has received primer and second coat.
4. Patch, repair or re-hang existing ceilings as necessary to provide an even plane surface of uniform appearance.
5. Finish surfaces flush and textured to match surrounding finishes.
6. Fit work neat and tight allowing for expansion and contraction.
7. Butt new finished to existing exposed structure, pipes, ducts, conduit, and other penetrations through surfaces.

D. Finishing: Contractor shall refinish surfaces to match adjacent and similar finishes as used for the Project.
1. For continuous surfaces, Contractor shall refinish to nearest intersection or natural break.
2. For an assembly, Contractor shall refinish entire unit.

E. Penetrations at Fire-Rated Construction: At penetrations of fire rated walls, partitions, ceiling, or floor construction, Contractor shall completely seal voids with firestopping and smoke seal material in compliance with an applicable UL-listed assembly, to full thickness of the penetrated element. Refer to Section 078443 “Joint Firestopping” and Section 078413 “Penetration Firestopping.” .

F. Restoration and Finishing: Contractor shall finish surfaces to match adjacent and similar finishes as used for the Project.
1. Contractor shall restore Work with new products as specified in individual product Specifications Sections in Divisions 7 and 9.
2. Contractor shall patch and replace any portion of an existing finished surface which is found to be

damaged, lifted, discolored, or shows other imperfections, with matching material. Contractor shall**:**

a. Provide adequate support of substrate prior to patching the finish.
b. Refinish patched portions of painted or coated surfaces in a manner to produce uniform color and texture over the entire surface.
c. When existing surface finish cannot be matched, refinish entire surface to nearest intersections.

G. Transition from Existing to New Construction:
1. When new work abuts or finishes flush with existing work, Contractor shall make a smooth and clean transition. Contractor shall patched work shall match existing adjacent work in texture and appearance so that the patch or transition is invisible at a distance of five feet.
2. When finished surfaces are cut in such a way that a smooth and clean transition with the new work is not possible, Contractor shall notify Architect. Contractor shall terminate existing surface in a neat manner along a straight line at a natural line of division, and provide trim appropriate to finished surface, or as otherwise directed by Architect.

H. Plaster Installation: Contractor shall comply with manufacturer's instructions and install thickness and coats as indicated.

## 3.4 CLEANING

A. Cleaning: Contractor shall thoroughly clean areas and spaces where cutting and patching is performed or used as access. Contractor shall remove completely paint, mortar, oils, putty and items of similar nature. Contractor shall thoroughly clean piping, conduit and similar features before painting or other finishing is applied. Contractor shall restore damaged pipe covering to its original condition.

**END OF SECTION**