

SECTION 010450 – CUTTING AND PATCHING

Latest Update: 08-09-2020 See Underlined Text for Edits.

(A/E shall edit specifications and blue text in header to meet project requirements. This includes but is not limited to updating Equipment and/or Material Model Numbers indicated in the specifications and adding any additional specifications that may be required by the project. Also turn off all “Under Lines”)

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes the requirements for cutting and patching.

1.3 SUBMITTALS

- A. Cutting and Patching Proposal: When unforeseen conditions require cutting and patching of the existing structure and/or related components the CM shall submit a cutting and patching proposal to the university, for review and approval before proceeding with any work. Include the following information, as applicable, in the proposal:
 - 1. Describe the extent of cutting and patching required and indicate why it cannot be avoided. Include changes to the building's appearance and other significant visual elements if applicable.
 - 2. Describe the products to be used.
 - 3. Identify the impact to the project's schedule and budget.
 - 4. Indicate the dates when cutting and patching will be performed.
 - 5. Where cutting and patching involves adding reinforcement to structural elements, the modifications to the structure shall be designed by a registered structural engineer. If the design team does not include a structural engineer the CM shall secure the services of an engineer to perform the required design. The CM shall submit the design drawings, details and engineering calculations showing integration of reinforcement with the original structure to the University.

6. Approval by the University to proceed with cutting and patching does not waive the University's right to later require complete removal and replacement of unsatisfactory work.

1.4 QUALITY ASSURANCE

- A. Requirements for Structural Work: Do not cut and patch structural elements in a manner that would change their load-carrying capacity or load-deflection ratio.

1. Obtain hot work permit from the University for cutting, burning, welding, etc. (See attached).
2. Obtain approval of the cutting and patching proposal before cutting and patching the following structural elements: **<Edit For Particular Project>**
 - a. Foundation construction.
 - b. Bearing and retaining walls.
 - c. Structural concrete.
 - d. Structural steel.
 - e. Lintels.
 - f. Timber and primary wood framing.
 - g. Structural decking.
 - h. Stair systems.
 - i. Miscellaneous structural metals.
 - j. Exterior curtain-wall construction.
 - k. Equipment supports.
 - l. Piping, ductwork, vessels, and equipment.
 - m. Structural systems of special construction in Division 13 Sections.

- B. Operational Limitations: Do not cut and patch operating elements or related components in a manner that would result in reducing their capacity to perform as intended. Do not cut and patch operating elements or related components in a manner that would result in increased maintenance or decreased operational life or safety.

1. Obtain approval of the cutting and patching proposal from the University before cutting and patching the following operating elements or safety related systems: **<Edit For Particular Project>** Primary operational systems and equipment.
 - b. Air or smoke barriers.
 - c. Water, moisture, or vapor barriers.
 - d. Membranes and flashings.
 - e. Fire protection systems.
 - f. Noise and vibration control elements and systems.
 - g. Control systems.
 - h. Communication systems.
 - i. Conveying systems.
 - j. Electrical wiring systems.
 - k. Operating systems of special construction.

-
1. Fire rated assemblies.
- C. Visual Requirements: Do not cut and patch construction exposed on the exterior or in occupied spaces in a manner that would, in the University's opinion, reduce the building's aesthetic qualities. Do not cut and patch construction in a manner that would result in visual evidence of cutting and patching. Remove and replace construction cut and patched in a visually unsatisfactory manner when directed by the University.
1. If possible, retain the original Installer or fabricator to cut and patch the exposed Work listed below. If it is impossible to engage the original Installer or fabricator, engage another recognized experienced and specialized firm. **<Edit For Particular Project>** Processed concrete finishes.
 - b. Stonework and stone masonry.
 - c. Ornamental metal.
 - d. Matched-veneer woodwork.
 - e. Preformed metal panels.
 - f. Firestopping.
 - g. Window wall system.
 - h. Stucco and ornamental plaster.
 - i. Acoustical ceilings.
 - j. Terrazzo.
 - k. Finished wood flooring.
 - l. Fluid-applied flooring.
 - m. Carpeting.
 - n. Aggregate wall coating.
 - o. Wall covering.
 - p. HVAC enclosures, cabinets, or covers.
- 1.5 Cutting and Patching Responsibilities:
- A. Cutting: cutting shall be the work of the trade requiring the cutting for access, or for permitting the alteration to be performed or an approved subcontractor designated by the trade or the CM.
1. Cutting required for inspections shall be the work of the CM/GC.
 2. Cutting required to obtain test samples of suspected hazardous materials shall be the work of a contractor licensed for the removal of hazardous materials.
 3. Patching: Patching shall be the work of the appropriate trade.
 - a. Maintain the rating of fire rated barriers, using approved sealant products.
 4. Fire Rated Barriers: Where existing fire rated barriers, located in the project area, have unsealed openings for mechanical and electrical work, these openings shall be sealed using the approved sealant products to maintain the fire rating of the barrier.

1.6 WARRANTY

- A. Existing Warranties: Replace, patch, and repair material and surfaces cut or damaged by methods and with materials in such a manner as not to void any warranties required or existing.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

- A. Use materials identical to existing materials. For exposed surfaces, use materials that visually match existing adjacent surfaces to the fullest extent possible if identical materials are unavailable or cannot be used. For building exterior or visible interior elements, the Architect and the UMB representative must approve substitutions. Use materials whose installed performance will equal or surpass that of existing materials. Refer to applicable spec sections for materials.

2.2 ROOFING SYSTEMS <Delete if not Required>

- A. Where existing roofing systems require alterations due to unforeseen conditions, all required alterations shall be provided by a roofing contractor approved by the manufacturer of the existing roofing system.

PART 3 - EXECUTION

3.1 CONSTRUCTION WORK – EXCESSIVE NOISE

- A. All construction work that creates excessive noise will not be permitted during normal business hours, 8:00am to 5:00pm (M-F) or 8:00am to 8:00pm (weekends). Work such as core drilling floors, cutting masonry construction or other materials, or inserting hangers in floor slabs shall be scheduled between 5:00am and 8:00am (M-F) or 10:00pm to 8:00am (weekends). Coordinate actual time frames with UMB – Project Manager.

3.2 INSPECTION

- A. Examine surfaces to be cut and patched and conditions under which cutting and patching is to be performed before cutting. If unsafe or unsatisfactory conditions are encountered, take corrective action before proceeding.

1. Before proceeding, meet at the Project Site with parties involved in cutting and patching, including mechanical and electrical trades. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.

3.3 PREPARATION

- A. Temporary Support: Provide temporary support of work to be cut.
- B. Protection: Protect existing construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of the Project that might be exposed during cutting and patching operations.
- C. Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.
- D. 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 or to take them out of service.

3.4 PERFORMANCE

- A. General: Employ skilled workmen or experienced subcontractors to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time and complete without delay.
 1. Cut existing construction to provide for installation of other components or performance of other construction activities and the subsequent fitting and patching required to restore surfaces to their original condition.
- B. Cutting: Cut existing construction using methods least likely to damage elements retained or adjoining construction. Where possible, review proposed procedures with the original Installer; comply with the original Installer's recommendations. **<Edit For Particular Project>**
 1. In general, when cutting, use hand or small power tools designed for sawing or grinding, not hammering and chopping. Cut holes and slots as small as possible, neatly to size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
 2. To avoid marring existing finished surfaces, cut or drill from the exposed or finished side into concealed surfaces.

-
3. Cut through concrete and masonry using a cutting machine, such as a Carborundum saw or a diamond-core drill.
 4. Comply with requirements of applicable Division 2 Sections where cutting and patching requires excavating and backfilling.
 5. Where services are required to be removed, relocated, or abandoned, by-pass utility services, such as pipe or conduit, before cutting. Ensure all services have been de-energized or drained before cutting. 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.
- C. Patching: Patch with durable seams that are as invisible as possible. Comply with specified tolerances. **<Edit For Particular Project>**
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 removing walls or partitions extends one finished area into another, patch and repair floor and wall surfaces in the new space. 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 surface containing the patch after the area has received primer and second coat. Prepare entire surface to receive final coat as necessary for proper adhesion. Patch, repair, or rehang existing ceilings as necessary to provide an even-plane surface of uniform appearance.
- D. Plaster Installation: **<Delete If Not Applicable to Project>** Comply with manufacturer's instructions and install thickness and coats as indicated.
1. Unless otherwise indicated, provide three (3) coat work.
 2. Finish gypsum plaster to match existing adjacent surfaces. Sand lightly to remove trowel marks and arises.
 3. Cut, patch, point-up, and repair plaster to accommodate other construction.
- 3.5 PAINTING
- A. Extent of Painting:
1. Paint over the entire surface plane, unless otherwise noted.
 2. Over patched surfaces paint to the nearest cut off line for the entire surface, such as the intersection with adjacent wall, ceiling, beam, bulkhead, or to the nearest opening frame where a total cut off does not occur within ten (10) feet of the patch, unless otherwise noted.

B. Appearance and Finish:

1. Appearance: Ensure painted surfaces do not present a spotty, touched-up appearance.
2. Finish: Provide a smooth continuous surface in texture, coverage and color.

3.6 CLEANING

- A. Areas and spaces where cutting, and patching are performed shall be cleaned. Completely remove paint, mortar, oils, putty, and similar items. Thoroughly clean piping, conduit, and similar features before applying paint or other finishing materials. Restore damaged pipe covering to its original condition.

END OF SECTION 010450