

SECTION 01731 - CUTTING AND PATCHING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes procedural requirements for cutting and patching.
- B. Related Sections include the following:
 - 1. Division 7 Section "Through-Penetration Firestop Systems" for patching fire-rated construction.
 - 2. Divisions 2 through 16 Sections for specific requirements and limitations applicable to cutting and patching individual parts of the Work.
 - a. Requirements in this Section apply to mechanical and electrical installations. Refer to Divisions 15 and 16 Sections for other requirements and limitations applicable to cutting and patching mechanical and electrical installations.

1.3 DEFINITIONS

- A. Cutting: Removal of existing construction necessary to permit installation or performance of other Work.
- B. Patching: Fitting and repair work required to restore surfaces to original conditions after installation of other Work.

1.4 SUBMITTALS

- A. Cutting and Patching Proposal: Submit a proposal describing procedures at least 10 days before the time cutting and patching will be performed, requesting approval to proceed. Include the following information:
 - 1. Extent: Describe cutting and patching, show how they will be performed, and indicate why they cannot be avoided.
 - 2. Changes to Existing Construction: Describe anticipated results. Include changes to structural elements and operating components as well as changes in building's appearance and other significant visual elements.
 - 3. Products: List products to be used and firms or entities that will perform the Work.
 - 4. Dates: Indicate when cutting and patching will be performed.

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5. Utilities: List utilities that cutting and patching procedures will disturb or affect. List utilities that will be relocated and those that will be temporarily out of service. Indicate how long service will be disrupted.
6. Structural Elements: Where cutting and patching involve adding reinforcement to structural elements, submit details and engineering calculations showing integration of reinforcement with original structure.
7. Engineer's Approval: Obtain approval of cutting and patching proposal before cutting and patching. Approval does not waive right to later require removal and replacement of unsatisfactory work.

B. Submit written request in advance of cutting or alteration which affects:

1. Structural integrity of any element of the project.
2. Integrity of weather-exposed or moisture-resistant element.
3. Efficiency, maintenance, or safety of any operational element.
4. Visual qualities of sight-exposed elements.
5. Work of Owner or separate Contractor.

C. Include in request:

1. Identification of the project.
2. Location and description of affected work.
3. Necessity for cutting or alteration.
4. Description of proposed work and products to be used.
5. Alternatives to cutting and patching.
6. Effect on work of Owner or separate Contractor.
7. Written permission of affected separate Contractor.
8. Date and time work will be executed.

1.5 QUALITY ASSURANCE

- A. Structural Elements: Do not cut and patch structural elements in a manner that could change their load-carrying capacity or load-deflection ratio.
- B. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety.
 1. Primary operational systems and equipment.
 2. Air or smoke barriers.
 3. Fire-protection systems.
 4. Control systems.
 5. Communication systems.
 6. Conveying systems.
 7. Electrical wiring systems.
- C. Miscellaneous Elements: Do not cut and patch the following elements or related components in a manner that could change their load-carrying capacity, that results in reducing their capacity

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to perform as intended, or that results in increased maintenance or decreased operational life or safety.

1. Water, moisture, or vapor barriers.
2. Membranes and flashings.
3. Exterior curtain-wall construction.
4. Equipment supports.
5. Piping, ductwork, vessels, and equipment.
6. Noise- and vibration-control elements and systems.

D. Visual Requirements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch construction exposed on the exterior or in occupied spaces in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.

1. If possible, retain original Installer or fabricator to cut and patch exposed Work listed below. If it is impossible to engage original Installer or fabricator, engage another recognized, experienced, and specialized firm.
 - a. Roofing.
 - b. Siding.

1.6 DUST PROTECTION ENCLOSURE

A. The contractor must provide an acceptable plan for preventing the generation of dust due to operations in the construction zones, along haul routes, in equipment parking areas, and in waste areas. Provide labor, material, and equipment required to construct dust-proof barriers to isolate dust and dirt from construction operations; make provisions to keep dust from penetrating into mechanical systems and tape door and window openings and cracks to form a complete dust barrier; use negative air exhaust fans to provide negative air pressure in dusty work areas; and equipment fans with filters capable of preventing visible dust release at exhaust duct. Remove all barriers upon completion of the work and clean the work area; and clean to the original state any areas beyond the work area that become dust-laden as a result of the work operation.

1.7 WARRANTY

A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during cutting and patching operations, by methods and with materials so as not to void existing warranties.

1.8 MATERIALS

- A. General: Comply with requirements specified in other Sections of these Specifications.
- B. Existing Materials: Use materials identical to existing materials. For exposed surfaces, use materials that visually match existing adjacent surfaces to the fullest extent possible.

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1. If identical materials are unavailable or cannot be used, use materials that, when installed, will match the visual and functional performance of existing materials.

1.9 DUST PARTITION

- A. Dust partition shall be constructed of 2x4 studs at 16" o.c. (full height) with one layer of 6 mil reinforced poly each side. Provide 1/2" plywood on the occupied side of the partition. Tape poly on all sides to existing finished surfaces.

PART 2 - EXECUTION

2.1 EXAMINATION

- A. Examine surfaces to be cut and patched and conditions under which cutting and patching are to be performed.
 1. Restore work with new products in accordance with requirements of Contract Documents.
 2. Compatibility: Before patching, verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
 3. Proceed with installation only after unsafe or unsatisfactory conditions have been corrected.
 4. Inspect existing conditions, including elements subject to damage or movement during cutting and patching.
 5. After uncovering, inspect conditions affecting performance of work.
 6. Beginning of cutting or patching means acceptance of existing conditions.
- B. Execute cutting, fitting, and patching, including excavation and fill, to complete work and to:
 1. Fit the several parts together, to integrate with other work.
 2. Uncover work to install ill-timed work.
 3. Remove and replace defective and non-conforming work.
 4. Remove samples of installed work for testing.
 5. Provide openings in elements of work for penetrations of mechanical and electrical work.

2.2 PREPARATION

- A. Temporary Support: Provide temporary support of Work to be cut.
- B. Provide supports to assure structural integrity of surroundings; devices and methods to protect other portions of project from damage.
- C. Protection: Protect existing construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.

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- D. Adjoining Areas: Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.
- E. Maintain excavations free of water.
- F. Existing Services: Where existing services are required to be removed, relocated, or abandoned, bypass such services before cutting to minimize interruption of services to occupied areas.

2.3 PERFORMANCE

- A. General: Employ skilled workers 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, and subsequently patch as required to restore surfaces to their original condition.
- B. Cutting: Cut existing construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.
 - 1. In general, use hand or small power tools designed for sawing and 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. Existing Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
 - 3. Concrete: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill. Pneumatic tools not allowed without prior approval.
 - 4. Excavating and Backfilling: Comply with requirements in applicable Division 2 Sections where required by cutting and patching operations.
 - 5. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
 - 6. Proceed with patching after construction operations requiring cutting are complete.
- C. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other Work. Patch with durable seams that are as invisible as possible. Provide materials and comply with installation requirements specified in other Sections of these Specifications.
 - 1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate integrity of installation.
 - 2. General: Fit work to pipes, sleeves, ducts, conduits, and other penetrations through surfaces.
 - 3. Fire-Rated Assemblies: At penetrations of fire-rated wall, ceiling, or floor construction, completely seal voids with fire-rated material, full thickness of construction element.

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4. Exposed Finishes: 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.
5. Assemblies: Refinish entire unit.
6. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, 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 painted surface, apply primer and intermediate paint coats over the patch and apply final paint coat over entire unbroken surface containing the patch. Provide additional coats until patch blends with adjacent surfaces.
7. Ceilings: Patch, repair, or rehang existing ceilings as necessary to provide an even-plane surface of uniform appearance.
8. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition.

END OF SECTION 01731

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