

SECTION 01 73 290
CUTTING AND PATCHING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes: Requirements and limitations of cutting and patching of work if such cutting and patching shall be required in the project to remedy unacceptable Work, Work found to be in non-compliance with the Contract Documents by the Architect or should any Change Order Work encompass cutting and patching in Scope.
1. Execute cutting, fitting and patching, including attendant excavation and backfill, required to complete work or to:
 - a. Cutting, fitting, and patching necessary to complete the work.
 - b. Cutting, fitting, and patching necessary to repair existing work or work damaged by construction activities.
 - c. Uncover and replacement for work performed out of sequence.
 - d. Removal and replacement of defective work and work deemed as not in compliance with the Contract Documents.
 - e. Uncovering and replacement of work that had been covered prior to required observations.
 - f. Fit parts of the work.
 - g. Uncover work covered prior to Architect's required observation.
 - h. Removal or field samples and mock ups.
 - i. Removal of testing samples.
 - j. Repair of penetrations for mechanical, electrical, and plumbing work.

1.2 DEFINITIONS

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

1.3 SUBMITTALS

- A. Cutting and Patching Plan: Submit plan describing procedures at least 10 days prior to the time cutting and patching will be performed. Include the following information:
1. Extent: Describe reason for and extent of each occurrence of cutting and patching.
 2. Changes to In Place Construction: Describe anticipated results. Include changes to structural elements and operating components as well as changes in building appearance and significant visual elements.

3. Products: List products used for patching and entities that will perform patching work.
 - a. Indicate products necessary to comply with sustainable design.
 4. Dates: Indicate when cutting and patching will be performed.
 5. Structural Integrity: Identify if the structural integrity of the building or a member will be penetrated and indicate how the overall structural integrity will be maintained.
 6. Utilities, Mechanical, and Electrical Systems: List services and systems that cutting and patching procedures will disturb or affect. List services and systems that will be relocated and those that will be temporarily out of service. Indicate length of time permanent services and systems will be disrupted.
 - a. Include description of provisions for temporary services and systems during interruption of permanent services and systems.
- B. Submit written request to Architect in advance of executing cutting or alteration which affects:
1. Work of Owner or separate contractor.
 2. Structural value or integrity of any element of project.
 3. Integrity or effectiveness of weather exposed or moisture resistant elements or systems.
 4. Efficiency, operational life, maintenance or safety of operational elements.
 5. Visual qualities of sight exposed elements.
- C. Request include:
1. Identification of Project.
 2. Date and time of the work.
 3. Location and description of affected work.
 4. Necessity for cutting, alteration or excavation.
 5. Effect on work of Owner or separate contractor, or on structural or weatherproof integrity of Project.
 6. Description of proposed work:
 - a. Scope of cutting, patching, alteration, or excavation.
 - b. Trades who will execute work.
 - c. Products proposed to be used.
 - d. Extent of refinishing to be done.
 - e. Cost proposal when applicable.
 7. Alternatives to cutting and patching.
 8. Written permission of separate contractor whose work will be affected.
- D. Should conditions of work or schedule indicate change of products from original installation, submit request for substitution as specified in Section 01 25 00.
- E. Submit written notice to Architect designating date and time work will be uncovered or altered.

1.4 QUALITY ASSURANCE

- A. Cutting and Patching: Comply with requirements for and limitations on cutting and patching of construction elements.
- B. Structural Elements: When cutting and patching structural elements, notify Architect of locations and details of cutting and await directions from Architect before proceeding. Shore, brace, and support structural elements during cutting and patching. Do not cut and patch structural elements in a manner that could change their load-carrying capacity or increase deflection.
- C. Operational Elements: Do not cut and patch operating elements and related components that results in reducing the capacity to perform as intended or that results in increased maintenance or decreased operational life or safety.
 - 1. Primary operational systems and equipment.
 - 2. Fire separation assemblies.
 - 3. Air or smoke barriers.
 - 4. Fire suppression systems.
 - 5. Mechanical systems piping and ducts.
 - 6. Control systems.
 - 7. Communication systems.
 - 8. Fire detection and alarm systems.
 - 9. Conveying systems.
 - 10. Electrical wiring systems.
 - 11. Operating systems of special construction.
- D. Miscellaneous Elements: Do not cut and patch elements or related components that change the load bearing capacity, resulting in a reduction of capacity 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.
 - 7. Sprayed fire resistive material.
- E. Visual Requirements: Do not cut and patch construction resulting 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. If possible, engage original Installer or fabricator. If original installer is not available, engage recognized, experienced, and specialized firm for the work.

- a. Processed concrete finishes.
 - b. Ornamental metal.
 - c. Matched veneer woodwork.
 - d. Preformed metal panels.
 - e. Roofing.
 - f. Firestopping.
 - g. Window system.
 - h. Fluid applied flooring.
 - i. Wall covering.
 - j. HVAC enclosures, cabinets, or covers.
- F. Cutting and Patching Conference: Before proceeding, meet at 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.

1.5 COORDINATION

- A. Coordinate cutting and patching with selective demolition and deconstruction.

1.6 WARRANTY

- A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during installation or cutting and patching operations, by methods and with materials complying with conditions of existing warranties.
1. Notify warrantor before cutting and patching warranted work. If necessary for warranty, engage authorized installer or repair personnel to perform patching and repair work.
 2. Notify warrantor on completion of cutting and patching, and obtain documentation verifying that existing work has been inspected and warranty remains in effect. Submit documentation at Project closeout.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Comply with specified requirements, governing codes, and recognized product and material standards for each product and material.
1. Sustainable Design Projects: Provide patching and repair materials complying with sustainable design requirements.
- 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.
1. If identical materials are unavailable or cannot be used, submit a request for a substitution complying with Section 01 25 00. In the Substitution Request,

recommend materials that, when installed, will match the visual and functional performance of existing materials.

- C. Should conditions of work or schedule indicate change of products from original installation, submit request for substitution as specified in Section 01 25 00.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine existing conditions of Project, including elements subject to damage or to movement during cutting, patching, excavating, and backfilling.
- B. After uncovering work, examine conditions affecting installation of Products, or performance of work.
- C. Report unsatisfactory or questionable conditions to Architect in writing. Do not proceed with work until Architect has provided further instructions.

3.2 PREPARATION

- A. Temporary Support: Provide temporary support of work to insure continued structural integrity of the work.
- B. Protection: Protect existing construction during cutting and patching to prevent damage to adjacent work. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.
- C. Adjoining Occupied Areas: Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas. Where interference with use of adjoining areas or interruption of free passage to adjoining areas is unavoidable, coordinate cutting and patching according to requirements in Section 01 50 00.
- D. Existing Services: Where removal, relocation, or abandonment is necessary, bypass existing services before cutting to avoid interruption of services to occupied areas. Comply with requirements of Section 01 50 00 for temporary utilities and services.
- E. Provide positive methods of dust control and apply dust control materials to minimize raising dust from cutting and patching operations.

3.3 DUST CONTROL

- A. Provide positive methods of dust control and apply dust control materials to minimize raising dust from cutting and patching operations.

3.4 EXECUTION

- A. Execute cutting and demolition by methods which will prevent damage to other work and will provide proper surfaces to receive installation of repairs.

- B. Execute fitting and adjustment of products to provide finished installation to comply with specified products, functions, tolerances and finishes.
- C. Restore work which has been cut or removed. Install new products to provide Work in accordance with requirements of Contract Documents.
- D. Fit work airtight to pipes, sleeves, ducts, conduit and penetrations through surfaces. Where fire rated separations are penetrated, fill space around pipe or insert with material with physical characteristics equivalent to fire resistance requirement of penetrated surface.
- E. Refinish entire surfaces as necessary to provide even finish to match adjacent finishes:
 - 1. For continuous surfaces, refinish to nearest intersection.
 - 2. For assembly, refinish entire unit.
- F. Employ original installer or fabricator of work performed to perform cutting and patching for:
 - 1. Weather exposed or moisture resistant elements.
 - 2. Sight exposed finished surfaces.

3.5 CUTTING AND PATCHING

- A. Cutting and Patching: 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 components or performance of construction, and subsequently patch as necessary to restore surfaces to an 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. 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. Finished Surfaces: Cut or drill from exposed or finished side into concealed surfaces.
 - 3. Concrete and Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond core drill.
 - 4. Excavating and Backfilling: Comply with requirements in applicable earthwork specifications 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. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction to eliminate evidence of patching and refinishing.
 - a. Clean piping, conduit, and similar features before applying paint or other finishing materials.
 - b. Restore damaged pipe covering to its original condition.
 3. Floors and Walls: Where walls or partitions are removed, extend one finished area into another, patch and repair floor and wall surfaces in new space. Provide 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.
 4. Painted Surfaces: 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.
 5. Ceilings: Patch, repair, or rehang existing ceilings as necessary to provide an even plane surface of uniform appearance.
 6. Mechanical, Electrical, and Plumbing: Fit work airtight to pipes, sleeves, ducts, conduit and penetrations through surfaces.
 7. Fire Resistive Separations and Penetrations: Where fire rated separations are penetrated, fill space around pipe or insert with material complying with fire resistance requirements of penetrated surface. Refer to fireproofing and fire stopping requirements.
 8. Exterior Building Enclosure: Patch components and restore enclosure to a weathertight condition.

3.6 CLEANING

- A. Restore surfaces to match adjacent surfaces. Clean area dust, dirt, and debris caused by cutting and patching. Remove paint, mortar, oils, putty, and similar materials from adjacent finished surfaces.
- B. Return to condition existing before cutting and patching.

END OF SECTION

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