SECTION  – execution

This Section is a CANADIAN master.

Use this Section for INTERIOR ONLY projects.

This Section uses the term "Consultant." Change this term to match that used to identify the design professional as defined in the General and Supplementary Conditions.

Added to Section: cutting and patching, owner-installed products.

Removed from Section: Correction of work (moved to 01 77 00).

1. General
   1. summary
      1. Section includes general administrative and procedural requirements governing execution of the Work, including the following:
         1. Construction layout.
         2. Installation of the Work.
         3. Cutting and patching.
         4. Coordination of Owner-installed products.
         5. Progress cleaning.
         6. Starting and adjusting.
         7. Protection of installed construction.
   2. definitions
      1. Cutting: Removal of in-place construction necessary to permit installation or performance of other work. Cutting in this sense does not include demolition.
      2. Patching: Fitting and repair work required to restore construction to original conditions after installation of other work.
   3. quelity assurance
      1. Cutting and Patching: Comply with requirements for and limitations on cutting and patching of construction elements.
         1. Structural Elements: When cutting and patching structural elements, notify Consultant of locations and details of cutting and await directions from Consultant 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.
         2. 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.
         3. Other Construction Elements: Do not cut and patch other construction elements or components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety.
         4. Visual Elements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch exposed construction in a manner that would, in Consultant's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.
      2. Manufacturer's Installation Instructions: Obtain and maintain on-site manufacturer's written recommendations and instructions for installation of products and equipment.
2. Products
   1. materials
      1. General: Comply with requirements specified in other Sections.

Retain subparagraph below for LEED projects and projects with specific sustainable design requirements that may affect Contractor selection of materials used in patching.

* + - 1. For projects requiring compliance with sustainable design and construction practices and procedures, use products for patching that comply with requirements in Section 01 81 33 – Sustainable Design Requirements – Embodied Carbon.
    1. In-Place Materials: Use materials for patching identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.
       1. If identical materials are unavailable or cannot be used, use materials that, when installed, will provide a match acceptable to Consultant for the visual and functional performance of in-place materials.

1. Execution
   1. examination
      1. Existing Conditions: The existence and location of utilities and construction indicated as existing are not guaranteed. Before beginning Work, investigate and verify the existence and location of mechanical and electrical systems, and other construction affecting the Work.
      2. Examination and Acceptance of Conditions: Before proceeding with each component of the Work, examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance.
         1. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
         2. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
         3. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
      3. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.
   2. preparation
      1. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
      2. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.
      3. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents caused by differing field conditions outside the control of Contractor, submit a request for information to Consultant according to requirements in Section 01 26 13 – Requests for Interpretation (RFI).
   3. construction layout
      1. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to existing conditions. If discrepancies are discovered, notify Consultant promptly.
      2. General: The Work to be performed under the Contract Documents shall be laid out solely by the Contractor. Provide and pay for all construction layout work required for the Project. Under no circumstances will the Consultant assume any responsibilities for laying out the Work.
         1. Establish benchmarks and control points to set lines and levels as needed to locate each element of Project.
         2. Establish dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.
         3. Inform installers of lines and levels to which they must comply.
         4. Check the location, level and plumb, of every major element as the Work progresses.
         5. Notify Consultant when deviations from required lines and levels exceed allowable tolerances.
   4. installation
      1. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
         1. Make vertical work plumb and make horizontal work level.
         2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
         3. Conceal pipes, ducts, and wiring in finished areas unless otherwise indicated. Where indicated to remain exposed, arrange overhead systems in an orderly manner.
         4. Maintain minimum headroom clearance of [96 inches (2440 mm)] in occupied spaces and [90 inches (2300 mm)] in unoccupied spaces, unless otherwise indicated on the Drawings.
      2. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.
      3. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.
      4. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.
      5. Sequence the Work and allow adequate clearances to accommodate movement of construction items on site and placement in permanent locations.
      6. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.
      7. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.
      8. Attachment: Provide blocking and attachment plates and anchors and fasteners of adequate size and number to securely anchor each component in place, accurately located and aligned with other portions of the Work. Where size and type of attachments are not indicated, verify size and type required for load conditions.
         1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Consultant.
         2. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.
      9. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.
      10. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.
   5. cutting and patching
      1. Cutting and Patching, 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 in-place 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.
      2. 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 so as not to void existing warranties.
      3. Temporary Support: Provide temporary support of work to be cut.
      4. Protection: Protect in-place 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.
      5. Adjacent Occupied 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 14 00 "Work Restrictions."
      6. Existing Utility Services and Mechanical/Electrical Systems: Where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting to minimize interruption to occupied areas.
      7. Cutting: Cut in-place 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 neatly to minimum size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
         2. Finished Surfaces: Cut or drill from the 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. Avoid cutting steel reinforcement.
            1. Locate steel reinforcement using Ground Penetrating Radar or Ferroscan prior to cutting or drilling reinforced concrete and masonry. If existing steel reinforcement is in proposed cut or hole location, contact Consultant before proceeding with the Work.
         4. 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.
         5. Proceed with patching after construction operations requiring cutting are complete.
      8. 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 practicable. Provide materials and comply with installation requirements specified in other Sections, where applicable.
         1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate physical integrity of installation.
         2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will minimize evidence of patching and refinishing.
            1. Clean piping, conduit, and similar features before applying paint or other finishing materials.
            2. Restore damaged pipe covering to its original condition.
         3. 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 in-place floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.
            1. Where patching occurs in a painted surface, prepare substrate and apply primer and intermediate paint coats appropriate for substrate over the patch, and apply final paint coat over entire unbroken surface containing the patch. Provide additional coats until patch blends with adjacent surfaces.
         4. Ceilings: Patch, repair, or rehang in-place ceilings as necessary to provide an even-plane surface of uniform appearance.
      9. Cleaning: Clean areas and spaces where cutting and patching are performed. Remove paint, mortar, oils, putty, and similar materials from adjacent finished surfaces.

Delete below if not applicable.

* 1. owner-installed products
     1. Site Access: Provide access to Project site for Owner's construction personnel.
     2. Coordination: Coordinate construction and operations of the Work with work performed by Owner's construction personnel.
        1. Construction Schedule: Inform Owner of Contractor's preferred construction schedule for Owner's portion of the Work. Adjust construction schedule based on a mutually agreeable timetable. Notify Owner if changes to schedule are required due to differences in actual construction progress.
        2. Preinstallation Conferences: Include Owner's construction personnel at pre-installation conferences covering portions of the Work that are to receive Owner's work. Attend pre installation conferences conducted by Owner's construction personnel if portions of the Work depend on Owner's construction.
  2. progress cleaning
     1. General: Clean Project site and work areas daily, including common areas. [Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations.] Enforce requirements strictly. Dispose of materials lawfully.
        1. Do not hold waste materials more than seven days during normal weather or three days if the temperature is expected to rise above 80 deg F (27 deg C).
        2. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
           1. Use containers intended for holding waste materials of type to be stored.
     2. Site: Maintain Project site free of waste materials and debris.
     3. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.
        1. Remove liquid spills promptly.
        2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.
     4. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.
     5. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.
     6. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.
     7. Waste Disposal: Do not bury or burn waste materials on-site. Do not wash waste materials down sewers or into waterways. Comply with waste disposal requirements in Section 01 74 19 – Construction Waste Management and Disposal.
     8. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.
     9. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.
     10. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.
  3. starting and adjusting
     1. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.
     2. Adjust equipment for proper operation. Adjust operating components for proper operation without binding.
     3. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
  4. protection of installed construction
     1. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.
     2. Comply with manufacturer's written instructions for temperature and relative humidity.

end of section