

SECTION 02 41 00 – DEMOLITION

PART 1 – GENERAL

1.01 SECTION INCLUDES

- A. Demolition of designated building(s), equipment and fixtures.
- B. Demolition of designated process equipment, piping and controls.
- C. Demolition and removal of site improvements adjacent to a building or structure to be demolished.
- D. Abandoning in place and/or removing below-grade construction.
- E. Identification of utilities.
- F. Disconnecting, capping or sealing, and removing site utilities.

1.02 RELATED WORK

- A. Site Clearing: Section 31 10 00.
- B. Excavation and Fill: Section 31 23 00.

1.03 SITE CONDITIONS

- A. Demolition work, as specified herein, is not intended to be performed as a total wrecking operation but selective demolition as preparatory work relative to performance of various construction operations in the Project.
- B. Existing Conditions:
 - 1. Demolition information shown on the Drawings is based on visual field examination and existing record documents. While the information provided is believed to be correct, no assurance is implied relative to its total completeness or accuracy. Report discrepancies to Engineer before disturbing existing installations.
 - 2. The Contractor hereby distinctly agrees that neither the Owner nor the Engineer is responsible for the correctness or sufficiency of the information given and after his own Site Investigation:
 - a. That he shall have no claim for delay or extra compensation or damage against the Owner or the Engineer on account of the information given; and
 - b. That he shall have no claim for relief from any obligation or responsibility under the Contract with respect to the above stated stipulations.

3. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.
- C. Owner's use of buildings/structures:
1. Buildings/Structures to be demolished will be vacated and their use discontinued before start of Work according to the Contractor's submitted schedule. Contractor shall provide written notification not less than 72 hours prior to commencement of demolition activities for each unit of work.
 2. Owner will occupy portions of buildings adjacent to demolition area. Conduct all demolition so Owner's operations will not be disrupted.
 3. Provide not less than 72 hours' notice to Owner of activities that will affect Owner's operations.
 4. Maintain access to existing walkways, exits, and other adjacent occupied or used facilities.
- D. Exterior Dust control: To prevent unnecessary spread of dust during performance of exterior demolition work, thoroughly moisten surfaces and debris as required to prevent dust being a nuisance to the public, neighbors and concurrent performance of other work on the site. Water for use in dust control shall be obtained from Contractor's own source.
- E. Interior Dust Control: To prevent spread of dust during performance of the interior demolition work, Contractor shall erect and maintain a dust tight temporary enclosure surrounding the areas of demolition. Fabricate such temporary enclosure from impervious materials such as plywood or sheet polyethylene supported on rough carpentry framing.
- F. Protection During Demolition: Exercise care during demolition work to confine demolition operations to the areas as indicated on the Drawings. The physical means and methods used for protection are at the contractor's option. However, the contractor will be completely responsible for replacement and restitution work of whatever nature with no additional compensation paid.
1. Additionally, if public safety is endangered during the progress of the demolition work, provide adequate protective measures to protect public pedestrian and vehicular traffic on streets and walkways.
 2. Signs, signals and barricades used shall conform to requirements of Federal, State and local laws, rules, regulations, precautions, orders and decrees.
- G. Explosives and Blasting: Not permitted in performance of demolition work.
- H. Storage or sale of removed items or materials on-site is not permitted.

1.04 SUBMITTALS

- A. Schedule of Building/Structure Demolition Activities: Indicate the following:

1. Detailed sequence of demolition and removal work, with starting and ending dates for each activity.
 2. Interruption of utility services.
 3. Coordination for shutoff, capping, and continuation of utility services.
 4. Locations of temporary protection and means of egress by demolition operations.
 5. Coordination of Owner's continuing occupancy of adjacent buildings and partial use of premises.
- B. Predemolition Photographs: Show existing conditions of adjoining construction and site improvements, including finish surfaces, which might be misconstrued as damage caused by building demolition operations. Submit before Work begins.
- C. Landfill Records: Indicate receipt and acceptance of hazardous wastes by a landfill facility licensed to accept hazardous wastes.

1.05 QUALITY ASSURANCE

- A. Demolition Firm Qualifications: An experienced firm that has specialized in demolition work similar in material and extent to that indicated for this Project.
- B. Regulatory Requirements: Comply with governing EPA notification regulations before beginning demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.
- C. Standards: Comply with ANSI A10.6 and NFPA 241.
- D. Predemolition Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Management and Coordination."

PART 2 – PRODUCTS

2.01 MATERIALS

- A. Materials needed or required for temporary protection in the form of barricades, fences, enclosures, etc., may be pre-used construction materials of sound condition and reasonably clean. However, the condition of same materials shall meet or exceed the requirements of governing agencies or approving bodies as may be involved with the work.
- B. Equipment, machinery and apparatus, motorized or otherwise, used to perform the demolition work may be used as chosen at the Contractor's discretion, but which will perform the work within the limits of the Contract requirements.

PART 3 – EXECUTION

3.01 EXAMINATION

- A. Prior to performance of the actual work, carefully inspect the entire site and locate those objects and structures designated to be demolished and removed.
- B. Prior to performance of the actual work, carefully inspect the structure and verify with the Engineer the objects being removed and objects to be preserved.
- C. Locate existing exposed and buried active utilities and determine the requirement for their protection, or their disposition with respect to the demolition work.
- D. Perform an engineering survey of condition of building to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of structure or adjacent structures during building demolition operations.
- E. If applicable, verify that hazardous materials have been remediated before proceeding with building demolition operations.

3.02 PREPARATION

- A. Existing Utilities: Locate, identify, disconnect, and seal or cap off indicated utilities serving buildings and structures to be demolished.
 - 1. Owner will arrange to shut off indicated utilities when requested by Contractor.
 - 2. If utility services are required to be removed, relocated, or abandoned, before proceeding with building demolition provide temporary utilities that bypass buildings and structures to be demolished and that maintain continuity of service to other buildings and structures.
 - 3. Cut off pipe or conduit a minimum of 24 inches below grade. Cap, valve, or plug and seal remaining portion of pipe or conduit after bypassing.
- B. Temporary Shoring: Provide and maintain interior and exterior shoring, bracing, or structural support to preserve stability and prevent unexpected movement or collapse of construction being demolished.
 - 1. Strengthen or add new supports when required during progress of demolition.
- C. Removed and Salvaged Items: Comply with the following:
 - 1. Clean salvaged items of dirt and demolition debris.
 - 2. Pack or crate items after cleaning. Identify contents of containers.
 - 3. Store items in a secure area until delivery to Owner.
 - 4. Transport items to Owner's storage area designated by Owner.
 - 5. Protect items from damage during transport and storage.

- D. The Owner will remove the liquid from liquid containing structures where work is required.

3.03 PROTECTION

- A. Existing Facilities: Protect adjacent walkways, loading docks, building entries, and other building facilities during demolition operations.
- B. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during demolition. When permitted by Engineer, items may be removed to a suitable, protected storage location during demolition and reinstalled in their original locations after demolition operations are complete.
- C. Existing Utilities: Maintain utility services indicated to remain and protect them against damage during demolition operations.
 - 1. Do not interrupt existing utilities serving adjacent occupied or operating facilities unless authorized in writing by Owner and authorities having jurisdiction.
 - 2. Provide temporary services during interruptions to existing utilities, as acceptable to Owner and to authorities having jurisdiction.
 - 3. Provide at least **72** hours' notice to Owner if shutdown of service is required during changeover.
- D. Temporary Protection: Erect temporary protection, such as walks, fences, railings, canopies, and covered passageways, as required. Comply with requirements in Division 1 Section "Temporary Facilities and Controls."
 - 1. Protect existing site improvements, appurtenances, and landscaping to remain.
 - 2. Erect a plainly visible fence around drip line of individual trees or around perimeter drip line of groups of trees to remain.
 - 3. Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
 - 4. Provide protection to ensure safe passage of people around building demolition area and to and from occupied portions of adjacent buildings and structures.
 - 5. Protect walls, windows, roofs, and other adjacent exterior construction that are to remain and that are exposed to building demolition operations.
 - 6. Erect and maintain dustproof partitions and temporary enclosures to limit dust and dirt migration and to separate areas from fumes and noise from occupied portions of adjacent buildings.

3.04 PERFORMANCE

- A. General Requirements: The means and methods of performing demolition and removal operations are the sole responsibility of the Contractor. However, equipment used, and methods of demolition and removal will be subject to approval of the Engineer.
 - 1. Do not use cutting torches until work area is cleared of flammable materials.
 - 2. Maintain portable fire-suppression devices during flame-cutting operations.

3. Maintain adequate ventilation when using cutting torches.
 4. Locate building demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
- B. Engineering Surveys: Perform surveys as the Work progresses to detect hazards that may result from building demolition activities.
- C. Abandoned Equipment and Machinery: Existing equipment and machinery in or on the structures, not claimed as salvage by the Owner, shall also become the property of the Contractor and may not be disposed of on the Site but removed and disposed of in a lawful manner, off Site.
- D. Salvage: The Owner shall have the right to claim as salvage any items and materials removed under the work of this Section. Should such right of salvage be exercised by the Owner, move and neatly store removed items on the site in a location agreeable to the Owner, in a manner approved by the Engineer. While not intending the following list to be exhaustive and complete, the Owner intends to claim the following items:
1. All aluminum grating.
 2. All aluminum handrails.
- E. When removing concrete slabs, saw cut such slabs at the limits of removal to assure a smooth, uniform joint with new concrete installation.
- F. When removing masonry, remove to the next full size unit so proper toothing in of new work may be done.
- G. Perform removal of masonry and concrete debris, keeping such debris dampened during removal and until outside building.

3.05 EXISTING STRUCTURE DEMOLITION

- A. Structure Foundations and Concrete Tankage: Where existing structures are shown to be demolished on the Contract Documents, but are not required to be completely removed to allow for new construction, Contractor shall demolish and remove all facilities down to two feet below planned finished grade.
1. Dispose of structure foundation debris as specified above.
 2. Backfill over the removed foundations as specified hereinafter.

3.06 REPAIRS

- A. General: Promptly repair damage to adjacent construction caused by building demolition operations.
- B. Where repairs to existing surfaces are required, patch to produce surfaces suitable for new materials.

- C. Restore exposed finishes of patched areas and extend restoration into adjoining construction in a manner that eliminates evidence of patching and refinishing.

3.07 RECYCLING DEMOLISHED MATERIALS

- A. Concrete: Remove reinforcement and other metals from concrete and sort with other metals. Pulverize concrete to maximum 4-inch size.
- B. Recycle Material – Where approved by the Engineer and Owner, recycled material may be used as fill on site. Engineer and/or Owner may require material to meet other requirements.

3.08 DISPOSAL OF DEMOLISHED MATERIALS

- A. General: Except for items or materials indicated to be recycled, reused, salvaged, reinstalled, or otherwise indicated to remain Owner's property, remove demolished materials from Project site and legally dispose of them in an PA DEP/EPA-approved landfill.
- B. Do not allow demolished materials to accumulate on-site.
- C. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
- D. Burning: Do not burn demolished materials.

3.09 BACKFILLING

- A. General: Perform backfilling in the area of demolished structures and removed items in accordance with specified sections.
- B. Placement and Compaction: Using material specified, place and compact such material as specified therein.

END OF SECTION