



## SECTION 02 40 16 – TOTAL STRUCTURE DEMOLITION

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. Related Documents: Drawings and general provisions of the Contract, and Division 1 Specification Sections, apply to this Section.
- B. Section includes, without limitation, providing:
  - 1. Demolition and removal of buildings and site improvements.
  - 2. Removing below-grade construction.
  - 3. Disconnecting, capping or sealing, and removing site utilities.
  - 4. Salvaging items for reuse by Owner.
  - 5. Obtaining required permits from utility companies, municipalities and agencies.

#### 1.2 MATERIALS OWNERSHIP

- A. Historic items, relics, antiques, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, and other items of interest or value to Owner that may be uncovered during demolition remain the property of Owner.
  - 1. Carefully salvage in a manner to prevent damage and promptly return to Owner.

#### 1.3 INFORMATIONAL SUBMITTALS

- A. Submit the following:
  - 1. Schedule of building demolition with starting and ending dates for each activity.
  - 2. Inventory of items to be removed and salvaged.
  - 3. Pre-demolition photographs or video.
  - 4. Statement of Refrigerant Recovery: Signed by refrigerant recovery technician.
- B. Project Record Documents: Indicate unanticipated structural, electrical, or mechanical conditions.
- C. Proposed Protection Measures: Submit informational report, including Drawings, that indicates the measures proposed for protecting individuals and property, for environmental protection, for dust control and, for noise control. Indicate proposed locations and construction of barriers.
  - 1. Adjacent Buildings: Detail special measures proposed to protect adjacent buildings to remain including means of egress from those buildings.

#### 1.4 QUALITY ASSURANCE

- A. Refrigerant Recovery Technician Qualifications: Certified by EPA-approved certification program.
- 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:
  - 1. ANSI/ASSE A10.6 and NFPA 241.
  - 2. Occupational Safety and Health Standards (29 CFR 1910)
  - 3. Department of Public Health regulations
  - 4. State and local waste specific regulations.
- D. Pre-demolition Conference: Conduct conference at Project site.
- E. Qualifications: Personnel employed by the contractor to survey or verify the condition of structures shall be competent to determine both the condition of the framing, floors, and walls and the possibility of unplanned collapse of any portion of the structure and shall have the authority to take prompt corrective action when necessary.

#### 1.5 PROJECT CONDITIONS

- A. Buildings to be demolished will be vacated and their use discontinued before start of the Work.



- B. Buildings immediately adjacent to demolition area will be occupied. Conduct building demolition so operations of occupied buildings will not be disrupted.
  - 1. Provide not less than 72] hours' notice of activities that will affect operations of adjacent occupied buildings.
  - 2. Maintain access to existing walkways, exits, and other facilities used by occupants of adjacent buildings.
    - a. Do not close or obstruct walkways, exits, or other facilities used by occupants of adjacent buildings without written permission from authorities having jurisdiction.
- C. Owner assumes no responsibility for buildings and structures to be demolished.
  - 1. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.
- D. Hazardous Materials
  - 1. It is understood that the demolition of the existing animal shelter will involve the removal of asbestos.
  - 2. The Contractor[s] shall assume one hundred percent of any and all liability directly and/or indirectly connected with or resulting from the removal and disposal of any and all hazardous materials.
  - 3. The Contractor[s] shall defend and hold harmless the Owner, the Architect, and the Architect's Consultants and their Engineers from any and all liability whatsoever that may result from the removal and disposal of any and all hazardous materials.
  - 4. In the absence of other written directives from the Owner, the Contractor responsible for this work shall be the so-called Construction Contract Contractor. Where Contractors from HVAC, Plumbing and Electrical trades need to perform any of the hazardous waste abatement work, the affected Contractors shall be jointly, severally, and individually responsible as noted above in Para #3.
- E. On-site storage or sale of removed items or materials is not permitted.
- F. Arrange demolition schedule so as not to interfere with Owner's on-site operations or operations of adjacent occupied buildings].

## **PART 2 - PRODUCTS**

### 2.1 SOIL MATERIALS

- A. Satisfactory Soils: Comply with requirements in Division 31 Earth Moving.

## **PART 3 - EXECUTION**

### 3.1 EXAMINATION

- A. Verify that utilities have been disconnected and capped before starting demolition operations.
- B. Inventory and record the condition of items to be removed and salvaged.
- C. Perform or engage a professional engineer to 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.

### 3.2 PREPARATION

- A. Refrigerant: Remove refrigerant from mechanical equipment according to 40 CFR 82 and regulations of authorities having jurisdiction before starting demolition.
- B. Existing Utilities: Locate, identify, disconnect, and seal or cap off indicated utilities serving buildings and structures to be demolished.
  - 1. Arrange to shut off indicated utilities with utility companies.
  - 2. If removal, relocation, or abandonment of utility services will affect adjacent occupied buildings, then 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 (610 mm) below grade. Cap, valve, or plug and seal remaining portion of pipe or conduit after bypassing according to requirements of authorities having jurisdiction.
  - 4. Do not start demolition work until utility disconnecting and sealing have been completed.



- C. 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.

### 3.3 PROTECTION

- A. Existing Facilities: Protect adjacent walkways, loading docks, building entries, and other building facilities during demolition operations. Maintain exits from existing buildings.
- B. Existing Utilities: Maintain utility services to remain and protect from damage during demolition operations. Do not interrupt existing utilities serving adjacent occupied or operating facilities unless authorized in writing by Owner and authorities having jurisdiction.
- C. Temporary Protection: Erect temporary protection, such as walks, fences, railings, canopies, and covered passageways, where required by authorities having jurisdiction and as indicated. Comply with requirements in Division 01 "Temporary Facilities and Controls."
  - 1. Protect adjacent buildings and facilities from damage due to demolition activities.
  - 2. Protect existing site improvements, appurtenances, and landscaping to remain.
  - 3. Erect a plainly visible fence around drip line of individual trees or around perimeter drip line of groups of trees to remain.
  - 4. Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
  - 5. Provide protection to ensure safe passage of people around building demolition area and to and from occupied portions of adjacent buildings and structures.
  - 6. Protect walls, windows, roofs, and other adjacent exterior construction that are to remain and that are exposed to building demolition operations.
  - 7. Erect and maintain dustproof partitions and temporary enclosures to limit dust, noise, and dirt migration to occupied portions of adjacent buildings.
- D. Pollution Controls: Use water sprinkling, temporary enclosures, and other suitable methods to limit spread of dust and dirt. Comply with governing regulations pertaining to environmental protection. Do not use water when it may create hazardous or objectionable conditions such as ice, flooding, and pollution.
- E. Remove temporary barriers and protections where hazards no longer exist. Where open excavations or other hazardous conditions remain, leave temporary barriers and protections in place.
- F. Coordinate demolition schedule with municipal Police and Fire Departments.
- G. Promptly notify Police and/or Fire Department of any occurrences, planned or unexpected, requiring their knowledge or assistance.

### 3.4 DEMOLITION

- A. General: Demolish indicated buildings and site improvements completely. Use methods required to complete the Work within limitations of governing regulations.
  - 1. Do not use cutting torches until work area is cleared of flammable materials. Maintain portable fire-suppression devices during flame-cutting operations.
  - 2. Maintain fire watch during and for at least 48 hours after 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. Site Access and Temporary Controls: Conduct building demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
  - 1. Do not close or obstruct streets, walks, walkways, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by authorities having jurisdiction.
  - 2. Use water mist and other suitable methods to limit spread of dust and dirt. Comply with governing environmental-protection regulations.
- C. Explosives: Use of explosives is not permitted.



- D. Proceed with demolition of structural framing members systematically, from higher to lower level. Complete building demolition operations above each floor or tier before disturbing supporting members on the next lower level.
  - E. Remove debris from elevated portions of the building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.
  - F. Demolish foundation walls and other below-grade construction within footprint of new construction and extending 5 feet (1.5 m) outside footprint indicated for new construction].
    - 1. Remove below-grade construction, including basements, foundation walls, and footings, completely.
  - G. Existing Utilities: Demolish existing utilities and below-grade utility structures within 5 feet (1.5 m) outside footprint indicated for new construction.
  - H. Below-Grade Areas: Completely fill below-grade areas and voids resulting from building demolition operations according to backfill requirements in Section 312000 - Earth Moving with one of the following in compliance with drawings and subject to Geotechnical Engineer approval:
    - 1. Satisfactory soil materials.
    - 2. Recycled pulverized concrete.
    - 3. Recycled pulverized masonry.
  - I. Site Grading: Uniformly rough grade area of demolished construction to a smooth surface, free from irregular surface changes. Provide a smooth transition between adjacent existing grades and new grades.
  - J. Promptly repair damage to adjacent buildings caused by demolition operations.
- 3.5 CLEANING
- A. Remove demolition waste materials from Project site [and legally dispose of them in an EPA-approved landfill acceptable to authorities having jurisdiction]. See Section 01 57 10 Construction Waste Management for recycling and disposal of demolition waste.
  - B. Do not burn demolished materials.
  - C. Clean adjacent structures and improvements of dust, dirt, and debris caused by building demolition operations. Return adjacent areas to condition existing before building demolition operations began.

**END OF SECTION**