SECTION 02 41 19

SELECTIVE DEMOLITION

PART 1 – GENERAL

1.01 GENERAL REQUIREMENTS

A. Drawings and general provisions of the Contract, including the Division 1 Specifications Sections, apply to this Section.

B. Refer to other Divisions of these Specifications to determine the type and extent of work therein affecting the work of this trade, whether or not such work is specifically mentioned in this Section.

C. Maintain a current copy of all applicable Drawings including Surveys, Record Drawings, Shop Drawings and Specifications at the site during all work.

1.02 SUMMARY

A. Provide all labor, materials, equipment services and accessories necessary to selectively remove and dispose of building components and systems in accordance with the requirements of this Section, and as indicated in the Contract Documents and as specified herein. This includes, but is not necessarily limited to, the following:

1. Excavation of exterior grade
2. Cement stucco
3. Gypsum sheathing
4. Wood decking
5. EIFS
6. Built-up (low-slope) roofing
7. Clay tile (steep-slope) roofing
8. Miscellaneous metals and stud framing
9. Cold-formed metal framing
10. Aluminum-framed windows
11. Aluminum-framed entrances and storefront
12. Hollow metal doors
13. Interior finishes

14. Wood trellis

15. Miscellaneous mechanical, electrical, and plumbing components

B. Related Sections include the following:

1. Section 042200 – Concrete Unit Masonry

2. Section 054000 – Cold-Formed Metal Framing

3. Section 055000 – Metal Fabrications

4. Section 071326 – Self-Adhered Sheet Waterproofing

5. Section 072419 –Drainable Exterior Insulation and Finish System (EIFS)

6. Section 072700 – Air and Water Barrier

7. Section 073126 – Slate Shingles

8. Section 075200 – Styrene-Butadiene-Styrene (SBS) Modified Bituminous Membrane Roofing

9. Section 076200 – Sheet Metal Flashing and Trim

10. Section 079200 – Joint Sealants

11. Section 081113 – Hollow Metal Doors

12. Section 084213 – Aluminum Framed Entrances

13. Section 084410 – Glazed Aluminum Curtain Walls

14. Section 092000 – Interior Finishes

15. Section 220500 – Common Work Results for Plumbing

16. Section 230500 – Common Work Results for HVAC Systems

17. Section 260500 – Common Work Results for Electronic Systems

18. Section 321313 – Concrete Paving

1.02 SUBMITTALS

A. General: Refer to Section 013300 – Submittal Procedures for provisions and procedures.

B. Submit documentation of pre-demolition condition survey. Survey shall include plan drawings of the building areas that are affected by the work. Note existing damage to exterior cladding, roofs, flashings, miscellaneous building components in the work

areas and any unusual conditions. Document any existing damage in particular, with digital photographs.

C. Provide a detailed description of the demolition schedule, process, equipment to be used, and any materials required to complete the work, for approval. Coordinate the demolition schedule with the project phasing requirements and interior access. Include procedures and detail drawings for protection of exterior building surfaces and landscaping, interior debris barricades and exterior debris chute nets.

D. Shoring and Bracing Submittal

1. Submit plans, procedures, and details showing the method of temporary support and bracing of existing building components and systems to remain where necessary to complete the work described in the construction documents. Include a written plan describing the sequence of demolition and installation and removal of shoring and bracing. All portions of the submittal shall be prepared by or under the supervision of, and signed and sealed by, an experienced professional engineer licensed in the State of Maryland.

2. This submittal is an informational submittal. Review by the Engineer is for general conformance with the project parameters and does not relieve the Contractor of his responsibility for construction means and methods.

E. Written procedures and drawings showing methods of dust and weather protection for interior spaces during the work.

F. Submit proposed temporary weather protection procedures for all roof removal.

1.03 DELIVERY, STORAGE, AND HANDLING

A. Dispose of debris daily in a dumpster. Dispose of all debris in a legal manner, off the site, as required by applicable law. Do not throw debris from scaffolding; conduct debris to trucks or approved containers on the ground to minimize dust, and remove from the site. Do not allow debris to accumulate on the construction site. Sprinkle debris with water to control dust during handling, but do not allow water inside the building.

B. Do not stockpile materials or equipment to overload any building or site component.

1.04 PROJECT CONDITIONS

A. Comply with published, approved manufacturer’s recommendations.

B. The typical existing envelope construction is as follows:

1. Stucco Cladding Assembly: direct-applied cementitious stucco system applied over concrete masonry unit (CMU) backup wall, CMU is 8 in. or 12 in. nominal thickness, with 1-3/4 in. spray-applied cellulous insulation between interior cold-formed metal framing supported on miscellaneous steel framing.

2. EIFS Cladding Assembly: cementitious EIFS lamina applied over 3/4 in. thick plastic foam insulation and 1/2 in. gypsum sheathing on the uppers walls and soffits. Along the inside of the gypsum sheathing there is 1-1/2 in. spray-applied cellulous insulation installed between cold-formed metal framing supported on miscellaneous steel framing.

3. Built-Up Roofing Assembly: four-ply built-up roofing membrane with gravel surfacing set into a flood coat of asphalt over 3 in. fiberboard insulation and 1 in. polyisocyanurate insulation set in asphalt adhesive over tongue and groove wood deck. Wood deck includes wood-framed crickets to create slope.

4. Steep-sloped Roofing Assembly: clay tile shingles and asphalt-saturated felt underlayment set over 5/8 in. tongue and groove plywood deck with 6 in. interior batt insulation set between sloped cold-formed metal framing with 1/2 in. interior gypsum ceiling finishes.

5. Windows: Fixed and slider, aluminum-framed window units with insulated glazing units (IGUs). Windows are anchored in punched openings at the offices and classrooms; storefront windows are installed floor-to-ceiling at the main entrance, and in ribbon window configuration at the clerestory.

6. Wood Trellises: Sloped 3x12 (nominal) preservative treated wood joists spanning between 4x12 (nominal) preservative treated wood beams. The wood beams are anchored to a structural steel beam (low end) and concrete masonry wall (high end) with painted structural steel assemblies.

C. Field measurements: Verify dimensions by field measurements and indicate measurements on Shop Drawings.

D. Conduct the work such that the demolition is controlled in order to minimize disruption to the structural integrity of the concrete masonry backup walls.

E. Work in conjunction with other trades by the timely performance of the work. Coordinate with other trades to minimize disruption to other work and to expedite use of the scaffolding. Do not expose the building interior and its contents to the effects of inclement weather.

F. Conduct the work to protect occupants, the public, and property as needed, including control of noise, shocks, vibration, dust, and dirt. Provide and maintain orderly access for and storage of new and salvaged materials; protect this and adjacent buildings and property.

G. Provide suitable barricades and warning signs near work areas to protect the public. Erect suitable protection to prevent damage to landscaping, including shrubs, trees and lawn. Leave the premises in a neat, clean, and safe condition at the end of each day's work.

H. Before starting the removal work, notify the Owner and arrange for the disconnection of active utility services, if required, using workers licensed in the respective trades or by authorities having jurisdiction.

I. All existing items removed as part of work under this Section shall become the responsibility of this trade. Legally dispose of all items, except items to be reused or relocated. Items to be reused or relocated shall be delivered to the responsible trade for storage and protection until needed for construction.

J. Comply with requirements of the General Conditions for restrictions on use of equipment and time of use. Do not damage existing interior or exterior building components during work. Report any such damage to the appropriate contractor and the Engineer in writing.

K. Compliance with OSHA and other safety laws and regulations is the exclusive responsibility of the contractor, his subcontractor(s), suppliers, and consultants.

L. Hazardous Materials: It is not expected that hazardous materials will be encountered in the Work. If suspected hazardous materials are encountered, do not disturb; immediately notify Engineer and Owner. Hazardous materials will be removed by Owner under a separate contract.

1.05 PROTECTION

A. Protect the existing building and its contents, interior finishes, and all site work during all demolition, removal, and repair operations against all risks associated with this work. Replace damaged components at no charge to the Owner and to the satisfaction of the Engineer using mechanics skilled in the appropriate trade including all site work. The premises, including access drives and parking areas, shall be left in a neat, clean, and safe condition at the end of each day's work.

B. Do not damage and provide adequate protection for existing materials scheduled to remain.

C. Provide adequate protection of roofing surfaces throughout the work. Where work is performed above or near roofing surfaces, clean the work areas free of all debris including fasteners, scrap metal, and metal shards, on a daily basis. Notify the Engineer immediately if any damage to the roofing system is observed, regardless of the source of the damage.

D. Schedule and execute all work to avoid exposing the building and its contents to inclement weather. Provide adequate temporary protection at all times over entrances and exit doors, and where necessary to prevent water intrusion and drafts.

E. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.

1. Maintain fire-protection facilities and systems in service during selective demolition operations. Follow the requirements in Section 01 5000 if modifications to the fire protection system are required or if the service must be temporary disabled.

2. Natatorium service shall be temporarily discontinued during the summer of 2016, specifically between 15 May 2016 and 19 August 2016, for demolition,

repair, and installation of affected portions of the work. Coordinate demolition of exterior wall and roof components around the Natatorium with the Owner.

1.06 QUALITY REQUIREMENTS

A. The Contractor for the Work specified under this Section shall be the General Contractor and must have engaged in the satisfactory selective demolition of roofs and walls of similar size and construction as specified herein for a period of at least 5 yrs.

1.07 PRECONSTRUCTION CONFERENCE

A. Attend a preconstruction conference to be held with the Owner, Engineer, and all other involved trades to discuss and coordinate the Work covered under this Section.

PART 2 – PRODUCTS

2.01 EQUIPMENT

A. Demolition Equipment

1. Use demolition equipment and cutting tools appropriate for the Work and acceptable to the Owner and Engineer.

PART 3 – EXECUTION

3.01 EXAMINATION

A. Verify all site conditions and dimensions by field measurements in consideration of the special conditions associated with repairs to existing construction. Notify the Engineer immediately of any inconsistencies between field conditions and those shown in the Contract Drawings.

3.02 PREPARATION

A. Protect the building and its contents from dust and debris produced by the work of this Section. Clean work areas free of dust and debris generated by this work.

B. Coordinate the work to keep the building watertight at all times. This may require some out-of-sequence work to be scheduled with all trades to prevent the building from being exposed to the weather.

C. Allow the Engineer access to the work. Where the work is accessible only by scaffolding, allow the Engineer access to the work via the Contractor's equipment.

3.03 GENERAL DEMOLITION

A. Take all necessary precautions to protect the building, building occupants, adjacent buildings, and the general public below the work areas at all times.

B. Do not proceed with demolition of any portions of the building until shoring and bracing calculation and field measurements have been submitted and approved by the Engineer.

C. Take care not to damage any building components to be reinstalled at the completion of the work. Provide appropriate protection for materials to be stored and reinstalled.

D. Complete demolition work in a manner to avoid causing damage to underlying substrates and materials. Repair all damaged substrates and materials at no cost to the Owner.

E. See the scope shown on the AD series drawings and further described herein and in other Specification Sections. Perform additional demolition as required to accomplish work of other Sections.

F. Work at occupied spaces:

1. Notify the Owner 48 hrs minimum prior to commencing any demolition work in or around occupied spaces.

2. Cover, protect, or move all items in occupied spaces where work is required per the Owner's request. Replace or repair all damaged items at no cost to the Owner.

3.04 SHORING AND BRACING

A. Provide all labor, materials, equipment and supervision necessary to design, provide, install, and maintain shoring and bracing necessary to safely support the existing structure during the Work and to accomplish the Work. Selective demolition may temporarily weaken the structure. The Contractor is responsible for determining the need for, designing, and providing shoring and bracing to support safely the existing structural elements during demolition and construction.

B. The Contractor shall retain the services of a Professional Engineer licensed in the State of Maryland to prepare a design for shoring and bracing, and a narrative describing the proposed sequencing of shoring and bracing, demolition, and construction.

C. Provide protection below all shoring materials located over interior floors.

3.05 SITE EXCAVATION

A. Implement the sediment control plan shown in the Contract Documents prior to the start of excavation.

B. Excavate and temporarily remove the soil and landscaping from around the perimeter of the building and where shown in the Drawings. Typical foundation wall excavation shall extend 3 ft out from the face of the building and down to the top of the footings.

C. Store all existing stones, wood site trim, and hardscaping materials.

D. Remove and dispose of the bushes and vegetation located along the Natatorium south elevation and within the extent of excavation. Protect all vegetation and root systems located outside of the extent of excavation during Work. Notify the Engineer if the excavation must extend within the drip line of any trees.

1. Protect existing trees, including fig tree and root system at southwest corner of the building.

E. Removal all concrete sidewalks that interrupt the excavation zone.

1. Saw cut the sidewalk at the existing control joint located nearest to the excavation zone to produce a clean, straight, edge.

2. Chip out and remove the portion of the sidewalk and reinforcing located between the saw cut and the building face. Remove all subbase as required to expose the building footing.

3. Replace the sidewalks in-kind following all waterproofing work.

3.06 MISCELLANEOUS MECHANICAL, ELECTRICAL, AND PLUMBING

A. Existing Services/Systems to Remain: Maintain services/systems indicated to remain and protect them against damage.

B. Existing Services/Systems to Be Removed, Relocated, Extended, or Abandoned: Locate, identify, disconnect, extend or remove, and seal or temporarily cap off indicated utility services and mechanical/electrical systems as required to perform the selective demolition required in the Contract Documents.

1. Coordinate with Owner to arrange shut off of indicated services/systems. Do not proceed with this work until authorized by the Owner.

2. Maintain operation of the building's fire protection systems. If critical or emergency services/systems are required to be removed, relocated, or abandoned, provide temporary services/systems that bypass area of selective demolition and that maintain continuity of these critical or emergency services/systems to other parts of building. Following the requirements in NFPA 1, 16.4.4 for any modifications or disruptions to the fire protection systems.

3. Disconnect, demolish, and remove or relocate plumbing, electrical, and HVAC systems, equipment, and components indicated on Drawings schedule to be removed.

a. Piping to Be Removed and Reinstalled: Remove portion of piping indicated to be removed and cap or plug remaining piping with same or compatible piping material. When appropriate, reinstall and reconnect piping to make operational.

b. Piping to Be Removed or Abandoned in Place: Drain piping and cap or plug piping with same or compatible piping material. Cap piping at

face of existing CMU wall to limit intrusion into the new air/water barrier and cladding assemblies.

c. Equipment to Be Removed: Disconnect and cap services and remove equipment. Infill holes or gaps in CMU wall where required to provide suitable substrate for new exterior wall assembly.

d. Equipment to Be Removed and Reinstalled: Disconnect and cap services and remove, clean, and store equipment; when appropriate, reinstall, reconnect, and make equipment operational.

e. Conduits to be Removed and Reinstalled: Remove exterior conduits where shown on the Drawings. Reroute conduits along the interior face or above the ceiling along the exterior walls, as allowed and approved by the Owner. Install conduit through exterior wall assembly at new locations to connect to exterior component or device.

f. Ducts to Be Removed: Remove portion of ducts indicated to be removed and cap remaining ducts with same or compatible ductwork material.

g. Fire Protection System: The Owner will complete initial modifications to the fire protection system, including providing a new fire sprinkler drain, as part of a separate project prior to the start of work. At the completion of this work, the existing fire protection system must be modified and connected to the new fire sprinkler drain; the existing fire sprinkler drain will be removed and disposed. This work must follow the requirements of NFPA 1, 16.4.4.

C. Coordinate the miscellaneous mechanical, electrical, and plumbing work scope with the exterior wall demolition and repair scope to properly sequence the work.

3.07 CMU WALLS AND CEMENT STUCCO

A. Power wash all stucco cladding to dislodge and remove any loose materials.

B. Use hand tools to remove any stucco visibly delaminated from the backup wall that is not removed during power washing.

C. Allow stucco to sufficiently dry prior to applying the air/water barrier membrane, per the manufacturer’s recommendations. Refer to Section 07 27 00.

3.08 EXTERIOR INSULATION AND FINISH SYSTEM (EIFS)

A. Remove all existing EIFS cladding materials, including the existing exterior wall sheathing and cold-formed metal framing at the upper and lower soffits and wall areas to expose the existing rolled steel structure and CMU backup walls.

B. Remove all existing fasteners, stud tracks, and framing accessories.

C. Remove all blown-in cellulose insulation adhered and loosely set over the interior face of the sheathing. Provide protective measures or equipment to abate dust and air-borne debris during removal work and prevent contamination of the

D. Coordinate all EIFS removal with the installation of structural repairs, steep-slope roofing repairs, new air/water barrier membrane, and roofing/coping repairs to minimize the time period when the building is exposed to the weather. Do not remove the existing weather barrier if inclement weather is forecasted for the period in which the building is open.

3.09 ROOFING

A. Remove the low-slope roofing materials as follows over the Natatorium and Weight Room:

1. Remove the existing roofing materials, including ballast, built-up roofing membrane, and insulation, down to the existing wood-framed roof deck.

2. Remove all wood decking and blocking that is visibly deteriorated or otherwise shown to be removed in the Drawings (Unit Price Item).

    a. Extend the removal area to adjacent framing members to provide adequate bearing and support for the replacement decking.

    b. Deteriorate deck shall include portions that are bowed between rafters such that adjacent boards have a difference in plane of 3/16 in. or greater.

3. Remove and dispose of all existing metal gravel stops, metal copings, counterflashings, pipe penetration flashings, and other sheet metal components integrated with the roofing materials scheduled for removal.

4. Remove and dispose of all existing conduits and other materials that are abandoned. Temporarily remove, store, and reinstall all conduits and other materials that are currently in use or actively provide power to the roof area for maintenance.

5. Remove the existing wood curbs and blocking around the abandoned openings on the Natatorium roof as shown in the Drawings.

6. Remove all traces of existing asphalt adhesives and loose fasteners, down to a clean and smooth substrate ready for application of the air and vapor barrier. Clean all decking scheduled to remain as required in Section 07 31 26.

B. Remove the low-slope roofing materials around the perimeter of the Gymnasium and Center Roofs as follows:

1. Remove a 24 in. wide strip of gravel ballast around the perimeter of the Gymnasium and Central roofs where shown on the Drawings to expose the existing insulation and providing a tie-in with the new roof perimeter flashing to maintain the existing roofing warranty. The existing insulation and wood

framing shall remain at these areas unless they must be replaced as determined by the Owner or Engineer.

2. Remove and dispose of all existing metal gravel stops and. metal copings around the roof perimeter. Remove other membrane counterflashings and sheet metal components integrated with the roofing materials scheduled for removal as shown on the Drawings.

3. Remove and dispose of the two existing metal ladders and anchorage attached to the exterior walls above the Central Roof.

C. Remove the steep-slope roofing materials as follows:

1. Note that existing clay tiles are attached with copper roofing nails. Remove the tiles using standard slating tools; do not cut existing shingles. Take care not to damage the existing wood deck.

2. Remove the highest row of shingles scheduled to be removed using approved methods. Remove subsequent lower rows until the specified areas of shingles are removed.

   a. Do not overload scaffolding or existing roof structure.

3. Remove all traces of existing felt underlayment and loose fasteners

4. Remove all existing plywood decking to expose the metal joists as shown on the Drawings.

5. Provide protection and shoring to remove the following steep-slope roof joists, cold-formed metal framing, and anchorages:

   a. All members shown to be, or are scheduled to be, removed in the Contract Documents, including connections that interfere with new work or structural replacement. This includes the following:

      (1) Natatorium:

         (a) Corroded lower section of all steep-slope roof joists around the Natatorium, as shown in the Structural Drawings.

         (b) If corrosion is prominent or extensive, remove full length of corroded steep-slope roof joists around the Natatorium where deemed necessary by the Engineer. Assume 20% of steep-slope roof joists require full replacement (Unit Price Item).

      (2) Gymnasium:

(a) If corrosion is prominent or extensive, remove partial or full length of corroded steep-slope roof joists where deemed necessary by the Engineer.

b. Any members exposed during the scope of Work described in the Contract Documents that include corrosion and section loss to the extent determined by the Engineer.

c. All members determined structurally inadequate by the Engineer. Notify the Engineer immediately if demolition work reveals structural members that may be unsafe or lack obvious load paths.

6. Remove and dispose of all existing metal roof flashing, including: metal gutters, copings, counter-flashings, pipe penetration flashings, and other sheet metal components integrated with the roofing materials scheduled for removal.

3.10 FENESTRATION

A. Remove all exterior aluminum-framed windows and storefront assemblies as follows:

1. Remove existing interior or exterior finishes as necessary to access the anchorage points.

2. Remove all frames, anchorage, and glazing.

3. Remove all existing sealant, metal flashing, and membrane flashing and prepare the rough openings as required in Sections 08 44 10 and 07 92 00.

4. Protect the openings from wind and inclement weather until the new windows can be installed.

B. Remove the exterior aluminum-framed entrances as follows:

1. Remove existing interior or exterior finishes as necessary to access the anchorage points.

2. Remove all frames, door leafs, anchorage, glazing, and hardware.

a. Carefully remove, store and protect the existing entrance doors from the Main Entrance on the south elevation, including the door leafs, glazing, and hardware (as required) to be reinstalled in the new exterior aluminum-framed entrance.

3. Remove all existing sealant, metal flashing, and membrane flashing and prepare the rough openings as required in Sections 08 42 13 and 07 92 00.

C. Remove all exterior hollow metal doors and the interior hollow metal doors indicated in the Drawings as follows:

1. Remove existing interior or exterior finishes as necessary to access the anchorage points.

2. Remove all frames, door leafs, anchorage, and hardware.

3. Remove all existing sealant, metal flashing, and membrane flashing and prepare the rough openings as required in Sections 08 11 13 and 07 92 00.

3.11 STRUCTURAL FRAMING

A. Inspect all structural framing and connections exposed during the demolition work described in this Section. Notify the Engineer immediately if demolition work reveals structural members, or portion thereof, that are scheduled to remain that may be damaged or deteriorated sufficiently to result in structural inadequacy.

1. Provide access for observation and review of such members by the Engineer. Coordinate demolition and repairs with the Engineer.

2. Develop a price to remediate excessively deteriorated elements when identified by the Engineer. Do not proceed with the work until approved in writing by the Owner or his Agent.

B. Provide protection and shoring to remove the following structural elements:

1. Exterior Wood Trellis

2. Members shown to be, or are scheduled to be, removed in the Contract Documents, including connections that interfere with new work or structural replacement.

3. Any members exposed during the scope of Work described in the Contract Documents that are excessively deteriorated as determined by the Engineer.

3.12 STORMWATER MANAGEMENT SYSTEM

A. Coordinate all downleader replacement with the roofing work described in Section 07 31 26 and 07 52 00. Do not plug roof drains unless an adequate water drainage path is determined and the structure is capable of supporting the resulting ponded water.

B. Remove and dispose of the CMU face shell as necessary to expose the existing cast iron rain down leaders. Do not remove both faces of the CMU.

C. Remove and dispose of the cast iron down leaders, anchorage, connections, and below-grade discharge.

1. Prior to removal, notify the Engineer if the down leaders discharge into the soil or connect to a site storm water plumbing system. Visually scope existing downleaders and pipes to remain to verify their drainage capability and integrity.

2. Remove and dispose of the roof drains located within the gutters of the steep-sloped roofs.

3.13 ROOF TOP HVAC UNIT

A. Remove and dispose of the existing roof top mechanical unit on the Weight Room roof. Coordinate with Owner to arrange shut off of indicated services/systems. Do not proceed with this work until authorized by the Owner.

1. Protect the connections to the existing electrical lines, ducts, and plumbing system.

2. Provide a temporary weathertight covering over any exposed openings or decking until the new mechanical system and roofing are installed.

3. Coordinate removal with the demolition and new work relating to the wood trellis and low-slope roofing assembly. The new mechanical system shall be installed and operational prior to the replacement roofing work.

END OF SECTION