

SECTION 01 76 00 - PROTECTING INSTALLED CONSTRUCTION

PART I - GENERAL

1.1 PROTECTION OF ALL INSTALLED CONSTRUCTION

- A. Any Component / System that is damaged, including but not limited to accidents or misuse resulting in scratches, dents, abrasions etc., shall be repaired back to "like new condition", otherwise the same equipment shall be replaced with new equipment prior to "Final Acceptance" to the satisfaction of the Owner. This applies to all installed construction, including general, mechanical and electrical devices, equipment and systems, regardless of acceptance for use for and / or during Construction.
- B. The Contractor shall only use permanent equipment as specified in the Contract Documents. Specific requests to use permanent equipment other than what is specified in the Contract Documents must first be approved by the Owner prior to such use. This includes the use of devices, equipment and systems, such as elevators or HVAC equipment, during any phase of construction prior to University "Final Acceptance."
- C. During the construction process, each Contractor provide a written Plan outlining conformance with all Contract Sections and shall ensure that all installed devices, equipment and systems are not exposed to construction environments that are likely to hinder their proper operation/performance or shorten their useful life regardless of desire by Contractor for use prior to "Final Acceptance."
- D. All equipment warranties shall be adjusted and / or extended so as to not impact the normal minimum expected warranty duration as expressed or implied within this project in accordance with the Base Bid requirements and without additional cost to the project or the University.
- E. Protect all components containing fluid(s) from freezing. Ensure all related safeties and necessary controls are active and functioning. Verify with Owner prior to use. This will not constitute "final acceptance" of components or systems.
- F. Under no circumstance shall any system in whole or part be allowed to operate beyond the design parameters of this project or the respective manufacturer's limits.

1.2 USE OF PERMANENT AIR HANDLING UNIT (AHU) AND DISTRIBUTION SYSTEMS FOR CONSTRUCTION PURPOSES

- A. The use of permanently installed AHUs and associated distribution systems for temporary heating and cooling during construction shall only be permitted as specified in the Contract Documents. Specific requests to use permanently installed HVAC equipment other than what is specified in the Contract Documents must first be approved by the Owner prior to such use. Requests shall be considered only after a written plan for temporary use has been provided clarifying satisfactory implementation of the requirements of this Section. Requests do not constitute automatic approval for use.
 - 1. At no additional cost to the Project or Owner, minimum basic requirements that shall be met if permanent equipment is permitted to be used include:
 - a. Coordinate work with related Air Handling equipment, Duct and Duct Accessory sections.

- b. All work shall comply with the Commissioning requirements and the LEED requirements for the Project.
- c. All work on the AHUs shall be permanent, not temporary. This includes unit ductwork and insulation, hot water and chilled water pumps, piping and insulation, unit condensate drains if used for cooling, electrical components and controls.
- d. Fans and related system components shall not run in such a manner as to allow fans to be in surge or unstable operation nor run within 80% of Maximum RPM.
- e. Any meters, such as steam or chilled water, shall be operative, installed, calibrated and functioning prior to use. If necessary, a temporary meter shall be installed which meets the same reliability and accuracy requirements as the permanent meter specified in the Contract Documents. *[Note to AE: Contact Owner for clarification on accuracy and calibration requirements.]*
- f. Controls shall ensure safe operation without risk to the equipment or building. Freeze stats, static pressure safety switches, control dampers, etc. shall be in operation and successfully functionally tested. A means to send out an alarm in case of unit failure shall be in place.
- g. Perform all specified and manufacturer's start up procedures on all equipment being used, including VFDs. Provide verified results, Data, Reports, Checklists to the Owner's Representative.
- h. A written plan shall be implemented to monitor the systems and ensure adequate changing of filters. This plan shall include in writing the Contractor or Subcontractor who is responsible to monitor and maintain the systems in operation, ensure that the plan is adhered to and respond when there is a failure. It is recommended that this be the Ventilation Contractor.
- i. Air distribution systems shall be aggressively protected from dust during the construction process to ensure that no contamination of the duct system occurs. If air handling equipment is operated during the construction process for any reason (e.g. to provide temporary heat) for any length of time, special provisions shall be made to provide adequate filtration to protect all air handling equipment, distribution and return ductwork from exposure to dust, with filters being changed on a regular and frequent basis. Compliance with all Project LEED requirements and pursuit of credits shall be maintained.
- j. All return ductwork shall be disconnected from the respective supply AHU and capped to prevent contamination. Filters of sufficient ASHRAE spot efficiency shall be used at all AHU entrance(s) and normal filter sections in air handlers during construction use to prevent pass-through of construction dust 3 microns and larger in size even though the Project's filter classification as of occupancy may be less. Again adhere to LEED requirements such as indicated for Flushout.
- k. Where it is physically impossible to disconnect and mechanically cap respective return ductwork, minimum efficiency filters of a MERV 13 or higher rating shall be installed at all return ducting entrances (or openings to plenum areas) and normal filter sections in air handlers and maintained throughout the construction period to prevent pass-through of construction dust 3 microns and larger in size. Preauthorization from the Owner is required before proceeding.
- l. Pipe flushing shall be completed and report validated with appropriate chemical testing.
- m. All permanent filters shall be installed in the AHU and maintained throughout use. All filtration shall be at the expense of the Contractor.

- n. Manufacturer warranty issues shall be resolved. Warranty extensions may be necessary.
- o. Equipment used for temporary heating/cooling shall be in "like new" condition when turned over to the University.
- p. Comply with LEED Construction IAQ Management plan and SMACNA IAQ Guidelines for Occupied Buildings under Construction.
- q. The Contractor is responsible for meeting the more restrictive indoor air quality conditions during construction as stated in the Contract Documents or throughout the NADCA Standards and Procedures as referenced within the April 8, 2002 edition or newer "NADCA General Specifications for the Cleaning of Commercial Heating, Ventilating and Air Conditioning Systems". Owner reserves the right to require the Contractor to perform cleaning using these NADCA approved cleaning equipment and procedures of all internal duct paths and AHU(s) just prior to final inspection / commissioning for consideration of final acceptance.

1.3 USE OF NEW ELEVATORS FOR CONSTRUCTION PURPOSES (WHEN AN ELEVATOR CONTRACTOR IS CONTRACTED FOR THE PROJECT)

- A. The use of an installed elevator for use during construction shall only be permitted as specified in the Contract Documents. *[Note to AE: Before specifying the use of a new elevator for construction purposes, a project variance request must first be submitted and approved]* Prior to use of an installed elevator during any phase of construction, a written plan for temporary use shall be provided to the Owner clarifying satisfactory implementation of the requirements of this Section. Agreement to the written plan for temporary use must be accepted in writing by the Owner and prior to use of elevator(s) by the Contractors. At no additional cost to the Project or Owner, the minimum basic requirements that shall be met if permanent elevator equipment is used include:
 - 1. Only elevators designed for C3 freight loading as defined in elevator Code Rule 207.2b may be used for construction purposes subject to care and replacement provisions in this Section.
 - 2. Any elevator that is not designed and rated for C3 classification shall not be used during construction for construction purposes.
 - 3. If there is more than one elevator installed, use of an elevator during construction shall be limited to no more than one designated elevator.
 - 4. The General Work Contractor shall establish a preventive maintenance and service agreement with the installing Elevator Subcontractor. The Contractors shall also obtain a "Temporary Agreement" from Elevator Subcontractor and submit same to the Owner prior to use of the elevator. This agreement shall include, but not be limited to, statements ensuring that the Elevator(s) system(s) in all respects will be in like-new condition in order to pass subsequent inspection/commissioning.
 - 5. The service agreement must meet all requirements of Section 14 20 00 - Elevators (including but not limited to the Owner monitoring the service work and requiring the elevator contractor to provide written documentation signed by the Owner as to the date and type of service/repair provided to the elevator.)
 - 6. The elevator will remain under the service agreement and will remain the responsibility of the General Work Contractors until the elevator and the project are determined to be Substantially Complete.
 - 7. All visible structure and surfaces shall be kept in like-new condition. Any component of the elevator that is damaged, including but not limited to accidents or misuse etc. such

as door frames, interior surfaces, thresholds, sills, hall doors and car doors being damaged, scratched, dented, marred etc. shall be repaired back to "like new condition", otherwise the same equipment shall be replaced with new equipment prior to final acceptance of the elevator to the satisfaction of the Owner.

8. The General Work Contractor shall provide to the Owner a list of proposed materials to be carried on the elevator for approval by the Owner.
9. The elevator(s) shall not be operated in any manner which may cause damage to the respective elevator, its components and finishes, or their respective overall operating system, as determined by the Elevator Manufacturer, including but not limited to:
 - a. Shall not be used to carry heavy construction materials that exceed or equal the maximum load rating.
 - b. Shall not be used to carry any type of demo work, cementitious or gritty substance.
 - c. Shall not be used for any purpose that exceeds the elevator Manufacturer's weight limit.
 - d. Shall not be operated in any manner which will detrimentally affect the Manufacturer's warranty.
10. Filters shall be installed over and around ODP type motors and controllers, including motor drives that use building air to cool their components. All air intakes shall be filtered. TEFC or TENV motors designed in accordance with this project and approved for use by the Elevator System Manufacturer may be used in lieu of providing open type motors and the additional filtration.
11. The elevator shall receive cleaning at regular intervals not to exceed 30 days by the installing Contractor. This cleaning shall include removal of dust from all moving components including car and counterweight roller guides, hall and car door equipment, hoist cables, deflector sheaves, drive sheave, governor, and brake components. The hoist motor shall be cleaned inside and out so that accumulated dust does not have a deteriorating effect on the motor components. Encoders shall be replaced at the end of construction if they are not of sealed construction. Controller relays and components shall be cleaned, and any air-cooled drive components shall be cleaned and inspected at regular intervals not to exceed 30 days. All controller filters shall be cleaned or changed monthly.
12. The elevator cab shall be protected with padding, and cleaned on a weekly basis, including vacuuming the floor and cleaning all interior surfaces.
13. Regardless of the extent of care provided, all damaged components visible or hidden shall be replaced or repaired to new condition.
14. Contractor shall plan for replacement of components specified herein that are required to be replaced at the end of Construction just prior to the final acceptance/inspection period and before the elevator is released to the Owner. At a minimum, hall and car door rollers and gibs shall be replaced. Additionally, Contractor, in conjunction with the Owner as part of the overall inspection, shall check and inspect all hall and car door rollers and door gibs, and related door operating components for wear. The Contractor shall replace designated components with new components to provide "like new" assembly and operation subsequent to joint inspection and Owner's evaluation. Ultimately, all components on the elevator shall be in like-new condition when it is inspected for substantial completion and acceptance.

- B. In the event the installing Contractor fails to perform the cleaning and inspections required above at the intervals indicated, the elevator shall be immediately removed from use until the required service is completed.
- C. Construction Managers shall coordinate requirements for temporary elevator(s) usage and endeavor to accommodate such requirements while minimizing temporary use.
- D. The Owner may request the early use of the elevator for moving occupants into the building, and in this event the Contractor shall ensure from the Elevator Contractor that the elevator warranty shall begin on the date of the signing of the substantial completion document for the entire project.

1.4 USE OF EXISTING ELEVATORS FOR CONSTRUCTION PURPOSES (NO ELEVATOR CONTRACTOR IS CONTRACTED FOR THE PROJECT)

- A. The use of an existing elevator during construction shall be strictly prohibited. Any deviation from this policy shall only be permitted by means of an approved variance for the project.

1.5 FINISHES AND FURNISHINGS

- A. Each Contractor shall ensure that all installed finishes and furnishings are not exposed to construction environments that are likely to mar their appearance or shorten their useful life. For example, carpet and other floor finish surfaces shall not be installed at a stage in the Project, which will result in them being subjected to excessive soiling, spotting, staining, scratching, abrasion, or wetting. Contractor or sub-contractors shall not use any installed furniture item as a bench, ladder or support for work they may be completing in any University space. If such furnishings impede or block assigned work, contractor shall notify Owner for adjustment or removal of said furnishings.

PART 2 - PRODUCTS

2.1

PART 3 - EXECUTION

3.1

END OF SECTION 01 76 00

This section of the *U of I Facilities Standards* establishes minimum requirements only.
It should not be used as a complete specification.