

01 00 00. GENERAL REQUIREMENTS**01 11 00. SUMMARY OF THE WORK**

01 11 13. A GENERAL DESCRIPTION of all elements of the project, including exterior work and any other related work, is required. This description, though brief, should be complete enough to indicate the full scope of work in each contract so that prospective bidders can decide whether or not they wish to bid on the project. The use for which the project is being built should be explained. Some parts of this description can be copied from the Program of Requirements.

01 11 16. ITEMS FURNISHED BY THE UNIVERSITY: If the University furnishes items to be installed by any of the contractors, list the items and briefly indicate the work required of each contractor. Do not give detailed installation instructions; save details for the applicable section of the specifications.

01 12 00. MULTIPLE CONTRACT/PACKAGE SUMMARY

01 12 13. FOR PROJECTS INVOLVING MULTIPLE CONTRACTS/PACKAGES, NO MATTER WHICHEVER DELIVERY METHODS: LIST THE SEPARATE CONTRACTS/PACKAGES under which the work will be accomplished and outline the scope of work included in each contract. Include related prior construction, related concurrent construction, contact interface, phasing of construction, and temporary facilities and controls responsibility.

01 12 19. WORK ON OTHER PROJECTS: If other work, outside the scope of contracts for this project, will be performed simultaneously with the work on this project, explain how contractors must cooperate with outside contractors and with the University to avoid interference with each other's work.

01 14 00. WORK RESTRICTIONS: Fully describe all job conditions that will affect phasing and scheduling of the work. Particular attention must be given to scheduling remodeling work in buildings that will remain in operation during remodeling. Examples of some problems encountered are:

- .1 PROVIDING AND MAINTAINING MEANS OF INGRESS AND EGRESS: Temporary entrances and exits must meet code requirements.
- .2 MAINTAINING SECURITY: Areas that are being operated by the Using Agency must be secured from the construction area and vice versa.
- .3 USE OF DOCKING FACILITIES: Sometimes these facilities must be shared between the University and the contractors.

- .4 STORING OF CONSTRUCTION MATERIALS: If adequate areas cannot be provided and delivery schedules will be affected, then offsite storage would be allowed.
- .5 SCHEDULING FOR MOVES BY THE USING AGENCY: If remodeled spaces must be ready for use or vacated by certain dates, name the spaces and give the dates.
- .6 MAINTAINING SERVICES: These requirements should be detailed in the section entitled, TEMPORARY FACILITIES AND CONTROLS.
- .7 DUST CONTROL AND NOISE CONTROL: Temporary partitions required for control of dust and noise should be shown on the drawings. Construction of these partitions may be specified in the section entitled, TEMPORARY FACILITIES AND CONTROLS or in the section in which the partition materials are specified. Refer to paragraph 01 56 16 of these guides.
- .8 WORK HOURS: Coordinate work hours with appropriate stakeholders while working in vicinity of student dorms. Also work hours could be restricted by academic schedules or major events on campus.

9 [WEXNER MEDICAL CENTER CONSTRUCTION STANDARDS: Download through the link and use in the Project Manual for Wexner Medical Center projects 01 14 00 WEXNER MEDICAL CENTER CONSTRUCTION STANDARDS](#)

01 21 00. ALLOWANCES

- .1 RESTRICTED USE: Allowances are generally prohibited, however, if circumstances warrant, the University Project Manager will approve the use of allowances for certain items.
- 01 21 16. ALLOWANCE FOR HARDWARE: Refer to Division 08.

01 23 00. ALTERNATES

- 01 23 01. TITLE OF SECTION FOR SPECIFICATIONS: it is required that the title, "ALTERNATES" be used in order to be consistent with State documents in which the word "alternate" is used.
- .1 DEFINITION: Refer to paragraph 00 00 42.3.7.5.5 for instructions in use of the word "alternate".
- 01 23 02. PURPOSE OF ALTERNATES: A limited number of alternates may be used as a means of ensuring base bids within the available construction funds. The Architect/Engineer (A/E) shall consult the University Project Manager regarding

priority of alternates. Additive alternates shall be used in preference to deductive alternates. See 00 00 13.2.

01 23 03. DESIGNATIONS for alternates shall be:

For multi-prime contracts project:

G-1, G-2, etc. for the General Contract.

P-1, P-2, etc. for the Plumbing Contract.

H-1, H-2, etc. for the Heating, Ventilating, and Air Conditioning Contract. (Do not use the letter "M" to designate this series.)

E-1, E-2, etc. for the Electric Contract.

Alternates for other separate contracts should be listed by consecutive numbers prefixed by the letters used on the drawings to designate the contract.

For other delivery methods projects: No prefix is mandatory. Naming alternates using consecutive numbers is permissible.

01 23 04. COORDINATION OF ALTERNATES: Care must be exercised to coordinate Plumbing, HVAC, and Electrical alternates with General Contract alternates, with each other. Alternates shall be listed in consecutive order. When possible, Multiple Prime Contract alternates which are contingent upon one another should be given the same number, as: G-2, P-2, H-2, and E-2.

01 24 00 VALUE ANALYSIS

01 24 13 VALUE ENGINEERING: Include appropriate project stakeholders (users, maintaining authority, Technical Service Group, etc.) in discussing of any value engineering items.

01 31 00. PROJECT MANAGEMENT AND COORDINATION

01 31 19. PROJECT MEETINGS

.1 PRECONSTRUCTION MEETING: The University Project Manager will schedule and furnish the agenda for a preconstruction meeting after award of contract; attendance will be required for the A/E and successful bidders. Among items to be discussed are provisions specified in this division of the specifications.

.2 PROGRESS MEETING: Include the following in the specifications; edit and revise to suit job conditions. The General Contractor shall schedule a weekly job progress meeting with other prime contractors and subcontractors and shall notify the A/E of the time and place of the meeting. Subsequent meetings shall be held on the same day and hour of the week for the duration of the construction period; except, upon instructions of the A/E, the scheduled meetings may be increased or decreased as

required by the progress of the work. Notes shall be taken by the A/E on discussions and decisions made at each meeting. Typed copies of the notes shall be distributed to all concerned parties.

2.1 Invite FOD building envelope engineer to the project meetings for observation of subgrade, wall envelope installations (air barrier, opening flashings and perimeter sealants), roofing, roof flashings and coping installations. Whether or not the engineer makes the project meetings, all meeting minutes regarding the building envelope shall be forwarded to FOD building envelope engineer.

01 32 00. CONSTRUCTION PROGRESS DOCUMENTATION

01 32 33. CONSTRUCTION PHOTOGRAPHS: The A/E/CM/DB shall furnish digital photographs that show progress, work that is concealed, problem areas, etc. At the completion of the project the A/E/CM/DB shall provide the university with all construction photographs in electronic format following Ohio State's Project Closeout Standards.

.1 PHOTOS: Provided photos of below grade thru-wall penetration sealants, perimeter drain tile, foundation waterproofing and drainage mat installation (progress photos). Inspections by Facility Operations building envelope engineer prior to backfilling. Provide envelope enclosure photos of wall vapor barriers, opening flashings, roofing and flashings, and all exterior wall sealants.

01 33 00. SUBMITTAL PROCEDURES

.1 CONSTRUCTION SCHEDULE: Submitted through the eBuilder platform. Following approval by the University Project Manager, copies of the final schedule shall be distributed to all interested parties. Tentative dates for interruption of utility services shall be incorporated.

.2 PROJECT INSPECTION REPORTS: Instruction for preparation and submittal of these reports will be given at the preconstruction meeting.

01 33 13. CERTIFICATION REQUIRED FROM SUPPLIERS AND INSTALLERS: The following is a list of certifications and other submittals required, in addition to guarantees, to assure quality materials or workmanship, or both. For some of these requirements, correct wording of articles, to be incorporated in the technical sections, is provided in these guides. Also see 01 70 00.

.1 GENERAL CONSTRUCTION:

Sewers - Test approvals from City of Columbus or other controlling governmental agency



- Reinforcing steel - Mill certificate
- Insulating concrete - Manufacturer's certificate
- Structural steel - Erector's affidavit
- Face Bricks - Results of efflorescence tests
- Masonry Restoration - Experience record of contractor or subcontractor doing the work
- Steel joists - Manufacturer's certificate
- Metal decking - Manufacturer's certificate
- Sealants - Experience record of contractor or subcontractor doing the work
- Metal Windows - Performance reports
- Reflective - Performance reports insulating glass
- Finish Hardware - Inspection by an Architectural Hardware Consultant
- Fire-rated ceiling - Certification by installer
- Carpeting materials - Test reports and manufacturer's certificate
- Non-standard - Test reports and resilient floor manufacturer's certificate materials
- Painting - Statements by paint manufacturer and applicator
- Fire-resistive - Manufacturer's certificate coatings
- Laboratory equipment* - Financial statement of manufacturer, experience qualifications
- Library equipment* - Financial statement of manufacturer, experience qualifications
- Kitchen equipment* - Financial statement of manufacturer, experience and qualifications
- Radiation protection - Qualifications of installer

* Laboratory Equipment, Library Equipment, and Kitchen Equipment will be included in General Contract unless directed otherwise by the University Project Manager.

.2 PLUMBING:

- Soil, waste, and vent piping - Inspection certificate
- Underground service piping - Test reports
- Interior piping - Test reports
- Welders - Copy of certification
- Water lines - Sterilization test report and a pressure test report
- Gas service and interior piping - Test reports and recording line charts for purging and pressure

- Gas distribution lines - Training certifications for all covered tasks performed, pressure test charts, material test records, and per Division 33

.3 FIRE PROTECTIONS:

- Fire department - Certification that pipe threads and connections are suitable for use with local hydrants and fire department equipment
- Inspection - National Automatic Sprinkler agreement and Fire Control Association standard inspection and maintenance form
- Fire lines and fire pumps - Test reports
- Welders - Copy of certification
- System - Fire Marshal's certification of inspection and acceptance

.4 HEATING, VENTILATING, AND AIR CONDITIONING:

- Balancing of air and water systems - Balance reports
- Boilers - Tests for safety and function, inspection and other certificates
- Refrigerant lines - Proof of testing in compliance with USASI Standard, copies of certifications of refrigerant technicians, and reports
- Fan ratings - Test performance seals, performance curves
- Air, water, and steam lines - Test reports, weld NDT reports, hydro reports
- Welders - Copy of certification, copy of procedure certification.

- Chilled water - Pressure and weld /fusion test records, water treatment report, material test records, and per Division 33

.5 ELECTRIC:

- Primary cable installations - Testing per Division 33
- Cable splicing - proof of skill requirements per Division 33

01 33 23. SHOP DRAWINGS AND SAMPLES: A separate section is required. This section should be written to include submittals for all prime contracts so that no separate section or article need be written in the specifications for these contractors;

however, each section in the technical provisions should contain a reference to this section together with a list of items for which shop drawings or samples are required. Additionally, this section should specify a reasonable timeframe, based on contract date and project timeline, to ensure that submittals are submitted and reviewed minimizing schedule impacts. Attention should be called to the fact that this section is a supplement to the General Conditions. Require that a signature of the contractor is required, in addition to their stamp of approval.

- .1 DRAWINGS REQUIRING CHECKING BY CONSULTANTS: The A/E shall determine the requirements for submittal of drawings pertaining to work done by consultants.
- .2 SAMPLES: After consultation with the University Project Manager, the A/E shall indicate the items for which samples are required and shall stipulate the number of each required. Samples and color chips must be approved by the University Project Manager.
 - .2.1 SAMPLES FOR INCLUSION IN THE WORK: If samples are expensive or are complete assemblies suitable for inclusion in the work, e.g., precast concrete panels, locksets and door closers, laboratory or other equipment, state that approved samples may be installed in the work, provided the location of these items is made known to the A/E.
- .3 MODELS AND PATTERNS: Specifications for ornamental work which requires models or patterns, shall specifically stipulate that models and patterns become the property of the university after the ornamental work has been installed.

01 35 00. SPECIAL PROCEDURES

- 01 35 23. **OWNER SAFETY REQUIREMENTS:** To ensure student, faculty, staff and visitor safety and the continuity of university services, design and construction teams working on University projects will be required to follow the University Construction Site Safety Guidelines, available on the FOD Vendor Resource webpage: <https://fod.osu.edu/resources>, under section titled “Construction Site Safety Requirements”). If enhanced risk mitigation requirements are identified, they shall be specified and may include components like 1) Enhanced Emergency Call List, 2) Utility shut off plan, 3) Enhanced Excavation Permit, 4) Stock repair parts. See details in the above mentioned section.

01 35 23 .1 SAFETY HEALTH & ENVIRONMENT (See APPENDIX V)

- 01 35 43. **HAZARDOUS MATERIALS PROCEDURES:** Refer to Appendix V for information regarding hazardous materials. Also refer to Section 02 82 00 Hazardous Materials and Asbestos Remediation. The University Project Manager

shall be notified IMMEDIATELY of Contractor's intent to handle materials that are considered hazardous such as asbestos, mercury, flammable fuels, explosive chemicals, PCBs, etc.

~~01 40 00 RECYCLING OF CONSTRUCTION / DEMOLITION WASTE: - See Section 18 60
40.2 CONSTRUCTION AND DEMOLITION Diversion Thresholds: -~~

- 01 43 00. QUALITY ASSURANCE:** Field services provided by manufacturer's representative to assure the quality of construction before and during the execution of the work for building envelope components (roofing, cladding, window curtain walls and entry door systems).
- 01 45 00. QUALITY CONTROL:** Periodic building envelope inspections by a third party engineering firm to observe below grade construction waterproofing, exterior wall envelope and roofing enclosures with monthly report of observations. Reports to include photographs of essential components and locations that are not accessible at conclusion of project. Reports to be part of record documentation at close of project."
- 01 45 10. **SERVICES BY SPECIALISTS:** In addition to the field supervision and inspections required by the A/E's contract and by State agencies, the following services by specialists will be required on major projects. Fees for specialists' services will be handled by the A/E as a reimbursable expense. While these services will be performed, the A/E shall supervise the specified operations; the specialist shall furnish required reports directly to the A/E and the University Project Manager. Details of the type of services required, methods of investigation, frequency of investigations or tests, number and type of reports required, and method of payment for specialists' services shall be included in the applicable technical sections of the specifications. Unless expressly exempted by the university, the following services shall be performed by qualified independent testing agencies:
- .1 **GENERAL CONSTRUCTION:**
- Soil compaction tests
 - Piling and caissons, inspections and tests
 - Concrete sampling and tests
 - Sound transmission tests
 - Radiation testing
- .2 **PLUMBING CONSTRUCTION:**
- Supervision of purging of gas piping
 - Sterilization of water piping
 - Testing of completed installations prior to inspection by the State Fire Marshal or his designated representative.
- .3 **HVAC CONSTRUCTION:**

Systems balancing
Soil corrosion analysis for cathodic protection
Pressure test for leaks by gas utility company
Pressure test, weld inspection per applicable codes for steam, heating hot water, condensate, etc.
Pressure test, weld/fusion inspection per applicable codes for chilled water

.4 **ELECTRIC CONSTRUCTION:**

Testing of communications systems
Testing of signaling systems
Testing of fire protection equipment and alarm system
Testing of Distributed Generation safety systems to prevent unsafe parallel operation

.5 **SPECIALIZED SYSTEMS:**

Cranes and lifting systems: load test and certified inspection

01 50 00. TEMPORARY FACILITIES AND CONTROLS

.1 **ACCESS TO FACILITIES:** While The Ohio State University is a publicly owned institution, its function and facilities are dedicated to serve specific operations and programs. Therefore, contractor personnel may be barred from using existing toilet, food service, or other facilities.

.2 **UTILIZATION OF EXISTING HVAC EQUIPMENT DURING CONSTRUCTION:** The utilization of existing HVAC equipment for temporary heating and cooling during construction requires written approval from the University Project Manager after consultation with University Engineer. It is the A/E's responsibility to determine if this is necessary prior to the final CD submittal and all details for use shall be included in the CD phase documents. If equipment is approved for use during construction, it is the Contractor's responsibility to completely maintain the equipment during construction and submit written reports to the University Project Manager to show that maintenance has been performed. The Contractor shall provide filters for air handling units with a minimum efficiency of 30% prior to construction and shall perform proper cleaning of equipment after construction is complete. Contractor shall replace filters with new after construction is complete and verify that all equipment is in proper working condition. If repairs are required, it is the Contractor's responsibility to perform those repairs. If approval is not granted by the University Engineer, then it is the A/E's responsibility to provide instructions to the appropriate Prime Contractor in the Bid Documents of alternative means for temporary heating & cooling.

.3 **UTILIZATION OF NEW HVAC EQUIPMENT DURING CONSTRUCTION:** The Utilization of new HVAC equipment for temporary heating and cooling during



construction requires written approval from the University Project Manager after consultation with University Engineer. If approval is granted the A/E must provide the following requirements to the appropriate Prime Contractor in the Bid Documents.

- .3.1 One year Contractor labor and material warranty on equipment starts after the Certification of Contract Completion has been issued by the Contracting Authority.
- .3.2 One year Factory Warranty, or the extended Warranty Period as indicated in the Project Manual, on equipment starts after the Certification of Contract Completion has been issued by the Contracting Authority.
- .3.3 Contractor is responsible for proper maintenance and cleaning of the equipment during construction and providing the entire HVAC system in “like new” condition before receipt of the Certification of Contract Completion. Any damages or repairs of the equipment during construction are the responsibility of the Contractor.

01 51 00. TEMPORARY UTILITIES: Requirements are generally as stated in the General Conditions with modifications regarding payment for water, fuel, and power consumed. Contractors must arrange for and pay for all temporary utilities required for execution of the work. Specifications shall be written to stress this point. The Ohio State University owns and operates the utilities throughout most of the Columbus campus. Peripheral areas and regional campus buildings may have service connections directly from the public utilities. The A/E will determine type and scope of each utility needed during construction document phase and, after discussion with The Department of Facilities Operations and Development, provide engineering and specific direction (including metering) to the contractors in the project specifications and on the drawings regarding the arrangement for such utilities. Note: stating to provide temporary service will not be acceptable

- .1 **UTILITY COMPANY INSTALLATIONS:** Plans for running temporary lines through university property shall be reviewed by the A/E in conference with the University Engineer and Ohio State Energy Partner (OSEP).
- .2 **CONNECTIONS TO EXISTING UTILITIES:** If connections to University utilities are permitted, the A/E shall obtain drawings of existing utilities and shall consult the University Engineer and OSEP regarding services available and points of connections to services. All services shall be metered through meters furnished by the contractors and the project shall pay for all utility usages through an internal funds transfer. The specifications shall contain instructions to the contractors to make requests for these services through the University Project Manager and by completing the forms, **UTILITY SERVICE REQUEST** <https://fod.osu.edu/sites/default/files/request.doc> and **UNIVERSITY UTILITY METER RECORD FORM (UMRF)**, which can be obtained by contacting Mr. John Goldsmith of FOD Energy Services goldsmith.7@osu.edu) before any utility meter is installed and utility is turned on.

For areas and regional campuses that directly served by public utilities, contact TJ Wood at OSU Business and Finance (wood.653@osu.edu) to set up accounts.

OARDC: A request to mark OARDC utility locations will be made by the Contractor by calling the OARDC Facilities Service Department at 330-263-3915. Contractor's name and phone number; the name of the person making the request; the project name and number; location of the area to be marked and the name of the Project Manager will be provided. After receipt of this information a work order will be issued. The utilities will be marked within 72 hours of the call, excluding weekends and University holidays. All costs shall be borne by the Contractor. For those are public utilities on and around the OARDC campus that may not be known to and will not be marked by University personnel. Contact the Ohio Utility Protection Service (811 or 1-800-362-2764; <http://www.oups.org>) for the location of these public utilities.

OARDC: There is no cost for use of water and/or electricity related to the project execution.

.2.1 Temporary connections to the university primary electrical distribution system (construction power) shall meet the applicable sections of Division 33.

OARDC : The interruption, disconnection, reconnection, reduction or curtailment of any existing services shall not be undertaken without minimum prior notice of two (2) weeks and shall be coordinated with the OARDC Facilities Services Department at 330-263-3915. This work may be performed during normal working hours, holidays and weekends or as directed by the Facilities Services Department, but shall always be scheduled to minimize the effect of these shutdowns with other facilities on campus.

The appropriate Contractor involved with the utility shutdown shall, at the beginning of the construction period, enter into a contract with the OARDC Facilities Services Department for this work. The appropriate Contractor shall determine the number of times, the types and length of shutdown required for connections to that utility. Costs, if any, shall be borne by the Contractor.

.2.2 Temporary connections to the university domestic water system, including fire hydrants, shall be approved by FOD Operations Jeff Mullins in the MEP Shop at (614) 688-4027, mullins.279@osu.edu Hose connections to fire hydrants are prohibited between October 15 and April 15 unless special arrangements for freeze protection have been approved by FOD Operations. A meter and backflow preventer are required on such connections.

- .2.3 The use of HVAC systems during building finishing activities shall require inspection and commissioning of mechanical system components, metering and controls equipment. FOD/OSEP shall approve the use of steam and/or chilled water to HVAC systems supplied from the central/regional steam and/or chilled water plants,
- .3 COST: Costs for providing temporary services shall be included in the contractors' bids. Specifications shall clearly identify each contractor's responsibility for the installation of service lines and payment for services, whether services are furnished by the utility company or by the university. The following is a general guidance for the multiple prime contract delivery method:
- .3.1 GENERAL CONTRACTOR shall pay for water, steam, fuel for heat, and electric power consumed.
- .3.2 PLUMBING CONTRACTOR shall install and maintain water supply lines and make changes in lines as necessitated by conditions at the site.
- .3.3 HVAC CONTRACTOR shall install and maintain heating systems and make changes as required.
- .3.4 ELECTRICAL CONTRACTOR shall install and maintain electrical installations and make changes as required.
- Other delivery methods, consult with University Project Manager for instruction.
- New meter's consumption and associated costs will be accounted for by one of the following:
- billed against a provided project chartfield identified on the UMRF
 - monthly invoices to the OSU PM
- .4 DURATION OF SERVICES: The specifications shall clearly identify each contractor's responsibility for providing continuous utility services until date of final acceptance or Substantial Completion (whichever comes first) including operation of permanent equipment and services. To facilitate the changeover and avoid unnecessary billing problems, the OSU PM should give a minimum of 24 hours' notice before the final acceptance or Substantial Completion to FOD Energy Services for final readings to be scheduled.
- 01 51 10 Temporary Excavation Support Systems (Sheeting and Shoring) Removal: The Contractor shall remove all elements of excavation support systems from the ground once such systems have completed the desired functions. If proposed to be left in place, University Engineer approval is required. The following is the minimum expectation for granting the University Engineer's conditional approval.

- a) removal all elements down to 5' below the proposed finish grade, or 5' below existing grade, whichever is greater.
- b) the locations and depths of the elements shall be surveyed and data shall be clearly added to the as-built drawings as well as submitted to University GIS Office.

01 51 23 CONSTRUCTION INDOOR AIR QUALITY

[See link to 01 51 23 CONSTRUCTION INDOOR AIR QUALITY specification and incorporate it into the Project Manual.](#)

01 52 00. CONSTRUCTION FACILITIES:

01 52 13. FIELD OFFICES AND SHEDS: Each prime contractor shall provide and maintain a clean, weather tight office at the site suitable for their own use, and for use of their subcontractors. All expenses including the installation cost, and the use of telephone/data, heat, light, water, and janitor service shall be borne by the contractor.

.1 GENERAL CONTRACTOR'S OFFICE shall be of size suitable for the use of the contractor, subcontractors, the University Project Manager and the A/E's representative. Office shall be heated, lighted, have doors with locks, and private line telephone/data service. One space in the office shall be provided for use of the A/E's representative; space shall be equipped with plan table, filing cabinet, and other necessary communication equipment. The General Contractor or their authorized agent shall be present at the office, or elsewhere on the site, at all times while the work is in progress.

01 54 00. CONSTRUCTION AIDS

01 54 13. TEMPORARY ELEVATORS:

.1 ONE NEW ELEVATOR may be used for construction purposes. Facilities shall be made available to all contractors and subcontractors; all costs associated with use shall be assigned to the General Contractor. Written arrangements must be made with the University Project Manager and must include:

Installation of protective covering of car interior, doors and entrance.

Weekly cleaning and servicing by the elevator installer at the Contractor's expense.

Complete restoration of all elevator system components to like new condition ready for turnover to the university.

The repair and warranty period required by the contract will not be diminished by authorizing this use.

- .2 EXISTING ELEVATORS shall not be used during construction without permission of the maintaining authority. Refer to Division 14 for conditions governing this use.
- .3 PROTECTIVE PADS and hooks for hanging the removable pads shall be furnished and installed in the elevator which is most suitable for furniture and equipment moving for use by the University.

01 54 16. TEMPORARY HOISTS:

- .1 HOISTS: Specify that the General Contractor furnish hoisting facilities and that these facilities be made available to other contractors and to subcontractors. Other prime contractors may furnish facilities to suit their needs if suitable arrangements cannot be made with the General Contractor. Provide for hoisting of workers as well as materials and equipment if it will be cost effective.

01 54 17 CRANE LIFTING:

Contractors expecting to utilize a mobile crane on campus shall follow the University Construction Plan Ahead process and complete necessary submission at least two weeks in advance of the target date of move in. Through PlanAhead website (<https://dps.osu.edu/planahead>), the contractor shall submit the following items to University Technical Service Group and other stakeholders deemed necessary by OSU project manager:

- .1 a site plan. The site plan shall identify existing underground utilities (can be obtained from OSU GIS), the crane and support vehicles locations and travel routes. Criteria for placing crane are:
 - a. Stay minimum 10' from any tunnel or large size utilities or basements, unless certified by a licensed structural engineer
 - b. Avoid placing outriggers directly on top of any utilities
 - c. Avoid placing outriggers on sidewalk and curb
- .2 a ground bearing pressure (GBP) calculation. The calculated ground pressure should not exceed 1500 psf for unpaved areas or 3500 psf for paved areas.

Contractor shall call 811 to have underground utilities marked prior to moving crane onto site.

01 55 00. VEHICULAR ACCESS AND PARKING

- .1 CONSTRUCTION AREA MAINTENANCE AND ACCESS: If existing streets and roads on campus must be used, a detailed plan of the routes to be used must be worked out in cooperation with University personnel. The final approved plan shall be shown on the project drawings, and specifications must stipulate that no other streets and roads be used.

- .2 CLEAN-UP ENFORCEMENT: Specifications shall contain provisions that Contractors must remove mud and spillage from public and university streets without delay. Failure to clean streets promptly could result in streets being cleaned by the university or other public agency at the Contractor's expense.
- .3 REPAIRS OF DAMAGES TO FACILITIES: Specifications shall also contain provisions that damage to roads or other facilities on university property, resulting from hauling, storage of materials, or other activities in connection with the work, shall be repaired or replaced, at no expense to the university, by the Contractor causing the damage. Provide surface protection for dumpsters. Repairs or replacement shall be made to the satisfaction of the University Project Manager.
- .4 MAINTENANCE OF TRAFFIC FLOW:
- .4.1 PLANNING FOR TEMPORARY CONTROL: The Department of Public Safety must be notified at least two weeks in advance of any anticipated work affecting traffic flow via a Plan Ahead request (<https://dps.osu.edu/planahead>). To assure maintenance of flow and to safeguard all parties involved in planning temporary routing, a field inspection should be made jointly by the A/E, the University Project Manager, and Contractor personnel prior to performing any work that would interrupt normal traffic patterns. Rerouting of traffic shall be planned as to route and direction, in cooperation with the University Department of Public Safety and as approved by the University Project Manager.
- .4.2 CONTRACTOR'S RESPONSIBILITIES: The contractor, whose work requires interruption of traffic, shall be required to post signs in all affected areas, in sufficient numbers and with appropriate messages, to warn motorists entering the construction zone and to alleviate conflicts and confusion among motorists or pedestrians at intersections, crossings, turns, and other obstructions to normal traffic flow. Temporary signs shall be as shown in the Ohio Manual of Uniform Traffic Control Devices for Streets and Highways, Ohio Department of Transportation. Temporary lanes shall be well marked, and obstructions, barriers, lane changes, or detours shall be indicated by appropriate signage at each point of potential confusion, as well as at each change in direction of a temporary route. The university Police Division shall be notified in advance of the anticipated time of return to normal traffic patterns. Upon completion of construction affecting streets or traffic flow, but before temporary control devices and lane markings are removed, the area shall be restored to receive traffic in the normal pattern. the university Police Division shall be notified of the actual time of completion of restoration.
- .4.3 PROVISIONS FOR SPECIAL DUTY POLICE OFFICERS: If it is evident that traffic will become hazardous or restricted in any manner, uniformed traffic control officers must be provided by and at the contractor's expense.

These officers shall be employed by contacting the University Department of Public Safety Special Events Coordinator at least two weeks before officers' services are required. The contractor shall initiate such a request and forward a copy of the request to the University Project Manager. Specifications should be written to alert contractors to the possibility that special duty police officers might be needed at times other than, or in addition to, the contractor's normal work hours.

- .5 PARKING: Parking at regional campuses is subject to regulations established by university authorities at the particular campus. At the Columbus campus, employees of contractors and subcontractors must secure parking permits from the CampusParc and must park cars in areas assigned to them. Parking on streets or in restricted areas is prohibited. At the beginning of the work, each contractor shall report to the CampusParc the approximate number of parking permits which will be required for all employees, including employees of subcontractors. Each contractor shall provide the University Project Manager with a copy of the letter of application for parking permits.

OARDC: Parking for employees of Contractors and subcontractors must be arranged with the University Project Manager and must park in areas assigned to them. Parking on streets or in restricted areas is prohibited. Purchase of parking permit is not required.

01 56 00. TEMPORARY BARRIERS AND ENCLOSURES

- .1 INGRESS AND EGRESS FOR BUILDINGS: During joint occupancy of buildings, entrances and exits for public use must be provided to meet code requirements. At least one ingress and egress and path of travel that is accessible to individuals with disabilities must be maintained to all user occupied portions of the building. Any closure of a building entrance or exit must be approved by the University Department of Public Safety.
- .2 SIDEWALK BARRICADES: Provide a detail for sidewalk barricades as required to discourage pedestrian traffic. The barricades are to be at least 42 inches high and of suitable width to completely obstruct passage beyond on the closed sidewalk. The barricade shall consist of a rigid frame with a 2X6 wooden toe board affixed approximately one inch above the sidewalk across the entire width, cross bracing to hold the barricade in place, and orange safety fencing affixed to the frame. Specify/detail a sign stating "SIDEWALK CLOSED" affixed to the structure. Signage must meet all applicable ADA requirements.
- 01 56 16. NOISE AND DUST CONTROL: In occupied buildings the A/E shall indicate areas for which noise and dust control must be provided and shall specify methods of control. If details of installations are involved, specify these in the applicable sections of the technical specifications. The General Contractor or Lead Contractor



shall install barriers indicated by the A/E and shall provide other dust control barriers as required by construction operations.

- 01 56 26. TEMPORARY FENCE: An 8 ft. minimum high fence erected around the project site with gates secured in a manner sufficient to prevent a person from accessing the site. Fence and location shall be subject to the approval of the University Project Manager and submit documentation to the Office of Risk Management for review Show fence location on drawings. Temporary fencing requirements apply to all Columbus and regional campuses.
- .1 Usually a heavy woven steel wire fence on steel posts is sufficient; however, where appearance is a consideration, a privacy type fence might be required, provided the budget permits such construction. Fence screening is required unless approved by the University Landscape Architect.
 - .1.1 Fence screening is to be black, open mesh fabric made of polypropylene and providing a minimum of 80% shading. Fabric is to be installed on the inside of the fence.
 - .1.2 Vertical chain link fence slats and bottom lock slats require approval by the University Landscape Architect.
 - .2 Three strands of barbed wire shall be added to the top of fence and angled outward from job site unless special circumstances prevent it, solely at the direction of the Facilities Design and Construction's Project Manager, in consultation with the Director of Projects. Exceptions must be in writing and documented in the project files.
 - .3 Security protocols are required to be established in writing documenting who is in charge of the site at all times and will have responsibility for maintaining site security during and after work hours.
 - .4 Where security monitors, Tattletale / web-based cameras / etc., are installed, provide documentation for reference to Office of Risk Management.
 - .5 In the case of multi-story building projects. A plan is required to be developed to secure upper levels (more than 8 feet above grade). Access points to upper levels of the construction should be evaluated (open stairwells, shafts, etc.) and a determination made as to how best secure the upper levels from the ground level. This would be an additional layer of security within the project site and could include boxing out the ground level of the stairwell with gates or plywood that can be open during normal hours, but closed and locked after hours, preventing someone who may gain access to the site from easily accessing upper floors.
 - .6 'No Trespassing' signs, which meet OSHA requirements, shall be specified.

- .7 WEED CONTROL: Specify that the General Contractor must cut the weeds inside the construction fence as often as necessary to maintain a neat appearance at the project site.

01 56 36. TEMPORARY SECURITY ENCLOSURES:

- .1 BUILDING SECURITY: During construction, one exterior door of any enclosed structure shall be provided with a lockset with a university security core. The General Contractor shall obtain security core from and return same to the University Project Manager.

- .2 FENCE GATES: Except during working hours, gates shall be kept locked by the General Contractor at all times.

One gate shall be double locked with a university security padlock and the contractor's padlock in a manner that will allow access by unlocking either padlock. Other prime contractors may install their own padlocks if it is determined that they will require access to the area at time other than regular working hours. The university security padlock shall be obtained from, and returned to, the University Project Manager.

- 01 56 39. TREE AND PLANT PROTECTION: Refer to Division 31.

01 57 00. TEMPORARY CONTROLS:

1. AIR POLLUTION NUISANCES PROHIBITED: The General Contractor or the Lead Contractor shall provide controls to prevent air pollution. In accordance with all federal and state codes, and the Ohio Administrative Code 3745-15-07 (Environmental Protection Agency, Chapter 3745-15, General Provisions on Air Pollution Control, paragraph-07, most current version) the emission or escape into the open air from any source or sources whatsoever, of smoke, ashes, dust, dirt, grime, acids, fumes, gases, vapors, odors, or any other substances or combinations of substances, in such manner or in such amounts as to endanger the health, safety or welfare of the public, or cause unreasonable injury or damage to property, is hereby found and declared to be a public nuisance. It shall be prohibited for any person to cause, permit or maintain any such public nuisance.
2. RESTRICTIONS OF EMISSIONS OF FUGITIVE DUST: The General Contractor or the Lead Contractor shall provide controls to prevent fugitive dust. In accordance with all federal and state codes, and the Ohio Administrative Code 3475-17-08 (Environmental Protection Agency, Chapter 3745-17, Particulate Matter Standards, paragraph-08, most current version), fugitive dust cannot be emitted from any source without taking reasonably available control measures to prevent it from becoming airborne. "Reasonably available control measures" means the control technology which enables a particular fugitive dust source to

achieve the lowest particulate matter emission level possible and which is reasonably available considering technological feasibility and cost-effectiveness. These measures shall include but not be limited to:

- 2.1 The use of water or other suitable dust suppressant chemicals for the control of fugitive dust from the demolition of existing buildings or structures, construction operations or the grading of roads or the clearing of land.
- 2.2 The periodic application of asphalt, oil, water, or other suitable dust suppression chemicals on dirt or gravel roads or parking lots, and other surfaces which can cause emissions of fugitive dust.
- 2.3 The covering, at all times, of open bodied vehicles, when transporting materials that are likely to become airborne.
- 2.4 The paving of roadways and the maintaining of roadways in a clean condition; and
- 2.5 The prompt removal, in such a manner as to minimize or prevent resuspension, of earth or other material from paved streets onto which earth or other material has been deposited by trucking or earth-moving equipment or erosion by water or other means.

01 57 13. TEMPORARY EROSION AND SEDIMENT CONTROL:

- 1 OHIO EPA PERMIT for NATIONAL POLLUTION DISCHARGE ELIMINATION SYSTEM (NPDES): The A/E shall obtain this permit. Any construction activity that disturbs one or more acre of total land is required to obtain a National Pollution Discharge Elimination System (NPDES) Construction General Permit (CGP) from the Ohio Environmental Protection Agency (Ohio EPA).
2. OHIO EPA NOTICE OF INTENT (NOI) AND STORM WATER POLLUTION PREVENTION PLAN (SWP3): If a NPDES Permit is required, the A/E shall prepare and submit a Notice of Intent (NOI) and Storm Water Pollution Prevention Plan (SWP3) to the Ohio EPA. The SWP3 is to be prepared in compliance with current provisions of the Ohio Water Pollution Control Act (Ohio Revised Code, Title LXI (sixty-one) Water Supply - Sanitation - Ditches, Chapter 6111 Water Pollution Control, most current version) and CGP. The NOI and SWP3 shall be reviewed and approved by the University Engineer and the Office of Environmental Health and Safety before submittal to the Ohio EPA. A copy of the NOI, SWP3 and letter from Ohio EPA granting permit coverage shall be maintained at the construction site for the duration of the project. Copies are to be made available to Ohio EPA upon request.
 - 2.1 The NOI and SWP3 shall be prepared and submitted to Ohio EPA and the OSU Office of Environmental Health and Safety in a timely manner, at least

21 days prior to beginning any site work. Allow adequate time for Ohio EPA approval.

2.2 Coordinate all communication with the Ohio EPA and municipalities with the University Project Manager and the OSU Office of Environmental Health and Safety. Communication with the Ohio EPA and municipalities includes, but is not limited to, NOI, Notice of Termination (NOT), inspection findings, and any noncompliance notifications.

3. **COMPLIANCE WITH STORM WATER POLLUTION PREVENTION PLAN (SWP3):** The General Contractor or Lead Contractor must maintain all erosion control practices in strict accordance with the SWP3 at all times throughout the site work. The Contractor shall make weekly inspections and review the inspection logs with the University Project Manager to assure compliance with the SWP3.
4. **TEMPORARY EROSION CONTROL:** The General Contractor or the Lead Contractor shall place temporary erosion and sediment control measures to minimize adverse impacts to storm water runoff. These control measures include the use of berms, dikes, dams, sediment basins, fiber mats, netting, gravel, mulches, grasses, catch basin/curb inlet protection, and slope drains, among other control devices or methods. These measures are to be coordinated with permanent erosion control features and plant materials. The selected control measures must also comply with appropriate provisions and plans in the City of Columbus, Division of Sewerage and Drainage Erosion and Sediment Control Regulation. Any plantings or mulches must also comply with all University Standards and be reviewed for prior approval by the University Landscape Architect.
5. **SILT FENCE:** The manufacturer's recommendation shall be followed with regard to shipping, handling, storage, installation, and protection from direct sunlight. The geotextile will be rejected if it has defects, tears, punctures, flaws, deterioration, or damage incurred during manufacture, transportation, storage, or installation. Each roll shall be labeled or tagged to provide product identification.
 - 5.1 The post spacing shall be as recommended by the manufacturer. The spacing of the posts shall be adjusted such that some of the posts are located at the low points along the fence line. At joints, the overlap shall be nailed or similarly fastened to the nearest post with a lath.
6. **STRAW BALES AND STRAW WATTLES:** Straw bales and wattles shall be embedded and staked as shown in the SWP3. Adjacent bales or wattles shall be chinked to eliminate gaps between the bales or wattles. Bales shall be placed such that bindings are parallel to and not in contact with the ground.
7. **TEMPORARY SILT DITCH:** Construct a temporary ditch in relatively rolling areas where, in the judgment of the A/E, adjacent property may be damaged from sheet-



type soil erosion. This special ditch is not intended to carry large volumes of water but to catch sediment from runoff. Construct silt checks within the ditch or at the outlet. Construct the special ditch according to the SWP3 at locations designated by the A/E.

8. TEMPORARY SEEDING AND PROTECTION: Before ordering, obtain the review and prior approval from the University Landscape Architect for any seed before use. Promptly perform the work of temporary seeding and protection to prevent visible erosion. Protect all seeded areas with mulch that precludes siltation. Perform temporary seeding and protection under the following conditions:
 - 8.1 When it is impractical to bring an area to final line, grade, and finish so that permanent seeding protection work can be performed without subsequent serious disturbance by additional grading.
 - 8.2 When soil erosion occurs, or it is considered to be a potential problem, on areas where construction operations are temporarily suspended.
 - 8.3 When an immediate cover would be desirable to minimize erosion, siltation, or pollution.
 - 8.4 On temporary roadways that are expected to remain in place for longer than 30 days and that are constructed of erodible materials.
9. TEMPORARY MULCH: Before ordering, obtain the review and prior approval from the University Landscape Architect for any mulch before use. When temporary seeding and protection would be required, but the time of exposure is 30 days or less, perform temporary mulching to prevent visible erosion. Place temporary mulch to an approximate 2-inch loose depth and apply tackifier.
10. CATCH BASIN/CURB INLET PROTECTION: Install and maintain catch basin or curb inlet protection on all existing inlets/basins receiving runoff from disturbed areas. All protection must be suitable for minimizing infiltration of silt into storm inlets as specified by the A/E and in the SWP3. The protection must be installed and maintained in accordance with the manufacturer's instructions.
11. TEMPORARY DRAINAGEWAYS: As erodible areas are exposed, construct temporary drainageways where needed to divert runoff from erosive soil areas to the silt traps or checks or silt ditches. Construct interceptor ditches or silt fences at the top of cut slopes when beginning excavation. Construct surface ditches, roadside ditches, and flumes to carry runoff from the site at the earliest possible time during the grading work.
 - 11.1 When needed, use pipe as liners for these temporary drainageways. The A/E will approve the type and location of the drainageways as well as the need for a liner. Install the pipe liner according to the Plans and Standard Drawings. Use pipe of any substantial type or material for overflow pipe in

the construction of temporary silt basins and for flumes. When fill slopes have been constructed to such a stage that protection of the face of the slope from runoff is necessary, construct a temporary earth mound ditch or silt fence at the outer edge of the shoulder along the top of the embankment as directed by the A/E. Construct the ditch to form an earth mound on the embankment side of the ditch and carry runoff from the roadway along the shoulder to the flumes and roadside ditches. Use temporary berm ditches at the top of fill slopes after completing the permanent seeding and protection work and until beginning the surface operations. Stabilize the ditch and mound by spraying with asphaltic material when deemed necessary.

12. CONSTRUCTION ENTRANCES. All ingress and egress points for construction vehicles (construction entrances) shall be coordinated with Department of Public Safety and Transportation and Traffic Management and be constructed in accordance with the respective authority of jurisdiction's Erosion and Sediment Control Regulation.

01 60 00. PRODUCT REQUIREMENTS

01 66 00. PRODUCT STORAGE AND HANDLING REQUIREMENTS

- .1 TRANSPORTATION AND HANDLING: Although scheduling of deliveries is the responsibility of the contractors, the A/E shall, by visual observation and by checking the contractor's estimates for partial payments, control deliveries to assure that storage spaces are not unduly encumbered with materials which cannot be installed in the work within a reasonable time. The General Conditions provide for payment for materials properly stored and insured at off-site locations.
- .2 STORAGE AND PROTECTION: Specify that each contractor shall provide suitable weathertight storage sheds of sufficient size to hold materials required on the site at one time, for storage of materials which might be damaged by the weather. Outdoor storage of materials shall be confined to the areas within the construction fence.

Temporary storage structures shall be painted with at least one coat of paint; color shall be approved by the University Project Manager. No signs except small identification signs are permitted on sheds. Indoor storage shall be confined to unused spaces in the building as approved by the University Project Manager. Corridors, stairs, and other public spaces shall not be used for storage. Special care must be exercised to protect electrical and HVAC equipment.
- .3 STORAGE OF UNIVERSITY EQUIPMENT: Prior to completion of a building, large rooms at, or near, grade level with docking facility access shall be made available

to the University for the secure storage of equipment. Details shall be arranged with the University Project Manager.

01 70 00. EXECUTION AND CLOSEOUT REQUIREMENTS

01 71 23. FIELD ENGINEERING

- .1 LAYOUT DATA: A licensed surveyor shall be employed to layout structure coordinates, site improvements, and utilities, to determine all lines and elevations, and to verify same from time to time as the work progresses.
- .2 GRADE LINES, LEVELS, AND BENCH MARKS shall be established and maintained by the Lead Contractor.
- .3 BUILDING LAYOUT DATA: The Lead Contractor shall provide and maintain the control points around the perimeter of the job site. As work progresses, he shall establish benchmarks at each level and shall establish exact locations of partitions on rough floors as guides to all trades.
- .4 UTILITIES MARKING: All bid documents for projects with any site work identified shall contain the following statement, to appear on the appropriate site plan sheet(s), as well as in the appropriate sections of the project specifications: “Contractor shall notify the Ohio Utilities Protection Service (toll free 811 or 800-362-2764) at least 48 hours, but no more than 10 working days prior to any excavating, fencing, planting, or other work that disturbs earth for the location of existing underground facilities. All other owners of underground utilities who are not current members of OUPS should be notified two working days in advance. The Ohio State University will not permit any site work to proceed until utility marking has been completed. Hand digging is required while within the 24” tolerance zone of any utility marking.”

01 74 19 CONSTRUCTION WASTE MANAGEMENT and DISPOSAL **See 18 60 40 CONSTRUCTION and DEMOLITION**

01 76 00. PROTECTION OF INSTALLED CONSTRUCTION

- .1 ROOF PROTECTION: Specify that the Contractor shall provide protection for any roof area(s) that will be affected by the project. Protection shall consist of using 1/2-inch thick plywood with foam board attached. The composite board shall be laid with the foam towards the roof surface and shall be arranged to protect the roof from falling objects, i.e., hand tools, power hand tools and material. The protective covering shall be secured in a non-destructive fashion (i.e. weighted down) to



avoid dislocation in inclement weather. This protection shall not relieve the Contractor from responsibility to repair any damage to the roof resulting from his work.

01 77 00. CLOSEOUT PROCEDURES

.1 CLEANING: The A/E should review Article 6 of the General Conditions to determine whether or not this subject is adequately covered; some amplification might be required.

01 78 00. CLOSEOUT SUBMITTALS:

01 78 23. OPERATION AND MAINTENANCE DATA: Detailed requirements should be stipulated in the appropriate sections of the specifications. For items of General Construction, specify that information for care and maintenance be furnished for any item requiring more than ordinary custodial care. For mechanized equipment and electrical equipment, specify that operation manuals be provided in electronic Adobe Acrobat PDF format, and for special equipment stipulate that, in addition to operation manuals, the original equipment manufacturer provide demonstrations and operating instructions by factory trained employees to designated university personnel who will be operating the equipment. The following are merely suggestions for the kind of data which might be required. Also see 01 79 00. Provide electronic copies to the FOD envelope engineer along with care and maintenance for windows, storefronts, roofing and flashing.

.1 GENERAL CONSTRUCTION:

Item	Data Required
Simulated masonry	Surface treatment
Cut stone	Damp proofing treatment
Glue-laminated wood	Finishes
Wood shingles and shakes	Preservative treatment
Fluid applied roofing	Instructions for patching
Single-ply membrane roofing	Maintenance and repair instructions
Aluminum, bronze, and S.S.	Care of finishes
Doors and windows	
Electronic locking systems	Wiring diagrams and operating instructions
Special flooring	Finishes and maintenance data
Chalkboards	Cleaning instructions
Motor-operated chalkboards	Wiring diagrams and operating instructions



	Pedestrian control devices	Wiring diagrams
	Sun control devices	Wiring diagrams
	Equipment	Wiring diagrams and any special instructions required
	Special Construction	Systems diagrams and any special instructions required
	–	–
.2	PLUMBING:	
	Item	Data Required
	Piping systems	Printed diagrams - valve tag directory
	Pumps, controls, and special systems	Wiring diagrams, operating instructions, parts lists, testing procedures
.3	HEATING, VENTILATING, AND AIR CONDITIONING:	
	Item	Data Required
	Control systems	Printed diagrams and operating instructions
	Valves	Type-written valve tag directory
	Pumps, controls, and special systems	Wiring diagrams, operating instructions, parts lists, testing procedures
.4	ELECTRIC:	
	Item	Data Required
	Communications systems	Point-to-point wiring diagrams and instruction manuals
	Motor control centers	Overload heater charts
	Equipment	Operating instructions
	Fire alarm systems	Point-to-point wiring diagrams Product Data Sheets
.5	OPERATION AND MAINTENANCE MANUALS: The A/E shall review the contractor's submittals of manuals for correctness and sufficiency of data and, after approving the contents and format, provide to the university in electronic format.	
	.5.1	FORMAT FOR MANUALS: Manuals shall consist of manufacturers' typed or printed operation instructions and maintenance data, shop drawings and catalog cuts, and other data listed herein, in electronic format following the university's Project Closeout Standards (https://fod.osu.edu/sites/default/files/project_closeout_standards.pdf).
01 78 36.	AFFIDAVITS, AND GUARANTEES: In addition to the standard forms required by the contract documents, the following are required. When statements applying to these requirements are provided in these guides, the statements (or paragraphs similarly worded) shall be included in the specifications. The A/E can save a	

duplication of work at time of completion of construction if the specifications writer prepares a list of required affidavits, bonds, and guarantees as the specifications are prepared. Also see 01 33 13.

.1 **AFFIDAVITS**

- Carpeting materials - Installer attests that correct materials were installed
- Non-standard resilient - Installer attests that correct floor Materials were installed.

.2 **EXTENDED GUARANTEES (MAY NOT BE A COMPLETE LIST, ADJUST TO FIT THE PROJECT)**

Roofing	-	2-year maintenance guarantee
Flashing and sheet metal work	-	2-year maintenance guarantee
Membrane waterproofing	-	3-year maintenance guarantee
Sealants Silicone Sealants	-	5-year guarantee 20-year warranty
Metal windows	-	2-year guarantee for windows/5-year guarantee for weatherstripping
Wood laminated plastic faced doors	-	Lifetime guarantee
Tinted glass and insulating glass	-	10-year guarantee
Chalkboards	-	20-year guarantee
Water chillers and air cooled condensers gasketing of vertical systems	-	5-year guarantee
Gasketing of vertical systems on all wall cladding types (marble, metal panel, glazing, etc)	-	10 years warranty

01 78 38. **INSPECTIONS:** Procedures shall be as outlined in the article entitled Construction and Closeout in the General Conditions

Inspection by the Authority Having Jurisdiction (AHJ) is required before obtaining new utility services including electric, gas, steam, chilled water, storm, sanitary or domestic cold water.



- .1 All subgrade plaza deck enclosures and vegetated green roof installations shall be inspected by a third party testing agency. Include green roof electric field vector mapping (EFVM) testing with water testing and photos of waterproofing systems before waterproofing system is covered and any field changes to rectify testing failures to be noted in closeout document.
- 01 78 39. PROJECT RECORD (AS BUILT) DOCUMENTS:
- .1 CONTRACTORS' RESPONSIBILITIES: These are stipulated in the General Conditions.
- .1.1 AS-BUILT DOCUMENTS shall be made available for review during weekly progress meetings. The in-progress as-built documents shall be neatly and accurately marked to reflect the actual construction of the project in relation to the work that had been completed to the date of the meeting. The Contractor shall provide the A/E with the final and complete as-built documents upon final completion of the work.
- .1.2 OPERATION AND MAINTENANCE MANUALS shall be made available for review during weekly progress meetings. The manuals shall be submitted as equipment and systems are installed and prior to Demonstration and Training. Submittals shall include electronic Adobe Acrobat PDF format.
- .1.3 Building Information Modeling (BIM): The Contractor shall meet, for projects four million dollars or greater, the BIM Project Delivery Standards (BIM PDS).
- .1.4 Closeout Standards: The Contractor shall meet the university's Project Closeout Standards (https://fod.osu.edu/sites/default/files/project_closeout_standards.pdf).
- .2 ARCHITECT/ENGINEER'S RESPONSIBILITIES: The A/E shall revise the construction documents in electronic format throughout the construction phase to accurately record the project's "as-built" condition. Identify the addenda, bulletin, change order, alternate, etc. for each item. Submit the revised electronic files as described in the university's Project Closeout Standards for review. Make any additional modifications and submit the electronic files. Also provide a copy of the specifications and general conditions modified by the addition of each accepted addenda, alternate, each accepted bulletin and change order and identification of the brands of materials which were accepted when choices were available to the contractors along with supporting electronic files. The University Closeout Coordinator/Project Manager will distribute this material to FOD Operations, the building coordinator, and the FITS Archive Data Manager.
- .2.1 ELECTRONIC FILE SUBMITTALS shall be presented in a logical manner with appropriate directory and subdirectory structures; as described in the

university's Project Closeout Standards
https://fod.osu.edu/sites/default/files/project_closeout_standards.pdf)

- .2.2 DATA NOT IN ELECTRONIC FORMAT, but part of the final document submittal, (i.e. details that are 'sticky-backed' onto the plotted sheets), shall be noted in the electronic files completely, including a description of the drawing(s) and scanned in Adobe Acrobat PDF format.
- .2.3 Building Information Modeling (BIM): The Architect/Engineer shall meet, for projects four million dollars or greater, the BIM Project Delivery Standards (BIM PDS).
- .2.4 Closeout Standards: The Architect/Engineer shall meet the university's Project Closeout Standards
https://fod.osu.edu/sites/default/files/project_closeout_standards.pdf).

.3 SUBMITTAL SHALL CONSIST OF: A database file which compares the Program of Requirements Assignable Square Footage to that of the Schematic Design Document, the Design Development Document, the Construction Document, and the As-Built Document.

This submittal must be in the following format:

TITLE BLOCK

Project Name:
 Project Number:
 Project total gross square footage (GSF):

Column #	Column Header
1	PoR Item Number
2	PoR Item Name
3	PoR ASF
4	Schematic Design ASF
5	PoR/Schematic Design ASF Difference
6	Design Development Room Number
7	Design Development ASF
8	PoR/Design Development ASF Difference
9	Construction Document Room Number
Column #	Column Header
10	Construction Document ASF
11	PoR/Construction Document ASF Difference
12	As-Built Room Number
13	As-Built ASF
14	PoR/As-Built ASF Difference
15	Comments

This file should also contain a subtotal by Program Item Number Group (e.g. all spaces under Program Item Number 1.0 would be subtotaled). A Project total ASF should also be included (totals all Program Item # Group ASFs).

- .4 REQUEST FOR A/E'S FINAL PAYMENT: Only after the corrected electronic drawings have been reviewed and accepted by the University Project Manager and FITS Archive Data Manager.

01 79 00. DEMONSTRATION AND TRAINING

- .1 Specify that training is to be done by the original equipment manufacturer OEM). (See Appendix T for a sample specification for system training). Training by the contractor or sales personnel is prohibited.
- .2 Training shall be identified separate from “start-up and check-out” in the specifications.
- .3 Specify that training shall be scheduled through the University Project Manager.
- .4 Training shall include all materials, i.e. OEM manuals, books, plans, and specifications necessary for equipment troubleshooting and maintenance by in-house maintenance department, as appropriate.
- .5 Specify that the OEM shall provide labor for miscellaneous support during the warranty term.
- .6 Reference the pertinent technical divisions for additional requirements.

01 80 00 PERFORMANCE REQUIREMENTS

01 83 16 EXTERIOR ENCLOSURE PERFORMANCE REQUIREMENTS

- .1 This Section to include general exterior enclosure performance requirements that apply to the post-construction performance of exterior enclosure Work specified in other specification Sections.

01 90 00 LIFE CYCLE ACTIVITIES

01 91 00 GENERAL COMMISSIONING REQUIREMENTS

- .1 The University will employ an independent Commissioning Agent (CxA). The CxA is an independent and knowledgeable third party, hired to verify that the



systems work as intended. The CxA will inform the University and the Architect of the results of commissioning and provide recommendations for final acceptance of commissioned systems.

- .2 Commissioning is the process to verify to the University that mechanical and electrical systems, as well as other special systems, function together properly to meet the facility performance requirements and design intent as described in the Contract Documents. The Construction Manager and Contractors shall be responsible for participation in the commissioning process as outlined below, and in references and attachments throughout the Contract Documents. The Contractor shall furnish labor and materials sufficient to meet all requirements of building commissioning under the contract.
3. The CxA will utilize monitoring-based commissioning (MBCx) analytical tools to enhance the quality of Cx and track progress. The Building Automation System (BAS) contractor shall adhere to specified requirements to make data available to the analytics tools. If the project scope does not include automated data transfer through BACnet/IP, the BAS contractor will be required to set up trends for most system I/O plus virtual points and automatically download trend data into onsite memory. Specific requirements for data transfer will be determined at the Controls Summit.
4. The CxA's MBCx analytical tools will typically require transfer of BACnet data over a contiguous IP network that routes all supervisory controller values in BACnet/IP. If the permanent network is not available when commissioning functional testing is scheduled, a temporary network will be provided by BAS contractor until the permanent network is established. The BAS Contractor shall provide documentation and infrastructure as described to facilitate transfer of data from BAS to support MBCx.
5. The CxA, acting on the behalf of the University, will be cognizant of the University's Facilities Staff's need to be informed and given the opportunity to participate actively in the commissioning process to ensure a complete, thorough turnover of systems once the project is complete. To this end, the CxA will ensure that Facilities Personnel are informed of commissioning activity and schedule, and of any coordination issues, such as special testing procedures or opportunity for hands-on training during functional testing.
6. The CxA is not authorized to modify, add to, or revoke the requirements of the Contract Documents. A change in the work can only be made as provided in the General Conditions.
7. Commissioning acceptance activities are required to be completed by substantial completion. This includes all testing activities and contractor completion of Issues Resolution Log items.

01 91 14 BUILDING ENCLOSURE COMMISSIONING REQUIREMENTS

1. This Section applies to all Building Enclosure Commissioning (BECx) Work for all divisions.
2. BECx is a systematic process of verifying that the building exterior walls, floors windows, and roof systems are designed and installed to perform according to the design intent and the University's Project Requirements.
3. The Building Enclosure Commissioning process requires the active involvement of the responsible builder (General Contractor or Construction Manager) and assigns Work and responsibilities that are specified here.
4. This Section shall provide information on related services performed by others. In the absence of a clear statement identifying the responsible party, it shall be understood that the Work or activity being described shall be performed by the Construction Manager (CM).

01 92 23 ASSET TAGGING

1. This Section to include administrative and procedural requirements for project maintainable asset records for projects with Asset Tagging scope. It shall define the services that provide the collection, preparation, review and loading of key maintainable asset data elements associated with the project. At the end of the project, the formatted data will be uploaded into the OSU Computerized Maintenance Management System (CMMS).
2. Key procedures associated with this process include:
 - Export of Construction Operations Building information exchange (COBie) data from 3D Coordination for BIM Projects.
 - Formatting of Maintainable Asset types/quantities or COBie data into OSU Asset Worksheet.
 - Submit initial OSU Asset Worksheet and acquire Asset Labels.
 - Verify/QC data on the Asset Worksheet.
 - Prepare final/completed Asset Worksheet for upload to CMMS.

END OF DIVISION 01- GENERAL REQUIREMENTS