# SECTION 01310

# COORDINATION

## PART 1 - GENERAL

### 1.1 RELATED DOCUMENTS

A. Construction Drawings, Technical Specifications, Addenda, and general provisions of the Contract, including Contract General Conditions and Supplementary General Conditions and other Division 1 Specification Sections, apply to this Section.

### 1.2 SECTION INCLUDES

A. Coordination of Work under Contract.

### 1.3 RELATED SECTIONS

A. Section 01010 - Summary of the Work: Various types of Work to be coordinated, including Owner-Furnished/Contractor-Installed products and work under separate Contracts.

B. Section 01610 - Basic Product Requirements: Coordination of products, especially general requirements for system completeness and product substitutions.

### 1.4 COORDINATION

A. Coordination, General:

1. Coordinate the Work according to provisions stated in Contract General Conditions. Do not delegate responsibility for coordination to any subcontractor.
    a. Anticipate the interrelationship of all subcontractors and their relationship with the total work.
    b. Resolve differences or disputes between subcontractors and materials suppliers concerning coordination, interference, or extent of work between sections. The Contractor's decisions, if consistent with the Contract Documents, shall be final. The Architect is not required to coordinate work between sections and will not do so.
    c. Coordinate the work of subcontractors and material suppliers, so that their work is performed in a manner to minimize interference with, and to facilitate the progress of the work.

2. Coordinate Work under the Contract with work under separate contracts by University.

3. Coordinate utility and building services shut-downs and closures of vehicular and pedestrian thoroughfares, including access to buildings and parking areas, to minimize disruption of University activities.

4. Be responsible for providing anchorage, blocking, joining and other detailing as required to provide complete project.

5. Do not obstruct spaces required by Code in front of electrical equipment, access doors, etc.

6. Do not cover any piping, wiring, ducts, etc., until properly inspected and approved.

7. Remove and replace any and all Work under any Section which is not in accordance with the Contract Documents with other materials and Work which is in conformance with the Contract Documents. Repair or replace all other Work damaged by these operations at no increase in contract price.

8. This work shall be coordinated with all associated Work in a manner that will insure that all work will be accomplished as rapidly as the progress of the project will permit and so that no work will be delayed for want of associated work.

B. Coordination of OFCI Products: Contractor shall cooperate with University and others as directed by University's Representative in scheduling and sequencing the incorporation into the Work of Owner Furnished/Contractor Installed (OFCI) products identified in the Contract Drawings and Specifications.

C. Relationship of Contract Documents: Drawings, Specifications and other Contract Documents in the Project Manual are intended to be complementary. What is required by one shall be as if required by all. What is shown or required, or may be reasonably inferred to be required, or which is usually and customarily provided for similar work, shall be included in the Work.

D. Discrepancies in Contract Documents: In the event of error, omission, ambiguity or conflict in Drawings or Specifications, Contractor shall bring the matter to attention of the Architect in a timely manner during the bidding period, for determination and direction by the Architect in accordance with provisions of the Contract General Conditions.

E. Construction Interfacing and Coordination: Layout, scheduling and sequencing of Work shall be solely the Contractor's responsibility.

1. Contractor shall verify, confirm and coordinate field measurements so that new construction correctly and accurately interfaces with conditions existing prior to construction.

2. Contractor shall bring together the various parts, components, systems and assemblies as required for the correct interfacing and integration of all elements of Work. Contractor shall coordinate Work to correctly and accurately connect abutting, adjoining, overlapping and related elements, including work under separate contracts by University, utility agencies and companies.

## 1.5 COORDINATION OF SUBCONTRACTS AND SEPARATE CONTRACTS

A. Superintendence of Work: Contractor shall appoint a field superintendent and a project manager, who shall directly and full time supervise and coordinate all Work of the Contract.

B. Subcontractors, Trades and Materials Suppliers: Contractor shall require all subcontractors, trades, crafts and suppliers to coordinate their portions of Work with the Contractor's field superintendent to prevent scheduling, sequencing, dimensional and other conflicts and omissions.

C. Coordination with Work Under Separate Contracts: Contractor shall coordinate and schedule Work under the Contract with work being performed for Project under separate contracts by University, serving utilities and public agencies. Contractor shall make direct contacts with parties responsible for work of the Project under separate contracts, in order to provide timely notifications and to facilitate information exchanges.

## 1.6 MECHANICAL AND ELECTRICAL COORDINATOR

A. Mechanical and Electrical Coordinator: Contractor shall employ and pay for services of a person, technically qualified and administratively experienced in field coordination for the type of mechanical and electrical Work required for this Project, for the duration of the Work.

1. Work out all "tight" conditions involving work of various sections in advance before installation. If necessary, and before work proceeds in these areas, prepare supplementary drawings for review showing all work in "tight" areas.

2. Provide supplementary drawings and additional work necessary to overcome "tight" conditions at no increase in contract price. Refer to Section 01330, "Submittal Procedures."

3. Coordinated layout shop drawings shall be dimensionally accurate and detailed, giving complete dimensions of all locations, elevations, and clearances. Show exact locations of the following:
   a. Ductwork
   b. Piping, including fire protection systems.
   c. Valves and piping specialties, including all air vents and drains.
   d. Dampers
   e. Access doors
   f. Control and electrical panels
   g. Adjustable frequency controllers
   h. Motor control centers and transformers
   i. Disconnect switches
   j. Elevator equipment
   k. Electrical cable trays and main conduits
   l. Owner-furnished, Contractor-installed equipment.

4. Coordinated layout shop drawings shall show actual architectural and structural constraints and site conditions.

5. Coordination:
   a. Fully coordinate work between trades with actual architectural, structural, and site conditions.
   b. Coordinate all adjustments required. Clearly identify by circling these adjustments on the coordinated layout shop drawings.
   c. If Contractor has specific questions regarding coordination of the installation with structural, architectural and site conditions and work between trades, submit same with appropriate shop drawings documenting areas in question with Contractor's proposed installation.

6. Submission and review of coordinated layout shop drawings:
   a. Prepare reproducible drawings.
   b. Submit to each trade for review of space allocated to all trades.
   c. Revise drawings to compensate for review by each trade.
   d. Review revisions with each trade.
   e. Submit to Architect for review.
   f. Review of coordinated layout shop drawings is only for verification that Contractor has performed coordination work as specified herein.
      (1) Review does not include verification of exact dimensions, clearances, arrangements and/or compliance with codes.

7. Final coordinated layout shop drawings shall show that all trades affected have made reviews and shall be signed by each trade at completion of coordination.
   a. General Contractor is to assure that each trade has coordinated work with other trades.
   b. Include stamp with labeled space for each trade to sign on each submittal indicating that layout shop drawing has been coordinated.
   c. No layout shop drawing will be reviewed without stamped and signed coordination assurance by General Contractor.

8. Coordinated layout shop drawings showing work of all trades are required. Individual trade layout shop drawings will not be accepted.

## 1.7 SUBMITTALS

A. Coordination Documents: Coordinate shop drawings, diagrams and other specified in various product Sections of the Contract Specifications. Submit coordination drawings and schedules as specified below, prior to submitting shop drawings, product data, and samples.

## PART 2 - PRODUCTS

Not Applicable to this Section.

## PART 3 – EXECUTION

### 3.1 COORDINATION REQUIRED

A. Coordinate Work specified in Division 13 - Special Construction, Division 23 - Mechanical and Division 26-Electrical within each Division, between these Division and with Work specified in other Divisions.

B. Coordinate progress schedules, including dates for submittals and for delivery of products.

C. Conduct meetings with suppliers, installers and others concerned with the Work, to establish and maintain coordination of layout, sequencing and completion of various elements of Work.

D. Conduct meetings with installers and others concerned with the Work, to properly integrate various mechanical and electrical systems, to facilitate construction and to provide proper access and work space for maintenance, renovation and improvement of system components. Include participation by representatives of University, including maintenance personnel.

E. Assist in resolution of conflicts by providing technical advice, coordination drawings and three dimensional representations of integrated system components, including computer and physical models as necessary.

F. At construction progress meetings, report on progress of Work to be adjusted under coordination requirements and any necessary changes in sequencing and scheduling of Work.

G. Transmit minutes of coordination meetings and reports to University's Representative, Architect, Architect's consultants (as applicable) and to meeting participants.

### 3.2 COORDINATION DOCUMENTS

A. Coordination Drawings and Models: Contractor shall prepare coordination drawings and three-dimensional models, in computer form and in physical form as necessary, to organize layout and installation of mechanical and electrical products for efficient use of available space, for proper sequence of installation, for integration with building structure, for future maintenance and renovation, and to identify potential conflicts between systems and elements.

B. System Services: Contractor shall identify on coordination drawings and models all plumbing and electrical power and signal services required for each component of each system.

1. Contractor shall certify that characteristics of services and controls are correct for each component.

2. Certification shall be in written form and signed by Contractor and mechanical and electrical coordinator.

C. Responsibility and Services Matrix: Contractor shall prepare schedule a matrix identifying elements of mechanical and electrical Work requiring coordination, as specified in each Section in Divisions 1 through 33 of the Contract Specifications.

1. Include identification of parties having responsibilities related to each element of Work and describe what that responsibility shall be.

2. Include required off-site and on-site tests and inspections for various elements of Work.

3. Include identification of administrative activities related to each element of mechanical and electrical Work, such as product data, shop drawings, coordination drawings, samples, mock-ups, test reports for each element of Work.

4. Include identification of elements of Work requiring temporary services.

D. Maintenance and Disposition of Coordination Documentation: Maintain coordination documents, including models, for duration of the Work, recording all changes. After review of original and revised documents and models by University's Representative and Architect, submit documents and models as part of Project record documents. See Section 01789, Project Record Documents.

**3.3 COORDINATION OF SUBMITTALS**

A. Submittal Reviews by Mechanical and Electrical Coordinator: In addition to specified review actions by Contractor, specified in Section 01330 - Submittals Procedures, all product data, shop drawings and samples shall be reviewed by the mechanical and electrical coordinator for proper coordination of various elements of Work, as described in the preceding Article titled "Coordination Documents."

1. Include Owner-furnished/Contractor-installed (OFCI) products.

2. Include products to be provided (furnished and installed) under separate contracts by University, to the extent that information is provided in the Contract Documents and supplemental instructions from University's Representative.

3. Review by Contractor shall be completed prior to submission of product data, shop drawings and samples to Architect for review.

4. Indicate review actions by Contractor by signed review stamp and other appropriate notations on submittals.

5. Coordinate with other review actions to be taken by Contractor, as specified in Section 01330 - Submittals Procedures.

B. Field Conditions: Contractor shall verify field dimensions and clearances and relationship to available space and anchoring provisions. Report conflicts in writing to the Architect and the University's Representative.

C. Product Characteristics: Contractor shall:

1. Verify compatibility of equipment and other elements requiring plumbing, HVAC and electrical services and signals with services to be provided.

2. Verify motor voltages and control characteristics.

3. Coordinate controls, interlocks, wiring of pneumatic switches, and relays.

4. Coordinate wiring and control diagrams.

5. Review the effect of changes in one element of the Work of other elements of the Work. Identify conflicts and report conflicts in written and graphic form to the Architect and the University's Representative.

6. Verify information provided in maintenance and operating instructions and coordinate preparation of maintenance and operation data. See Section 01783 - Operation and Maintenance Data.

**3.4 COORDINATION OF SUBSTITUTIONS AND MODIFICATIONS**

A. Review of Proposed Substitutions: See Section 01630 - Product Substitution Procedures. Contractor shall review Contractor's proposals and requests for substitution prior to submission to Architect.

1. Contractor shall verify compliance with Contract Documents and shall certify compatibility with other elements of the Work, including proper integration with building structure, load limitations, operating and maintenance space and accessibility provisions, and suitability for available building services, including plumbing and electrical power and signal systems.

2. Contractor shall prepare and submit recommendation for action regarding proposals, including identification of related changes in other elements of the Work.

**3.5 SYSTEM AND EQUIPMENT START-UP**

A. Observations of System and Equipment Activation and Start-Up: Contractor shall observe activation and start-up of systems and equipment, including all Work specified in Divisions 02 through 33 with connections to utilities, building services and controls.

1. Contractor shall verify that utilities, building services and control systems are properly connected, complete and functional within criteria of manufacturer and criteria indicated in the Contract Documents.

2. Contractor shall verify that activated elements are properly anchored and that operating components operate properly according to the component's intended design.

3. Contractor shall verify that activated elements of the Work are in operable condition according to normal operating characteristics required by the manufacturer and the Contract Documents.

4. Should adjustments be necessary to activated elements, Contractor shall advise the Architect and University's Representative of necessary actions and shall observe that proper actions are performed to achieve required operating characteristics.

B. Observations of System and Equipment Demonstrations: Contractor shall observe performance demonstrations including equipment demonstrations to Architect and University's Representative. Record times and additional information required for operation and maintenance manuals.

C. Documentation of Observations of Activation, Start-Up, Adjustment and Demonstration: Contractor shall keep written record of activation, start-up, operational tests and inspections and necessary adjustments and re-tests and re-inspections.

1. Documentation shall include record of time and date of activation, start-up, operational tests and inspections and shall include measured results of tests and inspections.

2. Documentation shall be submitted to University's Representative and Architect.

**3.6 INSPECTION AND ACCEPTANCE OF EQUIPMENT**

A. Contract Completion Review:

1. Prior to Contract Completion review, Contractor shall verify that each component and system has been properly adjusted, cleaned, lubricated, inspected and tested, and is ready operation and use.

**END OF SECTION**