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SECTION 230510 - PROJECT COORDINATION AND COORDINATION DRAWINGS

PART 1 - GENERAL

1.1 REFERENCES

- A. Refer to the GENERAL CONDITIONS, SUPPLEMENTARY CONDITIONS and applicable parts of DIVISION 1 for other general requirements.
- B. GENERAL CONDITIONS, SUPPLEMENTARY CONDITIONS and DIVISION 1 paragraphs may be repeated in this Division for emphasis or for inclusion of more stringent/additional related requirements. Such repetition shall NOT be construed to reduce the requirements of those Divisions NOR to eliminate other requirements under those Divisions.
- C. Refer to other Sections of this Division for detailed specifications on the work of this Division.
- D. THIS PROJECT WILL BE COMMISSIONED. REFER TO COMMISSIONING SPECIFICATION SECTIONS FOR COMMISSIONING INFORMATION AND RESPONSIBILITIES. THE COMMISSIONING PROCESS WILL REQUIRE ADDITIONAL LABOR, MATERIAL AND/OR OTHER COSTS WHICH MUST BE PROVIDED BY THE INDIVIDUAL TRADE CONTRACTORS AS PART OF THIS PROJECT.

1.2 INTENT

- A. The Contract Documents define a complete installation, comprised of many individual components, assemblies and systems. It is the intent of these documents that the work of all trade contractors, sub-contractors, and all sub-contracted entities performing the work be coordinated to result in finished project, meeting the performance requirements of these documents.
- B. The use of the terms "contractor", "trade contractor", or "sub-contractor" in this Section is to be interpreted as referring to all trades, singularly and collectively.
- C. Definition of roles and responsibilities as pertains to the scope of this section:
 - 1. Contractor:
 - a. Management, Schedule, and Execution of project coordination and coordination drawing process.
 - b. Translation of Design Intent and Project requirements, presented within the Contract Documents, into coordinated layout and fabrication drawings.
 - c. All reasonable efforts to resolve apparent conflicts in the work, identified in the coordination process, without impact to Design Intent and Project Requirements.

2. Architect/Engineer:
 - a. Interpretation of Contract Documents
 - b. Prioritization of Project Requirements where necessary to resolve multiple requirements determined as in conflict after Contractor's coordination activities are exhausted.
 - c. Review and assistance with resolution of apparent conflicts identified by Contractor, provided that reasonable efforts by Contractor have been undertaken to first resolve apparent conflict.
 - d. Accept or Reject Contractor's proposed adjustments to the work.

1.3 RELATED SECTIONS

- A. Refer to the following related sections:
 1. DIVISION 1 – Section(s) related to Phasing, Construction Schedule, Procedures, and Coordination of the work.
 2. DIVISION 21 – Section related to "Project Coordination and Coordination Drawings"
 3. DIVISION 22 – Section related to "Project Coordination and Coordination Drawings"
 4. DIVISION 23 – Section related to "Project Coordination and Coordination Drawings"
 5. DIVISION 26 - Section related to "Project Coordination and Coordination Drawings"
 6. DIVISION 27 – Section related to "Project Coordination and Coordination Drawings"
 7. DIVISION 28 – Section related to "Project Coordination and Coordination Drawings"

1.4 SEQUENCE OF WORK

- A. Before commencement of project coordination and before procurement of materials, Contractor and all sub-Contractors, shall familiarize themselves with the work and requirements of all trades.
- B. Phased Sequence of Work:
 1. If provided, review phasing plans and requirements set forth in the Contract Documents and any Supplementary information provided.
 2. Contractor is responsible for generating a complete phasing plan for the project.
 3. Identify work that requires careful scheduling in coordination with proposed phasing in order to meet project requirements for completion dates, and operation of systems.
 4. Obtain clarifications from Owner and Architect/Engineer on requirements or conditions that directly affect scope work within specific phases of work.
 5. Make adjustments to phasing plan and scope or work per phase after review and acceptance by Owner and Architect/Engineer.
- C. Project Schedule(s):
 1. Review schedules published in the Contract Documents and any supplementary information provided.

2. Coordinate sufficient time allocations in the Contractor's schedule for Shop Drawing submission and review, Procurement of materials, and the coordination process.
 3. Identify elements that will establish the critical path to project completion at the designed date. Adjust schedule of work to accommodate the proper sequence of work as outlined herein.
 4. Coordinate equipment arrival and rigging access to interface with overall project sequence. Coordinate and plan with manufacturer for any equipment "splits" required to set equipment in final location. If field breakdown is required, directions shall be provided in writing from the manufacturer for procedures to be followed. Any field breakdown and reassembly is to be inspected by equipment manufacturer before final connections are made. Ensure an adequate pathway is available, such as corridors and openings, to transport equipment.
- D. Investigation and Collection of Relevant Information:
1. Review all Contract Documents and referenced standards.
 2. Review all Owner requirements.
 3. Investigate field conditions as it relates to installation and coordination of work.
 4. Identify areas where investigation requiring partial deconstruction of existing or newly constructed work is required to fully inform the Contractor on conditions that are critical to coordination of the work.
 5. Perform investigations in coordination with the work of other trades and/or owner's use of existing areas.
- E. Equipment Shop Drawings:
1. Shop drawings for major equipment and equipment with service connections, should be submitted and accepted prior to coordination drawing efforts in areas adjacent to equipment placement. Information on utility connections, weight and dimensions, access, working clearances, rigging methods, etc are to be represented on the Coordination Drawings for the specific equipment being installed.
- F. Preparation of Coordination Drawings:
1. Coordination Drawings are to be prepared as a collaborative effort between all trade Contractors working on the project.
 2. The following information, as a minimum, is to be represented on the Coordination Drawing – Floor Plans:
 - a. Accurately scaled to no smaller than 1/4" = 1'-0". Where areas are congested and smaller scale is insufficient to clearly detail aspects of the work, Contractor to provide documents at larger scale.
 - b. Floor plan layout of walls, doors, windows, equipment pads, etc.
 - c. Building structure, dimensionally accurate with depth and elevation.
 - d. Ceiling systems, including reference to height and type of ceiling. Locate coordinated position of access doors where required to gain access to work. Soffits and other ceiling contours represented.

- e. Indicate by shadow or similar means, required access points for service to above ceiling components such as valves, clean-outs, strainers, fire dampers, VAV boxes, FCU's, pull boxes, control panels, etc.
- f. HVAC trade work:
 - 1) Ductwork
 - 2) Piping, including expansion loops
 - 3) Elevation of ductwork and piping including allowances for insulation thickness indicated
 - 4) Equipment – base/floor mounted
 - 5) Equipment – suspended
 - 6) Valves on distribution systems
 - 7) Control Panels
 - 8) Working clearances
- g. Electrical Trade Work:
 - 1) Electrical distribution equipment
 - 2) Conduit runs for major feeders (panels and major equipment)
 - 3) Branch circuit wiring collection boxes
 - 4) Main telecommunications conduits, racks, and/or open cabling space allowance
 - 5) Pull boxes for major feeders and telecom conduits
 - 6) Cable tray
 - 7) Lighting
 - 8) Ceiling mounted devices such as speakers, detectors, sensors, etc
 - 9) Control panels
 - 10) Working clearances both at floor level access and overhead access
 - 11) Duct smoke detectors, indicated on duct layouts
- 3. All trades contributing to the development of the Coordination Drawings are to sign off on the final completed documents, including the General Contractor (if applicable) and/or Construction Manager (if applicable).

G. Equipment Placement:

- 1. No equipment is to be placed before all connections and provisions have been verified and coordinated.
- 2. Working space and clearances for service are to be maintained and verified prior to placement of equipment support provisions such as pads, frames, supports, dunnage, curbs, or anchors.

H. Installation of Work:

- 1. Work is to be installed in conformance with coordination drawings that have been signed off and accepted.
- 2. Work installed prior to completion of the Coordination Process will be subject to removal at the Contractor's expense.

- I. Changes made in the field:
 - 1. The Coordination Drawings are to be periodically updated during the project to reflect changes to the work which are made by Change Order or adjustments for other cause.
 - 2. Changes that result in coordination conflicts are to be resolved immediately before related work continues.

1.5 RENOVATIONS & EXISTING CONDITIONS (Where Applicable)

- A. The Contract Documents do not necessarily show all existing conditions, all new work to existing work interfaces, nor the complete extent of patching, repair, and renovation.
- B. Unless otherwise noted, work shall be planned and executed assuming that areas not scheduled at that time to be renovated are intended to be in use and occupied. Existing services must be maintained that serve occupied areas of the building(s) or site.
- C. Thoroughly study, examine, and investigate existing field conditions including, but not limited to, conditions in areas of limited accessibility such as crawl spaces, plenums, attics, chases, and above ceilings.
- D. Plan and execute investigative work, including selective demolition, of concealed spaces where new work is scheduled to be installed.
- E. Coordinate investigative efforts so that the disruption of Owner's operations is not affected. Work after Owner's normal hours of operation may be required and is to be provided.
- F. Interruption of building services to be scheduled to minimize impact to the Owner's operations. Interruptions may only be made after timely notification to Owner and any involved utilities. Advance notification requirements are to be investigated and incorporated into project schedule(s) to avoid impact to the orderly installation of the work. Overtime or after hours work may be required and is part of Contractor's responsibility.

1.6 AVAILABILITY OF ELECTRONIC FILES

- A. Electronic files (CAD) of the project floor or site plans may be available from the project Architect (or Engineer). Refer to other Sections and Instructions of the Contract Documents to confirm if these will be made available. Unless otherwise stated, assume that electronic files will not be made available.
- B. Electronic files (CAD) of the project's Mechanical and Electrical Contract Documents will not be made available unless otherwise stated.
- C. Electronic Files for BIM Projects (where applicable). BIM Model content related to the Mechanical and Electrical systems will not be released for the purposes of coordination by the contractor.

1.7 SUBMITTALS

- A. Submittal of Coordination Drawings to be made with sufficient time planned for review and revision. The potential for additional steps of coordination prior to the scheduled commencement of work should be anticipated.
- B. Separately developed Coordination Drawings may be required for elements of the work. Refer to requirements outlined later in this Section.
- C. Refer to other Sections and Divisions of these Specifications for other related Submittal requirements.

PART 2 - PRODUCTS

2.1 GENERAL

- A. No specific materials are specified in this section. Refer to other sections of this Division and other Divisions of the Specifications for material specifications.

PART 3 - EXECUTION

3.1 TRADE SPECIFIC LAYOUT AND FABRICATION DRAWINGS

- A. Trade or system specific layout drawings may be required in other Section of this and other Divisions. Content that is common between these layout drawings and requirements for the Coordination Drawings shall be coordinated and developed in parallel where practical.

3.2 SITE WORK AND UTILITIES

- A. Coordination Drawing prepared reflecting:
 - 1. Underground site utilities, size and invert
 - 2. Site Structures for Utility Distribution, size, placement, invert
 - 3. Include concrete encasement dimensions where applicable

3.3 COORDINATION DRAWINGS – DEMOLITION

- A. For renovation projects that require selective demolition, prepare a separate coordination drawing based on existing conditions, indicating:
 - 1. Points of cut/cap for existing systems to remain
 - 2. Major equipment removals and associated services

3.4 COORDINATION DRAWINGS – NEW WORK

- A. Coordination Drawings prepared as indicated in this Section.

3.5 RISERS, SHAFTS, AND CHASES

- A. Provide sections of all risers that extend beyond two floor levels of the building.

3.6 SECTIONS AND ELEVATIONS

- A. Minimum of 1 longitudinal and 1 cross section through every Mechanical Room and Major Electric Service and Distribution Room
- B. Cross sections to be provided in areas on congestion where services are stacked in elevation.

END OF SECTION 230510

