SECTION 010000 - GENERAL REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes administrative and procedural requirements.

1.2 MISCELLANEOUS PROVISIONS

A. Execution of the Contract by Contractor is a representation that Contractor has visited the site, become familiar with local conditions under which the Work is performed and correlated personal observations with requirements of the Contract Documents. Contractor acknowledges and agrees that the information contained in the Contract Documents is adequate and sufficient for completion of the Work.

B. The Contractor shall notify and apprise all Subcontractors and any other parties to the Contract of, and bind them to the conditions of the Owner-Contractor Agreement.

C. The provisions of the Owner-Contractor Agreement, including General and Supplementary Conditions, when included, and Section 010000 "General Requirements" apply to the Work specified in each Section of the Specifications.

D. Where conflicts occur concerning the Architect's duties and responsibilities between the General Conditions and the Agreement between the Owner and Architect, the Agreement shall take precedence.

E. If not otherwise included in the Owner-Contractor Agreement or specifically included in the procurement documents, obtain the Owner's insurance requirements prior to submitting a bid or a proposal.

1. Contractor's Commercial General Liability insurance shall contain no exclusion that denies coverage for claims arising out of or contributed to by fungi, mildew, mold, or resulting allergens. If exclusion exists and cannot be removed by endorsement, submit proof of coverage for fungi, mildew, mold, or resulting allergens under a Pollution Legal Liability or Contractor's Pollution Liability policy. Coordinate with the Owner for required insurance type and amounts.

F. Work by Owner: Items noted NIC are provided by Owner or under separate contract including work identified as systems furniture.

G. Work under Other Contracts: Owner reserves the right to award separate contracts for other work. Coordinate work under the contract required for smooth completion of the work.

1.3 WORK RESTRICTIONS

A. Contractor Use of Site: Limit use of site to extent required to perform Work and to limits indicated on Drawings.

1. Keep entrances clear and available to building management, tenants and emergency vehicles.
2. Do not block entrances, fire exits or lanes, or delivery routes.
3. Do not use areas for parking or storage of materials.
4. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on site.
5. Arrange access to Work area through Building Management. Do not disturb Owner, tenant, or building operations.
6. Arrange schedule of deliveries through Building Management.
7. Repair damage caused by construction operations. Protect building and its occupants during construction period.
8. Comply with Building regulations and procedures for construction work.

B. Noise Control: Minimize objectionable noise levels and notify Owner in advance of noisy operations. Do not operate gasoline and diesel engine driven tools and pump equipment on Project site without specific prior written approval from Owner and Architect. The Owner and Building Management reserve the right when necessary to require excessive noise transmitting procedures be stopped during certain periods of time.

C. Occupancy:

1. Adjacent Occupancy: Adjacent spaces of the building will be occupied during construction. Do not close or obstruct walkways, corridors, or occupied or used facilities without written permission from Building Management, Owner, and authorities having jurisdiction.
2. Provide minimum 72 hours notice to Building Management and Owner of activities that affect building or tenant operations.
3. Owner reserves the right to place and install equipment in completed areas, prior to Substantial Completion providing occupancy does not interfere with completion of the Work. Placing of equipment does not constitute acceptance of the total Work.

1.4 SUBSTITUTION PROCEDURES

A. Changes in the products, materials, equipment, systems, and methods of construction specified in the Contract Documents are considered substitutions. When substitutions are considered, submit substitution request with adequate time for the Architect to review and consider the substitution request.

1. Substitutions will not be considered for acceptance:

    a. When indicated and implied on shop drawings and product data submittals;
    b. When acceptance will require substantial revision of Contract Documents;
    c. When, in judgment of Architect, do not include adequate information necessary for a complete evaluation.

2. Substitutions after Award of the Contract may be considered by the Architect. Make request on form available from the Architect. Include the following:

    a. Product identification and description (marketing brochures and guide specifications are not acceptable; provide manufacturer technical data and ICC-ES Research/Evaluation Reports).
    b. Substantiating data indicating compliance with performance and test data.
    c. References.
    d. Samples.
    e. Itemized comparison of the proposed substitution with the product specified.
    f. Data relating to Contract time, schedule, design, visual effect.
    g. Compatibility with adjacent materials.
    h. Submit complete and accurate cost data and compare the proposed substitution with the product specified regardless if the Contract Sum is affected. Include cost data for adjacent work affected by the proposed substitution.

3. Do not order and install substitute products, systems, equipment, and change sequencing without written acceptance of the Request for Substitution by Architect and Owner. Submission of the Request for Substitution does not constitute an approval. If the request is rejected for any reason, the rejection is considered final.
4. In making formal request for substitution, Contractor represents to the Owner and the Architect that:

    a. It has investigated proposed substitution and has determined it is equivalent to or superior in every respect to the specified product or materials, will fit into the space provided, and is compatible with adjacent materials.
    b. It will provide the same or better warranties.
    c. It certifies cost data is complete and includes related costs under the Contract and waives claim to additional cost related to the proposed substitution which subsequently become apparent.

d. It accepts responsible for delays and costs caused by the substitution if approved unless delays and costs are specifically mentioned and approved on the Request for Substitution Form by the Owner and the Architect.
e. It will coordinate the installation of the accepted substitute, making changes required for the Work to be complete in all respects.

5. Architect will solely determine acceptability of proposed substitutions.
6. The Contractor bears full responsibility for investigating and providing supporting data for proposed substitution. Requests for substitutions that are not accompanied by complete supporting data and are not submitted on the Architect's form will be returned without review or comment.

1.5 ALLOWANCES

A. Lump sum allowances include cost to Contractor of specific products and materials identified by Architect as an allowance and include taxes, freight, and delivery to site.

B. Contractor's costs for receiving and handling at site, labor, installation, overhead and profit, and similar costs related to products and materials identified by Architect under allowances shall be included as part of the Contract Sum and not part of the allowance.

C. Return unused materials purchased under an allowance to manufacturer or supplier for credit to Owner, after installation has been completed and accepted.

D. If requested by Architect, prepare unused material for storage by Owner when it is not economically practical to return the material for credit. If directed by Architect, deliver unused material to Owner's storage space. Otherwise, disposal of unused material is Contractor's responsibility.

1.6 ALTERNATES

A. The cost or credit for each alternate is the net addition to or deduction from the Contract Sum to incorporate alternate into the Work. No other adjustments are made to the Contract Sum.

B. Modify or adjust affected adjacent Work necessary to completely integrate Work of the alternate into the Work. Include as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of alternate.

C. Execute accepted alternates under the same conditions as other Work of the Contract.

1.7 CONTRACT MODIFICATION PROCEDURES

A. Minor Changes in the Work: Architect may issue supplemental instructions authorizing Minor Changes in the Work, not involving adjustment to the Contract Sum or the Contract Time.

B. Proposal Requests:

1. Owner Initiated Proposal Requests: Architect will issue a description of proposed changes that may require adjustment to the Contract Sum or the Contract Time.

    a. Proposal Requests issued by Architect are for information only. Do not interpret instructions to stop Work in progress or to execute a proposed change.
    b. Within 5 days after receipt of Proposal Request, submit quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts. Include an updated Contractor's Construction Schedule that indicates the effect of the change. Use available total float before requesting an extension of the Contract Time.

2. Contractor Initiated Proposals (Change Order Requests): Propose changes by submitting a request for a change.

    a. Include statement that outlines reasons for the change and the effect of the change on the Work. Provide complete description of the proposed change. Indicate effect of proposed change on the Contract Sum and the Contract Time.
    b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
    c. Include an updated Contractor's Construction Schedule that indicates effect of change. Use available total float before requesting an extension of the Contract Time.
    d. Comply with requirements if the proposed change requires substitution of one product or system for product or system specified.

C. Change Order Procedure: On Owner's approval of a Proposal Request, Architect will issue a Change Order for signatures of Owner and Contractor.

1.8 REQUESTS FOR INTERPRETATION (RFI)

A. Use an RFI to ask questions related to the Work; subject to the conditions contained within this Article.

B. Authorship: Contractor.

C. Prohibitions: RFI shall not be used for the following:

1. Request for approval of substitutions.
2. To request an adjustment of the Contract Time or Contract Sum.
3. To request interpretation of Architect's action on submittals.
4. To transfer coordination responsibility from the Contractor to the Owner or the Architect.

D. Procedure:

1. Each RFI shall address one subject.
2. Each RFI shall contain specific reference to the drawing number(s), detail number(s), schedule type(s), bulletin number(s), specification section(s) and paragraph number(s), or other related document(s) pertinent to the Contractor's question. The date of each referenced drawing number, bulletin, specification section or other related document shall be identified. In preparing each RFI, verify the applicable dimension(s), field conditions, drawing requirements (small through large scale details), and/or specification section requirements pertaining thereto. Where supplementary sketches are required to clarify an inquiry, attach supplementary sketches, at large scale, illustrative of the inquiry. Sketches shall include sufficient detail, materials, dimensions, thicknesses, assembly, attachments, relation to adjoining work, structural grid references, and all other pertinent data and information for the Architect to make an informed response. Suggest solution(s) to inquiries, if applicable. Should the Contractor's solution(s) have an impact on Contract Sum or Contract Time, it shall be so stated within the RFI.
3. Each RFI shall be dated and sequentially numbered.
4. Each RFI shall be reviewed and signed by the Contractor prior to transmitting to the Architect.
5. Duration of RFI Response Upon Receipt: 5 business days.

1.9 PAYMENT PROCEDURES

A. Schedule of Values: Coordinate preparation of the Schedule of Values with preparation of Contractor's Construction Schedule.

1. Submit the Schedule of Values, on AIA Document G703, prior to date scheduled for submittal of initial Applications for Payment.
2. Use the Project Manual table of contents as a guide to establish line items for the Schedule of Values. Provide at least one line item for each Specification Section.
3. Provide a breakdown of the Contract Sum in sufficient detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with the Project Manual table of contents. Provide several line items for principal subcontract amounts, where appropriate. Break down principal subcontract amounts into separate labor and materials items. Break down of subcontractor's schedule of values must be true and accurate.
4. Round amounts to nearest whole dollar; total shall equal the Contract Sum.

5. Each item in the Schedule of Values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item. Temporary facilities and other major cost items that are not direct cost of actual Work in place may be shown either as separate line items in the Schedule of Values or distributed as general overhead expense, at Contractor's option.
6. Update and resubmit Schedule of Values before the next Application for Payment when Change Orders result in a change in the Contract Sum.

B. Applications for Payment:

1. Upon receipt of final Application and Certificate for Payment and required documentation including the updated Schedule of Values and the updated Construction Schedule, the Architect shall make a final review. Upon completion of review, Architect shall revise, if necessary, and execute the Applications and Certificate for Payment and forward executed copies to the Owner.

    a. In taking action on Application and Certificate for Payment, the Architect relies on accuracy and completeness of information furnished and does not represent that Architect audited supporting data.
    b. Payment will not be made for materials and equipment stored off site, except at Owner's discretion and written approval. When Application and Certificate for Payment includes material or equipment stored off site, accompany Application by a statement certifying:

        1) Description of the item(s) being stored.
        2) Location of the bonded warehouse(s) where materials or equipment is being stored.
        3) Affidavit of Storage.
        4) Certificate of Insurance.
        5) Bill of sale made to Owner stating there will be no additional cost for transportation and delivery of the item(s) being stored.
        6) Statement certifying that item or a part thereof will not be installed in construction other than Work under this Contract.

2. Use AIA Document G702 and AIA Document G703 Continuation Sheets.
3. Complete every entry on form. Notarize and execute by authorized individual. Incomplete applications will be returned without action.
4. Submit 3 signed and notarized original copies of each Application for Payment. One copy shall include waivers of lien and similar attachments if required. Transmit each copy with a transmittal form listing attachments and recording appropriate information about application.

C. Waivers of Mechanic's Lien: Submit notarized waivers of mechanic's lien from each entity lawfully entitled to file a mechanic's lien arising out of the Contract and related to Work covered by the payment.

1. Submit partial waivers on each item for amount requested, before deduction for retainage.
2. When an application shows completion of an item, submit final or full waivers.
3. Owner reserves the right to designate which entities must submit waivers.
4. Submit each Application for Payment with Contractor's waiver of mechanic's lien for construction period covered by the application. Submit final Application for Payment with or proceeded by final waivers from every entity involved with performance of work covered by the application lawfully entitled to a lien.
5. Submit executed waivers of lien on forms acceptable to Owner.

D. Initial Application for Payment: Submit administrative actions and submittals that precede or coincide with submittal of first Application for Payment:

1. Schedule of Values.
2. Contractor's Construction Schedule (preliminary if not final).
3. Copies of building permits.
4. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.
5. Certificates of insurance and insurance policies.
6. Data needed to acquire Owner's insurance coverage(s).
7. Performance and payment bonds, if required.

E. Application for Payment at Substantial Completion: After issuing the Certificate of Substantial Completion, submit Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.

1. Include documentation supporting claim and statement showing an accounting of changes to the Contract Sum.
2. The application reflects Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of the Work.

F. Final Payment Application: Submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to:

1. Evidence of completion of Project closeout requirements, including, but not limited to transmittal of required Project Record Drawings to Owner.
2. Insurance certificates for products and completed operations and proof that taxes, fees, and similar obligations were paid.
3. Updated final statement, accounting for final changes to the Contract Sum.
4. AIA Document G706 Contractor's Affidavit of Payment of Debts and Claims and AIA Document G706A Contractor's Affidavit of Release of Liens.
5. AIA Document G707 Consent of Surety to Final Payment.
6. Evidence that claims have been settled.
7. Final, liquidated damages settlement statement.
8. Occupancy permits and similar approvals or certifications by governing authorities and franchised services, assuring Owner's full access and use of completed Work.

1.10 PROJECT MANAGEMENT AND COORDINATION

A. Coordination: Coordinate scheduling, submittals, and Work of various Specification Sections to assure efficient and orderly sequence of installation of interdependence. Verify utility requirements and characteristics of operating equipment are compatible with building utilities. Coordinate space requirements and installation of mechanical and electrical work indicated on Drawings. Follow routing shown for pipes, ducts, and conduit as closely as possible. Conceal pipes, ducts, and wiring within construction in finished areas.

B. Conferences and Meetings: Preside at meetings, record minutes, and distribute typed copies within two days following each meeting. Schedule preconstruction conference after Notice of Award.

1. Conduct progress meetings at weekly intervals.

1.11 SUBMITTALS

A. Submittal Procedures:

1. Coordinate preparation and processing of submittals with performance of construction activities.
2. Place a permanent label or title block on each submittal for identification. Indicate name of firm or entity that prepared each submittal on label or title block. Identify project, Contractor, subcontractor or supplier, specification section and drawings sheet number, and pertinent references and data. Assign unique identifier, including revision number, numbered consecutively. Retain numbering system throughout revisions
3. Review and coordinate each shop drawing for constructability and compliance with Contract Documents. Apply Contractor's stamp, sign, and certify review and verification of materials required, field dimensions, adjacent construction work, and coordination of information in accordance with requirements.
4. Identify variations from Contract Documents and material or system limitation affecting performance of the completed Work.
5. Incomplete submittals will be returned without comment for completion of the submittal.
6. Revise and resubmit as required; identify changes made since previous submittals.
7. Package each submittal individually and appropriately for transmittal and handling using transmittal form. Submittals received from sources other than Contractor will be discarded unopened.
8. Use final submittals with mark indicating action taken by Architect in connection with construction.

B. Submittal Preparation: Submit each submittal electronically, unless otherwise indicated. Mark and retain submittal copy as a Project Record Document.

C. Processing Time: Promptly submit Shop Drawings, Product Data, and Samples as to cause no delay in the Work. Allow enough time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Architect's receipt of submittal. Architect will document on submittal the date of receipt. Submittals delivered to the Architect after 4 pm will be noted as received on the next business day.
   1. Initial Review: Allow 10 working days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Architect will advise Contractor when a submittal being processed must be delayed for coordination. Delaying submittals to facilitate coordination between submittals shall not constitute a delay of the Work nor shall it be the basis for an extension of time.
   2. Sequential Review: Sequential review is a submittal that requires review by more than one design discipline. Where sequential review of submittals by Architect's consultants, Owner, or other parties is required, time shall be allocated to reflect sequential review.
   3. Allow 10 working days for review of each resubmittal.
   4. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.

D. Construction Progress Schedules: Submit initial schedule within 10 days after date of Agreement for review.

   1. Submit revised schedules with each Application for Payment, identifying changes since previous version. Indicate estimated percentage of completion for each item at each submission.
   2. Submit horizontal bar chart with separate line for each major section of work or operation, identifying first day of each week.

E. Shop Drawings: Prepare project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data. Submit one electronic copy for Architect's review.

F. Samples: When specified, submit full size, fully fabricated samples cured and finished as specified and physically identical with material or product proposed, including partial sections of manufactured or fabricated components, cuts or containers of materials, color range sets, and swatches showing color, texture, and pattern.

G. Manufacturer's Certifications: Submit electronic copy of certifications to Architect for review, indicating material or product compliance with specified requirements. Submit supporting data, affidavits, and certifications electronically.

1.12 QUALITY REQUIREMENTS

A. Control of Installation: Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship to produce Work of specified quality.

1. Comply with manufacturer's instructions.
2. Comply with specified standards as a minimum quality for Work except when more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.

    a. Comply with reference standards by date of issue current as of date of Contract Documents. In the event of conflict, request clarification from Architect prior to commencement of Work.
    b. If compliance with two or more standards result in conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer uncertainties and requirements that are different, but apparently equal, to Architect for a decision before proceeding.

B. Inspection and Testing Laboratory Services: Unless otherwise noted, Owner will employ and pay for services of an independent firm to inspect and test the work.

1. Cooperate with the inspection and testing agencies; furnish samples of materials, design mix, equipment, tools, storage, and assistance as requested.
2. Notify agency minimum 24 hours in advance for operations requiring services.
3. Make arrangements and pay for additional samples and tests required for Contractor's use.
4. Comply with requirements of individual Specification Section.
5. Testing Laboratory Criteria: Independent agency having National Bureau of Standards (CCRL) certification.

C. Special Tests and Inspections: Where required by Code or Specifications, Owner will engage a qualified testing agency or special inspector to conduct special tests and inspections required by Code or authorities having jurisdiction as the responsibility of Owner.

D. Repair and Protection: On completion of testing, inspecting, and sample taking, repair damaged construction and restore substrates and finishes.

1. Protect construction exposed by or for quality control service activities.
2. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality control services.

1.13 TEMPORARY FACILITIES AND CONTROLS

A. Regulatory Requirements:

1. Building Code, including local requirements for permits, testing and inspection.
2. Health and safety regulations.
3. Fire protection regulations.
4. Utility company regulations and recommendations governing temporary utility services.

5. Police, Fire Department, and Emergency or Rescue Squad rules and recommendations.
6. Applicable industry standards cited in individual specification sections.

B. Conditions of Use: Keep clean and neat; operate in a safe and efficient manner. Do not overload facilities or permit them to interfere with progress. Do not allow hazardous, dangerous, or unsanitary conditions or public nuisances to develop.

1. Take necessary fire prevention measures. Maintain facilities in sanitary condition.
2. Maintain site security and protect facilities in a safe, lawful, and publicly acceptable manner.
3. Installer of each permanent utility is responsible for its operation, maintenance, and protection if used for construction services during the construction period.
4. Do not overload temporary services or facilities, and do not permit them to interfere with the progress of the Work. Do not allow unsanitary conditions, public nuisances, or hazardous conditions to develop or persist on the site.
5. The use of powder actuated tools is prohibited except by written approval of the Owner. Complete the work using other means. Should it not be practical or deemed too expensive in time or dollars, request permission in writing with complete explanation and description of procedure together with suitable credit. Do not bring tools or ammunition onto the site without written approval of the Owner.

C. Construction Office: Use area within existing building designated by Owner. Restore to original condition upon completion of the Work.

D. Continuation of Services: When necessary to temporarily shut down building or portion of building due to mechanical or electrical change over, notify Owner in writing minimum 72 hours in advance and schedule shut down to accommodate Owner and staff. Shut downs must be of limited duration, scheduled, and written approval obtained from Owner.

1. Limit durations of shutdowns and schedule to accommodate both the Contractor and the Owner. The shut down must yield to Owner's needs and is not justification for additional compensation unless approved by the Owner as above and beyond normal project shut down.

E. Existing and Temporary Utilities: Connecting into existing utilities and services is permitted to the extent it is available. Assume full responsibility for the systems including cleaning and restoration and practice energy conservation. Provide hook ups and extensions required.

1. Provide branch ducts as required. Maintain minimum ambient temperature of 50 deg F in areas where construction is in progress unless otherwise indicated.
2. Ventilate enclosed areas to assist cure of materials, to dissipate humidity, and to prevent accumulation of dust of fumes, vapors, and gases.
3. Provide and maintain plumbing and water for construction services. Provide hoses, branch piping, and connections required.
4. Use designated toilet facilities, wash facilities, and drinking water fixtures designated by Owner. Maintain clean and sanitary facilities.

F. Telephone Service: Provide, maintain, and pay for cellular phone for Contractor's superintendent's use.

G. Barriers: Provide barriers to prevent unauthorized entry to construction areas and to protect existing facilities and adjacent properties from damage in compliance with governing authorities.

H. Scaffolding, Hoists, Stays, Ladders: Comply with NFPA 241.

I. Temporary Enclosures, Partitions, and Protections: When temporary enclosures or partitions are necessary, provide fire retardant treated lumber.

1. Provide dustproof partitions and barriers as required or as indicated to prevent spreading dust and fumes to occupied portions of the building. Construct from minimum 4 inch studs, Type X gypsum board with taped joints on occupied side, 1/2-inch-thick fire retardant treated plywood on demolition or construction side, and fill partition cavity with sound deadening materials.

J. Parking: Use designated areas for construction parking to the extent available. Coordinate with Building Management and Owner. Make arrangements for off site parking for overflow.

K. Cleaning: Maintain areas free of waste materials, debris, and rubbish. Clean site daily and leave in orderly condition.

1. Arrange for daily trash and debris removal. Do not use building dumpsters unless permitted in writing by Owner.
2. Do not allow flammable or hazardous materials or refuge to accumulate. Arrange for legal removal and disposal of flammable or hazardous materials.
3. Comply with hauling and disposal regulations of authorities having jurisdiction.

L. Removal of Utilities, Facilities, and Controls: Remove temporary utilities, equipment, facilities, and materials prior to Substantial Completion Application.

M. Clean and repair damage caused by installation or use of temporary work at no additional expense to the Owner.

1.14 PRODUCT REQUIREMENTS

A. Products: New materials, machinery, components, equipment, fixtures, and systems forming work, but does not include machinery and equipment used for preparation, fabrication, conveying, and erection of work. Use interchangeable components of the same manufacturer for similar components. Use new materials in the execution of the Work unless otherwise indicated.

B. Transportation, Handling, Storage, and Protection: Transport, handle, store, and protect materials in accordance with manufacturer's instructions.

1.15 EXECUTION

A. Existing Conditions: The existence and location of utilities, and construction indicated as existing are approximate. Prior to commencement of Work, investigate and verify existence and location of mechanical and electrical systems and other construction affecting the Work.

B. Field Measurements: Take field measurements required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to adjacent construction, verify dimensions of construction by field measurements prior to fabrication. Coordinate fabrication schedule with construction progress to avoid delaying Work.

C. Layout Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.

1. Lay out work to be performed. Provide and pay for construction layout work. Verify dimensions shown on the Drawings. Notify Architect in writing of discrepancies found before proceeding or continuing with the Work.
2. During progress of the Work, establish additional benchmarks, reference lines and reference points and levels as necessary for the guidance and information of each trade and for the field verification of specified construction tolerances. Calculate and measure required dimensions within indicated or recognized tolerances.
3. Locate work and components of the work accurately, in correct alignment and elevation, as indicated.
4. Comply with manufacturer's written instructions and recommendations.
5. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.

D. Anchors and Fasteners: Provide anchors and fasteners as required to anchor each component securely in place, accurately located and aligned with other portions of the Work.

E. Mounting Heights: Where mounting heights are not indicated, mount components at heights compliant with ADAAG when applicable.

F. Cutting and Patching:

1. Employ skilled and experienced installer to perform cutting and patching new or existing work; restore using new materials.
2. Submit written request in advance of cutting or altering structural or building enclosure elements.

3. Fit Work tight to adjacent elements. Maintain integrity of wall, ceiling, or floor construction; completely seal voids.
4. Refinish surfaces to match adjacent finishes.
5. Restore to original or required fire and smoke ratings.

G. Core Drilling: Perform core drilling of structural slabs to accommodate passage of pipe sleeves, ducts, conduit, or similar utility service lines through floors by trade requiring opening. Supervise patching holes and verify any core drilled hole through structural slab is fire stopped with approved firestopping complying with appropriate UL listing.

1. Notify Owner minimum 48 hours in advance of core drilling to obtain approval. Each day core drilling is required, obtain permission of the Owner and Building Management prior to commencement of core drilling. Comply with the following requirements:

    a. Demonstrate effectiveness of ground fault safety device in stopping the drill when the bits contacts metal.
    b. Investigate area where core drilling will occur to determine:

        1) the exact location of penetration on the ceiling below;
        2) the possibility of predictable conduit running through the slab or potential, foreseeable problems;
        3) obtain approval for drill bit coolant from Owner and Architect; and
        4) advise Owner and Architect of necessary precautions.

H. Protection of Work: Protect existing and new work and equipment from damage. The Installing trade is responsible for the protection of its work until the work is complete and materials and apparatus have been tested and accepted. Obtain directions and continue protection of work after Installer is no longer on the job. Repair or replace damaged work.

1. Exercise care to prevent damage to existing Work, equipment, landscaping, fixtures, utilities, and similar items during construction period until Final Acceptance. Repair or replace damaged items or Work at no expense to Owner.
2. Take responsibility for installed Work and arrange to protect Work, equipment, and materials in accordance with recommendations of manufacturer and installer. Cover Work, equipment, and materials to protect from dirt, construction dust, traffic, wear, and injury including damage from workmen. Repair or replace damaged Work.
3. Promptly repair damage to work of other trades, existing conduits, ducts, drains, sewers, pipes, utilities, and similar items at the expense of the offending installer or trade.

1.16 CONSTRUCTION ENVIRONMENTAL QUALITY PROCEDURES

A. Construction environmental requirements are general in nature, referencing requirements and Specification Sections for more detailed requirements. Notify Owner and Architect if conflicts arise between performance of the Work and environmental requirements.

1. Use resources efficiently; the construction, operation, and ultimate reuse or removal of the building components is optimized to eliminate unnecessary use of energy, water, and raw materials.
2. Provide healthy and productive indoor environment.

B. Environmental Procedures: Minimize environmental impacts of construction activities and operations. Manage environmental quality through use of recycled materials, use of materials from sustainably managed forests, energy efficient equipment and fixtures, waste handling procedures, and limiting contaminants and irritants emitted into the air, soil, and waterways.

1. Environmental Quality:

    a. Control sources of outdoor and indoor environmental pollutants.
    b. Identify potential means of contaminant spread.
    c. Identify reasonable control options for containing contaminants.

2. Select materials and installation methods to maximize renewable resources, increase energy efficiency, minimize environmental pollution, and utilize recycled or recyclable materials.

C. Indoor Environmental Quality: Comply with ASHRAE 62.1 to reduce indoor environmental quality issues resulting from contaminants during and after construction until date of Substantial Completion.

1. Avoid use of materials high in pollutants, such as volatile organic compounds (VOC) or toxins. In addition to VOC limitations specified for low emitting materials adhesive, sealants, and paint products, utilize materials and products complying with VOC content limitations.
2. Avoid entrainment of pollutants into ventilation air path.
3. Sufficiently ventilate enclosed areas.
4. Protect organic matter and materials against mold, insect infestation, or absorption of odors.
5. Sequence construction activities to prevent absorption of contaminants by building materials.
6. Limit use of building ventilation system during construction activities.

    a. Cover diffusers, registers, grilles, and open ducts during construction to prevent dust and odors from entering ventilation system.
    b. Replace filtration media prior to date of Substantial Completion.

D. Environmental Considerations: Protect natural, air, and water resources. Implement, monitor, and enforce environmental quality program during construction activities until date of Final Completion.

1. Employ methods of construction that responsibly use resources. Confine disposal operations for demolished and waste materials that are not identified for salvage, recycling, or reuse. Employ job site recycling and salvage procedures.
2. Promote environmental quality including outdoor and indoor quality. Environmental quality includes light quality, acoustic quality, thermal comfort, and air quality.

    a. Utilize low emitting materials adhesive, sealants, and paint products. Maximize use of nontoxic, nonhazardous, healthy, and safe building materials.
    b. Limit use of building ventilation system during construction activities. Should permanently installed air handlers be used during construction, utilize filtration media at each return air grille.
    c. Maintain and prevent contamination of the air.

        1) Prevent creation of dust, air pollution, and odors.
        2) Use temporary enclosures and appropriate methods to limit dust and dirt rising and scattering in air to lowest practical level.
        3) Protect stored on site and installed absorptive materials from moisture damage.
        4) Store volatile liquids, including fuels and solvents, in closed containers.
        5) Maintain equipment to reduce gaseous pollutant emissions.
        6) Provide minimum 48 hour preventilation of packaged dry products prior to installation. Remove from packaging and ventilate in secure, dry, well ventilated space free from strong contaminant sources and residues. Provide temperature range of 60 deg F minimum to 90 deg F maximum continuously during ventilation period. Do not ventilate within limits of work unless approved by Owner.

    d. Provide good ventilation during and after installation of interior wet products and interior final finishes

3. Control odors for construction activities, processing, and preparation of materials. For potentially noxious materials, identified and employ control measures complying with SMACNA guidelines.

    a. Smoking or tobacco materials are not permitted in building or within 25 feet of entrances, windows, or outdoor air intakes.
    b. Use of gasoline or fuel fired equipment are not permitted inside enclosed building.
    c. Keep wet processes within enclosed building to minimum.
    d. Protect chase and gypsum board materials from water. Remove and replace damaged materials.
    e. Use low emission materials and chemicals.
    f. Perform cleaning involving chemicals outside building to the extent possible.
    g. Unroll or uncrate carpet materials and air off site for minimum of minimum 3 days prior to installation.
    h. Remove trash daily to the appropriate recycle container.

i. Treat mold growth according to the procedures recommended by the EPA.
j. Clean inside of walls at base track to remove excess materials and dirt with vacuum prior to enclosing wall.
k. HEPA vacuum concrete floors before installation of floor covering materials.
l. Do not enclose, hide, or paint over mold or chemical contamination.

4. Housekeeping and Pest Management Procedures:

a. Designate area for food storage and consumption. Immediately dispose of food or food residues after meals or breaks.
b. Minimize entry of dirt with walk off grilles or mats.
c. Inspect and clean coils, fans, and air handler chambers including return air chambers prior to start up, final testing, commissioning, and air testing.

5. Control hydrocarbons and carbon monoxide emissions from equipment to comply with federal, state, and local allowable limits. For potentially noxious materials, identified and employ control measures complying with SMACNA guidelines.
6. Isolate areas of Work necessary to prevent contamination of clean or occupied spaces. Provide pressure differentials or physical barriers to protect clean or occupied spaces.
7. Schedule construction operations involving wet and odorous materials and products prior to packaged dry products or odor absorbent materials and products to reduce absorption of VOCs by porous materials.
8. Promote conservation efficiencies in operational performance including but not limited to durability, maintainability, and energy and water efficiency.
9. Comply with federal, state, and local environmental regulations for wastes considered hazardous or toxic and requiring special disposition, including maintaining documentation.

1.17 CLOSEOUT PROCEDURES

A. Closeout Procedures: Submit written certification that Contract Documents have been reviewed, Work inspected, and Work completed in accordance with the Contract Documents, and ready for Architect's inspection.

1. Submit final application for Payment identifying total adjusted Contract Sum, previous payments, and remaining amount due.

B. Final Cleaning: Execute final cleaning prior to final inspection.

1. Clean interior and exterior surfaces exposed to view.
2. Legally remove and dispose waste and surplus materials, rubbish, and construction facilities from site. Whenever possible, recycle construction wastes and debris.

C. Adjusting: Adjust operating equipment and materials to ensure smooth and unhindered operations.

D. Operation and Maintenance Data: Submit two sets prior to final inspection, bound in 8-1/2" x 11" text pages, three-ring hard cover binder. Provide an additional copy in electronic PDF format.

1. Provide one set of printed operating and maintenance instructions including oil and lubrication instructions, filter changes, fan belt adjustments, and similar items.
2. Prepare binder cover with identification title and project name.
3. Internally subdivide binder contents with permanent page dividers, logically organized by product division.
4. Contents:

    a. Directory listing names, addresses, and telephone numbers of Architect, Contractor, subcontractor, and major equipment suppliers.
    b. Operation and maintenance instructions arranged by system.
    c. Project document and certifications.
    d. Shop drawings.
    e. Product data.
    f. Air and water balance reports.
    g. Warranties.

E. Warranties: Provide duplicate notarized copies. Execute and assemble document from subcontractors, suppliers, and manufacturers. Submit prior to final Application for Payment.

F. Spare Parts and Maintenance Materials: Provide products, spare parts, maintenance, and extra materials in quantities specified in individual sections. Deliver to site and place in location directed. Obtain receipt prior to final payment.

1.18 PROJECT RECORD DOCUMENTS

A. Maintain on site in office, one set of Contract Documents and Shop Drawings to be utilized for record documents. Record actual revisions to the work concurrent with construction progress.

B. Submittal: Submit one hard copy set of marked up record prints and PDF electronic files of scanned marked up record drawings with comment function enabled. Plot each drawing file, whether or not changes and additional information were recorded. Submit documents to Architect with claim for final Application for Payment.

1. Prepare a full set of corrected drawings including, but not limited to, the following:

    a. Dimensional changes to Drawings.
    b. Revisions to details shown on Drawings.
    c. Revisions to routing of piping and conduits.
    d. Revisions to electrical circuitry.
    e. Actual equipment locations.

f. Duct size and routing.
g. Locations of concealed internal utilities.
h. Changes made by Change Order. Note Change Order numbers, and similar identification as applicable.
i. Important additional information that was either shown schematically or omitted from original Drawings.
j. Changes made following Architect's written orders.
k. Details not on the original Contract Drawings.
l. Field records for variable and concealed conditions.

1.19 STARTING AND ADJUSTING OF SYSTEMS

A. Starting Systems: Provide notification minimum 7 days prior to start up of each system.

1. Ensure each piece of equipment or system is ready for operations.
2. Execute start up under supervision of responsible person in accordance with manufacturer's instructions.
3. Submit written report stating equipment or system has been properly installed and is functioning correctly.

B. Testing, Adjusting, and Balancing: Appoint, employ, and pay for services of independent firm to perform testing, adjusting, and balancing. Reports will be submitted by independent firm to Architect indicating observations and results of tests and indicating compliance with requirements.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION