

ROCKFORD PUBLIC SCHOOLS 205
ROCKFORD, ILLINOIS





Owner
Rockford Public Schools 205
501 7TH Street
Rockford, IL 61104

Engineers
Keith Engineering Design, Inc.
707 N.E. Jefferson Ave.
Peoria, IL 61603

IFB 24-37 OSC ComEd New Electrical Service

KED PROJECT NO. 23-203

Date: January 31, 2024

	Specification Sections:
	Divisions 00, 01, 02, 26
	Signature:
	
	Name: Brian R. Keith
	License Number: 062-050306
Expiration Date: 11-30-25	
Date: 01-31-2024	



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PROJECT MANUAL

OSC ComEd New Electrical Service

Operations Support Center – RPS #2441

501 7TH Street, Rockford, IL 61104
ROCKFORD PUBLIC SCHOOLS 205

PROJECT MANUAL

FOR

OSC ComEd NEW ELECTRICAL SERVICE AT THE:
OPERATIONS SUPPORT CENTER - RPS#2441

501 7TH Street, Rockford, IL 61104
ROCKFORD PUBLIC SCHOOLS 205
ROCKFORD, ILLINOIS

IFB 24-37 OSC ComEd New Electrical Service
KED PROJECT NO. 23-203
DATE: January 31, 2024

Keith Engineering Design, Inc.
707 N.E. Jefferson Ave.
Peoria, Illinois 61603
Illinois Design Firm Registration Number: 184-000000

MEP/FP ENGINEERING



Brian R. Keith
Registered Professional Engineer
LIC. EXPIRES: 11/30/2025

01/31/2024

Date

OSC ComEd NEW ELECTRICAL SERVICE
OPERATIONS SUPPORT CENTER
ROCKFORD PUBLIC SCHOOLS 205
ROCKFORD, ILLINOIS

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BID OFFER FORM

Bid # 24-37 OSC COMED NEW ELECTRICAL SERVICE AT
OPERATIONS SUPPORT CENTER
FOR ROCKFORD PUBLIC SCHOOL DISTRICT 205.

BID SUBMITTED BY: _____

Date _____

The undersigned, having become familiar with the local conditions affecting cost of work and with the Bidding Documents, including the advertisement of the Invitation for Bid, the Instructions and Supplementary Instructions to Bidders, this Bid Offer Form, the General and Supplementary Conditions, the Drawings and Specifications, and Addenda issued thereto, as prepared and issued by the Board of Education of Rockford School District No. 205, Winnebago and Boone Counties, Illinois hereby agrees to furnish all labor, material and equipment necessary to do the Work required for the project and IFB identified above, for the amount shown below:

BASE BID: OPERATIONS SUPPORT CENTER ComEd NEW ELECTRICAL SERVICE

TOTAL: _____ DOLLARS (\$ _____)

BID OFFER FORM

UNIT PRICES:

Should the net result of change for any of the following categories of work require more or less quantity of work than originally indicated in the Drawings and/or Specifications, the price for such added or deducted work will be as follows:

No. ____ Description _____	\$ _____ PER _____
No. ____ Description _____	\$ _____ PER _____
No. ____ Description _____	\$ _____ PER _____

ALLOWANCES:

Under Base Bid, the Contractor shall include a quantity allowance of [Quantity] [units] to [Description of Allowance]. The unit price(s) will be used at the end of the project, to adjust the contract price up or down.

ADDENDA RECEIVED

The undersigned acknowledges receipt of Addenda ____ to ____ inclusive.

PRE-BID MEETING ATTENDANCE

A Bidder representative attended the Pre-Bid Meeting? YES _____ OR No _____.

SITE VISIT

Existing premises and conditions were checked by an on-site inspection on _____.

CONTRACTOR'S QUALIFICATION STATEMENT

A fully completed AIA Document A305-1986 Contractor's Qualification Statement is **required** AND MUST BE SUBMITTED WITH THE BID. Include at least three references from projects completed in the past five (5) years with phone number, date of completion, description of work, and project architect (or engineer) contact name with phone number. Projects must be similar to the scope of this bid, and the bidder must have acted in the capacity of prime or general contractor.

Contractor has adequate equipment to perform the work properly and expeditiously: _____ Yes _____ No.

COMMENCEMENT AND COMPLETION OF CONTRACT

The undersigned agrees, if awarded the Contract, to commence the contract work within five (5) days of receipt of Order to Proceed or if required, upon execution of a formal written contract and to complete said Work within the specified completion time. The undersigned further agrees to execute the Contract, furnish satisfactory

BID OFFER FORM

performance and payment bond as well as insurance coverage, as specified in strict accordance with the Contract Documents.

Date of Commencement of Construction: _____

Date of Substantial Completion: _____

Date of Final Completion: _____

BIDDER _____
(Corporation) (Partnership) (Individual) Circle One

Address _____
Street

_____ City State Zip Code

_____ Phone No. Email address

BIDDER FEIN/SSN NO. _____

By: _____
Bidder or Authorized Agent Signature Print name

Title: _____

Subscribed and sworn to before be this ___ day of _____, _____.

Notary Public
My commission expires: _____

BID DEPOSIT CERTIFICATION

A Bid Deposit is required in the amount of 5% of the total Bid including Alternate Bids. This Bid Deposit is to be a Bid Bond, Bank Draft or Certified Check made payable to the "Rockford School District No. 205", as a guarantee that if awarded all or part of the Bid, the firm will enter into a contract to perform with the Board of Education.

Amount of Total Bid \$ _____

Amount of Bank draft or Certified Check \$ _____

BIDDER: _____

Signature of Bidder or Authorized Agent

BID OFFER FORM

SUBCONTRACTOR LISTING

1. Pursuant to bidding requirements for the Work:

The Bidder, for portions of the Work equaling or exceeding $\frac{1}{2}$ of 1% of the total Contract Sum, proposes to use the following Subcontractors. The Bidder proposes to perform all other portions of the Work with its own forces. The District reserves the right to qualify all Subcontractors. COPY AND ATTACH ADDITIONAL SHEETS AS NECESSARY.

2. Portion of the Work Subcontractor Name and Address

_____	_____
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Bidder:

By: _____
Bidder or Authorized Agent Signature

-END OF BID OFFER FORM-

SECTION 00 7300

SUPPLEMENTARY CONDITIONS

1. CHANGE ORDER MARK-UPS: Add the following to provisions regarding Change Order markups in the Conditions of the Contract:
 - A. The combined overhead and profit included in the total cost to the Owner for a change in the Work shall be based on the following schedule:
 - .1 For the Contractor, for Work performed by the Contractor's own forces, twelve percent (12%) of the cost.
 - .2 For the Contractor, for Work performed by the Contractor's Subcontractors, five percent (5%) of the amount due the Subcontractors.
 - .3 For each Subcontractor involved, for Work performed by that Subcontractor's own forces, twelve percent (12%) of the cost.
 - .4 For each Subcontractor involved, for Work performed by the Subcontractor's Subcontractors, five percent (5%) of the amount due the Sub-subcontractor.
 - .5 In order to facilitate checking of quotations for extras or credits, all proposals, except those so minor that their propriety can be seen by inspection, shall be accompanied by a complete itemization of costs including labor, materials and Subcontracts. Labor and materials shall be itemized in the manner prescribed above. Where major cost items are Subcontracts, they shall be itemized also.

END OF DOCUMENT 00 7300

SECTION 01 1000

SUMMARY OF WORK

PART 1 - GENERAL

1.1 GENERAL

- A. The General Conditions, Supplementary Conditions and Division 1 - General Requirements are hereby made a part of each Division and Section of the Specifications.

1.2 DESCRIPTION

- A. Work covers completion of New Electrical Service for the Operations Support Center for Rockford Public School, Winnebago County, Illinois, hereinafter called the Owner and is to be constructed in accordance with the Contract Documents prepared by Keith Engineering Design, 707 NE Jefferson St. Peoria, Illinois, the Architect/Engineer.
- B. Products shall be installed in strict accordance with manufacturer recommendations. The Contractor shall review substrates prior to installing products. Installation of products shall represent that the Contractor has accepted the substrates as proper for the installation of products. Substrates which are not acceptable shall be corrected prior to the installation of products.

1.3 CONTRACT

- A. Work to be executed under one General Contract, including all trades.

1.4 COOPERATION BETWEEN CONTRACTORS

- A. The Contractor shall coordinate construction activities with the other Contractors performing projects as required to assure a complete, proper, and timely completion of all of the Work.

1.5 COOPERATION OF CONTRACTOR WITH THE OWNER

- A. Contractors are to conduct the Work and operations so that the usual 7 days per week activities which occur in and around the facility, can continue without interruption, and with as little inconvenience to the Owner as possible.
 - 1. Existing building systems must remain operational to facilitate safe, code compliant occupancy and use of the facility. Minor interruptions of short duration shall not occur without prior notification and approval by the Owner and are to be limited to off days or times when the facility is not occupied.
 - 2. Utilities, fire alarm, and security system shut-offs shall not occur without prior notification and approval by the Owner, and not without contact by the Contractor with the Authority Having Jurisdiction. Shut downs are to be limited to off days or times when the facility is not occupied.
- B. Maintain clear and proper exiting through areas of work. Coordinate requirements with Owner.

1.6 WORK SCHEDULE

- A. The schedule for this work shall be as follows:

1. Commencement of Construction:
 - a. Non-Classrooms or Unoccupied Spaces: Work can start in April 2024 but timing and scope must be approved by the Owner in advance of Contractor starting work.

Substantial Completion: September 1, 2024
 - 2.
 3. Final Completion: November 1, 2024
- B. Utilities Shut-offs shall not occur without prior notification and approval by the Owner.
- C. The Contractor shall include expedited delivery schedules, additional labor shifts, overtime work, etc. necessary to complete the Work as scheduled.
- D. The only considerations for adjustment of the Substantial Completion Date will be for strikes that shut down the Project, unless such strike was instituted as a result of the conduct of the Contractor; or for delays due to damage caused by Acts of God consisting only of tornadoes or floods in which case the Substantial Completion Date will be extended by the number of days the Project is shut down. Change Orders will be considered part of the Work and will not be a consideration for adjustment of the Substantial Completion Date unless they are specifically requested by the Owner as a Scope of Work Change Order and exceed \$10,000 each, in which case the additional number of days shall be identified and agreed to as part of the Change Order. No other considerations will be allowed.

1.7 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Product Delivery; Schedule deliveries in accordance with the project schedule, to minimize storage time at project site, and to prevent overcrowding of construction areas and Owner's facilities.
- B. Deliver products to project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
- C. Inspect products on delivery to ensure compliance with the Contract Documents and to ensure that products are undamaged and properly protected.

1.8 PROJECT CONDITIONS

- A. Utilities Shut-offs shall not occur without prior approval of the Owner.
- B. Furniture and Equipment Relocation
 1. Owner will move unfixed and unattached furniture and equipment from the work areas prior to the Contractor starting operations. The Contractor shall relocate and reinstall all fixed and attached furniture and equipment, to location(s) as directed by the Owner. Reinstall to proper working condition. Items placed in storage shall be labeled, with all parts and components packaged together. Contractor to patch holes, etc. at original location to match adjacent surfaces and materials.
- C. Criminal background checks shall be performed for the project.
 1. The Contractor shall submit a criminal history background check for all persons who will be working in the school building or on school property including those employed directly by the Contractor and those employed by subcontractors and suppliers who will be utilized on the project.
 2. No one will be allowed on-site before the Owner receives and provides the Contractor with the results of the background checks.

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3. Only those employees who have been cleared through their background checks will be allowed on-site. The cost of the background check shall be the responsibility of the Contractor.
- D. Security Plan to Identify Construction Trade Workers
1. Buildings and Grounds Dept. will be consulted on construction project scheduling. Schedules for work within the existing building will be coordinated with the principal taking into consideration building activities.
 2. All workers are required to sign in at the Custodial Office each morning before proceeding to the work area within the existing building. Sign-in sheets will be turned into the Custodial Office each evening.
 3. Clothing that identifies a worker's employer and/or a badge, worn in plain sight, is required at all times while in and around a school building.
 4. It will be the responsibility of the Contractor to notify all construction trades under his contract of the security plan. The Contractor will be responsible for all workers wearing identifying clothing or badges and will be responsible for assessing and collecting fines from the trade contractors.
- E. Cleaning and Dustproofing
1. Rubbish and debris resulting from the Work shall be collected by the Contractor, removed at the end of each day, and legally disposed of away from the site.
 2. Furniture and equipment in the work area shall be covered to prevent dust accumulation and damage.
 3. Surfaces in the work area shall be vacuumed and wiped clean. Books and similar items exposed to dust shall be individually dusted.
- F. Cutting of Masonry Units
1. Cutting of new masonry units shall be done outside of the existing building in an area to prevent dust from entering the existing building. At no time will contractors be allowed to saw cut new masonry within the existing building.
- G. Protection of Existing Surfaces
1. The Contractor shall provide and maintain during the course of construction temporary protection to protect existing surfaces in the existing building from damage due to the construction activities. Such protection will include, but not be limited to temporary barricades to separate work areas from occupied areas to prevent dust and fume penetration, temporary floor covers to protect existing surfaces from damage, etc.
 2. Should damage to existing surfaces occur, the Contractor shall repair at his own expense.
- H. Installation of Materials with Color Variations
1. Materials are subject to color variation during the manufacturing or installation process. For this reason, there may be variations in shade, color or texture.
 2. Contractor shall mix and/or blend these materials to produce a uniform and consistent final appearance to meet the approval of the Architect.

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3. Should there be variation in shade, color or texture which are not acceptable, the Contractor shall repair or replace at his own expense.

END OF SECTION 01 1000

SECTION 01 2000

PRICE AND PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 ALLOWANCES

- A. Allowances shall include cost to Contractor of specific products and materials ordered by Owner under allowance and shall include taxes, freight, and delivery to Project site. Allowances are specified in the Bid Form.
- B. Obtain three proposals for each allowance and submit to Engineer with recommendations. Purchase products and systems selected by Owner.
- C. Advise Architect of the date when selection and purchase of each product or system described by an allowance must be completed to avoid delaying the Work.
- D. Submit invoices to show cost of products furnished under each allowance. Reconciliation of Allowance amounts with actual costs will be by Change Order.

1.2 ALTERNATES

- A. None

1.3 UNIT PRICES

- A. A unit price is an amount proposed by bidders and stated on the Bid Form as a price per unit of measurement for work added to or deducted from the Contract Sum by appropriate modification, if estimated quantities of Work required by the Contract Documents are increased or decreased. Unit prices are specified in the Bid Form.
- B. Unit prices include all necessary material, plus cost for delivery, installation, insurance, overhead, and profit.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 01 2000

SECTION 01 3000

ADMINISTRATIVE REQUIREMENTS

PART 1 - GENERAL

1.1 PROJECT MANAGEMENT AND COORDINATION

- A. Coordinate construction to ensure efficient and orderly installation of each part of the Work.
- B. Schedule and conduct progress meetings at Project site at regular intervals. Notify Owner and Architect of meeting dates and times. Require attendance of each subcontractor or other entity concerned with current progress or involved with planning or coordination of future activities.
 - 1. Record minutes and distribute to everyone concerned, including Owner and Architect.

1.2 SUBMITTAL PROCEDURES

- A. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
 - 1. 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.
 - 2. Prepare submittals as PDF packages and transmit to Architect by email.
 - 1 Email Address: submittals@kedmep.com.
 - 2 Engineer will annotate PDF submittal and return.
 - 3. Engineer will return submittals, without review, received from sources other than Contractor.
- B. Place a permanent label or title block on each submittal for identification. Provide a space approximately 6 by 8 inches on label or beside title block to record Contractor's review and approval markings and action taken by Architect. Include the following information on the label:
 - 1. Project name.
 - 2. Date.
 - 3. Name and address of Contractor.
 - 4. Name and address of subcontractor or supplier.
 - 5. Number and title of appropriate Specification Section.
- C. Identify deviations from the Contract Documents on submittals.
- D. Contractor's Construction Schedule Submittal Procedure: Submit two copies of schedule within 10 working days after date established for Commencement of the Work.

PART 2 - PRODUCTS

2.1 ACTION SUBMITTALS

- A. Product Data: Mark each copy to show applicable products and options. Include the following:
 - 1. Manufacturer's written recommendations, product specifications, and installation instructions.
 - 2. Testing by recognized testing agency.
 - 3. Compliance with specified standards and requirements.

- B. 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 on sheets at least 8-1/2 by 11 inches but no larger than 30 by 42 inches. Include the following:
 - 1. Dimensions and identification of products.
 - 2. Fabrication and installation drawings and roughing-in and setting diagrams.

- C. Samples: Submit Samples for review of kind, color, pattern, and texture and for a comparison of these characteristics between submittal and actual component as delivered and installed. Include name of manufacturer and product name on label.
 - 1. If variation is inherent in material or product, submit at least three sets of paired units that show variations.

2.2 INFORMATION SUBMITTALS

- A. Qualification Data: Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.

- B. Product Certificates: Prepare written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.

2.3 DELEGATED DESIGN

- A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.
 - 1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Architect.

- B. Delegated-Design Submittal: In addition to Shop Drawings, Product Data, and other required submittals, submit three copies of a statement, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.
 - 1. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.

2.4 CONTRACTOR'S CONSTRUCTION SCHEDULE

- A. Gantt-Chart Schedule: Submit a comprehensive, fully developed, horizontal Gantt-chart-type schedule within 10 days of date established for the Notice of Award.

- B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line.

PART 3 - EXECUTION

3.1 SUBMITTAL REVIEW

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- A. Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Engineer.
- B. Architect will review each action submittal, make marks to indicate corrections or modifications required, stamp and mark as appropriate to indicate action taken, and return.

3.2 CONTRACTOR'S CONSTRUCTION SCHEDULE

- A. Distribute copies of approved schedule to Owner, Engineer, subcontractors, testing and inspecting agencies, and parties identified by Contractor with a need-to-know schedule responsibility. When revisions are made, distribute updated schedules to the same parties.
- B. Updating: At monthly intervals, update schedule to reflect actual construction progress and activities.
 - 1. As the Work progresses, indicate Actual Completion percentage for each activity.

END OF SECTION 01 3000

SECTION 01 5000

TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

- A. Use Charges: Cost or use charges for temporary facilities shall be included in the Contract Sum.
- B. Use water and electric power from Owner's existing system without metering and without payment of use charges.
- C. Electrical Service: Comply with NEMA, NECA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 TEMPORARY UTILITIES

- A. Sanitary Facilities: Contractor may use existing toilets when the building is not occupied by students.

3.2 TEMPORARY SUPPORT FACILITIES

- A. Provide waste-collection containers in sizes adequate to handle waste from construction operations. Collect waste daily and, when containers are full, legally dispose of waste off-site. Comply with requirements of authorities having jurisdiction.
- B. Install project identification and other signs in locations approved by Owner to inform the public and persons seeking entrance to Project.

3.3 TEMPORARY SECURITY AND PROTECTION FACILITIES

- A. Provide temporary environmental protection, operate temporary facilities, and conduct construction in ways and by methods that comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.
- B. Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.

END OF SECTION 01 5000

SECTION 01 6000

PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

- A. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
- B. Product Substitutions: Substitutions include changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor after award of the Contract.
 - 1. Submit three copies of each request for product substitution.
 - 2. Submit requests within ten days after the Notice of Award.
 - 3. Do not submit unapproved substitutions on Shop Drawings or other submittals.
 - 4. Identify product to be replaced and show compliance with requirements for substitutions. Include a detailed comparison of significant qualities of proposed substitution with those of the Work specified, a list of changes needed to other parts of the Work required to accommodate proposed substitution, and any proposed changes in the Contract Sum or the Contract Time should the substitution be accepted.
 - 5. Architect will review the proposed substitution and notify Contractor of its acceptance or rejection.
- C. Comparable Product Requests:
 - 1. Submit three copies of each request for comparable product. Do not submit unapproved products on Shop Drawings or other submittals.
 - 2. Identify product to be replaced and show compliance with requirements for comparable product requests. Include a detailed comparison of significant qualities of proposed substitution with those of the Work specified.
 - 3. Architect will review the proposed product and notify Contractor of its acceptance or rejection.
- D. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft. Comply with manufacturer's written instructions.
 - 1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
 - 2. Deliver products to Project site in manufacturer's original sealed container or packaging, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
 - 3. Inspect products on delivery to ensure compliance with the Contract Documents and to ensure that products are undamaged and properly protected.
 - 4. Store materials in a manner that will not endanger Project structure.
 - 5. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.
- E. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.

PART 2 - PRODUCTS

2.1 PRODUCT OPTIONS

- A. Provide products that comply with the Contract Documents, are undamaged, and are new at the time of installation.
 - 1. Provide products complete with accessories, trim, finish, and other devices and components needed for a complete installation and the intended use and effect.
 - 2. Descriptive, performance, and reference standard requirements in the Specifications establish "salient characteristics" of products.

- B. Product Selection Procedures:
 - 1. Where Specifications name a single product or manufacturer, provide the item indicated that complies with requirements, or Owner-approved equal.
 - 2. Where Specifications include a list of names of products or manufacturers, provide one of the items indicated that complies with requirements, or Owner-approved equal.
 - 3. Where Specifications include a list of names of products or manufacturers, accompanied by the term "available products" or "available manufacturers," provide one of the named items that complies with requirements, or Owner-approved equal. Comply with provisions for "comparable product requests" for consideration of an unnamed product.
 - 4. Where Specifications name a product as the "basis-of-design" and include a list of manufacturers, provide the named product, or Owner-approved equal. Comply with provisions for "comparable product requests" for consideration of an unnamed product by the other named manufacturers.
 - 5. Where Specifications name a single product as the "basis-of-design" and no other manufacturers are named, provide the named product or Owner-approved equal. Comply with provisions for "comparable product requests" for consideration of an unnamed product by another manufacturer.

- C. Unless otherwise indicated, Architect will select color, pattern, and texture of each product from manufacturer's full range of options that includes both standard and premium items.

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 01 6000

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SECTION 01 7000

EXECUTION AND CLOSEOUT REQUIREMENTS

PART 1 - GENERAL

1.1 CLOSEOUT SUBMITTALS

- A. Record Drawings: Maintain a set of prints of the Contract Drawings as Record Drawings. Mark to show actual installation where installation varies from that shown originally.
 - 1. Identify and date each Record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.
- B. Operation and Maintenance Data: Submit one copy of manual. Organize data into three-ring binders with identification on front and spine of each binder, and envelopes for folded drawings. Include the following:
 - 1. Manufacturer's operation and maintenance documentation.
 - 2. Video on CD or flashdrive of training seminar for Owner use.
 - 3. Maintenance and service schedules.
 - 4. Maintenance service contracts.
 - 5. Emergency instructions.
 - 6. Spare parts list.
 - 7. Copies of warranties.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 EXAMINATION AND PREPARATION

- A. Examine substrates and conditions for compliance with manufacturer's written requirements including, but not limited to, surfaces that are sound, level, plumb, smooth, clean, and free of deleterious substances; substrates within installation tolerances; and application conditions within environmental limits. Proceed with installation only after unsatisfactory conditions have been corrected.
- B. Before proceeding to lay out the Work, verify layout information shown on Drawings.
- C. Take field measurements as required to fit the Work properly. Where fabricated products are to be fitted to other construction, verify dimensions by field measurement before fabrication and, when possible, allow for fitting and trimming during installation.

3.2 CUTTING AND PATCHING

- A. Cutting and Patching: Comply with requirements for and limitations on cutting and patching of construction elements.
 - 1. Structural Elements: When cutting and patching structural elements, notify Architect of locations and details of cutting and await directions from Architect before proceeding. Shore, brace, and support structural elements during cutting and patching. Do not cut and patch structural elements in a manner that could change their load-carrying capacity or increase deflection.

2. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety.
 3. Other Construction Elements: Do not cut and patch other construction elements or components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety.
 4. Visual Elements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch exposed construction in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.
- B. Cutting and Patching, General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.
1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.
- C. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.
- D. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, using methods least likely to damage elements retained or adjoining construction. .
1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots neatly to minimum size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
 2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
 3. Concrete and Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
 4. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
 5. Proceed with patching after construction operations requiring cutting are complete.
- E. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other work. Patch with durable seams that are as invisible as practicable. Provide materials and comply with installation requirements specified in other Sections, where applicable.
1. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will minimize evidence of patching and refinishing.
 2. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and appearance. Remove in-place floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.
 3. Ceilings: Patch, repair, or rehang in-place ceilings as necessary to provide an even-plane surface of uniform appearance.
 4. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition and ensures thermal and moisture integrity of building enclosure.

3.3 INSTALLATION

- A. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment,

and systems.

- B. Comply with manufacturer's written instructions for installation. Anchor each product securely in place, accurately located and aligned with other portions of the Work. Clean exposed surfaces and protect from damage.
- C. Clean Project site and work areas daily, including common areas.

3.4 FINAL CLEANING

- A. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion:
 - 1. Remove labels that are not permanent.
 - 2. Clean exposed finishes to a dust-free condition, free of stains, films, and foreign substances. Sweep concrete floors broom clean.
 - 3. Vacuum clean floors in areas of Work.
 - 4. Wipe surfaces of mechanical and electrical equipment. Remove excess lubrication. Clean plumbing fixtures. Clean light fixtures, lamps, globes, and reflectors.
 - 5. Clean Project site, yard, and grounds, in areas disturbed by construction activities. Sweep paved areas; remove stains, spills, and foreign deposits. Rake grounds to a smooth, even-textured surface.

3.5 CLOSEOUT PROCEDURES

- A. Substantial Completion: Before requesting Substantial Completion inspection, complete the following:
 - 1. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.
 - 2. Advise Owner of pending insurance changeover requirements.
 - 3. Submit specific warranties, maintenance service agreements, and similar documents.
 - 4. Obtain and submit releases permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
 - 5. Submit Record Drawings and Specifications, operation and maintenance manuals, and Similar final record information.
 - 6. Deliver tools, spare parts, extra materials, and similar items.
 - 7. Complete final cleaning requirements.
 - 8. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.
- B. Submit a written request for inspection for Substantial Completion. On receipt of request, Architect will proceed with inspection or advise Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will advise Contractor of items that must be completed or corrected before certificate will be issued. C. Request inspection for Final Completion, once the following are complete:
 - 1. Submit a copy of Substantial Completion inspection list stating that each item has been completed or otherwise resolved for acceptance.
- C. Request re-inspection when the Work identified in previous inspections as incomplete is completed or corrected.

- D. Submit a written request for final inspection for acceptance. On receipt of request, Architect will proceed with inspection or advise Contractor of unfulfilled requirements. Architect will prepare final Certificate for Payment after inspection or will advise Contractor of items that must be completed or corrected before certificate will be issued.

3.6 DEMONSTRATION AND TRAINING

- A. Engage qualified instructors to instruct Owner's personnel to adjust, operate, and maintain systems, subsystems, and equipment not part of a system. Include a detailed review of the following:
 - 1. Include instruction for basis of system design and operational requirements, review of documentation, emergency procedures, operations, adjustments, troubleshooting, maintenance, and repairs.

END OF SECTION 01 7000

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SECTION 01 7320

CUTTING AND PATCHING

PART 1 - GENERAL

1.1 DESCRIPTION

- A. The Contractor shall provide connections, repairs, watertight facilities, etc., as required in new construction. Each subcontractor shall furnish information to the Contractor as to size, location, etc., or accept the responsibility of doing the necessary cutting, patching at his own expense.
- B. The Contractor shall provide cutting, fitting or patching for work that may be required to make several parts come together properly, in accordance with the Contract Documents.
- C. Do not endanger the stability of the structure or any part thereof by cutting, digging or otherwise.
- D. The Contractor shall patch and match existing surfaces and materials, etc., affected by the work or patch and match existing surfaces with new materials, etc. as noted.

END OF SECTION 01 7320

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SECTION 01 7700

CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
 - 1. Substantial Completion procedures
 - 2. Final Completion procedures
 - 3. Extended Warranties
 - 4. Record Drawings
 - 5. Record Topographic Survey
 - 6. Operation and Maintenance Manuals
 - 7. Attic stock materials
 - 8. Allowances accounting
 - 9. Final cleaning
 - 10. Repair of the Work

1.2 SUBMITTALS

- A. Submittals Prior to Substantial Completion
 - 1. Letter from the Contractor to the Architect stating the project has achieved Substantial Completion
 - 2. Contractor's List of Items to be Completed or Corrected
 - 3. Specified certifications
- B. Submittals Prior to Final Completion
 - 1. Written notice that the Work is ready for final inspection and acceptance
 - 2. Letter stating that items included in the Architect's (Amended) List of Items to be Completed or Corrected have been completed or otherwise resolved for acceptance
 - 3. Evidence of final, continuing insurance coverage complying with insurance requirements
 - 4. Demonstration and training video recordings
 - 5. Extended Warranties
 - 6. Record Drawings
 - 7. Record Topographic Survey
 - 8. Operation and Maintenance Manuals
 - 9. Attic stock materials

10. Allowances accounting
11. Waste Management Plan documenting a summary of recycling and salvage on-site logs, manifests, weight tickets, receipts, etc.

1.3 SUBSTANTIAL COMPLETION PROCEDURES

- A. Inspection Procedures: Submit a written request for inspection to determine Substantial Completion a minimum of ten (10) calendar days prior to date the work will be completed and ready for inspection. On receipt of request, Architect will either schedule an inspection or notify Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of critical items that must be completed or corrected before a certificate will be issued.
 1. Reinspection: Request reinspection when the critical items previously identified have been completed or corrected.
 2. On receipt of the reinspection request, Architect will either schedule an inspection or notify Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection has confirmed that the critical items have been completed or corrected.
 3. Substantial Completion is contingent upon the issuance of the Occupancy Permit by the Authority Having Jurisdiction (AHJ), therefore the date of Substantial Completion is subject to change to coincide with the date of Occupancy.
- B. List of Incomplete Items: When the Contractor considers the Work to be Substantially Complete, the Contractor shall prepare and submit a list of items to be completed and corrected (Contractor's punch list).
 1. When the Architect determines the Work is Substantially Complete, the Architect will issue the Amended List of Items to be Completed or Corrected (Architect's punch list) to the Contractor.
- C. Submittals Prior to Substantial Completion: Complete the following a minimum of ten (10) calendar days prior to requesting inspection for determining date of Substantial Completion.
 1. Submit specified certifications through the electronic submittal process. Non-reviewed, non-approved and incomplete documentation is not acceptable.
 2. After the electronic submittals have been accepted for contract compliance, submit three (3) clean, legible, approved copies of the specified certifications to the Architect at least ten (10) calendar days prior to the occupancy walk through by the AHJ. Each set of the approved documentation shall be bound in a three ring binder with tab divisions. Approved documentation binders will be transmitted by the Architect to the AHJ and subsequently delivered to Owner.
 3. Following is the list of specified certifications to be included in each binder.
 - a. Contractor Certification that no asbestos containing materials were used on the Project.
 - b. Environmental Remediation Clearance Documents filed by the Contractor to the AHJ.

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- c. Environmental Testing Report including Indoor Air Quality (IAQ) test results which demonstrate that the factors tested are within permissible exposure limits.
 - d. Roofing System Manufacturer Inspection Report describing deficiencies with the roofing work and items that are to be completed or corrected.
 - e. Plumbing Systems Site: Chlorination test results for water main work indicating satisfactory compliance with Contract Documents transmitted under letterhead of the responsible Trade Contractor.
 - f. Mechanical Systems: Contractor Certification indicating the Heating, Ventilating, and Air Conditioning Systems have been inspected and start up procedures have been completed by the manufacturer and the systems are fully operational including functional temperature controls.
 - g. Boiler Systems: Certification that the boiler system has been inspected and tested by the manufacturer and is fully operational including functional temperature controls. The boiler system shall be inspected and approved by the Office of State Fire Marshal.
 - h. Mechanical Systems Testing and Balancing: Complete test and balance report including Contractor Certification indicating that at a minimum, code compliant fresh air changes are provided.
 - i. Mechanical System Ductwork Tightness Testing Report including test results which demonstrate the required results to pass.
4. Other items which are required to achieve Substantial Completion include but are not necessarily limited to the following: completed finishes and suspended ceiling systems; functional door hardware; corridors clear of debris and construction equipment; operational plumbing fixtures; electrical panels properly labeled; and interior signage indicating room numbers, directions, offices, and occupancy loads properly posted in assembly areas. Fire extinguishers, furnished by the Owner, must be installed in each cabinet and wall mounted at locations indicated.
- D. Procedures Prior to Substantial Completion: Complete the following a minimum of ten (10) calendar days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.
1. Advise Owner of pending insurance changeover requirements.
 2. Complete startup and testing of systems and equipment.
 3. Advise Owner of changeover in heat and other utilities.
 4. Participate with Owner in conducting inspection and walkthrough with local emergency responders.
 5. Complete final cleaning requirements, including touchup painting.
 6. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.
- E. Procedures Following Substantial Completion: Complete the following items immediately after Substantial Completion.
1. Maintenance of seed, sod, plantings and landscaping areas.

2. Removal of temporary facilities and protections. Restore modifications to existing facilities to the original design or configuration.
3. Make final changeover of permanent locks and coordinate delivery of keys to Owner. Advise Owner's personnel of changeover in security provisions.
4. Perform preventive maintenance on equipment used prior to Substantial Completion.
5. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems. Submit demonstration and training video recordings.
6. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.

1.4 FINAL COMPLETION PROCEDURES

- A. Preliminary Procedures: Before requesting final inspection for determining Final Completion, complete the following:
 1. Submit letter stating that items included in the Architect's (Amended) List of Items to be Completed or Corrected have been completed or otherwise resolved for acceptance.
 2. Certificate of Insurance: Submit evidence of final, continuing insurance coverage complying with insurance requirements.
 3. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems. Submit demonstration and training video recordings.
Submit Extended Warranties
 4. Submit Record Drawings
 5. Submit Operation and Maintenance Manuals
 6. Deliver attic stock materials
 7. Submit allowances accounting
 - 8.
- B. Inspection: Submit a written request for final inspection to determine acceptance. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will review the final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.
 1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.5 DEMONSTRATION AND TRAINING VIDEO RECORDINGS

- A. General: Record each training module separately. Include classroom instructions and demonstrations, board diagrams, and other visual aids, but not student practice.
 1. At beginning of each training module, record each chart containing learning objective and lesson outline.
 2. Training recordings must include both high quality video and audio.

3. Coordinate with Owner for required staff to be in attendance. Include a sign-in sheet to verify attendance.
- B. Demonstration and Training Video Recordings: Submit two copies within seven days of end of each training module.
- C. Video Recording Format: Provide high-quality color video recordings with menu navigation.
- D. Instructor Qualifications: A factory-authorized service representative experienced in operation and maintenance procedures and training.
- E. Narration: Describe scenes on video recording by audio narration by microphone while video recording is recorded. Include description of items being viewed.

1.6 EXTENDED WARRANTIES

- A. Submit written extended warranties, as defined as warranties beyond the standard one year warranty period from the date of Substantial Completion, via the electronic submittal process.
 1. Warranty shall include the following information:
 - a. Name of the project.
 - b. Name of the warranty provider.
 - c. Description of the item being warranted.
 - d. Effective dates of the warranty, starting with the date of Substantial Completion.
 - e. Terms and conditions in conformance with the specified warranty.
- B. Upon acceptance of the warranties through the submittal process, the Contractor shall collect and assemble hard copy originals of the accepted warranties. Organize extended warranty documents into an orderly sequence based on the table of contents of the Project Manual.
 1. Bind warranties in heavy-duty, three-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch paper.
 2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
 3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.
- C. Where applicable, provide additional copies of each warranty to include in operation and maintenance manuals.

1.7 RECORD DRAWINGS

- A. The Contractor and the Site Utilities, Mechanical, Electrical, Plumbing and Fire Protection Trade Contractors shall each maintain during construction a set of record drawings which shall be kept on site. Each set of these drawings shall be labeled in neat large printed letters "RECORD DRAWINGS". Contractors shall record information concurrently with

construction progress and shall not conceal work until the required information is recorded. Concealed portions of the work which have not been documented shall be opened to fully document conditions at the Contractor's own cost.

- B. Record drawings shall be copies of the Contract Document drawings and shall be clearly and legibly marked to record actual construction, including the following.
 - 1. Changes made by Addenda, Change Directives, and/or Change Orders; clarifications not on Contract Documents drawings.
 - 2. Fully document horizontal and vertical locations of underground site utility and storm sewer lines and appurtenances referenced to permanent surface improvements with depths of various elements in relations to finish floor datum.
 - 3. Fully document horizontal and vertical locations of underground and under-slab service lines (plumbing, fire protection, mechanical, electric) and appurtenances referenced to permanent improvements with depths of various elements in relations to finish floor datum.
 - 4. Location of interior service lines (plumbing, fire protection, mechanical, electric) and devices concealed in above ground construction referenced to visible and accessible features of the structure.
 - 5. Location of concealed equipment, valves, ducts, dampers, access panels, outlets, etc. referenced to visible and accessible features of the structure.
 - 6. Field changes of dimensions and details.
 - 7. Other deviations made from the original Contract Document drawings.
- C. The Contractor shall make available record drawings for review for compliance. The frequency of review shall be at a minimum, 50% gross completion of the Contract and at Substantial Completion. The Contractor shall provide complete sets to facilitate review. If it is determined that the record drawings are not being maintained concurrently with construction progress, subsequent pay applications will not be reviewed until the record drawings are brought up to date.
- D. At the completion of the preparation of the record drawings, each contractor shall clearly indicate on the cover sheet of the drawings, "NAME OF CONTRACTOR" and "DATE" identifying the contractor who prepared the record drawings and the date of the record drawings.
- E. Prior to Final Completion, the Contractor shall deliver an electronically scanned copy of the record drawings in PDF format to the Architect for delivery to the Owner.

1.8 OPERATION AND MAINTENANCE MANUALS

- A. Submit operation and maintenance manuals via the electronic submittal process.
- B. Upon acceptance of the operation and maintenance manuals through the submittal process, the Contractor shall submit a final corrected version of the operation and maintenance manuals via the electronic submittal process and shall also collect and assemble hard copies of the accepted operation and maintenance manuals. Organize operation and maintenance manuals into an orderly sequence based on the table of contents of the Project Manual.
 - 1. Bind operation and maintenance manuals in heavy-duty, three-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch paper.

2. Where documents do not allow for hole punching (such as under-sized documents or full size drawings), provide plastic sleeve for insertion into the three-ring binder.
Provide heavy paper dividers with plastic-covered tabs for each separate section.
 3. Mark tab to identify the section. Provide a typed description of the sections, including the name of the product and the name, address, and telephone number of Installer.
Identify each binder on the front and spine with the typed or printed title "OPERATION AND MAINTENANCE MANUAL", Project name, and name of Contractor.
Provide additional documentation as specified elsewhere.
 4. Provide additional documentation as specified elsewhere.
 - 5.
- C. Where applicable, provide additional copies of each warranty to include in operation and maintenance manuals.
- D. Submit three (3) copies of each operation and maintenance manual binder to the Architect for processing and distribution.

1.9 ATTIC STOCK

- A. Submit attic stock to the Owner as required. Coordinate time and location of delivery of attic stock with designated Owner's representative. Prepare a sign-off form for signature by the designated Owner's representative indicating acceptance and quantity of the attic stock items. Failure to obtain the designated Owner's representative sign-off shall represent that the attic stock delivery did not occur. A copy of the fully executed sign-off form shall be submitted to the Architect.

1.10 ALLOWANCE ACCOUNTING

- A. The Contractor shall submit a comprehensive accounting of each specified allowance with appropriate supporting documentation to justify the actual quantities used.
- B. Each allowance accounting item shall include the specified allowance amount and the actual amount of the allowance used and the net difference.
- C. A Change Order(s) will be prepared indicating the corresponding adjustments to the contract amount based upon adjusted allowance amounts.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

PART 3 - EXECUTION

3.1 FINAL CLEANING

- A. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.
1. Complete the following cleaning operations before requesting inspection for Certification of Substantial Completion for entire Project or for a designated portion of Project:

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- a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
- b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
- c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
- d. Remove tools, construction equipment, machinery, and surplus material from Project site.
- e. Remove snow and ice to provide safe access to building.
- f. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
- g. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
- h. Sweep concrete floors broom clean.
- i. Remove protections used to prevent dust accumulation and damage to furniture and equipment in the work area.
- j. Vacuum and wipe clean surface, furniture and equipment in the work area. Books within the work area shall be individually dusted.
- k. Vacuum carpet and similar soft surfaces, removing debris and excess nap; clean according to manufacturer's recommendations if visible soil or stains remain.
- l. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials. Polish mirrors and glass, taking care not to scratch surfaces.
- m. Remove labels, wrapping and protective films that are not permanent.
- n. Wipe surfaces of mechanical and electrical equipment, elevator equipment and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
- o. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
- p. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
- q. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency.
- r. Leave Project clean and ready for occupancy.

3.2 REPAIR OF THE WORK

- A. Complete repair and restoration operations before requesting inspection for determination of Substantial Completion.
- B. Repair or remove and replace defective construction. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment. Where damaged or worn items cannot be repaired or restored, provide replacements. Remove and replace operating components that cannot be repaired. Restore damaged construction and permanent facilities used during construction to specified condition.
 - 1. Remove and replace chipped, scratched, and broken glass, reflective surfaces, and other damaged transparent materials.
 - 2. Touch up and otherwise repair and restore marred or exposed finishes and surfaces. Replace finishes and surfaces that already show evidence of repair or restoration.
 - a. Do not paint over "UL" and other required labels including door and frame fire ratings.
 - b. Do not paint over identifications including mechanical and electrical nameplates.
 - c. Remove paint applied to required labels and identification.
 - 3. Replace parts subject to operating conditions during construction that may impede operation or reduce longevity.
 - 4. Replace burned-out bulbs, bulbs noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and HID fixtures to comply with requirements for new fixtures.

3.3 ELECTRONIC CLOSEOUT DOCUMENTATION

- A. General: Provide a complete project closeout documentation package in electronic format. This package shall include:
 - 1. Project Record Drawings
 - 2. Project Manual
 - 3. Approved Submittals
 - 4. Operation and Maintenance Manuals
 - 5. Warranties
 - 6. Owner training DVD's
 - 7. Project Contact Directory including sub-contractors
- B. In order to facilitate the Electronic Closeout Documentation process, comply with the following procedures:
 - 1. Contact Digital Revolution, Inc. a minimum of three months prior to the date of Substantial Completion to schedule a pre-closeout meeting. Review the following:

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- a. Format of documents: PDF electronic format for documents.
 - b. Folder structure for storage and transfer of files.
 - c. Schedule for collection and turn-over of closeout documentation.
 - d. Record Document format procedures: Provide clean and accurate paper copies of the marked-up Record Documents (Drawings and Specifications) for scanning.
 - e. Provide contact information for the individual responsible for the collection and transfer of the electronic closeout Documentation package contents.
Review a complete listing of closeout documentation package contents.
 - f.
2. Provide Documentation to Digital Revolution, Inc. for processing no later than 30 days after the date of Substantial Completion.
 3. Schedule a training conference with the Owner's Representative, Engineer, Construction Manager and Digital Revolution, Inc. to present the completed Electronic Closeout Documentation Package.

END OF SECTION 01 7700

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SECTION 01 7823

OPERATION AND MAINTENANCE DATA

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes administrative and procedural requirements for preparing operation and maintenance manuals, including the following:
1. Operation and maintenance documentation directory.
 2. Emergency manuals.
 3. Operation manuals for systems, subsystems, and equipment.
 4. Product maintenance manuals.

1.2 CLOSEOUT SUBMITTALS

- A. Manual Content: Operations and maintenance manual content is specified in individual Specification Sections to be reviewed at the time of Section submittals. Submit reviewed manual content formatted and organized as required by this Section.
1. Where applicable, clarify and update reviewed manual content to correspond to revisions and field conditions.
- B. Format: Submit operations and maintenance manuals in the following format:
1. PDF electronic file. Assemble each manual into a composite electronically indexed file. Submit on digital media acceptable to Owner.
 - a. Name each indexed document file in composite electronic index with applicable item name. Include a complete electronically linked operation and maintenance directory.
 - b. Enable inserted reviewer comments on draft submittals.
 2. Three paper copies. Include a complete operation and maintenance directory. Enclose title pages and directories in clear plastic sleeves. Owner will return two copies.
- C. Manual Submittal: Submit each manual in final form prior to requesting inspection for Substantial Completion and at least 15 days before commencing demonstration and training. Owner will return copy with comments.
1. Correct or revise each manual to comply with Owner's comments. Submit copies of each corrected manual within 15 days of receipt of Owner's comments and prior to commencing demonstration and training.

PART 2 - PRODUCTS

2.1 REQUIREMENTS FOR EMERGENCY, OPERATION, AND MAINTENANCE MANUALS

- A. Directory: Prepare a single, comprehensive directory of emergency, operation, and maintenance data and materials, listing items and their location to facilitate ready access to desired information.
- B. Organization: Unless otherwise indicated, organize each manual into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system. Each manual shall contain the following materials, in the order listed:
1. Title page.
 2. Table of contents.
 3. Manual contents.

- C. Title Page: Include the following information:
1. Subject matter included in manual.
 2. Name and address of Project.
 3. Name and address of Owner.
 4. Date of submittal.
 5. Name and contact information for Contractor.
 6. Name and contact information for Architect.
 7. Names and contact information for major consultants to the Owner that designed the systems contained in the manuals.
 8. Cross-reference to related systems in other operation and maintenance manuals.
- D. Table of Contents: List each product included in manual, identified by product name, indexed to the content of the volume, and cross-referenced to Specification Section number in Project Manual.
- E. Manual Contents: Organize into sets of manageable size. Arrange contents alphabetically by system, subsystem, and equipment. If possible, assemble instructions for subsystems, equipment, and components of one system into a single binder.
- F. Manuals, Electronic Files: Submit manuals in the form of a multiple file composite electronic PDF file for each manual type required.
1. Electronic Files: Use electronic files prepared by manufacturer where available. Where scanning of paper documents is required, configure scanned file for minimum readable file size.
 2. File Names and Bookmarks: Enable bookmarking of individual documents based on file names. Name document files to correspond to system, subsystem, and equipment names used in manual directory and table of contents. Group documents for each system and subsystem into individual composite bookmarked files, then create composite manual, so that resulting bookmarks reflect the system, subsystem, and equipment names in a readily navigated file tree. Configure electronic manual to display bookmark panel on opening file.
- G. Manuals, Paper Copy: Submit manuals in the form of hard copy, bound and labeled volumes.
1. Binders: Heavy-duty, three-ring, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents, sized to hold 8-1/2-by-11-inch paper; with clear plastic sleeve on spine to hold label describing contents and with pockets inside covers to hold folded oversize sheets.
 - a. Identify each binder on front and spine, with printed title "OPERATION AND MAINTENANCE MANUAL," Project title or name, and subject matter of contents. Indicate volume number for multiple-volume sets.
 2. Dividers: Heavy-paper dividers with plastic-covered tabs for each section of the manual. Mark each tab to indicate contents. Include typed list of products and major components of equipment included in the section on each divider, cross-referenced to Specification Section number and title of Project Manual.
 3. Protective Plastic Sleeves: Transparent plastic sleeves designed to enclose diagnostic software storage media for computerized electronic equipment.
 4. Drawings: Attach reinforced, punched binder tabs on drawings and bind with text.
 - a. If oversize drawings are necessary, fold drawings to same size as text pages and use as foldouts.
 - b. If drawings are too large to be used as foldouts, fold and place drawings in labeled envelopes and bind envelopes in rear of manual. At appropriate locations in manual, insert typewritten pages indicating drawing titles, descriptions of contents, and drawing locations.

2.2 EMERGENCY MANUALS

- A. Content: Organize manual into a separate section for each of the following:
 - 1. Type of emergency.
 - 2. Emergency instructions.
 - 3. Emergency procedures.

- B. Type of Emergency: Where applicable for each type of emergency indicated below, include instructions and procedures for each system, subsystem, piece of equipment, and component:
 - 1. Fire.
 - 2. Flood.
 - 3. Gas leak.
 - 4. Water leak.
 - 5. Power failure.
 - 6. Water outage.
 - 7. System, subsystem, or equipment failure.
 - 8. Chemical release or spill.

- C. Emergency Instructions: Describe and explain warnings, trouble indications, error messages, and similar codes and signals. Include responsibilities of Owner's operating personnel for notification of Installer, supplier, and manufacturer to maintain warranties.

- D. Emergency Procedures: Include the following, as applicable:
 - 1. Instructions on stopping.
 - 2. Shutdown instructions for each type of emergency.
 - 3. Operating instructions for conditions outside normal operating limits.
 - 4. Required sequences for electric or electronic systems.
 - 5. Special operating instructions and procedures.

2.3 OPERATION MANUALS

- A. Content: In addition to requirements in this Section, include operation data required in individual Specification Sections and the following information:
 - 1. System, subsystem, and equipment descriptions. Use designations for systems and equipment indicated on Contract Documents.
 - 2. Performance and design criteria if Contractor is delegated design responsibility.
 - 3. Operating standards.
 - 4. Operating procedures.
 - 5. Operating logs.
 - 6. Wiring diagrams.
 - 7. Control diagrams.
 - 8. Piped system diagrams.
 - 9. Precautions against improper use.
 - 10. License requirements including inspection and renewal dates.

- B. Descriptions: Include the following:
 - 1. Product name and model number. Use designations for products indicated on Contract Documents.
 - 2. Manufacturer's name.
 - 3. Equipment identification with serial number of each component.
 - 4. Equipment function.

5. Operating characteristics.
 6. Limiting conditions.
 7. Performance curves.
 8. Engineering data and tests.
 9. Complete nomenclature and number of replacement parts.
- C. Operating Procedures: Include the following, as applicable:
1. Startup procedures.
 2. Equipment or system break-in procedures.
 3. Routine and normal operating instructions.
 4. Regulation and control procedures.
 5. Instructions on stopping.
 6. Normal shutdown instructions.
 7. Seasonal and weekend operating instructions.
 8. Required sequences for electric or electronic systems.
 9. Special operating instructions and procedures.
- D. Systems and Equipment Controls: Describe the sequence of operation, and diagram controls as installed.
- E. Piped Systems: Diagram piping as installed, and identify color-coding where required for identification.

2.4 PRODUCT MAINTENANCE MANUALS

- A. Content: Organize manual into a separate section for each product, material, and finish. Include source information, product information, maintenance procedures, repair materials and sources, and warranties and bonds, as described below.
- B. Source Information: List each product included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual.
- C. Product Information: Include the following, as applicable:
1. Product name and model number.
 2. Manufacturer's name.
 3. Color, pattern, and texture.
 4. Material and chemical composition.
 5. Reordering information for specially manufactured products.
- D. Maintenance Procedures: Include manufacturer's written recommendations and the following:
1. Inspection procedures.
 2. Types of cleaning agents to be used and methods of cleaning.
 3. List of cleaning agents and methods of cleaning detrimental to product.
 4. Schedule for routine cleaning and maintenance.
 5. Repair instructions.
- E. Repair Materials and Sources: Include lists of materials and local sources of materials and related services.

- F. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.

2.5 SYSTEMS AND EQUIPMENT MAINTENANCE MANUALS

- A. Content: For each system, subsystem, and piece of equipment not part of a system, include source information, manufacturers' maintenance documentation, maintenance procedures, maintenance and service schedules, spare parts list and source information, maintenance service contracts, and warranty and bond information, as described below.
- B. Source Information: List each system, subsystem, and piece of equipment included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual.
- C. Manufacturers' Maintenance Documentation: Manufacturers' maintenance documentation including the following information for each component part or piece of equipment:
 - 1. Standard maintenance instructions and bulletins.
 - 2. Drawings, diagrams, and instructions required for maintenance, including disassembly and component removal, replacement, and assembly.
 - 3. Identification and nomenclature of parts and components.
 - 4. List of items recommended to be stocked as spare parts.
- D. Maintenance Procedures: Include the following information and items that detail essential maintenance procedures:
 - 1. Test and inspection instructions.
 - 2. Troubleshooting guide.
 - 3. Precautions against improper maintenance.
 - 4. Disassembly; component removal, repair, and replacement; and reassembly instructions.
 - 5. Aligning, adjusting, and checking instructions.
 - 6. Demonstration and training video recording, if available.
- E. Maintenance and Service Schedules: Include service and lubrication requirements, list of required lubricants for equipment, and separate schedules for preventive and routine maintenance and service with standard time allotment. Spare Parts List and Source Information: Include lists of replacement and repair parts, with parts identified and cross-referenced to manufacturers' maintenance documentation and local sources of maintenance materials and related services.
- F. Maintenance Service Contracts: Include copies of maintenance agreements with name and telephone number of service agent.
- G. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.

PART 3 - EXECUTION

3.1 MANUAL PREPARATION

- A. Emergency Manual: Assemble a complete set of emergency information indicating procedures for use by emergency personnel and by Owner's operating personnel for types of emergencies indicated.

- B. Product Maintenance Manual: Assemble a complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into the Work.
- C. Operation and Maintenance Manuals: Assemble a complete set of operation and maintenance data indicating operation and maintenance of each system, subsystem, and piece of equipment not part of a system.
- D. Manufacturers' Data: Where manuals contain manufacturers' standard printed data, include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data include more than one item in a tabular format, identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable.
- E. Drawings: Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems and to illustrate control sequence and flow diagrams. Coordinate these drawings with information contained in record Drawings to ensure correct illustration of completed installation.
 - 1. Do not use original project record documents as part of operation and maintenance manuals.

END OF SECTION 01 7823

SECTION 01 7839

PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes administrative and procedural requirements for project record documents, including the following:
 - 1. Record Drawings.
 - 2. Record Specifications.
 - 3. Record Product Data.
- B. Related Requirements:
 - 1. Section 01 78 23 "Operation and Maintenance Data" for operation and maintenance manual requirements.

1.2 CLOSEOUT SUBMITTALS

- A. Record Drawings: Comply with the following:
 - 1. Number of Copies: Submit copies of record Drawings as follows:
 - a. Initial Submittal:
 - 1) Submit PDF electronic files of scanned record prints and one set(s) of file prints.
 - 2) Owner will indicate whether general scope of changes, additional information recorded, and quality of drafting are acceptable.
 - b. Final Submittal:
 - 1) Submit PDF electronic files of scanned record prints and one set(s) of prints.
 - 2) Print each drawing, whether or not changes and additional information were recorded.
- C. Record Specifications: Submit one paper copy and annotated PDF electronic files of Project's Specifications, including addenda and contract modifications.
- D. Record Product Data: Submit one paper copy and annotated PDF electronic files and directories of each submittal.

PART 2 - PRODUCTS

2.2 RECORD DRAWINGS

- A. Record Prints: Maintain one set of marked-up paper copies of the Contract Drawings and Shop Drawings, incorporating new and revised Drawings as modifications are issued.
 - 1. Preparation: Mark record prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to provide information for preparation of corresponding marked-up record prints.
 - a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
 - b. Record data as soon as possible after obtaining it.
 - c. Record and check the markup before enclosing concealed installations.
 - 2. Mark the Contract Drawings and Shop Drawings completely and accurately. Use personnel proficient at recording graphic information in production of marked-up record prints.

3. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.
 4. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.
- B. Record Digital Data Files: Immediately before inspection for Certificate of Substantial Completion, review marked-up record prints with Owner. When authorized, prepare a full set of corrected digital data files of the Contract Drawings, as follows:
1. Format: Annotated PDF electronic file with comment function enabled.
 2. Incorporate changes and additional information previously marked on record prints. Delete, redraw, and add details and notations where applicable.
 3. Refer instances of uncertainty to Owner for resolution.
- C. Format: Identify and date each record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.
1. Record Prints: Organize record prints and newly prepared record Drawings into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.
 2. Format: Annotated PDF electronic file with comment function enabled.
 3. Record Digital Data Files: Organize digital data information into separate electronic files that correspond to each sheet of the Contract Drawings. Name each file with the sheet identification. Include identification in each digital data file.
 4. Identification: As follows:
 - a. Project name.
 - b. Date.
 - c. Designation "PROJECT RECORD DRAWINGS."
 - d. Name of Owner.
 - e. Name of Contractor.

2.3 RECORD SPECIFICATIONS

- A. Preparation: Mark Specifications to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.
1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
 2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
 3. Record the name of manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.
 4. Note related Change Orders, record Product Data, and record Drawings where applicable.
- B. Format: Submit record Specifications as annotated PDF electronic file.

2.4 RECORD PRODUCT DATA

- A. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.
1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
 2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
 3. Note related Change Orders, record Specifications, and record Drawings where applicable.
- B. Format: Submit record Product Data as annotated PDF electronic file.

2.5 MISCELLANEOUS RECORD SUBMITTALS

- A. Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.
- B. Format: Submit miscellaneous record submittals as PDF electronic file.

PART 3 - EXECUTION

3.1 RECORDING AND MAINTENANCE

- A. Recording: Maintain one copy of each submittal during the construction period for project record document purposes. Post changes and revisions to project record documents as they occur; do not wait until end of Project.
- B. Maintenance of Record Documents and Samples: Store record documents and Samples in the field office apart from the Contract Documents used for construction. Do not use project record documents for construction purposes. Maintain record documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to project record documents for Owner's reference during normal working hours.

END OF SECTION 01 7839

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