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WE FINANCE, BUILD AND DELIVER.

General Requirements of the Work

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SECTION 011200 – CONTRACT SUMMARY OF WORK

Section Description: Responsibilities of each contract for the work, coordination for temporary facilities and controls

SECTION 012100 – ALLOWANCES

Section Description: Provisions for cash allowances including lump-sum, unit cost, contingency allowances

SECTION 012300 – ALTERNATES

Section Description: Provisions for change-of-scope and cost-comparison type alternates

SECTION 012900 – PAYMENT PROCEDURES

Section Description: Administrative requirements for Contractor's Application for Payment

SECTION 013100 – PROJECT MANAGEMENT AND COORDINATION

Section Description: Administrative requirements for project meetings; preconstruction, construction kick-off, progress; RFIs and Web sites

SECTION 013200 – CONSTRUCTION PROGRESS DOCUMENTATION

Section Description: Contractor's responsibility to coordinate and cooperate with Owner to maintain P6 Project Management (scheduling software); Contractor's reports

SECTION 013300 – SUBMITTAL PROCEDURE

Section Description: Procedures for action and informational submittals including product submittals and submittal schedule

SECTION 014000 – QUALITY AND CODE REQUIREMENTS

Section Description: Administrative and regulatory requirements for Work permit, code compliance certificate and certificate of occupancy; NYS Statement of Special Inspections and Tests

SECTION 015000 – TEMPORARY FACILITIES AND CONTROLS

Section Description: Temporary utilities and facilities for construction support, security and facility protection

SECTION 016000 – PRODUCT REQUIREMENTS

Section Description: Administrative and procedural requirements for product, material, and equipment selection and handling, warranties and comparable products

SECTION 017329 – CUTTING AND PATCHING

Section Description: Procedural requirements for cutting and patching

SECTION 017700 – CONTRACT CLOSEOUT REQUIREMENTS

Section Description: Administrative contract closeout requirements including closeout conference, Notice of Substantial Completion, final application for payment and final cleaning

SECTION 017823 – OPERATION AND MAINTENANCE MANUALS

Section Description: Maintenance and record keeping requirements of operational and maintenance manuals for products and equipment

SECTION 017839 – AS BUILT DOCUMENTS

Section Description: Maintenance and record keeping requirements of as-built drawings, as-built specifications, as-built schedule and other product record documents

SECTION 018113 – SUSTAINABLE DESIGN REQUIREMENTS

Section Description: General requirements and procedures for LEED prerequisites and credits

SECTION 019113 – GENERAL COMMISSIONING REQUIREMENTS

Section Description: Administrative requirements and procedures for commissioning all systems

SECTION 011200 - CONTRACT SUMMARY OF WORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. The Contract Documents, including but not limited to, the Drawings and Individual Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes a summary of the Work for the Project, including responsibilities for coordination and temporary facilities and controls.
- B. Specific requirements for the Work are also indicated in the remaining Contract Documents including individual Specification Sections and on Drawings.
- C. Related Sections:
 - 1. Section 013100 - Project Management and Coordination.
 - 2. Section 013200 - Construction Progress Documentation.
 - 3. Section 015000 - Temporary Facilities and Controls.

1.3 DEFINITIONS

- A. Permanent Enclosure: As determined by the Owner, the condition at which roofing is insulated and weathertight; exterior walls are insulated and weathertight; and all openings are closed with permanent construction or substantial temporary closures equivalent in weather protection to permanent construction.

1.4 CONTRACTOR'S PROJECT MANAGER

- A. Contractor and each Subcontractor shall identify a project manager who shall be responsible for coordination between and among each and all contractors and subcontractors for the Project and the Owner and Owner's Separate Contractors.
- B. Project Scheduler: The Contractor shall provide a project scheduler to coordinate the scheduling activities of the Contract, to prepare an overall Project Schedule, and to monitor and update the Project Schedule periodically in accordance with the Contract Documents.

1.5 COORDINATION ACTIVITIES

- A. Coordination activities of Contractor's project manager include, but are not limited to, the following:
 - 1. Provide overall coordination of the Work.

2. Coordinate use of access shared with other contractors to workspaces and workspaces shared with other contractors.
3. Coordinate product selections for compatibility with products selected under this Contract for the Project. Identify to Owner and Design Professional incompatibilities between products selected under this Contract for the Project.
4. Provide overall coordination of temporary facilities and controls.
5. Coordinate, schedule, and approve interruptions of permanent and temporary utilities, including those necessary to make connections for temporary services.
6. Coordinate construction and operations of the Work with work performed under each other Separate Contract for the Project and the Owner's construction forces.
7. Prepare Coordinated Composite Drawings, in collaboration with the appropriate Subcontractors for the Project, to coordinate the Work for the Project, including Owner's Separate Contractors, if applicable.
8. Coordinate sequencing and scheduling of the Work. Include the following:
 - a. Initial Coordination Meeting: At the earliest possible date, the Contractor will arrange and conduct a meeting with all Subcontractors, Owner, Owner's Separate Contractors, where appropriate, for the Project for sequencing and coordinating the Work of the Project.
9. Provide quality assurance and quality control services specified in Section 014000 – Quality and Code Requirements.
10. Coordinate sequence of activities to accommodate tests and inspections, and coordinate schedule of tests and inspections.
11. Provide information necessary to adjust, move, or relocate existing utility structures affected by construction.
12. Provide progress cleaning of all Contract work areas and coordinate progress cleaning of areas or pieces of equipment where more than one contractor has worked.
13. Coordinate cutting and patching.
14. Coordinate protection of the Work.
15. Coordinate fire-stopping
16. Coordinate completion of punch list items.
17. Coordinate preparation of As-built drawings and specifications.
18. Print and submit all required Project turnover documents.
19. Coordinate preparation of operation and maintenance manuals. []

B. Responsibilities of Contractor for the Work include, but are not limited to, the following:

1. Provide common-use field office for use by all personnel engaged in construction activities.
2. Provide telephone service for common-use facilities.
3. Provide coordination for temporary facilities and controls.

1.6 GENERAL REQUIREMENTS OF CONTRACTS

A. Extent of Contract: Contractor and its Subcontractors shall perform the following Work:

1. The Work described in this section shall be complete systems and assemblies, including products, components, accessories, and installation required by the respective Contract Documents.
2. Trenches and other excavation.
3. Blocking, backing panels, sleeves, and metal fabrication supports for the Work.

4. Furnishing of access panels for all of the Work, including installation of access panels located in the substrate of ceilings, walls and floors.
 5. Equipment pads.
 6. Roof-mounted equipment curbs.
 7. Painting for the Work.
 8. Cutting and Patching.
 9. Firestopping.
 10. Other Work required by the Contract Documents.
- B. Substitutions: Contractor shall cooperate with its Subcontractors, Owner, and Owner's Separate Contractors involved to coordinate approved substitutions with remainder of the Work of the Project.
- C. Temporary Facilities and Controls: In addition to specific responsibilities for temporary facilities and controls indicated in this Section and in Section 015000 - Temporary Facilities and Controls, Contractor is responsible for the following:
1. Installation, operation, maintenance, and removal of each temporary facility necessary for its own normal construction activity, and costs and use charges associated with each facility, except as otherwise provided for in this Section 011200.
 2. Plug-in electric power cords and extension cords, supplementary plug-in task lighting, and special lighting necessary exclusively for its own activities.
 3. Its own field office complete with necessary furniture, utilities, and telephone service.
 4. Its own storage and fabrication sheds.
 5. Temporary enclosures and weather protection for its own construction activities.
 6. Staging and scaffolding for its own construction activities.
 7. General hoisting facilities for its own construction activities.
 8. Waste disposal facilities, including collection and legal disposal of its own hazardous, dangerous, unsanitary, or other harmful waste materials.
 9. Progress cleaning of work areas affected by its operations on a daily basis.
 10. Secure lockup of its own tools, materials, and equipment.
 11. Construction Aids and miscellaneous services and facilities necessary exclusively for its own construction activities.

1.7 CONSTRUCTION WORK

- A. The Contractor's Work includes all of the Work required in the Contract Documents including, but not limited to, the following:
1. Site preparation, including clearing, building demolition and relocations, and earthwork.
 2. Site improvements, including roadways, parking lots, pedestrian paving, site development furnishings and equipment, and landscaping.
 3. Site water supply and distribution.
 4. Site sanitary sewerage.
 5. Site storm drainage.
 6. Site fuel distribution.
 7. Tunnels for site utilities.
 8. Selective demolition.
 9. Foundations, including footings, foundation walls, and piles.
 10. Slabs-on-grade, including earthwork, sub-drainage systems, and insulation.

11. Below-grade building construction, including excavation, backfill, and thermal and moisture protection.
12. Superstructure, including floor and roof construction and sprayed fire-resistive materials and board fire protection.
13. Exterior closure, including walls, parapets, doors, windows, and louvers.
14. Roofing, including coverings, flashings roof specialties and glazed openings.
15. Interior construction, including partitions, doors, interior glazed openings, and fittings.
16. Fire-protection specialties.
17. Stairs, including railings and finishes.
18. Interior finishes; finish carpentry, architectural woodwork and built-in casework.
19. Conveying systems, including elevators, wheelchair lifts, escalators and cranes..
20. Equipment, including the following:
 - a. Stage equipment.
 - b. Projection screens.
 - c. Loading dock equipment.
 - d. Waste compactors.
 - e. Foodservice equipment.
 - f. Residential appliances.
 - g. Laboratory fume hoods.
21. Furnishings, including but not limited to casework, window treatments, floor grilles and mats and seating.
22. Special construction, including the following:
 - a. Pre-engineered structures.
 - b. Special-purpose rooms.
 - c. Radiation protection.
23. Project Controls, including scheduling and cost support and meetings required by the Contract Documents.
24. Temporary facilities and controls that are not otherwise specifically assigned to other contracts.
25. Sediment and erosion control.
26. Unpiped sewers and drainage, including drainage ditches, dry wells, stabilization ponds, and containers.
27. Stormwater control.
28. Unpiped temporary toilet fixtures, wash facilities, and drinking water facilities, including disposable supplies.
29. Temporary enclosure for building exterior.
30. Temporary roads and paved areas.
31. Dewatering facilities and drains.
32. Excavation support and protection for the Work.
33. Project identification and temporary signs.
34. General waste disposal facilities.
35. Pest control.
36. Temporary stairs.
37. Temporary fire-protection facilities.
38. Barricades, warning signs, and lights.
39. Site enclosure fence.

40. Covered walkways.
41. Security enclosure and lockup.
42. Environmental protection.
43. Restoration of Owner's existing facilities used as temporary facilities.
44. Temporary heating, cooling, and ventilation for Work before weathertight enclosure of building are complete.
45. Temporary heating, cooling, and ventilation after permanent enclosure of building are complete.
46. Site special plumbing systems.
47. Plumbing fixtures.
48. Domestic water distribution.
49. Sanitary waste.
50. Storm water drainage.
51. Special plumbing systems, including the following:
 - a. Compressed air.
 - b. Deionized water.
 - c. Distilled water.
 - d. Fuel oil.
 - e. Natural gas.
 - f. Medical gas.
 - g. Vacuum.
 - h. Acid waste.
 - i. Pools and fountains.
52. Fire protection systems.
53. Special fire suppression systems, including the following:
 - a. Foam fire-extinguishing systems.
 - b. Clean-agent extinguishing systems.
54. Plumbing connections to equipment furnished by all other contracts.
55. Piped sewerage and drainage.
56. Piped gas service.
57. Piped water service.
58. Piped temporary toilet fixtures, wash facilities, and drinking water facilities.
59. Temporary standpipe for Fire Department use.
60. Plumbing connections to existing systems and temporary facilities and controls furnished by other contracts.
61. Temporary heating, cooling, and ventilation for plumbing Work before weathertight enclosure of building is complete.
62. Site steam distribution.
63. Site hydronic distribution.
64. Energy supply, including gas, hot-and chilled-water] supply systems.
65. HVAC systems and equipment.
66. HVAC instrumentation and controls.
67. HVAC testing, adjusting, and balancing.
68. Building automation system.
69. Mechanical connections to equipment furnished by all other contracts.
70. Temporary heating, cooling, and ventilation for HVAC Work before weathertight enclosure of building are complete.
71. Site electrical distribution.

- 72. Site lighting.
- 73. Site communications and security.
- 74. Electrical service and distribution.
- 75. Exterior and interior lighting and light pole bases.
- 76. Communication and security.
- 77. Fire alarm and detection systems.
- 78. Special electrical systems, including the following:
 - a. Uninterruptible power supply systems.
 - b. Packaged engine generator systems.
 - c. Battery power systems.
 - d. Cathodic protection.
 - e. Electromagnetic shielding systems.
 - f. Lightning protection systems.
 - g. Unit power conditioners.
 - h. Power generation systems.
- 79. Electrical connections to equipment furnished by all other contracts.
- 80. Electric power service and distribution.
- 81. Lighting, including site lighting.
- 82. Fire alarm and detection systems.
- 83. Electrical connections to existing systems and temporary facilities and controls furnished by other contracts.
- 84. Temporary heating, cooling, and ventilation for Electrical Contract Work before weathertight enclosure of building are complete. |

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 011200

SECTION 012100 - ALLOWANCES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. The Contract Documents, including but not limited to, the Drawings and Individual Specification Sections, Notice to Proceed and Allowance Allocation Form apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements governing allowances.
 - 1. Certain items are specified in the Contract Documents by allowances. Allowances have been established in lieu of additional requirements and to defer selection of actual materials and equipment to a later date when direction will be provided to the Contractor.
- B. Types of allowances include the following:
 - 1. Procurement Exemption (Lump-sum) allowances.
 - 2. Quantity of Work (Unit-cost) allowances.
 - 3. Quantity of Funds (Contingency) allowances.
- C. Related Sections:
 - 1. General Conditions, Article 7 – Changes in the Work.
 - 2. General Conditions, Article 8 – Payment.
 - 3. Section 012900 – Payment Procedures.
 - 4. Section 013300 – Submittal Procedure.
 - 5. Individual Specification Sections for items of Work covered by allowances.

1.3 SELECTION AND PURCHASE

- A. At the earliest practical date after award of the Contract, advise the Owner of the date when final selection and purchase of each product or system described by an allowance must be completed to avoid delaying the Work.
- B. At the Owner's request, obtain proposals for each allowance for use in making final selections. Include recommendations that are relevant to performing the Work.
- C. Purchase products and systems selected by the Design Professional from the designated supplier.

1.4 SUBMITTALS

- A. Submit proposals for purchase of products or systems included in allowances, in the form specified for Change Orders.

- B. Submit invoices or delivery slips to show actual quantities of materials delivered to the site for use in fulfillment of each allowance.
- C. Submit time sheets and other documentation to show labor time and cost for installation of allowance items that include installation as part of the allowance.
- D. Coordinate and process submittals for allowance items in same manner as for other portions of the Work.

1.5 COORDINATION

- A. Coordinate allowance items with other portions of the Work. Furnish templates as required to coordinate installation.
- B. The Contractor shall include the dollar value of each scheduled allowance number as a separate line item in the Schedule of Values and identify each allowance with Section number 012100.
- C. The Owner shall provide the Contractor with the Notice to Proceed and request the Contractor to sign an Allowance Allocation form, prior to proceeding with the Work of an allowance.

1.6 PAYMENT

- A. Refer to Section 012900 – Payment Procedures, for processing an Application for Payment.
- B. The Contractor shall include a copy of the approved Allowance Allocation form issued by the Owner, with the Application for Payment, for payment of lump sum or unit cost allowance work.
- C. The Contractor shall complete and provide an Allowance Allocation form, provided by the Owner, and supporting documentation in accordance with General Conditions, Article 7 – Changes in the Work for payment of a contingency allowance.

1.7 LUMP-SUM AND QUANTITY OF WORK [UNIT-COST] ALLOWANCES

- A. Allowance shall include cost to the Contractor of specific products and materials ordered by the Owner or selected by the Design Professional under allowance and shall include taxes, freight, and delivery to the Project site.
- B. The Contractor's costs for receiving and handling at the Project site, labor, installation, overhead and profit, and similar costs related to products and materials ordered by the Owner under allowance shall be included as part of the Contract Sum and not part of the allowance.

1.8 QUANTITY OF FUNDS [CONTINGENCY] ALLOWANCES

- A. Use the quantity of funds [contingency] allowance only as directed by the Owner for the Owner's purposes and only by Change Orders in accordance with General Conditions, Article 7 – Changes in the Work that indicate amounts to be charged to the allowance.

- B. The Contractor's overhead, profit, and related costs for products and equipment ordered by the Owner under the contingency allowance are included in the allowance and are not part of the Contract Sum. These costs include delivery, installation, taxes, insurance, equipment rental, and similar costs.
- C. Change Orders authorizing use of funds from the contingency allowance will include Contractor's related costs and overhead and profit margins in accordance with General Conditions, Article 7.
- D. At Project closeout, the unused amounts remaining in the contingency allowance shall be credited to the Owner by Change Order.

1.9 ADJUSTMENT OF ALLOWANCES

- A. Allowance Adjustment: To adjust allowance amounts and scope of Work, prepare a Change Order proposal based on the difference between purchase amount and the allowance, multiplied by final measurement of work-in-place where applicable. If applicable, include reasonable allowances for cutting losses, tolerances, mixing wastes, normal product imperfections, and similar margins.
 - 1. Include installation costs in purchase amount only where indicated as part of the allowance.
 - 2. If requested, prepare explanation and documentation to substantiate distribution of overhead costs and other margins claimed.
 - 3. Submit substantiation of a change in scope of work, if any, claimed in Change Orders related to unit-cost allowances.
 - 4. The Owner reserves the right to establish the quantity of work-in-place by independent quantity survey, measure, or count.
 - 5. No change to the Contractor's indirect expense is permitted for selection of higher- or lower-priced materials or systems of the same scope and nature as originally indicated.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine products covered by an allowance promptly on delivery for damage or defects. Return damaged or defective products to manufacturer for replacement.

3.2 PREPARATION

- A. Coordinate materials and their installation for each allowance with related materials and installations to ensure that each allowance item is completely integrated and interfaced with related work.

3.3 SCHEDULE OF ALLOWANCES (See Contract, Exhibit D, Bridging Documents)

END OF SECTION 012100

SECTION 012300 – ALTERNATES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. The Contract Documents.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for alternates.

1.3 DEFINITIONS

- A. Alternate: An amount proposed by Contractor and stated on the Contractor's Price Proposal Form for certain work defined in the Bridging Documents that may be added to or deducted from the Contract Sum if the Owner decides to accept a corresponding change either in the amount of construction to be completed or in the products, materials, equipment, systems, or installation methods described in the Contract Documents.
 - 1. Alternates described in this Section are part of the Work only if incorporated into the Contract.
 - 2. 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.

1.4 PROCEDURES

- A. Coordination: Modify or adjust affected adjacent work as necessary to completely integrate work of the alternate into Project.
 - 1. 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.
- B. Notification: Immediately following award of the Contract, notify each party involved, in writing, of the status of each alternate. Indicate if alternates have been accepted, rejected, or deferred for later consideration. Include a complete description of negotiated modifications to alternates.
- C. Execute accepted alternates under the same conditions as other Work of the Contract.
- D. Schedule: A schedule of alternates is included at the end of this Section. Specification Sections referenced in schedule contain requirements for materials necessary to achieve the work described under each alternate.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 | SCHEDULE OF ALTERNATES (See Contract, Exhibit D, Bridging Documents) |

END OF SECTION 012300

SECTION 012900 - PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. The Contract Documents, (including but not limited to, the Drawings, Individual Specification Sections, and the Schedule of Values), Contractor Pencil Copy and Application for Payment, apply to this Section.

1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements necessary to prepare and process Applications for Payment.
- B. Related Sections:
 - 1. General Conditions, Article 8 - Payment, for requirements governing provisions for payment.
 - 2. General Conditions, Article 20 – Opportunity Programs, for requirements governing minority participation.
 - 3. Section 012100 – Allowances, for procedural requirements governing the handling and processing of allowances, if applicable.
 - 4. Section 017700 – Contract Closeout Requirements, for administrative contract closeout requirements.
 - 5. Section 018113 – Sustainable Design Requirements, for administrative requirements governing submittal of cost breakdown information required for LEED documentation, if applicable.

1.3 DEFINITIONS

- A. Schedule of Values: A form in the Contract Documents, which establishes minimum level of payment detail to formulate an Application for Payment.
- B. Contractor's Pencil Copy: A form provided by the Owner, which allows Contractor to provide an estimate for an Application for Payment. When approved by the Owner, Contractor's Pencil Copy formulates the basis of Contractor's Application for Payment.
- C. Application for Payment: A form provided by the Owner, which provides certification by the Contractor for payment.

1.4 SCHEDULE OF VALUES

- A. Coordination: Coordinate preparation of the Schedule of Values with the Owner.

- B. The Contractor shall allocate portions of the Contract Sum to Design Work, labor, material, and major equipment costs to various portions of the Work as indicated on the form.
1. Submit the Schedule of Values to the Owner, for approval at earliest possible date after award of the Contract.
 2. The Owner shall not approve any billing request until the Schedule of Values is approved.
- C. Format and Content: Use model form provided in Contract Documents as a guide to establish line items for the Schedule of Values.
1. Arrange the Schedule of Values with separate columns to indicate the following for each item listed:
 - a. Dollar value of the following, as a percentage of the Contract Sum to nearest one-hundredth percent, adjusted to total 100 percent.
 - 1) Design Work.
 - 2) Labor.
 - 3) Materials.
 - 4) Major Equipment.
 2. Provide a breakdown of Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Provide multiple line items for principal Subcontract amounts in excess of five percent of Contract Sum.
 - a. Include separate line items under Contractor and principal Subcontracts for LEED documentation, if applicable and other Project closeout requirements in an amount totaling five percent of the Contract Sum and Subcontract amount.
 3. Round amounts to nearest whole dollar; total shall equal the Contract Sum.
 4. Allowances: If applicable, provide a separate line item in the Schedule of Values for each allowance.
 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, except Lump Sum and Quantity of Work Allowances.
 6. Schedule of Values Updating: The Owner may require the Contractor to revise its Schedule of Values. Further, the Owner reserves the right to accept only those cost distributions which, in the Owner's opinion, are reasonable, equitably balanced and correspond to estimated quantities in Contract Documents.

1.5 MONTHLY APPLICATIONS FOR PAYMENT

- A. Each Application for Payment shall be consistent with previous applications and payments as approved by the Owner and paid for by the Owner.
1. Initial Application for Payment, the Owner shall not approve any billing request until the Schedule of Values and Project Schedule is approved.
 2. Payment for allowance items and stored materials involve additional requirements.
 3. Application for Payment at time of Substantial Completion, and final Application for Payment involve additional requirements.

- B. Payment Application Times: Billing request may be submitted to the Owner once each month.
1. Submit Contractor's Pencil Copy billing request seven days prior to the Payment Application due date for review by the Owner.
- C. Payment Forms: All forms and documents required for payment shall be provided by the Owner. Template forms and documents may also be available on the Dormitory Authority's web site www.dasny.org.
- D. Preliminary Procedure: The Contractor may request from the Owner a Contractor's Pencil Copy form. Where indicated on the form, the Contractor shall enter a billing request, either dollar amount or percentage complete for each item number requesting payment.
1. If applicable, the Contractor shall obtain from the Owner, an Allowance Notice to Proceed for Allowance items and an Agreement for Materials Stored Off-Site prior to billing.
 2. Submit Contractor's Pencil Copy billing request to the Owner for approval.
 3. The Contractor shall provide updated documentation to the Owner in accordance with General Conditions, Article 20 – Opportunity Programs.
- E. Procedure: Upon the Owner's approval of the Contractor's Pencil Copy billing request, payment documents will be provided to the Contractor. The Contractor shall complete each document and submit two copies of all documents with original signature and notary where indicated on forms, the following:
1. Application for Payment.
 2. Compliance Report.
 3. Contractor and Subcontractor Certifications Form.
 4. Contractor's Certified Payroll Form.
 5. Allowance Allocation Form, if applicable.
 6. Lien Waivers, if requested by Owner.
- F. Payroll Forms: The Contractor and all of its Subcontractors will certify their payrolls and keep these certified payroll records on Site and available and shall submit original copies of the Contractor and Subcontractor Certifications Form and Contractor's Certified Payroll Form with each Application for Payment.
- G. Transmittal: Sign and notarize where indicated on each document, submit two original copies to Owner.
1. Transmit each copy with a transmittal form listing attachments and recording appropriate information about payment.
- H. Stored Materials: The Owner will provide an Agreement for Materials Stored Off-Site and specific forms that the Contractor must complete and submit to the Owner, including but not limited to:
1. Include in the Contractor's Pencil Copy billing request amounts applied for materials or equipment purchased or fabricated and stored, but not yet installed.
 2. Differentiate between items stored on-site and items stored off-site.

3. Provide certificate of insurance, evidence of transfer of title to the Owner, and consent of surety to payment, for stored materials.
 4. Provide supporting documentation that verifies amount requested, such as paid invoices. Match amount requested with amounts indicated on documentation; do not include overhead and profit on stored materials.
 5. Provide summary documentation for stored materials indicating the following:
 - a. Materials previously stored and included in previous Applications for Payment.
 - b. Work completed for this Application utilizing previously stored materials.
 - c. Additional materials stored with this Application.
 - d. Total materials remaining stored, including materials with this Application.
- I. Payment: Timely payment by the Owner to the Contractor is governed by Section 2880 of the Public Authorities Law.
- J. Liens: Upon receipt of a lien, the Owner shall deduct a sum of one and one-half (1 ½) times the amount stated to be due in the notice of lien from the Contractor's Application for Payment. Upon official receipt of discharge of lien, the Owner shall provide payment as stated above.

1.6 APPLICATION FOR PAYMENT AT SUBSTANTIAL COMPLETION

- A. Preliminary Procedure: After issuance of the executed Notice of Substantial Completion, submit a Contractor's Pencil Copy billing request showing 100 percent completion for the portion of the Work claimed as complete at Substantial Completion.
1. Submit Contractor's Pencil Copy billing request to the Owner for approval.
 2. The Contractor shall provide final documentation to the Owner in accordance with General Conditions, Article 20 – Opportunity Programs.
- B. Reduction of Retainage: The Contractor may request a reduction of retainage upon Substantial Completion of the Work in accordance with the following process:
1. The Contractor submits to the Owner a written request to have retainage reduced and provides a cost estimate and schedule to complete all remaining Work items indicated on the executed Notice of Substantial Completion.
 2. The Owner shall deduct from the sum two times the value of remaining items of Work to be completed or corrected.
 3. The Owner will provide the Contractor with General Release and Consent of Surety forms based on the amount of reduction. The Contractor shall complete each document and submit three copies of each document with original signature & notary where indicated on forms.
 4. The Owner shall hold payment until receipt of completed General Release and Consent of Surety forms.
- C. Procedures: Upon the Owner approval of Contractor's Pencil Copy billing request, payment documents will be provided to the Contractor. The Contractor shall complete each document and submit two copies of all documents with original signature and notary where indicated on forms, the following:

1. Application for Payment.
 2. Compliance Report.
 3. Contractor and Subcontractor Certifications Form
 4. Contractor's Certified Payroll Form.
- D. Payroll Forms: The Contractor and all of its Subcontractors shall submit original copies of the Contractor and Subcontractor Certifications Form and Contractor's Certified Payroll Form.
- E. Transmittal: Sign and notarize where indicated on each document, submit two original copies to Owner.
- F. Payment: Timely payment by the Owner to the Contractor is governed by Section 2880 of the Public Authorities Law.
- G. Liens: Upon receipt of a lien, the Owner shall deduct a sum of one and one-half (1 ½) times the amount stated to be due in the notice of lien from the Contractor's Application for Payment. Upon official receipt of discharge of lien, the Owner shall provide payment as stated above.

1.7 FINAL APPLICATION FOR PAYMENT (same as contract closeout documents)

- A. Contract Compliance: The Contractor shall comply with the Requirements of General Conditions, Section 10.08 – Limitations on Actions.
- B. Preliminary Procedure: All Work and Extra Work of the Contract and all requirements of Section 017700 – Contract Closeout Requirements must be complete and approved prior to commencement of final Application for Payment.
1. The Contractor shall request and submit to the Owner a final Contractor's Pencil Copy that will formulate the final Application for Payment.
 2. The Contractor shall provide outstanding documentation to the Owner in accordance with General Conditions, Article 20 – Opportunity Programs.
- C. Procedures: Upon the Owner approval of Contractor's Pencil Copy billing request, final Application for Payment and Contract closeout documents will be provided to the Contractor. The Contractor shall complete each document and submit two copies of all documents with original signature and notary, where indicated on the forms, the following:
1. Final Application for Payment including remaining Retainage.
 2. Final Compliance Report.
 3. Contractor and Subcontractor Certifications Form
 4. Contractor's Certified Payroll Form.
 5. Release Form -- Final Payment to Contractor.
 6. Consent of Surety -- Final Payment to Contractor, with power of attorney.
- D. Payroll Forms: The Contractor and all of its Subcontractors shall submit original copies of the Contractor and Subcontractor Certifications Form and Contractor's Certified Payroll Form.
- E. Transmittal: Sign and notarize where indicated on each document, submit two original copies to the Owner.

- F. Final Payment: Timely payment by the Owner to the Contractor is governed by Section 2880 of the Public Authorities Law.
- G. Liens: Upon receipt of a lien, the Owner shall deduct a sum of one and one-half (1 ½) times the amount stated to be due in the notice of lien from the Contractor's final Application for Payment. Upon official receipt of discharge of lien, the Owner shall provide final payment as stated above.

PART 2 - PRODUCTS (Not Used)
PART 3 - EXECUTION (Not Used)

END OF SECTION 012900

SECTION 013100 - PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. The Contract Documents, including but not limited to, the Drawings and individual Scope of Work Specification Sections and Owner's Contract Manager system, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative provisions for coordinating construction operations on the Project including, but not limited to, the following:
 - 1. General project coordination procedures.
 - 2. Administrative and supervisory personnel.
 - 3. Coordination drawings.
 - 4. Requests for Information (RFIs).
 - 5. Contract Manager software site.
 - 6. Project meetings.
- B. The Contractor and its Subcontractors shall participate in coordination requirements. Refer to Section 011200 – Contract Summary of Work for certain areas of responsibility.
- C. Related Sections:
 - 1. Section 011200 - Contract Summary of Work, for a description of the division of work among separate contracts and responsibility for coordination activities not in this Section.
 - 2. Section 013200 - Construction Progress Documentation, for preparing and submitting the construction portion of Contractor's Project Schedule.
 - 3. Section 017700 – Contract Closeout Requirements, for coordinating closeout of the Contract.
 - 4. Section 019113 - General Commissioning Requirements, for coordinating the Work with Owner's Commissioning Authority.

1.3 DEFINITIONS

- A. RFI: Request from the Owner, Owner's Design Professional, or Contractor seeking information from each other during design and construction.

1.4 [COORDINATION]

- A. Coordination for Single Contract Project: Coordinate design, procurement, and construction operations included in different Sections of the Specifications to ensure efficient and orderly

installation of each part of the Work. Coordinate construction operations included in different Sections that depend on each other for proper installation, connection, and operation.

1. The Contractor shall utilize the Milestone Dates included in the Contract Documents to prepare a Project using a CPM scheduling method in accordance with Section 013200 – Construction Progress Documentation. The Contractor shall submit the proposed Project Schedule to the Owner within 30 days of the Effective Date.
2. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
3. Coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair.
4. Make adequate provisions to accommodate items scheduled for later installation.

B. Not Used.

C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other Work activities and activities of other contractors to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:

1. Coordination of the Contractor's Project Schedule for the Work.
2. Coordination of the commissioning process and activities.
3. Preparation of the Schedule of Values.
4. Entering dates that each required submission item listed on the Contractor's Design Submission Schedule will be submitted, coordinated with the Project Schedule.
5. Installation and removal of temporary facilities and controls.
6. Delivery and processing of submittals.
7. Progress meetings.
8. Pre-installation conferences.
9. Project closeout activities.
10. Startup, commissioning, and adjustment of systems.

D. Conservation: Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials. Coordinate use of temporary utilities to minimize waste.

1.5 COORDINATED COMPOSITE DRAWINGS

A. Coordinated Composite Drawings - General: Prepare coordinated composite drawings in accordance with requirements in individual Sections, where installation is not completely shown on Shop Drawings, where limited space availability necessitates coordination, or if coordination is required to facilitate integration of products and materials fabricated or installed by more than one entity.

1. Content: Project-specific information, drawn accurately to a scale large enough to indicate and resolve conflicts. Do not base coordinated composite drawings on standard printed data. Include the following information, as applicable:

- a. Use applicable Drawings as a basis for preparation of coordinated composite drawings. Prepare sections, elevations, and details as needed to describe relationship of various systems and components.
- b. Coordinate the addition of trade-specific information to the coordinated composite drawings by Contractor, its Subcontractors, and with Owner's Separate Contractors in a sequence that best provides for coordination of the information and resolution of conflicts between installed components before submitting for review.
- c. Indicate functional and spatial relationships of components of architectural, structural, civil, mechanical, and electrical systems.
- d. Indicate space requirements for routine maintenance and for anticipated replacement of components during the life of the installation.
- e. Show location and size of access doors required for access to concealed dampers, valves, and other controls, including space required opening the access door.
- f. Indicate required installation sequences.
- g. Indicate dimensions shown on the Drawings. Specifically note dimensions that appear to be in conflict with submitted equipment and minimum clearance requirements. Provide alternate sketches to the Owner indicating all conflicts and providing a proposed resolution of such conflicts for Owner's review and comment. Minor dimension changes and difficult installations will not be considered changes to the Contract.

B. Coordinated Composite Drawing Organization: Organize drawings as follows:

1. Floor Plans and Reflected Ceiling Plans: Show architectural and structural elements, and mechanical, plumbing, fire protection, fire alarm, and electrical Work. Show locations of visible ceiling-mounted devices relative to acoustical ceiling grid. Supplement plan drawings with section drawings where required to adequately represent the Work.
2. Plenum Space: Indicate sub-framing for support of ceiling and wall systems, mechanical and electrical equipment, and related Work. Locate components within ceiling plenum to accommodate layout of light fixtures indicated on the Drawings. Indicate areas of conflict between light fixtures and other components.
3. Mechanical Rooms: Provide coordinated composite drawings for mechanical rooms showing plans and elevations of mechanical, plumbing, fire protection, fire alarm, and electrical equipment.
4. Structural Penetrations: Indicate penetrations and openings required for all disciplines.
5. Slab Edge and Embedded Items: Indicate slab edge locations and sizes and locations of embedded items for metal fabrications, sleeves, anchor bolts, bearing plates, angles, door floor closers, slab depressions for floor finishes, curbs and housekeeping pads, and similar items.
6. Mechanical and Plumbing Work: Show the following:
 - a. Sizes and bottom elevations of ductwork, piping, and conduit runs, including insulation, bracing, flanges, and support systems.
 - b. Dimensions of major components, such as dampers, valves, diffusers, access doors, cleanouts and electrical distribution equipment.
 - c. Fire-rated enclosures around ductwork.
7. Electrical Work: Show the following:
 - a. Runs of vertical and horizontal conduit 1-1/4 inch diameter and larger.

- b. Light fixture, exit light, emergency battery pack, smoke detector, and other fire alarm locations.
 - c. Panel board, switch board, switchgear, transformer, busway, generator, and motor control center locations.
 - d. Location of pull boxes and junction boxes dimensioned from column center lines.
- 8. Fire Protection System: Show the following:
 - a. Locations of standpipes, mains piping, branch lines, pipe drops, and sprinkler heads.
- 9. Review: The Owner will review coordinated composite drawings to confirm that the Work is being coordinated, but not for the details of the coordination, which are the Contractor's responsibility. If the Owner determines that the coordinated composite drawings are not being prepared in sufficient scope or detail, or are otherwise deficient, the Owner will so inform the Contractor, who shall make changes and resubmit. |
- C. Coordination Digital Data Files: Prepare coordination digital data files in accordance with the following requirements:
 - 1. File Preparation Format: The Contractor shall coordinate with the Owner and use the same digital data software program, version, and operating system as the original Drawings.

1.6 KEY PERSONNEL

- A. Key Personnel Names: Within 15 days after the Effective Date, submit a list of Key Personnel and their assignments with resume and job qualifications, including project manager, project scheduler, cost engineer, commissioning agent, superintendents and other personnel in attendance at the Project Site. Identify individuals and their duties and responsibilities; list addresses and telephone numbers, including home, office, and cellular telephone numbers, and email addresses. Provide names, addresses, and telephone numbers of individuals assigned as standbys in the absence of individuals assigned to the Project.
- B. Contractor shall not replace any such Key Personnel at any time without the prior written consent of Owner, which consent shall not be unreasonably withheld or delayed. Contractor shall promptly replace any Key Personnel to which Owner reasonably objects in writing.

1.7 REQUESTS FOR INFORMATION (RFIs)

- A. General: Immediately on discovery of the need for additional information or interpretation of the Contract Documents, the Contractor shall prepare and submit an RFI in the form specified.
 - 1. Coordinate and submit RFIs in a prompt manner so as to avoid delays in the Contractor's or its Subcontractors' Work.
- B. Content of the RFI: Include a detailed, legible description of item needing information or interpretation and the following:
 - 1. Project name.

2. Project number.
 3. Date.
 4. Name of Contractor.
 5. Name of Design Professional.
 6. RFI number, numbered sequentially.
 7. RFI subject.
 8. Specification Section number and title and related paragraphs, as appropriate.
 9. Drawing number and detail references, as appropriate.
 10. Field dimensions and conditions, as appropriate.
 11. Contractor's suggested resolution. If Contractor's solution(s) impacts the date of Substantial Completion or the Contract Sum, Contractor shall state impact in the RFI. Such information shall not be considered "notice" of a Dispute, Claim, or Change Order.
 12. Contractor's signature.
 13. Attachments: Include sketches, descriptions, measurements, photos, Product Data, Shop Drawings, coordination drawings, and other information necessary to fully describe items needing interpretation.
 - a. Include dimensions, thicknesses, structural grid references, and details of affected materials, assemblies, and attachments on attached sketches.
- C. RFI Forms: The Owner's Contract Manager-generated form with substantially the same content as indicated above.
- D. Owner's and its Design Professional's Action: The Owner and its Design Professional will review each RFI, and respond with its comments. Allow a reasonable amount of working days for the response for each RFI. RFIs received by the Owner or its Design Professional after 1:00 p.m. will be considered as received the following working day.
1. The following RFIs will be returned without action:
 - a. Requests for approval of submittals.
 - b. Requests for approval of substitutions.
 - c. Requests for coordination information already indicated in the Contract Documents.
 - d. Requests for adjustments in the date for Substantial Completion or the Contract Sum.
 - e. Requests for interpretation of the Owner's or its Design Professional's actions on submittals.
 - f. Incomplete RFIs or inaccurately prepared RFIs.
 2. The Owner's or its Design Professional's action may include a request for additional information, in which case the Owner's or its Design Professional's time for response will date from time of receipt of additional information.
 3. The Owner's or its Design Professional's action on RFIs that may result in a change to the date of Substantial Completion or the Contract Sum may be eligible for the Contractor to submit a Claim in accordance with procedures in General Conditions, Article 10 – Claims and Disputes.
 - a. If the Contractor believes the RFI response has impacted the Critical Path of the Work and warrants change in the date of Substantial Completion or the Contract

Sum, notify the Owner in writing within fifteen (15) days of receipt of the RFI response.

- E. On receipt of the Owner's or its Design Professional's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify the Owner and Design Professional within five days if the Contractor disagrees with response.
- F. RFI Log: Coordinate and cooperate with the Owner to prepare, update and maintain the Owner's use of Contract Manager software log. The software log will include not less than the following:
 - 1. Project name.
 - 2. Name and address of Contractor.
 - 3. Name and address of Design Professional.
 - 4. RFI number including RFIs that were dropped and not submitted.
 - 5. RFI description.
 - 6. Date the RFI was submitted.
 - 7. Date Design Professional's response was received.
 - 8. Identification of related Minor Change in the Work, construction change directive, and Proposal Request, as appropriate.
 - 9. Identification of related Field Order, Work change directive, and Proposal Request, as appropriate.

1.8 CONTRACT MANAGER SOFTWARE SITE

- A. Coordinate and cooperate with the Owner for managing project communication and documentation until Contract Closeout. The Contract Manager software site may include, but is not limited to, the following functions:
 - 1. Project directory.
 - 2. Project correspondence.
 - 3. Meeting minutes.
 - 4. Contract modifications forms and logs.
 - 5. RFI forms and logs.
 - 6. Task and issue management.
 - 7. Submittals forms and logs.
 - 8. Payment application forms.
 - 9. Online document collaboration.
 - 10. Reminder and tracking functions.
 - 11. Archiving functions.

1.9 PROJECT MEETINGS

- A. General: The Contractor will schedule and conduct meetings at the Project Site, in accordance with the Contract Documents, unless otherwise indicated.
 - 1. Attendees: The Contractor will inform participants, including the Owner and Design Professional and others whose presence is required, of date and time of each meeting.
 - 2. Agenda: The Contractor will prepare the meeting agenda and distribute the agenda to all invited attendees, including the Owner and Design Professional.

3. Minutes: The Contractor will record significant discussions and agreements achieved and distribute the meeting minutes to everyone concerned, including the Owner and Design Professional.
- B. Construction Kick-off Meeting: The Owner will schedule and conduct a construction kick-off meeting before starting construction, at a time convenient to the Owner and Design Professional, upon issuance of the Notice to Proceed.
1. The meeting shall review responsibilities and personnel assignments.
 2. Attendees: The Owner, Owner's Commissioning Authority, Design Professional, and their consultants; the Contractor and its superintendent; major Subcontractors; and other concerned parties shall attend the conference. Participants at the meeting shall be familiar with the Project and authorized to make binding decisions on matters relating to the Work.
 3. Agenda: The meeting agenda will include items of significance that could affect progress, including the following:
 - a. Tentative construction schedule.
 - b. Phasing.
 - c. Critical work sequencing and long-lead items.
 - d. Designation of key personnel and their duties.
 - e. Lines of communications.
 - f. Procedures for processing field decisions and Change Orders.
 - g. Procedures for RFIs.
 - h. Procedures for testing and inspecting.
 - i. Procedures for processing Applications for Payment.
 - j. Distribution of the Contract Documents.
 - k. Submittal procedures.
 - l. Sustainable design requirements.
 - m. Preparation of As-builts and turnover documents.
 - n. Use of the premises.
 - o. Work restrictions.
 - p. Working hours.
 - q. Owner's occupancy requirements.
 - r. Responsibility for temporary facilities and controls.
 - s. Procedures for moisture and mold control.
 - t. Procedures for disruptions and shutdowns.
 - u. Construction waste management and recycling.
 - v. Parking availability.
 - w. Office, work, and storage areas.
 - x. Equipment deliveries and priorities.
 - y. First aid.
 - z. Security.
 - aa. Progress cleaning.
 - bb. Safety.
 4. Minutes: The Owner and/or Design Professional will use Contract Manager to record and distribute meeting minutes.

C. Progress Meetings: The Contractor will conduct progress meetings in accordance with this Section. Unless otherwise determined by Owner, the Contractor and Owner shall meet every fourteen days (the “Bi-Weekly Progress Meeting”) to discuss the progress of Contractor’s Work. The Contractor will produce meeting notes, to include an action item list, as a result of the Bi-Weekly Progress Meeting and circulate a draft to the Owner for comments. The date and time of the Bi-Weekly Progress Meeting will be subject to changes as determined by the Owner. All action items which come from this meeting will be documented and tracked, weekly, by the Contractor. All open action items will be tracked through completion and the open/closed action item list will be discussed at the next meeting. All matters bearing on the progress and performance of the Work and the Project Schedule since the preceding progress meeting, including any open action items shall be discussed and resolved, deficiencies in the Work or the methods being employed for the Work, and problems, difficulties, or delays which may be encountered will be discussed.

1. Attendees: Unless otherwise required by Owner, progress meetings shall be attended by the Owner’s Commissioning Authority, the Design Professional, Contractor, Contractor’s Subcontractors applicable to the current Work, and each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the meeting shall be familiar with the Project and authorized to make binding decisions on matters relating to the Work.

2. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of the Project.

a. The Project Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to the Contractor’s Project Schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether revisions to the Project Schedule are required to ensure that current and subsequent activities will be completed within the Contract Time.

1) Review schedule for next scheduled progress meeting period.

b. Review present and future needs of each entity present, including the following:

- 1) Interface requirements.
- 2) Sequence of operations.
- 3) Status of submittals.
- 4) Deliveries.
- 5) Off-site fabrication.
- 6) Access.
- 7) Site utilization.
- 8) Temporary facilities and controls.
- 9) Progress cleaning.
- 10) Quality and work standards.
- 11) Status of correction of deficient items.
- 12) Field observations.
- 13) Status of RFIs.
- 14) Status of proposal requests.

- 15) Pending changes.
 - 16) Status of Change Orders.
 - 17) Pending claims and disputes.
 - 18) Documentation of information for payment requests.
3. Minutes: The Contractor will record and distribute the meeting minutes to each party present and to parties requiring information.
 - a. Schedule Updating: Coordinate with the Owner to revise the Project Schedule after each progress meeting where revisions to the Project Schedule have been made or recognized. The Contractor will issue the revised Project Schedule concurrently with the report of each meeting.
4. Daily Project Status Meetings: Upon Contractor's mobilization to the Site, Contractor shall organize and Contractor and its Subcontractors shall attend a daily meeting chaired by Contractor in which Contractor and its Subcontractors shall coordinate the Work and discuss the status of all activities scheduled to be worked on each day (the "Daily Meeting"). Owner may attend and participate in the Daily Meetings.
 - a. Contractor shall use the prior Bi-weekly Update to the Project Schedule to coordinate its activities with those of Owner, Contractor's Subcontractors, and any other parties performing the Work at the Site or elsewhere.
 - b. During the Daily Meeting, Contractor and its Subcontractors shall report on safety, quality control, action items, work area status, corrective action program issues and opportunities. The attendees shall also discuss topics such as problem areas, recovery and mitigation plans, unresolved issues, risk exposure, and manpower availability.
5. Commissioning Coordination Meetings: At least six months before scheduled commissioning activities, the Contractor and Owner shall commence jointly conducted onsite commissioning coordination meetings. Such meetings may, at the Owner's option, occur as necessary to properly monitor and coordinate the efforts of the Contractor's Work with the work Owner will be performing.
6. Other Meetings: During performance of the Work, and in addition to the Bi-Weekly Meeting defined above, Contractor shall attend and participate in other meetings as set forth in the Contract Documents or as Owner may request to update Owner as to the progress of the Work, discuss and resolve commercial or technical issues, or to discuss any issue regarding the Project as deemed necessary by Owner. The location of such meetings will be determined by Owner, and may be held daily, weekly, monthly or as otherwise requested by Owner.
7. Meeting Reporting Requirements. Contractor shall provide Owner with minutes of all regular and scheduled project meetings, with the exception of internal meetings where Contractor confidential information is discussed. Owner shall retain and be afforded the right to amend the minutes of meetings attended by Owner before they are issued as "final" by Contractor.

- D. Pre-installation Meetings: The Owner may conduct pre-installation meetings at the Project Site before each construction activity that requires coordination with other construction and major assemblies of the Work requiring tight control and coordination.
1. Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow shall attend the meeting. The Owner to advise the Contractor, Design Professional, and Owner's Commissioning Authority of scheduled meeting dates.
 2. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including requirements for the following:
 - a. Contract Documents.
 - b. Options.
 - c. Related RFIs.
 - d. Related Change Orders.
 - e. Purchases.
 - f. Deliveries.
 - g. Submittals.
 - h. Review of mockups.
 - i. Possible conflicts.
 - j. Compatibility problems.
 - k. Time schedules.
 - l. Weather limitations.
 - m. Manufacturer's written recommendations.
 - n. Warranty requirements.
 - o. Compatibility of materials.
 - p. Acceptability of substrates.
 - q. Temporary facilities and controls.
 - r. Space and access limitations.
 - s. Regulations of authorities having jurisdiction.
 - t. Testing and inspecting requirements.
 - u. Installation procedures.
 - v. Coordination with other work.
 - w. Required performance results.
 - x. Protection of adjacent work.
 - y. Protection of construction and personnel.
 3. The Contractor will record significant meeting discussions, agreements, and disagreements, including required corrective measures and actions.
 4. Reporting: The Contractor will distribute minutes of the meeting to each party present and to other parties requiring information.
 5. Do not proceed with installation if the meeting cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the meeting at earliest feasible date.
- E. Project Closeout Conference: The Contractor shall schedule and conduct a Project closeout conference, at a time convenient to the Owner and Design Professional, but no later than sixty (60) days prior to the scheduled inspection date for Substantial Completion.

1. The Owner will conduct the conference to review requirements and responsibilities related to the Project closeout.
2. Attendees: The Owner, Owner's Commissioning Authority, Design Professional, and their consultants; the Contractor and its superintendent; major Subcontractors; and other concerned parties shall attend the meeting. Participants at the meeting shall be familiar with the Project and authorized to make binding decisions on matters relating to the Work.
3. Agenda: Discuss items of significance that could affect or delay the Project closeout, including the following:
 - a. Submission of turnover documents.
 - b. Procedures required prior to inspection for Substantial Completion and for final inspection for acceptance.
 - c. Requirements for demonstration and training.
 - d. Preparation of Contractor's punch list.
 - e. Procedures for processing Applications for Payment at Substantial Completion and for final payment.
 - f. Coordination of Owner's Separate Contractors.
 - g. Owner's partial occupancy requirements.
 - h. Installation of Owner's furniture, fixtures, and equipment.
 - i. Responsibility for removing temporary facilities and controls.
4. Minutes: The Contractor conducting meeting will record and distribute meeting minutes.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 013100

SECTION 013200 - CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. The Contract Documents, including but not limited to, the Drawings and individual Specification Sections and the Milestone Dates in Contract, Exhibit F, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements to plan, schedule and document the progress of construction during the performance of the Work, including the following:
 - 1. The Project Schedule using Critical Path Method (CPM) schedule techniques and reports.
 - 2. Material location reports.
 - 3. Field condition reports.
 - 4. Special reports.
- B. Related Sections:
 - 1. Section 011200 – Contract Summary of Work, for preparing a combined Project Schedule.
 - 2. Section 013300 – Submittal Procedure, for submitting schedules and reports.
 - 3. Section 014000 – Quality and Code Requirements, for submitting a schedule of tests and inspections.

1.3 DEFINITIONS

- A. Not Used.
- B. Activity: A discrete part of the Contract that can be identified for planning, scheduling, monitoring, and controlling the Project. Activities included in the Project Schedule consume time and resources.
 - 1. Critical Activity: An activity on the Critical Path that has no total float.
 - 2. Predecessor Activity: An activity that precedes another activity in the network.
 - 3. Successor Activity: An activity that follows another activity in the network.
- C. Milestone Dates: Interim milestones included in the Contract Documents, which the Contractor is obligated to achieve and utilizes to formulate the Baseline Schedule. The Milestone Dates include the date of Substantial Completion.
- D. Baseline Schedule: Initial schedule, prepared by the Contractor and approved by Owner, to complete the Work of the Contract in accordance with the Contract duration and starting point to which schedule updates are compared.

- E. CPM: Critical Path Method is a scheduling method used to plan and schedule construction projects where activities are arranged based on activity relationships creating a time scaled network diagram. The Project Schedule must use industry-standard CPM schedule techniques.
- F. PDM: Precedence Diagram Method follows the standard CPM calculations and allows for special logic relationships creating an interdependent relationship throughout the Project Schedule network.
- G. Critical Path: The longest connected chain of interdependent activities through the Project Schedule network that establishes the minimum overall Project duration and contains no total float.
- H. Data Date: The date when the status of the Project Schedule is determined, showing the calendar start date for the update period.
- I. Float: The measure of leeway in starting and completing an activity.
 - 1. Float time is not for the exclusive use or benefit of either the Owner or Contractor, but is a jointly owned, expiring Project resource available to both Parties as needed to meet schedule milestones and the Substantial Completion date.
 - 2. Free float is the amount of time an activity can be delayed without adversely affecting the early start of the successor activity.
 - 3. Total float is the measure of leeway in starting or completing an activity without adversely affecting the contractually-required Substantial Completion date.

1.4 INFORMATIONAL SUBMITTALS

1.1.1 Format for Submittals: Submit required submittals in both electronic (PDF) file format and as electronic backup file in native software format. Unless otherwise agreed to by Owner, Contractor will submit an updated electronic copy of the Project Schedule to the Owner every 14 days (the “Bi-Weekly Schedule Update”). For all schedule submissions by Contractor, including drafts of the Project Schedule and Bi-Weekly Updates, upon Owner’s request, Contractor must provide to Owner read and copy access to the Project Schedule file, along with access at Owner’s reasonable request to the underlying data, calculations, assumptions, procedures, analysis, spreadsheets, databases, etc., used in their development.

- A. Project Schedule: Schedule, of size required to display the entire schedule for the entire Project in accordance with the Contract Documents, including architecture, engineering, procurement, construction, and commissioning.
 - 1. Submit a working electronic copy of schedule, using software indicated, and labeled to comply with requirements for submittals. Include type of schedule (baseline or updated) and date on label.
 - 2. Contractor’s Integration of Owner’s and Owner’s Separate Contractors’ Work. During the development of the Project Schedule or later as deemed appropriate by the Owner, Contractor and Owner will mutually identify all items of work to be assigned and performed by the Owner or Owner’s Separate Contractors for integration into the Project Schedule.

- B. CPM Reports: Concurrent with the submission of the Project Schedule and throughout the course of the Work, Contractor shall submit each of the following reports. Format for each activity in reports shall contain; activity ID number, activity description, original duration, remaining duration, actual duration, early and late start and finish dates and total float in calendar days.
1. Activity Report: List of all activities sorted by early or actual start date in each phase, area and level following the physical divisions of the Work.
 2. Short Term Activity Report: Lists all activities occurring from the update data date in a two month forward and one month back window.
 3. Logic Report: List of preceding and succeeding activities for all activities, sorted in ascending order by early or actual start date. Include activity ID number and float path(s).
 4. Total Float Report: Provide a cumulative list of total float from each update period with comments associated to any and all variances.
 5. Procurement Report: List all procurement activities sorted in order of the item being procured.
 6. Narrative Report: The Contractor's project scheduler shall describe the nature of the submission, interpretation of calculations, issues affecting progress and a milestone analysis comparing progress against the baseline and update schedules.
- C. Material Location Reports: Submit at monthly intervals.
- D. Field Condition Reports: Submit at time of discovery of differing conditions.
- E. Special Reports: Submit at time of unusual event.
- F. Qualification Data: For project scheduler.

1.5 QUALITY ASSURANCE

- A. Project Scheduler Qualifications: An experienced specialist in CPM scheduling and reporting, with capability of producing CPM reports and diagrams within timeframes requested by the Owner. The project scheduler shall have or be able to obtain certification as a Planning and Scheduling Professional (PSP) or have a minimum of five years of demonstrated experience scheduling large capital projects.
- B. Prescheduling Conference: The Owner may conduct conference at the Project site to comply with requirements in Section 013100 - Project Management and Coordination. Review methods and procedures related to the Baseline Schedule and the Project Schedule, including, but not limited to, the following:
1. Review software limitations and content and format for reports.
 2. Verify availability of qualified personnel needed to develop and update the Project Schedule.
 3. Discuss coordination, including phasing, work stages, area separations, interim milestones and Beneficial Occupancy.
 4. Review delivery dates for Owner-furnished products.
 5. Review the Project Schedule for work of Owner and its Separate Contractors.
 6. Review time required for review of submittals and resubmittals.

7. Review requirements for tests and inspections by independent testing and inspecting agencies.
8. Review time required for completion and startup procedures.
9. Review and finalize list of construction activities to be included in the Project Schedule.
10. Review submittal requirements and procedures.
11. Review procedures for updating the Project Schedule.

1.6 COORDINATION

- A. Coordinate development, preparation, and processing of updates to the Project Schedules and reports with the performance of the Work and with scheduling and reporting of the Owner's and its Separate Contractors' work.
 1. Coordinate new Baseline Schedules and Project Schedule updates with Owner and Owner's Separate Contractors when additional contracts are executed during the entire duration of the Project.
- B. Coordinate the Project Schedule with the Contractor's Submission Schedule, progress reports, and other required schedules and reports.
 1. Coordinate each construction activity in the Project Schedule network with other activities and schedule them in proper sequence.

PART 2 - PRODUCTS

2.1 CRITICAL PATH METHOD SCHEDULE - GENERAL

- A. Milestone Dates: The Contractor shall develop and provide Milestone Dates to Owner for Owner's review and approval. Nothing in the Milestone Dates, Baseline Schedule or Project Schedule shall preclude the Contractor, without cost or schedule impact to Owner, from advancing the Work of the Contract.
 1. Include milestones indicated in the Contract Documents in the Baseline Schedule, including, but not limited to, interim milestones, the Milestone Dates, including the Substantial Completion date, and Contract close-out dates.
 2. The Substantial Completion date shall not be changed by submission of a schedule, including but not limited to, the Project Schedule and any of its updates, that shows either an early or a late completion date, unless approved by the Owner through a Change Order.
 3. No time for weather will be apportioned for foreseeable occurrences in a specific regional area. The Contractor shall be responsible to determine reasonable averages and make allowances in the performance of the Work.
- B. Activities: Treat each numbered activity as a consumable resource for each principal element of the Work. Comply with the following:
 1. Activity Duration: Define activities so no activity is longer than 15 days, unless specifically allowed by the Owner.

2. Procurement Activities: Include procurement process activities for long lead items and major items, requiring a cycle of more than 60 days, as separate activities in Project Schedule. Procurement cycle activities include, but are not limited to, submittals, approvals, purchasing, fabrication, and delivery.
 3. Submittal Review Time: Include review and resubmittal times indicated in Section 013300 - Submittal Procedures in schedule. Coordinate submittal review times in the Project Schedule with dates entered in the Contractor's Submission Schedule.
 4. Startup and Testing Time: Include not less than 15 days for startup and testing.
 5. Substantial Completion: Indicate completion on the date established for Substantial Completion and allow time for the Owner's commissioning and administrative procedures necessary to execute the Notice of Substantial Completion (NOSC).
 6. Incomplete Work items and Contract Closeout: Unless otherwise agreed to by Owner, include not more than 60 days for incomplete Work items and Contract Closeout Requirements.
- C. Constraints: Include constraints and work restrictions indicated in the Contract Documents, or approved by the Owner prior to use and show how date constraints affect the sequence of the Work.
1. Construction Areas: Identify each major area of construction for each major portion of the Work. Indicate where each construction activity within a major area must be sequenced or integrated with other construction activities.
- D. Upcoming Work Summary: Prepare summary report indicating activities scheduled to occur or commence prior to submittal of next Project Schedule update. Summarize the following issues:
1. Unresolved issues.
 2. Unanswered RFIs.
 3. Rejected or unreturned submittals.
 4. Notations on returned submittals.
- E. Recovery Plan. Should any phase of the Work fall behind to such extent that the Milestone Dates identified in Contract, Exhibit F may, as determined by Owner, be at risk, Contractor shall submit a plan to Owner within five (5) days that details the Contractor's plan to recover to the Milestone Dates contained in the Contract Documents ("Recovery Plan") or, if such recovery is not possible, mitigate delay or avoid further delay to the Milestone Dates. Should Owner find that Contractor's proposed Recovery Plan is not sufficient to recover the Milestone Dates or, if such recovery is not possible or does not mitigate delay or avoid further delay to the Project Schedule, Owner shall advise Contractor that Contractor has five (5) additional days to submit an alternative recovery plan to recover the Project Critical Path or, if such recovery is not possible, mitigate delay or avoid further delay to the Milestone Dates.
1. Owner's Right to Direct Recovery. If Contractor has not corrected the schedule deficiency or does not have a reasonably acceptable plan to correct the schedule deficiency within ten (10) days of the submission of the original recovery plan, Owner shall have the right to require the Contractor to immediately: (1) increase the number of its employees performing the affected Work; (2) increase or change the amount of time or number of work shifts worked by the Contractor's employees, including increasing the number of hours worked per day or the number of days worked per week; and/or (3) increase or substitute other Contractor-provided resources, including hiring specialty Subcontractors, until the Work has recovered the Milestone Dates, or a plan

for regaining the schedule reasonably acceptable to Owner is proposed by the Contractor or any combination thereof. Notwithstanding the foregoing, all other Contract terms relating to the Substantial Completion Date, including the calculation of liquidated damages remain unchanged.

2. Costs for Recovery. All additional costs incurred by Contractor for providing acceleration in accordance with its recovery plan or as directed by the Owner under this Section E shall be paid by Contractor, except to the extent that such additional costs are required to address delays to the Milestone Dates that are the fault of the Owner, and that Contractor would not have had to pay such additional costs but for Owner's delay.
3. Owner's Remedies for Inadequate Schedule. Contractor's failure to adequately prepare or update the Project Schedule may be deemed by Owner as an Event of Default by Contractor. If, after notice by Owner, Contractor does not prepare or update the Project Schedule pursuant to the Contract Documents, Owner may use its own forces or another contractor to develop, maintain or manage the Project Schedule. Any costs incurred by Owner based upon Contractor's failures under the Contract Documents may, at Owner's discretion, be charged to Contractor. In such event, Contractor shall promptly provide the Owner and/or Owner's Separate Contractors with all information and data reasonably requested regarding the progress, requirements and other aspects of the Contract Documents Work, and shall otherwise cooperate with the Owner, at no cost to Owner, as reasonably necessary or desirable for the timely and efficient preparation, review, maintenance and revision of the Project Schedule. Contractor shall be bound by such schedule as if it was prepared and maintained by Contractor pursuant to the Contract Documents.

F. Computer Scheduling Software: Prepare the Project Schedules using current version of a program that has been developed specifically to manage CPM schedules and interface with the Owner's electronic databases.

1. Utilize Primavera P6 or P3 Primavera Project Planner or other operating system approved by the Owner to develop, update, and report on the Project Schedule.

2.2 CRITICAL PATH METHOD SCHEDULE AND PROJECT SCHEDULE DEVELOPMENT

A. Interim Baseline Schedule: Prepare schedule using a time-scaled PDM network diagram representing the Work of the Contract. Total float time shall be equal to or greater than zero in the Interim Baseline Schedule.

1. Submit proposed Interim Baseline Schedule within twenty-one (21) days of the date established in the Notice to Proceed. Outline significant design, procurement, construction, start-up, and commissioning activities for the completion of the Work.
2. Develop network diagram in sufficient time to submit the Interim Baseline Schedule so it can be accepted for use by Owner no later than thirty (30) days after date established in the Notice to Proceed.
 - a. Failure to include any work item required for the performance of the Work shall not excuse the Contractor from completing the Work of the Contract within applicable completion dates, regardless of the Owner's approval of the schedule.

- B. Project Schedule Submission. Within sixty (60) days after the Effective Date, Contractor shall submit the draft Project Schedule for Owner's review and approval. The Project Schedule shall include the achieved progress and status as of the reporting period prior to its submission.
- C. Owner Review and Comment. Following submission by Contractor, the Owner will review and comment on the proposed Project Schedule. Unless otherwise agreed by the Parties, Owner and Contractor will meet to discuss Owner's findings. Following Owner and Contractor's meeting, Contractor shall incorporate all agreed upon changes, including changes required by the Contract Documents, and resubmit the proposed Project Schedule to Owner for consideration. The above process of resubmission, review, meeting, and incorporating corrections shall continue until Owner approves the Project Schedule at which time that Project Schedule will be designated as an approved Baseline Schedule and shall be used as the initial Baseline Schedule for the Project.
- D. Once approved by Owner, the Baseline Schedule shall replace the Interim Baseline Schedule. The data from the Interim Baseline Schedule will provide the basis for progress reporting and comparisons until the Baseline Schedule is approved.
- E. Project Schedule: Prepare contemporaneous schedules using a time-scaled PDM network for sequencing the Work and showing the progress of the Work.
1. Establish procedures for monitoring and updating the Project Schedule and for reporting progress. Coordinate procedures with the progress meeting and payment request date, including the procedures detailed in General Requirements.
 2. Where required by Owner, coordinate the work occurring concurrently through the integration of Owner and its Separate Contractors schedules into the Project Schedule.
 3. Conduct educational workshops to train and inform the Contractor's Key Personnel, including Subcontractors' personnel, in proper methods of providing data and using CPM schedule information and techniques to update their portions of the Project Schedule.
 4. Use "one workday" as the unit of time for individual activities. Indicate nonworking days and holidays incorporated into the Project Schedule in order to correlate with Contract durations.
- F. Project Schedule Preparation: Prepare a list of all activities required to complete the Work of the Contract. At minimum, each individual specification section, including General Requirement sections, as indicated in the Project Manual, shall be listed as an activity.
1. Activities ID: Provide a unique identifier to each activity. No activity ID shall be deleted, recycled, or reused.
 2. Activities: Indicate the estimated time duration, sequence requirements, and relationship of each activity in relation to other activities, including but not limited to, estimated time frames for the following activities:
 - a. Preparation and submission of all design bid packages, in accordance with the approved Design Submission Schedule as required in Section 4.11 of the General Conditions.
 - b. Preparation and processing of submittals.
 - c. Mobilization and demobilization.
 - d. Purchase of materials.
 - e. Delivery.
 - f. Fabrication.

- g. Utility interruptions.
 - h. Installation.
 - i. Contractor's construction Work.
 - j. Work by Owner that may affect or be affected by the Contractor's activities.
 - k. Testing and commissioning.
 - l. Incomplete Work items and Contract closeout.
3. Actual Activity Dates: Once an activity has been assigned an actual date of occurrence, the status of that activity shall not change. Any change to actual dates must be accompanied with supporting data and approved by the Owner. No actual start date shall occur ahead of the data date.
 4. Critical Path Activities: Identify critical path activities, including those for interim completion dates. Scheduled start and completion dates shall be consistent with the Milestone Dates identified in Exhibit F.
 5. Processing: Process data to produce output data status on a computer-drawn, PDM network. Revise data, reorganize activity sequences, and reproduce as often as necessary to produce the Project Schedule within the limitations of the Contract duration.
 6. Calculations: The Project Schedule network shall be calculated allowing activities to retain their original logic. Progress override shall not be used when calculating the network status.
 7. Logic: Leads and lags will not be used when the creation of an activity will perform the same function. Lag durations contained in the Project Schedule shall not have negative value. Lead and lag durations shall not exceed the durations of the activity they are assigned.
 - a. There shall be only two open ended activities; (1) Notice to Proceed, with no predecessor logic, and (2) Final Payment, with no successor logic. All intermediate activity logic shall be connected.
 - b. Out of sequence activities that have progressed before all preceding logic will be allowed only on a case by case basis, as approved by the Owner. The Contractor shall propose logic corrections to eliminate all out of sequence progress and correct out of sequence progress that continues for more than two update cycles by logic revisions, as approved by the Owner.
 8. Float: The Owner shall reject the Project Schedule and Project Schedule updates for the use of float suppression techniques such as preferential sequencing, special lead lags logic constraints, zero total or zero free float constraints, extended activity times, or imposing constraint dates other than what is required by the Contract.
 - a. The use of resource leveling used for the purpose of artificially adjusting activity durations to consume float and influence the Critical Path is prohibited.
 - b. A Project Schedule or Project Schedule Update showing Work completing in less time than the Contract duration and accepted by the Owner will be considered to have float.
 - c. Any float generated during the performance of the Work, due to efficiencies of the Owner or any Contractor is not for sole use of the party generating the float.
 - d. Negative float will not be a basis for requesting time extensions and will not be construed as a means of acceleration or extension to the Milestone Dates.

9. Format: Follow the applicable individual specification sections of the Work as the bases for the content of the Project Schedule. Organize the Project Schedule to provide the necessary detail for each area, level, quadrant and section as needed in the performance of the Work.
- G. Changes in the Work: For each proposed change, and concurrent with its submission, prepare a time-impact analysis using a network fragnet to demonstrate the effect of the proposed change on the overall Project Schedule.
 - H. Project Schedule Updating: Concurrent with making revisions to the Project Schedule, prepare tabulated reports showing the following:
 1. Identification of activities that have changed, including the reason each adjustment was necessary.
 2. Changes in early and late finish dates.
 3. Changes in activity durations in workdays.
 4. Changes in the critical path.
 5. Changes in total float or slack time.
 6. Changes in the duration for Substantial Completion.

2.3 REPORTS

- A. Material Location Reports: At monthly intervals, prepare and submit a comprehensive list of materials delivered to and stored at Project site. List shall be cumulative, showing materials previously reported plus items recently delivered. Include with list a statement of progress on and delivery dates for materials or items of equipment fabricated or stored away from Project site.
- B. Field Condition Reports: Immediately on discovery of a difference between field conditions and the Contract Documents, prepare and submit a detailed report. Submit with a Request for Information. Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.

2.4 SPECIAL REPORTS

- A. General: Submit special reports directly to Owner within one day of an occurrence. Distribute copies of report to parties affected by the occurrence.
- B. Reporting Unusual Events: When an event of an unusual and significant nature occurs at Project site, whether or not related directly to the Work, prepare and submit a special report. List chain of events, persons participating, and response by Contractor's personnel, evaluation of results or effects, and similar pertinent information. Advise the Owner in advance when these events are known or predictable.

PART 3 - EXECUTION

3.1 PROJECT SCHEDULE

- A. Project Scheduler: Contractor shall engage a consultant or one of its own employees skilled in construction planning and scheduling to provide planning, scheduling, evaluation, and reporting services using CPM scheduling.
 - 1. Submit qualifications.
 - 2. Meetings: Contractor's Project scheduler shall attend all meetings related to the Project progress, alleged delays, and time impact.
- B. Project Schedule and Project Schedule Reports Updating: Prior to each scheduled progress meeting, Contractor shall update the Project Schedule to reflect actual Project progress and activities in accordance with General Requirements.
 - 1. Revise the Project Schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue an updated Project Schedule concurrently with the reports of each such meeting. As a minimum, the Project Schedule update submissions shall occur Bi-Weekly (every 14 days).
 - 2. Include reports required by the Contract Documents with updated Project Schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.
 - 3. As the Work progresses, indicate final remaining duration for each activity.
- C. Distribution: Submit one electronic copy, in format specified, to the Owner and distribute copies of approved Project Schedule and reports required by the Contract Documents to the Owner, Design Professional, Owner's Separate Contractors, testing and inspecting agencies, and other parties identified by the Owner with a need-to-know schedule responsibility.
 - 1. Post copies in Project meeting rooms and temporary field offices.
 - 2. When revisions are made, distribute updated Project Schedules and reports to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in performance of Work activities.

END OF SECTION 013200

SECTION 013300 – SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. The Contract Documents, including but not limited to, the Drawings and individual Specification Sections and Contractor's Submission Schedule, apply to this Section.

1.2 SUMMARY

- A. Section includes requirements for the submittal schedule and administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.
- B. Related Sections:
 - 1. Section 013200 – Construction Progress Documentation, for submitting schedules and reports, includes Contractor's construction schedule.
 - 2. Section 017700 – Contract Closeout Requirements, for documents required to closeout contract.
 - 3. Section 017823 – Operation and Maintenance Manuals, for submitting operation and maintenance manuals.

1.3 DEFINITIONS

- A. Action Submittals: Written and graphic information and physical samples that require the Design Professional's responsive action. Action submittals are those submittals indicated in individual specification sections as action submittals.
- B. Informational Submittals: Written and graphic information and physical samples that do not require the Design Professional's responsive action. Submittals may be rejected for not complying with requirements. Informational submittals are those submittals indicated in individual specification sections as informational submittals.
- C. Portable Document Format (PDF): An open standard file format licensed by Adobe Systems used for representing documents in a device-independent and display resolution-independent fixed-layout document format.
- D. Required Submittal List Utility application: Interacts with and to be used with the Owner's Contract Manager system. The Design Professional uses the utility to itemize the list of submission items needed to be submitted by the Contractor in order to insure the design intent will be satisfied and inclusive of all Project turnover documents and/or Contract Closeout Requirements.

- E. Contractor's Submission Schedule: The itemized list of project submission requirements printed as a report from Contract Manager. The Contractor enters the date each item needs to be submitted in order to meet the CPM schedule and returns this document to the Owner.

1.4 ACTION SUBMITTALS

- A. Submittal Schedule: The Contractor's Submission Schedule is attached to this section, prepared by the Design Professional. The Contractor is to coordinate and cooperate with the Owner and Design Professional to arrange in chronological order by dates required by the construction schedule. Coordinate time required for review, ordering, manufacturing, fabrication, and delivery to establish dates. Coordinate additional time required for making corrections or modifications to submittals noted by the Design Professional and additional time for handling and reviewing submittals required by those corrections.
 - 1. Coordinate the Contractor's Submission Schedule with list of subcontracts, the schedule of values, and coordinated CPM schedule.
 - 2. Initial Submittal: Submit in accordance with start-up CPM schedule. Include submittals required during the first 60 days of construction. List those submittals required to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication.
 - 3. Final Submittal: Submit concurrently in accordance with the complete CPM schedule.
 - a. Coordinate with the Owner and Design Professional revised Contractor's Submission Schedule to reflect changes in current status and timing for submittals.
- B. Format for Submittals: Submit required submittals in electronic (PDF) file format.

1.5 SUBMITTAL ADMINISTRATIVE REQUIREMENTS

- A. The Construction -Contractor shall include the full cost of an internet web-based submittals service (Submittals Website) to transmit and track project related documents including the documents of all related contracts. Include the costs and/or fees of the Submittals Website subscription in the Contract Amount. Contact service provider to verify cost prior to bid. The Contractor shall:
 - 1. Not later than 5 days after Award, execute the form of agreement with the Submittals Website System Vendor and shall have notified the Director's Representative and the related work contractors of agreement.
 - 2. Not later than 15 days after Award provide the Submittal Website with all required information from Project Manual in regard to set up of the Submittal Website and ensure it is fully ready for use.
 - 3. Not later than 15 days after Award provide proof of payment from the vendor including DASNY project number and other relevant data.
 - 4. Provide the Submittals Website project subscription in the name of, and administered by the Director's Representative.
 - 5. Provide the Director's Representative and primary design consultant full control over required items list and access to edit, add or remove items during project.
 - 6. Submit at completion of the project a minimum four sets of archival discs that include all documents and tracking logs in a navigable format shall be sent by system vendor to

Director's Representative. Acceptable archive formats include the following: CD, DVD, USB flash drive or downloadable link.

B. The related contracts shall:

1. Utilize the Submittals Website at no additional charge.
2. Not later than 15 days after award provide the Submittals Website with all required information from Project Manuals in regard to set up of the Submittals Website.

C. Design Professional's Digital Data Files: Electronic copies of CAD Drawings of the Contract Drawings will not be provided by the Design Professional for the Contractor's use in preparing submittals.

Coordination: Coordinate preparation and processing of submittals with the performance of the Work.

1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
2. Commissioning Authority will review submittals applicable to systems being commissioned for compliance with commissioning needs, concurrent with the Design Professional review and approval.
3. Submit all submittal items required for each Specification Section concurrently unless partial submittals for portions of the Work are indicated on approved submittal schedule.
4. Submit action submittals and informational submittals required by the same Specification Section as separate packages under separate transmittals.
5. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
 - a. Submit Operation and Maintenance Manuals concurrent with action submittal.
 - b. The Owner or Design Professional reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

D. Processing Time: Allow time for submittal review, including time for re-submittals, as follows. Time for review shall commence on the Design Professional's receipt of submittal. 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 re-submittals.

1. Initial Review: Allow 15 days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. The Design Professional will advise the Contractor when a submittal being processed must be delayed for coordination.
2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
3. Re-submittal Review: Allow 15 days for review of each re-submittal.
4. Sequential Review: Where sequential review of submittals by the Design Professional's consultants, the Owner, or other parties is indicated, allow 21 days for initial review of each submittal.

E. Identification and Information: Place a permanent label or title block on each paper copy submittal item for identification.

1. Indicate name of firm or entity that prepared each submittal on label or title block.
2. 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 the Design Professional.
3. Include the following information for processing and recording action taken:
 - a. Project name.
 - b. Date.
 - c. Name of Design Professional.
 - d. Name of Construction Manager (if applicable).
 - e. Name of Contractor.
 - f. Name of subcontractor.
 - g. Name of supplier.
 - h. Name of manufacturer.
 - i. Submittal number including revision identifier.
 - 1) Submittal number shall be the submittal item number and Submittal Package number designated in the Contractor's Submission Schedule.
 - j. Drawing number and detail references, as appropriate.
 - k. Location(s) where product is to be installed, as appropriate.
 - l. Other necessary identification.

F. Identification and Information: Identify and incorporate information in each electronic submittal file as follows:

1. Assemble complete submittal package into a single indexed file with links enabling navigation to each item.
2. Name file with submittal number or other unique identifier, including revision identifier.
3. Provide means for insertion to permanently record the Contractor's review and approval markings and action taken by the Design Professional.
4. Include the following information on an inserted cover sheet:
 - a. Project name.
 - b. Date.
 - c. Name and address of Design Professional.
 - d. Name of Construction Manager (if applicable).
 - e. Name of Contractor.
 - f. Name of firm or entity that prepared submittal.
 - g. Name of subcontractor.
 - h. Name of supplier.
 - i. Name of manufacturer.
 - j. Number and title of appropriate Specification Section.
 - k. Drawing number and detail references, as appropriate.
 - l. Location(s) where product is to be installed, as appropriate.
 - m. Related physical samples submitted directly.
 - n. Other necessary identification.
5. Include the following information as keywords in the electronic file metadata:
 - a. Project name.
 - b. Number and title of appropriate Specification Section.

- c. Manufacturer name.
 - d. Product name.
- G. Options: Identify options requiring selection by the Design Professional.
- H. Deviations: Identify deviations from the Contract Documents on submittals.
- I. Additional Copies: Unless the Design Professional observes noncompliance with provisions in the Contract Documents, initial submittal may serve as final submittal.
- J. Transmittal: Assemble each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. The Design Professional will return submittals, without review, received from sources other than the Contractor.
 - 1. Transmittal Form: Use the Contractor's office form.
 - 2. Transmittal Form: Provide locations on form for the following information:
 - a. Project name.
 - b. Date.
 - c. Destination (To:).
 - d. Source (From:).
 - e. Names of subcontractor, manufacturer, and supplier.
 - f. Category and type of submittal.
 - g. Submittal purpose and description.
 - h. Specification Section number and title.
 - i. Indication of full or partial submittal.
 - j. Drawing number and detail references, as appropriate.
 - k. Transmittal numbered consecutively.
 - l. Submittal and transmittal distribution record.
 - m. Remarks.
 - n. Signature of transmitter.
 - 3. On an attached separate sheet, prepared on the Contractor's letterhead, record relevant information, requests for data, revisions other than those requested by the Design Professional on previous submittals, and deviations from requirements in the Contract Documents, including minor variations and limitations. Include same identification information as related submittal.
- K. Re-submittals: Make re-submittals in same form and format.
 - 1. Note date and content of previous submittal.
 - 2. Note date and content of revision in label or title block and clearly indicate extent of revision.
 - 3. Resubmit submittals until they are marked with approval notation from the Design Professional's action stamp.
- L. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, and installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.

- M. Use for Construction: Use only final submittals that are marked with approval notation from the Design Professional's action stamp.

PART 2 - PRODUCTS

2.1 SUBMITTAL PROCEDURES

- A. A Submittals Website, an internet (web-based) service shall be used to provide an on-line database and repository which shall be used to transmit and track project related documents. The intent for using the Submittals Website is to expedite the construction process by reducing paperwork, improving information flow, and decreasing submittal review turnaround time.
1. Project submittals (shop drawing, product data and quality assurance submittals) shall be transmitted by the Contractor to the Submittals Website, where it will be tracked and stored for retrieval for review. After the submittal is reviewed it is uploaded back to the Submittals Website for action or use by the Contractor and Director's Representatives.
 2. The service also tracks and stores documents related to the project such as RFI's (Request for Information), IB's (Information Bulletins), CAD
 3. Products:
 - i. Basis of specification is Submittal Exchange, 800-714-0024, www.submittalexchange.com.
 - ii. If a Pre-Award Meeting is held, it may include discussion regarding conformance of the Contractor proposed Submittal Website based on the criteria established below.
 - iii. Submit documented conformance and provide an online demonstration to the Director's Representative within five days of Award of Contract if a product other than Submittal Exchange is proposed.
 - iv. Acceptable Submittal Website shall document conformance with the following requirements:
 1. Independently hosted, web-based system for automated tracking, storage and distribution of contract submittals and other contract related documents. FTP sites, e-mail exchanges, and server-based systems hosted from inside a contractor's office will not be considered.
 2. Utilize 256-bit SSL encryption and hosted at SAS70 Type II compliant data centers.
 3. Minimum four years' experience of use on comparable commercial construction projects. "Comparable commercial construction projects" shall include documented use on a minimum of twenty governmental or public-entity projects of ten-million-dollar construction value or greater.

4. Website requirements:
 - a. Minimum of four years documented 99.5% website uptime.
 - b. Minimum of four gigabytes of on-line storage available for each contract, for storage of all documents related to that contract.
 - c. Minimum of two gigabytes of on-line storage for common documents relating to all contracts for the project.
 - d. Redundant storage of all project information (all contracts) at a minimum of two geographically separate storage sites (not in the same building).
5. Unlimited secure individual user accounts and system access for all project subcontractors, prime contractors, DASNY staff, design consultants, and subconsultants.
6. Separate locations for DASNY staff, design consultant, and subconsultant review comments with contractors restricted from viewing comments until final review or release by DASNY staff or primary design consultants.
7. Full version histories and dates of exchanges automatically tracked and available for viewing, searching, and reporting in a linear log format compatible with the Design and Construction Schedule of Submittals.
 - a. Each Contract's Submittal Log shall be tracked and maintained independent of the Submittal Logs of the related Contracts.
 - b. Each Contract's Submittal Log shall identify and highlight long lead items and critical submittals.
8. Automatic, email reminders of past due items to related reviewers by specification and discipline.
9. Customized, automated PDF form generation matching DASNY standard templates for Transmittal, IB, RFI, and Design & Construction Submittal Comment forms. Documentation and demonstration of automatic form generation using DASNY templates must be submitted for approval.
10. Automated workflow processes
 - a. Two stage review workflows for Submittal, and RFI
 - b. Posting Only for IB, CAD Coordination, Minutes, Testing, Closeout, and SWPPP documents.
 - c. Documentation of automated workflow processes matching requirements must be submitted for approval.

11. Functionality to group submittals as required packages and apply forms and review comments to entire package simultaneously.
12. System vendor shall provide minimum one-hour live web meeting training sessions to prime contractors, design consultants, subconsultants, and DASNY staff prior to project start.
13. System vendor shall make available minimum thirty-minute live web meeting training sessions for subcontractors at least once weekly for the entire duration of the project.
14. System vendor shall provide access for DASNY staff, design consultants, subconsultants, prime contractors, and subcontractors to live technical support by phone and email minimum of 8 AM to 5 PM EST on standard business days for the entire duration of the project at no additional cost.
15. During the project, the system shall allow the Director's Representative to have the ability to download project data periodically at key milestones.

B. General Submittal Procedure Requirements: Prepare and submit submittals required by individual Specification Sections. Types of submittals are indicated in individual Specification Sections.

1. Submit electronic submittals via email as electronic (PDF) files, to the Design Professional. If applicable, the Design Professional will forward submittals to the Commissioning Authority for systems being commissioned. The Owner may request paper copies of certain submittals for onsite coordination.
 - a. The Design Professional, through the Owner, will return annotated file. Annotate and retain one copy of file as an electronic Project turnover document file.
 - b. The Commissioning Authority through the Design Professional will return annotated file.
2. Operation and Maintenance Manual Submittals: Submit concurrent with the Action Submittal, as related in individual Specification Sections.
3. Closeout Submittals: Comply with requirements specified in Section 017700 – Contract Closeout Requirements and as listed in the Contractor's Submission Schedule.
4. Permits, Certificates and Certifications Submittals: Provide a statement that includes signature of entity responsible for preparing certification. Permits, Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.

C. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.

1. If information must be specially prepared for submittal because standard published data are not suitable for use, submit as Shop Drawings, not as Product Data.
2. Mark each copy of each submittal to show which products and options are applicable.
3. Include the following information, as applicable:
 - a. Submittal Package number and Submittal Item number.

- b. Manufacturer's catalog cuts.
 - c. Manufacturer's product specifications.
 - d. Standard color charts.
 - e. Statement of compliance with specified referenced standards.
 - f. Testing by recognized testing agency.
 - g. Application of testing agency labels and seals.
 - h. Notation of coordination requirements.
 - i. Availability and delivery time information.
- 4. For equipment, include the following in addition to the above, as applicable:
 - a. Wiring diagrams showing factory-installed wiring.
 - b. Printed performance curves.
 - c. Operational range diagrams.
 - d. Clearances required to other construction, if not indicated on accompanying Shop Drawings.
- 5. Submit Product Data concurrent with Samples.
- 6. Submit Product Data in electronic (PDF) file format.
- D. 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.
 - 1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
 - a. Submittal Package number and Submittal Item number.
 - b. Identification of products.
 - c. Schedules.
 - d. Compliance with specified standards.
 - e. Notation of coordination requirements.
 - f. Notation of dimensions established by field measurement.
 - g. Relationship and attachment to adjoining construction clearly indicated.
 - h. Seal and signature of professional engineer if specified.
 - 2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches but no larger than 30 by 42 inches.
- E. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.
 - 1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
 - 2. Identification: Attach label on unexposed side of Samples that includes the following:
 - a. Submittal Package number and Submittal Item number.
 - b. Generic description of Sample.
 - c. Product name and name of manufacturer.
 - d. Sample source.
 - e. Number and title of applicable Specification Section.

3. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
 - a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
 - b. Samples not incorporated into the Work, or otherwise designated as the Owner's property, are the property of the Contractor.
 4. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.
 - a. Number of Samples: For turnover purpose, submit six full sets of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. The Design Professional, through the Owner, will return submittal with options selected.
 5. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.
 - a. Number of Samples: Submit six sets of Samples. The Design Professional, through the Owner, will retain two Sample sets; remainder will be returned. Mark up and retain one returned Sample set as a turnover sample.
 - 1) Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.
 - 2) If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least six sets of paired units that show approximate limits of variations.
- F. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Include the following information in tabular form:
1. Name, address, and telephone number of entity performing subcontract or supplying products.
 2. Number and title of related Specification Section(s) covered by subcontract.
 3. Drawing number and detail references, as appropriate, covered by subcontract.
 4. Submit subcontract list in PDF electronic file, to the Owner.
- G. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, contact information of architects and owners, and other information specified.

- H. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification and Procedure Qualification Record on American Welding Society (AWS) forms. Include names of firms and personnel certified.
- I. OSHA Certificates: Upon the Owner's request, submit certificates of the OSHA 10-hour Construction Safety and Health Course – S1537-A, for all laborers, workers and mechanics working on site.
- J. Installer Certificates: Upon the Owner's request, submit written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.
- K. Manufacturer Certificates: Upon the Owner's request, submit written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.
- L. Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.
- M. Preconstruction Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.
- N. Field Test Reports: Submit reports indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.

PART 3 - EXECUTION

3.1 CONTRACTOR'S REVIEW

- A. Action and Informational Submittals: 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 the Design Professional.
- B. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of the Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

3.2 DESIGN PROFESSIONAL'S ACTION

- A. General: The Design Professional will not review submittals that do not bear the Contractor's approval stamp and will return them without action.
- B. Action Submittals: The Design Professional will review each submittal, make marks to indicate corrections or modifications required, and return it through the Owner. The Design Professional

will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action.

- C. Informational Submittals: The Design Professional will review each submittal and will return it if it does not comply with requirements.
- D. Partial submittals prepared for a portion of the Work will be reviewed when use of partial submittals has received prior approval from the Design Professional.
- E. Incomplete submittals are not acceptable, will be considered nonresponsive, and will be returned without review.
- F. Submittals not required by the Contract Documents may not be reviewed and may be discarded.
- G. On projects that have commissioning, the Commissioning Authority will receive copies of the submittals through the Design Professional and will provide comments on the submittals via the Design Professional.

3.3 CONTRACTOR'S SUBMITTAL SCHEDULE

- A. The Contractor's Submission Schedule: The Contractor's Submission Schedule, prepared by the Design Professional is attached following the end of this section. The Contractor shall provide the dates each item needs to be submitted to the Owner no later than 30 days after approval of CPM schedule. The schedule shall include the date of all shop drawings, samples, materials that shall be submitted and the date approval is required. The Contractor shall adhere to the submittal processing time as describe in paragraph 1.5 above when developing the submittal schedule. The Contractor is to coordinate and cooperate with the Owner and Design Professional to complete scheduling in accordance with the approved CPM schedule.

END OF SECTION 013300

SECTION 014000 - QUALITY AND CODE REQUIREMENTS

PART 1 - GENERAL

1. RELATED DOCUMENTS

- a. The Contract Documents, including but not limited to, the Drawings and Individual Specification Sections and New York State (NYS) Statement of Special Inspections and Tests, apply to this Section.

2. SUMMARY

- a. Section includes administrative and procedural requirements for quality assurance and quality control.
- b. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve the Contractor of responsibility for compliance with the Contract Document requirements.
- i. Specific quality assurance and quality control requirements for individual construction activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover production of standard products.
- ii. Specified tests, inspections, and related actions do not limit the Contractor's other quality assurance and quality control procedures that facilitate compliance with the Contract Document requirements.
- iii. Requirements for the Contractor to provide quality assurance and quality control services required by the Owner or authorities having jurisdiction are not limited by provisions of this Section.
- c. Related Sections:
 - i. Section 012100 - Allowances, for testing and inspecting allowances.
 - ii. Section 013200 - Construction Progress Documentation, for developing a schedule of required tests and inspections.
 - iii. Individual Specification Sections, for specific inspections and tests requirements.

3. DEFINITIONS

- a. Quality Assurance Services: Activities, actions, and procedures performed during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.
- b. Quality Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements.

- c. Product Testing: Tests and inspections that are performed by a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with specified requirements.
- d. Field Quality Control Testing: Tests and inspections that are performed on-site for installation of the Work and for completed Work.
- e. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.
- f. Installer/Applicator/Erector: The Contractor or another entity engaged by the Contractor as an employee or Subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations.
- g. Experienced: When used with an entity or individual, "experienced" means having successfully completed a minimum of five previous projects similar in nature, size, and extent to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

4. ACTION SUBMITTALS

- a. Shop Drawings: For mockups, provide plans, sections, and elevations, indicating materials and size of mockup construction.
 - i. Indicate manufacturer and model number of individual components.
 - ii. Provide axonometric drawings for conditions difficult to illustrate in two dimensions.

5. INFORMATIONAL SUBMITTALS

- a. Contractor's Quality Control Plan: For quality assurance and quality control activities and responsibilities.
- b. Contractor's Quality Control Manager Qualifications: For supervisory personnel.
- c. Testing Agency Qualifications: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.

d. Schedule of Tests and Inspections: Prepare in tabular form and include the following:

- i. Specification Section number and title.
- ii. Entity responsible for performing tests and inspections.
- iii. Description of test and inspection.
- iv. Identification of applicable standards.
- v. Identification of test and inspection methods.
- vi. Number of tests and inspections required.
- vii. Time schedule or time span for tests and inspections.
- viii. Requirements for obtaining samples.
- ix. Unique characteristics of each quality control service.

6. CONTRACTOR'S QUALITY CONTROL PLAN

- a. Quality Control Plan, General: Submit quality control plan within 10 days of Notice to Proceed, and not less than five days prior to preconstruction conference. Submit in format acceptable to the Owner. Identify personnel, procedures, controls, instructions, tests, records, and forms to be used to carry out Contractor's quality assurance and quality control responsibilities. Coordinate with the Contractor's Project Schedule.
- b. Quality Control Personnel Qualifications: Engage qualified full-time personnel trained and experienced in managing and executing quality assurance and quality control procedures similar in nature and extent to those required for Project.
- i. Contractor's quality control manager for the Project may not serve as Contractor's Project Manager or Project superintendent without prior approval of the Owner. To the extent possible, Contractor's quality control personnel shall be free of the influences of production and schedule requirements and have authority to stop and/or reject Work. Contractor shall prohibit discrimination against employees who raise safety or quality concerns.
- c. Submittal Procedure: Describe procedures for ensuring compliance with requirements through review and management of submittal process. Indicate qualifications of personnel responsible for submittal review.
- d. Testing and Inspection: Include in quality control plan a comprehensive schedule of the Work requiring tests or inspections, including the following:
 - i. The Contractor-performed tests and inspections including subcontractor-performed tests and inspections. Include required tests and inspections and the Contractor-elected tests and inspections.
 - ii. Special inspections required by authorities having jurisdiction and indicated on the "NYS or NYC Statement of Special Inspections and Tests."

- e. Continuous Inspection of Workmanship: Describe process for continuous inspection during the Work to identify and correct deficiencies in workmanship in addition to testing and inspection specified. Indicate types of corrective actions to be required to bring the Work into compliance with standards of workmanship established by Contract Documents and approved mockups.
- f. Monitoring and Documentation: Maintain testing and inspection reports including log of approved and rejected results. Include work the Owner has indicated as nonconforming or defective. Indicate corrective actions taken to bring nonconforming work into compliance with requirements. Comply with requirements of authorities having jurisdiction.
- g. Documentation. Contractor shall furnish Owner with documentation satisfactory to Owner showing the results of all inspections and tests. Owner shall be given not less than five (5) working days Notice of any shop tests, and not less than forty eight (48) hours' Notice of any field tests to be made by Contractor and its Subcontractors in accordance with the inspection and test programs described in the Contract Documents in order that Owner may witness any such tests. Owner shall be notified of any nonconformance or dispositions thereof no later than three (3) working days after its occurrence. Contractor shall keep a complete list of all non-conformances, including those of its Subcontractors, and include all non-conformance documentation in the final as-built package.
- h. Non-Compliance by Contractor with the QA/QC Program. Owner may immediately suspend any portion of the Work if, in the sole opinion of Owner, the Contractor or its Subcontractors have committed any material deviation from the QA/QC Program with respect to such portion. Such Work shall not thereafter proceed until Contractor agrees to conduct such Work in a manner consistent with the QA/QC Program. Contractor shall not be entitled to an increase to the Contract Sum or an extension of Contract Time in the event Owner suspends Contractor's Work pursuant to this Section unless Contractor can establish it was performing the Work in compliance with the QA/QC Program.

7. REPORTS AND DOCUMENTS

- a. Test and Inspection Reports: Prepare and submit certified written reports specified in other Sections. Include the following:
 - i. Date of issue.
 - ii. Project title and number.
 - iii. Name, address, and telephone number of testing agency.
 - iv. Dates and locations of samples and tests or inspections.
 - v. Names of individuals making tests and inspections.

- vi. Description of the Work and test and inspection method.
- vii. Identification of product and Specification Section.
- viii. Complete test or inspection data.
- ix. Test and inspection results and an interpretation of test results.
- x. Record of temperature and weather conditions at time of sample taking and testing and inspecting.
- xi. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
- xii. Name and signature of laboratory inspector.
- xiii. Recommendations on retesting and re-inspecting.

b. Manufacturer's Technical Representative's Field Reports: Prepare written information documenting manufacturer's technical representative's tests and inspections specified in other Sections. Include the following:

- i. Name, address, and telephone number of technical representative making report.
- ii. Statement on condition of substrates and their acceptability for installation of product.
- iii. Statement that products at Project site comply with requirements.
- iv. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
- v. Results of operational and other tests and a statement of whether observed performance complies with requirements.
- vi. Statement whether conditions, products, and installation will affect warranty.
- vii. Other required items indicated in individual Specification Sections.

c. Factory-Authorized Service Representative's Reports: Prepare written information documenting manufacturer's factory-authorized service representative's tests and inspections specified in other Sections. Include the following:

- i. Name, address, and telephone number of factory-authorized service representative making report.
- ii. Statement that equipment complies with requirements.
- iii. Results of operational and other tests and a statement of whether observed performance complies with requirements.
- iv. Statement whether conditions, products, and installation will affect warranty.
- v. Other required items indicated in individual Specification Sections.

8. PERMITS, LICENSES, AND CERTIFICATES:

- a. The Contractor shall obtain, maintain and pay for all applications, permits, filings, and licenses necessary for the execution of the Work and for the use of such Work when completed as required by any and all authorities having jurisdiction. The Contractor shall comply with and give notices required by laws, ordinances, rules, regulations and lawful orders of authorities having jurisdiction bearing on performance of the Work.

- b. The Contractor shall promptly assist the Owner in securing all approvals from authorities having jurisdiction. Without limitation, the Contractor shall assist the Owner in making application for Project approval, variances or other approvals, Letters of Completion, Temporary Certificates of Occupancy, and Certificates of Occupancy, including completion of all necessary applications and supporting documentation.
- c. The Contractor shall comply with all regulations governing conduct, access to the premises, operation of equipment and systems and conduct while in or near the premises and shall perform the Work in such a manner as not to unreasonably interrupt or interfere with the conduct of business of the Client. For the purposes of this Project, the timeframe in which construction activities may occur shall be from 7:00 a.m. until 5:00 p.m. unless otherwise approved by the Owner.
- d. For the Owner's records, submit copies of permits, licenses, certifications, inspection reports, material certificates/affidavits, approvals, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.
- e. Dormitory Authority Permits: Prior to commencement of the Work, the Dormitory Authority shall provide the Contractor, at no cost, a Construction Permit for performance of the Work and post a copy at the Project site.
- i. The Contractor shall secure and pay for all other work permits, applications, filings, and approvals that are associated with the Work of the Contract and pay all other permits, fees, licenses and inspections necessary for the proper execution and completion of the Contract as required by all other applicable authorities having jurisdiction.
- ii. Each Electrical Contractor shall, at no additional costs to the Owner, provide for inspection of all electrical Work of the Contract and provide a certificate of compliance from an independent electrical inspection agency acceptable to the Owner.
- f. Municipal Permits: The Contractor shall secure required permits, applications, filings, and approvals that are associated with the Work of the Contract and pay all other permits, fees, licenses and inspections necessary for the proper execution and completion of the Contract as required by applicable authorities having jurisdiction.
- i. The Contractor shall secure required work permits and approvals prior to commencement of the Work, provide a copy to the Owner and post a copy of the permit at the Project Site.
- ii. The Contractor shall be responsible to maintain updated permits and approvals.

- iii. Upon Substantial Completion of the Work of the Contract, the Contractor shall secure all required approvals from applicable authorities having jurisdiction, including DASNY. The Contractor shall provide a copy to the Owner.

9. QUALITY ASSURANCE

- a. General: Qualifications paragraphs in this article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.
- b. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- c. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- d. Installer Qualifications: A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.
- e. Specialists: Certain Specification Sections require that specific construction activities shall be performed by entities who are recognized experts in those operations. Specialists shall satisfy qualification requirements indicated and shall be engaged for the activities indicated.
- f. Testing Agency Qualifications: An independent agency with the experience and capability to conduct testing and inspecting indicated, as documented according to ASTM E 329, and with additional qualifications specified in individual Sections; and where required by authorities having jurisdiction, that is acceptable to authorities.
- g. Manufacturer's Technical Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to observe and inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.
- h. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's

products that are similar in material, design, and extent to those indicated for this Project.

- i. Mockups: Before installing portions of the Work requiring mockups, build mockups for each form of construction and finish required to comply with the following requirements, using materials indicated for the completed Work:
 - i. Build mockups in location and of size indicated or, if not indicated, as directed by the Owner.
 - ii. Notify the Owner seven days in advance of dates and times when mockups will be constructed.
 - iii. Employ supervisory personnel who will oversee mockup construction. Employ workers that will be employed during the construction at the Project.
 - iv. Demonstrate the proposed range of aesthetic effects and workmanship.
 - v. Obtain the Owner's approval of mockups before starting work, fabrication, or construction.
 1. Allow seven days for initial review and each re-review of each mockup.
- vi. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
- vii. Demolish and remove mockups when directed by the Owner.

j. Project-Specific Mockups: Full size physical assemblies that are constructed on-Site. Mockups are constructed to verify selections made under sample submittals; to demonstrate aesthetic effects and, where indicated, qualities of materials and execution; to review coordination, testing, or operation; to show interface between dissimilar materials; and to demonstrate compliance with specified installation tolerances. Mockups are not Samples. Approved mockups establish the standard by which the Work will be judged. Construct mock-ups for Owner approval. Mockups shall be reviewed for compliance with the Contract and code requirements and, once approved, set the standard of quality to be followed in subsequent construction. Mockups may be constructed as part of the project construction with prior approval of the Owner. Required mockups shall be:

- i. A typical section of exterior wall construction, including but not limited to, a window, lintel, sill, veneer anchorage, vapor barrier, air barrier, insulation, drywall, framing, flashing, and sealant.
- ii. A typical student bedroom, including all finishes, hardware and mechanical and electrical equipment and fixtures. Mechanical and electrical equipment and fixtures need not be fully operational in the mockup.

10. QUALITY CONTROL

- a. Owner Responsibilities: Following Owner's approval, where quality control services are indicated as the Owner's responsibility, the Owner will engage a qualified testing agency to perform these services.
- i. The Owner will furnish the Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of types of testing and inspecting they are engaged to perform.
- b. Contractor Responsibilities: Tests and inspections not explicitly assigned to the Owner are the Contractor's responsibility. Perform additional quality control activities required to verify that the Work complies with requirements, whether specified or not.
 - i. Unless otherwise indicated, provide quality control services specified and those required by authorities having jurisdiction. Perform quality control services required of the Contractor by authorities having jurisdiction, whether specified or not.
 - ii. Where services are indicated as the Contractor's responsibility, engage a qualified testing agency to perform these quality control services.
 - 1. Contractor shall not employ same entity engaged by the Owner, unless agreed to in writing by the Owner.
 - iii. Notify testing agencies at least 24 hours in advance of time (excluding weekends and holidays) when Work that requires testing or inspecting will be performed.
 - iv. Where quality control services are indicated as the Contractor's responsibility, submit a written report, in duplicate, of each quality control service.
 - v. Testing and inspecting requested by the Contractor and not required by the Contract Documents are the Contractor's responsibility.
 - vi. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.
- c. Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing as specified in Section 013300 - Submittal Procedures.
- d. Manufacturer's Technical Services: Where indicated, engage a manufacturer's technical representative to observe and inspect the Work. Manufacturer's technical representative's services include participation in pre-installation conferences, examination of substrates and conditions, verification of materials, observation of Installer activities, inspection of completed portions of the Work, and submittal of written reports.
- e. Retesting/Re-inspecting:

- i. Regardless of whether original tests or inspections were the Contractor's responsibility, provide quality control services, including retesting and re-inspecting, for construction that replaced Work that failed to comply with the Contract Documents.
 - ii. Costs for retesting and re-inspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents, or costs attributable to the Contractor's lack of coordination in properly scheduling the Work requiring testing and inspection will be charged to Contractor and the Contract Sum will be adjusted by Change Order.
- f. Testing Agency Responsibilities: Cooperate with the Owner and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.
- i. Notify the Owner and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
 - ii. Determine the location from which test samples will be taken and in which in-situ tests are conducted.
 - iii. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
 - iv. Submit a written report, in duplicate, of each test, inspection, and similar quality control service through Contractor.
 - v. Does not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
 - vi. Do not perform any duties of the Contractor.
- g. Associated Services: The Contractor shall cooperate with agencies performing required tests, inspections, and similar quality control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. The Contractor shall provide the following:
- i. Access to the Work, including equipment required to access the Work.
 - ii. Incidental labor and facilities necessary to facilitate tests and inspections.
 - iii. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
 - iv. Facilities for storage and field curing of test samples.
 - v. Delivery of samples to testing agencies.
 - vi. Preliminary design mix proposed for use for material mixes that require control by testing agency.
 - vii. Security and protection for samples and for testing and inspecting equipment at Project site.
- h. Coordination: Coordinate sequence of activities to accommodate required quality assurance and quality control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.
- i. Schedule times for tests, inspections, obtaining samples, and similar activities.

- i. Schedule of Tests and Inspections: Prepare a schedule of tests, inspections, and similar quality control services required by the Contract Documents. Coordinate and submit concurrently with Contractor's Project Schedule. Update as the Work progresses.
- i. Distribution: Distribute schedule to the Owner, testing agencies, and each party involved in performance of portions of the Work where tests and inspections are required.

11. NYS SPECIAL INSPECTIONS AND TESTS

- a. Special Inspections and Tests: The Owner will engage a qualified testing agency to conduct special inspections and tests required by authorities having jurisdiction as the responsibility of the Owner, as indicated in the NYS Statement of Special Inspections and Tests, attached to this Section, and as follows:
 - i. Notifying Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.
 - ii. Submitting a written report of each test, inspection, and similar quality control service to the Owner with copy to the Contractor and to authorities having jurisdiction. Frequency of reporting shall be determined in consultation with the Owner.
 - iii. Submitting a final report of special tests and inspections at Substantial Completion, this includes a list of unresolved deficiencies.
 - iv. Interpreting tests and inspections and stating in each report whether tested and inspected work complies with or deviates from the Contract Documents or code requirements.
 - v. Retesting and re-inspecting corrected work.
- b. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve a Contractor of responsibility for compliance with the Contract Document requirements.
 - i. Specified tests, inspections, and related actions do not limit Contractor's quality control procedures that facilitate compliance with the Contract Document requirements.
 - ii. Inspections and tests performed by the testing agency shall in no way relieve the Contractor of the responsibility to construct in accordance with the Contract Documents.

C. PRODUCTS (Not Used)

D. EXECUTION

1. TEST AND INSPECTION LOG

- a. Prepare a record of tests and inspections. Include the following:

- i. Date test or inspection was conducted.
 - ii. Description of the Work tested or inspected.
 - iii. Date test or inspection results were transmitted to the Design Professional.
 - iv. Identification of testing agency or special inspector conducting test or inspection.
- b. Maintain log at Project Site. Post changes and modifications as they occur. Provide access to test and inspection log for the Owner's reference during normal working hours.

2. REPAIR AND PROTECTION

- a. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.
- b. Protect construction exposed by or for quality control service activities.
- c. Repair and protection are the Contractor's responsibility, regardless of the assignment of responsibility for quality control services.

END OF SECTION 014000

SECTION 015000 - TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

3. RELATED DOCUMENTS

- a. The Contract Documents, including but not limited to, the Drawings and Individual Specification Sections, apply to this Section.

4. SUMMARY

- a. Section includes requirements for temporary utilities, support facilities, and security and protection facilities.
- b. Related Sections:
 - i. Section 011200 – Contract Summary of Work, for work restrictions and limitations on utility interruptions.

5. USE CHARGES

- a. General: Installation, removal, and use charges for temporary facilities shall be included in the Contract Sum. Allow other entities to use temporary services and facilities without cost, including, but not limited to, the Owner, the Design Professionals, occupants of the Project, testing agencies, and authorities having jurisdiction.
- b. Sewer Service: The Owner will pay sewer service use charges for sewer usage by all entities for construction operations.
- c. Water Service: The Owner will pay water service use charges for water used by all entities for construction operations.
- d. Electric Power Service: The Owner will pay electric power service use charges for electricity used by all entities for construction operations.
- e. Water and Sewer Service from Existing System: Water from the Owner's existing water system is available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations.
- f. Electric Power Service from Existing System: Electric power from the Owner's existing system is available for use without

metering and without payment of use charges. Provide connections and extensions of services as required for construction operations.]

6. INFORMATIONAL SUBMITTALS

- a. Site Plan: Show temporary facilities, utility hookups, staging areas, and parking areas for construction personnel.
- b. Erosion and Sedimentation Control Plan: Show compliance with requirements of New York State Department of Environmental Conservation Stormwater General Permit or authorities having jurisdiction, whichever is more stringent.
- c. Moisture-Protection Plan: Describe procedures and controls for protecting materials and construction from water absorption and damage; including delivery, handling, and storage provisions for materials subject to water absorption or water damage, discarding water-damaged materials, protocols for mitigating water intrusion into completed Work, and replacing water damaged Work.
- i. Indicate sequencing of work that requires water, such as sprayed fire-resistive materials, plastering, and terrazzo grinding, and describe plans for dealing with water from these operations. Show procedures for verifying that wet construction has dried sufficiently to permit installation of finish materials.
- d. Dust-Control and HVAC-Control Plan: Submit coordination drawing and narrative that indicates the dust-control and HVAC-control measures proposed for use, proposed locations, and proposed time frame for their operation. Identify further options if proposed measures are later determined to be inadequate. Include the following:
 - i. Locations of dust-control partitions at each phase of the work.
 - ii. HVAC system isolation schematic drawing.
 - iii. Location of proposed air filtration system discharge.
 - iv. Other dust-control measures.
 - v. Waste management plan.

7. QUALITY ASSURANCE

- a. Electric Service: Comply with NECA, NEMA, and UL standards and regulations and requirements of authority having jurisdiction for temporary electric service. Install service to comply with NFPA 70.
- b. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.

- c. Accessible Temporary Egress: Comply with applicable provisions in ADA-ABA Accessibility Guidelines and ANSI A117.1.

8. PROJECT CONDITIONS

- a. Temporary Use of Permanent Facilities: Engage installer of each permanent service to assume responsibility for operation, maintenance, and protection of each permanent service during its use as a construction facility before the Owner's acceptance, regardless of previously assigned responsibilities.

E. PRODUCTS

1. MATERIALS

- a. Chain-Link Fencing: Minimum 0.148-inch thick, galvanized steel, chain-link fabric fencing; minimum 8 feet high with galvanized steel pipe posts; minimum 2-3/8-inch OD line posts and 2-7/8-inch OD corner and pull posts[, **with 1-5/8-inch OD top rails**].
- b. Portable Chain-Link Fencing: Minimum 0.148-inch thick, galvanized steel, chain-link fabric fencing; minimum 8 feet high with galvanized steel pipe posts; minimum 2-3/8-inch OD line posts and 2-7/8-inch OD corner and pull posts, with 1-5/8-inch OD top and bottom rails. Provide galvanized steel bases for supporting posts.
- c. Wood Enclosure Fence: Plywood, 8 feet high, framed with four 2-by-4-inch rails, with preservative-treated wood posts spaced not more than 8 feet apart.
- d. Polyethylene Sheet: Reinforced, fire-resistive sheet, 10 mils minimum thickness, with flame-spread rating of 15 or less per ASTM E 84.
- e. Dust Control Adhesive-Surface Walk-off Mats: Provide mats minimum 36 by 60 inches.
- f. Insulation: Unfaced mineral-fiber blanket, manufactured from glass, slag wool, or rock wool; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively. |

2. TEMPORARY FACILITIES

- a. Field Offices, General: Prefabricated or mobile units with serviceable finishes, temperature controls, and foundations adequate for normal loading.
- b. Owner's-Use Field Office: Of sufficient size to accommodate needs of the Owner and Owner's construction personnel office activities and to accommodate project meetings. Keep office clean and orderly. Furnish and equip offices as follows:
 - i. Furniture required for the Project-site documents including file cabinets, plan tables, plan racks, and bookcases.
 - ii. Conference room of sufficient size to accommodate meetings of 20 individuals. Provide electrical power service and 120-V ac duplex receptacles, with not less than 1 receptacle on each wall. Furnish room with conference table, chairs, and 4-foot square tack and marker boards.
 - iii. Drinking water and private toilet.
 - iv. Heating and cooling equipment necessary to maintain a uniform indoor temperature of 68 to 72 deg F.
 - v. Lighting fixtures capable of maintaining average illumination of 20 fc at desk height.
- c. Storage and Fabrication Sheds: Provide sheds sized, furnished, and equipped to accommodate materials and equipment for construction operations.
 - i. Store combustible materials apart from building.

3. EQUIPMENT

- a. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.
- b. HVAC Equipment: Unless the Owner authorizes use of permanent HVAC system, provide vented, self-contained, liquid-propane-gas or fuel-oil heaters with individual space thermostatic control.
 - i. Use of gasoline-burning space heaters, open-flame heaters, or salamander-type heating units is prohibited.
 - ii. Heating Units: Listed and labeled for type of fuel being consumed, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
 - iii. Permanent HVAC System: If the Owner authorizes use of permanent HVAC system for temporary use during construction, provide filter with MERV of 8 at each return air grille in system and remove at end of construction.

F. EXECUTION

1. INSTALLATION, GENERAL

- a. Locate facilities where they will serve the Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required by progress of the Work.
- b. Provide each facility ready for use when needed to avoid delay. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

2. TEMPORARY UTILITY INSTALLATION

- a. General: Install temporary service or connect to existing service.
- i. Arrange with utility company, the Owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.
 - b. Sewers and Drainage: Provide temporary utilities to remove effluent lawfully.
- i. Connect temporary sewers to municipal system as directed by authorities having jurisdiction. Obtain all required permits.
 - c. Water Service: Install water service and distribution piping in sizes and pressures adequate for construction. Obtain all required permits.
 - d. Water Service: Connect to the Owner's existing water service facilities. Clean and maintain water service facilities in a condition acceptable to the Owner. At Substantial Completion, restore these facilities to condition existing before initial use.
 - e. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking water for use of construction personnel. Comply with requirements of authorities having jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities.
- i. Toilets: Use of the Owner's existing toilet facilities will not be permitted. At Substantial Completion, restore these facilities to condition existing before initial use.
 - f. Heating and Cooling: Provide temporary heating and cooling required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of low temperatures or high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed.

- g. Isolation of Work Areas in Occupied Facilities: Prevent dust, fumes, and odors from entering occupied areas.
- i. Prior to commencing work, isolate the HVAC system in area where work is to be performed in accordance with approved coordination drawings.
 - 1. Disconnect supply and return ductwork in work area from HVAC systems servicing occupied areas.
 - 2. Maintain negative air pressure within work area using HEPA-equipped air filtration units, starting with commencement of temporary partition construction, and continuing until removal of temporary partitions is complete.
- ii. Maintain dust partitions during the Work. Use vacuum collection attachments on dust-producing equipment. Isolate limited work within occupied areas using portable dust containment devices.
- iii. Perform daily construction cleanup and final cleanup using approved, HEPA-filter-equipped vacuum equipment.
- h. Ventilation and Humidity Control: Provide temporary ventilation required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed. Coordinate ventilation requirements to produce ambient condition required and minimize energy consumption.
- i. Provide dehumidification systems to maintain the facilities with RH levels appropriate for the type of construction being performed or in accordance with the manufacturer's recommendations to reduce substrate moisture levels to level required to allow installation or application of finishes.
 - i. Electric Power Service: Connect to the Owner's existing electric power service. Maintain equipment in a condition acceptable to the Owner. Obtain all required permits.
 - j. Electric Power Service: Provide electric power service and distribution system of sufficient size, number of phases, capacity, and power characteristics required for construction operations and testing of all installed equipment.
- i. Install electric power service overhead, unless otherwise indicated. Contractor may be required to install electric power underground at Owner's discretion.
- ii. Connect temporary service to the Owner's existing power source, as directed by the Owner.
- k. Lighting: Provide temporary lighting with local switching that provides adequate illumination for construction operations, observations, inspections, and traffic conditions.

- i. Install and operate temporary lighting that fulfills security and protection requirements without operating entire system.
- ii. Install lighting for the Project identification sign.
 - 1. Telephone Service: Provide temporary telephone service in Owner's-use facilities for use by all construction personnel. Install two telephone lines for each field office.
- i. Provide additional telephone lines for the following:
 - 1. Provide a dedicated telephone line for each facsimile machine in each field office.
- ii. At each telephone, post a list of important telephone numbers.
 - 1. Police and fire departments.
 - 2. Ambulance service.
 - 3. Contractor's home office.
 - 4. Design Professional's office.
 - 5. Testing Consultant's offices.
 - 6. Owner's office.
 - 7. Principal subcontractors' field and home offices.
- iii. Provide superintendent with cellular telephone for use when away from field office. |

3. SUPPORT FACILITIES INSTALLATION

- a. |General: Comply with the following:
 - i. Provide construction for temporary offices, shops, and sheds located within construction area or within 30 feet of building lines that is noncombustible according to ASTM E 136. Comply with NFPA 241.
 - ii. Maintain support facilities until Substantial Completion inspection date is scheduled. Remove before Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to the Owner.
- b. Temporary Use of Permanent Roads and Paved Areas: Locate temporary roads and paved areas in same location as permanent roads and paved areas. Construct and maintain temporary roads and paved areas adequate for construction operations. Extend temporary roads and paved areas, within construction limits indicated, as necessary for construction operations.
 - i. Coordinate elevations of temporary roads and paved areas with permanent roads and paved areas.
 - ii. Prepare subgrade and install subbase and base for temporary roads and paved areas specified in Individual Specification Sections.

- iii. Delay installation of final course of permanent hot-mix asphalt pavement until immediately before Substantial Completion. Repair hot-mix asphalt base-course pavement before installation of final course.
 - c. Traffic Controls: Comply with requirements of authorities having jurisdiction.
- i. Protect existing site improvements to remain including curbs, pavement, and utilities.
- ii. Maintain access for fire-fighting equipment and access to fire hydrants.
 - d. Parking: Provide temporary parking areas for construction personnel.
 - e. Dewatering Facilities and Drains: Comply with requirements of authorities having jurisdiction. Maintain the Project site, excavations, and construction free of water.
- i. Dispose of rainwater in a lawful manner that will not result in flooding the Project or adjoining properties nor endanger permanent Work or temporary facilities.
- ii. Remove snow and ice as required to minimize accumulations.
 - f. Project Signs: Provide Project signs as indicated. Unauthorized signs are not permitted.
- i. Identification Signs: Provide Project identification signs as specified in the Contract Documents.
- ii. Temporary Signs: Provide other signs as required to inform public and individuals seeking entrance to the Project.
 - 1. Provide temporary, directional signs for construction personnel and visitors.
- iii. Maintain and touchup signs so they are legible at all times.
 - g. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of authorities having jurisdiction.
 - h. Lifts and Hoists: Provide facilities necessary for hoisting materials and personnel.
 - i. Truck cranes and similar devices used for hoisting materials are considered "tools and equipment" and not temporary facilities.
 - i. Temporary Elevator Use: Use of elevators is not permitted.
 - j. Existing Elevator Use: Use of the Owner's existing elevators will be permitted, provided elevators are cleaned and maintained in a condition acceptable to the Owner. At Substantial Completion, restore elevators to condition existing before initial use, including

replacing worn cables, guide shoes, and similar items of limited life.

- i. Do not load elevators beyond their rated weight capacity.
- ii. Provide protective coverings, barriers, devices, signs, or other procedures to protect elevator car and entrance doors and frame. If, despite such protection, elevators become damaged, engage elevator Installer to restore damaged work so no evidence remains of correction work. Return items that cannot be refinished in field to the shop, make required repairs and refinish entire unit, or provide new units as required.
 - k. Temporary Stairs: Until permanent stairs are available, provide temporary stairs where ladders are not adequate.
 - l. Existing Stair Usage: Use of the Owner's existing stairs will be permitted, provided stairs are cleaned and maintained in a condition acceptable to the Owner. At Substantial Completion, restore stairs to condition existing before initial use.
- i. Provide protective coverings, barriers, devices, signs, or other procedures to protect stairs and to maintain means of egress. If stairs become damaged, restore damaged areas so no evidence remains of correction work.
 - m. Temporary Use of Permanent Stairs: Use of new stairs for construction traffic will be permitted, provided stairs are protected and finishes restored to new condition at time of Substantial Completion.

4. SECURITY AND PROTECTION FACILITIES INSTALLATION

- a. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction as required to comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.
- b. Temporary Erosion and Sedimentation Control: Provide measures to prevent soil erosion and discharge of soil-bearing water runoff and airborne dust to undisturbed areas and to adjacent properties and walkways, according to authorities having jurisdiction.
 - i. Verify that flows of water redirected from construction areas or generated by construction activity do not enter or cross tree- or plant- protection zones.
 - ii. Inspect, repair, and maintain erosion and sedimentation control measures during construction until permanent vegetation has been established.
 - iii. Clean, repair, and restore adjoining properties and roads affected by erosion and sedimentation from the Project Site during the course of the Project.
 - iv. Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

- c. Stormwater Control: Comply with requirements of authorities having jurisdiction. Provide barriers in and around excavations and subgrade construction to prevent flooding by runoff of stormwater from heavy rains.
- d. Tree and Plant Protection: Install temporary fencing outside the drip line of trees to protect vegetation from damage from construction operations. Protect tree root systems from damage, flooding, and erosion.
- e. Site Enclosure Fence: Before construction operations begin furnish and install site enclosure fence in a manner that will prevent people and animals from easily entering site except by entrance gates.
 - i. Extent of Fence: As required to enclose entire Project site or portion determined sufficient to accommodate construction operations.
 - ii. Maintain security by limiting number of keys and restricting distribution to authorized personnel. Furnish one set of keys to the Owner.
- f. Security Enclosure and Lockup: Install temporary enclosure around partially completed areas of construction. Provide lockable entrances to prevent unauthorized entrance, vandalism, theft, and similar violations of security. Lock entrances at end of each work day.
- g. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.
- h. Temporary Egress: Maintain temporary egress from existing occupied facilities as indicated and as required by authorities having jurisdiction.
- i. Covered Walkway: Erect protective, covered walkway for passage of individuals through or adjacent to Project site. Coordinate with entrance gates, other facilities, and obstructions. Comply with regulations of authorities having jurisdiction.
 - i. Construct covered walkways using scaffold or shoring framing.
 - ii. Provide overhead decking, protective enclosure walls, handrails, barricades, warning signs, exit signs, lights, safe and well-drained walkways, and similar provisions for protection and safe passage.
 - iii. Paint and maintain appearance of walkway for duration of the Work.
- j. Temporary Enclosures: Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities. Provide temporary weathertight enclosure for building exterior.

- i. Where heating or cooling is needed and permanent enclosure is not complete, insulate temporary enclosures.

- k. Temporary Partitions: Provide floor-to-ceiling dustproof partitions to limit dust and dirt migration and to separate areas occupied by the Owner from fumes and noise.

- i. Construct dustproof partitions with fire rated gypsum wallboard with joints taped on occupied side, and fire-retardant plywood on construction operations side.
 - ii. Where fire-resistance-rated temporary partitions are required by authorities having jurisdiction, construct partitions according to the rated assemblies.
 - iii. Insulate partitions to control noise transmission to occupied areas.
 - iv. Seal joints and perimeter. Equip partitions with gasketed dustproof doors and security locks where openings are required.
 - v. Protect air-handling equipment.
 - vi. Provide walk-off mats at each entrance through temporary partition.

- l. Fire Safety During Construction: Comply with all requirements identified herein as well as the more stringent requirements of the applicable codes (New York State Building and Fire Codes).

- i. No smoking: Smoking shall be prohibited throughout the project/construction site. “No Smoking” signs shall be conspicuously posted at all entrances and throughout the site.
 - ii. The Contractor shall designate a Fire Prevention Program Superintendent/ Fire Safety Manager who shall be responsible for all fire safety efforts until completion and acceptance of the Work described in the Contract Documents that include but are not limited to the following:

- 1. Pre-fire Plans. Develop in cooperation with the local Fire Chief and Fire Code Official. Any changes affecting the utilization of information contained in the plan shall result in notification to the local Fire Chief and Fire Code Official.
 - 2. Training. Job Site personnel shall be trained in fire safety practices and procedures and the proper use of fire protection equipment, including hand-held fire extinguishers, hose lines, fire alarm and sprinkler systems.
 - 3. Fire Protection Devices. Fire protection and detection equipment shall be maintained and serviced.
 - 4. Hot Work Operations. Welding, cutting, open torches, torch-applied roof system activities, and other hot work operations shall be conducted under a permit system. A fire watch and fire extinguishers shall be provided.
 - 5. Impairment of Fire Protection Systems. Coordinate planned, emergency or accidental impairments of fire protection systems to include tagging of impaired systems and notification of

Fire Department, Alarm Company, Building Owner/Operator, and Contractors.

6. Temporary Covering of Fire Protection Devices. Coverings placed on or over fire protection devices for protection from damage shall be immediately removed upon the completion of the Work in the room or area in which the devices are installed.

- iii. Provide readily accessible telephone service for fire calls at a location or locations approved by the Owner.

1. The Contractor shall pay all costs thereof until completion and acceptance of the Work or as otherwise directed by the Owner.
2. Provide/post the street address of the construction site and the emergency telephone number of the Fire Department adjacent to the telephone.

- iv. Provide or maintain a Temporary or Permanent Standpipe system for Fire Department use in accordance with the following:

1. Buildings subject to the New York State Building Code: In buildings that require a standpipe system, such standpipe shall be installed when the progress of construction reaches a height of 40 feet.
2. Buildings subject to the New York City Building Code: In buildings that require a standpipe system, such standpipe shall be installed when the progress of construction reaches a height of 75 feet. The standpipe shall be equipped with an air pressurized alarm system.
3. Buildings being demolished: An existing standpipe system shall be maintained in operation on all floors, starting one floor directly below the floor being demolished. The existing standpipe can be converted to a dry standpipe if freezing conditions exist. |

5. MOISTURE AND MOLD CONTROL

- a. Contractor's Moisture-Protection Plan: Avoid trapping water in finished work. Document visible signs of mold that may appear during construction.
- b. |Exposed Construction Phase: Before installation of weather barriers, when materials are subject to wetting and exposure and to airborne mold spores, protect as follows:

- i. Protect porous materials from water damage.
- ii. Protect stored and installed material from flowing or standing water.
- iii. Keep porous and organic materials from coming into prolonged contact with concrete.
- iv. Remove standing water from decks.
- v. Keep deck openings covered or dammed.

c. Partially Enclosed Construction Phase: After installation of weather barriers but before full enclosure and conditioning of building, when installed materials are still subject to infiltration of moisture and ambient mold spores, protect as follows:

- i. Do not load or install drywall or other porous materials or components, or items with high organic content, into partially enclosed building.
- ii. Keep interior spaces reasonably clean and protected from water damage.
- iii. Periodically collect and remove waste containing cellulose or other organic matter.
- iv. Discard or replace water-damaged material.
- v. Do not install material that is wet.
- vi. Discard, replace or clean stored or installed material that begins to grow mold.
- vii. Perform work in a sequence that allows any wet materials adequate time to dry before enclosing the material in drywall or other interior finishes.

d. Controlled Construction Phase of Construction: After completing and sealing of the building enclosure but prior to the full operation of permanent HVAC systems, maintain as follows:

- i. Control moisture and humidity inside building by maintaining effective dry-in conditions.
- ii. Use permanent HVAC system to control humidity.
- iii. Comply with manufacturer's written instructions for temperature, relative humidity, and exposure to water limits.

- 1. Hygroscopic materials that may support mold growth, including wood and gypsum-based products, that become wet during the course of construction and remain wet for 48 hours are considered defective.
- 2. Measure moisture content of materials that have been exposed to moisture during construction operations or after installation. Record daily readings over a forty-eight hour period. Identify materials containing moisture levels higher than allowed. Report findings in writing to the Design Professional.
- 3. Remove materials that cannot be completely restored to their manufactured moisture level within 48 hours. |

6. OPERATION, TERMINATION, AND REMOVAL

- a. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.
- b. Maintenance: Maintain facilities in good operating condition until removal.
- i. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.
- c. Temporary Facility Changeover: Do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion.
- d. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.
- i. Materials and facilities that constitute temporary facilities are property of the Contractor. The Owner reserves right to take possession of the Project identification signs.
- ii. Remove temporary roads and paved areas not intended for or acceptable for integration into permanent construction. Where area is intended for landscape development, remove soil and aggregate fill that do not comply with requirements for fill or subsoil. Remove materials contaminated with road oil, asphalt and other petrochemical compounds, and other substances that might impair growth of plant materials or lawns. Repair or replace street paving, curbs, and sidewalks at temporary entrances, as required by authorities having jurisdiction.
- iii. At Substantial Completion, repair, renovate, and clean permanent facilities used during construction period. Comply with final cleaning requirements specified in Section 017700 – Contract Closeout Requirements.

END OF SECTION 015000

SECTION 016000 - PRODUCT REQUIREMENTS

PART 1 - GENERAL

7. RELATED DOCUMENTS

- a. The Contract Documents, including but not limited to, the Drawings and Individual Specification Sections and Contractor's Submission Schedule, apply to this section.

8. SUMMARY

- a. Section includes administrative and procedural requirements for selection of products for use in the Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; and comparable products.
- b. Related Sections:
 - i. Section 012100 – Allowances, for products selected under an allowance.
 - ii. Section 012300 – Alternates, for products selected under an alternate.
 - iii. Section 013300 – Submittal Procedure, for product submittals.

9. DEFINITIONS

- a. Products: Items obtained for incorporating into the Work of the Contract and purchased new for the Project. The term "product" includes the terms "material," "equipment," and "system."
- i. Named Products: Items identified by manufacturer's product name, including make or model number or other designation shown or listed in manufacturer's published product literature that is current as of date of the Contract Documents.
- ii. New Products: Items that have not previously been incorporated into another project or facility. Products salvaged or recycled from other projects are not considered new products.
- iii. Comparable Product: Product that is demonstrated and approved through submittal process to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.
- b. Procurement Exemption Approval Product Specification: A specification in which a specific manufacturer's product is named including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes as a single source or sole source provider.

10. ACTION SUBMITTALS

- a. Comparable Product Requests: Submit request for consideration of each comparable product. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
- i. Include data to indicate compliance with the requirements specified in "Comparable Products" Article.
- ii. Design Professional's Action: If necessary, the Design Professional will request additional information or documentation for evaluation within one week of receipt of a comparable product request. The Design Professional will notify the Contractor through the Owner of approval or rejection of proposed comparable product request within 15 days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.
 - 1. Form of Approval: As specified in Section 013300 - Submittal Procedure.
 - 2. Use product specified if the Design Professional does not issue a decision on use of a comparable product request within time allocated.
- b. Procurement Exemption Approval Product Specification Submittal: Comply with requirements in Section 013300 - Submittal Procedure. Show compliance with requirements.

11. QUALITY ASSURANCE

- a. Compatibility of Options: If the Contractor is given option of selecting between two or more products for use on the Project, select product compatible with products previously selected, even if previously selected products were also options.
- i. Contractor is responsible for providing products and construction methods compatible with products and construction methods of its Subcontractors.
- ii. If a dispute arises between contractors over concurrently selectable but incompatible products, the Owner will determine which products shall be used.

12. PRODUCT DELIVERY, STORAGE, AND HANDLING

- a. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft and vandalism. Comply with manufacturer's written instructions.
- b. Delivery and Handling:
 - i. Schedule delivery to minimize long-term storage at the Project site and to prevent overcrowding of construction spaces.

- ii. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
- iii. Deliver products to the 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.
- iv. Inspect products on delivery to determine compliance with the Contract Documents and to determine that products are undamaged and properly protected.

c. Storage:

- i. Store products to allow for inspection and measurement of quantity or counting of units.
- ii. Store materials in a manner that will not endanger the Project structure.
- iii. Store products that are subject to damage by the elements under cover in a weather tight enclosure above ground, with ventilation adequate to prevent condensation.
- iv. Store foam plastic protected from exposure to sunlight, except to extent necessary for period of installation and concealment.
- v. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
- vi. Protect stored products from damage and liquids from freezing.

13. PRODUCT WARRANTIES

- a. 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 the Contractor of obligations under requirements of the Contract Documents.
- i. Manufacturer's Warranty: Written warranty furnished by individual manufacturer for a particular product and specifically endorsed by manufacturer to the Owner.
- ii. Special Warranty: Written warranty required by the Contract Documents to provide specific rights for the Owner.
- b. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution.
- i. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
- ii. Refer to individual specification sections for specific content requirements and particular requirements for submitting special warranties.
- c. Submittal Time: Comply with requirements in Section 013300 – Submittal Procedure.

G. PRODUCTS

1. PRODUCT SELECTION PROCEDURES

- a. General Product Requirements: Provide products that comply with the Contract Documents, are undamaged and new at time of installation.
 - i. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
 - ii. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
 - iii. The Owner reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
 - iv. Where products are accompanied by the term "as selected," the Owner will make selection.
 - v. Descriptive, performance, and reference standard requirements in the Specifications establish characteristics of products.
 - vi. Or Equal: For products specified by name and accompanied by the term "or equal," or "or approved equal," or "or approved," comply with requirements in "Comparable Products" Article to obtain approval for use of an unnamed product.
 - vii. Provide products that do not contain asbestos.
- b. Product Selection Procedures:
 - i. Product: Where Specifications include a procurement exemption approval and name a single source, sole source, manufacturer and product, provide the named product that complies with requirements. Comparable products or substitutions for the Contractor's convenience will not be considered.
 - ii. Manufacturer/Source: Where Specifications include a procurement exemption approval and name a single manufacturer or source, provide a product by the named manufacturer or source that complies with requirements. Comparable products or substitutions for the Contractor's convenience will not be considered.
 - iii. Products: Where Specifications include a list of names of both available manufacturers and products, provide one of the products listed, or an unnamed product, that complies with requirements. Comply with requirements in "Comparable Products" Article for consideration of an unnamed product.
 - iv. Manufacturers: Where Specifications include a list of available manufacturers, provide a product by one of the manufacturers listed, or a product by an unnamed manufacturer, that complies with requirements. Comply with requirements in "Comparable Products" Article for consideration of an unnamed manufacturer's product.
- c. Visual Matching Specification: Where Specifications require "match sample", provide a product that complies with requirements and matches sample. The Owner's decision will be final on whether a proposed product matches.

- i. If no product available within specified category matches and complies with other specified requirements, comply with requirements in "Comparable Products" Article for consideration of an unnamed manufacturer's product.
- d. Visual Selection Specification: Where Specifications include the phrase "as selected from manufacturer's full range", select a product that complies with requirements. The Owner will select color, gloss, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

2. COMPARABLE PRODUCTS

- a. Conditions for Consideration: The Owner will consider the Contractor's request for comparable product when the following conditions are satisfied. If the following conditions are not satisfied, the Owner may return requests without action, except to record noncompliance with these requirements:
 - i. Action Submittal shall be provided in accordance with Submittal Procedures within 60 days after Notice to Proceed.
 - ii. Evidence that the proposed product does not require revisions to the Contract Documents that it is consistent with the Contract Documents and will produce the indicated results, and that it is compatible with other portions of the Work.
 - iii. Detailed comparison of qualities of proposed product with those named in the Specifications, including attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
 - iv. Evidence that proposed product provides specified warranty.
 - v. List of similar installations for completed projects with project names and addresses and names and addresses of design professionals and owners, if requested.
 - vi. Samples, if requested.
- b. Comparable Products Costs: Any costs savings to an approved Comparable Product realized by the Contractor shall be shared equal between the Owner (50%) and Contractor (50%).

H. EXECUTION (Not Used)

END OF SECTION 016000

SECTION 017329 - CUTTING AND PATCHING

PART 1 - GENERAL

1. RELATED DOCUMENTS

- a. The Contract Documents, including but not limited to, the Drawings and Individual Specification Sections, apply to this Section.

2. SUMMARY

- a. This Section includes procedural requirements for cutting and patching.
- b. Responsibility: The Contractor and its Subcontractors are responsible for the cutting and patching to permit installation or performance of the Work.
- c. Related Sections include the following:
 - i. Individual Specification Sections.

3. DEFINITIONS

- a. Cutting: Removal of in-place construction necessary to permit installation or performance of Work of the contract.
- b. Patching: Fitting and repair work required to restore surfaces to original conditions after installation of Work.

4. SUBMITTALS

- a. Cutting and Patching Proposal: Submit a proposal describing procedures at least 10 days before the time cutting and patching will be performed, requesting approval to proceed. Include the following information:
 - i. Extent: At each occurrence, describe cutting and patching, show how they will be performed, and indicate why they cannot be avoided.
 - ii. Changes to In-Place Construction: Describe anticipated results. Include changes to structural elements and operating components as well as changes in building's appearance and other significant visual elements.
 - iii. Products: List products to be used and firms or entities that will perform the Work.
 - iv. Dates: Indicate when cutting and patching will be performed.
 - v. Utility Services and Mechanical/Electrical Systems: List services/systems that cutting and patching procedures will disturb or affect. List services/systems that will be

relocated and those that will be temporarily out of service. Indicate how long services/systems will be disrupted.

- vi. Structural Elements: Where cutting and patching involve adding reinforcement to structural elements, submit details and engineering calculations showing integration of reinforcement with original structure.
- vii. Design Professional's Approval: Obtain approval of cutting and patching proposal before cutting and patching. Approval does not waive right to later require removal and replacement of unsatisfactory work.

5. QUALITY ASSURANCE

- a. Structural Elements: Do not cut and patch structural elements in a manner that could change their load-carrying capacity or load-deflection ratio.
- b. 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 result in increased maintenance or decreased operational life or safety.
- c. Fire Rated Elements: Do not cut and patch fire rated elements (i.e., floors, walls, roofs, shafts, etc.) in a manner that results in reducing their capacity to perform as intended or that results in decreased fire rating.
- d. Miscellaneous Elements: Do not cut and patch miscellaneous elements or related components in a manner that could change their load-carrying capacity, which results in reducing their capacity to perform as intended, or that result in increased maintenance or decreased operational life or safety.
- e. Visual Requirements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch construction exposed on the exterior or in occupied spaces in a manner that would, in Owner's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.
- f. Cutting and Patching Conference: Before proceeding, meet at Project Site with parties involved in cutting and patching, including other trades. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.

6. WARRANTY

- a. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during cutting and patching

operations, by methods and with materials so as not to void existing warranties.

I. PRODUCTS

1. MATERIALS

- a. General: Comply with requirements specified in other Sections.
- b. In-Place Materials: Use materials identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.
- i. If identical materials are unavailable or cannot be used, use materials that, when installed, will match the visual and functional performance of in-place materials, unless specified otherwise in other Sections.
- c. Fire Rated Elements: Provide fire-stopping products/systems specified in system design listings by approved testing agencies that conform to the construction type, penetrating item, annular space requirements and fire rating involved in each separate assembly. Refer to applicable Individual Specification Sections.

J. EXECUTION

1. EXAMINATION

- a. Examine surfaces to be cut and patched and conditions under which cutting and patching are to be performed.
- i. Compatibility: Before patching, verify compatibility with and suitability of substrates, including compatibility with in-place finishes or primers.
- ii. Proceed with installation only after unsafe or unsatisfactory conditions have been corrected.

2. PREPARATION

- a. Temporary Support: Provide temporary support of Work to be cut.
- b. 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.
- c. Adjoining Areas: Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.

- d. Existing Utility Services and Mechanical/Electrical Systems: Where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting or patching to minimize interruption to occupied areas.

3. PERFORMANCE

- a. General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.
- i. 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.
- b. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction.
- i. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots as small as possible, neatly to size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
- ii. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
- iii. Concrete or Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
- iv. 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.
- v. Proceed with patching after construction operations requiring cutting are complete.
- c. 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 possible. Provide materials and comply with installation requirements specified in other Sections.
- i. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate integrity of installation.
- ii. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.
- 1. Clean piping, conduit, and similar features before applying paint or other finishing materials.
- 2. Restore damaged pipe covering to its original condition.

- iii. 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.
 - 1. Where patching occurs in a painted surface, apply primer and intermediate paint coats over the patch and apply final paint coat over entire unbroken surface containing the patch. Provide additional coats until patch blends with adjacent surfaces.
 - iv. Ceilings: Patch, repair, or rehang in-place ceilings as necessary to provide an even-plane surface of uniform appearance.
 - v. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition.
 - vi. Fire Rated Elements: Install fire-stopping systems to comply with applicable Individual Specification Sections and fire-stopping manufacturer's written installation instructions and published drawings for products and applications.
- d. Cleaning: Clean areas and spaces where cutting and patching are performed. Completely remove paint, mortar, oils, putty, and similar materials.

END OF SECTION 017329

SECTION 017700 – CONTRACT CLOSEOUT REQUIREMENTS

PART 1 - GENERAL

4. RELATED DOCUMENTS

- a. The Contract Documents, including but not limited to, the Drawings and Individual Specification Sections and Notice of Substantial Completion (NOSC) Form, apply to this section.

5. SUMMARY

- a. Section includes administrative requirements for preparation and submission of final Contract Closeout Documents, including, but not limited to, the following:
 - i. Contract Closeout Conference
 - ii. Notice of Substantial Completion (NOSC) Requirements
 - 1. List of Incomplete Work Items
 - 2. Contract Turnover Documents
 - a. As-built Drawings
 - b. As-built Specifications
 - c. As-built Project Schedule
 - d. Sustainability Documentation
 - e. Permits, Licenses and Certificates
 - f. Hazardous Wastes Documents
 - 3. General Guarantee
 - 4. Operation and Maintenance Manuals
 - iii. Contract Closeout
 - iv. Final Cleaning
- b. Related Sections:
 - i. General Conditions, Article 8 – Payment
 - ii. General Conditions, Article 13 – Inspection and Acceptance
 - iii. Section 014000 – Quality and Code Requirements
 - iv. Section 017823 – Operation and Maintenance Manuals
 - v. Section 017839 – As-built Documents
 - vi. Section 018113 – Sustainable Design Requirements

6. CONTRACT CLOSEOUT CONFERENCE

- a. Contract Closeout Conference: The Owner will schedule and conduct a Contract closeout conference, at a time convenient to the Owner, but no later than sixty (60) days prior to the scheduled inspection date for Substantial Completion.

- i. The Owner will conduct the conference to review requirements and responsibilities related to Contract closeout.
- ii. Attendees: Representatives of the Owner, testing agency, commissioning authority, Design Professional, and their consultants; Contractor and its superintendent; Contractor's major Subcontractors; and other concerned parties shall attend the meeting. Participants at the meeting shall be familiar with Project and authorized to make binding decisions on matters relating to the Work.
- iii. Agenda: Discuss items of significance that could affect or delay Contract closeout, including the following:
 - 1. Status of Contract Turnover Documents.
 - 2. Procedures required prior to inspection for Substantial Completion and for final inspection for acceptance.
 - 3. Requirements for preparing sustainable documentation,
 - 4. Requirements for submitting final operation and maintenance manual.
 - 5. Requirements for Permits, Licenses and Certificates.
 - 6. Preparation of Contractor's list of incomplete Work items.
 - 7. Procedures for processing Application for Payment at Substantial Completion and final payment.
 - 8. Submittal procedure.
 - 9. Installation of the Owner's furniture, fixtures, and equipment.
 - 10. Responsibility for removing temporary facilities and controls.
- iv. Minutes: The Contractor will record and distribute meeting minutes.

7. NOTICE OF SUBSTANTIAL COMPLETION (NOSC)

- a. Substantial Completion: After the Work of the Contract is determined by the Owner, to be at Substantial Completion, the Contractor shall submit a written request to the Owner for a date of inspection. The date of Substantial Completion establishes the start of the warranty period.
- b. Documentation: The Notice of Substantial Completion (NOSC) form shall be executed at the end of inspection documenting incomplete Work items and submission of documents in accordance with this section that includes but is not limited to:
 - 1. Preparation of a list of Work to be completed and corrected, the value of Work items on the list, and completion date of each Work item.
 - 2. Submittal of contract turnover documents.

3. Submittal of operation and maintenance manuals, testing, adjustment and balance records.
4. Delivery of tools, spare parts, extra materials, and similar items to location designated by the Owner. Label with manufacturer's name and model number where applicable.
5. Make final changeover of permanent locks and deliver keys to the Owner. Advise the Owner of changeover.
6. Termination and removal of temporary facilities from Project site, along with mockups, construction tools, and similar elements.
7. Completion of final cleaning requirements.

c. SAMPLE FORM - NOTICE OF SUBSTANTIAL COMPLETION

DORMITORY AUTHORITY – STATE OF NEW YORK

NOTICE OF SUBSTANTIAL COMPLETION

INSTITUTION: _____ CONTRACTOR: _____
 PROJECT TITLE: _____ CONTRACT NO: _____
 PROJECT NO: 9999 CONTRACT VALUE: _____

With exception of the list of incomplete Work and status of Contract Turnover Documents, the Dormitory Authority accepts the Work of the Contract Documents as Substantial Completion on (date) _____, in accordance with the General Conditions. This date also constitutes start of the guarantee period.

ITEM	LIST OF INCOMPLETE WORK	SCHEDULED COMPLETION DATE
1.		
2.		
3.		
4.		
5.		
6.		

NOTE: Attach additional pages if necessary.

STATUS of CONTRACT TURNOVER DOCUMENTS:

	PROVIDED YES	DUE DATE	Not Applicable
• As-built drawings & specifications transmitted to Design Professional	<input type="checkbox"/>		<input type="checkbox"/>
• Certified As-built schedule transmitted to Owner	<input type="checkbox"/>		<input type="checkbox"/>
• Sustainable documentation submitted to Owner	<input type="checkbox"/>		<input type="checkbox"/>
• Permits, licenses and certificates submitted to Authority having jurisdiction	<input type="checkbox"/>		<input type="checkbox"/>
• Hazard waste documentation approved by Owner	<input type="checkbox"/>		<input type="checkbox"/>
• Operation and maintenance manual submitted to Owner in final form	<input type="checkbox"/>		<input type="checkbox"/>
• Spare products stock stored on site per Owner's direction	<input type="checkbox"/>		<input type="checkbox"/>
• Identify any other Contract specific turnover document	<input type="checkbox"/>		<input type="checkbox"/>
• Identify any other Contract specific turnover document	<input type="checkbox"/>		<input type="checkbox"/>
• Final cleaning	<input type="checkbox"/>		<input type="checkbox"/>

Acknowledged by the Contractor (signature & title)	Email Address	Date
Recommended by the Design Professional (signature & title)	Email Address	Date
Recommended by the Project Manager (signature)		Date
Approved by the Director/Chief (signature)		Date

Distribution by PM:
 Contractor
 Design Professional
 Facility Representative

Distribution by PA:
 Code Compliance Unit
 Risk Management
 Procurement Contract File (original)

NOTICE OF SUBSTANTIAL COMPLETION
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8. LIST OF INCOMPLETE ITEMS/PUNCHLIST DEVELOPMENT

- a. Creation of Punchlist. As soon as Contractor believes the state of the Work warrants such action, Contractor will give a written Notice to Owner that Contractor is prepared to conduct a joint inspection of the applicable portion of the Work to produce a proposed list of Punchlist items. Owner and Contractor will cooperate with each other in scheduling and conducting a joint inspection of the Work as soon as reasonably possible after Owner's receipt of such written Notice.
- b. Prior to a joint inspection of the Work, the list of Punchlist items will be prepared in a manner to enable timely completion of the Work. Contractor shall prepare and deliver to Owner a written description of all proposed Punchlist items which Contractor, in its best good faith judgment, believes have not been completed or require revision or correction to cause them to conform with the requirements of the Contract Documents. Promptly after the receipt of the proposed Punchlist, Owner and Contractor shall cause their respective representatives to meet and cooperate and negotiate in good faith to verify the Punchlist provided by the Contractor and to arrive at an agreed list of Punchlist items and the appropriate dates for completion of such items. Owner shall have the right to have the Owner's Design Professional and Client present during any such negotiations. Owner shall have the right to supplement the Punchlist if additional items are discovered.
- c. Organization of Punchlist: Submit list of incomplete items in *EXCEL* spreadsheet electronic format. Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.
 - i. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.
 - ii. Include the following information at the top of each page:
 1. Project name and number.
 2. Date.
 3. Name of Contractor or Subcontractor.
 4. Page number.
- d. Performance of Punchlist Corrective Work. Promptly following Contractor's delivery of its proposed list of Punchlist items to Owner, Contractor shall commence and thereafter diligently pursue the completion of all Punchlist items, as well as any portion of the Work which Contractor, in its best good faith judgment, believes have not been completed or require revision or correction, to cause them to conform with the requirements of the Contract Documents. It is specifically understood and agreed that

Owner's acceptance of a list of Punchlist items shall not alter or diminish either Contractor's obligation to complete all of the Work, or Owner's right to require Contractor's completion of the Work, in accordance with the Contract Documents.

- e. Re-inspection: Submit a written request for re-inspection. On receipt of request, the Owner will either proceed with inspection or notify the Contractor of unfulfilled requirements. After inspection, the Owner will notify the Contractor of items, either on the Contractor's Punchlist or additional items identified, that must be completed or corrected.
- i. Re-inspection: Request re-inspection when the Work identified in previous inspections as incomplete is completed or corrected.
- ii. Results of completed inspection will form the basis to proceed with commencement of Contract Closeout Documents.

9. CONTRACT TURNOVER DOCUMENTS

- a. Procedure: Contract turnover documents shall be transmitted to the Owner, or if stated to the Design Professional, fifteen (15) days prior to requesting inspection date for Substantial Completion.
- b. As-built Drawings: Transmit one paper copy set of marked-up As-built Drawings to the Design Professional, with copy of transmittal to Owner. Print each Drawing, whether or not changes and additional information were recorded.
- c. As-built Specifications: Transmit one paper copy set of marked-up as-built specifications, including addenda and contract modifications to the Design Professional, with copy of transmittal to Owner.
- d. As-built Schedule: Submit one electronic (PDF) copy, certified by the Contractor, of the schedule that reflects the exact manner in which the Project was actually designed and constructed, to the Owner.
- e. Sustainability Documentation: Submit one electronic (PDF) copy of product data, costs, invoices, material lists, manifest, certifications, etc. to obtain project LEED certification. Refer to Individual Specification Section 018113 – Sustainable Design Requirements for record-keeping and submittals required for USGBC LEED prerequisites.
- f. Permits, Licenses and Certificates Documents: Submit one copy of original permits, licenses, certifications, inspection reports, material certificates/affidavits, approvals, and related documents required by authorities having jurisdiction to obtain Letter of Completion, Certificate of Occupancy, or Code Compliance

Certificate. Coordinate and respond to requirements from the Owner or Municipality and all other authorities having jurisdiction for issuance of approval/documents required for the Owner use and occupancy.

- i. Cooperate and help coordinate with agency testing materials as specified in Section 014000 – Quality and Code Requirements. Testing Agency is required to submit final report of special inspections.
- ii. The Contractor to provide one copy of original certification from agency or firm certifying the following and as required by Individual Specification Sections:

- 1. Sprinkler System – NFPA Forms for;
 - a. Contractor’s Material and Test Certificate for Underground Piping
 - b. Contractor’s Material and Test Certificate for Aboveground Piping
- 2. Fire Alarm System – NFPA 72 Form for;
 - a. Record of Completion
- 3. Elevator – Certification Form from;
 - a. Qualified Elevator Inspector (QEI)
- 4. Electrical – Certification Form from;
 - a. Authority having jurisdiction
 - b. Independent electrical inspection agency acceptable to the Owner

g. Hazardous Waste Documents: Submit four (4) paper copies of documents to the Owner thirty (30) days prior to requesting inspection date for Substantial Completion. Refer to Individual Specification Sections for all requirements.

h. Miscellaneous Record Submittals: Refer to Individual Specification Sections for miscellaneous record-keeping requirements and submittals in connection with various construction activities. Submit one electronic (PDF) copy of each submittal.

i. Reports: Submit written report indicating items incorporated in Contract Documents concurrent with progress of the Work, including modifications, concealed conditions, field changes, product selections, and other notations incorporated.

10. WARRANTY

- a. General Guarantee: Comply with General Conditions, Article 13 – Inspection and Acceptance. The date established on the Notice of Substantial Completion form constitutes commencement of the Warranty Callback Period.

11. OPERATION AND MAINTENANCE MANUALS

- a. Final Manuals Submittal: Submit Operation and Maintenance Manuals in final form as indicated in Section 017823 – Operation and Maintenance Manuals, to the Owner fifteen (15) days prior to requesting date of inspection for Substantial Completion.

12. CONTRACT CLOSEOUT (same as final application for payment)

- a. Contract Compliance: The Contractor shall comply with the requirements of General Conditions, Section 10.08 – Limitations on Actions.
- b. Preliminary Procedure: All Work and Extra Work of the Contract and requirements of this section must be complete and approved prior to commencement of Contract closeout.
 - i. The Contractor shall request and submit to the Owner a final Contractor's Pencil Copy billing request that will formulate the final Application for Payment.
 - ii. The Contractor shall provide outstanding documentation to the Owner in accordance with General Conditions, Article 20 – Opportunity Programs.
- c. Procedures: Upon the Owner's approval of the Contractor's Pencil Copy billing request, Contract closeout documents will be provided to the Contractor. The Contractor shall complete each document and submit all documents with original signature & notary as indicated on forms, the following:
 - i. Final Application for Payment that includes remaining Retainage.
 - ii. Final Compliance Report.
 - iii. Contractor and Subcontractor Certifications Form.
 - iv. Contractor's Certified Payroll Form.
 - v. Release Form -- Final Payment to Contractor.
 - vi. Consent of Surety -- Final Payment to Contractor, with power of attorney.
- d. Payroll Forms: The Contractor and all of its Subcontractors shall submit original copies of the Contractor and Subcontractor Certifications Form and Contractor's Certified Payroll Form.

K. PRODUCTS

1. CLEANING 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.

- i. Use cleaning products that meet Green Seal GS-37, or if GS-37 is not applicable, use products that comply with allowable VOC levels.

L. EXECUTION

1. DEMOBILIZATION

- a. Deliver tools, spare parts, extra materials, and similar items to location designated by the Owner. Label with manufacturer's name and model number where applicable.
- b. Make final changeover of permanent locks and deliver keys to the Owner. Advise the Owner's personnel of changeover.
- c. Terminate and remove temporary facilities from the Project site, along with mockups, construction tools, and similar elements.

2. RECORDING AND MAINTENANCE

- a. Recording: Maintain one copy of each submittal during the construction period for contract turnover document purposes. Post changes and modifications to contract turnover documents as they occur; do not wait until the end of the Project.
- b. Maintenance of Turnover Documents and Samples: Store turnover documents and Samples in the field office apart from the Contract Documents used for construction. Contract turnover documents shall not be used for construction purposes. Maintain turnover documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to contract turnover documents for the Owner's reference during normal working hours during performance of Contract.

3. FINAL CLEANING

- a. General: Perform final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.
 - b. 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.
- i. Complete the following cleaning operations as applies to Work of the contract.

1. 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.
2. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
3. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
4. Remove tools, construction equipment, machinery, and surplus material from Project site.
5. Remove snow and ice to provide safe access to building.
6. 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.
7. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
8. Sweep concrete floors broom clean in unoccupied spaces.
9. Vacuum carpet and similar soft surfaces, removing debris and excess nap; shampoo if visible soil or stains remain. Replace if soil or stains remain after shampooing.
10. 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.
11. Remove labels that are not permanent.
12. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.
 - a. Do not paint over "UL" and other required labels and identification, including mechanical and electrical nameplates.
13. Wipe surfaces of mechanical and electrical equipment and similar equipment. Remove

excess lubrication, paint and mortar droppings, and other foreign substances.

14. Replace parts subject to operating conditions during construction that may impede operation or reduce longevity.
15. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
16. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency. Replace burned-out bulbs, and those noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.
17. Leave Project clean and ready for occupancy. |

- c. Construction Waste Disposal: Comply with waste disposal requirements in all other applicable sections.

END OF SECTION 017700

SECTION 017823 - OPERATION AND MAINTENANCE MANUALS

PART 1 - GENERAL

4. RELATED DOCUMENTS

- a. The Contract Documents, including but not limited to, the Drawings and Individual Specification Sections and Contractor's Submission Schedule, apply to this Section.

5. SUMMARY

- a. Section includes administrative and procedural requirements for preparing operation and maintenance manuals, including the following:
 - i. Operation and maintenance manual for systems, subsystems, and equipment.
 - ii. Product maintenance data.
 - iii. Systems and equipment maintenance data.
- b. Related Sections:
 - i. Section 017700 – Contract Closeout Requirements
 - ii. Section 018113 – Sustainable Design Requirements
 - iii. Section 019113 – General Commissioning Requirements

6. DEFINITIONS

- a. System: An organized collection of parts, equipment, or subsystems united by regular interaction.
- b. Subsystem: A portion of a system with characteristics similar to a system.

7. CLOSEOUT SUBMITTALS

- a. Required Manuals: Section 017700 – Contract Closeout Requirements describes number and type of copies required for contract closeout requirements.

M. PRODUCTS

1. REQUIREMENTS FOR OPERATION, AND MAINTENANCE MANUALS

- a. Organization: Organize the manual into separate sections by CSI number based on the table of contents of the project manual, for each system and subsystem, and a separate section for each piece of equipment not part of a system. The manual shall contain the following materials, in the order listed:
 - i. Title page.
 - ii. Table of contents.
 - iii. Manual contents:
 1. Operation data.
 2. Product maintenance data.
 3. Systems and equipment data
- b. Title Page: Include the following information:
 - i. Subject matter included in manual.
 - ii. Name and address of Project.
 - iii. Name and address of Owner.
 - iv. Date of submittal.
 - v. Name and contact information for Contractor.
 - vi. [If required by Owner, name and contact information for Construction Manager.]
 - vii. Name and contact information for Design Professional.
 - viii. [Name and contact information for Commissioning Agent.]
 - ix. Names and contact information for the Contractor's design professional Subcontractors that designed the systems contained in the manuals.
 - x. Cross-reference to related systems in other operation and maintenance manuals.
- c. 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.
- i. If operation or maintenance documentation requires more than one volume to accommodate data, include comprehensive table of contents for all volumes in each volume of the set.
- d. 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.
- e. Manuals, Electronic Copy: Submit electronic (PDF) copy of the manual, to the Design Professional, concurrent with Action Submittal.

2. OPERATION DATA

a. Content: In addition to requirements in this Section, include operation data required in individual Specification Section and the following information:

- i. System, subsystem, and equipment descriptions. Use designations for systems and equipment indicated on Contract Documents.
- ii. Operating standards.
- iii. Operating procedures.
- iv. Operating logs.
- v. Wiring diagrams.
- vi. Control diagrams.
- vii. Piped system diagrams. |
- viii. Precautions against improper use.
- ix. License requirements including inspection and renewal dates. |

b. Descriptions: Include the following:

- i. Product name and model number. Use designations for products indicated on Contract Documents.
- ii. Manufacturer's name.
- iii. Equipment identification with serial number of each component.
- iv. Equipment function.
- v. Operating characteristics.
- vi. Limiting conditions.
- vii. Performance curves.
- viii. Engineering data and tests.
- ix. Complete nomenclature and number of replacement parts. |

c. Operating Procedures: Include the following, as applicable:

- i. Startup procedures.
- ii. Equipment or system break-in procedures.
- iii. Routine and normal operating instructions.
- iv. Regulation and control procedures.
- v. Instructions on stopping.
- vi. Normal shutdown instructions.
- vii. Seasonal and weekend operating instructions.
- viii. Required sequences for electric or electronic systems.
- ix. 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.

3. PRODUCT MAINTENANCE DATA

- a. Content: Organize data into a separate section, within the O & M Manual, 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 section 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 and drawing or schedule designation or identifier where applicable.
- c. Product Information: Include the following, as applicable:
 - i. Product name and model number.
 - ii. Manufacturer's name.
 - iii. Color, pattern, and texture.
 - iv. Material and chemical composition.
 - v. Reordering information for specially manufactured products.
- d. Maintenance Procedures: Include manufacturer's written recommendations and the following:
 - i. Inspection procedures.
 - ii. Types of cleaning agents to be used and methods of cleaning.
 - iii. List of cleaning agents and methods of cleaning detrimental to product.
 - iv. Schedule for routine cleaning and maintenance.
 - v. Repair instructions.
- e. Repair Materials and Sources: Include lists of materials and local sources of materials and related services.
- f. Warranties and Guarantees: Include copies of warranties and guarantees lists of circumstances and conditions that would affect validity of warranties.
- i. Include procedures to follow and required notifications for warranty claims.

4. SYSTEMS AND EQUIPMENT MAINTENANCE DATA

- 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 a separate section within the O & M 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 and drawing or schedule designation or identifier where applicable.
 - c. Manufacturers' Maintenance Documentation: Manufacturers' maintenance documentation including the following information for each component part or piece of equipment:
 - i. Standard maintenance instructions and bulletins.
 - ii. Drawings, diagrams, and instructions required for maintenance, including disassembly and component removal, replacement, and assembly.
 - iii. Identification and nomenclature of parts and components.
 - iv. List of items recommended to be stocked as spare parts.
 - d. Maintenance Procedures: Include the following information and items that detail essential maintenance procedures:
 - i. Test and inspection instructions.
 - ii. Troubleshooting guide.
 - iii. Precautions against improper maintenance.
 - iv. Disassembly; component removal, repair, and replacement; and reassembly instructions.
 - v. Aligning, adjusting, and checking instructions.
 - vi. 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.
 - i. Scheduled Maintenance and Service: Tabulate actions for daily, weekly, monthly, quarterly, semiannual, and annual frequencies.
 - ii. Maintenance and Service Record: Include manufacturers' forms for recording maintenance.
 - f. 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.
 - g. Warranties: Include copies of warranties and lists of circumstances and conditions that would affect validity of warranties.
 - i. Include procedures to follow and required notifications for warranty claims. |

N. EXECUTION

1. MANUAL PREPARATION

- a. Operation and Maintenance Documentation shall be provided for review, concurrent, with Action Submittal specified in Individual Specification Section.
- i. Correct or modify the manual to comply with the Owner's Design Professional's and Commissioning Authority's comments. Submit copies of each corrected manual within 15 days of receipt of Owner's Design Professional's and Commissioning Authority's comments and prior to commencing demonstration and training.
- b. Product Maintenance Data: Assemble a complete set of maintenance data, in a separate section, within the O & M Manual, indicating care and maintenance of each product, material, and finish incorporated into the Work.
- c. Operation and Maintenance Data: Assemble a complete set of operation and maintenance data, in a separate section, within the O & M Manual, indicating operation and maintenance of each system, subsystem, and piece of equipment not part of a system.
- i. Engage a factory-authorized service representative to assemble and prepare information for each system, subsystem, and piece of equipment not part of a system.
- ii. Prepare a separate section within the O & M Manual, for each system and subsystem, in the form of an instructional manual for use by operating personnel.
- d. Manufacturers' Data: Where manual 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.
- i. Prepare supplementary text if manufacturers' standard printed data are not available and where the information is necessary for proper operation and maintenance of equipment or systems.
- 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 As-built Drawings to ensure correct illustration of completed installation.
- i. Do not use original project record documents as part of operation and maintenance manuals.

END OF SECTION 017823

SECTION 017839 – AS BUILT DOCUMENTS

PART 1 - GENERAL

2. RELATED DOCUMENTS

- a. The Contract Documents, including but not limited to, the Drawings and Individual Specification Sections, apply to this Section.

3. SUMMARY

- a. Section includes administrative and procedural requirements for As-built documents, including the following:
 - i. As-built Drawings
 - ii. As-built Specifications
 - iii. As-built Project Schedule
 - iv. Record Product Data
 - v. Miscellaneous record submittals
- b. Related Sections:
 - i. Section 013200 – Construction Progress Documentation
 - ii. Section 013300 – Submittal Procedure; Required Submittal List
 - iii. Section 017700 – Contract Closeout Requirements
 - iv. Section 017823 – Operation and Maintenance Manuals
- c. Administrative and procedural requirements for contract turnover documents, including, but not limited to the following, as provided in Individual Specifications Sections.
 - i. Sustainability Documentation
 - ii. Commissioning Documents
 - iii. Hazardous Waste Documents

4. CLOSEOUT SUBMITTALS

- a. Required Documents: Section 017700 – Contract Closeout Requirements, describes administrative requirements for submission, number and type of copies required for contract closeout requirements.

O. PRODUCTS

1. AS-BUILT DRAWINGS

- a. As-built Drawings: Maintain one set of marked-up paper copies of the Contract Drawings and Shop Drawings onsite. Review As-built Drawings and shop drawings monthly with the Owner, for approval.
- i. Preparation: Daily mark As-built Drawings 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 As-built Drawings.
 1. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
 2. Accurately record information in an acceptable drawing technique.
 3. Record data as soon as possible after obtaining it.
 4. Record and check the markup before enclosing concealed installations.
- ii. Content: Types of items requiring marking include, but are not limited to, the following:
 1. Dimensional changes to Drawings.
 2. Revisions to details shown on Drawings.
 3. Depths of foundations below first floor.
 4. Locations and depths of underground utilities.
 5. Revisions to routing of piping and conduits.
 6. Revisions to electrical circuitry.
 7. Actual equipment locations.
 8. Duct size and routing.
 9. Locations of concealed internal utilities.
 10. Changes made by Change Order or Change Directive.
 11. Changes made following the Owner's written orders.
 12. Details not on the original Contract Drawings.
 13. Field records for variable and concealed conditions.
 14. Record information on the Work that is shown only schematically.
- iii. Mark the Contract Drawings and Shop Drawings completely and accurately. Utilize personnel proficient at recording graphic information in production of marked-up as-built prints.

- iv. Mark as-built sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.
- v. Mark important additional information that was either shown schematically or omitted from original Drawings.
- vi. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.

2. AS-BUILT SPECIFICATIONS

- a. Preparation: Mark Specifications to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.
 - i. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
 - ii. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
 - iii. Record the name of manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.
 - iv. For each principal product, indicate whether record Product Data has been submitted in operation and maintenance manuals instead of submitted as record Product Data.
 - v. Note related Change Orders, record Product Data, and turnover Drawings where applicable.

3. AS-BUILT PROJECT SCHEDULE

- a. Final Schedule: Submit to the Owner a final schedule update. The As-built Project Schedule shall reflect the exact manner in which the Project was actually designed and constructed including actual start and finish dates, activities, sequences and logic.
- i. The Contractor shall certify the final Project Schedule update as being a true reflection of the way the Project was actually designed and constructed.

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.
 - i. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
 - ii. Include significant changes in the product delivered to the Project site and changes in manufacturer's written instructions for installation.
 - iii. Note related Change Orders, As-built Specifications, and As-built Drawings where applicable.

5. MISCELLANEOUS RECORD SUBMITTALS

- a. Assemble miscellaneous records required by Individual 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.
- i. Include miscellaneous record submittals directory organized by specification section number and title, electronically linked to each item of miscellaneous record submittals.

P. EXECUTION

1. RECORDING AND MAINTENANCE

- a. Maintain Change Log: Maintain and submit written change log to the Owner, monthly for review indicating items incorporated in contract turnover documents concurrent with progress of the Work, including modifications, concealed conditions, field changes, product selections, and other notations incorporated.
- b. Recording: Maintain one copy of each submittal during the construction period for contract turnover document purposes. Post changes and modifications to contract turnover documents as they occur; do not wait until the end of the Project.
- c. Maintenance of Turnover Documents and Samples: Store turnover documents and Samples in the field office apart from the Contract Documents used for construction. Contract turnover documents are not to be used for construction purposes. Maintain turnover documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to contract turnover documents for the Owner's reference during normal working hours during performance of Contract.

END OF SECTION 017839

SECTION 018113 - SUSTAINABLE DESIGN REQUIREMENTS

PART 1 - GENERAL

2. RELATED DOCUMENTS

- a. The Contract Documents, including but not limited to, the Drawings and Individual Specification Sections, apply to this Section.

3. SUMMARY

- a. Specified as Work of the Contract Documents, this section includes general requirements and procedures for compliance with certain USGBC LEED prerequisites and credits needed for Project to obtain LEED certification; Silver, Gold, or Platinum based on LEED-BD+C, Version 4.
- i. Other LEED prerequisites and credits needed to obtain LEED certification depend on material selections and may not be specifically identified as LEED requirements. Compliance with requirements needed to obtain LEED prerequisites and credits may be used as one criterion to evaluate substitution requests and comparable product requests.
- b. Related Sections:
 - i. Section 013300 – Submittal Procedure, for administrative procedures on submittals.
 - ii. Individual Specification Sections for LEED requirements specific to the work of each of these Sections. Requirements may or may not include reference to LEED.

4. DEFINITIONS

- a. Chain-of-Custody Certificates: Certificates signed by manufacturers certifying that wood used to make products was obtained from forests certified by an FSC-accredited certification body, "FSC Principles and Criteria for Forest Stewardship." Certificates shall include evidence that manufacturer is certified for chain of custody by an FSC accredited certification body.
- b. LEED: Leadership in Energy & Environmental Design.
- c. Not Used.
- d. Regional Materials: Materials that have been extracted, harvested, or recovered, as well as manufactured, within 500 miles of Project site. If only a fraction of a product or material is extracted/harvested/recovered and manufactured locally, then

only that percentage (by weight) shall contribute to the regional value.

- e. Recycled Content: The recycled content value of a material assembly shall be determined by weight. The recycled fraction of the assembly is then multiplied by the cost of assembly to determine the recycled content value.
- i. "Post-consumer" material is defined as waste material generated by households or by commercial, industrial, and institutional facilities in their role as end users of the product, which can no longer be used for its intended purpose.
- ii. "Pre-consumer" material is defined as material diverted from the waste stream during the manufacturing process. Excluded is reutilization of materials such as rework, regrind, or scrap generated in a process and capable of being reclaimed within the same process that generated it.

5. SUBMITTALS

- a. General: Submit additional LEED submittals to comply with Section 013300 – Submittal Procedure.
- b. LEED submittals are in addition to other submittals. If submittal item is identical to that submitted to comply with other requirements, submit duplicate copies as a separate submittal to verify compliance with indicated LEED requirements.
- c. Project Materials Cost Data: Provide statement indicating total cost for materials used for Project. Costs exclude labor, overhead, and profit. Include breakout of costs for the following categories of items:
 - i. Furniture.
 - ii. Plumbing.
 - iii. Mechanical.
 - iv. Electrical.
 - v. Specialty items such as elevators and equipment.
 - vi. Wood-based construction materials.
- d. LEED Action Plans: Provide preliminary LEED charrette and action plan within 30 days of the Effective Date indicating how the Contractor will achieve the LEED credits applicable to the Project.
- e. LEED Progress Reports: Concurrent with each Application for Payment, submit reports comparing actual construction and purchasing activities with LEED action plans.
- f. LEED Documentation Submittals: Provide submittals required by LEED Version 4 for each credit sought.

6. QUALITY ASSURANCE

- a. LEED Coordinator: Engage an experienced LEED-Accredited Professional to coordinate LEED requirements. LEED coordinator may also serve as waste management coordinator.

Q. PRODUCTS – Contractor shall use products required by LEED Version 4 for credits sought.

R. EXECUTION - Contractor shall execute the LEED-related Work as required by LEED Version 4 for credits sought.

END OF SECTION 018113

SECTION 019113 - GENERAL COMMISSIONING REQUIREMENTS

PART 1 - GENERAL

1. RELATED DOCUMENTS

- a. The Contract Documents, including but not limited to, the Drawings and Individual Specification Sections and the Commissioning Plan, apply to this Section.

2. SUMMARY

- a. Section includes general, procedural, and administrative requirements that apply to implementation of commissioning.
- b. General Provisions for Commissioning:
 - i. Selected building systems and equipment to be commissioned as identified by Contractor and approved by Owner.
 - ii. The commissioning process shall be directed by the Commissioning Authority, provided by the Owner.
 - iii. The Contractor shall act as the Commissioning Agent, and shall be responsible for executing the commissioning process as directed by the Commissioning Authority, and as defined in Division 24 as developed by Contractor subsequent to the Effective Date and approved by Owner.
 - iv. The commissioning process shall be defined in Division 24 (as developed by Contractor subsequent to the Effective Date and approved by Owner) and shall include responsibilities for each Commissioning Team member including the Contractor's Commissioning Agent.
- c. Related Sections:
 - i. Specification Sections referenced in Division 24 (as developed by Contractor subsequent to the Effective Date and approved by Owner), Commissioning, apply to this Section.
- d. References:
 - i. Owner's Project Requirements (OPR), Contractor's Basis of Design (BoD), and Contractor's Design Intent (DI) documents.
 - ii. Dormitory Authority State of New York: Building Commissioning Guidelines – 2006 http://www.dasny.org/construc/build_comm_guide/index.php
 - iii. ASHRAE Guideline 0-2005: The Commissioning Process
 - iv. ASHRAE Guideline 1.1-2007: HVAC & R Technical Requirements for the Commissioning Process.

3. DEFINITIONS

- a. Basis of Design (BoD): A document prepared by the Contractor that records how the Contractor's designer has met the Owner's project requirements. It includes the concepts, calculations, decisions, and product selections and how applicable regulatory requirements, standards, and guidelines have been met. The document includes descriptions and lists of individual items that support the design process.
- b. Commissioning (Cx): A quality assurance process that documents specified systems and components are provided and tested to meet the Owner's needs and the design intent in accordance with the Contract Documents.
- c. Commissioning Agent (CA): The Contractor. For the purposes of commissioning, the Contractor shall assume the role, tasks, and responsibilities of the Commissioning Agent. Note that per the Owner's Building Commissioning Guidelines, the Owner does not allow the Commissioning Authority and Commissioning Agent to be the same organization or person. The Commissioning Agent shall assign a representative with expertise and authority to act on its behalf to participate in the commissioning process.
- d. Commissioning Authority (CxA): The Professional, appointed by the Owner, to direct and coordinate the commissioning process.
- e. Commissioning Plan (Cx Plan): A document, prepared by the Commissioning Authority, defining the commissioning process including schedules, responsibilities, documentation requirements, and functional performance test requirements.
- f. Commissioning Team: Individuals and entities, as deemed appropriate by the CxA, appointed by the Owner and Contractor, having the authority to act on their behalf, explicitly organized to implement the commissioning process, through coordinated action and defined in the contract documents and the Commissioning Plan.
- g. Design Intent (DI): A document prepared by the Contractor that summarizes design goals of the design phase.
- h. Owner's Project Requirements (OPR): A document prepared by the Owner that defines the functional requirements and the expectations for operation, including but not limited to, the Bridging Documents.
- i. Systems and Energy Management Manual: A composite document that expands the scope of the operation and maintenance manual by including additional information gathered

by the commissioning process as required by the New York State Green Building Tax Credit, Section 638.8 (k)(2).

4. COMMISSIONING TEAM

- a. The Commissioning Team shall consist of, but not be limited to, the Contractor, the Owner, Owner's Design Professional, Owner's Commissioning Authority, Contractor's Commissioning Agent, and Contractor's applicable Subcontractors, in accordance with the Commissioning Plan.

- S. PRODUCTS (Not Used)
- T. EXECUTION (Not Used)

END OF SECTION 019113

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