PROJECT NO. 45143-C

CONSTRUCTION WORK

REHABILITATE FAÇADE STATE INSURANCE FUND HEADQUARTERS 199 CHURCH STREET NEW YORK, NY

NOVEMBER 22, 2017

ANDREW M. CUOMO Governor ROANN M. DESTITO OGS Commissioner



000101

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REHABILITATE FAÇADE STATE INSURANCE FUND HEADQUARTERS 199 CHURCH STREET NEW YORK, NY PREPARED BY ROBERT J. MURRAY, P.E. 307 SEVENTH AVENUE NEW YORK, NY

PREPARED FOR

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CLIENT: STATE INSURANCE FUND

PROJECT TEAM LEADER: JOHN HUTTON

ASBESTOS PROJECT DESIGNER:

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NOTE:....THE OFFICE OF GENERAL SERVICES REQUIRES GOOD FAITH EFFORTS ON THE PART OF ITS CONTRACTORS TO SOLICIT AND OBTAIN THE PARTICIPATION OF MINORITIES AND WOMEN AS SUBCONTRACTORS, AND EMPLOYEES IN ITS PROGRAMS.

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LIST OF DRAWINGS

1.01 DRAWINGS

A. The Contract Drawings, which accompany this Project Manual and form a part of the Contract Documents, are listed on the Title Sheet of the Drawings.

END OF LIST

DOCUMENT 003126

EXISTING HAZARDOUS MATERIAL INFORMATION

1.01 ASBESTOS SURVEY REPORT

Samples listed in the report were collected at the Project Site and tested for Asbestos Containing Materials (ACM). The report was compiled for New York State Office of General Services, Design and Construction Group by an ELAP certified laboratory. In order to determine the Asbestos content, samples were analyzed by polarized light microscopy (PLM) and/or transmission electron microscopy (TEM). The report is intended for the State design and estimate purposes only, and is included to provide bidders with that same information available to the State. The Bulk Samples are representative of Homogeneous Area (HA) and is defined as a suspect material of similar age, appearance, function and texture. All field information was organized in accordance with 40 CFR Part 763, Asbestos Hazard Emergency Response Act (AHERA). See the Limited Hazardous Materials Survey report included in the Appendix for type, condition, location and approximate quantity of ACM.

1.02 LEAD SURVEY REPORT

Samples listed in the report were collected at the Project Site and tested for Lead content. The report was compiled for New York State Office of General Services, Design and Construction Group by an ELAP certified laboratory. In order to determine the lead content the Atomic Absorption method or a XRF Analyzer was used. This report is intended for State design and estimate purposes only, and is included to provide bidders with the same information available to the State. The samples are representative of like materials in the Work area. All lead containing materials may not have been sampled. See the Limited Hazardous Materials Survey report included in the Appendix for details.

1.03 PCB SAMPLING REPORT

Samples listed in the report were collected at the Project Site and tested for PCBs. The report was compiled for New York State Office of General Services, Design and Construction Group by an ELAP certified laboratory. Bulk, wipe or air sampling was used in determining the PCB content. This report is intended for State design and estimate purposes only, and is included to provide bidders with the same information available to the State. All PCB containing materials may not have been sampled. See the Limited Hazardous Materials Survey report included in the Appendix for details.

END OF DOCUMENT

SUMMARY OF THE WORK

PART 1 GENERAL

1.01 WORK COVERED BY CONTRACT DOCUMENTS

- A. The title and location of the Work is printed on the cover of this Project Manual.
- B. Type of Contract: Fixed price.

1.02 SUBSTANTIAL AND PHYSICAL COMPLETION DATES

- A. Substantially complete the Work within 321 days after the Agreement is approved by NYSIF.
 - 1. The time allocated for the performance of work under this contract includes 30 days for notification of the Contractor NYSIF's approval of the Agreement.
 - 2. The approval of the Agreement by NYSIF constitutes the filing of the Contract Documents as a public record and notice to the Contractor that a fully executed contract exists between the Contractor and the State.
- B. Physically complete the Work within 90 days after the established Substantial Completion date.

1.03 CONTRACT AWARD SUBMITTALS

- A. Submittal No. 1: Submit the CONTRACTOR'S LIST OF SUBCONTRACTORS-SUPPLIERS information required in SCHEDULES AND RECORDS Article in Specification Section 013000 not later than 15 days after approval of the Contract by NYSIF.
- B. Submittal No. 2: Submit Preliminary Project Schedule related information noted in 013113 Project Schedule or 013200 Construction Progress Documentation, whichever section is applicable, within 15 days after approval of the Contract by NYSIF for review by the Director's Representative and OGS Scheduling.

1.04 RESTRICTED WORK PERIOD

- A. Construction Work Contract: Do not perform the waterproofing and related Work on or after December 1st and up to, but not including April 1st unless approved otherwise, in writing, by the Director. During this period, clear the work area of materials, equipment, and debris.
- B. The Work includes abatement of asbestos-containing materials. Do not perform other Work in the area of such activity during the abatement of asbestos-containing materials.

1.05 ITEMS NOT INCLUDED

- A. The following items shown on the Drawings are not included in this Contract:
 - 1. Items indicated "NIC" (Not in Contract).
 - 2. Existing construction, except where such construction is to be removed, replaced, or altered.

1.06 CONFINED SPACE

- A. Comply with confined space and permit-required confined space as defined in Title 29, Part 1910, Section 146 of the Code of Federal Regulations (29CFR 1910.146).
- B. Comply with Safety Requirements for Confined Spaces (ANSI/ASSE Z117.1-2009).
- C. All spaces shall be treated as permit-required confined spaces until the Contractor and/or subcontractors are able to re-classify the space to a non-permit confined space as per 29CFR 1910.146 and ANSI/ASSE Z117.1-2009.
- D. For the purpose of inspecting ongoing work, furnish at no additional cost to the State, personnel, as directed, to allow the Director's Representative to enter confined space and permit-required confined space in compliance with Title 29, Part 1910, Section 146 of the Code of Federal Regulations (29CFR 1910.146).

1.07 OCCUPANCY

A. This is an occupied Facility. The building will be occupied and operational during execution of the Work. Ingress to and egress from the building shall be maintained at all times.

1.08 CONTRACTOR USE OF PREMISES

- A. Perform construction work operations between the following hours: 7:00 am to 3:30 pm.
- B. Inform the Director's Representative of work area access requirements. The Director's Representative will coordinate and schedule the requirements with Facility staff to obtain and ensure timely availability of work areas.
- C. Check in with the Facility Representative, as directed, at the beginning of each work day. Furnish information regarding where employees will be working during the day.
- D. Comply with the Facility's Visitor Identification Policy. A copy of the current policy will be distributed at the initial job meeting.
- E. The following items are not allowed on the Site or on Facility premises.
 - 1. Firearms, ammunition, weapons, and dangerous instruments (other than tools required for the Work).
 - 2. Alcoholic beverages and persons under the influence of same.
 - 3. Illegal controlled substances and persons under the influence of same.

- 4. Cameras (except with written permission from the Director's Representative).
- F. Comply with Facility policies relating to smoking at the Site.
- G. Routes of ingress and egress within the building to the location of the Work shall be as directed by the Director's Representative.
- H. Store materials and perform the Work so that pedestrian and vehicular traffic is not obstructed.
- I. Do not diminish the level of life safety during performance of the Work.
- J. Utility Outages and Shutdowns: Do not interrupt utility services or branch services within the building. Provide temporary services required to maintain such services at all times.
 - 1. During the asbestos abatement portion of the Project, comply with the requirements specified in Section 028213.
- K. Use of Existing Elevators:
 - 1. Elevators for transportation of workers and materials will be designated by the Director's Representative. Arrange the time and duration of such use with the Director's Representative. Do not exceed capacity of elevators. Provide padding or other protection for the car.
 - 2. During Periods of Exclusive Use:
 - a. Operate elevators. Prevent unauthorized persons from using elevators.
 - b. Where an existing elevator service contract exists, make arrangements through the Director's Representative for repairs required due to misuse or negligence. Pay elevator service company's fees for repairs.
 - c. Where an existing elevator service contract does not exist, have repairs required due to misuse or negligence made by a qualified elevator company.
- L. Be responsible and accountable for employees, suppliers, subcontractors and their employees, with regard to their use of the premises. Direct them to comply with the Facility Regulations and with the security and traffic regulations.
- M. Furnish Facility authorities with a telephone number or method to contact the supervisor for the Work in case of an emergency after work hours, including weekends and holidays.
- N. Comply with applicable federal and State of New York Right-to-Know Law provisions. Provide Safety Data Sheets (SDS) documents for products that have SDS data prior to use on the project site.
 - 1. Upload and maintain electronic SDS documents on the Submittals Website (SDS tab).
 - 2. SDS tab is organized by prime contracts. To be readily identified, name products with SDS by specification section number and product name.

- 3. Supply and maintain one hard copy of the appropriate SDS on the project site and one hard copy with the Facility's Right-to-Know Information Officer.
- O. Direct employees to be watchful for people in or near the work area where safety hazards may be present. Notify the Facility Safety/Security Department, if necessary, to remove them from the work area or Site.
- P. Report fire and other emergency situations to the Facility Safety/Security Department immediately.
- Q. Provide staging area for tools and materials on sidewalk shed. Clearly indicate storage area locations and items to be stored on the sidewalk shed design drawings. Provide staging plan anticipated tool, material, and staging area loads for coordination with sidewalk shed designer. Comply with the sidewalk shed design load requirements of NYCBC Section 3307.6.4.2.2.
- R. Locate construction field office and OGS field office within the building in the space designated by the Facility manager. Provide office supplies and equipment for field offices. There is no trailer space on site for field offices.

1.09 REFERENCE SPECIFICATIONS AND STANDARDS

- A. Comply with the requirements of the various specifications and standards referred to in these Specifications, except where they conflict with the requirements of these Specifications. Such reference specifications and standards shall be the date of latest revision in effect at the time of receiving bids, unless the date is given.
- B. DOT Specifications: If the abbreviation DOT appears in these Specifications, it shall mean the most current edition of the New York State Department of Transportation, Office of Engineering specifications entitled "STANDARD SPECIFICATIONS CONSTRUCTION AND MATERIALS", including all applicable Addenda in effect at the time of receipt of bids. The DOT specifications may be purchased from the Department of Transportation, Plan and Publication Sales, 50 Wolf Road, Albany, NY 12232, (518) 457-2124.

1.10 LAYING OUT

- A. Examine the Contract Documents thoroughly and promptly report any errors or discrepancies to the Director's Representative before commencing the Work.
- B. Lay out the Work in accordance with the Contract Documents.

1.11 SPECIAL INSPECTIONS

A. Special Inspections and tests are required by Chapter 17 of the Building Code of New York State (BCNYS). Inspections & Testing Services will be provided by the state unless otherwise noted.

- B. Contractors are responsible for notifying the Directors Representative regarding individual inspections listed in the STATEMENT OF SPECIAL INSPECTIONS. Contractors shall cooperate with the inspectors and testing agencies and sufficient notice and lead time (minimum 48 hours) must be allowed for inspection and testing to be performed.
- C. Where deficiencies are identified, the contractor must take corrective actions to comply with the contract documents or remedy the deficiencies in accordance with Article 9 of the General Conditions.

PART 2 PRODUCTS (Not Used)

PART 3 EXECUTION (Not Used)

SAFETY

PART 1 GENERAL

1.01 SUMMARY

A. This section requires compliance with applicable Safety codes, standards and regulations, including but not limited to OSHA, Building Code of New York State, Fire Code of New York State, and Facility Regulations.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. Summary of the Work: Section 011000.
- B. Regulatory Requirements: Section 014100.

1.03 DEFINITIONS AND ABBREVIATIONS

- A. OSHA: Occupational Safety and Health Administration.
- B. BCNYS: Building Code of New York State.
- C. EBCNYS: Existing Building Code of New York State.
- D. FCNYS: Fire Code of New York State.
- E. NFPA: National Fire Protection Association.
- F. NFPA 70E: National Fire Protection Association Standard for Electrical Safety in the Workplace.

1.04 SUBMITTALS

- A. Provide a SITE SPECIFIC SAFETY PLAN no later than 15 days after approval of the Contract by NYSIF. The plan must include at a minimum:
 - 1. A program providing 100% hard hats and safety glasses, as well as other personal protective equipment (PPE), i.e. dust protection, noise protection, safety vests, etc.
 - 2. A program for assuring employees have proper work attire, i.e. substantial sole safety toed footwear, long pants, shirts with minimum 4" sleeves, etc.
 - 3. A 100% 6-foot conventional fall protection program which provides full body harnesses, lanyards, and guardrails when applicable.
 - 4. A program for training employees.
 - 5. A program for Confined Space, including procedures for entry, when applicable.
 - 6. A program for High Hazard Assessment including procedures for all high hazard work activities, i.e. critical lifts involving cranes or material

handling equipment, scaffolding, demolition, excavations, hot work activities, steel erection, and roofing. A pre-task meeting is required to verify all hazards will be addressed.

- 7. A list of the names of all competent and/or qualified persons, including their qualifications, for each activity requiring a competent person, i.e. excavations, scaffolding, rigging, fall protection, etc.
- 8. The name and contact information of the Company Safety Representative.
- 9. A program for project safety inspections, with a minimum of one documented safety inspection per week during the course of construction. Submit copies of all resultant inspection reports to the Director's Representative on a weekly basis.
- 10. A program for providing proper care for injured employees, including the name of the employee with First Aid/CPR certification who will be on site at all times during the course of construction.
- 11. A program for providing potable water and sanitary toilet services for all employees.
- 12. A program for addressing heat stress during high heat periods and/or cold stress during extreme cold periods, for employees exposed to these elements during the course of construction.
- 13. A program for record keeping per OSHA 1904.
- B. Provide safety orientation training for each employee <u>prior</u> to their starting work on site. This orientation shall include but not be limited to; Fitness for Duty (drug and alcohol policies), training on general safety hazards, site specific safety policies and procedures, personal protective equipment, injury reporting and protocols, emergency evacuation and preferred medical providers, and, HAZCOM (GHS Harmonization). Provide documentation of all safety orientation training for each new employee on the site, including all subcontractors, to the Director's Representative.
- C. Provide copies of all employee training and certifications related to the safe performance of activities, i.e. OSHA 10 hour certifications, forklift training, powder actuated tool training, aerial lift training, etc., to the Director's Representative.
- D. Provide an Emergency Action and Evacuation Plan, including Fire Protection and Emergency Response, when applicable.
- E. Accident Reporting: the Director's Representative shall be immediately notified of any and all accidents. A copy of a written accident report shall be furnished to the Director's Representative within 24 hours of incidents.
- F. Where Work or related staging, storage, or temporary use of areas outside the boundaries of state property are required, comply with the rules, regulations and all applicable safety codes of the applicable municipality.

1.05 STOP WORK ACTIVITY AUTHORITY

A. All NYS D&C OGS and NYSIF Property Services employees and/or their direct representatives have the authority to stop a work activity that exposes any

Contractor employees, consultants, or other visitors to potentially serious injury and/or illness. The responsible Contractor shall immediately cease work, perform an assessment of the activity that is exposing employees to any Immediately Dangerous to Life or Health (IDLH) conditions, and take action necessary to satisfactorily address the unsafe condition(s) at no cost to the State. The activity may only resume when the NYS D&C OGS representative or the Director's Representative and respective Contractor's Safety Representative verify corrective measures have been satisfactorily completed. Any related impact to time of completion shall be considered within the Contractor's control.

B. No Work, other than mobilization, shall commence until the Site Specific Safety Plan is approved.

PART 2 PRODUCTS (Not Used)

PART 3 EXECUTION (Not Used)

ALLOWANCES

PART 1 GENERAL

1.01 **DESCRIPTION**

- A. Include in the contract sum the allowances stated in this Section.
- B. Should the net cost be more than the specified amount of the allowance, the contract sum will be adjusted by Order on Contract in accordance with the General Conditions. No Work in excess of the allowance will be permitted except by Order on Contract. Should the net cost be less than the specified amount of the allowance, the balance will be deducted from the final payment.

1.02 ALLOWANCE FOR CONTINGENCIES

- A. Include in the contract sum the amount of \$500,000 to cover the cost of additional labor and materials for contingent activities within the scope of the Contract as directed in writing by Field Order. The Field Order will include a description of the Work and a method for determining the cost of such Work.
- B. The value of the directed Work under this allowance will be determined by one or more of the methods authorized in Section 012200 which will be specified in the Field Order.

PART 2 PRODUCTS (Not Used)

PART 3 EXECUTION (Not Used)

COST COMPUTATIONS

PART 1 GENERAL

1.01 DESCRIPTION

- A. The Contracting Officer shall determine the value of any order on contract or field order by one or more of the following methods:
 - 1. Agreed to Amount:
 - a. By estimating the fair and reasonable cost of:
 - Labor, including all wages, required wage supplements and insurance/taxes required by law (workers' compensation, social security, disability, unemployment, etc.) paid to or on behalf of working foremen, workers and other employees below the rank of the Contractor's designated representative directly employed at the Site of the Project, and, on contracts with an award price less than \$500,000, the Contractor's designated representative, regardless of job title or work status.
 - 2) Materials (to be installed or turned over to the State).
 - 3) Consumables are items that are used during the progression of the extra work that do not become a permanent part of the Work and as such are considered overhead.
 - 4) Equipment, excluding hand tools, which, in the judgment of the State, would have been or will be employed exclusively and directly on the omitted work or extra work.
 - 5) Where the omitted or extra work is performed directly by the Contractor; by adding to the total of such estimated costs a sum equal to 15 percent thereof, but, where the omitted or extra work is performed by a subcontractor, by adding a sum equal to 15 percent of said costs for the benefit of such subcontractor, and by adding, for the benefit of the Contractor (no further allowance will be made where extra work is performed by any sub-subcontractor), an additional sum equal to:
 - a) 10 percent of the first \$10,000 of the above-estimated costs, including the subcontractor's percentage override.
 - b) Plus 5 percent of the next \$90,000 of the total of said items.
 - c) Plus 3 percent of any sum in excess of \$100,000 of the total of said items.
 - d) For the purposes of the aforesaid percentage overrides, the words "extra work" shall be defined as a complete item of added, modified or changed work as described in writing to the Contractor and the reductions enumerated shall be applied individually to each Order on contract issued on a Contract. Such "extra work" may include the work of one or more trades and/or subcontractors or sub-subcontractors and shall include all labor, material, plant, equipment, tools and all incidentals directly and/or indirectly necessary, related, involved in or convenient to the successful completion of the extra work item.

- b. By accepting an amount agreed upon by both parties, which amount is to be calculated in a manner similar to that provided in subparagraph 1.01 A. 1. a.
- c. Should the Contractor fail to submit the required proposal as required by Article 10.5.1, the Contractor shall be compensated as follows:
 - 1) The costs will be determined by the State as described in 1.01 A. 1. a. above, but the percentages for profit and overhead will be as follows:
 - a) Where the omitted or extra work is performed directly by the Contractor; by adding to the total of such estimated costs a sum equal to 10 percent thereof, but, where the omitted or extra work is performed by a subcontractor, by adding a sum equal to 10 percent of said costs for the benefit of such subcontractor, and by adding, for the benefit of the Contractor (no further allowance will be made where extra work is performed by any subsubcontractor), an additional sum equal to:
 - (1) 5 percent of the first \$10,000 of the above-estimated costs, including the subcontractor's percentage override.
 - (2) Plus 3 percent of any sum in excess of \$10,000 of the total of said items.
- 2. ACTUAL COSTS By determining the actual cost of the extra work in the same manner as in the above Subparagraph 1.01 A. 1.a. except that actual costs of the Contractor be utilized in lieu of estimated costs. The State shall have the option to utilize this method provided it notifies the Contractor of its intent to do so prior to the time the Contractor is properly authorized to commence performance of such work.
- 3. By applying the applicable price or prices set forth in the Contract Documents or by applying a unit price agreed to by both parties.
- 4. All profit, overhead and expense of whatsoever kind and nature, other than those set forth above in Subparagraphs A.1.a. 1), 2) and 4), and below in Paragraph 1.01 F., of the Contractor, its subcontractors and sub-subcontractors, are covered by the aforesaid percentage overrides and no additional payment therefore will be made by the State.
- B. Irrespective of the method used or to be used by the State in determining the value of extra or omitted work, the Contractor shall, after receipt of a request, shall within 15 days submit to the State a detailed breakdown of the Contractor's estimate of the value of the omitted or extra work. The Contractor shall submit evidence, satisfactory to the Contracting Officer, to substantiate each and every item that constitutes his proposal for the change. The State shall promptly respond to such submission.
- C. Whenever this Contract requires the determination of labor hours, it shall be determined as follows:
 - 1. Labor Hours shall be based on the labor factors as published in "RSMeans" by Reed Construction Data. The latest versions of the following books shall be used:
 - a. Building Construction Cost Data
 - b. Electrical Cost Data
 - c. Mechanical Cost Data
 - d. Plumbing Cost Data
 - e. Site Work and Landscape Cost Data
 - 2. In the event that a labor factor for an item of work is not available from these publications the Director shall establish a labor factor as to the amount of time it takes to perform an item of Work.
 - a. Conditions that affect the performance of the extra work whether addressed in the Contract Documents or not shall be taken into consideration and negotiated.

- b. Unforeseen conditions or conditions that are not identifiable shall not be included in the Contractor's proposal. If while in the process of performing the omitted or extra work a condition or event that affects the work becomes evident, it will be addressed at that time via a field order or change order.
- D. Materials:
 - 1. Materials used in performance of the extra work shall conform to Contract Documents and shall be listed by description, quantity and standard unit of measure.
 - 2. Where the extended value of an item of material is FIVE THOUSAND DOLLARS OR MORE a quote or invoice from a supplier shall be included as part of the Contractor's proposal. The Director's Representative reserves the right to request substantiating pricing documentation to verify actual and reasonableness of any and all submitted costs. This requirement does not impede Subparagraph 1.01 B. above.
 - 3. Travel costs including mileage, tolls, and overnight lodging and meal per diems incurred as a result of the extra work will be reimbursed at costs without any markup for the Contractor or subcontractor as the case may be. Daily travel to the project site must exceed 35 miles, one way, from the Contractor's office address to claim mileage and toll expenses; only mileage beyond 35 miles will be reimbursed. Distance must exceed 50 miles, one way, from Contractor's office address to the project site to claim overnight lodging and meal per diems. Actual cost for overnight lodging and meal per diems will be reimbursed up to the maximum rates listed per locality, as established by U.S. General Services Administration (GSA).
 - 4. Personal Protection equipment required for hazardous materials abatement and materials used to create critical barriers and protection barriers, provided that they are expended during the performance of the extra work or turned over to the State at the request of the Director's Representative, are reimbursable as part of an order on contract.
- E. Whenever this Contract requires the determination of the cost of equipment, it shall be determined as follows:
 - 1. Equipment used or to be used in the performance of Work shall be specifically described by the manufacturer, model number and date of manufacture and be of suitable size and capacity required for the work to be performed.
 - 2. Equipment, excluding hand tools which are defined as tools and equipment having a new purchase price of less than ONE THOUSAND DOLLARS, and which will be used exclusively and directly on the Work. For the purposes of computing the Contractor's cost for self-owned equipment, the rate used for periods of under five days shall be the monthly rate set forth for the item of equipment in the Equipment Watch® "Rental Rate Blue Book" published by Penton Media (800 669-3282) divided by 22 days to establish a daily rate and divided again by eight hours to establish an hourly rate. The rate used for periods of 5 days or more shall be 45% of the published monthly rate. In the event the "Rental Rate Blue Book" does not list the item of equipment used, the applicable rate shall be determined in the same manner as set forth above except that the monthly rate used shall be that set forth in "The AED Green Book" published by Penton Media (800 669-3282). In the event that a rate is not established in the "Rental Rate Blue Book" or "The AED Green Book" for a particular piece of equipment, the Contracting Officer shall establish a rate for ownership costs and operating costs for that piece of equipment that is consistent with its cost and expected life. Self-owned equipment is defined to include equipment rented from controlled or affiliated companies.
 - 3. Rented equipment will be paid for at the actual rental cost. Equipment rented for the Work used in the performance of extra work will be reimbursed for operating costs only.

- 4. For the purposes of the performance of extra or additional work, when, in the opinion of the Contractor, and as approved in writing by the Director's Representative, suitable equipment is not available on the Site, the moving of said equipment to and from the Site will be paid for at actual cost.
- 5. Notwithstanding any other provision, if the State should determine that the nature or size of the equipment used by the Contractor in connection with the performance of Work is larger or more elaborate, as the case may be, than the size or nature of the minimum equipment determined by the State to be suitable for the performance of Work, the cost of equipment used in calculating the costs of extra work or delay damages will not be based upon the equipment used by the Contractor but instead will be based on the smallest or least elaborate equipment determined by the State to have been suitable for the performance of the Work. In no event shall the amount paid to the Contractor as the allowance for the use of self-owned construction equipment exceed the lower of the actual cost of such equipment or the depreciated value of such equipment as carried on the Contractor or subcontractors books.
- 6. The Contractor shall be reimbursed for its operating costs for self-owned equipment based on actual cost data. Operating costs shall include fuel, lubricants, other operating expendables and preventive and field maintenance. Operating costs do not include the operator's wages. In the event, after documented and demonstrated due diligence, actual operating costs are not ascertainable, then the Contractor will be compensated utilizing 100 percent of the operating costs set forth in the "Rental Rate Blue Book" and the Contractor shall be reimbursed the product of the number of hours of actual use multiplied by the operating cost per hour.
- 7. The maximum amount of reimbursement for the ownership costs of self-owned equipment is limited to the original purchase price of the equipment as listed in the "Green Guide for Construction Equipment" published by Penton Media (800) 669-3282. In the specific event when the ownership reimbursement is limited by the original purchase price, the Contractor shall, nevertheless, be reimbursed for the operating cost per hour for each hour of actual use.
- F. Insurance and Bonds:
 - 1. The additional cost of all required Bonds and Liability and Builder's Risk Insurance Premium required by this Contract, arising from the additional cost of performing extra work shall be paid by a change order or field order to be issued upon physical completion of the Work and upon the submission of proof of payment of such additional premiums assessed by the respective insurance companies for such additional cost of the extra work.
 - 2. Should the additional work require an additional insurance policy not initially required or anticipated in the execution of the contract, whether required of the Contractor or a subcontract between the Contractor and a subcontractor actually performing extra work, will be reimbursed based on actual cost.
- G. Unless otherwise specifically provided for in an order on contract or field order, the compensation specified therein for extra work includes full payment for both the extra work covered thereby and for any damage or expense caused the Contractor by any delays to other work to be done under the Contract resulting from or on account of said extra work, and the Contractor waives all rights to any other compensation for said extra work, damage or expense.
- H. In computing the value of an order on contract or field order which involves additions and deletions of work and the cost of the added work exceeds the cost of the deleted work, overhead and profit shall be computed on the amount by which the actual cost of additional labor and material exceeds the actual cost of the deleted labor and material, except no additional overhead

and profit shall be allowed on the value of any order on contract or field order determined by the method provided in Subparagraphs 1.01 A. 1.b. or 1.01 A. 3.

- I. In computing the value of an order on contract or field order which involves additions and deletions of work and the cost of the deleted work exceeds the cost of the added work, the Contractor will be allowed to retain the overhead and profit on the amount by which the cost of the deleted work exceeds the cost of the added work, except that no overhead and profit shall be retained on the cost of work determined by the method provided in Subparagraphs 1.01 A. 1.b. or 1.01 A. 3.
- J. Subject to the provisions of Article 17A of the General Conditions, the following elements of damage, and only the following elements, as determined by the Contracting Officer, will be recoverable by the Contractor as "delay damages" provided that they are actual, reasonable and necessary:
 - 1. Documented additional or escalated job site labor expenses.
 - 2. Documented additional or escalated costs for materials.
 - 3. Documented additional or escalated equipment costs less appropriate credits, as such are determined in accordance with this Section.
 - 4. Documented costs of extended job-site overhead (including job superintendent, office engineer and clerical staff, but not including working foremen).
 - 5. An additional 15 percent of the total of the above items in Subparagraphs 1.01 J. 1., 2., 3. and 4. for home office overhead and profit thereon.
 - 6. Documented additional or escalated insurance and bond costs.
 - 7. When the work is performed by a subcontractor, the Contractor shall be paid the actual, reasonable and necessary cost of such subcontracted work as outlined Subparagraphs 1.01 J. 1. through 4., including the subcontractor's main office overhead and profit of 15 percent. The Contractor shall also be allowed an additional 5 percent administrative fee for processing.
 - 8. The phrases "additional expenses", "escalated expenses", "additional costs" and "escalated costs" shall include expenses and costs above or below those normally incurred in the performance of the work, less any appropriate credit, and/or attributable, with appropriate credits, to the performance of work or portions of work in a different time period than that which was indicated on the approved progress schedule.
- K. The parties agree that, with regard to delay damages, the State will have no liability for the following items and the Contractor further agrees it shall make no claim for the following items:
 - 1. Profit, in excess of that provided for above.
 - 2. Loss of anticipated or unanticipated profit.
 - 3. Labor inefficiencies and loss of productivity.
 - 4. Home office overhead in excess of that provided for above.
 - 5. Consequential damages, including but not limited to interest on monies in dispute, including interest which is paid on such monies, loss of bonding capacity, bidding opportunities, or interest on retainage or investment, or any resultant insolvency.
 - 6. Indirect costs or expenses of any nature.
 - 7. Direct or indirect costs attributable to performance of work where the Contractor, because of situations or conditions within its control, has not progressed in a manner satisfactory to the Executive Director.
 - 8. Attorneys' fees, or claims preparation expenses.
- L. Remedies Exclusive: With respect to extra costs and delay damages, the parties agree that the State shall have no liability to the Contractor for expenses, costs, or items of damage other than

those which are specifically identified as payable above. In the event any legal action is instituted against the State by the Contractor on account of any extra work or for additional compensation, whether on account of delay, acceleration, breach of contract, or otherwise, the Contractor agrees that the State's liability will be limited to those items which are specifically identified as compensable above. The Contractor further agrees to make no claim for expenses other than those which are specifically identified as compensable above.

PART 2 PRODUCTS (Not Used)

PART 3 EXECUTION (Not Used)

ADMINISTRATIVE REQUIREMENTS

PART 1 GENERAL

1.01 RELATED REQUIREMENTS SPECIFIED ELSEWHERE

- A. Other requirements pertaining to payments are included in the General Conditions and in the various sections of the Specifications.
- B. Cost Computations: Section 012200.
- C. Submittals: Section 013300.

1.02 Not Used

1.03 SCHEDULES AND RECORDS

- A. Submit the following information not later than 15 days after approval of the Contract unless the Contractor or the Director determines an earlier submission is required to properly schedule or progress the Work.
 - 1. CONTRACTOR'S LIST OF SUBCONTRACTORS SUPPLIERS: An affirmative review of the subcontractor's responsibility will be conducted. Any subcontractor disapprovals resulting from negative information derived from the State's review will result in written notice (by letter or e-mail) to the Contractor. A responsibility meeting may result from these actions. The Contractor will defer to the provisions of Article 6, General Conditions, regarding its responsibility to prosecute the work.
 - a. Submit the CONTRACTOR'S LIST OF SUBCONTRACTORS - SUPPLIERS information using the required electronic entry process via the Vendor Interface.
 - b. Indicate the items of Work proposed to be accomplished by subcontractors, the name and address of each proposed subcontractor, the dollar value of the subcontract, and Minority and Women-Owned Business Enterprise (MWBE) information.
 - Attach a properly completed and executed NEW YORK STATE VENDOR RESPONSIBILITY QUESTIONNAIRE – FOR PROFIT CONSTRUCTION (CCA-2) and forward to the Vendor Responsibility Unit for each subcontractor whose subcontract is valued at \$100,000.00 or more unless requested otherwise by the Contracting Officer and/or the Director's Representative.
 - As an alternative to submitting a paper version of the form, subcontractors may opt to submit the CCA-2 on-line via the New York State VendRep System.
 Information on this system and the New York State

vendor responsibility requirements is available at: http://www.osc.state.ny.us/vendrep/index.htm.

- c. Indicate the names and addresses of proposed suppliers, the dollar value of the supplies, and MWBE information.
- d. Failure in providing this information may result in payments being withheld and referral to the Contracting Officer for a responsibility determination.
- B. If after initial approval, circumstances require a change in a subcontractor or supplier or require additional subcontractors or suppliers to be used.

1.04 DETAILED ESTIMATE

- A. Before making the first requisition for a progress payment, prepare a detailed estimate of quantities and prices for materials, labor and other items required for the Work, which shall aggregate the contract sum.
 - 1. Submit the DETAILED ESTIMATE information using the industry standard forms.
- B. The detailed estimate shall be supported by such evidence, including certified copies of subcontracts, as the Director may require.
- C. The detailed estimate must be approved by the Director who may revise it as, in his reasonable judgment, is necessary to make the various items conform to their true values.
 - 1. The value of each requisition for payment shall be based on the approved detailed estimate.

PART 2 PRODUCTS (Not Used)

PART 3 EXECUTION (Not Used)

PROJECT SCHEDULE

PART 1 GENERAL

1.01 RELATED REQUIREMENTS AND INFORMATION SPECIFIED ELSEWHERE

- A. Summary of Work: Section 011000.
- B. Administrative Requirements: Section 013000.
- C. Project Meetings: Section 013119.

1.02 SUMMARY

A. Section includes administrative and procedural requirements to plan, schedule, and document the progress of the Project, and predict and prevent delays to established activities and milestones during performance of the Work.

1.03 SUBMITTALS

A. Waiver of Submittals: The "Waiver of Certain Submittal Requirements" in Section 013300 does not apply to this Section.

- B. Schedule Submittals:
- 1. CMU 01 Agreement Form

1.04 DEFINITIONS

- A. Project: Work to be performed as part of one or more Contracts.
- B. Project Team: Persons acting on behalf of the State and/or Contractors in an effort to successfully plan, schedule, and coordinate the Work of the Project.
- C. Project Work Plan: A comprehensive list of Contractor tasks, predecessors, durations, resources, budgeted cost, etc. used to develop the Project Schedule.
- D. Schedule: A comprehensive leveling of necessary procedural tasks, task sequencing, projected start and finish dates, and resource allocation required to successfully complete the Work by the Project completion date.
- E. Activity: A task or grouping of tasks containing an anticipated start-date and corresponding duration, comprising a generalized portion of the Work, that can be identified and measured for planning, coordinating, monitoring, and controlling the project.
- F. Milestone: A significant start or finish to Work on a given set of activities on the Project defined by both the Director's Representative and the Contractors.

- G. Bid Milestones: Milestones or phases identified and included in the Contract Documents to be utilized by the Contractors and Project Team in developing the Baseline Project Schedule.
- H. OGS Project Management System (OGS PMS): The collaborative online system is provided by OGS for Contractors to establish their Project Work Plan activities, duration, predecessors, resources and budgeted cost for Work of the Project.
- I. Baseline Project Schedule: Derived from the Contractors' Project Work Plan activities and their prescribed durations, predecessors, etc. recognizing the completion of the Work of the Project in accordance with the Contract duration and approved by the Director's Representative and Contractors.
 - 1. The OGS Scheduling will build a Baseline Project Schedule from the Contractors' Baseline Project Work plan to determine projected start and finish dates.
 - 2. Updates to the Baseline Project Schedule, including but not limited to projected starts, finishes, and activity remaining duration, as agreed upon at the Project Schedule meeting by the Contractors and the Director's Representative, shall be defined as the Project Schedule.
 - 3. The Baseline Project Schedule will remain unaltered as a tool to measure progress outlined and anticipated during the initial Project Schedule meeting.
- J. Float: The measure of latitude in starting and/or completing an activity without impeding on the successful realization of Project milestones.
 - 1. Float time is not for the exclusive use or benefit of either the State or the Contractors, but is a jointly owned expiring Project resource; float is available as needed to meet scheduled milestones and Project completion.
 - 2. Recognizing float within an activity, or chain of activities, does not permit the Contractors to disrupt progress or delay completion of an activity.
- K. Resource: Any labor, material, or equipment, shared or exclusive, required for the completion of an Activity or the Work, which recognizes an associated cost.
- L. OGS Scheduling: A member of the OGS Scheduling Department responsible for assisting with reviewing and interpretation of Contractor Project Work Plans related information.

1.05 DEVELOPMENT OF THE PROJECT WORK PLAN

- A. The OGS PMS is the online environment where the Contractors will build and develop the Baseline Project Work Plan.
- B. Contractors will input information on the OGS PMS relating to activity naming, duration, predecessors, resources and budgeted cost. The Director's Representative and OGS Scheduling will review prior to the initial Project Schedule meeting.

- C. The Director's Representative will schedule the initial Project Schedule meeting within 15 calendar-days of Project Award. The meeting will include members of the Project Team and will be conducted by OGS Scheduling for the purpose of reviewing the Contractors' initial Project Work Plan, defining the intent of the specification, and realizing a Project Work Plan management strategy for all required iterations and reporting. The mutual agreements reached at this and subsequent meetings form the basis for the Baseline Project Schedule, and will be used for coordinating, scheduling, and monitoring the Work of all related contracts.
 - 1. OGS Scheduling will work with other members of the Project Team to review and discuss activities, task summaries, contractual or Project milestones, intermediate and critical milestones, and testing, inspection, or commissioning periods to assist in planning or coordination.

D. The Contractor will sign the CMU 01 Agreement form (blank included in Document 013113) within five (5) calendar-days of final Baseline Project Schedule review and approval by the Director's Representative. Failure to develop the Baseline Project Work Plan, and sign the CMU 01 Agreement form will not absolve the Contractors of the Project Work Plan requirements. The Contractors will be required to provide the necessary resources, at no additional charge to the State, to complete the Project in the manner defined by the Director's Representative.

- 1. The Baseline Project Schedule and CMU 01 agreement are to be completed within 45 days of Project Award. Failure by the Contractors to provide the required or requested information will results in the withholding of progress payments.
- E. Bid Milestones are to be incorporated into the Project Work Plan.

1.06 UPDATING THE PROJECT WORK PLAN

A. Monthly Project Schedule meetings will be held to review Contractors' updates to the actual starts, actual finishes, and remaining duration of in-progress activities, and consider logic changes, predecessor alterations, duration amendments, time impact events, and scope changes, for the purpose of determining the status of construction progress for the updated Project Schedule.

- 1. During the progress of Work on the Project, the Contractors are required to document actual start, actual finish, and remaining duration on a daily basis. Information will be posted by the Contractors to the OGS PMS and as defined during the Initial Project Schedule meeting.
- 2. Contractors must update the status of all their activities two (2) days prior to the Project Schedule Meeting. The Contractors will notify the Director's Representative and OGS Scheduling when their information is complete.
 - a. Any variation of 5 days (+/-) in the start or finish date for each activity must be explained and posted.
- 3. At the Progress Schedule Meeting, the Contractor, Director's Representative, and OGS Scheduling will review the documented progress and planned work.

- 4. Any Contractor failing to progress their Work as outlined in the updated Project Work Plan will be informed of their deficiencies and, if required, be requested to provide a recovery option.
- B. The Contractors will furnish all Project Work Plan information requested by the Director's Representative. Any Contractor who fails to furnish accurate information two days prior to the Project Schedule meeting will be required to provide all resources necessary to execute the updated Project Work Plan based on progress information documented and recorded by the Director's Representative.

1.07 MAINTAINING SCHEDULE

A. Perform the Work in accordance with the Project Schedule and providing resources necessary to maintain the progress of activities as scheduled so that no delays are caused to other Contractors engaged in the Work.

- 1. Should any Contractor fail to maintain progress according to the Project Schedule, or cause delay to another Contractor, that Contractor shall provide such additional manpower, equipment, additional shifts, or other measures, at their own cost, to bring their operations back on schedule.
- 2. Performing Work out of sequence with the Project Schedule is not permitted unless written approval is obtained from the Director's Representative prior to commencement.

1.08 RECOVERY WORK PLAN

- A. Recovery Work Plan: When periodic updates indicate the Work is 15 or more work days behind the approved Baseline Project Schedule's Substantial Completion dates, the Contractors will present recovery options to the Director's Representative to be incorporated into an updated Project Schedule; these include, but are not limited to, allocating additional resources for activity duration reduction or modifying activity sequencing,
- B. Any Contractor failing to furnish recovery options to the Director's Representative for a Recovery Work Plan within 10 calendar-days subsequent to the monthly Project Schedule update will be required to provide all resources necessary to execute an updated Project Work Plan defined by the Director's Representative.
- C. Alterations to the Project Schedule by a Recovery Work Plan will require the approval of the Contractors and the Director's Representative.
- D. Approved alterations to the Project Schedule by a Recovery Work Plan, will constitute the updated Project Schedule.
 - 1. The updated Project Schedule following the implemented Recovery Work Plan will be recognized as the primary baseline schedule for reporting. The Baseline Project Schedule will be retained as a secondary baseline schedule and will be utilized to measure progress against the alterations.

E. Recovery Work Plans recognizing early completion will be reviewed by the Director's Representative prior to acceptance of the Project Schedule update.

1.09 **RESOURCE ASSIGNMENTS**

- A. Resources recognizing the budgeted cost associated with all efforts necessary for the completion of a unique activity within the schedule, and the total cumulative cost of the Work of the Project, are to be assigned by the Contractors. All Contractors are responsible for providing the information necessary for assigning resources for the Baseline Project Work Plan; all Contractors are responsible for reviewing the information.
- B. Resources recognizing the total Labor/Manpower and specialized equipment associated with all efforts necessary for the completion of a unique activity within the Project Work Plan, and the cumulative curve associated with the Work of the Project, are to be assigned concordant with the intended means and methods proposed by the Contractors. All Contractors are responsible for providing the information necessary for assigning resources for the Baseline Project Work Plan; all Contractors are responsible for reviewing the information prior to approval.

PART 2 PRODUCTS

2.01 PROJECT WORK PLAN SOFTWARE

- A. Project Work Plan Software: Project Work Plan software is provided by OGS through the OGS PMS.
- B. Contractors are required to have Internet access to utilize the OGS PMS for all parts of this section.
- C. OGS will provide training for access and use of the OGS PMS. Training will be one hour at a minimum; additional support is available by OGS Scheduling.

PART 3 EXECUTION

3.01 PROJECT WORK PLAN

- A. The Director's Representative and OGS Scheduling will contact the Contractors and setup access to the OGS PMS. Training will be provided once access is setup by OGS Scheduling.
- B. Contractor will develop their Project Work Plan activities and provide information relating to activity naming, duration, predecessors, resources, and budgeted cost on the OGS PMS.
- C. The Contractors Project Work Plan will determine and define activities applicable to the Work of their Contract and the scope of the Project. Activities are to be appropriately placed within the OGS PMS.

- D. Within 15 calendar-days of Project Award, the Contractor's will provide a summary level Baseline Project work plan on the OGS PMS, encompassing the Work of the Project from Project Award through Substantial Completion.
 - 1. Contractors need to complete their summary Project Work Plan two (2) days prior to the initial meeting, in a manner appropriate to the development of the Baseline Project Work Plan. The Contractors will notify the Director's Representative and OGS Scheduling when their information is complete.
 - 2. Contractors will complete remainder of baseline Project Work Plan compliant to the summary level baseline Project Work Plan.
- E. The Project Team will review the Contractors initial Project Work Plan submissions at the Initial Project Schedule meeting and complete the Baseline Project Schedule.
 - 1. The Project Team will recommend tasks or summaries appropriate to planning, scheduling and coordinating, including but not limited to: establishing a focused work breakdown structure (WBS) that aligns with the Contract Documents, phasing requirements, identifying logical connections critical to Substantial completion, accounting for critical submittals or submission, fabrication, and delivery of long-lead materials, products, specialized equipment, or services, and recognizing critical testing, inspection, or commissioning durations for coordination and tracking.
- F. The Baseline Project Schedule is to be approved and the CMU 01 Agreement Form signed within 45 calendar-days of Project Award. Failure to complete the Project Work Plan and sign the CMU 01 Agreement Form will result in nonpayment for Work progressing beyond 30 calendar-days subsequent to Project Award.
- G. Updates to the Project Work Plan will be performed concurrent with Project Schedule meetings.

3.02 ACTIVITIES

- A. The Contractors are to provide activities, which adequately represent the coordinating needs of the Project and scope of the Work.
 - 1. Each activity will identify the Contractors' anticipated duration for the activity defined in workdays, and the budgeted cost of the activity.
- B. The Contractors will identify each activity with a unique Activity Name. No Activity Name or Activity ID will be altered after the Baseline Project Schedule has been approved by the Director's Representative.
- C. The Project Team will identify milestones, activities, or summary activities for incorporation into the Baseline or Project Schedule to assist in planning, scheduling, and coordinating the Project.
- D. The calendar utilized by the Baseline and Project Schedule for each activity will be per the direction of OGS Scheduling to accurately reflect anticipated State and

Federal holidays as well as work being performed off-hours as defined in the Contract Documents.

3.03 **BASELINES**

A. OGS Scheduling will maintain the CMU approved Baseline Project Schedule as the assigned project baseline schedule.

3.04 TIME IMPACT AND TIME IMPACT ANALYSIS

- A. Contractors will represent Time Impact to the Project Work Plan utilizing, at a minimum, a milestone event, an activity for resolution, and related work associated with the impact to the as-updated Work of the Project.
 - 1. Contractors and the Project Team will use the most current Project Work Plan update to prepare the Time Impact representation.
 - 2. If Project Work Plans have not been updated in accordance with this specification, an update must be generated which includes an accurate realization of the Work performed and progressed up to the Time Impact event. Failure to maintain Project Work Plan updates in accordance with this or related specifications will not absolve the Contractors of the responsibility to identify Time Impact as defined at a minimum by this article or the General Conditions.
 - 3. A Request for Time Extension will require Time Impact recognition within the CPM schedule.
 - 4. Time Impact events will be reviewed for accuracy and are to be updated in accordance with relevant new information regarding time for resolution and impact to remaining work on the Project.

NEW YORK STATE OFFICE OF GENERAL SERVICES DESIGN AND CONSTRUCTION GROUP	CMU-01 AGREEMENT
PROJECT NO.	
PROJECT NAME:	
REPORT DATE:	
REPORT NAME(S):	
It is agreed that the Baseline Project Schedule defined by the above and is accepted for use in coordinating, scheduling, and monitoring OR CONSTRUCTION WORK CONTRACTOR:	isted computer reports has been revi the work of all related contracts. DATE:
OR HVAC WORK CONTRACTOR:	
	DATE:
OR PLUMBING WORK CONTRACTOR:	DATE: DATE:
OR PLUMBING WORK CONTRACTOR:	DATE: DATE: DATE:
R PLUMBING WORK CONTRACTOR:	DATE: DATE: DATE:

PROJECT MEETINGS

PART 1 GENERAL

1.01 INITIAL JOB MEETING

- A. The Director's Representative will notify all parties concerned of the time and place of the initial job meeting. The meeting will be conducted by the Director's Representative. The agenda will be based on the Format for Initial Job Meeting. All items on the format, as they apply, will be discussed.
 - 1. A copy of the Facility's current Visitor Identification Policy will be distributed.

1.02 PROJECT SCHEDULE MEETINGS

A. Initial and Monthly Project Schedule meetings will be held according to the requirements in Section 013113.

1.03 BI-WEEKLY JOB MEETINGS

- A. Unless otherwise directed, job meetings will be held bi-weekly at a time and place agreed upon by the Director's Representative, the Contractor, and the Facility Representative. Other interested parties may attend when needed, e.g., subcontractors and representatives from suppliers, public utilities, and local government. The meetings will be conducted by the Director's Representative for the following purposes:
 - 1. Review job progress, quality of Work, and approval and delivery of materials.
 - 2. Identify and resolve problems which impede planned progress.
 - 3. Coordinate the efforts of all concerned so that the project progresses on schedule to on time completion.
 - 4. Maintain sound working relationships between the Contractors and the Director's Representative, and a mutual understanding of the project requirements.
 - 5. Maintain sound working procedures.

1.04 PRE-INSTALLATION MEETINGS

- A. Pre-installation meetings will be held to review the specifications, Project Schedule, drawings and approved submittals in preparation for start of a particular activity.
- B. The meetings shall be attended by the Director's Representative, a Design Representative and the Contractor's Representative including installer and representatives of manufacturers & fabricators involved in or affected by the installation and its coordination with other materials/trades.

C. The Director's Representative shall schedule the meetings prior to the start of the work. The goal of these meetings is to ensure the quality of construction and to maintain the schedule.

1.05 ATTENDANCE

- A. A Contractor's Representative shall be required to attend all meetings scheduled by the Director's Representative.
- B. The Contractor's Representative shall be a competent supervisor familiar with the work and have authority to act for the Contractor.
- C. If the Contractor's Representative fails to attend 2 scheduled meetings without prior approval, the contractor will be directed to replace the current Contractor Representative. Further incidents of non-attendance by the Contractor's Representative, will form the basis for review of the Contractor's responsible vendor status.

PART 2 PRODUCTS (Not Used)

PART 3 EXECUTION (Not Used)

SUBMITTALS

PART 1 GENERAL

1.01 RELATED REQUIREMENTS SPECIFIED ELSEWHERE

- A. Other requirements pertaining to submittals are included in the General Conditions and in the various sections of the Specifications.
- B. Summary of the Work: Section 011000.
- C. Administrative Requirements: Section 013000.
- D. Contract Closeout Submittals: Section 017716.

1.02 DEFINITIONS

- A. Deviation: Changes in products, materials, equipment and methods of construction from those required by the Contract Documents and proposed by the Contractor.
- B. Acceptable Manufacturer, Company or Product: A manufacturer, company or product capable of achieving the requirements established in the Contract Documents and demonstrating compliance.
- C. Portable Document Format (PDF): An open standard file format used for representing documents in a device-independent and display resolution-independent fixed layout document format.

1.03 DEVIATIONS FROM REQUIREMENTS OF THE CONTRACT DOCUMENTS

- A. Deviations from the requirements of the Contract Documents will not be allowed unless a request for deviation is made in writing prior to or at the time of submission and the specific deviation is approved by the Director's Representative subject to the requirements of Article 4 of the General Conditions. The request for deviation shall be made utilizing the CONTRACT DOCUMENT DEVIATION REQUEST FORM (Form BDC 49) accessible from the OGS Web Site.
 - 1. The submission of a deviation shall be done in a timely manner according to the schedule of submittals to allow the Director sufficient time for review.

1.04 "OR EQUAL" TO BRAND NAME PRODUCTS

A. Whenever a product is specified by brand name, a comparable brand, equal to that named, may be submitted for approval subject to the requirements of Article 5 of the General Conditions.

- 1. The Contractor shall bear the burden of proving that the proposed product is equal to the specified product. The submission of an "or equal" shall be done in a timely manner to allow the Director sufficient time to review the proposed product.
- 2. Whenever a color or pattern is indicated by a specific manufacturer's name or number, the intent is to communicate the required color or pattern of the material. Other manufacturers' comparable colors or patterns may be submitted for approval as equal.

1.05 WAIVER OF CERTAIN SUBMITTAL REQUIREMENTS

A. Unless otherwise specified, the requirement to submit product data and samples for approval will be waived for products specified by brand name if the specifically named products are furnished for the Work. In such cases, submit required Product Data to the Director's Representative via Submittal Exchange® for information only.

1.06 ADMINISTRATIVE REQUIREMENTS

- A. Participate in the OGS's hosted web-based collaboration service (Submittal Exchange® at <u>www.submittalexchange.com</u>) to transmit and track Contractor provided project related documents.
- B. Identify submittals by project title and number. Include Contractor's name, date, and revision date. On shop drawings, product data and samples, also include the name of the supplier and subcontractor (if any), and applicable specification section number. Stamp each submittal and initial or sign the stamp to certify review and approval of submittal.
- C. Assemble submittals in accordance with the requirements in the individual sections of the Specifications and as required by this section. It is the Contractor's responsibility to review and verify that all information required for each submittal is included in the submittal package. Errors or omissions found by the Contractor are to be corrected prior to the submission of the submittal package for approval. Incomplete submittal packages that have been submitted for review and approval will be returned.
 - 1. It is the Contractor's responsibility to verify that portions of the submittal package to be provided by a subcontractor (or supplier) are complete, as well as portions of the submittal package being provided directly by the Contractor.
 - 2. Do not combine the submittals of more than one specification section with submittals required by other specification sections unless specifically stated in the contract Specifications.
- D. If a submittal is based on, or the result of, a change order or field order to the Contract Documents, include copies of the applicable change order or field order with the submittal.
- E. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
- 1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
- 2. Submit all submittal items required for each specification section concurrently unless instructions for partial submittals are required in a specific specification section requiring sequential submissions.
- 3. Submit action submittals and informational submittals required by the same specification section as separate packages under separate transmittals.
- 4. Coordinate transmittals 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. The Director's Representative reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
- F. Processing Time: Allow time for submittal review, including time for resubmittals, as follows. Time for review shall commence on uploading the submittal to Submittal Exchange®. No extension of the project schedule will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.
 - 1. Initial Review: Allow time for the initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. The Designer of Record will advise the Director's Representative when a submittal being processed must be delayed for coordination.
 - 2. Resubmittal Review: Allow time for review of each resubmittal.
 - 3. Sequential Review: Where sequential review of submittals by the project team is necessary for coordination, allow time for review.
- G. The General Contractor shall employ or otherwise provide a full-time Submittal Coordinator for no less than 90 days after the Initial Job Meeting (IJM). The Submittal Coordinator is responsible to manage, coordinate and facilitate the submittal process on behalf of the Contractor. The Submittal Coordinator shall have regularly been engaged in construction administration for a minimum of 3 years and shall not be employed or otherwise engaged as the Project Manager or Superintendent for either the Work of this Contract or be employed in any role, full or part time, outside of this Contract.

1.07 SUBMITTALS

- A. Submittal Coordinator Qualifications: Not later than 10 days after Award. Include resume and references, and other certification, licenses, or other requested information.
- B. Schedule of Submittals acknowledgement: Provide written acknowledgement that the Schedule of Submittals has been received and reviewed with Critical Submittals identified and Contractor's Projected Dates (three dates inserted into each column) are entered for each specification item.

1.08 **RE-EVALUATION FEE**

A. In accordance with Article 4.7 of the General Conditions, a re-evaluation processing fee will be levied against the Contractor for each re-evaluation of a Submittal or Submittal Package submission that was returned for failure to comply with the submittal requirements relative to completeness, content or format.

1.09 ELECTRONIC SUBMITTALS

- A. Submittal Exchange® is used to provide an on-line database and repository which shall be used to transmit and track project related documents. The intent for using this service is to expedite the construction process by reducing paperwork, improving information flow, and decreasing submittal review turnaround time.
 - Project submittals (shop drawing, product data and quality assurance submittals) shall be transmitted by the Contractor in PDF to Submittal Exchange®, where it will be tracked and stored for retrieval for review. After the submittal is reviewed it is uploaded back to Submittal Exchange® 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 Coordination, Minutes, Testing, Closeout, and SWPPP documents.
- B. For each submittal, the Contractor shall review and apply electronic stamp certifying that the submittal complies with the requirements of the Contract Documents, including verification of manufacturer/product, dimensions and coordination of information with other parts of the work.
- C. It is the Contractor's responsibility to provide submittals in PDF. The Contractor may use the following options:
 - 1. Subcontractors and suppliers provide electronic submittals in PDF to the Contractor through Submittal Exchange®.
 - 2. Subcontractors and suppliers provide paper submittals to the Contractor, who electronically scans and converts them to PDF.
 - 3. Contract a Scanning Service, which will allow the Contractor and the Contractor's subcontractors and suppliers to provide paper submittals to the Scanning Service, which electronically scans and converts them to PDF. It will be the Contractor's responsibility to transmit the scanned submittals to Submittal Exchange®.
- D. Image Quality:
 - 1. Image resolution: The PDF files shall be created at a minimum resolution of 200 dots per inch utilizing the original document size. The Contractor will be responsible to increase the resolution of the scanned file or images being submitted as required to adequately present the information.
 - 2. Image Color Rendition: When information represented requires color to convey the intent and compliance, provide full color PDF reproduction.
- E. Internet Service and Equipment Requirements:

- 1. The Contractor will be required to have an Email address and Internet access at Contractor's main office.
- 2. Unless the Contractor will exclusively be using a Scanning Service to create PDF documents, the Contractor will be required to own a PDF reviewing, creating and editing software, such as Adobe Acrobat (<u>www.adobe.com</u>), Bluebeam PDF Revu® (<u>www.bluebeam.com</u>), or other similar PDF reviewing, creating and editing software for applying electronic stamps and comments.
- F. Training and Support:
 - 1. Submittal web-based collaboration training and support shall be available, free of charge from Submittal Exchange®, for project participants using the submittals website.
 - 2. Training schedule will be coordinated through the Director's Representative.
- G. Paper prints (hardcopies) of reviewed submittals:
 - Record Copy: Each Contractor shall provide one paper copy of each submittal they are responsible for to the Director's Representative within 14 days of receipt of a released submittal (i.e. marked "Approved", "Approved As Noted", or other implied acceptance of a submittal), or meeting the requirements of Waiver Of Certain Submittal Requirements Article of this specification section.
 - a. Exception: Paper copies are not required for a submittal that is disapproved or requiring resubmission.
 - b. Paper copies shall be printed in a size format equal to the original document.
 - c. Scaled Shop Drawings shall be printed to the scale noted on the drawings.
 - d. The resolution of the printed copy shall be equal to that of the PDF file that it is being printed from.
 - e. The Record Copy shall be used by the Director's Representative during the construction of the project and shall be retained as a turn-over item to the facility at the end of the project as required under Section 017716 Contract Closeout.
 - 2. Use for Construction: Retain complete copies of submittals on project site. The Contractor shall not commence work for related activities until the appropriate submittals are approved and the corresponding record copies are delivered to the Director's Representative.
 - 3. Distribution: The Contractor will furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Maintain transmittal forms indicating distribution of submittals.

1.10 SHOP DRAWINGS

A. Provide shop drawings in the format required by the Specifications. Show the information, dimensions, connections and other details necessary to insure that the shop drawings accurately interpret the Contract Documents. Show adjoining construction in such detail as required indicating proper connections. Where

adjoining connected construction requires shop drawings or product data, submit such information for approval at the same time so that connections can be accurately checked.

- B. Electronic copies of CAD Drawings of the Contract Drawings will not be provided by the Director's Representative for Contractor's use in preparing submittals.
- C. Have shop drawings prepared by a qualified detailer. Shop drawings shall be neatly drawn and clearly legible. Machine duplicated copies of Contract Drawings will not be accepted as shop drawings.
 - 1. Where shop drawings are indicated to be drawn to scale:
 - a. Use scale normally found on an "Architect" or "Engineer" scale.
 - b. Written Scale: Clearly label scales being used on each drawing and/or on each detail on the drawing.
 - 1) Examples: $1/8'' = 1' \cdot 0''$, $1'' = 40' \cdot 0''$.
 - c. Graphic Scale: Adjacent to each Written Scale, provide a graphic scale delineating the scale being used. Graphic scale shall be divided into measuring units relating to the accuracy required for the drawing or details.
 - d. Clearly dimension key elements of the drawing or detail.
 - 2. When the drawing sheet is printed full size, the minimum text size shall be 1/8" (3.2 mm) for hand drafting and 3/32" (2.5 mm) for CADD drawings.
- D. Submit the shop drawings through Submittal Exchange®. The shop drawings will be reviewed and the review results will be posted on Submittal Exchange®. Contractor will receive email notice of completed review. If the review results in disposition of "DISAPPROVED" or "RETURNED FOR CORRECTION", promptly correct the deficiencies and resubmit the shop drawings meeting Contract requirements.

1.11 PRODUCT DATA

- A. Provide product data in the format required by the Specifications. Modify product data by deleting information that is not applicable to the project or by marking the product data to identify pertinent products. Supplement standard information, if necessary, to provide additional information applicable to project.
- B. Submit the product data through Submittal Exchange®. The product data will be reviewed and the review results will be posted on Submittal Exchange®. Contractor will receive email notice of completed review. If the review results in disposition of "DISAPPROVED" or "RETURNED FOR CORRECTION", promptly correct the deficiencies and resubmit the product data meeting Contract requirements.
- C. Comply with applicable federal and State of New York Right-to-Know Law provisions. Provide Safety Data Sheets (SDS) documents for products that have SDS data prior to use on the project site.
 - 1. Upload and maintain electronic SDS documents on the Submittal Exchange® SDS tab.

- 2. SDS tab is organized by prime contracts. To be readily identified, name products with SDS by specification section number and product name.
- 3. Supply and maintain one hard copy of the appropriate SDS on the project site and one hard copy with the Facility's Right-to-Know Information Officer.

1.12 QUALITY ASSURANCE

- A. Provide quality assurance information in the format required by the Specifications, including supporting documentation as required.
- B. Submit the quality assurance information through Submittal Exchange®. The quality assurance information will be reviewed and the review results will be posted on Submittal Exchange®. Contractor will receive email notice of completed review. If the review results in disposition of "DISAPPROVED" or "RETURNED FOR CORRECTION", promptly correct the deficiencies and resubmit the quality assurance information meeting Contract requirements.

1.13 SAMPLES

- A. Submit 2 (unless a different number is specified) of each sample required by the Specifications.
- B. Samples will become the property of the State when submitted and will not be incorporated in the Work unless specifically stated otherwise.
- C. The electronic submittal process is not intended for color samples, color charts, or physical material samples.
- D. Record transmittal of each sample required by the Specifications through Submittal Exchange®.
- E. Consult with the Director's Representative for direction on where Samples will be sent for review.
- F. The sample will be reviewed and the review results will be posted on Submittal Exchange®. Contractor will receive email notice of completed review.

1.14 **REVIEW OF SUBMITTALS**

- A. Items submitted for review will be reviewed for compliance with the Contract Documents, based upon the information submitted. The items will be acted upon with the following dispositions:
 - Approved: Where the submittal is marked "Approved", the work covered by the submittal may proceed provided it complies with the Contract Documents. Final acceptance will depend on that compliance.
 - Approved as Noted: Where the submittal is marked "Approved as Noted", the work covered by the submittal may proceed provided it complies with the review

comments noted on the submittal and the Contract Documents. Final acceptance will depend on that compliance.

3. Disapproved:

Where the submittal is marked "Disapproved", do not proceed with the work covered by the submittal, including purchasing, fabrication, delivery or other activity for the item submitted. Prepare a new submittal according to the review comments noted on the submittal and meeting the Contract Documents.

4. Returned for Correction:

Where the submittal is marked "Returned for Correction", do not proceed with the work covered by the submittal, including purchasing, fabrication, delivery or other activity for the item submitted. Revise or prepare a new submittal according to the review comments noted on the submittal and meeting the Contract Documents.

5. Acknowledged:

Where the submittal is marked "Acknowledged", receipt of the submittal is acknowledged and has been recorded.

6. No Action:

Where the submittal is marked "No Action" or "No Action Taken", no review was made of this item, see comments noted on submittal and take appropriate action.

7. Multi-Action:

Where the submittal is marked "Multi-Action", separate dispositions were made for the items submitted, see the review comments for the disposition of each item submitted.

1.15 SCHEDULES AND RECORDS

- A. Submit the following Schedules and Records information not later than 15 days after approval of the Contract unless the Contractor or the Director determines an earlier submission is required to properly schedule or progress the Work.
 - 1. SCHEDULE OF SUBMITTALS (S.O.S.):
 - a. Follow the Instructions to the Contractor in the S.O.S (cover page of the Microsoft Excel form supplied by the State).
 - b. Confirm submittal items listed and indicate in the spaces following each item, the date the item will be submitted (Projected Transmittal Date).
 - c. Confirm critical submittals and long lead items identified by the Architect / Engineer. Identify and mark with "X" additional submittals deemed as critical or having long lead times. In addition to the date each item will be submitted, include the date approval is required (allow at least 3 weeks), and the date delivery of the material or equipment is necessary for timely completion of the Work in accordance with the Project Schedule.
 - d. Notify the Director's Representative of modifications and/or additional submittals necessary for the project prior to requesting revisions with Submittal Exchange®.
 - 2. SUBMITTALS WEBSITE LOG:
 - a. The submittal website log will be populated by Submittal Exchange® by means of the S.O.S.
 - b. Review the log and verify that all long lead items and critical

submittals are properly indicated according to the latest version of the S.O.S. For each item to be submitted indicate the following:

- i. In the "Date Expected" column insert the date the item will be submitted for review and approval (this is the same date as the S.O.S "Projected Transmittal Date").
- ii. In the "Date Requested on Site" column insert the date the item will be delivered to the project site (this is the same date as the S.O.S "Projected Delivery Date").
- c. The submission date that is entered shall provide sufficient time for the item to be reviewed, ordered, delivered and installed for timely completion of the Work in accordance with the Project Schedule. The date entered for submittal of each item is the last day a deviation will be considered.

1.16 TRANSMITTALS

- A. Submittal Transmittal (Form BDC 42) accessible from the OGS Web Site:
 - 1. Furnish separate Form BDC 42 for each submitted item sent to Submittal Exchange® for review.
 - a. Contractor may utilize their own Transmittal Form (or Transmittal Letter) in lieu of utilizing the Form BDC 42, contingent on the Contractor's Transmittal Form includes all information and certifications required by Form BDC 42.
 - 2. Clearly identify applicable specification section number of submitted item (product data, shop drawing, etc.) on the Form BDC 42.
- B. All Contracts:
 - 1. Transmit items designated in the Schedule of Submittals (and project Specifications) to the Submittal Exchange®.

PART 2 PRODUCTS (Not Used)

PART 3 EXECUTION (Not Used)

END OF SECTION

SECTION 014100

REGULATORY REQUIREMENTS

PART 1 GENERAL

1.01 COMPLIANCE

A. Comply with applicable regulatory requirements and various codes referenced in these specifications. Where conflicts exist between local, State, and/or Federal regulatory requirements, codes, or these specifications advise the Director's Representative. The Director's Representative will assist in resolving the conflicts to the satisfaction of the regulatory agencies prior to commencing the Work.

1.02 CODES AND QUALIFICATIONS

- A. All Work shall comply with OSHA (site specific safety plans are required on all projects), the New York State Uniform Fire Prevention and Building Code (the "Uniform Code"), which includes the current editions of Part 1220 (Residential Code), Part 1221 (Building Code), Part 1222 (Plumbing Code), Part 1223 (Mechanical Code), Part 1224 (Fuel Gas Code), Part 1225 (Fire Code), Part 1226 (Property Maintenance Code), Part 1227 (Existing Building Code). and Part 1240 (Energy Code) and their referenced standards. The referenced codes and standards shall be the date of latest revision in effect at the time of receiving bids, unless the date is given.
 - The contractor shall be aware of, and comply with, contractor requirements identified in the above referenced codes and standards; for example, but not limited to: OSHA (Occupational Safety and Health and Health Administration) - Building Code of New York State - Chapter 33 Safeguards During Construction, Existing Building Code of New York State - Chapter 14 Construction Safeguards, Fire Code of New York State – Chapter 14 Fire Safety During Construction and Demolition, Fire Code of New York State – Chapter 26 Welding and Other Hot Work (which governs safety during construction).
- B. All Work outside State property must comply with the New York City family of codes and New York City permitting and filing requirements, however, New York City licensing requirements are required and apply to all Work for this Contract regardless of where the Work is located. Work both on and outside State property is regulated by the Department of Environmental Protection (DEP) and the Fire Department (FDNY).
- C. Fire Codes: Contractor shall meet the following additional requirements of the NYC Fire Code 2009 or other referenced requirement listed below.
 - 1. Temporary Lighting: Chapter 14 Fire Safety During Construction, Alteration & Demolition, which states: "1404.7 Electrical: Temporary wiring for electrical power and lighting installations at construction sites shall comply with the requirements of the New York City Electrical Code".

- Temporary Heat: Chapter 14 Fire Safety During Construction, Alteration & Demolition, <u>http://www.nyc.gov/html/fdny/pdf/firecode/2009/fire_code_1126_2008_am</u> ended 1137 41 64 2009 final_complete.pdf#page=211
- 3. Fire Protection and Safety:
 - a. Chapter 3 General Precautions Against Fire
 - b. Chapter 4 Emergency Planning And Preparedness
 - c. Chapter 5 Fire Operations Features
 - d. Chapter 9 Fire Protection Systems
 - e. For Items above, see:

http://www.nyc.gov/html/fdny/pdf/firecode/2009/fire_code_ll26_ 2008_amended_ll37_41_64_2009_final_complete.pdf#page=61

- 4. Explosives: FDNY Bureau of Fire Prevention, FDNY Fire Code 2009:
 - a. Chapter 33 Explosives, Fireworks, and Special Effects: For storage of combustibles see the Table of Contents and the specific requirements of the following chapters:
 - 1) Chapter 13 Combustible Dust-Producing Operations
 - 2) Chapter 23 High-Piled Combustible Storage
 - 3) Chapter 27 Hazardous Materials General Provisions
 - 4) Chapter 29 Combustible Fibers
 - 5) For Items above, see: <u>http://www.nyc.gov/html/fdny/pdf/firecode/2009/fire_cod</u> <u>e_ll26_2008_amended_ll37_41_64_2009_final_complete</u> <u>.pdf</u>

1.03 NEW YORK CITY PERMITS AND INSPECTIONS

- A. NYC Permits and Inspections are required for all Work outside State property lines including sewer, water, and sprinkler connections. Electric and gas utilities require utility inspection and compliance with their standards, rules, and regulations. Contractors shall file and pay for all required NYC Permits for all Work outside State property. Contractors shall not file or pay for permits for work on State property.
- B. Projects in Privately Owned Buildings (Leased Space) and Parts of Project Outside State Property Line shall obtain the required permits, inspections and/or certifications from the appropriate New York City permitting agencies. Contact the New York City 311 Citizen Service Center by dialing 311 from phones within the 5 boroughs of New York City or (212) 639-9675 outside of the 5 boroughs of New York City.
 - 1. Permits, certificates and inspections which may be required include, but are not limited to:
 - a. Sidewalk Bridge Permit: For sidewalk bridges and/or scaffolding, see Scaffolds and Sheds: <u>http://www.nyc.gov/html/dob/html/development/scaffold_shed.sht</u> <u>ml</u>
 - b. Asbestos Abatement Permit.
 - c. Lifting equipment: Cranes, Hoists, riggers, licenses, etc. Dept of Buildings Cranes and Derricks Unit: The Department's Cranes and Derricks Unit oversees the design, installation and safe operation of equipment used for hoisting or lifting purposes. The

Cranes and Derricks Unit does not regulate equipment installed on water. Personnel and Tower Material hoists are regulated by the Elevator Division. Include Licensing and Permitting information: http://www.nyc.gov/html/dob/html/development/crane_home.sht ml

d. Other: NYC Certifications for welders, equipment operators, concrete foreman, site safety managers, crane operators, etc. For crane operation, refer to item no. 6 above. Additionally, a Certificate of Fitness may be required by FDNY Fire Code 2009, see: http://www.pue.gov/html/fdpv/pdf/firecode/certificate_of_fitness

http://www.nyc.gov/html/fdny/pdf/firecode/certificate_of_fitness. pdf

1.04 LISTINGS

- A. Equipment and materials for which Underwriters' Laboratories, Inc. (UL) provides product listing service, shall be listed and bear the listing mark.
 - 1. Alternately, Any product listed and bearing the mark from one of the other Nationally Recognized Testing Laboratories (NRTL as recognized by OSHA) shall be an acceptable alternative to being UL listed and marked, if the listed product has been tested to the applicable standard.

1.05 FIRE RESISTANT CONSTRUCTION MATERIALS AND ASSEMBLIES

- A. Conform to the fire rating classifications based upon the test methods and acceptance criteria in the Standard, Fire Tests of Building Construction and Materials for which Underwriters' Laboratories, Inc. (UL) provides listings.
 - 1. Materials and assemblies shall comply with the acceptance criteria, detailed description of the assembly, its performance in the fire test and other pertinent details such as specification of materials, Classification coverage, and alternate assembly details.
 - 2. Alternatively, fire resistance rating classifications by other issuing organizations listed in the New York State Uniform Fire Prevention and Building Code are acceptable.

1.06 MATERIALS WITH TRACE AMOUNTS OF ASBESTOS

A. Perform Work required to remove, disturb, or repair any material that contains less than 1 percent by weight of asbestos (Trace) in accordance with all applicable OSHA regulations (29 CFR Part 1926.1101).

PART 2 PRODUCTS (Not Used)

PART 3 EXECUTION (Not Used)

END OF SECTION

SECTION 015000

CONSTRUCTION FACILITIES & TEMPORARY CONTROLS

PART 1 GENERAL

1.01 RELATED WORK SPECIFIED ELSEWHERE

A. Disposal of Asbestos-Containing Materials: Section 028213.

1.02 PROJECT CONDITIONS

A. Provide construction facilities and temporary controls necessary for the Work.

1.03 TEMPORARY LIGHT AND POWER

- A. Electric energy will be made available without charge, at source or sources directed, for lighting and for power tools. Power supply for motors rated in excess of 1/2 hp will be made available within the limits of the existing circuitry and usage.
- B. Provide temporary lighting as required to maintain a minimum of 10 foot candles in the work areas.
- C. Provide ground-fault protection for personnel (such as portable plug-in type ground-fault circuit-interrupters) on single phase 15 and 20 ampere receptacle outlets which are in use.
- D. Receptacle outlets and portable cord connectors shall have standard NEMA configuration.
- E. Provide temporary wiring and equipment in conformance with the National Electrical Code.

1.04 TEMPORARY WATER

- A. Water will be made available for the Work without charge at source or sources directed within the limits of the existing supply and usage.
- B. Prevent waste of water.

1.05 TEMPORARY TOILETS

A. Existing toilet rooms to be used by the Contractor's and subcontractors employees will be designated by the Director's Representative. Maintain assigned toilet rooms in a sanitary condition.

1.06 BARRIERS AND ENCLOSURES

A. Provide barriers during performance of the Work to:

- 1. Prevent unauthorized entry to work areas.
- 2. Allow for State's occupancy of Site.
- 3. Protect existing facilities and adjacent properties from damage.
- 4. Protect vehicular and pedestrian traffic.
- B. Temporary Partitions: Provide temporary partitions to form fire resistive barriers between work areas and areas occupied by State personnel. Construct the partitions of 3-5/8 inch width steel framing or 2 x 4 wood framing, with 5/8 inch thick Type X (ASTM C 36) gypsum board on both sides of partition. Secure the partitions in place without damaging existing construction. Seal joints on the State occupied side with joint tape and compound. Provide 1-3/4 inch thick solid core flush wood doors or 18 gage flush steel doors, and steel door frames. Equip doors with full mortise hinges and lockset. Furnish the Director's Representative with 2 keys for each lock.

1.07 PROTECTION OF WORK AND EXISTING PROPERTY

- A. Protect installed Work and existing construction and finishes during performance of the Work.
- B. Maintain the building in a watertight condition during performance of the Work.
- C. Provide temporary and removable protection for installed products. Control activity in immediate work area to prevent damage.
- D. Provide protective coverings at wall projections, jambs, sills, and soffits of openings.
- E. Protect finished floors, stairs, and other surfaces from traffic, dirt, wear, damage, and movement of heavy objects by covering them with durable sheet materials.
- F. Protect smoke detectors from airborne dust and debris.
 - 1. At the beginning of each work day, provide protective coverings over smoke detectors in areas where airborne dust and debris will be generated by the Work.
 - 2. At the end of the work day, clean the areas in which the smoke detectors are located by whatever means necessary to assure that airborne dust and debris will not contaminate the smoke detectors, then remove protective coverings.
 - 3. Provide signs, instructions and alternate methods for reporting a fire during the periods that the smoke detectors are covered.
 - 4. Notify the Director's Representative and have procedures approved.
- G. Prohibit traffic or storage upon waterproofed and roofed surfaces. If traffic or activity is necessary, obtain recommendations for protection from waterproofing or roofing material manufacturer.
- H. Protect existing trees and plants during performance of the Work unless otherwise indicated. Box trees and plants within the grading limit lines. Do not

deposit excavated materials or store building materials around trees or plants. Do not attach guy wires to trees.

- I. Prohibit traffic from landscaped areas.
- J. Cleaning tools of cementitious and other insoluble materials:
 - 1. Do not wash tools in sinks or other sanitary drainage systems. Protect all drainage systems from debris that can clog or damage piping and fixtures.
 - 2. Take all precautions necessary to prevent cementitious and other insoluble materials from flowing into floor drains.
 - 3. Dispose of excess cementitious and other insoluble debris with the other rubbish.

1.08 SECURITY

- A. Key Deposits: A \$25 deposit will be required for each key issued by the Facility. Deposits will be refunded upon return of the keys.
- B. Facility Key Regulations:
 - 1. Sign Facility keys out and in on a daily basis unless otherwise directed.
 - 2. Keep keys on person at all times while on the premises. Do not loan or give keys to other persons.
 - 3. Do not remove keys from the premises without written permission from the Director's Representative.
 - 4. Report lost, missing, or stolen keys immediately to the Facility Safety/Security Department. Assume responsibility for cost of necessary key and lock replacement as a result of lost, missing, or stolen keys.
- C. Identification Cards: Facility will provide a card for up to 10 staff. Additional and replacement cards are \$25.00 each. Workmen must have an ID visible while on site at all times. Without an ID, workmen must sign in with security.
- D. Promptly relock doors and security screens located in access routes, storage areas, and work areas after use.
- E. Restore, by the end of each work day, existing in place safety/security items such as doors, screens, alarm systems components, that required removal, replacement, or adjustment to perform the Work, unless otherwise authorized in writing by the Director's Representative.
- F. Remove all tools and materials from patient occupied work areas when the work areas are not attended by employees and at the end of each work day. Store tools in a locked tool box, cabinet, or shed. Store materials where directed in a location secure from access by patients and clients.

1.09 WATER CONTROLS

A. Provide and maintain pumping equipment necessary to keep the work areas free from water. Discharge water into existing storm drainage systems or otherwise disperse as directed.

1.10 FIRE PREVENTION

- A. Take precautions necessary to prevent fires.
- B. Fuel for cutting and heating torches shall be gas only, and shall be contained in Underwriters Laboratory approved containers.
- C. Furnish and maintain a currently inspected 20 pound capacity multi-class A B C fire extinguisher in the immediate vicinity where welding tools or torches are in use.
- D. Furnish and maintain a currently inspected fire extinguisher of the appropriate class and size whenever the temporary storage of materials changes that areas classification of fire load or life safety.
- E. Do not use flammable liquids, other than those specified, within a building without written approval from the Director's Representative.
- F. Tarpaulins shall be flameproof and shall be securely anchored when attached to scaffolding or when used to enclose any portion of a building.
- G. If required by the nature of the work and facility regulations, the Contractor shall obtain from the facility and pay all costs associated with "Hot Work Permits" including fire watches to execute the work of its contract. Perform hot work in accordance with the Fire Code of New York State and the Hot Work Program approved for the work. Prior to, during and after performing hot work, inspect the hot work area for compliance with the requirements of the permitted Hot Work Program.
 - 1. Post signage "Caution: Hot Work In Progress Stay Clear" in conspicuous locations warning others before they enter a hot work area where the area is accessible to persons other than the operator of the hot work equipment.
 - 2. See applicable facility permits and conditions bound in the Appendix.

1.11 TEMPORARY FIRE PROTECTION

A. If the existing building is to be partially occupied during the course of the project, all existing exits, fire walls, fire barriers and fire protection systems shall be continuously maintained in the occupied phases in compliance with the Fire Code of New York State. Comply with NFPA 241 for items not specifically addressed in the Fire Code of New York State.

- B. Those portions occupied by the facility must be available for their use 24 hours a day, seven days a week during the contract period unless otherwise scheduled in these documents.
- C. Prior to removal of existing fire walls, fire barriers and fire protection systems, if such removal is part of the work, install equivalent temporary fire walls, fire barriers and fire protection systems as defined in these documents and as approved by the Director's Representative and/or the facilities representative.
- D. The cost of all labor, fire watches, variances, materials, installations, maintenance and removal of such temporary fire protection systems or modifications to the existing systems are the responsibility of the Contractor. Install permanent fire walls, fire barriers and fire protection systems, if provided as part of the work, as soon as practical.

1.12 ACCESS ROADS

- A. Routes of ingress and egress on the premises to the location of the Work shall be as directed.
- B. Keep designated access roads clear of dirt and debris resulting from the Work.
- C. Provide means of removing mud from vehicle wheels before entering paved roads.

1.13 PARKING

A. No parking will be allowed at the site, except for vehicles delivering material and equipment while they are being unloaded.

1.14 RUBBISH REMOVAL

- A. Clean up and containerize the rubbish (refuse, debris, waste materials, and removed materials and equipment) resulting from the Work at the end of each work day and leave work areas broom clean, except where more stringent cleaning is specified. Locate containerized rubbish where directed.
- B. Remove rubbish from State property at least once a week and more often if the rubbish presents a hazard. Properly dispose of rubbish.
- C. Burning of rubbish will not be permitted.

1.15 RELOCATION AND REMOVALS

A. Should a change in location of any construction facilities and temporary controls be necessary in order to progress the Work properly, remove and relocate such items as directed.

B. Remove the construction facilities and temporary controls when they are no longer required. Restore permanent facilities used for or connected to temporary facilities to their original condition or better.

1.16 FIELD OFFICES

A. Provide construction field offices within building.

PART 2 PRODUCTS (Not Used)

PART 3 EXECUTION (Not Used)

END OF SECTION

SECTION 016500

MATERIALS AND EQUIPMENT

PART 1 GENERAL

1.01 RELATED REQUIREMENTS SPECIFIED ELSEWHERE

A. Specific requirements pertaining to materials and equipment specified elsewhere are additional to the provisions of this Section.

1.02 PRODUCT LABELS

A. When materials or equipment are specified to conform to ASTM, Federal or other reference specifications, the materials delivered to the site shall bear the manufacturer's printed labels stating that the materials meet the requirements of such referenced specifications.

1.03 TRANSPORTATION AND HANDLING

- A. Deliver factory packaged materials and equipment in the manufacturer's original containers.
- B. Transport and handle materials and equipment in such a manner as to prevent their damage.
- C. Arrange for delivery of materials and equipment during the hours of the day established by the Director's Representative.
- D. Have workers available to receive and unload materials and equipment delivered to the site. Do not deliver, or have delivered, any materials and equipment to the site unless such forces are available.
- E. Facility personnel are not authorized to sign for receipt of Contractor's material or equipment.

1.04 STORAGE AND PROTECTION

- A. Neatly pile, store, protect, and secure materials and equipment in locations where directed.
- B. Protect materials and equipment subject to damage by temperature or other weather conditions.
- C. Do not store volatile liquids in a State building.

PART 2 PRODUCTS (Not Used)

PART 3 EXECUTION (Not Used)

END OF SECTION

SECTION 017329

REMOVALS, CUTTING, AND PATCHING

PART 1 GENERAL

1.01 RELATED WORK SPECIFIED ELSEWHERE

- A. Rubbish Removal: Section 015000.
- B. Asbestos Abatement: Section 028213.

1.02 DEFINITIONS

A. Remove: Detach items from existing construction and dispose of them off-site unless indicated to remain the Property of the State.

1.03 PROJECT CONDITIONS

- A. Existing Conditions: Do not disturb existing structures, construction, materials or equipment unless required by the Contract.
 - 1. Do not cut, drill or remove structural members such as joists, beams or columns supporting construction that is to remain unless expressly required by the Contract Documents.
- B. Existing Paint: A lead survey was performed on existing surfaces for the presence of lead based paints. A list of the surfaces tested and the results of the survey are in Document 003126. Take precautions as required to prevent the spread of lead containing particles and dust.
 - 1. Assume existing painted surfaces that have not been tested to contain lead based paint. Take precautions as required to prevent spread of lead containing particles and dust.

PART 2 PRODUCTS

2.01 MATERIALS

A. Match the appearance and performance of existing corresponding materials as closely as practicable, unless otherwise indicated.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Prior to cutting, drilling or removal, investigate both sides of the surface involved. Determine the exact location of structural members.
- B. If unforeseen obstructions are encountered, take precautions necessary to prevent damage and obtain instructions from the Director's Representative before proceeding with the Work.

3.02 PREPARATION

- A. Provide temporary shoring and other supports necessary to prevent settlement or other damage to existing construction which is to remain.
- B. Prepare existing surfaces properly to receive and bond with the Work.

3.03 REMOVALS, CUTTING, AND ALTERING

- A. In addition to the items indicated to be removed on the Drawings, remove existing construction superseded by the Work except items such as pipes, conduits, recessed boxes, and ducts which are built into existing construction that is to remain. Cut off and conceal such items at face of remaining construction. Provide cover plates on recessed boxes.
- B. Remove and alter existing construction as required to install and connect the Work to adjacent construction in an approved manner.
- C. Cut and alter existing materials as required to perform the Work. Limit cutting to the smallest amount necessary. Core drill round holes and saw cut other openings where possible.
- D. Perform cutting, drilling, and removals in a manner which will prevent damage to construction which is to remain.

3.04 PATCHING

- A. Patch existing construction and finishes defaced, damaged, or left incomplete due to alterations and removals. Patching, except as otherwise indicated, shall be limited to the areas which have been cut or altered. Finish patched surfaces to match existing adjacent surfaces as closely as practicable.
- B. Perform patching around items penetrating existing construction in a manner that will maintain the water and fire resistive capability of the existing construction.
- C. Paint patched areas to match existing adjacent surfaces as closely as practicable using same type of paint. Painting, except as otherwise indicated, shall be limited to the areas which have been patched.
- D. Where surfaces exposed by removals are to remain as exposed surfaces, paint such areas to match existing adjacent surfaces as closely as practicable using same type of paint.

3.05 REINSTALLATION

A. Where reinstallation of removed items is indicated, reinstall them to a condition equal to or better than their condition before removal.

END OF SECTION

SECTION 017716

CONTRACT CLOSEOUT

PART 1 GENERAL

1.01 RELATED REQUIREMENTS SPECIFIED ELSEWHERE

A. Other provisions pertaining to this Section are included in Article 9 of the General Conditions.

1.02 CONTRACT CLOSEOUT INSPECTIONS

- A. The following 3 inspections will be made in addition to the normal inspections to ensure that all Contract requirements are met and that the Work is complete and acceptable. The purpose of each of these inspections is to furnish the Contractor a written list of Contract exceptions, omissions, and incompletions so that the Work can be progressed to timely completion in accordance with the Contract Documents.
 - 1. Detailed Inspection: The "Detailed Inspection" will be made when the Work is substantially complete. A copy of the detailed inspection list will be furnished to the Contractor. When this inspection progresses over any length of time, copies of the list will be furnished as the inspection progresses so that the Contractor may proceed with the required Work without delay.
 - 2. Final Inspection: The Contractor will be advised by letter of the date and time of final inspection. A copy of the final inspection list containing all incomplete or unsatisfactory items and the time allowed to complete the Work will be furnished to the Contractor.
 - 3. Joint Inspection for Physical Completion: The joint inspection for physical completion may be made to verify completion of the exception items listed on the final inspection list so that the physical completion date (defined in the General Conditions) may be established.

1.03 FINAL CLEANING

- A. Perform final cleaning prior to joint inspection for physical completion. Leave the premises in a neat, unobstructed condition, the work areas broom clean (except where more thorough cleaning is specified), and everything in perfect repair and adjustment.
- B. Clean site; sweep paved areas, rake clean landscaped surfaces.
- C. Remove tools, equipment, waste and surplus materials, rubbish, and construction facilities from the premises as soon as possible upon completion of the Work.

1.04 PROJECT RECORD DOCUMENTS

- A. Maintain on site, 2 sets of the following record documents; record actual revisions to the Work:
 - 1. Contract Drawings.
 - 2. Project Manual.
 - 3. Addenda.
 - 4. Change Orders and other modifications to the Contract.
 - 5. Reviewed shop drawings, product data, and samples.
- B. Store record documents separate from documents used for construction.
- C. Record information concurrent with construction progress.
- D. Record Documents and Shop Drawings: Legibly mark each item to record actual construction including:
 - 1. Measured depths of foundations in relation to finish (first) (main) floor datum.
 - 2. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
 - 3. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.
 - 4. Field changes of dimension and detail.
 - 5. Details not on original Contract Drawings.
- F. Upon completion of the work, create electronic versions of the project record documents. Black and white documents are to be scanned into TIFF format using CCIT Group 4 compression. Documents with color, which include black line documents with color notations, are to be scanned into TIFF format using a minimum of 8 colors and "packbit" compression.
 - 1. The scanned images are to be put on a compact disc (CD) using ISO 9660 format. Name the electronic files with the same name as the drawing. Create a folder on the CD for each trade and one for Shop Drawings.
 - 2. Label the CD with the project number, name, and title as it appears on the project manual cover. If there is more than one CD include notation to that effect on the label; i.e., 1 of 3, 2 of 3, 3 of 3. The project record documents and CD(s) are to be turned over to the Director's Representative.
- G. Applications for progress payments will not be approved if the record documents are not kept current. Application for final payment will not be approved until the project record documents are delivered to the Director's Representative.

1.05 OPERATION AND MAINTENANCE DATA

A. Prepare 2 sets comprised of 8-1/2 x 11 inch text pages bound in capacity expansion binders with durable plastic covers identified with printed title "OPERATION AND MAINTENANCE INSTRUCTIONS", title of project, and subject matter of binder when multiple binders are required. Prepare a printed Table of Contents for each volume, with each product or system description identified. Internally subdivide the binder contents with permanent page dividers, logically organized as described below, with tab titles clearly printed under reinforced laminated plastic tabs:

Part 1: Directory, listing names, addresses, and telephone numbers of Architect/Engineer, Contractor, subcontractors, and major equipment suppliers.

Part 2: Operation and maintenance instructions, arranged by system and subdivided by specification section. For each category, identify names, addresses, and telephone numbers of subcontractors and suppliers. Identify the following:

- 1. Significant design criteria.
- 2. List of equipment.
- 3. Parts list for each component.
- 4. Operating instructions.
- 5. Maintenance instructions for equipment and systems.
- 6. Maintenance instructions for finishes, including recommended cleaning methods and materials and special precautions identifying detrimental agents.

Part 3: Project documents and certificates, including the following:

- 1. Shop drawings and product data.
- 2. Air and water balance reports.
- 3. Certificates.
- 4. Photocopies of warranties.
- B. Submit one copy of completed volumes in final form 15 days prior to final inspection. This copy will be returned after final inspection, with the Director's comments. Revise content of documents as required prior to final submittal.
- C. Submit 2 volumes prior to final Application for Payment.

1.06 WARRANTIES

- A. Furnish warranty certification and copies of warranties that extend beyond the one year period required by the General Conditions. Warranties submitted without warranty certification will not be accepted.
 - 1. Warranty Certification: Written certification from the warrantor that invoices for installation, service, supplies, and warranty fees have been paid in full to persons or firms due payment, and that the warranty is in effect and non-retractable due to any of the specified conditions.
- B. Prepare printed Table of Contents and assemble warranty certifications and warranty copies in a binder with a durable plastic cover.
- C. Deliver the binder to the Director's Representative prior to final Application for Payment.
- D. For items of Work delayed beyond date of Substantial Completion, provide updated submittal within 10 days after acceptance, indicating date of acceptance as start of warranty period.

E. Applications for final payment will not be approved until the warranty certification and warranty documents are delivered to the Director's Representative.

1.07 SPARE PARTS AND MAINTENANCE MATERIALS

- A. Label and deliver spare parts, maintenance items, and extra materials to the Site. Place in locations as directed.
 - 1. Include "NOT FOR WARRANTY REPAIRS" on the labels.
 - 2. Obtain receipt prior to final payment.
- B. Do not use the spare parts and maintenance materials required by the Contract Documents to remedy defects during the one-year period described in Paragraph 9.8 of the General Conditions except when approved otherwise by authorized Facility Representative. In such cases, replace items used.
- C. Applications for final payment will not be approved until these items are delivered to the Director's Representative.

PART 2 PRODUCTS (Not Used)

PART 3 EXECUTION (Not Used)

END OF SECTION

SECTION 028213

ASBESTOS ABATEMENT

PART 1 GENERAL

1.01 SUMMARY

- A. This Section specifies the procedures for disturbance and removal of existing asbestos-containing materials (ACM) and disposal of removed materials. The results of the testing for ACM are listed in the Building Asbestos Survey Report bound in the Appendix. Also see Document 003126.
 - 1. The Building Asbestos Survey report was compiled by an ELAP certified laboratory.
 - 2. In order to determine asbestos content, samples were analyzed by polarized light microscopy (PLM) and/or transmission electron microscopy (TEM).
 - 3. The report is intended for State Design and estimate purposes only, and is included to provide bidders with the same information available to the State.
 - 4. The Bulk Samples are representative of like materials in the Work area. All ACM may not have been sampled.
- B. Type of Asbestos Abatement Project:
 - 1. Large Asbestos Abatement Project: An asbestos project involving the removal, disturbance, repair or handling of more than 160 square feet or 260 linear feet of ACM.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. Existing Hazardous Material Information: Document 003126.
- B. Summary of the Work: Section 011000.
- C. Construction Facilities and Temporary Controls: Section 015000.
- D. Removals, Cutting, and Patching: Section 017329.
- E. Abatement of PCB Containing Caulk Sealant Materials: Section 028433.

1.03 REFERENCES

- A. New York State Department of Environmental Conservation (DEC) 6NYCRR:
 - 1. Part 360 Solid Waste Management Facilities.
 - 2. Part 364 Waste Transporter Permits.
 - 3. Part 370 Hazardous Waste Management System-General.
 - 4. Part 371 Identification and Listing of Hazardous Wastes.
 - 5. Part 372 Hazardous Waste Manifest System and Related Standards for Generators, Transporters and Facilities.
 - 6. Part 373 Hazardous Waste Management Facilities.

- B. Occupational Safety and Health Administration (OSHA): Asbestos Regulations (29 CFR Part 1926.1101).
- C. U.S. Environmental Protection Agency (USEPA):
 - 1. National Emission Standards for Hazardous Air Pollutants; Asbestos NESHAP Revision; Final Rule.
 - 2. Asbestos Emergency Response Act (AHERA) (40 CFR Part 763, Subpart E).
- D. New York State Department of Labor (DOL): Industrial Code Rule 56.

1.04 **DEFINITIONS**

- A. Authorized Personnel: Facility or the Director's Representative, and all other personnel who are authorized officials of any regulating agency, be it State, Local, Federal or Private entity who possess legal authority for enforcement or inspection of the work.
- B. Clearance Criteria: Shall be determined and established by a Certified Asbestos Project Monitor with an independent testing lab employed by the Director's Representative, conforming to all standards set forth by all authorities having jurisdiction, mentioned in the references, and issue the certification of cleaning.
- C. Site Specific Variance: Relief in accordance with section 30 of the Labor Law from specific sections of Industrial Code Rule 56 for a specific project.
- D. Phase I & II: Asbestos Project phases as defined and subcategorized in ICR 56-2.

1.05 ABBREVIATIONS

- A. ASTM: American Society for Testing and Materials 1916 Race Street Philadelphia, PA 19103
- B. CFR: Code of Federal Regulations Government Printing Office Washington, DC 20402
- C. DOL: New York State Department of Labor Harriman State Office Building Campus Albany, NY 12240
- D. NIOSH: National Institute for Occupational Safety and Health Building J.N.E. Room 3007 Atlanta, GA 30333
- E. OSHA: Occupational Safety and Health Administration 200 Constitution Avenue Washington, DC 20210
- F. USEPA: United States Environmental Protection Agency

401 M Street SW Washington, DC 20460

1.06 ASBESTOS SITE SPECIFIC VARIANCE

A. If a site specific variance is sought, the application must be submitted by the contractor's NYS DOL Certified Asbestos Project Designer with 14 days after the Contract Agreement is approved by NYSIF. Forward the required forms to the Department of Labor for their action.

1.07 SUBMITTALS

- A. Product Data: Catalog sheets, specifications and installation instructions for each item specified.
- B. Asbestos Site Specific Variance Submittals; if a site specific variance is sought submit the following:
 - 1. One copy of the completed DOSH-751 and DOSH-465 forms.
 - 2. One copy of the New York State Department of Labor site specific variance decision.
- C. Quality Control Submittals:
 - 1. Notification Compliance Data: Within 2 days after notification is sent to the regulatory agencies submit one copy of each notice sent to each regulatory agency (USEPA and DOL).
 - 2. Asbestos Removal Company Data: Name and address of proposed asbestos removal company and abatement contractor license issued by DOL.
 - 3. Asbestos Worker Certification Data: Name and address of proposed asbestos abatement workers and licenses issued by DOL.
 - 4. Work Plan: For information only, submit one copy of the work plan required under Quality Assurance Article.
 - 5. Waste Transporter Permit: One copy of transporter's current waste transporter permit from NYS DEC (NYS Part 364 Permit).
 - 6. Landfill: Landfill to be used for ACM disposal shall be licensed to receive asbestos waste by NYS DEC (NYS Part 360 Permit) and by USEPA. Out of state landfills shall provide licenses from local agencies having jurisdiction.
 - 7. Negative Air Pressure Equipment: Copy of manufacturer's and performance data of all units and HEPA filters used.
- D. Asbestos Work Closeout Submittals:
 - 1. Waste Shipment Records and Disposal Site Receipts: Copy of waste shipment record and disposal site receipt showing that the ACM has been properly disposed.
 - a. Waste shipment record and disposal site receipt must be received within 35 days of the ACM waste leaving the Site. If receipts are not received within the specified time period, the Director's Representative will notify USEPA in writing within 45 days of the ACM waste leaving the Site.

- E. Contract Closeout Submittals:
 - 1. Daily Log: Submit copy of Project Monitor's daily air sample log and a copy of Asbestos Abatement Contractor's Daily project log.
 - 2. Air Monitoring Data: Submit copy of air test results and chain of custody.

1.08 QUALITY ASSURANCE

- A. Regulatory Requirements: Comply with the referenced standards.
- B. Pre-Work Conference: Before the Work of this Section is scheduled to commence, a conference will be held by the Director's Representative at the Site for the purpose of reviewing the Contract Documents, discussing requirements for the Work, and reviewing the Work procedures.
 - 1. The conference shall be attended by the Contractor, the asbestos removal subcontractor, and the testing laboratory employed by the Director.
- C. Work Plan: At the conclusion of the pre-work conference, before the physical abatement Work begins, prepare a detailed work plan.
 - 1. The work plan shall include, but not be limited to, work procedures, types of equipment, details of equipment used, decontamination unit locations, crew size, and emergency procedures for fire and medical emergencies and for failure of containment barriers.
 - 2. If a site specific variance is sought, do not finalize the work plan until the Department of Labor decision is received.

1.09 PROJECT CONDITIONS

- A. In addition to the postings required by law, post at the entrance to the abatement area the following documents:
 - 1. Copy of the printed Work plan.
 - 2. Copy of Industrial Code Rule 56.
- B. Shut-down of Air Handling System: Complete the Work of this Section within the time limitation allowed for shut-down of the air handling system serving the work area.
 - 1. The air handling system will not be restarted until approval of the air monitoring tests following the last cleaning.
 - 2. If total shut down of the system is not acceptable, follow all regulations for local isolation and provision for temporary HVAC as per DOL regulations.
- C. Maintain electric services to those portions of the building and remaining facility not a part of the asbestos abatement work area at all times. Follow all regulations for electric power shut down exemptions as per DOL regulations.
- D. Do not obstruct any aisle or passageway so as to reduce its required width as an exit.

1.10 HEALTH AND SAFETY

- A. Where in the performance of the work, workers, supervisory personnel or subcontractors may encounter, disturb, or otherwise function in the immediate vicinity of contaminated items and materials, all personnel shall take appropriate continuous measures as necessary to protect all ancillary building occupants from the potential ACM exposure.
 - 1. Such measures shall include the procedures and methods described herein and shall be in compliance with all applicable regulations of Federal, State and Local agencies.

1.11 FIRE PROTECTION, EMERGENCY EGRESS AND SECURITY

- A. Establish emergency and fire exits from the work area containment. Provide first aid kits and two full sets of protective clothing and respirators for use by qualified emergency personnel outside of the work area.
- B. Provide a logbook throughout the entire term of the project. All persons who enter the regulated abatement work area or enclosure shall sign the logbook. Document any intrusion or incident in the log book.

1.12 PERSONAL PROTECTIVE CLOTHING AND EQUIPMENT

- A. Workers must wear personal protective equipment for all projects as per OSHA and DOL regulations. Provide respiratory protection in accordance with OSHA regulation 1910.134 and ANSI Z88.2.
- B. Workers must be trained as per OSHA and DOL requirements, have medical clearance and must have recently received pulmonary function test (PFT) and respirator fit tested by a trained professional.
 - 1. A personal air sampling program shall be in place as required by OSHA.
 - 2. The use of respirators must also follow a complete respiratory protection program as specified by OSHA.

PART 2 PRODUCTS

2.01 DISPOSAL BAGS

A. Type: Minimum 6 mil thick, black, and preprinted with a Caution Label.

2.02 EQUIPMENT

- A. Temporary lighting, heating, hot water heating units, ground fault interrupters, and all other equipment on site shall be UL listed.
- B. All electrical equipment shall be in compliance with the National Electric Code, Article 305 - Temporary Wiring.

2.03 GLOVE BAGS

A. Type: Minimum 6 mil thick, clear, fire retardant polyethylene. Select glove bag sizes appropriate for the size and location of the project.

2.04 NEGATIVE AIR PRESSURE UNITS

A. Type: Local exhaust system, capable of maintaining negative air pressure within the containment, and provides for HEPA filtration of efficiency not less than 99.97 percent with 0.3 micron particles. Equip the unit with filter alarms lights and operation time meter.

2.05 PLASTIC SHEETS

A. Type: Minimum 6 mil thick, clear, fire retardant polyethylene.

2.06 **RESPIRATORS**

A. Type: As approved by the Mine Safety and Health Administration (MSHA), Department of Labor, or the National Institute for Occupational Safety and Health (NIOSH), Department of Health and Human Services.

2.07 VACUUM CLEANERS

A. Type: Vacuums equipped with HEPA filters.

PART 3 EXECUTION

3.01 ASBESTOS-CONTAINING MATERIAL HANDLING AND REMOVAL PROCEDURES

A. Comply with the standards referenced in Part 1 of this Section.

3.02 CLEAN UP PROCEDURES

A. Comply with the standards referenced in Part 1 of this Section.

3.03 PROJECT AIR SAMPLING, MONITORING AND ANALYSIS

- A. Air Sampling and Analysis: The Director will employ the services of an independent testing laboratory to perform air sample monitoring. The laboratory shall use the methods described in standards referenced in Part 1 of this Section.
 - 1. The equipment, duration, flow rate, calibration of equipment, number and location of samples are as per ICR 56-4.
 - 2. Air sampling technician shall be on site to observe and maintain air sampling equipment for the duration of the air sampling collection.
 - 3. Period of time permitted between completion of air sample collection and receipt of results on the project site shall be equal or less than 48 hours.
- B. If air samples collected outside the regulated work area indicate airborne fiber concentrations at or above 0.01 fibers per cubic centimeter, or the established background level, which ever is greater, work shall stop immediately for inspection of barriers and negative air ventilation systems. Clean up surfaces

outside the regulated work area using HEPA filter equipped vacuums and wet cleaning methods. Work methods shall be altered to reduce fiber concentrations to acceptable levels.

C. Elevated air sample results, if any, along with background and all other air sample results collected during Phase IIA through Phase IIC shall be submitted to the Commissioner of appropriate Asbestos Control Bureau within the same business day of receipt of results.

3.04 FINAL CLEANING AND CLEARANCE PROCEDURES

- A. Negative Pressure Ventilation: Negative air pressure machines if used, shall remain in continuous operation during the entire length of the project.
- B. Cleaning and Visual Inspection: After first, second, third cleaning and required waiting/settling and drying periods, perform a final visual inspection.
 - 1. Final clearance air sampling shall commence after the waiting/settling and drying time as per ICR 56 has elapsed.
- C. Project Monitor Visual Inspection: The Director will employ the services of a DOL certified asbestos project monitor employed by an independent testing laboratory to perform visual inspection as required by ICR 56.
- D. Final Clearance Air Sampling: The Director will employ the services of an independent testing laboratory to perform final air sampling.
 - 1. The laboratory shall use the methods described in standards referenced in Part 1 of this Section.
 - 2. The equipment, duration, flow rate, calibration of equipment, number and location of samples are as per ICR 56-4.
 - 3. If initial Post-Abatement (Clearance Air) Monitoring results do not comply with the standards referenced in Part 1 of this Section the Contractor shall either re-clean or order a full set of TEM analysis.
 - a. Results of the TEM analysis will be conclusive, and if the results do not comply with the standards referenced in Part 1 of this Section, the Contractor shall re-clean and additional full set of air samples will be collected and analyzed until the standards are met.
 - b. All satisfactory PCM clearance air sample results along with background air sample results, if they are greater than or equal to 0.01 fibers per cubic centimeter, shall be submitted to the Commissioner of appropriate Asbestos Control Bureau within two business days of receipt of satisfactory clearance air results.
 - c. All satisfactory TEM results of previously unsatisfactory PCM clearance air sample results, along with the unsatisfactory PCM results shall be submitted to the Commissioner of appropriate Asbestos Control Bureau within two business days of receipt of satisfactory clearance air results.
 - 4. Prior to removal of isolation barriers the Director's Representative at the site will receive an affidavit from the air monitoring laboratory certifying the final air samples comply with the standards referenced in Part 1 of this Section.

- E. Dismantling of Regulated Abatement Work Area:
 - 1. Remove all tools and equipment after proper decontamination as per Part 1 of this section.
 - 2. Dismantle and remove each tent enclosure and air lock and any barriers only after final clearance air monitoring has been performed and satisfactory results obtained.
 - 3. All remaining polyethylene, duct tape, expandable foam and other barrier materials shall be bagged, wrapped, containerized and labeled as asbestos waste.
 - 4. Remove all temporary hard walled barriers from site.
 - 5. Dismantle any remote decontamination units and plastic sheeting shall be disposed as asbestos waste.
 - 6. Remove all waste generated to the holding area, lockable trailer or dumpster.
 - 7. Contractor's Supervisor shall certify in writing to the Director that abatement work is complete and no debris/residue remains.

3.05 DISPOSAL OF ASBESTOS-CONTAINING MATERIAL AND RELATED DEBRIS

- A. Remove all waste generated as part of the asbestos project from the project site within ten calendar days from the site after completion of Phase IIC of the project or within one day of the waste disposal container/trailer becomes full, whichever occurs first.
- B. Transport and dispose of all the asbestos-containing waste, related debris, and waste water to the approved disposal site.
- C. All generated waste removed from the site must be documented, accounted for and disposed of in compliance with the requirements of USEPA NESHAP.
- D. Comply also with the standards referenced in Part 1 of this Section.

3.06 **RESTORATION**

- A. Remove temporary decontamination facilities and restore area designated for these facilities to its original condition or better.
- B. Where existing work is damaged or contaminated, restore work to its original condition or better.

END OF SECTION

SECTION 028433

ABATEMENT OF PCB CONTAINING CAULK-SEALANT MATERIALS

PART 1 - GENERAL

1.01 SUMMARY:

- A. This section specifies the procedures for removal of existing polychlorinated biphenyls (PCB) containing caulking materials, and disposal of removed materials.
- B. Disturbance or dislocation of polychlorinated biphenyls (PCB) containing caulking materials may cause a health hazard to work persons and building occupants. Contractor shall appraise all of his workers, supervisory personnel, subcontractors and consultants who will be at job site of the seriousness of the hazard and of proper work procedures which must be followed.
- C. Where in the performance of the work, workers, supervisory personnel, subcontractors, or consultants may encounter, disturb or otherwise function in the immediate vicinity of polychlorinated biphenyls (PCB) containing caulking materials, appropriate, continuous measures as necessary to protect all building occupants from the hazard of exposure shall be taken. Such measures shall include the procedures and methods described herein, regulations of the U.S. Occupational Safety & Health Administration (OSHA), U.S. Environmental Protection Agency (EPA), the New York State Department of Labor, and the New York State Department of Environmental Conservation.
- D. The results of the testing for PCB containing caulking/sealants are listed in the Limited Hazardous Materials Survey report bound in the Appendix.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. Existing Hazardous Material Information: Document 003126.
- B. Summary of the Work: Section 011000.
- C. Construction Facilities and Temporary Controls: Section 015000.
- D. Removals, Cutting, and Patching: Section 017329.
- E. Asbestos Abatement: Section 028213.

1.03 REFERENCES

- A. TSCA (Toxic Substances Control Act)
- B. CERCLA (Federal "Superfund")

- C. New York State Department of Environmental Conservation (DEC) 6NYCRR:
 - 1. Part 360 Solid Waste Management Facilities.
 - 2. Part 364 Waste Transporter Permits.
 - 3. Part 370 Hazardous Waste Management System-General.
 - 4. Part 371 Identification and Listing of Hazardous Wastes.
 - 5. Part 372 Hazardous Waste Manifest System and Related Standards for Generators, Transporters and Facilities.
 - 6. Part 373 Hazardous Waste Management Facilities.
- D. OHSA (Occupational Safety and Health Administration) CFR Title 29.
- E. EPA (Environmental Protection Agency)
- F. CDC (Center for Disease Control): Air Pollution and Respiratory Health.

1.04 DEFINITIONS

- A. Authorized Personnel: Facility or the Director's Representative, and all other personnel who are authorized officials of any regulating agency, be it State, Local, Federal or Private entity who possess legal authority for enforcement or inspection of the work.
- B Containment: The enclosure within the building which establishes a contaminated area and surrounds the location where hazardous material remediation is taking place and establishes a Lead Control Work Area.
- C. Clearance Criteria: A Visual Inspection of all removal surfaces, performed by the independent testing lab employed by the Director's Representative, conforming to all standards set forth by all authorities having jurisdiction, mentioned in the references.
- D. Fixed Object: Mechanical equipment, electrical equipment, fire detection systems, alarms, and all other fixed equipment, fixtures or other items which cannot be removed from the work area.
- E. HEPA: High Efficiency Particulate Absolute filtration efficiency of 99.97 percent down to 0.3 microns. Filtration provided on specialized vacuums and air filtration devices to trap particles.
- F. PCB Solid Hazardous Waste: Materials containing one or more PCB compounds totaling 50 parts per million (ppm) or greater.
- G. PPE: Personal Protective Equipment.

1.05 ABBREVIATIONS

- A. ASTM: American Society for Testing and Materials 1916 Race Street Philadelphia, PA 19103
- B. CFR: Code of Federal Regulations Government Printing Office

Washington, DC 20402

- C. DOT: New York State Department of Transportation Main Office, 50 Wolf Road Albany, NY 12232
- D. NIOSH: National Institute for Occupational Safety and Health Building J.N.E. Room 3007 Atlanta, GA 30333
- E. OSHA: Occupational Safety and Health Administration 200 Constitution Avenue Washington, DC 20210
- F. USEPA: United States Environmental Protection Agency 401 M Street SW Washington, DC 20460

1.06 SUBMITTALS

- A Product Data: Catalog sheets, specifications, and application instructions for any removal products, if used.
- B. Quality Control Submittals:
 - 1. Worker's Qualifications Data:
 - a. Name of each person who will be performing the Work and their employer's name, business address and telephone number.
 - b. Names and addresses of 3 similar projects that each person has worked on during the past 3 years and documentation of completion of appropriate PCB/Hazardous Waste training program and supervisors with appropriate PCB/Hazardous Waste supervisor training.
 - 2. Work Plan: Submit one copy of the work plan required under Quality Assurance Article.
 - 3. Waste Transporter Permit: One copy of transporter's current waste transporter permit.
- C. PCB Work Closeout Submittals:
 - 1. Disposal Site Receipts: Copy of waste shipment record and disposal site receipt showing the PCB-containing materials have been properly disposed of.

1.07 QUALITY ASSURANCE

- A. Contractor shall provide and assure that the quality of work practices and procedures are consistent with the below listed agencies. Contractor shall utilize the latest edition, including all addenda, revisions and supplements for all regulatory agencies codes, etc., including but not limited to:
 - 1. Environmental Protection Agency (EPA).
 - 2. Occupational Safety and Health Administration.

- 3. State of New York codes and laws.
- 4. All local codes.
- B. Worker's Qualifications: The persons performing PCB Caulk abatement and their supervisor shall be personally experienced in PCB abatement work and shall have been regularly employed by a company performing PCB abatement for a minimum of 3 years.
- C. Regulatory Requirements: Comply with the referenced standards.
- D. Pre-Work Conference: Before the Work of this Section is scheduled to commence, a conference will be held by the Director's Representative at the Site for the purpose of reviewing the Contract Documents, discussing requirements for the Work, and reviewing the Work procedures.
 - 1. The conference shall be attended by the Contractor, the PCB Caulk removal subcontractor, and the testing/monitoring laboratory employed by the Director.
- E. PCB Containing Caulk Removal Work Plan: At the conclusion of the pre-work conference, before the physical PCB containing caulk abatement Work begins, prepare a detailed PCB-containing material removal work plan.
 - 1. The work plan shall include, but not be limited to, a drawing indicating the location, size, and details of PCB Caulk Collection Areas (dropcloths etc.,) staging areas for PCB caulk removal from identified area, location and details of containment, decontamination facilities, sequencing of window/caulk removal, work procedures, types of equipment, crew size, and emergency procedures for fire and medical emergencies.

1.08 PROJECT CONDITIONS

- A. Install 2 layers of 6 mil fire retardant polyethylene sheeting over the inside of all openings within 25 feet of the removal area to prevent contamination of the interior of the affected spaces.
- B. Provide 6 mil fire retardant polyethylene drop cloths to collect debris from removal operation. Remove caulk to the exterior and place into drum/container.
 - 1. Using wet methods, scrape all residual PCB containing caulking from rough building opening down to a bare, clean surface.
 - 2. Contractor shall collect all removed caulking and contaminated poly sheeting and properly drum/containerize for disposal or incineration in accordance with applicable State and Federal regulations.
- C. Remove polyethylene sheeting from openings after the Director's testing/ monitoring laboratory has confirmed complete removal of PCB containing caulking. Include removed poly sheeting in disposal drum/container for disposal as PCB contaminated material.

1.09 PERSONAL PROTECTIVE CLOTHING AND EQUIPMENT

- A. Workers must wear protective suits, protective gloves, eye protection and a minimum of half-face respirator with HEPA filter cartridge for all projects. Respiratory protection shall be in accordance with OSHA regulation 1910.134 and ANSI Z88.2.
- B. Workers must be trained as per OSHA and EPA requirements, have medical clearance and must have recently received pulmonary function test (PFT) and respirator fit tested by a trained professional.
 - 1. A personal air sampling program shall be in place as required by OSHA.
 - 2. The use of respirators must also follow a complete respiratory protection program as specified by OSHA.

1.10 JOB CONDITIONS

- A. Posting of regulations: Display the following documents in the clean changing area, in public view, for the full duration of the work:
 - 1. Instructions for removing injured persons from work area.
 - 2. Post emergency action plan at the work site. This plan shall also include telephone numbers for hospital, doctor and Fire Company.

PART 2 - PRODUCTS

2.01 ABATEMENT PRODUCTS

- A. Disposal Drums: Metal or fiberboard with locking ring tops, with warning labels as required by OSHA, NYSDEC and/or EPA.
- B. Respirators:
 - 1. Type: Approved by the Mine Safety and Health Administration (MSHA), Department of Labor, or the National Institute for Occupational Safety and Health (NIOSH), Department of Health and Human Services.
- C. Vacuum Cleaners:
 - 1. Type: Vacuums equipped with HEPA filters.
- D. Plastic Sheets:
 - 1. Type: Minimum 6 mil., opaque, fire retardant polyethylene sheets.
 - 2. Floor Protective Layer: Minimum 10 mil., reinforced polyethylene sheets.

2.02 GENERAL EQUIPMENT

- A. A sufficient supply of disposable mops, rags, and sponges for work area decontamination shall be available.
- A. A sufficient supply of scaffolding, ladders, lifts, and hand tools, (e.g., scrapers, wire cutters, brushes, utility knives, wire saws, etc.) shall be provided as needed.
2.03 PERSONNEL PROTECTION

- A. Safety equipment (e.g., hard hats meeting the requirements of ANSI Standard Z89.1-1981, eye protection meeting the requirements of ANSI Standard Z87.1-1979, safety shoes meeting the requirements of ANSI Standard Z41.1-1967, disposable PVC gloves or other work gloves), shall be provided to all workers and authorized visitors.
- B. Nonskid footwear shall be provided to all abatement workers. Disposable clothing shall be adequately sealed to the footwear to prevent body contamination.

PART 3 - EXECUTION

3.01 EMERGENCY PLANNING

- A. Description: The Contractor shall prepare an emergency preparedness plan detailing at least the information required in this section and in any applicable federal, state or local regulations.
- B. Details of Plan:
 - 1. Emergency planning shall be developed prior to abatement initiation and submitted to the Director for review.
 - 2. Emergency procedures shall be in written form and prominently posted in the clean change area of the worker decontamination area.
 - 3. Emergency planning shall include written notification of police, fire and emergency medical personnel of planned abatement activities, work schedule and layout of work area, particularly barriers that may affect response capabilities.
 - 4. Emergency planning shall include considerations of fire, electrical hazards, slips, trips, and falls, spills or releases of hazardous materials and heat related injury. Written procedures shall be developed and employee training in procedures shall be provided.
 - 5. Employees shall be trained in evacuation procedures in the event of work place emergencies.
 - a. For Non-Life-Threatening Situations: Employees injured or otherwise incapacitated shall decontaminate following normal procedures with assistance from fellow workers, if necessary, before exiting the work place to obtain proper medical treatment.
 - b. For Life-Threatening Injury or Illness: Worker decontamination shall take least priority. After measures to stabilize the injured worker, the injured worker shall be removed from the work place and secure proper medical treatment.
- C. Telephone numbers of all emergency response personnel shall be prominently posted in the clean area and equipment room, along with the location of the nearest telephone.

3.02 NOTIFICATION

A. Notify the Director's Representative a minimum of 5 working days prior to the start of PCB Caulk removal work.

3.03 EMPLOYEE PROTECTION

A. Comply with all applicable Occupational Safety and Health Administration (OSHA) Requirements.

3.04 WORK AREA PROTECTION

A. Protection of Existing Construction: Perform PCB caulk removal work without damage or contamination of adjacent areas and existing construction.

3.05 PCB-CONTAINING MATERIAL REMOVAL

- A. Perform removal of PCB-containing materials in accordance with approved PCBcontaining material removal work plan.
- B. Use procedures and equipment as required to limit occupational and environmental exposure to PCB's when PCB-containing caulk is removed in accordance with referenced standards.
 - 1. Limit the production and dissemination of caulk debris as much as possible.
 - 2. Perform manual wet scraping to the maximum extent feasible.

3.06 CERTIFICATION OF ABATEMENT

- A. Schedule visual clearance inspection with the Director's Representative at the site, when work area is ready for clearance testing.
- B. Director's Representative will employ the services of an independent testing/monitoring lab to perform visual clearance inspection. Clearance Criteria requirements are specified in PART 1 of this Section.
 - 1. Prior to removal of any isolation barrier, the Director's Representative will obtain a written affidavit and a final assessment report from the monitoring lab stating that the visual clearance assessment conforms to all standards set forth by all authorities having jurisdiction, mentioned in the references.
 - 2. Schedule a walk-through inspection with the Director's Representative and obtain the Director's Representative's written approval.
- C. The Director's Representative shall have final determination of an acceptable clearance level.

3.07 DISPOSAL OF PCB CONTAINING CAULKING MATERIALS

A. Properly containerized waste must be transported by a licensed hauler and shipped to an EPA approved PCB Recycling or incineration facility. Waste manifests must show chain of custody. Provide one copy of the waste manifests to the Owner.

- B. All contaminated waste shall be carefully loaded on trucks or other appropriate vehicles for transport. Before and during transport, care shall be exercised to insure that no unauthorized persons have access to the material.
- C. Transporters of the waste are prohibited from "back hauling" any freight after the disposition of the Owner's waste stream until decontamination of the vehicle and/or trailer is assured.

3.08 WASTE MANAGEMENT AND DISPOSAL

- A. The Contractor shall be responsible for all packaging, labeling, transport, disposal and record-keeping associated with PCB waste in accordance with all federal, state and local regulations.
- B. The Contractor shall ensure that the person transporting the waste holds a valid permit issued in accordance with appropriate federal, state, and local regulations.
- C. The Contractor shall provide to the transporter at the time of transfer appropriate shipping records as required by the federal, state and local regulations with a copy to the project engineer.
- D. Contractor shall maintain proper follow up procedures to assure that waste materials have been received by the designated waste site in a timely manner and in accordance with all federal, state and local regulations.
- E. The Contractor shall assure that disposal of polychlorinated biphenyls (PCB) containing caulking material is at a facility approved to accept such waste and shall provide a tracking/manifest form signed by the landfill's authorized representative.

3.09 **RESTORATION**

- A. Remove temporary decontamination facilities and restore area designated for these facilities to its original condition or better.
- B. Where existing construction is damaged or contaminated, restore work to its original condition or better.

SECTION 031100

CONCRETE FORMWORK

PART 1 GENERAL

1.01 RELATED WORK SPECIFIED ELSEWHERE

- A. Steel Concrete Reinforcement: Section 032100.
- B. Cast-In-Place Concrete: Section 033000.

1.02 REFERENCES

A. Except as shown or specified otherwise, the Work of this Section shall conform to the requirements of Specifications for Structural Concrete for Buildings ACI 301-99 of the American Concrete Institute.

1.03 DESIGN REQUIREMENTS

A. ACI 301, Section 2.1 – Formwork and formwork accessories, General:
1. Add the following to 2.1.1 Description:

The formwork shall be designed for loads, lateral pressure, and allowable stresses outlined in Chapter 2 - Design of "Guide to Formwork for Concrete" (ACI 347-01).

PART 2 PRODUCTS

2.01 MATERIALS

A. Chamfer Strips: Wood, metal, PVC or rubber; 1 inch chamfer, unless otherwise indicated on the Drawings.

PART 3 EXECUTION

3.01 PREPARATION OF FORM SURFACES

A. Apply form-coating material in accordance with manufacturer's instructions.

3.02 REMOVAL OF FORMS

- A. ACI 301, Section 2.3.2 Removal of Forms:
 - 1. Change paragraph 2.3.2.5 to read as follows:

2.3.2.5 Forms and shoring used to support the weight of concrete in beams, slabs and other structural members shall be removed in accordance with recommendations in paragraph 3.7.2.1 of Article 3.7 -

Removal of Forms and Supports of "Recommended Practice for Concrete Formwork" (ACI 347-01).

2. Add the following paragraphs:

2.3.2.7 All formwork shall be removed after the concrete has sufficiently hardened, except in inaccessible spaces where approved.

2.3.2.8 After the ends or end fasteners of form ties have been removed, the embedded portion of the ties shall terminate not less than 3/4 inch from the formed surfaces of concrete.

3.04 RE-USE OF FORMS

A. Split, frayed, delaminated or otherwise damaged form facing material shall not be used.

SECTION 032100

STEEL CONCRETE REINFORCEMENT

PART 1 GENERAL

1.01 RELATED WORK SPECIFIED ELSEWHERE

- A. Concrete Formwork: Section 031100.
- B. Cast-In-Place Concrete: Section 033000.

1.02 REFERENCES

- A. Except as shown or specified otherwise, the Work of this Section shall conform to the applicable requirements of the following:
 - 1. Specifications for Structural Concrete, ACI 301-99 of the American Concrete Institute.
 - 2. Manual of Standard Practice, MSP-1-01 of the Concrete Reinforcing Steel Institute.

1.03 SUBMITTALS

- A. Samples:
 - 1. Fabric Reinforcement: 8 inches square, each wire size.

1.04 QUALITY ASSURANCE

- A. Certifications: Affidavit by the reinforcement manufacturer certifying that reinforcement material meets the contract requirements.
 - 1. Submit evidence of steel material compliance with this Specification. Evidence shall consist of certification of source of material, copies of purchase orders and manufacturer's certifications. For stock material, submit copies of latest mill or purchase orders for material replacement.
 - a. Documentation to confirm compliance with General Conditions Article 25.4 Domestic Steel.
 - 2. Fabricator's and Erector's Qualifications Data: Name and experience of fabricator and erector.
- B. The Contractor agrees, that if the value of this contract exceeds \$100,000 all structural steel, reinforcing steel and other major steel items to be incorporated in the Work of this Contract shall be produced and made in whole or substantial part in the United States, its territories or possessions.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Fabric Reinforcement: ASTM A 185, welded wire fabric, fabricated into flat sheets unless otherwise indicated.
- B. Fabric Reinforcement Supports:
 - Uni Zag by Universal Form Clamp, 840 South 25th Avenue, Bellwood, IL 60104, (800)728-1958.
 - 2. Continuous Support, "CS" by Dayton Superior, 721 Richard Street, Miamisburg, OH 45342, (800) 745-3700.
- C. Tie Wire: Black annealed wire, 16-1/2 gage or heavier.
- E. Steel Wire: ASTM A 82, cold-drawn plain steel wire, size No. W2.9 unless otherwise indicated.
- F. Reed Clips: ASTM A 185, rigid type reed clips, fabricated of W1.4 steel cross wires spaced 12 inches apart and looped at edges of flanges, and W1.4 longitudinal wire. Reinforcement shall have two longitudinal wires for flanges 9 inches to 15 inches in width, and three longitudinal wires for flanges over 15 inches in width. Cross wires shall be welded to longitudinal wire(s).

PART 3 EXECUTION

3.01 PLACING

- A. ACI 301, Section 3.3 Execution:
 - 1. Replace the first sentence in paragraph 3.3.2.1 Tolerances- with the following:

Place, support, and fasten reinforcement as shown on the project drawing or approved shop submittal.

2. Add the following paragraphs:

3.3.2.1.a At the time concrete is placed, reinforcement shall be free of loose rust and loose mill scale.

3.3.2.4.j Bar Reinforcement: In rectangular panels of two-way construction, place the steel in the short direction first with the longer bars on top in the opposite direction.

3.3.2.5.a Fabric Reinforcement: Offset end laps in adjacent sheets to prevent continuous joints at ends of sheets.

In concrete slabs supported by steel joists, place fabric reinforcement approximately 3/4 inch below top surface of the concrete.

Support of Fabric Reinforcement, provide Fabric Reinforcement Supports tied to fabric at 18 inches o.c. and spaced at 36-inch intervals.

3.3.2.11 Fireproofing Reinforcement: Unless otherwise indicated, install reinforcement for concrete fireproofing as follows:

3.3.2.11.a Reinforce concrete flange encasement of steel beams, girders, and columns with reed clips when the flanges are more than 3 inches in width and the thickness of concrete encasement on such flanges is less than 3 inches.

3.3.2.11.b Where the bottom of the concrete encasement on lower flange of steel beams and girders is 12 inches or more below the soffit of adjacent concrete slab, and where no slab occurs, wrap the beams and girders with steel wire at intervals of 12 inches, in addition to the reed clips.

SECTION 033000

CAST-IN-PLACE CONCRETE

PART 1 GENERAL

1.01 RELATED WORK SPECIFIED ELSEWHERE

- A. Concrete Formwork: Section 031100.
- B. Steel Concrete Reinforcement: Section 032100.

1.02 REFERENCES

- A. Except as shown or specified otherwise, the Work of this Section shall conform to the requirements of American Concrete Institute (ACI) and American Society for Testing and Materials (ASTM) documents.
 - 1. ACI 301-05: Specification for Structural Concrete for Buildings.
 - 2. ACI 302.1R-04: Guide for Concrete Floor and Slab Construction.
 - 3. ACI 302.2R-06: Guide for Concrete Slabs that Receive Moisture-Sensitive Flooring Materials.
 - 4. ACI 304.2R-96: Placing Concrete by Pumping Methods.
 - 5. ACI 305R-10: Hot Weather Concreting.
 - 6. ACI 306R-10: Cold Weather Concreting.
 - 7. ACI 308.1-11: Standard Specification for Curing Concrete.
 - 8. ACI 318 -05 Building Code Requirements for Structural Concrete.
 - 9. ASTM C 94/C 94M 11b: Standard Specification for Ready- Mixed Concrete.
 - 10. ASTM C 494/C 494M 11: Standard Specification for Chemical Admixtures for Concrete.
 - 11. ASTM F 710- 11: Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring.

1.03 DEFINITIONS

- A. ACI 301, Section 1.2 Definitions:
 - 1. Add the following definitions:
 - a. Cementitious Material: Cementitious materials include cement, ground blast furnace slag and fly ash.
 - b. Corrosion Inhibitor Admixture: A liquid admixture, calcium nitrite that inhibits corrosion of concrete-embedded steel in the presence of chloride ions.
 - c. Pumped Concrete: Concrete that is conveyed by pumping pressure through rigid pipe or flexible hose.
 - d. Water-to-Cementitious Ratio (w/c): An ratio representing quantity in pounds of free moisture available for cement hydration divided by quantity of cementitious materials in pounds per cubic yard concrete.

1.04 SUBMITTALS

- A. Submittals Package: Submit product data for design mix(es) and materials for concrete specified below at the same time as a package.
- B. Product Data:
 - 1. Mix Design: Submit proposed concrete design mix(es) together with name and location of batching plant at least 28 days prior to the start of concrete work.
 - a. Include test results of proposed concrete proportions based on previous field experience or laboratory trial batches in accordance with ACI 301, Section 4.
 - b. Pumped Concrete: Include test results of proposed design mix(es) tested under actual field conditions with the maximum horizontal run and vertical lift required for this project.
 - 2. Portland Cement: Brand and manufacturer's name.
 - 3. Fly Ash: Name and location of source, and DOT test numbers.
 - 4. High Range Water-reducing Admixture (Superplasticizer): Brand and manufacturer's name.
 - 5. Corrosion Inhibitor Admixture: Brand and manufacturer's name.
 - 6. Aggregates: Name and location of source, and DOT test numbers.
 - 7. Chemical Curing and Anti-Spalling Compound: Brand and manufacturer's name, and application instructions.
 - 8. Bonding Agent (Adhesive): Brand and manufacturer's name, and preparation and application instructions.
 - 9. Integral Water-Repellent Admixture: Brand, manufacturer name, specifications, and application instructions.
- C. Quality Control Submittals:
 - 1. Batching Plant Records: At the end of each day of placing concrete, furnish the Director's Representative with a legible copy of all batch records for the concrete placed.
 - 2. Concrete Pumping Equipment Data: Include manufacturer's name and model of principal components, type of pump, and type and diameter of pipe/hose.

1.05 QUALITY ASSURANCE

- A. Qualifications of Crew Pumping Concrete: Workers pumping concrete shall have had at least one year of experience pumping concrete.
- B. Concrete batching plants shall be currently approved as concrete suppliers by the New York State Department of Transportation.
- C. Truck mixers for concrete shall be currently approved by the New York State Department of Transportation.
- D. Pumping equipment for pumped concrete shall be subject to the approval of the Director.

- E. Fly ash supplier shall be on the New York State Department of Transportation's current "Approved List of Suppliers of Fly Ash".
- F. Source Quality Control: The Director reserves the right to inspect and approve the following items, at his own discretion, either with his own forces or with a designated inspection agency:
 - 1. Batching and mixing facilities and equipment.
 - 2. Sources of materials.
- G. ACI 301, Section 1.3 Reference standards and cited publications:
 - 1. Add the following to the list of ASTM Standards:
 - C 311-11a Standard Methods of Sampling and Testing Fly Ash or Natural Pozzolans For Use As A Mineral Admixture in Portland Cement Concrete.

1.06 DELIVERY

- A. ASTM C 94/C 94M, Article 14 Batch Ticket Information: In addition to the information required by Paragraph 14.1, also include the following:
 - 1. Type and brand, and amount of cement.
 - 2. Weights of fine and coarse aggregates.
 - 3. Class and brand, and amount of fly ash (if any).

PART 2 PRODUCTS

2.01 MATERIALS

- A. Cement: ASTM C 150, Type I or II Portland cement.
- B. Water: Potable
- C. Air-entraining Admixture: ASTM C 260, and on the New York State Department of Transportation's current "Approved List".
- D. Water-reducing Admixture: ASTM C 494/C 494M, Type A, and on the New York State Department of Transportation's current "Approved List".
- E. High Range Water-reducing Admixture (Superplasticizer): ASTM C 494/C 494M, Type F, and on the New York State Department of Transportation's current "Approved List".
- F. Corrosion-Inhibiting Admixture: ASTM C 494/C 494M, for use in resisting corrosion of steel reinforcement.
 - DCI Corrosion Inhibitor by W. R. Grace & Co., Conn., 62 Whittemore Ave., Cambridge, MA 02140, (617) 876-1400 and Rheocrete CNI by Master Builders/ BASF Building Systems, 23700 Chagrin Blvd., Cleveland, OH 44122, (800) 628-9990.
 - 2. DCI S Corrosion Inhibitor by W. R. Grace & Co., Conn., 62 Whittemore Ave., Cambridge, MA 02140, (617) 876-1400.

- G. Retarding Admixture: ASTM C 494, Type D, Water-reducing and retarding, for use in hot weather concreting, and on the New York State Department of Transportation's current "Approved List".
- H. Accelerating Admixture: Non-corrosive admixture, containing no chloride, complying with ASTM C 494, Type C or E, and on the New York State Department of Transportation's current "Approved List".
- I. Fly Ash: ASTM C 618, including Table 1 (except for footnote A), Class F except that loss on ignition shall not exceed 4.0 percent.
- J. ACI 301, Section 4.2.1.2 Aggregates:

1.

- Add the following paragraph:
 - Fine aggregate for pumped concrete shall meet the requirements of ASTM C 33, except 15 to 30 percent shall pass the No. 50 sieve and 5 to 10 percent shall pass the No. 100 sieve. The fineness modulus of the fine aggregate for pumped concrete shall not vary more than 0.20 from the average value used in proportioning.
- 2. Add the following paragraph:
 - Aggregates shall be taken from storage silos or other approved locations that have been tested and approved by the New York State Department of Transportation, unless otherwise approved in writing by the Director.
- K. Moisture-Retaining Cover: Waterproof paper, or polyethylene film complying with ASTM C 171.
- L. Epoxy Bonding Agent (Adhesive): 100 percent solids epoxy-resin-base bonding compound, complying with ASTM C 881, Types I, II, IV and V, Grade 2 (horizontal areas) or Grade 3 (overhead/vertical areas), and Class B (40-60 degrees Fahrenheit) or Class C (60 degree Fahrenheit and above).
 - 1. SurePoxy HM Series by Kaufman Products, Inc., 3811 Curtis Avenue, Baltimore, MD 21226, (800) 637-6372.
 - 2. Sikadur Hi-Mod 32 by Sika Corporation, 201 Polito Avenue, Lyndhurst, NJ 07071, (800) 933-7452.
 - 3. Epogrip by Sonneborn/-BASF Building Systems, 889 Valley Park Drive, Shakopee, MN 55379, (800) 433-9517.
- M. Integral Water-Repellent Admixture:
 - 1. Hydrocide Powder by Sonneborn/ BASF Building Systems, 889 Valley Park Drive, Shakopee, MN 55379, (800) 433-9517.
 - 2. Darapel by W. R. Grace & Co., Conn., 62 Whittemore Ave., Cambridge, MA 02140, (617) 876-1400.

2.02 **PROPORTIONING OF MIXES**

A. Cast-in-place concrete shall be air-entrained normal weight concrete.

- Normal weight concrete, except as otherwise specified, shall have a minimum compressive strength of 4000 psi, with a minimum of 611 pounds of cement per cubic yard. Slump: Maximum 4 inches; minimum 2 inches before the addition of any water-reducing admixtures or highrange water-reducing admixtures (superplasticizers) at the Site.
- 2. Optional Material: Fly ash may be substituted for (Portland) cement up to a maximum of 15 percent by weight of the required minimum (Portland) cement. If fly ash is incorporated in a concrete design mix, make necessary adjustments to the design mix to compensate for the use of fly ash as a partial replacement for (Portland) cement.
 - a. Adjustments shall include the required increase in air-entraining admixture to provide the specified air content.
 - b. Lower early strength of the concrete shall be considered in deciding when to remove formwork.
- B. Slump for Pumped Concrete: When a water-reducing admixture is not used, maximum slump shall be 4 inches. When a water-reducing admixture is used, maximum slump shall be 6 inches and when a high-range water-reducing admixture (superplasticizers) is used, maximum slump shall be 8 inches.
- C. Design Air Content: Design air content for concrete shall be 6 percent by volume, with an allowable tolerance of plus or minus 1.5 percent for total air content, except as otherwise specified. Use air-entraining admixture, not air-entrained cement.
- E. Water-Cement Ratio: Cast-in-place concrete shall have a maximum water-cement ratio of 0.40.
- F. ACI 301, Section 4.2.2.3: Change article to read as follows:
 - 4.2.2.3 Size of Coarse Aggregates:
 - 4.2.2.3.a Normal Weight Concrete: Coarse aggregates shall conform to graduation requirements for various sizes as tabulated in Table No. 2 of ASTM C 33. The sizes of coarse aggregates for various classes of Work shall be as follows with all percentages being determined by weight.
 - 4.2.2.3.b For concrete floors, floor and roof slabs, reinforced beams and girders, columns and piles, concrete encasing underground electric conduits, and concrete in which the space between restricting objects is 2 inches or less, the course aggregate shall be Size No. 67.
 - 4.2.2.3.c For other concrete Work having a minimum crosssectional dimension of not more than 6 inches, the coarse aggregate shall be a well graded mixture of No. 67 and No. 57, provided that not more than 50 percent nor less than 30 percent shall be Size No. 67 and not more than 70 percent nor less than 50 percent shall be Size No. 57.
 - 4.2.2.3.d For other concrete Work having a minimum crosssectional dimension greater than 6 inches and not more than 12 inches, the coarse aggregate shall consist of a mixture of No. 67, No. 57 and No. 467, providing that not more than 25 percent nor

less than 10 percent shall be Size No. 67 and not more than 40 percent shall be Size No. 467.

- 4.2.2.3.e For other concrete Work having a minimum crosssectional dimension of more than 12 inches, the coarse aggregate shall consist of a mixture of No. 67, No. 57 and No. 357, providing not more than 25 percent nor less than 10 percent shall be Size No. 67 and not more than 40 percent shall be Size No. 357.
- 4.2.2.3.f Lightweight Concrete: Lightweight aggregates shall be graded from 3/4 inch to No. 4 sieve size in conformance with Table No. 1 of ASTM C 330.
- G. Application Rate for Corrosion-Inhibiting Admixture: The application rate for the corrosion-inhibiting admixture shall be between 2 and 6 gallons per cubic yard of concrete for all concrete placements where indicated on the drawings.
- H. Admixtures: Do not use admixtures in concrete unless specified or approved in writing by the Director.
- I. ACI 301, Section 4.1.2.1 Mixture Proportions:
 - 1. Add the following to paragraph 4.1.2.1:
 - Proposed design mix(es) for pumped concrete and the pumping equipment shall have been tested under actual field conditions with the maximum horizontal run and vertical lift required for this project.
- J. Application Rate for Integral Water Repellent Admixture:
 - 1. Hydrocide Powder, 1 lb. for each 94 lb. of cement
 - 2. Darapel, 3 to 6 oz. for each 100 lb. of cement.

2.03 JOINTS

- A. ACI 301, Section 5.3.2.6 Construction joints and other bonded joints:
 - 1. Delete the following subparagraphs:
 - Use an acceptable adhesive applied in accordance with the manufacturer's recommendations;
 - Use an acceptable surface retarder in accordance with manufacturer's recommendations;
 - Roughen the surface in an acceptable manner that exposes the aggregate uniformly and does not leave laitance, loosened particles of aggregate, or damaged concrete at the surface; or
 - Use Portland-cement grout of the same proportions as the mortar in the concrete in an acceptable manner.
 - 2. Add the following in place of the above subparagraph:
 - The use of bonding agent (adhesive).
 - The use of cement grout.
- B. ACI 301, Section 10.2.5 Isolation-joint filler materials:
 - 1. Add the following paragraphs:

- Except as otherwise shown on the Drawings, expansion joints shall be as follows:
- In joints required to receive a sealant, the joint filler shall be 1/2 inch thick and recessed as required to form a caulking slot.
- In joints not required to receive a sealant, the joint filler shall be 1/2 inch thick and extend through the full cross-section of the concrete.
- Tool edges of concrete with 1/8 inch radius edging tool.

2.04 **PRODUCTION OF CONCRETE**

- A. Provide ready-mixed concrete, either central-mixed or truck-mixed, unless otherwise approved in writing by the Director.
- B. ACI 301, Section 5.3.2.1 Weather considerations
 - 1. Delete paragraph under 5.3.2.1.c Hot Weather, and add the following:
 - 5.3.2.1.c Provide adequate controls to insure that the temperature of the concrete when placed does not exceed 90 degrees F., and make every effort to place it at a lower temperature. The temperature of the concrete as placed shall not be so high as to cause difficulty from loss of slump, flash set or cold joints. Ingredients may be cooled before mixing by shading the aggregates, fog spraying the coarse aggregate, chilling the mixing water or other approved means. Mixing water may be chilled with flake ice or well-crushed ice of a size that will melt completely during mixing, providing the water equivalent of the ice is calculated into the total amount of mixing water.
- C. Protect concrete from physical damage or reduced strength due to weather extremes during mixing, placement and curing.
 - 1. In cold weather, comply with ACI 306R.
 - a. When air temperature is below 40 degrees F (4 degrees C) heat the mixing water and, if necessary, the aggregates to obtain a concrete mixture temperature of not less than 50 degrees F (10 degrees C) and not more than 80 degrees F (27 degrees C) at point of placement. If the mixing water is heated, do not exceed a temperature of 140 degrees F at the time it is added to the cement and aggregates.
 - 2. In hot weather, comply with ACI 305R.
 - a. When air temperature is between 85 degrees F (30 degrees C) and 90 degrees F (32 degrees C), reduce mixing and delivery time from 1 1/2 hours to 75 minutes, and when air temperature is above 90 degrees F (32 degrees C), reduce mixing and delivery time to 60 minutes.

PART 3 EXECUTION

3.01 EXAMINATION AND PREPARATION

- A. Do not use items of aluminum for mixing, chuting, conveying, forming or finishing concrete, except magnesium alloy tools may be used for finishing.
- B. Check items of aluminum required to be embedded in the concrete and insure that they are coated, painted or otherwise isolated in an approved manner.
- C. Install waterstops in accordance with manufacturer's printed instructions.
- D. Hardened concrete, reinforcement, forms, and earth which will be in contact with fresh concrete shall be free from frost at the time of concrete placement.
- E. Do not deposit concrete in water. Keep excavations free of water by pumping or by other approved methods.
- F. Prior to placement of concrete, remove all hardened concrete spillage and foreign materials from the space to be occupied by the concrete.

3.02 ADMIXTURE ADDITIONS AT THE SITE

- A. Site additions shall be limited to high-range water-reducers, non-chloride accelerators, and corrosion inhibitors. Comply with manufacturers' printed instructions for discharge of admixtures shall be furnished.
- B. High-Range Water-Reducers:
 - 1. Concrete shall arrive at a slump of 2 to 4 inches (50 to 100 mm). Water additions at the Site shall be limited to comply with water-to-cementitious ratio requirements.
 - 2. Following addition of high-range water-reduced concrete, a minimum of 70 revolutions or 5 minutes of mixing shall be completed to assure a consistent mixture.
- C. All concrete with other admixture additions shall mix a minimum of 70 revolutions or 5 minutes to assure a consistent mixture.

3.03 PLACING

- A. ACI 301, Section 5.3.2.3 Conveying equipment:
 - 1. Add the following paragraphs:
 - 5.3.2.3.d When pumping concrete, the lubricating mortar for the delivery line shall not be discharged into an area of concrete placement.
 - 5.3.2.3.e The inside diameter of the delivery lines for pumped concrete shall be the greater of either a minimum of 5 inches or 3 times the maximum size of coarse aggregate.
- B. ACI 301, Section 5.3.2.2 Conveying:
 - 1. Add the following paragraph:
 - Operation of truck mixers and agitators and discharge limitations shall conform to the requirements of ASTM C 94.

- C. ACI 301, Section 5.3.2.4 Depositing:
 - 1. Add the following paragraph:
 - Do not allow concrete to free fall more than 4 feet.

3.04 **REPAIRING SURFACE DEFECTS**

- A. ACI 301, Section 5.3.7 Repair of surface defects:
 - 1. Add the following paragraph:
 - 5.3.7.1.a Finish patched areas to match the texture of the surrounding surface.
- B. ACI 301, Section 5.3.7.2 Repair of tie holes:
 - 1. Delete last paragraph in 5.3.7.2 and replace with the following:
 - The patch mixture shall consist of a mixture of dry-pack mortar, consisting of one part Portland cement to 2-1/2 parts fine aggregate passing a No. 16 mesh sieve, using only enough water as required for placing and handling. For surfaces exposed to view, blend white Portland cement and standard Portland cement so that, when dry, patching mortar will match surrounding color. Provide test areas at inconspicuous locations to verify mixture and color match before proceeding with patching. Compact mortar in place and strike-off slightly higher than surrounding surface.

3.05 FINISHING FORMED SURFACES

- A. Finish Schedule: Except where indicated otherwise on the Drawings, provide the finishes below:
 - 1. Rough Form Finish for concrete surfaces not exposed to view.
- B. ACI 301, Section 5.3.3.3 As-cast Finishes:
 - 1. Add the following to paragraph 5.3.3.3:
 - Fins shall be completely removed on surfaces to receive waterproofing.

3.06 CURING AND PROTECTION

- A. Hot Weather Concreting: Comply with ACI 305R whenever the atmospheric temperature or the form surface temperature is at or above 90 degrees F., or climatic conditions of wind and/or low humidity will cause premature drying of the concrete.
- B. Curing Temperature: Maintain the temperature of the concrete at 50 degrees F. or above during the curing period. Keep the concrete temperature as uniform as possible and protect from rapid atmospheric temperature changes. Avoid temperature changes in concrete which exceeds 5 degrees F. in any one hour and 50 degrees F. in any 24-hour period.
- C. Curing and Moisture Mitigation for Resilient Flooring:

- Acceptable curing and drying conditions include a minimum ambient temperature of 70 degrees F and a maximum relative humidity of 50%.
 a. Air movement at 15 mph.
- 2. Do not cure slabs by adding water; ponding or wet burlap method.
- 3. Do not use curing compounds or cure-and-seal materials unless such use is approved in writing by the adhesive and floor covering manufacturers. The curing product manufacturer's conformance to ASTM c 1315 is not a substitute for the adhesive and floor covering manufacturer's approval.
- 4. Cure the slab by covering with waterproof paper, plastic sheets, or a combination of the two for 3 to 7 days.

3.07 CHEMICAL HARDENER (DUSTPROOFING)

- A. Apply chemical hardener to all troweled finished interior floors which are to be left exposed.
- B. Do not apply chemical hardener until concrete has cured the number of days recommended in manufacturer's instructions.
- C. Prepare surfaces and apply chemical hardener in accordance with manufacturer's printed instructions and recommendations.

3.08 FIELD QUALITY CONTROL

- A. ACI 301, Section 1.6.4.2 Testing Services:
 - 1. Add the following paragraph:
 - 1.6.4.2. j Strength Tests for Pumped Concrete: Prepare strength test specimens and make strength tests from concrete samples obtained at the truck discharge chute and at the end of the pump delivery line in accordance with paragraph 16.3.4.4.
- B. ACI 301, Section 1.6.3.3 Tests required of Contractor's testing agency:
 - 1. Add the following paragraph:
 - 1.6.3.3.c Make available to the Director's Representatives whatever test samples are required to make tests. Furnish shipping boxes for compression test cylinders.
- C. Adjustment to Concrete Mixes: Mix design adjustments may be requested by the Contractor when characteristics of materials, job conditions, weather, test results, or other circumstances warrant, at no additional cost to the State and as accepted by the Director. Laboratory test data for revised mix design and strength results must be submitted to and accepted by the Director's Representative before using in the work.
- D. Test results will be reported in writing to the Director's Representative, Ready-Mix Producer, and Contractor within 24 hours after tests. Reports of compressive strength tests shall contain the project identification name and number, date of concrete placement, name of concrete testing service, concrete type and class, location of concrete batch in structure, design compressive

strength at 28 days, concrete mix proportions and materials, compressive breaking strength, and type of break for both 7-day tests and 28-day tests.

- E. Nondestructive Testing: Impact hammer, Windsor probe, or other nondestructive device may be permitted but shall not be used as the sole basis for acceptance or rejection.
- F. Additional Tests: The State shall make additional tests of in-place concrete when test results indicate specified concrete strengths and other characteristics have not been attained in the structure, as directed by the Director's Representative. The testing service may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42, or by other methods as directed. Pay for such tests when unacceptable concrete is verified, including all inspection and Engineering fees when non-conforming work is verified.
- G. Moisture Testing: Test all slabs-on-grade for moisture content that will receive resilient flooring. For a preferred moisture testing method and limits; consult the written instructions of the floor covering manufacturer, the adhesive manufacturer, the patching/underlayment manufacturer, or combination thereof. Test repeatedly until the desired moisture content is obtained.
- H. pH Testing: Test concrete floors for pH level prior to the installation of resilient flooring. Do not exceed the recommended pH level of the resilient flooring manufacturer or the adhesive manufacturer, or both.

SECTION 040121

MASONRY RESTORATION

PART 1 GENERAL

1.01 RELATED WORK SPECIFIED ELSEWHERE

- A. Mortar and Masonry Grout: Section 040513.
- B. Joint Sealers: Section 079200.

1.02 SUBMITTALS

- A. Samples: Deliver to the Site for comparison with existing masonry.
 - 1. Masonry Units: Each required type, full size, showing finish and full color range.

1.03 QUALITY ASSURANCE

- A. Field Examples: Prior to performing the Work of this Section, prepare a sample panel of not less than 12 sq ft for each type of masonry restoration Work required. Do not proceed further with the Work until the sample panel has been approved by the Director's Representative. Approved samples will be used as quality standards for the Work. Maintain approved samples at the Site until the Work is completed.
 - 1. Sample panels may be a portion of existing masonry which is to be restored, at a location directed by the Director's Representative.
- B. Material Container Labels: Material containers shall bear the manufacturer's label indicating manufacturer's name, trade name of product, lot number, shelf life of product, and mix ratio (if applicable).

1.04 DELIVERY, STORAGE, AND HANDLING

- A. Packaged Products:
 - 1. Deliver materials to the site in manufacturer's original, sealed containers. Do not deliver materials which have exceeded shelf life limitation set forth by the manufacturer.
 - 2. Comply with manufacturer's printed instructions for storing and protecting materials.
- B. Bulk Aggregate: Store in a manner which will keep aggregate clean and protected from the weather elements.

1.05 PROJECT CONDITIONS

- A. Environmental Requirements:
 - 1. For factory packaged products, comply with the manufacturer's printed limitations and instructions.

- 2. At temperatures below 40 degrees F, maintain mortar temperature between 40 degrees F and 120 degrees F unless otherwise recommended by the material manufacturer. If necessary, heat mixing water and sand to produce the required results.
- 3. At temperatures below 32 degrees F, provide heated enclosures for performing the Work. At the end of the workday, maintain the enclosures and keep the Work from freezing for not less than 24 hours.
- 4. Do not lower freezing point of mortar by use of antifreeze, calcium chloride, or other additives.
- 5. Do not use frozen materials or materials coated with ice or frost.

PART 2 PRODUCTS

2.01 COMPANIES

- A. Helifix Division of Halfen USA, 8521 FM 1976 PO Box 547, Converse, TX 78109, USA. 888-992-9989, www.helifix.com.
- B. Blok-Lok, 12 Ashbridge Circle, Woodbridge, Ontario, L4L 3R5, Canada. 905.266.2277, www.blok-lok.com.
- C. Cathedral Stone Products, Inc. 7266 Park Circle Drive, Hanover, Maryland 21076, USA. 410-782-915, www.cathedralstone.com.
- D. Bonstone Materials Corporation, 707 Swan Dr., Mukwonago, WI 53149, USA. 262-363-9877, www.bonstone.com.
- E. Hilti, Inc., 5400 South 122nd East Avenue, Tulsa OK 74146-6007 USA. 800-879-8000, www.hilti.com.
- F. Powers Fasteners, 2 Powers Lane, Brewster, NY 10509, 800-524-3244, www.powers.com.

2.02 MATERIALS

- A. Brick Masonry Units: Match existing units in type, grade, size, appearance, and texture unless otherwise indicated.
- B. Concrete Masonry Units: Hollow Non-Load-Bearing: ASTM C 129.
- C. Flexible Wire Anchors: 1.5 oz per sq ft hot dipped galvanized steel anchors that permit horizontal and vertical movement of masonry but maintain out of plane lateral restraint, and as follows:
 - 1. For Anchorage To Concrete Framework: 2 piece anchors with 14 gage sheet steel dovetail section and rectangular or vee-shaped 3/16 inch diameter wire tie section sized to extend to within one inch of face of masonry.

- D. Remedial Wall Ties: "CemenTie" by Helifix, or 10mm "Spira-Lok" by Blok-Lok.
- E. Granite Repair Mortar: "Jahn M160 Granite Substrate Repair Mortar" by Cathedral Stone Products, or "Last Patch Dymond Repair Compound" by Bonstone.
- F. Post-Installed Anchor Adhesive: "HIT-HY 70 Adhesive" by Hilti, or "AC 100+ Gold Adhesive" by Powers Fasteners.
- G. Post-Installed Anchor Screen Tube: "HIT-SC" by Hilti, or "Powers Stainless Steel Screen Tube" by Powers Fasteners.

PART 3 EXECUTION

3.01 PREPARATION

- A. Protection: Protect adjacent surfaces not being restored. Protect sills, ledges, and projections from material droppings.
- B. Surface Preparation:
 - 1. Prepare surfaces to be restored in compliance with product manufacturer's printed instructions and as specified.
 - 2. Remove dirt, dust, and foreign material from surfaces to be restored.
 - 3. Clean areas to be restored with compressed air or water flushing, except as otherwise recommended by the mortar manufacturer.
- C. Materials Preparation:
 - 1. Dry concrete masonry units and stone that have become wet. Do not wet these masonry units.
 - 2. Wet bricks that have a high absorption rate. Wet bricks until water runs off. Install bricks when surface is slightly damp.
 - 3. Prepare exposed Type N mortar and Modified Type N pointing mortar to match the color and appearance of existing adjoining mortar.

3.02 **REPOINTING JOINTS**

- A. Rake or cut out joints to minimum depth indicated on Drawings and until sound surface is reached. Where cutting is required to remove existing mortar and joint filler, use a rotary power masonry saw wherever possible without damaging masonry. Cut the mortar and joint filler cleanly from the sides of the joints, leaving square corners. Flush joints clean with water or compressed air.
- B. Dampen joints slightly before application of mortar, making sure there is no free water. Backpack joints tightly out to depth indicated on Drawings with Modified Type N pointing mortar. After backpacking mortar has attained initial set, redampen remaining depth of joints, fill with Modified Type N pointing mortar, and finish joints to match existing adjoining joints.

1. Where joint sealant is required, cut out the joints or backpack the joints (as required by existing conditions) to the depth shown on the Drawings.

3.03 REPLACING MASONRY UNITS

- A. Provide temporary shoring or other supports as required to prevent displacement of existing masonry which is to remain. Perform the removal Work with such care as may be required to prevent damage to adjoining masonry which is to remain.
- B. Remove the deteriorated and damaged masonry units to their full depth, including the surrounding joint mortar. Wherever possible without damaging masonry, use a rotary power masonry saw for cutting Work. Leave square corners at adjoining masonry which is to remain. Clean joints and cavities by flushing with water or compressed air.
- C. Dampen contact surfaces slightly before application of mortar, making sure there is no free water. Install matching masonry units with Type N mortar. Install units to match and align with existing masonry. Maintain bonding and coursing pattern of existing masonry. Use presoaked wood wedges where necessary to properly set the units and maintain uniform matching joints. Backpack and fill joints full of mortar. Finish joints to match existing adjoining joints.
- D. Accessories:
 - 1. Remedial Wall Ties: Install remedial wall tie systems in conformance with manufacturer's written instructions, unless otherwise specified herein.
 - 2. Flexible Wire Anchors: Install remedial wall tie systems in conformance with manufacturer's written instructions, unless otherwise specified herein.
 - 3. Post-Installed Anchors: Install post-installed anchors with adhesive and screen tubes in conformance with manufacturer's written instructions, unless otherwise specified herein.

3.04 GRANITE PANEL REPAIRS

- A. Cracked Granite Panels:
 - 1. Enlarge existing crack and prepare for mortar installation in conformance with granite repair mortar manufacturer's specifications and recommendations.
 - 2. Mix and install granite repair mortar in conformance with manufacturer's specifications and recommendations.
- B. Chipped Granite Panels:
 - 1. Remove chipped portion of granite panel and prepare substrate, joints, and edges in conformance with granite repair mortar manufacturer's specifications and recommendations.
 - 2. Mix and install granite repair mortar patch in conformance with manufacturer's specifications and recommendations.

3.05 CLEANING

A. As the Work proceeds and after completion of Work, remove excess mortar, droppings, smears, stains, and other soiling substances resulting from the Work of this Section. Remove misplaced materials from surfaces immediately.

SECTION 040513

MORTAR AND MASONRY GROUT

PART 1 GENERAL

1.01 REFERENCES

- A. Standards:
 - 1. Mortar: ASTM C 270, except as otherwise specified.
 - 2. Grout: ASTM C 476.

1.02 SUBMITTALS

- A. Product Data:
 - 1. Portland Cement: Brand and manufacturer's name.
 - 2. Masonry Cement: Brand and manufacturer's name.
 - 3. Lime: Brand and manufacturer's name.
 - 4. Sand(s): Location of pit, name of owner, and previous test data.
 - 5. Color Pigments: Brand and manufacturer's name.
 - 6. Custom Mortar Supplier: Brand and manufacturer's name.
- B. Samples: Deliver to the Site for comparison with existing masonry.
 - 1. Mortar for Exposed Joints and Cracks: Each required type, minimum 12 inches long by full thickness, showing finish and color.

1.03 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle materials in a manner which will insure the preservation of their quality and fitness for the Work.
- B. Store cement and lime on raised platforms under waterproof, well ventilated cover.

PART 2 PRODUCTS

2.01 COMPANIES

- A. Custom Mortar Suppliers:
 - 1. SpecMix, 3530 Route 52, Stormville, NY 12582, 800-724-8193, www.specmix.com.
 - 2. Edison Coatings Inc., 3 Northwest Drive, Plainville, CT 06062, 800-341-6621, www.edisoncoatings.com.
 - 3. U.S. Heritage Group, Inc., 3516 N. Kostner Ave., Chicago, Il 60641, 773-286-2100, www.usheritage.com.
- B. Mortar Component Suppliers:

- 1. Lehigh Hanson, 300 E John Carpenter Freeway, Irving, Texas 75062, 972-653-5500, www.lehighhanson.com.
- 2. Graymont, 200-10991 Shellbridge Way, Richmond, BC V6X 3C6, 866-207-4292, www.graymont.com.
- 3. George Schofield Inc., 831 E. Main St., Bridgewater, NJ 08807, Tel: 732-356-0858, www.schofieldstone.com.

2.02 MATERIALS

- A. Mortar Cement: Portland cement, ASTM C 150, Type 1, by Lehigh Cement, or equal, of white and gray color in the proportion indicated to produce the desired color.
- B. Mortar Lime: one of the following:
 - 1. Hydrated Lime: ASTM C 207, Type S.
 - 2. Lime Putty: ASTM C1489.
- C. Mortar Sand: ASTM C144, by George Schofield Inc., or equal:
 - 1. "107 Sand" (light yellow mason sand).
 - 2. "180 Sand" (natural white mason sand).
- D. Grout Cement: One of the following complying with the indicated requirements:
 - 1. Portland Cement: ASTM C 150, Type 1, of natural color or white as required to produce the desired color.
 - a. Fly Ash: Comply with ASTM C593.
 - 1) Recycled Content: Minimum 15 percent pre-consumer recycled content at contractor's option.
 - a) Type 1: 81 g, 15 percent.
- E. Grout Sand: ASTM C 404.
- F. Color Pigments: High purity, finely ground, chemically inert, unfading, lime proof mineral oxides specially prepared for use in mortar.
- G. Water: Clean and free of deleterious amounts of acids, alkalis, and organic materials.

2.02 MIXES

- A. Mortar for Unit Masonry: Comply with ASTM C 270, proportion specifications, except limit materials to those specified.
 - 1. Colored Mortar: Proportion color pigments with other ingredients as necessary to match required color, except limit pigments other than carbon black to a maximum of 10 percent of cement content by weight and limit carbon black to a maximum of 3 percent of cement content by weight.
- B. Grout: Comply with ASTM C 476. If grout types are not indicated on Drawings, furnish type (fine or coarse) most suitable for the particular job

conditions to completely fill cavities and embed reinforcement and other built-in items.

PART 3 EXECUTION

3.01 INSTALLATION

A. Refer to sections of Specifications which require mortar and masonry grout.

3.02 MORTAR SCHEDULE

- A. Where mortar types are not indicated on Drawings or specified, use types as follows:
 - 1. Type N for brick masonry units.
 - a. Proportion Portland cement (white), Portland cement (gray), lime, "107 Sand", and "180 Sand" in a 0.5:0.5:1:3:3 ratio.
 - 2. Type S for concrete masonry units.

SECTION 051200

STRUCTURAL STEEL

PART 1 GENERAL

1.01 RELATED WORK SPECIFIED ELSEWHERE

A. Field Painting: Section 099101.

1.02 REFERENCES

- A. Except as shown or specified otherwise, the Work of this Section shall meet the requirements of the following:
 - 1. Design, Fabrication, and Erection: "Specification for Structural Steel Buildings, Allowable Stress Design and Plastic Design", June 1, 1989, by the American Institute of Steel Construction (AISC Specification).
 - 2. Standard Practice: Fabrication and erection practices shall comply with the "Code of Standard Practice for Steel Buildings and Bridges", June 10, 1992, by the American Institute of Steel Construction (AISC Code).
 - 3. Welding: "Structural Welding Code Steel, AWS D1.1", by the American Welding Society (AWS Code).
 - 4. High-Strength Bolting: "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts", November 13, 1985, by the Engineering Foundation's Research Council on Structural Connections (Specification for Structural Joints).
 - 5. Cleaning Steel: Comply with the appropriate specifications (SSPC SP-X) by the Steel Structures Painting Council.

1.03 DEFINITIONS

A. AISC Manual: Where reference is made to the AISC Manual, it shall mean the Manual of Steel Construction, Ninth Edition, of the American Institute of Steel Construction.

1.04 REQUIREMENTS FOR CONNECTIONS

- A. General:
 - 1. Size connections for the loads indicated on the Drawings. If the loads are not indicated, use a connection whose capacity is half the total uniform load capacity shown in the "Allowable uniform loads in kips for beams laterally supported" tables in the AISC Manual for the given shape, span, and steel specification of the beam in question, unless otherwise indicated.
 - 2. All bolted connections shall have a minimum of two bolts.
- B. Shop Connections: Welded or high strength bolted, unless otherwise indicated. Field connections required to be welded or fully-tensioned high-strength bolted shall meet the same requirements when fabricated in the shop.

- C. Field Connections:
 - 1. The following field connections shall be welded or fully-tensioned high strength bolted as indicated on the Drawings or, when not indicated, shall be either welded or fully-tensioned high strength bolted at the Contractor's option:
 - a. Column bracing.
 - b. Connections for support of machinery.
- D. Standard Beam Connections:
 - 1. Unless otherwise shown on the Drawings or required in the Specifications, all beam connections shall be framed in accordance with Part 4 of the AISC Manual, with sizes and lengths of angles and welds and with fasteners spacings as shown therein.
 - 2. Standard beam connections shown on the Drawings shall be fabricated as detailed. Substitutions will not be approved.
- E. High-Strength Bolted Connections: Amend the Specification for Structural Joints as follows:
 - 1. In Item 3(b) of the specification, change the second sentence to read "Burrs shall be removed."
 - 2. In Item 3(c) of the specification, delete the last two sentences, and add the following sentence: "Flame cut surfaces shall be ground smooth."
 - 3. In Item 7(b)(1) of the specification, add the following to the last sentence: ", except that oversize holes shall not be used in connections with galvanized faying surfaces."
 - 4. In Item 7(b)(2) of the specification, add the following to the last sentence: ", except that short slotted holes shall not be used in connections with galvanized faying surfaces when the force on the joint is in a direction other than normal to the axis of the slot."
 - 5. In Item 7(b)(3) of the specification, add the following to the last sentence: ", except that long slotted holes shall not be used in connections with galvanized faying surfaces when the force on the joint is in a direction other than normal to the axis of the slot."
 - 6. Change Item 7(c)(3) of the specification to read as follows: "All fullytensioned high-strength bolts shall have a hardened washer under the element (nut or bolt head) turned in tightening, regardless of the method of tightening."
 - 7. In Item 8(b) of the specification, change the first sentence to read: "A tension measuring device shall be required at all work sites where high-strength bolts are being installed."
 - 8. In Item 8(c) of the specification, delete the second and third sentences and add the following sentence: " The snug-tight condition is defined as the tightness attained by either a few impacts of an impact wrench or the full effort of a worker with an ordinary spud wrench that brings the connected plies into firm contact."
 - 9. Change the last sentence in Item 8(c) to read "Unless otherwise required in the Specifications, bolts required to be fully-tensioned shall be identified on the Drawings. All other bolts need only be tightened to the snug tight condition.".

- 10. In Item 9(b) of the specification, delete "Arbitration" from the heading. Also change the first paragraph to read: "When high-strength bolts have been installed by any of the tightening methods in Item 8(d), the following inspection procedure shall be used."
- 11. In Item 9(c) of the specification, delete "arbitration" from the last sentence.
- 12. In Item 9 of the specification, the inspection of bolt tightening shall be as specified under Item 9(b). Furnish the calibration device and the inspection torque wrench, and make them available, upon request, to representatives of the State or designated inspection laboratory during the entire period when steel is being fabricated and erected. The inspection torque wrench shall be capable of indicating that the job inspecting torque has been reached by a second method in addition to direct observation of the wrench dial. The inspection wrench calibration and the bolt tightening inspection shall be performed by the Contractor, and shall be witnessed by a representative of the Director or the designated inspection laboratory.
- F. Design, Fabrication and Erection (Amendments to the AISC Specification):
 - 1. In Item A6. of the specification, change "American Welding Society" to "American Welding Society (Latest Adoption Date)". Delete the date from all referenced AWS Codes.
 - 2. In Item J1.8. of the specification, change the last sentence to read: "Weld access holes and beam copes in other shapes shall be ground smooth, but need not be inspected by dye penetrant or magnetic particle methods.".
 - 3. In Item J1.8. of the specification, delete "or with A307 bolts" from the second

paragraph.

- 4. In Item J2. of the specification, change the introductory sentence to read: "All provisions of the American Welding Society Structural Welding Code-Steel, AWS D1.1, except Sections 2.3.2.4, 2.5, 8.13.1 and 9, apply to work performed under this Specification.".
- 5. In Item J3.2.c of the specification, change the first sentence to two sentences as follows: "Oversized holes are permitted in any or all plys of slip-critical connections, except those with galvanized faying surfaces. Oversized holes shall not be used in slip-critical connections with galvanized faying surfaces, or in bearing-type connections.".
- 6. In Item J3.2.d. of the specification, change the second sentence to two sentences as follows: "Short-slotted holes are permitted without regard to direction of loading in slip-critical connections, except those with galvanized faying surfaces. The length of the slot shall be normal to the direction of the load in slip-critical connections with galvanized faying surfaces and in bearing-type connections.".
- 7. In Item J3.2.e of the specification, change the second sentence to two sentences as follows: "Long-slotted holes are permitted without regard to direction of loading in slip-critical connections, except those with galvanized faying surfaces. The length of the slot shall be normal to the direction of the load in slip-critical connections with galvanized faying surfaces and in bearing-type connections.".
- 8. In Item M2.2. of the specification, delete the first two paragraphs.

- 9. In Item M2.5. of the specification, change the second sentence of the fifth paragraph to read: "Burrs shall be removed.".
- 10. Delete Item M4.5. of the specification in its entirety.
- 11. In Item M5.4. of the specification, delete "Slip-critical" from the heading and delete "slip-critical" from the first sentence.
- G. Fabrication and Erection (Amendments to the AISC Code):
 - 1. In Item 4.1. of the code, delete the last sentence of the first paragraph.
 - 2. In Item 5.1. of the code, change the first paragraph to read: "Contract Drawings are not considered released for construction. Orders for materials may be placed only after approval of erection drawings or written approval of the Director.".

1.05 SUBMITTALS

- A. Shop Drawings: Submit shop drawings for all structural steel. Machine duplicated copies of Contract Drawings will not be accepted as shop drawings. Shop drawings shall be standard 24 by 36 inch size sheets. The fabricator's name, address, and telephone number shall be indicated in the title block on each drawing.
 - 1. Include anchor bolt and base plate plans, erection drawings, and detail drawings for all members.
 - 2. Indicate shop and field welds by standard AWS welding symbols in accordance with AWS A2.4.
 - 3. All shop drawings shall be checked by the detailer before submission. Failure to submit checked shop drawings will be cause for their disapproval without review.
 - 4. Changes initiated by the detailer or fabricator to previously reviewed shop drawings shall be resubmitted.
 - 5. When shop drawings are marked "Approved as Noted", promptly resubmit copies of corrected shop drawings for formal approval and record.
 - 6. Contract Drawings are not considered released for construction. Orders for materials may be placed only after approval of erection drawings or written approval of the Director.
- B. Product Data:
 - 1. Shop Paint: Manufacturer's name and printed product literature, including storage and application instructions.
- C. Quality Control Submittals:
 - 1. Certificates: Copy of certificates required under Quality Assurance Article.
 - 2. Fabricator's Qualifications Data:
 - a. Firm's name, business address and telephone number.
 - b. Summary of their quality control programs.
 - 3. Erector's Qualifications Data:
 - a. Firm's name, business address and telephone number.
 - b. Summary of their quality control programs.

1.06 QUALITY ASSURANCE

- A. Certification: Affidavit by the structural steel manufacturer certifying that steel material meets the contract requirements.
 - 1. Submit evidence of steel material compliance with this Specification. Evidence shall consist of certification of source of material, copies of purchase orders and manufacturer's certifications. For stock material, submit copies of latest mill or purchase orders for material replacement.
 - a. Documentation to confirm compliance with General Conditions Article 25.4 Domestic Steel.
- B. The Contractor agrees, that if the value of this contract exceeds \$100,000 all structural steel, reinforcing steel and other major steel items to be incorporated in the Work of this Contract shall be produced and made in whole or substantial part in the United States, its territories or possessions.
- C. Qualifications:
 - 1. Fabricator: The fabricator of the structural steel shall be regularly engaged in the fabrication of structural steel for a minimum of 5 years, and shall be subject to the approval of the Director.
 - a. AISC Quality Certified Fabricators (latest list issued) are approved.
 - 2. Erector: The structural steel erector shall be regularly engaged in the erection of structural steel for a minimum of 5 years, and shall be subject to the approval of the Director.
- D. Inspection: Shop and field quality assurance inspection may be made by the State. If quality assurance inspection is made by the State, it shall not relieve the fabricator and erector of responsibility for their own quality control programs.
- E. Galvanizing: Stamp galvanized items with galvanizer's name, weight of coating, and applicable ASTM number.

1.07 WELDING PROCESS

A. Use only shielded metal arc, submerged-arc, gas metal arc, or flux cored arc welding.

1.08 WELDING PROCEDURE QUALIFICATION

- A. Shielded metal arc, submerged arc, gas metal arc, or flux cored arc welding procedures which conform to the provisions of the AWS Code shall be considered to be prequalified.
- B. The welding procedures requiring qualification shall conform to the requirements of AWS D1.1.

1.09 DELIVERY, STORAGE, AND HANDLING

- A. Coordinate delivery of anchor bolts and other anchorage devices to be built into other construction to avoid delay.
- B. Upon delivery to the site, promptly cover and protect steel items (which are not required to receive shop paint) from rusting.
- C. Store shop paint in accordance with paint manufacturer's printed instructions.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Wide Flange Structural Steel: ASTM A 992.
- B. M and S-Shapes, Channels and Angles: ASTM A 36 or ASTM A 572, Grade 50.
- C. HP-Shapes: ASTM A 572, Grade50.
- D. Anchor Bolts, Miscellaneous Rods and Anchors, and Other Detail Material Not Proportioned for Calculated Stress: ASTM A 36; or ASTM A 675, Grade 70.
- E. Exterior Lintels: ASTM A 36, galvanized.
- F. High-Strength Bolts: ASTM A 325.
- G. Steel Pipe: ASTM A 53, Type E or S, Grade B.
- H. Weld Filler Metal:
 - 1. General: Weld filler metal shall be in accordance with Table 4.1.1 of the AWS Code, except as follows:
 - a. Only electrode and flux combinations complying with AWS Classifications F7AX-EXXX or F7AX-EXXX-a, (a = B2, Ni1, Ni2, Ni3 or W), shall be used for submerged arc welding.
 - b. Only electrode and shielding gas combinations complying with AWS Classifications E 7XT-1 or E 7XT-5 shall be used for flux cored arc welding.
 - 2. Weld filler metal for shielded metal arc, submerged arc, gas metal arc, and flux cored arc welding which conforms to AWS Specifications A5.1 or A5.5 shall be considered to be prequalified.
- I. Shop Paint (General): Steel primer selected from the following:
 - 1. TNEMEC 10-99 (Red), 10-99G (Green) or 10-1009 (Gray).
 - 2. Rust-Oleum 769.
 - 3. Valspar 13-R-53.
 - 4. Sherwin-Williams "Kromik".
- J. Shop Paint for Exterior Equipment Supports Structural Steel (High-Ratio Water Based Inorganic Zinc Silicate): Steel primer selected from the following:
 - 1. Sherwin Williams ZincClad X1.

2. Carboline Carbozinc 18 WB.

2.02 FABRICATION

- A. Do not commence fabrication until the fabricator has been approved and the fabrication schedule has been coordinated with the designated Quality Assurance inspection agency (independent inspection laboratory or the State).
 - 1. Give the Director's Representative one week advance notice of the commencement of fabrication.
- B. Progress shop fabrication from "Approved" or "Approved as Noted" detail drawings only.
 - 1. When detail drawings are "Approved as Noted", progress fabrication in strict accordance with notes thereon.
 - 2. Fabrication progressed from "DISAPPROVED" or "RETURNED FOR CORRECTION" detail drawings will be rejected. The contractor shall have no claim against the State for any costs or delays due to rejection of items fabricated from "DISAPPROVED" or "RETURNED FOR CORRECTION" detail drawings.
- C. Finish column ends at base plates and at load carrying cap plates to a true plane square to the column, with a maximum American National Standards Institute surface roughness value of 500 microinches.
- D. Pipe and Tube Columns: Shop weld a closure plate to top of columns to form a watertight closure.
- E. Loose Lintels: Furnish lintels of length to have 6 inches minimum bearing at each end.
- F. Make provisions for connections of other Work, including all cutting and punching of structural members where required by the Drawings, or for which information is furnished prior to approval of the shop drawings.
- G. Prepare material in accordance with Section 3 of the AWS Code. Do not use gas or air carbon-arc cutting to cut or enlarge bolt holes.
- H. Galvanizing: Unless otherwise specified or noted, items indicated to be galvanized shall receive a zinc coating by the hot-dip process, after fabrication, complying with the following:
 - 1. ASTM A 123 for plain and fabricated material.
 - 2. ASTM A 153 for iron and steel hardware.
- I. Cleaning Steel: Thoroughly clean all structural steel. Remove oil, grease, and similar contaminants in accordance with SSPC SP-1 "Solvent Cleaning". Remove loose mill scale, loose rust, weld slag and spatter, and other detrimental material in accordance with SSPC SP-2 "Hand Tool Cleaning", SSPC SP-3 "Power Tool Cleaning", or SSPC SP-7 "Brush-Off Blast Cleaning".

2.03 SHOP PAINTING

- A. Thoroughly clean all structural steel. Remove oil, grease, and similar contaminants in accordance with SSPC SP-1 "Solvent Cleaning". Remove loose mill scale, loose rust, weld slag and spatter, and other detrimental material in accordance with SSPC SP-2 "Hand Tool Cleaning", SSPC SP-3 "Power Tool Cleaning", SSPC SP-6" Commercial Blast Clean" or SSPC SP-7 "Brush-Off Blast Cleaning, or SSPC SP-10 "Near-White Blast Cleaning".
- B. Galvanized Items:
 - 1. Galvanized items which are to be finish painted under Section 099101 shall be rinsed in hot alkali or in an acid solution and then in clear water.
 - 2. Welded and abraded galvanized surfaces shall be wire brushed and repaired with a coating of cold galvanizing compound applied in accordance with compound manufacturer's instructions.
- C. Exterior Exposed Steel:
 - 1. Provide surface profile range of 1.5 -2.0 mils for structural steel to receive High-Ratio Water Based Inorganic Zinc Silicate.
 - 2. Apply a stripe coat of High-Ratio Water Based Inorganic Zinc Silicate paint on all horizontal and vertical edges of exterior steel members, 2.0 mil dry film thickness.
- D. Apply one coat of shop paint to all steel surfaces except as follows:
 - 1. Do not paint steel members designated "NP" on the Drawings.
 - 2. Paint steel surfaces scheduled to be painted that are inaccessible after assembly, except surfaces in contact, with two coats of shop paint before assembly.
 - 3. Do not paint steel surfaces to be field welded, contact surfaces of highstrength bolted slip-critical connections, steel to be encased in cast-inplace concrete, steel receiving sprayed-on fireproofing , and the top flange of beams and girders in composite construction.
 - 4. Do not paint galvanized items which are not to be finish painted under Section 099101.
 - 5. Apply two shop coats of High-Ratio Water Based Inorganic Zinc Silicate to all exterior steel member surfaces.
- E. Apply paint and compound to the following minimum thickness per coat:
 - 1. Shop Paint (General): 4.0 mils wet film.
 - 2. Shop Paint for Galvanized Steel: 3.0 mils wet film.
 - 3. Cold Galvanizing Compound: 2.0 mils dry film.
 - 4. Shop Paint for Steel to receive Sprayed-On Fireproofing: Follow manufacturer's recommendations.
 - 5. Shop Paint (Water-Based Zinc Silicate): 3.0 mils dry film.

PART 3 EXECUTION

3.01 ERECTION

- A. Erect steel in accordance with the AISC Specification, the AISC Code, the AWS Code and the Specification for Structural Joints, except as otherwise specified.
- B. Prepare and place shrink-resistant grout in accordance with grout manufacturer's printed instructions.
 - 1. Comply with manufacturer's instructions for preparation of surfaces in contact with grout, and for curing and protection of grout.
- C. Do not use gas or air carbon-arc cutting to cut or enlarge bolt holes.
- D. Do not make corrections or alterations to fabricated steel without prior written approval by the Director's Representative.
SECTION 055000

METAL FABRICATIONS

PART 1 GENERAL

1.01 RELATED WORK SPECIFIED ELSEWHERE

- A. Structural Steel: Section 051200.
- B. Field Painting: Section 099101.

1.02 REFERENCES

- A. Except as shown or specified otherwise, the Work of this Section shall meet the requirements of the following:
 - 1. Design, Fabrication, and Erection: "Specification for Structural Steel Buildings, Allowable Stress Design and Plastic Design" adopted by the American Institute of Steel Construction, June 1, 1989 (AISC Specification).
 - a. Design and Fabrication of Cold-Formed Shapes: "Specification for the Design of Cold-Formed Steel Structural Members", by the American Iron and Steel Institute (AISI Specification).
 - 2. Welding: "Structural Welding Code Steel, AWS D1.1", or "Structural Welding Code Sheet Steel, AWS D1.3", by the American Welding Society (AWS Codes).
- B. Organizations:
 - 1. AISC: American Institute of Steel Construction, One East Wacker Dr., Suite 700, Chicago, IL 60601-1802, 866-275-2472, www.aisc.org.
 - 2. AISI: American Iron and Steel Institute, 1140 Connecticut Ave., NW, Suite 705, Washington, D.C. 20036, (202) 452-7100, www.steel.org.
 - 3. AWS: American Welding Society, 550 N.W. LeJeune Rd., Miami, FL 33126, (800) 443-9353, www.aws.org.
 - 4. ANSI: American National Standards Institute, 1819 L Street, NW, 6th Floor, Washington, DC 20036, (202) 293-8020, www.ansi.org.
 - 5. ASME: ASME International, 3 Park Ave., New York, NY 10016-5990, (800) 843-2763, www.asme.org.
 - 6. ASTM: ASTM International, 100 Barr Harbor Dr., PO Box C700, West Conshohocken, PA, 19428-2959, (610) 832-9500, www.astm.org.
 - 7. MPI: The Master Painters Institute Inc., 2808 Ingleton Ave., Burnaby, BC, V5C 6G7, (888) 674-8937, www.specifypaint.com.
 - 8. SSPC: The Society for Protective Coatings, 40 24th Street, 6th Floor, Pittsburgh PA 15222-4656, (877) 281-7772, www.sspc.org.

1.03 SUBMITTALS

- A. Shop Drawings: Show application to project. Furnish setting drawings and templates for installation of bolts and anchors in other Work. Indicate shop and field welds by standard AWS welding symbols in accordance with AWS A2.4.
- B. Product Data: Catalog sheets, specifications, and installation instructions for each fabricated item specified, except submit data for fasteners only when directed.
- C. Quality Control Submittals:
 - 1. Certificates: Copy of certificates required under Quality Assurance Article.

1.04 QUALITY ASSURANCE

- A. Certificates:
 - 1. Affidavit by the structural steel manufacturer certifying that structural steel items meet the contract requirements.
 - a. Submit evidence of steel material compliance with this Specification. Evidence shall consist of certification of source of material, copies of purchase orders and manufacturer's certifications. For stock material, submit copies of latest mill or purchase orders for material replacement.
 - 1) Documentation to confirm compliance with General Conditions Article 25.4 Domestic Steel.
 - 2. The Contractor agrees, that if the value of this contract exceeds \$100,000 all structural steel, reinforcing steel and other major steel items to be incorporated in the Work of this Contract shall be produced and made in whole or substantial part in the United States, its territories or possessions.

1.05 DELIVERY AND STORAGE

- A. Coordinate delivery of items to be built into other construction to avoid delay.
- B. Promptly cover and protect steel items delivered to the Site.

PART 2 PRODUCTS

2.01 MATERIALS

- A. M and S-Shapes, Channels and Angles: ASTM A 36 or ASTM A 572, Grade 50.
- B. Steel Bars and Bar-Size Shapes: ASTM A 675, Grade 70; or ASTM A 36.
- C. Merchant Quality Steel Bars: ASTM A 575, grade as selected by fabricator.
- D. Anchors: Refer to Section 040121.

- E. Fasteners: Except where shown or specified, select fasteners of type, size, style, grade, and class required for secure installation of metal fabrications. For exterior use and where built into exterior walls, fasteners shall be galvanized.
 - 1. Standard Bolts and Nuts: ASTM A 307, Grade A, regular hexagon head.
 - 2. Stainless Steel Fasteners: ASTM A 666; Type 302/304 for interior Work; Type 316 for exterior Work; Phillips flathead (countersunk) screws and bolts for exposed Work unless otherwise specified.
 - 3. Machine Bolts: ASME B18.5 or ASME B18.9, Type, Class, and Form as required.
 - 4. Machine Screws: ASME B18.6.3.
 - 5. Plain Washers: Round, ASME B18.22.1.
 - 6. Lock Washers: Helical, spring type, ASME B18.21.1.
- F. Shop Paint (General): Universal shop primer; fast-curing, lead- and chromatefree, universal modified-alkyd primer complying with MPI#79 and compatible with topcoat.
 - 1. Use primer containing pigments that make it easily distinguishable from zinc-rich primer.
- G. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D 1187.

2.02 MISCELLANEOUS FRAMING AND SUPPORTS

A. Fabricate metal framing and supports to support related items required by the Work. Fabricate of welded construction unless otherwise indicated. Preassemble to largest extent possible.

2.03 FABRICATION

- A. Use materials of size and thickness indicated. If not indicated, use material of required size and thickness to produce adequate strength and durability for the intended use of the finished product. Furnish suitable, compatible anchors and fasteners to support assembly.
- B. Fabricate items to be exposed to view of material entirely free of surface blemish, including pitting, seam marks, roller marks, rolled trade names, and roughness. Remove surface blemishes by grinding or by welding and grinding prior to cleaning, treating, and finishing. Ease exposed edges to a radius of approximately 1/32 inch unless otherwise shown.
- C. Joints: Fabricate accurately for close fit. Weld exposed joints continuously unless otherwise indicated or approved. Dress exposed welds flush and smooth.
- D. Connections: Form exposed connections with flush, smooth, hairline joints. Use concealed fasteners wherever possible. Use Phillips flathead (countersunk) bolts or screws for exposed fasteners, unless otherwise shown or specified.
 - 1. Furnish flat washer under connections requiring raised bolt heads.
 - 2. Furnish lock washer under nuts when through-bolting occurs.

- E. Punch, reinforce, drill, and tap metal Work as required to receive hardware and other appurtenant items.
- F. Galvanizing:
 - 1. In addition to specific items specified or noted to be galvanized, galvanize items attached to, embedded in, or supporting exterior masonry (including interior wythe of exterior masonry walls) and concrete Work.
 - 2. Unless otherwise specified or noted, items indicated to be galvanized shall receive a zinc coating by the hot-dip process, after fabrication, complying with the following:
 - a. ASTM A 123 for plain and fabricated material, and assembled products.
 - b. ASTM A 153 for iron and steel hardware.
- G. Shop Painting:
 - 1. Cleaning Steel: Thoroughly clean all steel surfaces. Remove oil, grease, and similar contaminants in accordance with SSPC SP-1 "Solvent Cleaning". Remove loose mill scale, loose rust, weld slag and spatter, and other detrimental material in accordance with SSPC SP-2 "Hand Tool Cleaning", SSPC SP-3 "Power Tool Cleaning", or SSPC SP-7 "Brush-Off Blast Cleaning".
 - 2. Galvanized Items:
 - a. Galvanized items which are to be finish painted under Section 099101 shall be rinsed in hot alkali or in an acid solution and then in clear water.
 - b. Welded and abraded areas of galvanized surfaces shall be wire brushed and repaired with a coating of cold galvanizing compound.
 - 3. Apply one coat of shop paint to all steel surfaces except as follows:
 - a. Do not shop paint steel surfaces to be field welded and steel to be encased in cast-in-place concrete.
 - b. Apply 2 coats of shop paint, before assembly, to steel surfaces inaccessible after assembly or erection, except surfaces in contact.
 - c. Do not paint galvanized items which are not to be finished painted under Section 099101.
 - 4. Apply paint and compound on dry surfaces in accordance with the manufacturer's printed instructions, and to the following minimum thickness per coat:
 - a. Shop Paint (General): 4.0 mils wet film.
 - b. Shop Paint for Galvanized Steel: 3.0 mils wet film.
 - c. Cold Galvanizing Compound: 2.0 mils dry film.

PART 3 EXECUTION

3.01 PREPARATION

- A. Temporarily brace and secure items which are to be built into concrete, masonry, or similar construction.
- B. Isolate non-ferrous metal surfaces to be permanently fastened in contact with ferrous metal surfaces, concrete, or masonry by coating non-ferrous metal surface with bituminous mastic, prior to installation.

3.02 INSTALLATION

- A. Fit and set fabricated metal Work accurately in location, alignment, and elevation. Securely fasten in place. Cut off exposed threaded portion of bolts flush with nut.
- B. Attached Work: Fasten to concrete and solid masonry with expansion anchors and to hollow masonry with toggle bolts in cells, unless otherwise indicated. Drill holes for fasteners to exact required size using power tools.

END OF SECTION

SECTION 071400

COLD FLUID APPLIED WATERPROOFING SYSTEM

PART 1 GENERAL

1.01 RELATED WORK SPECIFIED ELSEWHERE

A. Joint Sealers: Section 079200.

1.02 SUBMITTALS

- A. Product Data: Catalog sheets, specifications, and installation instructions for each material specified.
 - 1. Include waterproofing manufacturer's recommended details for flashings, joint treatment, and required protection.
- B. Quality Control Submittals
 - 1. Certifications: Submit a letter certifying that the membrane material meets the requirements listed in the specifications.
 - 2. Installers Qualifications:
 - a. Submit a letter certifying that the applicator has been actively installing waterproofing and/or roofing systems for the past 3 years.
 - b. Submit the names and addresses of 5 previous waterproofing and/or roofing projects. Include the type and size of each project, the waterproofing and/or roofing manufacturer's name, and the name and telephone number of a contact person at the project location.
 - c. Submit a letter certifying that the supervisor or foreman and the workers applying the waterproofing materials have at least 3 years' experience in the application of waterproofing and/or roofing materials.
 - d. Installer shall provide written documentation from the manufacturer of their authorization to install the system.

1.03 QUALITY ASSURANCE

- A. Manufacturer's Qualifications: Manufacturer shall demonstrate qualifications to supply materials of this section by certifying the following:
 - 1. Membrane Manufacturer must show evidence that the specified membrane has been manufactured by the same organization or direct affiliate for five (5) years.
 - 2. Membrane Manufacturer shall have available an in-house technical staff to assist the contractor, when necessary, in application of the products and final inspection of the assembly.
- B. Applicator's Qualifications:

- 1. The waterproofing applicator must have been actively installing waterproofing and/or roofing systems for the past 3 years.
- 2. The waterproofing applicator must have previously installed and completed a minimum of 5 waterproofing and/or roofing projects of comparable scope and complexity to the Work of this Section.
- 3. The person supervising the Work of this Section and the workers applying the waterproofing materials shall have had at least 3 years of experience in the application of waterproofing and/or roofing materials.
- C. Source Limitations: Components listed in this section shall be provided by a single manufacturer or approved by the primary waterproofing manufacturer.
- D. Pre-Installation Conference: Before the membrane Work is scheduled to commence, a conference will be called by the Director's Representative at the Site for the purpose of reviewing the Drawings and Specifications and resolving all questions. The conference shall be attended by the Contractor, approved applicator, and the manufacturer's representative.

1.04 DELIVERY, STORAGE AND HANDLING

- A. Deliver products in manufacturer's original containers, with seals and labels intact.
- B. Store materials off ground, in enclosed space, protected from weather and out of direct rays of sun.
- C. Maintain manufacturer's recommended storage temperature.
- D. Store pail goods in their original undamaged containers.
- E. Do not expose materials to moisture before, during, or after delivery to the site. Reject delivery of materials that show evidence of contact with moisture.
- F. Remove manufacturer supplied plastic covers from materials provided with such. Use "breathable" type covers such as canvas tarpaulins to allow venting and protection from weather and moisture. Cover and protect materials at the end of each work day. Do not remove protective tarpaulins until immediately before the material will be installed.

1.05 PROJECT CONDITIONS

- A. Environmental Requirements:
 - 1. Proceed with waterproofing only when existing and forecasted weather conditions permit.
 - 2. Do not mix or apply waterproofing materials when air or deck temperatures are less than 40 degrees F or more than 100 degrees F, unless otherwise instructed in writing by the manufacturer.
 - 3. Do not spray waterproofing materials during winds over 10 mph unless otherwise approved in writing by the Director's Representative.

- 4. Membrane installation can proceed when ambient temperatures are above 40 degrees F, provided the substrate temperature is a minimum of 5°F above the dew point.
- B. Surfaces to receive the membrane shall be free from visible water, dew, frost, snow and ice.
- C. Application of membrane should be conducted in well ventilated areas.

1.06 REFERENCES

- A. Factory Mutual (FM Global) Approval Guide
- B. American Society for Testing and Materials (ASTM) Annual Book of ASTM Standards
- C. National Roofing Contractors Association (NRCA)
- D. American Society of Civil Engineers (ASCE)

1.07 **DEFINITIONS**

A. Roofing Terminology: Refer to ASTM D1079 and the glossary of the National Roofing Contractors Association (NRCA) Roofing and Waterproofing Manual for definitions of roofing terms related to this section.

PART 2 PRODUCTS

2.01 COMPANIES

- A. Sika Corporation, 201 Polito Avenue, Lyndhurst, NJ 07071, 800-933-7452, www.sikaconstruction.com.
- B. Siplast, 1000 Rochelle Blvd., Irving, TX. 75062-3940, 800-922-8800, www.siplast.com.
- C. Kemper System America Inc., 1 Reuten Drive, Closter, NJ 07624, 800-541-5455, www.kemper-system.com.
- D. Soprema, 1688 Jean-Berchmans-Michaud, Drummondville, Quebec, J2C 8E9, Canada, 800 567-1492, www.soprema.ca.

2.02 MATERIALS

- Cold Fluid Applied Waterproofing Liquid: "Sikalastic 621 TC" by Sika Corp; "Parapro" by Siplast; "Kemperol 2K-PUR" by Kemper System America Inc.; "Alsan RS" by Soprema.
- B. Cast Stone Joint Repair and Patching Material: As recommended by the cold fluid applied waterproofing liquid manufacturer.

- C. Bonding Primer: As recommended by the cold fluid applied waterproofing liquid manufacturer, including primer for cast stone, metal flashing, and roof deck substrates.
- D. Membrane Reinforcing: As recommended by the cold fluid applied waterproofing liquid manufacturer.

PART 3 EXECUTION

3.01 PREPARATION

- A. Verify surfaces and site conditions are ready to receive work.
- B. Remove debris, dirt, dust, and other substances that are detrimental to the application of materials specified in this Section.
- C. Patch areas of the existing substrate that have been damaged by removals. Remove loose materials and fill voids to obtain a reasonably smooth surface for proper bonding of the waterproofing materials. Use patching materials recommended by the cold fluid applied waterproofing liquid manufacturer.

3.02 INSTALLATION

- A. General: Install the cold fluid applied waterproofing liquid system in strict conformance with the liquid waterproofing manufacturer's written instructions, unless otherwise specified herein.
- B. Apply and cure primer in accordance with specific substrate surface to be primed and the liquid waterproofing manufacturer's instructions.
- C. Provide local reinforcement at cracks, wood or concrete panel joints, and dissimilar material transitions in accordance with liquid waterproofing manufacturer's instructions.
- D. Apply and cure liquid membrane layers and reinforcing in accordance with liquid waterproofing manufacturer's instructions in the necessary quantities to produce a cured average thickness as follows:
 - 1. "Sikalastic 621 TC": 45 mils.
 - 2. "Parapro": 90 mils.
 - 3. "Kemperol 2K-PUR" 70 mils.
 - 4. "Alsan RS": 20 mil primer; 60 mil base layer; 26 mil top layer.
- F. Flashings: At intersections with vertical surfaces (walls, pipes, mechanical units, structural members etc.) turn the waterproofing up to form a waterproof pan.
 Form integral flashings consisting of a double thickness applied over a cant; or install flashings in conformance with the manufacturer's details.

3.03 FIELD QUALITY CONTROL

- A. Thickness of Waterproofing:
 - 1. During application, take frequent wet gage checks to assure sufficient coverage to obtain the specified dry film thickness.
 - 2. When and where directed by the Director's Representative, make test cuts thru the cured membrane and measure the dry film thickness. (Up to one test for each 100 sf may be required). Patch the cuts immediately with matching materials. Apply additional membrane material where required, if tests show less than specified membrane thickness.

3.04 ROOF/WATERPROOFING PROTECTION

- A. Protect all partially and fully completed waterproofing work from other trades until completion.
- B. Whenever possible, stage materials in such a manner that foot traffic and other wear is minimized over completed areas.
- C. Temporary tie-ins shall be installed at the end of each workday and removed prior to commencement of work the following day.

3.05 CLEAN-UP

- A. Keep work areas clean, clear and free of debris.
- B. Dispose of or recycle all trash and excess material in a manner conforming to current EPA regulations and local laws.
- C. Properly clean the finished roof surface after completion, and make sure the drains and gutters are not clogged.
- D. Clean and restore all damaged surfaces to their original condition.

END OF SECTION

SECTION 079200

JOINT SEALERS

PART 1 GENERAL

1.01 SUBMITTALS

- A. Product Data: Catalog sheets, specifications, and installation instructions for each product specified except miscellaneous materials.
- B. Samples:
 - 1. Sealants: One pint or standard tube.
 - 2. Joint Primer/Sealer/Conditioners: One pint.
 - 5. Backer Rods: 24 inch long full section.
 - 6. Bond Breaker Tape: 24 inch long full section.
- C. Quality Control Submittals:
 - 1. Installer's Qualifications Data: Affidavit required under Quality Assurance Article.
 - 2. Company Field Advisor Data: Name, business address, and telephone number of Company Field Advisor.

1.02 QUALITY ASSURANCE

- A. Installer's Qualifications: The persons installing the sealants and their supervisor shall be personally experienced in the installation of sealants and shall have been regularly employed by a company engaged in the installation of sealants for a minimum of two years.
 - 1. Furnish to the Director the names and addresses of five similar projects which the foregoing people have worked on during the past two years.
 - 2. Furnish a letter from the sealant manufacturer, stating that the foregoing people are authorized to install the manufacturer's sealant materials and that the manufacturer's specifications are applicable to the requirements of this Project.
- B. Container Labels: Include manufacturer's name, trade name of product, kind of material, federal specification number (if applicable), expiration date (if applicable), and packaging date or batch number.
- C. Test and validate sealants used for exterior weathersealing per the Sealant Waterproofing Restoration Institute (SWRI).
- D. Warranties:
 - 1. Silicone sealants: 20 years Weatherseal Warranty.
 - 2. Polyurethane or Silicone: 5 year Weatherseal Warranty.
 - 3. Sealants for Granite, Marble and Limestone: 20 year Non-Stain Warranty.

1.03 PROJECT CONDITIONS

A. Environmental Requirements:

- 1. Temperature: Unless otherwise approved or recommended in writing by the sealant manufacturer, do not install sealants at temperatures below 40 degrees F or above 85 degrees F for non silicone sealants and below minus 20 degrees F or above 125 degrees F for silicone sealants.
- 2. Humidity and Moisture: Do not install the Work of this section under conditions that are detrimental to the application, curing, and performance of the materials.
- B. Protection:
 - 1. Protect all surfaces adjacent to sealants with non-staining removable tape or other approved covering to prevent soiling or staining.
 - 2. Protect all other surfaces in the Work area with tarps, plastic sheets, or other approved coverings to prevent defacement from droppings.

PART 2 PRODUCTS

2.01 SEALANTS

- A. Type 1 Sealant, any of the following generic types:
 - 1. One-part, low-modulus silicone sealant: Dow Corning 790, Dow Corning 791,Dow Corning 795, General Electric Silpruf, Pecora 864, Pecora 890, Pecora 890FTS.
 - One-part, non-sag silicone or polyurethane sealant: Bostik Chem-Calk 900, Bostik Chem-Calk 915, Bostik Chem-Calk 916 Textured, Bostik Chem-Calk 2020, Pecora Dynatrol I, Sika Sikaflex 1a, Sonneborn Sonolastic NP I, or Tremco DyMonic (not SWRI), Dow Corning Contractors Weatherproofing Sealant (CWS), Dow Corning Concrete Sealant (CCS), Pecora 895.
 - 3. Two-part, non-sag silicone or polyurethane sealant: Bostik Chem-Calk 500 (not SRWI), Pecora Dynatrol II, Dow Corning CWS or CCS.
- B. Sealant Colors: For exposed materials provide color as indicated or, if not indicated, as selected by the Director from manufacturer's standard colors. For concealed materials, provide the natural color which has the best overall performance characteristics.

2.02 MISCELLANEOUS MATERIALS

- A. Joint Primer/Sealer/Conditioner: As recommended by the sealant manufacturer for the particular joint surface materials and conditions.
- B. Backer Rod: Compressible rod stock of expanded, extruded polyethylene.
- C. Bond Breaker Tape: Polyethylene or other plastic tape as recommended by the sealant manufacturer; non-bonding to sealant; self adhesive where applicable.

- D. Cleaning Solvents: Oil free solvents as recommended by the sealant manufacturer. Do not use re-claimed solvents.
- E. Masking Tape: Removable paper or fiber tape, self-adhesive, non-staining.

PART 3 EXECUTION

3.01 EXAMINATION

A. Examine all joint surfaces for conditions that may be detrimental to the performance of the completed Work. Do not proceed until satisfactory corrections have been made.

3.02 **PREPARATION**

- A. Clean joint surfaces immediately before installation of sealant and other materials specified in this Section.
 - 1. Remove all loose materials, dirt, dust, rust, oils and other foreign matter that will impair the performance of materials installed under this Section.
 - 2. Remove lacquers, protective coatings and similar materials from joint faces with manufacturer's recommended solvents.
 - 3. Do not limit cleaning of joint surfaces to solvent wiping. Use methods such as grinding, acid etching or other approved and manufacturer's recommended means, if required, to clean the joint surfaces, assuring that the sealant materials will obtain positive and permanent adhesion.
- B. Set joint fillers at proper depth and position as required for installation of bond breakers, backer rods, and sealants. Do not leave voids or gaps between the ends of joint filler units.
- C. Priming Joint Surfaces:
 - 1. Prime joints of friable (crumbly, chalky) masonry surfaces which are to receive Type 1 Sealant.
 - 2. Prime joints other than those above if so recommended by the manufacturer's printed instructions.
 - 3. Do not allow the primer/sealer to spill or migrate onto adjoining surfaces.

3.03 JOINT BACKING INSTALLATION

- A. Install bond breaker tape in relaxed condition as it comes off the roll. Do not stretch the tape. Lap individual lengths.
- B. Install backer rod of sufficient size to fill the joint width at all points in a compressed state. Compress backer rod at the widest part of the joint by a minimum of 25 percent. Do not cut or puncture the surface skin of the rod.

3.04 SEALANT INSTALLATION

- A. Except as shown or specified otherwise, install sealants in accordance with the manufacturer's printed instructions.
- B. Install sealants with ratchet hand gun or other approved mechanical gun. Where gun application is impractical, install sealant by knife or by pouring as applicable.
- C. Finishing: Tool all vertical, non-sag sealants so as to compress the sealant, eliminating all air voids and providing a neat smoothly finished joint. Provide slightly concave joint surface, unless otherwise indicated or recommended by the manufacturer.
 - 1. Use tool wetting agents as recommended by the sealant manufacturer.

3.05 FIELD QUALITY CONTROL

- A. Test Samples:
 - 1. Where directed, for each 1000 linear feet of joint installed, cut out and carefully remove a 6 inch long sample of the undisturbed sealant and joint backer material from the newly installed Work. Remove the samples in the presence of the Director's Representative who will retain them for evaluating and testing.
 - 2. Reseal cut out areas with the same materials.

3.06 CLEANING

- A. Immediately remove misapplied sealant and droppings from metal surfaces with solvents and wiping cloths. On other materials, remove misapplied sealant and droppings by methods and materials recommended in writing by the manufacturer of the sealant material.
- B. After sealants are applied and before skin begins to form on sealant, remove all masking and other protection and clean up remaining defacement caused by the Work.

END OF SECTION

SECTION 099101

CONSTRUCTION PAINTING

PART 1 GENERAL

1.01 DEFINITIONS

- A. The word "paint" in this Section refers to substrate cleaners, fillers, sealers, primers, undercoats, enamels and other first, intermediate, last or finish coatings.
- B. The word "primer" in this Section refers to substrate cleaners, fillers, sealers, undercoats, and other first or intermediate coats beneath the last or finish coating.
- C. The words "finish paint" in this Section refers to the last or final coat and previous coats of the same material or product directly beneath the last or final coat.
- D. Finish Paint Systems: Finish paint and primers applied over the same substrate shall be considered a paint system of products manufactured or recommended by the finish coat manufacturer.
 - 1. Finish paint products shall meet or exceed specified minimum physical properties.

1.02 SUBMITTALS

- A. Painting Schedule: Cross-referenced Painting Schedule listing all exterior and interior substrates to be painted and specified finish paint type designation; product name and manufacturer, recommended primers and product numbers, and finish paint color designation for each substrate to be painted.
 - 1. Designate exterior substrates by building name and number, substrate to be painted and surface location.
- B. Product Data Sheets: Manufacturer's published product data sheets describing the following for each finish paint product to be applied:
 - 1. Percent solids by weight and volume, solvent, vehicle, weight per gallon, ASTM D 523 gloss/reflectance angle, recommended wet and dry film thickness, volatile organic compound (VOC) content in lbs/gallon, product use limitations and environmental restrictions, substrate surface preparation methods, directions and precautions for mixing and thinning, recommended application methods, square foot area coverage per gallon, storage instructions, and shelf-life expiration date.
 - 2. Manufacturer's recommended primer for each finish paint product and substrate to be painted.
 - 3. Manufacturer's complete range of available colors for each finish paint product to be applied.
- C. Finish Paint Type Samples: Two finish paint samples applied over recommended primers for each substrate to be painted.

- 1. Samples shall be in the designated color and specified ASTM D 523 reflectance.
- 2. Label each sample with the following information:
 - a. Project number and Painting Schedule designation describing substrates and locations represented by the sample.
 - b. Finish paint and primer manufacturer, product names and numbers, finish paint color and reflectance.
- 3. Leave a 1 inch wide exposed strip of unpainted substrate and each coat of primer and finish paint.
- 4. Sample Sizes:
 - a. Wall, Ceiling, and Floor Substrates: 12 inch square panels.
 - b. Concrete and Concrete Masonry Unit Substrates: 4 inch square blocks.
 - c. Sheet Metals: 4 inch by 8 inch flat sheets.
 - d. Bar and Tubular Metals: 8 inch long bars or tubular stock.
- D. Quality Control Submittals:
 - 1. Test Reports: Furnish certified test results from an independent testing laboratory, showing that products submitted comply with the specifications, when requested by the Director's Representative
 - 2. Certificates: Furnish certificates of compliance required under QUALITY ASSURANCE Article.
- E. Existing Exterior Paint Film Stripping and Removal Submittals:
 - 1. Submit proposed materials and methods for removing existing paint films down to a clean and original undamaged substrate.
 - a. Depending upon the substrate to be stripped and thickness of paint films to be removed, acceptable methods of removal include hand or mechanical tools, pressure washing with water, heat or steam devices, chemical strippers and other appropriate methods.
 - b. More aggressive paint stripping and removal methods will not be accepted when less aggressive methods are equally effective with less damages.
 - c. Chemical Strippers: As recommended by a letter of approval by finish paint manufacturer.

1.03 QUALITY ASSURANCE

- A. Volatile Organic Compounds (VOCs) Regulatory Requirements: Chapter III of Title 6 of the official compilation of Codes, Rules and Regulations of the State of New York (Title 6 NYCRR), Part 205 Architectural Surface Coatings.
 - 1. Certificate of Compliance: List of each paint product to be delivered and installed. List shall include written certification stating that each paint product listed complies with the VOC regulatory requirements in effect at the time of job site delivery and installation.
- B. Container Labels: Label each product container with paint manufacturer's name, product name and number, color name and number, thinning and application instructions, date of manufacture, shelf-life expiration date, required surface

preparations, recommended coverage per gallon, wet and dry film thickness, drying time, and clean up procedures.

- C. Field Examples:
 - 1. Prior to on-site painting, at locations designated by the Director's Representative, apply field examples of each paint type to be applied.
 - 2. Field examples to be applied on actual substrates to be painted and shall duplicate earlier approved paint samples.
 - a. Field Example Minimum Wet and Dry Film Thickness: As indicated on approved product data sheet.
 - b. Application: Apply each coat in a smooth uniform wet mil thickness without brush marks, laps, holidays, runs, stains, cloudiness, discolorations, nail holes and other surface imperfections.
 - 1) Leave a specified exposed width of each previous coat beneath each subsequent coat of finish paint and primer.
 - c. Use of Field Examples: Field examples shall serve as a quality control standard for acceptance or rejection of painting Work to be done under this Section.
 - 3. Field Example Sizes:
 - a. Superstructure Truss Example: One entire truss.
 - b. Superstructure Framing Example: One 36 inch long section of structural beam or column.
 - 4. Do not begin applying paints represented by field examples until examples have been reviewed and approved by the Director's Representative.
 - a. Protect and maintain approved field examples until all painting work represented by the example has been completed and approved.
 - 5. Existing Exterior Paint Stripping and Removal Field Examples: Apply necessary number of examples required to determine least aggressive method for stripping and removing existing paint films without damaging the original substrate.
 - a. Example Sizes: 5 feet by 5 feet at locations designated by the Director's Representative.
- D. Compatibility of Paint Materials: Primers and intermediate paints shall be products manufactured or recommended by the finish paint manufacturer.

1.04 DELIVERY, STORAGE, AND HANDLING

- A. Delivery: Deliver materials to the Site in original, unopened containers and cartons bearing manufacturer's printed labels. Do not deliver products which have exceeded their shelf life, are in open or damaged containers or cartons, or are not properly labeled as specified.
- B. Storage and Handling: Store products in a dry, well ventilated area in accordance with manufacturer's published product data sheets. Storage location shall have an ambient air temperature between 45 degrees F and 90 degrees F.

1.05 PROJECT CONDITIONS

A. Environmental Requirements:

- 1. Ambient Air Temperature, Relative Humidity, Ventilation, and Surface Temperature: Comply with paint manufacturer's published product data sheet or other printed product instructions.
- 2. If paint manufacturer does not provide environmental requirements, use the following:
 - a. Ambient Air Temperature: Between 45 degrees F and .75 degrees F.
 - b. Relative Humidity: Below 75 percent.
 - c. Ventilation: Maintain the painting environment free from fumes and odors throughout the Work of this Section.
 - d. Surface Temperature: At least 5 degrees F above the surface dewpoint temperature.
- 3. Maintain environmental requirements throughout the drying period.
- B. The following items are to be primed but not painted unless otherwise specified, noted or directed:
 - 1. Steel to be encased in cast-in-place concrete.
- C. The following items are not to be painted unless otherwise specified, noted or directed:
 - 1. Exposed stainless steel, chrome, copper, bronze, brass, and aluminum.
 - 2. Top flanges of structural beams and girders in composite concrete-steel construction.
 - 3. Factory prefinished items.
 - 4. Galvanized items not exposed in finished spaces.

PART 2 PRODUCTS

2.01 PAINT MANUFACTURERS

- A. Where noted, the following finish paint manufacturers produce the paint types specified.
 - 1. Tnemec Inc., 6800 Corporate Drive, Kansas City, MO 64120, USA. 800-863-6321.
 - 2. Carboline Company, RPM International Inc., 2150 Schuetz Rd., St. Louis, MO 63146, 314-644-1000.
 - 3. Dupont, 974 Centre Rd., Wilmington, DE 19805. 302-774-1000.

2.02 MISCELLANEOUS PRODUCTS

- A. Masking Tape: Removable paper or fiber tape, self-adhesive and nonstaining.
- B. Mineral Spirits: Low odor type recommended by finish paint manufacturer.
- C. Paint Stripper: As recommended by finish paint manufacturer.

- D. Stain Blocker, Primer-Sealer: As recommended by finish paint manufacturer.
- E. Turpentine: ASTM D 13.

2.03 PAINT SYSTEM COMPONENTS

- A. Primer: "Tnemec 394" by Tnemec or equal by Carboline or Dupont.
- B. Intermediate Coat: "Tnemec 135" or "Tnemec 161HS" by Tnemec or equal by Carboline or Dupont.
- C. Finish Coat: "Tnemec 1075" by Tnemec or equal by Carboline or Dupont.
- D. Colors: Provide paint colors either shown on contract drawings or to be selected by the Director from finish paint manufacturers available color selections.
 - 1. Approved finish paint manufacturers to match designated colors of other manufacturers where colors are shown on contract documents.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Examine surfaces to be prepared, primed, or painted for compliance with contract documents, required environmental conditions, manufacturer's product data sheets, product label instructions and other written requirements.
 - 1. Do not begin any phase of the work without first checking and verifying that surfaces and environmental conditions are acceptable for such work and that any earlier phase deficiencies and discrepancies have been properly corrected.
 - a. The commencement of new work shall be interpreted to mean acceptance of surfaces to be affected.

3.02 **PREPARATION**

- A. Protection: Cover and protect surfaces to be painted, adjacent surfaces not to be painted, and removed furnishings and equipment from existing paint removals, airborne sanding particles, cleaning fluids and paint spills using suitable drop cloths, barriers and other protective devices.
 - 1. Adjacent exterior surface protections include roofs, walls, landscaping, driveways and walkways. Interior protections include floors, walls, furniture, furnishings and electronic equipment.
 - 2. Remove and replace removable hardware, lighting fixtures, telephone equipment, other devices and cover plates over concealed openings in substrates to be painted.
 - a. Cover and neatly mask permanently installed hardware, lighting fixtures, cover plates and other devices which cannot be removed and are not scheduled for painting.

- 3. Schedule and coordinate surface preparations so as not to interfere with work of other trades or allow airborne sanding dust particle to fall on freshly painted surfaces.
- 4. Provide adequate natural or mechanical ventilation to allow surfaces to be prepared and painted in accordance with product manufacturer's instructions and applicable regulations.
- 5. Provide and maintain "Wet Paint" signs, temporary barriers and other protective devices necessary to protect prepared and freshly painted surfaces from damages until Work has been accepted.
- B. Clean and prepare surfaces to be painted in accordance with specifications, paint manufacturer's approved product data sheets and printed label instructions. In the event of conflicting instructions or directions, the more stringent requirements shall apply.
 - 1. Cleaners: Use only approved products manufactured or recommended by finish paint manufacturer. Unless otherwise recommended by cleaner manufacturer, thoroughly rinse with clean water to remove surface contaminants and cleaner residue.
- C. Surfaces:
 - 1. Existing Structural Steel, Metal Decks and Stairs:
 - a. Prepare existing steel to be painted by cleaning in accordance with Structural Steel Painting Council (SSPC) standards:
 - 1) SSPC-SP3: Remove loose rust, mill scale, and paint to the degree specified by power-tool chipping, descaling, sanding, wire-brushing, grinding, and 5,000 psi pressure wash with zero-degree spinner tip nozzle.
 - b. Inspect for exposed or rusted steel reinforcement and contact Director's representative for an on-site survey of repairs to made before painting. Do not paint over exposed steel reinforcement without first repairing both deteriorated reinforcement and protective concrete covering.
- D. Painting Material Preparations:
 - 1. Prepare painting materials in accordance with manufacturer's approved product data sheets and printed label instructions.
 - a. Stir materials before and during application for a consistent mixture of density. Remove container surface paint films before stirring and mixing.
 - b. Slightly tint first opaque finish coat where primer and finish coats are the same color.
 - c. Do not thin paints unless allowed and directed to do so in writing within limits stated on approved product data sheets.

3.03 APPLICATION

- A. Environmental Conditions:
 - 1. Water-based Paints: Apply when surface temperatures will be 50 degrees Fahrenheit to 90 degrees Fahrenheit throughout the drying period.

- 2. Other Paints: Apply when surface temperatures will be 45 degrees Fahrenheit to 95 degrees Fahrenheit throughout the drying period.
- 3. Apply exterior paints during daylight hours free from rain, snow, fog and mist when ambient air conditions are more than 5 degrees above the surface dewpoint temperature and relative humidity less than 85 percent.
 - a. When exterior painting is allowed or required during nondaylight hours, provide portable outdoor weather recording station with constant printout showing hourly to diurnal air temperature, humidity, and dewpoint temperature.
- 4. Exterior Cold Weather Protection: Provide heated enclosures necessary to maintain specified temperature and relative humidity conditions during paint application and drying periods.
- B. Install approved paints where specified, or shown on the drawings, and to match approved field examples.
 - 1. Paint Applicators: Brushes, rollers or spray equipment recommended by the paint manufacturer and appropriate for the location and surface area to be painted. Brush apply only in confined areas such as between existing double angle truss chords.
 - a. Approved minimum wet and dry film thicknesses shall be the same for different application methods and substrates.
- C. Paint Type Coats to Be Applied: Refer to manufacturer recommendations for number of component coats. Provide minimum of 1 primer coat, 1 intermediate coat, and 1 finish coat.

3.04 FIELD QUALITY CONTROL

- A. Paint Samples: Assist the Director's Representative in obtaining random one quart paint samples for testing at any time during the Work.
 - 1. Notify the Director's Representative upon delivery of paints to the Site.
 - 2. Furnish new one quart metal paint containers with tight fitting lids and suitable labels for marking.
 - a. Furnish labor to thoroughly mix paint before sampling and provide assistance with sampling when required.

3.05 ADJUSTING AND CLEANING

- A. Reinstall removed items after painting has been completed.
 - 1. Restore damaged items to a condition equal to or better than when removed. Replace damaged items that cannot be restored.
- B. Touch up and restore damaged finish paints. Touch up and restoration paint coats are in addition to the number of specified finish paint coats.
- C. Remove spilled, splashed, or spattered paint without marring, staining or damaging the surface. Restore damaged surfaces to the satisfaction of the Director's representative.

D. Remove temporary barriers, masking tape, and other protective coverings upon completion of painting, cleaning and restoration work.

END OF SECTION

EXHIBIT 1.1 SUPPLEMENTAL SIDEWALK SHED SPECIFICATIONS

- 1. Sidewalk sheds shall be erected and maintained in accordance with the New York City Building Code and as required by Section 3307. No sidewalk shed shall be erected without a permit in accordance with the requirements of Chapter 1 of Title 28. Following the receipt of a permit to erect a sidewalk shed, the permit holder shall post a sign on the sidewalk shed that meets the requirements of Section 3301.9.5.
- 2. Sidewalk shed deck shall be designed by a licensed professional and constructed as a heavyduty sidewalk shed to carry a live load of at least 300 pounds per square foot.
- 3. The bridge should be a minimum height of 14 feet.
- 4. Parapet panels shall not be uneven, frayed, or rotted. Seams and edges shall be clean, level, plumb and uniform in color.
- 5. Parapet panels shall have at least two points of connection with the base structure ensure it is secure.
- 6. Painting:
 - a) All parapet panels shall be painted "Hunter Green" as per Local Law 47 of 2013; and Section 33.0706.4 of the Building Code.
 - b) All support/structural piping and beams shall be painted silver (no rusted components).
- 7. Lighting:
 - a) The underside of sidewalk sheds shall be lighted at all times either by natural or artificial light. Artificial lighting must be LED. The level of illumination shall be the equivalent of that produced by 200watt, 3400 lumen minimum, standard fluorescent tubular fixtures with impact resistant lenses and spaced no further than 10 feet apart and 8 feet above the floor level.
 - b) A red light must be installed to mark the location of any Fire Department Siamese connections (as required by code). Red light(s) to be wired independently from general lighting and to remain illuminated at all times.
 - c) All electrical circuits shall be protected by weatherproof, inline 'ground fault interrupter' (GFI) protection with a maximum of 15 amperes per circuit.
 - d) All wiring shall be run in conduit and all circuits shall have dedicated ground wires.

EXHIBIT 1.1 SUPPLEMENTAL SIDEWALK SHED SPECIFICATIONS

- 8. Signage:
 - a) Signage must be installed in accordance with Section 3307.1.1 of the Building Code, and in accordance with Local Law 47 of 2013. Signage shall be in good condition, free of tears or fractures and attached level, and plumb to the parapet wall structure.
- 9. Installation:
 - a) The sidewalk vendor shall obtain and post any necessary permits. Permits must be posted prior to erecting the shed.
 - b) For Safety, the sidewalk shall be closed at both corners with yellow caution tape and provide a minimum of two flag persons, one at each corner to safely direct and guide pedestrians to cross the street at the corner so not to walk under sidewalk shed while being installed or removed. This procedure will remain in place until installation or removal of sidewalk shed is complete.
 - c) The Installer shall ensure a safe route of passage for pedestrians at all times. The Installer will provide a minimum of two dedicated flag persons to direct and guide pedestrians safely.
- 10. All bolts shall be covered with threaded nylon caps. Also, installer shall provide the New York State Insurance Fund with twenty-four (24) additional nylon caps.
- 11. Material and debris shall not be stored on sidewalk sheds unless the shed has been so designed for storage in accordance with rules promulgated by the Commissioner.
- 12. The sidewalk bridge shall be maintained in broom clean condition.
- 13. Contractor Shall submit a full inspection of the system every 30 days to the Director of Property Services.
- 14. Contractor shall respond "On-Site" within 2 hours of any system failure or collapse reported 24/7 with workmen to correct the situation.
- 15. Two working emergency numbers are required to be on site with building management and security at all times.
- 16. All repairs and adjustments to the sidewalk shed must be approved by the Contractor's engineer of record.