

# P R O J E C T M A N U A L

For the Construction of the  
**City of Elmira**  
**Centertown Parking Garage**  
**Improvements, Phase 2**

**101 West Gray Street**  
**Elmira, NY 14901**

**City of Elmira #RFB-372 Centertown Parking Garage**  
**Improvements, Phase 2 – Re-Bid**

February 16, 2026  
LBA Project No. 2242076

Prepared by:

**LaBella Associates, DPC**  
100 West Water Street, Suite 101  
Elmira, NY 14901  
(607) 734-8492



DOCUMENT 000101 - PROJECT TITLE PAGE

1.1 PROJECT MANUAL VOLUME 1

- A. Centertown Parking Garage Improvements, Phase II.
- B. City of Elmira.
- C. Elmira, New York.
- D. Owner Project Bid No. RFB-372.
- E. Architect Project No. 2242076.
- F. LaBella Associates, D.P.C.
- G. 100 West Water Street, Suite 101, Elmira, New York 14901.
- H. Phone: 607-734-8492.
- I. Issued: February 16, 2026.
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**CHEMUNG COUNTY - CITY OF ELMIRA PURCHASING DEPARTMENT**

150 Lake Street, P.O. Box 588  
Elmira, NY 14901  
PH: 607-737-3577 FX: 607-737-2073

**Sealed Bids will be received at the CHEMUNG COUNTY - CITY OF ELMIRA PURCHASING DEPARTMENT, Third Floor, Room 308, 150 Lake Street, P.O. Box 588, Elmira, NY 14901-0588 until April 28, 2026 at 1:45 PM, where they will be publicly opened, read aloud, and broadcast via Teams at 2:00 P.M. on the date due. Login information to the Teams meeting can be found on the Purchasing website at <https://chemungcountyny.gov/1387/10436/Purchasing-Calendar>.**

BIDS SHALL BE SUBMITTED IN A SEALED ENVELOPE ENTITLED:

**RFB-372 - Centertown Parking Garage Improvements, Phase 2 - Re-Bid**

EACH BID SHALL BE ACCOMPANIED BY A DEPOSIT IN THE AMOUNT OF: **Five Percent (5%) of the Total Gross Sum Bid** in the form of a Bid Bond. Cash will not be accepted as a deposit. Bid deposits of all unsuccessful bidders shall be returned promptly upon execution of the contract with the successful bidder.

Documents may be obtained on or after March 31, 2026 online at [www.empirestatebidssystem.com](http://www.empirestatebidssystem.com). Vendors must first register for either the free service or the paid service at that site. The paid service is **not required** to obtain our bids. After registration, click on *Chemung County/City of Elmira* from the list of participating agencies; click on the *title of the bid* or search the NIGP codes. Copies from any other source are not considered official copies. Only those proposers who obtain bidding documents from the Empire State Purchasing Group are guaranteed to receive addendum information, if such information is issued. PLEASE NOTE THAT IT IS THE BIDDER'S RESPONSIBILITY TO OBTAIN ALL BID DOCUMENTS (INCLUDING ADDENDA) ON THE EMPIRE STATE PURCHASING GROUP WEBSITE. IF YOU CHOOSE THE FREE SUBSCRIPTION, YOU MUST VISIT THE WEBSITE UP UNTIL THE RESPONSE DEADLINE FOR ANY ADDENDA.

**PLEASE TAKE NOTICE:**

The Purchasing Department is closed between the hours 12:00 Noon to 1:00 P.M.,  
The Purchasing Department receives one (1) mail delivery daily after 2:00 P.M.  
Bids must be received **in the Purchasing Department** by 1:45 on the due date.  
Faxed or Electronic Bids will not be considered.

**A pre-bid conference will be held on April 7, 2026, at 11:00 AM, at the Project Site, 101 W. Gray St., Elmira, NY, northwest corner of garage at the sidewalk.** Representatives of Owner and Engineer will be present to discuss the project. Bidders are strongly encouraged to attend and participate in the conference. Engineer will transmit to all prospective Bidders of record such addenda as Engineer considers necessary in response to questions arising at the conference. Oral statements may not be relied upon and will not be binding or legally effective.

Attention of Bidders is particularly called to the requirement that employees and applicants for employment are not discriminated against because of the individual's age, race, creed, color, religion, sex, national origin, disability, marital status, military status, sexual orientation, predisposing genetic characteristics, familiar status or status as a victim of Domestic Violence. We encourage D-W-MBE participation.

Each bidder submitting a Bid to the Owner shall execute and attach thereto, the Certification regarding Equal Employment Opportunity. Although the Bidder is not required to attach such Certification by proposed sub-contractors to his Bid, the Bidder is here advised of this requirement so that appropriate action can be taken to prevent subsequent delay in sub-contract awards.

Also, be advised that Statement of Compliance with Section 3, Housing and Urban Development Act of 1968 is now mandatory with new procedure regarding Equal Opportunity (11246) in bid condition areas.

The City reserves the right to reject any or all bids.

CITY OF ELMIRA, NY

By: \_\_\_\_\_  
P. Michael Collins Date  
City Manager

Inserted in Star Gazette: March 31, 2026

**Inserted in NYSCR:** March 31, 2026

**\*\*\*ATTENTION\*\*\***

**\*\*\* PURCHASING DEPARTMENT RELOCATION \*\*\***

Please be advised that the Chemung County Purchasing Department has relocated to the following address:

**1 150 Lake Street, Third Floor, Room 308, Elmira, NY**

**Instructions for Bid Drop-Offs and Bid Opening:**

1. All physical bids must now be delivered to and bid openings will now be held on the 3<sup>rd</sup> floor at **150 Lake Street**.
2. Enter the building using the **parking lot entrance**.
3. Use the **Ring Doorbell** to request access to the building.
4. Upon entering, take the **west double door elevators** located around the corner to the right.
5. Go to **third floor** and take left off elevator, proceed to Purchasing Department, **first door on your left**.
6. **Bid openings will be held on Third Floor, Room**

**308 Contact Information:**

For any questions or additional information, please contact the Purchasing Department:

➤ **607-333-4205 or 607-737-3577**

Thank you for updating your records and for your attention to this change.

# “New Requirement”

## Public Work Contractor and Subcontractor Registry

**Starting December 30, 2024**, all contractors and subcontractors submitting bids or performing construction work on public work projects or private projects covered by [Article 8 of the Labor Law](#) are required to register with the New York State Department of Labor (NYSDOL) under [Labor Law Section 220-j](#).

<https://dol.ny.gov/contractor-and-subcontractor-landing>

The law defines a “contractor” as any entity entering into a contract to perform construction, demolition, reconstruction, excavation, rehabilitation, repair, installation, renovation, alteration, or custom fabrication. The law defines “subcontractor” as any entity subcontracting with a contractor to perform construction, demolition, reconstruction, excavation, rehabilitation, repair, installation, renovation, alteration, or custom fabrication, which is subject to Article 8 of the Labor Law. Contractors are responsible for verifying that any subcontractors they work with are registered.

**Contractors need to register before submitting any new bids or commencing new work on a covered project on or after December 30, 2024. Subcontractors need to register before commencing new work on a covered project on or after December 30, 2024.** NYSDOL encourages all contractors and subcontractors to register as soon as possible to obtain a Certificate of Registration to avoid negatively impacting a bidding period or project schedule.

The Bureau of Public Work & Prevailing Wage Enforcement at the New York State Department of Labor is responsible for enforcing prevailing wage laws in New York State.

The Bureau of Public Work & Prevailing Wage Enforcement publishes the annual prevailing wage schedule every year on July 1. To find information about the prevailing wage rate for your area, or to find contact information for your local Public Works and Prevailing Wage Enforcement District Office, please visit Bureau of Public Work and Prevailing Wage Enforcement website or send an email to [labor.sm.pwask@labor.ny.gov](mailto:labor.sm.pwask@labor.ny.gov).

## Electronic Certified Payroll Submissions in 2025

There is a new subsection 220-j in Article 8, which will require the Department of Labor to develop a publicly accessible online database of electronic certified payroll records, which will be available no later than **December 31, 2025**.

All submissions of certified payroll records will be collected electronically through this forthcoming database, starting when the system is completed in 2025.

Please watch the NYS Department of Labor website for additional information.

## GENERAL INSTRUCTIONS TO BIDDERS

### PREPARATION OF BIDS:

Each person making a Bid:

1. Certifies that he has fully informed himself of the contents of the Bidding Documents by his personal examination of them;
2. Certifies that he has not relied on any estimates, or any representations made by the City, its agents, servants or employees with respect to the work to be performed or the material to be supplied under the Bidding Documents; and
3. Agrees that he will not make against the City, its agents, servants, or employees, any claim based upon the lack of such information or the existence of such reliance.

Each set of Bidding Documents should contain:

1. A Title Page (same as advertisement page)
2. The Advertisement for Bids
3. The Non-Collusive Bidding Certificate
4. The Waiver of Immunity
5. General Instructions to Bidders
6. General Specifications
7. Form for Submission of Bid
8. Bid Security
9. Certification regarding Equal Employment Opportunity
10. Certification Regarding Iranian Divestment
11. Corporate Resolution
12. Bidder's Certification on Sexual Harassment

Each person submitting a Bid shall set forth in the space provided at the end of the **Form for Submission of Bid**:

1. Name and title of person preparing bid
2. Business address, telephone, and fax number of bidder
3. Signature
4. The name of the person, firm, or corporation on whose behalf the Bid is being made (if any)
5. The business address and telephone number of such person, firm, or corporation
6. The date

Each person submitting a Bid shall submit (**one original and two exact copies**) of the following completed and signed bid document forms:

Non-Collusive Bidding Certificate  
Waiver of Immunity  
Certification Regarding Equal Employment Opportunity  
Certification Regarding Iranian Divestment  
Bidder's Statement on Sexual Harassment  
Form For Submission of Bid  
All Documentation Required by the Specifications

Each price shall be typewritten, or written in ink, in words and in figures. Labeled spaces are provided for this purpose in the Form for Submission of Bid. In the event that the price stated in words is not the same as the price stated in figures, the price stated in words shall be binding. All prices quoted shall exclude all Federal, State, and Municipal taxes.

Each Bid must be accompanied by an acceptable Bid Security in the amount of **Five Percent (5%) of the Total Gross Sum Bid**. Cash is not acceptable as such security. The security must be payable to the City of Elmira. The security is to ensure that the Bidder, if successful, will:

1. Enter into a written Contract with the City which contract will provide that the Bidder and the City are to perform according to the terms and conditions set forth in the Bidding Documents; and
2. Furnish a good and sufficient Bond for the faithful performance of said Contract, and a Labor and Materials Bond, both in the full amount of the contract.

If the successful Bidder fails or omits to execute the Contract or to furnish the Bonds by 5:00 P.M. on the Monday following the award of the Contract by the City Council, the security shall be forfeited to the City. Bid securities of all unsuccessful bidders will be returned promptly after the execution of the contract.

**Each bid shall be delivered to** the Chemung County-City of Elmira Purchasing Department, Third Floor, 150 Lake Street, Elmira, New York 14901 between the hours of 9:00 A.M. to 12:00 Noon and 1:00 P.M. to 4:00 P.M, enclosed in an opaque, sealed envelope clearly labeled with the name of the bidder and the title of the proposal as taken from the title page of the bidding documents.

The Contract between the City and the successful bidder shall be deemed executory only to the extent of the monies actually appropriated and available for the purpose of the contract, and no liability on account therefore shall be incurred beyond the amount of such monies. It is understood that neither this contract nor any representation by any public employee or officer creates any legal or moral obligation to request, appropriate, or make available monies for the purpose of the contract.

**Unauthorized Changes:** If this document is found to be altered in any way by a bidder, it shall be cause for disqualification of the bidder from any contract resulting from this solicitation and/or any future solicitation by Chemung County or the City.

#### **IRANIAN ENERGY SECTOR DIVESTMENT:**

1. Contractor/Proposer hereby represents that said Contractor/Proposer is in compliance with New York State General Municipal Law Section 103-g entitled "Iranian Energy Sector Divestment", in that said Contractor/Proposer has not:

- (a) Provided goods or services of \$20 Million or more in the energy sector of Iran including but not limited to the provision of oil or liquefied natural gas tankers or products used to construct or maintain pipelines used to transport oil or liquefied natural gas for the energy sector of Iran; or
- (b) Acted as a financial institution and extended \$20 Million or more in credit to another person for forty-five days or more, if that person's intent was to use the credit to provide goods or services in the energy sector in Iran.

2. Any Contractor/Proposer who has undertaken any of the above and is identified on a list created pursuant to Section 165-a (3)(b) of the New York State Finance Law as a person engaging in investment activities in Iran, shall not be deemed a responsible bidder pursuant to Section 103 of the New York State General Municipal Law.

3. Except as otherwise specifically provided herein, every Contractor/Proposer submitting a bid/proposal in

response to this Request for Bids/Request for Proposals must certify and affirm the following under penalties of perjury:

- (a) "By submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid, each party thereto certifies as to its own organization, under penalty of perjury, that to the best of its knowledge and belief, that each bidder is not on the list created pursuant to NYS Finance Law Section 165-a (3)(b)."

The City of Elmira will accept this statement electronically in accordance with the provisions of Section 103 of the General Municipal Law.

4. Except as otherwise specifically provided herein, any Bid/Proposal that is submitted without having complied with subdivision (a) above, shall not be considered for award. In any case where the Bidder/Proposer cannot make the certification as set forth in subdivision (a) above, the Bidder/Proposer shall so state and shall furnish with the bid a signed statement setting forth in detail the reasons, therefore. The City reserves its rights, in accordance with General Municipal Law Section 103-g to award the Bid/Proposal to any Bidder/Proposer who cannot make the certification, on a case-by-case basis under the following circumstances:

- (1) The investment activities in Iran were made before April 12, 2012, the investment activities in Iran have not been expanded or renewed after April 12, 2012, and the Bidder/Proposer has adopted, publicized and is implementing a formal plan to cease the investment activities in Iran and to refrain from engaging in any new investments in Iran; or
- (2) The City of Elmira has made a determination that the goods or services are necessary for the City to perform its functions and that, absent such an exemption, the City of Elmira would be unable to obtain the goods or services for which the Bid/Proposal is offered. Such determination shall be made by the City in writing and shall be a public document.

## **NEW YORK STATE SEXUAL HARASSMENT LAWS**

By submission of this Bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid each party thereto certifies as to its own organization, under penalty of perjury, that the bidder has and has implemented a written policy addressing sexual harassment prevention in the workplace and provides annual sexual harassment prevention training to all of its employees. Such policy shall, at a minimum, meet the requirements of section two hundred one-g of the NYS labor law. A model policy and training has been created by the NYS Department of Labor and can be found here: <https://www.ny.gov/programs/combating-sexual-harassment-workplace>.

**BID OPENING AND AWARD:** All Bids will be opened and read at the time and place specified in the Advertisement for Bids. **The City Manager may, in his/her discretion:**

1. **Permit a Bidder** to withdraw his bid, if a written request to withdraw the bid is received by the City Manager prior to the time set for the Bid Opening; or
2. **Reject any Bid** which lacks prices on all items included in the proposal, or which in any other way is incomplete.
3. **Require the apparent low bidder(s)** to furnish evidence, including documentary evidence where deemed necessary, to establish proof of financial responsibility and ability to perform the contract, if awarded.

**THE CITY OF ELMIRA RESERVES THE RIGHT:**

1. **To reject any and all Bids** if in its opinion the best interest of the City will be promoted thereby.
2. **Where the Form for Submission of Bid** invites prices on more than one item, to consider the prices upon the various items as separable bids, and to award to any responsible bidder only those items for which it has submitted the lowest responsive bid.
3. **To conduct investigations** as to the qualifications and financial position of the apparent low bidder(s), to the fullest extent allowed by law. The City, in its sole discretion, shall determine the financial and professional adequacy of bidder(s).
4. **To require evidence of professional and financial competency** from the bidders submitting the three lowest responsive bids. Such evidence may include, but is not limited to, the following:
  - a. **Proof of the required number of qualifying years of experience and/ or number of projects**, as the case may be, as stated in the specifications.
  - b. **List of equipment** owned or leased by the bidder which would be available to perform the work.
  - c. **List of key personnel** that would actually perform the work.
  - d. **A sworn statement** as to whether the bidder has ever failed to complete a contract or defaulted on a contract, whether the bidder has ever had a claim(s) submitted on any performance bond, payment bond, or supply bond posted by the bidder, and whether there are any recorded judgments against the bidder or any predecessor of the bidder within the last seven (7) years.
  - e. **The corporate name and address** of the bidder's principal business office for each of the last five (5) years.
  - f. **A confidential statement** or report of the bidder's financial resources and liabilities for the last three (3) calendar or fiscal years immediately preceding the current year. At the time of submitting such financial statements or reports, the bidder shall further certify whether his financial responsibility is approximately the same as stated in his financial statement(s). If the bidder's financial responsibility has changed, the bidder shall qualify the financial statement or report to reflect his (bidder's) true financial condition at the time such qualified statement or report is submitted to the City.
  - g. **A statement of all bonding companies** used during the last five (5) years.

**BID ACCEPTANCE AND AWARD; CONTRACT EXECUTION, PROGRESS, AND PAYMENT:**

1. **Bid acceptance and award** to the lowest responsible Bidder by the City Council will be made as soon as practicable after the Bid Opening.
  - a. **Apprenticeship Programs:** If the City receives identical bids from two or more bidders, the City will give preference to the bidder, if any, participating in one or more New York State Certified Apprenticeship Programs.
2. **Following the award by the City Council**, a contract providing that the bidder and the City are to perform according to the terms, conditions, and specifications set forth in the Bidding Documents will be prepared by the Corporation Counsel for execution by both parties on or before 5:00 P.M. on the Monday following the award.
3. **At or before the time of execution** of the contract, the successful bidder will be required to furnish a

Performance Bond conditioned upon the faithful performance of the work in a manner satisfactory to the City Manager, and a materials/labor bond, both in the full amount of the contract. The bonds must be approved by the Corporation Counsel.

**4. The successful bidder's failure** or refusal to execute the contract or to furnish the bonds will cause the bid security to be forfeited to the City.

**5. Payment by the City** will be made in the manner set forth in the specifications portion of the Bidding Documents. (Reference Section 9 and 10 below)

**6. All bidders shall please take note** that the City is a municipal corporation and exempt from all sales tax.

**7. The City reserves the right** to reject any and all bids and to waive technicalities.

**8. Anytime a specification** refers to a specific brand name, model, material, etc., it means that item or an item equivalent thereto, as determined by the City.

**9. Pre-payments:** Pre-payments may be made at the sole discretion of the City and in amounts equal only to the amount then due and owing to sub-contractors.

**10. The City shall retain** five percent (5%) of the total of each invoice submitted by the contractor. The City shall pay the retainage upon the Contractor's full and complete performance of all work awarded pursuant to this bid.

**11. Work outside the Contract Scope:** Any work not provided for in the awarded contract or written change order thereto executed by the City or its designated representative is excluded from this contract, and the City shall not be liable to the contractor for any cost, expense, or disbursement incurred by the contractor under the terms of this contract for such work.

**12. The City shall not be liable** to the contractor for any cost, expense, or disbursement incurred by the Contractor for any extra/additional work performed unless the City Manager or his/her designee has executed a Change Order, or an official City Purchase Order prior to such Additional Work being performed. A **Change Order** is a written order to the contractor, signed by the City Manager or designee, specifically describing changes in specifications or quantities and establishing the basis of payment and contract time adjustment, if any, for the work affected by such changes. Work covered by a change order shall be within the scope of the contract.

**13. Overtime:** If the contractor chooses to perform work under this contract, which said work would trigger the payment of overtime or holiday time under the provisions of the NYS Prevailing Wage Schedule, the City shall not be liable for any costs incurred by the contractor thereby for equipment, material, purchased services, and/or labor.

**14. In carrying out** any of the contract provisions or in exercising any power of authority granted to any City representative by this contract, there shall be no liability upon such City representatives, either personally or as an officer or representative of the City. It is understood and agreed that in all such matters, said City representatives act solely as agents and representatives of the City.

**15. It is specifically agreed** by and between the parties hereto, that no provisions of this contract are intended to create any third party beneficiary, (including any third party status in any subcontractor) or to authorize anyone not a party to the contract to maintain a suit for personal injury or property

damage under the terms or provisions of this contract.

**16. Default and Termination of Contract:** The contractor shall be considered in default of his contract and such default will be considered as cause for the City to terminate the contract for any of the following reasons:

- a. **Fails** to comply with any term or condition of the contract,
- b. **Fails** to begin the work under the contract within the time specified in the "Notice to proceed",
- c. **Fails** to perform the work or fails to provide sufficient workers, equipment or materials to assure completion of work in accordance with the terms of the contract,
- d. **Performs the work unsuitably** or neglects or refuses to remove materials or to perform anew such work as may be rejected as unacceptable and unsuitable,
- e. **Discontinues** the prosecution of the work,
- f. **Fails to resume** work which has been discontinued within a reasonable time after notice to do so,
- g. **Becomes insolvent**, voluntarily or involuntarily files for bankruptcy, or commits any act of bankruptcy or insolvency,
- h. **Allows any final judgment** to stand against him unsatisfied for a period of ten (10) days or more,
- i. **Makes an assignment** for the benefit of creditors,
- j. **Fails to timely pay** employees, subcontractors, and or suppliers of materials or purchased services, or
- k. **For any cause whatsoever**, fails to carry on the work in an acceptable manner.

Should the City deem the contractor in default of the contract for any reason, it shall give written notice to the contractor and the contractor's surety as to the reasons for considering the contractor in default and the City's intentions to terminate the contract.

If the City terminates the contract, the City may appropriate or use any or all materials and equipment that have been mobilized for use in the work and are acceptable and may enter into an agreement for the completion of said contract according to the terms and provisions thereof, or use such other methods as in the opinion of the City will be required for the completion of said contract in an acceptable manner.

All costs and charges incurred by the City, together with the cost of completing the work under contract, will be deducted from any monies due or which may become due the contractor. If such expense exceeds the sum which would have been payable under the contract, then the contractor and the surety will be liable and shall pay to the City the amount of such excess.

**OBLIGATIONS OF SUCCESSFUL BIDDER:** Each Bidder agrees, if awarded the Contract:

**1. Assignment:** Not to assign or sublet the contract or any work covered by the contract without previous written permission from the City.

**2. Prevailing Wage Rate Requirement:** **Prevailing wage rates and payroll transcript records:** Contractors will be required to adhere to NYS DOL prevailing wage schedules in paying wages to employees. The prevailing wage schedules in effect at the time of the contract execution shall control.

**a. Section 220(3-a) of the New York State Labor Law:** Pursuant to Section 220 (3-a) of the NYS Labor Law, the successful bidder to whom the City awards the contract, and any sub-contractor performing work under said contract, shall submit to the City Department a transcript of its original payroll records within thirty (30) days of the issuance of the contract, or within five (5) days of first entering the work site, whichever occurs first, and thereafter the contractor and subcontractor shall submit certified payroll records every thirty (30) days, until the contract expires or terminates. The filing of payrolls in a manner consistent with subdivision 3-9 is a condition precedent to payment of any sums due and owing to any person for work done on the project. Certified payroll records must also be submitted with invoices.

**b. If the work to be performed** by the successful bidder is located at a single location, the successful bidder and every subcontractor retained by the successful bidder shall post in a prominent and accessible place on the site where the work is performed a legible statement of all wage rates and supplements as specified in the bidder's contract with the City to be paid or provided, as the case may be, by the successful bidder or subcontractor for the various classes of mechanics, working men, or laborers, employed on the work. Such posted statement shall be written in plain English and titled, in lettering no smaller than two inches (2") in height and two inches (2") in width, with the phrase "Prevailing Rate of Wages". Such posted statement shall be constructed of materials capable of withstanding adverse weather conditions.

**c. A unique Prevailing Wage Case Number (PRC#2026007563 - Centertown Parking Garage Impr)** has been assigned to the schedule(s) for this project.

**d. The current schedule(s) of the prevailing rates** and prevailing hourly supplements for the project referenced above may be accessed at the New York State Department of Labor website at <https://apps.labor.ny.gov/wpp/showFindProject.do?method=showIt>. To obtain the wage rate schedules on the DOL website.

Enter PRC # listed above

Click on Wage Schedule (on top center of screen under Business Services),

Prevailing Wage information will be reviewed; as you scroll, wage rates will be listed for: **JOB DESCRIPTIONS**. Any changes regarding the schedule will be listed under the section labeled: "**Changes and/or Corrections.**" Click on the link to view.

Rates can also be obtained by contacting the **Department of Labor at (585) 258-4505**.

If you do not have internet access, you may contact the Chemung County - City of Elmira Purchasing Department at (607)737-3577 to request a copy of the prevailing rate schedule provided for this project.

**e. Worker Notification:** This provision is an addition to the existing prevailing wage rate law, Labor Law 220, subdivision 3-a. It requires contractors and subcontractors to provide written notice to all laborers, workers or mechanics of the prevailing wage rate for their particular job classification on each pay stub\*. It also requires contractors and subcontractors to post a notice at the beginning of the performance of every public work contract on each job site that includes the telephone number and address for the Department of Labor and a statement informing laborers, workers or mechanics of their right to contact the Department of Labor if he/she is not receiving the proper prevailing wage of wages and/or supplements for his/her particular job classification. The required notification will be provided with each wage schedule, may be downloaded from the website [www.labor.ny.gov](http://www.labor.ny.gov) or made available upon request by contacting the Bureau of Public Work at 518-457-5589.

\* In the event that the required information will not fit on the pay stub, an accompanying sheet or attachment of the information will suffice.

**f. Effective July 18<sup>th</sup>, 2008:** If this be a contract for the construction, maintenance and/or repair of public work and the total cost of all work to be performed under the contract is at least two hundred fifty thousand dollars, then all laborers, workers, and mechanics employed in the performance of the contract either by contractor, sub-contractor or other person doing or contracting to do the whole or a part of the work contemplated by the contract, shall be certified prior to performing any work on the project as having successfully completed a course in construction safety and health approved by the United States Department of Labor's Occupational Safety and Health Administration that is at least ten hours in duration. (Labor Law Section 220-h).

**3. Compliance with law:** To comply with and fulfill all laws, orders, ordinances, rules and requirements of Federal, State, City, County or other political subdivisions and of any other department, bureau of governmental authority, all OSHA and New York State Labor rules, regulations and statutes. The City of Elmira is a Municipal Separate Storm Sewer System (MS4) entity and its MS4 operators and third-party entities are required to meet the storm water discharge regulations of its Storm Water Management Plan (SWMP). The bidder is advised that it is unlawful for any person to directly or indirectly cause or contribute to a violation of water quality standards.

**4. To perform all work and to furnish all materials** in strict accordance with the Bidding Documents unless written orders, describing a specific deviation from the Bidding Documents, shall previously have been issued by the City Manager; and

**5. The City Manager shall determine** whether or not the performance is in accordance with the Bidding Documents.

**Note:** Each Bidder should be sure to check the specification portion of the Bidding Documents for additional information relating to the preparation of Bid, the Bid Opening and Award, and the obligations of the successful bidder.

**6. Acceptance of Final Payment as Release:** The acceptance by the contractor of final payment shall be and shall operate as a release to the City of all claims and all liability to the contractor other than claims in stated amounts as may be specifically excepted by the contractor for all things done or furnished in connection with this work and for every act and neglect of the City and others relating to or arising out of this work. Any payment, however, final or otherwise, shall not release the contractor or its sureties from any obligations under the contract documents or the Performance and Labor and Materials Bonds.

**7. Contractor's insurance:** The Contractor shall not commence work under this Contract until he has obtained all insurance required under this paragraph and such insurances have been filed with and approved by the Corporation Counsel, nor shall the Contractor allow any sub-contractor to commence work on his sub-contract until such sub-contractor has been approved by the City or its agents, and all similar insurance required of the sub-contractor has been so obtained and approved. The required insurance coverage shall remain in force during the entire contract term and any extensions thereof. The required insurance coverage is as follows:

(a) Workmen's Compensation Insurance and Disability Benefits Insurance shall be obtained in accordance with the Law of the State of New York.

(b) Public Liability and Property Damage Insurance which shall protect the Contractor and any sub-contractor performing work in connection with this Contract for claims for damages for personal injury including accidental death, as well as from claims for property damage which may arise from operations connected with this Contract, whether such operations be by Contractor or by any sub-contractor or by anyone directly or indirectly employed by either of them and the amounts of such insurance shall be as follows:

(1) Public Liability Insurance in an amount not less than One Million (\$1,000,000) for injuries including accidental death to any one person, and subject to the same limit for each person, and in an amount not less than \$2,000,000 on account of one occurrence.

(2) Property Damage Insurance in an amount not less than Five Hundred thousand dollars (\$500,000) for damages on account of any one accident and in an amount not less than \$500,000 for damages on account of all accidents.

(3) Motor Vehicle Insurance for motor vehicles required to have such insurance (if applicable):

(a) Bodily Injury - \$1,000,000 each person, \$2,000,000 each occurrence

(b) Property Damage - \$500,000 each occurrence

(4) Umbrella Excess Liability:

(a) Prime Contractor: \$ 5,000,000 over primary insurance; \$ 10,000 retention for self-insured hazard each occurrence

(c) "Owner's Protective Liability and Property Damage Insurance": The City in its sole discretion may require this coverage. If required, it shall be in amounts equal to that specified for public liability and property damage insurance to protect the City against any and all claims arising from the operations of the Contractor and his sub-contractor(s). Owner's Protective Liability Insurance policies should contain the following provisions:

(1) The presence of the City's agents and employees on the site of the work shall not invalidate the policy of insurance.

(2) The policy shall not be invalidated by reason of any violation of any of the terms of any policy issued to the Contractor.

(d) All policies of insurance required of the Contractor, except Workmen's Compensation and Disability Benefits, insuring, indemnifying and saving harmless the City of Elmira, shall be endorsed naming the City of Elmira and its officers and employees and agents, as an additional insured on a primary basis.

(e) Proof of Coverage of Insurance: The Contractor shall furnish the City certificates of all insurance, each of which shall contain the following provision: Such insurance shall not be canceled, terminated, modified or changed by either Contractor or the Insurance Company, except on ten (10) days prior written notice sent by the Insurance Company via registered mail to the City. Such notices shall be addressed to the Office of the Corporation Counsel, City of Elmira, 317 E. Church St., Elmira, NY 14901.

(f) Performance Bond and Materials/Labor Bond: The Successful Bidder will be required to furnish a Performance Bond conditioned upon the faithful performance of the contract and a materials/labor bond, both for the full amount of the contract. The bonds are subject to the approval of the City. The Bid Security will be returned to the Successful Bidder (and all unsuccessful bidders) after he has executed the written contract and provided the bonds.

(g) The contractor shall save and hold the City, its officers and employees harmless from and against all liability, claims and demands on account of personal injuries, bodily injuries and death (including, without limitation of the foregoing Workmen's Compensation) or property loss or damage of any kind whatsoever, which arise out of or are in any manner connected with, or are claimed to arise out of or be in any manner connected with, the performance of this contract, regardless of whether such injury, loss or damage shall be caused by, or claim to be caused by, the negligence or other fault of the contractor, or of a sub-contractor, or of some other person; or by any agents or employees of any of the foregoing; or by accident; or otherwise; provided however this provision shall not be construed to require the contractor to indemnify any indemnitee for the negligence of the indemnitee to the extent such negligence proximately caused the damages complained of. The contractor shall, at his own expense, investigate all such claims and demands, attend to their settlement or other disposition, defend all action based thereon and pay all charges of attorneys and all other costs and expenses of any kind arising from any such liability, damage, loss, claims, demands and actions.

**EQUAL EMPLOYMENT OPPORTUNITY:** During the performance of this Contract, the Contractor agrees as follows:

- (1) The Contractor will not discriminate against any employee or applicant for employment because of age, race, creed, color, religion, sex, sexual orientation, national origin, disability, marital status, or military status. The Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their age, race, creed, color, religion, sex, national origin, disability, marital status, military status, sexual orientation, predisposing genetic characteristics, familiar status or status as a victim of Domestic Violence. Such action shall include, but not be limited to, the following: employment, upgrading, demotion or transfer, recruitment or recruitment advertising, layoff or termination, rates of pay or other forms of compensation, and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.
- (2) The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to age, race, creed, color, religion, sex, sexual orientation, national origin, disability, marital status, or military status.
- (3) The Contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided by the Contract Compliance Officer advising the said labor union or worker's representatives of the Contractor's commitment under this section and shall post copies of the notice in conspicuous places available to employees and applicants for employment.
- (4) The Contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.
- (5) The Contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by rules, regulations and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the Department and Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.
- (6) In the event of the Contractor's non-compliance with the non-discrimination clauses of this Contract or with any of the said rules, regulations, or orders, this Contract may be canceled, terminated, or suspended in whole or in part and the Contractor may be declared ineligible for further Government Contracts or Federally assisted construction contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.
- (7) The Contractor will include the portion of the sentence immediately preceding paragraph (1) and the provisions of paragraphs (1) through (7) in every sub-contract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to Section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each sub-contractor or vendor. The Contractor will take such action with respect to any sub-contract or purchase order as the Department may direct as a means of enforcing such provisions, including sanctions for non-compliance; provided, however, that in the event a Contractor becomes involved in, or is threatened with, litigation with a sub-contractor or vendor as a result of such direction by the Department, the Contractor may request the United States to enter into such litigation to protect the interest of the United States.

## **BASIS OF BID—UNIT PRICES**

### 1.01 *Unit Price Bids*

- A. Bidder will complete the Work in accordance with the Contract Documents for the following price(s):
1. UNIT PRICE BID – Refer to Section 012200 – “UNIT PRICES” for scope of payment items. Estimated quantities are not guaranteed and are solely for the purpose of comparison of Bids and determination of initial Contract Price. Final payment will be based on actual in place quantities, as determined by the Owner or Owners representative.
  2. If the required quantities of the items listed below are increased or decreased by Change Order, the adjustment prices set forth below shall apply to such increased or decreased quantities.
  3. In case of a discrepancy between unit prices written in words and figures, the unit prices written in words shall govern. In case of a discrepancy between unit prices bid and extended totals, the unit prices shall govern.
  4. Unit prices have been computed in accordance with Article 13.03, Paragraph C of the General Conditions. BIDDER acknowledges that quantities are not guaranteed and final payment will be based on actual quantities determined as provided in the Contract Documents.

**FORM FOR SUBMISSION OF BID-#RFB-372 Centertown Parking Garage Improvements, Phase 2 - Re-Bid**

**CONTRACT #1 - GENERAL CONSTRUCTION**

The undersigned hereby declares that he has carefully examined all bid documents and all interpretations of any addenda to the Bid Documents and is satisfied as to all the quantities and conditions and understands that in signing this Bid he waives all rights to plead any misunderstanding regarding the same.

Pursuant to and in compliance with the Bid Documents, the Bidder hereby offers to furnish all equipment and whatever else is necessary or proper for, or incidental to, the completion of this Contract, as required by and in strict compliance with the applicable provisions of all contract documents, for the following bid prices:

**Accompanying this proposal** is a bid bond in the amount of 5%, which shall become the property of the Owner if, in the event this proposal shall be accepted by the Owner, the undersigned shall fail to provide the required performance and material bonds to the Owner within ten business days after the date of notification of acceptance.

**If written notice** of the acceptance of this Bid/Proposal is delivered to the undersigned within forty-five days after the day of opening of the bids/proposals or after expiration of such forty-five days and prior to the withdrawal of the bid/proposal by the undersigned, the undersigned will, within ten (10) business days after the date of such delivery, execute and deliver the Contract in the form of the Agreement attached hereto, or in a special Contract form that may be drawn up in accordance with the City Attorney's requirements.

In the event that addenda are issued, the undersigned hereby acknowledges the receipt of same and agrees that they are bound by all addenda, whether or not listed herein:

Addendum # \_\_\_\_\_ Addendum # \_\_\_\_\_ Addendum # \_\_\_\_\_

BID DEPOSIT: \_\_\_\_\_

\_\_\_\_\_  
NAME AND TITLE OF PERSON PREPARING BID

\_\_\_\_\_  
E-MAIL

\_\_\_\_\_  
BUSINESS ADDRESS AND TELEPHONE, AND FAX NUMBERS OF PERSON PREPARING BID

\_\_\_\_\_  
SIGNATURE OF PERSON PREPARING BID

\_\_\_\_\_  
DATE

\_\_\_\_\_  
NAME OF PERSON, FIRM, OR CORPORATION ON WHOSE BEHALF BID IS BEING MADE

Elmira, NY - Centertown Parking Structure  
Table for Bid Form - General Construction Contract

February 16, 2026



LUMP SUM ITEMS

Work Item	Work Item Description	Ref. Spec or Detail	Units*	Estimated Quantity	Unit Price	Extended Total
<b>Division 0 &amp; 1 - General Conditions</b>						
1.1	Contractor Mobilization	Div. 0 & 1	LS	1	\$ N/A	\$
1.2	Contractor General Requirements	Div. 0 & 1	LS	1	\$ N/A	\$
<b>Division 3 - Concrete</b>						
3.1	Ceiling Repair - Waffle Slab System	9 & 10/SR501	SF	260	\$	\$
3.2	Column Repair	4/SR501	SF	160	\$	\$
3.3	Beam Repair	3/SR501	SF	450	\$	\$
3.4	Concrete Stair Repair	5/SR501	SF	70	\$	\$
3.5	Remove and Replace Floor Drains in PT Concrete Slab System	6/SR501	EA	33	\$	\$
3.6	Remove and Replace Floor Drains in Waffle Slab System	13 & 14/SR501	EA	3	\$	\$
3.7	Remove and Replace Concrete Curb	7 & 8/SR501	LF	330	\$	\$
3.8	Ceiling Repair - CIP Concrete Stair	11/SR501	SF	100	\$	\$
<b>Division 7 - Thermal and Moisture Protection</b>						
7.1	Remove & Replace Cove Sealant and Full System Traffic Coating	6/SR551	LF	3,700	\$	\$
7.2	Rout and Seal Cracks	2/SR551	LF	1,500	\$	\$
7.3	Expansion Joint Nosing Repair (Winged Seal)	7/SR551	LF	40	\$	\$
7.4	Leak Investigation and Repair at Parking/Shops	SR101 PLAN NOTE 3	ALLOW	1	\$ N/A	\$ 10,000.00
7.5	Deck Coating - Prep and Top Coat, 6" Wide Strip Over Existing Line Striping	SR-PLANS WORK ITEM NOTE 10	LF	1,500	\$	\$
<b>Division 10 - Specialties</b>						
10.1	Remove and Replace All Signage	AP-PLANS, 101473	LS	1	\$ N/A	\$
<b>Division 32 - Exterior Improvements</b>						
32.1	Restripe Parking Structure	AP-PLANS, 321723	LS	1	\$ N/A	\$
<b>TOTAL OF BASE BID UNIT PRICES</b>						\$

\*Unit Key Code: LS - Lump Sum, SF - Square Foot, LF - Lineal Foot, EA - Each

**FORM FOR SUBMISSION OF BID-#RFB-372 Centertown Parking Garage Improvements, Phase 2 - Re-Bid**

**CONTRACT #2 - ELECTRICAL CONSTRUCTION**

The undersigned hereby declares that he has carefully examined all bid documents and all interpretations of any addenda to the Bid Documents and is satisfied as to all the quantities and conditions, and understands that in signing this Bid he waives all rights to plead any misunderstanding regarding the same.

Pursuant to and in compliance with the Bid Documents, the Bidder hereby offers to furnish all equipment and whatever else is necessary or proper for, or incidental to, the completion of this Contract, as required by and in strict compliance with the applicable provisions of all contract documents, for the bid prices see attached Table for Bid Form - Electrical Construction Contract. The City intends to award the contract to the lowest responsive and responsible proposer for the base proposal and any selected alternates as identified in this bid form.

**TOTAL BID FOR ALTERNATE NO. 1:**

\_\_\_\_\_ (\$ \_\_\_\_\_ )  
(use words) (ADD)

**TOTAL BID FOR ALTERNATE NO. 2:**

\_\_\_\_\_ (\$ \_\_\_\_\_ )  
(use words) (ADD)

**Accompanying this proposal** is a bid bond in the amount of 5%, which shall become the property of the Owner if, in the event this proposal shall be accepted by the Owner, the undersigned shall fail to provide the required performance and material bonds to the Owner within ten business days after the date of notification of acceptance.

**If written notice** of the acceptance of this Bid/Proposal is delivered to the undersigned within forty-five days after the day of opening of the bids/proposals or after expiration of such forty-five days and prior to the withdrawal of the bid/proposal by the undersigned, the undersigned will, within ten (10) business days after the date of such delivery, execute and deliver the Contract in the form of the Agreement attached hereto, or in a special Contract form that may be drawn up in accordance with the City Attorney's requirements.

In the event that addenda are issued, the undersigned hereby acknowledges the receipt of same and agrees that they are bound by all addenda, whether or not listed herein:

Addendum # \_\_\_\_\_ Addendum # \_\_\_\_\_ Addendum # \_\_\_\_\_

BID DEPOSIT: \_\_\_\_\_

\_\_\_\_\_  
NAME AND TITLE OF PERSON PREPARING BID E-MAIL

\_\_\_\_\_  
BUSINESS ADDRESS AND TELEPHONE, AND FAX NUMBERS OF PERSON PREPARING BID

---

SIGNATURE OF PERSON PREPARING BID

DATE

---

NAME OF PERSON, FIRM, OR CORPORATION ON WHOSE BEHALF BID IS BEING MADE

Elmira, NY - Centertown Parking Structure  
 Table for Bid Form - Electrical Construction Contract

February 16, 2026



LUMP SUM ITEMS

Work Item	Work Item Description	Ref. Spec or Detail	Units*	Estimated Quantity	Unit Price	Extended Total
<b>Division 0 &amp; 1 - General Conditions</b>						
1.1	Contractor Mobilization	Div. 0 & 1	LS	1	\$ N/A	\$
1.2	Contractor General Requirements	Div. 0 & 1	LS	1	\$ N/A	\$
<b>Division 2 - Existing Conditions</b>						
2.1	Demolish Existing Public Address System	024119	LS	1	\$ N/A	\$
<b>TOTAL OF BASE BID UNIT PRICES</b>						\$
<b>TOTAL FOR ALTERNATE No. 1 Blue Light System and Power for Blue Light and FACP</b>						
<b>TOTAL FOR ALTERNATE No. 2 Lighting</b>						

\*Unit Key Code: LS - Lump Sum, SF - Square Foot, LF - Lineal Foot, EA - Each

**FORM FOR SUBMISSION OF BID-#RFB-372 Centertown Parking Garage Improvements, Phase 2 - Re-Bid**

**CONTRACT #3 - PLUMBING CONSTRUCTION**

The undersigned hereby declares that he has carefully examined all bid documents and all interpretations of any addenda to the Bid Documents and is satisfied as to all the quantities and conditions, and understands that in signing this Bid he waives all rights to plead any misunderstanding regarding the same.

Pursuant to and in compliance with the Bid Documents, the Bidder hereby offers to furnish all equipment and whatever else is necessary or proper for, or incidental to, the completion of this Contract, as required by and in strict compliance with the applicable provisions of all contract documents, for the bid prices see attached Table for Bid Form - Plumbing Construction Contract. The City intends to award the contract to the lowest responsive and responsible proposer for the base proposal and any selected alternates as identified in this bid form.

**TOTAL BID FOR ALTERNATE NO. 1:**

\_\_\_\_\_ (\$ \_\_\_\_\_ )  
(use words) (DEDUCT)

**Accompanying this proposal** is a bid bond in the amount of 5%, which shall become the property of the Owner if, in the event this proposal shall be accepted by the Owner, the undersigned shall fail to provide the required performance and material bonds to the Owner within ten business days after the date of notification of acceptance.

**If written notice** of the acceptance of this Bid/Proposal is delivered to the undersigned within forty-five days after the day of opening of the bids/proposals or after expiration of such forty-five days and prior to the withdrawal of the bid/proposal by the undersigned, the undersigned will, within ten (10) business days after the date of such delivery, execute and deliver the Contract in the form of the Agreement attached hereto, or in a special Contract form that may be drawn up in accordance with the City Attorney's requirements.

In the event that addenda are issued, the undersigned hereby acknowledges the receipt of same and agrees that they are bound by all addenda, whether or not listed herein:

Addendum # \_\_\_\_\_ Addendum # \_\_\_\_\_ Addendum # \_\_\_\_\_

BID DEPOSIT: \_\_\_\_\_

\_\_\_\_\_  
NAME AND TITLE OF PERSON PREPARING BID E-MAIL

\_\_\_\_\_  
BUSINESS ADDRESS AND TELEPHONE, AND FAX NUMBERS OF PERSON PREPARING BID

\_\_\_\_\_  
SIGNATURE OF PERSON PREPARING BID DATE

\_\_\_\_\_  
NAME OF PERSON, FIRM, OR CORPORATION ON WHOSE BEHALF BID IS BEING MADE

Elmira, NY - Centertown Parking Structure  
 Table for Bid Form - Plumbing Construction Contract

February 16, 2026



LUMP SUM ITEMS

Work Item	Work Item Description	Ref. Spec or Detail	Units*	Estimated Quantity	Unit Price	Extended Total
<b>Division 0 &amp; 1 - General Conditions</b>						
1.1	Contractor Mobilization	Div. 0 & 1	LS	1	\$ N/A	
1.2	Contractor General Requirements	Div. 0 & 1	LS	1	\$ N/A	
<b>Division 2 - Existing Conditions</b>						
2.2	Demolish Existing Hose Cabinets and Water Piping System	024119	LS	1	\$ N/A	
2.3	Demolish Existing Dry Stand Pipe Fire Protection Piping	024119	LS	1	\$ N/A	
<b>Division 21 - Fire Suppression</b>						
21.1	Provide New Dry Standpipe System	Div 21	LS	1	\$ N/A	
<b>Division 22 - Plumbing</b>						
22.1	Remove and Replace Floor Drains in PT Concrete Slab System	6/SR501	EA	33		
22.2	Remove and Replace Floor Drains in Waffle Slab System	13 & 14/SR501	EA	4		
22.5a	Replace Entire Storm Drain System Piping	221414, 221423	LS	1		
22.6	Replace Non-Potable Water Lines to Hose Connections	221116, 221119	LS	1		
22.7	Backflow Preventers/ Meters	221116, 221119	LS	1		
<b>TOTAL OF BASE BID UNIT PRICES</b>						
<b>TOTAL FOR ALTERNATE No. 1 Custom Drain Grating</b>						

\*Unit Key Code: LS - Lump Sum, SF - Square Foot, LF - Lineal Foot, EA - Each

**NON-COLLUSIVE AFFIDAVIT**

STATE OF \_\_\_\_\_)

COUNTY OF \_\_\_\_\_)

\_\_\_\_\_ Being first duly sworn deposes and says that:

(1) He is (owner, partner, officer, representative, or agent) of \_\_\_\_\_ the bidder that has submitted the attached Bid.

(2) He is fully informed respecting the preparation and contents of the attached Bid and of all pertinent circumstances respecting such Bid;

(3) Such Bid is genuine and is not a collusive or sham bid;

(4) Neither the said Bidder nor any of its officers, partners, owners, agents, representatives, employees, or parties in interest, including this affiant, has in any way colluded, conspired, connived, agreed, directly or indirectly, with any other Bidder, firm or person, to submit a collusive or sham bid in connection with the Contract for which the attached Bid has been submitted or to refrain from bidding in connection with such Contract, or has in any manner, directly or indirectly, sought by agreement or collusion or communication or conference with any other Bidder, firm or person to fix the price or prices in the attached Bid or of any other Bidder, or to fix any overhead, profit or cost element of the bid price or the bid price of any Bidder, or to secure through any collusion, conspiracy, connivance or unlawful agreement any advantage against the Local Public Agency or any person interested in the proposed Contract; and

(5) The price or prices quoted in the attached Bid are fair and proper and are not tainted by an collusion, conspiracy, connivance, or unlawful agreement on the part of the Bidder or any of its agents, representatives, owners, employees, or parties in interest, including this affiant.

(Signed) \_\_\_\_\_

Subscribed and sworn to before me  
This \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

\_\_\_\_\_  
Notary Public

## WAIVER OF IMMUNITY

The Contractor and/or Vendor and/or Supplier hereby agrees to the provisions of 103 and 103-a and 103-b of the General Municipal Law which requires that upon the refusal of a person, when called before a Grand Jury, head of a State Department, temporary State Commission or other State Agency, head of a City Department, or other City Agency, which is empowered to compel the attendance of witnesses and examine them under oath, to testify concerning any transaction or contract had with the State, and Political Sub-division thereof, a Public Authority or with any Public Department, Agency or Official of the State or of any Political sub-division thereof or of a Public Authority, or to sign a waiver of immunity against subsequent criminal prosecution or to answer any relevant question concerning such transaction:

(a) Such person, and any firm, partnership or corporation of which he is a member, partner, director or officer shall be disqualified from thereafter selling to or submitting bids to or receiving awards from or entering into any contracts with any Municipal Corporation or any Public Department, Agency or Official thereof, for goods, work, or services, for a period of five years after such refusal; and

(b) Any and all contracts made with any Municipal Corporation or any Public Department, Agency or Official thereof, since the effective date of this law by such person, and by any Firm, Partnership or Corporation of which he is a Member, Partner, Director, or Officer may be canceled or terminated by the Municipal Corporation without incurring any penalty or damages on account of such cancellation or termination but any monies owing by the Municipal Corporation for goods delivered or work done prior to the cancellation or termination shall be paid.

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(Signature)

**CERTIFICATION OF BIDDER REGARDING EQUAL EMPLOYMENT OPPORTUNITY:** This certification is required pursuant to Executive Order 11246 (30F.R.1231925). The implementing rules and regulations provide that any bidder or prospective contractor, or any of their proposed sub-contractors, shall state as an initial part of the bid or negotiations of the contract whether it has participated in any previous contract or sub-contract subject to the Equal Opportunity Clause; and if so, whether it has filed all compliance reports due under applicable instructions.

Where the certification indicated that the bidder has not filed a compliance report due under applicable instructions, such bidder shall be required to submit a compliance report within seven (7) calendar days after bid opening. No contract shall be awarded unless such report is submitted.

**CERTIFICATION OF BIDDER:**

Bidder's Name: \_\_\_\_\_

Address and Zip Code: \_\_\_\_\_

1. Has bidder participated in a previous contract or sub-contract subject to the Equal Opportunity Clause?  
Yes \_\_\_ No \_\_\_

If answer is yes, identify the most recent contract: \_\_\_\_\_

2. Were compliance reports required to be filed in connection with such contract or sub-contract?  
Yes \_\_\_ No \_\_\_

If answer is yes, identify the most recent contract: \_\_\_\_\_

a. Has bidder filed all compliance reports due under applicable instructions?  
Yes \_\_\_ No \_\_\_ None Required \_\_\_

4. If answer to Item 2.a is "No", please explain in detail.

CERTIFICATION: The information above is true and complete to the best of my knowledge and belief.

\_\_\_\_\_  
Signature                      Date                      Name & Title Typed

**IRANIAN ENERGY DIVESTMENT CERTIFICATION**

**Pursuant to Section 103-g  
Of the New York State  
General Municipal Law**

- A. By submission of this bid/proposal, each bidder/proposer and each person signing on behalf of any bidder/proposer certifies, and in the case of a joint bid, each party thereto certifies as to its own organization, under penalty of perjury, that to the best of its knowledge and belief that each bidder is not on the list created pursuant to paragraph (b) of subdivision 3 of Section 165-a of the New York State Finance Law.
  
- B. A Bid/Proposal shall not be considered for award, nor shall any award be made where the condition set forth in Paragraph A above has not been complied with; provided, however, that in any case the bidder/proposer cannot make the foregoing certification set forth in Paragraph A above, the bidder/proposer shall so state and shall furnish with the bid a signed statement which sets forth in detail the reasons therefore. Where Paragraph A above cannot be complied with, the Purchasing Unit to the political subdivision, public department, agency or official thereof to which the bid/proposal is made, or his designee, may award a bid/proposal, on a case by case business under the following circumstances:
  - 1. The investment activities in Iran were made before April 12, 2012, the investment activities in Iran have not been expanded or renewed after April 12, 2012, and the Bidder/Proposer has adopted, publicized and is implementing a formal plan to cease the investment activities in Iran and to refrain from engaging in any new investments in Iran; or
  - 2. The political subdivision makes a determination that the goods or services are necessary for the political subdivision to perform its functions and that, absent such an exemption, the political subdivision would be unable to obtain the goods or services for which the contract is offered. Such determination shall be made in writing and shall be a public document.

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Title

\_\_\_\_\_  
Date

\_\_\_\_\_  
Company Name

**BIDDER'S STATEMENT ON SEXUAL HARASSMENT**

**IN ACCORDANCE WITH NEW YORK STATE FINANCE LAW §139-1**

In accordance with State Finance Law §139-1, which generally prohibits the City of Elmira from entering into contracts pursuant to the bid process with persons who fail to submit a certification affirming compliance with New York Labor Law §201-g, the bidder submits the following certification under the penalty of perjury:

By submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid each party thereto certifies as to its own organization, under penalty of perjury, that the bidder has and has implemented a written policy addressing sexual harassment prevention in the workplace and provides annual sexual harassment prevention training to all of its employees. Such policy shall, at a minimum, meet the requirements of Section 201-g of the Labor Law.

Dated: \_\_\_\_\_, New York  
\_\_\_\_\_, 20\_\_\_\_

\_\_\_\_\_  
Name of Bidder

\_\_\_\_\_  
Signature of Authorized Official

\_\_\_\_\_  
Printed or Typed Name of Official and Title

Sworn to before me this  
\_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_\_





**TAKE NOTE**

**APPLICABLE TO ALL DOUCMENTS**

**CONTAINED IN THIS RFB-372**

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**If a provision contained in the City's General Instructions to Bidders conflicts with a provision contained in AIA Documents A105-2017, A201-2017, or A310-2010, the provision most favorable to the City of Elmira shall control.**

"General Decision Number: NY20240005 09/27/2024

Superseded General Decision Number: NY20230005

State: New York

Construction Types: Building, Heavy and Highway

Counties: Chemung and Schuyler Counties in New York.

BUILDING CONSTRUCTION PROJECTS FOR CHEMUNG COUNTY ONLY (does not include single family homes and apartments up to and including 4 stories); HEAVY CONSTRUCTION PROJECTS FOR CHEMUNG COUNTY, HIGHWAY CONSTRUCTION PROJECTS FOR CHEMUNG AND SCHUYLER COUNTIES

Note: Contracts subject to the Davis-Bacon Act are generally required to pay at least the applicable minimum wage rate required under Executive Order 14026 or Executive Order 13658. Please note that these Executive Orders apply to covered contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but do not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(1).

<p>If the contract is entered into on or after January 30, 2022, or the contract is renewed or extended (e.g., an option is exercised) on or after January 30, 2022:</p>	<ul style="list-style-type: none"> <li>. Executive Order 14026 generally applies to the contract.</li> <li>. The contractor must pay all covered workers at least \$17.20 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in 2024.</li> </ul>
<p>If the contract was awarded on or between January 1, 2015 and January 29, 2022, and the contract is not renewed or extended on or after January 30, 2022:</p>	<ul style="list-style-type: none"> <li>. Executive Order 13658 generally applies to the contract.</li> <li>. The contractor must pay all covered workers at least \$12.90 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on that contract in 2024.</li> </ul>

The applicable Executive Order minimum wage rate will be adjusted annually. If this contract is covered by one of the Executive Orders and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must still submit a conformance request.

Additional information on contractor requirements and worker protections under the Executive Orders is available at <http://www.dol.gov/whd/govcontracts>.



## **Title 2 - Grants and Agreements**

### **Subtitle A - Office of Management and Budget Guidance for Grants and Agreements**

#### **Chapter II - Office of Management and Budget Guidance**

#### **Part 200 - Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards**

#### **Appendix II to Part 200 - Contract Provisions for Non-Federal Entity Contracts Under Federal Awards**

In addition to other provisions required by the Federal agency or non-Federal entity, all contracts made by the non-Federal entity under the Federal award must contain provisions covering the following, as applicable.

- (A) Contracts for more than the simplified acquisition threshold, which is the inflation adjusted amount determined by the Civilian Agency Acquisition Council and the Defense Acquisition Regulations Council (Councils) as authorized by 41 U.S.C. 1908, must address administrative, contractual, or legal remedies in instances where contractors violate or breach contract terms, and provide for such sanctions and penalties as appropriate.
- (B) All contracts in excess of \$10,000 must address termination for cause and for convenience by the non-Federal entity including the manner by which it will be effected and the basis for settlement.
- (C) Equal Employment Opportunity. Except as otherwise provided under 41 CFR Part 60, all contracts that meet the definition of "federally assisted construction contract" in 41 CFR Part 60-1.3 must include the equal opportunity clause provided under 41 CFR 60-1.4(b), in accordance with Executive Order 11246, "Equal Employment Opportunity" (30 FR 12319, 12935, 3 CFR Part, 1964-1965 Comp., p. 339), as amended by Executive Order 11375, "Amending Executive Order 11246 Relating to Equal Employment Opportunity," and implementing regulations at 41 CFR part 60, "Office of Federal Contract Compliance Programs, Equal Employment Opportunity, Department of Labor."
- (D) Davis-Bacon Act, as amended (40 U.S.C. 3141-3148). When required by Federal program legislation, all prime construction contracts in excess of \$2,000 awarded by non-Federal entities must include a provision for compliance with the Davis-Bacon Act (40 U.S.C. 3141-3144, and 3146-3148) as supplemented by Department of Labor regulations (29 CFR Part 5, "Labor Standards Provisions Applicable to Contracts Covering Federally Financed and Assisted Construction"). In accordance with the statute, contractors must be required to pay wages to laborers and mechanics at a rate not less than the prevailing wages specified in a wage determination made by the Secretary of Labor. In addition, contractors must be required to pay wages not less than once a week. The non-Federal entity must place a copy of the current prevailing wage determination issued by the Department of Labor in each solicitation. The decision to award a contract or subcontract must be conditioned upon the acceptance of the wage determination. The non-Federal entity must report all suspected or reported violations to the Federal awarding agency. The contracts must also include a provision for compliance with the Copeland "Anti-Kickback" Act (40 U.S.C. 3145), as supplemented by Department of Labor regulations (29 CFR Part 3, "Contractors and Subcontractors on Public Building or Public Work Financed in Whole or in Part by Loans or Grants from the United States"). The Act provides that each contractor or subrecipient must be prohibited from inducing, by any means, any person employed in the construction, completion, or repair of public work, to give up any part of the compensation to which he or she is otherwise entitled. The non-Federal entity must report all suspected or reported violations to the Federal awarding agency.
- (E) Contract Work Hours and Safety Standards Act (40 U.S.C. 3701-3708). Where applicable, all contracts awarded by the non-Federal entity in excess of \$100,000 that involve the employment of mechanics or laborers must include a provision for compliance with 40 U.S.C. 3702 and 3704, as supplemented by Department of Labor regulations (29 CFR Part 5). Under 40 U.S.C. 3702 of the Act, each contractor must be required to compute the wages of every mechanic and laborer on the basis of a standard work week of 40 hours. Work in excess of the standard work week is permissible provided that the worker is compensated at a rate of not less than one and a half times the basic rate of pay for all hours worked in excess of 40 hours in the work week. The requirements of 40 U.S.C. 3704 are applicable to construction work and provide that no laborer or mechanic must be required to work in surroundings or under working conditions which are unsanitary, hazardous or dangerous. These requirements do not apply to the purchases of supplies or materials or articles ordinarily available on the open market, or contracts for transportation or transmission of intelligence.
- (F) Rights to Inventions Made Under a Contract or Agreement. If the Federal award meets the definition of "funding agreement" under 37 CFR § 401.2 (a) and the recipient or subrecipient wishes to enter into a contract with a small business firm or nonprofit organization regarding the substitution of parties, assignment or performance of experimental, developmental, or research work under that "funding agreement," the recipient or subrecipient must comply with the requirements of 37 CFR Part 401, "Rights to Inventions Made by Nonprofit Organizations and Small Business Firms Under Government Grants, Contracts and Cooperative Agreements," and any implementing regulations issued by the awarding agency.
- (G) Clean Air Act (42 U.S.C. 7401-7671q.) and the Federal Water Pollution Control Act (33 U.S.C. 1251-1387), as amended - Contracts and subgrants of amounts in excess of \$150,000 must contain a provision that requires the non-Federal award to agree to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act (42 U.S.C. 7401-7671q) and the Federal Water Pollution Control Act as amended (33 U.S.C. 1251-1387). Violations must be reported to the Federal awarding agency and the Regional Office of the Environmental Protection Agency (EPA).

- (H) Debarment and Suspension (Executive Orders 12549 and 12689) - A contract award (see 2 CFR 180.220) must not be made to parties listed on the governmentwide exclusions in the System for Award Management (SAM), in accordance with the OMB guidelines at 2 CFR 180 that implement Executive Orders 12549 (3 CFR part 1986 Comp., p. 189) and 12689 (3 CFR part 1989 Comp., p. 235), "Debarment and Suspension." SAM Exclusions contains the names of parties debarred, suspended, or otherwise excluded by agencies, as well as parties declared ineligible under statutory or regulatory authority other than Executive Order 12549.
- (I) Byrd Anti-Lobbying Amendment (31 U.S.C. 1352) - Contractors that apply or bid for an award exceeding \$100,000 must file the required certification. Each tier certifies to the tier above that it will not and has not used Federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a member of Congress, officer or employee of Congress, or an employee of a member of Congress in connection with obtaining any Federal contract, grant or any other award covered by 31 U.S.C. 1352. Each tier must also disclose any lobbying with non-Federal funds that takes place in connection with obtaining any Federal award. Such disclosures are forwarded from tier to tier up to the non-Federal award.
- (J) See § 200.323.
- (K) See § 200.216.
- (L) See § 200.322.

*[78 FR 78608, Dec. 26, 2013, as amended at 79 FR 75888, Dec. 19, 2014; 85 FR 49577, Aug. 13, 2020]*

Modification Number	Publication Date
0	01/05/2024
1	03/08/2024
2	04/05/2024
3	07/05/2024
4	08/30/2024
5	09/27/2024

ASBE0030-001 05/01/2024

	Rates	Fringes
Asbestos/Insulator Worker includes application of all materials, protective coverings, coatings and finishings to all types of mechanical systems. Also the application of firestopping material to openings and penetrations in walls, floors, ceilings, curtain walls and all lead abatement.....	\$ 41.50	25.04
HAZARDOUS MATERIAL HANDLER SCOPE OF WORK: DUTIES LIMITED TO preparation, wetting, stripping, removal, scrapping, vacuuming, bagging, and disposing of all insulation materials, whether they contain asbestos or not from mechanical system.....	\$ 38.50	25.04

BOIL0007-001 01/01/2021

	Rates	Fringes
BOILERMAKER.....	\$ 35.10	30.75

BRNY0003-003 07/01/2023

CORNING CHAPTER

	Rates	Fringes
BUILDING CONSTRUCTION Bricklayers, Cement Masons, Stone Masons, Pointers, Caulkers and Cleaners.....	\$ 33.84	25.36
Marble Mason, Tile Layers and Terrazzo Workers.....	\$ 33.24	23.61
Marble, Tile and Terrazzo Finishers.....	\$ 32.44	18.58
CEMENT MASON/CONCRETE FINISHER HEAVY AND HIGHWAY CONSTRUCTION.....	\$ 36.88	23.10

\* CARP0277-016 07/01/2024

Rates	Fringes
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CARPENTER (BUILDING CONSTRUCTION)

CHEMUNG COUNTY

Carpenter.....	\$ 31.10	22.59
Millwrights & Piledrivers..	\$ 28.05	20.63

CARPENTER (HEAVY & HIGHWAY CONSTRUCTION)

CHEMUNG COUNTY.....	\$ 38.28	26.26
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CARPENTER (HIGHWAY CONSTRUCTION)

SCHUYLER COUNTY.....	\$ 38.28	26.26
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ELEC0139-001 06/04/2023

CHEMUNG COUNTY

Rates Fringes

ELECTRICIAN.....	\$ 41.00	29.81
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ELEC0241-003 06/01/2024

SCHUYLER COUNTY (Townships of Catharine, Cayuta and Hector)

Rates Fringes

ELECTRICIAN.....	\$ 42.00	30.81
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ELEC1249-003 05/01/2023

Rates Fringes

ELECTRICIAN (LINE CONSTRUCTION: LIGHTING AND TRAFFIC SIGNAL Including any and all Fiber Optic Cable necessary for Traffic Signal Systems, Traffic Monitoring systems and Road Weather information systems)

Flagman.....	\$ 29.59	7%+35.40
Groundman (Truck Driver)....	\$ 39.46	7%+35.40
Groundman Truck Driver (tractor trailer unit).....	\$ 41.92	7%+35.40
Lineman & Technician.....	\$ 49.32	7%+35.40
Mechanic.....	\$ 39.46	7%+35.40

FOOTNOTE:

a. New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Christmas Day, plus President's Day, Good Friday, Decoration Day, Election Day for the President of the United States and Election Day for the Governor of the State of New York, provided the employee works the day before or the day after the holiday.

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ELEC1249-004 05/01/2023

Rates Fringes

ELECTRICIAN (Line Construction) Overhead and underground distribution and

maintenance work and all overhead and underground transmission line work including any and all fiber optic ground wire, fiber optic shield wire or any other like product by any other name manufactured for the dual purpose of ground fault protection and fiber optic capabilities :

Flagman.....	\$ 34.44	7%+35.40
Groundman digging machine operator.....	\$ 51.66	7%+35.40
Groundman truck driver (tractor trailer unit)....	\$ 48.79	7%+35.40
Groundman Truck driver.....	\$ 45.92	7%+35.40
Lineman and Technician.....	\$ 57.40	7%+38.40
Mechanic.....	\$ 45.92	7%+35.40
Substation:		
Cable Splicer.....	\$ 63.14	7%+38.40
Flagman.....	\$ 34.44	7%+35.40
Ground man truck driver....	\$ 45.92	7%+35.40
Groundman digging machine operator.....	\$ 51.66	7%+35.40
Groundman truck driver (tractor trailer unit)....	\$ 48.79	7%+35.40
Lineman & Technician.....	\$ 57.40	7%+38.40
Mechanic.....	\$ 45.92	7%+35.40
Switching structures; railroad catenary installation and maintenance, third rail type underground fluid or gas filled transmission conduit and cable installations (including any and all fiber optic ground product by any other name manufactured for the dual purpose of ground fault protection and fiber optic capabilities), pipetype cable installation and maintenance jobs or projects, and maintenance bonding of rails; Pipetype cable installation		
Cable Splicer.....	\$ 64.59	7%+38.40
Flagman.....	\$ 35.23	7%+35.40
Groundman Digging Machine Operator.....	\$ 52.85	7%+35.40
Groundman Truck Driver (tractor-trailer unit)....	\$ 49.91	7%+35.40
Groundman Truck Driver.....	\$ 46.98	7%+35.40
Lineman & Technician.....	\$ 58.72	7%+38.40
Mechanic.....	\$ 46.98	7%+35.40

## FOOTNOTE:

a. PAID HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, Good Friday, Independence Day, Labor Day, Thanksgiving Day, Christmas Day, and Election Day for the President of

the United States and Election Day for the Governor of New York State, provided the employee works two days before or two days after the holiday.

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ELEC1249-008 01/01/2024

	Rates	Fringes
ELECTRICIAN (Line Construction)		
TELEPHONE, CATV FIBEROPTICS CABLE AND EQUIPMENT		
Cable splicer.....	\$ 39.24	3%+5.70
Groundman.....	\$ 19.74	3%+5.70
Installer Repairman-Teledata		
Lineman/Technician-Equipment Operator.....	\$ 37.24	3%+5.70
Tree Trimmer.....	\$ 31.45	3%+10.48

a. New Year's Day, President's Day, Good Friday, Decoration Day, Independence Day, Labor Day, Veteran's Day, Thanksgiving Day, Day after Thanksgiving, Christmas Day.

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ELEV0062-001 01/01/2024

CHEMUNG COUNTY:

	Rates	Fringes
ELEVATOR MECHANIC.....	\$ 56.01	37.885+a+b

FOOTNOTE:

- a. Vacation: 6%/under 5 years based on regular hourly rate for all hours worked. 8%/over 5 years based on regular hourly rate for all hours worked.
- b. PAID HOLIDAYS: New Year's Day; Memorial Day; Independence Day; Labor Day; Veterans' Day; Thanksgiving Day; the Friday after Thanksgiving Day; and Christmas Day.

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ENGI0158-024 07/01/2022

	Rates	Fringes
Operating Engineer:		
EXCAVATING AND PAVING		
GROUP 1.....	\$ 34.62	32.44+a
GROUP 2.....	\$ 34.15	32.44+a
GROUP 3.....	\$ 33.46	32.44+a
GROUP 4.....	\$ 29.27	32.44+a
MASTER MECHANIC.....	\$ 36.62	32.44+a
HEAVY AND HIGHWAY		
GROUP 1.....	\$ 47.46	32.90+a
GROUP 2.....	\$ 46.75	32.90+a
GROUP 3.....	\$ 43.89	32.90+a
GROUP 4.....	\$ 51.46	32.90+a
GROUP 5.....	\$ 50.46	32.90+a
GROUP 6.....	\$ 49.46	32.90+a
GROUP 7.....	\$ 48.89	32.90+a
TUNNEL AND SHAFT		
GROUP 1.....	\$ 50.19	33.00+a

GROUP 2.....	\$ 48.97	33.00+a
GROUP 3.....	\$ 46.18	33.00+a
GROUP 4.....	\$ 53.19	33.00+a
MASTER MECHANIC.....	\$ 52.60	33.00+a

For EXCAVATION AND PAVING:

FOOTNOTE:

a. PAID HOLIDAYS: New Year's Day; Memorial Day; Independence Day; Labor Day; Thanksgiving Day; Christmas Day, regardless of the day of the week on which the holiday may fall, provided the employee works either on the work day immediately preceding the holiday or on the scheduled work day immediately following the holiday.

#### EXCAVATION AND PAVING CLASSIFICATIONS

GROUP 1: Asphalt paver; automatic fine grader; backhoe (except tractor mounted, rubber tired); blacktop plant (automated); cableway; caisson auger; central mix concrete plant (automated); cherry picker- over 5 ton capacity; crane; cranes and derricks (steel erection); dragline; dual drum paver; front end loader (4 cu. yd. and over); hoist,(Tow or 3 drum); pile driver; power grader with elevation loader attachment; quarry master (or equivalent); shovel; slip form paver; tractor drawn belt-type loader; truck crane tunnel shovel; excavator, all purpose hydraulically operated

GROUP 2: Backhoe (tractor mounted, rubber tired); bituminous spreader and mixer; blacktop plant (non automated); boring machine; cage hoist; central mix plant (non automated) and all concrete batching plants; cherry picker, 5 tons and under; compressor (4 or less) exceeding 2000 CFM combined capacity; concrete paver over 16s; concrete pump; crusher; drill rigs (tractor mounted); front end loader (under 4 cu. yds); hi- pressure boiler (15 lbs and over); hoist (one drum); Kolman plant loader and similar type loaders; maintenance engineer; maintenance grease man; mechanical slurry machine; mixer for stabilized base self propelled; monorail machine; plant engineer; power broom; power grader; pump crete; ready mix concrete plant; road widener; roller (all above sub-grade); side boom; tractor scraper; tractor with dozer and or pusher; trencher; winch

GROUP 3: Compressors (4 not to exceed 2000 CFM combined capacity; or 3 or less with more than 1200 CFM but not to exceed 2000 CFM); compressors (any size but subject to other provisions for compressors); dust collectors; generators; welding machines (4 of any type or combination); concrete pavement spreaders and finishers; conveyor; drill (core); drill (well); electric pump used in conjunction with well point systems; farm tractor with accessories; fine grade machine; fork lift; gunite machine; hammers-hydraulic-self propelled; locomotive; post hole digger and post driver; pumps (regardless of motive power, not more than 4 in number not to exceed 20" in total capacity); submersible electric pumps when used in lieu of well points, tractor with towed accessories; vibratory compactor; vibro tamp; well point

GROUP 4: Compressor (any size, but subject to other provisions for compressors); dust collectors; generators; welding machines (3 or less of any type or combination);

concrete mixer (16s and under), concrete saw-self propelled; fireman; form tamper; mulching machine; power heaterman; pumps regardless of motive power no more than 3 in number not to exceed 12"" in total capacity; revinius widener; steam cleaner; tractor

GROUP 5: Master Mechanic

For HEAVY AND HIGHWAY CONSTRUCTION:

FOOTNOTE:

b. PAID HOLIDAYS: New Years Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Christmas Day provided the employee works the working day before and the working day after the holiday

POWER EQUIPMENT OPERATOR CLASSIFICATIONS (HEAVY/HIGHWAY):

GROUP 1: Asphalt Curb Machine, Self Propelled, Slipform, Automated Concrete Spreader (CMI Type), Automatic Fine Grader, Backhoe (Except Tractor Mounted, Rubber Tired), Backhoe Excavator Full Swing (CAT 212 or similar type), Back Filling Machine, Belt Placer (CMI Type), Blacktop Plant (Automated), Boom truck , Cableway, Caisson Auger, Central Mix Concrete Plant (Automated), Concrete Curb Machine, Self Propelled, Slipform, Concrete Pump, Crane, Cherry Picker, Derricks (steel erection), Dragline, Overhead Crane (Gantry or Straddle type), Pile Driver, Truck Crane, Directional Drilling Machine, Dredge, Dual Drum Paver, Excavator (All Purpose Hydraulically Operated) (Gradall or Similar), Front End Loader ( 4 cu. yd. and Over), Head Tower (Sauerman or Equal), Hoist (Two or Three Drum), Holland Loader, Maintenance Engineer, Mine Hoist, Mucking Machine or Mole Pavement Breaker(SP) Wertgen; PB-4 and similar type, Power Grader, Profiler (over 105 H.P.) Quad 9, Quarry Master (or equivalent), Scraper, Fireman, Fork Lift, Form Tamper, Grout Pump, Guniting Machine, Hammers (Hydraulic self-propelled), Hydra-Spiker, ride-on, Hydraulic Pump (jacking system), Hydro-Blaster (Water), Mulching Machine, Oiler, Parapet Concrete or Pavement, Shovel, Side Boom, Slip Form Paver, Tractor Drawn, BeltType Loader, Truck or Trailer Mounted Log , Chipper (Self Feeder), Tug Operator (Manned Rented Equipment Excluded), Tunnel Shovel

GROUP 2: Asphalt Paver, Backhoe (Tractor Mounted, Rubber Tired), Bituminous Recycler Machine, Bituminous Spreader and Mixer, Blacktop Plant (NonAutomated), Blast or Rotary Drill (Truck or Tractor Mounted), Boring Machine, Cage Hoist, Central Mix Plant (NonAutomated) and All Concrete Batching Plants, Cherry Picker (5 tons capacity and under), Concrete Paver (Over 16S), Crawler Drill, Self-contained, Crusher, Diesel Power Unit, Drill Rigs, Tractor Mounted, Front End Loader (Under 4 cu. yd.), Greaseman/Lubrication Engineer, HiPressure Boiler (15 lbs. and over), Hoist (One Drum), Hydro-Axe, Kolman Plant Loader and Similar Type Loaders, L.C.M. Work Boat Operator, Locomotive Mixer (for stabilized base selfpropelled), Monorail Machine, Plant Engineer, Profiler (105 H.P. and under), Grinder, Post Hole Digger and Post Driver, Power Broom (towed), Power Heaterman, Power Sweeper, Revinius Widener, Roller (Grade and Fill), Scarifier, ride-on, Shell Winder, Skid steer loader (Bobcat or similar), Span-Saw, ride-on, Steam Cleaner, Pug Mill, Pump Crete Ready Mix Concrete Plant

Refrigeration Equipment (for soil stabilization) Road Widener, Roller (all above subgrade), Sea Mule, Self-contained Ride-on Rock Drill, Excluding Air-Track Type Drill, Skidder, Tractor with Dozer and/or Pusher, Trencher. Tugger Hoist, Vermeer saw (ride on, any size or type), Winch, Winch Cat

GROUP 3: A Frame Winch Hoist on Truck , Articulated Heavy Hauler, Aggregate Plant, Asphalt or Concrete Grooving, Machine (ride on), Ballast Regulator, Ride-on Boiler (used in conjunction with production), Bituminous Heater, self-propelled, Boat (powered), Cement and Bin Operator, Compressors, Dust Collectors, Generators, Pumps, Welding Machines, Light Plants, Heaters (hands-off equipment), Concrete Pavement Spreader and Finisher, Concrete Paver or Mixer (16S and under), Concrete Saw (self-propelled), Conveyor, Deck Hand, Directional Drill Machine Locator, Drill, (Core), Drill, (Well,) Farm Tractor with accessories, Fine Grade Machine, Tamper, ride-on, Tie Extractor, ride-on, Tie Handler, ride-on, Tie Inserter, ride-on, Tie Spacer, ride-on, Tire Repair, Track Liner, ride-on, Tractor, Tractor (with towed accessories), Vibratory Compactor, Vibro Tamp, Well Point

GROUP 4: Tower Cranes

GROUP 5: Cranes 50 tons and over

GROUP 6: Cranes 49 tons and below

GROUP 7: Master Mechanic

For TUNNEL AND SHAFT:

#### FOOTNOTE:

b. PAID HOLIDAYS: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Christmas Day, regardless of the day of the week on which the Holiday may fall, provided the employee works the working day before and the working day after the holiday

#### TUNNEL AND SHAFT CLASSIFICATIONS

GROUP 1: Automated concrete spreader (CMI or equivalent); automated fine grade machine (cmi); backhoe; belt placer (cmi or similar); blacktop spreader (automated); cableway; caisson auger; central mix plant (automated); cherry picker (5 tons); concrete curb machine (self-propelled slipform); concrete pump; crane; crane shaft; crane underground; cranes and derricks (steel erection); dragline; dredge; dual drum paver; excavator (all purpose-hydraulically operated gradall or similar); fork lift (factory rated 15' and over); front end loader (4cu yd and over); head tower (sauerman or equal); hoist; shaft; hoist (two or three drum); holland loader; maintenance engineer (shaft and tunnel); mine hoist; mining machine (mole and similar types); mucking machine or mose; overhead crane (gantry or straddle type); pile driver; power grader; Quad 9, quarry master (or equivalent); scraper; shovel; side boom; slip form paver; tripper/maintenance engineer (shaft and tunnel); tractor drawn belt-type loader; truck crane; truck or trailer mounted log chipper (self feeder); tug operator (manned rented equipment excluded); tunnel shovel

GROUP 2: Automated central mix concrete plant; backhoe (topside); backhoe (tractor mounted, rubber tired); bituminous spreader and mixer; blacktop plant (non automated); blast or rotary drill (truck or tractor mounted); boring machine; cage hoist; central mix plant (non automated) and all concrete batching plants; cherry picker (5 tons capacity and under); compressors (4 or less exceeding 2000 CFM combined capacity); concrete paver (over 16s); concrete pump; crane (topside); crusher; diesel power unit; drill rigs, tractor mounted; front end loader (under 4 cu. yds); grayco epoxy machine; hi-pressure boiler (15 lbs and over); hoist (one drum); hoist (two or three drum) (topside); kolman plant loader and similar type loaders; L.C.M. work boat operator; locomotive; maintenance engineer (topside); maintenance greaseman; mixer (for stabilized base self-propelled); monorial machine; plant engineer; personnel hoist; pump crete; ready mix concrete plant; refrigeration equipment (from soil stabilization); road widener; roller (all above sub-grade); sea mule; shotcrete machine; shovel (topside); tractor with dozer and/or pusher; trencher; tuggger hoist; tunnel locomotive; welder; winch; winch cat

GROUP 3: ""A"" frame truck; ballast regulator (ride on); compressors (4 not to exceed 2000 cfm combined capacity; or 3 or less with more than 1200 cfm but not to exceed 2000 cfm); compressors (any size but subject to other provisions for compressors; dust collectors; generators; pumps; welding machines; light plants (4 of any type or combination); concrete pavement spreaders and finishers; conveyor; drill (core); drill (well); electric pump used in conjunction with well point system; farm tractor with accessories; fine grade machine; fork lift (under 15 ft); ground pump over 5 cu. ft (manufacturers rating); gunite machine; hammers (hydraulic self propelled); hydra-spiker (ride on); hydra blaster (water); hydra blaster; motorized form carrier; post hole digger and post driver; power sweeper; roller (grade and fill); scarifer (ride on); span saw (ride on); submersible electric pump (when used in lieu of well points); tamper (ride on); tie extractor (ride on); tie handler (ride on); tie inserter (rider on); tie spacer (ride on); track liner (ride on); tractor with towed accessories; vibratory compactor; vibro tamp; well point aggregate plant; boiler (used in conjunction with production); cement and bin operator; compressors (3 or less not to exceed 1200 cfm combined capacity); compressors (any size; but subject to other provisions for compressors); dust collectors; generators; pumps; welding machines; light plants (3 or less of any type or combination); concrete paver or mixer (16s and under); concrete saw (self propelled); fireman; form tamper; greaseman; hydraulic pump (jacking system); junior engineer; light plants; mulching machine; oiler; parapet concrete or pavement grinder; power broom (towed); power heaterman (when used for production); revinius widener; shell winder; steam cleaner; tractor

GROUP 4: Crane, friction or lattice type with boom length 200 feet and over

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 ENGI0158-037 07/01/2022

Rates

Fringes

Power equipment operators:

BUILDING CONSTRUCTION

GROUP 1.....	\$ 36.66	32.74+a
GROUP 2.....	\$ 35.86	32.74+a
GROUP 3.....	\$ 33.16	32.74+a
GROUP 4.....	\$ 28.60	32.74+a
GROUP 5.....	\$ 41.16	32.74+a
GROUP 6.....	\$ 43.66	32.74+a
GROUP 7.....	\$ 44.66	32.74+a
GROUP 8.....	\$ 43.66	32.74+a

FOOTNOTE:

a. PAID HOLIDAYS: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, and Christmas Day, provided the employee works on the work day immediately preceding the holiday or on the scheduled work day immediately following the holiday.

BUILDING CONSTRUCTION CLASSIFICATIONS

GROUP 1: Air Tugger, All terrain telescoping material handler, Clamshell, Dragline, Shovel and similar machines over three eighths cu.yd. capacity (Fact. rating);Carrier mounted backhoes that swing 360 degrees Big Generator Plant Hoist (on steel erection) Bridge Crane (all types), Cableway, Caisson auger and similar type machine, Crane, Derrick, Dredge, Excavator all purpose hydraulically operated, Forklift (with Factory rating of Fifteen ft. or more of lift),Hoist (on steel erection), Hydraulic/Krupp Drill Type Mucking Machines, Remote controlled excavator with attachments (Brokk type or similar), Ross Carrier (and similar type), Three-Drum Hoist(when all three drums are in use)

GROUP 2: A-Frame Truck, Backfilling Machine, Backhoe -tractor mounted, Barber Green and similar type machines, Belt Crete and similar type machines, Bituminous spreading machine 3/8 yd. capacity or less(Factory Rating), Bulldozer, Carry-all type scraper, Compressors: Four (4) not to exceed 2000 CFM combined capacity; or three (3) or less with more than1200 CFM but not to exceed 2000 CFM, Concrete Mixer, Concrete Placer, Concrete Pump, Dinky Locomotives (all types), Elevating Grader, Elevator Fine Grade and Finish, Rollers, Fine Grade Machines(all kinds), Forklift with Factory rating of less than fifteen(15) feet of lift, Front End Loader, Gunite Pumping Machine, High Pressure Boiler, Hoist (1 or 2 drums), Maintenance Engineer (Mechanic), Mechanical Slurry Machine (all kinds), Mega Mixers and similar type machines, Motor Grader, Post Hole Digger, Pumps (regardless of motive power) no more than four (4) in number not to exceed twenty (20) inches in total capacity, Shot Crete Pumping Machine, Side Boom Tractor, Skid Steer Loader with Attachments, Stone Crusher Tournadozer and similar types Tournapull and similar types, Trenching Machines, Well Drill, WellPoint System EXCEPTION: Single electric pumps up to and including four (4) inches need not be manned.

GROUP 3: Any combination (Not to exceed three (3) pieces of equipment) Compressors ♦three (3) or less, or not to exceed 1200 CFM combined capacity, Fireman, Longitudinal Float, Mechanical Heater Pumps (regardless of motive power) No more than three (3) in number, not to exceed twelve (12)

inches total capacity, Roller (Fill and Grade)Rubber Tired Tractor Welding Machine or Mechanical Conveyor (over 12ft. in length) EXCEPTION: Single gasoline driven welding machine up to 300amps need not be manned.

GROUP 4: Oilers

GROUP 5: Cranes up to and including 25 tons

GROUP 6: Cranes 25-250 tons

GROUP 7: Cranes 251 and over tons

GROUP 8: Tower Cranes

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IRON0033-002 07/01/2023

CHEMUNG; SCHUYLER (Twps. of Dix, Orange, Reding and Tryon).

Rates Fringes

Ironworkers:

Sheeter.....	\$ 32.25	31.02
Structural, ornamental, rodman, machinery mover- rigger, fence erector, pre- cast concrete erector, reinforcing, stone derrickman.....	\$ 32.00	31.02

-----  
IRON0060-010 07/01/2023

SCHUYLER COUNTY (Townships of Catharine, Cayuta, Hector and Montour)

Rates Fringes

IRONWORKER

Structural, Ornamental, Reinforcing, Pre-cast Concret Erector, Machinery Mover & Rigger, Fence Erector, Stone Derrickman Welder, Sheeter, Sheeter Bucker-up.....	\$ 33.00	30.83
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\* LAB00785-016 07/01/2024

SCHUYLER (Twps. of Catherine - including the Village of Odessa):

Rates Fringes

Laborers:

HEAVY & HIGHWAY:

GROUP 1.....	\$ 35.56	25.60+a
GROUP 2.....	\$ 35.76	25.60+a
GROUP 3.....	\$ 35.96	25.60+a
GROUP 4.....	\$ 36.16	25.60+a
GROUP 5.....	\$ 38.76	25.60+a

FOOTNOTE:

a. PAID HOLIDAYS: New Year's Day; Memorial Day;

Independence Day; Labor Day; Thanksgiving Day; Christmas Day, provided the employee works the working day before and the working day after the holiday.

GROUP 1: Laborers; Flaggers; Outboard and hand boats

GROUP 2: Bull float; Chain Saw; Concrete Aggregate Bin; Concrete Bootman; Gin Buggy; Hand or Machine Vibrator; Jackhammer; Mason Tender; Mortar Mixer; Pavement Breaker; Handlers of all Steel Mesh; Small generators for Laborers' Tools; Installation of Bridge Drainage Pipe; Pipelayers; Vibrator type Rollers; Tampers; Drill Doctor; Tail or Screw Operator on Asphalt Paver; Water Pump Operator (1-1/2" and single diaphragm); Nozzle (asphalt, gunnite, seeding and sandblasting); Laborers on Chain Link Fence Erection; Rock Splitter and Power Unit; Pusher Type Concrete Saw and all other Gas, Electric, Oil and Air Tool Operators; Wrecking Laborers

GROUP 3: All Rock or Drill Machine Operators (except quarry master and similar type); Acetylene Torch Operator; Asphalt Raker; Powderman

GROUP 4: Blasters; Form Setters; Stone or Granite Curb Setters

GROUP 5: Toxic waste removal

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LAB00785-021 07/01/2022

Rates Fringes

LABORER

CHEMUNG AND SCHUYLER  
(Except Catherine  
township):

HEAVY & HIGHWAY (ZONE III)

GROUP 1.....	\$ 33.00	22.51+a
GROUP 2.....	\$ 33.20	22.51+a

CHEMUNG AND SCHUYLER  
(Except Catherine  
township):

HEAVY & HIGHWAY

GROUP 1-(ZONE III).....	\$ 33.00	22.51+a
GROUP 2 (ZONE III).....	\$ 33.20	22.51+a

CHEMUNG COUNTY: BUILDING:

General Laborer.....	\$ 22.10	19.65+a
Toxic Waste.....	\$ 23.60	19.65+a

FOOTNOTE:

a. PAID HOLIDAYS: New Year's Day; Memorial Day; Independence Day; Labor Day; Thanksgiving Day; Christmas Day, provided the employee works the working day before and the working day after the holiday.

LABORER CLASSIFICATIONS

GROUP 1: Laborers; Flaggers; Outboard and Hand Boats; Bull Float; Chain Saw; Concrete Aggregate Bin; Concrete bootman; Gin Buggy; Hand or Machine Vibrator; Jackhammer; Mason Tender; Mortar Mixer; Pavement Breaker; Handlers of all

Steel Mesh; Small Generators for laborers' tool; Installation of Bridge Drainage Pipe; Pipelayers; Vibrator type Rollers; Tamper; drill Doctor; Tail or Screw Operator on Asphalt Paver; Water Pump Operators (1- 1/2" and single diaphragm); Nozzle (asphalt, gunnite, seeding and sandblasting); Laborers on Chain Link Fence Erection; rock Splitter and Power Unit; Pusher Type Concrete Saw and all other Gas, Electric, Oil and Air Tool Operators; Wrecking Laborers

GROUP 2: All Rock or Drill Machine Operators (except quarry master and similar type); Acetylene Torch Operator; Asphalt Raker; Powderman; Blasters; Form Setters; Stone or Granite Curb Setters

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PAIN0004-016 05/01/2023

	Rates	Fringes
Painters:		
Bridges.....	\$ 41.06	29.59
Painters.....	\$ 24.53	21.63
Paper or Vinyl Hangers.....	\$ 25.76	21.63
Sand Blasting/Steam Cleaning, Acid or High Pressure Water.....	\$ 25.53	21.63
Spray Work/Spray Epoxy, Swing Chair or Swing Scaffold.....	\$ 25.53	21.63
Steeplejack.....	\$ 26.53	21.63
Structural Steel, Epoxy Brush or Roll.....	\$ 25.78	21.63

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PAIN0677-003 05/01/2023

	Rates	Fringes
GLAZIER.....	\$ 26.80	24.19

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PLUM0267-003 05/01/2019

REMAINING TOWNSHIPS

	Rates	Fringes
Plumber, Pipefitter, Steamfitter (Including HVAC work).....	\$ 35.51	24.57

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ROOF0203-002 06/01/2023

	Rates	Fringes
ROOFER.....	\$ 30.50	19.84

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SFNY0669-001 01/01/2024

	Rates	Fringes
SPRINKLER FITTER.....	\$ 42.73	27.05

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SHEE0112-004 05/01/2023

	Rates	Fringes
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Sheet metal worker.....\$ 35.94 20.89

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TEAM0529-001 05/01/2019

Rates Fringes

TRUCK DRIVER

GROUP 1.....\$ 22.66 13.46+a  
GROUP 2.....\$ 23.73 13.46+a  
GROUP 3.....\$ 23.22 13.46+a

FOOTNOTES:

a. PAID HOLIDAYS: New Year's day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Christmas Day, provided the employee works the working day before and the working day after the holiday.

TRUCK DRIVERS CLASSIFICATIONS:

GROUP 1: Flat Bed Truck (Single Axle); Dump Trucks (Under 10 yds Single Axle); Stake Body Truck (Single Axle); Dumpster (Single Axle)

GROUP 2: Dump Truck (Over 10 yds); Transit Mix (Under 5 yds); Transit Mix (Over 5 yds); Flat or Stake Body (Tandem); A-Frame/Winch Trucks; Dry Batch Truck; Truck Mounted Sweeper and Vac Trucks; Dumpster (Tandem)

GROUP 3: Euclid-Type; Off Highway Equipment-Back or Double Bottom Dump Trucks (Over 20 Tons); Straddle Trucks; Pusher; Articulate Dumped Trucks; Low Boy Trailers; Semi Trailers; Asphalt Distributors; Fuel Truck

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WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at <https://www.dol.gov/agencies/whd/government-contracts>.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (iii)).

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The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of ""identifiers"" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

#### Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than ""SU"" or ""UAVG"" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

#### Survey Rate Identifiers

Classifications listed under the ""SU"" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

#### Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

#### State Adopted Rate Identifiers

Classifications listed under the ""SA"" identifier indicate that the prevailing wage rate set by a state (or local) government was adopted under 29 C.F.R. 1.3(g)-(h). Example: SAME2023-007 01/03/2024. SA reflects that the rates are state adopted. ME refers to the State of Maine. 2023 is the year during which the state completed the survey on which the listed classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 01/03/2024 reflects the date on which the classifications and rates under the ?SA? identifier took effect under state law in the state from which the rates were adopted.

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#### WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- \* an existing published wage determination
- \* a survey underlying a wage determination
- \* a Wage and Hour Division letter setting forth a position on a wage determination matter
- \* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour National Office because National Office has responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations  
Wage and Hour Division  
U.S. Department of Labor  
200 Constitution Avenue, N.W.  
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator  
U.S. Department of Labor  
200 Constitution Avenue, N.W.  
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board  
U.S. Department of Labor  
200 Constitution Avenue, N.W.  
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISION"

# DRAFT AIA® Document A105® - 2017

## Standard Short Form of Agreement Between Owner and Contractor

**AGREEMENT** made as of the  day of  in the year   
(In words, indicate day, month and year.)

**BETWEEN** the Owner:  
(Name, legal status, address and other information)

and the Contractor:  
(Name, legal status, address and other information)

for the following Project:  
(Name, location and detailed description)

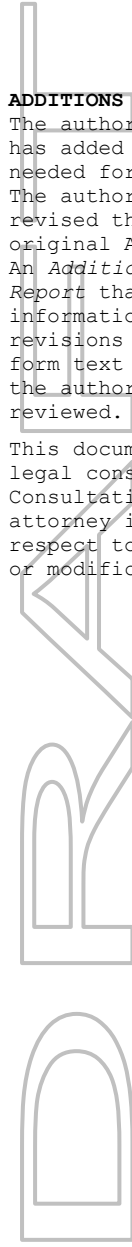
Centertown Parking Garage Improvements, Phase II  
101 West Gray Street  
Elmira, New York 14901

The Architect:  
(Name, legal status, address and other information)

The Owner and Contractor agree as follows.

**ADDITIONS AND DELETIONS:**  
The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.



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**ARTICLE 1 THE CONTRACT DOCUMENTS**

The Contractor shall complete the Work described in the Contract Documents for the Project. The Contract Documents consist of

- .1 this Agreement signed by the Owner and Contractor;
- .2 the drawings and specifications prepared by the Architect, dated « », and enumerated as follows:

Drawings:

Number	Title	Date

Specifications:

Section	Title	Pages

- .3 addenda prepared by the Architect as follows:

Number	Date	Pages

- .4 written orders for changes in the Work, pursuant to Article 10, issued after execution of this Agreement; and

.5 other documents, if any, identified as follows:

<< >>

**ARTICLE 2 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION**

§ 2.1 The Contract Time is the number of calendar days available to the Contractor to substantially complete the Work.

§ 2.2 Date of Commencement:

Unless otherwise set forth below, the date of commencement shall be the date of this Agreement. (Insert the date of commencement if other than the date of this Agreement.)

<< >>

§ 2.3 Substantial Completion:

Subject to adjustments of the Contract Time as provided in the Contract Documents, the Contractor shall achieve Substantial Completion, as defined in Section 12.5, of the entire Work: (Check the appropriate box and complete the necessary information.)

[ << >> ] Not later than << >> ( << >> ) calendar days from the date of commencement.

[ << >> ] By the following date: << >>

**ARTICLE 3 CONTRACT SUM**

§ 3.1 The Contract Sum shall include all items and services necessary for the proper execution and completion of the Work. Subject to additions and deductions in accordance with Article 10, the Contract Sum is:

<< >> (\$ << >> )

§ 3.2 For purposes of payment, the Contract Sum includes the following values related to portions of the Work: (Itemize the Contract Sum among the major portions of the Work.)

Portion of the Work	Value

§ 3.3 The Contract Sum is based upon the following alternates, if any, which are described in the Contract Documents and hereby accepted by the Owner: (Identify the accepted alternates. If the bidding or proposal documents permit the Owner to accept other alternates subsequent to the execution of this Agreement, attach a schedule of such other alternates showing the amount for each and the date when that amount expires.)

<< >>

§ 3.4 Allowances, if any, included in the Contract Sum are as follows: (Identify each allowance.)

Item	Price

§ 3.5 Unit prices, if any, are as follows: (Identify the item and state the unit price and quantity limitations, if any, to which the unit price will be applicable.)

Item	Units and Limitations	Price per Unit (\$0.00)

**ARTICLE 4 PAYMENTS**

§ 4.1 Based on Contractor's Applications for Payment certified by the Architect, the Owner shall pay the Contractor, in accordance with Article 12, as follows:

(Insert below timing for payments and provisions for withholding retainage, if any.)

<< >>

§ 4.2 Payments due and unpaid under the Contract Documents shall bear interest from the date payment is due at the rate below, or in the absence thereof, at the legal rate prevailing at the place of the Project.

(Insert rate of interest agreed upon, if any.)

<< >> % << >>

## ARTICLE 5 INSURANCE

§ 5.1 The Contractor shall maintain the following types and limits of insurance until the expiration of the period for correction of Work as set forth in Section 14.2, subject to the terms and conditions set forth in this Section 5.1:

§ 5.1.1 Commercial General Liability insurance for the Project, written on an occurrence form, with policy limits of not less than << >> (\$ << >>) each occurrence, << >> (\$ << >>) general aggregate, and << >> (\$ << >>) aggregate for products-completed operations hazard.

§ 5.1.2 Automobile Liability covering vehicles owned, and non-owned vehicles used, by the Contractor, with policy limits of not less than << >> (\$ << >>) per accident, for bodily injury, death of any person, and property damage arising out of the ownership, maintenance, and use of those motor vehicles along with any other statutorily required automobile coverage.

§ 5.1.3 The Contractor may achieve the required limits and coverage for Commercial General Liability and Automobile Liability through a combination of primary and excess or umbrella liability insurance, provided that such primary and excess or umbrella insurance policies result in the same or greater coverage as those required under Section 5.1.1 and 5.1.2, and in no event shall any excess or umbrella liability insurance provide narrower coverage than the primary policy. The excess policy shall not require exhaustion of the underlying limits only through the actual payment by the underlying insurers.

§ 5.1.4 Workers' Compensation at statutory limits.

§ 5.1.5 Employers' Liability with policy limits not less than << >> (\$ << >>) each accident, << >> (\$ << >>) each employee, and << >> (\$ << >>) policy limit.

§ 5.1.6 The Contractor shall provide builder's risk insurance to cover the total value of the entire Project on a replacement cost basis.

### § 5.1.7 Other Insurance Provided by the Contractor

(List below any other insurance coverage to be provided by the Contractor and any applicable limits.)

#### Coverage

#### Limits

§ 5.2 The Owner shall be responsible for purchasing and maintaining the Owner's usual liability insurance and shall provide property insurance to cover the value of the Owner's property. The Contractor is entitled to receive an increase in the Contract Sum equal to the insurance proceeds related to a loss for damage to the Work covered by the Owner's property insurance.

§ 5.3 The Contractor shall obtain an endorsement to its Commercial General Liability insurance policy to provide coverage for the Contractor's obligations under Section 8.12.

§ 5.4 Prior to commencement of the Work, each party shall provide certificates of insurance showing their respective coverages.

§ 5.5 Unless specifically precluded by the Owner's property insurance policy, the Owner and Contractor waive all rights against (1) each other and any of their subcontractors, suppliers, agents, and employees, each of the other; and (2) the Architect, Architect's consultants, and any of their agents and employees, for damages caused by fire or other

causes of loss to the extent those losses are covered by property insurance or other insurance applicable to the Project, except such rights as they have to the proceeds of such insurance.

## **ARTICLE 6 GENERAL PROVISIONS**

### **§ 6.1 The Contract**

The Contract represents the entire and integrated agreement between the parties and supersedes prior negotiations, representations or agreements, either written or oral. The Contract may be amended or modified only by a written modification in accordance with Article 10.

### **§ 6.2 The Work**

The term “Work” means the construction and services required by the Contract Documents, and includes all other labor, materials, equipment, and services provided, or to be provided, by the Contractor to fulfill the Contractor’s obligations.

### **§ 6.3 Intent**

The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all.

### **§ 6.4 Ownership and Use of Architect’s Drawings, Specifications and Other Documents**

Documents prepared by the Architect are instruments of the Architect’s service for use solely with respect to this Project. The Architect shall retain all common law, statutory, and other reserved rights, including the copyright. The Contractor, subcontractors, sub-subcontractors, and suppliers are authorized to use and reproduce the instruments of service solely and exclusively for execution of the Work. The instruments of service may not be used for other Projects or for additions to this Project outside the scope of the Work without the specific written consent of the Architect.

### **§ 6.5 Electronic Notice**

Written notice under this Agreement may be given by one party to the other by email as set forth below.  
*(Insert requirements for delivering written notice by email such as name, title, and email address of the recipient, and whether and how the system will be required to generate a read receipt for the transmission.)*

<< >>

## **ARTICLE 7 OWNER**

### **§ 7.1 Information and Services Required of the Owner**

**§ 7.1.1** If requested by the Contractor, the Owner shall furnish all necessary surveys and a legal description of the site.

**§ 7.1.2** Except for permits and fees under Section 8.7.1 that are the responsibility of the Contractor, the Owner shall obtain and pay for other necessary approvals, easements, assessments, and charges.

**§ 7.1.3** Prior to commencement of the Work, at the written request of the Contractor, the Owner shall furnish to the Contractor reasonable evidence that the Owner has made financial arrangements to fulfill the Owner’s obligations under the Contract. The Contractor shall have no obligation to commence the Work until the Owner provides such evidence.

### **§ 7.2 Owner’s Right to Stop the Work**

If the Contractor fails to correct Work which is not in accordance with the Contract Documents, the Owner may direct the Contractor in writing to stop the Work until the correction is made.

### **§ 7.3 Owner’s Right to Carry Out the Work**

If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a seven day period after receipt of written notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner may, without prejudice to other remedies, correct such deficiencies. In such case, the Architect may withhold or nullify a Certificate for Payment in whole or in part, to the extent reasonably necessary to reimburse the Owner for the cost of correction, provided the actions of the Owner and amounts charged to the Contractor were approved by the Architect.

## **§ 7.4 Owner's Right to Perform Construction and to Award Separate Contracts**

**§ 7.4.1** The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, and to award separate contracts in connection with other portions of the Project.

**§ 7.4.2** The Contractor shall coordinate and cooperate with the Owner's own forces and separate contractors employed by the Owner.

## **ARTICLE 8 CONTRACTOR**

### **§ 8.1 Review of Contract Documents and Field Conditions by Contractor**

**§ 8.1.1** Execution of the Contract by the Contractor is a representation that the Contractor has visited the site, become familiar with local conditions under which the Work is to be performed, and correlated personal observations with requirements of the Contract Documents.

**§ 8.1.2** The Contractor shall carefully study and compare the Contract Documents with each other and with information furnished by the Owner. Before commencing activities, the Contractor shall (1) take field measurements and verify field conditions; (2) carefully compare this and other information known to the Contractor with the Contract Documents; and (3) promptly report errors, inconsistencies, or omissions discovered to the Architect.

### **§ 8.2 Contractor's Construction Schedule**

The Contractor, promptly after being awarded the Contract, shall prepare and submit for the Owner's and Architect's information a Contractor's construction schedule for the Work.

### **§ 8.3 Supervision and Construction Procedures**

**§ 8.3.1** The Contractor shall supervise and direct the Work using the Contractor's best skill and attention. The Contractor shall be solely responsible for and have control over construction means, methods, techniques, sequences, and procedures, and for coordinating all portions of the Work.

**§ 8.3.2** The Contractor, as soon as practicable after award of the Contract, shall furnish in writing to the Owner, through the Architect, the names of subcontractors or suppliers for each portion of the Work. The Contractor shall not contract with any subcontractor or supplier to whom the Owner or Architect have made a timely and reasonable objection.

### **§ 8.4 Labor and Materials**

**§ 8.4.1** Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, materials, equipment, tools, utilities, transportation, and other facilities and services necessary for proper execution and completion of the Work.

**§ 8.4.2** The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Contract Work. The Contractor shall not permit employment of unfit persons or persons not skilled in tasks assigned to them.

### **§ 8.5 Warranty**

The Contractor warrants to the Owner and Architect that: (1) materials and equipment furnished under the Contract will be new and of good quality unless otherwise required or permitted by the Contract Documents; (2) the Work will be free from defects not inherent in the quality required or permitted; and (3) the Work will conform to the requirements of the Contract Documents. Any material or equipment warranties required by the Contract Documents shall be issued in the name of the Owner, or shall be transferable to the Owner, and shall commence in accordance with Section 12.5.

### **§ 8.6 Taxes**

The Contractor shall pay sales, consumer, use, and similar taxes that are legally required when the Contract is executed.

### **§ 8.7 Permits, Fees and Notices**

**§ 8.7.1** The Contractor shall obtain and pay for the building permit and other permits and governmental fees, licenses, and inspections necessary for proper execution and completion of the Work.

**§ 8.7.2** The Contractor shall comply with and give notices required by agencies having jurisdiction over the Work. If the Contractor performs Work knowing it to be contrary to applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, the Contractor shall assume full responsibility for such Work and shall bear the attributable costs. The Contractor shall promptly notify the Architect in writing of any known inconsistencies in the Contract Documents with such governmental laws, rules, and regulations.

**§ 8.8 Submittals**

The Contractor shall promptly review, approve in writing, and submit to the Architect shop drawings, product data, samples, and similar submittals required by the Contract Documents. Shop drawings, product data, samples, and similar submittals are not Contract Documents.

**§ 8.9 Use of Site**

The Contractor shall confine operations at the site to areas permitted by law, ordinances, permits, the Contract Documents, and the Owner.

**§ 8.10 Cutting and Patching**

The Contractor shall be responsible for cutting, fitting, or patching required to complete the Work or to make its parts fit together properly.

**§ 8.11 Cleaning Up**

The Contractor shall keep the premises and surrounding area free from accumulation of debris and trash related to the Work. At the completion of the Work, the Contractor shall remove its tools, construction equipment, machinery, and surplus material; and shall properly dispose of waste materials.

**§ 8.12 Indemnification**

To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Owner, Architect, Architect's consultants, and agents and employees of any of them, from and against claims, damages, losses and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work, provided that such claim, damage, loss, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), but only to the extent caused by the negligent acts or omissions of the Contractor, a subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss or expense is caused in part by a party indemnified hereunder.

**ARTICLE 9 ARCHITECT**

**§ 9.1** The Architect will provide administration of the Contract as described in the Contract Documents. The Architect will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents.

**§ 9.2** The Architect will visit the site at intervals appropriate to the stage of construction to become generally familiar with the progress and quality of the Work.

**§ 9.3** The Architect will not have control over or charge of, and will not be responsible for, construction means, methods, techniques, sequences, or procedures, or for safety precautions and programs in connection with the Work, since these are solely the Contractor's responsibility. The Architect will not be responsible for the Contractor's failure to carry out the Work in accordance with the Contract Documents.

**§ 9.4** Based on the Architect's observations and evaluations of the Contractor's Applications for Payment, the Architect will review and certify the amounts due the Contractor.

**§ 9.5** The Architect has authority to reject Work that does not conform to the Contract Documents.

**§ 9.6** The Architect will promptly review and approve or take appropriate action upon Contractor's submittals, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents.

**§ 9.7** On written request from either the Owner or Contractor, the Architect will promptly interpret and decide matters concerning performance under, and requirements of, the Contract Documents.

§ 9.8 Interpretations and decisions of the Architect will be consistent with the intent of, and reasonably inferable from the Contract Documents, and will be in writing or in the form of drawings. When making such interpretations and decisions, the Architect will endeavor to secure faithful performance by both Owner and Contractor, will not show partiality to either and will not be liable for results of interpretations or decisions rendered in good faith.

§ 9.9 The Architect's duties, responsibilities, and limits of authority as described in the Contract Documents shall not be changed without written consent of the Owner, Contractor, and Architect. Consent shall not be unreasonably withheld.

## **ARTICLE 10 CHANGES IN THE WORK**

§ 10.1 The Owner, without invalidating the Contract, may order changes in the Work within the general scope of the Contract, consisting of additions, deletions or other revisions, and the Contract Sum and Contract Time shall be adjusted accordingly, in writing. If the Owner and Contractor cannot agree to a change in the Contract Sum, the Owner shall pay the Contractor its actual cost plus reasonable overhead and profit.

§ 10.2 The Architect may authorize or order minor changes in the Work that are consistent with the intent of the Contract Documents and do not involve an adjustment in the Contract Sum or an extension of the Contract Time. Such authorization or order shall be in writing and shall be binding on the Owner and Contractor. The Contractor shall proceed with such minor changes promptly.

§ 10.3 If concealed or unknown physical conditions are encountered at the site that differ materially from those indicated in the Contract Documents or from those conditions ordinarily found to exist, the Contract Sum and Contract Time shall be subject to equitable adjustment.

## **ARTICLE 11 TIME**

§ 11.1 Time limits stated in the Contract Documents are of the essence of the Contract.

§ 11.2 If the Contractor is delayed at any time in progress of the Work by changes ordered in the Work, or by labor disputes, fire, unusual delay in deliveries, unavoidable casualties, or other causes beyond the Contractor's control, the Contract Time shall be subject to equitable adjustment.

§ 11.3 Costs caused by delays or by improperly timed activities or defective construction shall be borne by the responsible party.

## **ARTICLE 12 PAYMENTS AND COMPLETION**

### **§ 12.1 Contract Sum**

The Contract Sum stated in this Agreement, including authorized adjustments, is the total amount payable by the Owner to the Contractor for performance of the Work under the Contract Documents.

### **§ 12.2 Applications for Payment**

§ 12.2.1 At least ten days before the date established for each progress payment, the Contractor shall submit to the Architect an itemized Application for Payment for Work completed in accordance with the values stated in this Agreement. The Application shall be supported by data substantiating the Contractor's right to payment as the Owner or Architect may reasonably require, such as evidence of payments made to, and waivers of liens from, subcontractors and suppliers. Payments shall be made on account of materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work. If approved in advance by the Owner, payment may similarly be made for materials and equipment stored, and protected from damage, off the site at a location agreed upon in writing.

§ 12.2.2 The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application for Payment, all Work for which Certificates for Payment have been previously issued and payments received from the Owner shall, to the best of the Contractor's knowledge, information, and belief, be free and clear of liens, claims, security interests, or other encumbrances adverse to the Owner's interests.

### **§ 12.3 Certificates for Payment**

The Architect will, within seven days after receipt of the Contractor's Application for Payment, either (1) issue to the Owner a Certificate for Payment in the full amount of the Application for Payment, with a copy to the

Contractor; (2) issue to the Owner a Certificate for Payment for such amount as the Architect determines is properly due, and notify the Contractor and Owner in writing of the Architect's reasons for withholding certification in part; or (3) withhold certification of the entire Application for Payment, and notify the Contractor and Owner of the Architect's reason for withholding certification in whole. If certification or notification is not made within such seven day period, the Contractor may, upon seven additional days' written notice to the Owner and Architect, stop the Work until payment of the amount owing has been received. The Contract Time and the Contract Sum shall be equitably adjusted due to the delay.

#### **§ 12.4 Progress Payments**

**§ 12.4.1** After the Architect has issued a Certificate for Payment, the Owner shall make payment in the manner provided in the Contract Documents.

**§ 12.4.2** The Contractor shall promptly pay each subcontractor and supplier, upon receipt of payment from the Owner, an amount determined in accordance with the terms of the applicable subcontracts and purchase orders.

**§ 12.4.3** Neither the Owner nor the Architect shall have responsibility for payments to a subcontractor or supplier.

**§ 12.4.4** A Certificate for Payment, a progress payment, or partial or entire use or occupancy of the Project by the Owner shall not constitute acceptance of Work not in accordance with the requirements of the Contract Documents.

#### **§ 12.5 Substantial Completion**

**§ 12.5.1** Substantial Completion is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so the Owner can occupy or utilize the Work for its intended use.

**§ 12.5.2** When the Contractor believes that the Work or designated portion thereof is substantially complete, it will notify the Architect and the Architect will make an inspection to determine whether the Work is substantially complete. When the Architect determines that the Work is substantially complete, the Architect shall prepare a Certificate of Substantial Completion that shall establish the date of Substantial Completion, establish the responsibilities of the Owner and Contractor, and fix the time within which the Contractor shall finish all items on the list accompanying the Certificate. Warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion.

#### **§ 12.6 Final Completion and Final Payment**

**§ 12.6.1** Upon receipt of a final Application for Payment, the Architect will inspect the Work. When the Architect finds the Work acceptable and the Contract fully performed, the Architect will promptly issue a final Certificate for Payment.

**§ 12.6.2** Final payment shall not become due until the Contractor submits to the Architect releases and waivers of liens, and data establishing payment or satisfaction of obligations, such as receipts, claims, security interests, or encumbrances arising out of the Contract.

**§ 12.6.3** Acceptance of final payment by the Contractor, a subcontractor or supplier shall constitute a waiver of claims by that payee except those previously made in writing and identified by that payee as unsettled at the time of final Application for Payment.

### **ARTICLE 13 PROTECTION OF PERSONS AND PROPERTY**

The Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs, including all those required by law in connection with performance of the Contract. The Contractor shall take reasonable precautions to prevent damage, injury, or loss to employees on the Work and other persons who may be affected thereby, the Work and materials and equipment to be incorporated therein, and other property at the site or adjacent thereto. The Contractor shall promptly remedy damage and loss to property caused in whole or in part by the Contractor, or by anyone for whose acts the Contractor may be liable.

## **ARTICLE 14 CORRECTION OF WORK**

§ 14.1 The Contractor shall promptly correct Work rejected by the Architect as failing to conform to the requirements of the Contract Documents. The Contractor shall bear the cost of correcting such rejected Work, including the costs of uncovering, replacement, and additional testing.

§ 14.2 In addition to the Contractor's other obligations including warranties under the Contract, the Contractor shall, for a period of one year after Substantial Completion, correct work not conforming to the requirements of the Contract Documents.

§ 14.3 If the Contractor fails to correct nonconforming Work within a reasonable time, the Owner may correct it in accordance with Section 7.3.

## **ARTICLE 15 MISCELLANEOUS PROVISIONS**

### **§ 15.1 Assignment of Contract**

Neither party to the Contract shall assign the Contract as a whole without written consent of the other.

### **§ 15.2 Tests and Inspections**

§ 15.2.1 At the appropriate times, the Contractor shall arrange and bear cost of tests, inspections, and approvals of portions of the Work required by the Contract Documents or by laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities.

§ 15.2.2 If the Architect requires additional testing, the Contractor shall perform those tests.

§ 15.2.3 The Owner shall bear cost of tests, inspections, or approvals that do not become requirements until after the Contract is executed. The Owner shall directly arrange and pay for tests, inspections, or approvals where building codes or applicable laws or regulations so require.

### **§ 15.3 Governing Law**

The Contract shall be governed by the law of the place where the Project is located, excluding that jurisdiction's choice of law rules.

## **ARTICLE 16 TERMINATION OF THE CONTRACT**

### **§ 16.1 Termination by the Contractor**

If the Work is stopped under Section 12.3 for a period of 14 days through no fault of the Contractor, the Contractor may, upon seven additional days' written notice to the Owner and Architect, terminate the Contract and recover from the Owner payment for Work executed including reasonable overhead and profit, and costs incurred by reason of such termination.

### **§ 16.2 Termination by the Owner for Cause**

§ 16.2.1 The Owner may terminate the Contract if the Contractor

- .1 repeatedly refuses or fails to supply enough properly skilled workers or proper materials;
- .2 fails to make payment to subcontractors for materials or labor in accordance with the respective agreements between the Contractor and the subcontractors;
- .3 repeatedly disregards applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of a public authority; or
- .4 is otherwise guilty of substantial breach of a provision of the Contract Documents.

§ 16.2.2 When any of the above reasons exist, the Owner, after consultation with the Architect, may without prejudice to any other rights or remedies of the Owner and after giving the Contractor and the Contractor's surety, if any, seven days' written notice, terminate employment of the Contractor and may

- .1 take possession of the site and of all materials thereon owned by the Contractor, and
- .2 finish the Work by whatever reasonable method the Owner may deem expedient.

§ 16.2.3 When the Owner terminates the Contract for one of the reasons stated in Section 16.2.1, the Contractor shall not be entitled to receive further payment until the Work is finished.

§ 16.2.4 If the unpaid balance of the Contract Sum exceeds costs of finishing the Work, such excess shall be paid to the Contractor. If such costs exceed the unpaid balance, the Contractor shall pay the difference to the Owner. This obligation for payment shall survive termination of the Contract.

**§ 16.3 Termination by the Owner for Convenience**

The Owner may, at any time, terminate the Contract for the Owner’s convenience and without cause. The Contractor shall be entitled to receive payment for Work executed, and costs incurred by reason of such termination, along with reasonable overhead and profit on the Work not executed.

**ARTICLE 17 OTHER TERMS AND CONDITIONS**

*(Insert any other terms or conditions below.)*

« »

This Agreement entered into as of the day and year first written above.

*(If required by law, insert cancellation period, disclosures or other warning statements above the signatures.)*

« »

\_\_\_\_\_  
**OWNER** *(Signature)*

« »« »

*(Printed name and title )*

\_\_\_\_\_  
**CONTRACTOR** *(Signature)*

« »« »

*(Printed name and title )*

LICENSE NO.:

JURISDICTION:

# DRAFT AIA® Document A201® - 2017

## General Conditions of the Contract for Construction

for the following PROJECT:

(Name and location or address)

«Centertown Parking Garage Improvements, Phase II »  
«101 W. Gray Street »  
«Elmira, NY 14901 »

**THE OWNER:**

(Name, legal status and address)

«City of Elmira »  
«317 E. Church Street »  
«Elmira, NY 14901 »

**THE ARCHITECT:**

(Name, legal status and address)

«LaBella Associates, D.P.C. »  
«100 West Water Street, Suite 101 »  
«Elmira, Ny 14901 »

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**ADDITIONS AND DELETIONS:**  
The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

For guidance in modifying this document to include supplementary conditions, see AIA Document A503™, *Guide for Supplementary Conditions*.

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## **ARTICLE 1 GENERAL PROVISIONS**

### **§ 1.1 Basic Definitions**

#### **§ 1.1.1 The Contract Documents**

The Contract Documents are enumerated in the Agreement between the Owner and Contractor (hereinafter the Agreement) and consist of the Agreement, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, Addenda issued prior to execution of the Contract, other documents listed in the Agreement, and Modifications issued after execution of the Contract. A Modification is (1) a written amendment to the Contract signed by both parties, (2) a Change Order, (3) a Construction Change Directive, or (4) a written order for a minor change in the Work issued by the Architect. Unless specifically enumerated in the Agreement, the Contract Documents do not include the advertisement or invitation to bid, Instructions to Bidders, sample forms, other information furnished by the Owner in anticipation of receiving bids or proposals, the Contractor's bid or proposal, or portions of Addenda relating to bidding or proposal requirements.

#### **§ 1.1.2 The Contract**

The Contract Documents form the Contract for Construction. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. The Contract may be amended or modified only by a Modification. The Contract Documents shall not be construed to create a contractual relationship of any kind (1) between the Contractor and the Architect or the Architect's consultants, (2) between the Owner and a Subcontractor or a Sub-subcontractor, (3) between the Owner and the Architect or the Architect's consultants, or (4) between any persons or entities other than the Owner and the Contractor. The Architect shall, however, be entitled to performance and enforcement of obligations under the Contract intended to facilitate performance of the Architect's duties.

#### **§ 1.1.3 The Work**

The term "Work" means the construction and services required by the Contract Documents, whether completed or partially completed, and includes all other labor, materials, equipment, and services provided or to be provided by the Contractor to fulfill the Contractor's obligations. The Work may constitute the whole or a part of the Project.

#### **§ 1.1.4 The Project**

The Project is the total construction of which the Work performed under the Contract Documents may be the whole or a part and which may include construction by the Owner and by Separate Contractors.

#### **§ 1.1.5 The Drawings**

The Drawings are the graphic and pictorial portions of the Contract Documents showing the design, location and dimensions of the Work, generally including plans, elevations, sections, details, schedules, and diagrams.

#### **§ 1.1.6 The Specifications**

The Specifications are that portion of the Contract Documents consisting of the written requirements for materials, equipment, systems, standards and workmanship for the Work, and performance of related services.

#### **§ 1.1.7 Instruments of Service**

Instruments of Service are representations, in any medium of expression now known or later developed, of the tangible and intangible creative work performed by the Architect and the Architect's consultants under their respective professional services agreements. Instruments of Service may include, without limitation, studies, surveys, models, sketches, drawings, specifications, and other similar materials.

#### **§ 1.1.8 Initial Decision Maker**

The Initial Decision Maker is the person identified in the Agreement to render initial decisions on Claims in accordance with Section 15.2. The Initial Decision Maker shall not show partiality to the Owner or Contractor and shall not be liable for results of interpretations or decisions rendered in good faith.

### **§ 1.2 Correlation and Intent of the Contract Documents**

**§ 1.2.1** The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all; performance by the Contractor shall be required only to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results.

**§ 1.2.1.1** The invalidity of any provision of the Contract Documents shall not invalidate the Contract or its remaining provisions. If it is determined that any provision of the Contract Documents violates any law, or is otherwise invalid or unenforceable, then that provision shall be revised to the extent necessary to make that provision legal and enforceable. In such case the Contract Documents shall be construed, to the fullest extent permitted by law, to give effect to the parties' intentions and purposes in executing the Contract.

**§ 1.2.2** Organization of the Specifications into divisions, sections and articles, and arrangement of Drawings shall not control the Contractor in dividing the Work among Subcontractors or in establishing the extent of Work to be performed by any trade.

**§ 1.2.3** Unless otherwise stated in the Contract Documents, words that have well-known technical or construction industry meanings are used in the Contract Documents in accordance with such recognized meanings.

### **§ 1.3 Capitalization**

Terms capitalized in these General Conditions include those that are (1) specifically defined, (2) the titles of numbered articles, or (3) the titles of other documents published by the American Institute of Architects.

### **§ 1.4 Interpretation**

In the interest of brevity the Contract Documents frequently omit modifying words such as "all" and "any" and articles such as "the" and "an," but the fact that a modifier or an article is absent from one statement and appears in another is not intended to affect the interpretation of either statement.

### **§ 1.5 Ownership and Use of Drawings, Specifications, and Other Instruments of Service**

**§ 1.5.1** The Architect and the Architect's consultants shall be deemed the authors and owners of their respective Instruments of Service, including the Drawings and Specifications, and retain all common law, statutory, and other reserved rights in their Instruments of Service, including copyrights. The Contractor, Subcontractors, Sub-subcontractors, and suppliers shall not own or claim a copyright in the Instruments of Service. Submittal or distribution to meet official regulatory requirements or for other purposes in connection with the Project is not to be construed as publication in derogation of the Architect's or Architect's consultants' reserved rights.

**§ 1.5.2** The Contractor, Subcontractors, Sub-subcontractors, and suppliers are authorized to use and reproduce the Instruments of Service provided to them, subject to any protocols established pursuant to Sections 1.7 and 1.8, solely and exclusively for execution of the Work. All copies made under this authorization shall bear the copyright notice, if any, shown on the Instruments of Service. The Contractor, Subcontractors, Sub-subcontractors, and suppliers may not use the Instruments of Service on other projects or for additions to the Project outside the scope of the Work without the specific written consent of the Owner, Architect, and the Architect's consultants.

### **§ 1.6 Notice**

**§ 1.6.1** Except as otherwise provided in Section 1.6.2, where the Contract Documents require one party to notify or give notice to the other party, such notice shall be provided in writing to the designated representative of the party to whom the notice is addressed and shall be deemed to have been duly served if delivered in person, by mail, by courier, or by electronic transmission if a method for electronic transmission is set forth in the Agreement.

**§ 1.6.2** Notice of Claims as provided in Section 15.1.3 shall be provided in writing and shall be deemed to have been duly served only if delivered to the designated representative of the party to whom the notice is addressed by certified or registered mail, or by courier providing proof of delivery.

### **§ 1.7 Digital Data Use and Transmission**

The parties shall agree upon protocols governing the transmission and use of Instruments of Service or any other information or documentation in digital form. The parties will use AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, to establish the protocols for the development, use, transmission, and exchange of digital data.

### **§ 1.8 Building Information Models Use and Reliance**

Any use of, or reliance on, all or a portion of a building information model without agreement to protocols governing the use of, and reliance on, the information contained in the model and without having those protocols set forth in AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, and the requisite AIA Document G202™–2013, Project Building Information Modeling Protocol Form, shall be at the using or

relying party's sole risk and without liability to the other party and its contractors or consultants, the authors of, or contributors to, the building information model, and each of their agents and employees.

## **ARTICLE 2 OWNER**

### **§ 2.1 General**

**§ 2.1.1** The Owner is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Owner shall designate in writing a representative who shall have express authority to bind the Owner with respect to all matters requiring the Owner's approval or authorization. Except as otherwise provided in Section 4.2.1, the Architect does not have such authority. The term "Owner" means the Owner or the Owner's authorized representative.

**§ 2.1.2** The Owner shall furnish to the Contractor, within fifteen days after receipt of a written request, information necessary and relevant for the Contractor to evaluate, give notice of, or enforce mechanic's lien rights. Such information shall include a correct statement of the record legal title to the property on which the Project is located, usually referred to as the site, and the Owner's interest therein.

### **§ 2.2 Evidence of the Owner's Financial Arrangements**

**§ 2.2.1** Prior to commencement of the Work and upon written request by the Contractor, the Owner shall furnish to the Contractor reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract. The Contractor shall have no obligation to commence the Work until the Owner provides such evidence. If commencement of the Work is delayed under this Section 2.2.1, the Contract Time shall be extended appropriately.

**§ 2.2.2** Following commencement of the Work and upon written request by the Contractor, the Owner shall furnish to the Contractor reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract only if (1) the Owner fails to make payments to the Contractor as the Contract Documents require; (2) the Contractor identifies in writing a reasonable concern regarding the Owner's ability to make payment when due; or (3) a change in the Work materially changes the Contract Sum. If the Owner fails to provide such evidence, as required, within fourteen days of the Contractor's request, the Contractor may immediately stop the Work and, in that event, shall notify the Owner that the Work has stopped. However, if the request is made because a change in the Work materially changes the Contract Sum under (3) above, the Contractor may immediately stop only that portion of the Work affected by the change until reasonable evidence is provided. If the Work is stopped under this Section 2.2.2, the Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shutdown, delay and start-up, plus interest as provided in the Contract Documents.

**§ 2.2.3** After the Owner furnishes evidence of financial arrangements under this Section 2.2, the Owner shall not materially vary such financial arrangements without prior notice to the Contractor.

**§ 2.2.4** Where the Owner has designated information furnished under this Section 2.2 as "confidential," the Contractor shall keep the information confidential and shall not disclose it to any other person. However, the Contractor may disclose "confidential" information, after seven (7) days' notice to the Owner, where disclosure is required by law, including a subpoena or other form of compulsory legal process issued by a court or governmental entity, or by court or arbitrator(s) order. The Contractor may also disclose "confidential" information to its employees, consultants, sureties, Subcontractors and their employees, Sub-subcontractors, and others who need to know the content of such information solely and exclusively for the Project and who agree to maintain the confidentiality of such information.

### **§ 2.3 Information and Services Required of the Owner**

**§ 2.3.1** Except for permits and fees that are the responsibility of the Contractor under the Contract Documents, including those required under Section 3.7.1, the Owner shall secure and pay for necessary approvals, easements, assessments and charges required for construction, use or occupancy of permanent structures or for permanent changes in existing facilities.

**§ 2.3.2** The Owner shall retain an architect lawfully licensed to practice architecture, or an entity lawfully practicing architecture, in the jurisdiction where the Project is located. That person or entity is identified as the Architect in the Agreement and is referred to throughout the Contract Documents as if singular in number.

§ 2.3.3 If the employment of the Architect terminates, the Owner shall employ a successor to whom the Contractor has no reasonable objection and whose status under the Contract Documents shall be that of the Architect.

§ 2.3.4 The Owner shall furnish surveys describing physical characteristics, legal limitations and utility locations for the site of the Project, and a legal description of the site. The Contractor shall be entitled to rely on the accuracy of information furnished by the Owner but shall exercise proper precautions relating to the safe performance of the Work.

§ 2.3.5 The Owner shall furnish information or services required of the Owner by the Contract Documents with reasonable promptness. The Owner shall also furnish any other information or services under the Owner's control and relevant to the Contractor's performance of the Work with reasonable promptness after receiving the Contractor's written request for such information or services.

§ 2.3.6 Unless otherwise provided in the Contract Documents, the Owner shall furnish to the Contractor one copy of the Contract Documents for purposes of making reproductions pursuant to Section 1.5.2.

#### § 2.4 Owner's Right to Stop the Work

If the Contractor fails to correct Work that is not in accordance with the requirements of the Contract Documents as required by Section 12.2 or repeatedly fails to carry out Work in accordance with the Contract Documents, the Owner may issue a written order to the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, the right of the Owner to stop the Work shall not give rise to a duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity, except to the extent required by Section 6.1.3.

#### § 2.5 Owner's Right to Carry Out the Work

If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a ten-day period after receipt of notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner may, without prejudice to other remedies the Owner may have, correct such default or neglect. Such action by the Owner and amounts charged to the Contractor are both subject to prior approval of the Architect and the Architect may, pursuant to Section 9.5.1, withhold or nullify a Certificate for Payment in whole or in part, to the extent reasonably necessary to reimburse the Owner for the reasonable cost of correcting such deficiencies, including Owner's expenses and compensation for the Architect's additional services made necessary by such default, neglect, or failure. If current and future payments are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner. If the Contractor disagrees with the actions of the Owner or the Architect, or the amounts claimed as costs to the Owner, the Contractor may file a Claim pursuant to Article 15.

### ARTICLE 3 CONTRACTOR

#### § 3.1 General

§ 3.1.1 The Contractor is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Contractor shall be lawfully licensed, if required in the jurisdiction where the Project is located. The Contractor shall designate in writing a representative who shall have express authority to bind the Contractor with respect to all matters under this Contract. The term "Contractor" means the Contractor or the Contractor's authorized representative.

§ 3.1.2 The Contractor shall perform the Work in accordance with the Contract Documents.

§ 3.1.3 The Contractor shall not be relieved of its obligations to perform the Work in accordance with the Contract Documents either by activities or duties of the Architect in the Architect's administration of the Contract, or by tests, inspections or approvals required or performed by persons or entities other than the Contractor.

#### § 3.2 Review of Contract Documents and Field Conditions by Contractor

§ 3.2.1 Execution of the Contract by the Contractor is a representation that the Contractor has visited the site, become generally familiar with local conditions under which the Work is to be performed, and correlated personal observations with requirements of the Contract Documents.

§ 3.2.2 Because the Contract Documents are complementary, the Contractor shall, before starting each portion of the Work, carefully study and compare the various Contract Documents relative to that portion of the Work, as well as

### **§ 3.5 Warranty**

**§ 3.5.1** The Contractor warrants to the Owner and Architect that materials and equipment furnished under the Contract will be of good quality and new unless the Contract Documents require or permit otherwise. The Contractor further warrants that the Work will conform to the requirements of the Contract Documents and will be free from defects, except for those inherent in the quality of the Work the Contract Documents require or permit. Work, materials, or equipment not conforming to these requirements may be considered defective. The Contractor's warranty excludes remedy for damage or defect caused by abuse, alterations to the Work not executed by the Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear and normal usage. If required by the Architect, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

**§ 3.5.2** All material, equipment, or other special warranties required by the Contract Documents shall be issued in the name of the Owner, or shall be transferable to the Owner, and shall commence in accordance with Section 9.8.4.

### **§ 3.6 Taxes**

The Contractor shall pay sales, consumer, use and similar taxes for the Work provided by the Contractor that are legally enacted when bids are received or negotiations concluded, whether or not yet effective or merely scheduled to go into effect. All bidders shall please take note that the City is a municipal corporation and exempt from all sales tax.

### **§ 3.7 Permits, Fees, Notices and Compliance with Laws**

**§ 3.7.1** Unless otherwise provided in the Contract Documents, the Contractor shall secure and pay for the building permit as well as for other permits, fees, licenses, and inspections by government agencies necessary for proper execution and completion of the Work that are customarily secured after execution of the Contract and legally required at the time bids are received or negotiations concluded.

**§ 3.7.2** The Contractor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities applicable to performance of the Work.

**§ 3.7.3** If the Contractor performs Work knowing it to be contrary to applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, the Contractor shall assume appropriate responsibility for such Work and shall bear the costs attributable to correction.

### **§ 3.7.4 Concealed or Unknown Conditions**

If the Contractor encounters conditions at the site that are (1) subsurface or otherwise concealed physical conditions that differ materially from those indicated in the Contract Documents or (2) unknown physical conditions of an unusual nature that differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents, the Contractor shall promptly provide notice to the Owner and the Architect before conditions are disturbed and in no event later than 14 days after first observance of the conditions. The Architect will promptly investigate such conditions and, if the Architect determines that they differ materially and cause an increase or decrease in the Contractor's cost of, or time required for, performance of any part of the Work, will recommend that an equitable adjustment be made in the Contract Sum or Contract Time, or both. If the Architect determines that the conditions at the site are not materially different from those indicated in the Contract Documents and that no change in the terms of the Contract is justified, the Architect shall promptly notify the Owner and Contractor, stating the reasons. If either party disputes the Architect's determination or recommendation, that party may submit a Claim as provided in Article 15.

**§ 3.7.5** If, in the course of the Work, the Contractor encounters human remains or recognizes the existence of burial markers, archaeological sites or wetlands not indicated in the Contract Documents, the Contractor shall immediately suspend any operations that would affect them and shall notify the Owner and Architect. Upon receipt of such notice, the Owner shall promptly take any action necessary to obtain governmental authorization required to resume the operations. The Contractor shall continue to suspend such operations until otherwise instructed by the Owner but shall continue with all other operations that do not affect those remains or features. Requests for adjustments in the Contract Sum and Contract Time arising from the existence of such remains or features may be made as provided in Article 15.

the information furnished by the Owner pursuant to Section 2.3.4, shall take field measurements of any existing conditions related to that portion of the Work, and shall observe any conditions at the site affecting it. These obligations are for the purpose of facilitating coordination and construction by the Contractor and are not for the purpose of discovering errors, omissions, or inconsistencies in the Contract Documents; however, the Contractor shall promptly report to the Architect any errors, inconsistencies or omissions discovered by or made known to the Contractor as a request for information in such form as the Architect may require. It is recognized that the Contractor's review is made in the Contractor's capacity as a contractor and not as a licensed design professional, unless otherwise specifically provided in the Contract Documents.

**§ 3.2.3** The Contractor is not required to ascertain that the Contract Documents are in accordance with applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, but the Contractor shall promptly report to the Architect any nonconformity discovered by or made known to the Contractor as a request for information in such form as the Architect may require.

**§ 3.2.4** If the Contractor believes that additional cost or time is involved because of clarifications or instructions the Architect issues in response to the Contractor's notices or requests for information pursuant to Sections 3.2.2 or 3.2.3, the Contractor shall submit Claims as provided in Article 15. If the Contractor fails to perform the obligations of Sections 3.2.2 or 3.2.3, the Contractor shall pay such costs and damages to the Owner, subject to Section 15.1.7, as would have been avoided if the Contractor had performed such obligations. If the Contractor performs those obligations, the Contractor shall not be liable to the Owner or Architect for damages resulting from errors, inconsistencies or omissions in the Contract Documents, for differences between field measurements or conditions and the Contract Documents, or for nonconformities of the Contract Documents to applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities.

### **§ 3.3 Supervision and Construction Procedures**

**§ 3.3.1** The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for, and have control over, construction means, methods, techniques, sequences, and procedures, and for coordinating all portions of the Work under the Contract. If the Contract Documents give specific instructions concerning construction means, methods, techniques, sequences, or procedures, the Contractor shall evaluate the jobsite safety thereof and shall be solely responsible for the jobsite safety of such means, methods, techniques, sequences, or procedures. If the Contractor determines that such means, methods, techniques, sequences or procedures may not be safe, the Contractor shall give timely notice to the Owner and Architect, and shall propose alternative means, methods, techniques, sequences, or procedures. The Architect shall evaluate the proposed alternative solely for conformance with the design intent for the completed construction. Unless the Architect objects to the Contractor's proposed alternative, the Contractor shall perform the Work using its alternative means, methods, techniques, sequences, or procedures.

**§ 3.3.2** The Contractor shall be responsible to the Owner for acts and omissions of the Contractor's employees, Subcontractors and their agents and employees, and other persons or entities performing portions of the Work for, or on behalf of, the Contractor or any of its Subcontractors.

**§ 3.3.3** The Contractor shall be responsible for inspection of portions of Work already performed to determine that such portions are in proper condition to receive subsequent Work.

### **§ 3.4 Labor and Materials**

**§ 3.4.1** Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for proper execution and completion of the Work, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work.

**§ 3.4.2** Except in the case of minor changes in the Work approved by the Architect in accordance with Section 3.12.8 or ordered by the Architect in accordance with Section 7.4, the Contractor may make substitutions only with the consent of the Owner, after evaluation by the Architect and in accordance with a Change Order or Construction Change Directive.

**§ 3.4.3** The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Work. The Contractor shall not permit employment of unfit persons or persons not properly skilled in tasks assigned to them.

### **§ 3.8 Allowances**

**§ 3.8.1** The Contractor shall include in the Contract Sum all allowances stated in the Contract Documents. Items covered by allowances shall be supplied for such amounts and by such persons or entities as the Owner may direct, but the Contractor shall not be required to employ persons or entities to whom the Contractor has reasonable objection.

**§ 3.8.2** Unless otherwise provided in the Contract Documents,

- .1** allowances shall cover the cost to the Contractor of materials and equipment delivered at the site and all required taxes, less applicable trade discounts;
- .2** Contractor's costs for unloading and handling at the site, labor, installation costs, overhead, profit, and other expenses contemplated for stated allowance amounts shall be included in the Contract Sum but not in the allowances; and
- .3** whenever costs are more than or less than allowances, the Contract Sum shall be adjusted accordingly by Change Order. The amount of the Change Order shall reflect (1) the difference between actual costs and the allowances under Section 3.8.2.1 and (2) changes in Contractor's costs under Section 3.8.2.2.

**§ 3.8.3** Materials and equipment under an allowance shall be selected by the Owner with reasonable promptness.

### **§ 3.9 Superintendent**

**§ 3.9.1** The Contractor shall employ a competent superintendent and necessary assistants who shall be in attendance at the Project site during performance of the Work. The superintendent shall represent the Contractor, and communications given to the superintendent shall be as binding as if given to the Contractor.

**§ 3.9.2** The Contractor, as soon as practicable after award of the Contract, shall notify the Owner and Architect of the name and qualifications of a proposed superintendent. Within 14 days of receipt of the information, the Architect may notify the Contractor, stating whether the Owner or the Architect (1) has reasonable objection to the proposed superintendent or (2) requires additional time for review. Failure of the Architect to provide notice within the 14-day period shall constitute notice of no reasonable objection.

**§ 3.9.3** The Contractor shall not employ a proposed superintendent to whom the Owner or Architect has made reasonable and timely objection. The Contractor shall not change the superintendent without the Owner's consent, which shall not unreasonably be withheld or delayed.

### **§ 3.10 Contractor's Construction and Submittal Schedules**

**§ 3.10.1** The Contractor, promptly after being awarded the Contract, shall submit for the Owner's and Architect's information a Contractor's construction schedule for the Work. The schedule shall contain detail appropriate for the Project, including (1) the date of commencement of the Work, interim schedule milestone dates, and the date of Substantial Completion; (2) an apportionment of the Work by construction activity; and (3) the time required for completion of each portion of the Work. The schedule shall provide for the orderly progression of the Work to completion and shall not exceed time limits current under the Contract Documents. The schedule shall be revised at appropriate intervals as required by the conditions of the Work and Project.

**§ 3.10.2** The Contractor, promptly after being awarded the Contract and thereafter as necessary to maintain a current submittal schedule, shall submit a submittal schedule for the Architect's approval. The Architect's approval shall not be unreasonably delayed or withheld. The submittal schedule shall (1) be coordinated with the Contractor's construction schedule, and (2) allow the Architect reasonable time to review submittals. If the Contractor fails to submit a submittal schedule, or fails to provide submittals in accordance with the approved submittal schedule, the Contractor shall not be entitled to any increase in Contract Sum or extension of Contract Time based on the time required for review of submittals.

**§ 3.10.3** The Contractor shall perform the Work in general accordance with the most recent schedules submitted to the Owner and Architect.

### **§ 3.11 Documents and Samples at the Site**

The Contractor shall make available, at the Project site, the Contract Documents, including Change Orders, Construction Change Directives, and other Modifications, in good order and marked currently to indicate field changes and selections made during construction, and the approved Shop Drawings, Product Data, Samples, and

similar required submittals. These shall be in electronic form or paper copy, available to the Architect and Owner, and delivered to the Architect for submittal to the Owner upon completion of the Work as a record of the Work as constructed.

### **§ 3.12 Shop Drawings, Product Data and Samples**

**§ 3.12.1** Shop Drawings are drawings, diagrams, schedules, and other data specially prepared for the Work by the Contractor or a Subcontractor, Sub-subcontractor, manufacturer, supplier, or distributor to illustrate some portion of the Work.

**§ 3.12.2** Product Data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams, and other information furnished by the Contractor to illustrate materials or equipment for some portion of the Work.

**§ 3.12.3** Samples are physical examples that illustrate materials, equipment, or workmanship, and establish standards by which the Work will be judged.

**§ 3.12.4** Shop Drawings, Product Data, Samples, and similar submittals are not Contract Documents. Their purpose is to demonstrate how the Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents for those portions of the Work for which the Contract Documents require submittals. Review by the Architect is subject to the limitations of Section 4.2.7. Informational submittals upon which the Architect is not expected to take responsive action may be so identified in the Contract Documents. Submittals that are not required by the Contract Documents may be returned by the Architect without action.

**§ 3.12.5** The Contractor shall review for compliance with the Contract Documents, approve, and submit to the Architect, Shop Drawings, Product Data, Samples, and similar submittals required by the Contract Documents, in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of the Owner or of Separate Contractors.

**§ 3.12.6** By submitting Shop Drawings, Product Data, Samples, and similar submittals, the Contractor represents to the Owner and Architect that the Contractor has (1) reviewed and approved them, (2) determined and verified materials, field measurements and field construction criteria related thereto, or will do so, and (3) checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.

**§ 3.12.7** The Contractor shall perform no portion of the Work for which the Contract Documents require submittal and review of Shop Drawings, Product Data, Samples, or similar submittals, until the respective submittal has been approved by the Architect.

**§ 3.12.8** The Work shall be in accordance with approved submittals except that the Contractor shall not be relieved of responsibility for deviations from the requirements of the Contract Documents by the Architect's approval of Shop Drawings, Product Data, Samples, or similar submittals, unless the Contractor has specifically notified the Architect of such deviation at the time of submittal and (1) the Architect has given written approval to the specific deviation as a minor change in the Work, or (2) a Change Order or Construction Change Directive has been issued authorizing the deviation. The Contractor shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples, or similar submittals, by the Architect's approval thereof.

**§ 3.12.9** The Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, Product Data, Samples, or similar submittals, to revisions other than those requested by the Architect on previous submittals. In the absence of such notice, the Architect's approval of a resubmission shall not apply to such revisions.

**§ 3.12.10** The Contractor shall not be required to provide professional services that constitute the practice of architecture or engineering unless such services are specifically required by the Contract Documents for a portion of the Work or unless the Contractor needs to provide such services in order to carry out the Contractor's responsibilities for construction means, methods, techniques, sequences, and procedures. The Contractor shall not be required to provide professional services in violation of applicable law.

**§ 3.12.10.1** If professional design services or certifications by a design professional related to systems, materials, or equipment are specifically required of the Contractor by the Contract Documents, the Owner and the Architect will

specify all performance and design criteria that such services must satisfy. The Contractor shall be entitled to rely upon the adequacy and accuracy of the performance and design criteria provided in the Contract Documents. The Contractor shall cause such services or certifications to be provided by an appropriately licensed design professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings, and other submittals prepared by such professional. Shop Drawings, and other submittals related to the Work, designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to the Architect. The Owner and the Architect shall be entitled to rely upon the adequacy and accuracy of the services, certifications, and approvals performed or provided by such design professionals, provided the Owner and Architect have specified to the Contractor the performance and design criteria that such services must satisfy. Pursuant to this Section 3.12.10, the Architect will review and approve or take other appropriate action on submittals only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents.

**§ 3.12.10.2** If the Contract Documents require the Contractor's design professional to certify that the Work has been performed in accordance with the design criteria, the Contractor shall furnish such certifications to the Architect at the time and in the form specified by the Architect.

### **§ 3.13 Use of Site**

The Contractor shall confine operations at the site to areas permitted by applicable laws, statutes, ordinances, codes, rules and regulations, lawful orders of public authorities, and the Contract Documents and shall not unreasonably encumber the site with materials or equipment.

### **§ 3.14 Cutting and Patching**

**§ 3.14.1** The Contractor shall be responsible for cutting, fitting, or patching required to complete the Work or to make its parts fit together properly. All areas requiring cutting, fitting, or patching shall be restored to the condition existing prior to the cutting, fitting, or patching, unless otherwise required by the Contract Documents.

**§ 3.14.2** The Contractor shall not damage or endanger a portion of the Work or fully or partially completed construction of the Owner or Separate Contractors by cutting, patching, or otherwise altering such construction, or by excavation. The Contractor shall not cut or otherwise alter construction by the Owner or a Separate Contractor except with written consent of the Owner and of the Separate Contractor. Consent shall not be unreasonably withheld. The Contractor shall not unreasonably withhold, from the Owner or a Separate Contractor, its consent to cutting or otherwise altering the Work.

### **§ 3.15 Cleaning Up**

**§ 3.15.1** The Contractor shall keep the premises and surrounding area free from accumulation of waste materials and rubbish caused by operations under the Contract. At completion of the Work, the Contractor shall remove waste materials, rubbish, the Contractor's tools, construction equipment, machinery, and surplus materials from and about the Project.

**§ 3.15.2** If the Contractor fails to clean up as provided in the Contract Documents, the Owner may do so and the Owner shall be entitled to reimbursement from the Contractor.

### **§ 3.16 Access to Work**

The Contractor shall provide the Owner and Architect with access to the Work in preparation and progress wherever located.

### **§ 3.17 Royalties, Patents and Copyrights**

The Contractor shall pay all royalties and license fees. The Contractor shall defend suits or claims for infringement of copyrights and patent rights and shall hold the Owner and Architect harmless from loss on account thereof, but shall not be responsible for defense or loss when a particular design, process, or product of a particular manufacturer or manufacturers is required by the Contract Documents, or where the copyright violations are contained in Drawings, Specifications, or other documents prepared by the Owner or Architect. However, if an infringement of a copyright or patent is discovered by, or made known to, the Contractor, the Contractor shall be responsible for the loss unless the information is promptly furnished to the Architect.

### **§ 3.18 Indemnification**

**§ 3.18.1** To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Owner, Architect, Architect's consultants, and agents and employees of any of them from and against claims, damages, losses, and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work, provided that such claim, damage, loss, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), but only to the extent caused by the negligent acts or omissions of the Contractor, a Subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss, or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity that would otherwise exist as to a party or person described in this Section 3.18.

**§ 3.18.2** In claims against any person or entity indemnified under this Section 3.18 by an employee of the Contractor, a Subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, the indemnification obligation under Section 3.18.1 shall not be limited by a limitation on amount or type of damages, compensation, or benefits payable by or for the Contractor or a Subcontractor under workers' compensation acts, disability benefit acts, or other employee benefit acts.

## **ARTICLE 4 ARCHITECT**

### **§ 4.1 General**

**§ 4.1.1** The Architect is the person or entity retained by the Owner pursuant to Section 2.3.2 and identified as such in the Agreement.

**§ 4.1.2** Duties, responsibilities, and limitations of authority of the Architect as set forth in the Contract Documents shall not be restricted, modified, or extended without written consent of the Owner, Contractor, and Architect. Consent shall not be unreasonably withheld.

### **§ 4.2 Administration of the Contract**

**§ 4.2.1** The Architect will provide administration of the Contract as described in the Contract Documents and will be an Owner's representative during construction until the date the Architect issues the final Certificate for Payment. The Architect will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents.

**§ 4.2.2** The Architect will visit the site at intervals appropriate to the stage of construction, or as otherwise agreed with the Owner, to become generally familiar with the progress and quality of the portion of the Work completed, and to determine in general if the Work observed is being performed in a manner indicating that the Work, when fully completed, will be in accordance with the Contract Documents. However, the Architect will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. The Architect will not have control over, charge of, or responsibility for the construction means, methods, techniques, sequences or procedures, or for the safety precautions and programs in connection with the Work, since these are solely the Contractor's rights and responsibilities under the Contract Documents.

**§ 4.2.3** On the basis of the site visits, the Architect will keep the Owner reasonably informed about the progress and quality of the portion of the Work completed, and promptly report to the Owner (1) known deviations from the Contract Documents, (2) known deviations from the most recent construction schedule submitted by the Contractor, and (3) defects and deficiencies observed in the Work. The Architect will not be responsible for the Contractor's failure to perform the Work in accordance with the requirements of the Contract Documents. The Architect will not have control over or charge of, and will not be responsible for acts or omissions of, the Contractor, Subcontractors, or their agents or employees, or any other persons or entities performing portions of the Work.

### **§ 4.2.4 Communications**

The Owner and Contractor shall include the Architect in all communications that relate to or affect the Architect's services or professional responsibilities. The Owner shall promptly notify the Architect of the substance of any direct communications between the Owner and the Contractor otherwise relating to the Project. Communications by and with the Architect's consultants shall be through the Architect. Communications by and with Subcontractors and suppliers shall be through the Contractor. Communications by and with Separate Contractors shall be through the Owner. The Contract Documents may specify other communication protocols.

§ 4.2.5 Based on the Architect's evaluations of the Contractor's Applications for Payment, the Architect will review and certify the amounts due the Contractor and will issue Certificates for Payment in such amounts.

§ 4.2.6 The Architect has authority to reject Work that does not conform to the Contract Documents. Whenever the Architect considers it necessary or advisable, the Architect will have authority to require inspection or testing of the Work in accordance with Sections 13.4.2 and 13.4.3, whether or not the Work is fabricated, installed or completed. However, neither this authority of the Architect nor a decision made in good faith either to exercise or not to exercise such authority shall give rise to a duty or responsibility of the Architect to the Contractor, Subcontractors, suppliers, their agents or employees, or other persons or entities performing portions of the Work.

§ 4.2.7 The Architect will review and approve, or take other appropriate action upon, the Contractor's submittals such as Shop Drawings, Product Data, and Samples, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Architect's action will be taken in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness while allowing sufficient time in the Architect's professional judgment to permit adequate review. Review of such submittals is not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the Contractor as required by the Contract Documents. The Architect's review of the Contractor's submittals shall not relieve the Contractor of the obligations under Sections 3.3, 3.5, and 3.12. The Architect's review shall not constitute approval of safety precautions or of any construction means, methods, techniques, sequences, or procedures. The Architect's approval of a specific item shall not indicate approval of an assembly of which the item is a component.

§ 4.2.8 The Architect will prepare Change Orders and Construction Change Directives, and may order minor changes in the Work as provided in Section 7.4. The Architect will investigate and make determinations and recommendations regarding concealed and unknown conditions as provided in Section 3.7.4.

§ 4.2.9 The Architect will conduct inspections to determine the date or dates of Substantial Completion and the date of final completion; issue Certificates of Substantial Completion pursuant to Section 9.8; receive and forward to the Owner, for the Owner's review and records, written warranties and related documents required by the Contract and assembled by the Contractor pursuant to Section 9.10; and issue a final Certificate for Payment pursuant to Section 9.10.

§ 4.2.10 If the Owner and Architect agree, the Architect will provide one or more Project representatives to assist in carrying out the Architect's responsibilities at the site. The Owner shall notify the Contractor of any change in the duties, responsibilities and limitations of authority of the Project representatives.

§ 4.2.11 The Architect will interpret and decide matters concerning performance under, and requirements of, the Contract Documents on written request of either the Owner or Contractor. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness.

§ 4.2.12 Interpretations and decisions of the Architect will be consistent with the intent of, and reasonably inferable from, the Contract Documents and will be in writing or in the form of drawings. When making such interpretations and decisions, the Architect will endeavor to secure faithful performance by both Owner and Contractor, will not show partiality to either, and will not be liable for results of interpretations or decisions rendered in good faith.

§ 4.2.13 The Architect's decisions on matters relating to aesthetic effect will be final if consistent with the intent expressed in the Contract Documents.

§ 4.2.14 The Architect will review and respond to requests for information about the Contract Documents. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness. If appropriate, the Architect will prepare and issue supplemental Drawings and Specifications in response to the requests for information.

## **ARTICLE 5 SUBCONTRACTORS**

### **§ 5.1 Definitions**

§ 5.1.1 A Subcontractor is a person or entity who has a direct contract with the Contractor to perform a portion of the Work at the site. The term "Subcontractor" is referred to throughout the Contract Documents as if singular in

number and means a Subcontractor or an authorized representative of the Subcontractor. The term “Subcontractor” does not include a Separate Contractor or the subcontractors of a Separate Contractor.

§ 5.1.2 A Sub-subcontractor is a person or entity who has a direct or indirect contract with a Subcontractor to perform a portion of the Work at the site. The term “Sub-subcontractor” is referred to throughout the Contract Documents as if singular in number and means a Sub-subcontractor or an authorized representative of the Sub-subcontractor.

## § 5.2 Award of Subcontracts and Other Contracts for Portions of the Work

§ 5.2.1 Unless otherwise stated in the Contract Documents, the Contractor, as soon as practicable after award of the Contract, shall notify the Owner and Architect of the persons or entities proposed for each principal portion of the Work, including those who are to furnish materials or equipment fabricated to a special design. Within 14 days of receipt of the information, the Architect may notify the Contractor whether the Owner or the Architect (1) has reasonable objection to any such proposed person or entity or (2) requires additional time for review. Failure of the Architect to provide notice within the 14-day period shall constitute notice of no reasonable objection.

§ 5.2.2 The Contractor shall not contract with a proposed person or entity to whom the Owner or Architect has made reasonable and timely objection. The Contractor shall not be required to contract with anyone to whom the Contractor has made reasonable objection.

§ 5.2.3 If the Owner or Architect has reasonable objection to a person or entity proposed by the Contractor, the Contractor shall propose another to whom the Owner or Architect has no reasonable objection. If the proposed but rejected Subcontractor was reasonably capable of performing the Work, the Contract Sum and Contract Time shall be increased or decreased by the difference, if any, occasioned by such change, and an appropriate Change Order shall be issued before commencement of the substitute Subcontractor’s Work. However, no increase in the Contract Sum or Contract Time shall be allowed for such change unless the Contractor has acted promptly and responsively in submitting names as required.

§ 5.2.4 The Contractor shall not substitute a Subcontractor, person, or entity for one previously selected if the Owner or Architect makes reasonable objection to such substitution.

## § 5.3 Subcontractual Relations

By appropriate written agreement, the Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by terms of the Contract Documents, and to assume toward the Contractor all the obligations and responsibilities, including the responsibility for safety of the Subcontractor’s Work that the Contractor, by these Contract Documents, assumes toward the Owner and Architect. Each subcontract agreement shall preserve and protect the rights of the Owner and Architect under the Contract Documents with respect to the Work to be performed by the Subcontractor so that subcontracting thereof will not prejudice such rights, and shall allow to the Subcontractor, unless specifically provided otherwise in the subcontract agreement, the benefit of all rights, remedies, and redress against the Contractor that the Contractor, by the Contract Documents, has against the Owner. Where appropriate, the Contractor shall require each Subcontractor to enter into similar agreements with Sub-subcontractors. The Contractor shall make available to each proposed Subcontractor, prior to the execution of the subcontract agreement, copies of the Contract Documents to which the Subcontractor will be bound, and, upon written request of the Subcontractor, identify to the Subcontractor terms and conditions of the proposed subcontract agreement that may be at variance with the Contract Documents. Subcontractors will similarly make copies of applicable portions of such documents available to their respective proposed Sub-subcontractors.

## § 5.4 Contingent Assignment of Subcontracts

§ 5.4.1 Each subcontract agreement for a portion of the Work is assigned by the Contractor to the Owner, provided that

- .1 assignment is effective only after termination of the Contract by the Owner for cause pursuant to Section 14.2 and only for those subcontract agreements that the Owner accepts by notifying the Subcontractor and Contractor; and
- .2 assignment is subject to the prior rights of the surety, if any, obligated under bond relating to the Contract.

When the Owner accepts the assignment of a subcontract agreement, the Owner assumes the Contractor's rights and obligations under the subcontract.

§ 5.4.2 Upon such assignment, if the Work has been suspended for more than 30 days, the Subcontractor's compensation shall be equitably adjusted for increases in cost resulting from the suspension.

§ 5.4.3 Upon assignment to the Owner under this Section 5.4, the Owner may further assign the subcontract to a successor contractor or other entity. If the Owner assigns the subcontract to a successor contractor or other entity, the Owner shall nevertheless remain legally responsible for all of the successor contractor's obligations under the subcontract.

## **ARTICLE 6 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS**

### **§ 6.1 Owner's Right to Perform Construction and to Award Separate Contracts**

§ 6.1.1 The term "Separate Contractor(s)" shall mean other contractors retained by the Owner under separate agreements. The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, and with Separate Contractors retained under Conditions of the Contract substantially similar to those of this Contract, including those provisions of the Conditions of the Contract related to insurance and waiver of subrogation.

§ 6.1.2 When separate contracts are awarded for different portions of the Project or other construction or operations on the site, the term "Contractor" in the Contract Documents in each case shall mean the Contractor who executes each separate Owner-Contractor Agreement.

§ 6.1.3 The Owner shall provide for coordination of the activities of the Owner's own forces and of each Separate Contractor with the Work of the Contractor, who shall cooperate with them. The Contractor shall participate with any Separate Contractors and the Owner in reviewing their construction schedules. The Contractor shall make any revisions to its construction schedule deemed necessary after a joint review and mutual agreement. The construction schedules shall then constitute the schedules to be used by the Contractor, Separate Contractors, and the Owner until subsequently revised.

§ 6.1.4 Unless otherwise provided in the Contract Documents, when the Owner performs construction or operations related to the Project with the Owner's own forces or with Separate Contractors, the Owner or its Separate Contractors shall have the same obligations and rights that the Contractor has under the Conditions of the Contract, including, without excluding others, those stated in Article 3, this Article 6, and Articles 10, 11, and 12.

### **§ 6.2 Mutual Responsibility**

§ 6.2.1 The Contractor shall afford the Owner and Separate Contractors reasonable opportunity for introduction and storage of their materials and equipment and performance of their activities, and shall connect and coordinate the Contractor's construction and operations with theirs as required by the Contract Documents.

§ 6.2.2 If part of the Contractor's Work depends for proper execution or results upon construction or operations by the Owner or a Separate Contractor, the Contractor shall, prior to proceeding with that portion of the Work, promptly notify the Architect of apparent discrepancies or defects in the construction or operations by the Owner or Separate Contractor that would render it unsuitable for proper execution and results of the Contractor's Work. Failure of the Contractor to notify the Architect of apparent discrepancies or defects prior to proceeding with the Work shall constitute an acknowledgment that the Owner's or Separate Contractor's completed or partially completed construction is fit and proper to receive the Contractor's Work. The Contractor shall not be responsible for discrepancies or defects in the construction or operations by the Owner or Separate Contractor that are not apparent.

§ 6.2.3 The Contractor shall reimburse the Owner for costs the Owner incurs that are payable to a Separate Contractor because of the Contractor's delays, improperly timed activities or defective construction. The Owner shall be responsible to the Contractor for costs the Contractor incurs because of a Separate Contractor's delays, improperly timed activities, damage to the Work or defective construction.

§ 6.2.4 The Contractor shall promptly remedy damage that the Contractor wrongfully causes to completed or partially completed construction or to property of the Owner or Separate Contractor as provided in Section 10.2.5.

§ 6.2.5 The Owner and each Separate Contractor shall have the same responsibilities for cutting and patching as are described for the Contractor in Section 3.14.

### § 6.3 Owner's Right to Clean Up

If a dispute arises among the Contractor, Separate Contractors, and the Owner as to the responsibility under their respective contracts for maintaining the premises and surrounding area free from waste materials and rubbish, the Owner may clean up and the Architect will allocate the cost among those responsible.

## ARTICLE 7 CHANGES IN THE WORK

### § 7.1 General

§ 7.1.1 Changes in the Work may be accomplished after execution of the Contract, and without invalidating the Contract, by Change Order, Construction Change Directive or order for a minor change in the Work, subject to the limitations stated in this Article 7 and elsewhere in the Contract Documents.

§ 7.1.2 A Change Order shall be based upon agreement among the Owner, Contractor, and Architect. A Construction Change Directive requires agreement by the Owner and Architect and may or may not be agreed to by the Contractor. An order for a minor change in the Work may be issued by the Architect alone.

§ 7.1.3 Changes in the Work shall be performed under applicable provisions of the Contract Documents. The Contractor shall proceed promptly with changes in the Work, unless otherwise provided in the Change Order, Construction Change Directive, or order for a minor change in the Work.

### § 7.2 Change Orders

§ 7.2.1 A Change Order is a written instrument prepared by the Architect and signed by the Owner, Contractor, and Architect stating their agreement upon all of the following:

- .1 The change in the Work;
- .2 The amount of the adjustment, if any, in the Contract Sum; and
- .3 The extent of the adjustment, if any, in the Contract Time.

### § 7.3 Construction Change Directives

§ 7.3.1 A Construction Change Directive is a written order prepared by the Architect and signed by the Owner and Architect, directing a change in the Work prior to agreement on adjustment, if any, in the Contract Sum or Contract Time, or both. The Owner may by Construction Change Directive, without invalidating the Contract, order changes in the Work within the general scope of the Contract consisting of additions, deletions, or other revisions, the Contract Sum and Contract Time being adjusted accordingly.

§ 7.3.2 A Construction Change Directive shall be used in the absence of total agreement on the terms of a Change Order.

§ 7.3.3 If the Construction Change Directive provides for an adjustment to the Contract Sum, the adjustment shall be based on one of the following methods:

- .1 Mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation;
- .2 Unit prices stated in the Contract Documents or subsequently agreed upon;
- .3 Cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee; or
- .4 As provided in Section 7.3.4.

§ 7.3.4 If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum, the Architect shall determine the adjustment on the basis of reasonable expenditures and savings of those performing the Work attributable to the change, including, in case of an increase in the Contract Sum, an amount for overhead and profit as set forth in the Agreement, or if no such amount is set forth in the Agreement, a reasonable amount. In such case, and also under Section 7.3.3.3, the Contractor shall keep and present, in such form as the Architect may prescribe, an itemized accounting together with appropriate supporting data. Unless otherwise provided in the Contract Documents, costs for the purposes of this Section 7.3.4 shall be limited to the following:

- .1 Costs of labor, including applicable payroll taxes, fringe benefits required by agreement or custom, workers' compensation insurance, and other employee costs approved by the Architect;

- .2 Costs of materials, supplies, and equipment, including cost of transportation, whether incorporated or consumed;
- .3 Rental costs of machinery and equipment, exclusive of hand tools, whether rented from the Contractor or others;
- .4 Costs of premiums for all bonds and insurance, permit fees, and sales, use, or similar taxes, directly related to the change; and
- .5 Costs of supervision and field office personnel directly attributable to the change.

§ 7.3.5 If the Contractor disagrees with the adjustment in the Contract Time, the Contractor may make a Claim in accordance with applicable provisions of Article 15.

§ 7.3.6 Upon receipt of a Construction Change Directive, the Contractor shall promptly proceed with the change in the Work involved and advise the Architect of the Contractor's agreement or disagreement with the method, if any, provided in the Construction Change Directive for determining the proposed adjustment in the Contract Sum or Contract Time.

§ 7.3.7 A Construction Change Directive signed by the Contractor indicates the Contractor's agreement therewith, including adjustment in Contract Sum and Contract Time or the method for determining them. Such agreement shall be effective immediately and shall be recorded as a Change Order.

§ 7.3.8 The amount of credit to be allowed by the Contractor to the Owner for a deletion or change that results in a net decrease in the Contract Sum shall be actual net cost as confirmed by the Architect. When both additions and credits covering related Work or substitutions are involved in a change, the allowance for overhead and profit shall be figured on the basis of net increase, if any, with respect to that change.

§ 7.3.9 Pending final determination of the total cost of a Construction Change Directive to the Owner, the Contractor may request payment for Work completed under the Construction Change Directive in Applications for Payment. The Architect will make an interim determination for purposes of monthly certification for payment for those costs and certify for payment the amount that the Architect determines, in the Architect's professional judgment, to be reasonably justified. The Architect's interim determination of cost shall adjust the Contract Sum on the same basis as a Change Order, subject to the right of either party to disagree and assert a Claim in accordance with Article 15.

§ 7.3.10 When the Owner and Contractor agree with a determination made by the Architect concerning the adjustments in the Contract Sum and Contract Time, or otherwise reach agreement upon the adjustments, such agreement shall be effective immediately and the Architect will prepare a Change Order. Change Orders may be issued for all or any part of a Construction Change Directive.

#### § 7.4 Minor Changes in the Work

The Architect may order minor changes in the Work that are consistent with the intent of the Contract Documents and do not involve an adjustment in the Contract Sum or an extension of the Contract Time. The Architect's order for minor changes shall be in writing. If the Contractor believes that the proposed minor change in the Work will affect the Contract Sum or Contract Time, the Contractor shall notify the Architect and shall not proceed to implement the change in the Work. If the Contractor performs the Work set forth in the Architect's order for a minor change without prior notice to the Architect that such change will affect the Contract Sum or Contract Time, the Contractor waives any adjustment to the Contract Sum or extension of the Contract Time.

### ARTICLE 8 TIME

#### § 8.1 Definitions

§ 8.1.1 Unless otherwise provided, Contract Time is the period of time, including authorized adjustments, allotted in the Contract Documents for Substantial Completion of the Work.

§ 8.1.2 The date of commencement of the Work is the date established in the Agreement.

§ 8.1.3 The date of Substantial Completion is the date certified by the Architect in accordance with Section 9.8.

§ 8.1.4 The term "day" as used in the Contract Documents shall mean calendar day unless otherwise specifically defined.

## § 8.2 Progress and Completion

§ 8.2.1 Time limits stated in the Contract Documents are of the essence of the Contract. By executing the Agreement, the Contractor confirms that the Contract Time is a reasonable period for performing the Work.

§ 8.2.2 The Contractor shall not knowingly, except by agreement or instruction of the Owner in writing, commence the Work prior to the effective date of insurance required to be furnished by the Contractor and Owner.

§ 8.2.3 The Contractor shall proceed expeditiously with adequate forces and shall achieve Substantial Completion within the Contract Time.

## § 8.3 Delays and Extensions of Time

§ 8.3.1 If the Contractor is delayed at any time in the commencement or progress of the Work by (1) an act or neglect of the Owner or Architect, of an employee of either, or of a Separate Contractor; (2) by changes ordered in the Work; (3) by labor disputes, fire, unusual delay in deliveries, unavoidable casualties, adverse weather conditions documented in accordance with Section 15.1.6.2, or other causes beyond the Contractor's control; (4) by delay authorized by the Owner pending mediation and binding dispute resolution; or (5) by other causes that the Contractor asserts, and the Architect determines, justify delay, then the Contract Time shall be extended for such reasonable time as the Architect may determine.

§ 8.3.2 Claims relating to time shall be made in accordance with applicable provisions of Article 15.

§ 8.3.3 This Section 8.3 does not preclude recovery of damages for delay by either party under other provisions of the Contract Documents.

## ARTICLE 9 PAYMENTS AND COMPLETION

### § 9.1 Contract Sum

§ 9.1.1 The Contract Sum is stated in the Agreement and, including authorized adjustments, is the total amount payable by the Owner to the Contractor for performance of the Work under the Contract Documents.

§ 9.1.2 If unit prices are stated in the Contract Documents or subsequently agreed upon, and if quantities originally contemplated are materially changed so that application of such unit prices to the actual quantities causes substantial inequity to the Owner or Contractor, the applicable unit prices shall be equitably adjusted.

### § 9.2 Schedule of Values

Where the Contract is based on a stipulated sum or Guaranteed Maximum Price, the Contractor shall submit a schedule of values to the Architect before the first Application for Payment, allocating the entire Contract Sum to the various portions of the Work. The schedule of values shall be prepared in the form, and supported by the data to substantiate its accuracy, required by the Architect. This schedule, unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's Applications for Payment. Any changes to the schedule of values shall be submitted to the Architect and supported by such data to substantiate its accuracy as the Architect may require, and unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's subsequent Applications for Payment.

### § 9.3 Applications for Payment

§ 9.3.1 At least ten days before the date established for each progress payment, the Contractor shall submit to the Architect an itemized Application for Payment prepared in accordance with the schedule of values, if required under Section 9.2, for completed portions of the Work. The application shall be notarized, if required, and supported by all data substantiating the Contractor's right to payment that the Owner or Architect require, such as copies of requisitions, and releases and waivers of liens from Subcontractors and suppliers, and shall reflect retainage if provided for in the Contract Documents.

§ 9.3.1.1 As provided in Section 7.3.9, such applications may include requests for payment on account of changes in the Work that have been properly authorized by Construction Change Directives, or by interim determinations of the Architect, but not yet included in Change Orders.

§ 9.3.1.2 Applications for Payment shall not include requests for payment for portions of the Work for which the Contractor does not intend to pay a Subcontractor or supplier, unless such Work has been performed by others whom the Contractor intends to pay.

**§ 9.3.2** Unless otherwise provided in the Contract Documents, payments shall be made on account of materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work. If approved in advance by the Owner, payment may similarly be made for materials and equipment suitably stored off the site at a location agreed upon in writing. Payment for materials and equipment stored on or off the site shall be conditioned upon compliance by the Contractor with procedures satisfactory to the Owner to establish the Owner's title to such materials and equipment or otherwise protect the Owner's interest, and shall include the costs of applicable insurance, storage, and transportation to the site, for such materials and equipment stored off the site.

**§ 9.3.3** The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application for Payment all Work for which Certificates for Payment have been previously issued and payments received from the Owner shall, to the best of the Contractor's knowledge, information, and belief, be free and clear of liens, claims, security interests, or encumbrances, in favor of the Contractor, Subcontractors, suppliers, or other persons or entities that provided labor, materials, and equipment relating to the Work.

#### **§ 9.4 Certificates for Payment**

**§ 9.4.1** The Architect will, within seven days after receipt of the Contractor's Application for Payment, either (1) issue to the Owner a Certificate for Payment in the full amount of the Application for Payment, with a copy to the Contractor; or (2) issue to the Owner a Certificate for Payment for such amount as the Architect determines is properly due, and notify the Contractor and Owner of the Architect's reasons for withholding certification in part as provided in Section 9.5.1; or (3) withhold certification of the entire Application for Payment, and notify the Contractor and Owner of the Architect's reason for withholding certification in whole as provided in Section 9.5.1.

**§ 9.4.2** The issuance of a Certificate for Payment will constitute a representation by the Architect to the Owner, based on the Architect's evaluation of the Work and the data in the Application for Payment, that, to the best of the Architect's knowledge, information, and belief, the Work has progressed to the point indicated, the quality of the Work is in accordance with the Contract Documents, and that the Contractor is entitled to payment in the amount certified. The foregoing representations are subject to an evaluation of the Work for conformance with the Contract Documents upon Substantial Completion, to results of subsequent tests and inspections, to correction of minor deviations from the Contract Documents prior to completion, and to specific qualifications expressed by the Architect. However, the issuance of a Certificate for Payment will not be a representation that the Architect has (1) made exhaustive or continuous on-site inspections to check the quality or quantity of the Work; (2) reviewed construction means, methods, techniques, sequences, or procedures; (3) reviewed copies of requisitions received from Subcontractors and suppliers and other data requested by the Owner to substantiate the Contractor's right to payment; or (4) made examination to ascertain how or for what purpose the Contractor has used money previously paid on account of the Contract Sum.

#### **§ 9.5 Decisions to Withhold Certification**

**§ 9.5.1** The Architect may withhold a Certificate for Payment in whole or in part, to the extent reasonably necessary to protect the Owner, if in the Architect's opinion the representations to the Owner required by Section 9.4.2 cannot be made. If the Architect is unable to certify payment in the amount of the Application, the Architect will notify the Contractor and Owner as provided in Section 9.4.1. If the Contractor and Architect cannot agree on a revised amount, the Architect will promptly issue a Certificate for Payment for the amount for which the Architect is able to make such representations to the Owner. The Architect may also withhold a Certificate for Payment or, because of subsequently discovered evidence, may nullify the whole or a part of a Certificate for Payment previously issued, to such extent as may be necessary in the Architect's opinion to protect the Owner from loss for which the Contractor is responsible, including loss resulting from acts and omissions described in Section 3.3.2, because of

- .1 defective Work not remedied;
  - .2 third party claims filed or reasonable evidence indicating probable filing of such claims, unless security acceptable to the Owner is provided by the Contractor;
  - .3 failure of the Contractor to make payments properly to Subcontractors or suppliers for labor, materials or equipment;
  - .4 reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;
  - .5 damage to the Owner or a Separate Contractor;
  - .6 reasonable evidence that the Work will not be completed within the Contract Time, and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay;
- or

.7 repeated failure to carry out the Work in accordance with the Contract Documents.

§ 9.5.2 When either party disputes the Architect's decision regarding a Certificate for Payment under Section 9.5.1, in whole or in part, that party may submit a Claim in accordance with Article 15.

§ 9.5.3 When the reasons for withholding certification are removed, certification will be made for amounts previously withheld.

§ 9.5.4 If the Architect withholds certification for payment under Section 9.5.1.3, the Owner may, at its sole option, issue joint checks to the Contractor and to any Subcontractor or supplier to whom the Contractor failed to make payment for Work properly performed or material or equipment suitably delivered. If the Owner makes payments by joint check, the Owner shall notify the Architect and the Contractor shall reflect such payment on its next Application for Payment.

#### § 9.6 Progress Payments

§ 9.6.1 After the Architect has issued a Certificate for Payment, the Owner shall make payment in the manner and within the time provided in the Contract Documents, and shall so notify the Architect.

§ 9.6.2 The Contractor shall pay each Subcontractor, no later than seven days after receipt of payment from the Owner, the amount to which the Subcontractor is entitled, reflecting percentages actually retained from payments to the Contractor on account of the Subcontractor's portion of the Work. The Contractor shall, by appropriate agreement with each Subcontractor, require each Subcontractor to make payments to Sub-subcontractors in a similar manner.

§ 9.6.3 The Architect will, on request, furnish to a Subcontractor, if practicable, information regarding percentages of completion or amounts applied for by the Contractor and action taken thereon by the Architect and Owner on account of portions of the Work done by such Subcontractor.

§ 9.6.4 The Owner has the right to request written evidence from the Contractor that the Contractor has properly paid Subcontractors and suppliers amounts paid by the Owner to the Contractor for subcontracted Work. If the Contractor fails to furnish such evidence within seven days, the Owner shall have the right to contact Subcontractors and suppliers to ascertain whether they have been properly paid. Neither the Owner nor Architect shall have an obligation to pay, or to see to the payment of money to, a Subcontractor or supplier, except as may otherwise be required by law.

§ 9.6.5 The Contractor's payments to suppliers shall be treated in a manner similar to that provided in Sections 9.6.2, 9.6.3 and 9.6.4.

§ 9.6.6 A Certificate for Payment, a progress payment, or partial or entire use or occupancy of the Project by the Owner shall not constitute acceptance of Work not in accordance with the Contract Documents.

§ 9.6.7 Unless the Contractor provides the Owner with a payment bond in the full penal sum of the Contract Sum, payments received by the Contractor for Work properly performed by Subcontractors or provided by suppliers shall be held by the Contractor for those Subcontractors or suppliers who performed Work or furnished materials, or both, under contract with the Contractor for which payment was made by the Owner. Nothing contained herein shall require money to be placed in a separate account and not commingled with money of the Contractor, create any fiduciary liability or tort liability on the part of the Contractor for breach of trust, or entitle any person or entity to an award of punitive damages against the Contractor for breach of the requirements of this provision.

§ 9.6.8 Provided the Owner has fulfilled its payment obligations under the Contract Documents, the Contractor shall defend and indemnify the Owner from all loss, liability, damage or expense, including reasonable attorney's fees and litigation expenses, arising out of any lien claim or other claim for payment by any Subcontractor or supplier of any tier. Upon receipt of notice of a lien claim or other claim for payment, the Owner shall notify the Contractor. If approved by the applicable court, when required, the Contractor may substitute a surety bond for the property against which the lien or other claim for payment has been asserted.

## **§ 9.7 Failure of Payment**

If the Architect does not issue a Certificate for Payment, through no fault of the Contractor, within seven days after receipt of the Contractor's Application for Payment, or if the Owner does not pay the Contractor within seven days after the date established in the Contract Documents, the amount certified by the Architect or awarded by binding dispute resolution, then the Contractor may, upon seven additional days' notice to the Owner and Architect, stop the Work until payment of the amount owing has been received. The Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shutdown, delay and start-up, plus interest as provided for in the Contract Documents.

## **§ 9.8 Substantial Completion**

**§ 9.8.1** Substantial Completion is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work for its intended use.

**§ 9.8.2** When the Contractor considers that the Work, or a portion thereof which the Owner agrees to accept separately, is substantially complete, the Contractor shall prepare and submit to the Architect a comprehensive list of items to be completed or corrected prior to final payment. Failure to include an item on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

**§ 9.8.3** Upon receipt of the Contractor's list, the Architect will make an inspection to determine whether the Work or designated portion thereof is substantially complete. If the Architect's inspection discloses any item, whether or not included on the Contractor's list, which is not sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work or designated portion thereof for its intended use, the Contractor shall, before issuance of the Certificate of Substantial Completion, complete or correct such item upon notification by the Architect. In such case, the Contractor shall then submit a request for another inspection by the Architect to determine Substantial Completion.

**§ 9.8.4** When the Work or designated portion thereof is substantially complete, the Architect will prepare a Certificate of Substantial Completion that shall establish the date of Substantial Completion; establish responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance; and fix the time within which the Contractor shall finish all items on the list accompanying the Certificate. Warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion.

**§ 9.8.5** The Certificate of Substantial Completion shall be submitted to the Owner and Contractor for their written acceptance of responsibilities assigned to them in the Certificate. Upon such acceptance, and consent of surety if any, the Owner shall make payment of retainage applying to the Work or designated portion thereof. Such payment shall be adjusted for Work that is incomplete or not in accordance with the requirements of the Contract Documents.

## **§ 9.9 Partial Occupancy or Use**

**§ 9.9.1** The Owner may occupy or use any completed or partially completed portion of the Work at any stage when such portion is designated by separate agreement with the Contractor, provided such occupancy or use is consented to by the insurer and authorized by public authorities having jurisdiction over the Project. Such partial occupancy or use may commence whether or not the portion is substantially complete, provided the Owner and Contractor have accepted in writing the responsibilities assigned to each of them for payments, retainage, if any, security, maintenance, heat, utilities, damage to the Work and insurance, and have agreed in writing concerning the period for correction of the Work and commencement of warranties required by the Contract Documents. When the Contractor considers a portion substantially complete, the Contractor shall prepare and submit a list to the Architect as provided under Section 9.8.2. Consent of the Contractor to partial occupancy or use shall not be unreasonably withheld. The stage of the progress of the Work shall be determined by written agreement between the Owner and Contractor or, if no agreement is reached, by decision of the Architect.

**§ 9.9.2** Immediately prior to such partial occupancy or use, the Owner, Contractor, and Architect shall jointly inspect the area to be occupied or portion of the Work to be used in order to determine and record the condition of the Work.

**§ 9.9.3** Unless otherwise agreed upon, partial occupancy or use of a portion or portions of the Work shall not constitute acceptance of Work not complying with the requirements of the Contract Documents.

## **§ 9.10 Final Completion and Final Payment**

**§ 9.10.1** Upon receipt of the Contractor's notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Architect will promptly make such inspection. When the Architect finds the Work acceptable under the Contract Documents and the Contract fully performed, the Architect will promptly issue a final Certificate for Payment stating that to the best of the Architect's knowledge, information and belief, and on the basis of the Architect's on-site visits and inspections, the Work has been completed in accordance with the Contract Documents and that the entire balance found to be due the Contractor and noted in the final Certificate is due and payable. The Architect's final Certificate for Payment will constitute a further representation that conditions listed in Section 9.10.2 as precedent to the Contractor's being entitled to final payment have been fulfilled.

**§ 9.10.2** Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Architect (1) an affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or the Owner's property might be responsible or encumbered (less amounts withheld by Owner) have been paid or otherwise satisfied, (2) a certificate evidencing that insurance required by the Contract Documents to remain in force after final payment is currently in effect, (3) a written statement that the Contractor knows of no reason that the insurance will not be renewable to cover the period required by the Contract Documents, (4) consent of surety, if any, to final payment, (5) documentation of any special warranties, such as manufacturers' warranties or specific Subcontractor warranties, and (6) if required by the Owner, other data establishing payment or satisfaction of obligations, such as receipts and releases and waivers of liens, claims, security interests, or encumbrances arising out of the Contract, to the extent and in such form as may be designated by the Owner. If a Subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor may furnish a bond satisfactory to the Owner to indemnify the Owner against such lien, claim, security interest, or encumbrance. If a lien, claim, security interest, or encumbrance remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging the lien, claim, security interest, or encumbrance, including all costs and reasonable attorneys' fees.

**§ 9.10.3** If, after Substantial Completion of the Work, final completion thereof is materially delayed through no fault of the Contractor or by issuance of Change Orders affecting final completion, and the Architect so confirms, the Owner shall, upon application by the Contractor and certification by the Architect, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed, corrected, and accepted. If the remaining balance for Work not fully completed or corrected is less than retainage stipulated in the Contract Documents, and if bonds have been furnished, the written consent of the surety to payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by the Contractor to the Architect prior to certification of such payment. Such payment shall be made under terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

**§ 9.10.4** The making of final payment shall constitute a waiver of Claims by the Owner except those arising from

- .1 liens, Claims, security interests, or encumbrances arising out of the Contract and unsettled;
- .2 failure of the Work to comply with the requirements of the Contract Documents;
- .3 terms of special warranties required by the Contract Documents; or
- .4 audits performed by the Owner, if permitted by the Contract Documents, after final payment.

**§ 9.10.5** Acceptance of final payment by the Contractor, a Subcontractor, or a supplier, shall constitute a waiver of claims by that payee except those previously made in writing and identified by that payee as unsettled at the time of final Application for Payment.

## **ARTICLE 10 PROTECTION OF PERSONS AND PROPERTY**

### **§ 10.1 Safety Precautions and Programs**

The Contractor shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the performance of the Contract.

### **§ 10.2 Safety of Persons and Property**

**§ 10.2.1** The Contractor shall take reasonable precautions for safety of, and shall provide reasonable protection to prevent damage, injury, or loss to

- .1 employees on the Work and other persons who may be affected thereby;

- .2 the Work and materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody, or control of the Contractor, a Subcontractor, or a Sub-subcontractor; and
- .3 other property at the site or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures, and utilities not designated for removal, relocation, or replacement in the course of construction.

§ 10.2.2 The Contractor shall comply with, and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities, bearing on safety of persons or property or their protection from damage, injury, or loss.

§ 10.2.3 The Contractor shall implement, erect, and maintain, as required by existing conditions and performance of the Contract, reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards; promulgating safety regulations; and notifying the owners and users of adjacent sites and utilities of the safeguards.

§ 10.2.4 When use or storage of explosives or other hazardous materials or equipment, or unusual methods are necessary for execution of the Work, the Contractor shall exercise utmost care and carry on such activities under supervision of properly qualified personnel.

§ 10.2.5 The Contractor shall promptly remedy damage and loss (other than damage or loss insured under property insurance required by the Contract Documents) to property referred to in Sections 10.2.1.2 and 10.2.1.3 caused in whole or in part by the Contractor, a Subcontractor, a Sub-subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable and for which the Contractor is responsible under Sections 10.2.1.2 and 10.2.1.3. The Contractor may make a Claim for the cost to remedy the damage or loss to the extent such damage or loss is attributable to acts or omissions of the Owner or Architect or anyone directly or indirectly employed by either of them, or by anyone for whose acts either of them may be liable, and not attributable to the fault or negligence of the Contractor. The foregoing obligations of the Contractor are in addition to the Contractor's obligations under Section 3.18.

§ 10.2.6 The Contractor shall designate a responsible member of the Contractor's organization at the site whose duty shall be the prevention of accidents. This person shall be the Contractor's superintendent unless otherwise designated by the Contractor in writing to the Owner and Architect.

§ 10.2.7 The Contractor shall not permit any part of the construction or site to be loaded so as to cause damage or create an unsafe condition.

#### § 10.2.8 Injury or Damage to Person or Property

If either party suffers injury or damage to person or property because of an act or omission of the other party, or of others for whose acts such party is legally responsible, notice of the injury or damage, whether or not insured, shall be given to the other party within a reasonable time not exceeding 21 days after discovery. The notice shall provide sufficient detail to enable the other party to investigate the matter.

#### § 10.3 Hazardous Materials and Substances

§ 10.3.1 The Contractor is responsible for compliance with any requirements included in the Contract Documents regarding hazardous materials or substances. If the Contractor encounters a hazardous material or substance not addressed in the Contract Documents and if reasonable precautions will be inadequate to prevent foreseeable bodily injury or death to persons resulting from a material or substance, including but not limited to asbestos or polychlorinated biphenyl (PCB), encountered on the site by the Contractor, the Contractor shall, upon recognizing the condition, immediately stop Work in the affected area and notify the Owner and Architect of the condition.

§ 10.3.2 Upon receipt of the Contractor's notice, the Owner shall obtain the services of a licensed laboratory to verify the presence or absence of the material or substance reported by the Contractor and, in the event such material or substance is found to be present, to cause it to be rendered harmless. Unless otherwise required by the Contract Documents, the Owner shall furnish in writing to the Contractor and Architect the names and qualifications of persons or entities who are to perform tests verifying the presence or absence of the material or substance or who are to perform the task of removal or safe containment of the material or substance. The Contractor and the Architect will promptly reply to the Owner in writing stating whether or not either has reasonable objection to the persons or entities proposed by the Owner. If either the Contractor or Architect has an objection to a person or entity proposed

by the Owner, the Owner shall propose another to whom the Contractor and the Architect have no reasonable objection. When the material or substance has been rendered harmless, Work in the affected area shall resume upon written agreement of the Owner and Contractor. By Change Order, the Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable additional costs of shutdown, delay, and start-up.

§ 10.3.3 To the fullest extent permitted by law, the Owner shall indemnify and hold harmless the Contractor, Subcontractors, Architect, Architect's consultants, and agents and employees of any of them from and against claims, damages, losses, and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work in the affected area if in fact the material or substance presents the risk of bodily injury or death as described in Section 10.3.1 and has not been rendered harmless, provided that such claim, damage, loss, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), except to the extent that such damage, loss, or expense is due to the fault or negligence of the party seeking indemnity.

§ 10.3.4 The Owner shall not be responsible under this Section 10.3 for hazardous materials or substances the Contractor brings to the site unless such materials or substances are required by the Contract Documents. The Owner shall be responsible for hazardous materials or substances required by the Contract Documents, except to the extent of the Contractor's fault or negligence in the use and handling of such materials or substances.

§ 10.3.5 The Contractor shall reimburse the Owner for the cost and expense the Owner incurs (1) for remediation of hazardous materials or substances the Contractor brings to the site and negligently handles, or (2) where the Contractor fails to perform its obligations under Section 10.3.1, except to the extent that the cost and expense are due to the Owner's fault or negligence.

§ 10.3.6 If, without negligence on the part of the Contractor, the Contractor is held liable by a government agency for the cost of remediation of a hazardous material or substance solely by reason of performing Work as required by the Contract Documents, the Owner shall reimburse the Contractor for all cost and expense thereby incurred.

#### § 10.4 Emergencies

In an emergency affecting safety of persons or property, the Contractor shall act, at the Contractor's discretion, to prevent threatened damage, injury, or loss. Additional compensation or extension of time claimed by the Contractor on account of an emergency shall be determined as provided in Article 15 and Article 7.

### ARTICLE 11 INSURANCE AND BONDS

#### § 11.1 Contractor's Insurance and Bonds

§ 11.1.1 The Contractor shall purchase and maintain insurance of the types and limits of liability, containing the endorsements, and subject to the terms and conditions, as described in the Agreement or elsewhere in the Contract Documents. The Contractor shall purchase and maintain the required insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located. The Owner, Architect, and Architect's consultants shall be named as additional insureds under the Contractor's commercial general liability policy or as otherwise described in the Contract Documents.

§ 11.1.2 The Contractor shall provide surety bonds of the types, for such penal sums, and subject to such terms and conditions as required by the Contract Documents. The Contractor shall purchase and maintain the required bonds from a company or companies lawfully authorized to issue surety bonds in the jurisdiction where the Project is located.

§ 11.1.3 Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the Contract, the Contractor shall promptly furnish a copy of the bonds or shall authorize a copy to be furnished.

§ 11.1.4 **Notice of Cancellation or Expiration of Contractor's Required Insurance.** Within three (3) business days of the date the Contractor becomes aware of an impending or actual cancellation or expiration of any insurance required by the Contract Documents, the Contractor shall provide notice to the Owner of such impending or actual cancellation or expiration. Upon receipt of notice from the Contractor, the Owner shall, unless the lapse in coverage arises from an act or omission of the Owner, have the right to stop the Work until the lapse in coverage has been cured by the

procurement of replacement coverage by the Contractor. The furnishing of notice by the Contractor shall not relieve the Contractor of any contractual obligation to provide any required coverage.

## **§ 11.2 Owner's Insurance**

**§ 11.2.1** The Owner shall purchase and maintain insurance of the types and limits of liability, containing the endorsements, and subject to the terms and conditions, as described in the Agreement or elsewhere in the Contract Documents. The Owner shall purchase and maintain the required insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located.

**§ 11.2.2 Failure to Purchase Required Property Insurance.** If the Owner fails to purchase and maintain the required property insurance, with all of the coverages and in the amounts described in the Agreement or elsewhere in the Contract Documents, the Owner shall inform the Contractor in writing prior to commencement of the Work. Upon receipt of notice from the Owner, the Contractor may delay commencement of the Work and may obtain insurance that will protect the interests of the Contractor, Subcontractors, and Sub-Subcontractors in the Work. When the failure to provide coverage has been cured or resolved, the Contract Sum and Contract Time shall be equitably adjusted. In the event the Owner fails to procure coverage, the Owner waives all rights against the Contractor, Subcontractors, and Sub-subcontractors to the extent the loss to the Owner would have been covered by the insurance to have been procured by the Owner. The cost of the insurance shall be charged to the Owner by a Change Order. If the Owner does not provide written notice, and the Contractor is damaged by the failure or neglect of the Owner to purchase or maintain the required insurance, the Owner shall reimburse the Contractor for all reasonable costs and damages attributable thereto.

**§ 11.2.3 Notice of Cancellation or Expiration of Owner's Required Property Insurance.** Within three (3) business days of the date the Owner becomes aware of an impending or actual cancellation or expiration of any property insurance required by the Contract Documents, the Owner shall provide notice to the Contractor of such impending or actual cancellation or expiration. Unless the lapse in coverage arises from an act or omission of the Contractor: (1) the Contractor, upon receipt of notice from the Owner, shall have the right to stop the Work until the lapse in coverage has been cured by the procurement of replacement coverage by either the Owner or the Contractor; (2) the Contract Time and Contract Sum shall be equitably adjusted; and (3) the Owner waives all rights against the Contractor, Subcontractors, and Sub-subcontractors to the extent any loss to the Owner would have been covered by the insurance had it not expired or been cancelled. If the Contractor purchases replacement coverage, the cost of the insurance shall be charged to the Owner by an appropriate Change Order. The furnishing of notice by the Owner shall not relieve the Owner of any contractual obligation to provide required insurance.

## **§ 11.3 Waivers of Subrogation**

**§ 11.3.1** The Owner and Contractor waive all rights against (1) each other and any of their subcontractors, sub-subcontractors, agents, and employees, each of the other; (2) the Architect and Architect's consultants; and (3) Separate Contractors, if any, and any of their subcontractors, sub-subcontractors, agents, and employees, for damages caused by fire, or other causes of loss, to the extent those losses are covered by property insurance required by the Agreement or other property insurance applicable to the Project, except such rights as they have to proceeds of such insurance. The Owner or Contractor, as appropriate, shall require similar written waivers in favor of the individuals and entities identified above from the Architect, Architect's consultants, Separate Contractors, subcontractors, and sub-subcontractors. The policies of insurance purchased and maintained by each person or entity agreeing to waive claims pursuant to this section 11.3.1 shall not prohibit this waiver of subrogation. This waiver of subrogation shall be effective as to a person or entity (1) even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, (2) even though that person or entity did not pay the insurance premium directly or indirectly, or (3) whether or not the person or entity had an insurable interest in the damaged property.

**§ 11.3.2** If during the Project construction period the Owner insures properties, real or personal or both, at or adjacent to the site by property insurance under policies separate from those insuring the Project, or if after final payment property insurance is to be provided on the completed Project through a policy or policies other than those insuring the Project during the construction period, to the extent permissible by such policies, the Owner waives all rights in accordance with the terms of Section 11.3.1 for damages caused by fire or other causes of loss covered by this separate property insurance.

## **§ 11.4 Loss of Use, Business Interruption, and Delay in Completion Insurance**

The Owner, at the Owner's option, may purchase and maintain insurance that will protect the Owner against loss of use of the Owner's property, or the inability to conduct normal operations, due to fire or other causes of loss. The Owner waives all rights of action against the Contractor and Architect for loss of use of the Owner's property, due to fire or other hazards however caused.

#### **§11.5 Adjustment and Settlement of Insured Loss**

**§ 11.5.1** A loss insured under the property insurance required by the Agreement shall be adjusted by the Owner as fiduciary and made payable to the Owner as fiduciary for the insureds, as their interests may appear, subject to requirements of any applicable mortgagee clause and of Section 11.5.2. The Owner shall pay the Architect and Contractor their just shares of insurance proceeds received by the Owner, and by appropriate agreements the Architect and Contractor shall make payments to their consultants and Subcontractors in similar manner.

**§ 11.5.2** Prior to settlement of an insured loss, the Owner shall notify the Contractor of the terms of the proposed settlement as well as the proposed allocation of the insurance proceeds. The Contractor shall have 14 days from receipt of notice to object to the proposed settlement or allocation of the proceeds. If the Contractor does not object, the Owner shall settle the loss and the Contractor shall be bound by the settlement and allocation. Upon receipt, the Owner shall deposit the insurance proceeds in a separate account and make the appropriate distributions. Thereafter, if no other agreement is made or the Owner does not terminate the Contract for convenience, the Owner and Contractor shall execute a Change Order for reconstruction of the damaged or destroyed Work in the amount allocated for that purpose. If the Contractor timely objects to either the terms of the proposed settlement or the allocation of the proceeds, the Owner may proceed to settle the insured loss, and any dispute between the Owner and Contractor arising out of the settlement or allocation of the proceeds shall be resolved pursuant to Article 15. Pending resolution of any dispute, the Owner may issue a Construction Change Directive for the reconstruction of the damaged or destroyed Work.

### **ARTICLE 12 UNCOVERING AND CORRECTION OF WORK**

#### **§ 12.1 Uncovering of Work**

**§ 12.1.1** If a portion of the Work is covered contrary to the Architect's request or to requirements specifically expressed in the Contract Documents, it must, if requested in writing by the Architect, be uncovered for the Architect's examination and be replaced at the Contractor's expense without change in the Contract Time.

**§ 12.1.2** If a portion of the Work has been covered that the Architect has not specifically requested to examine prior to its being covered, the Architect may request to see such Work and it shall be uncovered by the Contractor. If such Work is in accordance with the Contract Documents, the Contractor shall be entitled to an equitable adjustment to the Contract Sum and Contract Time as may be appropriate. If such Work is not in accordance with the Contract Documents, the costs of uncovering the Work, and the cost of correction, shall be at the Contractor's expense.

#### **§ 12.2 Correction of Work**

##### **§ 12.2.1 Before Substantial Completion**

The Contractor shall promptly correct Work rejected by the Architect or failing to conform to the requirements of the Contract Documents, discovered before Substantial Completion and whether or not fabricated, installed or completed. Costs of correcting such rejected Work, including additional testing and inspections, the cost of uncovering and replacement, and compensation for the Architect's services and expenses made necessary thereby, shall be at the Contractor's expense.

##### **§ 12.2.2 After Substantial Completion**

**§ 12.2.2.1** In addition to the Contractor's obligations under Section 3.5, if, within one year after the date of Substantial Completion of the Work or designated portion thereof or after the date for commencement of warranties established under Section 9.9.1, or by terms of any applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly after receipt of notice from the Owner to do so, unless the Owner has previously given the Contractor a written acceptance of such condition. The Owner shall give such notice promptly after discovery of the condition. During the one-year period for correction of Work, if the Owner fails to notify the Contractor and give the Contractor an opportunity to make the correction, the Owner waives the rights to require correction by the Contractor and to make a claim for breach of warranty. If the Contractor fails to correct nonconforming Work within a reasonable time during that period after receipt of notice from the Owner or Architect, the Owner may correct it in accordance with Section 2.5.

§ 12.2.2.2 The one-year period for correction of Work shall be extended with respect to portions of Work first performed after Substantial Completion by the period of time between Substantial Completion and the actual completion of that portion of the Work.

§ 12.2.2.3 The one-year period for correction of Work shall not be extended by corrective Work performed by the Contractor pursuant to this Section 12.2.

§ 12.2.3 The Contractor shall remove from the site portions of the Work that are not in accordance with the requirements of the Contract Documents and are neither corrected by the Contractor nor accepted by the Owner.

§ 12.2.4 The Contractor shall bear the cost of correcting destroyed or damaged construction of the Owner or Separate Contractors, whether completed or partially completed, caused by the Contractor's correction or removal of Work that is not in accordance with the requirements of the Contract Documents.

§ 12.2.5 Nothing contained in this Section 12.2 shall be construed to establish a period of limitation with respect to other obligations the Contractor has under the Contract Documents. Establishment of the one-year period for correction of Work as described in Section 12.2.2 relates only to the specific obligation of the Contractor to correct the Work, and has no relationship to the time within which the obligation to comply with the Contract Documents may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to the Contractor's obligations other than specifically to correct the Work.

### § 12.3 Acceptance of Nonconforming Work

If the Owner prefers to accept Work that is not in accordance with the requirements of the Contract Documents, the Owner may do so instead of requiring its removal and correction, in which case the Contract Sum will be reduced as appropriate and equitable. Such adjustment shall be effected whether or not final payment has been made.

## ARTICLE 13 MISCELLANEOUS PROVISIONS

### § 13.1 Governing Law

The Contract shall be governed by the law of the place where the Project is located, excluding that jurisdiction's choice of law rules. If the parties have selected arbitration as the method of binding dispute resolution, the Federal Arbitration Act shall govern Section 15.4.

### § 13.2 Successors and Assigns

§ 13.2.1 The Owner and Contractor respectively bind themselves, their partners, successors, assigns, and legal representatives to covenants, agreements, and obligations contained in the Contract Documents. Except as provided in Section 13.2.2, neither party to the Contract shall assign the Contract as a whole without written consent of the other. If either party attempts to make an assignment without such consent, that party shall nevertheless remain legally responsible for all obligations under the Contract.

§ 13.2.2 The Owner may, without consent of the Contractor, assign the Contract to a lender providing construction financing for the Project, if the lender assumes the Owner's rights and obligations under the Contract Documents. The Contractor shall execute all consents reasonably required to facilitate the assignment.

### § 13.3 Rights and Remedies

§ 13.3.1 Duties and obligations imposed by the Contract Documents and rights and remedies available thereunder shall be in addition to and not a limitation of duties, obligations, rights, and remedies otherwise imposed or available by law.

§ 13.3.2 No action or failure to act by the Owner, Architect, or Contractor shall constitute a waiver of a right or duty afforded them under the Contract, nor shall such action or failure to act constitute approval of or acquiescence in a breach thereunder, except as may be specifically agreed upon in writing.

### § 13.4 Tests and Inspections

§ 13.4.1 Tests, inspections, and approvals of portions of the Work shall be made as required by the Contract Documents and by applicable laws, statutes, ordinances, codes, rules, and regulations or lawful orders of public authorities. Unless otherwise provided, the Contractor shall make arrangements for such tests, inspections, and approvals with an independent testing laboratory or entity acceptable to the Owner, or with the appropriate public authority, and shall bear all related costs of tests, inspections, and approvals. The Contractor shall give the Architect

timely notice of when and where tests and inspections are to be made so that the Architect may be present for such procedures. The Owner shall bear costs of tests, inspections, or approvals that do not become requirements until after bids are received or negotiations concluded. The Owner shall directly arrange and pay for tests, inspections, or approvals where building codes or applicable laws or regulations so require.

§ 13.4.2 If the Architect, Owner, or public authorities having jurisdiction determine that portions of the Work require additional testing, inspection, or approval not included under Section 13.4.1, the Architect will, upon written authorization from the Owner, instruct the Contractor to make arrangements for such additional testing, inspection, or approval, by an entity acceptable to the Owner, and the Contractor shall give timely notice to the Architect of when and where tests and inspections are to be made so that the Architect may be present for such procedures. Such costs, except as provided in Section 13.4.3, shall be at the Owner's expense.

§ 13.4.3 If procedures for testing, inspection, or approval under Sections 13.4.1 and 13.4.2 reveal failure of the portions of the Work to comply with requirements established by the Contract Documents, all costs made necessary by such failure, including those of repeated procedures and compensation for the Architect's services and expenses, shall be at the Contractor's expense.

§ 13.4.4 Required certificates of testing, inspection, or approval shall, unless otherwise required by the Contract Documents, be secured by the Contractor and promptly delivered to the Architect.

§ 13.4.5 If the Architect is to observe tests, inspections, or approvals required by the Contract Documents, the Architect will do so promptly and, where practicable, at the normal place of testing.

§ 13.4.6 Tests or inspections conducted pursuant to the Contract Documents shall be made promptly to avoid unreasonable delay in the Work.

### § 13.5 Interest

Payments due and unpaid under the Contract Documents shall bear interest from the date payment is due at the rate the parties agree upon in writing or, in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.

## ARTICLE 14 TERMINATION OR SUSPENSION OF THE CONTRACT

### § 14.1 Termination by the Contractor

§ 14.1.1 The Contractor may terminate the Contract if the Work is stopped for a period of 30 consecutive days through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, their agents or employees, or any other persons or entities performing portions of the Work, for any of the following reasons:

- .1 Issuance of an order of a court or other public authority having jurisdiction that requires all Work to be stopped;
- .2 An act of government, such as a declaration of national emergency, that requires all Work to be stopped;
- .3 Because the Architect has not issued a Certificate for Payment and has not notified the Contractor of the reason for withholding certification as provided in Section 9.4.1, or because the Owner has not made payment on a Certificate for Payment within the time stated in the Contract Documents; or
- .4 The Owner has failed to furnish to the Contractor reasonable evidence as required by Section 2.2.

§ 14.1.2 The Contractor may terminate the Contract if, through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, their agents or employees, or any other persons or entities performing portions of the Work, repeated suspensions, delays, or interruptions of the entire Work by the Owner as described in Section 14.3, constitute in the aggregate more than 100 percent of the total number of days scheduled for completion, or 120 days in any 365-day period, whichever is less.

§ 14.1.3 If one of the reasons described in Section 14.1.1 or 14.1.2 exists, the Contractor may, upon seven days' notice to the Owner and Architect, terminate the Contract and recover from the Owner payment for Work executed, as well as reasonable overhead and profit on Work not executed, and costs incurred by reason of such termination.

§ 14.1.4 If the Work is stopped for a period of 60 consecutive days through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, or their agents or employees or any other persons or entities performing portions of the Work because the Owner has repeatedly failed to fulfill the Owner's obligations under the Contract

Documents with respect to matters important to the progress of the Work, the Contractor may, upon seven additional days' notice to the Owner and the Architect, terminate the Contract and recover from the Owner as provided in Section 14.1.3.

#### **§ 14.2 Termination by the Owner for Cause**

**§ 14.2.1** The Owner may terminate the Contract if the Contractor

- .1 repeatedly refuses or fails to supply enough properly skilled workers or proper materials;
- .2 fails to make payment to Subcontractors or suppliers in accordance with the respective agreements between the Contractor and the Subcontractors or suppliers;
- .3 repeatedly disregards applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of a public authority; or
- .4 otherwise is guilty of substantial breach of a provision of the Contract Documents.

**§ 14.2.2** When any of the reasons described in Section 14.2.1 exist, and upon certification by the Architect that sufficient cause exists to justify such action, the Owner may, without prejudice to any other rights or remedies of the Owner and after giving the Contractor and the Contractor's surety, if any, seven days' notice, terminate employment of the Contractor and may, subject to any prior rights of the surety:

- .1 Exclude the Contractor from the site and take possession of all materials, equipment, tools, and construction equipment and machinery thereon owned by the Contractor;
- .2 Accept assignment of subcontracts pursuant to Section 5.4; and
- .3 Finish the Work by whatever reasonable method the Owner may deem expedient. Upon written request of the Contractor, the Owner shall furnish to the Contractor a detailed accounting of the costs incurred by the Owner in finishing the Work.

**§ 14.2.3** When the Owner terminates the Contract for one of the reasons stated in Section 14.2.1, the Contractor shall not be entitled to receive further payment until the Work is finished.

**§ 14.2.4** If the unpaid balance of the Contract Sum exceeds costs of finishing the Work, including compensation for the Architect's services and expenses made necessary thereby, and other damages incurred by the Owner and not expressly waived, such excess shall be paid to the Contractor. If such costs and damages exceed the unpaid balance, the Contractor shall pay the difference to the Owner. The amount to be paid to the Contractor or Owner, as the case may be, shall be certified by the Initial Decision Maker, upon application, and this obligation for payment shall survive termination of the Contract.

#### **§ 14.3 Suspension by the Owner for Convenience**

**§ 14.3.1** The Owner may, without cause, order the Contractor in writing to suspend, delay or interrupt the Work, in whole or in part for such period of time as the Owner may determine.

**§ 14.3.2** The Contract Sum and Contract Time shall be adjusted for increases in the cost and time caused by suspension, delay, or interruption under Section 14.3.1. Adjustment of the Contract Sum shall include profit. No adjustment shall be made to the extent

- .1 that performance is, was, or would have been, so suspended, delayed, or interrupted, by another cause for which the Contractor is responsible; or
- .2 that an equitable adjustment is made or denied under another provision of the Contract.

#### **§ 14.4 Termination by the Owner for Convenience**

**§ 14.4.1** The Owner may, at any time, terminate the Contract for the Owner's convenience and without cause.

**§ 14.4.2** Upon receipt of notice from the Owner of such termination for the Owner's convenience, the Contractor shall

- .1 cease operations as directed by the Owner in the notice;
- .2 take actions necessary, or that the Owner may direct, for the protection and preservation of the Work; and
- .3 except for Work directed to be performed prior to the effective date of termination stated in the notice, terminate all existing subcontracts and purchase orders and enter into no further subcontracts and purchase orders.

**§ 14.4.3** In case of such termination for the Owner's convenience, the Owner shall pay the Contractor for Work

properly executed; costs incurred by reason of the termination, including costs attributable to termination of Subcontracts; and the termination fee, if any, set forth in the Agreement.

## **ARTICLE 15 CLAIMS AND DISPUTES**

### **§ 15.1 Claims**

#### **§ 15.1.1 Definition**

A Claim is a demand or assertion by one of the parties seeking, as a matter of right, payment of money, a change in the Contract Time, or other relief with respect to the terms of the Contract. The term "Claim" also includes other disputes and matters in question between the Owner and Contractor arising out of or relating to the Contract. The responsibility to substantiate Claims shall rest with the party making the Claim. This Section 15.1.1 does not require the Owner to file a Claim in order to impose liquidated damages in accordance with the Contract Documents.

#### **§ 15.1.2 Time Limits on Claims**

The Owner and Contractor shall commence all Claims and causes of action against the other and arising out of or related to the Contract, whether in contract, tort, breach of warranty or otherwise, in accordance with the requirements of the binding dispute resolution method selected in the Agreement and within the period specified by applicable law, but in any case not more than 10 years after the date of Substantial Completion of the Work. The Owner and Contractor waive all Claims and causes of action not commenced in accordance with this Section 15.1.2.

#### **§ 15.1.3 Notice of Claims**

**§ 15.1.3.1** Claims by either the Owner or Contractor, where the condition giving rise to the Claim is first discovered prior to expiration of the period for correction of the Work set forth in Section 12.2.2, shall be initiated by notice to the other party and to the Initial Decision Maker with a copy sent to the Architect, if the Architect is not serving as the Initial Decision Maker. Claims by either party under this Section 15.1.3.1 shall be initiated within 21 days after occurrence of the event giving rise to such Claim or within 21 days after the claimant first recognizes the condition giving rise to the Claim, whichever is later.

**§ 15.1.3.2** Claims by either the Owner or Contractor, where the condition giving rise to the Claim is first discovered after expiration of the period for correction of the Work set forth in Section 12.2.2, shall be initiated by notice to the other party. In such event, no decision by the Initial Decision Maker is required.

#### **§ 15.1.4 Continuing Contract Performance**

**§ 15.1.4.1** Pending final resolution of a Claim, except as otherwise agreed in writing or as provided in Section 9.7 and Article 14, the Contractor shall proceed diligently with performance of the Contract and the Owner shall continue to make payments in accordance with the Contract Documents.

**§ 15.1.4.2** The Contract Sum and Contract Time shall be adjusted in accordance with the Initial Decision Maker's decision, subject to the right of either party to proceed in accordance with this Article 15. The Architect will issue Certificates for Payment in accordance with the decision of the Initial Decision Maker.

#### **§ 15.1.5 Claims for Additional Cost**

If the Contractor wishes to make a Claim for an increase in the Contract Sum, notice as provided in Section 15.1.3 shall be given before proceeding to execute the portion of the Work that is the subject of the Claim. Prior notice is not required for Claims relating to an emergency endangering life or property arising under Section 10.4.

#### **§ 15.1.6 Claims for Additional Time**

**§ 15.1.6.1** If the Contractor wishes to make a Claim for an increase in the Contract Time, notice as provided in Section 15.1.3 shall be given. The Contractor's Claim shall include an estimate of cost and of probable effect of delay on progress of the Work. In the case of a continuing delay, only one Claim is necessary.

**§ 15.1.6.2** If adverse weather conditions are the basis for a Claim for additional time, such Claim shall be documented by data substantiating that weather conditions were abnormal for the period of time, could not have been reasonably anticipated, and had an adverse effect on the scheduled construction.

#### **§ 15.1.7 Waiver of Claims for Consequential Damages**

The Contractor and Owner waive Claims against each other for consequential damages arising out of or relating to this Contract. This mutual waiver includes

- .1 damages incurred by the Owner for rental expenses, for losses of use, income, profit, financing, business and reputation, and for loss of management or employee productivity or of the services of such persons; and
- .2 damages incurred by the Contractor for principal office expenses including the compensation of personnel stationed there, for losses of financing, business and reputation, and for loss of profit, except anticipated profit arising directly from the Work.

This mutual waiver is applicable, without limitation, to all consequential damages due to either party's termination in accordance with Article 14. Nothing contained in this Section 15.1.7 shall be deemed to preclude assessment of liquidated damages, when applicable, in accordance with the requirements of the Contract Documents.

## **§ 15.2 Initial Decision**

**§ 15.2.1** Claims, excluding those where the condition giving rise to the Claim is first discovered after expiration of the period for correction of the Work set forth in Section 12.2.2 or arising under Sections 10.3, 10.4, and 11.5, shall be referred to the Initial Decision Maker for initial decision. The Architect will serve as the Initial Decision Maker, unless otherwise indicated in the Agreement. Except for those Claims excluded by this Section 15.2.1, an initial decision shall be required as a condition precedent to mediation of any Claim. If an initial decision has not been rendered within 30 days after the Claim has been referred to the Initial Decision Maker, the party asserting the Claim may demand mediation and binding dispute resolution without a decision having been rendered. Unless the Initial Decision Maker and all affected parties agree, the Initial Decision Maker will not decide disputes between the Contractor and persons or entities other than the Owner.

**§ 15.2.2** The Initial Decision Maker will review Claims and within ten days of the receipt of a Claim take one or more of the following actions: (1) request additional supporting data from the claimant or a response with supporting data from the other party, (2) reject the Claim in whole or in part, (3) approve the Claim, (4) suggest a compromise, or (5) advise the parties that the Initial Decision Maker is unable to resolve the Claim if the Initial Decision Maker lacks sufficient information to evaluate the merits of the Claim or if the Initial Decision Maker concludes that, in the Initial Decision Maker's sole discretion, it would be inappropriate for the Initial Decision Maker to resolve the Claim.

**§ 15.2.3** In evaluating Claims, the Initial Decision Maker may, but shall not be obligated to, consult with or seek information from either party or from persons with special knowledge or expertise who may assist the Initial Decision Maker in rendering a decision. The Initial Decision Maker may request the Owner to authorize retention of such persons at the Owner's expense.

**§ 15.2.4** If the Initial Decision Maker requests a party to provide a response to a Claim or to furnish additional supporting data, such party shall respond, within ten days after receipt of the request, and shall either (1) provide a response on the requested supporting data, (2) advise the Initial Decision Maker when the response or supporting data will be furnished, or (3) advise the Initial Decision Maker that no supporting data will be furnished. Upon receipt of the response or supporting data, if any, the Initial Decision Maker will either reject or approve the Claim in whole or in part.

**§ 15.2.5** The Initial Decision Maker will render an initial decision approving or rejecting the Claim, or indicating that the Initial Decision Maker is unable to resolve the Claim. This initial decision shall (1) be in writing; (2) state the reasons therefor; and (3) notify the parties and the Architect, if the Architect is not serving as the Initial Decision Maker, of any change in the Contract Sum or Contract Time or both. The initial decision shall be final and binding on the parties but subject to mediation and, if the parties fail to resolve their dispute through mediation, to binding dispute resolution.

**§ 15.2.6** Either party may file for mediation of an initial decision at any time, subject to the terms of Section 15.2.6.1.

**§ 15.2.6.1** Either party may, within 30 days from the date of receipt of an initial decision, demand in writing that the other party file for mediation. If such a demand is made and the party receiving the demand fails to file for mediation within 30 days after receipt thereof, then both parties waive their rights to mediate or pursue binding dispute resolution proceedings with respect to the initial decision.

§ 15.2.7 In the event of a Claim against the Contractor, the Owner may, but is not obligated to, notify the surety, if any, of the nature and amount of the Claim. If the Claim relates to a possibility of a Contractor's default, the Owner may, but is not obligated to, notify the surety and request the surety's assistance in resolving the controversy.

§ 15.2.8 If a Claim relates to or is the subject of a mechanic's lien, the party asserting such Claim may proceed in accordance with applicable law to comply with the lien notice or filing deadlines.

### § 15.3 Mediation

§ 15.3.1 Claims, disputes, or other matters in controversy arising out of or related to the Contract, except those waived as provided for in Sections 9.10.4, 9.10.5, and 15.1.7, shall be subject to mediation as a condition precedent to binding dispute resolution.

§ 15.3.2 The parties shall endeavor to resolve their Claims by mediation which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Mediation Procedures in effect on the date of the Agreement. A request for mediation shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the mediation. The request may be made concurrently with the filing of binding dispute resolution proceedings but, in such event, mediation shall proceed in advance of binding dispute resolution proceedings, which shall be stayed pending mediation for a period of 60 days from the date of filing, unless stayed for a longer period by agreement of the parties or court order. If an arbitration is stayed pursuant to this Section 15.3.2, the parties may nonetheless proceed to the selection of the arbitrator(s) and agree upon a schedule for later proceedings.

§ 15.3.3 Either party may, within 30 days from the date that mediation has been concluded without resolution of the dispute or 60 days after mediation has been demanded without resolution of the dispute, demand in writing that the other party file for binding dispute resolution. If such a demand is made and the party receiving the demand fails to file for binding dispute resolution within 60 days after receipt thereof, then both parties waive their rights to binding dispute resolution proceedings with respect to the initial decision.

§ 15.3.4 The parties shall share the mediator's fee and any filing fees equally. The mediation shall be held in the place where the Project is located, unless another location is mutually agreed upon. Agreements reached in mediation shall be enforceable as settlement agreements in any court having jurisdiction thereof.

### § 15.4 Arbitration

§ 15.4.1 If the parties have selected arbitration as the method for binding dispute resolution in the Agreement, any Claim subject to, but not resolved by, mediation shall be subject to arbitration which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Arbitration Rules in effect on the date of the Agreement. The Arbitration shall be conducted in the place where the Project is located, unless another location is mutually agreed upon. A demand for arbitration shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the arbitration. The party filing a notice of demand for arbitration must assert in the demand all Claims then known to that party on which arbitration is permitted to be demanded.

§ 15.4.1.1 A demand for arbitration shall be made no earlier than concurrently with the filing of a request for mediation, but in no event shall it be made after the date when the institution of legal or equitable proceedings based on the Claim would be barred by the applicable statute of limitations. For statute of limitations purposes, receipt of a written demand for arbitration by the person or entity administering the arbitration shall constitute the institution of legal or equitable proceedings based on the Claim.

§ 15.4.2 The award rendered by the arbitrator or arbitrators shall be final, and judgment may be entered upon it in accordance with applicable law in any court having jurisdiction thereof.

§ 15.4.3 The foregoing agreement to arbitrate and other agreements to arbitrate with an additional person or entity duly consented to by parties to the Agreement, shall be specifically enforceable under applicable law in any court having jurisdiction thereof.

### § 15.4.4 Consolidation or Joinder

§ 15.4.4.1 Subject to the rules of the American Arbitration Association or other applicable arbitration rules, either party may consolidate an arbitration conducted under this Agreement with any other arbitration to which it is a party

provided that (1) the arbitration agreement governing the other arbitration permits consolidation, (2) the arbitrations to be consolidated substantially involve common questions of law or fact, and (3) the arbitrations employ materially similar procedural rules and methods for selecting arbitrator(s).

**§ 15.4.4.2** Subject to the rules of the American Arbitration Association or other applicable arbitration rules, either party may include by joinder persons or entities substantially involved in a common question of law or fact whose presence is required if complete relief is to be accorded in arbitration, provided that the party sought to be joined consents in writing to such joinder. Consent to arbitration involving an additional person or entity shall not constitute consent to arbitration of any claim, dispute or other matter in question not described in the written consent.

**§ 15.4.4.3** The Owner and Contractor grant to any person or entity made a party to an arbitration conducted under this Section 15.4, whether by joinder or consolidation, the same rights of joinder and consolidation as those of the Owner and Contractor under this Agreement.



**Bid Bond**

**CONTRACTOR:**

*(Name, legal status and address)*

<< >>< >>  
<< >>

**SURETY:**

*(Name, legal status and principal place of business)*

<< >>< >>  
<< >>

**OWNER:**

*(Name, legal status and address)*

<< >>< >>  
<< >>

**BOND AMOUNT:** \$ << >>

**PROJECT:**

*(Name, location or address, and Project number, if any)*

Centertown Parking Garage Improvements, Phase II  
101 West Gray Street  
Elmira, New York 14901

The Contractor and Surety are bound to the Owner in the amount set forth above, for the payment of which the Contractor and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, as provided herein. The conditions of this Bond are such that if the Owner accepts the bid of the Contractor within the time specified in the bid documents, or within such time period as may be agreed to by the Owner and Contractor, and the Contractor either (1) enters into a contract with the Owner in accordance with the terms of such bid, and gives such bond or bonds as may be specified in the bidding or Contract Documents, with a surety admitted in the jurisdiction of the Project and otherwise acceptable to the Owner, for the faithful performance of such Contract and for the prompt payment of labor and material furnished in the prosecution thereof; or (2) pays to the Owner the difference, not to exceed the amount of this Bond, between the amount specified in said bid and such larger amount for which the Owner may in good faith contract with another party to perform the work covered by said bid, then this obligation shall be null and void, otherwise to remain in full force and effect. The Surety hereby waives any notice of an agreement between the Owner and Contractor to extend the time in which the Owner may accept the bid. Waiver of notice by the Surety shall not apply to any extension exceeding sixty (60) days in the aggregate beyond the time for acceptance of bids specified in the bid documents, and the Owner and Contractor shall obtain the Surety's consent for an extension beyond sixty (60) days.

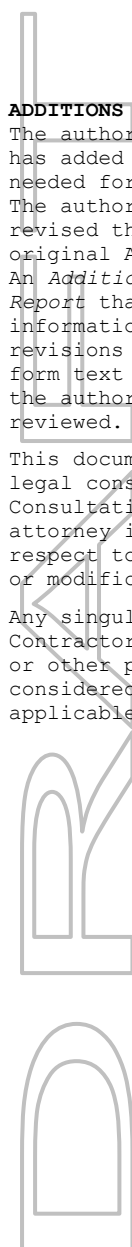
If this Bond is issued in connection with a subcontractor's bid to a Contractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

When this Bond has been furnished to comply with a statutory or other legal requirement in the location of the Project, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

**ADDITIONS AND DELETIONS:**  
The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.



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Signed and sealed this « » day of « », « »

(Witness)

(Witness)

« »

(Contractor as Principal)

(Seal)

« »

(Title)

« »

(Surety)

(Seal)

« »

(Title)



# DRAFT AIA® Document A312® - 2010

## Performance Bond

**CONTRACTOR:**

(Name, legal status and address)

« »« »  
« »

**SURETY:**

(Name, legal status and principal place of business)

« »« »  
« »

**OWNER:**

(Name, legal status and address)

« »« »  
« »

**CONSTRUCTION CONTRACT**

Date: « »

Amount: \$ « »

Description:

(Name and location)

« »  
« »

**BOND**

Date:

(Not earlier than Construction Contract Date)

« »

Amount: \$ « »

Modifications to this

Bond:

« »

None

« »

See Section 16

**CONTRACTOR AS PRINCIPAL**

Company: (Corporate Seal)

Signature:

Name and « »« »

Title:

**SURETY**

Company: (Corporate Seal)

Signature:

Name and « »« »

Title:

(Any additional signatures appear on the last page of this Performance Bond.)

(FOR INFORMATION ONLY — Name, address and telephone)

**AGENT or BROKER:**

« »  
« »  
« »

**OWNER'S REPRESENTATIVE:**

(Architect, Engineer or other party:)

« »  
« »  
« »  
« »  
« »  
« »

**ADDITIONS AND DELETIONS:**

The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed.

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Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.



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§ 1 The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Owner for the performance of the Construction Contract, which is incorporated herein by reference.

§ 2 If the Contractor performs the Construction Contract, the Surety and the Contractor shall have no obligation under this Bond, except when applicable to participate in a conference as provided in Section 3.

§ 3 If there is no Owner Default under the Construction Contract, the Surety's obligation under this Bond shall arise after

- .1 the Owner first provides notice to the Contractor and the Surety that the Owner is considering declaring a Contractor Default. Such notice shall indicate whether the Owner is requesting a conference among the Owner, Contractor and Surety to discuss the Contractor's performance. If the Owner does not request a conference, the Surety may, within five (5) business days after receipt of the Owner's notice, request such a conference. If the Surety timely requests a conference, the Owner shall attend. Unless the Owner agrees otherwise, any conference requested under this Section 3.1 shall be held within ten (10) business days of the Surety's receipt of the Owner's notice. If the Owner, the Contractor and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Construction Contract, but such an agreement shall not waive the Owner's right, if any, subsequently to declare a Contractor Default;
- .2 the Owner declares a Contractor Default, terminates the Construction Contract and notifies the Surety; and
- .3 the Owner has agreed to pay the Balance of the Contract Price in accordance with the terms of the Construction Contract to the Surety or to a contractor selected to perform the Construction Contract.

§ 4 Failure on the part of the Owner to comply with the notice requirement in Section 3.1 shall not constitute a failure to comply with a condition precedent to the Surety's obligations, or release the Surety from its obligations, except to the extent the Surety demonstrates actual prejudice.

§ 5 When the Owner has satisfied the conditions of Section 3, the Surety shall promptly and at the Surety's expense take one of the following actions:

§ 5.1 Arrange for the Contractor, with the consent of the Owner, to perform and complete the Construction Contract;

§ 5.2 Undertake to perform and complete the Construction Contract itself, through its agents or independent contractors;

§ 5.3 Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by the Owner and a contractor selected with the Owner's concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to the Owner the amount of damages as described in Section 7 in excess of the Balance of the Contract Price incurred by the Owner as a result of the Contractor Default; or

§ 5.4 Waive its right to perform and complete, arrange for completion, or obtain a new contractor and with reasonable promptness under the circumstances:

- .1 After investigation, determine the amount for which it may be liable to the Owner and, as soon as practicable after the amount is determined, make payment to the Owner; or
- .2 Deny liability in whole or in part and notify the Owner, citing the reasons for denial.

§ 6 If the Surety does not proceed as provided in Section 5 with reasonable promptness, the Surety shall be deemed to be in default on this Bond seven days after receipt of an additional written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner. If the Surety proceeds as provided in Section 5.4, and the Owner refuses the payment or the Surety has denied liability, in whole or in part, without further notice the Owner shall be entitled to enforce any remedy available to the Owner.

§ 7 If the Surety elects to act under Section 5.1, 5.2 or 5.3, then the responsibilities of the Surety to the Owner shall not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to

the Surety shall not be greater than those of the Owner under the Construction Contract. Subject to the commitment by the Owner to pay the Balance of the Contract Price, the Surety is obligated, without duplication, for

- .1 the responsibilities of the Contractor for correction of defective work and completion of the Construction Contract;
- .2 additional legal, design professional and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under Section 5; and
- .3 liquidated damages, or if no liquidated damages are specified in the Construction Contract, actual damages caused by delayed performance or non-performance of the Contractor.

§ 8 If the Surety elects to act under Section 5.1, 5.3 or 5.4, the Surety's liability is limited to the amount of this Bond.

§ 9 The Surety shall not be liable to the Owner or others for obligations of the Contractor that are unrelated to the Construction Contract, and the Balance of the Contract Price shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than the Owner or its heirs, executors, administrators, successors and assigns.

§ 10 The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders and other obligations.

§ 11 Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and shall be instituted within two years after a declaration of Contractor Default or within two years after the Contractor ceased working or within two years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this Paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

§ 12 Notice to the Surety, the Owner or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears.

§ 13 When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

#### § 14 Definitions

§ 14.1 **Balance of the Contract Price.** The total amount payable by the Owner to the Contractor under the Construction Contract after all proper adjustments have been made, including allowance to the Contractor of any amounts received or to be received by the Owner in settlement of insurance or other claims for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Construction Contract.

§ 14.2 **Construction Contract.** The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and changes made to the agreement and the Contract Documents.

§ 14.3 **Contractor Default.** Failure of the Contractor, which has not been remedied or waived, to perform or otherwise to comply with a material term of the Construction Contract.

§ 14.4 **Owner Default.** Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

§ 14.5 **Contract Documents.** All the documents that comprise the agreement between the Owner and Contractor.

§ 15 If this Bond is issued for an agreement between a Contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

§ 16 Modifications to this bond are as follows:

<< >>

(Space is provided below for additional signatures of added parties, other than those appearing on the cover page.)

**CONTRACTOR AS PRINCIPAL**

Company: (Corporate Seal)

Signature: \_\_\_\_\_  
Name and Title: << >>< >  
Address: << >>

**SURETY**

Company: (Corporate Seal)

Signature: \_\_\_\_\_  
Name and Title: << >>< >  
Address: << >>



# DRAFT AIA® Document A312® - 2010

## Payment Bond

**CONTRACTOR:**

(Name, legal status and address)

« »  
« »

**SURETY:**

(Name, legal status and principal place of business)

« »  
« »

**OWNER:**

(Name, legal status and address)

« »  
« »

**CONSTRUCTION CONTRACT**

Date: « »

Amount: \$ « »

Description:

(Name and location)

« »  
« »

**BOND**

Date:

(Not earlier than Construction Contract Date)

« »

Amount: \$ « »

Modifications to this Bond:

« »

None

« »

See Section 18

**CONTRACTOR AS PRINCIPAL**

Company: (Corporate Seal)

**SURETY**

Company: (Corporate Seal)

Signature:

Name and « »

Title:

Signature:

Name and « »

Title:

(Any additional signatures appear on the last page of this Payment Bond.)

(FOR INFORMATION ONLY — Name, address and telephone)

**AGENT or BROKER:**

« »  
« »  
« »

**OWNER'S REPRESENTATIVE:**

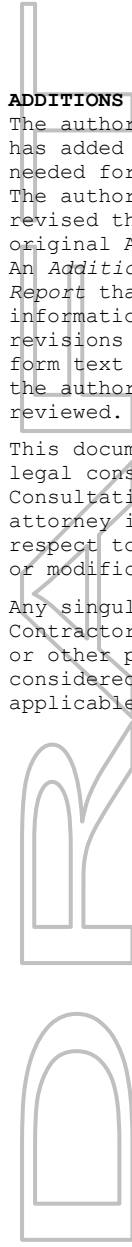
(Architect, Engineer or other party:)

« »  
« »  
« »  
« »  
« »

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This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

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§ 1 The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Owner to pay for labor, materials and equipment furnished for use in the performance of the Construction Contract, which is incorporated herein by reference, subject to the following terms.

§ 2 If the Contractor promptly makes payment of all sums due to Claimants, and defends, indemnifies and holds harmless the Owner from claims, demands, liens or suits by any person or entity seeking payment for labor, materials or equipment furnished for use in the performance of the Construction Contract, then the Surety and the Contractor shall have no obligation under this Bond.

§ 3 If there is no Owner Default under the Construction Contract, the Surety's obligation to the Owner under this Bond shall arise after the Owner has promptly notified the Contractor and the Surety (at the address described in Section 13) of claims, demands, liens or suits against the Owner or the Owner's property by any person or entity seeking payment for labor, materials or equipment furnished for use in the performance of the Construction Contract and tendered defense of such claims, demands, liens or suits to the Contractor and the Surety.

§ 4 When the Owner has satisfied the conditions in Section 3, the Surety shall promptly and at the Surety's expense defend, indemnify and hold harmless the Owner against a duly tendered claim, demand, lien or suit.

§ 5 The Surety's obligations to a Claimant under this Bond shall arise after the following:

§ 5.1 Claimants, who do not have a direct contract with the Contractor,

- .1 have furnished a written notice of non-payment to the Contractor, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were, or equipment was, furnished or supplied or for whom the labor was done or performed, within ninety (90) days after having last performed labor or last furnished materials or equipment included in the Claim; and
- .2 have sent a Claim to the Surety (at the address described in Section 13).

§ 5.2 Claimants, who are employed by or have a direct contract with the Contractor, have sent a Claim to the Surety (at the address described in Section 13).

§ 6 If a notice of non-payment required by Section 5.1.1 is given by the Owner to the Contractor, that is sufficient to satisfy a Claimant's obligation to furnish a written notice of non-payment under Section 5.1.1.

§ 7 When a Claimant has satisfied the conditions of Sections 5.1 or 5.2, whichever is applicable, the Surety shall promptly and at the Surety's expense take the following actions:

§ 7.1 Send an answer to the Claimant, with a copy to the Owner, within sixty (60) days after receipt of the Claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed; and

§ 7.2 Pay or arrange for payment of any undisputed amounts.

§ 7.3 The Surety's failure to discharge its obligations under Section 7.1 or Section 7.2 shall not be deemed to constitute a waiver of defenses the Surety or Contractor may have or acquire as to a Claim, except as to undisputed amounts for which the Surety and Claimant have reached agreement. If, however, the Surety fails to discharge its obligations under Section 7.1 or Section 7.2, the Surety shall indemnify the Claimant for the reasonable attorney's fees the Claimant incurs thereafter to recover any sums found to be due and owing to the Claimant.

§ 8 The Surety's total obligation shall not exceed the amount of this Bond, plus the amount of reasonable attorney's fees provided under Section 7.3, and the amount of this Bond shall be credited for any payments made in good faith by the Surety.

§ 9 Amounts owed by the Owner to the Contractor under the Construction Contract shall be used for the performance of the Construction Contract and to satisfy claims, if any, under any construction performance bond. By the Contractor furnishing and the Owner accepting this Bond, they agree that all funds earned by the Contractor in the performance of the Construction Contract are dedicated to satisfy obligations of the Contractor and Surety under this Bond, subject to the Owner's priority to use the funds for the completion of the work.

**§ 10** The Surety shall not be liable to the Owner, Claimants or others for obligations of the Contractor that are unrelated to the Construction Contract. The Owner shall not be liable for the payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligation to make payments to, or give notice on behalf of, Claimants or otherwise have any obligations to Claimants under this Bond.

**§ 11** The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders and other obligations.

**§ 12** No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the state in which the project that is the subject of the Construction Contract is located or after the expiration of one year from the date (1) on which the Claimant sent a Claim to the Surety pursuant to Section 5.1.2 or 5.2, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this Paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

**§ 13** Notice and Claims to the Surety, the Owner or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears. Actual receipt of notice or Claims, however accomplished, shall be sufficient compliance as of the date received.

**§ 14** When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

**§ 15** Upon request by any person or entity appearing to be a potential beneficiary of this Bond, the Contractor and Owner shall promptly furnish a copy of this Bond or shall permit a copy to be made.

## **§ 16 Definitions**

**§ 16.1 Claim.** A written statement by the Claimant including at a minimum:

- .1 the name of the Claimant;
- .2 the name of the person for whom the labor was done, or materials or equipment furnished;
- .3 a copy of the agreement or purchase order pursuant to which labor, materials or equipment was furnished for use in the performance of the Construction Contract;
- .4 a brief description of the labor, materials or equipment furnished;
- .5 the date on which the Claimant last performed labor or last furnished materials or equipment for use in the performance of the Construction Contract;
- .6 the total amount earned by the Claimant for labor, materials or equipment furnished as of the date of the Claim;
- .7 the total amount of previous payments received by the Claimant; and
- .8 the total amount due and unpaid to the Claimant for labor, materials or equipment furnished as of the date of the Claim.

**§ 16.2 Claimant.** An individual or entity having a direct contract with the Contractor or with a subcontractor of the Contractor to furnish labor, materials or equipment for use in the performance of the Construction Contract. The term Claimant also includes any individual or entity that has rightfully asserted a claim under an applicable mechanic's lien or similar statute against the real property upon which the Project is located. The intent of this Bond shall be to include without limitation in the terms "labor, materials or equipment" that part of water, gas, power, light, heat, oil, gasoline, telephone service or rental equipment used in the Construction Contract, architectural and engineering services required for performance of the work of the Contractor and the Contractor's subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials or equipment were furnished.

**§ 16.3 Construction Contract.** The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and all changes made to the agreement and the Contract Documents.

§ 16.4 **Owner Default.** Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

§ 16.5 **Contract Documents.** All the documents that comprise the agreement between the Owner and Contractor.

§ 17 If this Bond is issued for an agreement between a Contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

§ 18 Modifications to this bond are as follows:

« »

(Space is provided below for additional signatures of added parties, other than those appearing on the cover page.)

**CONTRACTOR AS PRINCIPAL**

Company: \_\_\_\_\_ (Corporate Seal)

Signature: \_\_\_\_\_  
Name and Title: « »« »  
Address: « »

**SURETY**

Company: \_\_\_\_\_ (Corporate Seal)

Signature: \_\_\_\_\_  
Name and Title: « »« »  
Address: « »

## SECTION 011100

### SUMMARY

#### PART 1 - GENERAL

##### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

##### 1.2 WORK COVERED BY CONTRACT DOCUMENTS

- A. Project Identification:

- 1. Project Location: 101 West Gray Street, Elmira, New York 14901
- 2. Owner: City of Elmira, 317 East Church Street, Elmira, New York 14901

- B. Engineers Identification: The Contract Documents were prepared for the Project by LaBella Associates, D.P.C., 100 West Water Street, Suite 101, Elmira, New York 14901 Tel: 607-882-0641

- C. The work includes, but is not limited to, the following:

- 1. Structural repair and architectural, electrical, plumbing, and fire protection improvements to the Centertown Parking Garage, a seven-level concrete structure.

##### 1.3 CONTRACT

- A. Project consists of the following separate contracts:

Contract 1 – General Construction

Contract 2 – Electrical Construction

Contract 3 – Plumbing Construction

- B. Items noted “NIC” (Not-In-Contract), will be furnished and installed by others.

##### 1.4 WORK SEQUENCE

- A. The Work shall be conducted in one single phase. Coordinate construction schedule and operations with Owner and Engineer.

##### 1.5 CONTRACTOR USE OF PREMISES

- A. Limited use of premises for work and for construction operations, to allow for Owner occupancy, work by others and public access.
- B. Coordinate use of premises under direction of Owner and Engineer.

#### 1.6 OWNER OCCUPANCY

- A. Owner will occupy premises during entire period of construction, stage of construction. Cooperate with Owner and Engineer to minimize conflict and facilitate Owner's operations.

#### 1.7 SPECIFICATION FORMATS AND CONVENTIONS

- A. Specification Format: The Specifications are organized into Divisions and Sections using the 50-division format and CSI/CSC's "MasterFormat" numbering system.
  - 1. Section Identification: The Specifications use section numbers and titles to help cross-referencing in the Contract Documents. Sections in the Project Manual are in numeric sequence; however, the sequence is incomplete. Consult the table of contents at the beginning of the Project Manual to determine numbers and names of sections in the Contract Documents.
- B. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
  - 1. Abbreviated Language: Language used in the Specifications and other Contract Documents is abbreviated. Words and meanings shall be interpreted as appropriate. Words implied, but not stated, shall be inferred as the sense requires. Singular words shall be interpreted as plural, and plural words shall be interpreted as singular where applicable as the context of the Contract Documents indicates.
  - 2. Imperative mood and streamlined language are generally used in the Specifications. Requirements expressed in the imperative mood are to be performed by Contractor. Occasionally, the indicative or subjunctive mood may be used in the Section Text for clarity to describe responsibilities that must be fulfilled indirectly by Contractor or by others when so noted.
    - a. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

**END OF SECTION-011100**

## SECTION 011200 - MULTIPLE CONTRACT SUMMARY

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section includes a summary of each contract, including responsibilities for coordination and temporary facilities and controls.
- B. Specific requirements for Work of each contract are also indicated in individual Specification Sections and on Drawings.
- C. Related Requirements:
  - 1. Section 011000 "Summary" for the Work covered by the Contract Documents, restrictions on use of Project site, coordination with occupants, and work restrictions.
  - 2. Section 013100 "Project Management and Coordination" for general coordination requirements.

#### 1.3 DEFINITIONS

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

#### 1.4 GENERAL REQUIREMENTS OF CONTRACTS

- A. Extent of Contract: Unless the Agreement contains a more specific description of the Work of each Contract, requirements indicated on Drawings and in Specification Sections determine which contract includes a specific element of Project.
  - 1. Unless otherwise indicated, the work described in this Section for each contract shall be complete systems and assemblies, including products, components, accessories, and installation required by the Contract Documents.
  - 2. Trenches and other excavation for the work of each contract shall be the work of each contract for its own work.
  - 3. Blocking, backing panels, sleeves, and metal fabrication supports for the work of each contract shall be the work of each contract for its own work.
  - 4. Equipment pads for the work of each contract shall be the work of each contract for its own work.

5. Painting for the work of each contract shall be the work of the General Construction Contract.
  6. Cutting and Patching: Provided under each contract for its own work.
  7. Through-penetration firestopping for the work of each contract shall be provided by each contract for its own work.
  8. Contractors' Startup Construction Schedule: Within five working days after startup horizontal bar-chart-type construction schedule submittal has been received from Project coordinator, submit a matching startup horizontal bar-chart schedule showing construction operations sequenced and coordinated with overall construction.
- B. Substitutions: Each contractor shall cooperate with other contractors involved to coordinate approved substitutions with remainder of the work.
1. The General Construction Contract shall coordinate substitutions.
- C. Temporary Facilities and Controls: In addition to specific responsibilities for temporary facilities and controls indicated in this Section and in Section 015000 "Temporary Facilities and Controls," each contractor is responsible for the following:
1. Installation, operation, maintenance, and removal of each temporary facility necessary for its own normal construction activity, and costs and use charges associated with each facility, except as otherwise provided for in this Section.
  2. Plug-in electric power cords and extension cords, supplementary plug-in task lighting, and special lighting necessary exclusively for its own activities.
  3. Its own field office, complete with necessary furniture, utilities, and telephone service.
  4. Its own storage and fabrication sheds.
  5. Temporary enclosures for its own construction activities.
  6. Staging and scaffolding for its own construction activities.
  7. General hoisting facilities for its own construction activities, up to 2 tons.
  8. Waste disposal facilities, including collection and legal disposal of its own hazardous, dangerous, unsanitary, or other harmful waste materials.
  9. Progress cleaning of work areas affected by its operations on a daily basis.
  10. Secure lockup of its own tools, materials, and equipment.
  11. Construction aids and miscellaneous services and facilities necessary exclusively for its own construction activities.

#### 1.5 GENERAL CONSTRUCTION CONTRACT

- A. Work of the General Construction Contract includes, but is not limited to, the following:
1. All work shown on the AP and SR series drawing sheets.
  2. Remaining work not identified as work under other contracts.
  3. Selective demolition.
  4. Superstructure repair, including floor and roof construction.
  5. Signage, striping (pavement marking).
  6. Coating, waterproofing.
  7. Miscellaneous items, including painting of electrical and plumbing work.
- B. Temporary facilities and controls in the General Construction Contract include, but are not limited to, the following:

1. Temporary facilities and controls that are not otherwise specifically assigned to other contracts.
2. Sediment and erosion control.
3. Stormwater control.
4. Unpiped temporary toilet fixtures and wash facilities.
5. Temporary enclosure for building exterior, except as indicated.
6. Dewatering facilities and drains.
7. Project identification and temporary signs.
8. General waste disposal facilities.
9. Temporary fire-protection facilities.
10. Barricades, warning signs, and lights.
11. Site enclosure fence.
12. Covered walkways.
13. Security enclosure and lockup.
14. Environmental protection.
15. Maintenance and restoration of Owner's existing facilities used as temporary facilities.

#### 1.6 ELECTRICAL CONTRACT

A. Work of the Electrical Contract includes, but is not limited to, the following:

1. Electrical service and distribution.
2. Lighting.
3. Communication and security.
4. Electrical connections to equipment furnished by the Electrical Contract

B. Temporary facilities and controls in the Electrical Contract include, but are not limited to, the following:

1. Electric power service and distribution.
2. Lighting.
3. Electrical connections to existing systems and temporary facilities and controls furnished by the Electrical Contract.

#### 1.7 PLUMBING CONTRACT

A. Work of the Plumbing Contract includes, but is not limited to, the following:

1. Plumbing fixtures.
2. Stormwater drainage.
3. Fire-suppression systems.
4. Plumbing connections to equipment furnished by the Plumbing Contract.

B. Temporary facilities and controls in the Plumbing Contract include, but are not limited to, the following:

1. Piped sewerage and drainage.

2. Plumbing connections to existing systems and temporary facilities and controls furnished by the Plumbing Contract.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 011200

## SECTION 011400

### WORK RESTRICTIONS

#### PART 1 - GENERAL

##### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

##### 1.2 USE OF PREMISES

- A. Use of Site: Limit use of premises to work in areas indicated. Do not disturb portions of site beyond areas in which the Work is indicated.
  - 1. Limits: Confine constructions operations to areas as shown on Contract Drawings. No work outside of the road right of way is permitted.
  - 2. Driveways and Entrances: Keep driveways and entrances serving properties affected by the Work clear and available to the property owners, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.
    - a. Schedule deliveries to minimize use of driveways and entrances.
    - b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.
- B. Noise: Contractor shall not perform work in excess of 65 dBA outside of allowable work hours.
  - 1. Limits: Allowable work hours are defined as 8:00 AM to 5:00 PM, Monday through Friday. No work with excessive noise shall be permitted on Saturday or Sunday.
  - 2. Noise determined by measured value by a sound meter at a distance of 20 feet from the work being performed.

#### PART 2 - PRODUCTS (Not Used)

#### PART 3 - EXECUTION (Not Used)

**END OF SECTION-011400**

## SECTION 012200 - UNIT PRICES

### PART 1 - GENERAL

#### 1.1 REQUIREMENTS INCLUDED

- A. This Section includes administrative and procedural requirements for unit prices including descriptions and procedures for measurement and payment.

#### 1.2 RELATED REQUIREMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.
- B. Section 012600 - Contract Modification Procedures.
- C. Section 014000 - Quality Requirements.

#### 1.3 DEFINITIONS

- A. Unit price is an amount proposed by bidders, stated on the Bid Form, as a price per unit of measurement for materials or services, which may be added to or deducted from the Contract Sum by appropriate modification, if estimated quantities of Work required by the Contract Documents are increased or decreased.

#### 1.4 PROCEDURES

- A. Unit prices include all necessary material, plus cost for delivery, installation, insurance, applicable taxes, overhead, and profit.
- B. Measurement and Payment:
  - 1. Payment Items are listed in this section by Payment Item number exactly as they appear on the Bid Form.
  - 2. Subject to the provisions in GENERAL CONDITIONS, Article 11 – Changes to the Contract, all Work and payment for the Work of this Contract are represented by Payment Items and associated unit prices.
    - a. Payment Items include all incidental costs and subsidiary obligations reasonably required to complete the Work.
    - b. Payment Items include all Work Units combined as specified in this Section.
  - 3. Definitions:
    - a. PAYMENT ITEM: a specifically described unit of Work or a combination of described units of Work for which a price is provided in the Contract.
    - b. WORK UNIT: an element of work specifically described in one of the Specification Sections which may be:
      - 1) Combined with other Work Units into a single Payment Item as specified in this Section; or

- 2) Specified as a Payment Item in this Section. The Work unit may appear in the Contract as a discrete Payment Item, and may also be combined with other Work Units as a part of another Payment Item.
- 3) SUBSIDIARY OBLIGATIONS: all material, labor, supplies, equipment, and services
- 4) not specifically described as Payment Items but which are reasonably required to complete the Work.

C. PAYMENT

1. Subject to all other Contract requirements, the Contractor shall be paid for “as-built” and in place quantities of Payment Items.
2. Estimated Quantities on the Bid Form are for comparison in competitive bidding only and do not constitute a basis for payment or measurement of quantities.
3. Unless otherwise specified or further qualified in this Section, Estimated Quantities on the Bid Form are:
  - a. Accurate within + or - 25%.
  - b. As-built quantities of Payment Items failing to meet such accuracy are defined as significantly changed, and subject the provisions in GENERAL CONDITIONS, Article 11, Paragraph 11.03.

D. MEASUREMENT FOR PAYMENT

1. Payment Limit Lines:
  - a. Where payment limit lines are shown on the Contract Drawings, measurement of a Payment Item quantity will be made up to, but not beyond such lines.
  - b. Where the actual work of a Payment Item falls short of the payment limit line, measurement will be made to the line of the actual work.
  - c. No measurement for payment will be made for quantities outside the payment limit lines unless authorized in writing by the Engineer.
2. Methods of Measurement:
  - a. Measurements of lengths, widths, slope angles, and depths or elevations shall be made to determine “as built” quantities of lengths, areas, and volumes pertinent to Payment Items.
    - 1) Unless otherwise specified, all lengths shall be horizontal distances.
    - 2) Slope angles and elevations shall be measured using land surveying equipment appropriate to the situation.
  - b. Graphic representations of measured quantities shall be drafted to scale using the Contract Drawings where convenient and appropriate. Additional drawings shall be drafted if required.
    - 1) Irregular shapes representing areas and volumes shall be measured using a compensating polar planimeter or a computer digitizer.
    - 2) Regular shapes shall be scaled.
  - c. Use of Contract Drawings:
    - 1) Unless otherwise agreed upon between the Contractor and Engineer the Contract Drawings shall be used as the basis to establish existing grades and other existing topographic features prior to the start of work.
    - 2) Payment Limits where payment Lines are not shown on the Contract Drawings:

- d. Earthwork excavation and embankment grades:
    - 1) Original: Grade prior to stripping topsoil, clearing, and grubbing.
    - 2) Finished: Upper grade of the excavation or embankment Payment Item.
  - e. Trench excavation:
    - 1) Original top in existing paved areas: Grade after pavement removal.
    - 2) Original top in existing earth areas: Grade prior to stripping topsoil, clearing, and grubbing.
    - 3) Original top in proposed grade-change areas: Grade after making earthwork cuts or fills.
    - 4) Bottom: Grade of pipe zone bedding bottom.
    - 5) Bottom Width: Pipe outside diameter (OD) plus 12 inches on each side unless otherwise shown on Contract Drawings.
    - 6) Sides: Vertical (when supported) or per OSHA.
  - f. Pavement Removal for Trenches:
    - 1) Width: As shown on the Contract Drawings.
    - 2) Width: Structure size plus four feet each side of structure.
  - g. Other Measurements for Payment:
    - 1) Pipe Lengths: Measurement of pipe shall be made along the top of pipe in place, taken as the laying length for the following:
      - 2) Water pipe, including fittings and valves.
      - 3) Sanitary & Storm Sewer pipe, including branches, fittings, and excluding flared end sections, and the inside dimension of manholes, catch basins, and vaults.
  - h. Except as otherwise specified, measurement of Payment Item quantities of weights, lengths, areas, and volumes shall be made:
    - 1) On "as-built" and in-place completed work, during construction or at the time of Substantial Completion.
    - 2) If no other feasible and practical method of measurement is available, by delivery slips delivered to the Engineer.
  - i. Adjustments shall be made to eliminate overlaps in area and volume calculations.
  - j. Deductions shall be made for volume occupied by pipes, manholes, and other structures built under this Contract.
- E. Owner reserves the right to reject Contractor's measurement of work-in-place that involves use of established unit prices and to have this work measured, at Owner's expense, by an independent surveyor acceptable to Contractor.

END OF SECTION 012200

## SECTION 012300 - ALTERNATES

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

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

#### 1.3 DEFINITIONS

- A. Alternate: An amount proposed by bidders and stated on the Bid Form for certain work defined in the bidding requirements that may be added to or deducted from the base bid amount if the Owner decides to accept a corresponding change either in the amount of construction to be completed or in the products, materials, equipment, systems, or installation methods described in the Contract Documents.
  - 1. Alternates described in this Section are part of the Work only if enumerated in the Agreement.
  - 2. The cost or credit for each alternate is the net addition to or deduction from the Contract Sum to incorporate alternates into the Work. No other adjustments are made to the Contract Sum.

#### 1.4 PROCEDURES

- A. Coordination: Revise or adjust affected adjacent work as necessary to completely integrate work of the alternate into Project.
  - 1. Include, as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation, whether or not indicated as part of alternate.
- B. Execute accepted alternates under the same conditions as other Work of the Contract.
- C. Schedule: A Part 3 "Schedule of Alternates" Article is included at the end of this Section. Specification Sections referenced in schedule contain requirements for materials necessary to achieve the work described under each alternate.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 SCHEDULE OF ALTERNATES

- A. Electrical Construction Contract Alternate No. 1: Blue Light system and associated power Circuit for Blue Light and FACP.
  - 1. Provide Blue light system as indicated on drawings
  - 2. Provide power circuits to office for use by Blue Light control unit and future FACP as indicated on Electrical Drawings.
- B. Electrical Construction Contract Alternate No. 2: Lighting.
  - 1. Remove and replace lighting as indicated on Electrical Drawings.
- C. Plumbing Construction Contract Alternate No. 1:
  - 1. Replace existing deck drain grating with custom fabricated traffic duty deck drain grating in lieu of replacing entire drain body.

END OF SECTION 012300

## SECTION 012600

### CONTRACT MODIFICATION PROCEDURES

#### PART 1 - GENERAL

##### 1.1 REQUIREMENTS INCLUDED

- A. This Section specifies administrative and procedural requirements for handling and processing Contract modifications.

##### 1.2 RELATED REQUIREMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.
- B. Section 016000 - Product Requirements.

##### 1.3 MINOR CHANGES IN THE WORK

- A. Engineer will issue through Project Representative supplemental instructions authorizing Minor Changes in the Work, not involving adjustment to the Contract Sum or the Contract Time, in the form of a written Field Order (EJCDC form C-942) in accordance with Paragraph 11.02 of the General Conditions.

##### 1.4 PROPOSAL REQUESTS

- A. Owner-Initiated Proposal Requests: Engineer will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.
  - 1. Proposal Requests issued by Engineer are for information only. Do not consider them instructions either to stop work in progress or to execute the proposed change.
  - 2. Within time specified in Proposal Request after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.
    - a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
    - b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
    - c. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.

- B. Contractor-Initiated Proposals: If latent or unforeseen conditions require modifications to the Contract, Contractor may propose changes by submitting a request for a change to Engineer.
1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
  2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
  3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
  4. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
  5. Comply with requirements in Division 01 Section "Product Requirements" if the proposed change requires substitution of one product or system for product or system specified.

#### 1.5 CHANGE ORDER PROCEDURES

- A. On Owner's approval of a Proposal Request, Engineer will issue a Change Order for signatures of Owner and Contractor on EJCDC form C-941 included as Section 012663.

#### 1.6 CONSTRUCTION CHANGE DIRECTIVE

- A. Work Change Directive: Engineer may issue a Work Change Directive on EJCDC form C-940 included as Section 012649. Work Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
1. Work Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.
- B. Documentation: Maintain detailed records on a time and material basis of work required by the Work Change Directive.
1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

**END OF SECTION-012600**

## SECTION 012900

### PAYMENT PROCEDURES

#### PART 1 - GENERAL

##### 1.1 REQUIREMENTS INCLUDED

- A. This Section specifies administrative and procedural requirements necessary to prepare and process Applications for Payment.

##### 1.2 RELATED REQUIREMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions apply to this Section.
- B. Section 012600 - Contract Modification Procedures.
- C. Section 013200 - Construction Progress Documentation.

##### 1.3 DEFINITIONS

- A. Schedule of Values: A statement furnished by Contractor allocating portions of the Contract Sum to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

##### 1.4 SCHEDULE OF VALUES

- A. Coordination: Coordinate preparation of the Schedule of Values with preparation of Contractor's Construction Schedule.
  - 1. Correlate line items in the Schedule of Values with other required administrative forms and schedules, including the following:
    - a. Application for Payment forms with Continuation Sheets.
    - b. Submittals Schedule.
  - 2. Submit the Schedule of Values to Engineer through Project Representative at earliest possible date but no later than seven days before the date scheduled for submittal of initial Applications for Payment.
  - 3. Sub-schedules: Where the Work is separated into phases requiring separately phased payments, provide sub-schedules showing values correlated with each phase of payment.
- B. Format and Content: Use the Project Manual table of contents as a guide to establish line items for the Schedule of Values. Provide at least one line item for each Specification Section.

1. Identification: Include the following Project identification on the Schedule of Values:
  - a. Project name and location.
  - b. Name of Engineer.
  - c. Engineer's project number.
  - d. Contractor's name and address.
  - e. Date of submittal.
  
2. Arrange the Schedule of Values in tabular form with separate columns to indicate the following for each item listed:
  - a. Related Specification Section or Division.
  - b. Description of the Work.
  - c. Name of subcontractor.
  - d. Name of manufacturer or fabricator.
  - e. Name of supplier.
  - f. Change Orders (numbers) that affect value.
  - g. Dollar value.
    - 1) Percentage of the Contract Sum to nearest one-hundredth percent, adjusted to total 100 percent.
  
3. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with the Project Manual table of contents. Provide several line items for principal subcontract amounts, where appropriate.
4. Round amounts to nearest whole dollar; total shall equal the Contract Sum.
5. Provide a separate line item in the Schedule of Values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.
  - a. Differentiate between items stored on-site and items stored off-site. Include evidence of insurance or bonded warehousing if required.
  
6. Provide separate line items in the Schedule of Values for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of the Work.
7. Allowances: Provide a separate line item in the Schedule of Values for each allowance. Show line-item value of unit-cost allowances, as a product of the unit cost, multiplied by measured quantity. Use information indicated in the Contract Documents to determine quantities.
8. Each item in the Schedule of Values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.
  - a. Temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown either as separate line items in the Schedule of Values or distributed as general overhead expense, at Contractor's option.

9. **Schedule Updating:** Update and resubmit the Schedule of Values before the next Applications for Payment when Change Orders or Construction Change Directives result in a change in the Contract Sum.

## 1.5 APPLICATIONS FOR PAYMENT

- A. Each Application for Payment shall be consistent with previous applications and payments as certified by Engineer and paid for by Owner.
  1. Initial Application for Payment, Application for Payment at time of Substantial Completion, and final Application for Payment involve additional requirements.
- B. **Payment Application Times:** The date for each progress payment is the 15th day of each month. The period covered by each Application for Payment starts on the day following the end of the preceding period and ends 15 days before the date for each progress payment.
- C. **Certified Payrolls:** Contractor shall provide certified payrolls as attachments to each original copy of the application for payment.
- D. **Payment Application Forms:** EJCDC Document C-620 or other standard form as approved by Engineer for Applications for Payment.
- E. **Application Preparation:** Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Engineer will return incomplete applications without action.
  1. Entries shall match data on the Schedule of Values and Contractor's Construction Schedule. Use updated schedules if revisions were made.
  2. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.
- F. **Transmittal:** Submit 5 signed and notarized original copies of each Application for Payment to Engineer by a method ensuring receipt. One copy shall include waivers of lien and similar attachments if required.
  1. Transmit each copy with a transmittal form listing attachments and recording appropriate information about application.
- G. **Waivers of Mechanic's Lien:** With each Application for Payment, submit waivers of mechanic's lien from every entity who is lawfully entitled to file a mechanic's lien arising out of the Contract and related to the Work covered by the payment.
  1. Submit partial waivers on each item for amount requested, before deduction for retainage, on each item.
  2. When an application shows completion of an item, submit final or full waivers.

3. Owner reserves the right to designate which entities involved in the Work must submit waivers.
  4. Waiver Delays: Submit each Application for Payment with Contractor's waiver of mechanic's lien for construction period covered by the application.
    - a. Submit final Application for Payment with, or preceded by, final waivers from every entity involved with performance of the Work covered by the application who is lawfully entitled to a lien.
  5. Waiver Forms: Submit waivers of lien on forms, executed in a manner acceptable to Owner.
- H. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:
1. List of subcontractors.
  2. Schedule of Values.
  3. Contractor's Construction Schedule (preliminary if not final).
  4. Products list.
  5. Schedule of unit prices.
  6. Submittals Schedule (preliminary if not final).
  7. List of Contractor's staff assignments.
  8. List of Contractor's principal consultants.
  9. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.
- I. Application for Payment at Substantial Completion: After issuing the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.
1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
  2. This application shall reflect Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of the Work.
- J. Final Payment Application: Submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:
1. Evidence of completion of Project closeout requirements.
  2. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
  3. Updated final statement, accounting for final changes to the Contract Sum.
  4. AIA Document G706, "Contractor's Affidavit of Payment of Debts and Claims."
  5. AIA Document G706A, "Contractor's Affidavit of Release of Liens."
  6. AIA Document G707, "Consent of Surety to Final Payment."

7. Evidence that claims have been settled.
8. Final meter readings for utilities, a measured record of stored fuel, and similar data as of date of Substantial Completion or when Owner took possession of and assumed responsibility for corresponding elements of the Work.
9. Final, liquidated damages settlement statement.
10. Transmittal of As-Built drawings in digital and hard copy format.
11. Evidence that temporary facilities, surplus materials, rubbish and contractor owned equipment and machinery have been removed from the site.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

**END OF SECTION-012900**

## SECTION 013100

### PROJECT MANAGEMENT AND COORDINATION

#### PART 1 - GENERAL

##### 1.1 REQUIREMENTS INCLUDED

- A. This Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:
  - 1. General project coordination procedures.
  - 2. Conservation.
  - 3. Coordination Drawings.
  - 4. Administrative and supervisory personnel.
  - 5. Project meetings.

##### 1.2 RELATED REQUIREMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions apply to this Section.
- B. Section 013200 - Construction Progress Documentation.
- C. Section 017000 - Execution Requirements.
- D. Section 017700 - Closeout Procedures.

##### 1.3 COORDINATION

- A. Coordination: Coordinate construction operations included in various Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different Sections that depend on each other for proper installation, connection, and operation.
- B. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and activities of other contractors to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
  - 1. Preparation of Contractor's Construction Schedule.
  - 2. Preparation of the Schedule of Values.
  - 3. Installation and removal of temporary facilities and controls.
  - 4. Delivery and processing of submittals.

5. Progress meetings.
6. Preinstallation conferences.
7. Project closeout activities.

C. Conservation: Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials.

1. Salvage materials and equipment involved in performance of, but not actually incorporated into, the Work.

#### 1.4 SUBMITTALS

A. Staff Names: Within 15 days of starting construction operations, submit a list of principal staff assignments, including superintendent and other personnel in attendance at Project site. Identify individuals and their duties and responsibilities; list addresses and telephone numbers, including home and office telephone numbers. Provide names, addresses, and telephone numbers of individuals assigned as standbys in the absence of individuals assigned to Project.

1. Post copies of list in Project meeting room, in temporary field office, and by each temporary telephone.

#### 1.5 PROJECT MEETINGS

A. General: Engineer will schedule and conduct meetings and conferences at Project site, unless otherwise indicated.

1. Agenda: Engineer will prepare the meeting agenda and distribute the agenda to all invited attendees.
2. Minutes: Engineer will record significant discussions and agreements achieved and distribute the meeting minutes to everyone concerned.

B. Preconstruction Conference: A preconstruction conference will be scheduled before starting construction, at a time convenient to Owner, Engineer, Funding Agencies and Regulatory Agencies, but no later than 30 days after execution of the Agreement.

1. Attendees: Authorized representatives of Owner, Engineer, and their consultants; Contractor and its superintendent; major subcontractors; manufacturers and suppliers. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
2. Agenda: Discuss items of significance that could affect progress, including the following:
  - a. Tentative construction schedule.
  - b. Phasing.
  - c. Critical work sequencing.
  - d. Designation of responsible personnel.
  - e. Procedures for processing field decisions and Change Orders.
  - f. Procedures for processing Applications for Payment.
  - g. Distribution of the Contract Documents.
  - h. Submittal procedures.

- i. Preparation of Record Documents.
  - j. Use of the premises.
  - k. Responsibility for temporary facilities and controls.
  - l. Parking availability.
  - m. Office, work, and storage areas.
  - n. Equipment deliveries and priorities.
  - o. First aid.
  - p. Security.
  - q. Progress cleaning.
  - r. Working hours.
- C. Progress Meetings: Conduct progress meetings at monthly intervals. Coordinate dates of meetings with preparation of payment requests.
1. Attendees: In addition to representatives of Owner and Engineer, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
  2. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
    - a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's Construction Schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
    - b. Review present and future needs of each entity present, including the following:
      - 1) Interface requirements.
      - 2) Sequence of operations.
      - 3) Status of submittals.
      - 4) Deliveries.
      - 5) Off-site fabrication.
      - 6) Access.
      - 7) Site utilization.
      - 8) Temporary facilities and controls.
      - 9) Work hours.
      - 10) Hazards and risks.
      - 11) Progress cleaning.
      - 12) Quality and work standards.
      - 13) Change Orders.
      - 14) Documentation of information for payment requests.
  3. Reporting: Engineer will distribute minutes of the meeting to each party present and to parties who should have been present.

- a. Schedule Updating: Revise Contractor's Construction Schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

**END OF SECTION 013100**

## SECTION 013200

### CONSTRUCTION PROGRESS DOCUMENTATION

#### PART 1 - GENERAL

##### 1.1 REQUIREMENTS INCLUDED

- A. This Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:
  - 1. Preliminary Construction Schedule.
  - 2. Contractor's Construction Schedule.
  - 3. Submittals Schedule.
  - 4. Daily construction reports.
  - 5. Material location reports.
  - 6. Field condition reports.
  - 7. Special reports.

##### 1.2 RELATED REQUIREMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions apply to this Section.
- B. Section 012900 - Payment Procedures.
- C. Section 013100 - Project Management and Coordination.
- D. Section 013300 - Submittal Procedures.
- E. Section 014000 - Quality Requirements.
- F. Section 017700 - Closeout Procedures

##### 1.3 SUBMITTALS

- A. Submittals Schedule: Submit an electronic copy of the schedule to the Engineer. Arrange the following information in a tabular format:
  - 1. Scheduled date for first submittal.
  - 2. Specification Section number and title.
  - 3. Submittal category (action or informational).
  - 4. Name of subcontractor.
  - 5. Description of the Work covered.
  - 6. Scheduled date for Engineer's final release or approval.
- B. Preliminary Construction Schedule: Submit one electronic copy to the Engineer.

- C. Contractor's Construction Schedule: Submit one electronic copy to the Engineer showing entire schedule for entire construction period.
  - 1. Earnings Report: Compilation of Contractor's total earnings from the Notice to Proceed until most recent Application for Payment.

#### 1.4 QUALITY ASSURANCE

- A. Pre-scheduling Conference: Conduct conference at Project site to comply with requirements in Division 01 Section "Project Management and Coordination." Review methods and procedures related to the Preliminary Construction Schedule and Contractor's Construction Schedule, including, but not limited to, the following:
  - 1. Verify availability of qualified personnel needed to develop and update schedule.
  - 2. Discuss constraints, including phasing, work stages, area separations and interim milestones.
  - 3. Review delivery dates for Owner-furnished products.
  - 4. Review schedule for work of Owner's separate contracts.
  - 5. Review time required for review of submittals and re-submittals.
  - 6. Review requirements for tests and inspections by independent testing and inspecting agencies.
  - 7. Review time required for completion and startup procedures.
  - 8. Review and finalize list of construction activities to be included in schedule.
  - 9. Review submittal requirements and procedures.
  - 10. Review procedures for updating schedule.

#### 1.5 COORDINATION

- A. Coordinate preparation and processing of schedules and reports with performance of construction activities and with scheduling and reporting of separate contractors.
- B. Coordinate Contractor's Construction Schedule with the Schedule of Values, list of subcontracts, Submittals Schedule, progress reports, payment requests, and other required schedules and reports.
  - 1. Secure time commitments for performing critical elements of the Work from parties involved.
  - 2. Coordinate each construction activity with other activities and schedule them in proper sequence.

### PART 2 - PRODUCTS

#### 2.1 SUBMITTALS SCHEDULE

- A. Preparation: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, resubmittal, ordering, manufacturing, fabrication, and delivery when establishing dates.
  - 1. Coordinate Submittals Schedule with list of subcontracts, the Schedule of Values, and Contractor's Construction Schedule.
  - 2. Initial Submittal: Submit concurrently with preliminary bar-chart schedule. Include submittals required during the first 60 days of construction. List those required to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication.
    - a. At Contractor's option, show submittals on the Preliminary Construction Schedule, instead of tabulating them separately.
  - 3. Final Submittal: Submit concurrently with the first complete submittal of Contractor's Construction Schedule.

## 2.2 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

- A. Time Frame: Extend schedule from date established for the Notice of Award to date of Final Completion.
  - 1. Contract completion date shall not be changed by submission of a schedule that shows an early completion date, unless specifically authorized by Change Order.
  - 2. Submittal Review Time: Include review and re-submittal times indicated in Division 1 Section "Submittal Procedures" in schedule. Coordinate submittal review times in Contractor's Construction Schedule with Submittals Schedule.
  - 3. Substantial Completion: Indicate completion in advance of date established for Substantial Completion, and allow time for Engineer's and Project Representative's administrative procedures necessary for certification of Substantial Completion.
- B. Constraints: Include constraints and work restrictions indicated in the Contract Documents and as follows in schedule, and show how the sequence of the Work is affected.
  - 1. Phasing: Arrange list of activities on schedule by phase.
  - 2. Work by Owner: Include a separate activity for each portion of the Work performed by Owner.
  - 3. Products Ordered in Advance: Include delivery date indicated in Division 1 Section 011100 "Summary." Delivery dates indicated stipulate the earliest possible delivery date.
  - 4. Work Restrictions: Show the effect of the following items on the schedule:
    - a. Uninterruptible services.
    - b. Partial use before Substantial Completion.
    - c. Seasonal variations.
  - 5. Work Stages: Indicate important stages of construction for each major portion of the Work, including, but not limited to, the following:
    - a. Subcontract awards.
    - b. Submittals.

- c. Purchases.
  - d. Fabrication.
  - e. Sample testing.
  - f. Deliveries.
  - g. Installation.
  - h. Tests and inspections.
  - i. Adjusting.
  - j. Curing.
  - k. Startup and placement into final use and operation.
  - l. List critical work and subcontracts here if requirement to indicate stages of the Work is limited only to those elements.
  - m. Substantial Completion.
- C. Milestones: Include milestones indicated in the Contract Documents in schedule, including, but not limited to, the Notice to Proceed, Substantial Completion, and Final Completion.
- D. Cost Correlation: At the head of schedule, provide a cost correlation line, indicating planned and actual costs. On the line, show dollar volume of the Work performed as of dates used for preparation of payment requests.
- 1. Refer to Division 01 Section 012900 "Payment Procedures" for cost reporting and payment procedures.
- E. Contract Modifications: For each proposed contract modification and concurrent with its submission, demonstrate the effect of the proposed change on the overall project schedule.

## 2.3 PRELIMINARY CONSTRUCTION SCHEDULE

- A. Bar-Chart Schedule: Submit preliminary horizontal bar-chart-type construction schedule within seven days of date established for the Notice to Proceed.
- B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line. Outline significant construction activities for first 60 days of construction. Include skeleton diagram for the remainder of the Work and a cash requirement prediction based on indicated activities.

## 2.4 SPECIAL REPORTS

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

## PART 3 - EXECUTION

### 3.1 CONTRACTOR'S CONSTRUCTION SCHEDULE

- A. Contractor's Construction Schedule Updating: At monthly intervals, update schedule to reflect actual construction progress and activities. Issue schedule one week before each regularly scheduled progress meeting.
  - 1. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting.
  - 2. Include a report with updated schedule that indicates every change, including, but not limited to, durations, actual starts and finishes.
  - 3. As the Work progresses, indicate Actual Completion percentage for each item.
  
- B. Distribution: Distribute copies of approved schedule to Engineer, Project Representative, Owner, separate contractors, testing and inspecting agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.
  - 1. Post copies in Project meeting rooms and temporary field offices.
  - 2. When revisions are made, distribute updated schedules to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in performance of construction activities.

**END OF SECTION-013200**

## **SECTION 013300**

### **SUBMITTAL PROCEDURES**

#### **PART 1 - GENERAL**

##### **1.1 REQUIREMENTS INCLUDED**

- A. This Section includes administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other miscellaneous submittals.

##### **1.2 RELATED REQUIREMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions apply to this Section.
- B. Section 012900 - Payment Procedures.
- C. Section 013100 - Project Management and Coordination.
- D. Section 013200 - Construction Progress Documentation.
- E. Section 014000 - Quality Requirements.
- F. Section 017700 - Closeout Procedures.
- G. Section 017839 - Project Record Documents

##### **1.3 DEFINITIONS**

- A. Action Submittals: Written and graphic information that requires Engineer's and Project Representative's responsive action.
- B. Informational Submittals: Written information that does not require Engineer's and Project Representative's approval. Submittals may be rejected for not complying with requirements.

##### **1.4 SUBMITTAL PROCEDURES**

- A. General: Electronic copies of CAD Drawings of the Contract Drawings can be provided by Engineer for Contractor's use in preparing submittals. The Engineer does not assume any responsibility for accuracy of CAD documents provided. Chazen requires the Contractor to sign an electronic file release form prior to distribution of any CAD documents.
- B. 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. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
    - a. Engineer and Project Representative reserve the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
- C. Submittals Schedule: Comply with requirements in Division 01 Section "Construction Progress Documentation" for list of submittals and time requirements for scheduled performance of related construction activities.
- D. Processing Time: Allow enough time for submittal review, including time for re-submittals, as follows. Time for review shall commence on Engineer's receipt of submittal.
1. Initial Review: Allow 15 days for initial review of each submittal. Allow additional time if processing must be delayed to permit coordination with subsequent submittals. Engineer will advise Contractor when a submittal being processed must be delayed for coordination.
  2. Concurrent Review: Where concurrent review of submittals by Engineer's consultants, Owner, or other parties is required, allow 21 days for initial review of each submittal.
  3. Direct Transmittal to Consultant: Where the Contract Documents indicate that submittals may be transmitted directly to Engineer's consultants, provide duplicate copy of transmittal to Engineer and Project Representative. Submittal will be returned to Engineer before being returned to Contractor.
  4. If intermediate submittal is necessary, process it in same manner as initial submittal.
  5. Allow 15 days for processing each re-submittal.
  6. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing.
- E. Identification: Use the Engineer's standard transmittal cover sheet for each submittal. The Contractor will be provided an electronic copy of the standard transmittal cover sheet after project Award. A reference copy of the transmittal cover sheet has been included at the end of this section for reference. Submittals missing the Engineer's standard cover sheet or using a different cover sheet will be returned.
1. Complete cover sheet in its entirety.
  2. Include the following information on label for processing and recording action taken:
    - a. Project name.
    - b. Date.
    - c. Name and address of Engineer.
    - d. Name and address of Contractor.
    - e. Name and address of subcontractor.
    - f. Name and address of supplier.
    - g. Name of manufacturer.
    - h. Unique identifier, including revision number.
    - i. Number and title of appropriate Specification Section.
    - j. Drawing number and detail references, as appropriate.

- k. Other necessary identification.
- F. Deviations: Highlight, encircle, or otherwise identify deviations from the Contract Documents on submittals.
- G. Additional Copies: Unless additional copies are required for final submittal, and unless Engineer or Project Representative observes noncompliance with provisions of the Contract Documents, initial submittal may serve as final submittal.
  - 1. Submit one copy of submittal to concurrent reviewer in addition to specified number of copies to Engineer and Project Representative.
  - 2. Additional copies submitted for maintenance manuals will not be marked with action taken and will be returned.
- H. Transmittal: Package each submittal individually and appropriately for transmittal and handling. Transmit each submittal using the Engineer's standard transmittal form which will be provided electronically to the Contractor following Award (a template of the standard transmittal is included for reference following this section). Engineer and Project Representative will return submittals, without review, received from sources other than Contractor.
  - 1. On an attached separate sheet, prepared on Contractor's letterhead, record relevant information, requests for data, revisions other than those requested by Engineer and Project Representative on previous submittals, and deviations from requirements of the Contract Documents, including minor variations and limitations. Include the same label information as the related submittal.
- I. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, and installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.
- J. Use for Construction: Use only final submittals with mark indicating action taken by Engineer in connection with construction.

## PART 2 - PRODUCTS

### 2.1 ACTION SUBMITTALS

- A. General: Prepare and submit Action Submittals required by individual Specification Sections.
  - 1. Number of Copies: Submit copies of each submittal, as follows, unless otherwise indicated:
    - a. Initial Submittal: Submit a preliminary single copy of each submittal where selection of options, color, pattern, texture, or similar characteristics is required. Engineer will return submittal with options selected.
    - b. Final Submittal: Submit three copies, unless copies are required for operation and maintenance manuals. Submit five copies where copies are required for operation

and maintenance manuals. Engineer will retain two copies; remainder will be returned. Mark up and retain one returned copy as a Project Record Document.

- B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
1. If information must be specially prepared for submittal because standard printed data are not suitable for use, submit as Shop Drawings, not as Product Data.
  2. Mark each copy of each submittal to show which products and options are applicable.
  3. Include the following information, as applicable:
    - a. Manufacturer's written recommendations.
    - b. Manufacturer's product specifications.
    - c. Manufacturer's installation instructions.
    - d. Standard color charts.
    - e. Manufacturer's catalog cuts.
    - f. Wiring diagrams showing factory-installed wiring.
    - g. Printed performance curves.
    - h. Operational range diagrams.
    - i. Mill reports.
    - j. Standard product operating and maintenance manuals.
    - k. Compliance with recognized trade association standards.
    - l. Compliance with recognized testing agency standards.
    - m. Application of testing agency labels and seals.
    - n. Notation of coordination requirements.
- C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.
1. Preparation: Include the following information, as applicable:
    - a. Dimensions.
    - b. Identification of products.
    - c. Fabrication and installation drawings.
    - d. Roughing-in and setting diagrams.
    - e. Wiring diagrams showing field-installed wiring, including power, signal, and control wiring.
    - f. Shopwork manufacturing instructions.
    - g. Templates and patterns.
    - h. Schedules.
    - i. Design calculations.
    - j. Compliance with specified standards.
    - k. Notation of coordination requirements.
    - l. Notation of dimensions established by field measurement.
  2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches but no larger than 24 by 36 inches.
  3. Number of Copies: Submit copies of each submittal, as follows:
    - a. Initial Submittal: Submit two blue- or black-line prints. Engineer will return one print.

- b. Final Submittal: Submit three blue- or black-line prints, unless prints are required for operation and maintenance manuals. Submit five prints where prints are required for operation and maintenance manuals. Engineer will retain two prints; remainder will be returned. Mark up and retain one returned print as a Project Record Drawing.
- D. Coordination Drawings: Comply with requirements in Division 01 Section 013100 "Project Management and Coordination."
- E. Delegated-Design Submittal: Comply with requirements in Division 01 Section 014000 "Quality Requirements."
- F. Contractor's Construction Schedule: Comply with requirements in Division 01 Section 013200 "Construction Progress Documentation" for Project Representative's action.
- G. Submittals Schedule: Comply with requirements in Division 01 Section 013200 "Construction Progress Documentation."
- H. Application for Payment: Comply with requirements in Division 01 Section 012900 "Payment Procedures."
- I. Schedule of Values: Comply with requirements in Division 01 Section 012900 "Payment Procedures."
- J. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Include the following information in tabular form:
  - 1. Name, address, and telephone number of entity performing subcontract or supplying products.
  - 2. Number and title of related Specification Section(s) covered by subcontract.
  - 3. Drawing number and detail references, as appropriate, covered by subcontract.

## 2.2 INFORMATIONAL SUBMITTALS

- A. General: Prepare and submit Informational Submittals required by other Specification Sections.
  - 1. Number of Copies: Submit two copies of each submittal, unless otherwise indicated. Engineer will not return copies.
  - 2. Certificates and Certifications: Provide a notarized statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.
  - 3. Test and Inspection Reports: Comply with requirements in Division 01 Section 014000 "Quality Requirements."
- B. Contractor's Construction Schedule: Comply with requirements in Division 01 Section 013200 "Construction Progress Documentation."

- C. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, names and addresses of Engineers and owners, and other information specified.
- D. Product Certificates: Prepare written statements on manufacturer's letterhead certifying that product complies with requirements.
- E. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements. Submit record of Welding Procedure Specification (WPS) and Procedure Qualification Record (PQR) on AWS forms. Include names of firms and personnel certified.
- F. Installer Certificates: Prepare written statements on manufacturer's letterhead certifying that Installer complies with requirements and, where required, is authorized for this specific Project.
- G. Manufacturer Certificates: Prepare written statements on manufacturer's letterhead certifying that manufacturer complies with requirements. Include evidence of manufacturing experience where required.
- H. Material Certificates: Prepare written statements on manufacturer's letterhead certifying that material complies with requirements.
- I. Material Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements.
- J. Preconstruction Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements.
- K. Compatibility Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.
- L. Field Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements.
- M. Product Test Reports: Prepare written reports indicating current product produced by manufacturer complies with requirements. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
- N. Research/Evaluation Reports: Prepare written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project. Include the following information:
  - 1. Name of evaluation organization.
  - 2. Date of evaluation.
  - 3. Time period when report is in effect.
  - 4. Product and manufacturers' names.

5. Description of product.
  6. Test procedures and results.
  7. Limitations of use.
- O. Maintenance Data: Prepare written and graphic instructions and procedures for operation and normal maintenance of products and equipment. Comply with requirements in Division 01 Section 017700 "Closeout Procedures."
- P. Design Data: Prepare written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.
- Q. Manufacturer's Instructions: Prepare written or published information that documents manufacturer's recommendations, guidelines, and procedures for installing or operating a product or equipment. Include name of product and name, address, and telephone number of manufacturer. Include the following, as applicable:
1. Preparation of substrates.
  2. Required substrate tolerances.
  3. Sequence of installation or erection.
  4. Required installation tolerances.
  5. Required adjustments.
  6. Recommendations for cleaning and protection.
- R. Manufacturer's Field Reports: Prepare written information documenting factory-authorized service representative's tests and inspections. Include the following, as applicable:
1. Name, address, and telephone number of factory-authorized service representative making report.
  2. Statement on condition of substrates and their acceptability for installation of product.
  3. Statement that products at Project site comply with requirements.
  4. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
  5. Results of operational and other tests and a statement of whether observed performance complies with requirements.
  6. Statement whether conditions, products, and installation will affect warranty.
  7. Other required items indicated in individual Specification Sections.
- S. Insurance Certificates and Bonds: Prepare written information indicating current status of insurance or bonding coverage. Include name of entity covered by insurance or bond, limits of coverage, amounts of deductibles, if any, and term of the coverage.
- T. Construction Photographs and Videotapes: Comply with requirements in Division 1 Section 013200 "Construction Progress Documentation."

### PART 3 - EXECUTION

#### 3.1 CONTRACTOR'S REVIEW

- A. Review each submittal and check for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Engineer.
- B. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

#### 3.2 ENGINEER'S ACTION

- A. General: Engineer will not review submittals that do not bear Contractor's approval stamp and will return them without action.
- B. Action Submittals: Engineer will review each submittal, make marks to indicate corrections or modifications required, and return it. Engineer will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action taken, as follows:
- C. Informational Submittals: Engineer will review each submittal and will not return it, or will reject and return it if it does not comply with requirements. Engineer will forward each submittal to appropriate party.
- D. Submittals not required by the Contract Documents will not be reviewed and may be discarded.

**END OF SECTION-013300**

**SUBMITTAL COVER SHEET**

<b>DATE:</b>

<b>PROJECT NAME:</b>		
Centertown Parking Garage Improvements, Phase II		
<i>Specification Section</i>	<i>Submittal #</i>	<i>Rev.#</i>

**Project Information:**

<b>OWNER:</b> City of Elmira 317 E. Church Street Elmira, NY 14901	<b>ARCHITECT:</b> LaBella Associates, D.P.C. 100 West Water Street, Suite 101 Elmira, NY 14901	<b>CONTRACTOR:</b>
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**Submittal Information:**

<b>SUBMITTAL NAME/DESCRIPTION:</b>				<b>CONTRACTOR SUBMITTAL #:</b>	<b>SUBCONTRACTOR:</b>
<b>SPECIFICATION:</b>	<b>PARAGRAPH:</b>	<b>DRAWING:</b>	<b>DETAIL:</b>	<b>SUPPLIER:</b>	<b>SUBSTITUTION:</b>
<b>ACTION / INFORMATIONAL SUBMITTALS:</b>				<b>RECORD SUBMITTAL:</b>	
<input type="checkbox"/> Product Data <input type="checkbox"/> Shop Drawing <input type="checkbox"/> Sample <input type="checkbox"/> Coordination Drawing		<input type="checkbox"/> Qualification Data <input type="checkbox"/> Certificates <input type="checkbox"/> Warranty Sample <input type="checkbox"/> Other: _____		<input type="checkbox"/> Field Test Report <input type="checkbox"/> Operation/Maintenance Data <input type="checkbox"/> As-built Drawing	
				<input type="checkbox"/> Warranty <input type="checkbox"/> Attic Stock / Turnover <input type="checkbox"/> Other: _____	

<p><b>Contractor Review:</b> <i>This submittal has been reviewed, checked and approved for compliance with the Contract Documents. Any <b>substitutions / deviations</b> are noted below.</i></p> <p>Signed: _____ Dated: _____</p>	<p><b>Construction Manager Review:</b> <i>This submittal has been received for coordination. Any observations noted below do not replace final review and acceptance by the Architect/Engineer of record.</i></p> <p>Signed: _____ Dated: _____</p>
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<p><b>Architect/Engineer Review:</b></p> <p> <input type="checkbox"/> Reviewed                      <input type="checkbox"/> Revise and Resubmit  <input type="checkbox"/> Rejected                        <input type="checkbox"/> Furnish as Noted       </p> <p>Corrections or comments made on the shop drawings during this review do not relieve the contractor from compliance with requirements of the drawings and specifications. This check is only for review of general conformance with the design concept of the project and general compliance with the information given in the contract documents. The contractor is responsible for confirming and correlating all quantities and dimensions; selecting fabrication processes and techniques of construction; coordinating his work with that of all other trades; and performing his work in a safe and satisfactory manner.</p> <p style="text-align: center;">LaBella Associates, D.P.C.</p> <p>Signed: _____ Dated: _____</p>	<p><b>Architect/Engineer Comments:</b></p> <p> </p>
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## SECTION 014000

### QUALITY REQUIREMENTS

#### PART 1 - GENERAL

##### 1.1 REQUIREMENTS INCLUDED

- A. This Section includes administrative and procedural requirements for quality assurance and quality control.
- B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.
  - 1. Specific quality-control requirements for individual construction activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover production of standard products.
  - 2. Specified tests, inspections, and related actions do not limit Contractor's quality-control procedures that facilitate compliance with the Contract Document requirements.
  - 3. Requirements for Contractor to provide quality-control services required by Engineer, Owner, Project Representative, or authorities having jurisdiction are not limited by provisions of this Section.

##### 1.2 RELATED REQUIREMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions apply to this Section.
- B. Section 013200 - Construction Progress Documentation.
- C. Section 017329 - Cutting and Patching.
- D. Divisions 02 through 33 Sections for specific test and inspection requirements.

##### 1.3 DEFINITIONS

- A. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and ensure that proposed construction complies with requirements.

- B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that completed construction comply with requirements. Services do not include contract enforcement activities performed by Engineer or Project Representative.
- C. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.

#### 1.4 SUBMITTALS

- A. Qualification Data: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.
- B. Schedule of Tests and Inspections: Prepare in tabular form and include the following:
  - 1. Specification Section number and title.
  - 2. Description of test and inspection.
  - 3. Identification of applicable standards.
  - 4. Identification of test and inspection methods.
  - 5. Number of tests and inspections required.
  - 6. Time schedule or time span for tests and inspections.
  - 7. Entity responsible for performing tests and inspections.
  - 8. Requirements for obtaining samples.
  - 9. Unique characteristics of each quality-control service.
- C. Reports: Prepare and submit certified written reports that include the following:
  - 1. Date of issue.
  - 2. Project title and number.
  - 3. Name, address, and telephone number of testing agency.
  - 4. Dates and locations of samples and tests or inspections.
  - 5. Names of individuals making tests and inspections.
  - 6. Description of the Work and test and inspection method.
  - 7. Identification of product and Specification Section.
  - 8. Complete test or inspection data.
  - 9. Test and inspection results and an interpretation of test results.
  - 10. Ambient conditions at time of sample taking and testing and inspecting.
  - 11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
  - 12. Name and signature of laboratory inspector.
  - 13. Recommendations on retesting and re-inspecting.
- D. Permits, Licenses, and Certificates: For Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

## 1.5 QUALITY ASSURANCE

- A. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- B. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.
- C. Installer Qualifications: A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.
- D. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance.
- E. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that are similar to those indicated for this Project in material, design, and extent.
- F. Specialists: Certain sections of the Specifications require that specific construction activities shall be performed by entities who are recognized experts in those operations. Specialists shall satisfy qualification requirements indicated and shall be engaged for the activities indicated.
  - 1. Requirement for specialists shall not supersede building codes and similar regulations governing the Work, nor interfere with local trade-union jurisdictional settlements and similar conventions.
- G. Testing Agency Qualifications: An agency with the experience and capability to conduct testing and inspecting indicated, as documented by ASTM E 548, and that specializes in types of tests and inspections to be performed.
- H. Preconstruction Testing: Testing agency shall perform preconstruction testing for compliance with specified requirements for performance and test methods.
  - 1. Contractor responsibilities include the following:
    - a. Provide test specimens and assemblies representative of proposed materials and construction. Provide sizes and configurations of assemblies to adequately demonstrate capability of product to comply with performance requirements.
    - b. Submit specimens in a timely manner with sufficient time for testing and analyzing results to prevent delaying the Work.

- c. Fabricate and install test assemblies using installers who will perform the same tasks for Project.
  - d. When testing is complete, remove assemblies; do not reuse materials on Project.
2. Testing Agency Responsibilities: Submit a certified written report of each test, inspection, and similar quality-assurance service to Engineer, with copy to Contractor. Interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from the Contract Documents.

## 1.6 QUALITY CONTROL

- A. Contractor Responsibilities: Unless otherwise indicated, provide quality-control services specified and required by authorities having jurisdiction.
1. Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these quality-control services.
  2. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspecting will be performed.
  3. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
  4. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
  5. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.
- B. Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing.
- C. Retesting/Re-inspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and re-inspecting, for construction that revised or replaced Work that failed to comply with requirements established by the Contract Documents.
- D. Testing Agency Responsibilities: Cooperate with Engineer and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.
1. Notify Engineer and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
  2. Interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
  3. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.
  4. Do not release, revoke, alter, or increase requirements of the Contract Documents or approve or accept any portion of the Work.
  5. Do not perform any duties of Contractor.

- E. Associated Services: Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:
  - 1. Access to the Work.
  - 2. Incidental labor and facilities necessary to facilitate tests and inspections.
  - 3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
  - 4. Facilities for storage and field-curing of test samples.
  - 5. Delivery of samples to testing agencies.
  - 6. Preliminary design mix proposed for use for material mixes that require control by testing agency.
  - 7. Security and protection for samples and for testing and inspecting equipment at Project site.
  
- F. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and quality-control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.
  - 1. Schedule times for tests, inspections, obtaining samples, and similar activities.

## PART 2 - PRODUCTS (Not Used)

## PART 3 - EXECUTION

### 3.1 REPAIR AND PROTECTION

- A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.
  - 1. Provide materials and comply with installation requirements specified in other Sections of these Specifications. Restore patched areas and extend restoration into adjoining areas in a manner that eliminates evidence of patching.
  
- B. Protect construction exposed by or for quality-control service activities.
  
- C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

**END OF SECTION-014000**

## SECTION 014200

### REFERENCES

#### PART 1 - GENERAL

##### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

##### 1.2 DEFINITIONS

- A. General: Basic Contract definitions are included in the Conditions of the Contract.
- B. "Approved": The term "approved," when used to convey Engineer's action on Contractor's submittals, applications, and requests, is limited to Engineer's duties and responsibilities as stated in the Conditions of the Contract.
- C. "Directed": Terms such as "directed," "requested," "authorized," "selected," "approved," "required," and "permitted" mean directed by Engineer, requested by Engineer, and similar phrases.
- D. "Indicated": The term "indicated" refers to graphic representations, notes, or schedules on Drawings or to other paragraphs or schedules in Specifications and similar requirements in the Contract Documents. Terms such as "shown," "noted," "scheduled," and "specified" are used to help the user locate the reference.
- E. "Regulations": The term "regulations" includes laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, as well as rules, conventions, and agreements within the construction industry that control performance of the Work.
- F. "Furnish": The term "furnish" means to supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.
- G. "Install": The term "install" describes operations at Project site including unloading, temporarily storing, unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing, and protecting, cleaning, and similar operations.
- H. "Provide": The term "provide" means to furnish and install, complete and ready for the intended use.
- I. "Installer": An installer is the Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations.

- J. The term "experienced," when used with an entity, means having successfully completed a minimum of five previous projects similar in size and scope to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.
  - 1. Using a term such as "carpentry" does not imply that certain construction activities must be performed by accredited or unionized individuals of a corresponding generic name, such as "carpenter." It also does not imply that requirements specified apply exclusively to tradespeople of the corresponding generic name.
- K. "Project site" is the space available for performing construction activities. The extent of Project site is shown on Drawings and may or may not be identical with the description of the land on which Project is to be built.

### 1.3 INDUSTRY STANDARDS

- A. **Applicability of Standards:** Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.
- B. **Publication Dates:** Comply with standards in effect as of date of the Contract Documents, unless otherwise indicated.
- C. **Conflicting Requirements:** If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer uncertainties and requirements that are different, but apparently equal, to Engineer for a decision before proceeding.
  - 1. **Minimum Quantity or Quality Levels:** The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Engineer for a decision before proceeding.
- D. **Copies of Standards:** Each entity engaged in construction on Project must be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.
  - 1. Where copies of standards are needed to perform a required construction activity, obtain copies directly from publication source and make them available on request.
- E. **Abbreviations and Acronyms for Industry Organizations:** Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web site addresses are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

AA	Aluminum Association, Inc. (The) www.aluminum.org	(703) 358-2960
AAMA	American Architectural Manufacturers Association www.aamanet.org	(847) 303-5664
AAN	American Association of Nurserymen (See ANLA)	
AASHTO	American Association of State Highway and Transportation Officials www.aashto.org	(202) 624-5800
ABMA	American Bearing Manufacturers Association www.americanbearings.org	(202) 367-1155
ACI	American Concrete Institute/ACI International www.aci-int.org	(248) 848-3700
ACPA	American Concrete Pipe Association www.concrete-pipe.org	(972) 506-7216
AFPA	American Forest & Paper Association afandpa.org	(202) 463-2700
AGA	American Gas Association www.aga.org	(202) 824-7000
AI	Asphalt Institute www.asphaltinstitute.org	(606) 288-4960
AIA	American Institute of Architects (The) www.aia.org	(800) AIA-3837
AISC	American Institute of Steel Construction, Inc. www.aisc.org	(312) 670-2400 (800) 644-2400
AISI	American Iron and Steel Institute www.steel.org	(202) 452-7100 (248) 945-4777
AITC	American Institute of Timber Construction www.aitc-glulam.org/	(303) 792-9559
ALCA	National Association of Landscape Professionals (Formerly: ALCA - Associated Landscape Contractors of America) www.landscapeprofessionals.org	(800) 395-2522 (703) 736-9666
ANLA	AmericanHort	(614) 487-1117

	(Formerly: ANLA - American Nursery & Landscape Association) (Formerly: AAN - American Association of Nurserymen) <a href="http://www.americahort.org">www.americahort.org</a>	(202) 789-2900
ANSI	American National Standards Institute <a href="http://www.ansi.org">www.ansi.org</a>	(212) 642-4900
AOSA	Association of Official Seed Analysts <a href="http://www.analyzeseeds.com">www.analyzeseeds.com</a>	(202) 870-2412
APA	Architectural Precast Association <a href="http://www.archprecast.org">www.archprecast.org</a>	(850) 205-5637
ASCE	American Society of Civil Engineers <a href="http://www.asce.org">www.asce.org</a>	(800) 548-2723 (703) 295-6300
ASSE	American Society of Sanitary Engineering <a href="http://www.asse-plumbing.org">www.asse-plumbing.org</a>	(708) 995-3019
ASTM	American Society for Testing and Materials <a href="http://www.astm.org">www.astm.org</a>	(610) 832-9585
AWS	American Welding Society <a href="http://www.aws.org">www.aws.org</a>	(800) 443-9353 (305) 443-9353
AWWA	American Water Works Association <a href="http://www.awwa.org">www.awwa.org</a>	(800) 926-7337 (303) 794-7711
CISPI	Cast Iron Soil Pipe Institute <a href="http://www.cispi.org">www.cispi.org</a>	(224) 864-2910
CLFMI	Chain Link Fence Manufacturers Institute <a href="http://www.chainlinkinfo.org">www.chainlinkinfo.org</a>	(301) 596-2583
CPPA	Corrugated Polyethylene Pipe Association Division of Plastics Pipe Institute <a href="http://www.plasticpipe.org/drainage/cppa-about.php">www.plasticpipe.org/drainage/cppa-about.php</a>	(469) 499-1044
CRSI	Concrete Reinforcing Steel Institute <a href="http://www.crsi.org">www.crsi.org</a>	(847) 517-1200
CSI	Construction Specifications Institute (The) <a href="http://www.csiresources.org/home">www.csiresources.org/home</a>	(800) 689-2900 (703) 684-0300
GRI	Geosynthetic Research Institute <a href="http://www.geosynthetic-institute.org">www.geosynthetic-institute.org</a>	(610) 522-8440
HI	Hydraulic Institute <a href="http://www.pumps.org">www.pumps.org</a>	(973) 267-9700

IAS	International Approval Services (See CSA International)	
ICRI	International Concrete Repair Institute www.icri.org	(651) 366-6095
MSS	Manufacturers Standardization Society of The Valve and Fittings Industry, Inc. www.mss-hq.com	(703) 281-6613
NCPI	National Clay Pipe Institute www.ncpi.org	(262) 742-2904
NFPA	National Fire Protection Association www.nfpa.org	(800) 344-3555 (617) 770-3000
NRMCA	National Ready Mixed Concrete Association www.nrmca.org	(301) 587-1400
NSF	NSF International (National Sanitation Foundation International) www.nsf.org	(800) 673-6275 (734) 769-8010
PCI	Precast/Pre-stressed Concrete Institute www.pci.org	(312) 786-0300
STI	Steel Tank Institute www.steeltank.com	(847) 438-8265
SWRI	Sealant, Waterproofing & Restoration Institute www.swrionline.org	(816) 472-7974
UL	Underwriters Laboratories Inc. www.ul.com	(518) 213-0044 (631) 271-6200
UNI	Uni-Bell PVC Pipe Association www.uni-bell.org	(972) 243-3902
WASTEC	Waste Equipment Technology Association www.wastec.org	(800) 424-2869 (202) 244-4700

G. Abbreviations and Acronyms for Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web site addresses are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

CFR	Code of Federal Regulations	(866) 272-6272
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[www.archives.gov/federal-register/cfr](http://www.archives.gov/federal-register/cfr)

NYS DOT	New York State Department of Transportation <a href="http://www.dot.ny.us/index">www.dot.ny.us/index</a>	(518) 457-3522
NYS DEC	New York State Department of Environmental Conservation <a href="http://www.dec.ny.gov">www.dec.ny.gov</a>	(518) 408-5850
NYS DOH	New York State Department of Health <a href="http://www.health.ny.gov">www.health.ny.gov</a>	(866)-881-2809
NCHRP	National Cooperative Highway Research Program <a href="http://www.tcb.org/NCHRP/NCHRP.aspx">www.tcb.org/NCHRP/NCHRP.aspx</a>	(202)-334-1472
NIST	National Institute of Standards and Technology <a href="http://www.nist.gov">www.nist.gov</a>	(301) 975-2000
OSHA	Occupational Safety & Health Administration (See CFR 29) <a href="http://www.osha.gov">www.osha.gov</a>	(800) 321-6742
TRB	Transportation Research Board <a href="http://www.nas.edu/trb">www.nas.edu/trb</a>	(202) 334-2934

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

**END OF SECTION-014200**

## SECTION 015000

### TEMPORARY FACILITIES AND CONTROLS

#### PART 1 - GENERAL

##### 1.1 REQUIREMENTS INCLUDED

- A. This Section includes requirements for temporary facilities and controls, including temporary utilities, support facilities, and security and protection facilities.
- B. Temporary utilities include, but are not limited to, the following:
  - 1. Sanitary facilities, including toilets, wash facilities, and drinking-water facilities.
- C. Support facilities include, but are not limited to, the following:
  - 1. Temporary roads and paving.
  - 2. Dewatering facilities and drains.
  - 3. Project identification and temporary signs.
  - 4. Waste disposal facilities.
  - 5. Storage and fabrication sheds.
  - 6. Lifts and hoists.
  - 7. Construction aids and miscellaneous services and facilities.
- D. Security and protection facilities include, but are not limited to, the following:
  - 1. Environmental protection.
  - 2. Stormwater control.
  - 3. Tree and plant protection.
  - 4. Site enclosure fence.
  - 5. Security enclosure and lockup.
  - 6. Barricades, warning signs, and lights.
  - 7. Fire protection.

##### 1.2 RELATED REQUIREMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions apply to this Section.
- B. Section 013300 - Submittal Procedures.
- C. Section 017000 - Execution Requirements.

##### 1.3 SUBMITTALS

- A. Temporary Utility Reports: Submit reports of tests, inspections, meter readings, and similar procedures performed on temporary utilities.
- B. Implementation and Termination Schedule: Within 15 days of date established for submittal of Contractor's Construction Schedule, submit a schedule indicating implementation and termination of each temporary utility.

#### 1.4 QUALITY ASSURANCE

- A. Standards: Comply with ANSI A10.6, NECA's "Temporary Electrical Facilities," and NFPA 241.
  - 1. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.
- B. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.

#### 1.5 PROJECT CONDITIONS

- A. Conditions of Use: The following conditions apply to use of temporary services and facilities by all parties engaged in the Work:
  - 1. Keep temporary services and facilities clean and neat.
  - 2. Relocate temporary services and facilities as required by progress of the Work.

### PART 2 - PRODUCTS

#### 2.1 MATERIALS

- A. General: Provide new materials. Undamaged, previously used materials in serviceable condition may be used if approved by Engineer. Provide materials suitable for use intended.
- B. Water: Potable.

#### 2.2 EQUIPMENT

- A. General: Provide equipment suitable for use intended.
- B. Fire Extinguishers: Hand carried, portable, UL rated. Provide class and extinguishing agent as indicated or a combination of extinguishers of NFPA-recommended classes for exposures.
  - 1. Comply with NFPA 10 and NFPA 241 for classification, extinguishing agent, and size required by location and class of fire exposure.

- C. Self-Contained Toilet Units: Single-occupant units of chemical, aerated recirculation, or combustion type; vented; fully enclosed with a glass-fiber-reinforced polyester shell or similar nonabsorbent material.
- D. Drinking-Water Fixtures: Containerized, tap-dispenser, bottled-water drinking-water units, including paper cup supply.
- E. Electrical Outlets: Properly configured, NEMA-polarized outlets to prevent insertion of 110- to 120-V plugs into higher-voltage outlets; equipped with ground-fault circuit interrupters, reset button, and pilot light.

### PART 3 - EXECUTION

#### 3.1 INSTALLATION, GENERAL

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

#### 3.2 TEMPORARY UTILITY INSTALLATION

- A. General: Engage appropriate local utility company to install temporary service or connect to existing service. Where utility company provides only part of the service, provide the remainder with matching, compatible materials and equipment. Comply with utility company recommendations.
  - 1. Arrange with utility company, Owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.
  - 2. Provide adequate capacity at each stage of construction. Before temporary utility is available, provide trucked-in services.
  - 3. Obtain easements to bring temporary utilities to Project site where Owner's easements cannot be used for that purpose.
- B. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking-water fixtures. Comply with regulations and health codes for type, number, location, operation, and maintenance of fixtures and facilities.
  - 1. Disposable Supplies: Provide toilet tissue, paper towels, paper cups, and similar disposable materials for each facility. Maintain adequate supply. Provide covered waste containers for disposal of used material.
  - 2. Toilets: Install self-contained toilet units. Shield toilets to ensure privacy.

3. Wash Facilities: Install wash facilities supplied with potable water at convenient locations for personnel who handle materials that require wash up. Dispose of drainage properly. Supply cleaning compounds appropriate for each type of material handled.
  - a. Provide safety showers, eyewash fountains, and similar facilities for convenience, safety, and sanitation of personnel.
4. Drinking-Water Facilities: Provide bottled-water, drinking-water units.

### 3.3 SUPPORT FACILITIES INSTALLATION

#### A. General: Comply with the following:

1. Locate field offices, storage sheds, sanitary facilities, and other temporary construction and support facilities for easy access.
2. Provide incombustible construction for offices, shops, and sheds located within construction area or within 30 feet of building lines. Comply with NFPA 241.
3. Maintain support facilities until Substantial Completion

#### B. Temporary Roads and Paved Areas: Construct and maintain temporary roads and paved areas adequate to support loads and to withstand exposure to traffic during construction period. Locate temporary roads and paved areas within construction limits indicated on Drawings.

1. Provide a reasonably level, graded, well-drained sub-grade of satisfactory soil material, compacted to not less than 95 percent of maximum dry density in the top 6 inches.
2. Provide gravel paving course of sub-base material not less than 3 inches thick; roller compacted to a level, smooth, dense surface.
3. Provide dust-control treatment that is nonpolluting and non-tracking. Reapply treatment as required to minimize dust.

#### C. Traffic Controls: Provide temporary traffic controls at junction of temporary roads with public roads. Include warning signs for public traffic and "STOP" signs for entrance onto public roads. Comply with requirements of authorities having jurisdiction.

#### D. Dewatering Facilities and Drains: Comply with requirements in applicable Division 2 Sections for temporary drainage and dewatering facilities and operations not directly associated with construction activities included in individual Sections. Where feasible, use same facilities. Maintain Project site, excavations, and construction free of water.

1. Dispose of rainwater in a lawful manner that will not result in flooding Project or adjoining property nor endanger permanent Work or temporary facilities.
2. Before connection and operation of permanent drainage piping system, provide temporary drainage.
3. Remove snow and ice as required to minimize accumulations.

#### E. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Containerize and clearly label hazardous, dangerous, or unsanitary waste materials separately from other waste. Comply with Division 1 Section "Execution Requirements" for progress cleaning requirements.

1. If required by authorities having jurisdiction, provide separate containers, clearly labeled, for each type of waste material to be deposited.
  2. Develop a waste management plan for Work performed on Project. Indicate types of waste materials Project will produce and estimate quantities of each type. Provide detailed information for on-site waste storage and separation of recyclable materials. Provide information on destination of each type of waste material and means to be used to dispose of all waste materials.
- F. Janitorial Services: Provide janitorial services on a daily basis for temporary offices, first-aid stations, toilets, wash facilities, lunchrooms, and similar areas.
- G. Storage and Fabrication Sheds: Provide sheds sized, furnished, and equipped to accommodate materials and equipment involved, including temporary utility services. Sheds may be open shelters or fully enclosed spaces within building or elsewhere on-site.
1. Construct framing, sheathing, and siding using fire-retardant-treated lumber and plywood.
  2. Paint exposed lumber and plywood with exterior-grade acrylic-latex emulsion over exterior primer.

### 3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION

- A. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction in ways and by methods that comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects. Avoid using tools and equipment that produce harmful noise. Restrict use of noisemaking tools and equipment to hours that will minimize complaints from persons or firms near Project site.
- B. Stormwater Control: Provide earthen embankments and similar barriers in and around excavations and sub-grade construction, sufficient to prevent flooding by runoff of stormwater from heavy rains.
- C. Barricades, Warning Signs, and Lights: Comply with standards and code requirements for erecting structurally adequate barricades. Paint with appropriate colors, graphics, and warning signs to inform personnel and public of possible hazard. Where appropriate and needed, provide lighting, including flashing red or amber lights.
1. For safety barriers, sidewalk bridges, and similar uses, provide minimum 5/8-inch- thick exterior plywood.
- D. Temporary Fire Protection: Install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241.
1. Provide fire extinguishers, installed on walls on mounting brackets, visible and accessible from space being served, with sign mounted above.
    - a. Field Offices: Class A stored-pressure water-type extinguishers.

- b. Other Locations: Class ABC dry-chemical extinguishers or a combination of extinguishers of NFPA-recommended classes for exposures.
  - c. Locate fire extinguishers where convenient and effective for their intended purpose.
2. Store combustible materials in containers in fire-safe locations.
  3. Maintain unobstructed access to fire extinguishers, fire hydrants, temporary fire-protection facilities, stairways, and other access routes for firefighting. Prohibit smoking in hazardous fire-exposure areas.
  4. Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition.
  5. Develop and supervise an overall fire-prevention and first-aid fire-protection program for personnel at Project site. Instruct personnel in methods and procedures. Post warnings and information.

### 3.5 OPERATION, TERMINATION, AND REMOVAL

- A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.
- B. Maintenance: Maintain facilities in good operating condition until removal. Protect from damage caused by freezing temperatures and similar elements.
- C. Termination and Removal: Remove each temporary facility when need for its service has ended, or no later than Substantial Completion.
  1. Materials and facilities that constitute temporary facilities are the property of Contractor.
  2. Remove temporary paving not intended for or acceptable for integration into permanent paving. Where area is intended for landscape development, remove soil and aggregate fill that do not comply with requirements for fill or subsoil. Remove materials contaminated with road oil, asphalt and other petrochemical compounds, and other substances that might impair growth of plant materials or lawns. Repair or replace street paving, curbs, and sidewalks at temporary entrances, as required by authorities having jurisdiction.
  3. At Substantial Completion, clean and renovate site used during construction period. Comply with final cleaning requirements in Division 01 Section 017700 "Closeout Procedures."

**END OF SECTION-015000**

## SECTION 015526

### TRAFFIC CONTROL

#### PART 1 GENERAL

##### 1.1 DESCRIPTION

- A. The Work of this Section consists of maintaining traffic and protecting the public from damage to persons and property within the limits of and for the duration of this contract.
- B. Maintain traffic over a reasonably smooth traveled way marked by signs, delineators, guiding devices and other acceptable methods in conformance with the National Manual on Uniform Traffic Control Devices for Streets and Highways 2009 Edition (National MUTCD ) and the New York State Supplement to the National Manual on Uniform Traffic Control Devices for Streets and Highways – 2010 Edition (NYS Supplement) available at: <https://www.nysdot.gov/divisions/operating/oom/transportation-systems/traffic-operations-section/mutcd>

##### 1.2 APPLICABILITY

- A. The Work of this Section shall be required in all areas within the project limits that will be open to public vehicular traffic.

##### 1.3 RESPONSIBILITY

- A. Assume responsibility for conducting operations in a manner to insure the safety and convenience of all travelers and adjoining property owners within the limits of and for the duration of the contract.

#### PART 2 PRODUCTS

##### 2.1 MATERIALS

- A. Comply with the requirements of DOT Section 700 Materials as they apply to the various materials required for the Work of this Section.
- B. Provide sign panels of aluminum, galvanized steel or plywood with faces of reflective sheet material and non-reflective black characters conforming to DOT Section 730-13.
- C. Provide delineators, barricades and lighting for construction barricades in accordance with the requirements of National MUTCD and NYS Supplement. Where reflective materials are required, conform to DOT Section 730-05.02 except where glass or plastic buttons are used as delineators. Barricades, cones and drums may use reflective materials conforming to DOT Section 730-05.01.

#### PART 3 EXECUTION

##### 3.1 GENERAL

- A. Remove construction equipment and materials from roadway during non-working hours or provide protection in such a manner that they will not constitute a traffic hazard.
- B. Conduct and schedule the Work in a manner that will minimize the time during which the traveling public will be exposed to hazards.
- C. Do not park employees personal vehicles within the work area in a manner that they will constitute a traffic hazard.
- D. Keep traveled way reasonably smooth and hard at all times.
- E. Keep the traveled way of all public highways utilized for hauling materials to or from this project free of foreign objects that may fall or drop from transporting vehicles.
- F. Correct dusty conditions resulting from the Work by the use of calcium chloride and/or water. Distribute water uniformly by the use of suitable spray heads or spray bar. The Director's Representative will be the sole judge of the need for the application of water for dust control. Apply water at the intervals and locations ordered by the Director's Representative.
- G. Whenever it becomes necessary to maintain traffic on one lane, provide adequate traffic controls on the section of roadway on which vehicle traffic is maintained. Provide competent flag persons or traffic signals at the location which will in the judgment of the Director's Representative adequately and continuously control one lane traffic.
- H. Provide a sufficient number of competent flag persons in areas where construction operations are in potential conflict with public vehicular traffic. Flag person shall wear orange hats or caps and vests in conformance with National MUTCD and NYS Supplement.
- I. Maintain safe and adequate ingress and egress to and from intersecting highways, sidewalks and driveways.
- J. The Contractor is not responsible for removal of snow and ice from pavements or traveled ways open to public vehicular traffic.
- K. Maintain existing and new drainage structures, culverts and ditches to adequately drain the traveled way.
- L. Provide, maintain, move and remove delineation and guiding devices to properly delineate a safe and reasonable roadway. Delineate areas on which it is unsafe to travel.
- M. Limit and delineate drop-offs to less than 6 inches by providing approved delineators at intervals of not more than 200 feet.

### 3.2 CONSTRUCTION SIGNS

- A. Provide, maintain, move and remove reflectorized construction signs in accordance with the requirements of National MUTCD and NYS Supplement.
- B. Paint supports and backs of sign panels with two coats of white paint.
- C. Mount construction signs a minimum of 5 feet above the surface of the traveled way.

### 3.3 CONSTRUCTION BARRICADES

- A. Provide, maintain, move and remove lighted construction barricades in accordance with the requirements of National MUTCD and NYS Supplement
- B. Provide flashing barricade lights of Type A, low intensity conforming to the requirements of National MUTCD and NYS Supplement
- C. Hours of operation for barricade lights shall be from dusk to dawn.

### 3.4 PAVEMENT DELINEATION

- A. Provide pavement delineation in accordance with National MUTCD and NYS Supplement on each course of asphalt concrete upon which traffic will be maintained.

### 3.5 OPENING ROADWAY TO TRAFFIC PRIOR TO CONTRACT ACCEPTANCE

- A. Maintain and protect traffic on any portion of pavement or structure ordered in writing by the Director or as shown on the drawings to be opened to traffic prior to contract acceptance.

### 3.6 REMOVAL OF TRAFFIC CONTROL DEVICES

- A. Promptly remove all delineators, signs, barricades and pavement workings when in the opinion of the Director's Representative their presence constitutes a hazard or inconvenience to the traveling public.
- B. Remove all remaining traffic control devices upon completion of the Work of this contract unless otherwise ordered in writing by the Director's Representative.

**END OF SECTION 015526**

## SECTION 016000

### PRODUCT REQUIREMENTS

#### PART 1 - GENERAL

##### 1.1 REQUIREMENTS INCLUDES

- A. This Section includes the following administrative and procedural requirements: selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; product substitutions; and comparable products.

##### 1.2 RELATED REQUIREMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.
- B. Section 014200 - References.
- C. Section 017700 - Closeout Procedures.

##### 1.3 DEFINITIONS

- A. Products: Items purchased for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
  - 1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation, shown or listed in manufacturer's published product literature, which is current as of date of the Contract Documents.
  - 2. New Products: Items that have not previously been incorporated into another project or facility, except that products consisting of recycled-content materials are allowed, unless explicitly stated otherwise. Products salvaged or recycled from other projects are not considered new products.
  - 3. Comparable Product: Product that is demonstrated and approved through submittal process, or where indicated as a product substitution, to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.
- B. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.

- C. Basis-of-Design Product Specification: Where a specific manufacturer's product is named and accompanied by the words "basis of design," including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products of other named manufacturers.
- D. Manufacturer's Warranty: Preprinted written warranty published by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.
- E. Special Warranty: Written warranty required by or incorporated into the Contract Documents, either to extend time limit provided by manufacturer's warranty or to provide more rights for Owner.

#### 1.4 SUBMITTALS

- A. Product List: Submit a list, in tabular form, showing specified products. Include generic names of products required. Include manufacturer's name and proprietary product names for each product.
  - 1. Coordinate product list with Contractor's Construction Schedule and the Submittals Schedule.
  - 2. Form: Tabulate information for each product under the following column headings:
    - a. Specification Section number and title.
    - b. Generic name used in the Contract Documents.
    - c. Proprietary name, model number, and similar designations.
    - d. Manufacturer's name and address.
    - e. Supplier's name and address.
    - f. Installer's name and address.
    - g. Projected delivery date or time span of delivery period.
    - h. Identification of items that require early submittal approval for scheduled delivery date.
  - 3. Initial Submittal: Within 30 days after date of commencement of the Work, submit 3 copies of initial product list. Include a written explanation for omissions of data and for variations from Contract requirements.
    - a. At Contractor's option, initial submittal may be limited to product selections and designations that must be established early in Contract period.
  - 4. Completed List: Within 60 days after date of commencement of the Work, submit 3 copies of completed product list. Include a written explanation for omissions of data and for variations from Contract requirements.
  - 5. Engineer's Action: Engineer will respond in writing to Contractor within 15 days of receipt of completed product list. Engineer's response will include a list of unacceptable product selections and a brief explanation of reasons for this action. Engineer's response, or lack

of response, does not constitute a waiver of requirement that products comply with the Contract Documents.

- B. Substitution Requests: Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
1. Substitution Request Form: Use CSI Form 13.1A.
  2. Documentation: Show compliance with requirements for substitutions and the following, as applicable:
    - a. Statement indicating why specified material or product cannot be provided.
    - b. Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by Owner and separate contractors, which will be necessary to accommodate proposed substitution.
    - c. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
    - d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
    - e. Samples, where applicable or requested.
    - f. List of similar installations for completed projects with project names and addresses and names and addresses of Engineers and owners.
    - g. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
    - h. Research/evaluation reports evidencing compliance with building code in effect for Project, from a model code organization acceptable to authorities having jurisdiction.
    - i. Detailed comparison of Contractor's Construction Schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating lack of availability or delays in delivery.
    - j. Cost information, including a proposal of change, if any, in the Contract Sum.
    - k. Contractor's certification that proposed substitution complies with requirements in the Contract Documents and is appropriate for applications indicated.
    - l. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.
  3. Engineer's Action: If necessary, Engineer will request additional information or documentation for evaluation within one week of receipt of a request for substitution. Engineer will notify Contractor of acceptance or rejection of proposed substitution within 15 days of receipt of request, or 7 days of receipt of additional information or documentation, whichever is later.
    - a. Form of Acceptance: Change Order.

- b. Use product specified if Engineer cannot make a decision on use of a proposed substitution within time allocated.

- C. Basis-of-Design Product Specification Submittal: Comply with requirements in Division 1 Section "Submittal Procedures." Show compliance with requirements.

## 1.5 QUALITY ASSURANCE

- A. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, product selected shall be compatible with products previously selected, even if previously selected products were also options.

## 1.6 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft. Comply with manufacturer's written instructions.
  - 1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
  - 2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
  - 3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
  - 4. Inspect products on delivery to ensure compliance with the Contract Documents and to ensure that products are undamaged and properly protected.
  - 5. Store products to allow for inspection and measurement of quantity or counting of units.
  - 6. Store materials in a manner that will not endanger Project structure.
  - 7. Store products that are subject to damage by the elements, under cover in a weather tight enclosure above ground, with ventilation adequate to prevent condensation.
  - 8. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
  - 9. Protect stored products from damage.
- B. Storage: Provide a secure location and enclosure at Project site for storage of materials and equipment by Owner's construction forces. Coordinate location with Owner.

## 1.7 PRODUCT WARRANTIES

- A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.

- B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution. Submit a draft for approval before final execution.
  - 1. Refer to Divisions 2 through 16 Sections for specific content requirements and particular requirements for submitting special warranties.
  
- C. Submittal Time: Comply with requirements in Division 1 Section 017770 "Closeout Procedures."

## PART 2 - PRODUCTS

### 2.1 PRODUCT OPTIONS

- A. General Product Requirements: Provide products that comply with the Contract Documents, that are undamaged, and unless otherwise indicated, that are new at time of installation.
  - 1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
  - 2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
  - 3. Owner reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
  - 4. Where products are accompanied by the term "as selected," Engineer will make selection.
  - 5. Where products are accompanied by the term "match sample," sample to be matched is Engineer's.
  - 6. Descriptive, performance, and reference standard requirements in the Specifications establish "salient characteristics" of products.
  - 7. Or Equal: Where products are specified by name and accompanied by the term "or equal" or "or approved equal" or "or approved," comply with provisions in "Comparable Products" Article to obtain approval for use of an unnamed product.
  
- B. Product Selection Procedures: Procedures for product selection include the following:
  - 1. Product: Where Specification paragraphs or subparagraphs titled "Product" name a single product and manufacturer, provide the product named.
    - a. Substitutions may be considered.
  - 2. Manufacturer/Source: Where Specification paragraphs or subparagraphs titled "Manufacturer" or "Source" name single manufacturers or sources, provide a product by the manufacturer or from the source named that complies with requirements.
    - a. Substitutions may be considered.
  - 3. Products: Where Specification paragraphs or subparagraphs titled "Products" introduce a list of names of both products and manufacturers, provide one of the products listed that complies with requirements.

- a. Substitutions may be considered.
4. Manufacturers: Where Specification paragraphs or subparagraphs titled "Manufacturers" introduce a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements.
  - a. Substitutions may be considered.
5. Available Products: Where Specification paragraphs or subparagraphs titled "Available Products" introduce a list of names of both products and manufacturers, provide one of the products listed or another product that complies with requirements. Comply with provisions in "Comparable Products" Article to obtain approval for use of an unnamed product.
6. Available Manufacturers: Where Specification paragraphs or subparagraphs titled "Available Manufacturers" introduce a list of manufacturers' names, provide a product by one of the manufacturers listed or another manufacturer that complies with requirements. Comply with provisions in "Comparable Products" Article to obtain approval for use of an unnamed product.
7. Product Options: Where Specification paragraphs titled "Product Options" indicate that size, profiles, and dimensional requirements on Drawings are based on a specific product or system, provide either the specific product or system indicated or a comparable product or system by another manufacturer. Comply with provisions in "Product Substitutions" Article.
8. Basis-of-Design Products: Where Specification paragraphs or subparagraphs titled "Basis-of-Design Products" are included and also introduce or refer to a list of manufacturers' names, provide either the specified product or a comparable product by one of the other named manufacturers. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with provisions in "Comparable Products" Article to obtain approval for use of an unnamed product.
  - a. Substitutions may be considered.
9. Visual Matching Specification: Where Specifications require matching an established Sample, select a product (and manufacturer) that complies with requirements and matches Engineer's sample. Engineer's decision will be final on whether a proposed product matches satisfactorily.
  - a. If no product available within specified category matches satisfactorily and complies with other specified requirements, comply with provisions of the Contract Documents on "substitutions" for selection of a matching product.
10. Visual Selection Specification: Where Specifications include the phrase "as selected from manufacturer's colors, patterns, and textures" or a similar phrase, select a product (and manufacturer) that complies with other specified requirements.
  - a. Standard Range: Where Specifications include the phrase "standard range of colors, patterns, textures" or similar phrase, Engineer will select color, pattern, or texture from manufacturer's product line that does not include premium items.
  - b. Full Range: Where Specifications include the phrase "full range of colors, patterns, textures" or similar phrase, Engineer will select color, pattern, or texture from manufacturer's product line that includes both standard and premium items.

## 2.2 PRODUCT SUBSTITUTIONS

- A. Timing: Engineer will consider requests for substitution if received within 60 days after the Notice of Award. Requests received after that time may be considered or rejected at discretion of Engineer.
  
- B. Conditions: Engineer will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Engineer will return requests without action, except to record noncompliance with these requirements:
  - 1. Requested substitution offers Owner a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities Owner must assume. Owner's additional responsibilities may include compensation to Engineer for redesign and evaluation services, increased cost of other construction by Owner, and similar considerations.
  - 2. Requested substitution does not require extensive revisions to the Contract Documents.
  - 3. Requested substitution is consistent with the Contract Documents and will produce indicated results.
  - 4. Substitution request is fully documented and properly submitted.
  - 5. Requested substitution will not adversely affect Contractor's Construction Schedule.
  - 6. Requested substitution has received necessary approvals of authorities having jurisdiction.
  - 7. Requested substitution is compatible with other portions of the Work.
  - 8. Requested substitution has been coordinated with other portions of the Work.
  - 9. Requested substitution provides specified warranty.
  - 10. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

## 2.3 COMPARABLE PRODUCTS

- A. Where products or manufacturers are specified by name, submit the following, in addition to other required submittals, to obtain approval of an unnamed product:
  - 1. Evidence that the proposed product does not require extensive revisions to the Contract Documents, that it is consistent with the Contract Documents and will produce the indicated results, and that it is compatible with other portions of the Work.
  - 2. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant qualities include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
  - 3. Evidence that proposed product provides specified warranty.
  - 4. List of similar installations for completed projects with project names and addresses and names and addresses of Engineers and owners, if requested.
  - 5. Samples, if requested.

PART 3 - EXECUTION (Not Used)

**END OF SECTION-016000**

## SECTION 017000

### EXECUTION REQUIREMENTS

#### PART 1 - GENERAL

##### 1.1 REQUIREMENTS INCLUDED

- A. This Section includes general procedural requirements governing execution of the Work including, but not limited to, the following:
1. Construction layout.
  2. Field engineering and surveying.
  3. General installation of products.
  4. Coordination of Owner-installed products.
  5. Progress cleaning.
  6. Starting and adjusting.
  7. Protection of installed construction.
  8. Correction of the Work.

##### 1.2 RELATED REQUIREMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions apply to this Section.
- B. Section 013100 - Project Management and Coordination.
- C. Section 013300 - Submittal Procedures.
- D. Section 017329 - Cutting and Patching.
- E. Section 017700 - Closeout Procedures.

#### PART 2 - PRODUCTS (Not Used)

#### PART 3 - EXECUTION

##### 3.1 EXAMINATION

- A. Existing Conditions: The existence and location of site improvements, utilities, and other construction indicated as existing are not guaranteed. Before beginning work, investigate and

verify the existence and location of mechanical and electrical systems and other construction affecting the Work.

1. Before construction, verify the location and points of connection of utility services.

B. Existing Utilities: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities and other construction affecting the Work.

1. Before construction, verify the location and invert elevation at points of connection or work in proximity of sanitary sewer, storm sewer, and water-service piping; and underground electrical services.
2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.

C. Acceptance of Conditions: Examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.

1. Written Report: Where a written report listing conditions detrimental to performance of the Work is required by other Sections, include the following:
  - a. Description of the Work.
  - b. List of detrimental conditions, including substrates.
  - c. List of unacceptable installation tolerances.
  - d. Recommended corrections.
2. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
3. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

### 3.2 PREPARATION

A. Existing Utility Information: Furnish information to local utility and Owner that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.

B. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:

1. Notify Engineer, Project Representative and Owner not less than two days in advance of proposed utility interruptions.
2. Do not proceed with utility interruptions without Owner's written permission.

- C. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
- D. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.
- E. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents, submit a request for information to Engineer. Include a detailed description of problem encountered, together with recommendations for changing the Contract Documents. Submit requests on CSI Form 13.2A, "Request for Interpretation."

### 3.3 CONSTRUCTION LAYOUT

- A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks. If discrepancies are discovered, notify Engineer and Project Representative promptly.
- B. General: Lay out the Work using accepted surveying practices.
  - 1. Establish benchmarks and control points to set lines and levels at each story of construction and elsewhere as needed to locate each element of Project.
  - 2. Establish dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.
  - 3. Inform installers of lines and levels to which they must comply.
  - 4. Check the location, level and plumb, of every major element as the Work progresses.
  - 5. Notify Engineer and Project Representative when deviations from required lines and levels exceed allowable tolerances.
  - 6. Close site surveys with an error of closure equal to or less than the standard established by authorities having jurisdiction.
- C. Site Improvements: Locate and lay out site improvements, including pavements, grading, fill and topsoil placement, utility slopes, and invert elevations.
- D. Record Log: Maintain a log of layout control work. Record deviations from required lines and levels. Include beginning and ending dates and times of surveys, weather conditions, name and duty of each survey party member, and types of instruments and tapes used. Make the log available for reference by Engineer and Project Representative.

### 3.4 FIELD ENGINEERING

- A. Reference Points: Locate existing permanent benchmarks, control points, and similar reference points before beginning the Work. Preserve and protect permanent benchmarks and control points during construction operations.
  - 1. Do not change or relocate existing benchmarks or control points without prior written approval of Engineer. Report lost or destroyed permanent benchmarks or control points promptly. Report the need to relocate permanent benchmarks or control points to Engineer and Project Representative before proceeding.
  - 2. Replace lost or destroyed permanent benchmarks and control points promptly. Base replacements on the original survey control points.
  
- B. Benchmarks: Establish and maintain a minimum of two permanent benchmarks on Project site, referenced to data established by survey control points. Comply with authorities having jurisdiction for type and size of benchmark.
  - 1. Record benchmark locations, with horizontal and vertical data, on Project Record Documents.
  - 2. Where the actual location or elevation of layout points cannot be marked, provide temporary reference points sufficient to locate the Work.
  - 3. Remove temporary reference points when no longer needed. Restore marked construction to its original condition.

### 3.5 INSTALLATION

- A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
  
- B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.
  
- C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.
  
- D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of use.
  
- E. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.
  
- F. Anchors and Fasteners: Provide anchors and fasteners as required to anchor each component securely in place, accurately located and aligned with other portions of the Work.
  - 1. Allow for movement, including thermal expansion and contraction.

- G. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.
- H. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

### 3.6 PROGRESS CLEANING

- A. General: Clean Project site and work areas daily, including common areas. Coordinate progress cleaning for joint-use areas where more than one installer has worked. Enforce requirements strictly. Dispose of materials lawfully.
  - 1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
  - 2. Do not hold materials more than 7 days during normal weather or 3 days if the temperature is expected to rise above 80 deg F.
  - 3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
- B. Site: Maintain Project site free of waste materials and debris.
- C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.
- D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.
- E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.
- F. Exposed Surfaces: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.
- G. Cutting and Patching: Clean areas and spaces where cutting and patching are performed. Completely remove paint, mortar, oils, putty, and similar materials.
  - 1. Thoroughly clean piping, conduit, and similar features before applying paint or other finishing materials. Restore damaged pipe covering to its original condition.
- H. Waste Disposal: Burying or burning waste materials on-site will not be permitted. Washing waste materials down sewers or into waterways will not be permitted.

- I. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.
- J. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.
- K. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

### 3.7 STARTING AND ADJUSTING

- A. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.
- B. Adjust operating components for proper operation without binding. Adjust equipment for proper operation.
- C. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
- D. Manufacturer's Field Service: If a factory-authorized service representative is required to inspect field-assembled components and equipment installation, comply with qualification requirements in Division 1 Section 014000 "Quality Requirements."

### 3.8 PROTECTION OF INSTALLED CONSTRUCTION

- A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.
- B. Comply with manufacturer's written instructions for temperature and relative humidity.

### 3.9 CORRECTION OF THE WORK

- A. Repair or remove and replace defective construction. Restore damaged substrates and finishes. Comply with requirements in Division 01 Section 017329 "Cutting and Patching."
  - 1. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment.

- B. Restore permanent facilities used during construction to their specified condition.
- C. Remove and replace damaged surfaces that are exposed to view if surfaces cannot be repaired without visible evidence of repair.
- D. Repair components that do not operate properly. Remove and replace operating components that cannot be repaired.
- E. Remove and replace chipped, scratched, and broken glass or reflective surfaces.

**END OF SECTION-017000**

## SECTION 017329

### CUTTING AND PATCHING

#### PART 1 - GENERAL

##### 1.1 REQUIREMENTS INCLUDED

- A. This Section includes procedural requirements for cutting and patching.

##### 1.2 RELATED REQUIREMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions apply to this Section.
- B. Section 024119 - Selective Demolition.
- C. Divisions 02 through 50 Sections for specific requirements and limitations applicable to cutting and patching individual parts of the work.

##### 1.3 DEFINITIONS

- A. Cutting: Removal of existing construction necessary to permit installation or performance of other Work.
- B. Patching: Fitting and repair work required to restore surfaces to original conditions after installation of other Work.

##### 1.4 SUBMITTALS

- A. Cutting and Patching Proposal: Submit a proposal describing procedures at least 10 days before the time cutting and patching will be performed, requesting approval to proceed. Include the following information:
  - 1. Extent: Describe cutting and patching, show how they will be performed, and indicate why they cannot be avoided.
  - 2. Changes to Existing Construction: Describe anticipated results. Include changes to structural elements and operating components as well as changes in appearance and other significant visual elements.
  - 3. Products: List products to be used and firms or entities that will perform the Work.
  - 4. Dates: Indicate when cutting and patching will be performed.

5. Utilities: List utilities that cutting and patching procedures will disturb or affect. List utilities that will be relocated and those that will be temporarily out of service. Indicate how long service will be disrupted.
6. Structural Elements: Where cutting and patching involve adding reinforcement to structural elements, submit details and engineering calculations showing integration of reinforcement with original structure.
7. Engineer's Approval: Obtain approval of cutting and patching proposal before cutting and patching. Approval does not waive right to later require removal and replacement of unsatisfactory work.

## 1.5 QUALITY ASSURANCE

- A. Structural Elements: Do not cut and patch structural elements in a manner that could change their load-carrying capacity or load-deflection ratio.
- B. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety.
- C. Visual Requirements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching.

## 1.6 WARRANTY

- A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during cutting and patching operations, by methods and with materials so as not to void existing warranties.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

- A. General: Comply with requirements specified in other Sections of these Specifications.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine surfaces to be cut and patched and conditions under which cutting and patching are to be performed.

1. Compatibility: Before patching, verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
2. Proceed with installation only after unsafe or unsatisfactory conditions have been corrected.

### 3.2 PREPARATION

- A. Temporary Support: Provide temporary support of Work to be cut.
- B. Protection: Protect existing construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.
- C. Adjoining Areas: Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.
- D. Existing Services: Where existing services are required to be removed, relocated, or abandoned, bypass such services before cutting to avoid interruption of services.

### 3.3 PERFORMANCE

- A. General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.
  1. Cut existing construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.
- B. Cutting: Cut existing construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.
  1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots as small as possible, neatly to size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
  2. Existing Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
  3. Concrete or Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
  4. Excavating and Backfilling: Comply with requirements in applicable Division 2 Sections where required by cutting and patching operations.
  5. Proceed with patching after construction operations requiring cutting are complete.

- C. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other Work. Patch with durable seams that are as invisible as possible. Provide materials and comply with installation requirements specified in other Sections of these Specifications.
1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate integrity of installation.
  2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.

**END OF SECTION-017329**

## SECTION 017419 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section includes administrative and procedural requirements for the following:
  - 1. Salvaging nonhazardous demolition and construction waste.
  - 2. Recycling nonhazardous demolition and construction waste.
  - 3. Disposing of nonhazardous demolition and construction waste.
- B. Related Requirements:
  - 1. Section 011200 "Multiple Contract Summary" for coordination of responsibilities for waste management.

#### 1.3 DEFINITIONS

- A. Construction Waste: Building, structure, and site improvement materials and other solid waste resulting from construction, remodeling, renovation, or repair operations. Construction waste includes packaging.
- B. Demolition Waste: Building, structure, and site improvement materials resulting from demolition operations.
- C. Disposal: Removal of demolition or construction waste and subsequent salvage, sale, recycling, or deposit in landfill, incinerator acceptable to authorities having jurisdiction, or designated spoil areas on Owner's property.
- D. Recycle: Recovery of demolition or construction waste for subsequent processing in preparation for reuse.
- E. Salvage: Recovery of demolition or construction waste and subsequent sale or reuse in another facility.
- F. Salvage and Reuse: Recovery of demolition or construction waste and subsequent incorporation into the Work.

#### 1.4 MATERIALS OWNERSHIP

- A. Unless otherwise indicated, demolition and construction waste becomes property of Contractor.
- B. Historic items, relics, antiques, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, and other items of interest or value to Owner that may be uncovered during demolition remain the property of Owner.
  - 1. Carefully salvage in a manner to prevent damage and promptly return to Owner.

#### 1.5 QUALITY ASSURANCE

- A. Regulatory Requirements: Comply with transportation and disposal regulations of authorities having jurisdiction.

#### 1.6 WASTE MANAGEMENT PLAN

- A. General: Develop a waste management plan according to requirements in this Section. Plan shall consist of waste identification, waste reduction work plan, and cost/revenue analysis. Indicate quantities by weight or volume, but use same units of measure throughout waste management plan.
- B. Waste Identification: Indicate anticipated types and quantities of demolition and construction waste generated by the Work.

### PART 2 - PRODUCTS

#### 2.1 PERFORMANCE REQUIREMENTS

- A. General: Achieve end-of-Project rates for salvage/recycling of 50 percent by weight of total nonhazardous solid waste generated by the Work. Practice efficient waste management in the use of materials in the course of the Work. Use all reasonable means to divert construction and demolition waste from landfills and incinerators. Facilitate recycling and salvage of materials, including the following:
  - 1. Demolition Waste:
    - a. Concrete.
    - b. Concrete reinforcing steel.
    - c. Structural and miscellaneous steel.
    - d. Rough hardware.
    - e. Roofing.
    - f. Insulation.
    - g. Doors and frames.
    - h. Door hardware.
    - i. Windows.
    - j. Glazing.
    - k. Equipment.

- l. Piping.
  - m. Supports and hangers.
  - n. Valves.
  - o. Sprinklers.
  - p. Mechanical equipment.
  - q. Electrical conduit.
  - r. Copper wiring.
  - s. Lighting fixtures.
  - t. Lamps.
  - u. Ballasts.
  - v. Electrical devices.
  - w. Switchgear and panelboards.
2. Construction Waste:
- a. Lumber.
  - b. Wood sheet materials.
  - c. Metals.
  - d. Roofing.
  - e. Piping.
  - f. Electrical conduit.
  - g. Packaging: Regardless of salvage/recycle goal indicated in "General" Paragraph above, salvage or recycle 100 percent of the following uncontaminated packaging materials:
    - 1) Paper.
    - 2) Cardboard.
    - 3) Boxes.
    - 4) Plastic sheet and film.
    - 5) Polystyrene packaging.
    - 6) Wood crates.
    - 7) Wood pallets.
    - 8) Plastic pails.
  - h. Construction Office Waste: Regardless of salvage/recycle goal indicated in "General" Paragraph above, salvage or recycle 100 percent of the following construction office waste materials:
    - 1) Paper.
    - 2) Aluminum cans.
    - 3) Glass containers.

## PART 3 - EXECUTION

### 3.1 PLAN IMPLEMENTATION

- A. General: Implement waste management plan. Provide handling, containers, storage, signage, transportation, and other items as required to implement waste management plan during the entire duration of the Contract.

1. Comply with operation, termination, and removal requirements in Section 015000 "Temporary Facilities and Controls."
- B. Training: Train workers, subcontractors, and suppliers on proper waste management procedures, as appropriate for the Work.
  1. Distribute waste management plan to everyone concerned.
  2. Distribute waste management plan to entities when they first begin work on-site. Review plan procedures and locations established for salvage, recycling, and disposal.
- C. Site Access and Temporary Controls: Conduct waste management operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
  1. Designate and label specific areas on Project site necessary for separating materials that are to be salvaged and recycled.
  2. Comply with Section 015000 "Temporary Facilities and Controls" for controlling dust and dirt, environmental protection, and noise control.

### 3.2 SALVAGING DEMOLITION WASTE

- A. Comply with requirements in Section 024119 "Selective Demolition" for salvaging demolition waste.
- B. Salvaged Items for Reuse in the Work: Salvage items for reuse and handle as follows:
  1. Clean salvaged items.
  2. Pack or crate items after cleaning. Identify contents of containers with label indicating elements, date of removal, quantity, and location where removed.
  3. Store items in a secure area until installation.
  4. Protect items from damage during transport and storage.
  5. Install salvaged items to comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make items functional for use indicated.
- C. Salvaged Items for Donation: Permitted on Project site.
- D. Salvaged Items for Owner's Use: Salvage items for Owner's use and handle as follows:
  1. Clean salvaged items.
  2. Pack or crate items after cleaning. Identify contents of containers with label indicating elements, date of removal, quantity, and location where removed.
  3. Store items in a secure area until delivery to Owner.
  4. Transport items to Owner's storage area designated by Owner.
  5. Protect items from damage during transport and storage.
- E. Doors and Hardware: Brace open end of door frames. Except for removing door closers, leave door hardware attached to doors.

- F. Equipment: Drain tanks, piping, and fixtures. Seal openings with caps or plugs. Protect equipment from exposure to weather.
- G. Plumbing Fixtures: Separate by type and size.
- H. Lighting Fixtures: Separate lamps by type and protect from breakage.
- I. Electrical Devices: Separate switches, receptacles, switchgear, transformers, meters, panelboards, circuit breakers, and other devices by type.

### 3.3 RECYCLING DEMOLITION AND CONSTRUCTION WASTE, GENERAL

- A. General: Recycle paper and beverage containers used by on-site workers.
- B. Recycling Incentives: Revenues, savings, rebates, tax credits, and other incentives received for recycling waste materials shall accrue to Contractor.
- C. Preparation of Waste: Prepare and maintain recyclable waste materials according to recycling or reuse facility requirements. Maintain materials free of dirt, adhesives, solvents, petroleum contamination, and other substances deleterious to the recycling process.
- D. Procedures: Separate recyclable waste from other waste materials, trash, and debris. Separate recyclable waste by type at Project site to the maximum extent practical according to approved construction waste management plan.
  - 1. Provide appropriately marked containers or bins for controlling recyclable waste until removed from Project site. Include list of acceptable and unacceptable materials at each container and bin.
    - a. Inspect containers and bins for contamination and remove contaminated materials if found.
  - 2. Stockpile processed materials on-site without intermixing with other materials. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.
  - 3. Stockpile materials away from construction area. Do not store within drip line of remaining trees.
  - 4. Store components off the ground and protect from the weather.
  - 5. Remove recyclable waste from Owner's property and transport to recycling receiver or processor as often as required to prevent overfilling bins.

### 3.4 RECYCLING DEMOLITION WASTE

- A. Concrete: Remove reinforcement and other metals from concrete and sort with other metals.
  - 1. Pulverize concrete to maximum 4-inch size.
- B. Wood Materials: Sort and stack members according to size, type, and length. Separate lumber, engineered wood products, panel products, and treated wood materials.

- C. Metals: Separate metals by type.
  - 1. Structural Steel: Stack members according to size, type of member, and length.
  - 2. Remove and dispose of bolts, nuts, washers, and other rough hardware.
- D. Piping: Reduce piping to straight lengths and store by material and size. Separate supports, hangers, valves, sprinklers, and other components by material and size.
- E. Conduit: Reduce conduit to straight lengths and store by material and size.
- F. Lamps: Separate lamps by type and store according to requirements in 40 CFR 273.

### 3.5 RECYCLING CONSTRUCTION WASTE

- A. Packaging:
  - 1. Cardboard and Boxes: Break down packaging into flat sheets. Bundle and store in a dry location.
  - 2. Polystyrene Packaging: Separate and bag materials.
  - 3. Pallets: As much as possible, require deliveries using pallets to remove pallets from Project site. For pallets that remain on-site, break down pallets into component wood pieces and comply with requirements for recycling wood.
  - 4. Crates: Break down crates into component wood pieces and comply with requirements for recycling wood.
- B. Wood Materials:
  - 1. Clean Cut-Offs of Lumber: Grind or chip into small pieces.
- C. Paint: Seal containers and store by type.

### 3.6 DISPOSAL OF WASTE

- A. General: Except for items or materials to be salvaged or recycled, remove waste materials from Project site and legally dispose of them in a landfill or incinerator acceptable to authorities having jurisdiction.
  - 1. Except as otherwise specified, do not allow waste materials that are to be disposed of accumulate on-site.
  - 2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
- B. General: Except for items or materials to be salvaged or recycled, remove waste materials and legally dispose of at designated spoil areas on Owner's property.
- C. Burning: Do not burn waste materials.

END OF SECTION 017419

## SECTION 017700

### CLOSEOUT PROCEDURES

#### PART 1 - GENERAL

##### 1.1 REQUIREMENTS INCLUDED

- A. This Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
  - 1. Inspection procedures.
  - 2. Project Record Documents.
  - 3. Warranties.
  - 4. Final cleaning.

##### 1.2 RELATED REQUIREMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions apply to this Section.
- B. Section 012900 - Payment Procedures.
- C. Section 013200 - Construction Progress Documentation.
- D. Section 017000 - Execution Requirements.
- E. Section 017839 - Project Record Documents.
- F. Divisions 02 through 50 Sections for specific closeout and special cleaning requirements for products of those Sections.

##### 1.3 SUBSTANTIAL COMPLETION

- A. Preliminary Procedures: Before requesting inspection for determining date of Substantial Completion, complete the following. List items below that are incomplete in request.
  - 1. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.
  - 2. Advise Owner of pending insurance changeover requirements.
  - 3. Submit specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
  - 4. Obtain and submit releases permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
  - 5. Prepare and submit Project Record Documents, Final Completion construction photographs and photographic negatives, damage or settlement surveys, and similar final record information.
  - 6. Terminate and remove temporary facilities from Project site, along with construction tools, and similar elements.

7. Submit changeover information related to Owner's use, operation, and maintenance.
8. Complete final cleaning requirements.
9. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.

B. Inspection: Submit a written request for inspection for Substantial Completion. On receipt of request, Engineer will either proceed with inspection or notify Contractor of unfulfilled requirements. Engineer will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Engineer, that must be completed or corrected before certificate will be issued.

1. Re-inspection: Request re-inspection when the Work identified in previous inspections as incomplete is completed or corrected.
2. Results of completed inspection will form the basis of requirements for Final Completion.

#### 1.4 FINAL COMPLETION

A. Preliminary Procedures: Before requesting final inspection for determining date of Final Completion, complete the following:

1. Submit a final Application for Payment according to Division 1 Section 012900 "Payment Procedures."
2. Submit certified copy of Engineer's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Engineer. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
3. Submit evidence of final, continuing insurance coverage complying with insurance requirements.

B. Inspection: Submit a written request for final inspection for acceptance. On receipt of request, Engineer will either proceed with inspection or notify Contractor of unfulfilled requirements. Engineer will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.

1. Re-inspection: Request re-inspection when the Work identified in previous inspections as incomplete is completed or corrected.

#### 1.5 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

A. Preparation: Submit three copies of list. Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction. Use CSI Form 14.1A.

1. Include the following information at the top of each page:
  - a. Project name.
  - b. Date.
  - c. Name of Engineer and Project Representative.
  - d. Name of Contractor.
  - e. Page number.

## 1.6 WARRANTIES

- A. Submittal Time: Submit written warranties on request of Engineer for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated.
- B. Partial Occupancy: Submit properly executed warranties within 15 days of completion of designated portions of the Work that are completed and used by Owner during construction period by separate agreement with Contractor.
- C. Organize warranty documents into an orderly sequence based on the table of contents of the Project Manual.
  - 1. Bind warranties and bonds in heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch paper.
  - 2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
  - 3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.
- D. Provide additional copies of each warranty to include in operation and maintenance manuals.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

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

## PART 3 - EXECUTION

### 3.1 FINAL CLEANING

- A. General: Provide final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.
  - 1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a portion of Project:
    - a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
    - b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
    - c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
    - d. Remove tools, construction equipment, machinery, and surplus material from Project site.

- e. Remove debris and surface dust from limited access spaces, including trenches, vaults, manholes, and similar spaces.
  - f. Remove labels that are not permanent.
  - g. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.
- B. Comply with safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on Owner's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from Project site and dispose of lawfully.

**END OF SECTION-017700**

**SECTION 017839**

**PROJECT RECORD DOCUMENTATION**

**PART 1 - GENERAL**

**1.1 REQUIREMENTS INCLUDED**

- A. This Section includes administrative and procedural requirements for Project Record Documents, including the following:
  - 1. Record Drawings.
  - 2. Record Specifications.
  - 3. Record Product Data.

**1.2 RELATED REQUIREMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions apply to this Section.
- B. Section 017700 - Closeout Procedures.

**1.3 SUBMITTALS**

- A. Record Drawings: Comply with the following:
  - 1. Hard Copies: Submit one set of marked-up Record Prints.
  - 2. Digital Copies: Submit one site of digital copies in AutoCAD format and one set of digital copies in pdf format.
- B. Record Specifications: Submit one copy of Project's Specifications, including addenda and contract modifications.
- C. Record Product Data: Submit one copy of each Product Data submittal.

**PART 2 - PRODUCTS**

**2.1 RECORD DRAWINGS**

- A. Record Prints: Maintain one set of blue- or black-line white prints of the Contract Drawings and Shop Drawings.
1. Preparation: Mark Record Prints to show the actual installation of all contract items. Contractor is required to prepare the record drawings.
    - a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
    - b. Information submitted shall be recorded in an understandable fashion.
  2. Content: Types of items requiring marking include, but are not limited to, the following:
    - a. Dimensional changes to Drawings.
    - b. Revisions to details shown on Drawings.
    - c. Locations and depths of underground utilities.
    - d. Actual equipment locations.
    - e. Changes made by Change Order or Construction Change Directive.
    - f. Changes made following Engineer's written orders.
    - g. Details not on the original Contract Drawings.
    - h. Field records for variable and concealed conditions.
  3. Mark the Contract Drawings or Shop Drawings, whichever is most capable of showing actual physical conditions, completely and accurately. If Shop Drawings are marked, show cross-reference on the Contract Drawings.
  4. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at the same location.
  5. Contractor is required to submit on 8 ½" x 11" sheets at end of project all pertinent location information i.e., tie sketches to individual water services (3 ties each min.), valve clusters w/tie information, etc.
- B. Newly Prepared Record Drawings:
1. New Drawings may be required when a Change Order is issued.
  2. Consult with Engineer for proper scale and scope of detailing and notations required to record the actual physical installation and its relation to other construction. Integrate newly prepared Record Drawings into Record Drawing sets; comply with procedures for formatting, organizing, copying, binding, and submitting.
- C. Format: Identify and date each Record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.
1. Record Prints: Organize Record Prints and newly prepared Record Drawings into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.
  2. Identification: As follows:
    - a. Project name.
    - b. Date.
    - c. Designation "PROJECT RECORD DRAWINGS."
    - d. Name of Engineer and Project Representative.

- e. Name of Contractor.

## 2.2 RECORD SPECIFICATIONS

- A. Preparation: Mark Specifications to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.
  - 1. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
  - 2. Record the name of the manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.
  - 3. For each principal product, indicate whether Record Product Data has been submitted in operation and maintenance manuals instead of submitted as Record Product Data.

## 2.3 RECORD PRODUCT DATA

- A. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.
  - 1. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.

## 2.4 MISCELLANEOUS RECORD SUBMITTALS

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

## PART 3 - EXECUTION

### 3.1 RECORDING AND MAINTENANCE

- A. Recording: Maintain one copy of each submittal during the construction period for Project Record Document purposes.
- B. Maintenance of Record Documents and Samples: Store Record Documents and Samples in the field office apart from the Contract Documents used for construction. Do not use Project Record Documents for construction purposes. Maintain Record Documents in good order and in a clean, dry, legible condition, protected from deterioration and loss.

**END OF SECTION-017839**

## SECTION 02 41 19 – SELECTIVE DEMOLITION

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes the modification, alteration, conversion, and renovation of existing structures:
  - 1. Be aware of the many incidental items which exist which must be demolished, relocated, or replaced in order to accomplish the remodeling work of trades.
  - 2. Include the price of such demolition, relocating, and replacement in the base Bid.
  - 3. These incidental items may or may not be indicated in the Contract Documents.
  - 4. Contractor and Subcontractors performing remodeling work are expected to be familiar with the unknown nature of existing utilities serving an area to be remodeled and shall calculate the base Bid to include the demolition, removal, relocation, and replacement of these utilities.

#### 1.3 REFERENCES

- A. Except as herein specified or as indicated on the Drawings, the work of this Section shall comply with the pertinent provisions of the following:
  - 1. American National Standards Institute: ANSI A10.6 - Safety Requirements for Demolition Operations.
  - 2. ASTM: D1557 - Laboratory Compaction Characteristics of Soil Using Modified Effort.
  - 3. EPA: Rule 406(b) of the Toxic Substances Control Act of 1992.
  - 4. NFPA: NFPA 241 - Standard for Safeguarding Construction, Alteration, and Demolition Operations.

#### 1.4 DEFINITIONS

- A. Terms:
  - 1. Abandon:
    - a. Remove an item to the extent that it is not visible and does not interfere with new construction.
    - b. Portions of the abandoned item may be left in place.
    - c. No abandoned items shall be left below new footings.
  - 2. Demolish:
    - a. Remove existing items from their present location in the Project area and haul to an area outside of the Project area.
    - b. Remove utilities serving these items.
  - 3. Relocate:
    - a. Move existing items from their present location to another location in the Project area.
    - b. Extend utilities serving the present location to the new location.
  - 4. Remove:
    - a. Except for items indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain Owner's property, demolished materials shall become Contractor's property.

- b. Remove existing items from their present location in the Project area and haul to an area outside of the Project area.
- c. Remove utilities serving these items.
- 5. Replace:
  - a. Remove existing items from their present location in the Project area, haul them to an area outside of the Project area, and furnish and install new items in the same or another location.
  - b. Extend utilities serving the present location to the new location.
- 6. Reuse: Move existing items from their present location to another location in the Project area. Extend utilities serving the present location to the new location.
- 7. Historic Items:
  - a. Historic items, relics, and similar object including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, antiques, and other items of interest or value to Owner that may be encountered during selective demolition remain Owner's property.
  - b. Carefully remove and salvage each item or object in a manner to prevent damage and deliver promptly to Owner.

## 1.5 DIVISION OF WORK

- A. Work: In accordance with the General Conditions, Contractor is responsible for dividing the Work among the Subcontractors and Suppliers and for delineating the work to be performed by specific trades. The following are suggestions as to how the Work may be divided. This is not a complete list of the work:
  - 1. Contractor:
    - a. Cut and patch walls, floors, and ceilings to allow for recessed utilities and ductwork.
    - b. Remove and reinstall existing suspended ceilings to allow for above ceiling construction.
    - c. Replace damaged units.
    - d. Install new ceilings as indicated on the Drawings.
    - e. Place sleeves in new concrete structures.
    - f. Patch roof at new penetration and curbs and where existing penetrations and curbs are removed.
    - g. Furnish and install new structural steel where required for reinforcement at floor, wall, and roof openings.
    - h. Install fire stop and smoke stop systems at penetrations for ratings indicated in accordance with local building codes.
  - 2. Mechanical, Electrical, and Fire Protection Subcontractors:
    - a. Furnish sleeves for use in new concrete construction.
    - b. Install fire stop and smoke stop systems at utility penetrations in accordance with local building codes.
    - c. Furnish and install sleeves in gypsum board and masonry construction.
    - d. Core drill existing concrete for new utilities and sleeves after obtaining Engineer's review of locations.
    - e. Remove and reinstall existing fire protection heads to allow for ceiling removal and installation.
    - f. Furnish new heads, piping, and connections as required for completion of the Work.
  - 3. Miscellaneous:
    - a. Each trade shall be financially responsible for cutting and patching for sleeves, penetrations, and installation of isolated components as necessary for its work unless herein specifically stated to the contrary.

- b. On renovation projects, cut and patch walls, floors, and ceilings to allow for continuous runs of recessed utilities and ductwork.
- c. Patching shall be done by the trade whose work is damaged.
- d. Costs caused by defective or ill-timed work shall be borne by the party responsible.
- e. Each trade shall do fitting of its own work as required to make its several components fit together or to receive the work of other trades.

## 1.6 SUBMITTALS

### A. Predemolition:

1. Submit showing existing conditions of construction to remain that could be misconstrued as damage caused by construction activities.
2. Including building and Site, as well as interior and exterior finishes.
3. Submit prior to commencing Work.

## 1.7 QUALITY ASSURANCE

### A. Qualifications: Engage an experienced firm that has specialized in demolition work similar to material and extent indicated for this Project.

### B. Regulatory Requirements:

1. Comply with governing EPA notification regulations before beginning selective demolition.
2. Comply with hauling and disposal regulations of authorities having jurisdiction.
3. Comply with ANSI A10.6 and NFPA 241.
4. Comply with 29 CFR 1926.62-(OSHA Paint Standard).

## 1.8 PROJECT CONDITIONS

### A. Owner Occupancy:

1. Owner will occupy portions of building immediately adjacent to selective demolition area.
2. Conduct selective demolition so Owner's operations will not be disrupted.
3. Provide not less than 1 week notice to Owner of activities that will affect Owner's operations.

### B. Access:

1. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities.
2. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from authorities having jurisdiction.

### C. Conditions:

1. Owner and Engineer assume no responsibility for condition of areas to be selectively demolished.
2. Conditions existing at time of inspection for bidding purposes will be maintained by Owner as far as practicable.

### D. Storage or sale of removed items or materials on Site will not be permitted.

### E. Maintenance of Utilities: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.

- F. Unknown Hazardous Materials:
  - 1. It is not expected that hazardous materials will be encountered in the Work.
  - 2. If materials suspected of containing hazardous materials are encountered, do not disturb; immediately notify Engineer and Owner in accordance with the General Conditions.
  - 3. Hazardous materials will be removed by Owner under a separate contract.
- G. Lead Paint: Remove and remediate existing lead paint as required to comply with all codes and requirements while performing the requirements of the Work. Either remove lead paint completely or partially as required to achieve this.

## 1.9 WARRANTIES

- A. Existing Warranties:
  - 1. Remove, replace, patch, and repair materials and surfaces cut or damaged during selective demolition, by methods and with materials so as not to void existing warranties.
  - 2. If possible, retain original installer or fabricator to patch exposed work that is damaged during selective demolition.
  - 3. If it is not possible to engage original installer or fabricator, engage another recognized, experienced, and specialized firm.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

- A. General:
  - 1. Materials and workmanship shall conform to the requirements of other Sections of the Specifications.
  - 2. Where no materials are specified in these specifications, use materials of an equivalent type, quality, and size to match those existing in other areas of the facility.
  - 3. If none exist, use materials and workmanship recognized as of the highest quality in the industry.
  - 4. Obtain Engineer's review of such material and workmanship.
- B. Piping: Existing piping which is removed from its present location shall not be reused where new piping is required unless specifically noted on the Drawings.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Verify that utilities have been disconnected and capped.
- B. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.
- C. Inventory and record the condition of items to be removed and reinstalled, and of items to be removed and salvaged.

D. Conflicts:

1. When unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure the nature and extent of conflict.
2. Promptly submit written report to Engineer.

E. Survey or engage a competent person to survey condition of the building, in accordance with requirements of OSHA, to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of the structure or adjacent structures during selective demolition operations.

F. Perform additional surveys as the work progresses to detect hazards resulting from operations to date.

### 3.2 UTILITY SERVICES

A. Maintain existing services indicated to remain and protect them against damage during selective demolition operations.

B. Interruptions:

1. Do not interrupt existing utilities serving occupied or operating facilities unless authorized in writing by Owner and other authorities having jurisdiction.
2. Provide temporary services during interruptions to existing utilities, as acceptable to Owner and to authorities having jurisdiction.
3. Provide at least 1 week notice to Owner if shutdown of service is required during changeover.

C. Utility Requirements:

1. Locate, identify, disconnect, and seal or cap off indicated utilities serving areas to be selectively demolished.
2. Owner will arrange to shut off indicated utilities when requested by Contractor.
3. Arrange to shut off indicated utilities with utility companies.
4. If utility services are required to be removed, relocated, or abandoned, before proceeding with selective demolition, provide temporary utilities that bypass areas of selective demolition and that maintain continuity of service to other parts of building.
5. Cut off pipe or conduit in walls or partitions to be removed.
6. Cap, valve, or plug and seal remaining portion of pipe or conduit after bypassing.

### 3.3 PREPARATION

A. Site Access and Temporary Controls:

1. Conduct selective demolition and debris removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
2. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and other authorities having jurisdiction.
3. Provide alternate routes around closed or obstructed traffic ways if required by governing regulations.
4. Erect temporary protection, such as walks, fences, railings, canopies, and covered passageways, where required by authorities having jurisdiction.
5. Protect existing Site improvements, appurtenances, and landscape features to remain.
6. Erect a plainly visible fence around drip line of individual trees or around perimeter drip line or groups of trees to remain.

B. Temporary Facilities:

1. Protection:

- a. Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
- b. Provide protection to ensure safe passage of people around selective demolition area, and to and from occupied portion of building.
- c. Weather Protection:
  - 1) Provide temporary weather protection, during interval between selective demolition of existing construction on exterior surfaces and new construction, to prevent water leakage and damage to structure and interior areas.
  - 2) Where heating or cooling is needed and permanent enclosure is not complete, provide insulated temporary enclosures.
  - 3) Coordinate enclosures with ventilating and material drying or curing requirements to avoid dangerous conditions and effects.
- d. Protect walls, ceilings, floors, and other existing finish work that are to remain or that are exposed during selective demolition operations.
- e. Cover and protect furniture, furnishings, and equipment that have not been removed.

2. Shoring and Bracing:

- a. Provide and maintain shoring, bracing, or structural support to preserve stability and prevent movement, settlement, or collapse of construction to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.
- b. Strengthen or add new supports when required during progress of selected demolition.

3.4 POLLUTION CONTROLS

A. Dust Control:

1. Use water mist, temporary closures, and other suitable methods to limit spread of dust and dirt.
2. Do not use water when it may damage existing construction or create hazardous or objectionable conditions, such as ice, flooding, and pollution.
3. Wet mop floors to eliminate trackable dirt and wipe down walls and doors of demolition enclosure.
4. Vacuum carpeted areas.
5. Comply with governing environmental protection regulations.

B. Disposal:

1. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
2. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.

3.5 GENERAL

- A. Demolish and remove existing construction only to the extent required by new construction and as indicated.

B. Methods:

1. Use methods required to complete the work within limitations of governing regulations.
2. Level by Level:
  - a. Proceed with selective demolition systematically, from higher to lower level.
  - b. Complete selective demolition operations above each floor or tier before disturbing supporting members on the next lower level.
3. Cutting Openings:
  - a. Neatly cut openings and holes plumb, square, and true to dimensions required.
  - b. Use cutting methods least likely to damage construction to remain or to adjoining construction.
  - c. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping, to minimize disturbance of adjacent surfaces.
  - d. Temporarily cover openings to remain.
4. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
5. Flame Cutting:
  - a. Do not use cutting torches until work area is cleared of flammable materials.
  - b. At concealed spaces, such as duct and pipe chases, verify condition and contents of hidden space before starting flame-cutting operations.
  - c. Maintain portable fire suppression devices during flame-cutting operations.
  - d. Maintain adequate ventilation when using cutting torches.
6. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials, and promptly and legally dispose of off Site.
7. Remove structural framing members and lower to ground by method suitable to avoid free fall and to prevent ground impact or dust generation.
8. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
9. Dispose of demolished items and materials promptly.
10. Return elements of construction and surfaces that are to remain to condition existing before selective demolition operations began.

C. Existing Facilities: Comply with Owner's requirements for using and protecting elevators, stairs, walkways, loading docks, building entries, and other building facilities during the selective demolition operations.

D. Removed and Salvaged Items:

1. Clean salvaged items.
2. Pack or crate items after cleaning and identify contents of containers.
3. Store items in a secure area until delivery to Owner.
4. Transport items to Owner's storage area on Site.
5. Protect items from damage during transport and storage.

E. Removed and Reinstalled Items:

1. Clean and repair items to functional condition adequate for intended reuse.
2. Paint equipment to match new equipment.
3. Pack or crate items after cleaning and repairing, and identify contents of containers.
4. Protect items from damage during transport and storage.
5. Reinstall items in locations indicated.
6. Comply with requirements for new materials and equipment.
7. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.

- F. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition.

### 3.6 DEMOLITION

#### A. Structures:

1. Cut, repair, reuse, excavate, demolish, or otherwise remove parts of the existing structures or appurtenances, as indicated on the Drawings, herein specified and necessary to permit completion of the Work.
2. Dispose of demolished materials in an approved manner.
3. Include necessary cutting, bending, and welding of reinforcing steel, structural steel, or miscellaneous metal work found embedded in the existing structures.
4. When removing materials or portions of existing structures, shore up, underpin, and protect adjacent structures.
5. Concrete:
  - a. Demolish in small sections.
  - b. Cut concrete to a depth of at least 3/4-inch at junctures with construction to remain, using a power driven saw.
  - c. Dislodge concrete from reinforcement to remain at perimeter of areas being demolished, cut reinforcement, and then remove remainder of concrete indicated.
  - d. Neatly trim openings to dimensions indicated.
6. Engineer's review of cutting: No existing structure, equipment or appurtenance shall be shifted, cut, removed or otherwise altered without obtaining review of Engineer.

#### B. Equipment:

1. Dismantle, remove, and relocate existing equipment, piping, and other appurtenances required for the completion of the Work.
2. Cut existing pipelines for the purpose of making connections thereto.
3. Cut off anchor bolts for equipment and structural steel indicated to be removed 1-inch below the concrete surface.
4. Patch remaining concrete surface to smooth even finish.
5. Remove air conditioning equipment without releasing refrigerants, if applicable.

#### C. Piping, Fire Protection, and Electrical Components:

1. When a new connection is made to an existing pipeline, install additional new piping, extending to and including the most convenient new valve.
2. Piping, conduit, and wiring indicated or required to be demolished shall be done so to the nearest reasonable connection outside of the Project area or as directed by Engineer.
3. Where necessary or required for the purpose of making connections, cut existing pipelines in a manner to provide an approved joint.
4. Weld beads, flanges, and provide Dresser couplings on existing and new piping.
5. Remove and reinstall existing fire protection heads to allow for new construction.
6. Comply with applicable fire protection codes.
7. Furnish new heads, piping, and connections as required for completion of the Work.
8. Remove junction boxes and electrical outlets which will no longer be in use.
9. At existing walls which are made thicker, extend piping and wiring to accommodate additional wall thickness.
10. Remove and reinstall fixtures and electrical outlets, switches, etc.

- D. Ductwork:
1. Remove portions of existing ductwork systems to the nearest branch outside the project area, except as indicated otherwise on drawings.
  2. Remove existing ductwork in a manner to minimize dispersion of dust in the duct system.
  3. Repair and replace existing insulation and duct liner disturbed by this Work to provide a continuous smooth surface.
- E. Masonry Walls:
1. Where masonry walls are to be removed and replaced, and where filling existing openings, allow for tothing in of the new masonry at alternate courses so that the existing running bond pattern is maintained.
  2. Brick:
    - a. Existing brick which becomes exposed due to the removal of materials such as adjacent walls, windows, doors, cabinetry, equipment, etc., shall be thoroughly cleaned, scraped, brushed, and tuck pointed to match adjacent existing brick.
    - b. Blend appearance of exposed brick with the adjacent brick.
    - c. Replace damaged brick.
- F. Floor Slabs:
1. Where new utilities must be installed below the existing floor slab, saw cut the slab for at least 1-inch of depth.
  2. Break out the remaining depth with jack hammers or hand tools to provide a rough surface.
  3. Leave existing steel reinforcing so that it laps at least 6 inches into the new concrete slab over the trench.
  4. The exact width of the concrete removed shall depend upon the required depth and diameter of the new utility.
  5. Allow for sufficient working space in the trench.
- G. Conceal Utilities: Recess new piping, conduit, and other utilities into floors, wires, and ceilings in finished areas.
- H. Ownership of Salvaged Materials:
1. Materials and equipment removed shall remain the property of Owner at Owner's option.
  2. Items not salvageable, as determined by Engineer and Owner, and items Owner elects not to keep shall become the property of Contractor to be properly disposed of off the Site.
  3. Salvaged equipment shall be thoroughly cleaned, lubricated, and greased for protection during prolonged storage.
- I. Nonshrink Grout: Use nonshrink grout for setting wall castings, sleeves, leveling pump bases, doweling anchors into existing concrete and elsewhere as indicated.
- J. Protect Facility from Water Damage: Provide flumes, hoses, piping, suitable plugs, bulkheads, or other means to divert or hold back the flow of wastewater, water, or other liquids, as required for proper performance of the Work.
- K. Blasting: Not permitted.

- L. Sleeves:
  - 1. Subcontractors for mechanical, electrical, and other trades shall furnish sleeves and inserts for pipes, conduits, and similar items in forms, walls, partitions, and floors.
  - 2. Perform work in cooperation with Contractor.
  - 3. Place items in ample time so as not to delay operations.
  - 4. Do not place sleeves so they pass through beams, girders, and similar construction.
- M. Roofing: If existing roofing is to remain, obtain original roofing Manufacturer's approval and warranty on new roof penetrations and where removing existing roof penetrations and curbs.
- N. Firestopping and Smokestopping: Install firestop and smokestop systems at utility penetrations in accordance with local building codes.
- O. Miscellaneous: At existing walls which are made thicker, reinstall fire extinguisher cabinets, clocks, thermostats, and other wall hung items in new wall to accommodate additional wall thickness.

### 3.7 PATCHING AND REFINISHING

- A. Promptly repair damage to adjacent construction caused by selective demolition operations.
- B. Patching:
  - 1. Patch and repair existing surfaces from which items have been removed leaving holes, fasteners, and surface blemishes exposed to view.
  - 2. Where repairs to existing surfaces are required, patch to produce surfaces suitable for new materials.
  - 3. Completely fill holes and depressions in existing masonry walls that are to remain with an approved masonry patching material applied according to Manufacturer's written recommendations.
  - 4. Comply with Division 01 Section "Cutting and Patching."
- C. Refinishing:
  - 1. Prepare existing surfaces for finishes by scraping, sanding, filling, acid etching, and sand blasting to ensure bonding and a smooth finish.
  - 2. Refinish entire surfaces as necessary to provide an even finish.
  - 3. Refinish continuous surfaces to the nearest intersection and entirely finish assemblies.
  - 4. Restore exposed finishes of patched areas and extend restoration into adjoining construction in a manner that eliminates evidence of patching and refinishing.
  - 5. Refinish entire surfaces if necessary to remediate existing lead painted surfaces.
- D. Floors and Walls:
  - 1. Where floors or partitions that are demolished extend one finished area into another, patch and repair floor and wall surfaces in the new space.
  - 2. Provide an even surface of uniform finish, color, texture, and appearance.
  - 3. Remove existing floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.
  - 4. Patch with durable seams that are as invisible as possible.
  - 5. Provide materials and comply with installation requirements specified in other Sections of these Specifications.
  - 6. Where patching occurs in a painted surface, apply primer and intermediate coats over the patch and apply final coat over entire unbroken surface containing patch.

7. Provide additional coats until patch blends with adjacent surfaces.
8. Where feasible, test and inspect patched areas after completion to demonstrate integrity of installation.

E. Ceilings: Patch, repair, or rehang existing materials as necessary to provide even plane surface of uniform appearance.

### 3.8 CLEANING

A. Clean materials installed under this Section in accordance with Division 01 Section "Cleaning and Waste Management."

B. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations.

C. Return adjacent areas to conditions existing before selective demolition operations began.

END OF SECTION 02 41 19

## SECTION 02 41 23 – SELECTIVE CONCRETE DEMOLITION

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes furnishing labor, materials, equipment, and supervision to demolish, haul, and dispose of concrete. Concrete delaminations shall be demolished according to the depth indicated on the Drawings.
- B. Basis of Payment: Demolition cost to be included in repair costs, unless otherwise noted.

#### 1.3 SUBMITTALS

- A. Product Data: Submit types of equipment proposed for use.
- B. Quality Assurance/Control Submittals: Submit restoration and sequencing plan prior to beginning Work.

#### 1.4 DELIVERY, STORAGE AND HANDLING

- A. Deliver materials in original, unbroken, brand marked containers or wrapping as applicable.
- B. Handle and store materials in a manner which will prevent deterioration, damage, contamination with foreign matter, and damage by weather or elements, and according to Manufacturer's directions.
- C. Reject damaged, deteriorated, or contaminated material and immediately remove from the Site. Replace rejected materials with new materials at no additional cost to Owner.

### PART 2 - PRODUCTS

Not used.

### PART 3 - EXECUTION

#### 3.1 PREPARATION

- A. Review the types of equipment proposed for use with the Owner and Engineer.
- B. Conduct demolition operations to ensure minimum interference with roads, streets, walks, and other adjacent occupied or used facilities. Do not close or obstruct streets, walks or other occupied or used facilities without permission from authorities having jurisdiction.
- C. Protect Owner's property which is to remain including; facades, signs, windows, doors, plantings, parking equipment, electrical and mechanical lines and fixtures.

- D. Protect adjoining properties, public thoroughfares, sidewalks, and utilities from damage due to this operation.
- E. Take adequate precautions and provide protection as required to prevent damage to remaining existing elements of the parking structure, adjoining building elements, and vehicles using the facility.
- F. At no cost to the Owner, promptly repair damage to adjacent facilities resulting from demolition operations.
- G. Clean adjacent facilities of dust, dirt and debris resulting from demolition operations.
- H. Remove temporary protection and devices when no longer needed and when directed by the Owner.

### 3.2 DELAMINATED CONCRETE SURFACE PREPARATION

- A. Location and Marking of Work Areas:
  - 1. Locate floor slab delaminations by sounding the surface with a hammer or rod, or dragging a chain. Sound all floor slabs. Further sound delaminated areas once located to define their limits. Mark these limits or "boundaries" with chalk or paint.
  - 2. Locate beam, wall, column, and slab delaminations by sounding the appropriate member with a hammer or rod. Cracks, usually horizontal in orientation along beam faces and vertical in orientation near corners of columns, are reliable indicators of delaminated concrete. Further sound delaminated areas once located to define their limits. Mark these limits or "boundaries" with chalk or paint.
  - 3. Prior to concrete removal locate reinforcing bars tendons, anchorages, and electrical conduits in the vicinity of the repairs. Take the necessary precautions to prevent damage.
- B. Concrete Removal and Surface Preparation:
  - 1. Remove concrete from within the marked boundary to a minimum depth as indicated on the Drawings using 15 to 30 pound chipping hammers equipped with chisel point bits. Larger chipping hammers with a maximum stroke of 4 inches shall not be used without approval from the Engineer. If delaminations exist beyond the minimum removal depth, then chipping shall continue until unsound and delaminated concrete has been removed from the cavity.
  - 2. Where reinforcing bars are exposed by concrete removal, exercise extra caution to avoid damaging them during removal of additional unsound concrete. The minimum depth of concrete removal around and beyond the perimeter of the bar for the entire exposed length shall be as indicated on the Drawings.
  - 3. If rust is present on reinforcing bars where they enter sound concrete, then additional removal of concrete along the reinforcement is required. Such additional removal shall continue until grey reinforcement is exposed. If rust persists beyond the removal limits, advise the Engineer and Engineer will direct further removals.
  - 4. Sawcut delaminated, spalled and unsound concrete at their marked boundaries to a depth as indicated on the Drawings. Edges shall be straight and patch areas polygon shaped. A diamond blade saw or grinder with abrasive disk suitable for cutting concrete is acceptable for performing this work. Dress the edges cut at the delamination boundary perpendicular to the member face. It shall also be of uniform depth for the entire length of the cut.
- C. Preparation of Concrete Bonding Surface: Abrasive blast or high-pressure waterblast exposed concrete surfaces to remove laitance and foreign material that may impair bonding prior to concrete placement.

- D. Cleaning and Securing of Reinforcing: Refer to Division 03 Section "Concrete Reinforcement". Clean existing reinforcing and miscellaneous metals of rust and laitance to near white metal.
- E. Final Preparation: Air blasting is required as a final step to remove dust and debris.

### 3.3 INSPECTION

- A. Examine areas and conditions under which the Work is to occur. Notify the Engineer immediately in writing as required in the General Conditions of any conditions detrimental to the proper and timely completion of this Work.

### 3.4 FIELD QUALITY CONTROL

- A. After demolition is complete but prior to final cleaning, the cavities and all exposed reinforcement (including tendons) shall be reviewed by the Engineer. The review will include sounding the exposed concrete to determine completeness of delamination removals, examination of dressed edges to verify depth and vertical edge of cut, and uniformity of excavation to ensure compliance with minimum limits specified.
- B. The Engineer will review reinforcement exposed within the cavities for corrosion or damage resulting from Contractor's removal operations. Perform replacement of defective or damaged reinforcement bars in accordance with Division 03 Section "Concrete Reinforcement."
- C. Promptly make changes and additions required by Manufacturer's engineer.
- D. Submit Manufacturer's engineer's written approval of installation.

### 3.5 CLEANING

- A. Clean materials installed under this Section according to Division 01 Section "Cleaning and Waste Management."
- B. On a daily basis remove and properly dispose of concrete and debris from areas exposed to public view.

### 3.6 PROTECTION/SAFETY

- A. The concrete slab has embedded electrical conduit. Take necessary precautions to prevent damage to the conduit. Coordinate with Owner to shut off power if repairs are located near conduit.

END OF SECTION 02 41 23

## SECTION 03 01 33 – REHABILITATION OF CAST-IN-PLACE CONCRETE

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes the following:
  - 1. Locating and removing delaminated, spalled and unsound concrete.
  - 2. Preparing cavities created by removals to receive patching materials.
  - 3. Replacing existing deteriorated concrete and reinforcement.
  - 4. Repairing concrete expansion joints.
  - 5. Crack repair.
- B. Concrete restoration work will be paid for on a Unit Price basis.

#### 1.3 REFERENCES

- A. Except as herein specified or as indicated on the Drawings, the work of this Section shall comply with the following:
  - 1. ASTM:
    - a. A615 – Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement.
    - b. A1064 – Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete.
    - c. C31 – Making and Curing Concrete Test Specimens in the Field.
    - d. C33 – Concrete Aggregates.
    - e. C39 – Compressive Strength of Cylindrical Concrete Specimens.
    - f. C136 – Sieve Analysis of Fine and Coarse Aggregates.
    - g. C150 – Portland Cement.
    - h. C260 – Air-Entraining Admixtures for Concrete.
    - i. C309 – Liquid Membrane-Forming Compounds for Curing Concrete.
    - j. C494 – Chemical Admixtures for Concrete.
  - 2. ACI:
    - a. 301 – Specifications for Structural Concrete.
    - b. 302.1R – Guide for Concrete Floor and Slab Construction.
    - c. 309R – Guide to Consolidation of Concrete.
    - d. 347R – Guide to Formwork for Concrete.
  - 3. International Concrete Repair Institute (ICRI).

#### 1.4 DEFINITIONS

- A. Delaminations: Fracture planes or “internal cracks,” within concrete. Typically, these fractures are parallel to the member face and vary in depth.
- B. Spalls: Potholes, cavities or voids in floor slabs, beams, columns, or walls, usually the result of delaminations migrating to the face of the concrete member. When the delamination reaches the surface, concrete encompassed by the delamination breaks away, resulting in a spall.

- C. Unsound Concrete: Concrete exhibiting one or more of the following:
  - 1. Incipient fractures present beneath existing delaminated or spalled surfaces.
  - 2. Honeycombing.
  - 3. Friable or punky areas.
  - 4. Deterioration from freeze-thaw action.
- D. Scaling: Deterioration which attacks the mortar fraction (paste) of the concrete mix. Scaling first appears as minor flaking and disintegration of a concrete surface and eventually progresses deeper into concrete, exposing aggregate which breaks away. Concrete scaling is caused by freeze-thaw action. If concrete is frozen in a saturated state, excess water freezing in concrete causes high internal stresses.
- E. Saturated Surface Dry (SSD): The condition in which a surface is saturated with water and cannot absorb more, but no free water is present on the surface and is in accordance with the ICRI recommendations.

#### 1.5 SUBMITTALS

- A. Product Data:
  - 1. Submit for each Product to be used on the Project.
  - 2. Include specifications and recommended application procedures showing compliance with the Project requirements.
  - 3. Provide safety data sheets for products used.
- B. Surface Preparation Methods: Submit details of preparation method to Engineer for review prior to commencing work.

#### 1.6 QUALITY ASSURANCE

- A. Fabrication and Installation Personnel Qualifications:
  - 1. Trained and experienced in the fabrication and installation of the materials and equipment.
  - 2. Knowledgeable of the design and the reviewed Shop Drawings.
  - 3. Each component of a system or product shall be installed by Manufacturer trained personnel. Installers shall demonstrate knowledge of product and installation.
- B. Formwork:
  - 1. Design of formwork is the responsibility of the Contractor.
  - 2. Submit proposed method of forming to Engineer for review prior to placement of concrete.
    - a. Include materials and means of bracing and sealing formwork.
  - 3. Provide adequate means of ensuring complete filling of forms with concrete using bird's mouths or other methods.
  - 4. Refer to ACI 347R for assistance with design of formwork.

#### 1.7 WARRANTY

- A. Installed products under this section shall be fully warranted for a period of 1 year against defects in materials or workmanship commencing with the date of Substantial Completion.
- B. All required warranties shall be obtained by the Contractor as an agent for the Owner from all installation contractors, and the manufacturers. All such warranties shall inure to the benefit of the Owner without the necessity of separate transfer or assignment thereof.

- C. Responsibilities of Each Party:
1. Contractor: Shall act as the agent for the Owner in collecting and enforcing submission of the warranty requirements prior to Substantial Completion of the project.
  2. Installation Contractor: Responsible for 100% of the labor to remove and replace the defective material if a failure occurs within the warranty period.
  3. Manufacturer: Responsible for supplying 100% of replacement material in case of a failure during the warranty period unless stated otherwise in the warranty.
- D. Specific Warranty Requirements:
1. The one-year comprehensive warranty shall specifically cover the following:
  2. A fully complete 100% warranty for all workmanship and material for the repairs.
  3. Delamination of the coating or substrate.
  4. Any damage to material or equipment caused by coating system failure.
  5. Failures due to improper surface preparation, use of non-approved materials, insufficient thickness for any part of the system including primer(s), faulty workmanship, or non-approved deviations from current manufacturer's specifications and written instructions.
  6. Material incompatibility with any existing coating.
- E. Replacement Cost:
1. The warranty shall cover 100% of the replacement cost whether or not the Owner has benefitted from use of the product through part of its useful life.
  2. When the work covered by the warranty has failed, the replacement work shall be warranted to cover the original remaining warranty period.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

- A. VOC Compliance:
1. Individual coatings and coating systems shall have VOC levels at or below the EPA recommendations identified in 40 CFR Part 59.
  2. Test VOC content in accordance with EPA Method 24.
- B. Vertical and Overhead (Walls and Ceilings) Trowelable Concrete Repairs:
1. MasterEmaco S 488CI, BASF, Shakopee, MN.
  2. Sikatop 122 Plus or 123 Plus, Sika Corp., Lyndhurst, NJ.
  3. Planitop 23, or X, Mapei, Deerfield Beach, FL.
- C. Vertical and Overhead (Walls and Ceilings) Form and Pour Concrete Repairs:
1. MasterEmaco S 466CI or S 477CI, BASF, Shakopee, MN.
  2. Sikatop 111 Plus or Sikacrete 211 SCC Plus, Sika Corp., Lyndhurst, NJ.
  3. Planitop 15 or FD, Mapei, Deerfield Beach, FL.
- D. Horizontal (Slabs) Trowelable Concrete Repairs:
1. Sikatop 111 Plus or Sikacrete 211 SCC Plus, Sika Corp., Lyndhurst, NJ.
  2. MasterEmaco S 466CI or S 477CI, BASF, Shakopee, MN.
  3. Planitop 15 or FD, Mapei, Deerfield Beach, FL.
- E. Corrosion Inhibitor:
1. For surface application on reinforcing bars:
    - a. Sika Armatec 110 Epo Cem by Sika.
    - b. Dural Prep AC by Euclid.

- F. Steel Reinforcing:
  - 1. Reinforcing Bars: ASTM A615, yield stress  $F_y = 60,000$  psi.
  - 2. Welded Wire Fabric: ASTM A185 or A1064, yield stress  $F_y = 65,000$  psi.
- G. Provide primers as required in accordance with Manufacturer's recommendations.

### PART 3 - EXECUTION

#### 3.1 GENERAL

- A. Installation: In accordance with Manufacturer's recommendations.
- B. Inspection: Do not install patching or reinforcing material until Engineer has inspected the repair location.
- C. Temporary Shoring:
  - 1. May be required at slab, beam, joist, or column repairs.
  - 2. Review marked removal and preparation areas and request clarification by Engineer for shoring requirements in questionable areas.
  - 3. In areas requiring shores, place shores prior to concrete removal and cavity preparation.
  - 4. Provide catch platform for removed concrete if necessary to prevent damage to portions of the Site to remain.
- D. Waste: Remove material from Site and dispose of legally.

#### 3.2 CONCRETE REPAIRS

- A. General:
  - 1. Delaminated Areas:
    - a. Examine cavities prior to commencement of patching operations.
    - b. Sound surfaces as part of examination.
    - c. Remove delamination noted during sounding as specified in this Section.
    - d. Once located, further sound delaminations to define limits.
    - e. Mark limits with chalk or paint.
    - f. Remove concrete from within marked limits to minimum depth of 3/4-inch using 15 pound maximum electric or pneumatic chipping hammers or hand tools.
    - g. If delaminations exist beyond minimum removal depth, continue chipping until unsound and delaminated concrete has been removed from cavity.
    - h. Engineer will define and mark additional unsound concrete areas for removal, if required.
  - 2. Spalls:
    - a. Locate spalls by visual inspection.
    - b. Mark boundaries with chalk or paint after sounding surface.
    - c. Engineer will define and mark additional unsound concrete areas for removal, if required.
  - 3. Embedments:
    - a. Locate and determine depth of embedded reinforcement. electrical conduit and other embedments in repair area.
    - b. Mark these locations for reference during concrete removal.
    - c. Where embedded reinforcement or electrical conduit is exposed by concrete removal, exercise caution to avoid damaging it during removal of unsound concrete.

- d. Repair damage to embedments due to removal operations in accordance with building code requirements at no cost to the Owner.
- e. Embedded materials which are defective prior to construction may be repaired or replaced by Contractor or abandoned at Owner's option and cost.
4. Sawcut Edges:
  - a. For vertical and overhead surfaces sawcut marked limits to depth of 1/2-inch to 5/8-inch into existing concrete, measured from original surface.
  - b. Make sawcut edges straight and patch areas square or rectangular-shaped.
  - c. Diamond blade saws or grinders with abrasive disk suitable for cutting concrete are acceptable for performing work.
  - d. Dress edge cut at delamination limits perpendicular to member face and uniform depth, for length of cut.
  - e. Exercise caution during saw cutting to avoid damaging existing reinforcement, electrical conduit and other embedded items near surface of concrete.
  - f. Repair damage to existing reinforcement or other embedment caused by Contractor at no additional cost to Owner.
5. Clearance:
  - a. Remove concrete to provide minimum of 3/4-inch clearance on all sides of defective or damaged exposed embedded reinforcement that is left in place.
  - b. Provide minimum of 1-1/2-inch concrete cover over new and existing reinforcement.
  - c. Concrete cover over reinforcement may be reduced to 1-inch with Engineer approval if coated with a reviewed epoxy resin.
6. Preparing Cavities:
  - a. Sandblast cavities; water blasting is prohibited.
  - b. Remove deleterious materials such as damaged concrete, corrosion, laitance, dirt and grease from concrete surfaces.
  - c. Roughen surface to CSP-7 as defined by the ICRI.
  - d. Air blast as final step, to remove sand.
  - e. Apply corrosion inhibitor on full circumference of reinforcing bars.
7. Rectangular Areas:
  - a. Prepare areas to be removed as straight and rectangular as practical to encompass repair and provide neat patch.
  - b. Avoid acute angles on patch.
8. Reinforcement Repair:
  - a. Supplement defective or damaged embedded reinforcement by addition of reinforcement of equal diameter with Class "B" minimum splice in accordance with ACI 318 extending beyond damaged portion of reinforcement.
  - b. Secure new reinforcement to existing reinforcement with wire ties or approved anchors into concrete, or both.
  - c. Install supplemental reinforcement in accordance with ACI 318 and ACI 301.
  - d. If rust is present on embedded reinforcement where it enters sound concrete, perform additional concrete removal along and beneath reinforcement.
  - e. Continue additional removal until non-rusted reinforcement is exposed. Concrete removal may be terminated as Engineer directs.
    - 1) If bond between exposed embedded reinforcement and adjacent concrete is impaired by removal operations, perform additional removal around and beyond perimeter of reinforcement for minimum of 3/4-inch along entire length affected at no cost to Owner.
    - 2) Remove rust from the full circumference of reinforcement.

- f. Defective Reinforcement:
    - 1) Embedded reinforcement exposed during surface preparation that has lost more than 10% of original cross-section due to corrosion.
    - 2) Exposed reinforcement that has lost section to extent specified as direct result of Contractor's removal operations.
  - g. Clean exposed rusted steel to bare metal by sandblasting; water blasting is not allowed.
  - h. Complete cleaning immediately before patch placement to ensure that base metal is not exposed to elements and further rusting for extended periods of time.
  - i. Securely anchor loose reinforcement exposed during preparation prior to patch placement.
  - j. Drilled-in anchors shall be reviewed by Engineer.
  - k. Engineer will determine adequacy of wire ties and approve other anchoring devices prior to their use.
  - l. Securing loose reinforcement is incidental to surface preparation and no additions to the Contract Sum will be allowed for this work.
9. Inspection of Repair Preparation:
- a. Inspection:
    - 1) After removals are complete, but prior to final cleaning, inspect cavity and exposed reinforcement and obtain Engineer's review for compliance with requirements of this Section.
    - 2) Where Engineer finds unsatisfactory cavity preparation, perform additional removals. Engineer will verify areas after additional removals.
  - b. Defects:
    - 1) Inspect embedded reinforcement and conduits exposed within cavity for defects due to corrosion or damage resulting from removal operations.
    - 2) Notify Engineer of defective and damaged reinforcement, conduits or other embedments.
    - 3) Replace damaged or defective embedments according to this Section and as directed by Engineer.
10. Provide other preparation as required by the Manufacturer of the patching compounds.
11. Inform Engineer at least 2 days in advance of concrete repair placement to allow adequate time for Engineer to schedule inspection.
12. Use form and fill method, trowel on fill method, or shotcrete fill method, as Manufacturer recommends.
13. Pre-dampen cavity surface with clean water to a saturated surface dry (SSD) condition with no free water.
- a. Provide 24 continuous hours of poured water on horizontal surface cavities and 24 continuous hours of sprinkler wetting on vertical surface cavities immediately prior to placement of concrete repair material.
14. Place concrete continuously at each repair area until reinforcing steel is encapsulated, forms are full and air pockets are eliminated.
15. Utilize vibrators to assist in consolidating concrete.
- a. Do not over vibrate concrete.
  - b. Concrete over vibration (concrete segregation) will be cause for rejection of the work.
  - c. Refer to ACI 309R for assistance with the selection, numbers and use of vibrators.
16. Protect freshly applied concrete from premature drying and maintain with minimal moisture loss at a relatively constant temperature for a minimum of 7 days.
17. Use a form release agent that is compatible with specified curing compounds.
18. Leave forms in place for a minimum of 3 days.

19. Immediately after removing forms, either wet cure or apply at least 2 coats of curing compound in accordance with Manufacturer's recommendations.
  20. 14 days or later after installation of repairs, sound repaired concrete in presence of Engineer. Remove delaminated or otherwise unsound concrete encountered and place new repair concrete.
- B. Floor Slabs:
1. Sound designated floors for delaminations.
  2. Locate delaminations by sounding surface with hammer, rod, or chain drag.
  3. When delaminated area is struck, a distinct hollow sound will be heard.
- C. Vertical and Overhead Surfaces:
1. Locate delaminations by sounding appropriate member with hammer or rod.
  2. Cracks, usually horizontal in orientation along beam faces, and vertical in orientation near column corners are indicators of delaminated concrete.
- D. Crack Repair:
1. Refer to Drawings for specific criteria for crack repair.
  2. Follow sealant Manufacturer's specific guidelines where more stringent than those specified herein.
  3. Seal cracks the same day as they are prepared.
  4. Utilize a dry process to rout cracks.
- E. Coat and Protect:
1. After sandblasting operations and cleanup are completed, paint exposed steel with the reviewed epoxy.
  2. Protect prepared surfaces from damage prior to and during patch placement.
- 3.3 FIELD QUALITY CONTROL
- A. Manufacturer's Engineer: Check work.
- B. Promptly make corrections, changes, and additions required by Manufacturer's engineer.
- 3.4 CLEANING
- A. Clean materials installed under this Section in accordance with Division 01 Section "Cleaning and Waste Management."

END OF SECTION 03 01 33

## SECTION 03 15 00 – CONCRETE ACCESSORIES

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes the furnishing and installation of concrete accessories.

#### 1.3 REFERENCES

- A. Except as herein specified or as indicated on the Drawings, the work of this Section shall comply with the following:
  - 1. ASTM Standard Specifications:
    - a. D1751 - Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types).
    - b. E96 - Water Vapor Transmission of Materials.
    - c. E1643 – Selection, Design, Installation and Inspection of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs.
    - d. E1745 - Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs.
  - 2. AASHTO M 153 – Preformed Sponge Rubber, Cork and Recycled Rubber Expansion Joint Fillers for Concrete Paving and Structural Construction.

### PART 2 - PRODUCTS

#### 2.1 MATERIALS

- A. Miscellaneous Steel Shapes, Plates, and Bars:
  - 1. W-Shapes: ASTM A992.
  - 2. Channels, Angles: ASTM A36.
  - 3. Plates and Bars: ASTM A36. Include bolts, nuts, and washers.
  - 4. All steel shall be hot-dip galvanized after fabrication.
- B. Anchor Bolts: Hot-dip galvanized ASTM A153.
- C. Bolts: ASTM A307 or A325 as indicated on Drawings.
- D. Wedge Anchors
  - 1. Provide sizes and types as indicated on Drawings.
  - 2. All wedge anchors to be zinc plated ASTM B 633, SC1, Type III or Type 303/304 Stainless steel as indicated on the Drawings.
  - 3. Installation in accordance with Manufacturer's recommendations.
  - 4. Acceptable Materials:
    - a. Trubolt Wedge Anchor, ITW Ramset/Redhead.
    - b. Kwik Bolt, Hilti, Inc.
    - c. Or approved equivalent.

- E. Adhesive Anchors:
  - 1. Provide sizes and types as indicated on Drawings.
  - 2. All threaded rods and associated hardware to be zinc plated ASTM B633, SC1, Type III or Type 303/304 stainless steel as indicated on Drawings.
  - 3. Injection gel to be two-component epoxy ASTM C881.
  - 4. Stainless steel screens as indicated on Drawings or as recommended by Manufacturer.
  - 5. Installation in accordance with Manufacturer's recommendations.
  - 6. Acceptable Materials:
    - a. C6+, ITW Ramset/Redhead.
    - b. Hit RE-500, Hilti, Inc.
    - c. AC100+ Gold, Powers Fasteners Inc.
    - d. Or approved equivalent.
  
- F. Pipe
  - 1. Round Pipe: ASTM A53, Grade B
  
- G. Other Materials: All other materials not specifically described but required for a complete and proper installation of concrete accessories shall be as selected by Contractor subject to the approval of Engineer.

## PART 3 - EXECUTION

### 3.1 INSTALLATION

- A. Install Concrete Accessories:
  - 1. As indicated on the Drawings.
  - 2. As specified in various other Sections.
  - 3. As necessary for the proper and complete performance of the Work.

END OF SECTION 03 15 00

## SECTION 03 30 00 – CAST-IN-PLACE CONCRETE (RESTORATION)

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes furnishing, providing, and installing equipment, materials, labor, and supervision to install cast in place concrete.
- B. Basis of Contract Payments:
  - 1. Determine final Contract Price by actual quantities installed at unit prices stated in Contractor's Bid for the following:
    - a. Measure slab patching quantities on a square foot basis; estimated depth of patch is indicated on the Drawings on a unit cost basis. Refer to Section "Bid Form."
    - b. Identify current quantities with each payment request. Work must be properly identified.
    - c. Submit Drawings shall be incorporated into record set required in accordance with Division 01.

#### 1.3 REFERENCES

- A. Except as herein specified or as indicated on the Drawings, the work of this Section shall comply with the following:
  - 1. American Concrete Institute (ACI):
    - a. ACI 318 - Building Code Requirements for Reinforced Concrete.
    - b. ACI-SP-66 - Detailing Manual.
    - c. ACI 301 - Specification for Structural Concrete for Buildings.
    - d. ACI 347 - Recommended Practice for Concrete Formwork.
    - e. ACI 306.1 - Recommended Practice for Cold Weather Concreting.
    - f. ACI 305 - Recommended Practice for Hot Weather Concreting.
    - g. ACI 304R - Guide for Measuring, Mixing, Transporting, and Placing Concrete.
  - 2. American Welding Society (AWS):
    - a. AWS D1.1-90 - Structural Welding Code – Steel.
    - b. AWS D1.4-92 - Structural Welding Code - Reinforcing Steel.
  - 3. Standards of the American Society for Testing and Materials (ASTM) regulations.
  - 4. Federal Highway Administration (FHWA):
    - a. FHWA-RD-77-85 - Sampling and Testing for Chloride Ion in Concrete.
  - 5. American Association of State Highway Transportation Officials (AASHTO):
    - a. AASHTO T 260-84, - Method of Sampling and Testing for Total Chloride Ion in Concrete and Concrete Raw Materials.

#### 1.4 SUBMITTALS

- A. Product Data: For review and approval of installation with the following:
  - 1. Provide product data of materials and methods for concrete curing prior to beginning Work.

2. Mix Design Data: For review and approval of the concrete specified herein including the following information:
    - a. Mix method, according to ACI 318 requirements.
    - b. Weight of material per cubic yard, according to ASTM C29 requirements.
    - c. Type of cement and manufacturer, according to ASTM C172 requirements.
    - d. Cement content, bags per cubic yard.
    - e. Amount of superplasticizing agent.
    - f. Water/cement ratio.
    - g. Amount of air entraining agent, according to ASTM C231 requirements.
    - h. Volumetric air content percent, according to ASTM C173 requirement.
    - i. Sieve analysis and source, coarse aggregate, according to ASTM C13, C33, C330 requirements.
    - j. Sieve analysis and source, fine aggregate according to ASTM C136, C33, C330 requirements.
    - k. Weight, hardened pounds per cubic foot, according to ASTM C138 requirements.
    - l. Slump range, according to ASTM C143 requirements.
    - m. 7-day compressive strength, according to ASTM C31 C39 requirements.
    - n. 28-day compressive strength, according to ASTM C31 C39 requirements.
  - B. Shop Drawings: Submit for review and approval:
    1. Submit sufficient information and dimensions necessary for the review, proper fabrication, correct placing of reinforcing steel and accessories, and the correct location of any control, expansion, isolation, and construction joints.
  - C. Closeout Submittals: Provide Shop Drawings with the following:
    1. Submit with built in items such as anchors, bolts, hangers, plates, clips, etc.
    2. In accordance with the "Manual of Standard Practice for Detailing Reinforced Concrete Structures," ACI 315.
  - D. Certifications:
    1. Submit a written description of the concrete repair ability, including equipment, facilities, personnel, and a list of similar completed projects.
    2. Submit warranty of the design mix that such mix is totally representative of the concrete(s). Provide for review each new design mix when changes in material is required or needed.
    3. Submit upon request for record certified cement mill test reports for each type and run of cement used in the Work (ASTM C150).
    4. Upon request submit certified laboratory chemical and other analyses for aggregates and admixtures as deemed necessary.
    5. Submit documentation that ready mix concrete conforms to Contract Documents and design mix.
    6. Submit certification that batched concrete conforms to Contract Documents and design mix.
  - E. Samples: Submit upon request for review and approval samples of joint materials.
- 1.5 ENVIRONMENTAL REQUIREMENTS
- A. Cold Weather Concreting: In accordance with ACI 306 or as specified herein.
  - B. Hot Weather Concreting: In accordance with ACI 305 or as specified herein.

C. Inclement Weather:

1. Unless adequate protection is provided, concrete shall not be placed during rain, sleet or snow.
2. Rain water shall not be allowed to increase the mixing water nor to damage the surface finish.

1.6 QUALITY ASSURANCE

- A. Perform Work in accordance with applicable laws and regulations of the Building Code and other authorities having jurisdiction, which shall take precedence over the requirements of the specifications, except that where the requirements of the specifications are more exacting or stringent, they shall govern.
- B. Testing: Notify the Testing Laboratory of scheduled pour dates and notify the Testing Laboratory 48 hours in advance of placing concrete.
- C. Experience: The Contractor or Restoration Subcontractors, shall have not less than two years' experience in the field of structural concrete restoration work.
- D. Addition of water to concrete trucks at the Site will not be permitted; however, initial adjustments to air and slump will be permitted by the addition of site added superplasticizer or air entraining agents. Retest of air content, slump, unit weight and recasting of cylinders will be required. Additional discharge time will not be permitted beyond the maximum 90 minutes.
- E. Sampling and testing during placement of concrete includes the following:
1. Sampling Fresh Concrete: ASTM C 172, except modified for slump to comply with ASTM C 94.
  2. Slump: ASTM C 143; provide 1 test for each concrete load at point of placement.
  3. Air Content: ASTM C173, "Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method" for lightweight or normal weight concrete; or ASTM C231 "Air Content of Freshly Mixed Concrete by the Pressure Method" for normal weight concrete; 1 test for each load delivered to the Site. Also, sample concrete immediately following placement and screeding at the rate of one per every 5 trucks delivered to the Project.
  4. Concrete Temperature: Test each load of concrete.
  5. Compression Test Specimen: ASTM C31, 1 set of 6 standard cylinders for each compressive strength test. Contractor may use 3-inch x 6-inch cylinders for site batched concrete.
  6. Unit weight: ASTM C-138, test each time air is measured.
- F. Compressive Strength Tests: ASTM C 39, 1 set of 6 cylinders for each concrete class placed in 1 day, 2 specimens tested at 7 days, 2 specimens tested at 28 days, 2 specimens retained in reserve for later testing if required..
1. Report test results in writing to Engineer and Contractor on same day that tests are made. Reports of compressive strength tests shall contain the project identification name and number, date of concrete placement, name of concrete testing agency, concrete supplier, Contractor's name, technician's name, weather data, 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.
- G. Sound the patched areas by the Contractor with a chain drag or hammer 7 days after concrete placement. Repair hollowness detected by removing and replacing the patch or affected area at no extra cost to the Owner.

- H. Maintain Drawings locating concrete repairs performed under this section. Location and size of patches, overlays, etc. must be located on clean sepia. Separate Drawings shall be maintained for each Level and ceiling plan.

#### 1.7 DELIVERY, STORAGE AND HANDLING

- A. Ship in weather-proof enclosures, in weather-proof containers or in weatherproofing packaging. Deliver materials in original, unbroken, brand marked containers or wrapping as applicable.
- B. Handle and store materials in a manner which will prevent deterioration, damage, contamination with foreign matter, and damage by weather or elements, and according to Manufacturer's directions.
- C. Reject damaged, deteriorated, or contaminated material and immediately remove from the Site. Replace rejected materials with new materials at no additional cost to Owner.

### PART 2 - PRODUCTS

#### 2.1 CONCRETE MATERIALS

- A. Portland Cement shall conform to ASTM "Standard Specifications for Portland Cement C150 Type I.
- B. Aggregates for concrete shall conform to ASTM Standard Specifications for Concrete Aggregate, ASTM C33, Exposure 5S.
  - 1. Fine aggregate: Natural sand, or sand prepared from stone or gravel. Grains shall be clean, hard, durable, uncoated, and free from silt, loam, and clay.
  - 2. Coarse Aggregate: Crushed stone, gravel, or other approved inert materials of similar characteristics. Maximum size shall be nominal 3/4-inch. Refer to C33 size number 67 for gradation requirements.
- C. Water is to be clean and potable, ASTM C94.
- D. Ready Mix Concrete:
  - 1. Conform to ASTM C94. The mixing agitation shall begin within 30 minutes, and the concrete shall be discharged from the truck within 90 minutes after the water has been added to the concrete mix.
  - 2. Delivery tickets are to accompany each concrete truck and shall be kept at the Site in the files. Delivery tickets must indicate the following information or be subject to rejection:
    - a. Name of project.
    - b. Supplier of concrete.
    - c. Truck identity & ticket.
    - d. Serial number.
    - e. Batching time.
    - f. Point of deposit.
    - g. Total amount of water.
    - h. Strength classification.
    - i. Number of cubic yards in load.
    - j. Date of delivery.
    - k. Brand of cement.
    - l. Cement content.

- m. Weight of aggregate.
- n. Admixture contents.
- o. Name of contractor.
- p. Name of driver.
- q. Admixture volume.
- r. Daily temperature.

E. Volumetric Batching/Continuous Mix:

1. Conform to "Standard Specification for Concrete Made by Volumetric Batching and Continuous Mixing" ASTM C685.
2. Batch tickets are to accompany each batching operation and shall be kept at the Site in the files. Batch tickets must indicate the following information or be subject to rejection:
  - a. Name of product
  - b. Supplier of concrete
  - c. Mixer identity and ticket
  - d. Serial number
  - e. Batching time
  - f. Point of deposit
  - g. Strength classification
  - h. Weight of aggregate
  - i. Daily temperature
  - j. Number of cubic yards produced
  - k. Date of delivery
  - l. Brand of cement
  - m. Cement content
  - n. Admixture contents
  - o. Admixture volume
  - p. Name of contractor

F. Concrete Properties:

1. Minimum conventional concrete strength at 28 days shall be 5000 psi unless otherwise specified on Drawings.
2. Maximum water-cement ratio; where cement refers only to Portland Cement in accordance with Paragraph 2.1A:
  - a. For other concrete 0.40.
3. Microsilica mix shall contain a minimum of 7-1/2% percent microsilica by weight of cement.
4. Slump of concrete as determined by "Method of Test for Slump of Portland Cement Concrete," ASTM C143, shall be + 1 inch or - 1-1/2 inches from the design mix slump.
5. Total air content in concrete as determined by "Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method" ASTM C173, or "Air Content of Freshly Mixed Concrete by Pressure Method," ASTM C231, shall be:
  - a. Conventional or Microsilica Concrete: 7%  $\pm$  1-1/2% by volume or as specified by mix design.
6. Concrete temperatures as placed shall be between 55 degrees F and 80 degrees F.

G. Microsilica concrete shall be used for all slab, beam, column, curb, and wall repairs.

## 2.2 ADMIXTURES

- A. May be used at no additional expense to the Owner in order to provide workability at low water/cement ratios, increased compressive strength, retarding or acceleration of the concrete if approved in writing by the Engineer; however, the cement factor shall not be reduced, and changes shall be made in the other mix proportions to insure the minimum strength requirements.
- B. Air entraining Admixtures shall conform to ASTM C260.
  - 1. Sika AIR Series, AEA-14 or AEA-15, Sika Corp.
  - 2. Darex or Daravair Series, GCP Applied Technologies.
  - 3. MB or Micro-Air Series, BASF Admixtures.
  - 4. Or approved equal.
- C. Water Reducing Admixture shall conform to ANSI/ASTM C 494, Type A, and contain not more than 1% chloride ion by weight.
- D. Midrange water reducing admixture shall conform to ASTM C 494, Type A and contain not more than 1% chloride ion by weight.
- E. High Range Water Reducing Admixture (Superplasticizer) shall conform to ASTM C 494, Type A or Type F and contain not more than 1% chloride ion by weight.
- F. Water Reducing, Accelerator Admixture shall conform to ASTM C 494, Type C or E. Accepted materials are:
  - 1. "Accelguard 80," by Euclid Chemical Co.
  - 2. "Darex Set Accelerator," by GCP Applied Technologies
  - 3. "Pozzutec 20" by Master Builders
  - 4. or Approved Equal.
- G. No calcium chloride shall be used. Soluble chloride ion content of concrete shall not exceed 0.01 percent by weight of concrete.
- H. Microsilica shall be:
  - 1. "EMSAC" By Elkem Chemicals, Inc., Pittsburgh, PA
  - 2. "Force 10,000" By GCP Applied Technologies
  - 3. "MB-SF" by Master Builders, Cleveland, OH
  - 4. or Approved Equal.
- I. Calcium Nitrite-Based Corrosion Inhibitor:
  - 1. Sika CNI, Sika Corp.
  - 2. DCI or DCI-S Corrosion Inhibitor, GCP Applied Technologies.
  - 3. Rheocrete CNI, BASF Admixtures.
  - 4. Or approved equal.

## 2.3 CONCRETE MIX DESIGN

- A. For each strength and type of concrete, the Contractor is responsible for mix proportions and have a concrete design mix prepared by the Redi-Mix supplier or an independent testing laboratory. Latex and silica fume modified concrete mix designs shall be reviewed and agreed to by the manufacturers. Proportions for the design mixes shall be in accordance with "Standard Practice for Selecting Proportions for Normal Heavyweight and Mass Concrete," ACI Standard 211 or according to ACI 318 and ACI 301. The proper water cement ratio shall be determined by preliminary test made in accordance with "Method of Making and Curing Concrete Compression and Flexure Tests Specimens in the Laboratory," ASTM C192. Tests shall be conducted in accordance with "Method of Test for Compressive Strength of Molded Concrete Cylinders," ASTM C39. Each design mix shall be furnished to the Engineer and his approval must be obtained prior to commencing the concrete operations.
- B. Mix designs are required for:
  - 1. Structural slab patching material.

## PART 3 - EXECUTION

### 3.1 INSPECTION

- A. Inspection area to receive the Work and report immediately in writing to the Engineer, as required in the General Conditions, unacceptable conditions.

### 3.2 PREPARATION

- A. Before commencing Work, examine adjoining work on which this Work is dependent and report in writing to the Owner or Engineer conditions which prevent from performing the Work. Starting Work constitutes acceptance of adjoining work.
- B. Verify exact sizes and locations of openings, pipe sleeves, concrete pads or curbs, etc., well in advance so that required adjustments, Engineer approved, in reinforcing or locations may be made without interruption of the work schedule.
- C. Install materials specified under other sections which are required to be built into the Work covered by this section such as wedge inserts, welding plates, anchors, ties, dovetail anchor slots etc. Embedded items shall have been inspected and tests for mechanical operations, if any, shall have been completed and approved by the Engineer before placement of concrete.
- D. Remove and replace electrical conduit, mechanical conductors, light fixtures, mechanical equipment, etc. necessary for the proper completion of repairs.
- E. Coordinate Work with that of other trades to allow reasonable time to set sleeves, inserts and other accessories.
- F. Notify the Engineer and the testing agency at least 48 hours prior to placing concrete.
- G. Figured dimensions only shall be used; scaling drawings is not permitted. Verify dimensions and be responsible for coordinating same. Refer conflicts in the Drawings to the Engineer for decision prior to proceeding with fabrication of the work affected. Errors in dimensions and quantities shown on the shop drawings will be the responsibility of the Contractor.

### 3.3 APPLICATION AT JOINTS

- A. Compressible: Applied fillers to surfaces as indicated on the Drawings. Apply adhesive in strict accordance with manufacturer's recommendations. Allow adequate curing time for the adhesive prior to placing concrete against the filler surface.
- B. Construction and control joints in slabs and curbs: As indicated on the Drawings or specified herein.
- C. Bulkheads, to limit each pour to the predetermined construction joints, shall be set normal and vertical to the section to be poured, and shall be left in place until concrete has sufficiently set. Care shall be used when removing bulkheads to prevent spalling of the concrete surface. Remove concrete passing bulkhead before adjacent pour is commenced.
- D. Construction or control joints in slabs passing through patches shall be tooled through the patch for continuity.

### 3.4 PLACING CONCRETE AND CONCRETE PATCHING MATERIALS

- A. Prior to concrete placement, preparation, including acceptance, must be completed as outlined in Division 02 Section "Selective Concrete Demolition."
- B. All concrete bonding surfaces must be abrasive blasted prior to concrete placement.
- C. Before placing concrete, formwork, if required, shall have been completed; foreign material shall have been removed, reinforcement shall have been secured in place and the entire preparation shall have been reviewed by the Engineer prior to placing concrete. Engineer shall be notified at least 24 hours prior to desired time of review.
- D. Immediately prior to the placing of concrete, thoroughly clean cavities and forms of foreign matter and remove wood spreaders. Convey concrete from mixer to destination as rapidly as practicable and by methods which will prevent segregation or loss of ingredients. Pour concrete in one operation up to temporary bulkheads. If construction joints are permitted, do not place new concrete until the contact surface of the concrete in place has been swept with a stiff brush or scraped to remove laitance and roughened. One hour prior to placing concrete, pre-wet bonding surface or soil with a uniform spray application of water, puddles shall be blown clean. Surface shall be maintained in a damp condition. Then coat the bonding surface with a thin layer of bonding grout immediately prior to placement of concrete. Work the bonding grout into the bonding surfaces with stiff brooms or brushes.
- E. Place concrete with the aid of mechanical vibrators of approved type. Enough vibration shall be used to cause the concrete to flow or settle readily into place. The vibrators shall be of the internal type. Form vibrators or vibrating screeds may also be employed. Vibrators must not be allowed to touch reinforcement embedded in partially set concrete nor used to lead concrete immediately prior to placement of concrete material.
- F. Insert and withdraw vibrators vertically at uniformly spaced locations not farther than visible effectiveness of the vibrator. At each insertion, limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing segregation of mix.

- G. Place concrete only when temperature is at least 40 degrees F. and rising. If these conditions are not met, refer to ACI 306 "Cold Weather Concreting."
- H. When concrete is placed under conditions of hot weather concreting or hot weather conditions exist at any time during the day of the pour, provide extra protection of the concrete against excessive placement temperatures and excessive drying throughout the placing and curing operations. Hot weather is defined as air temperature which exceeds 80 degrees F or a combination of high temperature, low humidity and/or high wind velocity which caused a rate of evaporation in excess of 0.2 pounds per square feet per hour as determined by Figure 2.1.5 of ACI Report 305, "Hot Weather Concreting."
  - 1. Cool the forms, reinforcement and the air by water fog spraying immediately before placing concrete.
  - 2. The placement temperature of the concrete shall be 55 to 80 degrees F.
  - 3. Protect concrete during finishing operations by continuous fog spray between finishing operations. Excessive water on surface during finishing is not accepted.
- I. When bleed water has left the surface, apply a medium broom finish to exposed concrete surfaces not receiving a deck coating. Areas to receive a deck coating shall have a finish approved by the coating manufacturer. Finish shall be approved by the Engineer.
- J. After screeding, consolidating, and leveling concrete slabs, do not work surface until ready for floating. Begin floating when surface water (if any) has disappeared or when concrete has stiffened sufficiently to permit operation of power-driven floats, or both. Consolidate surface with power-driven floats, or by hand-floating if area is small or inaccessible to power units.
- K. Check and level surface plane to a tolerance not exceeding 1/4 inch in 10 feet when tested with a 10 foot straight edge. Cut down high spots and fill low spots. Uniformly slope surfaces to drains. No refloating is required.
- L. Maximum variation between slab surfaces at joints shall not exceed 1/16 inch.
- M. Concrete patches shall be edged to match existing condition (beam and column edges, etc.), unless indicated otherwise.

### 3.5 CURING

- A. Cure concrete and concrete patching materials according to the manufacturer's recommendations and according to the following minimum requirements:
  - 1. The surface shall be covered with a single layer of clean, wet burlap as soon as the surface will support it without deformation.
    - a. For conventional or microsilica concrete, maintain burlap in saturated condition for 7 days.
    - b. For latex-modified concrete, maintain burlap in saturated condition for 2 days. Then allow the burlap to dry slowly for an additional 24 hours.
  - 2. Curing time shall be extended, as the Engineer directs, when the curing temperature falls below 50 degrees F.
- B. If shrinkage cracks appear in the concrete material prior to completion of the initial 72 hour curing period, the concrete shall be considered defective, and it shall be removed and replaced by the Contractor at no extra cost to the Owner.

- C. Curing compounds may not be used without prior approval of the Engineer.
- D. During the period of curing the patch shall be protected from traffic; slab demolition from above or below shall be halted. During the period of initial concrete set, no traffic shall be permitted on the adjacent bays.
- E. Prior to reopening patches to traffic and loading, Contractor must confirm that patch concrete has attained a minimum compressive strength of 70 percent of the specified 28 day strength. Confirmation is to be made by field cylinder, cured adjacent to and in a manner similar to the patch.

### 3.6 CLEANING

- A. Clean materials installed under this Section according to Division 01 Section "Cleaning and Waste Management."

END OF SECTION 03 30 00

## SECTION 07 18 00 – TRAFFIC COATINGS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes providing and furnishing labor, materials, equipment, and supervision to install a deck coating system, including surface preparation and crack and joint detailing.
- B. Provide preparation work and joint sealants specified in Division 07 Section “Joint Sealants.”
- C. Basis of Contract Payments:
  - 1. Final Contract Price shall be determined by actual quantities installed at Unit Prices stated in Contractor's Bid for the following:
    - a. Coating preparation and application will be paid on a unit price basis. Refer to Bid form.
    - b. Detail over cracks, construction joints, cove joints, etc., are to be incidental to deck coating cost.

#### 1.3 SUBMITTALS

- A. Action Submittals
  - 1. System Description: Submit complete description of proposed traffic coating system including materials, surface preparation, joint treatments, terminations, and cure times. Include aggregate materials and repair materials for pitting, bug holes, popouts, and shallow scaling.
  - 2. Product Data: For each type of product, including installation instructions:
    - a. Traffic Coating System.
    - b. Substrate Repair Material.
    - c. Primer.
    - d. Base Coat.
    - e. Intermediate Coat (grit coat).
    - f. Top Coat.
    - g. Aggregate.
  - 3. Shop Drawings: For traffic coatings:
    - a. Include details for treating substrate joints and cracks, flashings, deck penetrations, and other termination conditions.
    - b. Include proposed plan for grid layout to install each coat. Include quantities of materials, square footages, and yield calculations.
  - 4. Color: Submit Manufacturer's standard color chart.
  - 5. Sample Warranty: Submit sample warranty for approval prior to application.
- B. Informational Submittals:
  - 1. Qualification Data:
    - a. For Installer including projects, size, location, owner, and contact, engineer/architect and contact for projects that traffic coating system has been applied.
    - b. Certification that Manufacturer has approved Installer.

- c. For Manufacturer's Representative.
2. Field Quality-Control Reports:
  - a. Results of dry and wet film thickness testing and adhesive testing. Include date, weather, and other pertinent information.
3. Material Safety Data Sheets: For each product, solvent, or related chemicals to be used and certification that materials conform to local, state, and federal environmental and worker's safety laws and regulations.
4. Maintenance Data: Manufacturer's "Snow Removal Guideline" stating procedures to follow during snow removal from traffic coated slabs.
5. Upon request, copies of purchase order and invoices indicating quantities and dates of material purchased.

#### 1.4 QUALITY ASSURANCE

##### A. Manufacturer's/Installer's Requirements:

1. Deck coating Installer shall be approved by deck coating Manufacturer.
2. A minimum of 5 years experience in application of one of the approved deck coating systems and have experience with 5 projects in size of 50,000 square feet or greater.
3. Review slope of slabs and condition of surfaces prior to Bidding.
4. Preconstruction/Preapplication Meeting: Attendance is required to discuss detailing, surface preparation, application techniques and procedures, phasing and scheduling. Foreman and lead laborer for Installer will be required to attend meeting along with Contractor, Manufacturer's Representative and Engineer. Traffic coatings preconstruction/preapplication may be combined with other products to discuss during a more general preconstruction/preapplication meeting.

##### B. Testing Requirements:

1. Installer shall check deck coating wet film thickness and record test results by taking 5 wet film readings within a 1 Square Foot area. Wet film thickness testing shall be completed a minimum of once per every 5,000 Square feet of deck coating placed or per individual section placed per day. Average film thickness shall be at or above wet film thickness equivalent of specified dry film thickness.

#### 1.5 ENVIRONMENTAL REQUIREMENTS

##### A. Deck Coating Materials: Confirm that deck coating materials used are in accordance with this Section conform to local, state, and federal environmental and workers' safety laws and regulations.

1. VOC content of materials shall not exceed limits per Environmental Protection Agency Natural Volatile Organic Compound Emission Standards for Architectural Coatings (40CFR59).

##### B. Fume Control: Take necessary precautions against injury to personnel or adjacent building occupants during application. As a minimum, take the following precautions:

1. Provide and maintain barricades.
2. Locate and protect building air intakes during application.
3. Follow state, federal, and local safety regulations.
4. Follow Manufacturers' safety requirements.
5. Dispose empty containers immediately and properly.
6. Use protective equipment.
7. Ensure Work area is well vented to outside.

## 1.6 DELIVERY, STORAGE AND HANDLING

- A. Ship in weather-proof enclosures, in weather-proof containers or in weatherproofing packaging. Deliver materials in original, unbroken, brand marked containers or wrapping as applicable. Include the following:
  - 1. Name of product.
  - 2. Name of Manufacturer.
  - 3. Date of Manufacturer.
  - 4. Lot or batch number.
  - 5. UL Labels.
- B. Handle and store materials in a manner which will prevent deterioration, damage, contamination with foreign matter, and damage by weather or elements, and according to Manufacturer's directions.
- C. Reject damaged, deteriorated or contaminated material and immediately remove from the Site. Replace rejected materials with new materials at no additional cost to Owner.
- D. At no time shall weight of stored material placed on a slab area exceed 30 Pounds per Square Foot or 2,000 pounds over 20 square inches.

## 1.7 WARRANTY

- A. Requirements:
  - 1. Provide to Owner a Warranty by Installer and Manufacturer that deck coating system will be free of defects, water penetration, and chemical damage related to system design, workmanship or material deficiency, consisting of, but not limited to:
    - a. Surface crazing of other weathering deficiency (including ultraviolet light exposure).
    - b. Abrasion or tear failure resulting from normal traffic use.
    - c. Tear failure resulting from new or existing cracks in substrate not exceeding 1/16 inch in width.
    - d. Debonding from substrate or delaminating between layers.
    - e. Defective installation.
    - f. Debonding or damage of repair material used for filling in pitting, bug holes, popouts, and shallow scaling with concrete or deck coating material.
  - 2. Vandalism, abrasive maintenance equipment, and construction traffic are not normal traffic use and are exempt from Warranty.
  - 3. Normal traffic is considered to include snow removal equipment with rubber tipped blades as described in National Parking Association publication, "Parking Garage Maintenance Manual".
  - 4. New concrete may experience shrinkage. Installer shall provide system suitable for such application. Warranty shall cover deck coating damage due to new concrete slab cracking not exceeding 1/16 inch.
  - 5. Recoat systems are applied over existing systems. Installer shall provide system suitable for such application. Warranty shall cover recoat system.
- B. Warranty Duration:
  - 1. Bid price shall include a 5-year Warranty commencing with date of project acceptance in accordance General Conditions.
  - 2. Although completed areas of facility may be reopened to traffic and parking, commencement of Warranty period will not occur prior to acceptance of entire project.

3. A single Warranty commencement date will apply to waterproofing.
4. Warranty shall include a transfer clause that allows Warranty to be transferred to a new Owner upon sale of property within Warranty period.

## PART 2 - PRODUCTS

### 2.1 DECK COATING

- A. Fluid applied, waterproof, traffic bearing elastomeric membrane capable of preventing penetration of concrete by water, gasoline, oils, greases, salts, deicer chemicals, battery acids and radiator coolants.
- B. Color: Gray deck coating with Owner selecting shade of gray from standard color chart submittal. A standard color closely matching the existing traffic coating to remain will be selected.
- C. Provide material to fill in pitting, bug holes, popouts, and shallow scaling in accordance with Manufacturer's written recommendations.
- D. Use same Manufacturer's deck coating system throughout.
- E. Deck coating thicknesses specified herein are minimum dry film thicknesses and do not include the aggregate. Specified thicknesses may vary from Manufacturer's literature. A coat may have to be installed in more than 1 layer to achieve minimum thickness or on ramps a slope grade version of deck coating material shall be used. Install each coat in accordance with Manufacturer's recommended yield for required thickness.
- F. Thinner or solvent to deck coating materials is not allowed.
- G. Utilize a UV stable topcoat for deck coating.
- H. Top coat: Seeded with aggregate and back roll.

### 2.2 DECK COATING SYSTEM – FULL SYSTEM

- A. Provide a heavy duty deck coating system as indicated on Drawings.
- B. Approved heavy duty solvent-free deck coating systems are:
  1. Iso-Flex 760U-HL HVT, LymTal International, Inc., Orion, MI. Primer, base coat at 25 mils, grit coat at 25 mils, and top coat at 18 mils.
  2. Auto-Gard FC, Neogard Corporation, Dallas, TX. Primer, base coat at 25 mils, grit coat at 25 mils, and top coat at 18 mils.
  3. Sikalastic 720/745, Sika Corporation, Lyndhurst, NJ. Primer, base coat at 25 mils, grit coat at 25 mils, top coat at 18 mils.
  4. Qualideck, APT, Harmony, PA. Primer, base coat at 25 mils, grit coat at 25 mils, top coat at 18 mils.
  5. Or approved equivalent.

### 2.3 RECOAT SYSTEM (TOP COAT ONLY)

- A. Provide a top coat as indicated on Drawings. Match color of existing coating.
- B. Approved top coat as specified in DECK COATING SYSTEM-FULL SYSTEM section.

### 2.4 DECK COATING AGGREGATE

- A. Approved aggregates for deck coating systems shall be a size of 12/20, or larger and approved by coating manufacturer.
- B. Approved aggregates for deck coating systems are:
  - 1. Granusil, Unimin, Ottawa, MN.
  - 2. Fracsand, Oglebay Norton Industrial Sands, Inc., Brady, TX.
  - 3. Badger Mining Corporation, Berlin, WI.
  - 4. Earthwork Solutions Traction Control (bauxite aggregate) 9/16 gradation, Gillette, WY.
  - 5. Or Approved Equal.

## PART 3 - EXECUTION

### 3.1 INSPECTION AND COORDINATION

- A. Inspect surfaces to receive Work and report immediately in writing to Engineer as required in General Conditions deficiencies in surface which render it unsuitable for proper execution of this Work. Do not proceed with Work until unsatisfactory conditions have been corrected in an acceptable manner in accordance with Engineer.
- B. Coordinate and verify that related Work meets following requirements:
  - 1. Concrete surfaces are finished, cleaned and prepped, and have completed required curing period.
  - 2. Previous surface treatments have been removed or are compatible with the systems to be installed.
  - 3. Systems selected for use are compatible with each other.
  - 4. Concrete repairs are completed.
  - 5. Sealant installation may occur several months prior to deck coating. Installer to repair damaged or defective sealants prior to deck coating installation.

### 3.2 PREPARATION

- A. Remove oil, grease spots, and contaminates in accordance with Manufacturer's recommendations.
- B. Remove the existing striping as indicated in Drawings; within areas of new or recoat traffic coating application.
- C. Shotblast concrete surfaces to receive deck coating. Shotblast equipment performance requirements are as follows:
  - 1. Equipment shall be capable of traveling at a constant speed to provide uniform profile. Speed and size of equipment and size of steel shot shall be selected to provide desired preparation without causing unnecessary damage to concrete surface.
  - 2. Equipment shall vacuum up, or otherwise retain dirt, dust, and debris from blasting operation.

3. Areas inaccessible to shotblaster (i.e., vertical surfaces, against walls, columns, stairways, etc.) are to be abrasive blasted or abraded to same performance.
  4. Shotblasted surface must be clean with a profile in which a minimum 1/16 inch of existing concrete surface is removed. Fine aggregates must be exposed; however, coarse aggregate must not be exposed. Remove laitance. Surface profile to match ICRI CSP5 in accordance with ICRI Guideline No. 03732, Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings, and Polymer Overlays.
  5. Remove debris immediately after surface preparation. Debris includes, but is not limited to, shot, aggregate and dust. Debris shall be placed in a covered dumpster or a covered area where it will not be rebroadcast by wind or weather.
- D. Metal surfaces that are to be deck coated shall be abrasive blasted to near white metal, SSPC SP10 in accordance with Steel Structures Painting Council Painting Manual. Rust inhibitive primer shall be installed in accordance with Manufacturer's recommendations within 8 hours of abrasive blasting.
- E. Rout and seal cracks greater than 15 mils in accordance with Division 07 Section "Joint Sealants" or as required by the Manufacturer. Cracks, coves, terminations and unusual situations shall be detailed per Manufacturer's recommendations.
- F. Repair or replace materials damaged by surface preparation operations.
- G. Surfaces shall be air blown with sufficient pressure to remove excess dirt, dust and debris, and to assure that concrete is clean prior to application of deck coating.
- H. After shotblasting and abrasive blasting and prior to first coat of deck coating, pitting, bug holes, popouts, and shallow scaling shall be prepared in accordance with Manufacturer's recommendations. As a minimum, a thin epoxy mortar shall be used to fill voids.

### 3.3 ADDITIONAL PREPARATION REQUIREMENTS - RECOAT SYSTEM

- A. Prepare existing coating system in accordance with Manufacturer's written recommendations. As a minimum:
1. Remove existing coating that is debonded or damaged.
  2. Identify and repair concrete damage prior to installation.
  3. Remove and replace failed crack and construction joint sealants prior to installation.
  4. Clean existing coating by power washing with Manufacturer's approved detergent, using stiff brooms to clean surface, and removing grease with Manufacturer's approved chemical cleaner.
  5. Shotblast existing coating system.
  6. Remove additional damaged or debonded existing coating after shotblasting.
  7. Sensitize existing coating in accordance with Manufacturer's recommendations.

### 3.4 INSTALLATION/APPLICATION

- A. Complete Work in strict accordance with Manufacturer's written instructions and specifications and as indicated herein.

- B. Do not apply deck coating materials until concrete has been air dried at temperatures at or above 40 degrees F for at least 28 days after curing period specified in Division 03 Section "Cast-In-Place Concrete for Parking Structures," Section "Minor Concrete Repair," or as otherwise approved by Manufacturer.
- C. Concrete shall be dry prior to application of deck coating. Installer shall perform slab moisture testing in accordance with ASTM D 4263 Standard Test Method for Indicating Moisture in Concrete by the Plastic Sheet Method. Testing must be performed in at least 1 location for every 10,000SF of coating. Use of heat lamps for performing tests may be required in areas not exposed to sunlight.
- D. Do not apply deck coating material until concrete and air temperature is at or above 40 degrees F. Provide appropriate enclosures and necessary heating for application. Air temperatures directly below and above the slab being coated must be maintained at a minimum of 45 degrees F up to 48 hours prior to coating and at 45 degrees F for a minimum of 72 hours after coating, or as required for full curing of material. Provide high/low thermometers within Work area. As a minimum, provide two thermometers directly below slab and two directly above slab being coated.
- E. All deck coating shall maintain straight edges at terminations.
- F. Surfaces to be deck coated shall be divided into areas in accordance with the Manufacturer's recommended yield for the specified thickness and for specific container size of material. Area is to be divided by keel marks, or another Engineer approved method.
- G. Provide adequate cure time for sealants, minimum 8 hours, to be tack free prior to deck coating. Provide a detail coat at construction joints, control joints, joints at perimeter of patches, cold joints and cracks (sealed and unsealed), minimum of 4 inches wide. Detail coat shall be same thickness as base coat unless Manufacturer's requirements are stricter. Detail coat shall cure a minimum of 12 hours prior to base coating.
- H. Extend deck coating up vertical surfaces as indicated on Drawings.
- I. Incorporate aggregate until refusal. Aggregate until refusal will result in a surface that is tan in color. Additional aggregate may have to be added after first pass. Seed topcoat with aggregate and backroll.
- J. Complete Work under this Section before painting line stripes.

### 3.5 ADDITIONAL INSTALLATION REQUIREMENTS - RECOAT SYSTEMS

- A. Where base concrete is exposed provide primer and base coat.
- B. Use primer over entire area as required by Manufacturer.
- C. Apply recoat system over areas as specified.

### 3.6 DAMAGE AND REPAIRS

- A. Necessary repairs for deck coating resulting from dry film testing are to be repaired by Installer.

- B. Pinholing of deck coating will be cause for rejection. Installer shall repair and take necessary steps to prevent pinholing to occur at no additional expense to Owner.

3.7 CLEANING

- A. Remove excess primer, sealant, deck coating, and masking materials from structure.
- B. Clean materials installed under this Section according to Division 01 Section "Cleaning and Waste Management."

END OF SECTION 07 18 00

## SECTION 07 92 23 – JOINT SEALANTS FOR PARKING STRUCTURES

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes furnishing labor, materials, equipment, and supervision to install joint sealants, including surface preparation.
- B. Basis of Contract Payments:
  - 1. Determine final Contract Price by actual quantities installed at unit prices stated in Contractor's Bid for the following:
    - a. Cove sealants, crack sealants, construction joint sealants, and precast joint sealants will be paid on a unit price basis. Refer to "Bid Form."
    - b. Joint widening or other necessary modifications shall be incidental to system cost.
  - 2. Work not included in this Section: Work by joint sealant Installer shall include deck coatings specified in Division 07 Section "Traffic Coatings."

#### 1.3 SUBMITTALS

- A. Action Submittals:
  - 1. Product Data: Manufacturer's spec data sheets of each product to be used.
  - 2. Samples:
    - a. For each type of joint sealants, including color(s).
    - b. Samples may also be requested for chemical analysis.
    - c. Sample of Warranty prior to application.
  - 3. Quality Assurance/Control Submittals:
    - a. Complete description of the joint sealant system including primer, sealant material, and backer rods or bond breakers. Also indicate placement and installation procedures along with material working requirements, shelf life, and performance data.
    - b. Qualifications of Manufacturer's representative.
    - c. Qualification statement of installer stating projects, size and location.
- B. Informational Submittals:
  - 1. Sequence of sealant placement in structure. Coordinate the sealant installation to allow required minimum concrete cure times.
  - 2. Safety Data Sheets (SDS) of each product, solvent, or related chemicals to be used and certification that materials conform to local, state and federal environmental and worker's safety laws and regulations.
  - 3. Certification that joint sealant system is compatible with products in Divisions 03, 07, and 09 to which it will come in contact.

#### 1.4 ENVIRONMENTAL REQUIREMENTS

- A. Manufacturer and installer are required to confirm that materials used in accordance with this Section conform to local, state, and federal environmental and workers' safety laws and regulations.
  - 1. VOC content of materials shall not exceed the limits of Environmental Protection Agency National Volatile Organic Compound Emission Standards for Architectural Coatings (40CFR59).

#### 1.5 QUALITY ASSURANCE

- A. Joint Sealant Installer Qualifications:
  - 1. Be approved by joint sealant Manufacturer.
  - 2. Shall have a minimum of 5 years' experience in application of one of approved joint sealant systems and have experience for a project in size of 5,000 LF or greater.
- B. Testing Requirements:
  - 1. Installer will perform adhesion test in presence of Engineer at rate of 1 test per 1,000 lineal feet of joint. Perform adhesion test a minimum of 7 days after installation. Procedure in accordance with Manufacturer's standard or as follows:
    - a. Make a knife cut from one side of joint to other.
    - b. Make 2 cuts approximately 2 inches long at sides of joint, meeting first cut at top of 2-inch cuts.
    - c. Grasp 2-inch piece of sealant and try to pull uncut sealant out of joint.
    - d. If adhesion is adequate, sealant should tear cohesively in itself or be very difficult to adhesively remove from surface.
    - e. Sealant shall be replaced by applying more sealant in same manner as original.
  - 2. If test results are unsatisfactory, perform more frequent testing until satisfactory results are consistently obtained.
  - 3. Replace sealant which proves defective resulting from above test at no additional cost to Owner.
- C. Flow/Leak Test: Arrange for and wet slabs with water for purpose of detecting defects in waterproofing which would result in leaks or inadequate drainage, or both. Wet slab surfaces until water flows freely to drains. Do not install insulation or ceilings in finished spaces until drainage test has been completed on slab above and reviewed by Engineer for acceptance.
  - 1. Check caulked joints for leaks. Potentially leaking joints are located by noting whether water from flood test is observed at underside of slabs or running down faces of walls. Correct leaking joints by repairing waterproofing.

#### 1.6 DELIVERY, STORAGE AND HANDLING

- A. Deliver materials in original, unbroken, brand marked containers or wrapping as applicable. Include the following information:
  - 1. Name of product.
  - 2. Name of Manufacturer.
  - 3. Date of manufacture.
  - 4. Lot or batch number.
  - 5. UL labels.

- B. Handle and store materials in a manner which will prevent deterioration, damage, contamination with foreign matter, and damage by weather or elements, and according to Manufacturer's directions.
- C. Reject damaged, deteriorated or contaminated material and immediately remove from the Site. Replace rejected materials with new materials at no additional cost to Owner.
- D. At no time shall the weight of stored material placed on a slab area exceed 30 PSF or 2,000 lbs. over 20 square inches.

## 1.7 WARRANTY

- A. Provide to Owner a Warranty by Installer and Manufacturer that joint sealant system will be free of defects, water penetration, and chemical damage related to design, workmanship, or material deficiency, consisting of, but not limited to:
  - 1. Surface crazing or other weathering deficiency.
  - 2. Abrasion or tear failure resulting from normal traffic use.
  - 3. Tear failure resulting from anticipated movement.
  - 4. Debonding from substrate or delaminating between layers.
  - 5. Defective installation.
- B. Normal traffic is considered to include snow removal equipment with rubber tipped blades as described in the National Parking Association publication, *Parking Garage Maintenance Manual*.
- C. Vandalism, abrasive maintenance equipment, and construction traffic are not normal traffic use and are exempt from Warranty.
- D. Warranty Duration:
  - 1. Bid price shall include a 5-year Warranty commencing with date of Project acceptance in accordance with General Conditions.
  - 2. Although completed areas of facility may be opened to traffic and parking, commencement of Warranty period will not occur prior to acceptance of entire Project.
  - 3. A single warranty commencement date will apply to all waterproofing.
  - 4. Warranty shall include a transfer clause that allows warranty to be transferred to a new Owner upon sale of property within warranty period.

## PART 2 - PRODUCTS

### 2.1 JOINT SEALANT SYSTEM - MULTI-COMPONENT POLYURETHANE

- A. Horizontal Joint Sealant (except cove joints):
  - 1. Traffic-bearing, multi-component, self-leveling or non-sag unmodified polyurethane sealant, gray in color unless indicated otherwise, containing no coal tar, asphalt, or other adulterants and conforming to ASTM C 920, Standard Specification for Elastomeric Joint Sealants, Type M, Grade P or NS, Class 25, use T and Federal Specification TT-S-00227, Type I or II, Class A.
  - 2. On slopes greater than 2%, use slope grade versions of specified self-leveling sealants or non-sag sealants, as specified for vertical and cove joint sealants, in accordance with Manufacturer's recommendations.

3. Approved Horizontal Joint Sealants:
  - a. Iso-Flex 880GB or 881, LymTal International, Inc., Orion, MI.
  - b. Urexpan NR-200 or Dynatred, Pecora Corp., Harleysville, PA.
  - c. Sikaflex - 2c NS/SL, Sika Corp., Lyndhurst, NJ.
  - d. MasterSeal SL2, Sonneborn Building Products, BASF Building Systems, Shakopee, MN.
  - e. THC-901, Tremco Inc., Cleveland, OH.
  - f. Vulkem 445SSL, Tremco Inc., Cleveland, OH.

B. Vertical and Cove Joint Sealants:

1. Multi-component, non-sag unmodified polyurethane sealant, gray in color unless otherwise noted, containing no coal tar, asphalt, or other adulterants and conforming to ASTM C 920, Type M, Grade NS, Class 25, use NT and Federal Specification TT-S-00227E , Type II, Class A.
2. Approved Vertical and Cove Joint Sealants:
  - a. ISO-FLEX 881, LymTal International, Inc., Orion, MI.
  - b. Dynatrol II, Pecora Corp., Harleysville, PA.
  - c. Sikaflex - 2c NS, Sika Corp., Lyndhurst, NJ.
  - d. MasterSeal NP2, Sonneborn Building Products, BASF Building Systems, Shakopee, MN.
  - e. Dymeric 240 FC, Tremco Inc., Cleveland, OH.

2.2 BACKER ROD

- A. Diameter: As recommended by Manufacturer for joint sizes indicated on Drawings.
- B. Extruded round, closed cell or bi-cellular, low-density polyethylene or polyolefin foam material with a skin-like outer texture.
- C. Approved Closed Cell Backer Rods:
  1. Mile High Foam Backer Rod, Backer Rod Manufacturing, Inc., Denver, CO.
  2. ITP Standard Backer Rod Insulation, Industrial Thermo Polymers Limited, Buffalo, NY.
  3. HBR, Nomaco, Inc., Zebulon, NC.
  4. MasterSeal 920 Closed-Cell Backer-Rod, BASF Building Systems, Shakopee, MN.

PART 3 - EXECUTION

3.1 INSPECTION

- A. Inspect surfaces to receive Work and report immediately in writing to Engineer as required in General Conditions deficiencies in surface which render it unsuitable for proper execution of this Work. Do not proceed with Work until unsatisfactory conditions have been corrected in an acceptable manner. Commencement of Work implies acceptance of related Work.
- B. Coordinate and verify that related Work meets following requirements.
  1. Concrete surfaces are finished, cleaned and prepped, as specified by Manufacturer for system to be installed.

3.2 PREPARATION

- A. Grind joint edges smooth and straight prior to installation.

- B. Surfaces that are to receive joint sealant shall be dry and thoroughly cleaned by mechanical means of loose particles, existing joint sealant, laitance, dirt, dust, oil, grease or other foreign matter. Use mechanical methods, such as grinding or sandblasting, to clean joint surfaces to sound, virgin concrete.
- C. Check preparation of substrate to ensure adhesion of joint sealant.
- D. Correct unsatisfactory conditions in a manner acceptable to Manufacturer and Engineer before installation of joint sealant system.
- E. Rout cracks with a grinding tool to produce the profile indicated on Drawings. Crack must be centered in the routed notch.

### 3.3 INSTALLATION/APPLICATION

- A. Perform Work in strict accordance with Manufacturer's written instructions and specifications and as indicated on Drawings.
- B. Do not apply joint sealant system until concrete has been air dried at temperatures at or above 40 degrees F. for at least 28 days after curing period specified in Division 03 Section "Cast-In-Place Concrete (Restoration)" or as otherwise approved by Manufacturer.
- C. Install bond breaker or backer rod as indicated on Drawings.
- D. Prime joints and cracks. Completely fill joint with sealant, without sagging or smearing onto adjacent surfaces.
- E. In areas not receiving deck coating, fill horizontal joints and cracks until slightly recessed to avoid direct contact with wheel traffic.
- F. Cease installation under adverse weather conditions, or when temperatures are below 40 degrees F or below or above Manufacturer's recommended limitations.
- G. Protect joint sealant as required until sealant is fully cured.

### 3.4 CLEANING

- A. Remove excess primer, sealant, and masking materials from structure.
- B. Clean materials installed under this Section according to Division 01 Section "Cleaning and Waste Management."

END OF SECTION 07 92 23

## SECTION 10 14 73 – SIGNAGE FOR PARKING STRUCTURES

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes providing and furnishing labor, materials, equipment and supervision to furnish and install non-illuminated signage.

#### 1.3 SUBMITTALS

- A. Shop Drawings: Submit for review and approval indicating the following:
  - 1. Sign Details:
    - a. Complete sign face for each sign mark or group of similar signs with dimensioned text size and clearances.
    - b. Method of fabrication and materials used.
    - c. Quantities of each sign.
  - 2. Sign Mounting Hardware:
    - a. Quantities required of each type.
    - b. Sign mounting hardware details indicating method of fabrication and dimensions.
- B. Certifications: Submit for review and approval qualifications of sign installation Contractor.
- C. Samples: Submit for review and approval indicating the following:
  - 1. Sample of signs V3 and L4. If approved, the submitted signs may be used for the Project.
  - 2. Samples of each color to be used.

#### 1.4 QUALITY ASSURANCE

- A. Manufacturer's Requirements: Installed and fabricated signs from 5 projects of similar magnitude and design and if requested, prior to being awarded a contract, shall submit the names, locations, contacts, and the telephone numbers for the 5 most recently installed, completed projects.

#### 1.5 DELIVERY, STORAGE AND HANDLING

- A. Ship in weather-proof enclosures, in weather-proof containers or in weatherproofing packaging. Deliver materials in original, unbroken, brand marked containers or wrapping as applicable.
- B. Handle and store materials in a manner which will prevent deterioration, damage, contamination with foreign matter, and damage by weather or elements, and according to Manufacturer's directions.
- C. Reject damaged, deteriorated or contaminated material and immediately remove from the Site. Replace rejected materials with new materials at no additional cost to Owner.

## 1.6 WARRANTY

- A. Provide a written 1-year full replacement warranty that signage will be free of defects due to workmanship and materials including, but not limited to fading, peeling, delamination or installation. Also extend in writing to the Owner for Manufacturers' warranties.
- B. Without additional cost to the Owner, repair or replace defective signs or hardware which develop during the warranty period, repair damage to other work due to such imperfections, and provide labor for reinstallation as required.

## PART 2 - PRODUCTS

### 2.1 ALUMINUM VEHICULAR SIGNS IN PARKING AREA (TYPE A)

- A. Aluminum: 0.080 inch sheet aluminum 3003-H14 or 6061-T6 alloy.
- B. Signs shall have a white painted background with non-reflective copy/graphics with Sans Serif letter style.
- C. Chemically etch aluminum prior to painting, using the following:
  - 1. Alumu-prep #33 by Amchem.
  - 2. DuPont Aluminum Prefinishing System 225S/226S.
  - 3. Or approved equal.
- D. Primer to be zinc chromate, or approved equal. Acceptable products include:
  - 1. Matthews Paint Company 74-734/74-735 Metal Pretreatment.
  - 2. Or approved equal of Lacryl or Amchem products.
- E. Top coat to be acrylic polyurethane, white in color. Acceptable products include:
  - 1. Matthews Matte Natural White.
  - 2. Or approved equal.
- F. Copy/Graphics: Die cut or computer cut 3M Scotchcal Brand Non-Reflective Sheeting #7725-12, black, roller applied.
- G. Flat clear coat signs with exterior exposure to ultraviolet only.

### 2.2 ALUMINUM VEHICULAR SIGNS IN PARKING AREA (TYPE B)

- A. Aluminum: 0.080 inch sheet aluminum 3003-H14 or 6061-T6 alloy.
- B. Signs shall have a yellow painted background with non-reflective copy/graphics with Sans Serif letter style.
- C. Chemically etch aluminum prior to painting, using the following:
  - 1. Alumu-prep #33 by Amchem.
  - 2. DuPont Aluminum Prefinishing System 225S/226S.
  - 3. Or approved equal.

- D. Primer to be zinc chromate, or approved equal. Acceptable products include:
  - 1. Matthews Paint Company 74-734/74-735 Metal Pretreatment.
  - 2. Or approved equal of Lacryl or Amchem products.
- E. Top coat to be acrylic polyurethane, yellow in color. Acceptable products include:
  - 1. Matthews Matte Schoolbus Yellow.
  - 2. Or approved equal.
- F. Copy/Graphics: Die cut or computer cut 3M Scotchcal Brand Non-Reflective Sheeting #7725-12, black, roller applied.
- G. Flat clear coat signs with exterior exposure to ultraviolet only.

### 2.3 ALUMINUM VEHICULAR SIGNS IN PARKING AREA (TYPE C)

- A. Aluminum: 0.080 inch sheet aluminum 3003-H14 or 6061-T6 alloy.
- B. Signs shall have a red painted background with reflective copy/graphics with Sans Serif letter style.
- C. Chemically etch aluminum prior to painting, using the following:
  - 1. Alumu-prep #33 by Amchem.
  - 2. DuPont Aluminum Prefinishing System 225S/226S.
  - 3. Or approved equal.
- D. Primer to be zinc chromate, or approved equal. Acceptable products include:
  - 1. Matthews Paint Company 74-734/74-735 Metal Pretreatment.
  - 2. Or approved equal of Lacryl or Amchem products.
- E. Top coat to be acrylic polyurethane, red in color. Acceptable products include:
  - 1. Matthews Matte Lucky Red.
  - 2. Or approved equal.
- F. Copy/Graphics: Die cut or computer cut 3M Scotchlite Engineering Grade #580-10, white, roller applied.
- G. Flat clear coat signs with exterior exposure to ultraviolet only.

### 2.4 ALUMINUM PEDESTRIAN SIGNS IN PARKING AREAS (TYPE D)

- A. Aluminum: 0.080 inch sheet aluminum 3003-H14 or 6061-T6 alloy.
- B. Signs shall have a black painted background with reflective copy/graphics with Sans Serif letter style.
- C. Chemically etch aluminum prior to painting, using the following:
  - 1. Alumu-prep #33 by Amchem, DuPont Aluminum Prefinishing System 225S/226S
  - 2. or approved equal.
- D. Primer: Zinc chromate, or approved equal. Acceptable products include the following:
  - 1. Matthews Paint Company 74-734/74-735 Metal Pretreatment
  - 2. Or approved equal. Lacryl or Amchem products.

- E. Top coat to be acrylic polyurethane, black in color as selected by Engineer. Acceptable products include:
  - 1. Matthews Matte Black Umber.
  - 2. Or approved equal.
- F. Copy/Graphics: Die cut or computer cut 3M Scotchlite Engineering Grade #580-10, white, roller applied.
- G. Flat clear coat signs with exterior exposure to ultraviolet only.

## 2.5 GENERAL SIGNS (TYPE E)

- A. Aluminum shall be 0.080 inch sheet aluminum 3003-H14 or 6061-T6 alloy.
- B. Signs shall have a painted background with copy with Sans Serif letter style. Paint colors by Matthews Paint Company or approved equivalent:
  - 1. MP16043 – Lucky Red
  - 2. MP855 – Machine Orange
  - 3. MP8966 – Yellow Daisy
  - 4. MP22118 – Foret Parc Green
  - 5. MP2160 – Sailboat Blue
  - 6. MP2016 – Royal Purple
  - 7. MP349 – Iceberg Blue
  - 8. MP32071 – Sheep’s Wool
  - 9. MP13306 – Gingersnap
  - 10. MP25502 – Very Violet
- C. Chemically etch aluminum prior to painting, using Alumu-prep #33 by Amchem, DuPont Aluminum Prefinishing System 225S/226S or approved equivalent.
- D. Primer to be zinc chromate, or approved equivalent. Acceptable products include Matthews Paint Company 74-734/74-735 Metal Pretreatment or approved equivalent. Lacryl or Amchem products.
- E. Top coat to be acrylic polyurethane, color as selected by Engineer/Client. Acceptable products include Matthews Paint Company, or approved equivalent.
- F. Copy/Graphics shall be Sans Serif upper and lower case, die cut or computer cut 3M Scotchcal Brand Non-Reflective Sheeting, roller applied, color as indicated on Drawings and below:
  - 1. #7725-10 - White
  - 2. #7725-12 - Black
- G. Flat clear coat signs with exterior exposure to ultraviolet only.

## 2.6 STANDARD REGULATORY SIGNS (TYPE F)

- A. Aluminum: 0.080 inch aluminum 3003-H14 or 6061-T6 alloy.

- B. Background: 3M Scotchlite Brand Reflective Sheeting, Engineer Grade, roller applied, color as indicated on Drawings and listed below:
  - 1. #3277 – Green.
  - 2. #3272 – Red.
  - 3. #3290 – White.
  - 4. #3275 – Blue.
  - 5. #580-85 – Black.
- C. Copy shall be Sans Serif upper and lower case, die cut or computer cut 3M Scotchlite Brand Reflective Sheeting, Engineer Grade, roller applied, color as indicated on Drawings and below:
  - 1. #3272 – Red.
  - 2. #3290 – White.
  - 3. #580-85 – Black.
  - 4. #3275 – Blue.
- D. Pre-manufactured signs are acceptable to use if they meet the above criteria and all national, state, and local codes for the project.

#### 2.7 PVC PIPE CLEARANCE SIGNS (TYPE G)

- A. PVC Pipe: 8-inch diameter, 1/2 inch thick wall, with flush end caps.
- B. Paint for PVC Pipe Sign: Spraylat Lacryl No. 482-BK high hiding black.
- C. Die cut or computer cut copy/graphics (Sans Serif letter style) for PVC pipe sign shall be pressure applied Scotchlite Engineer Grade #580-10, white, and Scotchlite Engineer Grade #580-72, red.
- D. Handcut letters not accepted.

#### 2.8 CODE SIGNS - ENGRAVED PLASTIC LAMINATE SIGNS (TYPE H)

- A. Engraved Signs shall be fabricated from high pressure melamine plastic laminate.
- B. Raised copy thickness shall not be less than 1/32 inch and use Sans Serif letter style.
- C. Text shall be accompanied by Braille. Braille shall be dots or round dome shaped. Square formed text character edges shall be free of burrs and rough edges.
- D. Signs to comply with ADAAG and all national, state, and local codes for the project.
- E. Copy Color: Refer to Drawings.
- F. Background Color: Refer to Drawings.
- G. Sign Size: Refer to Drawings.
- H. Signs: As fabricated by The Supersine Co., E. Davison, Detroit, MI 48212; or approved equivalent.

#### 2.9 SIGN MOUNTING HARDWARE

- A. Fasteners, hangers, chains, steel tubes, steel angle, etc. as indicated on Drawings.

- B. Vandal Proof Nuts and Bolts.
  - 1. Bolts: Aluminum with half slotted heads.
  - 2. Nuts: Aluminum "break-a-way".
- C. Rubber coated conduit clamp sized to ensure secure tight clamp to cables.
- D. Sign mounting hardware paint:
  - 1. Metal primer for galvanized surfaces:
    - a. Pittsburgh White-Galvanized Steel Primer.
    - b. Sherwin-Williams Galvite.
    - c. Glidden Glidguard All Purpose Metal Primer.
    - d. or Approved Equal.
  - 2. Metal primer for aluminum surfaces:
    - a. Pittsburgh Zinc Chromate Primer.
    - b. Sherwin-Williams Zinc Chromate Primer.
    - c. Glidden Glidguard All Purpose Metal Primer.
    - d. or Approved Equal.
  - 3. Finish Paint; Gray (Color to match 3M Scotchcal Medium Gray #7725-31):
    - a. Pittsburgh Fast-dry Alkyd Gloss Enamel.
    - b. Sherwin-Williams Metalmastic II Enamel.
    - c. Glidden Glidguard Industrial Alkyd Enamel.
    - d. or Approved Equal.

### PART 3 - EXECUTION

#### 3.1 INSPECTION

- A. Prior to installation of signs, examine the site conditions and the Work of Others insofar as it affects this work and report immediately in writing to the Engineer as required by the General Conditions of conditions which interfere with the installation.
- B. Begin installing signs only after deficiencies have been corrected in acceptable manner.
- C. Commencement of installation implies acceptance of related work performed by others.

#### 3.2 PREPARATION

- A. Prior to sign installation, arrange a meeting with the Engineer at the Site to review the sign placement.
- B. Coordinate the placement of signs with the structural configuration and the lighting location. Additional compensation not allowed for relocating signs after installation if relocating is required by conflicts with lighting, structure, mechanical, electrical or architectural features.

#### 3.3 ALUMINUM VEHICULAR, PEDESTRIAN, AND GENERAL SIGNS (TYPES A, B, C, D, and E)

- A. Aluminum: Chemically etched, degreased and must be flat and free of ragged edges. Corner radii shall be made by stamping with dies or computer routed.
- B. Signs of the same size shall be totally uniform in size and shape.

- C. Pre-punch holes for fasteners in aluminum to prevent damage to signs in the field. Refer to sign mounting details for location and spacing of fasteners.
- D. Prime and paint aluminum face, back, and edges.
- E. Die or Computer Cut Copy: Roller applied. No air bubbles, chips, or cracks will be allowed. Edges shall be smooth and burnished to prevent peeling.
- F. Paint with 2 coats of baked epoxy enamel on backs and edges of signs mounted directly to concrete construction to prevent cathodic reaction with the structure. Apply baked epoxy enamel to prepunched blank prior to fabricating sign.
- G. Clear coat sign face if exposed to ultraviolet rays.

### 3.4 STANDARD REGULATORY SIGNS (TYPE F)

- A. Aluminum shall be chemically etched, degreased and must be flat and free of ragged edges. Corner radii shall be made by stamping with dies or computer routed, and signs of the same size shall be totally uniform in size and shape.
- B. Aluminum shall have pre-punched holes for fasteners to prevent damage to signs in the field. Refer to sign mounting details for location and spacing of fasteners.
- C. Background sheeting shall be roller applied and cover the entire face surface. No air bubbles, chips, or cracks will be allowed. Edges shall be trimmed smooth.
- D. Die or computer cut copy shall be roller applied. No air bubbles, chips, or cracks will be allowed. Edges shall be smooth and burnished to prevent peeling.
- E. Clear coat sign face if exposed to ultraviolet rays.
- F. Backs and edges of signs mounted directly to concrete construction shall have 2 coats of baked epoxy enamel paint on backside of sign to prevent cathodic reaction with the structure. Baked epoxy enamel shall be applied to prepunched blank prior to fabricating sign.

### 3.5 PVC PIPE SIGN (TYPE G)

- A. Predrill holes in PVC pipe for fasteners and weeps. Refer to sign mounting details for size and locations of holes. Clean ends of pipe and glue flush mounted end caps in place with PVC cement. Finish ends to hide seams after glue for end caps is dry. Clean entire pipe with kectone PVC cleaner to remove foreign substances.
- B. Paint pipe in accordance with Lacryl specifications for painting PVC. No runs or unevenness of paint will be allowed.
- C. Apply die cut 3M Scotchlite Engineer Grade letters. Burnish edges of letters to prevent peeling. Properly space and align letters.

### 3.6 ENGRAVED PLASTIC LAMINATE SIGNS (TYPE H)

- A. Mechanical cut melamine plastic plates to produce a smooth finished edge.

- B. Characters shall be produced by a high speed cutter which is mechanically attached to a photograph system.
- C. Fasten to substrate using method recommended by Manufacturer.

### 3.7 SIGN AND HARDWARE INSTALLATION

- A. Mount signs level and plumb.
- B. Mount PVC pipe signs parallel to floor surfaces to allow consistent floor clearance from one end of the sign to the other.
- C. The use of power propelled fasteners to install signs is prohibited unless approved in writing by the Engineer.
- D. Wire brush and solvent clean surfaces to be touch-up painted to remove rust and other contaminants. Touch-up paint with the same metal primer and finish paint used for shop painting.
- E. Remove paint spots and other soil from floors and adjacent non-painted surfaces.

END OF SECTION 10 14 73

## SECTION 104413 - FIRE PROTECTION CABINETS

### PART 1 - GENERAL

#### 1.1 SUMMARY

A. Section Includes:

1. Fire-protection cabinets for Fire Standpipe Valves.

#### 1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings: For fire-protection cabinets and locks.

#### 1.3 CLOSEOUT SUBMITTALS

- A. Maintenance data.

#### 1.4 COORDINATION

- A. Coordinate size of fire-protection cabinets to ensure that standpipe valve may be operated without restriction.
- B. Coordinate sizes and locations of fire-protection cabinets with wall depths.

### PART 2 - PRODUCTS

#### 2.1 PERFORMANCE REQUIREMENTS

- A. Vandal resistant Fire-Protection Standpipe valve Cabinets: Cabinet to be fabricated from a minimum of 12 gauge sheet metal, surface mount with continuous hinge, key lock with one master key to open all enclosures.
- B. Cabinet Type: Suitable for 2-1/2" valve.
- C. Cabinet Construction: Non fire rated.
- D. Cabinet Material: Stainless steel sheet. Red Powder Paint Finish.
- E. Surface-Mounted Cabinet: Cabinet box fully exposed and mounted directly on wall with no trim.

- F. Door Material: Stainless steel sheet.
- G. Door Style: Solid metal panel without frame. Continuous hinge.
- H. Accessories:
  - 1. Field fabricated Mounting Bracket: Galvanized strut to build out from wall to centerline of valve branch.
  - 2. Handle: None.
  - 3. Door Lock: Cylinder lock, keyed alike to other cabinets.
  - 4. Identification: Lettering complying with authorities having jurisdiction for letter style, size, spacing, and location.
    - a. Identify Standpipe Valve in cabinet with the words "FIRE STANDPIPE VALVE."
      - 1) Location: Applied to cabinet door.
      - 2) Application Process: Silk-screened.
      - 3) Lettering Color: White.
      - 4) Orientation: Horizontal.
- I. Materials:
  - 1. Stainless Steel: ASTM A240/A240M or ASTM A666, Type 304.
    - a. Finish: ASTM A480/A480M Non-directional finish.
    - b. Paint: Red Powder paint and applied lettering.

## 2.2 FABRICATION

- A. Fire-Protection Cabinets: Provide manufacturer's standard box (tub) with trim, door, and hardware to suit cabinet type, trim style, and door style indicated.

## PART 3 - EXECUTION

### 3.1 INSTALLATION

- A. Install cabinets in locations and at mounting heights indicated, or at heights acceptable to authorities having jurisdiction.
- B. Fire-Protection Cabinets: Fasten cabinets to structure, square and plumb.
- C. Provide required mounting hardware and fasteners for a strong vandal resistant installation. Expansion anchors to be a minimum of 2" embedment into concrete. Provide attachment hardware where anchors to steel are required.
- D. Provide and install miscellaneous steel such as galvanized strut or galvanized angle shapes to support enclosures and to align with the fire standpipe branch.

- E. Identification: Apply decals at locations indicated.
- F. Adjust fire-protection cabinet doors to operate easily without binding. Verify that integral locking devices operate properly.
- G. Assure the cabinet does not obstruct the valve operation or connection of a fire hose.

END OF SECTION 104413

## SECTION 210517 - SLEEVES FOR FIRE-SUPPRESSION PIPING

### PART 1 - GENERAL

#### 1.1 SUMMARY

##### A. Section Includes:

1. Sleeves without waterstop.
2. Grout.
3. Silicone sealants.

#### 1.2 ACTION SUBMITTALS

##### A. Product Data: For each type of product.

#### 1.3 INFORMATIONAL SUBMITTALS

##### A. Field quality-control reports.

### PART 2 - PRODUCTS

#### 2.1 SLEEVES WITHOUT WATERSTOP

- A. Cast-Iron Pipe Sleeves: Cast or fabricated of cast or ductile iron and equivalent to ductile-iron pressure pipe, with plain ends.
- B. Steel Pipe Sleeves: ASTM A53/A53M, Type E, Grade B, Schedule 40, hot-dip galvanized, with plain ends.
- C. Steel Sheet Sleeves: ASTM A653/A653M, 0.0239-inch minimum thickness; hot-dip galvanized, round tube closed with welded longitudinal joint.

#### 2.2 GROUT

- A. Description: Non-shrink, for interior and exterior sealing openings in non-fire-rated walls or floors.
- B. Standard: ASTM C1107/C1107M, Grade B, post-hardening and volume-adjusting, dry, hydraulic-cement grout.
- C. Design Mix: 5000 psi, 28-day compressive strength.
- D. Packaging: Premixed and factory packaged.

## 2.3 SILICONE SEALANTS

- A. Silicone, S, NS, 25, NT: Single-component, nonsag, plus 25 percent and minus 25 percent movement capability, nontraffic-use, neutral-curing silicone joint sealant.
  - 1. Standard: ASTM C920, Type S, Grade NS, Class 25, Use NT.

## PART 3 - EXECUTION

### 3.1 INSTALLATION OF SLEEVES - GENERAL

- A. Install sleeves for piping passing through penetrations in floors, partitions, roofs, and walls.
- B. For sleeves that will have sleeve-seal system installed, select sleeves of size large enough to provide 1-inch annular clear space between piping and concrete slabs and walls.
  - 1. Sleeves are not required for core-drilled holes.
- C. Install sleeves in concrete floors, concrete roof slabs, and concrete walls as new slabs and walls are constructed.
  - 1. Cut sleeves to length for mounting flush with both surfaces.
    - a. Exception: Extend sleeves installed in floors of mechanical equipment areas or other wet areas 2 inches above finished floor level.
  - 2. Using grout or silicone sealant, seal space outside of sleeves in slabs and walls without sleeve-seal system.
- D. Install sleeves for pipes passing through interior partitions.
  - 1. Cut sleeves to length for mounting flush with both surfaces.
  - 2. Install sleeves that are large enough to provide 1/4-inch annular clear space between sleeve and pipe or pipe insulation.
  - 3. Seal annular space between sleeve and piping or piping insulation; use joint sealants appropriate for size, depth, and location of joint.
- E. Fire-Resistance-Rated Penetrations, Horizontal Assembly Penetrations, and Smoke Barrier Penetrations: Maintain indicated fire or smoke rating of walls, partitions, ceilings, and floors at pipe penetrations. Seal pipe penetrations with fire- and smoke-stop materials. Comply with requirements for firestopping and fill materials specified in Section 078413 "Penetration Firestopping."

### 3.2 INSTALLATION OF SLEEVES WITH WATERSTOP

- A. Install sleeve with waterstop as new walls and slabs are constructed.
- B. Assemble fitting components of length to be flush with both surfaces of concrete slabs and walls. Position waterstop flange to be centered in concrete slab or wall.

- C. Secure nailing flanges to concrete forms.
- D. Using grout or silicone sealant, seal space around outside of sleeves.

### 3.3 INSTALLATION OF SLEEVE-SEAL SYSTEMS

- A. Install sleeve-seal systems in sleeves in exterior concrete walls and slabs-on-grade at service piping entries into building, and passing through exterior walls.
- B. Select type, size, and number of sealing elements required for piping material and size and for sleeve ID or hole size. Position piping in center of sleeve. Center piping in penetration, assemble sleeve-seal system components, and install in annular space between piping and sleeve. Tighten bolts against pressure plates that cause sealing elements to expand and make a watertight seal.

### 3.4 FIELD QUALITY CONTROL

- A. Perform the following tests and inspections:
  - 1. Leak Test: After allowing for a full cure, test sleeves and sleeve seals for leaks. Repair leaks and retest until no leaks exist.
  - 2. Sleeves and sleeve seals will be considered defective if they do not pass tests and inspections.
- B. Prepare test and inspection reports.

### 3.5 SLEEVE SCHEDULE

- A. Use sleeves and sleeve seals for the following piping-penetration applications:
  - 1. Exterior Concrete Walls above and below Grade:
    - a. Sleeves with waterstops.
      - 1) Select sleeve size to allow for 1-inch annular clear space between piping and sleeve for installing sleeve-seal system.
  - 2. Concrete Slabs-on-Grade:
    - a. Sleeves with waterstops.
      - 1) Select sleeve size to allow for 1-inch annular clear space between piping and sleeve for installing sleeve-seal system.
  - 3. Concrete Slabs above Grade:
    - a. Sleeves with waterstops.
  - 4. Interior Walls and Partitions:

- a. Sleeves without waterstops.

END OF SECTION 210517

## SECTION 210529 - HANGERS AND SUPPORTS FOR FIRE-SUPPRESSION PIPING AND EQUIPMENT

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. Section Includes:
1. Metal pipe hangers and supports.

#### 1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product.

### PART 2 - PRODUCTS

#### 2.1 PERFORMANCE REQUIREMENTS

- A. Hangers and Supports: Hangers and supports for fire-suppression piping systems shall comply with the requirements of the AHJ.
- B. NFPA Compliance: Comply with NFPA 13.
- C. UL and FM Global Compliance: Comply with UL 203 and FM Global Approvals.

#### 2.2 METAL PIPE HANGERS AND SUPPORTS

- A. Carbon-Steel Pipe Hangers and Supports:
1. Description: Factory-fabricated components, NFPA approved, UL listed, or FM approved for fire-suppression piping support.
  2. Galvanized Metallic Coatings: Pregalvanized or hot-dip galvanized.
  3. Hanger Rods: Continuous-thread rod, nuts, and washer made of carbon steel.
- B. Copper Pipe and Tube Hangers:
1. Description: Copper-coated-steel, factory-fabricated components, NFPA approved, UL listed, or FM approved for fire-suppression piping support.
  2. Hanger Rods: Continuous-thread rod, nuts, and washer made of steel.

## 2.3 FASTENER SYSTEMS

- A. Mechanical-Expansion Anchors: NFPA-approved, UL-listed, or FM-approved, insert-wedge-type anchors, for use in hardened portland cement concrete; with pull-out, tension, and shear capacities appropriate for supported loads and building materials where used.
  - 1. All Applications: Zinc-coated or Stainless steel.

## 2.4 MATERIALS

- A. Carbon Steel: ASTM A1011/A1011M.
- B. Structural Steel: ASTM A36/A36M, carbon-steel plates, shapes, and bars; galvanized.
- C. Stainless Steel: ASTM A240/A240M.
- D. Grout: ASTM C1107/C1107M, factory-mixed and -packaged, dry, hydraulic-cement, non-shrink and nonmetallic grout, suitable for interior and exterior applications.
  - 1. Properties: Nonstaining, noncorrosive, and nongaseous.
  - 2. Design Mix: 5000-psi, 28-day compressive strength.

## PART 3 - EXECUTION

### 3.1 APPLICATION

- A. Strength of Support Assemblies: Where not indicated, select sizes of components, so strength will be adequate to carry present and future static loads within specified loading limits. Minimum static design load used for strength determination shall be weight of supported components plus 100 lb.

### 3.2 HANGER AND SUPPORT INSTALLATION

- A. Metal Pipe-Hanger Installation: Comply with installation requirements of approvals and listings. Install hangers, supports, clamps, and attachments as required to properly support piping from building structure.
- B. Fastener System Installation:
  - 1. Install mechanical-expansion anchors in concrete, after concrete is placed and completely cured. Install fasteners according to manufacturer's written instructions. Install in accordance with approvals and listings.
- C. Install hangers and supports complete with necessary attachments, inserts, bolts, rods, nuts, washers, and other accessories.

- D. Install hangers and supports to allow controlled thermal movement of piping systems, to permit freedom of movement between pipe anchors, and to facilitate action of expansion joints, expansion loops, expansion bends, and similar units.
- E. Install lateral bracing with pipe hangers and supports to prevent swaying.
- F. Install building attachments within concrete slabs or attach to structural steel. Install additional attachments at concentrated loads, including valves.
- G. Load Distribution: Install hangers and supports, so that piping live and dead loads and stresses from movement will not be transmitted to connected equipment.
- H. Pipe Slopes: Install hangers and supports to provide indicated pipe slopes and to not exceed maximum pipe deflections allowed by ASME B31.9 for building services piping.

### 3.3 PAINTING

- A. Touchup: Clean field welds and abraded, shop-painted areas. Paint exposed areas immediately after erecting hangers and supports. Use same materials as those used for shop painting. Comply with SSPC-PA 1 requirements for touching up field-painted surfaces.
  - 1. Apply paint by brush or spray to provide a minimum dry film thickness of 2.0 mils.
- B. Galvanized Surfaces: Clean welds, bolted connections, and abraded areas, and apply galvanizing-repair paint to comply with ASTM A780/A780M.

### 3.4 HANGER AND SUPPORT SCHEDULE

- A. Provide hangers and supports in accordance with NFPA 13.
- B. Vertical-Piping Clamps: Unless otherwise indicated and except as specified in piping system Sections, install the following types:
  - 1. Extension Pipe or Riser Clamps (MSS Type 8): For support of pipe risers NPS 3/4 to NPS 24.
  - 2. Carbon- or Alloy-Steel/ Galvanized Riser Clamps (MSS Type 42): For support of pipe risers NPS 3/4 to NPS 24.
- C. Hanger-Rod Attachments: Comply with NFPA requirements.
- D. Building Attachments: Comply with NFPA requirements. Unless otherwise indicated and except as specified in piping system Sections, install the following types:
  - 1. Steel or Malleable-Concrete Inserts (MSS Type 18): For upper attachment to suspend pipe hangers from concrete ceiling.
- E. Use mechanical-expansion anchors only. Do not use powder actuated attachments.

END OF SECTION 210529

## SECTION 210553 - IDENTIFICATION FOR FIRE-SUPPRESSION PIPING AND EQUIPMENT

### PART 1 - GENERAL

#### 1.1 SUMMARY

A. Section Includes:

1. Identification signs.
2. Pipe labels.

#### 1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Identification Sign: Include a listing of all signs to be provided for the project.

### PART 2 - PRODUCTS

#### 2.1 IDENTIFICATION SIGNS

- A. Material and Thickness: Steel sign fabricated from 12 gauge galvanized sheet metal.
- B. Letter and Background Color: As indicated for specific application under Part 3.
- C. Maximum Temperature: Able to withstand temperatures between -20 deg. F to 160 deg F.
- D. Minimum Letter Size and type: Principal Lettering to be 6 inches high for "FDC". Secondary lettering on sign to be a minimum of 3 inches high.
- E. Fasteners: Stainless steel anchors

#### 2.2 PIPE LABELS

- A. General Requirements for painted labels: Pipe labels are to be stenciled onto the fire protection pipe using oil based spray paint. Fire protection system piping to be stenciled using white paint on red background. .
- B. Pipe-Label Contents: Include identification of piping service using designations or abbreviations as indicated in Part 3 of this document.
1. Pipe size.
  2. Flow-Direction Arrows: Not required.

3. Lettering Size: Size pipe lettering in accordance with ASME A13.1 for piping. Lettering must be a minimum of 3/4"

### PART 3 - EXECUTION

#### 3.1 PREPARATION

- A. Clean piping and equipment surfaces of incompatible primers, paints, and encapsulants, as well as dirt, oil, grease, release agents, and other substances that could impair bond of identification devices.

#### 3.2 INSTALLATION GENERAL REQUIREMENTS

- A. Coordinate installation of identifying signage with the AHJ prior to ordering and installing signs.
- B. Coordinate installation of identifying devices with locations of equipment so as not to be obstructed by access panels and doors.
- C. Locate identifying devices so that they are readily visible from the point of normal approach.

#### 3.3 INSTALLATION OF IDENTIFICATION SIGNS

- A. Permanently fasten signs in each location for Fire Department Connections. (FDC)
- B. Sign and Label Colors:
  1. White letters on an ANSI Z535.1 safety-red background.
- C. Locate Signage where accessible and visible.

#### 3.4 INSTALLATION OF PIPE LABELS

- A. Piping Color Coding: Painting of piping is to be done at the shop and is specified in Section 211200 Fire Suppression Standpipes.
- B. Install pipe labels showing service with stenciled painted lettering.
- C. Pipe-Label Locations: Locate pipe labels where piping is exposed in all areas as follows:
  1. Within 3 ft. of each valve and control device.
  2. At access doors, manholes, and similar access points that permit a view of concealed piping.
  3. Within 3 ft. of equipment items and other points of origination and termination.
  4. Spaced at maximum intervals of 25 ft. along each run.
  5. On the risers on every floor.
- D. Fire-Suppression Pipe Label Color Schedule:

1. Fire-Suppression Pipe Labels: White letters on an ANSI Z535.1 safety-red background. Signage for Fire Department Connections.
2. Provide signage for each of 5 Fire Department Connections.
3. North East Corner
  - a. Sign to read:

**FDC**

MANUAL DRY STANDPIPE

NORTHEAST ZONE AREA D

MAXIMUM ALLOWABLE WORKING PRESSURE

175 PSIG.

4. North West Corner
  - a. Sign to read:

**FDC**

MANUAL DRY STANDPIPE

NORTHWEST ZONE AREA A

MAXIMUM ALLOWABLE WORKING PRESSURE

175 PSIG.

5. South East Corner
  - a. Sign to read:

**FDC**

MANUAL DRY STANDPIPE

SOUTHEAST ZONE AREA C

MAXIMUM ALLOWABLE WORKING PRESSURE

175 PSIG.

6. South West Corner
  - a. Sign to read:

**FDC**

MANUAL DRY STANDPIPE

SOUTHEAST ZONE AREA B

MAXIMUM ALLOWABLE WORKING PRESSURE

175 PSIG.

7. South East Corner
  - a. Sign to read:

**FDC**

AUTOMATIC WET SPRINKLER SYSTEM

SOUTH STOREFRONT SPACES

MAXIMUM ALLOWABLE WORKING PRESSURE

175 PSIG.

END OF SECTION 210553

## SECTION 211119 – FIRE DEPARTMENT CONNECTIONS

### PART 1 - GENERAL

#### 1.1 SUMMARY

A. Section Includes:

1. Exposed-type fire-department connections.
2. Flush-type fire-department connections.

#### 1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each fire-department connection.

### PART 2 - PRODUCTS

#### 2.1 EXPOSED-TYPE FIRE-DEPARTMENT CONNECTION

- A. Croker - Straight Storz
- B. Standard: UL 405.
- C. Type: Exposed, projecting, for wall mounting.
- D. Pressure Rating: 250 psig, minimum.
- E. Body Material: Corrosion-resistant metal.
- F. Inlets: Brass with threads according to NFPA 1963 and matching local fire-department sizes and threads. Include extension pipe nipples, brass lugged swivel connections, and check devices or clappers.
- G. Caps: Brass, lugged type, with gasket and chain.
- H. Escutcheon Plate: Round, brass, wall type.
- I. Outlet: Back, with pipe threads.
- J. Number of Inlets: Two.
- K. Escutcheon Plate Marking: Similar to "STANDPIPE"

- L. Finish: Polished brass
- M. Outlet Size: NPS 4

### PART 3 - EXECUTION

#### 3.1 INSTALLATION

- A. Install wall-type fire-department connections.
- B. Install automatic (ball-drip) drain valve at each check valve for fire-department connection.

END OF SECTION 211119

## SECTION 211200 - FIRE-SUPPRESSION STANDPIPES

### PART 1 - GENERAL

#### 1.1 SUMMARY

A. Section Includes:

1. Pipes, fittings, and specialties.
2. Fire-protection specialty valves.
3. Hose connections.
4. Pressure gauges.
5. Painting.

B. Related Requirements:

1. Section 104413 "Fire Protection Cabinets" for hose-connection and hose-station cabinets.
2. Section 210523 "General-Duty Valves for Water-Based Fire-Suppression Piping."
3. Section 211119 "Fire Department Connections" for exposed-, flush-, and yard-type fire-department connections.

#### 1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: For fire-suppression standpipes.

1. Include plans, elevations, sections, and attachment details.

C. Delegated Design Submittal: For standpipe systems indicated to comply with performance requirements and design criteria, including analysis data, prepared by a NICET Level 3 or higher Technician, responsible for their preparation.

#### 1.3 INFORMATIONAL SUBMITTALS

A. Coordination Drawings: Floor plans, sections, and other details, drawn to scale, or BIM model, showing the items described in this Section and coordinated with all building trades.

B. Approved Standpipe Drawings: Working plans, prepared in accordance with NFPA 14, that have been approved by authorities having jurisdiction, including hydraulic calculations.

C. Welding certificates.

D. Fire-hydrant flow test reports. (one for each hydrant associated with a local standpipe)

E. Field Test Reports and Certificates: Indicate and interpret test results for compliance with performance requirements and as described in NFPA 14. Include "Contractor's Material and

Test Certificate for Aboveground Piping" and "Contractor's Material and Test Certificate for Underground Piping."

- F. Field quality-control reports.

#### 1.4 CLOSEOUT SUBMITTALS

- A. Operation and maintenance data.

#### 1.5 QUALITY ASSURANCE

- A. Installer Qualifications:

- 1. Installer's responsibilities include designing, fabricating, and installing fire-suppression standpipes and providing professional engineering services needed to assume engineering responsibility. Base calculations on results of fire-hydrant flow test.

- a. Engineering Responsibility: Preparation of working plans, calculations, and field test reports by a qualified NICET Level 3 or higher technician.

- B. Welding Qualifications: Qualify procedures and operators according to ASME Boiler and Pressure Vessel Code.

### PART 2 - PRODUCTS

#### 2.1 SYSTEM DESCRIPTIONS

- A. Manual Dry-Type, Class I Standpipe System: Includes NPS 2-1/2 hose connections, has no direct water-supply. Water supply is through Municipal Hydrant and Fire Department Hose Connection.

#### 2.2 PERFORMANCE REQUIREMENTS

- A. NFPA Standards: Fire-suppression standpipe equipment, specialties, accessories, installation, and testing shall comply with NFPA 14-2016 Edition.
- B. Standard-Pressure, Fire-Suppression Standpipe System Component: Listed for 175-psig minimum working pressure.
- C. Delegated Design: Design fire-suppression standpipes, including comprehensive engineering analysis by a NICET Level 3 or higher technician, using performance requirements and design criteria indicated.
  - 1. The fire Protection Contractor is to coordinate with the Elmira Water Board to conduct fire-hydrant flow tests for each of four existing hydrants. The test shall include:

- a. Date: \_\_\_\_\_.
- b. Time: \_\_\_\_\_ a.m. - p.m.
- c. Performed by: \_\_\_\_\_ of \_\_\_\_\_.
- d. Location of Residual Fire Hydrant R: \_\_\_\_\_.
- e. Location of Flow Fire Hydrant F: \_\_\_\_\_.
- f. Static Pressure at Residual Fire Hydrant R: \_\_\_\_\_ PSIG.
- g. Measured Flow at Flow Fire Hydrant F: \_\_\_\_\_ PSIG.
- h. Residual Pressure at Residual Fire Hydrant R: \_\_\_\_\_ PSIG.

D. Fire-suppression standpipe design shall be approved by authorities having jurisdiction.

1. Minimum residual pressure at each hose-connection outlet is as follows:

- a. NPS 2-1/2 Hose Connections: 100 psig .

## 2.3 PIPING MATERIALS

A. Comply with requirements in "Piping Schedule" Article for applications of pipe, tube, and fitting materials and for joining methods for specific services, service locations, and pipe sizes.

## 2.4 GALVANIZED STEEL PIPE AND ASSOCIATED FITTINGS

A. Schedule 40: ASTM A53/A53M, ASTM A123, Type E, Grade B with factory- or field-formed ends to accommodate joining method.

B. Galvanized, Steel Couplings: ASTM A865/A865M, threaded.

C. Grooved-Joint, Steel-Pipe Appurtenances:

1. Pressure Rating: 250-psig minimum.
2. Hot Dipped Galvanized, ASTM A123, Rigid, Grooved-End Fittings for Steel Piping: ASTM A47/A47M malleable-iron casting.
3. Grooved-End-Pipe Couplings for Steel Piping: AWWA C606 and UL 213 rigid pattern, unless otherwise indicated, for steel-pipe dimensions. Include ferrous housing sections, EPDM-rubber gasket, and stainless steel bolts and nuts.
4. UL Listed and FM Approved.

## 2.5 SPECIALTY VALVES

A. General Requirements:

1. Standard: UL's "Fire Protection Equipment Directory" or FM Global's "Approval Guide."
2. Pressure Rating:
  - a. Standard-Pressure Piping Specialty Valves: 175-psig minimum.
3. Body Material: Brass/ Bronze.
4. Size: Same as connected piping.

5. End Connections: Threaded.

B. Automatic (Ball Drip) Drain Valves:

1. Standard: UL 1726.
2. Pressure Rating: 175-psig minimum.
3. Type: Automatic draining, ball check.
4. Size: NPS 3/4.
5. End Connections: Threaded.

2.6 HOSE CONNECTIONS

A. Nonadjustable-Valve Hose Connections:

1. Standard: UL 668 hose valve for connecting fire hose.
2. Pressure Rating: 300-psig minimum.
3. Material: Brass or bronze.
4. Size: NPS 2-1/2.
5. Inlet: Female pipe threads.
6. Outlet: Male hose threads with lugged cap, gasket, and chain. Include hose valve threads in accordance with NFPA 1963 and matching local fire-department threads.
7. Pattern: Angle.
8. Finish: Rough brass or bronze.

2.7 PRESSURE GAUGES

- A. Standard: UL 393.
- B. Dial Size: 3-1/2- to 4-1/2-inch diameter.
- C. Pressure Gauge Range: 0 to 300 psig.
- D. Water System Piping Gauge: Include "WATER" label on dial face.

2.8 PAINTING

A. Painting of fire suppression piping and fittings.

1. Paint all pipe and fittings on the outside with one coat of metal primer and 2 coats of finish. Paint to be Sherwin Williams SW-4081 Safety red or approved equal.
2. Paint to be suitable for exterior use.

## PART 3 - EXECUTION

### 3.1 PREPARATION

- A. Perform fire-hydrant flow test according to NFPA 14 and NFPA 291. Use results for system design calculations required in "Quality Assurance" Article.
- B. Coordinate flow data with Elmira Water Board.
- C. Report test results promptly and in writing.

### 3.2 WATER-SUPPLY CONNECTIONS

- A. Install piping from Fire Department Connection throughout building.
- B. Install check valve, pressure gauge, ball drip and drain at connection to water supply.

### 3.3 PIPING INSTALLATION

- A. Locations and Arrangements: Drawing plans, schematics, and diagrams indicate general location and arrangement of piping. Install piping as indicated, as far as practical.
  - 1. Deviations from approved working plans for piping require written approval from authorities having jurisdiction. File written approval with Architect before deviating from approved working plans.
- B. Piping Standard: Comply with requirements in NFPA 14 for installation of fire-suppression standpipe piping.
- C. Install UL listed and FM approved fittings to make changes in direction, branch takeoffs from mains, and reductions in pipe sizes.
- D. Install automatic, ball drip drain valves to drain piping between check valve and riser. Drain to outside of building.
- E. Install alarm devices in piping systems.
- F. Install hangers and supports for standpipe system piping in accordance with NFPA 14. Comply with requirements in NFPA 13 for hanger materials.
- G. Install pressure gauges on riser or feed main and at top of each standpipe. Include pressure gauges with connection of not less than NPS ¼ and with soft-metal seated globe valve, arranged for draining pipe between gauge and valve. Install gauges to permit removal, and install where they are not subject to freezing.
- H. Install sleeves for piping penetrations of walls, ceilings, and floors.
- I. Install Dry Standpipe system so that it will drain back to FDC completely.

### 3.4 JOINT CONSTRUCTION

- A. Install couplings, unions, nipples, transition fittings and special fittings that have finish and pressure ratings same as or higher than system's pressure rating for aboveground applications unless otherwise indicated.
- B. Install grooved couplings for apparatus, and equipment having NPS 2-1/2 and larger end connections.
- C. Ream ends of pipes and tubes, and remove burrs. Bevel plain ends of steel pipe.
- D. Remove scale, slag, dirt, and debris from inside and outside of pipes, tubes, and fittings before assembly.
- E. Flanged Joints: Select appropriate gasket material in size, type, and thickness suitable for water service. Join flanges with gasket and bolts in accordance with ASME B31.9.
- F. Threaded Joints: Thread pipe with tapered pipe threads in accordance with ASME B1.20.1. Cut threads full and clean using sharp dies. Ream threaded pipe ends to remove burrs and restore full ID. Join pipe fittings and valves as follows:
  - 1. Apply appropriate tape or thread compound to external pipe threads.
  - 2. Damaged Threads: Do not use pipe or pipe fittings with threads that are corroded or damaged.
- G. Steel-Piping, Cut-Grooved Joints: Cut square-edge groove in end of pipe in accordance with AWWA C606. Assemble coupling with housing, gasket, lubricant, and bolts. Join steel pipe and grooved-end fittings in accordance with AWWA C606 for steel-pipe joints.
- H. Dissimilar-Material Piping Joints: Make joints using adapters compatible with materials of both piping systems.

### 3.5 VALVE AND SPECIALTIES INSTALLATION

- A. Specialty Valves:
  - 1. General Requirements: Install in vertical position for proper direction of flow, in main supply to system.

### 3.6 HOSE-CONNECTION INSTALLATION

- A. Install hose connections adjacent to standpipes.
- B. Install freestanding hose connections for access and minimum passage restriction.
- C. Install NPS 2-1/2 hose connections with hose adapter.
- D. Install wall-mounted-type hose connections in cabinets. Include pipe escutcheons, with finish matching valves, inside cabinet where water-supply piping penetrates cabinet. Install valves at

angle required for connection of fire hose. Comply with requirements for cabinets in Section 104413 "Fire Protection Cabinets."

### 3.7 IDENTIFICATION

- A. Install labeling and pipe markers on equipment and piping in accordance with NFPA 14 requirements.

### 3.8 FIELD QUALITY CONTROL

- A. Perform tests and inspections.
- B. Flush entire standpipe system after installation has been completed. Drain system and verify there are no low points. That will retain water.
- C. Tests and Inspections:
  - 1. Flush, test, and inspect standpipe systems in accordance with NFPA 14, "System Acceptance" chapter. Verify the system has now trapped low points.
  - 2. Leak Test: After installation and system flush is complete, charge systems and conduct a hydrostatic test for leaks. System to be isolated for 4 hours without loss of pressure. Repair leaks if pressure test fails and retest until no leaks exist.
  - 3. Verify that equipment hose threads are same as local fire-department equipment.
  - 4. Verify standpipe valve enclosures operate using a single master key or tee handle device.
  - 5. Enclosure lock to be approved the AHJ.
- D. Fire-suppression standpipe system will be considered defective if it does not pass tests and inspections.
- E. Prepare test and inspection reports.

### 3.9 PIPING SCHEDULE

- A. Piping throughout the system from Fire-Department Connection to the end of the system:
- B. Check Valves: Galvanized, standard-weight steel pipe with threaded or grooved end connection Threaded fittings or cut groove-end-pipe couplings, and grooved joints.
- C. Standpipe Valves: 2-1/2" Brass and Bronze body with angle pattern, threaded inlet and standard hose connection outlet.
- D. Standard-pressure, Manual Dry type fire-suppression standpipe piping, NPS 6 and smaller shall be the following:
  - 1. Schedule 40, hot dipped galvanized-steel pipe with threaded ends; Galvanized threaded fittings; and threaded joints.
  - 2. Schedule 40, galvanized-steel pipe with cut-grooved ends; hot dipped galvanized grooved-end fittings for steel piping; grooved-end-pipe couplings for steel piping; and grooved joints.

END OF SECTION 211200

## SECTION 220517 - SLEEVES AND SLEEVE SEALS FOR PLUMBING PIPING

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. Section Includes:
  - 1. Sleeves without water stop.
  - 2. Grout.
  - 3. Silicone sealants.

#### 1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product.

#### 1.3 INFORMATIONAL SUBMITTALS

- A. Field quality-control reports.

### PART 2 - PRODUCTS

#### 2.1 SLEEVES WITHOUT WATER STOP

- A. Cast-Iron Pipe Sleeves: Cast or fabricated of cast or ductile iron and equivalent to ductile-iron pressure pipe, with plain ends.
- B. Steel Pipe Sleeves: ASTM A53/A53M, Type E, Grade B, Schedule 40, hot-dip galvanized, with plain ends.
- C. Steel Sheet Sleeves: ASTM A653/A653M, 0.0239-inch minimum thickness; hot-dip galvanized, round tube closed with welded longitudinal joint.

#### 2.2 GROUT

- A. Description: Non-shrink, for interior and exterior sealing openings in non-fire-rated walls or floors.
- B. Standard: ASTM C1107/C1107M, Grade B, post-hardening and volume-adjusting, dry, hydraulic-cement grout.
- C. Design Mix: 5000 psi, 28-day compressive strength.
- D. Packaging: Premixed and factory packaged.

## 2.3 SILICONE SEALANTS

- A. Silicone, S, NS, 25, NT: Single-component, nonsag, plus 25 percent and minus 25 percent movement capability, nontraffic-use, neutral-curing silicone joint sealant.
  - 1. Standard: ASTM C920, Type S, Grade NS, Class 25, Use NT.
- B. Silicone, S, P, T, NT: Single-component, 25, pourable, 25 percent movement capability, traffic- and nontraffic-use, neutral-curing silicone joint sealant.
  - 1. Standard: ASTM C920, Type S, Grade P, Class 25.

## 2.4 INSTALLATION OF SLEEVES - GENERAL

- A. Install sleeves for piping passing through penetrations in floors, partitions, roofs, and walls.
- B. For sleeves that will have sleeve-seal system installed, select sleeves of size large enough to provide 1-inch annular clear space between piping and concrete slabs and walls.
  - 1. Sleeves are not required for core-drilled floor drains.
- C. Install sleeves in concrete floors, concrete roof slabs, and concrete walls as new slabs and walls are constructed.
  - 1. Extend sleeves installed in floors of garage 2 inches above finished floor level.
  - 2. Using grout, seal the space outside of sleeves in slabs and walls without sleeve-seal system.
- D. Install sleeves for pipes passing through interior partitions.
  - 1. Install sleeves that are large enough to provide 1/4-inch annular clear space between sleeve and pipe or pipe insulation.
  - 2. Seal annular space between sleeve and piping or piping insulation; use joint sealants appropriate for size, depth, and location of joint.
- E. Fire-Resistance-Rated Penetrations, Horizontal Assembly Penetrations, and Smoke Barrier Penetrations: Maintain indicated fire or smoke rating of walls, partitions, ceilings, and floors at pipe penetrations. Seal pipe penetrations with fire- and smoke-stop materials.

## 2.5 SLEEVE SCHEDULE

- A. Use sleeves for the following piping-penetration applications:
  - 1. Exterior Concrete Walls above and below Grade:
    - a. Sleeves without water stops.
      - 1) Select sleeve size to allow for 1-inch annular clear space between piping and sleeve for installing sleeve-seal system.

2. Concrete Slabs above Grade:
  - a. Sleeves without water stops.

END OF SECTION 220517

## SECTION 220523.12 - BALL VALVES FOR PLUMBING PIPING

### PART 1 - GENERAL

#### 1.1 SUMMARY

A. Section Includes:

1. Brass ball valves.

#### 1.2 ACTION SUBMITTALS

- A. Product Data: For each type of valve.

### PART 2 - PRODUCTS

#### 2.1 PERFORMANCE REQUIREMENTS

A. Standards:

1. Domestic water valves intended to convey or dispense water for human consumption must comply with the requirements of authorities having jurisdiction and must be certified to be in compliance with NSF 61 and NSF 372, with a weighted average lead content at wetted surfaces is less than or equal to 0.25 percent.

B. ASME Compliance:

1. ASME B1.20.1 for threads for threaded end valves.
2. ASME B16.18 for cast copper solder-joint connections.
3. ASME B16.22 for wrought copper and copper alloy solder-joint connections.
4. ASME B16.34 for flanged and threaded end connections
5. ASME B31.9 for building services piping valves.

- C. Provide bronze valves made with dezincification-resistant materials. Bronze valves made with copper alloy (brass) containing more than 15 percent zinc are not permitted.

- D. Valve Pressure-Temperature Ratings: Not less than indicated and as required for system pressures and temperatures.

- E. Valve Sizes: Same as upstream piping unless otherwise indicated.

F. Valve Actuator Type:

1. Hand Lever: For quarter-turn valves smaller than NPS 4.

G. Valves in Insulated Piping:

1. Provide 2-inch extended neck stems.
2. Extended operating handles with nonthermal-conductive covering material and protective sleeves that allow operation of valves without breaking vapor seals or disturbing insulation.
3. Memory stops that are fully adjustable after insulation is applied.

## 2.2 BRASS BALL VALVES

### A. Brass Ball Valves, Two Piece with Full Port and Stainless Steel Trim, Threaded Ends:

1. Standard: MSS SP-110; MSS SP-145.
2. CWP Rating: 600 psig.
3. Body Design: Two piece.
4. Body Material: Forged brass.
5. Ends: Threaded.
6. Seats: PTFE.
7. Stem: Brass.
8. Ball: Stainless Steel.
9. Port: Full.

### B. Brass Ball Valves, Two Piece with Full Port and Stainless Steel Trim, Press Ends:

1. Standard: MSS SP-110; MSS SP-145; IAPMO/ANSI Z1157.
2. CWP Rating: Minimum 200 psig.
3. Body Design: Two piece.
4. Body Material: Forged brass.
5. Ends: Press.
6. Press-End Connections Rating: Minimum 200 psig.
7. Seats: PTFE or RPTFE.
8. Stem: Brass.
9. Ball: Stainless Steel.
10. Port: Full.
11. O-Ring Seal: Buna-N or EPDM.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine valve interior for cleanliness, freedom from foreign matter, and corrosion. Remove special packing materials, such as blocks, used to prevent disc movement during shipping and handling.
- B. Operate valves in positions from fully open to fully closed. Examine guides and seats made accessible by such operations.
- C. Examine threads on valve and mating pipe for form and cleanliness.

- D. Examine mating flange faces for conditions that might cause leakage. Check bolting for proper size, length, and material. Verify that gasket is of proper size, that its material composition is suitable for service, and that it is free from defects and damage.
- E. Do not attempt to repair defective valves; replace with new valves. Remove defective valves from site.

### 3.2 INSTALLATION OF VALVES

- A. Install valves with unions at each piece of equipment arranged to allow space for service, maintenance, and equipment removal without system shutdown.
- B. Provide support to piping adjacent to valves such that no force is imposed upon valves.
- C. Locate valves for easy access.
- D. For valves in horizontal piping, install valves with stem at or above center of pipe.
- E. Install valves in position to allow full valve actuation movement.
- F. Adjust or replace valve packing after piping systems have been tested and put into service, but before final adjusting and balancing. Replace valves exhibiting leakage.

### 3.3 GENERAL REQUIREMENTS FOR VALVE APPLICATIONS

- A. If valves with specified CWP ratings are unavailable, provide the same types of valves with higher CWP ratings.

### 3.4 DOMESTIC COLD-WATER VALVE SCHEDULE

- A. Pipe NPS 3 and Larger:
  - 1. Brass ball valve, two piece, SS Trim.
- B. Pipe NPS 2 ½" and Smaller:
  - 1. Brass ball valve, two piece, SS Trim. Provide with threaded connection upstream of backflow preventer
  - 2. Brass ball valve, two piece, SS Trim. Provide with Press connection downstream of backflow preventer.

END OF SECTION 220523.12

## SECTION 220529 - HANGERS AND SUPPORTS FOR PLUMBING PIPING AND EQUIPMENT

### PART 1 - GENERAL

#### 1.1 SUMMARY

##### A. Section Includes:

1. Metal pipe hangers and supports.
2. Fastener systems.

#### 1.2 ACTION SUBMITTALS

##### A. Product Data: For each type of product.

#### 1.3 INFORMATIONAL SUBMITTALS

##### A. Welding certificates.

### PART 2 - PRODUCTS

#### 2.1 METAL PIPE HANGERS AND SUPPORTS

##### A. Carbon-Steel Pipe Hangers and Supports:

1. Description: MSS SP-58, Types 1 through 58, factory-fabricated components.
2. Galvanized Metallic Coatings: Pre-galvanized, hot-dip galvanized.
3. Padded Hangers: Hanger with fiberglass or other pipe insulation pad or cushion to support bearing surface of piping.
4. Hanger Rods: Continuous-thread rod, nuts, and washer made of carbon steel.

##### B. Copper Pipe and Tube Hangers:

1. Description: MSS SP-58, Types 1 through 58, copper-coated-steel, factory-fabricated components.
2. Hanger Rods: Continuous-thread rod, nuts, and washer made of copper-coated steel.

#### 2.2 FASTENER SYSTEMS

##### A. Mechanical-Expansion Anchors: Insert-wedge-type anchors, for use in hardened portland cement concrete, with pull-out, tension, and shear capacities appropriate for supported loads and building materials where used.

1. Indoor Applications: Zinc-coated or stainless steel.
2. Outdoor Applications: Stainless steel.

## 2.3 MATERIALS

- A. Carbon Steel: ASTM A1011/A1011M.
- B. Structural Steel: ASTM A36/A36M carbon-steel plates, shapes, and bars; galvanized.
- C. Stainless Steel: ASTM A240/A240M.
- D. Grout: ASTM C1107/C1107M, factory-mixed and -packaged, dry, hydraulic-cement, nonshrink and nonmetallic grout; suitable for interior and exterior applications.
  1. Properties: Nonstaining, noncorrosive, and nongaseous.
  2. Design Mix: 5000-psi, 28-day compressive strength.

## PART 3 - EXECUTION

### 3.1 APPLICATION

- A. Strength of Support Assemblies: Where not indicated, select sizes of components, so strength will be adequate to carry present and future static loads within specified loading limits. Minimum static design load used for strength determination shall be weight of supported components plus 200 lb.

### 3.2 HANGER AND SUPPORT INSTALLATION

- A. Metal Pipe-Hanger Installation: Comply with MSS SP-58. Install hangers, supports, clamps, and attachments as required to properly support piping from building structure.
- B. Fastener System Installation:
  1. Install mechanical-expansion anchors in concrete, after concrete is placed and completely cured. Install fasteners according to manufacturer's written instructions.
- C. Install hangers and supports complete with necessary attachments, inserts, bolts, rods, nuts, washers, and other accessories.
- D. Equipment Support Installation: Fabricate from welded-structural-steel shapes.
- E. Install hangers and supports to allow controlled thermal and seismic movement of piping systems, to permit freedom of movement between pipe anchors, and to facilitate action of expansion joints, expansion loops, expansion bends, and similar units.
- F. Install lateral bracing with pipe hangers and supports to prevent swaying.

- G. Install building attachments within concrete slabs or attach to structural steel. Install additional attachments at concentrated loads, including valves, flanges, and strainers, NPS 2-1/2 and larger and at changes in direction of piping.
- H. Load Distribution: Install hangers and supports, so that piping live and dead loads and stresses from movement will not be transmitted to connected equipment.
- I. Pipe Slopes: Install hangers and supports to provide indicated pipe slopes and to not exceed maximum pipe deflections allowed by ASME B31.9 for building services piping.
- J. Insulated Piping:
  - 1. Attach clamps and spacers to piping.
    - a. Piping attachments: Clamp may project through insulation. Seal vapor barrier to pipe support.
  - 2. Install MSS SP-58, Type 40 protective shields on cold piping with vapor barrier. Shields shall span an arc of 180 degrees.
  - 3. Shield Dimensions for Pipe: Not less than the following:
    - a. NPS 1/4 to NPS 3-1/2: 12 inches long and 0.048 inch thick.
    - b. NPS 4 : 12 inches and 0.06 inch thick.

### 3.3 EQUIPMENT SUPPORTS

- A. Fabricate structural-steel stands to suspend equipment from structure overhead, from walls or floor.
- B. Grouting: Place grout under supports for equipment, and make bearing surface smooth.
- C. Provide lateral bracing, to prevent swaying, for equipment supports.

### 3.4 METAL FABRICATIONS

- A. Cut, drill, and fit miscellaneous metal fabrications for pipe and equipment hangers and supports.
- B. Fit exposed connections together to form hairline joints. Field weld connections that cannot be shop welded because of shipping size limitations.
- C. Field Welding: Comply with AWS D1.1/D1.1M procedures for shielded, metal arc welding; appearance and quality of welds; and methods used in correcting welding work.

### 3.5 ADJUSTING

- A. Hanger Adjustments: Adjust hangers to distribute loads equally on attachments and to achieve indicated slope of pipe.

- B. Trim excess length of continuous-thread hanger and support rods to 1 inch maximum.
  - 1. Grind ends of rods and supports to be smooth without rough edges or burrs.

### 3.6 PAINTING

- A. Touchup: Clean field welds and abraded, shop-painted areas. Paint exposed areas immediately after erecting hangers and supports. Use same materials as those used for shop painting.
  - 1. Apply paint by brush or spray to provide a minimum dry film thickness of 2.0 mils.
  - 2. Contain overspray. Do not apply spray paint within 50 feet of vehicles in the garage.
- B. Touchup: Cleaning and touchup painting of field welds, bolted connections, and abraded, shop-painted areas on miscellaneous metal are specified in [Section 099113 "Exterior Painting."] [Section 099123 "Interior Painting."] [Section 099600 "High-Performance Coatings."]
- C. Galvanized Surfaces: Clean welds, bolted connections, and abraded areas, and apply galvanizing-repair paint to comply with ASTM A780/A780M.

### 3.7 HANGER AND SUPPORT SCHEDULE

- A. Specific hanger and support requirements are in Sections specifying piping systems and equipment.
- B. Comply with MSS SP-58 for pipe-hanger selections and applications that are not specified in piping system Sections.
- C. Use hangers and supports with galvanized metallic coatings for piping and equipment that will not have field-applied finishes.
- D. Use nonmetallic coatings on attachments for electrolytic protection where attachments are in direct contact with copper tubing.
- E. Use carbon-steel pipe hangers and supports and attachments for general service applications.
- F. Use stainless-steel or galvanized pipe hangers and attachments for outdoor applications.
- G. Use copper-plated pipe hangers and copper clad attachments for copper piping and tubing.
- H. Horizontal-Piping Hangers and Supports: Unless otherwise indicated and except as specified in piping system Sections, install the following types:
  - 1. Adjustable, Steel Clevis Hangers (MSS Type 1): For suspension of non-insulated or insulated, stationary pipes NPS 1/2 to NPS 30.
  - 2. Carbon- or Alloy-Steel, Double-Bolt Pipe Clamps (MSS Type 3): For suspension of pipes NPS 3/4 to NPS 36, requiring clamp flexibility and up to 6 inches of insulation.
  - 3. Steel Pipe Clamps (MSS Type 4): For suspension of cold and hot pipes NPS 1/2 to NPS 24 if little or no insulation is required.

4. Pipe Hangers (MSS Type 5): For suspension of pipes NPS 1/2 to NPS 4, to allow off-center closure for hanger installation before pipe erection.
  5. Adjustable, Swivel Split- or Solid-Ring Hangers (MSS Type 6): For suspension of noninsulated, stationary pipes NPS 3/4 to NPS 8.
- I. Vertical-Piping Clamps: Unless otherwise indicated and except as specified in piping system Sections, install the following types:
1. Extension Pipe or Riser Clamps (MSS Type 8): For support of pipe risers NPS 3/4 to NPS 24 .
  2. Carbon- or Alloy-Steel Riser, Glvanized Clamps (MSS Type 42): For support of pipe risers NPS 3/4 to NPS 24 if longer ends are required for riser clamps.
- J. Hanger-Rod Attachments: Unless otherwise indicated and except as specified in piping system Sections, install the following types:
1. Galvanized Steel Turnbuckles (MSS Type 13): For adjustment of up to 6 inches for heavy loads.
  2. Galvanized Steel Clevises (MSS Type 14): For 120 to 450 deg F (49 to 232 deg C) piping installations.
  3. Galvanized Steel Weldless Eye Nuts (MSS Type 17): For 120 to 450 deg F (49 to 232 deg C) piping installations.
- K. Building Attachments: Unless otherwise indicated and except as specified in piping system Sections, install the following types:
1. Steel Concrete Inserts (MSS Type 18): For upper attachment to suspend pipe hangers from concrete ceiling.
- L. Use mechanical-expansion anchors instead of building attachments where required in concrete construction.

END OF SECTION 220529

## SECTION 220553 - IDENTIFICATION FOR PLUMBING PIPING AND EQUIPMENT

### PART 1 - GENERAL

#### 1.1 SUMMARY

A. Section Includes:

1. Pipe labels.

#### 1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated.

### PART 2 - PRODUCTS

#### 2.1 PIPE LABELS

- A. General Requirements for Manufactured Pipe Labels: Preprinted, color coded, with lettering indicating service and showing flow direction in accordance with ASME A13.1.
- B. Letter and Background Color: As indicated for specific application under Part 3.
- C. Self-Adhesive Pipe Labels: Printed plastic with contact-type, permanent-adhesive backing.
- D. Pipe Label Contents: Include identification of piping service using same designations or abbreviations as used on Drawings. Also include:
1. Arrows to indicate direction of flow on **main** distribution piping. Arrows may be either integral with label or applied separately.
  2. Lettering Size: Size letters in accordance with ASME A13.1 for piping. Lettering size to be at least  $\frac{3}{4}$ " for viewing distances of up to 72 inches and proportionately larger lettering for greater viewing distances.
- E. Painted Pipe Stencils.
1. Stencils to be painted onto pipe in outdoor locations using a commercial stenciling system.
  2. Paint to be Oil Base, Enamel Spray, semi-gloss finish. Rust-Oleum Protective Enamel or approved equal.

## PART 3 - EXECUTION

### 3.1 PREPARATION

- A. Clean piping and equipment surfaces of incompatible primers, paints, and encapsulants, as well as dirt, oil, grease, release agents, and other substances that could impair bond of identification devices.

### 3.2 INSTALLATION, GENERAL REQUIREMENTS

- A. Coordinate installation of identifying devices with completion of covering and painting of surfaces where devices are to be applied.
- B. Coordinate installation of identifying devices with locations of access panels and doors.
- C. Install identifying devices before installing acoustical ceilings and similar concealment.
- D. Locate identifying devices so that they are readily visible from the point of normal approach.

### 3.3 INSTALLATION OF EQUIPMENT LABELS, WARNING SIGNS, AND LABELS

- A. Permanently fasten labels on each item of plumbing equipment.
- B. Sign and Label Colors.
  - 1. White letters on an ANSI Z535.1 safety-green background.
- C. Locate equipment labels where accessible and visible.
- D. Arc-Flash Warning Signs: Provide arc-flash warning signs on electrical disconnects and other equipment where arc-flash hazard exists, as indicated on Drawings, and in accordance with requirements of OSHA and NFPA 70E, and other applicable codes and standards.

### 3.4 INSTALLATION OF PIPE LABELS

- A. Piping Color Coding: Painting of piping is specified in Section 099133 "Restoration Painting."
- B. Install pipe labels showing service and flow direction with permanent adhesive on pipes.
- C. Pipe-Label Locations: Locate pipe labels where piping is exposed or above accessible ceilings in finished spaces; machine rooms; accessible maintenance spaces such as shafts, tunnels, and plenums; and exterior exposed locations as follows:
  - 1. Within 3 ft. of each valve and control device.
  - 2. At access doors, manholes, and similar access points that permit view of concealed piping.
  - 3. Within 3 ft. of equipment items and other points of origination and termination.

4. Spaced at maximum intervals of 25 ft. along each run. Reduce intervals to 10 ft. in areas of congested piping and equipment.
- D. Do not apply plastic pipe labels or plastic tapes directly to bare pipes conveying fluids at temperatures of 125 deg F or higher. Where these pipes are to remain uninsulated, use a short section of insulation or use stenciled labels.
- E. Flow-Direction Flow Arrows: Use arrows, in compliance with ASME A13.1, to indicate direction of flow in pipes, including pipes where flow is allowed in both directions.
- F. Pipe-Label Color Schedule:
1. Domestic Cold-Water Piping: White letters on an ANSI Z535.1 safety-green background.
  2. Domestic Hot-Water Piping: White letters on an ANSI Z535.1 safety-green background.
  3. Domestic Hot-Water Return Piping White letters on an ANSI Z535.1 safety-green background.
  4. Storm Drainage Piping: White letters on a black background.

END OF SECTION 220553

## SECTION 220593 - TESTING, ADJUSTING, AND BALANCING FOR PLUMBING

### PART 1 - GENERAL

#### 1.1 SUMMARY

##### A. Section Includes:

1. TAB of domestic water system.
2. TAB of the Storm Drainage System
3. TAB of plumbing equipment:
  - a. Domestic Water Backflow Preventers.
4. Pipe-leakage test verification.

#### 1.2 DEFINITIONS

- ##### A. TAB: Testing, adjusting, and balancing.

#### 1.3 INFORMATIONAL SUBMITTALS

- ##### A. Qualification Data: Contractor shall submit certifications for technicians performing tests for plumbing equipment

#### 1.4 FIELD CONDITIONS

- ##### A. Full Owner Occupancy: Owner will occupy the site and existing building during entire TAB period. Cooperate with Owner during TAB operations to minimize conflicts with Owner's operations.

### PART 2 - PRODUCTS (Not Applicable)

### PART 3 - EXECUTION

#### 3.1 EXAMINATION

- ##### A. Examine the Contract Documents to become familiar with Project requirements and to discover conditions in systems designs that may preclude proper TAB of systems and equipment.
- ##### B. Examine approved submittals for plumbing systems and equipment.
1. Domestic Water Pipe pressure Tests.

2. Domestic water Backflow Preventers.
  3. Domestic Water Disinfection procedures.
- C. Examine plumbing equipment and verify that it has been installed with approved plans and installation instructions.
- D. Examine temporary and permanent strainers. Verify that temporary strainer screens used during system cleaning and flushing have been removed and permanent strainers are installed and clean.
- E. Report deficiencies discovered before and during performance of TAB procedures. Observe and record system reactions to changes in conditions. Record default set points if different from indicated values.

### 3.2 PREPARATION

- A. Prepare a TAB plan that includes the following:
1. Equipment and systems to be tested.
  2. Strategies and step-by-step procedures for balancing the systems.
  3. Instrumentation to be used.
  4. Sample forms with specific identification for all equipment.
- B. Perform system-readiness checks of plumbing systems and equipment to verify system readiness for TAB work. Include, at a minimum, the following:
1. Domestic Water System:
    - a. Verify leakage and pressure tests on water distribution systems have been satisfactorily completed in accordance with applicable code and authority having jurisdiction.
    - b. Piping is complete and all points of outlet are installed.
    - c. Water treatment is complete.
    - d. Systems are flushed, filled, and air purged.
    - e. Strainers are clean.
    - f. Shutoff valves are 100 percent open.
    - g. Gauges and instrumentation is installed directly.
    - h. Suitable access to backflow preventers is provided.
  2. Storm Drainage System:
    - a. Leakage and pressure tests on storm drainage systems have been completed in accordance with applicable code and authority having jurisdiction requirements.
    - b. Piping is complete.
    - c. Storm drainage system is completely operational.
    - d. Suitable pipe supports and painting is complete.

### 3.3 GENERAL PROCEDURES FOR TESTING

- A. Perform testing procedures on each system and equipment in accordance with the specifications for the project.
- B. Test backflow prevention devices in accordance with the requirements of the New York State Department of Health and the AHJ.
- C. Flush all systems and conduct pressure testing on all portions of the domestic water and storm drainage system.
- D. Submit backflow preventer test report to the Engineer for review.
- E. Test to be performed in feet of head for gravity drain systems, PSI for pressure systems.

### 3.4 GENERAL PROCEDURES FOR PLUMBING EQUIPMENT

- A. Test, adjust, and balance plumbing equipment indicated on Drawings, including, but not limited to, the following:
  - 1. Backflow Preventers.

### 3.5 PROCEDURES FOR DOMESTIC WATER SYSTEMS

- A. Prepare test reports for equipment. Obtain approved submittals and manufacturer-recommended testing procedures. Crosscheck the summation of required equipment flow rates with system design flow rates.
- B. Prepare schematic diagrams of systems' Record drawings piping layouts.

### 3.6 FINAL REPORT

- A. General: Prepare a certified written report; tabulate and divide the report into separate sections for tested systems and balanced systems.
  - 1. Include a certification sheet at the front of the report's binder, signed by the certified technician.
  - 2. Certify validity and accuracy of field data.
- B. Final Report Contents: In addition to certified field-report data, include the following:
  - 1. Drainage system head testing.
  - 2. Domestic water system pressure testing.
  - 3. Backflow preventer Field test report prepared by a certified test technician.
  - 4. System hangers and visual appearance.
- C. General Report Data: In addition to form titles and entries, include the following data:
  - 1. Title page.

2. Name and address of the TAB specialist.
3. Project name.
4. Project location.
5. Engineer's name and address.
6. Contractor's name and address.
7. Report date.
8. Signature of TAB supervisor who certifies the report.
9. Table of Contents with the total number of pages defined for each section of the report. Number each page in the report.
10. Summary of contents, including the following:
  - a. Indicated versus final performance.
  - b. Notable characteristics of systems.
  - c. Description of system operation sequence if it varies from the Contract Documents.
11. Nomenclature sheets for each item of equipment.
12. Notes to explain why certain final data in the body of reports vary from indicated values.

END OF SECTION 220593

## SECTION 220700 - PLUMBING INSULATION

### PART 1 - GENERAL

#### 1.1 SUMMARY

##### A. Section Includes:

1. Plumbing piping insulation, jackets and accessories.
2. Plumbing equipment insulation, jackets and accessories.

#### 1.2 SUBMITTALS

- ##### A. Product Data:
- Submit product description, thermal characteristics and list of materials and thickness for each service, and location.

#### 1.3 QUALITY ASSURANCE

- ##### A. Test pipe insulation for maximum flame spread index of 25 and maximum smoke developed index of not exceeding 50 in accordance with ASTM E84
- ##### B. Pipe insulation manufactured in accordance with ASTM C585 for inner and outer diameters.
- ##### C. Factory fabricated fitting covers manufactured in accordance with ASTM C450.
- ##### D. Perform Work in accordance with The Plumbing Code of New York State.

#### 1.4 DELIVERY, STORAGE, AND HANDLING

- ##### A. Accept materials on site in original factory packaging, labeled with manufacturer's identification, including product density and thickness.
- ##### B. Protect insulation from weather and construction traffic, dirt, water, chemical, and damage, by storing in original wrapping.

#### 1.5 ENVIRONMENTAL REQUIREMENTS

- ##### A. Install insulation only when ambient temperature and humidity conditions are within range recommended by manufacturer.
- ##### B. Maintain temperature before, during, and after installation for minimum period of 24 hours.

## 1.6 WARRANTY

- A. Furnish three year manufacturer warranty for man made fiber.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURER

- A. Glass Fiber and Mineral Fiber Insulation

- 1. Manufacturers:

- a. CertainTeed LLC; Saint-Gobain North America.
    - b. Johns Manville; a Berkshire Hathaway company.
    - c. Knauf Insulation.
    - d. Manson Insulation Inc.
    - e. Owens Corning.
    - f. Approved Equal.

- B. Closed Cell Elastomeric Insulation

- 1. Do not use any foam type insulation on this project.

### 2.2 PIPE INSULATION

- A. TYPE P-1: ASTM C547, molded glass fiber pipe insulation.

- 1. Thermal Conductivity: 0.23 at 75 degrees F.
  - 2. Operating Temperature Range: 0 to 850 degrees F.
  - 3. Vapor Barrier Jacket: ASTM C1136, Type I, factory applied reinforced foil kraft with self-sealing adhesive joints.
  - 4. Jacket Temperature Limit: minus 20 to 150 degrees F.

### 2.3 PIPE INSULATION JACKETS

- A. Vapor Retarder Jacket:

- 1. ASTM C921, white Kraft paper with glass fiber yarn, bonded to aluminized film.
  - 2. Water vapor transmission: ASTM E96/E96M; 0.02 perm-inches.

- B. PVC Plastic Pipe Jacket:

- 1. Product Description: ASTM D1785, One piece molded type fitting covers and sheet material, off-white color.
  - 2. Thickness: 30 mil.
  - 3. Connections: Brush on welding adhesive.

## 2.4 PIPE INSULATION ACCESSORIES

- A. Vapor Retarder Lap Adhesive: Compatible with insulation.
- B. Covering Adhesive Mastic: Compatible with insulation.
- C. Piping 1-1/2 inches diameter and smaller: Galvanized steel insulation protection shield. MSS SP-69, Type 40. Length: Based on pipe size and insulation thickness.
- D. Piping 2 inches diameter and larger: Wood insulation saddle, hard maple. Inserts length: not less than 6 inches long, matching thickness and contour of adjoining insulation.
- E. Insulating Cement: ASTM C195; hydraulic setting on mineral wool.
- F. Adhesives: Compatible with insulation.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Verify piping and equipment has been tested before applying insulation materials.
- B. Verify surfaces are clean and dry, with foreign material removed.

### 3.2 INSTALLATION - PIPING SYSTEMS

- A. Piping Exposed to View for indoor Spaces: Locate insulation and cover seams in least visible locations.
- B. Continue insulation through penetrations of building assemblies or portions of assemblies having fire resistance rating of one hour or less. Provide intumescent firestopping when continuing insulation through assembly. Finish at supports, protrusions, and interruptions.
- C. Inserts and Shields:
  - 1. Piping 1 1/2" Diameter and Smaller: Install galvanized steel shield between pipe hanger and insulation.
  - 2. Piping 2 inches Diameter and Larger: Install insert between support shield and piping and under finish jacket.
    - a. Insert Configuration: Minimum 6 inches long, of thickness and contour matching adjoining insulation; may be factory fabricated.
    - b. Insert Material: Compression resistant insulating material suitable for planned temperature range and service.
- D. Factory Insulated Equipment: Do not insulate.
- E. Exposed Equipment: Locate insulation and cover seams in least visible locations.

- F. Fill joints, cracks, seams, and depressions with bedding compound to form smooth surface. On cold equipment, use vapor retarder cement.
- G. Equipment Containing Fluids Below Ambient Temperature indoors:
  - 1. Insulate entire equipment surfaces.
  - 2. Apply insulation close to equipment by grooving, scoring, and beveling insulation. Fasten insulation to equipment with studs, pins, clips, adhesive, wires, or bands.
  - 3. Furnish factory-applied or field-applied vapor retarder jackets. Secure factory-applied jackets with pressure sensitive adhesive self-sealing longitudinal laps and butt strips. Secure field-applied jackets with outward clinch expanding staples and seal staple penetrations with vapor retarder mastic.
  - 4. Finish insulation at supports, protrusions, and interruptions.
- H. Equipment Located Exterior to Building: Do not install pipe insulation on piping on exterior of the building.

### 3.3 PIPE INSULATION SCHEDULE

- A. Domestic Water Pipe:
  - 1. All pipe sizes: ½" thick glass fiber pipe insulation with kraft vapor retardant jacket and PVC cover.
  - 2. Indoor and Outdoor Storm Drain Piping: Do not insulate.

END OF SECTION 220700

## SECTION 221116 - DOMESTIC WATER PIPING

### PART 1 - GENERAL

#### 1.1 SUMMARY

##### A. Section Includes:

1. Copper tube and fittings - domestic water, Non-potable Water. (NPW)
2. Galvanized-steel pipe and fittings – domestic water, Non-potable Water. (NPW)
3. Transition fittings - domestic water.
4. Dielectric fittings - domestic water.

- B. Non-potable water (NPW) Where the specification refers to domestic water, it also applies to Non-potable Water systems.

#### 1.2 ACTION SUBMITTALS

- A. Product data.

#### 1.3 INFORMATIONAL SUBMITTALS

- A. System purging and disinfecting activities report.
- B. Field quality-control reports.

#### 1.4 QUALITY ASSURANCE

- A. Installer Qualifications: Installers of pressure-sealed joints are to be certified by pressure-seal joint manufacturer as having been trained and qualified to join piping with pressure-seal pipe couplings and fittings.

### PART 2 - PRODUCTS

#### 2.1 PERFORMANCE REQUIREMENTS

- A. Domestic water piping, tubing, fittings, joints, and appurtenances intended to convey or dispense water for human consumption are to comply with the U.S. Safe Drinking Water Act, with requirements of authorities having jurisdiction, and with NSF 61 and NSF 372, or be certified in compliance with NSF 61 and NSF 372 by an ANSI-accredited third-party certification body, in that the weighted average lead content at wetted surfaces is less than or equal to 0.25 percent.

## 2.2 PIPING MATERIALS

- A. Potable-water piping and components are to comply with NSF 61, and NSF 372.

## 2.3 COPPER TUBE AND FITTINGS - DOMESTIC WATER, NON-POTABLE WATER

- A. Drawn-Temper Copper Tube: ASTM B88, Type L.
- B. Cast-Copper, Solder-Joint Fittings: ASME B16.18, pressure fittings. Do not use solder joints on pipe sizes greater than NPS 4.
- C. Wrought-Copper, Solder-Joint Fittings: ASME B16.22, pressure fittings. Do not use solder joints on pipe sizes greater than NPS 4.
- D. Bronze Flanges: ASME B16.24, Class 150, with solder-joint ends. Do not use solder joints on pipe sizes greater than NPS 4.
- E. Cast Copper Unions: MSS SP-123, cast-copper-alloy, hexagonal-stock body, with ball-and-socket, metal-to-metal seating surfaces and solder-joint or threaded ends.
- F. Wrought Copper Unions: ASME B16.22.
- G. Pressure-Seal-Joint Fittings, Copper or Bronze - Domestic Water:
  - 1. Housing: Copper.
  - 2. O-Rings and Pipe Stops: EPDM.
  - 3. Tools: Manufacturer's special tools.
  - 4. Minimum 200 psig working-pressure rating at 250 deg F.

## 2.4 PIPING JOINING MATERIALS - DOMESTIC WATER

- A. Pipe-Flange Gasket Materials:
  - 1. AWWA C110/A21.10, rubber, flat face, 1/8 inch thick or ASME B16.21, nonmetallic and asbestos free unless otherwise indicated.
  - 2. Full-face or ring type unless otherwise indicated.
- B. Metal, Pipe-Flange Bolts and Nuts: ASME B18.2.1, carbon steel unless otherwise indicated.
- C. Solder Filler Metals: ASTM B32, lead-free alloys.
- D. Flux: ASTM B813, water flushable.
- E. Brazing Filler Metals: AWS A5.8M/A5.8, BCuP Series, copper-phosphorus alloys for general-duty brazing unless otherwise indicated.

## 2.5 GALVANIZED-STEEL PIPE AND FITTINGS – DOMESTIC WATER,

### A. Galvanized-Steel Pipe:

1. ASTM A53/A53M, Type E , Grade B, Standard Weight.
2. Include ends matching joining method.

### B. Galvanized-Steel Pipe Nipples: ASTM A733, made of ASTM A53/A53M or ASTM A106/A106M, Standard Weight, seamless steel pipe with threaded ends.

### C. Galvanized, Gray-Iron Threaded Fittings: ASME B16.4, Class 125, standard pattern.

### D. Malleable-Iron Unions:

1. ASME B16.39, Class 150.
2. Hexagonal-stock body.
3. Ball-and-socket, metal-to-metal, bronze seating surface.
4. Threaded ends.

### E. Flanges: ASME B16.1, Class 125, cast iron.

## 2.6 TRANSITION FITTINGS - DOMESTIC WATER

### A. General Requirements:

1. Same size as pipes to be joined.
2. Pressure rating at least equal to pipes to be joined.
3. End connections compatible with pipes to be joined.

### B. Fitting-Type Transition Couplings: Manufactured piping coupling or specified piping system fitting.

### C. Sleeve-Type Transition Couplings - Domestic Water: AWWA C219.

## 2.7 DIELECTRIC FITTINGS - DOMESTIC WATER

### A. General Requirements: Assembly of copper alloy and ferrous materials with separating nonconductive insulating material. Include end connections compatible with pipes to be joined.

### B. Dielectric Unions - Domestic Water:

1. Standard: ASSE 1079.
2. Pressure Rating: 150 psig minimum at 180 deg F.
3. End Connections: Solder-joint copper alloy and threaded ferrous.

### C. Dielectric Flanges - Domestic Water:

1. Standard: ASSE 1079.
2. Factory-fabricated, bolted, companion-flange assembly.

3. Pressure Rating: 150 psig minimum at 180 deg. F.
4. End Connections: Solder-joint copper alloy and threaded ferrous; threaded solder-joint copper alloy and threaded ferrous.

D. Dielectric-Flange Insulating Kits - Domestic Water:

1. Nonconducting materials for field assembly of companion flanges.
2. Pressure Rating: 150 psig .
3. Gasket: Phenolic, Temperature Rating: 180 deg F.
4. Bolt Sleeves: Phenolic or polyethylene.
5. Washers: Phenolic with steel backing washers.

### PART 3 - EXECUTION

#### 3.1 PIPING APPLICATIONS

- A. Transition and special fittings with pressure ratings at least equal to piping rating may be used in applications below unless otherwise indicated.
- B. Flanges and unions may be used for aboveground piping joints unless otherwise indicated.
- C. Aboveground domestic water piping, NPS 4" and smaller is to be the following:
  1. Drawn-temper copper tube, ASTM B88, Type L cast or wrought copper, solder-joint fittings; and soldered joints.
  2. Drawn-temper copper tube, ASTM B88, Type L copper, pressure-seal-joint fittings; and pressure-sealed joints.

#### 3.2 INSTALLATION OF PIPING

- A. Drawing plans, schematics, and diagrams indicate general location and arrangement of domestic water piping. Indicated locations and arrangements are used to size pipe and calculate friction loss, expansion, and other design considerations. Install piping as indicated unless deviations to layout are approved through RFI's to Engineer.
- B. with ASTM A674 or AWWA C105/A21.5.
- C. Install domestic water piping level and plumb in heated spaces. Provide 1/8" per foot pitch down to low point drains in all other locations.
- D. Rough-in domestic water piping for water-meter installation in accordance with utility company's requirements.
- E. Install piping indicated to be exposed and piping in equipment rooms and service areas at right angles or parallel to building walls. Diagonal runs are prohibited unless specifically indicated otherwise.

- F. Install piping to permit valve servicing and in accordance with the State of New York, Dept. of Health, Cross Connection Control Guidelines.
- G. Install nipples, unions, special fittings, and valves with pressure ratings the same as or higher than the system pressure rating used in applications below unless otherwise indicated.
- H. Install piping free of sags and bends.
- I. Install fittings for changes in direction and branch connections.
- J. Install unions or flanges in copper tubing at final connection to each piece of equipment, machine, and specialty.
- K. Install sleeves for piping penetrations through walls.
- L. Install escutcheons for piping penetrations of walls, ceilings, and floors.."

### 3.3 JOINT CONSTRUCTION

- A. Ream ends of pipes and tubes and remove burrs. Bevel plain ends of steel pipe.
- B. Remove scale, slag, dirt, and debris from inside and outside of pipes, tubes, and fittings before assembly.
- C. Threaded Joints: Thread pipe with tapered pipe threads in accordance with ASME B1.20.1. Cut threads full and clean using sharp dies. Ream threaded pipe ends to remove burrs and restore full ID. Join pipe fittings and valves as follows:
  - 1. Apply appropriate tape or thread compound to external pipe threads.
  - 2. Damaged Threads: Do not use pipe or pipe fittings with threads that are corroded or damaged.
- D. Soldered Joints for Copper Tubing: Apply ASTM B813, water-flushable flux to end of tube. Join copper tube and fittings in accordance with ASTM B828 or CDA's "Copper Tube Handbook."
- E. Pressure-Sealed Joints for Copper Tubing: Join copper tube and pressure-seal fittings with tools and procedure recommended by pressure-seal-fitting manufacturer. Leave insertion marks on pipe after assembly.

### 3.4 INSTALLATION OF TRANSITION FITTINGS

- A. Install transition couplings at joints of dissimilar piping.
- B. Transition Fittings in Aboveground Domestic Water Piping NPS 2 and Smaller: Transitions to be made using fittings.

### 3.5 INSTALLATION OF DIELECTRIC FITTINGS

- A. Install dielectric fittings in piping at connections of dissimilar metal piping and tubing.
- B. Dielectric Fittings for NPS 2 and Smaller: Use dielectric couplings or unions.
- C. Dielectric Fittings for NPS 2-1/2 to NPS 4: Use dielectric flange kits.

### 3.6 INSTALLATION OF HANGERS AND SUPPORTS

- A. Comply with requirements for hangers, supports, and anchor devices in Section 220529 "Hangers and Supports for Plumbing Piping and Equipment."
- B. Install hangers for copper pipe, with maximum horizontal spacing and minimum rod diameters, to comply with MSS SP-58, locally enforced codes, and authorities having jurisdiction requirements, whichever are most stringent.
- C. Support horizontal piping within 12 inches of each fitting.
- D. Support vertical runs of copper pipe to comply with MSS SP-58, locally enforced codes, and authorities having jurisdiction requirements, whichever are most stringent.

### 3.7 PIPING CONNECTIONS

- A. Drawings indicate general arrangement of piping, fittings, and specialties.
- B. When installing piping adjacent to equipment and machines, allow space for service and maintenance.
- C. Connect domestic water piping to water-service riser. Use transition fitting to join dissimilar piping materials.
- D. Shut-off Valves: Provide shutoff valves as indicated on drawings.

### 3.8 IDENTIFICATION

- A. Identify system components. Comply with requirements for identification materials and installation in Section 220553 "Identification for Plumbing Piping and Equipment."

### 3.9 CLEANING

- A. Clean and disinfect potable domestic water piping as follows:
  - 1. Purge new piping and parts of existing piping that have been altered, extended, or repaired before using.

2. Use purging and disinfecting procedures prescribed by authorities having jurisdiction or as defined by the Plumbing Code of New York State. Alternate method if approved by the AHJ to be:
  - a. Flush piping system with clean, potable water until dirty water does not appear at outlets.
  - b. Fill and isolate system in accordance with either of the following:
    - 1) Fill system or part thereof with water/chlorine solution with at least 50 ppm of unscented chlorine. Isolate with valves and allow to stand for 24 hours.
    - 2) Fill system or part thereof with water/chlorine solution with at least 200 ppm of unscented chlorine. Isolate and allow to stand for four hours.
  - c. Flush system with clean, potable water until no chlorine is in water coming from system after the standing time.
  - d. Repeat procedures if biological examination shows contamination.
  - e. Submit water samples in sterile bottles to authorities having jurisdiction.
- B. Prepare and submit reports of purging and disinfecting activities. Include copies of water-sample approvals from authorities having jurisdiction.
- C. Clean interior of domestic water piping system. Remove dirt and debris as work progresses.

### 3.10 ADJUSTING

- A. Perform the following adjustments before operation:
  1. Close drain valves, hydrants, and hose bibbs.
  2. Open shutoff valves to fully open position.

### 3.11 FIELD QUALITY CONTROL

- A. Tests and Inspections:
  1. Piping Inspections:
    - a. Do not enclose, cover, or put piping into operation until it has been inspected and approved by authorities having jurisdiction.
    - b. During installation, notify authorities having jurisdiction at least one day before inspection must be made. Perform tests specified below in presence of authorities having jurisdiction:
      - 1) Roughing-in Inspection: Arrange for inspection of piping before concealing or closing in after installation and before setting fixtures.
      - 2) Final Inspection: Arrange for authorities having jurisdiction to observe tests specified in "Piping Tests" Subparagraph and to ensure compliance with requirements.

- c. Reinspection: If authorities having jurisdiction find that piping will not pass tests or inspections, make required corrections and arrange for reinspection.
  - d. Reports: Prepare inspection reports and have them signed by authorities having jurisdiction.
2. Piping Tests:
- a. Fill domestic water piping. Check components to determine that they are not air bound and that piping is full of water.
  - b. Test for leaks and defects in new piping and parts of existing piping that have been altered, extended, or repaired. If testing is performed in segments, submit a separate report for each test, complete with diagram of portion of piping tested.
  - c. Leave new, altered, extended, or replaced domestic water piping uncovered and unconcealed until it has been tested and approved. Expose work that was covered or concealed before it was tested.
  - d. Cap and subject piping to static water pressure of 100 psig. Isolate any devices that are not rated for this pressure. Isolate test source and allow it to stand for four hours. Leaks or loss of pressure during test, constitute defects that must be repaired.
  - e. Prepare reports for tests and for corrective action required.
- B. Domestic water piping will be considered defective if it does not pass tests and inspections.
- C. Prepare test and inspection reports.

### 3.12 PIPE SCHEDULE

- A. Domestic water piping:
1. Upstream of backflow preventer to be lead free, ASTM B88, Type -L, hard drawn copper with cast fittings and solder joint.
  2. Downstream of backflow preventer to be lead free, ASTM B88, Type – L, hard drawn copper with cast or wrought copper fittings, solder joint.
  3. Press fittings may be substituted downstream of the backflow preventer.

END OF SECTION 221116

## SECTION 221119 - DOMESTIC WATER PIPING SPECIALTIES

### PART 1 - GENERAL

#### 1.1 SUMMARY

A. Section Includes:

1. Backflow preventers.
2. Thermal Expansion Tanks.

B. Related Requirements:

1. Section 221116 "Domestic Water Piping" for water meters.

C. Non-potable water (NPW) Where the specification refers to domestic water specialties, it also applies to Non-potable Water systems.

#### 1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

#### 1.3 INFORMATIONAL SUBMITTALS

A. Test and inspection reports.

#### 1.4 GENERAL REQUIREMENTS FOR PIPING SPECIALTIES

- A. Domestic water piping specialties intended to convey or dispense water for human consumption are to comply with the SDWA, requirements of authorities having jurisdiction, and NSF 61 and NSF 372, or to be certified in compliance with NSF 61 and NSF 372 by an American National Standards Institute (ANSI)-accredited third-party certification body that the weighted average lead content at wetted surfaces is less than or equal to 0.25 percent.

#### 1.5 PERFORMANCE REQUIREMENTS

- A. Minimum Working Pressure for Domestic Water Piping Specialties: 150 psig unless otherwise indicated.

#### 1.6 BACKFLOW PREVENTERS

A. Reduced-Pressure-Principle Backflow Preventers:

1. Standard: ASSE 1013.

2. Operation: Continuous-pressure applications.
3. Pressure Loss: 12 psig maximum, through middle third of flow range.
4. Size: As indicated on drawings.
5. Body: Bronze, cast silicon copper alloy or stainless steel for NPS 2 and smaller; ductile or cast iron with interior lining that complies with AWWA C550 or that is FDA approved or stainless steel for NPS 2-1/2 and larger.
6. End Connections: Threaded for NPS 2 (DN 50) and smaller; flanged NPS 2-1/2 and larger.
7. Configuration: Designed for horizontal, straight-through flow.
8. Accessories:
  - a. Valves NPS 3 and Smaller: Ball type with threaded ends on inlet and outlet.
  - b. Air-Gap Fitting: ASME A112.1.2, matching backflow-preventer connection.

## 1.7 THERMAL EXPANSION TANKS

### A. Thermal Expansion Tanks:

1. Standard: ANSI/ NSF-61.
2. Type: FDA listed Metal tank, interior coating and Butyl Diaphragm.
3. Size: Per Drawings.

## PART 2 - EXECUTION

### 2.1 INSTALLATION OF PIPING SPECIALTIES

- A. Backflow Preventers: Install in each water supply to mechanical equipment and systems and to other equipment and water systems that may be sources of contamination. Comply with authorities having jurisdiction.
- B. Install backflow preventers in accordance with Approved drawings by the State of New York Department of Health.
  1. Locate backflow preventers in horizontal position and with the required clearances.
  2. Install drain for RPZ type backflow preventers with atmospheric-vent drain connection with air-gap fitting, fixed air-gap fitting, or equivalent positive pipe separation of at least two pipe diameters in drain piping and pipe-to-floor drain. Locate air-gap device attached to or under backflow preventer. Simple air breaks are unacceptable for this application.
  3. Do not install bypass piping around backflow preventers.
- C. Y-Pattern Strainers: For water, install on supply side of each backflow preventer.
- D. Thermal Expansion Tank: Install tanks on water piping in locations and sizes provided.
- E. Install Trap-Seal device in atmospheric drain to block air flow from the building exterior.

## 2.2 PIPING CONNECTIONS

- A. Drawings indicate general arrangement of piping, fittings, and specialties.
- B. When installing piping specialties adjacent to equipment and machines, allow space for service and maintenance.

## 2.3 IDENTIFICATION

- A. Plastic Labels for Equipment: Install engraved plastic-laminate equipment nameplate or sign on or near each of the following:
  - 1. Backflow preventers.
    - a. Identify which service each backflow preventer serves.

## 2.4 FIELD QUALITY CONTROL

- A. Perform the following tests and inspections[ with the assistance of a factory-authorized service representative].
  - 1. Test each reduced-pressure-principle backflow preventer assembly according to authorities having jurisdiction and the device's reference standard.
  - 2. Technician is to be certified for testing by the State.
  - 3. Submit a DOH Form 1013 for the each backflow preventer to the Engineer for review and sign off.
  - 4. Leak Test: After installation, charge system and test for leaks. Repair leaks and retest until no leaks exist.
- B. Domestic water piping specialties will be considered defective if they do not pass tests and inspections.
- C. Prepare test and inspection reports.

END OF SECTION 221119

## SECTION 221414 - STORM DRAINAGE PIPING

### PART 1 - GENERAL

#### 1.1 SUMMARY

A. Section Includes:

1. Hub-and-spigot, cast-iron soil pipe and fittings.
2. Specialty pipe fittings.

#### 1.2 ACTION SUBMITTALS

A. Product Data:

1. Hub-and-spigot, cast-iron soil pipe and fittings.
2. Specialty pipe fittings.

#### 1.3 QUALITY ASSURANCE

- A. Provide materials bearing label, stamp, or other markings of specified testing agency.

#### 1.4 WARRANTY

- A. Listed manufacturers to provide labeling and warranty of their respective products

### PART 2 - PRODUCTS

#### 2.1 PERFORMANCE REQUIREMENTS

- A. Components and installation are to be capable of withstanding the following minimum working pressure unless otherwise indicated:
1. Storm Drainage Piping: 20-foot head of water.

#### 2.2 PIPING MATERIALS

- A. Piping materials to bear label, stamp, or other markings of specified testing agency.
- B. Comply with requirements in "Piping Schedule" Article for applications of pipe, tube, fitting materials, and joining methods for specific services, service locations, and pipe sizes.

## 2.3 HUB-AND-SPIGOT, CAST-IRON SOIL PIPE AND FITTINGS

### A. Pipe and Fittings:

1. Marked with CISPI collective trademark.
2. Standard: ASTM A74.
3. Class: Extra Heavy cast iron to match existing. (Verify existing pipe system is Extra Heavy)
4. Fittings to be long sweep bends suitable for pipe lining.
5. Cast Iron threaded cleanout Plugs.

### B. Gaskets: ASTM C564, rubber.

### C. Heavy-Duty, Repair Couplings:

1. Standard: ASTM A536, ANSI B18.2.2.
2. Description: 304 stainless steel shield, epoxy coated ductile iron lugs with stainless steel bolts ands ASTM C564, buna rubber sleeve.

## PART 3 - EXECUTION

### 3.1 INSTALLATION OF PIPING

- A. Drawing plans, schematics, and diagrams indicate general location and arrangement of piping systems.
- B. Install piping as indicated unless deviations from layout are approved on coordination drawings.
- C. Install piping indicated to be exposed and piping in equipment rooms and service areas at right angles or parallel to building walls. Diagonal runs are prohibited unless specifically indicated.
- D. Install piping to specified slopes.
  1. Pipe 2" and smaller to be installed at a minimum of 1/4" per foot.
  2. Pipe 3" and larger to be installed at a minimum of 1/8" per foot slope.
- E. Install piping free of sags and bends.
- F. Install fittings for changes in direction and branch connections.
- G. Make changes in direction for piping using appropriate branches, bends, and long-sweep bends.
  1. Do not change direction of flow more than 90 degrees.
  2. Use proper size of standard increasers and reducers if pipes of different sizes are connected.
    - a. Reducing size of drainage piping in direction of flow is prohibited.
  3. Install true to grades and alignment indicated, with unbroken continuity of invert. Place hub ends of piping upstream.

4. Install required gaskets according to manufacturer's written instructions for use of lubricants, cements, and other installation requirements.
  5. Maintain swab in piping and pull past each joint as completed.
- H. Install cast-iron soil piping in accordance with CISPI's "Cast Iron Soil Pipe and Fittings Handbook," Ch IV, "Installation of Cast Iron Soil Pipe and Fittings."
- I. Plumbing Specialties:
1. Install cleanouts in storm drainage gravity-flow piping in accessible locations.
    - a. Install cleanout fitting with closure plug inside the building in storm drainage piping.
  2. Install drains in storm drainage gravity-flow piping.
- J. Do not enclose, cover, or put piping into operation until it is inspected and approved by authorities having jurisdiction.
- K. Install sleeves for piping penetrations of walls, ceilings, and floors.
1. Comply with requirements for sleeves specified in Section 220517 "Sleeves and Sleeve Seals for Plumbing Piping."

### 3.2 JOINT CONSTRUCTION

- A. Hub-and-Spigot, Cast-Iron Soil Piping Gasketed Joints: Join in accordance with CISPI's "Cast Iron Soil Pipe and Fittings Handbook" for compression joints.
- B. Joint Restraints and Sway Bracing:
1. Provide joint restraints and sway bracing for storm drainage piping joints to comply with the following conditions:
    - a. Provide axial restraint for pipe and fittings 5 inches and larger, upstream and downstream of all changes in direction, branches, and changes in diameter greater than two pipe sizes.
    - b. Provide rigid sway bracing for pipe and fittings [ inches and larger, upstream and downstream of all changes in direction 45 degrees and greater.

### 3.3 INSTALLATION OF SPECIALTY PIPE FITTINGS

- A. Transition Couplings:
1. Install transition couplings at joints of piping with small differences in ODs.
  2. In Drainage Piping: Shielded, non-pressure transition couplings suitable for HX Cast Iron Pipe.

### 3.4 INSTALLATION OF HANGERS AND SUPPORTS

- A. Comply with requirements for hangers, supports, and anchor devices specified in Section 220529 "Hangers and Supports for Plumbing Piping and Equipment."
  - 1. Install carbon-steel pipe hangers for horizontal piping in noncorrosive environments.
  - 2. Vertical Piping: MSS Type 8 or Type 42, clamps.
  - 3. Install individual, straight, horizontal piping runs:
    - a. 100 Feet and Less: MSS Type 1, adjustable, steel clevis hangers.
    - b. Longer Than 100 Feet: MSS Type 43, adjustable roller hangers.
- B. Install hangers for cast-iron piping with maximum horizontal spacing and minimum rod diameters, to comply with MSS SP-58, locally enforced codes, and authorities having jurisdiction requirements, whichever are most stringent.
- C. Support horizontal piping and tubing within 12 inches of each fitting and coupling.
- D. Support vertical cast-iron piping to comply with MSS SP-58, locally enforced codes, and authorities having jurisdiction requirements, whichever are most stringent, but as a minimum at base and at each floor.

### 3.5 CONNECTIONS

- A. Drawings indicate general arrangement of piping, fittings, and specialties.
- B. Connect interior storm drainage piping to exterior storm drainage piping. Use transition fitting to join dissimilar piping materials.
- C. Connect storm drainage piping to roof drains and storm drainage specialties.
  - 1. Install test tees (wall cleanouts) in conductors near floor, and floor cleanouts with cover flush with floor.
- D. Where installing piping adjacent to equipment, allow space for service and maintenance of equipment.

### 3.6 IDENTIFICATION

- A. Identify exposed storm drainage piping.
- B. Comply with requirements for identification specified in Section 220553 "Identification for Plumbing Piping and Equipment."

### 3.7 FIELD QUALITY CONTROL

- A. During installation, notify authorities having jurisdiction at least 24 hours before inspection must be made. Perform tests specified below in presence of authorities having jurisdiction.

1. Roughing-in Inspection: Arrange for inspection of piping before concealing or closing-in after roughing-in.
  2. Final Inspection: Arrange for final inspection by authorities having jurisdiction to observe tests specified below and to ensure compliance with requirements.
- B. Reinspection: If authorities having jurisdiction find that piping will not pass test or inspection, make required corrections and arrange for reinspection.
- C. Reports: Prepare inspection reports and have them signed by authorities having jurisdiction.
- D. Test storm drainage piping in accordance with procedures of authorities having jurisdiction or, in absence of published procedures, as follows:
1. Test for leaks and defects in new piping and parts of existing piping that have been altered, extended, or repaired.
    - a. If testing is performed in segments, submit separate report for each test, complete with diagram of portion of piping tested.
  2. Leave uncovered and unconcealed new, altered, extended, or replaced storm drainage piping until it has been tested and approved.
    - a. Expose work that was covered or concealed before it was tested.
  3. Test Procedure:
    - a. Test storm drainage piping[, except outside leaders,] on completion of roughing-in.
    - b. Close openings in piping system and fill with water to point of overflow, but not less than 20-foot head of water (30 kPa).
    - c. From 15 minutes before inspection starts until completion of inspection, water level must not drop.
    - d. Inspect joints for leaks.
    - e. Coordinate with pipe lining work in existing storm drain system.
  4. Repair leaks and defects with new materials and retest piping, or portion thereof, until satisfactory results are obtained.
  5. Prepare reports for tests and required corrective action.
- 3.8 CLEANING
- A. Clean interior of piping. Remove dirt and debris as work progresses.
- 3.9 PROTECTION
- A. Protect piping and drains during remainder of construction period to avoid clogging with dirt and debris and to prevent damage from traffic and construction work.
  - B. Place plugs in ends of uncompleted piping at end of day and when work stops.

- C. Repair damage to adjacent materials caused by storm drainage piping installation.

### 3.10 PIPING SCHEDULE

- A. Aboveground storm drainage piping NPS 6 to be the following:
  - 1. Extra Heavy, cast-iron soil pipe and fittings; gaskets; and gasketed joints.

END OF SECTION 221414

## SECTION 221423 - STORM DRAINAGE PIPING SPECIALTIES

### PART 1 - GENERAL

#### 1.1 SUMMARY

##### A. Section Includes:

1. General-purpose roof drains.
2. Deck drains
3. Cleanouts.
4. Trench drains.

#### 1.2 ACTION SUBMITTALS

##### A. Product Data:

1. General-purpose roof drains.
2. Deck drains.
3. Cleanouts.

#### 1.3 QUALITY ASSURANCE

- ##### A. Provide drainage piping specialties are to bear label, stamp, or other markings of specified testing agency.

### PART 2 - PRODUCTS

#### 2.1 GENERAL-PURPOSE ROOF DRAINS

##### A. Cast-Iron Roof Drains.

1. Cast-Iron, Large-Sump, General-Purpose Roof Drains:
  - a. Standard: ASME A112.6.4.
  - b. Body Material: Cast iron.
  - c. Dimension of Body: Nominal 14-to 16-inch diameter.
  - d. Dome Material: Cast iron.
  - e. Combination flashing ring and gravel stop.
  - f. Outlet: Bottom.
  - g. Outlet Type: Inside caulk.
  - h. Options:
    - 1) Vandal-proof dome.

## 2.2 DECK DRAINS

### A. Cast-Iron Deck Drains.

1. Cast-Iron, Heavy Duty, Deck Drains:
  - a. Standard: ASME A112.6.4.
  - b. Body Material: Cast iron.
  - c. Overall Dimension of Frame and Grate: Nominal 14 inches.
  - d. Top-Loading Classification: Heavy Duty.
  - e. Grate Material: Cast iron.
  - f. Flange: wide flange with stiffeners.
  - g. Outlet: Bottom.
  - h. Options:
    - 1) Vandal-proof frame and grate.

## 2.3 MISCELLANEOUS STORM DRAINAGE PIPING SPECIALTIES

### A. Replacement Gratings:

1. Description: Manufactured or fabricated. gray-iron casting, for attaching to existing drain body.
2. Vandal proof bolted connection to body.

### B. Replacement sediment Buckets:

1. Description: Manufactured or fabricated to replace existing.

## 2.4 CLEANOUTS

### A. Cast-Iron Cleanouts.

1. Cast-Iron Exposed Cleanouts:
  - a. Standard: ASME A112.36.2M.
  - b. Size: Same as connected branch.
  - c. Body Material: Hub-and-spigot, cast-iron soil pipe as required to match connected piping.
  - d. Closure: Raised-head cast-iron plug.
  - e. Closure Plug Size: Same as, or not more than, one size smaller than cleanout size.

## PART 3 - EXECUTION

### 3.1 INSTALLATION

- A. Install floor and roof drains in accordance with roof membrane manufacturer's written installation instructions at low points of roof areas.

1. Install flashing collar or flange of roof drain to maintain integrity of waterproof membranes where penetrated.
  2. Install expansion joints, if indicated, in roof drain outlets.
  3. Position roof drains for easy access and maintenance.
  4. Refer to architectural drawings for mounting floor drains in slabs.
- B. Coordination with Other Work
1. Coordinate plumbing work with demolition, concrete, reinforcement, and waterproofing work being performed by other trades.
  2. Support new drains and piping in a manner that does not interfere with work being performed by other trades.
- C. Locating and Core drilling of structural decks.
1. Locate existing structural reinforcement in decks by using ground penetrating radar or similar technology.
  2. Mark locations and avoid coring through reinforcement
  3. The existing structure contains post-tensioning reinforcement. Use extreme caution to avoid damaging post-tensioning tendons.
  4. Coordinate with Structural Engineer to determine clearance requirements for cored holes.
  5. Refer to Structural Restoration drawings for installation details for floor drains.
- D. Install cleanouts in aboveground piping and building drain piping in accordance with the following instructions unless otherwise indicated:
1. Use cleanouts the same size as drainage piping up to NPS 6.
  2. Locate cleanouts at each change in direction of piping greater than 45 degrees.
  3. Locate cleanouts at minimum intervals of 100 ft. for piping NPS 6 and smaller.
  4. Locate cleanouts at base of each vertical storm piping conductor.
  5. Mount cleanouts for risers using 45 deg. Wye fitting to allow for pipe lining operations.
- E. Install test plugs as necessary to conduct 20 foot head test.

### 3.2 CONNECTIONS

- A. Comply with requirements for piping specified in Section 221414 "Storm Drainage Piping." Drawings indicate general arrangement of piping, fittings, and specialties.

### 3.3 INSTALLATION OF FLASHING

- A. Fabricate flashing from single piece of metal unless large pans, sumps, or other drainage shapes are required.
- B. Install sheet flashing on pipes, sleeves, and specialties passing through or embedded in floors and roofs with waterproof membrane.
- C. Set flashing on floors and roofs in solid coating of bituminous cement.
- D. Refer to architectural drawings for mounting floor drains in slabs.

- E. Secure flashing into sleeve and specialty clamping ring or device.

#### 3.4 CLEANING

- A. Clean piping specialties during installation and remove dirt and debris as work progresses.

#### 3.5 PROTECTION

- A. Protect piping specialties during remainder of construction period to avoid clogging with dirt or debris and to prevent damage from traffic and construction work.
- B. Place plugs in ends of uncompleted piping at end of each day and when work stops.

END OF SECTION 221423

## SECTION 260519 - LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

##### A. Section Includes:

1. Copper building wire rated 600 V or less.
2. Fire-alarm wire and cable.
3. Connectors, splices, and terminations rated 600 V and less.

##### B. Related Requirements:

1. Section 260523 "Control-Voltage Electrical Power Cables" for control systems communications cables and Classes 1, 2, and 3 control cables.
2. Section 271313 "Communications Copper Backbone Cabling" for twisted pair cabling used for data circuits.
3. Section 271513 "Communications Copper Horizontal Cabling" for twisted pair cabling used for data circuits.

#### 1.3 DEFINITIONS

- A. RoHS: Restriction of Hazardous Substances.

#### 1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.

#### 1.5 INFORMATIONAL SUBMITTALS

- A. Field quality-control reports.

### PART 2 - PRODUCTS

#### 2.1 COPPER BUILDING WIRE

- A. Description: Flexible, insulated and uninsulated, drawn copper current-carrying conductor with an overall insulation layer or jacket, or both, rated 600 V or less.

- B. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
  - 1. Belden Inc.
  - 2. Cerro Wire LLC.
  - 3. General Cable Technologies Corporation.
  - 4. Okonite Company (The).
  - 5. Southwire Company.
- C. Standards:
  - 1. Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and use.
  - 2. RoHS compliant.
  - 3. Conductor and Cable Marking: Comply with wire and cable marking according to UL's "Wire and Cable Marking and Application Guide."
- D. Conductors: Copper, complying with ASTM B 3 for bare annealed copper and with ASTM B 8 for stranded conductors.
- E. Conductor Insulation:
  - 1. Type USE-2 and Type SE: Comply with UL 854.
  - 2. Type THHN and Type THWN-2: Comply with UL 83.
  - 3. Type THW and Type THW-2: Comply with NEMA WC-70/ICEA S-95-658 and UL 83.

## 2.2 FIRE-ALARM WIRE AND CABLE

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
  - 1. Allied Wire & Cable Inc.
  - 2. West Penn Wire.
- B. General Wire and Cable Requirements: NRTL listed and labeled as complying with NFPA 70, Article 760.
- C. Signaling Line Circuits: Twisted, shielded pair, not less than No. 16 AWG.
  - 1. Circuit Integrity Cable: Twisted shielded pair, NFPA 70, Article 760, Classification CI, for power-limited fire-alarm signal service Type FPL. NRTL listed and labeled as complying with UL 1424 and UL 2196 for a two-hour rating.
- D. Non-Power-Limited Circuits: Solid-copper conductors with 600-V rated, 75 deg C, color-coded insulation, and complying with requirements in UL 2196 for a two-hour rating.
  - 1. Low-Voltage Circuits: No. 16 AWG, minimum, in pathway.
  - 2. Line-Voltage Circuits: No. 12 AWG, minimum, in pathway.
  - 3. Multiconductor Armored Cable: NFPA 70, Type MC, copper conductors, Type TFN/THHN conductor insulation, copper drain wire, copper armor with outer

jacket with red identifier stripe, NTRL listed for fire-alarm and cable tray installation, plenum rated.

## 2.3 CONNECTORS AND SPLICES

- A. Description: Factory-fabricated connectors, splices, and lugs of size, ampacity rating, material, type, and class for application and service indicated; listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and use.
- B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - 1. 3M Electrical Products.
  - 2. Gardner Bender.
  - 3. Hubbell Power Systems, Inc.
  - 4. ILSCO.
  - 5. O-Z/Gedney; a brand of Emerson Industrial Automation.
  - 6. Thomas & Betts Corporation; A Member of the ABB Group.
- C. Jacketed Cable Connectors: For steel and aluminum jacketed cables, zinc die-cast with set screws, designed to connect conductors specified in this Section.
- D. Lugs: One piece, seamless, designed to terminate conductors specified in this Section.
  - 1. Material: Copper.
  - 2. Type: Two hole with standard barrels.
  - 3. Termination: Compression.

## PART 3 - EXECUTION

### 3.1 CONDUCTOR MATERIAL APPLICATIONS

- A. Feeders: Copper; solid for No. 10 AWG and smaller; stranded for No. 8 AWG and larger.
- B. Feeders: Copper for feeders smaller than No. 4 AWG; copper or aluminum for feeders No. 4 AWG and larger. Conductors shall be solid for No. 10 AWG and smaller; stranded for No. 8 AWG and larger.
- C. Branch Circuits: Copper. Solid for No. 10 AWG and smaller; stranded for No. 8 AWG and larger.
- D. Branch Circuits: Copper. Solid for No. 12 AWG and smaller; stranded for No. 10 AWG and larger.
- E. Power-Limited Fire Alarm and Control: Solid for No. 12 AWG and smaller.

3.2 CONDUCTOR INSULATION AND MULTICONDUCTOR CABLE APPLICATIONS AND WIRING METHODS

- A. Service Entrance: Type THHN/THWN-2, single conductors in raceway Type XHHW-2, single conductors in raceway.
- B. Exposed Feeders: Type THHN/THWN-2, single conductors in raceway.
- C. Feeders Concealed in Ceilings, Walls, Partitions, and Crawlspace: Type THHN/THWN-2, single conductors in raceway.
- D. Exposed Branch Circuits, Including in Crawlspace: Type THHN/THWN-2, single conductors in raceway.
- E. Branch Circuits Concealed in Ceilings, Walls, and Partitions: Type THHN/THWN-2, single conductors in raceway Metal-clad cable, Type MC, limited to 10' in length.

3.3 INSTALLATION OF CONDUCTORS AND CABLES

- A. Conceal cables in finished walls, ceilings, and floors unless otherwise indicated.
- B. Complete raceway installation between conductor and cable termination points according to Section 260533 "Raceways and Boxes for Electrical Systems" prior to pulling conductors and cables.
- C. Use manufacturer-approved pulling compound or lubricant where necessary; compound used must not deteriorate conductor or insulation. Do not exceed manufacturer's recommended maximum pulling tensions and sidewall pressure values.
- D. Use pulling means, including fish tape, cable, rope, and basket-weave wire/cable grips, that will not damage cables or raceway.
- E. Install exposed cables parallel and perpendicular to surfaces of exposed structural members, and follow surface contours where possible.
- F. Support cables according to Section 260529 "Hangers and Supports for Electrical Systems."

3.4 INSTALLATION OF FIRE-ALARM WIRING

- A. Comply with NECA 1 and NFPA 72.
- B. Wiring Method: Install wiring in metal pathway according to Section 270528.29 "Hangers and Supports for Communications Systems."
  - 1. Install plenum cable in environmental airspaces, including plenum ceilings.
  - 2. Fire-alarm circuits and equipment control wiring associated with fire-alarm system shall be installed in a dedicated pathway system. This system shall not be used for any other wire or cable.
- C. Wiring Method:

1. Cables and pathways used for fire-alarm circuits, and equipment control wiring associated with fire-alarm system, may not contain any other wire or cable.
  2. Fire-Rated Cables: Use of two-hour, fire-rated fire-alarm cables, NFPA 70, Types MI and CI, is not permitted.
  3. Signaling Line Circuits: Power-limited fire-alarm cables shall not be installed in the same cable or pathway as signaling line circuits.
- D. Wiring within Enclosures: Separate power-limited and non-power-limited conductors as recommended by manufacturer. Install conductors parallel with or at right angles to sides and back of the enclosure. Bundle, lace, and train conductors to terminal points with no excess. Connect conductors that are terminated, spliced, or interrupted in any enclosure associated with fire-alarm system to terminal blocks. Mark each terminal according to system's wiring diagrams. Make all connections with approved crimp-on terminal spade lugs, pressure-type terminal blocks, or plug connectors.
- E. Cable Taps: Use numbered terminal strips in junction, pull, and outlet boxes; cabinets; or equipment enclosures where circuit connections are made.
- F. Color-Coding: Color-code fire-alarm conductors differently from the normal building power wiring. Use one color-code for alarm circuit wiring and another for supervisory circuits. Color-code audible alarm-indicating circuits differently from alarm-initiating circuits. Use different colors for visible alarm-indicating devices. Paint fire-alarm system junction boxes and covers red.
- G. Risers: Install at least two vertical cable risers to serve the fire-alarm system. Separate risers in close proximity to each other with a minimum one-hour-rated wall, so the loss of one riser does not prevent receipt or transmission of signals from other floors or zones.

### 3.5 CONNECTIONS

- A. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A-486B.
- B. Make splices, terminations, and taps that are compatible with conductor material and that possess equivalent or better mechanical strength and insulation ratings than unspliced conductors.
  1. Use oxide inhibitor in each splice, termination, and tap for aluminum conductors.
- C. Wiring at Outlets: Install conductor at each outlet, with at least 6 inches of slack.
- D. Comply with requirements in Section 283111 "Digital, Addressable Fire-Alarm System" for connecting, terminating, and identifying wires and cables.

### 3.6 IDENTIFICATION

- A. Identify and color-code conductors and cables according to Section 260553 "Identification for Electrical Systems."

- B. Identify each spare conductor at each end with identity number and location of other end of conductor, and identify as spare conductor.

### 3.7 SLEEVE AND SLEEVE-SEAL INSTALLATION FOR ELECTRICAL PENETRATIONS

- A. Install sleeves and sleeve seals at penetrations of exterior floor and wall assemblies. Comply with requirements in Section 260544 "Sleeves and Sleeve Seals for Electrical Raceways and Cabling."

### 3.8 FIRESTOPPING

- A. Apply firestopping to electrical penetrations of fire-rated floor and wall assemblies to restore original fire-resistance rating of assembly according to Section 078413 "Penetration Firestopping."

### 3.9 FIELD QUALITY CONTROL

- A. Perform tests and inspections.
  - 1. After installing conductors and cables and before electrical circuitry has been energized, test service entrance and feeder conductors for compliance with requirements.
  - 2. After installing conductors and cables and before electrical circuitry has been energized, test service entrance and feeder conductors feeding the following critical equipment and services for compliance with requirements:
    - a. .
  - 3. Perform each of the following visual and electrical tests:
    - a. Inspect exposed sections of conductor and cable for physical damage and correct connection according to the single-line diagram.
    - b. Test bolted connections for high resistance using one of the following:
      - 1) A low-resistance ohmmeter.
      - 2) Calibrated torque wrench.
      - 3) Thermographic survey.
    - c. Inspect compression-applied connectors for correct cable match and indentation.
    - d. Inspect for correct identification.
    - e. Inspect cable jacket and condition.
    - f. Insulation-resistance test on each conductor for ground and adjacent conductors. Apply a potential of 500-V dc for 300-V rated cable and 1000-V dc for 600-V rated cable for a one-minute duration.
    - g. Continuity test on each conductor and cable.
    - h. Uniform resistance of parallel conductors.
  - 4. Initial Infrared Scanning: After Substantial Completion, but before Final Acceptance, perform an infrared scan of each splice in conductors No. 3 AWG and larger. Remove box and equipment covers so splices are accessible to portable scanner. Correct deficiencies determined during the scan.

- a. Instrument: Use an infrared scanning device designed to measure temperature or to detect significant deviations from normal values. Provide calibration record for device.
  - b. Record of Infrared Scanning: Prepare a certified report that identifies switches checked and that describes scanning results. Include notation of deficiencies detected, remedial action taken, and observations after remedial action.
5. Follow-up Infrared Scanning: Perform an additional follow-up infrared scan of each switch 11 months after date of Substantial Completion.
- B. Cables will be considered defective if they do not pass tests and inspections.
- C. Prepare test and inspection reports to record the following:
1. Procedures used.
  2. Results that comply with requirements.
  3. Results that do not comply with requirements, and corrective action taken to achieve compliance with requirements.

END OF SECTION 260519

## SECTION 260526 - GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.1 SUMMARY

- A. Section Includes:

1. Grounding and bonding conductors.
2. Grounding and bonding clamps.
3. Grounding and bonding bushings.
4. Grounding and bonding hubs.
5. Grounding and bonding connectors.
6. Grounding (earthing) electrodes.

#### 1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated.

### PART 2 - PRODUCTS

#### 2.1 SYSTEM DESCRIPTION

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- B. Comply with UL 467 for grounding and bonding materials and equipment.

#### 2.2 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
  1. Burndy; Part of Hubbell Electrical Systems.
  2. ERICO; a brand of nVent.
  3. ILSCO.
  4. O-Z/Gedney; a brand of Emerson Industrial Automation.
  5. Siemens Industry, Inc., Energy Management Division.
  6. Thomas & Betts Corporation; A Member of the ABB Group.

## 2.3 CONDUCTORS

- A. Insulated Conductors: Copper wire or cable insulated for 600 V unless otherwise required by applicable Code or authorities having jurisdiction.
- B. Bare Copper Conductors:
  - 1. Solid Conductors: ASTM B 3.
  - 2. Stranded Conductors: ASTM B 8.
  - 3. Bonding Conductor: No. 4 or No. 6 AWG, stranded conductor.
  - 4. Bonding Jumper: Copper tape, braided conductors terminated with copper ferrules; 1-5/8 inches wide and 1/16 inch thick.

## 2.4 CONNECTORS

- A. Listed and labeled by an NRTL acceptable to authorities having jurisdiction for applications in which used and for specific types, sizes, and combinations of conductors and other items connected.
- B. Bus-Bar Connectors: Mechanical type, cast silicon bronze, solderless exothermic-type wire terminals, and long-barrel, two-bolt connection to ground bus bar.
- C. Beam Clamps: Mechanical type, terminal, ground wire access from four directions, with dual, tin-plated or silicon bronze bolts.
- D. Cable-to-Cable Connectors: Compression type, copper or copper alloy.
- E. Conduit Hubs: Mechanical type, terminal with threaded hub.
- F. Ground Rod Clamps: Mechanical type, copper or copper alloy, terminal with hex head bolt.
- G. Straps: Solid copper, cast-bronze clamp. Rated for 600 A.
- H. Water Pipe Clamps:
  - 1. Mechanical type, two pieces with zinc-plated bolts.
    - a. Material: Tin-plated aluminum.
    - b. Listed for direct burial.
  - 2. U-bolt type with malleable-iron clamp and copper ground connector.

## 2.5 GROUNDING ELECTRODES

- A. Ground Rods: Copper-clad steel; 3/4 inch by 10 feet.
- B. Chemical-Enhanced Grounding Electrodes: Copper tube, straight or L-shaped, charged with nonhazardous electrolytic chemical salts.
  - 1. Termination: Factory-attached No. 4/0 AWG bare conductor at least 48 inches long.
  - 2. Backfill Material: Electrode manufacturer's recommended material.

## PART 3 - EXECUTION

### 3.1 APPLICATIONS

- A. Conductors: Install solid conductor for No. 8 AWG and smaller, and stranded conductors for No. 6 AWG and larger unless otherwise indicated.
- B. Underground Grounding Conductors: Install bare tinned-copper conductor, No. 2/0 AWG minimum.
  - 1. Bury at least 30 inches below grade.
  - 2. Duct-Bank Grounding Conductor: Bury 12 inches above duct bank when indicated as part of duct-bank installation.
- C. Grounding Conductors: Green-colored insulation with continuous yellow stripe.
- D. Conductor Terminations and Connections:
  - 1. Pipe and Equipment Grounding Conductor Terminations: Bolted connectors.
  - 2. Underground Connections: Welded connectors except at test wells and as otherwise indicated.
  - 3. Connections to Ground Rods at Test Wells: Bolted connectors.
  - 4. Connections to Structural Steel: Welded connectors.

### 3.2 GROUNDING AT THE SERVICE

- A. Equipment grounding conductors and grounding electrode conductors shall be connected to the ground bus in the service switch. Install a main bonding jumper between the neutral and ground buses.

### 3.3 GROUNDING SEPARATELY DERIVED SYSTEMS

- A. Generator: Install grounding electrode(s) at the generator location. The electrode shall be connected to the equipment grounding conductor and to the frame of the generator.

### 3.4 GROUNDING UNDERGROUND DISTRIBUTION SYSTEM COMPONENTS

- A. Comply with IEEE C2 grounding requirements.

### 3.5 EQUIPMENT GROUNDING

- A. Air-Duct Equipment Circuits: Install insulated equipment grounding conductor to duct-mounted electrical devices operating at 120 V and more, including air cleaners, heaters, dampers, humidifiers, and other duct electrical equipment. Bond conductor to each unit and to air duct and connected metallic piping.

### 3.6 INSTALLATION

- A. Grounding Conductors: Route along shortest and straightest paths possible unless otherwise indicated or required by Code. Avoid obstructing access or placing conductors where they may be subjected to strain, impact, or damage.
- B. Ground Rods: Drive rods until tops are 2 inches below finished floor or final grade unless otherwise indicated.
  - 1. Interconnect ground rods with grounding electrode conductor below grade and as otherwise indicated. Make connections without exposing steel or damaging coating if any.
  - 2. Use exothermic welds for all below-grade connections.
  - 3. For grounding electrode system, install at least three rods spaced at least one-rod length from each other and located at least the same distance from other grounding electrodes, and connect to the service grounding electrode conductor.
- C. Bonding Straps and Jumpers: Install in locations accessible for inspection and maintenance except where routed through short lengths of conduit.
  - 1. Bonding to Structure: Bond straps directly to basic structure, taking care not to penetrate any adjacent parts.
  - 2. Bonding to Equipment Mounted on Vibration Isolation Hangers and Supports: Install bonding so vibration is not transmitted to rigidly mounted equipment.
  - 3. Use exothermic-welded connectors for outdoor locations; if a disconnect-type connection is required, use a bolted clamp.
- D. Grounding and Bonding for Piping:
  - 1. Metal Water Service Pipe: Install insulated copper grounding conductors, in conduit, from building's main service equipment, or grounding bus, to main metal water service entrances to building. Connect grounding conductors to main metal water service pipes; use a bolted clamp connector or bolt a lug-type connector to a pipe flange by using one of the lug bolts of the flange. Where a dielectric main water fitting is installed, connect grounding conductor on street side of fitting. Bond metal grounding conductor conduit or sleeve to conductor at each end.
  - 2. Water Meter Piping: Use braided-type bonding jumpers to electrically bypass water meters. Connect to pipe with a bolted connector.
  - 3. Bond each aboveground portion of gas piping system downstream from equipment shutoff valve.
- E. Bonding Interior Metal Ducts: Bond metal air ducts to equipment grounding conductors of associated fans, blowers, electric heaters, and air cleaners. Install tinned bonding jumper to bond across flexible duct connections to achieve continuity.
- F. Connections: Make connections so possibility of galvanic action or electrolysis is minimized. Select connectors, connection hardware, conductors, and connection methods so metals in direct contact are galvanically compatible.
  - 1. Use electroplated or hot-tin-coated materials to ensure high conductivity and to make contact points closer in order of galvanic series.

2. Make connections with clean, bare metal at points of contact.
3. Make aluminum-to-steel connections with stainless-steel separators and mechanical clamps.
4. Make aluminum-to-galvanized-steel connections with tin-plated copper jumpers and mechanical clamps.
5. Coat and seal connections having dissimilar metals with inert material to prevent future penetration of moisture to contact surfaces.

### 3.7 FIELD QUALITY CONTROL

- A. Perform tests and inspections.
- B. Tests and Inspections:
  1. After installing grounding system but before permanent electrical circuits have been energized, test for compliance with requirements.
  2. Inspect physical and mechanical condition. Verify tightness of accessible, bolted, electrical connections with a calibrated torque wrench according to manufacturer's written instructions.
  3. Test completed grounding system at each location where a maximum ground-resistance level is specified, at service disconnect enclosure grounding terminal, and at individual ground rods. Make tests at ground rods before any conductors are connected.
    - a. Measure ground resistance no fewer than two full days after last trace of precipitation and without soil being moistened by any means other than natural drainage or seepage and without chemical treatment or other artificial means of reducing natural ground resistance.
    - b. Perform tests by fall-of-potential method according to IEEE 81.
  4. Prepare dimensioned Drawings locating each test well, ground rod and ground-rod assembly, and other grounding electrodes. Identify each by letter in alphabetical order, and key to the record of tests and observations. Include the number of rods driven and their depth at each location, and include observations of weather and other phenomena that may affect test results. Describe measures taken to improve test results.
- C. Grounding system will be considered defective if it does not pass tests and inspections.
- D. Prepare test and inspection reports.
- E. Report measured ground resistances that exceed the following values:
  1. Power and Lighting Equipment or System with Capacity of 500 kVA and Less: 10 ohms.
  2. Power and Lighting Equipment or System with Capacity of 500 to 1000 kVA: 5 ohms.
- F. Excessive Ground Resistance: If resistance to ground exceeds specified values, notify Architect promptly and include recommendations to reduce ground resistance.

END OF SECTION 260526

## SECTION 260529 - HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section Includes:

1. Steel slotted support systems.
2. Aluminum slotted support systems.
3. Conduit and cable support devices.
4. Mounting, anchoring, and attachment components, including powder-actuated fasteners, mechanical expansion anchors, concrete inserts, clamps, through bolts, toggle bolts, and hanger rods.
5. Fabricated metal equipment support assemblies.

#### 1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.

1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for the following:
  - a. Slotted support systems, hardware, and accessories.
  - b. Clamps.
  - c. Hangers.
  - d. Sockets.
  - e. Eye nuts.
  - f. Fasteners.
  - g. Anchors.
  - h. Saddles.
  - i. Brackets.
2. Include rated capacities and furnished specialties and accessories.

## PART 2 - PRODUCTS

### 2.1 PERFORMANCE REQUIREMENTS

### 2.2 SUPPORT, ANCHORAGE, AND ATTACHMENT COMPONENTS

- A. Steel Slotted Support Systems: Preformed steel channels and angles with minimum 13/32-inch-diameter holes at a maximum of 8 inches o.c. in at least one surface.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - a. Allied Tube & Conduit; a part of Atkore International.
    - b. B-line, an Eaton business.
    - c. CADDY; a brand of nVent.
    - d. G-Strut.
    - e. Thomas & Betts Corporation; A Member of the ABB Group.
    - f. Unistrut; Part of Atkore International.
  2. Standard: Comply with MFMA-4 factory-fabricated components for field assembly.
  3. Material for Channel, Fittings, and Accessories: Galvanized steel.
  4. Channel Width: Selected for applicable load criteria.
  5. Metallic Coatings: Hot-dip galvanized after fabrication and applied according to MFMA-4.
  6. Protect finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- B. Aluminum Slotted Support Systems: Extruded-aluminum channels and angles with minimum 13/32-inch-diameter holes at a maximum of 8 inches o.c. in at least one surface.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - a. Cooper Industries, Inc.
    - b. Thomas & Betts Corporation; A Member of the ABB Group.
    - c. Unistrut; Part of Atkore International.
  2. Standard: Comply with MFMA-4 factory-fabricated components for field assembly.
  3. Channel Material: 6063-T5 aluminum alloy.
  4. Fittings and Accessories Material: 5052-H32 aluminum alloy.
  5. Channel Width: Selected for applicable load criteria.
  6. Painted Coatings: Manufacturer's standard painted coating applied according to MFMA-4.
  7. Protect finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- C. Conduit and Cable Support Devices: Steel and malleable-iron hangers, clamps, and associated fittings, designed for types and sizes of raceway or cable to be supported.

- D. Mounting, Anchoring, and Attachment Components: Items for fastening electrical items or their supports to building surfaces include the following:
1. Mechanical-Expansion Anchors: Insert-wedge-type, zinc-coated steel, for use in hardened portland cement concrete, with tension, shear, and pullout capacities appropriate for supported loads and building materials where used.
    - a. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      - 1) B-line, an Eaton business.
      - 2) Hilti, Inc.
  2. Concrete Inserts: Steel or malleable-iron, slotted support system units are similar to MSS Type 18 units and comply with MFMA-4 or MSS SP-58.
  3. Clamps for Attachment to Steel Structural Elements: MSS SP-58 units are suitable for attached structural element.
  4. Through Bolts: Structural type, hex head, and high strength. Comply with ASTM F 3125/F 3125M, Grade A325 .
  5. Hanger Rods: Threaded steel.

## 2.3 FABRICATED METAL EQUIPMENT SUPPORT ASSEMBLIES

- A. Description: Welded or bolted structural-steel shapes, shop or field fabricated to fit dimensions of supported equipment.
- B. Materials: Comply with requirements in Section 055000 "Metal Fabrications" for steel shapes and plates.

## PART 3 - EXECUTION

### 3.1 APPLICATION

- A. Comply with the following standards for application and installation requirements of hangers and supports, except where requirements on Drawings or in this Section are stricter:
1. NECA 1.
  2. NECA 101
  3. NECA 102.
- B. Comply with requirements in Section 078413 "Penetration Firestopping" for firestopping materials and installation for penetrations through fire-rated walls, ceilings, and assemblies.
- C. Comply with requirements for raceways and boxes specified in Section 260533 "Raceways and Boxes for Electrical Systems."
- D. Maximum Support Spacing and Minimum Hanger Rod Size for Raceways: Space supports for EMT, IMC, and RMC as required by NFPA 70. Minimum rod size shall be 1/4 inch in diameter.

- E. Multiple Raceways or Cables: Install trapeze-type supports fabricated with steel slotted support system, sized so capacity can be increased by at least 25 percent in future without exceeding specified design load limits.
  - 1. Secure raceways and cables to these supports with two-bolt conduit clamps.
- F. Spring-steel clamps designed for supporting single conduits without bolts may be used for 1-1/2-inch and smaller raceways serving branch circuits and communication systems above suspended ceilings, and for fastening raceways to trapeze supports.

### 3.2 SUPPORT INSTALLATION

- A. Comply with NECA 1 and NECA 101 for installation requirements except as specified in this article.
- B. Raceway Support Methods: In addition to methods described in NECA 1, EMT IMC and RMC may be supported by openings through structure members, according to NFPA 70.
- C. Strength of Support Assemblies: Where not indicated, select sizes of components so strength will be adequate to carry present and future static loads within specified loading limits. Minimum static design load used for strength determination shall be weight of supported components plus 200 lb .
- D. Mounting and Anchorage of Surface-Mounted Equipment and Components: Anchor and fasten electrical items and their supports to building structural elements by the following methods unless otherwise indicated by code:
  - 1. To New Concrete: Bolt to concrete inserts.
  - 2. To Masonry: Approved toggle-type bolts on hollow masonry units and expansion anchor fasteners on solid masonry units.
  - 3. To Existing Concrete: Expansion anchor fasteners.
  - 4. Instead of expansion anchors, powder-actuated driven threaded studs provided with lock washers and nuts may be used in existing standard-weight concrete 4 inches thick or greater. Do not use for anchorage to lightweight-aggregate concrete or for slabs less than 4 inches thick.
  - 5. To Steel: Welded threaded studs complying with AWS D1.1/D1.1M, with lock washers and nuts.
  - 6. Items Mounted on Hollow Walls and Nonstructural Building Surfaces: Mount cabinets, panelboards, disconnect switches, control enclosures, pull and junction boxes, transformers, and other devices on slotted-channel racks attached to substrate by means that comply with seismic-restraint strength and anchorage requirements.
- E. Drill holes for expansion anchors in concrete at locations and to depths that avoid the need for reinforcing bars.

### 3.3 INSTALLATION OF FABRICATED METAL SUPPORTS

- A. Comply with installation requirements in Section 055000 "Metal Fabrications" for site-fabricated metal supports.

- B. Cut, fit, and place miscellaneous metal supports accurately in location, alignment, and elevation to support and anchor electrical materials and equipment.
- C. Field Welding: Comply with AWS D1.1/D1.1M.

#### 3.4 PAINTING

- A. Touchup: Comply with requirements in Section 099123 "Interior Painting" for cleaning and touchup painting of field welds, bolted connections, and abraded areas of shop paint on miscellaneous metal.

END OF SECTION 260529

## SECTION 260533 - RACEWAYS AND BOXES FOR ELECTRICAL SYSTEMS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section Includes:

1. Metal conduits and fittings.
2. Nonmetallic conduits and fittings.
3. Metal wireways and auxiliary gutters.
4. Boxes, enclosures, and cabinets.
5. Handholes and boxes for exterior underground cabling.

- B. Related Requirements:

1. Section 078413 "Penetration Firestopping" for firestopping at conduit and box entrances.
2. Section 270528 "Pathways for Communications Systems" for conduits, wireways, surface pathways, innerduct, boxes, faceplate adapters, enclosures, cabinets, and handholes serving communications systems.

#### 1.3 DEFINITIONS

- A. GRC: Galvanized rigid steel conduit.

### PART 2 - PRODUCTS

#### 2.1 METAL CONDUITS AND FITTINGS

- A. Metal Conduit:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - a. Allied Tube & Conduit; a part of Atkore International.
  - b. FSR Inc.
  - c. O-Z/Gedney; a brand of Emerson Industrial Automation.
  - d. Republic Conduit.
  - e. Southwire Company.
  - f. Thomas & Betts Corporation; A Member of the ABB Group.

- g. Wheatland Tube Company.
    2. Listing and Labeling: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
    3. GRC: Comply with ANSI C80.1 and UL 6.
    4. PVC-Coated Steel Conduit: PVC-coated.
      - a. Comply with NEMA RN 1.
      - b. Coating Thickness: 0.040 inch, minimum.
    5. EMT: Comply with ANSI C80.3 and UL 797.
    6. FMC: Comply with UL 1; zinc-coated steel or aluminum.
    7. LFMC: Flexible steel conduit with PVC jacket and complying with UL 360.
- B. Metal Fittings:
  1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - a. Allied Tube & Conduit; a part of Atkore International.
    - b. FSR Inc.
    - c. O-Z/Gedney; a brand of Emerson Industrial Automation.
    - d. Republic Conduit.
    - e. Southwire Company.
    - f. Thomas & Betts Corporation; A Member of the ABB Group.
    - g. Wheatland Tube Company.
  2. Comply with NEMA FB 1 and UL 514B.
  3. Listing and Labeling: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
  4. Fittings, General: Listed and labeled for type of conduit, location, and use.
  5. Conduit Fittings for Hazardous (Classified) Locations: Comply with UL 1203 and NFPA 70.
  6. Fittings for EMT:
    - a. Material: Steel.
    - b. Type: Setscrew or compression.
  7. Expansion Fittings: PVC or steel to match conduit type, complying with UL 651, rated for environmental conditions where installed, and including flexible external bonding jumper.
  8. Coating for Fittings for PVC-Coated Conduit: Minimum thickness of 0.040 inch, with overlapping sleeves protecting threaded joints.
- C. Joint Compound for IMC, GRC, or ARC: Approved, as defined in NFPA 70, by authorities having jurisdiction for use in conduit assemblies, and compounded for use to lubricate and protect threaded conduit joints from corrosion and to enhance their conductivity.

## 2.2 NONMETALLIC CONDUITS AND FITTINGS

### A. Nonmetallic Conduit:

1. Manufacturers: Subject to compliance with requirements, provide products by the following:

- a. RACO; Hubbell.
- b. Thomas & Betts Corporation; A Member of the ABB Group.
2. Listing and Labeling: Nonmetallic conduit shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
3. RNC: Type EPC-80-PVC, complying with NEMA TC 2 and UL 651 unless otherwise indicated.
4. LFNC: Comply with UL 1660.

B. Nonmetallic Fittings:

1. Manufacturers: Subject to compliance with requirements, provide products by the following:
  - a. RACO; Hubbell.
  - b. Thomas & Betts Corporation; A Member of the ABB Group.
2. Fittings, General: Listed and labeled for type of conduit, location, and use.
3. Fittings for ENT and RNC: Comply with NEMA TC 3; match to conduit or tubing type and material.
  - a. Fittings for LFNC: Comply with UL 514B.
4. Solvents and Adhesives: As recommended by conduit manufacturer.

### 2.3 METAL WIREWAYS AND AUXILIARY GUTTERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  1. B-line, an Eaton business.
  2. Hoffman; a brand of nVent.
  3. MonoSystems, Inc.
  4. Square D.
- B. Description: Sheet metal, complying with UL 870 and NEMA 250, Type 1 unless otherwise indicated, and sized according to NFPA 70.
  1. Metal wireways installed outdoors shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- C. Fittings and Accessories: Include covers, couplings, offsets, elbows, expansion joints, adapters, hold-down straps, end caps, and other fittings to match and mate with wireways as required for complete system.
- D. Wireway Covers: Hinged type unless otherwise indicated.
- E. Finish: Manufacturer's standard enamel finish.

## 2.4 BOXES, ENCLOSURES, AND CABINETS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. Crouse-Hinds, an Eaton business.
  2. EGS/Appleton Electric.
  3. FSR Inc.
  4. Hoffman; a brand of nVent.
  5. Hubbell Incorporated.
  6. Hubbell Incorporated; Wiring Device-Kellems.
  7. Milbank Manufacturing Co.
  8. MonoSystems, Inc.
  9. O-Z/Gedney; a brand of Emerson Industrial Automation.
  10. Oldcastle Enclosure Solutions.
  11. RACO; Hubbell.
  12. Spring City Electrical Manufacturing Company.
  13. Stahlin Non-Metallic Enclosures.
  14. Thomas & Betts Corporation; A Member of the ABB Group.
  15. Wiremold / Legrand.
- B. General Requirements for Boxes, Enclosures, and Cabinets: Boxes, enclosures, and cabinets installed in wet locations shall be listed for use in wet locations.
- C. Sheet Metal Outlet and Device Boxes: Comply with NEMA OS 1 and UL 514A.
- D. Cast-Metal Outlet and Device Boxes: Comply with NEMA FB 1, ferrous alloy, Type FD, with gasketed cover.
- E. Luminaire Outlet Boxes: Nonadjustable, designed for attachment of luminaire weighing 50 lb. Outlet boxes designed for attachment of luminaires weighing more than 50 lb shall be listed and marked for the maximum allowable weight.
- F. Small Sheet Metal Pull and Junction Boxes: NEMA OS 1.
- G. Cast-Metal Access, Pull, and Junction Boxes: Comply with NEMA FB 1 and UL 1773, cast aluminum with gasketed cover.
- H. Box extensions used to accommodate new building finishes shall be of same material as recessed box.
- I. Device Box Dimensions: 4 inches square by 2-1/8 inches deep.
- J. Gangable boxes are allowed.
- K. Hinged-Cover Enclosures: Comply with UL 50 and NEMA 250, Type 1 with continuous-hinge cover with flush latch unless otherwise indicated.

## 2.5 HANDHOLES AND BOXES FOR EXTERIOR UNDERGROUND WIRING

### A. General Requirements for Handholes and Boxes:

1. Boxes and handholes for use in underground systems shall be designed and identified as defined in NFPA 70, for intended location and application.
2. Boxes installed in wet areas shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

### B. Polymer-Concrete Handholes and Boxes with Polymer-Concrete Cover: Molded of sand and aggregate, bound together with polymer resin, and reinforced with steel, fiberglass, or a combination of the two.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - a. Oldcastle Enclosure Solutions.
  - b. Oldcastle Precast, Inc.
2. Standard: Comply with SCTE 77.
3. Configuration: Designed for flush burial with open bottom unless otherwise indicated.
4. Cover: Weatherproof, secured by tamper-resistant locking devices and having structural load rating consistent with enclosure and handhole location.
5. Cover Finish: Nonskid finish shall have a minimum coefficient of friction of 0.50.
6. Cover Legend: Molded lettering, "ELECTRIC."
7. Conduit Entrance Provisions: Conduit-terminating fittings shall mate with entering ducts for secure, fixed installation in enclosure wall.
8. Handholes 12 Inches Wide by 24 Inches Long and Larger: Have inserts for cable racks and pulling-in irons installed before concrete is poured.

## PART 3 - EXECUTION

### 3.1 RACEWAY APPLICATION

#### A. Outdoors: Apply raceway products as specified below unless otherwise indicated:

1. Exposed Conduit: GRC.
2. Underground Conduit: RNC, Type EPC-80-PVC.
3. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): LFMC.
4. Boxes and Enclosures, Aboveground: NEMA 250, Type 3R.

#### B. Indoors: Apply raceway products as specified below unless otherwise indicated:

1. Exposed, Not Subject to Physical Damage: EMT.
2. Exposed and Subject to Severe Physical Damage: GRC. Raceway locations include the following:
  - a. Loading dock.
  - b. Corridors used for traffic of mechanized carts, forklifts, and pallet-handling units.

3. Concealed in Ceilings and Interior Walls and Partitions: EMT.
  4. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): FMC, except use LFMC in damp or wet locations.
  5. Damp or Wet Locations: GRC.
  6. Boxes and Enclosures: NEMA 250, Type 1, except use NEMA 250, Type 4 stainless steel in institutional and commercial kitchens and damp or wet locations.
- C. Minimum Raceway Size: 1/2-inch trade size.
- D. Raceway Fittings: Compatible with raceways and suitable for use and location.
1. Rigid and Intermediate Steel Conduit: Use threaded rigid steel conduit fittings unless otherwise indicated. Comply with NEMA FB 2.10.
  2. PVC Externally Coated, Rigid Steel Conduits: Use only fittings listed for use with this type of conduit. Patch and seal all joints, nicks, and scrapes in PVC coating after installing conduits and fittings. Use sealant recommended by fitting manufacturer and apply in thickness and number of coats recommended by manufacturer.
  3. EMT: Use setscrew or compression, steel fittings. Comply with NEMA FB 2.10.
  4. Flexible Conduit: Use only fittings listed for use with flexible conduit. Comply with NEMA FB 2.20.
- E. Install nonferrous conduit or tubing for circuits operating above 60 Hz. Where aluminum raceways are installed for such circuits and pass through concrete, install in nonmetallic sleeve.
- F. Do not install aluminum conduits, boxes, or fittings in contact with concrete or earth.
- G. Install surface raceways only where indicated on Drawings.
- H. Do not install nonmetallic conduit where ambient temperature exceeds 120 deg F.
- 3.2 INSTALLATION
- A. Comply with requirements in Section 260529 "Hangers and Supports for Electrical Systems" for hangers and supports.
  - B. Comply with NECA 1 and NECA 101 for installation requirements except where requirements on Drawings or in this article are stricter. Comply with NECA 102 for aluminum conduits. Comply with NFPA 70 limitations for types of raceways allowed in specific occupancies and number of floors.
  - C. Do not install raceways or electrical items on any "explosion-relief" walls or rotating equipment.
  - D. Do not fasten conduits onto the bottom side of a metal deck roof.
  - E. Keep raceways at least 6 inches away from parallel runs of flues and steam or hot-water pipes. Install horizontal raceway runs above water and steam piping.
  - F. Complete raceway installation before starting conductor installation.

- G. Arrange stub-ups so curved portions of bends are not visible above finished slab.
- H. Install no more than the equivalent of three 90-degree bends in any conduit run except for control wiring conduits, for which fewer bends are allowed. Support within 12 inches of changes in direction.
- I. Make bends in raceway using large-radius preformed ells. Field bending shall be according to NFPA 70 minimum radii requirements. Use only equipment specifically designed for material and size involved.
- J. Conceal conduit within finished walls, ceilings, and floors unless otherwise indicated.
- K. Install conduits parallel or perpendicular to building lines.
- L. Support conduit within 12 inches of enclosures to which attached.
- M. Stub-Ups to Above Recessed Ceilings:
  - 1. Use EMT or RMC for raceways.
  - 2. Use a conduit bushing or insulated fitting to terminate stub-ups not terminated in hubs or in an enclosure.
- N. Threaded Conduit Joints, Exposed to Wet, Damp, Corrosive, or Outdoor Conditions: Apply listed compound to threads of raceway and fittings before making up joints. Follow compound manufacturer's written instructions.
- O. Coat field-cut threads on PVC-coated raceway with a corrosion-preventing conductive compound prior to assembly.
- P. Raceway Terminations at Locations Subject to Moisture or Vibration: Use insulating bushings to protect conductors including conductors smaller than No. 4 AWG.
- Q. Terminate threaded conduits into threaded hubs or with locknuts on inside and outside of boxes or cabinets. Install bushings on conduits up to 1-1/4-inch trade size and insulated throat metal bushings on 1-1/2-inch trade size and larger conduits terminated with locknuts. Install insulated throat metal grounding bushings on service conduits.
- R. Install raceways square to the enclosure and terminate at enclosures with locknuts. Install locknuts hand tight plus 1/4 turn more.
- S. Do not rely on locknuts to penetrate nonconductive coatings on enclosures. Remove coatings in the locknut area prior to assembling conduit to enclosure to assure a continuous ground path.
- T. Cut conduit perpendicular to the length. For conduits 2-inch trade size and larger, use roll cutter or a guide to make cut straight and perpendicular to the length.
- U. Install pull wires in empty raceways. Use polypropylene or monofilament plastic line with not less than 200-lb tensile strength. Leave at least 12 inches of slack at each end of pull wire. Cap underground raceways designated as spare above grade alongside raceways in use.
- V. Surface Raceways:

1. Install surface raceway with a minimum 2-inch radius control at bend points.
  2. Secure surface raceway with screws or other anchor-type devices at intervals not exceeding 48 inches and with no less than two supports per straight raceway section. Support surface raceway according to manufacturer's written instructions. Tape and glue are not acceptable support methods.
- W. Install raceway sealing fittings at accessible locations according to NFPA 70 and fill them with listed sealing compound. For concealed raceways, install each fitting in a flush steel box with a blank cover plate having a finish similar to that of adjacent plates or surfaces. Install raceway sealing fittings according to NFPA 70.
- X. Install devices to seal raceway interiors at accessible locations. Locate seals so no fittings or boxes are between the seal and the following changes of environments. Seal the interior of all raceways at the following points:
1. Where conduits pass from warm to cold locations, such as boundaries of refrigerated spaces.
  2. Where an underground service raceway enters a building or structure.
  3. Conduit extending from interior to exterior of building.
  4. Conduit extending into pressurized duct and equipment.
  5. Conduit extending into pressurized zones that are automatically controlled to maintain different pressure set points.
  6. Where otherwise required by NFPA 70.
- Y. Comply with manufacturer's written instructions for solvent welding RNC and fittings.
- Z. Expansion-Joint Fittings:
1. Install in each run of aboveground RNC that is located where environmental temperature change may exceed 30 deg F and that has straight-run length that exceeds 25 feet. Install in each run of aboveground RMC and EMT conduit that is located where environmental temperature change may exceed 100 deg F and that has straight-run length that exceeds 100 feet.
  2. Install type and quantity of fittings that accommodate temperature change listed for each of the following locations:
    - a. Outdoor Locations Not Exposed to Direct Sunlight: 125 deg F temperature change.
    - b. Outdoor Locations Exposed to Direct Sunlight: 155 deg F temperature change.
    - c. Indoor Spaces Connected with Outdoors without Physical Separation: 125 deg F temperature change.
    - d. Attics: 135 deg F temperature change.
    - e. .
  3. Install fitting(s) that provide expansion and contraction for at least 0.00041 inch per foot of length of straight run per deg F of temperature change for PVC conduits. Install fitting(s) that provide expansion and contraction for at least 0.000078 inch per foot of length of straight run per deg F of temperature change for metal conduits.
  4. Install expansion fittings at all locations where conduits cross building or structure expansion joints.
  5. Install each expansion-joint fitting with position, mounting, and piston setting selected according to manufacturer's written instructions for conditions at specific location at time of installation. Install conduit supports to allow for expansion movement.

- AA. Flexible Conduit Connections: Comply with NEMA RV 3. Use a maximum of 36 inches of flexible conduit for recessed and semirecessed luminaires, equipment subject to vibration, noise transmission, or movement; and for transformers and motors.
  - 1. Use LFMC in damp or wet locations subject to severe physical damage.
  - 2. Use LFMC or LFNC in damp or wet locations not subject to severe physical damage.
- BB. Mount boxes at heights indicated on Drawings. If mounting heights of boxes are not individually indicated, give priority to ADA requirements. Install boxes with height measured to center of box unless otherwise indicated.
- CC. Recessed Boxes in Masonry Walls: Saw-cut opening for box in center of cell of masonry block, and install box flush with surface of wall. Prepare block surfaces to provide a flat surface for a raintight connection between box and cover plate or supported equipment and box.
- DD. Horizontally separate boxes mounted on opposite sides of walls so they are not in the same vertical channel.
- EE. Locate boxes so that cover or plate will not span different building finishes.
- FF. Support boxes of three gangs or more from more than one side by spanning two framing members or mounting on brackets specifically designed for the purpose.
- GG. Fasten junction and pull boxes to or support from building structure. Do not support boxes by conduits.
- HH. Set metal floor boxes level and flush with finished floor surface.
- II. Set nonmetallic floor boxes level. Trim after installation to fit flush with finished floor surface.

### 3.3 INSTALLATION OF UNDERGROUND HANDHOLES AND BOXES

- A. Install handholes and boxes level and plumb and with orientation and depth coordinated with connecting conduits to minimize bends and deflections required for proper entrances.
- B. Unless otherwise indicated, support units on a level bed of crushed stone or gravel, graded from 1/2-inch sieve to No. 4 sieve and compacted to same density as adjacent undisturbed earth.
- C. Elevation: In paved areas, set so cover surface will be flush with finished grade. Set covers of other enclosures 1 inch above finished grade.
- D. Install handholes with bottom below frost line, 36" below grade.
- E. Install removable hardware, including pulling eyes, cable stanchions, cable arms, and insulators, as required for installation and support of cables and conductors and as indicated. Select arm lengths to be long enough to provide spare space for future cables but short enough to preserve adequate working clearances in enclosure.

- F. Field-cut openings for conduits according to enclosure manufacturer's written instructions. Cut wall of enclosure with a tool designed for material to be cut. Size holes for terminating fittings to be used, and seal around penetrations after fittings are installed.

### 3.4 SLEEVE AND SLEEVE-SEAL INSTALLATION FOR ELECTRICAL PENETRATIONS

- A. Install sleeves and sleeve seals at penetrations of exterior floor and wall assemblies. Comply with requirements in Section 260544 "Sleeves and Sleeve Seals for Electrical Raceways and Cabling."

### 3.5 FIRESTOPPING

- A. Install firestopping at penetrations of fire-rated floor and wall assemblies. Comply with requirements in Section 078413 "Penetration Firestopping."

### 3.6 PROTECTION

- A. Protect coatings, finishes, and cabinets from damage and deterioration.
  - 1. Repair damage to galvanized finishes with zinc-rich paint recommended by manufacturer.
  - 2. Repair damage to PVC coatings or paint finishes with matching touchup coating recommended by manufacturer.

END OF SECTION 260533

## SECTION 260553 - IDENTIFICATION FOR ELECTRICAL SYSTEMS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section Includes:

1. Color and legend requirements for raceways, conductors, and warning labels and signs.
2. Labels.
3. Bands and tubes.
4. Tapes and stencils.
5. Tags.
6. Signs.

### PART 2 - PRODUCTS

#### 2.1 PERFORMANCE REQUIREMENTS

- A. Comply with ASME A13.1.
- B. Comply with NFPA 70.
- C. Comply with 29 CFR 1910.144 and 29 CFR 1910.145.
- D. Comply with ANSI Z535.4 for safety signs and labels.
- E. Comply with NFPA 70E and Section 260573.19 "Arc-Flash Hazard Analysis" requirements for arc-flash warning labels.
- F. Adhesive-attached labeling materials, including label stocks, laminating adhesives, and inks used by label printers, shall comply with UL 969.
- G. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes.
  1. Temperature Change: 120 deg F , ambient; 180 deg F , material surfaces.

## 2.2 COLOR AND LEGEND REQUIREMENTS

- A. Raceways and Cables Carrying Circuits at 600 V or Less:
  - 1. Black letters on an orange field.
  - 2. Legend: Indicate voltage and system or service type.
  
- B. Color-Coding for Phase- and Voltage-Level Identification, 600 V or Less: Use colors listed below for ungrounded service feeder and branch-circuit conductors.
  - 1. Color shall be factory applied or field applied for sizes larger than No. 8 AWG if authorities having jurisdiction permit.
  - 2. Colors for 208/120-V Circuits:
    - a. Phase A: Black.
    - b. Phase B: Red.
    - c. Phase C: Blue.
  - 3. Colors for 240-V Circuits:
    - a. Phase A: Black.
    - b. Phase B: Red.
  - 4. Colors for 480/277-V Circuits:
    - a. Phase A: Brown.
    - b. Phase B: Orange.
    - c. Phase C: Yellow.
  - 5. Color for Neutral: White.
  - 6. Color for Equipment Grounds: Green.
  - 7. Colors for Isolated Grounds: Green with two or more yellow stripes.
  
- C. Warning Label Colors:
  - 1. Identify system voltage with black letters on an orange background.
  
- D. Warning labels and signs shall include, but are not limited to, the following legends:
  - 1. Multiple Power Source Warning: "DANGER - ELECTRICAL SHOCK HAZARD - EQUIPMENT HAS MULTIPLE POWER SOURCES."
  - 2. Workspace Clearance Warning: "WARNING - OSHA REGULATION - AREA IN FRONT OF ELECTRICAL EQUIPMENT MUST BE KEPT CLEAR FOR 36 INCHES ."
  
- E. Equipment Identification Labels:
  - 1. Black letters on a white field.

## 2.3 LABELS

- A. Snap-around Labels: Slit, pretensioned, flexible, preprinted, color-coded acrylic sleeves, with diameters sized to suit diameters and that stay in place by gripping action.
1. Manufacturers: Subject to compliance with requirements, undefined:
    - a. Brady Corporation.
    - b. HellermannTyton.
    - c. Marking Services, Inc.
    - d. Panduit Corp.
    - e. Seton Identification Products.
- B. Self-Adhesive Wraparound Labels: Preprinted Write-on, 3-mil- thick, flexible label with acrylic pressure-sensitive adhesive.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - a. A'n D Cable Products.
    - b. Brady Corporation.
    - c. Brother International Corporation.
    - d. emedco.
    - e. Grafoplast Wire Markers.
    - f. Ideal Industries, Inc.
    - g. LEM Products Inc.
    - h. Marking Services, Inc.
    - i. Panduit Corp.
    - j. Seton Identification Products.
  2. Self-Lamination: Clear; UV-, weather- and chemical-resistant; self-laminating, protective shield over the legend. Labels sized such that the clear shield overlaps the entire printed legend.
  3. Marker for Labels: Permanent, waterproof, black ink marker recommended by tag manufacturer.

## 2.4 BANDS AND TUBES

- A. Snap-around, Color-Coding Bands: Slit, pretensioned, flexible, solid-colored acrylic sleeves, 2 inches long, with diameters sized to suit diameters and that stay in place by gripping action.
1. Manufacturers: Subject to compliance with requirements, undefined:
    - a. Brady Corporation.
    - b. HellermannTyton.
    - c. Marking Services, Inc.
    - d. Panduit Corp.

## 2.5 TAPES AND STENCILS

- A. Self-Adhesive Vinyl Tape: Colored, heavy duty, waterproof, fade resistant; not less than 3 mils thick by 1 to 2 inches wide; compounded for outdoor use.
  - 1. Manufacturers: Subject to compliance with requirements, undefined:
    - a. Brady Corporation.
    - b. Carlton Industries, LP.
    - c. emedco.
    - d. Marking Services, Inc.
- B. Tape and Stencil: 4-inch- wide black stripes on 10-inch centers placed diagonally over orange background and are 12 inches wide. Stop stripes at legends.
  - 1. Manufacturers: Subject to compliance with requirements, undefined:
    - a. HellermannTyton.
    - b. LEM Products Inc.
    - c. Marking Services, Inc.
    - d. Seton Identification Products.
- C. Floor Marking Tape: 2-inch- wide, 5-mil pressure-sensitive vinyl tape, with yellow and black stripes and clear vinyl overlay.
  - 1. Manufacturers: Subject to compliance with requirements, undefined:
    - a. Carlton Industries, LP.
    - b. Seton Identification Products.
- D. Stenciled Legend: In nonfading, waterproof, black ink or paint. Minimum letter height shall be 1 inch.

## 2.6 TAGS

- A. Metal Tags: Brass or aluminum, 2 by 2 by 0.05 inch , with stamped legend, punched for use with self-locking cable tie fastener.
  - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - a. Brady Corporation.
    - b. Carlton Industries, LP.
    - c. emedco.
    - d. Marking Services, Inc.
    - e. Seton Identification Products.
- B. Nonmetallic Preprinted Tags: Polyethylene tags, 0.015 inch thick, color-coded for phase and voltage level, with factory printed permanent designations; punched for use with self-locking cable tie fastener.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - a. Brady Corporation.
  - b. Carlton Industries, LP.
  - c. emedco.
  - d. Grafoplast Wire Markers.
  - e. LEM Products Inc.
  - f. Marking Services, Inc.
  - g. Panduit Corp.
  - h. Seton Identification Products.

## 2.7 SIGNS

### A. Laminated Acrylic or Melamine Plastic Signs:

1. Manufacturers: Subject to compliance with requirements, undefined:
  - a. Brady Corporation.
  - b. Carlton Industries, LP.
  - c. emedco.
  - d. Marking Services, Inc.
2. Engraved legend.
3. Thickness:
  - a. For signs up to 20 sq. in. , minimum 1/16 inch thick.
  - b. For signs larger than 20 sq. in. , 1/8 inch thick.
  - c. Engraved legend with black letters on white face.
  - d. Self-adhesive.
  - e. Framed with mitered acrylic molding and arranged for attachment at applicable equipment.

## 2.8 MISCELLANEOUS IDENTIFICATION PRODUCTS

## PART 3 - EXECUTION

### 3.1 PREPARATION

- A. Self-Adhesive Identification Products: Before applying electrical identification products, clean substrates of substances that could impair bond, using materials and methods recommended by manufacturer of identification product.

### 3.2 INSTALLATION

- A. Verify and coordinate identification names, abbreviations, colors, and other features with requirements in other Sections requiring identification applications, Drawings, Shop Drawings,

manufacturer's wiring diagrams, and operation and maintenance manual. Use consistent designations throughout Project.

- B. Install identifying devices before installing acoustical ceilings and similar concealment.
- C. Verify identity of each item before installing identification products.
- D. Coordinate identification with Project Drawings, manufacturer's wiring diagrams, and operation and maintenance manual.
- E. Apply identification devices to surfaces that require finish after completing finish work.
- F. Install signs with approved legend to facilitate proper identification, operation, and maintenance of electrical systems and connected items.
- G. System Identification for Raceways and Cables under 600 V: Identification shall completely encircle cable or conduit. Place identification of two-color markings in contact, side by side.
  - 1. Secure tight to surface of conductor, cable, or raceway.
- H. System Identification for Raceways and Cables over 600 V: Identification shall completely encircle cable or conduit. Place adjacent identification of two-color markings in contact, side by side.
  - 1. Secure tight to surface of conductor, cable, or raceway.
- I. Auxiliary Electrical Systems Conductor Identification: Identify field-installed alarm, control, and signal connections.
- J. Emergency Operating Instruction Signs: Install instruction signs with white legend on a red background with minimum 3/8-inch- high letters for emergency instructions at equipment used for power transfer.
- K. Elevated Components: Increase sizes of labels, signs, and letters to those appropriate for viewing from the floor.
- L. Accessible Fittings for Raceways: Identify the covers of each junction and pull box of the following systems with the wiring system legend and system voltage. System legends shall be as follows:
  - 1. "EMERGENCY POWER."
  - 2. "POWER."
  - 3. "UPS."
- M. Snap-around Labels: Secure tight to surface at a location with high visibility and accessibility.
- N. Self-Adhesive Wraparound Labels: Secure tight to surface at a location with high visibility and accessibility.
- O. Snap-around Color-Coding Bands: Secure tight to surface at a location with high visibility and accessibility.

- P. Self-Adhesive Vinyl Tape: Secure tight to surface at a location with high visibility and accessibility.
  - 1. Field-Applied, Color-Coding Conductor Tape: Apply in half-lapped turns for a minimum distance of 6 inches where splices or taps are made. Apply last two turns of tape with no tension to prevent possible unwinding.
- Q. Tape and Stencil: Comply with requirements in painting Sections for surface preparation and paint application.
- R. Floor Marking Tape: Apply stripes to finished surfaces following manufacturer's written instructions.
- S. Metal Tags:
  - 1. Place in a location with high visibility and accessibility.
  - 2. Secure using general-purpose cable ties.
- T. Nonmetallic Preprinted Tags:
  - 1. Place in a location with high visibility and accessibility.
  - 2. Secure using general-purpose cable ties.
- U. Laminated Acrylic or Melamine Plastic Signs:
  - 1. Attach signs that are not self-adhesive type with mechanical fasteners appropriate to the location and substrate.
  - 2. Unless otherwise indicated, provide a single line of text with 1/2-inch- high letters on 1-1/2-inch- high sign; where two lines of text are required, use labels 2 inches high.

### 3.3 IDENTIFICATION SCHEDULE

- A. Install identification materials and devices at locations for most convenient viewing without interference with operation and maintenance of equipment. Install access doors or panels to provide view of identifying devices.
- B. Identify conductors, cables, and terminals in enclosures and at junctions, terminals, pull points, and locations of high visibility. Identify by system and circuit designation.
- C. Concealed Raceways, Duct Banks, More Than 600 V, within Buildings: Tape and stencil. Stencil legend "DANGER - CONCEALED HIGH-VOLTAGE WIRING" with 3-inch- high, black letters on 20-inch centers.
  - 1. Locate identification at changes in direction, at penetrations of walls and floors, and at 10-foot maximum intervals.
- D. Accessible Raceways, Armored and Metal-Clad Cables, More Than 600 V: Snap-around labels Snap-around color-coding bands for raceway and cables.

1. Locate identification at changes in direction, at penetrations of walls and floors, at 50-foot maximum intervals in straight runs, and at 25-foot maximum intervals in congested areas.
- E. Accessible Raceways and Metal-Clad Cables, 600 V or Less, for Service, Feeder, and Branch Circuits, More Than 30 A and 120 V to Ground: Identify with self-adhesive raceway labels.
1. Locate identification at changes in direction, at penetrations of walls and floors, at 50-foot maximum intervals in straight runs, and at 25-foot maximum intervals in congested areas.
- F. Power-Circuit Conductor Identification, 600 V or Less: For conductors in vaults, pull and junction boxes, manholes, and handholes, use self-adhesive wraparound labels snap-around labels snap-around color-coding bands self-adhesive vinyl tape to identify the phase.
1. Locate identification at changes in direction, at penetrations of walls and floors, at 50-foot maximum intervals in straight runs, and at 25-foot maximum intervals in congested areas.
- G. Power-Circuit Conductor Identification, More Than 600 V: For conductors in vaults, pull and junction boxes, manholes, and handholes, use nonmetallic preprinted tags colored and marked to indicate phase, and a separate tag with the circuit designation.
- H. Control-Circuit Conductor Identification: For conductors and cables in pull and junction boxes, manholes, and handholes, use with the conductor or cable designation, origin, and destination.
- I. Control-Circuit Conductor Termination Identification: For identification at terminations, provide with the conductor designation.
- J. Conductors to Be Extended in the Future: Attach write-on tags to conductors and list source.
- K. Locations of Underground Lines: Underground-line warning tape for power, lighting, communication, and control wiring and optical-fiber cable.
- L. Workspace Indication: Apply floor marking tape or tape and stencil to finished surfaces. Show working clearances in the direction of access to live parts. Workspace shall comply with NFPA 70 and 29 CFR 1926.403 unless otherwise indicated. Do not install at flush-mounted panelboards and similar equipment in finished spaces.
- M. Warning Labels for Indoor Cabinets, Boxes, and Enclosures for Power and Lighting:
1. Apply to exterior of door, cover, or other access.
  2. For equipment with multiple power or control sources, apply to door or cover of equipment, including, but not limited to, the following:
    - a. Power-transfer switches.
    - b. Controls with external control power connections.
- N. Equipment Identification Labels:
1. Indoor Equipment: Laminated acrylic or melamine plastic sign.

2. Outdoor Equipment: Stenciled legend 4 inches high.
3. Equipment to Be Labeled:
  - a. Panelboards: Typewritten directory of circuits in the location provided by panelboard manufacturer. Panelboard identification shall be in the form of a self-adhesive, engraved, laminated acrylic or melamine label.
  - b. Enclosures and electrical cabinets.
  - c. Switchgear.
  - d. Switchboards.
  - e. Transformers: Label that includes tag designation indicated on Drawings for the transformer, feeder, and panelboards or equipment supplied by the secondary.

END OF SECTION 260553

## SECTION 260583 - WIRING CONNECTIONS

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. Section includes electrical connections to equipment.

#### 1.2 REFERENCES

- A. National Electrical Manufacturers Association:
  - 1. NEMA WD 1 - General Requirements for Wiring Devices.
  - 2. NEMA WD 6 - Wiring Devices-Dimensional Requirements.

#### 1.3 COORDINATION

- A. Obtain and review shop drawings, product data, manufacturer's wiring diagrams, and manufacturer's instructions for equipment furnished under other sections.
- B. Determine connection locations and requirements.
- C. Sequence rough-in of electrical connections to coordinate with installation of equipment.
- D. Sequence electrical connections to coordinate with start-up of equipment.

### PART 2 - PRODUCTS

#### 2.1 CORD AND PLUGS

- A. Manufacturers:
  - 1. Leviton Manufacturing Co., Inc.
  - 2. Pass & Seymour; Legrand North America, LLC.
  - 3. Square D; Schneider Electric USA.
- B. Attachment Plug Construction: Conform to NEMA WD 1.
- C. Configuration: NEMA WD 6; match receptacle configuration at outlet furnished for equipment.
- D. Cord Construction: Type SO multiconductor flexible cord with identified equipment grounding conductor, suitable for use in damp locations.

- E. Size: Suitable for connected load of equipment, length of cord, and rating of branch circuit overcurrent protection.

### PART 3 - EXECUTION

#### 3.1 EXAMINATION

- A. Section 013000 - Administrative Requirements: Coordination and project conditions.
- B. Verify equipment is ready for electrical connection, for wiring, and to be energized.

#### 3.2 EXISTING WORK

- A. Remove exposed abandoned equipment wiring connections.
- B. Disconnect abandoned utilization equipment and remove wiring connections. Remove abandoned components when connected raceway is abandoned and removed. Install blank cover for abandoned boxes and enclosures not removed.
- C. Extend existing equipment connections using materials and methods compatible with existing electrical installations, or as specified.

#### 3.3 INSTALLATION

- A. Make electrical connections.
- B. Make conduit connections to equipment using flexible conduit. Use liquidtight flexible conduit with watertight connectors in damp or wet locations.
- C. Connect heat producing equipment using wire and cable with insulation suitable for temperatures encountered.
- D. Install receptacle outlet to accommodate connection with attachment plug.
- E. Install cord and cap for field-supplied attachment plug.
- F. Install suitable strain-relief clamps and fittings for cord connections at outlet boxes and equipment connection boxes.
- G. Install disconnect switches, controllers, control stations, and control devices to complete equipment wiring requirements.
- H. Install terminal block jumpers to complete equipment wiring requirements.
- I. Install interconnecting conduit and wiring between devices and equipment to complete equipment wiring requirements.

3.4 ADJUSTING

- A. Cooperate with utilization equipment installers and field service personnel during checkout and starting of equipment to allow testing and balancing and other startup operations. Provide personnel to operate electrical system and checkout wiring connection components and configurations.

END OF SECTION 260583

## SECTION 262726 - WIRING DEVICES

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section Includes:
  - 1. Standard-grade receptacles, 125 V, 20 A.
  - 2. GFCI receptacles, 125 V, 20 A.

#### 1.3 DEFINITIONS

- A. BAS: Building automation system.
- B. EMI: Electromagnetic interference.
- C. GFCI: Ground-fault circuit interrupter.
- D. Pigtail: Short lead used to connect a device to a branch-circuit conductor.
- E. RFI: Radio-frequency interference.
- F. SPD: Surge protective device.

#### 1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.

### PART 2 - PRODUCTS

#### 2.1 GENERAL WIRING-DEVICE REQUIREMENTS

- A. Wiring Devices, Components, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and use.
- B. Comply with NFPA 70.
- C. RoHS compliant.

- D. Comply with NEMA WD 1.
- E. Devices that are manufactured for use with modular plug-in connectors may be substituted under the following conditions:
  - 1. Connectors shall comply with UL 2459 and shall be made with stranding building wire.
  - 2. Devices shall comply with requirements in this Section.
- F. Device Color:
  - 1. Wiring Devices Connected to Normal Power System: White unless otherwise indicated or required by NFPA 70 or device listing.
  - 2. Wiring Devices Connected to Essential Electrical System: Red.
- G. Wall Plate Color: For plastic covers, match device color.
- H. Source Limitations: Obtain each type of wiring device and associated wall plate from single source from single manufacturer.

## 2.2 STANDARD-GRADE RECEPTACLES, 125 V, 20 A

- A. Duplex Receptacles, 125 V, 20 A :
  - 1. Manufacturers: Subject to compliance with requirements, provide products by the following:
    - a. Hubbell Incorporated; Wiring Device-Kellems.
    - b. Leviton Manufacturing Co., Inc.
    - c. Pass & Seymour/Legrand (Pass & Seymour).
  - 2. Description: Two pole, three wire, and self-grounding.
  - 3. Configuration: NEMA WD 6, Configuration 5-20R.
  - 4. Standards: Comply with UL 498 and FS W-C-596.
- B. Weather-Resistant Duplex Receptacle, 125 V, 20 A :
  - 1. Manufacturers: Subject to compliance with requirements, provide products by the following:
    - a. Hubbell Incorporated; Wiring Device-Kellems.
    - b. Leviton Manufacturing Co., Inc.
    - c. Pass & Seymour/Legrand (Pass & Seymour).
  - 2. Description: Two pole, three wire, and self-grounding. Integral shutters that operate only when a plug is inserted in the receptacle. Square face.
  - 3. Configuration: NEMA WD 6, Configuration 5-20R.
  - 4. Standards: Comply with UL 498.
  - 5. Marking: Listed and labeled as complying with NFPA 70, "Receptacles in Damp or Wet Locations" Article.

### 2.3 GFCI RECEPTACLES, 125 V, 20 A

#### A. Duplex GFCI Receptacles, 125 V, 20 A :

1. Manufacturers: Subject to compliance with requirements, provide products by the following:
  - a. Hubbell Incorporated; Wiring Device-Kellems.
  - b. Leviton Manufacturing Co., Inc.
  - c. Pass & Seymour/Legrand (Pass & Seymour).
2. Description: Integral GFCI with "Test" and "Reset" buttons and LED indicator light. Two pole, three wire, and self-grounding.
3. Configuration: NEMA WD 6, Configuration 5-20R.
4. Type: Feed through.
5. Standards: Comply with UL 498, UL 943 Class A, and FS W-C-596.

## PART 3 - EXECUTION

### 3.1 INSTALLATION

- A. Comply with NECA 1, including mounting heights listed in that standard, unless otherwise indicated.
- B. Coordination with Other Trades:
  1. Protect installed devices and their boxes. Do not place wall finish materials over device boxes, and do not cut holes for boxes with routers that are guided by riding against outside of boxes.
  2. Keep outlet boxes free of plaster, drywall joint compound, mortar, cement, concrete, dust, paint, and other material that may contaminate the raceway system, conductors, and cables.
  3. Install device boxes in brick or block walls so that the cover plate does not cross a joint unless the joint is troweled flush with the face of the wall.
  4. Install wiring devices after all wall preparation, including painting, is complete.
- C. Conductors:
  1. Do not strip insulation from conductors until right before they are spliced or terminated on devices.
  2. Strip insulation evenly around the conductor using tools designed for the purpose. Avoid scoring or nicking of solid wire or cutting strands from stranded wire.
  3. The length of free conductors at outlets for devices shall comply with NFPA 70, Article 300, without pigtails.
  4. Existing Conductors:
    - a. Cut back and pigtail, or replace all damaged conductors.
    - b. Straighten conductors that remain and remove corrosion and foreign matter.
    - c. Pigtailing existing conductors is permitted, provided the outlet box is large enough.

D. Device Installation:

1. Replace devices that have been in temporary use during construction and that were installed before building finishing operations were complete.
2. Keep each wiring device in its package or otherwise protected until it is time to connect conductors.
3. Do not remove surface protection, such as plastic film and smudge covers, until the last possible moment.
4. Connect devices to branch circuits using pigtails that are not less than 6 inches in length.
5. When there is a choice, use side wiring with binding-head screw terminals. Wrap solid conductor tightly clockwise, two-thirds to three-fourths of the way around terminal screw.
6. Use a torque screwdriver when a torque is recommended or required by manufacturer.
7. When conductors larger than No. 12 AWG are installed on 15- or 20-A circuits, splice No. 12 AWG pigtails for device connections.
8. Tighten unused terminal screws on the device.
9. When mounting into metal boxes, remove the fiber or plastic washers used to hold device-mounting screws in yokes, allowing metal-to-metal contact.

E. Receptacle Orientation:

1. Install ground pin of vertically mounted receptacles up, and on horizontally mounted receptacles to the right.
2. Install hospital-grade receptacles in patient-care areas with the ground pin or neutral blade at the top.

F. Device Plates: Do not use oversized or extra-deep plates. Repair wall finishes and remount outlet boxes when standard device plates do not fit flush or do not cover rough wall opening.

G. Arrangement of Devices: Unless otherwise indicated, mount flush, with long dimension vertical and with grounding terminal of receptacles on top. Group adjacent switches under single, multigang wall plates.

H. Adjust locations of floor service outlets and service poles to suit arrangement of partitions and furnishings.

### 3.2 GFCI RECEPTACLES

- A. Install non-feed-through GFCI receptacles where protection of downstream receptacles is not required.

### 3.3 IDENTIFICATION

- A. Comply with Section 260553 "Identification for Electrical Systems."
- B. Identify each receptacle with panelboard identification and circuit number. Use hot, stamped, or engraved machine printing with black-filled lettering on face of plate, and durable wire markers or tags inside outlet boxes.

- C. Essential Electrical System: Mark receptacles supplied from the essential electrical system to allow easy identification using a self-adhesive label.

### 3.4 FIELD QUALITY CONTROL

- A. Tests for Receptacles:
  - 1. Line Voltage: Acceptable range is 105 to 132 V.
  - 2. Percent Voltage Drop under 15-A Load: A value of 6 percent or higher is unacceptable.
  - 3. Ground Impedance: Values of up to 2 ohms are acceptable.
  - 4. GFCI Trip: Test for tripping values specified in UL 1436 and UL 943.
  - 5. Using the test plug, verify that the device and its outlet box are securely mounted.
  - 6. Tests shall be diagnostic, indicating damaged conductors, high resistance at the circuit breaker, poor connections, inadequate fault-current path, defective devices, or similar problems. Correct circuit conditions, remove malfunctioning units and replace with new ones, and retest as specified above.
- B. Test straight-blade for the retention force of the grounding blade according to NFPA 99. Retention force shall be not less than 4 oz..
- C. Wiring device will be considered defective if it does not pass tests and inspections.
- D. Prepare test and inspection reports.

END OF SECTION 262726

## SECTION 265213 - EMERGENCY AND EXIT LIGHTING

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section Includes:
  - 1. Emergency lighting units.
  - 2. Exit signs.

#### 1.3 DEFINITIONS

- A. CCT: Correlated color temperature.
- B. CRI: Color Rendering Index.
- C. Emergency Lighting Unit: A lighting unit with internal or external emergency battery powered supply and the means for controlling and charging the battery and unit operation.
- D. Fixture: See "Luminaire" Paragraph.
- E. Lumen: Measured output of lamp and luminaire, or both.
- F. Luminaire: Complete lighting unit, including lamp, reflector, and housing.

#### 1.4 ACTION SUBMITTALS

- A. Product Data: For each type of emergency lighting unit, exit sign, and emergency lighting support.
  - 1. Include data on features, accessories, and finishes.
  - 2. Include physical description of the unit and dimensions.
  - 3. Battery and charger for light units.
  - 4. Include life, output of luminaire (lumens, CCT, and CRI), and energy-efficiency data.
  - 5. Include photometric data and adjustment factors based on laboratory tests, complying with IES LM-45, for each luminaire type.
    - a. Testing Agency Certified Data: For indicated luminaires and signs, photometric data certified by a qualified independent testing agency. Photometric data for remaining luminaires and signs shall be certified by manufacturer.

- b. Manufacturers' Certified Data: Photometric data certified by manufacturer's laboratory with a current accreditation under the National Voluntary Laboratory Accreditation Program for Energy Efficient Lighting Products.

#### 1.5 INFORMATIONAL SUBMITTALS

- A. Sample Warranty: For manufacturer's warranty.

#### 1.6 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For luminaires and lighting systems to include in emergency, operation, and maintenance manuals.
  - 1. Provide a list of all lamp types used on Project; use ANSI and manufacturers' codes.

#### 1.7 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
  - 1. Lamps: 10 for every 100 of each type and rating installed. Furnish at least one of each type.
  - 2. Luminaire-mounted, emergency battery pack: One for every 20 emergency lighting units. Furnish at least one of each type.
  - 3. Diffusers and Lenses: One for every 100 of each type and rating installed. Furnish at least one of each type.
  - 4. Globes and Guards: One for every 20 of each type and rating installed. Furnish at least one of each type.

#### 1.8 DELIVERY, STORAGE, AND HANDLING

- A. Protect finishes of exposed surfaces by applying a strippable, temporary protective covering before shipping.

#### 1.9 WARRANTY

- A. Warranty: Manufacturer and Installer agree to repair or replace components of luminaires that fail in materials or workmanship within specified warranty period.
  - 1. Warranty Period: Two year(s) from date of Substantial Completion.
- B. Special Warranty for Emergency Lighting Batteries: Manufacturer's standard form in which manufacturer of battery-powered emergency lighting unit agrees to repair or replace components of rechargeable batteries that fail in materials or workmanship within specified warranty period.

1. Warranty Period for Emergency Power Unit Batteries: Five years from date of Substantial Completion. Full warranty shall apply for first year and prorated warranty for the remaining four years.
2. Warranty Period for Self-Powered Exit Sign Batteries: Five years from date of Substantial Completion. Full warranty shall apply for first year and prorated warranty for the remaining six years.

## PART 2 - PRODUCTS

### 2.1 GENERAL REQUIREMENTS FOR EMERGENCY LIGHTING

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- B. NRTL Compliance: Fabricate and label emergency lighting units, exit signs, and batteries to comply with UL 924.
- C. Comply with NFPA 70 and NFPA 101.
- D. External Type: Self-contained, modular, battery-inverter unit, suitable for powering one or more lamps, remote mounted from luminaire.
  1. Emergency Connection: Operate one LED lamp continuously. Connect unswitched circuit to battery-inverter unit and switched circuit to luminaire.
  2. Operation: Relay automatically turns lamp on when power-supply circuit voltage drops to 80 percent of nominal voltage or below. Lamp automatically disconnects from battery when voltage approaches deep-discharge level. When normal voltage is restored, relay disconnects lamps from battery, and battery is automatically recharged and floated on charger.
  3. Battery: Sealed, maintenance-free, nickel-cadmium type.
  4. Charger: Fully automatic, solid-state, constant-current type.
  5. Housing: NEMA 250, Type 1 enclosure listed for installation inside, on top of, or remote from luminaire. Remote assembly shall be located no less than half the distance recommended by the emergency power unit manufacturer, whichever is less.
  6. Test Push Button: Push-to-test type, in unit housing, simulates loss of normal power and demonstrates unit operability.
  7. LED Indicator Light: Indicates normal power on. Normal glow indicates trickle charge; bright glow indicates charging at end of discharge cycle.
  8. Integral Self-Test: Factory-installed electronic device automatically initiates code-required test of unit emergency operation at required intervals. Test failure is annunciated by an integral audible alarm and a flashing red LED.

### 2.2 EMERGENCY LIGHTING

- A. General Requirements for Emergency Lighting Units: centralized battery inverters.
- B. Emergency Lighting Unit:

1. Manufacturers: Subject to compliance with requirements, provide products by Bodine, or equal.
2. Emergency Lighting Unit: ELI-S-250 or equal.
3. Maximum connected Power: 800W
4. Output power: 250VA
5. Illumination time: 90 minutes
6. Input voltage of 277 V ac.

## 2.3 EXIT SIGNS

- A. General Requirements for Exit Signs: Comply with UL 924; for sign colors, visibility, luminance, and lettering size, comply with authorities having jurisdiction.
- B. Internally Lighted Signs:
  1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - a. Cooper Lighting, an Eaton business.
    - b. Hubbell Industrial Lighting; Hubbell Incorporated.
    - c. Lithonia Lighting; Acuity Brands Lighting, Inc.
    - d. Philips Lighting Company.
  2. Operating at nominal voltage of 120 V ac.
  3. Lamps for AC Operation: LEDs; 50,000 hours minimum rated lamp life.
  4. Self-Powered Exit Signs (Battery Type): Internal emergency power unit.

## 2.4 MATERIALS

- A. Metal Parts:
  1. Free of burrs and sharp corners and edges.
  2. Sheet metal components shall be steel unless otherwise indicated.
  3. Form and support to prevent warping and sagging.
- B. Doors, Frames, and Other Internal Access:
  1. Smooth operating, free of light leakage under operating conditions.
  2. Designed to permit relamping without use of tools.
  3. Designed to prevent doors, frames, lenses, diffusers, and other components from falling accidentally during relamping and when secured in operating position.
- C. Diffusers and Globes:
  1. Clear, UV-stabilized acrylic.
  2. Glass: Annealed crystal glass unless otherwise indicated.
  3. Acrylic: 100 percent virgin acrylic plastic, with high resistance to yellowing and other changes due to aging, exposure to heat, and UV radiation.
  4. Lens Thickness: At least 0.125 inch minimum unless otherwise indicated.

- D. Housings:
  - 1. Extruded aluminum housing.
  - 2. powder coat finish.
- E. Conduit: Electrical metallic tubing, minimum 3/4 inch in diameter.

## 2.5 METAL FINISHES

- A. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

## 2.6 LUMINAIRE SUPPORT COMPONENTS

- A. Comply with requirements in Section 260529 "Hangers and Supports for Electrical Systems" for channel and angle iron supports and nonmetallic channel and angle supports.
- B. Support Wires: ASTM A 641/A 641M, Class 3, soft temper, zinc-coated steel, 12 gage.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for conditions affecting performance of luminaires.
- B. Examine roughing-in for luminaire to verify actual locations of luminaire and electrical connections before luminaire installation.
- C. Examine walls, floors, roofs, and ceilings for suitable conditions where emergency lighting luminaires will be installed.
- D. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 INSTALLATION

- A. Comply with NECA 1.
- B. Install luminaires level, plumb, and square with ceilings and walls unless otherwise indicated.

### 3.3 IDENTIFICATION

- A. Identify system components, wiring, cabling, and terminals. Comply with requirements for identification specified in Section 260553 "Identification for Electrical Systems."

3.4 ADJUSTING

- A. Adjustments: Within 12 months of date of Substantial Completion, provide on-site visit to do the following:
1. Inspect all luminaires. Replace lamps, emergency power units, batteries, signs, or luminaires that are defective.
    - a. Parts and supplies shall be manufacturers' authorized replacement parts and supplies.
  2. Conduct short-duration tests on all emergency lighting.

END OF SECTION 265213

## SECTION 265600 – EXTERIOR LIGHTING

### PART 1 - GENERAL

#### 1.01 SECTION INCLUDES

- A. Exterior luminaires.
- B. Poles and accessories.

#### 1.02 REFERENCE STANDARDS

- A. IES LM-79 - Approved Method: Optical and Electrical Measurements of Solid-State Lighting Products; 2019.
- B. IES LM-80 - Approved Method: Measuring Maintenance of Light Output Characteristics of Solid-State Light Sources; 2021.
- C. NECA 1 - Standard for Good Workmanship in Electrical Construction; 2015.
- D. NECA/IESNA 501 - Standard for Installing Exterior Lighting Systems; 2000 (Reaffirmed 2006).
- E. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- F. UL 844 - Luminaires for Use in Hazardous (Classified) Locations; Current Edition, Including All Revisions.
- G. UL 1598 - Luminaires; Current Edition, Including All Revisions.
- H. UL 8750 - Light Emitting Diode (LED) Equipment for Use in Lighting Products; Current Edition, Including All Revisions.

#### 1.03 SUBMITTALS

- A. See Section 013000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide manufacturer's standard catalog pages and data sheets including detailed information on luminaire construction, dimensions, ratings, finishes, mounting requirements, listings, service conditions, photometric performance, weight, effective projected area (EPA), and installed accessories; include model number nomenclature clearly marked with all proposed features.
  - 1. LED Luminaires:
    - a. Include estimated useful life, calculated based on IES LM-80 test data.

### PART 2 PRODUCTS

#### 1.04 LUMINAIRE TYPES

- A. Furnish products as indicated in luminaire schedule included on the drawings.

#### 1.05 LUMINAIRES

- A. Provide products that comply with requirements of NFPA 70.
- B. Provide products that are listed and labeled as complying with UL 1598, where applicable.
- C. Provide products listed, classified, and labeled as suitable for the purpose intended.
- D. Unless otherwise indicated, provide complete luminaires including lamp(s) and all sockets, ballasts, reflectors, lenses, housings and other components required to position, energize and protect the lamp and distribute the light.
- E. Unless specifically indicated to be excluded, provide all required conduit, boxes, wiring, connectors, hardware, poles, foundations, supports, trims, accessories, etc. as necessary for a complete operating system.
- F. Provide products suitable to withstand normal handling, installation, and service without any damage, distortion, corrosion, fading, discoloring, etc.
- G. Provide luminaires listed and labeled as suitable for wet locations unless otherwise indicated.
- H. Hazardous (Classified) Location Luminaires: Listed and labeled as complying with UL 844 for the classification of the installed location.
- I. LED Luminaires:
  - 1. Components: UL 8750 recognized or listed as applicable.
  - 2. Tested in accordance with IES LM-79 and IES LM-80.
  - 3. LED Estimated Useful Life: Minimum of 50,000 hours at 70 percent lumen maintenance, calculated based on IES LM-80 test data.

#### 1.06 POLES

- A. All Poles:
  - 1. Provide poles and associated support components suitable for the luminaire(s) and associated supports and accessories to be installed.

### PART 3 EXECUTION

#### 1.07 PREPARATION

- A. Provide extension rings to bring outlet boxes flush with finished surface.
- B. Clean dirt, debris, plaster, and other foreign materials from outlet boxes.

#### 1.08 INSTALLATION

- A. Coordinate locations of outlet boxes provided under Section 260533.16 as required for installation of luminaires provided under this section.

- B. Install products in accordance with manufacturer's instructions.
- C. Install luminaires in accordance with NECA/IESNA 501.
- D. Provide required support and attachment in accordance with Section 260529.
- E. Install luminaires plumb and square and aligned with building lines and with adjacent luminaires.
- F. Wall-Mounted Luminaires: Unless otherwise indicated, specified mounting heights are to center of luminaire.
- G. Pole-Mounted Luminaires:
  - 1. Foundation-Mounted Poles:
    - a. Install foundations plumb.
    - b. Install poles plumb, using leveling nuts or shims as required to adjust to plumb.
    - c. Tighten anchor bolt nuts to manufacturer's recommended torque.
  - 2. Grounding:
    - a. Bond luminaires, metal accessories, metal poles, and foundation reinforcement to branch circuit equipment grounding conductor.
  - 3. Install separate service conductors, 12 AWG copper, from each luminaire down to handhole for connection to branch circuit conductors.
- H. Install accessories furnished with each luminaire.
- I. Bond products and metal accessories to branch circuit equipment grounding conductor.
- J. Install lamps in each luminaire.

#### 1.09 FIELD QUALITY CONTROL

- A. See Section 014000 - Quality Requirements, for additional requirements.
- B. Inspect each product for damage and defects.
- C. Operate each luminaire after installation and connection to verify proper operation.
- D. Correct wiring deficiencies and repair or replace damaged or defective products. Repair or replace excessively noisy ballasts as determined by Architect.

1.10 CLEANING

- A. Clean surfaces according to NECA/IESNA 501 and manufacturer's instructions to remove dirt, fingerprints, paint, or other foreign material and restore finishes to match original factory finish.

END OF SECTION

## SECTION 271513 - COMMUNICATIONS COPPER HORIZONTAL CABLING

### PART 1 - GENERAL

#### 1.1 SUMMARY

##### A. Section Includes:

1. Category 6 twisted pair cable.
2. Twisted pair cable hardware.
3. Cable management system.
4. Identification products.

#### 1.2 RELATED DOCUMENTS

- ##### A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.3 DEFINITIONS

- ##### A. Cross-Connect: A facility enabling the termination of cable elements and their interconnection or cross-connection.
- ##### B. EMI: Electromagnetic interference.
- ##### C. FTP: Shielded twisted pair.
- ##### D. F/FTP: Overall foil screened cable with foil screened twisted pair.
- ##### E. F/UTP: Overall foil screened cable with unscreened twisted pair.
- ##### F. IDC: Insulation displacement connector.
- ##### G. Jack: Also commonly called an "outlet," it is the fixed, female connector.
- ##### H. LAN: Local area network.
- ##### I. Plug: Also commonly called a "connector," it is the removable, male telecommunications connector.
- ##### J. RCDD: Registered Communications Distribution Designer.
- ##### K. Screen: A metallic layer, either a foil or braid, placed around a pair or group of conductors.
- ##### L. Shield: A metallic layer, either a foil or braid, placed around a pair or group of conductors.
- ##### M. S/FTP: Overall braid screened cable with foil screened twisted pair.

- N. S/UTP: Overall braid screened cable with unscreened twisted pairs.
- O. UTP: Unscreened (unshielded) twisted pair.

#### 1.4 COPPER HORIZONTAL CABLING DESCRIPTION

- A. Horizontal cable cabling system shall provide interconnections between the new blue light phone control and new rack in the office and the blue lights. Cabling system consists of horizontal cables and terminations.
  - 1. Horizontal cabling shall contain no more than one transition point or consolidation point between the horizontal cross-connect and the telecommunications equipment outlet.
  - 2. Bridged taps and splices shall not be installed in the horizontal cabling.
- B. The maximum allowable horizontal cable length is 295 feet (90 m).

#### 1.5 ACTION SUBMITTALS

- A. Product Data:
  - 1. Category 6 twisted pair cable.
  - 2. Twisted pair cable hardware.
  - 3. Cable management system.
  - 4. Identification products.
- B. Shop Drawings:
  - 1. Wiring diagrams and installation details of telecommunications equipment, to show location and layout of telecommunications equipment, including the following:
    - a. Telecommunications pathways.
    - b. Telecommunications system access points.
    - c. Telecommunications conductor drop locations.
- C. Field Quality-Control Submittals:
  - 1. Field quality-control reports.

#### 1.6 INFORMATIONAL SUBMITTALS

- A. Product Certificates: For each type of product.
- B. Source quality-control reports.

#### 1.7 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For splices and connectors to include in maintenance manuals.
- B. Software and Firmware Operational Documentation:

1. Software operating and upgrade manuals.
2. Program Software Backup: On USB media or compact disk, complete with data files.
3. Device address list.
4. Printout of software application and graphic screens.

#### 1.8 DELIVERY, STORAGE, AND HANDLING

- A. Test cables upon receipt at Project site.
  1. Test each pair of twisted pair cable for open and short circuits.

### PART 2 - PRODUCTS

#### 2.1 PERFORMANCE REQUIREMENTS

- A. General Performance: Horizontal cabling system shall comply with transmission standards in TIA-568-C.1, when tested according to test procedures of this standard.
- B. Telecommunications Pathways and Spaces: Comply with TIA-569-D.
- C. Grounding: Comply with TIA-607-B.

#### 2.2 GENERAL CABLE CHARACTERISTICS

- A. Listed and labeled by an NRTL acceptable to authorities having jurisdiction as complying with the applicable standard and NFPA 70 for the following types:
  1. Communications, Plenum Rated:
    - a. Type CM, Type CMG, Type CMP, Type CMR, or Type CMX in metallic conduit installed according to NFPA 70, Article 300.22, "Wiring in Ducts, Plenums, and Other Air-Handling Spaces."
- B. Surface-Burning Characteristics: Comply with ASTM E84; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
  1. Flame-Spread Index: 25 or less.
  2. Smoke-Developed Index: 450 or less.
- C. RoHS compliant.

#### 2.3 CATEGORY 6 TWISTED PAIR CABLE

- A. Category 6 Twisted Pair Cable: Four-pair, balanced -twisted pair cable, certified to meet transmission characteristics of Category 6 cable at frequencies up to 250 MHz.
- B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Berk-Tek - Lanmark 1000.
  2. CommScope - Systimax 1071E.
  3. Panduit - GenSPEED
  4. Superior Essex - DataGain.
- C. Standard: Comply with NEMA WC 66/ICEA S-116-732 and TIA-568-C.2 for Category 6 cables.
- D. Conductors: 100-ohm, 23 AWG solid copper.
- E. Shielding/Screening: Unshielded twisted pairs (UTP).
- F. Cable Rating: Plenum.
- G. Jacket: Blue thermoplastic.

#### 2.4 TWISTED PAIR CABLE HARDWARE

- A. Twisted Pair Cable Hardware: Hardware designed to connect, splice, and terminate twisted pair copper communications cable.
- B. General Requirements for Twisted Pair Cable Hardware:
1. Comply with the performance requirements of Category 6.
  2. Comply with TIA-568-C.2, IDC type, with modules designed for punch-down caps or tools.
  3. Cables shall be terminated with connecting hardware of same category or higher.
- C. Source Limitations: Obtain twisted pair cable hardware from same manufacturer as twisted pair cable, from single source.
- D. Plugs and Plug Assemblies:
1. Male; eight position; color-coded modular telecommunications connector designed for termination of a single four-pair, 100-ohm, unshielded or shielded twisted pair cable.
  2. Standard: Comply with TIA-568-C.2.
  3. Marked to indicate transmission performance.
  4. Manufacturer: Panduit
- E. Jacks and Jack Assemblies:
1. Female; eight position; modular; fixed telecommunications connector designed for termination of a single four-pair, 100-ohm, unshielded or shielded twisted pair cable.
  2. Designed to snap-in to a patch panel or cover plate.
  3. Standard: Comply with TIA-568-C.2.
  4. Marked to indicate transmission performance.
  5. Manufacturer: Panduit

## 2.5 SOURCE QUALITY CONTROL

- A. Testing Agency: Engage a qualified testing agency to evaluate cables.
- B. Factory test cables on reels according to TIA-568-C.1.
- C. Factory test twisted pair cables according to TIA-568-C.2.
- D. Cable will be considered defective if it does not pass tests and inspections.
- E. Prepare test and inspection reports.

## PART 3 - EXECUTION

### 3.1 WIRING METHODS

- A. Routing:
  - 1. Install cables in raceway, except within consoles, cabinets, desks, and counters. Conceal raceway and cables, except in unfinished spaces.
- B. Wiring within Enclosures: Bundle, lace, and train cables within enclosures. Connect to terminal points with no excess and without exceeding manufacturer's limitations on bending radii. Provide and use lacing bars and distribution spools. Install conductors parallel with or at right angles to sides and back of enclosure.

### 3.2 INSTALLATION OF PATHWAYS

- A. Comply with Section 260533 "Raceways and Boxes for Electrical Systems."

### 3.3 INSTALLATION OF TWISTED PAIR HORIZONTAL CABLES

- A. Comply with NECA 1 and NECA/BICSI 568.
- B. General Requirements for Cabling:
  - 1. Comply with TIA-568-C.0, TIA-568-C.1, and TIA-568-C.2.
  - 2. Comply with BICSI's "Information Transport Systems Installation Methods Manual (ITSIMM), Ch. 5, "Copper Structured Cabling Systems," "Cable Termination Practices" Section.
  - 3. Install 110-style IDC termination hardware unless otherwise indicated.
  - 4. Do not untwist twisted pair cables more than 1/2 inch (12 mm) from the point of termination to maintain cable geometry.
  - 5. Terminate all conductors; no cable shall contain unterminated elements. Make terminations only at indicated outlets, terminals, cross-connects, and patch panels.
  - 6. Consolidation points may be used only for making a direct connection to equipment outlets:

- a. Do not use consolidation point as a cross-connect point, as a patch connection, or for direct connection to workstation equipment.
  - b. Locate consolidation points for twisted pair cables at least 49 feet (15 m) from communications equipment room.
7. Cables may not be spliced. Secure and support cables at intervals not exceeding 30 inches (760 mm) and not more than 6 inches (150 mm) from cabinets, boxes, fittings, outlets, racks, frames, and terminals.
  8. Install lacing bars to restrain cables, prevent straining connections, and prevent bending cables to smaller radii than minimums recommended by manufacturer.
  9. Bundle, lace, and train conductors to terminal points without exceeding manufacturer's limitations on bending radii, but not less than radii specified in BICSI Information Transport Systems Installation Methods Manual, Ch. 5, "Copper Structured Cabling Systems," "Cable Termination Practices" Section. Use lacing bars and distribution spools.
  10. Do not install bruised, kinked, scored, deformed, or abraded cable. Do not splice cable between termination, tap, or junction points. Remove and discard cable if damaged during installation, and replace it with new cable.
  11. Cold-Weather Installation: Bring cable to room temperature before de-reeling. Heat lamps shall not be used for heating.
  12. In the communications equipment room, install a 10-foot- (3-m-) long service loop on each end of cable.
  13. Pulling Cable: Comply with BICSI Information Transport Systems Installation Methods Manual, Ch. 5, "Copper Structured Cabling Systems," "Pulling and Installing Cable" Section. Monitor cable pull tensions.
- C. Open-Cable Installation:
1. Install cabling with horizontal and vertical cable guides in telecommunications spaces with terminating hardware and interconnection equipment.
  2. Cable shall not be run through structural members or in contact with pipes, ducts, or other potentially damaging items.
- D. Group connecting hardware for cables into separate logical fields.
- E. Separation from EMI Sources:
1. Comply with recommendations from BICSI's "Telecommunications Distribution Methods Manual" and TIA-569-D for separating unshielded copper communication cable from potential EMI sources, including electrical power lines and equipment.
  2. Separation between communications cables in grounded metallic raceways and unshielded power lines or electrical equipment shall be as follows:
    - a. Electrical Equipment Rating Less Than 2 kVA: A minimum of 2-1/2 inches (64 mm).
    - b. Electrical Equipment Rating between 2 and 5 kVA: A minimum of 6 inches (150 mm).
    - c. Electrical Equipment Rating More Than 5 kVA: A minimum of 12 inches (300 mm).

3. Separation between communications cables in grounded metallic raceways, power lines, and electrical equipment located in grounded metallic conduits or enclosures shall be as follows:
  - a. Electrical Equipment Rating Less Than 2 kVA: No requirement.
  - b. Electrical Equipment Rating between 2 and 5 kVA: A minimum of 3 inches (76 mm).
  - c. Electrical Equipment Rating More Than 5 kVA: A minimum of 6 inches (150 mm).
4. Separation between Communications Cables and Electrical Motors and Transformers, 5 kVA or HP and Larger: A minimum of 48 inches (1200 mm).

### 3.4 IDENTIFICATION

- A. Identify system components, wiring, and cabling complying with TIA-606-B.
- B. Cable and Wire Identification:
  1. Label each cable within 4 inches (100 mm) of each termination and tap, where it is accessible in a cabinet or junction or outlet box, and elsewhere as indicated.
  2. Each wire connected to building-mounted devices is not required to be numbered at the device if wire color is consistent with associated wire connected and numbered within panel or cabinet.
  3. Label each terminal strip, and screw terminal in each cabinet, rack, or panel.
    - a. Individually number wiring conductors connected to terminal strips, and identify each cable or wiring group, extended from a panel or cabinet to a building-mounted device, with the name and number of a particular device.
    - b. Label each unit and field within distribution racks and frames.
- C. Labels shall be preprinted or computer-printed type, with a printing area and font color that contrast with cable jacket color but still comply with TIA-606-B requirements for the following:
  1. Cables use flexible vinyl or polyester that flexes as cables are bent.

### 3.5 FIELD QUALITY CONTROL

- A. Tests and Inspections:
  1. Visually inspect jacket materials for NRTL certification markings. Inspect cabling terminations in communications equipment rooms for compliance with color-coding for pin assignments, and inspect cabling connections for compliance with TIA-568-C.1.
  2. Visually inspect cable placement, cable termination, grounding and bonding, equipment and patch cords, and labeling of all components.
  3. Test twisted pair cabling for DC loop resistance, shorts, opens, intermittent faults, and polarity between conductors. Test operation of shorting bars in connection blocks. Test cables after termination but not cross-connection.

- a. Test instruments shall meet or exceed applicable requirements in TIA-568-C.2. Perform tests with a tester that complies with performance requirements in "Test Instruments (Normative)" Annex, complying with measurement accuracy specified in "Measurement Accuracy (Informative)" Annex. Use only test cords and adapters that are qualified by test equipment manufacturer for channel or link test configuration.
- B. Data for each measurement shall be documented. Data for submittals shall be printed in a summary report that is formatted similarly to Table 10.1 in BICSI's "Telecommunications Distribution Methods Manual," or shall be transferred from the instrument to the computer, saved as text files, printed, and submitted.
- C. Nonconforming Work:
  1. End-to-end cabling will be considered defective if it does not pass tests and inspections.
  2. Remove and replace cabling where test results indicate that they do not comply with specified requirements.
- D. Collect, assemble, and submit test and inspection reports.

END OF SECTION 271513

## SECTION 32 17 23 – PAVEMENT MARKINGS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes parking structure striping to paint the following items of the types, patterns, sizes, and colors as indicated in the Drawings.
  - 1. Parking stripes
  - 2. Traffic arrows
  - 3. Walkway stripes
  - 4. Text
  - 5. ADA accessible space logo

#### 1.3 REFERENCES

- A. Comply with standards in effect as of the date of the Contract Documents except for those having different revision dates as referenced in the codes or as indicated on the Drawings.
- B. Except as herein specified or as indicated on the Drawings, the work of this Section shall comply with the following:
  - 1. TT-P-1952D, Federal Specification: Paint, Traffic and Airfield Marking, Waterborne.
  - 2. United States Department of Transportation - Federal Highway Administration:
    - a. Manual on Uniform Traffic Control Devices (MUTCD).
  - 3. State DOT Current Standards:
    - a. Manual on Uniform Traffic Control Devices.

#### 1.4 SUBMITTALS

- A. Product Data: Provide manufacturer data sheet on each material to be used.
- B. Samples: Standard color chip for each color to be used.

#### 1.5 QUALITY ASSURANCE

- A. Installation Personnel Qualifications:
  - 1. Trained and experienced in the fabrication and installation of the materials and equipment.
  - 2. Knowledgeable of the design.

#### 1.6 DELIVERY, STORAGE AND HANDLING

- A. Protection: Use all means necessary to protect the materials of this Section before, during, and after installation.
- B. Reject damaged, deteriorated or contaminated material and immediately remove from the Site. Replace rejected materials with new materials at no additional cost to Owner.

## PART 2 - PRODUCTS

### 2.1 PAVEMENT MARKINGS

- A. Marking paint shall meet Federal Specification GSA-FSSTT-P-115E Type 1.
- B. Size and Color: 4-inch width, yellow, blue, or other color depending on intended use.
  - 1. As indicated on the Drawings.
  - 2. In accordance with guidelines, State MUTCD and FHWA – MUTCD.
- C. Materials to be Used:
  - 1. Parking Structure Striping: Alkyd or Low VOC Acrylic.
- D. Traffic paint shall be spray type for stripe marking. Contractor may use one of the following, or equal:
  - 1. Repcolite:
    - a. 47660 Traffic Marking Paint; Yellow.
    - b. 47630 Traffic Marking Paint (Barrier Free Blue).
  - 2. Sherwin Williams:
    - a. Setfast Low VOC Acrylic Traffic Marking Paint; TM 5627 (Yellow); use white base and tint for blue color match to barrier free blue.

### 2.2 PAVEMENT MARKING BEADS

- A. All materials shall meet AASHTO Standard Specification M247, Glass Beads used in traffic paints, Type I. Beads shall be treated with a performance adhesion coating.
- B. Provide Glass Beads at a rate of 6 pounds per gallon into all traffic arrows, center traffic lines, walkway stripes and floor text to produce reflectorized pavement markings. Glass beads are not required in parking space striping.
- C. Approved pavement marking bead manufacturers are:
  - 1. Cataphote Inc., Jackson, MS.
  - 2. Potters Industries Inc., Valley Forge, PA.
  - 3. Flex-O-Lite, St. Louis, MO.

## PART 3 - EXECUTION

### 3.1 PREPARATION

- A. Prepare as indicated on the Drawings for layout of pavement markings, symbols, and all associated dimensions, details and requirements.
- B. Measure pavement and mark pavement marking locations with chalk lines on parking lots or grease pencil to be sure all dimensions comply with the Drawings.
- C. Before applying pavement markings, ensure the pavement surface is clean, dry and in sound condition. Remove any dust, oil, grease, dirt, loose rust and other foreign material. Air blast to remove material that prevents pavement markings from adhering to the pavement surface.
- D. Use equipment capable of uniformly applying material to the required length and width.

- E. Use equipment for placing hot-applied thermoplastic and sprayable thermoplastic material that can maintain the temperature recommended by the material manufacturer.
- F. Prepare new and existing hot mix asphalt (HMA) surfaces open to traffic for 10 days or less with no oil drips, residue, debris, or temporary or permanent markings, by cleaning the marking area with compressed air.
- G. Prepare new and existing Portland Cement Concrete (PCC) surfaces free of oil drips, residue, and debris, temporary, or permanent markings, by removing the curing compound from the area required for pavement markings.
- H. Prepare existing HMA or PCC surfaces that do not have existing markings, but may have oil drip areas, or both, by scarifying the marking area using non-milling grinding teeth or shot blasting. Use of water blasting to scarify the marking area on PCC surfaces is allowed.

### 3.2 PAVEMENT MARKING

- A. Apply pavement marking in accordance with state DOT and FHWA requirements.
- B. For solid lines, apply 4 inch lines, no greater than 1/4 inch wider than the required width. Apply solid lines with no gaps or spaces.
- C. Parking space striping dimensions indicated on the Drawings are nominal dimensions. Tolerances shall be as follows:
  - 1. Parking space length shall equal indicated length  $\pm$  2 inches.
  - 2. Parking space width (or base line dimension) shall equal indicated width  $\pm$  1 inch.
  - 3. A string of parking spaces shall equal indicated dimension  $\pm$  2 inches per run.
  - 4. Stripe width shall equal 4 inches  $\pm$  1/4 inch.
- D. Mix liquid materials during application. Do not thin materials. Uniformly apply pavement marking material at the rates indicated by the manufacturer.
- E. Operate striping equipment to prevent traffic from crossing the uncured markings. Prevent vehicles from being sprayed.
- F. Apply sharp, well-defined markings, free of uneven edges, overspray, or other visible defects, as determined by the Engineer. Ensure pavement marking lines are straight, or of uniform curvature. Pavement markings are subject to inspection by the Engineer. Remove pavement markings outside the required tolerances and re apply in the correct locations. Also re apply unprotected pavement markings damaged by traffic and remove tracked lines at no additional cost to the Owner.
- G. Protect pavement marking from traffic crossing over uncured paint.
- H. Re apply lines washed away or otherwise damaged by rain at no additional cost to the Owner.
- I. Regular Dry Paint: Wait at least 14 days after placing the pavement surface before applying regular dry pavement markings to new HMA wearing surface. The Engineer may consider waiving the 14 day waiting period if conditions dictate.

3.3 CLEANING

- A. Prior to acceptance of the work, clean the pavement and related areas to remove dirt and stones.

END OF SECTION 32 17 23