

CONTRACT DOCUMENTS  
FOR

**DECK REPLACEMENT,  
SITE and POOL MODIFICATIONS  
to DRENNAN POOL at  
MCAULIFFE PARK**

McKee Street  
East Hartford, Connecticut 06108

**BID NO. 16-01**



**Town of East Hartford  
Department of Parks & Recreation  
50 Chapman Place  
East Hartford, CT 06108**

Prepared by:

**CAPITAL STUDIO ARCHITECTS, LLC.  
1379 MAIN STREET  
EAST HARTFORD, CT 06108**

**DECK REPLACEMENT,  
SITE and POOL MODIFICATIONS  
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## **BIDDING INSTRUCTIONS**

The following documents provide instructions for preparation of bid.

- Invitation to Bid
- Standard Instructions for Bidders
- Corporate Resolution
- Instructions for Construction and/or Service Bids
- Insurance Requirements

TOWN OF EAST HARTFORD, CT  
INVITATION TO BID  
BID NO. 16-01  
DECK REPLACEMENT, SITE and POOL MODIFICATIONS  
to DRENNAN POOL at MCAULIFFE PARK

Sealed Bids will be received at the office of the Purchasing Department, Town Hall, 740 Main Street, East Hartford, CT 06108 until 11:00AM on Friday, July 17, 2015, at which time and place said bids will be opened publicly and read.

There will be a MANDATORY PRE-BID MEETING on Friday, June 26, 2015 at 10:00AM at Drennan Pool, located within McAuliffe Park on McKee Street, East Hartford, CT 06108. Bids submitted by firms who have not attended or were not represented at the pre-bid meeting will be rejected and returned unopened.

The Contract Drawings and Specifications may be examined and obtained at the office of the Purchasing Agent, Town of East Hartford, 740 Main Street, East Hartford, CT 06108. Bid documents may be mailed with packaging and mailing costs the responsibility of the bidder.

Bid security in the form of a **5% bid bond**, payable to the Town of East Hartford, is required of all bidders and a **100% Performance Bond** will be required of the awarded bidder.

The Town reserves the right to reject any or all bids, or any part of all bids, to waive any informality, and reserves all other rights as detailed in the Contract Documents when such action is in the best interest of the Town. The Town is an equal opportunity employer. Contractor must comply with all Federal, State and Local requirements under this contract.

All bidders are requested to note that the award of this Contract is subject to the following conditions and contingencies:

1. The approval of such governmental agencies as may be required by law.
2. The appropriation of adequate funds by the proper agencies.

Michelle Enman  
Purchasing Agent  
860-291-7270



## TOWN OF EAST HARTFORD, CONNECTICUT

### STANDARD INSTRUCTIONS FOR BIDDERS

1. Sealed bid proposals will be received by the purchasing agent until the date and time on the title sheet. **Bids received later than the date and time specified will not be considered and will be returned unopened.**
2. Bids are to be returned in the Town provided pink envelope or bid number shall be prominently indicated on any other mailing envelope. The name and address of the bidder should appear in the upper left hand corner of the envelope. **Bids will not be accepted via fax or e-mail.**
3. All proposals will be opened and read publicly and are subject to public inspection. Bidders may be present or be represented at all openings. Bid results are mailed to all responding bidders.
4. Municipalities are exempt from any sale, excise or federal taxes. Bid prices must be exclusive of taxes and will be so construed.
5. The Town of East Hartford reserves the right to reject any or all bids or any part of all bids and to waive any informality when such action is in the best interest of the Town. The Town also reserves the right to extend by mutual consent an awarded bid when such action is in its best interest.
6. Bidders should familiarize themselves with the items and/or conditions set forth in the bid specifications. Failure by the bidder to inform himself will not be accepted as an excuse from fulfillment of the bid specifications.
7. All vendors doing business with the Town certify upon acceptance of a bid by virtue of their signature on that bid, that they have read, understood and will comply with the section of the Town's updated plan of affirmative action and equal opportunity relating to contractual and purchasing procedures - section VIII dated 1/88. Vendor agrees to cooperate fully should the Town choose to audit this compliance.
8. In case of an error in the extension or addition of prices, the unit price will govern. The Town will not be subject to any price increases after a bid award if not part of the original bid terms.
9. The Town reserves the right to increase or decrease quantities listed in order to stay within the allocated funding at time of bid opening.
10. The purchasing department has the obligation to accept the lowest responsible bid which is in the Town's best interest. Factors include, but are not limited to, price, compliance to specifications, quality offered, freight costs, delivery time, past performance, standardization of current equipment, financial resources, technical qualifications, equipment and experience.

**TOWN OF EAST HARTFORD,  
CONNECTICUT**

**STANDARD INSTRUCTIONS (con't.)**

11. Bidders shall state in writing and attach to the bid, any conditions/exceptions that are part of the bid price. Comments to the effect “see literature” will not be acceptable.
12. Any manufacturers names, trade names, brand names or catalog numbers used in the specifications are there for the purpose of establishing and describing general performance and quality levels. Such references are not intended to be restrictive and bids are invited on these and approved equal brands or products of any manufacturer.
13. The Town’s competitive bidding process is not a means for competitors to obtain private/proprietary information that is not otherwise normally available. Such information relates to a bidder’s financial records and responsibility, test data, manufacturing drawings, formulas and processes. To promote competition and protect valid interests this type of information/data will remain confidential.
14. All bidder questions shall be directed to the Purchasing Agent. Procedural and clarification questions will be answered appropriately. Questions that require an answer that will in effect change/alter the intent of the specifications will only be answered in writing to all bidders by a bid addendum.
15. Awarded bidders are responsible for obtaining all necessary permits as required by OSHA, Federal, State and/or Town regulations. Town permits will be issued at no cost.
16. Alternate proposals will not be considered unless specifically called for in the bid.
17. Prices shall include packing, transportation and delivery charges F.O.B. to East Hartford/delivered unless specifically noted otherwise.
18. Bidder declares that the proposal is not made in connection with any other bidder submitting a proposal for the same bid and is in all respects fair and without collusion or fraud.
19. Cash discounts may be offered by bidder for prompt payment of bills, but such cash discount will not be taken into consideration in determining the awarded low bidder except in the case of tie bids and then only provided such discount is based on payment of invoice not less than fourteen (14) days after satisfactory delivery and/or receipt of invoice, whichever is later.
20. The Town will not award a bid to any bidder who owes a delinquent tax to the Town. Bidders certify by virtue of their signature on the bid sheet that neither the bidder nor any business or corporation which the Bidder owns an interest is delinquent in tax obligations to the Town. The purchasing department will verify that no delinquent taxes are owed before any bid is awarded.
21. Please include a corporate resolution with your submittal. Sample formats for Corporations and Professional Corporations, Limited Liability Company and Partnerships (including Limited Partnership and Limited Liability Partnership) are attached in this packet.

RESOLUTION FOR CORPORATIONS AND PROFESSIONAL CORPORATIONS  
(required) (TO BE TYPED ON CORPORATION LETTERHEAD PAPER)

I \_\_\_\_\_, Secretary of \_\_\_\_\_  
(Name of Corporation's Secretary) (Legal name of Corporation)  
a Corporation duly organized and operating under the laws of \_\_\_\_\_ and  
(State)

Qualified and authorized to do business in the State of Connecticut, DO  
HEREBY CERTIFY that the following is a true, correct and accurate copy of a  
Resolution duly adopted at a meeting of the Board of Directors of such  
Corporation, duly convened and held on \_\_\_\_\_, at which meeting  
a duly constituted quorum of the Board of Directors was present and voted in  
favor of such Resolution. I further CERTIFY that such Resolution has not been  
modified, rescinded or revoked since the date on which it was enacted, and it is  
at present in full force and effect:

RESOLVED: That the following Officers of this Corporation, or any one  
them: \_\_\_\_\_

\_\_\_\_\_,  
(Name and title of Officer or Officers)  
is empowered to execute and deliver in the name and on behalf of this  
Corporation contracts, bids and other documents to the Town of East Hartford, State  
of Connecticut, and are further authorized to affix the Corporate Seal to such  
documents and to bind the Corporation to such contracts, bids and other documents.

IN WITNESS WHEREFORE, the undersigned has affixed his/her signature and  
the Corporate Seal of the Corporation, this \_\_\_\_\_ day of \_\_\_\_\_.

(Affix Corporate Seal Below)

\_\_\_\_\_  
(Typed name of Corporation's Secretary)

\_\_\_\_\_  
SIGNATURE OF SECRETARY

Resolution for Limited Liability Company (required)  
(TO BE TYPED ON LIMITED LIABILITY COMPANY LETTERHEAD PAPER)

The undersigned, all of the members [or, if applicable, the managing member] of

\_\_\_\_\_ (legal name of LLC)

A Limited Liability Company duly organized and operating under the laws of  
\_\_\_\_\_ and

(State)

qualified and authorized to do business in the State of Connecticut, DO

HEREBY CERTIFY that the following is a true, correct and accurate copy of a Resolution duly adopted at a meeting of the Members of such Limited Liability Company, duly convened and held on \_\_\_\_\_, at which meeting a duly constituted quorum of the voting Members was present and voted in favor of such Resolution. We further CERTIFY that such Resolution has not been modified, rescinded or revoked since the date on which it was enacted, and it is at present in full force and effect:

RESOLVED: That the following Members of this Limited Liability Company, or any one them: \_\_\_\_\_

(Name and title of Members)

is empowered to execute and deliver in the name and on behalf of this Limited Liability Company, contracts bids and other documents to the Town of East Hartford, State of Connecticut, and are further authorized to seal to such documents and to bind the Limited Liability Company to such contracts, bids and other documents.

IN WITNESS WHEREFORE, the undersigned have executed this resolution, this \_\_\_\_\_ day of \_\_\_\_\_.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Have all necessary parties sign and indicate their name and title, such as member, managing member etc..

Resolution for Partnership (including Limited Partnership and Limited Liability Partnership) (required)

(TO BE TYPED ON PARTNERSHIP LETTERHEAD PAPER)

The undersigned, all of the partners (or, if a Limited Partnership, all of the general partners, or if a Limited Liability Partnership, all of the partners) of \_\_\_\_\_, a partnership (or, if applicable, a Limited Partnership or Limited Liability Partnership) duly organized and operating under the laws of \_\_\_\_\_ and qualified and authorized to do business in the State of Connecticut, DO

HEREBY CERTIFY that the following is a true, correct and accurate copy of a Resolution duly adopted at a meeting of the voting partners of such partnership duly convened and held on \_\_\_\_\_, at which meeting a duly constituted quorum of the voting partners was present and voted in favor of such Resolution. We further CERTIFY that such Resolution has not been modified, rescinded or revoked since the date on which it was enacted, and it is at present in full force and effect:

RESOLVED: That the following partners, or any one of them: \_\_\_\_\_

\_\_\_\_\_,  
(Name and title of Partners)

is empowered to execute and deliver in the name and on behalf of this partnership, contracts, bids and other documents to the Town of East Hartford, State of Connecticut, and are further authorized to seal to such documents and to bind the partnership to such contracts, bids and other documents.

IN WITNESS WHEREFORE, the undersigned have signed this resolution on, this \_\_\_\_\_ day of \_\_\_\_\_.  
(day) (month and year)

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Have all necessary partners sign and indicate their name and title, such as partner, general partner, etc.



## TOWN OF EAST HARTFORD CONNECTICUT

### INSTRUCTIONS FOR CONSTRUCTION AND/OR LABOR SERVICE BIDS

1. A Certificate of Insurance naming the Town as an additional insured will be required of the **awarded bidder**. The insurance indemnification clause is contained with the bid specifications. PAGES **X**.

#### LINE CHECKED RELATES TO THIS PROJECT:

  X   This is a **prevailing wage bid** and the wage rates are included within the Bid Specifications.

       This **is not** a prevailing wage bid.

2. In accordance with state law, each contract for the construction, remodeling or repair of any public building or public works or improvements shall contain the following provision when the cost of construction, remodeling or repair exceeds the limits as provided in Connecticut General Statutes 31-53; “the wages paid on an hourly basis to any mechanic, laborer or workman employed upon the work herein contracted to be done and the amount of payment or contribution paid or payable on behalf of each such employee to any employee welfare fund, as defined in Subsection (h) of Section 31-53 for the Connecticut General Statutes, shall be at a rate equal to the rate customary or prevailing for the same work in the same trade or occupation in the Town of East Hartford. Any contractor who is not obligated by agreement to make payment or contribution on behalf of such employees to any such employee welfare fund shall pay to each employee as parts of his wages the amount of payment or contribution for his classification on each pay day”.

#### LINE CHECKED RELATED TO THIS PROJECT:

  X   This **is a required bonded project**

       **No bonds** or any other form of guarantee will be required for this bid project.

3. **(IF REQUIRED):** A Bid Bond must be submitted with the bid and may be in the form of certified check or cashier’s check **payable to “The Town of East Hartford” or a bond of a surety company authorized to transact business in the State of Connecticut**. No checks will be returned until the bid is awarded. If you are the awarded bidder, your check will be held until it is replaced with another Guarantee of Performance. **Bid Bond shall be 5% (five percent) of total bid price.**

A Guarantee of Performance will be required of the awarded bidder and may be in the form of a certified check or cashier’s check payable to “The Town of East Hartford” or a bond of a surety company authorized to transact business in the State of Connecticut. Checks will be retained by the Town for period of time after final acceptance and payment as determined by the complexity of the project. **Performance Bond shall be 100% (one hundred percent) of awarded bid price.**

**LINE CHECKED RELATED TO THIS PROJECT:**

This **project requires an additional umbrella liability policy**

This project does not require an additional umbrella liability policy.

4. **(IF REQUIRED):** The Town reserves the right to require the contractor to carry an umbrella liability limit of                     .
5. Before starting any work awarded bidders are responsible for obtaining permits as required by Federal, State, MDC, Utilities and/or Town regulations. Any applicable fees shall be included in the total bid price. Town of East Hartford permits will be issued at no charge.
6. The bidder shall abide by all OSHA, Federal, State and local laws, ordinances and/or regulations, which may affect in any manner those engaged or employed on the work, or the materials or equipment used in the work, or in any way affect the conduct of the work, and no pleas of misunderstanding will be considered on account of ignorance.

If the bidder shall discover any provisions in the drawings, specifications or contract, which are in conflict with any such law, by-law or ordinance or regulation, he shall report it to the Town in writing with the bid proposal.

7. Throughout the work period, the contractor shall maintain the work site in a generally accepted standard of cleanliness, free from accumulation of waste materials or rubbish caused by his operations and shall take prompt action to correct any hazardous conditions reported.
8. It is the responsibility of each bidder before submitting a bid, to familiarize themselves with the specifications and conditions that may affect cost, progress, performance or completion of the project.
9. All materials and equipment shall be applied, installed, connected, erected, used, cleaned and conditioned in accordance with generally accepted industry standards.
10. Unless otherwise specified, the contractor shall furnish and assume full responsibility for all materials, equipment, labor, transportation, construction equipment and machinery, tools, fuel, appliances, power, light, heat, telephone, water, sanitary facilities, temporary facilities and all other facilities and incidentals necessary for the furnishing, performance, testing, start-up and completion of the work.
11. The Contractor may utilize the services of specialty subcontractors on those parts of the work which, under normal contracting practices, are performed by specialty subcontractors.

The Contractor shall not award any work to any subcontractor without prior approval of the Town, which approval will not be given until the Contractor submits to the Town a written statement concerning the proposed award to the subcontractor, which statement will contain such information as the Town may require.

The Contractor shall be as fully responsible to the Town for the acts and omissions of his subcontractors, and of persons either directly or indirectly employed by them, as he is for the acts and omissions of person directly employed by him.

The contractor shall cause appropriate provisions to be inserted in all subcontracts relative to the work to bind subcontractors to the Contractor by the terms of the General Conditions and other contract documents insofar as applicable to the work of subcontractors and to give the Contractor the same power as regards to terminating any subcontract that the Town may exercise over the Contractor under any provision of the Contract documents.

Nothing contained in this bid shall create any contractual relation between any subcontractor and the Town.

12. The Contractor shall not assign the whole or any part of this contract or any moneys due or to become without written consent of the Town. In case the Contractor assigns all or any part of any moneys due or to become due under this contract, the instrument of assignment shall contain a clause substantially to the effect that it is agreed that the right of the assignee in and or any moneys due or to become due to the contractor shall be subject to prior claims of all person, firms and corporations for services rendered or materials supplied for the performance of the work called for in this contract.
13. The submission of a bid offer will constitute an incontrovertible representation by the bidder that he/she has complied with every requirement of the specifications and that the bid documents are sufficient in scope and detail and convey understanding of all terms and conditions for performance of the Work.
14. The Town will conduct a MANDATORY PRE-BID MEETING on Day, Month ##, 2015 at 10:00AM at Drennan Pool within McAuliffe Park, located on McKee Street, East Hartford, CT 06108. Bids submitted by firms who have not attended or were not represented at the mandatory pre-bid meeting will be rejected and returned unopened.



## **A CERTIFICATE OF INSURANCE WILL ONLY BE REQUIRED OF THE AWARDED BIDDER**

### **INSURANCE INDEMNIFICATION CLAUSE**

The Town of East Hartford, CT is to be named as an “**additional insured**” and an additional insured policy endorsement must be submitted with the certificate of insurance and the nature of the project is to be stated on the certificate.

### **INDEMNIFICATION**

Contractor agrees to defend, indemnify and hold the Town of East Hartford harmless against and from any and all claims by or on behalf of any person arising from or in connection with:

A: Any act, error, omission, negligence or fault of contractors or any of its agents, servants, employees and sub-contractors.

B: Any accident, injury or damage whatsoever caused to any person occurring during the performance of this contract.

Further, the contractor agrees to defend, indemnify and hold harmless the Town of East Hartford against and from all reasonable costs, counsel fees, expenses and liabilities incurred in or with respect to any such claim and any action or proceeding brought thereon; and in any case any action or proceeding shall be brought against the contractor by reason of any such claim, contractor upon notice from the Town of East Hartford agrees to resist and defend such action proceeding, unless contractor causes the same to be discharged and satisfied.

### **INSURANCE REQUIREMENTS**

#### **A. GENERAL REQUIREMENTS**

The **CONTRACTOR** shall be responsible for maintaining insurance coverage in force for the life of this contract of the kinds and adequate amounts to secure all of the **CONTRACTOR’S** obligations under this contract with an insurance company(ies) with an AM Best Rating of A-VII or better licensed to write such insurance in the State of Connecticut and acceptable to the Town of East Hartford.

The insurer shall provide the Town of East Hartford with **Certificates of Insurance signed by an authorized representative of the insurance CONTRACTOR(ies)** prior to the performance of this contract describing the coverage and providing that the insurer shall give the Town of East Hartford written notice at least thirty (30) days in advance of any termination, expiration, or any and all changes in coverage.

Such insurance or renewals or replacements thereof shall remain in force during the **CONTRACTOR’S** responsibility under this contracts.

The **CONTRACTOR** at the **CONTRACTOR’S** own cost and expense , shall procure and maintain all insurance required and shall name the Town of East Hartford as Additional Insured on all contracts, except Workers’ Compensation and Professional Errors & Omissions coverage’s.

B. SPECIFIC REQUIREMENTS:

1) Workers' Compensation Insurance

The **CONTRACTOR** shall provide Statutory Workers' Compensation Insurance, including Employer's Liability with Limits of:

\$100,000 Each Accident  
\$500,000 Disease, Policy Limit  
\$100,000 Disease, Each Employee

2) Commercial General Liability Insurance

The **CONTRACTOR** shall carry Commercial General Liability Insurance (Insurance Services Officer Incorporated Form CG-0001 or equivalent). As per occurrence limit **\$1,000,000** is required. The Aggregate Limit will be not less than **\$2,000,000**. Any deviations from the standard unendorsed form will be noted on the Certificate of Insurance.

3) Business Automobile Liability Insurance

The **CONTRACTOR** shall carry Business Automobile Liability Insurance (Insurance Services Office Incorporated Form CA-00001 or equivalent). A per occurrence limit of **\$1,000,000** is required. "Auto Auto" (symbol 1 or equivalent) is required. Any deviations from the standard unendorsed form will be noted on the Certificate of Insurance.

4) Umbrella Liability Insurance

The Town reserves the right to require the **CONTRACTOR** to carry an umbrella policy up to **\$5,000,000**

C. OTHERS: PROFESSIONAL SERVICES - ARCHITECTS, ENGINEERS, ET AL.

**Shall carry Errors & Omissions coverage in the amount \$1,000,000 per occurrence for all professional services contracts only.** If the insurance coverage is written on a claims made basis, an extended reporting period of at least 3 years after substantial completion of the project is required.

The Town reserves the right to amend amounts of coverage required and type of coverage provided based on work or service to be performed.

D. SUBCONTRACTOR'S REQUIREMENTS:

The **CONTRACTOR** shall require the same insurance that it is required to carry by the Town of East Hartford to be carried by any subcontractors and independent contractors hired by the **CONTRACTOR** and to obtain **Certificates of Insurance** before subcontractors and independent contractors are permitted to begin work.

The **CONTRACTOR** shall require that the Town of East Hartford be named as Additional Insured on all subcontractors and independent contractors insurance before permitted to begin work.

The **CONTRACTOR** and all subcontractors and independent contractors and their insurers shall waive all rights of subrogation against the Town of East Hartford, and its officers, agents, servants and employees for losses arising from work performed by each on this contract.

## **BID FORMS**

All of the following documents contained within this section must be completed by the prospective bidder and returned with the bid

- Form of General Bid
- Statement of Bidders Construction Experience

FORM OF GENERAL BID  
BID NO. 15-XX

Town of East Hartford  
Purchasing Agent  
740 Main Street  
East Hartford, CT 06108

Attn. Michelle Enman - Purchasing Agent

Having carefully examined the Invitation to Bid, Instructions for Construction and/or Labor Service bids, Insurance and Indemnification Requirements, Form of General Bid, General Conditions, Special Provisions, Technical Specifications, Appendices, Contract Drawings and Exhibits for the furnishing of all materials, equipment, tools, labor and incidentals necessary to complete the Work required for "Deck Replacement, Site and Pool Modifications to Drennan Pool at McAuliffe Park", as well as having carefully examined the site and having satisfied himself as to conditions affecting the proposed Work and all Addenda issued by the Town, mailed to the undersigned by certified mail prior to the date of opening of Bids, the undersigned proposes to complete all Work on the Contract Drawings and as described in the Contract Specifications, for the lump sum and unit prices for the Work (in place) for the items and estimated quantities shown on the Bid Proposal Sheet(s).

Bidder acknowledges receipt of the following addenda:

No. \_\_\_\_\_, dated \_\_\_\_\_, 20\_\_

TOWN OF EAST HARTFORD  
 BID PROPOSAL SHEET

DECK REPLACEMENT, SITE and POOL MODIFICATIONS to DRENNAN POOL at MCAULIFFE  
 PARK, MCKEE STREET, EAST HARTFORD, CT 06108

BID NO. 15-XX				
Division #	Description	Estimated Quantity	Unit Price <i>{in numbers}</i>	Extended Amount <i>{in numbers}</i>
SUBTOTAL THIS PAGE =>				

BID NO. 15-XX				
Division #	Description	Estimated Quantity	Unit Price <i>{in numbers}</i>	Extended Amount <i>{in numbers}</i>
SUBTOTAL OF ITEMS ON PREVIOUS PAGE =>				
SUBTOTAL OF ITEMS ON THIS PAGE =>				
GRAND TOTAL OF ALL ITEMS =>				

A. The undersigned understands that there may be changes, omissions, or modification in the Work, and that appropriate adjustments will be made to the Contract price in accordance with the Contract Documents. The undersigned understands that the Owner reserves the right to accept or reject any or all bids, and to waive all formalities, any irregularities, and accept the Bid deemed to be in the Owner's best interest.

- B. Bid prices shall not include any sales, excise or other taxes for which the Owner is not liable. Town of East Hartford is the awarding authority. The Bidder agrees to hold the above pricing for thirty (30) days.
- C. The Bidder hereby agrees to commence Work under this Contract within ten (10) days of written Notice to Proceed from the Town, and to complete the Work of all base bid items within NINETY (90) CALENDAR DAYS thereafter. The Bidder further agrees to pay as liquidated damages, the sum of TWO HUNDRED FIFTY DOLLARS (\$250.00) for each consecutive calendar day beyond the date of completion. Liquidated damages are not intended as a penalty but rather shall be construed as a best estimate of damages which the Town will suffer due to Bidder's refusal, failure or neglect to perform pursuant to his Bid and Contract Documents.
- D. The Bid security in the sum of: 5% OF TOTAL BID is to become the property of the Town in the event the above forms are not executed within the time set forth above, as liquidated damages, and not as a penalty for the delay and additional expense to the Town caused thereby.

Respectfully Submitted By:

(Signature) \_\_\_\_\_

Name (Please Print): \_\_\_\_\_

Title: \_\_\_\_\_

Company: \_\_\_\_\_

Business Address: \_\_\_\_\_

\_\_\_\_\_

Business Phone: \_\_\_\_\_ ( ) \_\_\_\_\_

Business Fax: \_\_\_\_\_ ( ) \_\_\_\_\_

Email Address: \_\_\_\_\_

STATEMENT OF BIDDER'S  
CONSTRUCTION EXPERIENCE

All questions 1 through 13 must be answered and the data given must be clear and comprehensive. This statement MUST be notarized. If necessary, add separate sheets for items marked (\*).

1. Name of Bidder \_\_\_\_\_
2. Permanent main office address \_\_\_\_\_
3. When organized \_\_\_\_\_
4. When incorporated \_\_\_\_\_
5. How many years have you been engaged in the contracting  
business under your present firm name \_\_\_\_\_
6. \* Contacts on hand: (Schedule these, showing gross amount  
of each contract and the approximate anticipated dates of  
completion.) \_\_\_\_\_  
\_\_\_\_\_
7. \* General character of work performed by your company \_\_\_\_\_  
\_\_\_\_\_
8. \* Have you ever failed to complete any work awarded to you.  
If so where and why? \_\_\_\_\_  
\_\_\_\_\_
9. Have you ever defaulted on a contract \_\_\_\_\_
10. \* List the important structures recently erected by your  
company, stating approximate cost for each, and the month  
and year completed. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
11. \* List your major equipment available for this contract.  
\_\_\_\_\_  
\_\_\_\_\_

STATEMENT OF BIDDER'S  
CONSTRUCTION EXPERIENCE

12. \* Experience in construction work similar in importance to  
this project \_\_\_\_\_

\_\_\_\_\_

13. Will you, upon request, fill out a detailed financial statement and furnish any other information that may  
be required by the Town of East Hartford \_\_\_\_\_.

14. Provide client reference list for similar type projects constructed within the last 10 years.

Name:	Phone:

The undersigned hereby authorizes and requests any person, firm, or corporation to furnish any information  
requested by the Town of East Hartford in verification of the recitals comprising this Statement of Bidder's  
Construction Experience.

Dated at \_\_\_\_\_ this \_\_\_\_\_ day of \_\_\_\_\_ 201\_\_

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

By \_\_\_\_\_

Title \_\_\_\_\_

State of \_\_\_\_\_ (ss)

County of \_\_\_\_\_ (ss)

\_\_\_\_\_ being duly sworn

deposes and says that he is \_\_\_\_\_ of

\_\_\_\_\_  
(Name of Organization)

and that the answers to the foregoing questions and all statements therein contained are true and correct.

Sworn to before me this \_\_\_\_\_ day of \_\_\_\_\_ 201\_\_

\_\_\_\_\_  
(Notary Public)

My commission expires \_\_\_\_\_

## **CONTRACT AWARD FORMS**

Upon receipt of bid acceptance, all of the following documents contained within this section must be completed by the awarded bidder and returned within ten (10) calendar days. Failure to complete and return any of the documents will be cause for forfeiture of bid security

- Sub-contractor Identification



## **GENERAL CONDITIONS**

## **AVAILABILITY OF LANDS**

### **MATERIALS AND EQUIPMENT STORAGE**

The Contractor will not be allowed to store materials or equipment within Town or State right-of-way. The Contractor shall provide all additional lands and access thereto that may be required for the storage of materials and equipment. Evidence of agreement(s) with private property owner(s) for the storage of equipment and materials must be provided to the Town.

The Contractor may be allowed to store materials or equipment on Town parcels with written permission from the Engineer. Terms and conditions of the use of Town parcels will be negotiated before the start of work.

In no case, even with the property owner's consent, will storage of materials or equipment be allowed where such storage will impact sightlines at intersecting roadways.

## **CHANGES IN THE WORK**

Without invalidating the Contract, the Town may, at any time or from time to time, order additions, deletions or revisions in the Work. These will be authorized by Field Modifications, Field Orders or Change Orders. Upon receipt of a Field Modification, Field Order or Change Order, the Contractor will proceed with the Work involved. All such Work shall be executed under the applicable conditions of the Contract Documents. If any Field Order or Change Order causes an increase in the Contract Price or an extension or shortening of the Contract Time, an equitable adjustment will be made as provided hereafter.

- (a) The Engineer may authorize minor changes or alterations in the Work which do not involve extra cost or are not inconsistent with the overall intent of the Contract Documents. These may be accomplished by a Field Modification. If the Contractor believes that any minor change or alteration authorized by the Engineer entitled him to an increase in the Contract Price or an extension of Contract Time, he may make a claim as provided hereafter.
- (b) Additional Work performed by the Contractor without authorization of a Field Modification, Field Order or Change Order may not entitle him to an increase in the Contract Price or an extension of the Contract Time except in the case of an emergency or other extenuating circumstances, as provided in these General Conditions. In emergencies or other extenuating circumstances, payment shall be handled on an individual basis, as determined by the Engineer, in accordance with these Contract Documents.
- (c) It is the Contractor's responsibility to notify his Surety of any changes affecting the general scope of the Work, changes in the Contract Price or any other changes requiring consent of the Surety. The Contractor will furnish proof of consent by the Surety to any such changes. The Contractor will indemnify and save harmless the Town from all damages, losses and expenses, including attorneys fees, incurred by the Town as a result of denial of liability or delay of performance by the Contractor's Surety with respect to any changes in the Work as herein provided.

The value of any Work covered by a Field Order/Change Order shall be determined in one of the following ways:

- (1) By application of unit prices to the quantities of the items involved when the Work involved is covered by unit prices contained in the Contract Documents.
- (2) By mutual acceptance of a lump sum.

- (3) By the actual cost of the Work and a fixed amount for overhead and profit.
- a) Costs shall only include labor (payroll, payroll taxes, fringe benefits, workmen's compensation, etc.), materials, equipment, tools and other incidentals directly related to the Work involved. In such case, the Contractor will submit, in form prescribed by the Engineer, an itemized cost breakdown together with supporting data. The maximum percentage which shall be allowed for Contractor's combined overhead and profit shall be as follows:
- i) For all such Work done by his own organization, the Contractor may add up to fifteen percent (15%) of his actual net increase in costs, and
- ii) For all such Work done by Subcontractors, each Subcontractor may add up to ten percent (10%) of his actual net increase in costs for combined overhead and profit, and the Contractor may add up to five percent (5%) of the Subcontractor's net increase in costs for his combined overhead and profit. No overhead or profit shall be allowed on costs incurred in connection with premiums for public liability insurance or otherwise special insurance directly related to such Work.
- iii) When determining the amount of credit to the Town for any change which results in a decrease in costs, said credit will be determined by the Engineer. The actual cost of the Work described above minus any credits shall be the net increase in costs used to determine combined overhead and profit.

## **CONTROL OF WORK AREA**

### **GENERAL HOUSEKEEPING**

The Contractor will keep the Work area free from accumulations of waste materials, rubbish and other debris resulting from the Work and shall legally dispose of same. At the completion of the Work, he will remove all waste materials, rubbish and debris from and about the premises and legally dispose of same. All tools, construction equipment and machinery, and surplus materials shall also be removed from and about the premises. The Contractor shall leave the site clean and ready for occupancy by the Town.

### **DUST CONTROL**

During the progress of the Work, the Contractor shall conduct his operations and maintain the area of his activities so as to minimize the creation and dispersion of dust. If the Town determines that it is necessary to use water or calcium chloride for more effective dust control, the Contractor shall furnish and spread the materials, as directed. If there is no direct method of payment specified elsewhere in the contract documents, this Work will be performed without additional compensation.

### **MAINTENANCE OPERATIONS**

The Contractor must accommodate routine and emergency maintenance operations performed by the Town (i.e. refuse pickup, leaf collection, snow plowing, etc.) within the Work area.

### **TEMPORARY ACCESS TO AREA MERCHANTS, BUSINESSES, AND RESIDENCES**

Access to all businesses and residences within the project limits must be maintained at all times. The Contractor shall coordinate his/her work, provide safe and ready means of ingress and egress to all stores and shops, public and private professional offices, and any other businesses or residences in the project area, both day and night, for the duration of the project. As required by the Engineer, the Contractor shall install and maintain temporary ramps at driveways. If there is a lump sum bid price for the Maintenance and Protection of Traffic, the cost of installing, maintaining, and removing the temporary ramps shall be included in the lump sum price bid for Maintenance and Protection of Traffic. Otherwise, this Work will be performed without additional compensation.

## **GENERAL CONDITIONS: CONTROL OF WORK AREA**

Deck Replacement and Site and Pool Modifications

To Drennan Park Pool at McAuliffe Park

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## **COORDINATION**

### **WITH OTHER WORK**

The Town may award other contracts in the vicinity of the Work which may proceed simultaneously with the execution of this Contract. The Contractor shall perform his Work, causing as little interference with other Contractors, so far as circumstances will permit. The Contractor shall afford other Contractors reasonable opportunity for the introduction and storage of their materials and the execution of their Work, and shall properly connect and coordinate his Work with theirs.

Wherever Work being done by the Town of East Hartford's forces, or by other Contractors, is contiguous to Work covered by this Contract, the respective rights of the various interests involved shall be established by the Engineer, to secure the completion of the various portions of the Work in general harmony.

### **WITH UTILITY COMPANIES**

At least two full days before, (excluding Saturdays, Sundays and holidays) but not more than thirty days prior to commencing excavation, the Contractor shall call the telephone number 1-800-922-4455 (Call Before You Dig) to allow notification of utilities. The Contractor shall be responsible for coordinating his own work and that of his Subcontractors with any and all utilities in the work area.

Where the Engineer determines that the relocation or adjustment of public or private utilities is dependent upon the performance of certain contract requirements, the Contractor shall perform these operations within a reasonable length of time.

The Contractor shall schedule his operations in such a manner as to minimize interference with the operation of the forces of utility companies or the Town in effecting the installation of new facilities as shown on the plans or relocation of their existing facilities. The Contractor shall consider in his bid all permanent and temporary utility appurtenances, in their present or relocated positions, and installation of new facilities as required for the project. No additional compensation will be made for delays, inconvenience or damage sustained by the Contractor due to interference from the above-noted utility appurtenances or the operation of installing or moving the appurtenances.

The Contractor shall be responsible to support all utility poles in the vicinity of excavations necessary to perform Work under this project. The Contractor must obtain all approvals required by the custodian of the utility pole, and coordinate all Work. There will be no direct payment for the support of utility poles.

**DEFINITIONS**

Wherever used in these General Conditions or in the other Contract Documents, the following terms shall have the meanings, which shall be applicable to both the singular and plural thereof:

<i>Bid</i>	The offer or proposal of the Bidder submitted on the prescribed form Setting forth the lump sum and/or unit prices for the Work to be performed.
<i>Bidder</i>	Any person, firm or corporation submitting a Bid for Work.
<i>Bonds</i>	Instruments and security for bid, performance, labor and materials payment bonds and other purposes, furnished by the Contractor and his surety in accordance with the Contract Documents.
<i>Change Order</i>	A written order to the Contractor signed by the Director of Public Works, or his duly authorized agent, issued after execution of the Contract authorizing an addition, deletion or revision in the Work, or an adjustment in the Contract Price or the Contract Time.
<i>Contract</i>	The written Contract between the Town of East Hartford (hereinafter Referred to as “the Town”) and the Contractor covering the Work to be Performed, including the Contractor’s Bid and bonds.
<i>Commencement Date</i>	The date on which the Contractor is directed to commence work, as indicated in the written Notice to Proceed.
<i>Contract Documents</i>	The signed Contract, executed bid bond, performance bond, labor and materials payment bond, Notice of Award, Notice to Proceed, Contract Drawings and Specifications, and Modifications.
<i>Contract Drawings</i>	The drawings and plans which show the character and scope of the Work to be performed and which have been prepared and/or approved by the Engineer and are referred to in the Contract Documents.
<i>Contract Price</i>	The total monies payable to the Contractor under the Contract Documents.
<i>Contract Specifications</i>	The Invitation to Bid, Standard Instructions to Bidders, Instructions For Construction And/Or Labor Service Bids, Insurance Requirements, Form of General Bid, Bid Proposal Sheets, Qualifications of Bidders, Contract, Addenda (whether issued prior to the opening of Bids or the execution of the Agreement), Performance Bond Form, General Conditions, Notices to Contractor, Technical Specifications, Appendices and Exhibits,
<i>Contract Time</i>	The number of days stated in the Contract Documents for the completion

	of the Work.
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<i>Contractor</i>	The person, firm or corporation with whom the Town has executed the Contract.
<i>Day</i>	A calendar day of twenty-four (24) hours measured from midnight to the next midnight.
<i>Engineer</i>	Wherever in the Contract Documents the word “Engineer” is used it shall be understood as referring to the Director of Public Works acting personally or through a duly authorized representative.
<i>Field Modification</i>	A directive, usually verbal, for a minor change or alteration in the Work that causes not increase in Contract Price or extension of Contract Time.
<i>Field Order</i>	A written directive for a change or alteration in the Work that is the result of a difference in condition between that shown on the Contract Drawings and that found in the field.
<i>Furnish, Install, etc.</i>	The terms “furnish,” “install,” “construct,” “furnish and install,” or any similar term contractions, unless specifically noted to the contrary, shall include all materials, equipment, tools, labor, light, power, transportation and any other incidentals required for the completion of the Work.
<i>Inspector</i>	The authorized representative of the Engineer or Town who is assigned to the Project or any parts thereof.
<i>Modification</i>	1) A Field Modification; 2) A Field Order; 3) A Change Order; 4) A written clarification or interpretation issued by the Engineer.
<i>Notice of Award</i>	The written notice by the Town to the apparent successful Bidder stating that, upon compliance with the conditions stated and within the time specified, the Town will deliver the Contract to the Contractor for execution.
<i>Notice to Proceed</i>	Written notification by the Town to the Contractor indicating the date on which the Contractor is expected to commence Work.
<i>Project</i>	The entire construction to be performed as provided in the Contract Documents.
<i>Shop Drawings</i>	All drawings, diagrams, illustrations, brochures, schedules and other data which are prepared by the Contractor, a Subcontractor, Manufacturer, Supplier or Distributor and which illustrate the material, equipment or some portion of the Work.

<i>Subcontractor</i>	An individual, firm or corporation having a direct contract with the Contractor or with any other Subcontractor for the performance of a part of the Work at the site.
<i>Substantial Completion</i>	The date, as certified by an Engineer, when the construction of the Project or a specified part thereof is sufficiently completed in accordance with the Contract Documents, so that the Project or specified part can be utilized for the purposes for which it was intended.
<i>Work</i>	Any and all obligations, duties and responsibilities necessary to the successful completion of the Project assigned to or undertaken by the Contractor under the Contract Documents, including the furnishing of all materials, equipment, tools, labor and other incidentals necessary to complete the Work.

## **ENGINEER'S CONTROL**

In the performance of the Work, the Contractor shall abide by all orders, directions and requirements of the Engineer and shall perform all Work to the satisfaction of the Engineer and, at such time and places, by such methods and in such manner and sequence as he may require. The Engineer shall determine the amount, quality, acceptability and fitness of all parts of the Work, shall interpret the Contract Documents and modifications and shall decide all other questions in connection with the Work.

The enumeration herein, or elsewhere in the Contract Documents, of particular instances in which the opinion, judgment, discretion or determination of the Engineer shall control, or in which Work shall be performed to his satisfaction or subject to his approval or inspection, shall not imply that only matters similar to those enumerated shall be so governed and performed but, without exception, all the Work shall be governed and so performed.

The Town shall issue all communications to the Contractor through the Engineer.

The Engineer will not be responsible for the Contractor's means, methods, techniques, sequences or procedures of construction, or the safety precautions and programs incident thereto; and he will not be responsible for the Contractor's failure to perform the Work in accordance with the Contract Documents.

The Engineer will not be responsible for the acts or omissions of the Contractor or any Subcontractors, or any of his or their agents, servants or employees, or any other persons at the site or otherwise performing any of the Work.

## **AUTHORITY AND DUTIES OF THE INSPECTOR**

Inspectors employed by the Town shall be authorized to inspect all Work done and material furnished. Such inspection may extend to all or any part of the Work and to the preparation or manufacture of the materials to be used. In case of any dispute arising between the Contractor and the Inspector as to materials furnished or the manner of performing the Work, the Inspector shall have authority to reject material or suspend the Work until the question at issue can be referred to and decided by the Engineer. The Inspector shall not be authorized to revoke, alter, enlarge, relax or release any requirements of the Contract Drawings and Specifications, nor to approve or to accept any portion of the Work, nor issue instructions contrary to the Contract Drawings and Specifications. The Inspector shall in no case act as foreman or perform other duties for the Contractor, or interfere with the management of the Work by the latter. Any advice which the Inspector may give the Contractor shall in no circumstance be construed as binding the Town in any way nor releasing the Contractor from fulfillment of the terms of the Contract.

## **INSPECTION**

All materials and each part or detail of the Work shall be subject at all times to inspection by the Engineer. The Engineer shall be allowed access to all parts of the Work and shall be furnished with such information and assistance by the Contractor as the Engineer deems necessary to make a complete, detailed and timely inspection.

The Contractor shall always notify the Engineer of its intention to perform work on the Project, including notice of the particular work it intends to perform, at least 24 hours before the Contractor commences that work. The Engineering Division can be reached between 8:30 a.m. and 4:30 p.m. at (860) 291-7380.

The Contractor shall be responsible for coordinating his/her Work with the Engineer at all times. In instances when it shall be necessary to utilize Department inspectors during other than normal Department working hours, the Contractor shall make payment to the Town of East Hartford for such use. Normal working hours for the Department are from 8:30 a.m. to 4:30 p.m. daily, Monday through Friday, excluding holidays. Payment will be made in accordance with the following:

1. For each Department employee utilized by the Contractor, the Town shall receive the standard overtime rate paid to the employee by the Department.
2. In the event a Department employee is called out after the end of normal working hours, minimum payment to the Town by the Contractor for each Department employee utilized shall be at the standard overtime rate for a period no less than four (4) hours. Payment for overtime that is a continuation of the normal working day shall be at the standard overtime rate for the actual hours worked. There will be no charge for use of Department personnel during normal working hours for services provided by the Department.

## **ACCESS TO THE WORK**

The Contractor shall provide the Engineer and his representatives safe access to the Work at all times. The Contractor will provide proper facilities for such access and observation of the Work and also for any inspection or testing thereof by others.

If any Work is covered contrary to the request of the Engineer, it must, if requested by the Engineer, be uncovered for his observation and replaced at the Contractor's expense.

If any Work has been covered which the Engineer has not specifically requested to observe prior to its being covered, or if the Engineer considers it necessary or advisable that covered Work be inspected or tested by others, the Contractor, at the Engineer's request, will uncover, expose or otherwise make available for observation, inspection or testing as the Engineer may require, that portion of the Work in question, furnishing all necessary labor, material and equipment.

If it is found that such Work is defective or does not meet the requirements of the Contract Documents, the Contractor will bear all the expenses of such uncovering, exposure, observation, inspection and testing and of satisfactory reconstruction, including compensation for additional professional services, and an appropriate Change Order shall be issued deducting all such costs from the Contract Price. If, however, such Work is found to be non-defective and meets the requirements of the Contract Documents, the Contractor will be allowed an increase in the Contract Price or extension of the Contract Time directly attributable to such uncovering, exposure, observation, inspection, testing and reconstruction if he makes a claim therefore as provided hereafter.

## **INTENT OF CONTRACT DOCUMENTS**

It is the intent of the Contract Drawings and Specifications to describe a functionally complete Project to be constructed in accordance with the Contract Documents. The Contract Documents comprise the entire Contract between the Town and the Contractor, and any prior oral representations are null and void. The Contract may be altered only by a modification.

The Contract Documents are complementary; what is called for by one is as binding as if called for by all. If the Contractor finds a conflict, error or discrepancy in the Contract Documents, he will call it to the Engineer's attention in writing before proceeding with the Work affected thereby. Figure dimensions on drawings shall govern over scale dimensions and detailed drawings over general drawings. Any Work that may reasonably be inferred from the Contract Drawings and Specifications as being required to produce the intended result shall be supplied whether or not it is specifically called for. Work, materials or equipment described in words which so applied have a well-known technical or trade meaning shall be deemed to refer to such recognized standards. The Contractor assumes full responsibility for having familiarized himself with the nature and extent of the Contract Documents, Work, locality, and local conditions that may in any manner affect the Work to be done.

The captions which have been used in these Contract Documents are for convenience only and should not be construed to define or limit the meaning and intent of the paragraphs to which the captions apply.

State of Connecticut Department of Transportation Standard Specifications for Roads, Bridges, and Incidental Construction, Form 816, dated 2004, including the latest supplemental, referred to herein as the "Standard Specifications," are incorporated into the Work of this Contract by reference and shall be made a part of these Contract Documents with regard to the method and manner of performing the Work, or the quantities and qualities of materials to be furnished under the Contract. With the exception of: (1) extra work requested in writing by the Town or (2) extra work caused by unforeseen conditions, only items listed in the Bid Proposal Sheets shall be measured for payment. References to "State" contained within Form 816, shall be understood to mean "Town".

The quantities of work as listed in the Proposal Estimate Bid Sheet are to be used for comparison bidding. The quantities in all items of work may differ from the actual quantities of work listed due to actual field locations and conditions.

### **GENERAL CONDITIONS: INTENT OF CONTRACT DOCUMENTS**

Deck Replacement and Site and Pool Modifications

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## **LAYOUT OF WORK**

Unless otherwise stated in the “Notice to Contractor” section of these Specifications, the Contractor shall be responsible for the layout and staking of all the Work. Staking shall be performed by a Professional Land Surveyor (PLS) licensed in the State of Connecticut. All stakes shall be maintained as necessary to complete and inspect the Work. The Contractor shall maintain baseline stakes and/or critical control necessary for the Engineer to verify the accuracy of the Work.

## **LEGAL REQUIREMENTS**

### **TOWN'S RIGHT TO STOP OR SUSPEND WORK**

If the Work is defective, or the Contractor fails to supply sufficient skilled workmen or suitable materials or equipment, or if the Contractor fails to make prompt payments to Subcontractors for labor, materials or equipment, or if the Contractor fails to comply with Federal laws or regulations, then the Town may order the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated.

In addition, the Town may, at any time and without cause, suspend the Work or any portion thereof for a period of not more than ninety (90) days by notice in writing to the Contractor which shall fix the date on which Work shall be resumed. The Contractor will resume the Work on the date so fixed. The Contractor will be allowed an extension of the Contract Time directly attributable to any suspension if he makes a claim therefore as provided in the General Conditions.

### **TOWN'S RIGHT TO TERMINATE**

Town may, without prejudice to any other right or remedy and after giving the Contractor and his Surety seven (7) days written notice, terminate the services of the Contractor and take possession of the Project if:

1. the Contractor is adjudged bankrupt or insolvent, or
2. the Contractor makes a general assignment for the benefit of his creditors, or
3. a trustee or receiver is appointed for the Contractor or for any of his property, or
4. the Contractor files a petition to take advantage of any debtor's act, or to reorganize under the bankruptcy or similar laws, or
5. the Contractor repeatedly fails to supply sufficient skilled workmen or suitable materials or equipment, or
6. the Contractor repeatedly fails to make prompt payments to Subcontractors or for labor, materials or equipment, or
7. the Contractor disregards laws, ordinances, rules, regulations or orders of any public body having jurisdiction, or
8. the Contractor disregards the authority of the Engineer, or
9. the Contractor otherwise violates any provision of the Contract Documents

Where the Contractor's services have been so terminated by the Town, said termination shall not affect any rights of the Town against the Contractor, either existing or which may accrue in the future. Any retention or payment of monies by the Town due the Contractor will not release the Contractor from liability.

Upon seven (7) days written notice to the Contractor, the Town may, without cause and without prejudice to any other right or remedy, elect to abandon the Project and terminate the Contract. In such case, the Contractor shall be paid for all Work completed and any expense sustained plus a

#### **GENERAL CONDITIONS: LEGAL REQUIREMENTS**

Deck Replacement and Site and Pool Modifications

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reasonable profit.

### WAIVERS OF CLAIMS AND CONTINUING OBLIGATIONS

The Contractor's obligation to perform the Work and complete the Project in accordance with the Contract Documents shall be absolute. Neither approval of any progress or final payment by the Engineer, nor any payment by the Town to the Contractor under the Contract Documents, nor any use or occupancy of the Project or any part thereof by the Town, nor any act of acceptance by the Town nor any failure to do so, nor any correction of faulty or defective Work done by the Town shall constitute an acceptance of any Work found not to be in full compliance with the requirements of the Contract Documents.

Neither the final payment nor any part of the retained percentage shall become due until the Contractor has delivered to the Engineer a complete release of all claims or liens arising out of this Contract or receipts in full in lieu thereof and, if required in either case, an affidavit that so far as he has knowledge or information, the release and receipts include all labor and materials for which a lien or claim could be filed. But, the Contractor may, if any Subcontractor refuses to furnish a release or receipt in full, furnish a bond satisfactory to the Engineer to indemnify the Town against any claim or lien (in cases where such payment is not already guaranteed by surety bond).

If any claim or lien remains unsatisfied after all payments are made, the Contractor shall refund to the Town all monies that the latter may be compelled to pay in discharging such a lien, including all costs and a reasonable attorney's fee.

## MATERIALS

### GENERAL

The Contractor will provide and pay for all materials, equipment, tools, labor, transportation, construction equipment and machinery, appliances, fuel, power, light, heat, telephone, water and sanitary facilities and all other facilities and incidentals necessary for the execution, testing, initial operation and completion of the Work.

Unless otherwise specified, all materials and equipment incorporated in the Work shall be new. If required by the Engineer, the Contractor will furnish satisfactory evidence as to the kind and quality of materials and equipment.

All materials and equipment shall be applied, installed, connected, erected, used, cleaned and conditioned in accordance with the instructions of the applicable manufacturer, fabricator or processors, except as otherwise specifically provided in the Contract Documents.

### “OR EQUAL” CLAUSE

Wherever in these Contract Documents a particular brand, make of material, device or equipment is shown or specified and followed by the clause "or equal," such brand, make of material, device or equipment specified shall be regarded as the standard, and shall not preclude the furnishing of items other than those specified where the quality, use and serviceability of the substitute is determined by the Engineer to be the same or equal of the standard. If the clause “or equal” is not used, the particular brand, make of material, device or equipment specified shall be provided.

### SHOP DRAWINGS AND SAMPLES

After checking and verifying all field measurements, the Contractor will submit to the Engineer for approval, in accordance with the accepted schedule of Shop Drawing submissions, five (5) copies (or at the Engineer's option, one (1) reproducible copy) of all Shop Drawings, which shall have been checked by and stamped with the approval of the Contractor and identified as the Engineer may require. The data shown on the Shop Drawings will be complete with respect to dimensions, design criteria, materials of construction, manufacturer's certificates and the like to enable the Engineer to review the information as required.

The Contractor will also submit to the Engineer for approval, with such promptness as to cause no delay in Work, all samples required by the Contract Documents. All samples will have been checked by and stamped with the approval of the Contractor, identified clearly as to material, manufacturer, any pertinent catalog numbers and the use for which intended.

At the time of each submission, the Contractor will, in writing, call the Engineer's attention to any deviations that the Shop Drawing or sample may have from the requirements of the Contract Documents.

The Engineer will review, with reasonable promptness, Shop Drawings and samples, but his review shall be only for conformance with the design concept of the Project and for compliance with the information given in the Contract Documents. The approval of a separate item as such will not indicate approval of the assembly in which the item functions. The Contractor will make any corrections required by the Engineer and will return the required number of corrected copies of Shop Drawings and resubmit new samples until approved. The Contractor shall direct specific attention in writing or on resubmitted Shop Drawings to revisions other than the corrections called for by the Engineer on previous submissions.

No Work requiring a Shop Drawing or sample submission shall commence until the submission has been approved by the Engineer.

The Engineer's approval of Shop Drawings or sample shall not relieve the Contractor from his responsibility to comply with the requirements of the Contract Documents, unless the Contractor has in writing called the Engineer's attention to such deviations at the time of submission and the Engineer has given written approval to the specific deviation, nor shall any approval by the Engineer relieve the Contractor from responsibility for errors or omissions in the Shop Drawings.

#### CONNECTICUT SALES AND USE TAX

Materials and equipment purchased for installation in this project will be exempt from the Connecticut Sales and Use Tax under the Connecticut Education, Welfare and Public Health Tax Act. Each Bidder shall take this exemption into account in calculating his bid for the Work.

#### SURPLUS EXCAVATED MATERIALS

All surplus excavated material shall become the property of the Contractor, except where otherwise specifically noted in the Contract Documents or required for other portions of the Work as directed by the Engineer. The Contractor shall remove and dispose of such surplus material not required for other portions of the job and legally dispose of same.

## **PERMITS**

### **GENERAL**

Permits, fees, and licenses, necessary for the prosecution of the Work shall be secured and paid for by the Contractor. Such permits, licenses, etc., shall be obtained by the Contractor prior to performing any Work and shall include, but not be limited to, water and sewer permits (MDC), building permits, driveway and sidewalk permits, excavation permits, and Connecticut Department of Transportation Encroachment permits.

The Contractor will give all notices and comply with all laws, ordinances, rules and regulations applicable to the Work. If the Contractor observes that the Contract Drawings and Specifications are at variance therewith, he will give the Engineer prompt written notice thereof, and any necessary changes shall be adjusted by an appropriate modification. If the Contractor performs any Work knowing it to be contrary to such laws, ordinances, rules and regulations, and without such notice to the Engineer, he will bear all costs arising there from.

### **DRIVEWAY AND SIDEWALK PERMIT**

For any Work within the Town right-of-way, on Town properties, or within the State highway right of way (for sidewalks only), the Contractor shall obtain a license and permit from the East Hartford Department of Public Works for the project. The license requires submission of a separate insurance certificate, a \$10,000 bond, and a hold harmless agreement. Licenses expire on December 31 of the year of issue. The Contractor is required to pay a \$35.00 license fee. Once the license has been obtained, the Contractor shall apply for a permit for this project. The \$50.00 permit fee will be waived for this project.

### **WATER AND SEWER PERMIT**

Prior to any construction involving or impacting facilities owned and/or operated by the Metropolitan District Commission (MDC), the Contractor must obtain all necessary permits pertinent to the work being performed.

### **BUILDING PERMITS**

Certain work including, but not limited to, retaining wall construction and electrical work, requires a building permit. The Contractor shall secure building permit(s) for such work at the Town of East Hartford Inspections and Permits Department. Unless otherwise noted in a "Notice to Contractor", the Town's portion of the permit fee will be waived. The Contractor will be required to pay the State of Connecticut portion of any building permit. Contact the Inspections and Permits office at 860-291-7345 for building permit information.

## SPECIAL PERMITS

Some projects require special approval(s) from the Town of East Hartford Planning and Zoning Commission, the State of Connecticut Department of Environmental Protection (DEP), the United States Army Corps of Engineers or any other agency with jurisdictional rights. In most of these cases, separate plans have been approved and are on file. Any specific permit approval(s) by another agency or commission will be identified in the “Notice to Contractor” section of these Specifications. If such permits are identified, then the approved permit plans are hereby made part of the Contract Documents and the Contractor represents that he/she is fully aware of all the requirements of the permit and his/her intention to comply with such requirements.

## **PRELIMINARY MATTERS**

### **PRECONSTRUCTION MEETING**

Prior to any construction, a preconstruction meeting will be held to review schedules, to establish procedures for handling Shop Drawings and other submissions, to review the procedures for processing Applications for Payment, and to establish a working understanding between the parties with respect to the Project. Representatives from the Contractor shall be at a minimum the Project Manager and a representative from each major subcontractor.

### **KNOWLEDGE OF PROJECT**

The Contractor represents that he has familiarized himself with, and assumes full responsibility for having familiarized himself with the nature and extent of the Contract Documents, Work, locality and with all local conditions and Federal, State and local laws, ordinances, rules and regulations that may in any manner affect performance of the Work, and represents that he has correlated his study and observations with the requirements of the Contract Documents.

Contractor also represents that he has studied all surveys and investigation reports of subsurface and latent physical conditions referred to in the Contract Documents, and made such additional surveys and investigations as he deems necessary for the performance of the Work at the Contract Price, in accordance with the requirements of the Contract Documents, and that he has correlated the results of all such data with the requirements of the Contract Documents. In addition, the Contractor represents that he has contacted all utility companies or contractors who may be doing work in the Project area to insure that their activities and schedules have been taken into account when planning his own Work.

### **COPIES OF DOCUMENTS**

The Town will furnish the Contractor up to three (3) copies of the Contract Drawings and Specifications for the execution of the Work. Additional copies will be furnished, upon request, at the cost of reproduction.

## **PROGRESS PAYMENTS**

Not more often than once a month, the Contractor will submit to the Engineer for review an Application for Payment, signed by the Contractor and notarized, covering the Work completed as of the date of the Application and supported by such data as the Engineer may reasonably require. Application for Payment shall be made on the form provided. There will be no payment for materials on order or stored on-site. The amount paid the Contractor shall be the amount due less five percent (5%) retainage.

The Contractor warrants and guarantees that title to all Work, materials and equipment covered by an Application for Payment, free and clear of all liens, claims, security interests and encumbrances, will have passed to the Town prior to the making of the Application for Payment,; and that no Work, materials or equipment covered by an Application for Payment will have been acquired by the Contractor or by any other person performing the Work at the site or furnishing materials and equipment for the Project, subject to an agreement under which an interest therein or encumbrance thereon is retained by the seller or otherwise imposed by the Contractor or such other person. Said warranty and guarantee shall be indicated on each Application for Payment.

The Engineer will, within ten (10) days after receipt of each Application for Payment, either present the Application to the Finance Department for processing, or return the Application to the Contractor indicating in writing his reasons for refusing to approve payment. In the latter case, the Contractor may make the necessary corrections and resubmit the Application.

The Town will, within thirty (30) working days of receipt of an approved Application for Payment, pay the Contractor the amount approved by the Engineer.

## **PROSECUTION AND PROGRESS**

It is hereby understood and mutually agreed, by and between the Contractor and the Town, that the date of beginning and the time for completion, as specified in the Contract of the Work to be done hereunder are essential conditions of this Contract; and it is further mutually understood and agreed that the Work embraced in this Contract shall be commenced on a date to be specified in the Notice to Proceed.

The Contractor agrees that said Work shall be prosecuted regularly, diligently and uninterruptedly at such rate of progress as will insure full completion thereof within the time specified. It is expressly understood and agreed, by and between the Contractor and the Town, that the time for the completion of the Work described herein is a reasonable time for the completion of the same, taking into consideration the average climatic range and usual industrial conditions prevailing in this locality.

If the Contractor shall neglect, fail or refuse to complete the Work within the time herein specified, or any proper extension thereof granted by the Town, then the Contractor does hereby agree, as a part consideration for the awarding of this Contract, to pay to the Town the amount specified in the Bid Proposal, not as a penalty but as liquidated damages for such breach of Contract as hereinafter set forth, for each and every calendar day that the Contractor shall be in default after the time stipulated in the Contract for completing the Work. The said amount is fixed and agreed upon by and between the Contractor and the Town because of the impracticability and extreme difficulty of fixing and ascertaining the actual damages the Town would in such event sustain, and said amount is agreed to be the amount of damages which the Town would sustain.

It is further agreed that time is of the essence of each and every portion of the Contract Documents wherein a definite and certain length of time is fixed for the performance of any act whatsoever; and where under the Contract an additional time is allowed for the completion of any Work, the new time limit fixed by such extension shall be of the essence of this Contract. Provided that the Contractor shall not be charged with liquidated damages or any excess cost when the delay in completion of Work is due:

- (1) To any preference, priority or allocation order duly issued by the Government;
- (2) To unforeseeable cause beyond the control and without the fault or negligence of the Contractor, including, but not restricted to, acts of God, or of the public enemy, acts of the Town, acts of another Contractor in the performance of a Contract with the Town, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, and unusually severe weather; and,
- (3) To any delays of Subcontractors or suppliers occasioned by any of the causes specified in subsections (1) and (2) above.

### **GENERAL CONDITIONS: PROSECUTION AND PROGRESS**

Deck Replacement and Site and Pool Modifications

To Drennan Park Pool at McAuliffe Park

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If, in the opinion of the Town, the Contractor is not executing the Work at a sufficient rate of progress, so as to finish in the time specified, or has abandoned said Work or is not complying with the terms and stipulations of the Contract Documents the Town may exercise their rights to either stop or suspend the Work or terminate the services of the Contractor.

#### CHANGES TO CONTRACT TIME

The Contract Time may only be changed by a Change Order. If the Contractor is entitled by the Contract Documents to make a claim for an extension in the Contract Time, his claim shall be in writing delivered to the Engineer within fifteen (15) days of the occurrence of the event giving rise to the claim.

The Contract Time will be extended in an amount equal to time lost due to delays beyond the control of the Contractor if he makes a claim therefore as provided in paragraph above. Such delays shall include, but not be restricted to, acts of neglect by any separate Contractor employed by the Town, fires, floods, labor disputes, epidemics, abnormal weather conditions, or acts of God.

All time limits stated in the Contract Documents are of the essence of the Contract. The provisions of this article shall not exclude recovery for damages (including compensation for additional professional services) for delay by either party.

It is the Contractor's responsibility to notify his Surety of any extension in the Contract Time. The Contractor will furnish proof of consent by the Surety to any such extension. The Contractor will indemnify and save harmless the Town from all damages, losses and expenses, including attorneys fees incurred by the Town as a result of denial of liability or delay of performance by the Contractor's Surety with respect to any changes in the Work as herein provided.

## PROJECT SCHEDULE

Within ten (10) days after the execution of the Contract, the Contractor shall submit to the Engineer for approval a project schedule identifying the major activities associated with the project, the order and connectivity of such activities, critical milestone dates, and a schedule of Shop Drawing submissions. The schedule should identify work being performed by subcontractors. No schedule will be approved that shows any activities beyond the allotted contract time for the project. The Contractor shall update the schedule as necessary as the project progresses.

## WINTER SHUTDOWN

If the time specified for completion of the Project, with time extensions, is due to expire after November 15<sup>TH</sup>, then contract time will not be charged during a winter shutdown period between November 15<sup>TH</sup> and April 1<sup>ST</sup>. The Contractor will not be allowed to work during the winter shutdown (other than maintaining the project area) without the approval of the Engineer. Prior to a winter shutdown, the Contractor and the Town shall meet to discuss the Contractor's procedures for preparing the Work area for a winter shutdown. No additional compensation will be paid for demobilization, remobilization, or other costs associated with a winter shut down but these costs shall be included in the general cost of the Work.

If the time specified for completion of the Project, with time extensions, is due to expire before November 15<sup>TH</sup> and the Project is not completed before November 15<sup>TH</sup>, then the time charged to the Contractor will continue to run through the winter shutdown period.

## RENTSCHLER FIELD STADIUM EVENTS SCHEDULE

For projects in close proximity to Rentschler Stadium, it is imperative that the Contractor secure the work area prior to any scheduled day or evening events. The Contractor shall provide for safe vehicular and pedestrian travel through the work zone during these events. A schedule of upcoming stadium events is available online at:

<http://www.rentschlerfield.com/events.cfm>.

## **PROTECTION**

In general, the Contractor shall protect all existing features, public or private, within or adjacent to the Work area that is not called out to be removed or replaced.

## **EXISTING MONUMENTATION**

The Contractor shall be responsible for the protection and replacement of all survey markers, streetline monuments, and private property markers. Any survey markers, streetline monuments or private property markers disturbed or destroyed during construction will be replaced at the Contractor's own expense. Work must be performed by a Land Surveyor licensed in the State of Connecticut.

## **CONTRACT WORK**

The Contractor shall protect his Work so as to prevent damage and/or vandalism to newly poured sidewalks and other concrete surfaces. Any newly poured sidewalks or ramps which are damaged or defaced shall be promptly repaired or replaced at the Contractor's expense. Determination to repair or replace will be at the sole discretion of the Engineer.

## **TREES AND SHRUBS**

The Contractor will take precautionary measures to protect all public and private trees or shrubs remaining within or adjacent to the Project area. This also includes protection of root systems that may become damaged due to the excavation activities near or adjacent to vegetation designated to remain.

The Contractor shall be fully responsible for compensation, repair, or replacement of any damaged tree or shrub because of neglect by the Contractor or any of his/her assigned Subcontractors.

## **UTILITIES**

All existing utilities shall be protected and supported according to the specific utility company's requirements. It is the Contractor's sole responsibility to coordinate and communicate with the utility company in question.

## **TRAFFIC CONTROL FACILITIES**

The Contractor's attention is called to the fact that there are underground traffic control facilities (e.g. loop detectors) at various intersections in the Town of East Hartford. Should these facilities become damaged during the course of the Work, the Contractor will be responsible for replacement of the equipment in accordance with the current Connecticut DOT installation standards. Splicing of the detector loops will not be permitted. Replacement of traffic control equipment will be at the Contractor's expense.

## **PRIVATE PROPERTY**

The Contractor will confine his activities to properties owned by the Town or road right-of-way (State- or Town-owned), as indicated on the drawings. Any claims for damage to private property as a result of the Contractor's operations, or lack of protective measures to prevent such damage, will be forwarded directly to the Contractor for resolution. For each claim, the Contractor shall provide to the Town evidence that the claim has been resolved. The Town will not release final retainage for any project where there are any unresolved claims.

## **PUBLIC CONVENIENCE**

The Contractor shall conduct the Work at all times in such a manner as to ensure the least possible obstruction to both vehicular and pedestrian traffic. All equipment and materials shall be placed or stored in such a way and in such locations as will not create a hazard to the general public.

The Contractor shall notify residents and businesses in writing at least 24 hours in advance of any Work which will impact access to their property. Work shall be coordinated such that no residential or commercial driveway access is fully closed at any time.

Work shall be coordinated such that it does not leave any excavated area open for more than one day without prior approval of the Engineer.

The Contractor shall provide such barricades, signs, warnings, flagmen and shall conduct his Work in such a manner so that hazards to vehicular and pedestrian traffic are at a minimum. If, in the opinion of the Engineer or other Town Public Safety Authorities, additional precautions or measures should be taken in the interest of public safety, the Contractor shall so comply promptly.

If the Contractor finds it necessary to close a portion of the road to vehicular traffic, then a Road Closure permit shall be obtained from the Engineer and the Chief of the East Hartford Police Department. The Contractor shall notify the Fire Department and any other concerned agencies of such road closing. Access shall be provided at all times to fire hydrants and precautions shall be taken to prevent freezing of any exposed or partially uncovered water lines.

## **RECORD DRAWINGS**

The Contractor shall keep one (1) record copy of all Contract Specifications, Contract Drawings, Addenda, Modifications and Shop Drawings at the site in good order and annotated to show all changes made during the construction process. These shall constitute the Record Drawings for the Project, be available to the Engineer at any time and shall be delivered to him upon completion of the Work.

## **SAFETY**

The Contractor shall comply with all requirements of the Occupational Safety and Health Act (OSHA), applicable laws, building and construction codes. Prior to any Construction, the Contractor shall provide the name of his/her "competent person" who is responsible for project safety.

The Contractor shall furnish to the Engineer a report in duplicate on each accident on the Project or related to the prosecution of the Project which involves personal injury requiring medical treatment or which causes an employee's loss of work time. The Contractor shall also furnish to the Engineer a report in duplicate regarding any accident involving public liability or property damage in connection with the Project.

At all times, the Contractor shall protect his/her work from the motoring or walking public. It will be the Contractor's responsibility to supply and utilize flagmen or Town Police personnel, barricades, signs, drums, cones, etc. throughout the construction. Any sidewalk left excavated at the end of the work shift shall be cordoned off and properly signed to restrict pedestrian access.

The Contractor shall utilize OSHA approved safety caps on all pins or other protruding metal used for sidewalk forms.

Prior to any construction involving trenching and/or shoring, the Contractor shall provide the Town one copy of its "Trenching and Shoring" safety plan.

If any of the Work requires any person to enter into a confined space as defined by OSHA, the Contractor shall submit to the Town a copy of its "Confined Space Entry" procedures.

The Contractor will be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. He will take all necessary precautions for the safety of, and will provide the necessary protection to prevent damage, injury or loss to:

- (1) All employees on the Work and other persons who may be affected thereby.
- (2) All the Work and materials or equipment to be incorporated therein, whether in storage on or off the site, and
- (3) Other property at the site or adjacent thereto, including but not limited to trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction.

The Contractor shall take all proper precautions to protect existing access to properties from injury or unnecessary interference. He shall provide proper means of access to any property where the existing access is cut off by the Contractor. The Contractor shall take all proper precautions to protect persons from injury or unnecessary inconvenience and leave an unobstructed way along the public and private places for travelers, vehicles, and for access to hydrants.

No materials or other obstruction shall be placed within fifteen (15) feet of any fire hydrant which, at all times, must be readily accessible to the Fire Department.

The Contractor will comply with all applicable laws, ordinances, rules, regulations and orders of any public body having jurisdiction for the safety of persons or property or to protect them from damage, injury or loss. The Contractor shall provide and maintain all necessary flagmen, barricades, red lights and warning signs and take all necessary precautions for the protection of the public. He shall continuously maintain adequate protection of all Work from damage, and shall take all reasonable precautions to protect the Town from injury or loss arising in connection with this Contract. He shall make good any damage or injury to his Work or to the property of the Town resulting from lack of reasonable protective precautions, except such as may be due to errors in the Contract Documents, or caused by agents or employees of the Town. He shall adequately protect adjacent private and public property, as provided by law and the Contract Documents. He will notify owners of adjacent utilities when prosecution of the Work may affect them. When the use or storage of explosives or other hazardous materials is necessary for the prosecution of the Work, the Contractor will exercise the utmost care and will carry on such activities under the supervision of properly qualified personnel. All damage, injury or loss to any property referred to in the above paragraphs caused, directly or indirectly, in whole or in part, by the Contractor, Subcontractor or anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, will be remedied by the Contractor, except damage or loss attributable to the fault of the Contract Drawings or Specifications or to the acts or omissions of the Town or anyone employed by the Town or for whose acts the Town may be liable, and not attributable to the fault or negligence of the Contractor.

In emergencies affecting the safety of persons or the Work or property at the site or adjacent thereto, the Contractor, without special instruction or authorization from the Town, is obligated to act, at his discretion, to prevent threatened damage, injury or loss. He will give the Engineer prompt written notice of any significant changes in the Work or deviations from the Contract Documents caused thereby, and a Change Order shall thereupon be issued covering the changes and deviations involved.

## **SUBCONTRACTS**

Prior to the execution and delivery of the Contract, the Contractor will submit to the Engineer for acceptance the following:

- (1) a list of all Subcontractors;
- (2) a list of such other persons or organizations proposed to perform portions of the Work, including those who are to furnish materials or equipment fabricated to a special design.
- (3) a percentage breakdown based on Contract Unit prices proving that the prime contractor's workforce will be completing at least 50% of the contract Work.

Prior to the execution and delivery of the Contract, the Engineer will notify the successful Bidder in writing if the Engineer, after due investigation, has reasonable objection to any Subcontractor, person or organization on such list. The failure of the Engineer to make objection to any Subcontractor, person or organization on the list prior to the execution and delivery of the Contract shall constitute an acceptance of such Subcontractor, person or organization but shall not constitute a waiver of any right of the Engineer to reject defective Work, material or equipment not in conformance with the requirements of the Contract Documents.

The Contractor will be fully responsible for all acts and omissions of his Subcontractors and of persons directly or indirectly employed by them, and of persons for whose acts any of them may be liable to the same extent that he is responsible for the acts and omissions of persons directly employed by him. Nothing in the Contract Documents shall create any contractual relationship between any Subcontractor and the Town, or the Engineer or any obligation on the part of the Town or the Engineer to pay or to see to the payment of any monies due any Subcontractor, except as may otherwise be required by law.

The Contractor shall specifically bind every Subcontractor to all of the applicable terms and conditions of the Contract Documents. Every Subcontractor, by undertaking to perform any of the Work, will thereby automatically be deemed to be bound by such terms and conditions.

## **SUBSTANTIAL COMPLETION**

Upon written notice from the Contractor that the Project is complete, the Engineer, as representative of the Town, will make an inspection with the Contractor, will notify the Contractor in writing of any particulars in which this inspection reveals that the Work is defective. The Contractor shall immediately make such corrections as are necessary to remedy such defects.

After the Contractor has completed any such corrections to the satisfaction of the Engineer and delivered all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection and other documents, all as required by the Contract Documents, the Town will issue a Certificate of Substantial Completion.

The Contractor may then make application for final payment. The final Application for Payment shall be accompanied by such supporting data as the Engineer may require, together with complete and legally effective releases or waivers (satisfactory to the Town) of all liens arising out of the Contract Documents and the labor and services performed and the material and equipment furnished there under. In lieu thereof and as approved by the Town, the Contractor may furnish receipts or releases in full; an affidavit of the Contractor that the releases and receipts include all material, equipment, tools and labor bills, and other indebtedness connected with the Work for which the Town or its property might in any way be responsible, have been paid or otherwise satisfied; and consent of the Surety, if any, to final payment. If any Subcontractor or supplier fails to furnish a release or receipt in full, the Contractor may furnish a bond satisfactory to the Town to indemnify it against any lien.

If, on the basis of his observation and review of the Work during construction, his inspection and his review of the final Application for Payment, all as required by the Contract Documents, the Engineer is satisfied that the Work has been completed and the Contractor has fulfilled all of his obligations under the Contract Documents, he will, within ten (10) days after receipt of the final Application for Payment, indicate in writing his approval of payment and present the Application to the Finance Department for processing. Otherwise, he will return the Application to the Contractor, indicating in writing his reasons for refusing to approve final payment, in which case the Contractor will make the necessary corrections and resubmit the Application.

Final payment shall be subject to two and one-half percent (2.5%) retainage. The remaining two and one-half percent (2.5%) will be payable in accordance with the Warranty of Work provisions stated herein. The Town will, within thirty (30) days of receipt of an approved final Application for Payment, pay the Contractor the amount approved by the Engineer.

### **GENERAL CONDITIONS: SUBSTANTIAL COMPLETION**

Deck Replacement and Site and Pool Modifications  
To Drennan Park Pool at McAuliffe Park

## **SUBSURFACE UTILITIES**

Subsurface information which may be contained in these Contract Documents has been developed from the best available records, the accuracy of which cannot be guaranteed. These locations are subject to possible errors in the source of the information; also, errors in transcription. The Contractor shall make certain of the exact location of mains, ducts, poles and services prior to excavation near utility lines. The Contractor shall cooperate fully with the various utilities and shall plan his Work so that least interference is caused for all parties concerned. The various utility companies will make all adjustments to their own lines except as otherwise shown on the Contract Drawings or detailed in the Contract Specifications. The Contractor shall give ample notice to "Call Before You Dig" so that existing lines can be marked in the field and adjustments made. If, in the course of construction, conditions are found which result in changes of alignment and/or delays necessitating the rescheduling of the Contractor's operation, such changes in alignment or rescheduling of operations shall not constitute the basis of a claim for extra payment. It is anticipated that the Contractor will provide for contingencies which may confront him during the execution of the Work in the preparation of his bid.

The Contractor shall support all utility lines uncovered due to trench excavation in accordance with the requirements of the specific utility company.

## **SUPERVISION**

The Contractor will supervise and direct the Work efficiently and with his best skill and attention. He will be solely responsible for the means, methods, techniques, sequences and procedures of construction. Before undertaking the Work, he will carefully study and compare the Contract Documents and check and verify all figures shown thereon and all field measurements. He will at once report in writing to the Engineer any conflict, error or discrepancy which he may discover. The Contractor will be responsible to see that the finished Work complies accurately with the Contract Documents.

The Contractor will keep a Resident Superintendent, satisfactory to the Engineer, on the site at all times. The Superintendent shall not be replaced without the consent of the Engineer except under extraordinary circumstances. The Superintendent will be the Contractor's representative at the site and shall have authority to act on behalf of the Contractor. All communications given to the Superintendent shall be as binding as if given to the Contractor.

The Engineer will not be responsible for the acts or omissions of the Contractor, or any Subcontractors, or any of his or their agents, servants or employees, or any other persons performing any of the Work.

## **TESTING AND INSPECTION**

If the Contract Documents, Engineer's instructions, laws, ordinances, rules, regulations or orders of any public authority having jurisdiction require any Work to be specially inspected, tested or approved by someone other than the Contractor, the Contractor will give the Engineer timely notice of readiness therefore. The Contractor will furnish the Engineer the required certificates of inspection, testing, or approval. If the inspection is to be made by another authority other than the Engineer, the date fixed for such inspection shall be provided. All such tests will be in accordance with the methods prescribed by the American Society for Testing and Materials or such other applicable organization as may be required by law or the Contract Documents. If any such Work required so to be inspected, tested or approved is covered up without written approval or consent of the Engineer, it must, if directed by the Engineer, be uncovered for observation at the Contractor's expense. The cost of all such inspections, tests and approvals shall be borne by the Contractor unless otherwise provided.

Any Work which fails to meet the requirements of any such test, inspection or approval, and any Work which meets the requirements of any such test or approval but does not meet the requirements of the Contract Documents shall be considered defective. Such defective Work may be rejected, corrected or accepted as provided.

Neither observations by the Engineer nor inspections, tests or approvals by persons other than the Contractor, shall relieve the Contractor from his obligations to perform the Work in accordance with the requirements of the Contract Documents.

The Contractor shall notify the Town of East Hartford Engineering Division 24 hours prior to beginning any storm drainage, roadway preparation, paving, sidewalk, curbing, streetline monumentation, property corner pins, etc. to schedule inspections. The division can be reached between 8:30 a.m. to 4:30 p.m. Monday thru Friday at 1-860-291-7380.

## **WARRANTY OF WORK**

The Contractor warrants and guarantees to the Town and the Engineer that all materials and equipment will be new unless otherwise specified, and that all Work will be of good quality and free from faults or defects and in accordance with the requirements of the Contract Documents and of any inspections, tests or approvals referred to in herein. All unsatisfactory Work, all faulty or defective Work and all Work not conforming to the requirements of the Contract Documents or of such inspections, tests or approvals shall be considered defective. Prompt notice of all defects shall be given to the Contractor. All defective Work, whether or not in place, may be rejected.

If required by the Engineer prior to the issuance of the Certificate of Substantial Completion, the Contractor will promptly, without cost to the Town and as required by the Engineer, either correct any defective Work, whether or not fabricated, installed or completed, or, if the Work has been rejected by the Engineer, remove it from the site and replace it with non-defective Work. If the Contractor does not correct such defective Work or remove and replace such rejected Work within a reasonable time, all as required by written notice from the Engineer, the Town may have the deficiency corrected or the rejected Work removed and replaced. All direct or indirect costs of such correction or removal and replacement, including compensation for additional professional services, shall be paid by the Contractor and an appropriate Change Order shall be issued deducting all such costs from the Contract Price. The Contractor will also bear the expenses of making good all Work of others destroyed or damaged by his correction, removal or replacement of his defective Work.

Two and one-half percent (2.5%) of the total Contract Price shall be retained by the Town for a period of up to one (1) year after substantial completion of the Contract to allow appearance of any defect in materials and workmanship. Within this one (1) year period, the Contractor shall remedy any defective Work appearing and pay for any damages to other Work caused by such defective Work, or occasioned in correcting same. If the Town determines the defective Work creates a situation requiring immediate attention, the Town may have the defective Work removed and replaced. All direct and indirect costs, including compensation for professional services, will be paid by the Contractor. If an excessive amount of defective Work appears during the one (1) year period after the substantial completion, the Town, upon written notice to the Contractor, may extend the retainage period for an additional year. The Town will not release final retainage where there are any unresolved claims for the project.

**SECTION 2**

**TECHNICAL SPECIFICATIONS**

## SECTION 00900 - SPECIAL CONDITIONS

### 1. SPECIAL CONDITIONS DEFINITIONS

A. Where the Specifications refer to Owner, this shall be construed to mean the Town of East Hartford, Department of Parks and Recreation, 50 Chapman Place, East Hartford CT, 06108. Its designated agent shall be referred to as the "Contracting Officer" in these specifications.

B. Contractor shall contact the Purchasing Department regarding site visit questions. Contact should be by telephone to:

Ms. Michelle Enman, Purchasing Agent  
Purchasing Department  
Town of East Hartford  
Town Hall  
740 Main Street, Lower Level  
East Hartford, CT 06108  
(860) 291-7271

C. Architectural questions on specifications and drawings are to be addressed to:

Mr. David Holmes, or  
Mr. Jason Pitts  
Capital Studio Architects, LLC  
1379 Main Street  
East Hartford, CT 06108  
Tel: (860) 289-3262  
Fax: (860) 289-3163  
Email: [dholmes@capitalstudio.net](mailto:dholmes@capitalstudio.net), or [jpitts@capitalstudio.net](mailto:jpitts@capitalstudio.net)

### 3. SALES TAX

A. The Owner is exempt from Connecticut Sales Tax. Other fees accessed by the State of Connecticut may be passed through to the Contractor.

#### 4. INSURANCE

- A. No insurance shall be terminated by the Contractor without ten (10) days notice to the Owner.
- B. All insurance companies shall be licensed and registered in the State of Connecticut.

#### 5. INTERPRETATIONS OF DRAWINGS

- A. Any questions or disagreements arising as to the true intent of this specification or the drawings, or the kind and quality of work required thereby, shall be decided by the Architect, whose interpretations thereof shall be final, conclusive, and binding on all parties.
- B. In the case of disagreement between drawings and specifications, or within either document itself, the better quality, greater quantity, or more costly work shall be included in the contract price, and the matter referred to the Architect's attention for decision and/or adjustment.
- C. If the disagreement between the drawings and specification cannot be resolved through either A. or B. above, the specifications shall take precedence over the drawings.

#### 6. VISITING THE SITE

- A. Before submitting his final proposal, the Contractor shall examine the site of the proposed work to determine the existing conditions that may affect his work, as he will be held responsible for any assumptions made by him in regard thereto.

#### 7. CONTRACTOR'S PROPOSAL

- A. The Contractor's proposal and bid must cover all items on the drawings and in the specifications exactly as drawn and specified.
- B. Proposals and bids that do not conform to drawings and specifications will not be accepted.

## 8. SUBSTITUTIONS

A. Substitutions of equipment or materials other than those indicated on the drawings or in the specifications, shall be limited to those approved in advance, in writing, by the Architect. Special attention shall be paid to items listed as “No Substitutions” and are specified in accordance with the Owner’s standards for Swimming Pool Equipment and Accessories.

## 9. SUB-CONTRACTORS

A. All sub-Contractors shall be subject to approval of the Owner and listed on the Form of Bid.

B. When requested by the Owner, the prospective Contractors should submit a list with names, addresses, and telephone numbers of similar type projects previously completed.

## 10. LAWS, ORDINANCES, PERMITS AND FEES

A. The Contractor shall give all necessary notices, obtain all permits and pay for governmental taxes, fees, and other costs in connection with his work; file all necessary plans, prepare all documents and obtain all necessary plans, prepare all documents and obtain all necessary approvals of the Governmental departments having jurisdiction; obtain all required Certificates of Inspection for his work and deliver to the Architect before request for acceptance and final payment for the work. The Owner is not exempt from paying Building Permit Fees to the Town of East Hartford. The Contractor shall include for any and all State of Connecticut Department of Environmental Protection Permits in addition to all Local Permits. The Contractor shall be responsible for submission of all required documents to the State of Connecticut Department of Public Health, Division of Environmental Health, Recreation Program for Initial Review of Pool Plans, Conformance Inspection of Pool(s), Review of Resubmitted (Revised) Pool Plans (if required) and Reinspection of Pool (if required).

## 11. APPROVALS

A. The materials, workmanship, design and arrangement of all work installed under the contract shall be subject to the approval of the Architect. If material or equipment is installed before it is approved, the Contractor shall be liable for the removal and replacement, at no extra charge to the Owner, if, in the opinion of the Architect, the material or equipment does not meet the intent of the drawings and specifications.

B. The words "approved equal", or "substitution" shall be understood to apply only to those items of equipment and material approved in advance by the Architect.

C. Equipment and materials that do not conform to the specifications or the previous paragraph will not be approved.

## 12. NON-SEGREGATED FACILITIES

A. By signing the bid, the bidder certifies that he does not maintain or provide for his employees any segregated facilities at any of his establishments, and that he does not permit his employees to perform their services at any location, or under his control, where segregated facilities are maintained. The bidder agrees that a breach of this certification is a violation of the Equal Opportunity Clause in this Contract. As used in this certification, the term "segregated facilities" mean any waiting room, work areas, restrooms, restaurants and other eating areas, time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees which are segregated by explicit directive or are in fact segregated on the basis of race, color, religion, or national origin, because of habit, local custom or otherwise. He further agrees that (except where he has obtained identical certification from proposed sub-Contractors for specific time periods) he will obtain identical certification from proposed sub-Contractors prior to the award of sub-contracts exceeding \$10,000.00, which are not exempt from the provisions of the Equal Opportunity Clause; that he will retain such certifications in his files; that he will forward a notice to his proposed sub-Contractors as provided in the Instruction to Bidders.

## 13. JOB MEETINGS

A. The Contractor and others concerned with the project whose presence is necessary as determined by the Owner and/or the Architect shall attend job meetings when requested for the purpose of discussing and expediting the prosecution of the work.

B. The schedule for meetings will be established by the Owner and/or the Architect.

C. The proceedings of these meetings will be recorded by the Owner and/or the Architect; the Contractor will be furnished a copy for his use and distribution as required.

#### 14. DRAWINGS

A. Drawings are generally schematic and may differ to some degree from field conditions. Specifically, certain drawings may be opposite hand from actual conditions and/or requirements. All dimensions are  $\pm$ . The Contractor shall ascertain for himself the actual field conditions and shall be fully responsible for the indicated, specified and required work as designated and/or implied.

#### 15. SCHEDULE OF THE WORK

A. Other work in progress concurrently with work under this contract shall be affected by the performance of this contract. Conformance with this provision shall be the responsibility of this Contractor.

B. The available working hours shall be from 7:30 a.m., until 3:30 p.m., Monday through Friday on days which the Department of Parks and Recreation is open for business. A list of holidays which their office observes is available from the Department of Parks and Recreation upon request. Any deviation from this list must be approved in advance by the Owner.

C. The Contractor shall at all times, maintain the fire integrity of the structures and shall maintain, free and clear all exitways.

D. The Contractor is required to submit to the Architect, for approval, prior to commencement of the work, a Project Schedule which identifies the time frame and sequence of construction. The Contractor is to provide an updated Project Schedule with each Application for Payment.

E. The Contractor must provide the Owner a 48 hour notice prior to the start of work.

#### 16. MATERIALS AND EQUIPMENT

A. New materials and equipment installed into existing work shall be compatible with the existing work.

B. The Contractor shall advise the Architect before ordering and/or installing any materials and equipment if he disputes those items and/or methods specified, otherwise he shall take full responsibility for their performance and suitability.

## 17. STORAGE OF MATERIALS

- A. Storage space for materials and equipment will be provided by the Owner at the project site. Storage space is limited, Owner must approve in advance the locations of stored materials and/or dumpster(s).
- B. Equipment and materials stored on the project site is the full responsibility of the Contractor.

## 18. TEMPORARY FACILITIES

- A. The Contractor shall provide and maintain an adequate office at the project site at his discretion. If provided, it shall be located as directed by the Owner. It shall be kept clean, have adequate light, heating, cooling and ventilation.
- B. The Contractor shall provide and maintain telephone service for his own use. No telephone service is available at the site.

## 19. TEMPORARY SERVICE

- A. The Contractor may connect to water available at the project without payment to the Owner.
- B. The Contractor may use the Owner's electrical power without payment to the Owner.
- C. Fixtures, or other modifications, shall be the responsibility of the Contractor.

## 20. SANITARY FACILITIES

- A. Sanitary facilities are not available at the project site. The Contractor shall provide temporary facilities at the site for his workers, at his own expense. Coordinate final locations with the Owner.

## 21. DEMOLITION

- A. This work includes the furnishing of all labor, materials, equipment and services necessary for, and reasonable incidental to, completion of all Demolition, as required for the installation of the work, whether or not listed below.

B. The Contractor shall be allowed to keep a dumpster on site of the disposal of demolished materials and debris. Final location of the dumpster shall be coordinated with the Owner.

## 22. SALVABLE MATERIALS

A. The Owner retains the right to salvage any demolished, or Contractor removed material(s). Contact Owner before removal from the Site.

## 23. SHOP DRAWINGS AND SUBMITTALS

A. Shop Drawings and Submittals shall be accompanied by Contractor's Transmittal indicating Company Name, Project Manager, Date Transmitted, Items Transmitted, etc. Submittals and Shop Drawings which are not accompanied by a transmittal will be returned to the Contractor without action.

B. Contractor shall allow sufficient time for review of Shop Drawings and Submittals. Architect will return submittals within (5) business days unless additional time is requested in writing.

C. Prior to delivery of materials and equipment to the project site, submit five (5) copies of Shop Drawings or Submittals of each item for approval by the Architect.

D. Submittals shall consist of manufacturer's scale drawings, cuts or catalogs, including descriptive literature and complete characteristics of equipment showing dimensions, capacity, code compliance, motor and drive and testing, all as required for this project.

E. Architect may designate submittal of physical samples for approval on items where actual color, texture or other characteristics might not be adequately described by drawing or written material.

## 24. PROTECTION OF WORK AND PROPERTY

A. The Contractor shall be responsible for the maintenance and protection of all equipment, materials and tools, supplied by him and stored or installed on the job site, from loss or damage of all causes, until final acceptance by the Owner.

B. The Contractor shall be responsible for the protection of all finished work.

C. It shall be the Contractor's responsibility to protect all parts of the existing site, all trees, roads, streets, sidewalks, driveways, plantings, landscaping, lawns and curbs against damage caused by trucks, etc., driving over them. If they are damaged, the Contractor without cost to the Owner shall replace them.

D. The Contractor shall take the necessary precautions to protect work areas and debris from potential dangers. Clear paths of egress must be maintained from the building at all times.

## 25. ACCESSIBILITY

A. The Contractor shall install all work so that all parts required and readily accessible for inspection, operation, maintenance and repair. Minor deviations from the drawings may be made to accomplish this, but changes of magnitude shall not be made without prior written approval from the Architect.

## 26. SCAFFOLDING, RIGGING, HOISTING

A. The Contractor shall provide all scaffolding, rigging, hoisting and services necessary for erection and delivery into the premises for all equipment and materials furnished, and remove same from premises when no longer required.

B. The Contractor shall coordinate in advance with the Owner the methods and locations for lifting of materials to the roof. The Contractor can not assume that any existing site fixture can be temporarily removed or relocated during this construction process, this can only be discussed with the Owner after bids have been awarded.

## 27. GUARANTEE PERIOD

A. Refer to specific Sections of this project manual for warranty and guarantee periods.

## 28. FINAL PAYMENT REQUIREMENTS

A. Final Payment will not be approved until all items as outlined in Section 01700 have been completed.

B. All guarantees and warranties for new materials shall commence at date of written Final Acceptance of the Work, by the Owner, or its designated agent.

## 29. CLEAN UP

- A. Project shall be cleaned daily or as required to keep project area free from rubbish and debris. Burning of rubbish shall not be allowed. All debris shall be removed from the site and deposited legally off-site.
- B. Final clean up shall include all debris, stains, and other defacement caused by the work.

## 30. WAGE RATES

- A. The Contractors shall make themselves fully aware of any wage rate revisions or adjustments, if applicable to this work.
- B. Where applicable, updated wage rates will be inserted in the Contract Documents at the time of contract signing, and the Contractor shall make all necessary provisions for this in his bid.
- C. This project is partially federally funded. State of Connecticut Wage Rates will be used, and are included.

## 31. LIQUIDATED DAMAGES

- A. In case of failure on the part of the Contractor to complete the work within the time fixed in the Contract, or any extension thereof, the Contractor shall pay to the Owner as fixed, agreed and liquidated damages the sum of \$250.00 for each calendar day of delay.

## 32. HAZARDOUS MATERIALS

- A. It is not the intention that this project requires abatement of hazardous materials by this Contractor. It is intended that work done in coordination with hazardous materials be done within the quantities specified by the state and local authorities regulating abatement of these materials.

## 33. CHANGE ORDERS

- A. For all change orders, the General Contractor, for work self-performed shall be allowed 10% for overhead, above the direct costs and 5% for profit, above the direct costs to be calculated on a 15% total above direct costs.

Deck Replacement, Site and Pool Modifications  
to Drennan Pool at McAuliffe Park  
McKee Street • East Hartford, Connecticut

Capital Studio Architects, LLC  
1379 Main Street  
East Hartford, Connecticut 06108  
CSA Project 10-26

- B. For all change orders for sub-contracted work, the sub-contractor shall be allowed 10% for overhead, above the direct costs and 5% for profit, above the direct costs to be calculated on a 15% total above direct costs.
- C. For all change orders for sub-contracted work, the General Contractor shall be allowed 5% for overhead and 2.5% for profit.

34. CONTRACT PERIOD

- A. The Contract period will be one hundred eighty (180) consecutive calendar days from day of “Notice to Proceed” until day of “Substantial Completion”.

35. GENERAL and SUPPLEMENTAL CONDITIONS

- A. In the event there is a conflict between the Town of East Hartford General Conditions and these Supplemental Conditions, the Town of East Hartford General Conditions shall take precedence.

END OF SECTION 00900

Project: Deck Replacement, Site And Pool Modifications To Drennan Pool At McCauliffe Park

**Minimum Rates and Classifications  
for Heavy/Highway Construction**

ID#: H 20774

**Connecticut Department of Labor  
Wage and Workplace Standards Division**

By virtue of the authority vested in the Labor Commissioner under provisions of Section 31-53 of the General Statutes of Connecticut, as amended, the following are declared to be the prevailing rates and welfare payments and will apply only where the contract is advertised for bid within 20 days of the date on which the rates are established. Any contractor or subcontractor not obligated by agreement to pay to the welfare and pension fund shall pay this amount to each employee as part of his/her hourly wages.

Project Number:

Project Town: East Hartford

FAP Number:

State Number:

Project: Deck Replacement, Site And Pool Modifications To Drennan Pool At McCauliffe Park

<b>CLASSIFICATION</b>	<b>Hourly Rate</b>	<b>Benefits</b>
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01) Asbestos/Toxic Waste Removal Laborers: Asbestos removal and encapsulation (except its removal from mechanical systems which are not to be scrapped), toxic waste removers, blasters. \*\*See Laborers Group 5 and 7\*\*

1) Boilermaker	33.79	34% + 8.96
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1a) Bricklayer, Cement Masons, Cement Finishers, Plasterers, Stone Masons	32.50	28.34
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2) Carpenters, Piledrivermen	31.45	23.54
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As of:

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Project: Deck Replacement, Site And Pool Modifications To Drennan Pool At McCauliffe Park

2a) Diver Tenders	31.45	23.54
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3) Divers	39.91	23.54
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03a) Millwrights	31.84	23.99
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4) Painters: (Bridge Construction) Brush, Roller, Blasting (Sand, Water, etc.), Spray	45.10	18.55
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4a) Painters: Brush and Roller	31.02	18.55
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4b) Painters: Spray Only	34.02	18.55
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4c) Painters: Steel Only	33.02	18.55
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*As of:*

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Project: Deck Replacement, Site And Pool Modifications To Drennan Pool At McCauliffe Park

4d) Painters: Blast and Spray	34.02	18.55
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4e) Painters: Tanks, Tower and Swing	33.02	18.55
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5) Electrician (Trade License required: E-1,2 L-5,6 C-5,6 T-1,2 L-1,2 V-1,2,7,8,9)	38.10	22.72 + 3% of gross wage
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6) Ironworkers: Ornamental, Reinforcing, Structural, and Precast Concrete Erection	34.47	29.74 + a
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7) Plumbers (Trade License required: (P-1,2,6,7,8,9 J-1,2,3,4 SP-1,2) and Pipefitters (Including HVAC Work) (Trade License required: S-1,2,3,4,5,6,7,8 B-1,2,3,4 D-1,2,3,4 G-1, G-2, G-8, G-9)	40.31	26.82
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----LABORERS-----

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8) Group 1: Laborer (Unskilled), Common or General, acetylene burner, concrete specialist	27.85	18.30
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*As of:*

Friday, June 12, 2015

Project: Deck Replacement, Site And Pool Modifications To Drennan Pool At McCauliffe Park

9) Group 2: Chain saw operators, fence and guard rail erectors, pneumatic tool operators, powdermen	28.10	18.30
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10) Group 3: Pipelayers	28.35	18.30
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11) Group 4: Jackhammer/Pavement breaker (handheld); mason tenders (cement/concrete), catch basin builders, asphalt rakers, air track operators, block paver, curb setter and forklift operators	28.35	18.30
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12) Group 5: Toxic waste removal (non-mechanical systems)	29.85	18.30
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13) Group 6: Blasters	29.60	18.30
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Group 7: Asbestos/lead removal, non-mechanical systems (does not include leaded joint pipe)	28.85	18.30
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Group 8: Traffic control signalmen	16.00	18.30
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*As of:*

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Project: Deck Replacement, Site And Pool Modifications To Drennan Pool At McCauliffe Park

Group 9: Hydraulic Drills	28.60	18.30
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---LABORERS (TUNNEL CONSTRUCTION, FREE AIR). Shield Drive and  
Liner Plate Tunnels in Free Air.---

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13a) Miners, Motormen, Mucking Machine Operators, Nozzle Men, Grout Men, Shaft & Tunnel Steel & Rodmen, Shield & Erector, Arm Operator, Cable Tenders	32.22	18.30 + a
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13b) Brakemen, Trackmen	31.28	18.30 + a
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---CLEANING, CONCRETE AND CAULKING TUNNEL----

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14) Concrete Workers, Form Movers, and Strippers	31.28	18.30 + a
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15) Form Erectors	31.60	18.30 + a
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Project: Deck Replacement, Site And Pool Modifications To Drennan Pool At McCauliffe Park

----ROCK SHAFT LINING, CONCRETE, LINING OF SAME AND TUNNEL  
IN FREE AIR:----

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16) Brakemen, Trackmen, Tunnel Laborers, Shaft Laborers	31.28	18.30 + a
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17) Laborers Topside, Cage Tenders, Bellman	31.17	18.30 + a
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18) Miners	32.22	18.30 + a
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----TUNNELS, CAISSON AND CYLINDER WORK IN COMPRESSED  
AIR: ----

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18a) Blaster	38.53	18.30 + a
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19) Brakemen, Trackmen, Groutman, Laborers, Outside Lock Tender, Gauge Tenders	38.34	18.30 + a
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As of:

Friday, June 12, 2015

Project: Deck Replacement, Site And Pool Modifications To Drennan Pool At McCauliffe Park

20) Change House Attendants, Powder Watchmen, Top on Iron Bolts 36.41 18.30 + a

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21) Mucking Machine Operator 39.11 18.30 + a

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---TRUCK DRIVERS---(\*see note below)

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Two axle trucks 28.58 20.24 + a

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Three axle trucks; two axle ready mix 28.68 20.24 + a

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Three axle ready mix 28.73 20.24 + a

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Four axle trucks, heavy duty trailer (up to 40 tons) 28.78 20.24 + a

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*As of:*

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Project: Deck Replacement, Site And Pool Modifications To Drennan Pool At McCauliffe Park

Four axle ready-mix	28.83	20.24 + a
<hr/>		
Heavy duty trailer (40 tons and over)	29.03	20.24 + a
<hr/>		
Specialized earth moving equipment other than conventional type on-the road trucks and semi-trailer (including Euclids)	28.83	20.24 + a
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----POWER EQUIPMENT OPERATORS----		
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Group 1: Crane handling or erecting structural steel or stone, hoisting engineer (2 drums or over), front end loader (7 cubic yards or over), Work Boat 26 ft. & Over. (Trade License Required)	37.55	23.05 + a
<hr/>		
Group 2: Cranes (100 ton rate capacity and over); Excavator over 2 cubic yards; Piledriver (\$3.00 premium when operator controls hammer); Bauer Drill/Caisson. (Trade License Required)	37.23	23.05 + a
<hr/>		
Group 3: Excavator/Backhoe under 2 cubic yards; Cranes (under 100 ton rated capacity), Gradall; Master Mechanic; Hoisting Engineer (all types of equipment where a drum and cable are used to hoist or drag material regardless of motive power of operation), Rubber Tire Excavator (Drott-1085 or similar); Grader Operator; Bulldozer Fine Grade (slopes, shaping, laser or GPS, etc.). (Trade License Required)	36.49	23.05 + a
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As of:

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Project: Deck Replacement, Site And Pool Modifications To Drennan Pool At McCauliffe Park

Group 4: Trenching Machines; Lighter Derrick; Concrete Finishing Machine; CMI Machine or Similar; Koehring Loader (Skooper) 36.10 23.05 + a

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Group 5: Specialty Railroad Equipment; Asphalt Paver; Asphalt Spreader; Asphalt Reclaiming Machine; Line Grinder; Concrete Pumps; Drills with Self Contained Power Units; Boring Machine; Post Hole Digger; Auger; Pounder; Well Digger; Milling Machine (over 24" Mandrell) 35.51 23.05 + a

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Group 5 continued: Side Boom; Combination Hoe and Loader; Directional Driller. 35.51 23.05 + a

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Group 6: Front End Loader (3 up to 7 cubic yards); Bulldozer (rough grade dozer). 35.20 23.05 + a

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Group 7: Asphalt Roller; Concrete Saws and Cutters (ride on types); Vermeer Concrete Cutter; Stump Grinder; Scraper; Snooper; Skidder; Milling Machine (24" and Under Mandrel). 34.86 23.05 + a

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Group 8: Mechanic, Grease Truck Operator, Hydroblaster, Barrier Mover, Power Stone Spreader; Welder; Work Boat under 26 ft.; Transfer Machine. 34.46 23.05 + a

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Group 9: Front End Loader (under 3 cubic yards), Skid Steer Loader regardless of attachments (Bobcat or Similar); Fork Lift, Power Chipper; Landscape Equipment (including hydroseeder). 34.03 23.05 + a

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As of:

Friday, June 12, 2015

Project: Deck Replacement, Site And Pool Modifications To Drennan Pool At McCauliffe Park

Group 10: Vibratory Hammer, Ice Machine, Diesel and Air Hammer, etc. 31.99 23.05 + a

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Group 11: Conveyor, Earth Roller; Power Pavement Breaker (whiphammer), Robot Demolition Equipment. 31.99 23.05 + a

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Group 12: Wellpoint Operator. 31.93 23.05 + a

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Group 13: Compressor Battery Operator. 31.35 23.05 + a

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Group 14: Elevator Operator; Tow Motor Operator (Solid Tire No Rough Terrain). 30.21 23.05 + a

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Group 15: Generator Operator; Compressor Operator; Pump Operator; Welding Machine Operator; Heater Operator. 29.80 23.05 + a

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Group 16: Maintenance Engineer/Oiler 29.15 23.05 + a

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*As of:*

Friday, June 12, 2015

Project: Deck Replacement, Site And Pool Modifications To Drennan Pool At McCauliffe Park

Group 17: Portable asphalt plant operator; portable crusher plant operator; portable concrete plant operator. 33.46 23.05 + a

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Group 18: Power Safety Boat; Vacuum Truck; Zim Mixer; Sweeper; (minimum for any job requiring CDL license). 31.04 23.05 + a

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\*\*NOTE: SEE BELOW

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----LINE CONSTRUCTION----(Railroad Construction and Maintenance)----

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20) Lineman, Cable Splicer, Technician 45.43 6.25%+19.20

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21) Heavy Equipment Operator 40.89 6.25%+17.18

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22) Equipment Operator, Tractor Trailer Driver, Material Men 38.62 6.25%+16.68

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As of:

Friday, June 12, 2015

Project: Deck Replacement, Site And Pool Modifications To Drennan Pool At McCauliffe Park

23) Driver Groundmen 24.99 6.25%+10.87

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23a) Truck Driver 34.07 6.25%+15.41

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---LINE CONSTRUCTION---

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24) Driver Groundmen 30.92 6.5% + 9.70

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25) Groundmen 22.67 6.5% + 6.20

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26) Heavy Equipment Operators 37.10 6.5% + 10.70

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27) Linemen, Cable Splicers, Dynamite Men 41.22 6.5% + 12.20

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*As of:*

Friday, June 12, 2015

Project: Deck Replacement, Site And Pool Modifications To Drennan Pool At McCauliffe Park

28) Material Men, Tractor Trailer Drivers, Equipment Operators

35.04

6.5% + 10.45

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*As of:*

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Project: Deck Replacement, Site And Pool Modifications To Drennan Pool At McCauliffe Park

*Welders: Rate for craft to which welding is incidental.*

*\*Note: Hazardous waste removal work receives additional \$1.25 per hour for truck drivers.*

*\*\*Note: Hazardous waste premium \$3.00 per hour over classified rate*

***ALL Cranes: When crane operator is operating equipment that requires a fully licensed crane operator to operate he receives an extra \$2.00 premium in addition to the hourly wage rate and benefit contributions:***

- 1) Crane handling or erecting structural steel or stone; hoisting engineer (2 drums or over)***
- 2) Cranes (100 ton rate capacity and over) Bauer Drill/Caisson***
- 3) Cranes (under 100 ton rated capacity)***

Crane with 150 ft. boom (including jib) - \$1.50 extra  
Crane with 200 ft. boom (including jib) - \$2.50 extra  
Crane with 250 ft. boom (including jib) - \$5.00 extra  
Crane with 300 ft. boom (including jib) - \$7.00 extra  
Crane with 400 ft. boom (including jib) - \$10.00 extra

All classifications that indicate a percentage of the fringe benefits must be calculated at the percentage rate times the "base hourly rate".

Apprentices duly registered under the Commissioner of Labor's regulations on "Work Training Standards for Apprenticeship and Training Programs" Section 31-51-d-1 to 12, are allowed to be paid the appropriate percentage of the prevailing journeymen hourly base and the full fringe benefit rate, providing the work site ratio shall not be less than one full-time journeyman instructing and supervising the work of each apprentice in a specific trade.

~~Connecticut General Statute Section 31-55a: Annual Adjustments to wage rates by contractors doing state work~~

*The Prevailing wage rates applicable to this project are subject to annual adjustments each July 1st for the duration of the project.*

*Each contractor shall pay the annual adjusted prevailing wage rate that is in effect each July 1st, as posted by the Department of Labor.*

*It is the contractor's responsibility to obtain the annual adjusted prevailing wage rate increases directly from the Department of Labor's website.*

*The annual adjustments will be posted on the Department of Labor's Web page: [www.ct.gov/dol](http://www.ct.gov/dol).*

*The Department of Labor will continue to issue the initial prevailing wage rate schedule to the Contracting Agency for the project.*

*All subsequent annual adjustments will be posted on our Web Site for contractor access.*

*Contracting Agencies are under no obligation pursuant to State labor law to pay any increase due to the annual adjustment provision.*

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*Effective October 1, 2005 - Public Act 05-50: any person performing the work of any mechanic, laborer, or worker shall be paid prevailing wage*

All Person who perform work ON SITE must be paid prevailing wage for the appropriate mechanic, laborer, or worker classification.

All certified payrolls must list the hours worked and wages paid to All Persons who perform work ON SITE regardless of their ownership i.e.: (Owners, Corporate Officers, LLC Members, Independent Contractors, et. al)

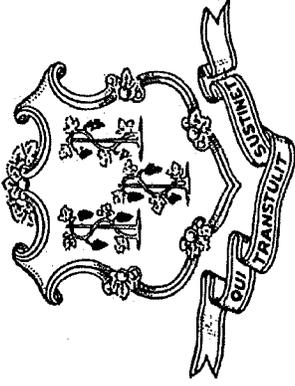
Reporting and payment of wages is required regardless of any contractual relationship alleged to exist between the contractor and such person.

**~~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 clause (29 CFR 5.5 (a) (1) (ii)).**

Please direct any questions which you may have pertaining to classification of work and payment of prevailing wages to the Wage and Workplace Standards Division, telephone (860)263-6790.

*As of:*

Friday, June 12, 2015



# THIS IS A PUBLIC WORKS PROJECT

Covered by the

# PREVAILING WAGE LAW

CT General Statutes Section 31-53

**If you have QUESTIONS regarding your wages**

**CALL (860) 263-6790**

Section 31-55 of the CT State Statutes requires every contractor or subcontractor performing work for the state to post in a prominent place the prevailing wages as determined by the Labor Commissioner.

**Sec. 31-53b. Construction safety and health course. New miner training program. Proof of completion required for mechanics, laborers and workers on public works projects. Enforcement. Regulations. Exceptions.** (a) Each contract for a public works project entered into on or after July 1, 2009, by the state or any of its agents, or by any political subdivision of the state or any of its agents, described in subsection (g) of section 31-53, shall contain a provision requiring that each contractor furnish proof with the weekly certified payroll form for the first week each employee begins work on such project that any person performing the work of a mechanic, laborer or worker pursuant to the classifications of labor under section 31-53 on such public works project, pursuant to such contract, has completed a course of at least ten hours in duration in construction safety and health approved by the federal Occupational Safety and Health Administration or, has completed a new miner training program approved by the Federal Mine Safety and Health Administration in accordance with 30 CFR 48 or, in the case of telecommunications employees, has completed at least ten hours of training in accordance with 29 CFR 1910.268.

(b) Any person required to complete a course or program under subsection (a) of this section who has not completed the course or program shall be subject to removal from the worksite if the person does not provide documentation of having completed such course or program by the fifteenth day after the date the person is found to be in noncompliance. The Labor Commissioner or said commissioner's designee shall enforce this section.

(c) Not later than January 1, 2009, the Labor Commissioner shall adopt regulations, in accordance with the provisions of chapter 54, to implement the provisions of subsections (a) and (b) of this section. Such regulations shall require that the ten-hour construction safety and health courses required under subsection (a) of this section be conducted in accordance with federal Occupational Safety and Health Administration Training Institute standards, or in accordance with Federal Mine Safety and Health Administration Standards or in accordance with 29 CFR 1910.268, as appropriate. The Labor Commissioner shall accept as sufficient proof of compliance with the provisions of subsection (a) or (b) of this section a student course completion card issued by the federal Occupational Safety and Health Administration Training Institute, or such other proof of compliance said commissioner deems appropriate, dated no earlier than five years before the commencement date of such public works project.

(d) This section shall not apply to employees of public service companies, as defined in section 16-1, or drivers of commercial motor vehicles driving the vehicle on the public works project and delivering or picking up cargo from public works projects provided they perform no labor relating to the project other than the loading and unloading of their cargo.

(P.A. 06-175, S. 1; P.A. 08-83, S. 1.)

History: P.A. 08-83 amended Subsec. (a) by making provisions applicable to public works project contracts entered into on or after July 1, 2009, replacing provision re total cost of work with reference to Sec. 31-53(g), requiring proof in certified payroll form that new mechanic, laborer or worker has completed a 10-hour or more construction safety course and adding provision re new miner training program, amended Subsec. (b) by substituting "person" for "employee" and adding "or program", amended Subsec. (c) by adding "or in accordance with Federal Mine Safety and Health Administration Standards" and setting new deadline of January 1, 2009, deleted former Subsec. (d) re "public building", added new Subsec. (d) re exemptions for public service company employees and delivery drivers who perform no labor other than delivery and made conforming and technical changes, effective January 1, 2009.

## Informational Bulletin

### **THE 10-HOUR OSHA CONSTRUCTION SAFETY AND HEALTH COURSE**

(applicable to public building contracts entered into *on or after July 1, 2007*, where the total cost of all work to be performed is at least \$100,000)

- (1) This requirement was created by Public Act No. 06-175, which is codified in Section 31-53b of the Connecticut General Statutes (pertaining to the prevailing wage statutes);
- (2) The course is required for public building construction contracts (projects funded in whole or in part by the state or any political subdivision of the state) entered into on or after July 1, 2007;
- (3) It is required of private employees (not state or municipal employees) and apprentices who perform manual labor for a general contractor or subcontractor on a public building project where the total cost of all work to be performed is at least \$100,000;
- (4) The ten-hour construction course pertains to the ten-hour Outreach Course conducted in accordance with federal OSHA Training Institute standards, and, for telecommunications workers, a ten-hour training course conducted in accordance with federal OSHA standard, 29 CFR 1910.268;
- (5) The internet website for the federal OSHA Training Institute is [http://www.osha.gov/fso/ote/training/edcenters/fact\\_sheet.html](http://www.osha.gov/fso/ote/training/edcenters/fact_sheet.html);
- (6) The statutory language leaves it to the contractor and its employees to determine who pays for the cost of the ten-hour Outreach Course;
- (7) Within 30 days of receiving a contract award, a general contractor must furnish proof to the Labor Commissioner that all employees and apprentices performing manual labor on the project will have completed such a course;
- (8) Proof of completion may be demonstrated through either: (a) the presentation of a *bona fide* student course completion card issued by the federal OSHA Training Institute; *or* (2) the presentation of documentation provided to an employee by a trainer certified by the Institute pending the actual issuance of the completion card;
- (9) Any card with an issuance date more than 5 years prior to the commencement date of the construction project shall not constitute proof of compliance;

- (10) Each employer shall affix a copy of the construction safety course completion card to the certified payroll submitted to the contracting agency in accordance with Conn. Gen. Stat. § 31-53(f) on which such employee's name first appears;
- (11) Any employee found to be in non-compliance shall be subject to removal from the worksite if such employee does not provide satisfactory proof of course completion to the Labor Commissioner by the fifteenth day after the date the employee is determined to be in noncompliance;
- (12) Any such employee who is determined to be in noncompliance may continue to work on a public building construction project for a maximum of fourteen consecutive calendar days while bringing his or her status into compliance;
- (13) The Labor Commissioner may make complaint to the prosecuting authorities regarding any employer or agent of the employer, or officer or agent of the corporation who files a false certified payroll with respect to the status of an employee who is performing manual labor on a public building construction project;
- (14) The statute provides the minimum standards required for the completion of a safety course by manual laborers on public construction contracts; any contractor can exceed these minimum requirements; and
- (15) Regulations clarifying the statute are currently in the regulatory process, and shall be posted on the CTDOL website as soon as they are adopted in final form.
- (16) Any questions regarding this statute may be directed to the Wage and Workplace Standards Division of the Connecticut Labor Department via the internet website of <http://www.ctdol.state.ct.us/wgwkstnd/wgemenu.htm>; or by telephone at (860)263-6790.

**THE ABOVE INFORMATION IS PROVIDED EXCLUSIVELY AS AN EDUCATIONAL RESOURCE, AND IS NOT INTENDED AS A SUBSTITUTE FOR LEGAL INTERPRETATIONS WHICH MAY ULTIMATELY ARISE CONCERNING THE CONSTRUCTION OF THE STATUTE OR THE REGULATIONS.**

November 29, 2006

## Notice

### **To All Mason Contractors and Interested Parties Regarding Construction Pursuant to Section 31-53 of the Connecticut General Statutes (Prevailing Wage)**

The Connecticut Labor Department Wage and Workplace Standards Division is empowered to enforce the prevailing wage rates on projects covered by the above referenced statute.

Over the past few years the Division has withheld enforcement of the rate in effect for workers who operate a forklift on a prevailing wage rate project due to a potential jurisdictional dispute.

The rate listed in the schedules and in our Occupational Bulletin (see enclosed) has been as follows:

#### **Forklift Operator:**

- **Laborers (Group 4) Mason Tenders** - operates forklift solely to assist a mason to a maximum height of nine feet only.

- **Power Equipment Operator (Group 9)** - operates forklift to assist any trade and to assist a mason to a height over nine feet.

The U.S. Labor Department conducted a survey of rates in Connecticut but it has not been published and the rate in effect remains as outlined in the above Occupational Bulletin.

*Since this is a classification matter and not one of jurisdiction, effective January 1, 2007 the Connecticut Labor Department will enforce the rate on each schedule in accordance with our statutory authority.*

Your cooperation in filing appropriate and accurate certified payrolls is appreciated.

**STATUTE 31-55a**

**- SPECIAL NOTICE -**

**To: All State and Political Subdivisions, Their Agents, and Contractors**

**Connecticut General Statute 31-55a - Annual adjustments to wage rates by contractors doing state work.**

*Each contractor that is awarded a contract on or after October 1, 2002, for (1) the construction of a state highway or bridge that falls under the provisions of section 31-54 of the general statutes, or (2) the construction, remodeling, refinishing, refurbishing, rehabilitation, alteration or repair of any public works project that falls under the provisions of section 31-53 of the general statutes shall contact the Labor Commissioner on or before July first of each year, for the duration of such contract, to ascertain the prevailing rate of wages on an hourly basis and the amount of payment or contributions paid or payable on behalf of each mechanic, laborer or worker employed upon the work contracted to be done, and shall make any necessary adjustments to such prevailing rate of wages and such payment or contributions paid or payable on behalf of each such employee, effective each July first.*

- The prevailing wage rates applicable to any contract or subcontract awarded on or after October 1, 2002 are subject to annual adjustments each July 1st for the duration of any project which was originally advertised for bids on or after October 1, 2002.
- Each contractor affected by the above requirement shall pay the annual adjusted prevailing wage rate that is in effect each July 1st, as posted by the Department of Labor.
- It is the **contractor's** responsibility to obtain the annual adjusted prevailing wage rate increases directly from the Department of Labor's Web Site. The annual adjustments will be posted on the Department of Labor Web page: [www.ctdol.state.ct.us](http://www.ctdol.state.ct.us). For those without internet access, please contact the division listed below.
- The Department of Labor will continue to issue the initial prevailing wage rate schedule to the Contracting Agency for the project. All subsequent annual adjustments will be posted on our Web Site for contractor access.

**Any questions should be directed to the Contract Compliance Unit, Wage and Workplace Standards Division, Connecticut Department of Labor, 200 Folly Brook Blvd., Wethersfield, CT 06109 at (860)263-6790.**

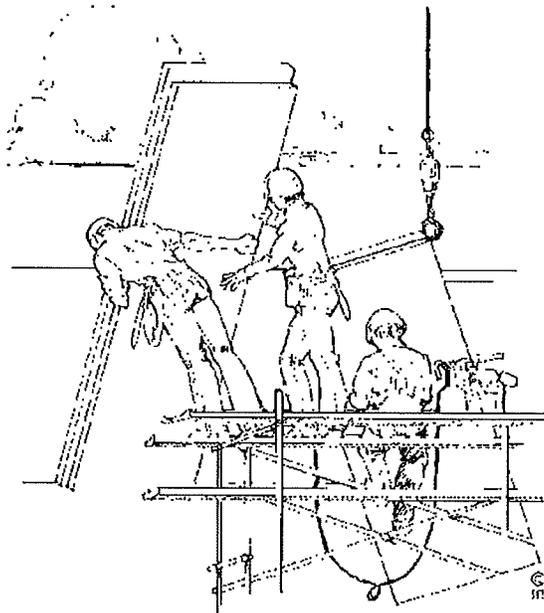
~NOTICE~

TO ALL CONTRACTING AGENCIES

Please be advised that Connecticut General Statutes Section 31-53, requires the contracting agency to certify to the Department of Labor, the total dollar amount of work to be done in connection with such public works project, regardless of whether such project consists of one or more contracts.

Please find the attached "Contracting Agency Certification Form" to be completed and returned to the Department of Labor, Wage and Workplace Standards Division, Public Contract Compliance Unit.

 Inquiries can be directed to (860)263-6543.



CONNECTICUT DEPARTMENT OF LABOR  
WAGE AND WORKPLACE STANDARDS DIVISION  
CONTRACT COMPLIANCE UNIT

*CONTRACTING AGENCY CERTIFICATION FORM*

I, \_\_\_\_\_, acting in my official capacity as \_\_\_\_\_,  
authorized representative title

for \_\_\_\_\_, located at \_\_\_\_\_,  
contracting agency address

do hereby certify that the total dollar amount of work to be done in connection with  
\_\_\_\_\_, located at \_\_\_\_\_,  
project name and number address

shall be \$\_\_\_\_\_, which includes all work, regardless of whether such project  
consists of one or more contracts.

*CONTRACTOR INFORMATION*

Name: \_\_\_\_\_

Address: \_\_\_\_\_

Authorized Representative: \_\_\_\_\_

Approximate Starting Date: \_\_\_\_\_

Approximate Completion Date: \_\_\_\_\_

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

Return To: Connecticut Department of Labor  
Wage & Workplace Standards Division  
Contract Compliance Unit  
200 Folly Brook Blvd.  
Wethersfield, CT 06109

Date Issued: \_\_\_\_\_

CONNECTICUT DEPARTMENT OF LABOR  
WAGE AND WORKPLACE STANDARDS DIVISION

CONTRACTORS WAGE CERTIFICATION FORM  
Construction Manager at Risk/General Contractor/Prime Contractor

I, \_\_\_\_\_ of \_\_\_\_\_  
Officer, Owner, Authorized Rep. Company Name

do hereby certify that the \_\_\_\_\_  
Company Name  
\_\_\_\_\_  
Street  
\_\_\_\_\_  
City

and all of its subcontractors will pay all workers on the  
\_\_\_\_\_  
Project Name and Number  
\_\_\_\_\_  
Street and City

the wages as listed in the schedule of prevailing rates required for such project (a copy of which is attached hereto).

\_\_\_\_\_  
Signed

Subscribed and sworn to before me this \_\_\_\_\_ day of \_\_\_\_\_.

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

Return to:  
Connecticut Department of Labor  
Wage & Workplace Standards Division  
200 Folly Brook Blvd.  
Wethersfield, CT 06109

Rate Schedule Issued (Date): \_\_\_\_\_

[New] In accordance with Section 31-53b(a) of the C.G.S. each contractor shall provide a copy of the OSHA 10 Hour Construction Safety and Health Card for each employee, to be attached to the first certified payroll on the project.

**PAYROLL CERTIFICATION FOR PUBLIC WORKS PROJECTS**  
**WEEKLY PAYROLL**

Connecticut Department of Labor  
Wage and Workplace Standards Division  
200 Folly Brook Blvd.  
Wethersfield, CT 06109

In accordance with Connecticut General Statutes, 31-53 Certified Payrolls with a statement of compliance shall be submitted monthly to the contracting agency.

CONTRACTOR NAME AND ADDRESS:

SUBCONTRACTOR NAME & ADDRESS

WORKER'S COMPENSATION INSURANCE CARRIER

PAYROLL NUMBER

PERSON/WORKER, ADDRESS and SECTION

PROJECT NAME & ADDRESS

Week-Ending Date

POLICY #  
EFFECTIVE DATE:  
EXPIRATION DATE:

PERSON/WORKER, ADDRESS and SECTION	APPR RATE %	MALE/FEMALE AND RACE*	WORK CLASSIFICATION	DAY AND DATE							Total ST Hours	Total O/T Hours	GROSS PAY FOR ALL WORK PERFORMED THIS WEEK	TOTAL DEDUCTIONS		GROSS PAY FOR THIS PREVAILING RATE JOB	CHECK # AND NET PAY		
				S	M	T	W	TH	F	S				FICA	WITH-HOLDING			LIST OTHER	
				HOURS WORKED EACH DAY							TYPE OF FRINGE BENEFITS Per Hour 1 through 6 (see back)								
											CASH								
														1. \$					
														2. \$					
														3. \$					
														4. \$					
														5. \$					
														6. \$					
														1. \$					
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														6. \$					

12/9/2013 \*IF REQUIRED

WWS-CPI

\*SEE REVERSE SIDE

PAGE NUMBER \_\_\_ OF \_\_\_

OSHA 10 ~ ATTACH CARD TO 1ST CERTIFIED PAYROLL

**\*FRINGE BENEFITS EXPLANATION (P):**

Bona fide benefits paid to approved plans, funds or programs, except those required by Federal or State Law (unemployment tax, worker's compensation, income taxes, etc.).

Please specify the type of benefits provided:

- 1) Medical or hospital care \_\_\_\_\_ 4) Disability \_\_\_\_\_  
2) Pension or retirement \_\_\_\_\_ 5) Vacation, holiday \_\_\_\_\_  
3) Life Insurance \_\_\_\_\_ 6) Other (please specify) \_\_\_\_\_

**CERTIFIED STATEMENT OF COMPLIANCE**

For the week ending date of \_\_\_\_\_,

I, \_\_\_\_\_ of \_\_\_\_\_, (hereafter known as Employer) in my capacity as \_\_\_\_\_ (title) do hereby certify and state:

**Section A:**

1. All persons employed on said project have been paid the full weekly wages earned by them during the week in accordance with Connecticut General Statutes, section 31-53, as amended. Further, I hereby certify and state the following:

- a) The records submitted are true and accurate;
- b) The rate of wages paid to each mechanic, laborer or workman and the amount of payment or contributions paid or payable on behalf of each such person to any employee welfare fund, as defined in Connecticut General Statutes, section 31-53 (h), are not less than the prevailing rate of wages and the amount of payment or contributions paid or payable on behalf of each such person to any employee welfare fund, as determined by the Labor Commissioner pursuant to subsection Connecticut General Statutes, section 31-53 (d), and said wages and benefits are not less than those which may also be required by contract;
- c) The Employer has complied with all of the provisions in Connecticut General Statutes, section 31-53 (and Section 31-54 if applicable for state highway construction);
- d) Each such person is covered by a worker's compensation insurance policy for the duration of his employment which proof of coverage has been provided to the contracting agency;
- e) The Employer does not receive kickbacks, which means any money, fee, commission, credit, gift, gratuity, thing of value, or compensation of any kind which is provided directly or indirectly, to any prime contractor, prime contractor employee, subcontractor, or subcontractor employee for the purpose of improperly obtaining or rewarding favorable treatment in connection with a prime contract or in connection with a prime contractor in connection with a subcontractor relating to a prime contractor; and
- f) The Employer is aware that filing a certified payroll which he knows to be false is a class D felony for which the employer may be fined up to five thousand dollars, imprisoned for up to five years or both.

2. OSHA~The employer shall affix a copy of the construction safety course, program or training completion document to the certified payroll required to be submitted to the contracting agency for this project on which such persons name first appears.

\_\_\_\_\_  
(Signature)

\_\_\_\_\_  
(Title)

\_\_\_\_\_  
Submitted on (Date)

**\*\*\*THIS IS A PUBLIC DOCUMENT\*\*\*  
\*\*\*DO NOT INCLUDE SOCIAL SECURITY NUMBERS\*\*\***



[New] In accordance with Section 31-53b(a) of the C.G.S. each contractor shall provide a copy of the OSHA 10 Hour Construction Safety and Health Card for each employee, to be attached to the first certified payroll on the project.

CONTRACTOR NAME AND ADDRESS		SUBCONTRACTOR NAME & ADDRESS		WEEKLY PAYROLL		WEEKLY PAYROLL		WEEKLY PAYROLL		WEEKLY PAYROLL		WEEKLY PAYROLL		WEEKLY PAYROLL		WEEKLY PAYROLL		WEEKLY PAYROLL		WEEKLY PAYROLL			
Landon Corporation, 15 Connecticut Avenue, Northford, CT 06472		XYZ Corporation 2 Main Street Yanick, CT 06389		WETHERSFIELD, CT 06109		WETHERSFIELD, CT 06109		WETHERSFIELD, CT 06109		WETHERSFIELD, CT 06109		WETHERSFIELD, CT 06109		WETHERSFIELD, CT 06109		WETHERSFIELD, CT 06109		WETHERSFIELD, CT 06109		WETHERSFIELD, CT 06109			
PAYROLL NUMBER	PERSON/WORKER ADDRESS AND SECTION	Week-Ending Date	APPR RATE %	MALE/FEMALE AND RACE*	WORK CLASSIFICATION	DAY AND DATE							Total OT Hours	Total Hours	Total Fringe Plan CASH	TYPE OF FRINGE BENEFITS Per Hour 1 through 6 (see back)	GROSS PAY FOR ALL WORK PERFORMED THIS WEEK	TOTAL DEDUCTIONS FEDERAL STATE WITH- HOLDING	GROSS PAY FOR THIS PREVAILING RATE JOB	CHECK # AND NET PAY			
						S	M	T	W	TH	F	S											
1	Robert Craft 81 Maple Street Wallmanic, CT 06226	9/26/09			Electrical Lineman E-1 1234567 Owner OSHA 123456																		
	Ronald Jones 212 Elm Street Norwich, CT 06360		65%	M/B	Electrical Apprentice OSHA 234567																		
	Franklin T. Smith 234 Washington Rd. New London, CT 06320 SECTION B			M/B	Project Manager																		

OSHA 10 ~ ATTACH CARD TO 1ST CERTIFIED PAYROLL

7/13/2009  
WWS-CPI

\*SEE REVERSE SIDE

**\*FRINGE BENEFITS EXPLANATION (P):**

Bona fide benefits paid to approved plans, funds or programs, except those required by Federal or State Law (unemployment tax, worker's compensation, income taxes, etc.).

Please specify the type of benefits provided:

- 1) Medical or hospital care Blue Cross 4) Disability \_\_\_\_\_  
2) Pension or retirement \_\_\_\_\_ 5) Vacation, holiday \_\_\_\_\_  
3) Life Insurance Utopia 6) Other (please specify) \_\_\_\_\_

**CERTIFIED STATEMENT OF COMPLIANCE**

For the week ending date of 9/26/09

I, Robert Craft of XYZ Corporation, (hereafter known as Employer) in my capacity as Owner (title) do hereby certify and state:

**Section A:**

1. All persons employed on said project have been paid the full weekly wages earned by them during the week in accordance with Connecticut General Statutes, section 31-53, as amended. Further, I hereby certify and state the following:

- a) The records submitted are true and accurate;
- b) The rate of wages paid to each mechanic, laborer or workman and the amount of payment or contributions paid or payable on behalf of each such employee to any employee welfare fund, as defined in Connecticut General Statutes, section 31-53 (h), are not less than the prevailing rate of wages and the amount of payment or contributions paid or payable on behalf of each such employee to any employee welfare fund, as determined by the Labor Commissioner pursuant to subsection Connecticut General Statutes, section 31-53 (d), and said wages and benefits are not less than those which may also be required by contract;
- c) The Employer has complied with all of the provisions in Connecticut General Statutes, section 31-53 (and Section 31-54 if applicable for state highway construction);
- d) Each such employee of the Employer is covered by a worker's compensation insurance policy for the duration of his employment which proof of coverage has been provided to the contracting agency;
- e) The Employer does not receive kickbacks, which means any money, fee, commission, credit, gift, gratuity, thing of value, or compensation of any kind which is provided directly or indirectly, to any prime contractor, prime contractor employee, subcontractor, or subcontractor employee for the purpose of improperly obtaining or rewarding favorable treatment in connection with a prime contract or in connection with a prime contractor in connection with a subcontractor relating to a prime contractor; and
- f) The Employer is aware that filing a certified payroll which he knows to be false is a class D felony for which the employer may be fined up to five thousand dollars, imprisoned for up to five years or both.

2. OSHA~The employer shall affix a copy of the construction safety course, program or training completion document to the certified payroll required to be submitted to the contracting agency for this project on which such employee's name first appears.

Robert Craft owner 10/2/09  
(Signature) (Title) Submitted on (Date)

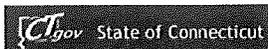
**Section B: Applies to CONNDOT Projects ONLY**

That pursuant to CONNDOT contract requirements for reporting purposes only, all employees listed under Section B who performed work on this project are not covered under the prevailing wage requirements defined in Connecticut General Statutes Section 31-53.

Robert Craft owner 10/2/09  
(Signature) (Title) Submitted on (Date)

Note: CTDOL will assume all hours worked were performed under Section A unless clearly delineated as Section B WWS-CP1 as such. Should an employee perform work under both Section A and Section B, the hours worked and wages paid must be segregated for reporting purposes.

\*\*\*THIS IS A PUBLIC DOCUMENT\*\*\*  
\*\*\*DO NOT INCLUDE SOCIAL SECURITY NUMBERS\*\*\*



Governor Dannel P. Malloy

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### OCCUPATIONAL CLASSIFICATION BULLETIN

The Connecticut Department of Labor has the responsibility to properly determine "job classification" on prevailing wage projects covered under C.G.S. Section 31-53.

*Note: This information is intended to provide a sample of some occupational classifications for guidance purposes only. It is not an all-inclusive list of each occupation's duties. This list is being provided only to highlight some areas where a contractor may be unclear regarding the proper classification.*

Below are additional clarifications of specific job duties performed for certain classifications:

- **ASBESTOS WORKERS**
  - Applies all insulating materials, protective coverings, coatings and finishes to all types of mechanical systems.
- **ASBESTOS INSULATOR**
  - Handle, install apply, fabricate, distribute, prepare, alter, repair, dismantle, heat and frost insulation, including penetration and fire stopping work on all penetration fire stop systems.
- **BOILERMAKERS**
  - Erects hydro plants, incomplete vessels, steel stacks, storage tanks for water, fuel, etc. Builds incomplete boilers, repairs heat exchanges and steam generators.
- **BRICKLAYERS, CEMENT MASONS, CEMENT FINISHERS, MARBLE MASONS, PLASTERERS, STONE MASONS, PLASTERERS. STONE MASONS, TERRAZZO WORKERS, TILE SETTERS**
  - Lays building materials such as brick, structural tile and concrete cinder, glass, gypsum, terra cotta block. Cuts, tools and sets marble, sets stone, finishes concrete, applies decorative steel, aluminum and plastic tile, applies cements, sand, pigment and marble chips to floors, stairways, etc.
- **CARPENTERS, MILLWRIGHTS. PILEDRIVERMEN. LATHERS. RESILEINT FLOOR LAYERS, DOCK BUILDERS, DIKERS, DIVER TENDERS**
  - Constructs, erects, installs and repairs structures and fixtures of wood, plywood and wallboard. Installs, assembles, dismantles, moves industrial machinery. Drives piling into ground to provide foundations for structures such as buildings and bridges, retaining walls for earth embankments, such as cofferdams. Fastens wooden, metal or rockboard lath to walls, ceilings and partitions of buildings, acoustical tile layer, concrete form builder. Applies firestopping materials on fire resistive joint systems only. Installation of curtain/window walls only where attached to wood or metal studs. Installation of insulated material of all types whether blown, nailed or attached in other ways to walls, ceilings and floors of buildings. Assembly and installation of modular furniture/furniture systems. Free-standing furniture is not covered. This includes free standing: student chairs, study top desks, book box desks, computer furniture, dictionary stand, atlas stand, wood shelving, two-position information access station, file cabinets, storage cabinets, tables, etc.
- **CLEANING LABORER**
  - The clean up of any construction debris and the general cleaning, including sweeping, wash down, mopping, wiping of the construction facility, washing, polishing, dusting, etc., prior to the issuance of a certificate of occupancy falls under the *Labor classification*.
- **DELIVERY PERSONNEL**
  - If delivery of supplies/building materials is to one common point and stockpiled there, prevailing wages are not required. If the delivery personnel are involved in the distribution of the material to multiple locations within the construction site then they would have to be paid prevailing wages for the type of work performed: laborer, equipment operator, electrician, ironworker, plumber, etc.
  - An example of this would be where delivery of drywall is made to a building and the delivery personnel distribute the drywall from one "stockpile" location to further sub-locations on each floor. Distribution of material around a construction site is the job of a laborer/tradesman and not a delivery personnel.

- **ELECTRICIANS**
  - Install, erect, maintenance, alteration or repair of any wire, cable, conduit, etc., which generates, transforms, transmits or uses electrical energy for light, heat, power or other purposes, including the installation or maintenance of telecommunication, LAN wiring or computer equipment, and low voltage wiring. **\*License required per Connecticut General Statutes: E-1,2 L-5,6 C-5,6 T-1,2 L-1,2 V-1,2,7,8,9.**
- **ELEVATOR CONSTRUCTORS**
  - Install, erect, maintenance and repair of all types of elevators, escalators, dumb waiters and moving walks. **\*License required by Connecticut General Statutes: R-1,2,5,6.**
- **FORK LIFT OPERATOR**
  - Laborers Group 4) Mason Tenders - operates forklift solely to assist a mason to a maximum height of nine (9) feet only.
  - Power Equipment Operator Group 9 - operates forklift to assist any trade, and to assist a mason to a height over nine (9) feet.
- **GLAZIERS**
  - Glazing wood and metal sash, doors, partitions, and 2 story aluminum storefronts. Installs glass windows, skylights, store fronts and display cases or surfaces such as building fronts, interior walls, ceilings and table tops and metal store fronts. Installation of aluminum window walls and curtain walls is the "joint" work of glaziers and ironworkers which requires either a blended rate or equal composite workforce.
- **IRONWORKERS**
  - Erection, installation and placement of structural steel, precast concrete, miscellaneous iron, ornamental iron, metal curtain wall, rigging and reinforcing steel. Handling, sorting, and installation of reinforcing steel (rebar). Metal bridge rail (traffic), metal bridge handrail, and decorative security fence installation. Installation of aluminum window walls and curtain walls is the "joint" work of glaziers and ironworkers which requires either a blended rate or equal composite workforce. Insulated metal and insulated composite panels are still installed by the Ironworker.
- **INSULATOR**
  - Installing fire stopping systems/materials for "Penetration Firestop Systems": transit to cables, electrical conduits, insulated pipes, sprinkler pipe penetrations, ductwork behind radiation, electrical cable trays, fire rated pipe penetrations, natural polypropylene, HVAC ducts, plumbing bare metal, telephone and communication wires, and boiler room ceilings. Past practice using the applicable licensed trades, Plumber, Sheet Metal, Sprinkler Fitter, and Electrician, is not inconsistent with the Insulator classification and would be permitted.
- **LABORERS**
  - Acetylene burners, asphalt rakers, chain saw operators, concrete and power buggy operator, concrete saw operator, fence and guard rail erector (except metal bridge rail (traffic), metal bridge handrail, and decorative security fence installation.), hand operated concrete vibrator operator, mason tenders, pipelayers (installation of storm drainage or sewage lines on the street only), pneumatic drill operator, pneumatic gas and electric drill operator, powermen and wagon drill operator, air track operator, block paver, curb setters, blasters, concrete spreaders.
- **PAINTERS**
  - Maintenance, preparation, cleaning, blasting (water and sand, etc.), painting or application of any protective coatings of every description on all bridges and appurtenances of highways, roadways, and railroads. Painting, decorating, hardwood finishing, paper hanging, sign writing, scenic art work and drywall hanging+ for any and all types of building and residential work.
- **LEAD PAINT REMOVAL**
  - Painter's Rate
    1. Removal of lead paint from bridges.
    2. Removal of lead paint as preparation of any surface to be repainted.
    3. Where removal is on a Demolition project prior to reconstruction.
  - Laborer's Rate
    1. Removal of lead paint from any surface NOT to be repainted.
    2. Where removal is on a *TOTAL* Demolition project only.
- **PLUMBERS AND PIPEFITTERS**
  - Installation, repair, replacement, alteration or maintenance of all plumbing, heating, cooling and piping. **\*License required per Connecticut General Statutes: P-1,2,6,7,8,9 J-1,2,3,4 SP-1,2 S-1,2,3,4,5,6,7,8 B-1,2,3,4 D-1,2,3,4.**
- **POWER EQUIPMENT OPERATORS**
  - Operates several types of power construction equipment such as compressors, pumps, hoists, derricks, cranes, shovels, tractors, scrapers or motor graders, etc. Repairs and maintains equipment. **\*License required, crane operators only, per Connecticut General Statutes.**
- **ROOFERS**
  - Covers roofs with composition shingles or sheets, wood shingles, slate or asphalt and gravel to waterproof roofs,

including preparation of surface. (tear-off and/or removal of any type of roofing and/or clean-up of any and all areas where a roof is to be relaid)

- **SHEETMETAL WORKERS**

- Fabricate, assembles, installs and repairs sheetmetal products and equipment in such areas as ventilation, air-conditioning, warm air heating, restaurant equipment, architectural sheet metal work, sheetmetal roofing, and aluminum gutters. Fabrication, handling, assembling, erecting, altering, repairing, etc. of coated metal material panels and composite metal material panels when used on building exteriors and interiors as soffits, fascia, louvers, partitions, wall panel siding, canopies, cornice, column covers, awnings, beam covers, cladding, sun shades, lighting troughs, spires, ornamental roofing, metal ceilings, mansards, copings, ornamental and ventilation hoods, vertical and horizontal siding panels, trim, etc. The sheet metal classification also applies to the vast variety of coated metal material panels and composite metal material panels that have evolved over the years as an alternative to conventional ferrous and non-ferrous metals like steel, iron, tin, copper, brass, bronze, aluminum, etc. Insulated metal and insulated composite panels are still installed by the Iron Worker. Fabrication, handling, assembling, erecting, altering, repairing, etc. of architectural metal roof, standing seam roof, composite metal roof, metal and composite bathroom/toilet partitions, aluminum gutters, metal and composite lockers and shelving, kitchen equipment, and walk-in coolers.

- **SPRINKLER FITTERS**

- Installation, alteration, maintenance and repair of fire protection sprinkler systems. **\*License required per Connecticut General Statutes: F-1,2,3,4.**

- **TILE MARBLE AND TERRAZZO FINISHERS**

- Assists and tends the tile setter, marble mason and terrazzo worker in the performance of their duties.

- **TRUCK DRIVERS**

- **Definitions:**

- 1) "Site of the work" (29 Code of Federal Regulations (CFR) 5.2(l)(b) is the physical place or places where the building or work called for in the contract will remain and any other site where a significant portion of the building or work is constructed, provided that such site is established specifically for the performance of the contract or project;
  - (a) Except as provided in paragraph (l) (3) of this section, job headquarters, tool yards, batch plants, borrow pits, etc. are part of the "site of the work"; provided they are dedicated exclusively, or nearly so, to the performance of the contract or project, and provided they are adjacent to "the site of work" as defined in paragraph (e)(1) of this section;
  - (b) Not included in the "site of the work" are permanent home offices, branch plant establishments, fabrication plants, tool yards etc. of a contractor or subcontractor whose location and continuance in operation are determined wholly without regard to a particular State or political subdivision contract or uncertain and indefinite periods of time involved of a few seconds or minutes duration and where the failure to count such time is due to consideration justified by industrial realities (29 CFR 785.47)
- 2) "Engaged to wait" is waiting time that belongs to and is controlled by the employer which is an integral part of the job and is therefore compensable as hours worked. (29 CFR 785.15)
- 3) "Waiting to be engaged" is waiting time that an employee can use effectively for their own purpose and is not compensable as hours worked. (29 CFR 785.16)
- 4) "De Minimus" is a rule that recognizes that unsubstantial or insignificant periods of time which cannot as a practical administrative matter be precisely recorded for payroll purposes, may be disregarded. This rule applies only where there are uncertain and indefinite periods of time involved of a short duration and where the failure to count such time is due to consideration justified by worksite realities. For example, with respect to truck drivers on prevailing wage sites, this is typically less than 15 minutes at a time.

- **Coverage of Truck Drivers on State or Political subdivision Prevailing Wage Projects**

- Truck drivers are covered for payroll purposes under the following conditions:
  - Truck Drivers for time spent working on the site of the work.
  - Truck Drivers for time spent loading and/or unloading materials and supplies on the site of the work, if such time is not de minimus
  - Truck drivers transporting materials or supplies between a facility that is deemed part of the site of the work and the actual construction site.
  - Truck drivers transporting portions of the building or work between a site established specifically for the performance of the contract or project where a significant portion of such building or work is constructed and the physical places where the building or work outlined in the contract will remain.

*For example: Truck drivers delivering asphalt are covered under prevailing wage while "engaged to wait" on the site and when directly involved in the paving operation, provided the total time is not "de minimus"*

- Truck Drivers are not covered in the following instances:
  - Material delivery truck drivers while off "the site of the work"
  - Truck Drivers traveling between a prevailing wage job and a commercial supply facility while they are off the

“site of the work”

- Truck drivers whose time spent on the “site of the work” is de minimus, such as under 15 minutes at a time, merely to drop off materials or supplies, including asphalt.

*These guidelines are similar to U.S. Labor Department policies. The application of these guidelines may be subject to review based on factual considerations on a case by case basis.*

**For example:**

- Material men and deliverymen are not covered under prevailing wage as long as they are not directly involved in the construction process. If, they unload the material, they would then be covered by prevailing wage for the classification they are performing work in: laborer, equipment operator, etc.
- Hauling material off site is not covered provided they are not dumping it at a location outlined above.
- Driving a truck on site and moving equipment or materials on site would be considered covered work, as this is part of the construction process.

*Any questions regarding the proper classification should be directed to:*

*Public Contract Compliance Unit  
Wage and Workplace Standards Division  
Connecticut Department of Labor  
200 Folly Brook Blvd, Wethersfield, CT 06109  
(860) 263-6543*

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**Connecticut Department of Labor  
Wage and Workplace Standards Division  
FOOTNOTES**

⇒ Please Note: If the “Benefits” listed on the schedule for the following occupations includes a letter(s) (+ a or + a+b for instance), refer to the information below.

Benefits to be paid at the appropriate prevailing wage rate for the listed occupation.

If the “Benefits” section for the occupation lists only a dollar amount, disregard the information below.

**Bricklayers, Cement Masons, Cement Finishers, Concrete Finishers, Stone Masons**  
(Building Construction) and  
(Residential- Hartford, Middlesex, New Haven, New London and Tolland Counties)

- a. Paid Holiday: Employees shall receive 4 hours for Christmas Eve holiday provided the employee works the regularly scheduled day before and after the holiday. Employers may schedule work on Christmas Eve and employees shall receive pay for actual hours worked in addition to holiday pay.

**Elevator Constructors: Mechanics**

- a. Paid Holidays: New Year’s Day, Memorial Day, Independence Day, Labor Day, Veterans’ Day, Thanksgiving Day, Christmas Day, plus the Friday after Thanksgiving.
- b. Vacation: Employer contributes 8% of basic hourly rate for 5 years or more of service or 6% of basic hourly rate for 6 months to 5 years of service as vacation pay credit.

**Glaziers**

- a. Paid Holidays: Labor Day and Christmas Day.

**Power Equipment Operators**  
(Heavy and Highway Construction & Building Construction)

- a. Paid Holidays: New Year’s Day, Good Friday, Memorial day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day, provided the employee works 3 days during the week in which the holiday falls, if scheduled, and if scheduled, the working day before and the working day after the holiday. Holidays falling on Saturday may be observed on Saturday, or if the employer so elects, on the preceding Friday.

**Ironworkers**

- a. Paid Holiday: Labor Day provided employee has been on the payroll for the 5 consecutive work days prior to Labor Day.

**Laborers (Tunnel Construction)**

- a. Paid Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day. No employee shall be eligible for holiday pay when he fails, without cause, to work the regular work day preceding the holiday or the regular work day following the holiday.

**Roofers**

- a. Paid Holidays: July 4<sup>th</sup>, Labor Day, and Christmas Day provided the employee is employed 15 days prior to the holiday.

**Sprinkler Fitters**

- a. Paid Holidays: Memorial Day, July 4th, Labor Day, Thanksgiving Day and Christmas Day, provided the employee has been in the employment of a contractor 20 working days prior to any such paid holiday.

**Truck Drivers**

(Heavy and Highway Construction & Building Construction)

- a. Paid Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Christmas day, and Good Friday, provided the employee has at least 31 calendar days of service and works the last scheduled day before and the first scheduled day after the holiday, unless excused.

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SECTION 01100 - SUMMARY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplemental General Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
  - 1. Work covered by the Contract Documents.
  - 2. Type of the Contract.
  - 3. Use of premises.
  - 4. Owner's occupancy requirements.
  - 5. Work restrictions.
  - 6. Specification formats and conventions.
- B. Related Sections include the following:
  - 1. Division 1 Section "Temporary Facilities and Controls" for limitations and procedures governing temporary use of Owner's facilities.

1.3 WORK COVERED BY CONTRACT DOCUMENTS

- A. Project Identification: Deck Replacement, Site and Pool Modifications
  - 1. Project Location: Drennan Park Pool at McAuliffe Park, McKee Street, East Hartford, CT 06108
- B. Owner: Town of East Hartford, CT, Department of Parks and Recreation 50 Chapman Place, East Hartford, CT 06108
- C. Architect: Capital Studio Architects, LLC., 1379 Main Street, East Hartford, CT 06108
- D. The Work consists of the following:

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1. The Work includes the complete replacement of Concrete Pool Decks and Compacted Subsurface Fill, New Trench Style Deck Drain, Perimeter Chain Link Fence Replacement and New Gates and New Site Lighting. Modification of Pool Bottom by Installing New Cast-In-Place Reinforced Concrete Pool Bottom and New VGB compliant Bottom Drains (3) with Anti-Entrapment Covers. New Cast-In-Place Concrete Surge Tank, New Pool Drainage and Supply Piping. New Swimming Pool Deck Equipment.

#### 1.4 TYPE OF CONTRACT

- A. Project will be constructed under a single prime contract.

#### 1.5 USE OF PREMISES

- A. General: Contractor shall have full use of premises for construction operations, including use of Project site, during construction period. Contractor's use of premises is limited only by Owner's right to perform work or to retain other contractors on portions of Project.
- B. General: Contractor shall have limited use of premises for construction operations as indicated on Drawings by the Contract limits.
- C. Use of Site: Limit use of premises to areas within the Contract limits indicated. Do not disturb portions of Project site beyond areas in which the Work is indicated.
  1. Limits: Confine constructions operations to area indicated on Drawings as the Contract Limit.
  2. Owner Occupancy: Allow for Owner occupancy of Project site and use by the public beyond the Contract Limit Lines.
  3. Driveways and Entrances: Keep driveways, loading areas, and entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials, except as specifically designated on the plans for this use.
    - 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.

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- D. Use of Existing Building: Maintain existing building in a weathertight condition throughout construction period. Repair damage caused by construction operations. Protect building and its occupants during construction period.

## 1.6 OWNER'S OCCUPANCY REQUIREMENTS

- A. Full Owner Occupancy: Owner will occupy adjacent portions of the site including the Park, Fields, Courts, etc., as well as associated parking areas for those activities. Cooperate with Owner during construction operations to minimize conflicts and facilitate Owner usage. Perform the Work so as not to interfere with Owner's day-to-day operations. Maintain circulation paths around the site.
  - 1. Provide not less than seventy-two (72) hours' notice to Owner of activities that will affect Owner's operations.
- B. Owner Occupancy of Completed Areas of Construction: Owner reserves the right to occupy and to place and install equipment in completed areas of building, before Substantial Completion, provided such occupancy does not interfere with completion of the Work. Such placement of equipment and partial occupancy shall not constitute acceptance of the total Work.
  - 1. Architect will prepare a Certificate of Substantial Completion for each specific portion of the Work to be occupied before Owner occupancy.
  - 2. Obtain a Certificate of Occupancy from authorities having jurisdiction before Owner occupancy.
  - 3. Before partial Owner occupancy, mechanical and electrical systems shall be fully operational, and required tests and inspections shall be successfully completed. On occupancy, Owner will operate and maintain mechanical and electrical systems serving occupied portions of building.
  - 4. On occupancy, Owner will assume responsibility for maintenance and custodial service for occupied portions of building.
- C. The Owner requires Substantial Completion to be achieved in order to occupy the facility by June 1, 2015. Substantial Completion shall be achieved as specified in the Instructions to Bidders, General and Supplementary General Requirements.

## 1.7 WORK RESTRICTIONS

- A. On-Site Work Hours: Coordinate with requirements in section 00900 Special Conditions.

## 1.8 SPECIFICATION FORMATS AND CONVENTIONS

- A. Specification Format: The Specifications are organized into Divisions and Sections using the 16-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 because all available Section numbers are not used. Consult the table of contents at the beginning of the Project Manual to determine numbers and names of Sections in the Contract Documents.
  2. Division 1: Sections in Division 1 govern the execution of the Work of all Sections in the Specifications.
- 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 01100

## SECTION 01330 - SUBMITTAL PROCEDURES

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. This Section includes administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.
- B. See Division 1 Section "Quality Requirements" for submitting test and inspection reports.
- C. See Division 1 Section "Project Record Documents" for submitting Record Drawings, Record Specifications, and Record Product Data.
- D. See Division 1 Section "Operation and Maintenance Data" for submitting operation and maintenance manuals.

#### 1.2 DEFINITIONS

- A. Action Submittals: Written and graphic information that requires Architect's responsive action.
- B. Informational Submittals: Written information that does not require Architect's approval. Submittals may be rejected for not complying with requirements.

#### 1.3 SUBMITTAL PROCEDURES

- A. 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.

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- a. Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
- B. Processing Time: Allow enough time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Architect's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.
1. Initial Review: Allow 15 days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Architect will advise Contractor when a submittal being processed must be delayed for coordination.
  2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
  3. Resubmittal Review: Allow 15 days for review of each resubmittal.
- C. Identification: Place a permanent label or title block on each submittal for identification.
1. Indicate name of firm or entity that prepared each submittal on label or title block.
  2. Provide a space approximately 6 by 8 inches (150 by 200 mm) on label or beside title block to record Contractor's review and approval markings and action taken by Architect.
  3. Include the following information on label for processing and recording action taken:
    - a. Project name.
    - b. Date.
    - c. Name and address of Architect.
    - d. Name and address of Contractor.
    - e. Name and address of subcontractor.
    - f. Name and address of supplier.
    - g. Name of manufacturer.
    - h. Submittal number or other unique identifier, including revision identifier.
      - 1) Submittal number shall use Specification Section number followed by a decimal point and then a sequential number (e.g., 06100.01). Resubmittals shall include an alphabetic suffix after another decimal point (e.g., 06100.01.A).
- i. Number and title of appropriate Specification Section.
  - j. Drawing number and detail references, as appropriate.

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- k. Location(s) where product is to be installed, as appropriate.
  - l. Other necessary identification.
- D. Deviations: Highlight, encircle, or otherwise specifically identify deviations from the Contract Documents on submittals.
- E. Additional Copies: Unless additional copies are required for final submittal, and unless Architect observes noncompliance with provisions in the Contract Documents, initial submittal may serve as final submittal.
  - 1. Additional copies submitted for maintenance manuals will not be marked with action taken and will be returned.
- F. Transmittal: Package each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. Architect will return submittals, without review, received from sources other than Contractor.
  - 1. Transmittal Form: Use AIA Document G810.
- G. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.
  - 1. Note date and content of previous submittal.
  - 2. Note date and content of revision in label or title block and clearly indicate extent of revision.
  - 3. Resubmit submittals until they are marked "Reviewed" or "Furnish as Corrected".
- H. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.
- I. Use for Construction: Use only final submittals with mark indicating "Reviewed" or "Furnish as Corrected" action taken by Architect.

## PART 2 - PRODUCTS

### 2.1 ACTION SUBMITTALS

- A. A. General: Prepare and submit Action Submittals required by individual Specification Sections.

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- 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. Manufacturer's catalog cuts.
    - e. Wiring diagrams showing factory-installed wiring.
    - f. Printed performance curves.
    - g. Operational range diagrams.
    - h. Compliance with specified referenced standards.
    - i. Testing by recognized testing agency.
  4. Number of Copies: Submit six copies of Product Data, unless otherwise indicated. Architect will return three copies. Mark up and retain one returned copy as a Project Record Document.
- 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, unless submittal of Architect's CAD Drawings is otherwise permitted.
1. Preparation: Fully illustrate requirements in the Contract Documents. 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.

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- h. Schedules.
  - i. Notation of coordination requirements.
  - j. Notation of dimensions established by field measurement.
  - k. Relationship to adjoining construction clearly indicated.
  - l. Seal and signature of professional engineer if specified.
  - m. Wiring Diagrams: Differentiate between manufacturer-installed and field-installed wiring.
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 (215 by 280 mm)** but no larger than **30 by 42 inches (750 by 1000 mm)**.
  3. Number of Copies: Submit six opaque (bond) copies of each submittal. Architect will return one copy.
- D. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.
1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
  2. Identification: Attach label on unexposed side of Samples that includes the following:
    - a. Generic description of Sample.
    - b. Product name and name of manufacturer.
    - c. Sample source.
    - d. Number and title of appropriate Specification Section.
  3. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
  4. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.
    - a. Number of Samples: Submit one full set(s) of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect will return submittal with options selected.

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5. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.
  - a. Number of Samples: Submit three sets of Samples. Architect will retain two Sample sets; remainder will be returned

E. Submittals Schedule: Comply with requirements specified in Division 1 Section "Construction Progress Documentation."

F. Application for Payment: Comply with requirements specified in Division 1 Section "Payment Procedures."

G. Schedule of Values: Comply with requirements specified in Division 1 Section "Payment Procedures."

H. 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

1. Number of Copies: Submit three copies of subcontractor list, unless otherwise indicated. Architect will return one copies.

## 1.2 INFORMATIONAL SUBMITTALS

A. General: Prepare and submit Informational Submittals required by other Specification Sections.

1. Number of Copies: Submit six copies of each submittal, unless otherwise indicated. Architect will not return copies.
2. Certificates and Certifications: Provide a notarized statement that includes signature of entity responsible for preparing certification. Certificates and

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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 specified in Division 1 Section "Quality Requirements."
- B. Coordination Drawings: Comply with requirements specified in Division 1 Section "Project Management and Coordination."
- C. Contractor's Construction Schedule: Comply with requirements specified in Division 1 Section "Construction Progress Documentation."
- D. 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 architects and owners, and other information specified.
- E. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. 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 in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.
- G. Manufacturer Certificates: Prepare written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.
- H. Product Certificates: Prepare written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.
- I. Material Certificates: Prepare written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.
- J. 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 in the Contract Documents.
- K. Product Test Reports: Prepare written reports indicating current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on

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evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.

- L. 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.
- M. 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 in the Contract Documents.
- N. 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.
- O. 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 in the Contract Documents.
- P. Maintenance Data: Prepare written and graphic instructions and procedures for operation and normal maintenance of products and equipment. Comply with requirements specified in Division 1 Section "Operation and Maintenance Data."
- Q. 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.
- R. 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.
- S. Manufacturer's Field Reports: Prepare written information documenting factory-authorized service representative's tests and inspections. Include the following, as applicable:

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1. Statement on condition of substrates and their acceptability for installation of product.
  2. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
  3. Results of operational and other tests and a statement of whether observed performance complies with requirements.
- T. 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.

### 1.3 DELEGATED DESIGN

- A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.
1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Architect.
- B. Delegated-Design Submittal: In addition to Shop Drawings, Product Data, and other required submittals, submit six copies of a statement, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.
1. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.

## PART 2 - EXECUTION

### 2.1 CONTRACTOR'S REVIEW

- A. Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect.

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- 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.

## 2.2 ARCHITECT'S ACTION

- A. General: Architect will not review submittals that do not bear Contractor's approval stamp and will return them without action.
- B. Action Submittals: Architect will review each submittal, make marks to indicate corrections or modifications required, and return it. Architect will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action taken.
- C. Informational Submittals: Architect will review each submittal and will not return it, or will return it if it does not comply with requirements. Architect will forward each submittal to appropriate party.
- D. Partial submittals are not acceptable, will be considered nonresponsive, and will be returned without review.
- E. Submittals not required by the Contract Documents may not be reviewed and may be discarded.

END OF SECTION 01330

## SECTION 01700 - EXECUTION REQUIREMENTS

### PART 1 - GENERAL

#### 1.1 SUMMARY

- 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. Progress cleaning.
  - 5. Starting and adjusting.
  - 6. Protection of installed construction.
  - 7. Correction of the Work.
- B. See Division 1 Section "Closeout Procedures" (01770) for submitting final property survey with Project Record Documents, recording of Owner-accepted deviations from indicated lines and levels, and final cleaning.

#### 1.2 SUBMITTALS

- A. Certificates: Submit certificate signed by land surveyor certifying that location and elevation of improvements comply with requirements.
- B. Certified Surveys: Submit two copies signed by land surveyor.
- C. Final Property Survey: Submit 10 copies showing the Work performed and record survey data.

#### 1.3 QUALITY ASSURANCE

- A. Land Surveyor Qualifications: A professional land surveyor who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing land-surveying services of the kind indicated.

## 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 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. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
  - 2. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
  - 3. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
  - 4. 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 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. 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.
- C. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.
- D. 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 Architect. Include a detailed description of problem encountered, together with recommendations for changing the Contract Documents.

### 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 Architect promptly.
- B. General: Engage a land surveyor to 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 Architect 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.

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- C. Site Improvements: Locate and lay out site improvements, including pavements, grading, fill and topsoil placement, utility slopes, and invert elevations.
- D. Building Lines and Levels: Locate and lay out control lines and levels for structures, building foundations, column grids, and floor levels, including those required for mechanical and electrical work. Transfer survey markings and elevations for use with control lines and levels. Level foundations and piers from two or more locations.
- E. 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 Architect.

### 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.
- 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.
- C. Certified Survey: On completion of foundation walls, major site improvements, and other work requiring field-engineering services, prepare a certified survey showing dimensions, locations, angles, and elevations of construction and sitework.
- D. Final Property Survey: Prepare a final property survey showing significant features (real property) for Project. Include on the survey a certification, signed by land surveyor, that principal metes, bounds, lines, and levels of Project are accurately positioned as shown on the survey.
  - 1. Recording: At Substantial Completion, have the final property survey recorded by or with authorities having jurisdiction as the official "property survey."

### 3.5 INSTALLATION

- A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
  - 1. Make vertical work plumb and make horizontal work level.
  - 2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
  - 3. Conceal pipes, ducts, and wiring in finished areas, unless otherwise 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 occupancy.
- E. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.
- F. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.
- G. 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. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
  - 2. Allow for building movement, including thermal expansion and contraction.
  - 3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.
- H. 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.

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- I. 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 (27 deg C).
  - 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.
  - 1. Remove liquid spills promptly.
  - 2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.
- 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 in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.
- G. 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.
- H. 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.

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- I. 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.
- J. 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 "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 1 Section "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.

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- 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 01700

## SECTION 01731 - CUTTING AND PATCHING

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. This Section includes procedural requirements for cutting and patching.
- B. See Divisions 2 through 16 Sections for specific requirements and limitations applicable to cutting and patching individual parts of the Work.

#### 1.2 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 In-Place Construction: Describe anticipated results. Include changes to structural elements and operating components as well as changes in building's appearance and other significant visual elements.
  - 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. Utility Services and Mechanical/Electrical Systems: List services/systems that cutting and patching procedures will disturb or affect. List services/systems that will be relocated and those that will be temporarily out of service. Indicate how long services/systems will be disrupted.
  - 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. Architect'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.

### 1.3 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. Miscellaneous Elements: Do not cut and patch miscellaneous elements or related components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety.
- D. Visual Requirements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch construction exposed on the exterior or in occupied spaces in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.

### 1.4 WARRANTY

## PART 2 - PRODUCTS

### 2.1 MATERIALS

- A. General: Comply with requirements specified in other Sections.
- B. In-Place Materials: Use materials identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.
  - 1. If identical materials are unavailable or cannot be used, use materials that, when installed, will match the visual and functional performance of in-place materials.

## 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 in-place 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 in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.
- C. Adjoining Areas: Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.
- D. Existing Utility Services and Mechanical/Electrical Systems: Where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting to minimize interruption to occupied areas.

### 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 in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.
- B. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.

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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. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
  3. Concrete and Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
  4. Excavating and Backfilling: Comply with requirements in applicable Division 2 Sections where required by cutting and patching operations.
  5. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
  6. 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.
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.
  3. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and appearance. Remove in-place floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.
  4. Ceilings: Patch, repair, or rehang in-place ceilings as necessary to provide an even-plane surface of uniform appearance.
  5. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition.
- D. Cleaning: Clean areas and spaces where cutting and patching are performed. Completely remove paint, mortar, oils, putty, and similar materials.

END OF SECTION 01731

## SECTION 01732 - SELECTIVE DEMOLITION

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. This Section includes the following:
  - 1. Demolition and removal of selected portions of building or structure.
  - 2. Demolition and removal of selected site elements.
  - 3. Salvage of existing items to be reused or recycled.
- B. See Division 1 Section "Construction Waste Management" for disposal of demolished materials.

#### 1.2 DEFINITIONS

- A. Remove: Detach items from existing construction and legally dispose of them off-site, unless indicated to be removed and salvaged or removed and reinstalled.
- B. Remove and Salvage: Detach items from existing construction and deliver them to Owner.
- C. Remove and Reinstall: Detach items from existing construction, prepare them for reuse, and reinstall them where indicated.
- D. Existing to Remain: Existing items of construction that are not to be removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.

#### 1.3 SUBMITTALS

- A. Schedule of Selective Demolition Activities: Indicate detailed sequence of selective demolition and removal work, with starting and ending dates for each activity, interruption of utility services, use of elevator and stairs, and locations of temporary partitions and means of egress.
- B. Predemolition Photographs: Show existing conditions of adjoining construction and site improvements, including finish surfaces, that might be misconstrued as damage caused by

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selective demolition operations. Comply with Division 1 Section "Photographic Documentation." Submit before Work begins.

- C. Landfill Records: Indicate receipt and acceptance of hazardous wastes by a landfill facility licensed to accept hazardous wastes.
  - 1. Comply with submittal requirements in Division 1 Section "Construction Waste Management."

#### 1.4 QUALITY ASSURANCE

- A. Demolition Firm Qualifications: An experienced firm that has specialized in demolition work similar in material and extent to that indicated for this Project.
- B. Refrigerant Recovery Technician Qualifications: Certified by an EPA-approved certification program.
- C. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.
- D. Standards: Comply with ANSI A10.6 and NFPA 241.
- E. Predemolition Conference: Conduct conference at Project site.

#### 1.5 PROJECT CONDITIONS

- A. Owner will occupy portions of building immediately adjacent to selective demolition area. Conduct selective demolition so Owner's operations will not be disrupted.
- B. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.
  - 1. Before selective demolition, Owner will remove the following:
    - a. All materials, equipment or furnishings stored within the building(s).
    - b. Hazardous materials which do not relate to the building envelope.
- C. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.

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- D. Hazardous Materials: Hazardous materials are present in construction to be selectively demolished. A report on the presence of hazardous materials is on file for review and use. Examine report to become aware of locations where hazardous materials are present.
  - 1. Hazardous material remediation is specified elsewhere in the Contract Documents.
- E. Storage or sale of removed items or materials on-site is not permitted.
- F. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.
  - 1. Maintain fire-protection facilities in service during selective demolition operations.

## 1.6 WARRANTY

- A. Existing Warranties: 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.

## PART 2 - PRODUCTS (Not Used)

## 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 items to be removed and salvaged.
- D. 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. Promptly submit a written report to Architect.
- E. Engage a professional engineer to survey condition of building to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of structure or adjacent structures during selective demolition operations.

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- F. Survey of Existing Conditions: Record existing conditions by use of preconstruction photographs.
  - 1. Comply with requirements specified in Division 1 Section "Photographic Documentation."
- G. Perform surveys as the Work progresses to detect hazards resulting from selective demolition activities.

### 3.2 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

- A. Existing Services/Systems: Maintain services/systems indicated to remain and protect them against damage during selective demolition operations.
- B. Service/System Requirements: Locate, identify, disconnect, and seal or cap off indicated utility services and mechanical/electrical systems serving areas to be selectively demolished.
  - 1. Arrange to shut off indicated utilities with utility companies.
  - 2. If services/systems are required to be removed, relocated, or abandoned, before proceeding with selective demolition provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to other parts of building.
  - 3. Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit after bypassing.

### 3.3 PREPARATION

- A. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
  - 1. Comply with requirements for access and protection specified in Division 1 Section "Temporary Facilities and Controls."
- B. Temporary Facilities: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
- C. Temporary Shoring: Provide and maintain shoring, bracing, and structural supports as required to preserve stability and prevent movement, settlement, or collapse of

construction and finishes to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.

### 3.4 SELECTIVE DEMOLITION

- A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:
1. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.
  2. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
  3. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain portable fire-suppression devices during flame-cutting operations.
  4. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
  5. Dispose of demolished items and materials promptly. Comply with requirements in Division 1 Section "Construction Waste Management."
- B. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Architect, items may be removed to a suitable, protected storage location during selective demolition and reinstalled in their original locations after selective demolition operations are complete.

### 3.5 DISPOSAL OF DEMOLISHED MATERIALS

- A. General: Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain Owner's property, remove demolished materials from Project site and legally dispose of them in an EPA-approved landfill.
1. Comply with requirements specified in Division 1 Section "Construction Waste Management."
- B. Burning: Do not burn demolished materials.

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- C. Disposal: Transport demolished materials off Owner's property and legally dispose of them.

3.6 CLEANING

- A. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

END OF SECTION 01732

## SECTION 01770 - CLOSEOUT PROCEDURES

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. This Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
  - 1. Inspection procedures.
  - 2. Warranties.
  - 3. Final cleaning.
- B. See Division 1 Section "Payment Procedures" (01290) for requirements for Applications for Payment for Substantial and Final Completion.
- C. See Division 1 Section "Photographic Documentation" (01322) for submitting Final Completion construction photographs and negatives.
- D. See Division 1 Section "Project Record Documents" (01781) for submitting Record Drawings, Record Specifications, and Record Product Data.
- E. See Division 1 Section "Operation and Maintenance Data" (01782) for operation and maintenance manual requirements.
- F. See Division 1 Section "Demonstration and Training" (01820) for requirements for instructing Owner's personnel.
- G. See Divisions 2 through 16 Sections for specific closeout and special cleaning requirements for the Work in those Sections.

#### 1.2 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.

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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, operation and maintenance manuals, Final Completion construction photographs, damage or settlement surveys, property surveys, and similar final record information.
  6. Deliver tools, spare parts, extra materials, and similar items to location designated by Owner. Label with manufacturer's name and model number where applicable.
  7. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
  8. Complete startup testing of systems.
  9. Submit test/adjust/balance records.
  10. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
  11. Advise Owner of changeover in heat and other utilities.
  12. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.
  13. Complete final cleaning requirements, including touchup painting.
  14. 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, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect 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 Architect, that must be completed or corrected before certificate will be issued.
1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
  2. Results of completed inspection will form the basis of requirements for Final Completion.

### 1.3 FINAL COMPLETION

- A. Preliminary Procedures: Before requesting final inspection for determining date of Final Completion, complete the following:

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1. Submit a final Application for Payment according to Division 1 Section "Payment Procedures."
  2. Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. 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.
  4. Submit pest-control final inspection report and warranty.
  5. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems.
- B. Inspection: Submit a written request for final inspection for acceptance. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect 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. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
- 1.4 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.
1. Organize list of spaces in sequential order, starting with exterior areas first and proceeding from lowest floor to highest floor.
  2. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.
- 1.5 WARRANTIES
- A. Submittal Time: Submit written warranties on request of Architect for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated.

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- B. 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 (215-by-280-mm) paper.
  - 2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
  - 3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.
  
- C. Provide additional 5 (five) 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.
  
- B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.
  - 1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a portion of Project:

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- a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
- b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
- c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
- d. Remove tools, construction equipment, machinery, and surplus material from Project site.
- e. Remove snow and ice to provide safe access to building.
- f. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
- g. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
- h. Sweep concrete floors broom clean in unoccupied spaces.
- i. Vacuum carpet and similar soft surfaces, removing debris and excess nap; shampoo if visible soil or stains remain.
- j. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials. Polish mirrors and glass, taking care not to scratch surfaces.
- k. Remove labels that are not permanent.
- l. 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.
  - 1) Do not paint over "UL" and similar labels, including mechanical and electrical nameplates.
- m. Wipe surfaces of mechanical and electrical equipment, elevator equipment, and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
- n. Replace parts subject to unusual operating conditions.
- o. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
- p. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.

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- q. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency. Replace burned-out bulbs, and those noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.
  - r. Leave Project clean and ready for occupancy.
- C. Pest Control: Engage an experienced, licensed exterminator to make a final inspection and rid Project of rodents, insects, and other pests. Prepare a report.
- D. 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 01770

## SECTION 01782 - OPERATION AND MAINTENANCE DATA

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. This Section includes administrative and procedural requirements for preparing operation and maintenance manuals, including the following:
  - 1. Emergency manuals.
  - 2. Operation manuals for systems, subsystems, and equipment.
  - 3. Maintenance manuals for the care and maintenance of products, materials, finishes, systems and equipment.
- B. See Divisions 2 through 16 Sections for specific operation and maintenance manual requirements for the Work in those Sections.

#### 1.2 SUBMITTALS

- A. Manual: Submit one copy of each manual in final form at least 15 days before final inspection. Architect will return copy with comments within 15 days after final inspection.
- B. Electronic Data Media - Submit one copy of manual in electronic format.
  - 1. Correct or modify each manual to comply with Architect's comments. Submit 3 copies of each corrected manual within 15 days of receipt of Architect's comments.

### PART 2 - PRODUCTS

#### 2.1 MANUALS, GENERAL

- A. Organization: Unless otherwise indicated, organize each manual into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system. Each manual shall contain a title page, table of contents, and manual contents.

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- B. Title Page: Enclose title page in transparent plastic sleeve. Include the following information:
1. Subject matter included in manual.
  2. Name and address of Project.
  3. Name and address of Owner.
  4. Date of submittal.
  5. Name, address, and telephone number of Contractor.
  6. Name and address of Architect.
  7. Cross-reference to related systems in other operation and maintenance manuals.
- C. Table of Contents: List each product included in manual, identified by product name, indexed to the content of the volume, and cross-referenced to Specification Section number in Project Manual.
- D. Manual Contents: Organize into sets of manageable size. Arrange contents alphabetically by system, subsystem, and equipment. If possible, assemble instructions for subsystems, equipment, and components of one system into a single binder.
1. Binders: Heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents, sized to hold 8-1/2-by-11-inch (215-by-280-mm) paper; with clear plastic sleeve on spine to hold label describing contents and with pockets inside covers to hold folded oversize sheets.
    - a. Identify each binder on front and spine, with printed title "OPERATION AND MAINTENANCE MANUAL," Project title or name, and subject matter of contents. Indicate volume number for multiple-volume sets.
  2. Dividers: Heavy-paper dividers with plastic-covered tabs for each section. Mark each tab to indicate contents. Include typed list of products and major components of equipment included in the section on each divider, cross-referenced to Specification Section number and title of Project Manual.
  3. Protective Plastic Sleeves: Transparent plastic sleeves designed to enclose diagnostic software diskettes for computerized electronic equipment.
  4. Drawings: Attach reinforced, punched binder tabs on drawings and bind with text.
    - a. If oversize drawings are necessary, fold drawings to same size as text pages and use as foldouts.
    - b. If drawings are too large to be used as foldouts, fold and place drawings in labeled envelopes and bind envelopes in rear of manual. At appropriate locations in manual, insert typewritten pages indicating drawing titles, descriptions of contents, and drawing locations.

## 2.2 EMERGENCY MANUALS

- A. Content: Organize manual into a separate section for type of emergency, emergency instructions, and emergency procedures.
- B. Type of Emergency: Where applicable for each type of emergency indicated below, include instructions and procedures for each system, subsystem, piece of equipment, and component for fire, flood, gas leak, water leak, power failure, water outage, equipment failure, and chemical release or spill.
- C. Emergency Instructions: Describe and explain warnings, trouble indications, error messages, and similar codes and signals. Include responsibilities of Owner's operating personnel for notification of Installer, supplier, and manufacturer to maintain warranties.
- D. Emergency Procedures: Include instructions on stopping, shutdown instructions for each type of emergency, operating instructions for conditions outside normal operating limits, and required sequences for electric or electronic systems.

## 2.3 OPERATION MANUALS

- A. Content: In addition to requirements in this Section, include operation data required in individual Specification Sections and equipment descriptions, operating standards, operating procedures, operating logs, wiring and control diagrams, and license requirements.
- B. Descriptions: Include the following:
  - 1. Product name and model number.
  - 2. Manufacturer's name.
  - 3. Equipment identification with serial number of each component.
  - 4. Equipment function.
  - 5. Operating characteristics.
  - 6. Limiting conditions.
  - 7. Performance curves.
  - 8. Engineering data and tests.
  - 9. Complete nomenclature and number of replacement parts.
- C. Operating Procedures: Include start-up, break-in, and control procedures; stopping and normal shutdown instructions; routine, normal, seasonal, and weekend operating instructions; and required sequences for electric or electronic systems.

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- D. Systems and Equipment Controls: Describe the sequence of operation, and diagram controls as installed.
- E. Piped Systems: Diagram piping as installed, and identify color-coding where required for identification.

## 2.4 PRODUCT MAINTENANCE MANUAL

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

## 2.5 SYSTEMS AND EQUIPMENT MAINTENANCE MANUAL

- A. Content: For each system, subsystem, and piece of equipment not part of a system, include source information, manufacturers' maintenance documentation, maintenance procedures, maintenance and service schedules, spare parts list and source information, maintenance service contracts, and warranty and bond information, as described below.

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- B. Source Information: List each system, subsystem, and piece of equipment included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual.
- C. Manufacturers' Maintenance Documentation: Manufacturers' maintenance documentation including maintenance instructions, drawings and diagrams for maintenance, nomenclature of parts and components, and recommended spare parts for each component part or piece of equipment:
- D. Maintenance Procedures: Include test and inspection instructions, troubleshooting guide, disassembly instructions, and adjusting instructions that detail essential maintenance procedures:
- E. Maintenance and Service Schedules: Include service and lubrication requirements, list of required lubricants for equipment, and separate schedules for preventive and routine maintenance and service with standard time allotment.
- F. Spare Parts List and Source Information: Include lists of replacement and repair parts, with parts identified and cross-referenced to manufacturers' maintenance documentation and local sources of maintenance materials and related services.
- G. Maintenance Service Contracts: Include copies of maintenance agreements with name and telephone number of service agent.
- H. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.

## PART 3 - EXECUTION

### 3.1 MANUAL PREPARATION

- A. Emergency Manual: Assemble a complete set of emergency information indicating procedures for use by emergency personnel and by Owner's operating personnel for types of emergencies indicated.
- B. Product Maintenance Manual: Assemble a complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into the Work.

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

END OF SECTION 01782

## SECTION 01820 - DEMONSTRATION AND TRAINING

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. This Section includes administrative and procedural requirements for instructing Owner's personnel, including the following:
  - 1. Demonstration of operation of systems, subsystems, and equipment.
  - 2. Training in operation and maintenance of systems, subsystems, and equipment.
- B. See Divisions 2 through 16 Sections for specific requirements for demonstration and training for products in those Sections.

#### 1.2 SUBMITTALS

- A. Instruction Program: Submit two copies of outline of instructional program for demonstration and training, including a schedule of proposed dates, times, length of instruction time, and instructors' names for each training module. Include learning objective and outline for each training module.

#### 1.3 QUALITY ASSURANCE

- A. Facilitator Qualifications: A firm or individual experienced in training or educating maintenance personnel in a training program similar in content and extent to that indicated for this Project, and whose work has resulted in training or education with a record of successful learning performance.
- B. Instructor Qualifications: A factory-authorized service representative, complying with requirements in Division 1 Section "Quality Requirements," experienced in operation and maintenance procedures and training.
- C. Preinstruction Conference: Conduct conference at Project site. Review methods and procedures related to demonstration and training.

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- D. Coordinate content of training modules with content of approved emergency, operation, and maintenance manuals. Do not submit instruction program until operation and maintenance data has been reviewed and approved by Architect and Owner.

## PART 2 - PRODUCTS

### 2.1 INSTRUCTION PROGRAM

- A. Program Structure: Develop an instruction program that includes individual training modules for each system and equipment not part of a system, as required by individual Specification Sections.
- B. Training Modules: Develop a learning objective and teaching outline for each module. Include a description of specific skills and knowledge that participant is expected to master. For each module, include instruction for the following:
  - 1. Basis of System Design, Operational Requirements, and Criteria: Include system and equipment descriptions, operating standards, regulatory requirements, equipment function, operating characteristics, limiting conditions, and performance curves.
  - 2. Documentation: Review emergency, operations, and maintenance manuals; Project Record Documents; identification systems; warranties and bonds; and maintenance service agreements.
  - 3. Emergencies: Include instructions on stopping; shutdown instructions; operating instructions for conditions outside normal operating limits; instructions on meaning of warnings, trouble indications, and error messages; and required sequences for electric or electronic systems.
  - 4. Operations: Include startup, break-in, control, and safety procedures; stopping and normal shutdown instructions; routine, normal, seasonal, and weekend operating instructions; operating procedures for emergencies and equipment failure; and required sequences for electric or electronic systems.
  - 5. Adjustments: Include alignments and checking, noise, vibration, economy, and efficiency adjustments.
  - 6. Troubleshooting: Include diagnostic instructions and test and inspection procedures.
  - 7. Maintenance: Include inspection procedures, types of cleaning agents, methods of cleaning, procedures for preventive and routine maintenance, and instruction on use of special tools.
  - 8. Repairs: Include diagnosis, repair, and disassembly instructions; instructions for identifying parts; and review of spare parts needed for operation and maintenance.

## PART 3 - EXECUTION

### 3.1 INSTRUCTION

- A. Facilitator: Engage a qualified facilitator to prepare instruction program and training modules, to coordinate instructors, and to coordinate between Contractor and Owner for number of participants, instruction times, and location.
- B. Engage qualified instructors to instruct Owner's personnel to adjust, operate, and maintain systems, subsystems, and equipment not part of a system.
  - 1. Owner will furnish an instructor to describe Owner's operational philosophy.
- C. Scheduling: Provide instruction at mutually agreed on times. For equipment that requires seasonal operation, provide similar instruction at start of each season.
  - 1. Schedule training with Owner with at least seven days' advance notice.
- D. Evaluation: At conclusion of each training module, assess and document each participant's mastery of module by use of a demonstration performance-based test.

END OF SECTION 01820

## SECTION 02230 - SITE CLEARING

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes the following:

1. Protecting existing trees to remain.
2. Removing existing grass.
3. Stripping and stockpiling topsoil.
4. Removing above- and below-grade site improvements.
5. Disconnecting, capping or sealing, and removing site utilities.
6. Temporary erosion and sedimentation control measures.

- B. Related Sections include the following:

1. Division 1 Section "Temporary Facilities and Controls" for temporary utilities, temporary construction and support facilities, temporary security and protection facilities, and temporary erosion and sedimentation control procedures.
2. Division 1 Section "Execution Requirements" for verifying utility locations and for recording field measurements.
3. Division 1 Section "Selective Demolition" for partial demolition of buildings or structures undergoing alterations.
4. Division 2 Section "Earthwork" for soil materials, excavating, backfilling, and site grading.
5. Division 2 Section "Lawns and Grasses" for finish grading including preparing and placing planting soil mixes and testing of topsoil material.

#### 1.3 DEFINITIONS

- A. Topsoil: Natural or cultivated surface-soil layer containing organic matter and sand, silt, and clay particles; friable, pervious, and black or a darker shade of brown, gray, or red

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than underlying subsoil; reasonably free of subsoil, clay lumps, gravel, and other objects more than 2 inches (50 mm) in diameter; and free of subsoil and weeds, roots, toxic materials, or other nonsoil materials.

- B. Tree Protection Zone: Area surrounding individual trees or groups of trees to be protected during construction, and defined by the drip line of individual trees or the perimeter drip line of groups of trees, unless otherwise indicated.

#### 1.4 MATERIAL OWNERSHIP

- A. Except for stripped topsoil or other materials indicated to remain Owner's property, cleared materials shall become Contractor's property and shall be removed from Project site.

#### 1.5 SUBMITTALS

- A. Photographs or videotape, sufficiently detailed, of existing conditions of trees and plantings, adjoining construction, and site improvements that might be misconstrued as damage caused by site clearing.
- B. Record drawings, according to Division 1 Section "Project Record Documents," identifying and accurately locating capped utilities and other subsurface structural, electrical, and mechanical conditions.

#### 1.6 QUALITY ASSURANCE

- A. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Management and Coordination."

#### 1.7 PROJECT CONDITIONS

- A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during site-clearing operations.
  - 1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction.
  - 2. Provide alternate routes around closed or obstructed traffic ways if required by authorities having jurisdiction.

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- B. Salvable Improvements: Carefully remove items indicated to be salvaged and store on Owner's premises where indicated.
- C. Utility Locator Service: Notify utility locator service for area where Project is located before site clearing.
- D. Do not commence site clearing operations until temporary erosion and sedimentation control measures are in place.

## PART 2 - PRODUCTS

### 2.1 SOIL MATERIALS

- A. Satisfactory Soil Materials: Requirements for satisfactory soil materials are specified in Division 2 Section "Earthwork."
  - 1. Obtain approved borrow soil materials off-site when satisfactory soil materials are not available on-site.

## PART 3 - EXECUTION

### 3.1 PREPARATION

- A. Protect and maintain benchmarks and survey control points from disturbance during construction.
- B. Locate and clearly flag trees and vegetation to remain or to be relocated.
- C. Protect existing site improvements to remain from damage during construction.
  - 1. Restore damaged improvements to their original condition, as acceptable to Owner.

### 3.2 TEMPORARY EROSION AND SEDIMENTATION CONTROL

- A. Provide temporary erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to requirements of authorities having jurisdiction.

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- B. Inspect, repair, and maintain erosion and sedimentation control measures during construction until permanent vegetation has been established.
- C. Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

### 3.3 TREE PROTECTION

- A. Erect and maintain temporary fencing around tree protection zones before starting site clearing. Remove fence when construction is complete.
  - 1. Do not store construction materials, debris, or excavated material within fenced area.
  - 2. Do not permit vehicles, equipment, or foot traffic within fenced area.
  - 3. Maintain fenced area free of weeds and trash.
- B. Do not excavate within tree protection zones, unless otherwise indicated.
- C. Where excavation for new construction is required within tree protection zones, hand clear and excavate to minimize damage to root systems. Use narrow-tine spading forks, comb soil to expose roots, and cleanly cut roots as close to excavation as possible.
  - 1. Cover exposed roots with burlap and water regularly.
  - 2. Temporarily support and protect roots from damage until they are permanently redirected and covered with soil.
  - 3. Coat cut faces of roots more than 1-1/2 inches in diameter with an emulsified asphalt or other approved coating formulated for use on damaged plant tissues.
  - 4. Backfill with soil as soon as possible.
- D. Repair or replace trees and vegetation indicated to remain that are damaged by construction operations, in a manner approved by Architect.
  - 1. Employ an arborist, licensed in jurisdiction where Project is located, to submit details of proposed repairs and to repair damage to trees and shrubs.
  - 2. Replace trees that cannot be repaired and restored to full-growth status, as determined by Architect.

### 3.4 UTILITIES

- A. Owner will arrange for disconnecting and sealing indicated utilities that serve existing structures before site clearing, when requested by Contractor.

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1. Verify that utilities have been disconnected and capped before proceeding with site clearing.
- B. Locate, identify, disconnect, and seal or cap off utilities indicated to be removed.
  1. Arrange with utility companies to shut off indicated utilities.
  2. Owner will arrange to shut off indicated utilities when requested by Contractor.
- C. Existing Utilities: 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 Architect not less than two days in advance of proposed utility interruptions.
  2. Do not proceed with utility interruptions without Architect's written permission.
- D. Excavate for and remove underground utilities indicated to be removed.
- E. Removal of underground utilities is included in Division 2 Sections covering site utilities.

### 3.5 TOPSOIL STRIPPING

- A. Remove sod and grass before stripping topsoil.
- B. Strip topsoil to whatever depths are encountered in a manner to prevent intermingling with underlying subsoil or other waste materials.
  1. Remove subsoil and nonsoil materials from topsoil, including trash, debris, weeds, roots, and other waste materials.
- C. Stockpile topsoil materials away from edge of excavations without intermixing with subsoil. Grade and shape stockpiles to drain surface water. Cover to prevent windblown dust.
  1. Limit height of topsoil stockpiles to 72 inches.
  2. Do not stockpile topsoil within tree protection zones.
  3. Dispose of excess topsoil as specified for waste material disposal.
  4. Stockpile surplus topsoil to allow for respreading deeper topsoil.

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3.6 SITE IMPROVEMENTS

- A. Remove existing above- and below-grade improvements as indicated and as necessary to facilitate new construction.
- B. Remove slabs, paving, curbs, gutters, and aggregate base as indicated.
  - 1. Unless existing full-depth joints coincide with line of demolition, neatly saw-cut length of existing pavement to remain before removing existing pavement. Saw-cut faces vertically.
  - 2. Paint cut ends of steel reinforcement in concrete to remain to prevent corrosion.

3.7 DISPOSAL

- A. Disposal: Remove surplus soil material, unsuitable topsoil, obstructions, demolished materials, and waste materials including trash and debris, and legally dispose of them off Owner's property.
  - 1. Separate recyclable materials produced during site clearing from other nonrecyclable materials. Store or stockpile without intermixing with other materials and transport them to recycling facilities.

END OF SECTION 02230

## SECTION 02300 - EARTHWORK

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes the following:
  - 1. Preparing subgrades for slabs-on-grade, walks, pavements, lawns and grasses.
  - 2. Excavating and backfilling for buildings and structures.
  - 3. Drainage course for slabs-on-grade.
  - 4. Subbase course for concrete walks, pavements.
  - 5. Subbase and base course for asphalt paving.
  - 6. Subsurface drainage backfill for walls and trenches.
  - 7. Excavating and backfilling for utility trenches.
  - 8. Excavating and backfilling trenches for buried mechanical and electrical utilities and pits for buried utility structures.
  
- B. Related Sections include the following:
  - 1. Division 1 Section "Construction Progress Documentation Photographic Documentation" for recording preexcavation and earthwork progress.
  - 2. Division 1 Section "Temporary Facilities and Controls" for temporary controls, utilities, and support facilities.
  - 3. Division 2 Section "Site Clearing" for temporary erosion and sedimentation control measures, site stripping, grubbing, stripping and stockpiling topsoil, and removal of above- and below-grade improvements and utilities.
  - 4. Division 2 Section "Lawns and Grasses" for finish grading, including preparing and placing topsoil and planting soil for lawns.
  - 5. Division 2 Section "Structural Excavation" for removal of sub-surface material needed to accommodate new cast-in-place concrete structures and sub-surface material adjacent to existing structures.

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6. Division 2 Section "Structural Fill" for type and location of required fill for new structures.
7. Division 3 Section "Cast-in-Place Concrete" for granular course if placed over vapor retarder and beneath the slab-on-grade.

### 1.3 DEFINITIONS

- A. Backfill: Soil material or controlled low-strength material used to fill an excavation.
  1. Initial Backfill: Backfill placed beside and over pipe in a trench, including haunches to support sides of pipe.
  2. Final Backfill: Backfill placed over initial backfill to fill a trench.
- B. Base Course: Course placed between the subbase course and hot-mix asphalt paving.
- C. Bedding Course: Course placed over the excavated subgrade in a trench before laying pipe.
- D. Borrow Soil: Satisfactory soil imported from off-site for use as fill or backfill.
- E. Excavation: Removal of material encountered above subgrade elevations and to lines and dimensions indicated.
  1. Authorized Additional Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions as directed by Architect. Authorized additional excavation and replacement material will be paid for according to Contract provisions for changes in the Work.
  2. Bulk Excavation: Excavation more than 10 feet in width and more than 30 feet in length.
  3. Unauthorized Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions without direction by Architect. Unauthorized excavation, as well as remedial work directed by Architect, shall be without additional compensation.
- F. Fill: Soil materials used to raise existing grades.
- G. Structures: Buildings, footings, foundations, retaining walls, slabs, tanks, curbs, mechanical and electrical appurtenances, or other man-made stationary features constructed above or below the ground surface.

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- H. Subbase Course: Course placed between the subgrade and base course for hot-mix asphalt pavement, or course placed between the subgrade and a cement concrete pavement or a cement concrete or hot-mix asphalt walk.
- I. Subgrade: Surface or elevation remaining after completing excavation, or top surface of a fill or backfill immediately below subbase, drainage fill, or topsoil materials.
- J. Utilities: On-site underground pipes, conduits, ducts, and cables, as well as underground services within buildings.

#### 1.4 SUBMITTALS

- A. Product Data: For the following:
  - 1. Each type of plastic warning tape.
  - 2. Geotextile.
  - 3. Controlled low-strength material, including design mixture.
- B. Material Test Reports: From a qualified testing agency indicating and interpreting test results for compliance of the following with requirements indicated:
  - 1. Classification according to ASTM D 2487 of each on-site and borrowed soil material proposed for fill and backfill.
  - 2. Laboratory compaction curve according to ASTM D 698 ASTM D 1557 for each on-site and borrow soil material proposed for fill and backfill.
- C. Preexcavation Photographs: Show existing conditions of adjoining construction and site improvements, including finish surfaces that might be misconstrued as damage caused by earthwork operations. Submit before earthwork begins.

#### 1.5 QUALITY ASSURANCE

- A. Preexcavation Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Management and Coordination."

#### 1.6 PROJECT CONDITIONS

- A. Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted in writing by Architect and then only after arranging to provide temporary utility services according to requirements indicated.

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1. Notify Architect not less than two days in advance of proposed utility interruptions.
2. Do not proceed with utility interruptions without Architect's written permission.
3. Contact utility-locator service for area where Project is located before excavating.

## PART 2 - PRODUCTS

### 2.1 SOIL MATERIALS

- A. General: Provide borrow soil materials when sufficient satisfactory soil materials are not available from excavations.
- B. Satisfactory Soils: ASTM D 2487 Soil Classification Groups GW, GP, GM, SW, SP, and SM or a combination of these groups; free of rock or gravel larger than 3 inches in any dimension, debris, waste, frozen materials, vegetation, and other deleterious matter.
- C. Unsatisfactory Soils: Soil Classification Groups GC, SC, CL, ML, OL, CH, MH, OH, and PT according to ASTM D 2487, or a combination of these groups.
  1. Unsatisfactory soils also include satisfactory soils not maintained within 2 percent of optimum moisture content at time of compaction.
- D. Subbase Material: Shall meet CT DOT Form 815 M.02.02 Subbase.
- E. Base Course: Shall meet CT DOT Form 815 M.05.01 Processed Aggregate Base and Pavement.
- F. Engineered Structural Fill: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; having a gradation within the following limits:

Sieve Size	Percent Finer By Weight
4 in.	100
No. 4	20-80
No. 40	5-50
No. 200	0-10

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- G. Bedding Course: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; except with 100 percent passing a 1-inch sieve and not more than 8 percent passing a No. 200 sieve.

## 2.2 ACCESSORIES

- A. Warning Tape: Acid- and alkali-resistant polyethylene film warning tape manufactured for marking and identifying underground utilities, 6 inches (150 mm) wide and 4 mils (0.1 mm) thick, continuously inscribed with a description of the utility; colored as follows:

## PART 3 - EXECUTION

### 3.1 PREPARATION

- A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.
- B. Preparation of subgrade for earthwork operations including removal of vegetation, topsoil, debris, obstructions, and deleterious materials from ground surface is specified in Division 2 Section "Site Clearing."
- C. Protect and maintain erosion and sedimentation controls, which are specified in Division 2 Section "Site Clearing," during earthwork operations.
- D. Provide protective insulating materials to protect subgrades and foundation soils against freezing temperatures or frost.

### 3.2 EXCAVATION, GENERAL

- A. Unclassified Excavation: Excavate to subgrade elevations regardless of the character of surface and subsurface conditions encountered. Unclassified excavated materials may include rock, soil materials, and obstructions. No changes in the Contract Sum or the Contract Time will be authorized for rock excavation or removal of obstructions.
  - 1. If excavated materials intended for fill and backfill include unsatisfactory soil materials and rock, replace with satisfactory soil materials.

### 3.3 EXCAVATION FOR STRUCTURES

- A. Excavate to indicated elevations and dimensions within a tolerance of plus or minus **1 inch**. If applicable, extend excavations a sufficient distance from structures for placing and removing concrete formwork, for installing services and other construction, and for inspections.
  - 1. Excavations for Footings and Foundations: Do not disturb bottom of excavation. Excavate by hand to final grade just before placing concrete reinforcement. Trim bottoms to required lines and grades to leave solid base to receive other work.
  - 2. Excavation for Underground Tanks, Basins, and Mechanical or Electrical Utility Structures: Excavate to elevations and dimensions indicated within a tolerance of plus or minus **1 inch**. Do not disturb bottom of excavations intended as bearing surfaces.

### 3.4 EXCAVATION FOR WALKS AND PAVEMENTS

- A. Excavate surfaces under walks and pavements to indicated lines, cross sections, elevations, and subgrades.

### 3.5 EXCAVATION FOR UTILITY TRENCHES

- A. Excavate trenches to indicated gradients, lines, depths, and elevations.
  - 1. Beyond building perimeter, excavate trenches to allow installation of top of pipe below frost line.
- B. Excavate trenches to uniform widths to provide the following clearance on each side of pipe or conduit. Excavate trench walls vertically from trench bottom to **12 inches** higher than top of pipe or conduit, unless otherwise indicated.
  - 1. Clearance: As indicated on drawings, or 12” minimum where not specified.
- C. Trench Bottoms: Excavate and shape trench bottoms to provide uniform bearing and support of pipes and conduit. Shape subgrade to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits. Remove projecting stones and sharp objects along trench subgrade.
  - 1. For pipes and conduit less than **6 inches** in nominal diameter and flat-bottomed, multiple-duct conduit units, hand-excavate trench bottoms and support pipe and conduit on an undisturbed subgrade.

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2. For pipes and conduit **6 inches** or larger in nominal diameter, shape bottom of trench to support bottom 90 degrees of pipe circumference. Fill depressions with tamped sand backfill.
  3. Excavate trenches **6 inches** deeper than elevation required in rock or other unyielding bearing material to allow for bedding course.
- D. Trench Bottoms: Excavate trenches **4 inches** deeper than bottom of pipe elevation to allow for bedding course. Hand excavate for bell of pipe.
1. Excavate trenches **6 inches** deeper than elevation required in rock or other unyielding bearing material to allow for bedding course.

### 3.6 SUBGRADE INSPECTION

- A. Notify Architect when excavations have reached required subgrade.
- B. If Architect determines that unsatisfactory soil is present, continue excavation and replace with compacted backfill or fill material as directed.
- C. Proof-roll subgrade below the structure, sidewalks and pavements with a vibratory roller or other equipment approved by the Architect to identify soft pockets and areas of excess yielding. Do not proof-roll wet or saturated subgrades.
- D. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, as directed by Architect, without additional compensation.
- E. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, as directed by Architect, without additional compensation.

### 3.7 UNAUTHORIZED EXCAVATION

- A. Fill unauthorized excavations under other construction or utility pipe as directed by Architect.

### 3.8 STORAGE OF SOIL MATERIALS

- A. Stockpile borrow soil materials and excavated satisfactory soil materials without intermixing. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.

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1. Stockpile soil materials away from edge of excavations. Do not store within drip line of remaining trees.
2. Dispose of all surplus soil materials off-site.

### 3.9 BACKFILL

- A. Place and compact backfill in excavations promptly, but not before completing the following:
  1. Construction below finish grade including, where applicable, subdrainage, dampproofing, waterproofing, and perimeter insulation.
  2. Surveying locations of underground utilities for Record Documents.
  3. Testing and inspecting underground utilities.
  4. Removing concrete formwork.
  5. Removing trash and debris.
  6. Removing temporary shoring and bracing, and sheeting.
  7. Installing permanent or temporary horizontal bracing on horizontally supported walls.
- B. Place backfill on subgrades free of mud, frost, snow, or ice.

### 3.10 UTILITY TRENCH BACKFILL

- A. Place backfill on subgrades free of mud, frost, snow, or ice.
- B. Place and compact bedding course on trench bottoms and where indicated. Shape bedding course to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits.
- C. Place and compact initial backfill in accordance with appropriate utility company requirements to a height of 12 inches (300 mm) over the pipe or conduit.
  1. Carefully compact initial backfill under pipe haunches and compact evenly up on both sides and along the full length of piping or conduit to avoid damage or displacement of piping or conduit. Coordinate backfilling with utilities testing.
- D. Place and compact final backfill of satisfactory soil to final subgrade elevation.
- E. Install warning tape in accordance with CT DOT requirements and utility company requirements.

### 3.11 SOIL FILL

- A. Plow, scarify, bench, or break up sloped surfaces steeper than 1 vertical to 4 horizontal so fill material will bond with existing material.
- B. Place and compact fill material in layers to required elevations as follows:
  - 1. Under grass and planted areas, use satisfactory soil material.
  - 2. Under walks and pavements, use satisfactory soil material.
  - 3. Under steps and ramps, use engineered structural fill.
  - 4. Under building slabs, use engineered structural fill.
  - 5. Under footings and foundations, use engineered structural fill.
- C. Place soil fill on subgrades free of mud, frost, snow, or ice.

### 3.12 SOIL MOISTURE CONTROL

- A. Uniformly moisten or aerate subgrade and each subsequent fill or backfill soil layer before compaction to within 2 percent of optimum moisture content.
  - 1. Do not place backfill or fill soil material on surfaces that are muddy, frozen, or contain frost or ice.
  - 2. Remove and replace, or scarify and air dry otherwise satisfactory soil material that exceeds optimum moisture content by 2 percent and is too wet to compact to specified dry unit weight.

### 3.13 COMPACTION OF SOIL BACKFILLS AND FILLS

- A. Place backfill and fill soil materials in layers not more than **8 inches (200 mm)** in loose depth for material compacted by heavy compaction equipment, and not more than 4 inches (100 mm) in loose depth for material compacted by hand-operated tampers.
- B. Place backfill and fill soil materials evenly on all sides of structures to required elevations, and uniformly along the full length of each structure.
- C. Compact soil materials to not less than the following percentages of maximum dry unit weight according to ASTM D 1557:
  - 1. Under pavements and walks, scarify and recompact top 12 inches (300 mm) of existing subgrade and each layer of backfill or fill soil material at 95 percent.

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2. Under walkways, scarify and recompact top 6 inches (150 mm) below subgrade and compact each layer of backfill or fill soil material at 95 percent.
3. Under turf or unpaved areas, scarify and recompact top 6 inches (150 mm) below subgrade and compact each layer of backfill or fill soil material at 85 percent.
4. For utility trenches, compact each layer of initial and final backfill soil material at 95 percent.
5. Under structures, scarify and re-compact top 12 inches below subgrade and compact each layer of initial and final backfill soil material at 95%.

### 3.14 GRADING

- A. General: Uniformly grade areas to a smooth surface, free of irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.
  1. Provide a smooth transition between adjacent existing grades and new grades.
  2. Cut out soft spots, fill low spots, and trim high spots to comply with required surface tolerances.
- B. Site Grading: Slope grades to direct water away from buildings and to prevent ponding. Finish subgrades to required elevations within the following tolerances:
  1. Lawn or Unpaved Areas: Plus or minus 1 inch.
  2. Walks: Plus or minus 1 inch.
  3. Pavements: Plus or minus 1/2 inch.

### 3.15 SUBBASE AND BASE COURSES

- A. Place subbase and base course on subgrades free of mud, frost, snow, or ice.
- B. On prepared subgrade, place subbase and base course under pavements and walks as follows:
  1. Shape subbase course and base course to required crown elevations and cross-slope grades.
  2. Place subbase course and base course that exceeds 6 inches (150 mm) in compacted thickness in layers of equal thickness, with no compacted layer more than 6 inches (150 mm) thick or less than 3 inches (75 mm) thick.

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3. Compact subbase course and base course at optimum moisture content to required grades, lines, cross sections, and thickness to not less than 95 percent of maximum dry unit weight according to ASTM D 1557.

### 3.16 FIELD QUALITY CONTROL

- A. Testing Agency: Owner will engage a qualified geotechnical engineering testing agency to perform tests and inspections.
- B. Allow testing agency to inspect and test subgrades and each fill or backfill layer. Proceed with subsequent earth moving only after test results for previously completed work comply with requirements.
- C. When testing agency reports that subgrades, fills, or backfills have not achieved degree of compaction specified, scarify and moisten or aerate, or remove and replace soil materials to depth required; recompact and retest until specified compaction is obtained.

### 3.17 PROTECTION

- A. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.
- B. Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions.
- C. Where settling occurs before Project correction period elapses, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing.
  1. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to greatest extent possible.

### 3.18 DISPOSAL OF SURPLUS AND WASTE MATERIALS

- A. Remove surplus satisfactory soil and waste materials, including unsatisfactory soil, trash, and debris, and legally dispose of them off Owner's property.

END OF SECTION 02300

## SECTION 02380 - STRUCTURE EXCAVATION

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. The general provisions of the Contract, including General and Division 1, General Requirements apply to the work specified in this section.

#### 1.2 DESCRIPTION OF WORK

- A. The extent of the structure excavation work shall be as shown on the drawings and as herein specified including, but not necessarily limited to, the following:
  1. Perform all excavation and backfill for building foundations, swimming pools, slabs, holding tanks, pits, etc., and for all plumbing, heating, and electrical work inside the building, to a point outside of foundation as indicated on drawings.
  2. All excavation to extents shown on the drawings and herein specified shall be included.
  3. Sub-surface soil investigations have not been performed. If the Contractor encounters inadequate soil conditions, notify the Architect immediately. Testing of soils shall be performed under separate Contract. Upon receipt of soil report bidders are expected to examine for site and the record of investigations and then decide for themselves the character of materials to be encountered. The Owner will not assume responsibility for variations of sub-soil quality or condition at locations other than places shown and at the time investigations were made.
  4. Perform excavation work in compliance with applicable requirements of governing authorities having jurisdiction.
  5. Do not bring explosives onto the site or use in the work without the prior written permission of the Architect. The Contractor is solely responsible for the handling storage and use of explosive materials when their use is permitted.

#### 1.3 RELATED WORK SPECIFIED IN OTHER SECTIONS

- A. 02300 Earthwork
- B. 02390 Structural Fill

#### 1.4 JOB CONDITIONS

- A. Existing Utilities:
  1. Locate existing underground utilities in the areas of work. If utilities are to remain in place, provide adequate means of protecting during excavation operations.
  2. Should uncharted, or incorrectly charted, piping or other utilities be encountered during excavation, consult the utility owner immediately for directions. Cooperate with the Owner, and public and private utility companies in keeping

their respective services and facilities in operation. Repair damaged utilities to the satisfaction of the utility owner.

3. Do not interrupt existing utilities serving facilities occupied and used by the Owner or others, except when permitted in writing by the Architect and then only after acceptable temporary utility services have been provided.
4. Demolish and completely remove from the site existing underground utilities indicated to be removed. Coordinate with local utility companies for shut-off of services if lines are active.

## 1.5 PROTECTION OF PERSONS AND PROPERTY

- A. Barricade open excavation and post with warning lights for the safety of persons. Operate warning lights during hours from dusk to dawn each day.
- B. Protect structures, utilities, sidewalks, pavements, and other facilities immediately adjacent to excavations from damages caused by settlement, lateral movement, undermining, washouts and other hazards.
- C. The Contractor shall carefully protect from disturbance or damage all land monuments, stakes, etc. until an authorized agent has witnessed or otherwise referenced their locations, and shall not remove or destroy them without proper authorization.
- D. Any and all areas outside the contract lines that may be disturbed during the progress of the work shall be restored as directed to their original conditions at the Contractor's own expense.

## PART 2 - PRODUCTS (Not Used)

## PART 3 - EXECUTION

### 3.1 EXCAVATION - EARTH

- A. Excavate to elevations and dimensions indicated plus sufficient space to permit erection of forms for construction of footings and foundations and inspection of foundations. Refer to Drawings for locations of required trenches and structures. Provide sufficient area in trench excavations for proper execution of the work and excavate to 3' below pipe laying grade. Use suitable excavated material for exterior fill, stockpile suitable excess on site.
- B. Maintenance of the Excavation:
  1. Slope the sides of excavations over 4' deep to the angle of repose of the material excavated: otherwise, shore and brace where sloping is not possible either because of space restrictions or stability of material excavated. All maintenance of all excavations is the responsibility of the Contractor.

2. Maintain sides and slopes of excavations in a safe condition until completion of backfilling by scaling, benching, shelving or bracing.
  3. Take precautions to prevent slides or cave-ins when excavations are made in locations adjacent to existing structures.
  4. Shore and brace excavations as necessary to prevent cave-ins. Remove shoring before backfilling is completed but not until permanent supports are in place.
  5. Provide materials for shoring and bracing such as sheet piling, uprights, stringers and cross braces in good serviceable condition. Use timbers that are sound and free of large or loose knots.
- C. In excavating for footings and foundations, take care not to disturb the bottom of the excavation. Excavate by hand, or with machines having a smooth edged bucket, to final grade just before concrete is placed. Trim bottoms to the required lines and grades to leave a solid base to receive concrete.
- D. Removal of Unsatisfactory Soil Materials:
1. Excavate unsatisfactory soil materials encountered that extend below the elevations required by the Contract Documents to the additional depth directed by the Architect.
  2. Such additional excavation, provided it is not due to the fault or neglect of the Contractor, will be measured as directed by the Architect and paid for by the Owner as a change in the work on a unit price basis.
  3. Where the removal of unsatisfactory soil materials is due to the fault or negligence of the Contractor in his performance of shoring and bracing, dewatering, material storage, or other specified requirements, excavate the resulting unsatisfactory soil material and replace with satisfactory soil material as directed by the Architect at no additional cost to the Owner.
- E. Protect excavation bottoms against freezing when the atmospheric temperature is less than 35 degrees F. by covering with dry insulating materials of sufficient depth to prevent frost penetration.
- F. Material Storage:
1. Material excavated shall be visually graded and stockpiled as directed by the Owner and as shown on the drawings. All material excavated shall be left on site in designated areas and will become the property of the Contractor. The Owner will have the material tested to determine its suitability as either common fill, structural backfill, or engineered structural fill. If it is determined that the material is suitable for use on site, the Owner will accept the Contractor's unit price for reuse of existing sub-surface material, which meets specifications for earthwork (common fill), structural backfill, or structural engineered fill in lieu of removing off-site and installation of new material. The Contractor shall be responsible for all new material, including structural backfill material, common fill and crushed stone required to complete the work.
  2. Place, grade, and shape stockpiles for proper drainage.
  3. Do not allow water to accumulate in excavations. Remove water from excavations using dewatering methods which will prevent softening of foundation bottoms,

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- undercutting, footings, and soil changes detrimental to the stability of sub-grades and foundations. Provide and maintain pumps, sumps, well points, suctions and discharge lines and other dewatering system components necessary to convey the water away from excavation. Pumping shall be to the extent required to place all concrete "in the dry". Pumping shall continue after concrete has been placed to the extent required to maintain dry conditions.
4. Convey water removed from excavations and rain water to collecting or run off areas as directed by the Architect and/or as indicated on site drawings. Provide and maintain temporary drainage ditches and other diversions outside the excavation limits for each structure. Do not use trench excavations for site utilities as temporary drainage ditches.
  - G. Do not begin placing foundations until excavations have been approved in general by the Architect and any authority having jurisdiction. If foundation excavations required greater depth because of latent soil conditions, adjustments will be made at the unit price basis.
  - H. Footings and foundations shall not be placed on fill except where engineered structural fill is shown or as specified in Section 02300 and 02390.

END OF SECTION 02380

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SECTION 02390 - STRUCTURAL FILL

PART 1- GENERAL

1.1 RELATED DOCUMENTS

- A. The general provisions of the Contract, including General Conditions and Division 1, General Requirements apply to the work specified in this Section.

1.2 DESCRIPTION OF WORK

- A. The extent of structural fill work is as shown on the drawings and specified herein including, but not necessarily limited to, the following:
- Crushed Stone Fill
  - Structural Backfill
  - Engineered Structural Fill
  - Compaction
  - Sieve Analysis
  - Field Density Tests

1.3 RELATED WORK SPECIFIED IN OTHER SECTIONS

02300 Earthwork  
02380 Structure Excavation  
03300 Cast-In-Place Concrete

1.4 SUBMITTALS

- A. A sieve analysis of proposed crushed stone, engineered structural fill and structural backfill material made by an approved testing laboratory, at the Contractor's expense, shall be submitted for approval at least one week before commencing operations. Any material on the job which does not reasonably conform to the approved sieve analysis shall be subject to removal and replacement at the Contractor's expense.
- B. A sample of each approved material shall be kept at the site for comparison.
- C. Sieve analysis shall conform to ASTM C-136-71, "Sieve or Screen Analysis of Fine and Coarse Aggregates" and to ASTM C-117-69, Materials Finer than No. 200 Sieve in Mineral Aggregates by Washing".

1.5 QUALITY ASSURANCE

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A. The following field tests shall be taken:

One modified Proctor Density Test for each source of fill material shall be provided by the Contractor and performed in accordance with ASTM D-1557 and AASHTO T-180. Standard Field Density Tests, each of an accuracy of plus or minus one percent.

1. Testing of structural fill and backfill will be performed by an independent soils laboratory selected and paid for by the Owner (herein referred to as Laboratory).
  2. For failed compaction testing: the Contractor shall provide corrective measures and testing (to the satisfaction of the Architect) at no additional cost to the Owner.
- B. It shall be the Contractor's responsibility to notify the Architect and the Testing Laboratory when each layer of fill is to be in place and ready for testing. The Contractor shall allow ample time for testing. If any fill is place in excess of sixteen (12) inches without testing, it shall be subject to removal.
- C. Compacting equipment shall not be of a nature so as to cause unstable conditions in the underlying natural soil. Compacting equipment shall be approved for use by the Architect and/or Structural Engineer.
- D. No backfilling will be permitted against foundation walls until pool slabs have been placed and cured, and until walls have been adequately braced. Where backfill occurs on both sides of a wall, levels of backfill on each side shall be kept approximately equal at all times.
- E. Trenches shall be backfilled with Trench Bed material to a height of twelve (12) inches above the pipe or conduit. Carefully place and compact this material to prevent damage to pipe or conduit. The remainder of the trench shall be filled with backfill as specified in Section 02390. Compact all backfill in layers to achieve required soil densities.
- F. In places close to walls, footings, utility lines, etc., where larger equipment cannot properly be permitted to operate, hand tamping equipment equivalent to 150 pound Barco Rammers shall be used.
- G. Materials shall contain proper moisture content to achieve required compaction but no free water (puddling) shall be allowed during compaction. In a moist condition, material shall pack under hand pressure and hold its shape when released. No material shall be placed at a moisture content in excess of its optimum moisture content.
- H. In the event that any test indicates that compaction does not conform to the specifications, the Contractor shall further compact (at no additional expense to the Owner), if the failure is in the top 6": or he shall remove material and replace

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it (at no additional expense to the Owner), if the failure is more than 6" deep. Further work shall not proceed until each layer has tested satisfactorily at each location specified.

1.6 LOCATION OF FILL

- A. Structural Backfill shall be used for all backfill against pool walls, frost walls, exterior and interior foundation walls, up to within 8" of the exterior finished grade or to underside of deck slab. Place structural backfill to the extents shown on the drawings.
- B. Structural Backfill shall be located under all concrete deck pavement. Refer to Drawings for depth and width.
- C. Engineered Structural Fill shall be used in trenches located below footings, frost walls, pool slabs and concrete decks or walks.
- D. Engineered Structural Fill shall be located under all footings and frost walls where required by the drawings. Refer to Drawings for extents.
- E. Engineered Structural Fill shall be located under all pool slabs. Refer to Drawings for extents.
- F. Crushed Stone shall be used below pool slabs as the annulus around all footing drains and sub-slab drainage piping. Refer to Drawings for extents.
- G. Trench fill shall be used as specified in Section 02390 if structural and Section 02300 if non-structural.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Structural Backfill shall be clean, free from foreign substances, lumps of clay, loam, or organic matter and shall be sound, tough, durable and free from thin elongated pieces. It shall have a maximum density at optimum moisture content of 120 lbs./cu.ft. or more, by weight. It shall be well graded and shall conform to the following gradation requirements.

Square Mesh Sieves	Percent Passing
Pass 1"	100%
Pass 3/4"	45-90%
Pass #4	20-80%
Pass #40	5-50%
Pass #200	0-8%

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All gravel fill for the project shall be taken from the same bank in approximately the same location. If the bank or location is changed, new sieve analysis shall be taken at the Contractors expense, and approval obtained.

- B. Unless otherwise noted, Crushed Stone shall be clean, sound stone conforming to the requirements of Section M.01.01 of Connecticut DOT Form 814 and the following:

Square Mesh Sieves	Percent Passing
Pass 1"	100%
Pass 3/4"	90-100%
Pass 1/2"	20-50%
Pass 3/8"	0-20%
Pass #4	0.5%

- C. Engineered Structural Fill - See Section 02300-2.1 for Material Spec.

**PART 3 EXECUTION**

**3.1 CONSTRUCTION METHODS**

- A. Structural fill shall be deposited in layers no thicker than 9" (loose measure) and shall be compacted to not less than 95% optimum density in accordance with ASTM D1557. No fill shall be compacted when its moisture content is greater than optimum.
- B. Crushed Stone shall be deposited in layers no thicker than 9" and shall be compacted with a power roller weighing not less than 10 tons or an equivalent vibratory roller or compactor unless otherwise noted. Compacting and wetting shall be continued until the voids in the aggregates have been reduced to the minimum obtainable.
- C. Field density tests shall be made for each layer of fill or as directed by the Architect or Structural Engineer.

END OF SECTION 02390

## SECTION 02500 - Concrete Pool Decks

### PART I GENERAL

#### 1.1 Related Documents

- A. The general provisions of the Contract, including General and Supplementary Conditions, and Division 1, General Requirements apply to the work specified in this Section.

#### 1.2 Description of Work

- A. Provide all labor, material, equipment and services required to complete the following:
  - 1. Gravel Base for Concrete Pool Decks
  - 2. Processed Aggregate Base for Concrete Pool Decks
  - 3. Processed Trap Rock Surfacing
  - 4. Concrete Pavement for Concrete Pool Decks

#### 1.3 Related Work Specified in Other Sections

- A. 02300 - Earthwork
- B. 03300 - Concrete

#### 1.4 Submittals

- A. Submit certified sieve analysis of processed aggregate base for pavements and surfacing to the Architects for approval.
- B. Submit certified sieve analysis of gravel base for pavements and curbs to the Architect for approval.
- C. Construct sample concrete slab, 5 feet by 5 feet, showing expansion joints, dummy joints and finish.

#### 1.4 Special Requirements

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- A. Examine all work that the work of this Section is contingent upon, and report any deficiencies to the Architect. Commencement of work will be construed to mean complete acceptance by the Contractor of preparatory work by others. No adjustment will be made for discrepancies brought to the Architect's attention after work has begun.
- B. All damage done to existing site improvements, as a result of the work of this Section.

## PART II PRODUCTS

### 2.1 Crushed Stone Base

- A. Refer to Section 02390, Structural Fill for product requirements. Product shall conform to item Form 814, and Supplements to Form 814, Standard Specifications, State of Connecticut, Department of Transportation.

### 2.2 Bank Run Gravel Base

- A. Refer to Section 02300, Earthwork for product requirements. Product shall conform to item Form 814, and Supplements to Form 814, Standard Specifications, State of Connecticut, Department of Transportation.

### 2.3 Concrete Materials

- A. Concrete: Refer to Section 03300, Cast-In-Place Concrete for product requirements.
- B. Expansion Joint Materials: Shall be non-extruding resilient premolded joint filler no more than one-half inch thick.
- C. Air Entraining Agent: Shall conform to ASTM C-260. Concrete shall contain 4 to 6 percent entrained air.
- D. Reinforcing Steel: Shall conform to the following requirements:
  - 1. ASTM A-185 "Specifications for Welded Steel Wire Fabrics for Concrete Reinforcements."
  - 2. Dowels: 3/4 inch non-deformed bar, length as indicated on the drawings.

3. Deformed Bars: Conforming to ASTM Specifications: A615-Grade 60.  
Reinforcing shall be free from scale, rust or coating which will reduce the bond to the concrete. See Section 03300 for additional Specifications.

## PART III EXECUTION

### 3.1 Crushed Stone Base

- A. Prepare subgrade to proper line and grade of final pavement conforming to applicable requirements of Section 02300 Earthwork. Compaction shall be 95 percent modified AASHO laboratory density.
- B. Install crushed stone base where shown on the drawings and to the depths as shown in the details.
- C. Compaction: In accordance with requirements for Structural Fill, Section 02390.
- D. Crushed stone base shall only be placed when the paving can follow within a reasonable period of time.

### 3.2 Concrete Pavement for Concrete Pool decks

- A. On a prepared gravel base, install concrete walk pavements.
- B. Construct Sample Slab: 5 feet square. Obtain Architect's approval before starting construction. Include a sample expansion and dummy joint and broom finish on the slab.
- C. Approval of base by the Architect is required before commencing paving operations.
- D. Construct to lines and grades as shown on the drawings.
- E. Thickness after compaction shall be 1/4 inch per foot in direction of surface drainage where grades are not shown. No abrupt changes in grade.
- F. Base: As specified in Item 3.1 D, Compaction. On Moist but not standing water. Do not place concrete on frozen base.

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- G. Atmospheric Temperature: Do not place concrete when below freezing. When 40 degrees F. or below or when expected to drop to 40 degrees F. within 24 hours after placing concrete, bring mix to minimum 50 degrees F.
- H. Forms: Clean. True to line. Firmly staked in place. Strong enough to resist pressure of concrete without springing. Tight enough to prevent mortar leakage. Tops at exact finished grade. Steel or wood forms are acceptable.
- I. Comply with with applicable requirements of Section 03300, Concrete, for forms, mixing and placing concrete, curing and protection.
- J. Expansion Joints: Joints: Not more than 1/2 inch thick. Fill with premolded joint filler. Cut back filler 1/2 inch below finish of pavement. Locate expansion joints where concrete paving abuts buildings walls, concrete steps and other vertical surfaces. Extend joint fillers full width and depth of the joint, and not less than 1/2 inch or more than 1 inch below the finished pavement surface. Furnish joint fillers in one-piece lengths for the full width being places, wherever possible. Where more than one length is required, lace or clip joint filler sections together.
- K. Dummy Joints: Use scoring tool minimum 12 inches long. Cut between expansion joints to complete the pattern shown on the plans. Cut while concrete is workable.
- L. Finishes: Medium broom finish. Match sample slabs. Time: After concrete is placed, screened and steel troweled to a smooth even surface. Bring sufficient mortar to the surface for the finishes.
- M. Remove Forms: While concrete is "green." (After initial set, but before concrete hardens)

END OF SECTION 02500

## SECTION 02920 - LAWNS AND GRASSES

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes the following:
  - 1. Seeding.
- B. Related Sections include the following:
  - 1. Division 2 Section "Site Clearing" for topsoil stripping and stockpiling.
  - 2. Division 2 Section "Earthwork" for excavation, filling and backfilling, and rough grading.

#### 1.3 DEFINITIONS

- A. Finish Grade: Elevation of finished surface of planting soil.
- B. Planting Soil: Native or imported topsoil, manufactured topsoil, or surface soil modified to become topsoil; mixed with soil amendments.
- C. Subgrade: Surface or elevation of subsoil remaining after completing excavation, or top surface of a fill or backfill immediately beneath planting soil.

#### 1.4 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Certification of Grass Seed: From seed vendor for each grass-seed monostand or mixture stating the botanical and common name and percentage by weight of each species and

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variety, and percentage of purity, germination, and weed seed. Include the year of production and date of packaging.

1. Certification of each seed mixture for, identifying source, including name and telephone number of supplier.
- C. Product Certificates: For soil amendments and fertilizers, signed by product manufacturer.
- D. Qualification Data: For landscape Installer.
- E. Material Test Reports: For existing surface soil and imported topsoil.
- F. Planting Schedule: Indicating anticipated planting dates for each type of planting.
- G. Maintenance Instructions: Recommended procedures to be established by Owner for maintenance of lawns during a calendar year. Submit before expiration of required maintenance periods.

## 1.5 QUALITY ASSURANCE

- A. Installer Qualifications: A qualified landscape installer whose work has resulted in successful lawn establishment.
  1. Installer's Field Supervision: Require Installer to maintain an experienced full-time supervisor on Project site when planting is in progress.
- B. Soil-Testing Laboratory Qualifications: An independent laboratory, recognized by the State Department of Agriculture, with the experience and capability to conduct the testing indicated and that specializes in types of tests to be performed.
- C. Topsoil Analysis: Furnish soil analysis by a qualified soil-testing laboratory stating percentages of organic matter; gradation of sand, silt, and clay content; cation exchange capacity; deleterious material; pH; and mineral and plant-nutrient content of topsoil.
  1. Report suitability of topsoil for lawn growth. State recommended quantities of nitrogen, phosphorus, and potash nutrients and soil amendments to be added to produce a satisfactory topsoil.

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1.6 DELIVERY, STORAGE, AND HANDLING

- A. Seed: Deliver seed in original sealed, labeled, and undamaged containers.

1.7 SCHEDULING

- A. Planting Restrictions: Plant during one of the following periods. Coordinate planting periods with maintenance periods to provide required maintenance from date of Substantial Completion.
  - 1. Spring Planting: April 1 to June 1
  - 2. Fall Planting: August 15 to October 15
- B. Weather Limitations: Proceed with planting only when existing and forecasted weather conditions permit.

1.8 LAWN MAINTENANCE

- A. Begin maintenance immediately after each area is planted and continue until acceptable lawn is established, but for not less than the following periods:
  - 1. Seeded Lawns: 60 days from date of Substantial Completion.
    - a. When full maintenance period has not elapsed before end of planting season, or if lawn is not fully established, continue maintenance during next planting season.
- B. Maintain and establish lawn by watering, fertilizing, weeding, mowing, trimming, replanting, and other operations. Roll, regrade, and replant bare or eroded areas and remulch to produce a uniformly smooth lawn.
  - 1. In areas where mulch has been disturbed by wind or maintenance operations, add new mulch. Anchor as required to prevent displacement.
- C. Watering: Provide and maintain temporary piping, hoses, and lawn-watering equipment to convey water from sources and to keep lawn uniformly moist to a depth of 4 inches.
  - 1. Schedule watering to prevent wilting, puddling, erosion, and displacement of seed or mulch. Lay out temporary watering system to avoid walking over muddy or newly planted areas.
  - 2. Water lawn at a minimum rate of 1 inch per week.

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- D. Mow lawn as soon as top growth is tall enough to cut. Repeat mowing to maintain specified height without cutting more than 40 percent of grass height. Remove no more than 40 percent of grass-leaf growth in initial or subsequent mowings. Do not delay mowing until grass blades bend over and become matted. Do not mow when grass is wet. Schedule initial and subsequent mowings to maintain the following grass height:
  - 1. Mow grass 1-1/2 to 2 inches (38 to 50 mm) high.
- E. Lawn Post-fertilization: Apply fertilizer after initial mowing and when grass is dry.
  - 1. Use fertilizer that will provide actual nitrogen of at least 1 lb/1000 sq. ft. to lawn area.

## PART 2 - PRODUCTS

### 2.1 SEED

- A. Grass Seed: Fresh, clean, dry, new-crop seed complying with AOSA's "Journal of Seed Technology; Rules for Testing Seeds" for purity and germination tolerances.
- B. Seed Species: Seed of grass species as follows, with not less than 95 percent germination, not less than 85 percent pure seed, and not more than 0.5 percent weed seed:
  - 1. Sun and Partial Shade: Proportioned by weight as follows:
    - a. 50 percent Kentucky bluegrass (*Poa pratensis*).
    - b. 30 percent chewings red fescue (*Festuca rubra* variety).
    - c. 10 percent perennial ryegrass (*Lolium perenne*).
    - d. 10 percent redtop (*Agrostis alba*).
  - 2. Shade: Proportioned by weight as follows:
    - a. 50 percent chewings red fescue (*Festuca rubra* variety).
    - b. 35 percent rough bluegrass (*Poa trivialis*).
    - c. 15 percent redtop (*Agrostis alba*).

## 2.2 TOPSOIL

- A. Topsoil: ASTM D 5268, pH range of 5.5 to 7, a minimum of 6 percent organic material content; free of stones 1 inch or larger in any dimension and other extraneous materials harmful to plant growth.
  - 1. Topsoil Source: Import topsoil or manufactured topsoil from off-site sources. Obtain topsoil displaced from naturally well-drained construction or mining sites where topsoil occurs at least 4 inches deep; do not obtain from agricultural land, bogs or marshes.

## 2.3 INORGANIC SOIL AMENDMENTS

- A. Lime: ASTM C 602, agricultural limestone containing a minimum 80 percent calcium carbonate equivalent and as follows:
  - 1. Provide lime in form of dolomitic limestone, with a minimum 95% passing through No. 200 sieve.
- B. Perlite: Horticultural perlite, soil amendment grade.
- C. Sand: Clean, washed, natural or manufactured, free of toxic materials.

## 2.4 ORGANIC SOIL AMENDMENTS

- A. Compost: Well-composted, stable, and weed-free organic matter, pH range of 5.5 to 8; moisture content 35 to 55 percent by weight; 100 percent passing through 3/4-inch sieve; soluble salt content of 5 to 10 decisiemens/m; not exceeding 0.5 percent inert contaminants and free of substances toxic to plantings; and as follows:
  - 1. Organic Matter Content: 50 to 60 percent of dry weight, as approved by CT DEP, such as ALLGro or equivalent.
- B. Manure: Well-rotted, unleached, stable or cattle manure containing not more than 25 percent by volume of straw, sawdust, or other bedding materials; free of toxic substances, stones, sticks, soil, weed seed, and material harmful to plant growth.

## 2.5 PLANTING ACCESSORIES

- A. Selective Herbicides: EPA registered and approved, of type recommended by manufacturer for application.

## 2.6 FERTILIZER

- A. Bonemeal: Commercial, raw or steamed, finely ground; a minimum of [1] [4] percent nitrogen and [10] [20] percent phosphoric acid.
- B. Superphosphate: Commercial, phosphate mixture, soluble; a minimum of 20 percent available phosphoric acid.
- C. Commercial Fertilizer: Commercial-grade complete fertilizer of neutral character, consisting of fast- and slow-release nitrogen, 50 percent derived from natural organic sources of urea formaldehyde, phosphorous, and potassium in the following composition:
  - 1. Composition: Nitrogen, phosphorous, and potassium in amounts recommended in soil reports from a qualified soil-testing agency.

## 2.7 MULCHES

- A. Straw Mulch: Provide air-dry, clean, mildew- and seed-free, salt hay or threshed straw of wheat, rye, oats, or barley.
- B. Compost Mulch: Well-composted, stable, and weed-free organic matter, pH range of 5.5 to 8; moisture content 35 to 55 percent by weight; 100 percent passing through 1-inch sieve; soluble salt content of 5 to 10 decisiemens/m; not exceeding 0.5 percent inert contaminants and free of substances toxic to plantings; and as follows:
  - 1. Organic Matter Content: 50 to 60 percent of dry weight.
  - 2. Feedstock: Agricultural, food, or industrial residuals; biosolids; yard trimmings; or source-separated or compostable mixed solid waste.
- C. Fiber Mulch: Biodegradable, dyed-wood, cellulose-fiber mulch; nontoxic; free of plant-growth or germination inhibitors; with maximum moisture content of 15 percent and a pH range of 4.5 to 6.5.
- D. Nonasphaltic Tackifier: Colloidal tackifier recommended by fiber-mulch manufacturer for slurry application; nontoxic and free of plant-growth or germination inhibitors.

## 2.8 EROSION-CONTROL MATERIALS

- A. Erosion-Control Blankets: Biodegradable wood excelsior, straw, or coconut-fiber mat enclosed in a photodegradable plastic mesh. Include manufacturer's recommended steel wire staples, 6 inches long.

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- B. Erosion-Control Fiber Mesh: Biodegradable twisted jute or spun-coir mesh, a minimum of 0.92 lb/sq. yd., with 50 to 65 percent open area. Include manufacturer's recommended steel wire staples, 6 inches long.

## 2.9 PLANTING SOIL MIX

- A. Planting Soil Mix: Mix topsoil with soil amendments and fertilizers in quantities required by topsoil test reports and seed manufacturer's recommendations.:

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine areas to receive lawns and grass for compliance with requirements and other conditions affecting performance. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 PREPARATION

- A. Protect structures, utilities, sidewalks, pavements, and other facilities, trees, shrubs, and plantings from damage caused by planting operations.
  - 1. Protect adjacent and adjoining areas from hydroseeding overspray.
- B. Provide erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.

### 3.3 LAWN PREPARATION

- A. Limit lawn subgrade preparation to areas to be planted.
- B. Newly Graded Subgrades: Loosen subgrade to a minimum depth of 6 inches. Remove stones larger than 1 inch in any dimension and sticks, roots, rubbish, and other extraneous matter and legally dispose of them off Owner's property.
  - a. Delay mixing fertilizer with planting soil if planting will not proceed within a few days.
  - b. Mix lime with dry soil before mixing fertilizer.

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2. Spread planting soil mix to a depth of 6 inches but not less than required to meet finish grades after light rolling and natural settlement. Do not spread if planting soil or subgrade is frozen, muddy, or excessively wet.
    - a. Spread approximately one-half the thickness of planting soil mix over loosened subgrade. Mix thoroughly into top 4 inches of subgrade. Spread remainder of planting soil mix.
    - b. Reduce elevation of planting soil to allow for soil thickness of sod.
  - C. Unchanged Subgrades: If lawns are to be planted in areas unaltered or undisturbed by excavating, grading, or surface soil stripping operations, prepare surface soil as follows:
    1. Remove existing grass, vegetation, and turf. Do not mix into surface soil.
    2. Loosen surface soil to a depth of at least of 6 inches. Apply soil amendments and fertilizers according to planting soil mix proportions and mix thoroughly into top 4 inches of soil. Till soil to a homogeneous mixture of fine texture.
    3. Remove stones larger than 1 inch in any dimension and sticks, roots, trash, and other extraneous matter.
    4. Legally dispose of waste material, including grass, vegetation, and turf, off Owner's property.
  - D. Finish Grading: Grade planting areas to a smooth, uniform surface plane with loose, uniformly fine texture. Grade to within plus or minus 1/2 inch of finish elevation. Roll and rake, remove ridges, and fill depressions to meet finish grades. Limit fine grading to areas that can be planted in the immediate future.
  - E. Moisten prepared lawn areas before planting if soil is dry. Water thoroughly and allow surface to dry before planting. Do not create muddy soil.
  - F. Restore areas if eroded or otherwise disturbed after finish grading and before planting.
- 3.4 SEEDING
- A. Sow seed with spreader or seeding machine. Do not broadcast or drop seed when wind velocity exceeds 5 mph. Evenly distribute seed by sowing equal quantities in two directions at right angles to each other.
    1. Do not use wet seed or seed that is moldy or otherwise damaged.
  - B. Sow seed at the rate of 5 to 8 lb/1000 sq. ft. .

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- C. Rake seed lightly into top 1/8 inch of topsoil, roll lightly, and water with fine spray.
- D. Protect seeded areas with slopes exceeding 1:3 with erosion-control fiber mesh installed and stapled according to manufacturer's written instructions.
- E. Protect seeded areas with slopes not exceeding 1:3 by spreading straw mulch. Spread uniformly at a minimum rate of 2 tons/acre to form a continuous blanket 1-1/2 inches in loose depth over seeded areas. Spread by hand, blower, or other suitable equipment.
- F. Protect seeded areas from hot, dry weather or drying winds by applying compost mulch or topsoil within 24 hours after completing seeding operations. Soak and scatter uniformly to a depth of 3/16 inch and roll to a smooth surface.

### 3.5 HYDROSEEDING

- A. Hydroseeding: Mix specified seed, fertilizer, and fiber mulch in water, using equipment specifically designed for hydroseed application. Continue mixing until uniformly blended into homogeneous slurry suitable for hydraulic application.
  - 1. Mix slurry with nonasphaltic tackifier.
  - 2. Apply slurry uniformly to all areas to be seeded in a one-step process. Apply mulch at a minimum rate of 1500-lb/acre dry weight but not less than the rate required to obtain specified seed-sowing rate.
  - 3. Apply slurry uniformly to all areas to be seeded in a two-step process. Apply first slurry application at a minimum rate of 500-lb/acre dry weight but not less than the rate required to obtain specified seed-sowing rate. Apply slurry cover coat of fiber mulch at a rate of 1000 lb/acre .

### 3.6 SATISFACTORY LAWNS

- A. Satisfactory Seeded Lawn: At end of maintenance period, a healthy, uniform, close stand of grass has been established, free of weeds and surface irregularities, with coverage exceeding 95 percent over any 10 sq. ft. and bare spots not exceeding 5 by 5 inches.
- B. Reestablish lawns that do not comply with requirements and continue maintenance until lawns are satisfactory.

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3.7 CLEANUP AND PROTECTION

- A. Promptly remove soil and debris created by lawn work from paved areas. Clean wheels of vehicles before leaving site to avoid tracking soil onto roads, walks, or other paved areas.
- B. Erect barricades and warning signs as required to protect newly planted areas from traffic. Maintain barricades throughout maintenance period and remove after lawn is established.
- C. Remove erosion-control measures after grass establishment period.

END OF SECTION 02920

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SECTION 03250 - CONCRETE WATERSTOPS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. The general provisions of the Contract, including General Conditions and Division 1, General Requirements apply to the work specified in this Section.

1.2 DESCRIPTION OF WORK

- A. The extent of miscellaneous specialties work is as shown on the drawings and specified herein, including:
- Ribbed PVC Waterstop
  - Ribbed PVC Waterstop with Center Bulb
  - Hydrophilic Waterstop
  - Installation of Above

1.3 SUBMITTALS

- A. Submit manufacturer's cuts, installation details and /or shop drawings of all items specified in accordance with the Supplementary Conditions.
- B. Submit actual sample of each type proposed for the work. Sample to be minimum one foot long.

1.4 REFERENCE STANDARD SPECIFICATIONS FOR WATERSTOPS

A. PVC WATERSTOP

1. Bureau of Reclamation: CC-902
2. Canadian General Standards Board: 41-GP-35M Types 1&3
3. Corps of Engineers: CRD-C-572-74
4. Department of Agriculture - Soil Conservation Service Material Specification 537
5. Federal Specifications: Std. 601
6. Tennessee Valley Authority: Spec. PF 1026

B. HYDROPHILIC WATERSTOP

1. American Society of Testing Materials (ASTM)

1.5 DELIVERY, STORAGE AND HANDLING

- A. Store waterstop under tarps to protect from oil, dirt and sunlight and premature exposure to water for hydrophilic materials.

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PART 2 - PRODUCTS

2.1 PVC WATERSTOPS FOR EXPANSION JOINTS

- A. Provide flexible PVC (polyvinyl chloride) waterstop as manufactured by Greenstreak or approved equivalent. Profile style number to be as follows:

Ribbed Waterstop: 6", #783  
Ribbed Waterstop with Center Bulb: 6", #732

- B. The PVC waterstop shall be extruded from an elastomeric plastic material of which the basic resin is prime virgin polyvinyl chloride. The PVC compound shall not contain any scrapped or reclaimed material or pigment whatsoever.
- C. Performance requirements are as follows:

<u>Property</u>	<u>Test Method</u>	<u>Required Limits</u>
Water Absorption	ASTM D 570	5% max.
Tear Resistance	ASTM D 624	285 lb./in min.
Ultimate Elongation	ASTM D 638	360% min.
Tensile Strength	ASTM D 638	2000 psi min.
Low Temp. Brittleness	ASTM D 746	no failure @ 35 deg. F
Stiffness in Flexure	ASTM D 747	600 psi min.
Specific Gravity	ASTM D 792	1.4 max.
Ozone Resistance	ASTM D 1149	No Failure
Volatile Loss	ASTM D 1203	0.50 % max.
Hardness Shore A	ASTM D 2240	65 to 80
Tensile Strength after Accelerated Extraction	CRD-CC 572	1600 psi min.
Elongation after Accelerated Extraction	CRD-C 572	300% min.
Effect on Alkali After 7 Day Weight Change	CRD-C 572	+0.25%max., - 0.0% min.
Hardness Change		+ - 5% max.

2.2 HYDROPHILIC WATERSTOP FOR NON-MOVING CONTRACTION AND CONSTRUCTION JOINTS

- A. Provide HYDROTITE hydrophilic waterstop as supplied by Greenstreak. Waterstop to be dual extrusion type, shape and size as required for joint.
1. At Construction joints provide HYDROTITE CJ Type
  2. At Control Joints provide HYDROTITE RSS Type

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3. At Pipe Penetrations provide HYDROTITE DSS Type
- B. Material shall be a combination of chloroprene rubber and chloroprene rubber modified to impart hydrophilic properties.
- C. Waterstop shall have a delay coating to inhibit initial expansion due to moisture present in fresh concrete.
- D. Physical and performance requirements:

CHLOROPRENE RUBBER

<u>Property</u>	<u>Test Method</u>	<u>Required Limits</u>
Tensile Strength	ASTM D- 412	1300 psi min.
Ultimate Elongation	ASTM D- 412	400% min.
Hardness	ASTM D-2240	50 +/- 5 Shore A
Tear Resistance	ASTM D-624	100 lb./inch

MODIFIED CHLOROPRENE (HYDROPHILIC) RUBBER

<u>Property</u>	<u>Test Method</u>	<u>Required Limits</u>
Tensile Strength	ASTM D- 412	350 psi min.
Ultimate Elongation	ASTM D- 412	600% min.
Hardness	ASTM D-2240	52 +/- 5 Shore A
Expansion Ratio	Volumetric Change distilled water at 70 degrees F	3 to 1 min.
Tear Resistance	ASTM D-624	50 lb./inch

2.3 ACCESSORIES

A. PVC WATERSTOPS

1. Provide factory made waterstop fabrications for all changes of direction, intersections and transitions leaving only straight butt joint splices in the field.
2. Provide hog rings or grommets spaced at 12" on centers along length of waterstop and wire tie to adjacent reinforcing steel.

B. HYDROPHILIC WATERSTOPS

1. Provide Greenstreak Rubber Adhesive to secure HYDROTITE to smooth, dry concrete.
2. Provide Greenstreak 7300 two-component epoxy gel to secure HYDROTITE to rough, wet (or dry) concrete.

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3. Provide LEAKMASTER single component hydrophilic sealant to secure HYDROTITE to rough, dry concrete.
4. Provide cyanacrylate adhesive (super glue) for butt joining and mitering HYDROTITE.
5. Provide LEAKMASTER in addition to cyanacrylate adhesive at all splices for added insurance.

### PART 3 - EXECUTION

#### A. PVC WATERSTOPS

1. Field butt splices shall be heat fused welded using Teflon covered thermostatically controlled waterstop splicing iron at approximately 380 degrees F. Follow approved manufacturer's recommendations. Lapping of waterstop, use of adhesives, or solvents shall not be allowed.
2. Layout waterstop to minimize number of joints. Use longest practical lengths. Seams where not required shall not be allowed.
3. Center waterstop in joint and secure waterstop in correct position using hog rings or grommets spaced at 12" on centers along the length of the waterstop and wire tie to adjacent reinforcing.

#### B. HYDROPHILIC WATERSTOP

1. Cut coil ends square (or at proper angle for mitered corners) with shears or sharp blade to fit splices together without overlaps.
2. Splices shall be sealed using cyanacrylate (super glue) and LEAKMASTER.
3. Seal watertight any exposed cells of HYDROTITE using LEAKMASTER.
4. Follow approved manufacturer recommendations. Do not install hydrophilic waterstops until just before assemblies that will cover them are installed (ie. sealants, concrete pours, etc.).

#### C. HYDROPHILIC AND PVC INTERSECTIONS

1. Maintain continuity of waterstops at all intersections and transitions.
2. Joinery between PVC and HYDROTITE shall be sealed using LEAKMASTER.
3. Follow approved manufacturer recommendations.

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END OF SECTION 03250

## SECTION 03300 - Cast in Place Concrete

### PART I GENERAL

#### 1.1 Related Documents

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification sections, apply to work specified in this section.

#### 1.2 Description of Work

- A. The extent of cast-in-place concrete work shown on drawings.
- B. Concrete Pool Decks are specified in Division 2
- C. Earthwork & Compaction Tests are specified in Division 2

#### 1.3 Quality Assurance

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification sections, apply to work specified in this section.
  - 1. "Specifications for Structural Concrete for Buildings", American Concrete Institute, (ACI 301-03) (Latest Revision).
  - 2. "Building Code Requirements for Reinforced Concrete", ACI-318-03
  - 3. Concrete Reinforcing Steel Institute, CRSI, "Manual of Standard Practice", latest edition.
  - 4. "Standard Specification for Ready-Mixed Concrete" ASTM C 94 (latest revision).
  - 5. "Cold Weather Concreting", American Concrete Institute (ACI 306).
  - 6. Installer Qualifications: An experienced installer who has completed concrete Work similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.

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- B. Concrete Testing Service: Employ, at Owner's expense, a testing laboratory acceptable to Engineer to perform material evaluation tests for concrete mix designs and to design concrete mixes, per Engineer's requirements.
- C. Materials and installed work may require testing and retesting, as directed by Engineer, at anytime during progress of work. Allow free access to material stockpiles and facilities. Tests not specifically indicated to be done at Owner's expense, including retesting of rejected materials and installed work, shall be done at Contractor's expense.
- D. Special Inspection: The Owner may engage the services of a qualified "Testing Special Inspector" for this project. The Special Inspector, as a representative of the Owner, will confirm that the provisions of the 2003 International Building Code (IBC) are complied with and will provide and/or supervise inspection and testing requirements,
- E. Workmanship: The Contractor is responsible for correction of concrete work which does not conform to the specified requirements, including strength, tolerances and finishes. Correct deficient concrete as directed by Engineer.
- F. Sampling and testing for quality assurance 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; one test for each concrete load at point of discharge from truck, and one test for each set of compressive strength test specimens.
  - 3. Air Content: Air Content: ASTM C 231 pressure for normal weight concrete; one for each set of compressive strength test specimens.
  - 4. Concrete Temperature: Test hourly when air temperature is 40 degrees F. (4 degrees C.) and below, and when 80 degrees F (27 degrees C), and above; and each time a set of compressive test specimens are made.
  - 5. Compression Test Specimen: ASTM C 31; one set of 3 standard cylinders for each compressive strength test, unless otherwise directed. Mold and store cylinders for laboratory cured test specimens except when field cure test specimens are required.
  - 6. Compression Strength Tests: ASTM C 39; one set for each 50 cu. yds. or fraction thereof, of each concrete class placed in any one day or for each 5,000 sq. ft. of surface area placed; 1 specimen tested at 7 days, 2 specimens tested at 28 days.

When strength of field-cured cylinders is less than 85% of companion laboratory-cured cylinders, evaluate current operations and provide corrective procedures for protecting and curing the in-place concrete.

- G. Test results will be reported to Engineer, Architect 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 service, name of concrete supplier, concrete type and class, location of concrete batch in structure, design compressive strength at 28 days, air content, slump, concrete temperature, compressive breaking strength and type of break for both 7-day tests and 28 day tests.
- H. Additional Tests: The testing service will make additional tests of in place concrete when test results indicate specified concrete strengths and other characteristics have not been attained in the structure, as directed by Engineer. Testing service may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42, or by other methods as directed. Contractor shall pay for such tests conducted, and any other additional testing as may be required, when concrete placed does not conform to the specified limits of the Contract Documents or when unacceptable concrete is verified.
- I. The Contractor shall be responsible for scheduling with Special Inspector and testing laboratory and shall provide free access for its personnel and labor required in helping to obtain and handle samples of concrete

#### 1.4 Submittals

- A. Product Data: Submit manufacturer's product data with application and installation instructions for proprietary materials and items, including reinforcement and forming accessories, admixtures, patching compounds, waterstops, joint systems, curing compounds, and others as requested by Engineer.
- B. Design Mixes: For each concrete mix, 3,000 psi and 4,000 psi (light weight and normal). Include alternate mix designs when characteristics of materials, project conditions, weather, test results, or other circumstances warrant adjustments.
- C. Shop Drawings; Reinforcement: Submit shop drawings (3 prints) for fabrication, bending, and placement of concrete reinforcement. Comply with ACI Detailing

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Manual - 1988, Publication SP-66, showing bar schedules, stirrup spacing, diagrams of bent bars, placing plans and wall elevations showing arrangement of concrete reinforcement. Include special reinforcement required and openings through concrete structures. Reproductions of the Engineers Contract Drawings are not acceptable for use as shop drawings.

- D. Certificates of Compliance: Provide the Special Inspector with Certificates of Compliance for welded wire fabric, cement, air- entraining agent, water-reducing agent, water stop and moisture barrier.
- E. Batch Tickets (If required): The General Contractor shall furnish to the Owner, Architect and Special Inspector tester with each batch of concrete and before unloading at the site, a delivery ticket on which is printed, stamped, and/or written, information concerning said concrete as follows:
1. Name of ready-mix batch plant,
  2. Serial number of ticket,
  3. Date,
  4. Truck number,
  5. Name of purchaser,
  6. Specific designation of job (name and location),
  7. Specific class or designation of concrete in conformance with that required by job specifications,
  8. Amount of concrete in cubic yards,
  9. Time loaded or of first mixing of cement and aggregates,
  10. Quantity of water added by receiver of concrete and his initials,
  11. Type and brand, and amount of cement,
  12. Type and brand, and amount of admixtures,
  13. Total water content by producer (or W/C ratio),
  14. Maximum size of aggregate,
  15. Weights of fine and coarse aggregate,
  16. Signature or initials of ready-mix representative.
- F. Laboratory Test Reports: Submit for review laboratory test reports for concrete materials and mix design test as specified.

## PART II PRODUCTS

### 2.1 Form Materials

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- A. Forms for Exposed Finish Concrete: Unless otherwise indicated, construct formwork for exposed concrete surfaces with exterior-grade plywood panels, nonabsorptive, that will provide continuous, true, and smooth concrete surface. On surfaces exposed to view apply form liner of medium density overlay plywood, Class 1 or better, complying with DOC PS 1. Furnish in largest practicable sizes to minimize number of joints. Provide form material with sufficient thickness to withstand pressure of newly-placed concrete without bow or deflection.
- B. Forms for Unexposed Finish Concrete: Form concrete surfaces which will be unexposed in finished structure with plywood, lumber, metal or other acceptable material. Provide lumber dressed on at least 2 edges and one side for tight fit.
- C. Cylindrical Columns and Supports: Form round-section members with paper or fiber tubes constructed of laminated plies, using water-resistant adhesive and wax-impregnated exterior for weather and moisture protection. Provide units with sufficient wall thickness to resist loads imposed by wet concrete without deformation.
- D. Form Coatings: Provide commercial formulation form-coating compounds that will not bond with, stain nor adversely affect concrete surfaces, and will not impair subsequent treatments of concrete surfaces.

## 2.2 Reinforcing Materials

- A. Reinforcing Bars (Rebar): ASTM A 615-03 (S1), Grade 60, deformed.
- B. Steel Wire: ASTM A 82-03, plain, cold-drawn, steel.
- C. Welded Wire Fabric (WWF): ASTM A 185-03, welded steel wire fabric.
- D. Supports for Reinforcement: Provide supports for reinforcement including bolsters, chairs, spacers and other devices for spacing, supporting and fastening reinforcing bars and welded wire fabric in place. Use bar type supports complying with CRSI recommendations, unless otherwise acceptable.
  - 1. For exposed-to-view concrete surfaces, where legs of supports are in contact with forms, provide supports with legs which are plastic protected complying with CRSI Class 1 plastic protected bar supports.

### 2.3 Concrete Materials

- A. Portland Cement: ASTM C 150, Type I or II, unless otherwise acceptable to the Architect. Use one brand of cement throughout project, unless acceptable to Engineer.
- B. Normal weight aggregates: Provide aggregate from a single source for exposed concrete, such as crushed trap rock or gravel for use in pavement conforming to Connecticut State Department of Transportation, "Specifications for Roads,
- C. Water: Potable, meeting chloride ion content of maximum water soluble chloride ion (Cl-) in concrete, 0.15 percent by weight of cement.
- D. Air-Entraining Admixture: ASTM C 260.
- E. Water-Reducing Admixture: ASTM C 494, Type A and not containing more chloride ions than are present in municipal drinking water.

### 2.4 Related Materials

- A. Moisture Barrier: Provide tear resistant moisture barrier cover over prepared base material. Moisture barrier to consist of layers of polyethylene film, fiber reinforced paper and asphalt with a maximum permeability rating of 0.1 tested in accordance with ASTM E-96. All joints to be lapped six inches and sealed with continuous tape.
  - 1. For exposed-to-view concrete surfaces, where legs of supports are in contact with forms, provide supports with legs which are plastic protected complying with CRSI Class 1 plastic protected bar supports.
- B. Moisture Retaining Cover: One of the following, complying with ASTM C 171
  - 1. Waterproof paper.
  - 2. Polyethylene film.
  - 3. Polyethylene-coated burlap

### 2.5 Proportioning and Design of Mixes

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- A. Prepare design mixes for each type and strength of concrete in accordance with ACI 301 Section 3.9 "Proportioning on the Basis of Previous Field Experience or Trial Mixtures", as indicated on drawings.

Use and independent testing facility acceptable to Engineer for preparing and reporting proposed mix design. The testing facility shall not be the same as used for field quality assurance testing unless otherwise acceptable to Engineer.

- B. Submit written reports to Engineer for each proposed mix for each class of concrete at least 15 days prior to start of work. Do not begin concrete production until mixes have been reviewed and approved by Engineer.
- C. Adjustment to Concrete Mixes: Mix design adjustments may be requested by Contractor when characteristics of materials, job condition, weather test results, or other circumstances warrant; at no additional cost to Owner and as accepted by Engineer. Laboratory test data for revised mix design and strength results must be submitted to and accepted by Engineer before using in work.
- D. Use air-entraining admixture in all concrete exposed to freeze - thaw cycles. Add air-entraining admixture at manufacturer's prescribed rate to result in concrete at point of placement having air content within specified limits.
1. Concrete structures and slabs exposed to freezing and thawing or subject to hydraulic pressure: 5.5% to 7.5% for maximum 3/4" aggregate
  2. Polyethylene film.
  3. Polyethylene-coated burlap
- E. Slump Limits: The concrete shall be proportioned and produced to have a slump of 4-6" inches

2.6 Concrete Mixing

- A. Ready-Mix Concrete: Comply with requirements of ASTM C 94 "Standard Specification for Ready-Mixed Concrete", and as herein specified.

Delete references for allowing additional water to be added to batch for material with insufficient slump. Addition of water to the batch will not be permitted.

During hot weather, or under conditions contributing to rapid setting of concrete, a shorter mixing time than specified in ASTM C 94 may be required.

When air temperature is between 85 degrees F (30 degrees C) and 90 degrees F (32 degrees C), reduce mixing and delivery time from 1-1/2 hours to 75 minutes, and when air temperature is above 90 degrees F (32 degrees C), reduce mixing and delivery time to 60 minutes.

## PART III EXECUTION

### 3.1 Forms

- A. Design, erect, support, brace and maintain formwork to support vertical and lateral loads that might be applied until such loads can be supported by concrete structures. Construct formwork so concrete members and structures are of correct size, shape, alignment, elevation and position. The Contractor is solely responsible for the safe design and installation of formwork and supports.
- B. Design Formwork to be readily removable without impact, shock or damage to cast-in-place concrete surfaces and adjacent materials.
- C. Construct forms complying with ACI 347, "Recommended Practice for Concrete Formwork", to sizes, shapes, lines and dimensions shown, and to obtain accurate alignment, location, grades, level and plumb work in finished structures. Provide for openings, offsets, sinkages, keyways, recesses, moldings, rustications, reglets, chamfers, blocking, screeds, bulkheads, anchorages and inserts, and other features required in work. Use selected materials to obtain required finishes. Solidly butt joints and provide back-up at joints to prevent leakage of cement paste.
- D. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush plates or wrecking plates where stripping may damage cast concrete surfaces. Provide top forms for inclined surfaces where slope is too steep to place concrete with bottom forms only. Kerf wood inserts for forming keyways, reglets, recesses, and the like, to prevent swelling and for easy removal.
- E. Provide temporary openings where interior area of formwork is inaccessible for clean out, for inspection before concrete placement, and for placement of concrete. Securely brace temporary openings and set tightly to forms to prevent loss of concrete mortar. Locate temporary openings on forms at inconspicuous locations.

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- F. All exposed corners and edges shall have chamfers unless detailed as square edges on the architectural drawings. Chamfers should be made using wood, metal PVC or rubber chamfer strips fabricated to produce uniform smooth lines and tight edge joints.
- G. Form Ties: Factory-fabricated, adjustable-length, removable or snap-off metal form ties, designed to prevent form deflection, and to prevent spalling concrete surfaces upon removal.
  - 1. Unless otherwise indicated, provide ties so portion remaining within concrete after removal is at least 1-1/2" inside concrete.
  - 2. Unless otherwise shown, provide form ties which will not leave holes larger than 1" diameter in concrete surface.
- H. Provisions for Other Trades: Provide openings in concrete formwork to accommodate work of other trades. Determine size and location of openings, recesses and chases from trades providing such items. Accurately place and securely support items built into forms.
- I. Cleaning and Tightening: Thoroughly clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt or other debris just before concrete is placed. Re-tighten forms and bracing after concrete placement if required to eliminate mortar leaks and maintain proper alignment.

### 3.2 Placing Reinforcement

- A. Comply with Concrete Reinforcing Steel Institute's recommended practice for "Placing Reinforcing Bars", for details and methods of reinforcement placement and supports, and as herein specified.
- B. Clean reinforcement of loose rust and mill scale, old concrete, earth, ice, and other materials, which reduce or destroy bond with concrete.
- C. Accurately position, support and secure reinforcement against displacement by formwork, construction, or concrete placement operations. Locate and support reinforcing by metal chairs, runners, bolsters, spacers, and hangers, as required.
- D. Place reinforcement to obtain at least minimum coverages indicated on the Contract drawings for concrete protection. Arrange, space and securely tie bars and bar

supports to hold reinforcement in position during concrete placement operations. Set wire ties so ends are directed into concrete, not toward exposed concrete surfaces. All reinforcement must be completely supported and secured against possible displacement prior to placing concrete in any portion of the scheduled placement.

- E. Install welded wire fabric in as long lengths as practicable. Lap adjoining pieces at least one full mesh (6 inches) and lap splices with wire. Offset end laps in adjacent widths to prevent continuous laps in either direction.
- F. Concrete reinforcement shall be erected from shop drawings displaying the Engineer's stamp of acceptance only. In the event a conflict exists between the accepted shop drawing and the Contract Documents the conflict shall be brought to the immediate attention of the Engineer and Architect for resolution.

### 3.3 Joints

- A. Construction Joints: Locate and install construction joints, as on drawings.
- B. Provide keyways at least 1-1/2" deep in construction joints in walls, slabs, and between walls and footings
- C. Place construction joints perpendicular to the main reinforcement. Continue reinforcement across construction joints.
- D. Water Stops: Provide waterstops in construction joints as indicated. Install waterstops to form continuous diaphragm in each joint. Make provisions to support and protect exposed waterstops during progress of work. Fabricate field joints in waterstops in accordance with manufacturer's printed instructions.
- E. Isolation Joints in Slabs-on-Ground: Construct isolation joints in slabs-on-ground at points of contact between slabs on ground and vertical surfaces, such as column pedestals, foundation walls, grade beams and elsewhere as indicated.

Joint filler and sealant materials are specified in Division 7.

- F. Control Joints in Slabs: Construct control joints in slabs-on-ground to form panels or patterns to minimize cracking. Submit layout for review.

### 3.4 Installation of Embedded Items

- A. General: Set and build into work anchorage devices and other embedded items required for other work that is attached to, or supported by, cast-in-place concrete. Use setting drawings, diagrams, instruction and directions provided by suppliers of items to be attached thereto.
- B. Edge Forms and Screed Strips for Slabs: Set edge forms or bulkheads and intermediate screed strips for slabs to obtain required elevations and contours in finished slab surface. Provide and secure units sufficiently strong to support types of screed strips by use of strike-off templates or accepted compacting type screeds.

### 3.5 Preparation of Form Surfaces

- A. Coat contact surfaces of forms with a form-coating compound before reinforcement is placed.
- B. Thin form-coating compounds only with thinning agent of type, and in amount, and under conditions of form-coating compound manufacturer's directions. Do not allow excess form-coating material to accumulate in forms or to come into contact with concrete surfaces against which fresh concrete will be placed. Apply in compliance with manufacturer's instructions.

### 3.6 Concrete Placement

- A. Preplacement Inspection: Before placing concrete, inspect and complete formwork installation, reinforcing steel, and items to be embedded or cast-in. Notify other crafts to permit installation of their work. Cooperate with other trades in setting such work. Coat forms with sealer as specified in Section 2.01 of these specifications.
- B. Notify testing/inspection agency of intent to place concrete at least 48 hours prior to placement. Perform complete preplacement inspection of formwork, reinforcement and condition of base prior to arrival of inspector. For each placement Contractor will provide the Special Inspector with a written record of the quality control inspection performed by and signed by the Contractor.
- C. Coordinate the installation of joint materials and moisture barriers with placement of forms and reinforcing steel.

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- D. General: Comply with ACI 304, "Recommended Practice for Measuring, Mixing, Transporting and Placing Concrete", and as herein specified. Deposit concrete continuously or in layers of such thickness that in concrete will be placed on concrete which has hardened sufficiently to cause the formation of seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as herein specified. Deposit concrete as nearly as practicable to its final location to avoid segregation.
- E. Placing Concrete in Forms: Deposit concrete in forms in horizontal layers not deeper than 24" and in a manner to avoid inclined construction joints. Where placement consists of several layers, place each layer while preceding layer is still plastic to avoid cold joints.
- F. Consolidate placed concrete by mechanical vibrating equipment supplemented by hand-spading, rodding or tamping. Use equipment and procedures for consolidation of concrete in accordance with ACI recommended practices. Provide back-up equipment as necessary for uninterrupted consolidation during placement.
- G. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations not farther than visible effectiveness of machine. Place vibrators to rapidly penetrate placed layer and at least 6" into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to set. At each insertion; limit duration of vibration to time necessary to consolidate without causing segregation of mix.
- H. Placing Concrete Slabs: Deposit and consolidate concrete slabs in a continuous operation, within limits of construction joints, until the placing of a panel or section is completed.
- I. Consolidate concrete during placing operations so that concrete is thoroughly worked around reinforcement and other embedded items and into corners.
- J. Bring slab surfaces to correct level with straightedge and strike off. Use bull floats or darbies to smooth surface, free of humps or hollows. Do not disturb slab surfaces prior to beginning finishing operations.
- K. Maintain reinforcing in proper position during concrete placement operations.
- L. Cold Weather Placing: Protect concrete work from physical damage or reduced strength which could be caused by frost, freezing actions, or low temperatures, in

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compliance with ACI 306, "Recommended Practice for Cold Weather Concreting" and as herein specified.

1. When air temperature has fallen to or is expected to fall below 40 degrees F (4 degrees C), uniformly heat water and aggregates before mixing to obtain a concrete mixture temperature of not less than 50 degrees F (10 degrees C, and not more than 80 degrees F (27 degrees C) at time of placement.
  - M. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.
  - N. Do not use calcium chloride, salt and other materials containing anti-freeze agents or chemical accelerators, unless otherwise accepted in mix designs.
  - O. Hot Weather Placing: When hot weather conditions exist that would seriously impair quality and strength of concrete, place concrete in compliance with ACI 305 "Recommended Practice for Hot Weather Concreting", and as herein stated.
    1. Cool ingredients before mixing to maintain concrete temperature at time of placement below 90 degrees F (32 degrees C). Mixing water may be chilled, or chopped ice may be used to control temperature provided water equivalent of ice is calculated to total amount of mixing.
  - P. Cover reinforcing steel with water-soaked burlap if it becomes too hot, so that steel temperature will not exceed the ambient air temperature immediately before embedment in concrete.
  - Q. Wet forms thoroughly before placing concrete.
  - R. Do not use retarding admixtures unless otherwise accepted in mix designs.
- 3.7 Finish of Surfaces
- A. Rough Form Finish (RfFm-Fn): For formed concrete surfaces not exposed-to-view in the finish work or by other construction, unless otherwise indicated. This is the concrete surface having texture imparted by form facing material used, with tie holes and defective areas repaired and patched and fins and other projections exceeding 1/4" in height rubbed down or chipped off.

- B. Smooth Form Finish (SmFm-Fn): For formed concrete surfaces exposed-to-view, or that are to be covered with a coating material applied directly to concrete, such as waterproofing, damp-proofing, painting or other similar system. This is as-cast concrete surface obtained with selected form facing material, arranged orderly and symmetrically with a minimum of seams. Repair and patch defective areas with fins or other projections completely removed and smoothed.
- C. Smooth-Rubbed Finish (SmRbd-Fn): Provide smooth rubbed finish (SmRbd-Fn) to painted concrete surfaces exposed to-view, which have received smooth form finish (SmFm-Fn) treatment, the same day of form removal. Moisten concrete surfaces and rub with Carborundum brick or other abrasive until a uniform color and texture is produced. Do not apply cement grout other than that created by the rubbing process. After finishing provide recommended 7 day curing.
- D. Related Unformed Surfaces: At tops of walls, horizontal offset surfaces occurring adjacent to formed surfaces, strike-off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent formed surfaces, unless otherwise indicated.

### 3.8 Monolithic Slab Finishes

- A. Floated Finish (Flt-Fn): Apply floated finish to monolithic slab surfaces to receive trowel finish and light broom finish as hereinafter specified.

After screeding and consolidating concrete slabs, do not work surface until ready for floating. Begin floating when surface water 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. Check and level surface plane to a tolerance not exceeding 1/4" in 10' when testing with a 10' straight edge. Cut down high spots and fill low spots. Uniformly slope surfaces to drains. Immediately after leveling, refloat surface to a uniform, smooth granular texture.

- B. Troweled Finish (Tr-Fn): Apply troweled finish to monolithic slab surfaces to be exposed-to-view, and slab surfaces to be covered with paint or other thin film finish coating system.

After floating, begin first trowel finish operation using a power-driven trowel. Begin final troweling, with a steel trowel, when surface produces a ringing sound as trowel is moved over surface. Consolidate concrete surface by final hand troweling

operation, free of trowel marks, uniform in texture and appearance, and with a surface plane tolerance not exceeding 1/8" in 10', except when testing with a 10' straight edge.

- C. Light Broom Finish: Apply light broom finish to pool decks, walks and patios. After completion of float finishing, lightly draw broom over concrete surface.

### 3.9 Concrete Curing and Protection

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures.

Start initial curing as soon as free water has disappeared from concrete surface after placing and finishing.

Begin final curing procedures immediately following initial curing and before concrete has dried. Continue final curing for at least 7 days in accordance with ACI 301 procedures. Avoid rapid drying at end of final curing period.

- B. Curing Methods: Perform curing of concrete by moist curing, by
  1. Keep concrete surface continuously wet by covering with water.
  2. Continuous water-Fog Spray. Surfaces shall be kept continuously moist for not less than 72 hours after finishing.
  3. Covering concrete surface with specified absorptive cover, thoroughly saturating cover with water and keeping continuously wet. Place absorptive cover to provide coverage of concrete surfaces and edges, with 4" lap over adjacent absorptive covers.
  4. Surfaces shall be kept continuously moist for not less than 72 hours after finishing.
- C. Provide moisture-cover curing as follows:
  1. Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width with sides and ends lapped at least 3" and sealed by waterproof tape or adhesive. Immediately repair any holes or tears during curing period using cover material and waterproof tape.

- D. Curing Formed Surfaces: Cure formed concrete surfaces, including undersides of beams, supported slabs and other similar surfaces by moist curing with forms in place for full curing period or until forms are removed. If forms are removed, continue curing by methods specified above as applicable.

### 3.10 Removal of Forms

- A. Formwork including form hardware and bracing, not supporting weight of concrete, such as sides of beams, walls, columns, and similar parts of the work, may be removed after cumulatively curing at not less than 50 degrees for 24 hours after placing concrete, provided concrete is sufficiently hard to not be damaged by form removal operations, and provided curing and protection operations are maintained. Formwork for pool walls to receive smooth-rubbed finish must be removed in sufficient time to allow rubbing. This may be earlier than 24 hours and should be determined by use of the mockups.
- B. Formwork including form hardware and bracing, supporting weight of concrete, such as slabs and other structural elements, may not be removed in less than 14 days and until concrete has attained design minimum compressive strength of 28-days. Determine potential compressive strength of in place concrete by testing field-cured specimens representative of concrete location or members.
- C. Form facing material may be removed 4 days after placement, only if shores and other vertical supports have been arranged to permit removal of form facing material without loosening or disturbing shores and supports.
- D. Early removal of formwork may be permitted as acceptable to the Engineer provided sufficient data is presented indicating that concrete has attained adequate strength and stiffness to resist anticipated loads without damage. Additional tests to determine early strength and stiffness shall be performed at the expense of the Contractor.

### 3.11 Reuse of Forms

- A. Clean and repair surfaces of forms to be re-used in work. Split, frayed, delaminated or otherwise damaged form facing material will not be acceptable for exposed surfaces. Apply new form coating compound as specified for new formwork.

- B. When forms are extended for successive concrete placement, thoroughly clean surface, remove fins and laitance, and tighten forms to close joints. Align and secure joint to avoid offsets. Do not use "patched" forms for exposed concrete surfaces, except as acceptable to Architect.
- C. Forms to be reused shall be reviewed and approved by the architect.

### 3.12 Concrete Surface Repairs

- A. Patching Defective Areas: Repair and patch defective areas with cement mortar immediately after removal of forms, when acceptable to Engineer.
- B. Cut out honeycomb, rock pockets, voids over 1/4" in any dimension, and holes left by tie rods and bolts, down to solid concrete, but in no case to a depth of less than 1". Make edges of cuts perpendicular to the concrete surface. Before placing cement mortar or proprietary agent, brush-coat the area to be patched with neat cement grout or proprietary bonding agent.
- C. For exposed-to-view surfaces, blend white portland cement and standard portland cement so that when dry, patching mortar will match color surrounding. Provide test areas at inconspicuous location to verify mixtures and color match before proceeding with patching. Compact mortar in place and strike-off slightly higher than surrounding surfaces.
- D. Repair of formed Surfaces: Flush out form tie holes, fill with dry pack mortar, or precast cement cone plugs secured in place with bonding agent.
- E. Repair concealed formed surfaces, where possible, that contain defects that affect the durability of concrete. If defects cannot be repaired, remove and replace concrete.
- F. Repair of Unformed Surfaces: Test unformed surfaces, such as monolithic slabs, for smoothness and verify surface plane to tolerances specified for each surface and finish. Correct low and high areas as herein specified. Test unformed surfaces sloped to drain for trueness of slope, in addition to smoothness, using a template having required slope.
- G. Repair finished unformed surfaces that contain defects which affect durability of concrete. Surface defects, as such, include crazing, cracks in excess of 0.01" wide or which penetrate to reinforcement or completely through non-reinforced sections

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regardless of width, spalling, pop-outs, honeycomb, rock pockets, and other objectionable conditions.

- H. Correct high areas in unformed surfaces by grinding, after concrete has cured at least 14 days.
- I. Correct low areas in unformed surfaces during or immediately after completion of surface finishing operations by cutting out low areas and replacing with fresh concrete. Finish repaired areas to blend into adjacent concrete. Proprietary patching compounds may be used when acceptable to Engineer.
- J. Repair defective areas, except random cracks and single holes not exceeding 1" diameter, by cutting out and replacing with fresh concrete. Remove defective areas to sound concrete with clean, square cuts and expose reinforcing steel with at least 3/4" clearance all around. Dampen concrete surfaces in contact with patching concrete and brush with a neat cement grout, or apply concrete of same type or class as original concrete. Place, compact and finish to blend with adjacent finished concrete. Cure in the same manner as adjacent concrete.
- K. Repair isolated random cracks and single holes not over 1" in diameter by dry-pack method. Groove top of cracks and cut-out holes to sound concrete and clean of dust, dirt and loose particles. Dampen cleaned concrete surfaces and brush with neat cement grout, or apply concrete bonding agent. Mix dry-pack, consisting of one part portland cement to 2-1/2 parts fine aggregate passing a No. 16 mesh sieve, using only enough water as required for handling and placing. Compact dry-pack mixture in place and finish to match adjacent concrete. Keep patched area continuously moist for not less than 72 hours.
- L. Use epoxy-based mortar, approved by the Engineer, for structural repairs. Structural repairs include, but are not limited to, areas of unsound (honeycombed or spalled) concrete with a surface area greater than 9 square inches and/or with a depth greater than 1.5 inches, areas where reinforcement is exposed or areas with cracks greater than 1/16 inch in width. All areas requiring a structural patch shall be approved by the Engineer prior to commencing patching operations.

END OF SECTION 03300

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SECTION 07900 - SEALANTS

PART 1 GENERAL

1.1 RELATED DOCUMENTS

- A. The general provisions of the Contract, including General and Supplementary Conditions, and Division 1, General Requirements apply to the work specified in this Section.

1.2 DESCRIPTION OF WORK

- A. The extent of caulking and sealants work shall be as herein specified and as indicated on the drawings including, but not necessarily limited to, the following:
- Exterior caulking between concrete and hollow metal work, louvers, control joints, and as shown.
  - Interior caulking of joints between dissimilar materials.
  - Interior caulking between masonry and metal work, and as shown.
  - Interior caulking for corrective work, as directed.
  - Exterior sealant between concrete construction and expansion joints above water.
  - Exterior sealant between concrete construction and expansion joints below water.

1.3 RELATED WORK SPECIFIED IN OTHER SECTIONS

03250	Waterstops
03300	Concrete
13150	Swimming Pools

1.4 SUBMITTALS

- A. For information only, submit one (1) copy of manufacturer's specifications, recommendations and installation instructions for each type of sealant, caulking compound and associated miscellaneous materials required. Include manufacturer's published data that material is intended for the application required.
- B. Submit samples of manufacturer's standard colors for Architect's selection for all sealants exposed to view.

1.5 GUARANTEE

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- A. Provide the owner with one (1) copy of the written guarantee that all caulking and sealants, including materials and workmanship, throughout the building and swimming pools shall be watertight for a period of at least five years from date of the final acceptance of the facility.
- B. The guarantee shall cover removal and replacement of other work which has been superimposed on the caulking work, as required to repair, or replace the caulking work, without cost to the Owner.
- C. The guarantee shall be signed by the Contractor and by the Installer.

1.6 QUALITY ASSURANCE

- A. Provide only products of manufacturers with not less than five years of successful experience in supplying the principal materials for the required work.
- B. Before purchase of sealants, investigate the compatibility with the joint surfaces, joint filler and other materials in the joint system. Provide only materials which are known to be fully compatible with the actual installation conditions as shown by manufacturers published data or certification.
- C. Installer must be a firm with a minimum of five years successful experience in the application of the types of materials required and who employs only skilled tradesmen for the work.

PART 2 PRODUCTS

2.01 Materials:

- A. Interior: Elastomeric, single component, FS TT-S-00230C(2), Sikaflexia, by Sika Chemical Corp.; Tremco Manufacturing Company; Pecora; or approved equal.
- B. Interior: Acrylic Latex, Pecora AC-20 or approved equal.
- C. Interior: Non-staining, non-corrosive gun grade compound, oil based, FS-TT-C598b, Type 1, Pecora 200-R2, or approved equal.
- D. In Holding Tank (Below Water): Two -part polysulfide rubber sealant. Type II with 25% Extension, 25% compression. Sealant to meet Federal Specifications TT-S-00227E, Type II, Class B; ASTM C-920, and must meet or exceed the ASTM C-1247 for sealants exposed to continuous immersion in liquids. Product to be equivalent to that as manufactured by Pecora Corporation, Synthacalk GC-2+. Color to match, as closely as manufacturer's standard will allow, pool paint.
- E. Exterior: Two Part, self-leveling polyurethane traffic grade sealant. Sealant to meet Federal Specifications TT-S-00227E, Class A, Type I; SS-S-195B and SS-S-159B; ASTM D-1850 and ASTM C920-87, Class 25, Type M, Grade P, Use T.

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Product to be equivalent to "Urexpan NR-200" as manufactured by Pecora Corporation.

- F. Joint filler: Expanded polyethylene rod stock; non-staining to sealant in accordance with ASTM D-925. Provide size and shape of rod which will compress min. 25% and control joint depth for sealant placement, break bond of sealant at bottom of joint, form optimum shape of sealant bead on back side, and provide a highly compressible backer to minimize the possibility of sealant extrusion with joint compressed.
- G. Joint cleaner: Provide the type of cleaning compound recommended by the sealant or caulking compound manufacturer for the joint surfaces to be cleaned.
- H. Joint primer/sealer: Provide the type recommended by the sealant manufacturer for the joint surfaces to be primed or sealed.
- I. Back-up material in joint (subjected to foot traffic). Solid neoprene or butyl rubber (Shore A hardness of 70).
- J. Bond breaker tape (polyethylene) shall be used in shallow joints.

PART 3 EXECUTION

3.1 INSPECTION

- A. The Installer must examine the substrate and the conditions under which caulking work is to be performed, and notify the Contractor in writing of unsatisfactory conditions. Do not proceed with the work until unsatisfactory conditions have been corrected in a manner acceptable to the Installer.

3.2 PREPARATION

- A. Clean the substrate of projections and substances detrimental to the work, comply with recommendations of the prime materials manufacturer.
- B. Apply priming compound to all surfaces at joints to receive polysulfide sealant in accordance with manufacturer's directions. Mask surfaces where required and remove immediately after sealing is completed.
- C. Inspect interior surfaces and remove loose or friable material. Wire brush concrete and corroded metals; remove dust and loose debris. Make trial adhesion test for painted surfaces and remove paint films having inadequate bond.
- D. Etch concrete joint surfaces to remove excess alkalinity unless sealant manufacturer's printed instruction indicate that alkalinity does not interfere with sealant bond and performance. Etch with 5 percent solution of muriatic acid;

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neutralize with diluted ammonia solution, rinse thoroughly with water and allow drying before sealant installation.

- E. Roughen joint surfaces on vitreous coated and similar non-porous materials, wherever sealant manufacturer's data indicates lower bond strength than for porous surfaces. Rub with fine abrasive cloth or wool to produce a dull sheen.
- F. Prime interior masonry as recommended by the manufacturer of the sealant material. Rake out joints to depth not less than joint width.
- G. For elastomeric sealants, do not proceed with installation of sealant over joint surfaces which have been painted, lacquered, waterproofed or treated with water repellent or other treatment or coating unless a laboratory test for durability (adhesion) (in compliance with Paragraph 4.3.9 of FS TT-S-00337) has successfully demonstrated that sealant bond is not impaired by the coating or treatment. If laboratory test has not been performed, or shows bond interference, remove coating or treatment from joint surfaces before installing sealant.

### 3.3 INSTALLATION

- A. Do not proceed with installation of sealants under adverse weather conditions or when temperatures are below or above manufacturer's recommended limitations for installation. Proceed with the work only when forecasted weather conditions are favorable for proper cure and development of high early bond strength. Wherever joint width is affected by ambient temperature variations, install elastomeric sealants only when temperatures are in the lower third of manufacturer's recommended installation temperature range so that sealant will not be subjected to excess elongation and bond stress at subsequent low temperatures. Coordinate time schedule with General Contractor to avoid delay of project.
- B. Install sealants to depths as shown or, if not shown, as recommended by the sealant manufacturer but within the following general limitations, measured at the center (thin) section of the bead.
  - 1. For normal moving joints sealed with elastomeric sealants, but not subject to traffic, fill joints to a depth equal to 50 percent of joint width but neither more than 1/2" deep nor less than 1/4" deep.
  - 2. For joints sealed with non-elastomeric sealants and caulking compounds, fill joints to a depth in the range of 75 percent to 125 percent of joint width.
  - 3. Apply and handle sealant in accordance with the manufacturer's written instructions with a minimum exposure to air. Hold the caulking nozzle at 45 degree angle to joint and push sealant ahead of nozzle, forcing materials into the joint.
  - 4. Tool joint 10 minutes after application to produce a concave surface and remove masking tape immediately. Do not use soap detergent or other lubricants that would discolor sealant.
  - 5. Install polysulfide sealant in accordance with Thiokol Corp. Architectural Specification Guide.

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6. Install bond breaker tape wherever required by manufacturer's recommendation to ensure that elastomeric sealants will perform properly.
7. Finished joint shall be smooth and wrinkle free, with concave surface.
8. Cure sealants and caulking compounds in compliance with manufacturer's instructions and recommendations to obtain high early bond strength, internal cohesion strength and surface durability.

3.4 CLEANING

- A. Spillage: Do not allow sealants or compounds to overflow or spill onto adjoining surfaces or to migrate into the voids of adjoining surfaces. Use masking tape or other precautionary devices to prevent staining of adjoining surfaces by either the primer/sealer or the sealant/caulking compound.
- B. Remove excess compound and sealant promptly as the work progresses. Clean surrounding materials. Cut out defective joints, prime and reseal.
- C. Clean surfaces of excess sealant in accordance with manufacturer's directions.

END OF SECTION 07900

## SECTION 08311 - ACCESS DOORS AND FRAMES

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawing and general provisions of the Contract, including General Conditions and Division 1 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes the following:
  - 1. Floor doors and frames.
- B. Related Sections include the following:
  - 1. Division 3 Section "Cast-in-Place Concrete" for blocking out openings for access doors and frames in concrete.

#### 1.3 SUBMITTALS

- A. Product Data: Include construction details relative to materials, individual components, profiles and finishes for access doors and frames.
- B. Shop Drawings: Show fabrication and installation details of customized doors and frames. Include plans, elevations, sections, details, and attachments to other work.
- C. Schedule: Types, locations, sizes, latching or locking provisions, and other data pertinent to installation

#### 1.4 QUALITY ASSURANCE

- A. Source Limitations: Obtain doors and frames of any one type, through one source from a single manufacturer.

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- B. Size Variations: Obtain Architect's acceptance of manufacturer's standard-size units, which may vary slightly from sizes indicated.

## 1.5 COORDINATION

- A. A. Verification: Determine specific locations and sizes for access doors needed to gain access to concealed swimming pool filtration and recirculation equipment and piping, or other concealed work, and indicate in the schedule specified in "Submittals" Article.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

- 1. Access Doors:
  - a. Acudor Products, Inc.
  - b. Bar-Co, Inc. Div.; Alfab, Inc.
  - c. Cendrex, Inc.
  - d. Cesco Products.
  - e. Elmdor/Stoneman; Div. of Acorn Engineering Co.
  - f. Jensen Industries.
  - g. J. L. Industries, Inc.
  - h. Karp Associates, Inc.
  - i. Larsen's Manufacturing Company.
  - j. MIFAB Manufacturing, Inc.
  - k. Milcor Limited Partnership.
  - l. Nystrom Building Products Co.
  - m. Precision Plumbing Products, Inc.
  - n. Williams Bros. Corporation of America (The).

- B. Manufacturer: Products that may be incorporated into the Work include, the following:

- 1. Floor Doors:

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- a. Bilco Company (The).

## 2.2 MATERIALS

- A. Steel Plates, Shapes, and Bars: ASTM A 36/A 36M.
- B. Hot-Rolled Steel Sheets: ASTM A 569/A 569M, Commercial Steel (CS), Type B; free of scale, pitting, and surface defects; pickled and oiled; with minimum thickness indicated representing specified nominal thickness according to ASTM A 568/A 568M.
- C. Cold-Rolled Steel Sheets: ASTM A 366/A 366M, Commercial Steel (CS), or ASTM A 620/A 620M, Drawing Steel (DS), Type B; stretcher-leveled standard of flatness; with minimum thickness indicated representing specified nominal thickness according to ASTM A 568/A 568M. Electrolytic zinc-coated steel sheet, complying with ASTM A 591/A 591M, Class C coating, may be substituted at fabricator's option.
- D. Electrolytic Zinc-Coated Steel Sheet: ASTM A 591/A 591M, Commercial Steel (CS), with Class C coating and phosphate treatment to prepare surface for painting; with minimum thickness indicated representing specified nominal thickness according to ASTM A 568/A 568M for uncoated base metal.
- E. Metallic-Coated Steel Sheet: ASTM A 653/A 653M, Commercial Steel (CS), Type B, with A60 zinc-iron-alloy (galvannealed) coating or G60 mill-phosphatized zinc coating; stretcher-leveled standard of flatness; with minimum thickness indicated representing specified thickness according to ASTM A 924/A 924M.
- F. Stainless-Steel Sheet, Strip, Plate, and Flat Bars: ASTM A 666, Type 316; with minimum sheet thickness indicated representing specified thickness according to ASTM A 480/A 480M.
- G. Stainless-Steel Bars and Shapes: ASTM A 276, Type 304.
- H. Rolled-Steel Floor Plate: ASTM A 786/A 786M, rolled from plate complying with ASTM A 36/A 36M or ASTM A 283/A 283M, Grade C or D.
- I. Rolled-Stainless-Steel Floor Plate: ASTM A 793.

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2.3 PAINT

- A. Shop Primer for Metallic-Coated Steel: Organic zinc-rich primer complying with SSPC-Paint 20 and compatible with topcoat.
- B. Galvanizing Repair Paint: High-zinc-dust-content paint for regalvanizing welds in steel, complying with SSPC-Paint 20.

2.5 FLOOR DOORS (Alternate No. 2)

- A. Floor Doors, General: Equip each door with adjustable counterbalancing springs, heavy-duty hold-open arm that automatically locks door open at 90 degrees, release handle with red vinyl grip that allows for one-handed closure, and recessed lift handle.
- B. Furnish and install where indicated on plans vault access door Type J-AL H20, size width (36 inch) x length (36 inch) or JD 2AL, size width (48 inch) x length (48 inch). Length denotes hinge side. The vault access door shall be single leaf for 36" doors and double leaf for 48" doors. The vault access door shall be pre-assembled from the manufacturer.
- C. Performance characteristics:
  - 1. Cover: Shall be reinforced to support AASHTO H-20 wheel load with a maximum deflection of 1/150th of the span. Manufacturer to provide structural calculations stamped by a registered professional engineer upon request.
  - 2. Operation of the cover shall be smooth and easy with controlled operation throughout the entire arc of opening and closing.
  - 3. Operation of the cover shall not be affected by temperature.
  - 4. Entire door, including all hardware components, shall be highly corrosion resistant and suitable for highly corrosive environments.
  - 5. Cover: Shall be 1/4" (6.3 mm) aluminum diamond pattern.
- D. Frame: Channel frame shall be 1/4" (6.3mm) extruded aluminum with bend down anchor tabs around the perimeter. A continuous EPDM gasket shall be mechanically attached to the aluminum frame to create a barrier around the entire perimeter of the cover and significantly reduce the amount of dirt and debris that may enter the channel frame.

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- E. Hinges: Shall be specifically designed for horizontal installation and shall be through bolted to the cover with tamperproof Type 316 stainless steel lock bolts and shall be through bolted to the frame with Type 316 stainless steel bolts and locknuts.
- F. Drain Coupling: Provide a 1-1/2" (38mm) drain coupling located in the right front corner of the channel frame.
- G. Lifting mechanisms: Manufacturer shall provide the required number and size of compression spring operators enclosed in telescopic tubes to provide, smooth, easy, and controlled cover operation throughout the entire arc of opening and to act as a check in retarding downward motion of the cover when closing. The upper tube shall be the outer tube to prevent accumulation of moisture, grit, and debris inside the lower tube assembly. The lower tube shall interlock with a flanged support shoe fastened to a formed 1/4" gusset support plate.
- H. A removable exterior turn/lift handle with a spring loaded ball detent shall be provided to open the cover and the latch release shall be protected by a flush, gasketed, removable screw plug. Provide McGard security plugs in lieu of panic hardware. Provide with Town of East Hartford pattern. Provide slam lock for operating door from interior.
- I. Hardware:
  - 1. Hinges: Heavy forged aluminum hinges, each having a minimum 1/4" (6.3 mm) diameter Type 316 stainless steel pin, shall be provided and shall pivot so the cover does not protrude into the channel frame.
  - 2. Cover shall be equipped with an hold open arm which automatically locks the cover in the open position.
  - 3. Cover shall be fitted with the required number and size of compression spring operators. Springs shall have an electrocoated acrylic finish. Spring tubes shall be constructed of a reinforced nylon 6/6 based engineered composite material.
  - 4. A Type 316 stainless steel snap lock with fixed handle shall be mounted on the underside of the cover.
  - 5. Hardware: Shall be anticorrosion throughout.
- J. Finishes: Factory finish shall be mill finish aluminum with bituminous coating applied to the exterior of the frame.

## 2.6 FABRICATION

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- A. General: Provide access door and frame assemblies manufactured as integral units ready for installation.
- B. Metal Surfaces: For metal surfaces exposed to view, provide materials with smooth, flat surfaces without blemishes.
- C. Doors and Frames: Grind exposed welds smooth and flush with adjacent surfaces. Furnish attachment devices and fasteners of type required to secure access panels to types of supports indicated.
- D. Latching Mechanism: Furnish number required to hold doors in flush, smooth plane when closed.
  - 1. For cylinder lock, furnish two keys per lock and key all locks alike. Coordinate all cylinder locksets with owner, through Architect.
- E. Extruded Aluminum: After fabrication, apply manufacturer's standard protective coating on aluminum that will come in contact with concrete.

## 2.7 FINISHES, GENERAL

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Finish metal fabrications after assembly.

## 2.8 ALUMINUM FINISHES

- A. Finish designations prefixed by AA comply with the system established by the Aluminum Association for designating aluminum finishes.
- B. As-Fabricated (Mill) Finish: AA-M10 (Mechanical Finish: as fabricated, unspecified).

## 2.9 METALLIC-COATED STEEL FINISHES

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- A. Galvanizing of Steel Shapes and Plates: Hot-dip galvanize items indicated to comply with applicable standard listed below:
  - 1. ASTM A 123/A 123M, for galvanizing steel and iron products.
  - 2. ASTM A 153/A 153M, for galvanizing steel and iron hardware.
  
- B. Surface Preparation: Clean surfaces with nonpetroleum solvent so surfaces are free of oil and other contaminants. For galvanized surfaces, apply, after cleaning, a conversion coating suited to the organic coating to be applied over it. For metallic-coated surfaces, clean welds, mechanical connections, and abraded areas, and apply galvanizing repair paint specified below to comply with ASTM A 780.
  - 1. Galvanizing Repair Paint: High-zinc-dust-content paint for regalvanizing welds in steel, complying with SSPC-Paint 20.
  
- C. Factory Priming for Field-Painted Finish: Apply shop primer immediately after cleaning and pretreating.

## 2.10 STEEL FINISHES

- A. Surface Preparation: Prepare uncoated ferrous-metal surfaces to comply with minimum requirements indicated below for SSPC surface-preparation specifications and environmental exposure conditions of installed metal fabrications:
  - 1. Exteriors (SSPC Zone 1B): SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."
  - 2. Interiors (SSPC Zone 1A): SSPC-SP 3, "Power Tool Cleaning."
  
- B. Apply shop primer to uncoated surfaces of metal fabrications. Comply with SSPC-PA 1, "Paint Application Specification No. 1," for shop painting.

## 2.11 STAINLESS-STEEL FINISHES

- A. Remove tool and die marks and stretch lines or blend into finish.
  
- B. Grind and polish surfaces to produce uniform, directionally textured, polished finish indicated, free of cross scratches. Run grain with long dimension of each piece.

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- C. Bright, Directional Polish: No. 4 finish.
  - 1. When polishing is completed, passivate and rinse surfaces. Remove embedded foreign matter and leave surfaces chemically clean.

### PART 3 - EXECUTION

#### 3.1 PREPARATION

- A. Advise installers of other work about specific requirements relating to access door and floor door installation, including sizes of openings to receive access door and frame, as well as locations of supports, inserts, and anchoring devices.

#### 3.2 INSTALLATION

- A. Comply with manufacturer's written instructions for installing access doors and frames.
- B. Set frames accurately in position and attach securely to supports with plane of face panels aligned with adjacent finish surfaces.
- C. Install floor doors flush with adjacent finish surfaces or recessed to receive finish material.

#### 3.3 ADJUSTING AND CLEANING

- A. Adjust doors and hardware after installation for proper operation.
- B. Remove and replace doors and frames that are warped, bowed, or otherwise damaged.

END OF SECTION 08311

## SECTION 09960 - HIGH PERFORMANCE COATINGS

### PART I GENERAL

#### 1.1 Related Documents

- A. Drawings and general provisions of the Contract, including General Conditions and Division 1 Specification Sections, apply to this Section.

#### 1.2 Summary

- A. This Section includes surface preparation and field application of high-performance coating systems to items and surfaces scheduled and also specified herein.
- B. Related Items include the following:
  - 1. Holding Tank Walls (Alternate No. 2)
  - 2. Filter Room Equipment
  - 3. Steel Columns and Beams
  - 4. Pool bottom around bottom drains (Alternate No. 2)

#### 1.3 Definitions

- A. Standard coating terms defined in ASTM D 16 apply to this Section.
- B. Gloss ranges used in this Section include the following:
  - 1. Semigloss refers to medium-sheen finish with a gloss range between 30 and 65 when measured at a 60-degree meter.
  - 2. High gloss refers to high-sheen finish with a gloss range more than 65 when measured at a 60-degree meter.
- C. Environments: The following terms are used in Part 2 of this Section to distinguish between different corrosive exposures:
  - 1. "Severe environments" are highly corrosive industrial atmospheres with sustained exposure to high humidity and condensation and with frequent cleaning using strong chemicals. Environments with heavy concentrations of

strong chemical fumes and frequent splashing and spilling of harsh chemical products are severe environments.

2. "Moderate environments" are corrosive industrial atmospheres with intermittent exposure to high humidity and condensation, occasional mold and mildew development, and regular cleaning with strong chemicals. Environments with exposure to heavy concentrations of chemical fumes and occasional splashing and spilling of chemical products are moderate environments.
3. "Mild environments" are industrial atmospheres with normal exposure to moderate humidity and condensation, occasional mold and mildew development, and infrequent cleaning with strong chemicals. Environments with low levels of mild chemical fumes and occasional splashing and spilling of chemical products are mild environments. Normal outdoor weathering is also considered a mild environment.
4. "Chloramine Atmosphere" is a space where chlorine and/or chlorine vapors are present. These areas include Filter Plants, pump pits, surge tanks, filter out-buildings, etc.

#### 1.4 Submittals

- A. Product Data: For each coating system indicated. Include block fillers and primers.
  1. Material List: An inclusive list of required coating materials. Indicate each material and cross-reference the specific coating, finish system, and application. Identify each material by manufacturer's catalog number and general classification.
  2. Manufacturer's Information: Manufacturer's technical information, including label analysis and instructions for handling, storing, and applying each material specified.
- B. Certification by manufacturer that products supplied comply with requirements indicated that limit the amount of VOCs in coating products.
- C. Samples for Initial Selection: Manufacturer's color charts showing the full range of colors available for each type of finish-coat material indicated.
  1. After color selection, Architect will furnish color chips for surfaces to be coated.

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- D. Samples for Verification: For each color and material to be applied, with texture to simulate actual conditions, on representative samples of the actual substrate.
1. Provide stepped Samples defining each separate coat, including block fillers and primers. Use representative colors when preparing Samples for review. Resubmit until required sheen, color, and texture are achieved.
  2. List of material and application for each coat of each sample. Label each sample for location and application.
  3. Submit samples on the following substrates for Architect's review of color and texture:
    - a. Concrete: Sealer, provide two 4-inch- square samples for each color and finish.
    - b. Concrete Pool / Cast-in-place holding tank (Alternate No. 2), provide 8-inch square sample.
    - c. Ferrous and Nonferrous Metal: Provide two 4-inch- square samples of flat metal and two 8-inch- long samples of solid metal for each color and finish.
- E. Qualification Data: For firms and persons specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.

## 1.5 Quality Assurance

- A. Applicator Qualifications: Engage an experienced applicator who has completed high-performance coating system applications similar in material and extent to those indicated for Project and whose work has a record of successful in-service performance.
- B. Source Limitations: Obtain primers and undercoat materials for each coating system from the same manufacturer as the finish coats.

## 1.6 Delivery, Storage and Handling

- A. Deliver materials to Project site in manufacturer's original, unopened packages and containers bearing manufacturer's name and label with the following information:
1. Name or title of material.

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2. Product description (generic classification or binder type).
  3. Manufacturer's stock number and date of manufacture.
  4. Contents by volume, for pigment and vehicle constituents.
  5. Thinning instructions.
  6. Application instructions.
  7. Color name and number.
  8. Handling instructions and precautions.
- B. Store materials not in use in tightly covered containers in a well-ventilated area at a minimum ambient temperature of 45 deg F. Maintain containers used in storage in a clean condition, free of foreign materials and residue.
1. Protect materials from freezing. Keep storage area neat and orderly. Remove oily rags and waste daily. Take necessary measures to ensure that workers and work areas are protected from fire and health hazards resulting from handling, mixing, and applying coatings.

#### 1.7 Project Conditions

- A. Apply coatings only when temperature of surfaces to be coated and surrounding air temperatures are between 45 and 95 deg F.
- B. Do not apply coatings in snow, rain, fog, or mist; when relative humidity exceeds 85 percent; at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.
1. Allow wet surfaces to dry thoroughly and attain temperature and conditions specified before proceeding with or continuing coating operation.
  2. Work may continue during inclement weather only if areas and surfaces to be coated are enclosed and temperature within the area can be maintained within limits specified by manufacturer during application and drying periods.

#### 1.8 Existing Conditions

- A. For existing paint on previously painted surfaces for a pool should be determined for compatibility purposes. If existing surface is unknown, a sample should be submitted for testing to determine the type of existing surface. Paint chips can be taken to manufacturer's distributor/dealer to be forwarded for analysis.

#### 1.9 New Construction

- A. Newly poured concrete must cure for 28 days prior to painting.

## PART II PRODUCTS

### 2.1 Manufacturers

- A. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, products indicated in the coating system descriptions.
- B. Manufacturers' Names: The following manufacturers are referred to in the coating system descriptions by shortened versions of their names shown in parenthesis:
  1. Ramuc Pool Paint (Ramuc) STANDARD OF REFERENCE
  2. DuPont Company, High Performance Coatings (DuPont).
  3. ICI Dulux Paints; Devoe Coatings (ICI).
  4. International Protective Coatings; Courtaulds Coatings (International).
  5. Moore: Benjamin Moore & Co. (Moore).
  6. Pittsburgh Paint; PPG Industries, Inc. (PPG).
  7. Rust-Oleum Corporation (R-O).
  8. Sherwin Williams; Industrial and Marine Coatings (S-W).
  9. Tnemec Company, Inc. (Tnemec).
  10. Sika (Sika)
  11. Insl-X, Superior Coating Systems (Insl-x)
  12. Prosoco, Inc. (Prosoco)
  13. Harris Specialty Chemicals (Harris)
  14. W.R. Meadows, (Meadows)
  15. Carboline Company (Carboline).

### 2.2 Coatings Materials, General

- A. Material Compatibility: Provide primers, undercoats, and finish-coat materials that are compatible with one another and substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.
- B. Material Quality: Provide manufacturer's highest grade of the various high-performance coatings specified. Materials not displaying manufacturer's product identification are not acceptable.

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1. Proprietary Names: Use of manufacturer's proprietary product names to designate colors or materials is not intended to imply that products named are required to be used to the exclusion of equivalent products of other manufacturers. Furnish manufacturer's material data and certificates of performance for proposed substitutions.

C. VOC Content: All coatings are to be VOC free.

### 2.3 Colors

A. Colors: As selected by Architect from manufacturer's full range.

### 2.4 Exterior High Performance Coating Systems

A. Concrete Pool Walls and Holding Tank Walls (Alternate No. 2): Provide the following finish system over concrete surfaces.

1. Ramuc: Type EP Hi Build Epoxy Paint, 9122
2. Abrasion materials used to create a medium grade sandpaper finish for previously painted surfaces.
  - a. Sandpaper #80 grit, power sander, or wire brush
3. Cleaning products
  - a. Tri-sodium phosphate (TSP)
  - b. Muriatic or sulfamic acid solution
  - c. OR Ramuc Clean and Prep Solution can be used to clean (TSP) and preparation (acid wash); the above two steps.
  - d. No larger than 3/8" nap mohair metal, lambskin, phenolic core roller
  - e. 5 gallon bucket for boxing (intermixing) paint
  - f. Ramuc Thinner or xylene for cleaning tools and spills
4. Condensation test material
  - a. Several two foot square transparent pieces of plastic
  - b. Tape to secure the plastic
5. Joint or crack filler

- a. Hydraulic cement or Durathane® polyurethane sealant or any other submersible polyurethane sealant. Do not use silicone-based products, as paint adhesion will be adversely affected. Durathane must be top coated before submersion. Cure is 5 days before application.

## 2.5 Interior High performance Coating System

- A. Ferrous Metal: Provide the following finish systems over interior ferrous-metal surfaces:
  1. Severe Environment; Chloramine Atmosphere (Semigloss Finish): One finish coat over an intermediate coat and a primer.
    - a. Primer: Epoxy primer applied at spreading rate recommended by manufacturer.
      - 1 Carboline: 888 2-Component Polyamide Epoxy at 2.0 to 4 mils (0.051 to 0.102 mm).
      - 2 DuPont: 25P High Solids Epoxy Mastic at 4.0-mil (0.102-mm) dry film thickness.
      - 3 ICI: Devran 224HS High Build Epoxy at 4.0-mil (0.102-mm) dry film thickness.
      - 4 International: Intergard 251 Thin Film Polyamide Epoxy Rust Inhibitive Primer at 2.0-mil (0.051-mm) dry film thickness.
      - 5 Moore: M33/M34 Polyamide Epoxy Metal Primer at 2.0-mil (0.051-mm) dry film thickness.
      - 6 PPG: 97-14XX Series Pitt-Guard DTR Polyamide Epoxy Coating at 6.0-mil (0.152-mm) dry film thickness.
      - 7 R-O: 9500 System High Build Polyamide Epoxy at 5.0- to 8.0-mil (0.127- to 0.203-mm) dry film thickness.
      - 8 S-W: Recoatable Epoxy Primer B67 Series/B67V5 at 4.0- to 6.0-mil (0.102- to 0.152-mm) dry film thickness.
      - 9 Tnemec: 27 F. C. Typoxy Polyamide Epoxy.
    - b. Intermediate Coat: Epoxy applied at spreading rate recommended by manufacturer to achieve a dry film thickness of 2.0 to 4.0 mils (0.051 to 0.102 mm).
      - 1 Carboline: 888 2-Component Polyamide Epoxy.

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- 2 DuPont: 25P High Solids Epoxy Mastic.
- 3 ICI: Devran 224HS High Build Epoxy.
- 4 International: Intergard 345 DTM Semi-Gloss Epoxy.
- 5 Moore: M36/M38 Polyamide Epoxy Semi-Gloss Coating.
- 6 PPG: 97-1XXX Series Aquapon High Build Semi-Gloss Polyamide Epoxy Coating.
- 7 R-O: Intermediate coat not required.
- 8 S-W: Epolon II Multi-Mil Epoxy Series B62V800.
- 9 Tnemec: Series 66 Hi-Build Epoxoline Polamidoamine Epoxy.

- c. Topcoat: Semigloss epoxy applied at spreading rate recommended by manufacturer to achieve a dry film thickness of 2.0 to 5.0 mils (0.051 to 0.127 mm).

- 1 Carboline: 888 2-Component Polyamide Epoxy.
- 2 DuPont: 25P High Solids Epoxy Mastic.
- 3 ICI: Devran 224HS High Build Epoxy.
- 4 International: Intergard 345 DTM Semi-Gloss Epoxy.
- 5 Moore: M36/M38 Polyamide Epoxy Semi-Gloss Coating.
- 6 PPG: 97-1XXX Series Aquapon High Build Semi-Gloss Polyamide Epoxy Coating.
- 7 R-O: 9500 System High Build Polyamide Epoxy at 5.0- to 8.0-mil (0.127- to 0.203-mm) dry film thickness.
- 8 S-W: Epolon II Multi-Mil Epoxy Series B62V800.
- 9 Tnemec: Series 66 Hi-Build Epoxoline Polamidoamine Epoxy.

- B. Nonferrous Metal: Provide the following finish systems over interior nonferrous-metal surfaces:

1. Severe Environment; Chloramine Atmosphere (Semigloss Finish): One finish coat over an intermediate coat and a primer.

- a. Primer: Acrylic or epoxy primer, as recommended by manufacturer for this substrate, applied at spreading rate recommended by manufacturer.

- 1 Carboline: 888 2-Component Polyamide Epoxy.
- 2 DuPont: 25P High Solids Epoxy Mastic.
- 3 ICI: Devran 4170 Corrosion Resistant Epoxy Primer.
- 4 International: Intergard 251 Thin Film Polyamide Epoxy Rust Inhibitive Primer.

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- 5 PPG: 97-14XX Series Pitt-Guard DTR Epoxy.
  - 6 R-O: 9500 System High Build Polyamide Epoxy at 5.0- to 8.0-mil (0.127- to 0.203-mm) dry film thickness.
  - 7 S-W: DTM Wash Primer B71Y1.
  - 8 Tnemec: Series 27 F. C. Typoxy Polyamide Epoxy.
- b. Intermediate Coat: Epoxy applied at spreading rate recommended by manufacturer to achieve a dry film thickness of 2.0 to 5.0 mils (0.051 to 0.127 mm).
- 1 Carboline: 888 2-Component Polyamide Epoxy.
  - 2 DuPont: 25P High Solids Epoxy Mastic.
  - 3 ICI: Devran 224HS High Build Epoxy.
  - 4 International: Intergard 345 DTM Semi-Gloss Epoxy.
  - 5 PPG: 97-1XXX Series Aquapon High Build Semi-Gloss Polyamide Epoxy Coating.
  - 6 R-O: Intermediate coat not required.
  - 7 S-W: Epolon II Multi-Mil Epoxy Series B62V800.
  - 8 Tnemec: Intermediate coat not required.
- c. Topcoat: Semigloss epoxy applied at spreading rate recommended by manufacturer to achieve a dry film thickness of 2.0 to 5.0 mils (0.051 to 0.127 mm), unless otherwise indicated.
- 1 Carboline: 888 2-Component Polyamide Epoxy.
  - 2 DuPont: 25P High Solids Epoxy Mastic.
  - 3 ICI: Devran 224HS High Build Epoxy.
  - 4 International: Intergard 345 DTM Semi-Gloss Epoxy.
  - 5 PPG: 97-1XXX Series Aquapon High Build Semi-Gloss Polyamide Epoxy Coating.
  - 6 R-O: 9500 System High Build Polyamide Epoxy at 5.0- to 8.0-mil (0.127- to 0.203-mm) dry film thickness.
  - 7 S-W: Epolon II Multi-Mil Epoxy Series B62V800.
  - 8 Tnemec: Series 66 Hi-Build Epoxoline.

## PART III EXECUTION

### 3.1 Examination

- A. With Applicator present, examine substrates and conditions under which high-performance coatings will be applied, for compliance with coating application requirements.
  - 1. Apply coatings only after unsatisfactory conditions have been corrected and surfaces to receive coatings are thoroughly dry.
  - 2. Start of application is construed as Applicator's acceptance of surfaces within that particular area.
  
- B. Coordination of Work: Review other Sections in which primers or other coatings are provided to ensure compatibility of total systems for various substrates. On request, furnish information on characteristics of specified finish materials to ensure compatible primers.
  - 1. If a potential incompatibility of primers applied by others exists, obtain the following from the primer Applicator before proceeding:
    - a. Topcoat: Semigloss epoxy applied at spreading rate recommended by manufacturer to achieve a dry film thickness of 2.0 to 5.0 mils (0.051 to 0.127 mm), unless otherwise indicated.
    - b. Confirmation of primer's ability to be top coated with materials specified.
  - 2. Notify Architect about anticipated problems before using the coatings specified over substrates primed by others.

### 3.2 Preparation

- A. For surfaces to receive Ramuc Type EP Hi Build Epoxy coating system the following preparation shall be taken.
  - 1. Existing concrete surfaces / structures should be tested for integrity and soundness. Water blast the surface to remove loose paint and dirt.
  - 2. Repairs to imperfections such as cracks, chips, or leaks in the pool structure should be repaired before surface cleaning.
    - a. Non-leaking hairline cracks will be hidden or covered by two (2) coats of the epoxy coating
  - 3. Abrade/sand existing epoxy or fiberglass surfaces to achieve a #80 grit profile

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4. Scrub the surface with a TSP solution using one cup of TSP to 4 gallons of water. Extra attention given to cleaning the water line area of a pool or spa is essential. TSP should remove fats, oils, and algae from the pool or spa surface.
  5. Next apply at 15-20% solution of muriatic or sulfamic acid. NEVER ADD WATER TO ACID, ALWAYS ADD ACID TO WATER. The acid solution should etch the concrete/plaster surface and remove mineral build-up. Be sure to wear protective goggles, gloves, and suitable clothing.
  6. Follow the acid wash immediately with a TSP rinse to re-neutralize the surface.
  7. Clean and Prep Solution may be used in lieu of 4-6.
  8. Allow the surface to dry. The average number of days varies regionally and depends upon the porosity of the surface. It is recommended to wait five dry days and then perform a condensation test to determine surface dryness.
    - a. Condensation test is performed by taping several pieces of plastic on the pool surface. Locate the plastic pieces in the deep end, shallow end, and on the walls of the pool. Wait three hours to determine if condensation has formed underneath the plastic. If condensation has formed on the plastic, remove the plastic and wait 24 hours to perform the test again. Continue with the test until no condensation forms underneath the plastic. This insures the surface is dry enough to apply epoxy paint.
    - b. Do not paint when rain is imminent.
- B. General: Remove plates, machined surfaces, and similar items already in place that are not to be coated. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and coating.
1. After completing coating operations, reinstall items that were removed; use workers skilled in the trades involved.
- C. Cleaning: Before applying high-performance coatings, clean substrates of substances that could impair bond of coatings. Remove oil and grease before cleaning.
1. Schedule cleaning and coating application so dust and other contaminants from cleaning process will not fall on wet, newly coated surfaces.

- D. Surface Preparation: Clean and prepare surfaces to be coated according to manufacturer's written instructions for each substrate condition and as specified.
1. Provide barrier coats over incompatible primers or remove primers and reprime substrate.
  2. Cementitious Substrates: Prepare concrete, brick, concrete masonry block, and cement plaster surfaces to be coated. Remove efflorescence, chalk, dust, dirt, grease, oils, and release agents. Roughen as required to remove glaze. If hardeners or sealers have been used to improve curing, use mechanical methods to prepare surfaces.
    - a. Use abrasive blast-cleaning methods if recommended by coating manufacturer.
    - b. Determine alkalinity and moisture content of surfaces by performing appropriate tests. If surfaces are sufficiently alkaline to cause the finish paint to blister and burn, correct this condition before application. Do not coat surfaces if moisture content exceeds that permitted in manufacturer's written instructions.
  3. Ferrous-Metal Substrates: Clean ungalvanized ferrous-metal surfaces that have not been shop coated; remove oil, grease, dirt, loose mill scale, and other foreign substances. Use solvent or mechanical cleaning methods that comply with SSPC recommendations.
    - a. Blast-clean steel surfaces as recommended by coating manufacturer and according to SSPC-SP 10/NACE No. 2.
    - b. Treat bare and sandblasted or pickled clean metal with a metal treatment wash coat before priming.
    - c. Touch up bare areas and shop-applied prime coats that have been damaged. Wire brush, solvent clean, and touch up with same primer as the shop coat.
  4. Nonferrous-Metal Substrates: Clean nonferrous and galvanized surfaces according to manufacturer's written instructions for the type of service, metal substrate, and application required.
    - a. Remove pretreatment from galvanized sheet metal fabricated from coil stock by mechanical methods.

- E. Material Preparation: Carefully mix and prepare coating materials according to manufacturer's written instructions.
1. Maintain containers used in mixing and applying coatings in a clean condition, free of foreign materials and residue.
  2. Stir materials before applying to produce a mixture of uniform density. Stir as required during application. Do not stir surface film into the material. Remove film and, if necessary, strain coating material before using.
  3. Use only the type of thinners approved by manufacturer and only within recommended limits.

### 3.3 Application

- A. For surfaces to receive Ramuc Type EP Hi Build Epoxy coating system the following application methods shall be adhered to.
1. Type EP Hi Build Epoxy is self-priming; no other type of primer is recommended or should be used.
  2. Product shall be mixed as follows:
    - a. Mechanically mix Part A for approximately 5 minutes.
    - b. Mechanically mix Part B for approximately 5 minutes.
    - c. Mechanically mix both Part A and Part B together for approximately 15 minutes.
  3. Allow the admixed paint to set for 20-45 minutes (induction time) prior to use at 70° F. and 50% relative humidity. At 65° the induction time is 60 minutes. Do not use this product at air temperatures below 60°.
  4. If mixing more than the one - 2 gallon kit at a time be sure to intermix the kits to ensure color uniformity.
  5. Apply two (2) coats at a minimum 7-12 wet mils per coat. Check with a wet film gauge to ensure that the minimum wet film thickness of each coat is obtained. Theoretical coverage on a smooth surface will be 75-125 square feet per gallon and 125-200 square feet per gallon on recoats. Actual coverage will vary and is dependent upon the texture and profile of the surface. Dry film thickness of the completed project is to be 8-10 mils. Recoats can be applied between 16-72 hours of the first coat. If the second coat is applied beyond 72 hours of the first coat, the surface will require abrading.
  6. After the second coat of epoxy is applied, allow the paint to cure.

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- a. Outdoor cure rates are 5-7 dry days.
  - b. Indoor cure rates are 10-14 dry days.
  - c. If rain occurs during any part of the paint process, allow an extra day of cure time for each day of rain.
  - d. Leave surfaces exposed and do not cover / close off from outside air.
- B. General: Apply high-performance coatings according to manufacturer's written instructions.
1. Use applicators and techniques best suited for the material being applied.
  2. Do not apply high-performance coatings over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions detrimental to forming a durable coating film.
  3. Coating colors, surface treatments, and finishes are indicated in the coating system descriptions.
  4. Provide finish coats compatible with primers used.
  5. The term "exposed surfaces" includes areas visible when permanent or built-in fixtures, convactor covers, grilles, covers for finned-tube radiation, and similar components are in place. Extend coatings in these areas, as required, to maintain system integrity and provide desired protection.
    - a. Coat surfaces behind movable equipment and furniture the same as similar exposed surfaces. Before final installation, coat surfaces behind permanently fixed equipment or furniture with prime coat only.
    - b. Coat back sides of access panels, removable or hinged covers, and similar hinged items to match exposed surfaces.
- C. Scheduling Coating: Apply first coat to surfaces that have been cleaned, pretreated, or otherwise prepared for coating as soon as practicable after preparation and before subsequent surface deterioration.
1. The number of coats and film thickness required is the same regardless of application method.
    - a. Omit primer on metal surfaces that have been shop primed and touchup painted.
    - b. Do not apply succeeding coats until previous coat has cured as recommended by manufacturer.
    - c. Where manufacturer's written instructions require sanding, sand between applications to produce a smooth, even surface.

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- d. Allow sufficient time between successive coats to permit proper drying. Do not recoat surfaces until coating has dried to where it feels firm, does not deform or feel sticky under moderate thumb pressure, and application of another coat does not cause undercoat to lift or lose adhesion.
  2. If undercoats or other conditions show through final coat, apply additional coats until cured film has a uniform coating finish, color, and appearance. Give special attention to edges, corners, crevices, welds, exposed fasteners, and similar surfaces to ensure that they receive a dry film thickness equivalent to that of flat surfaces.
- D. Application Procedures: Apply coatings by brush, roller, spray, or other applicators according to manufacturer's written instructions.
1. Brush Application: Use brushes best suited for material applied and of appropriate size for the surface or item being coated.
    - a. Apply primers and first coats by brush unless manufacturer's written instructions permit using roller or mechanical applicators.
    - b. Brush out and work brush coats into surfaces in an even film.
    - c. Eliminate cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness, or other surface imperfections. Neatly draw glass lines and color breaks.
  2. Rollers: Use rollers of carpet, velvet back, or high-pile sheep's wool as recommended by manufacturer for the material and texture required.
  3. Spray Equipment: Use mechanical methods to apply coating if permitted by manufacturer's written instructions and governing regulations.
    - a. Use spray equipment with orifice size recommended by manufacturer for material and texture required.
    - b. Apply each coat to provide the equivalent hiding of brush-applied coats.
    - c. Do not double back with spray equipment building-up film thickness of two coats in one pass, unless recommended by manufacturer.
- E. Minimum Coating Thickness: Apply each material no thinner than manufacturer's recommended spreading rate. Provide total dry film thickness of the entire system as recommended by manufacturer.

- F. Prime Coats: Before applying finish coats, apply a prime coat of material, as recommended by manufacturer, to material required to be coated or finished that has not been prime coated by others.
  - 1. Recoat primed and sealed substrates if there is evidence of suction spots or unsealed areas in first coat, to ensure a finish coat with no burn-through or other defects caused by insufficient sealing.
- G. Completed Work: Match approved Samples for color, texture, and coverage. Remove, refinish, or recoat work that does not comply with specified requirements.

### 3.4 Field Quality Control

- A. Owner reserves the right to invoke the following procedure at any time and as often as Owner deems necessary during the period when coatings are being applied:
  - 1. Owner will engage the services of a qualified testing agency to sample coating material being used. Samples of material delivered to Project site will be taken, identified, sealed, and certified in presence of Contractor.
  - 2. Testing agency will perform appropriate tests for the following characteristics as required by Owner:
    - a. Quantitative materials analysis.
    - b. Absorption.
    - c. Accelerated weathering.
    - d. Accelerated yellowness.
    - e. Color retention.
    - f. Alkali and mildew resistance.
    - g. Abrasion resistance.
    - h. Apparent reflectivity.
    - i. Washability.
    - j. Dry opacity.
    - k. Recoating.
    - l. Skinning.
  - 2. Owner may direct Contractor to stop applying coatings if test results show materials being used do not comply with specified requirements. Contractor

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shall remove noncomplying coating materials from Project site, pay for testing, and recoat surfaces coated with rejected materials. If necessary, Contractor may be required to remove rejected materials from previously coated surfaces if, on recoating with specified materials, the two coatings are not compatible.

3.5 Cleaning

- A. Cleanup: At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.
  - 1. After completing coating application, clean spattered surfaces. Remove spattered coatings by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.

3.6 Protection

- A. Protect work of other trades, whether being coated or not, against damage from coating operation. Correct damage by cleaning, repairing, replacing, and recoating, as approved by Architect, and leave in an undamaged condition.
  - 1. Provide "Wet Paint" signs to protect newly coated finishes. After completing coating operations, remove temporary protective wrappings provided by others to protect their work.
  - 2. At completion of construction activities of other trades, touch up and restore damaged or defaced coated surfaces. Comply with procedures specified in PDCA P1.

END OF SECTION 09960

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SECTION 13100 - Swimming Pools General

PART 1 GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including Special Conditions and Division-1 Specifications sections, apply to work of this section.

1.2 DESCRIPTION OF WORK

- A. The intent of this section is to describe and specify a complete swimming pool system, including coordination of structure, site work, deck and pool drains and supply lines, surge tank and deck equipment for a complete functioning, code compliant swimming pool system and facility. The Contractor shall bring to the attention of the Architect prior to the submission of the bid, any inconsistency or deficiency in specified materials or equipment which might prove detrimental to the overall operation of the system; and the Contractor shall include in his/her bid all items of equipment and materials, etc., required for proper system operation according to codes and best established practices, whether drawn and/or specified, or not.
- B. Immediately after signing of contract, a meeting will be held with the general contractor, sub-contractors, including pool contractor and supplier of pool equipment, Owner, and Architect to review all aspects of pool systems in detail. All components and equipment will be reviewed at that time prior to shop drawing submission. Any changes, conflicts, etc. will be discussed and resolved. All warranties will be given to the Architect at that time for review and acceptance.
- C. The Contractor shall be responsible for providing, installing, and final sizing of all piping and valves, etc. and for providing any additional items or larger sizes than that specified which may be required for proper operation of the pool system.
- D. Codes: It shall be the responsibility of the Contractor to ensure that the work and materials furnished under this contract shall be in conformance with the code requirements of the State of Connecticut Department of Public Health, Town of East Hartford and all applicable, federal, state and local building codes.
- E. Permits and Fees: The Contractor shall provide all construction drawings, engineering reports, tests, and other data required to obtain permits from all appropriate governing agencies, including federal, state and local governments. The Contractor shall obtain all necessary inspections and shall pay all permit and application fees relating to the swimming pool and related work. The Contractor shall be responsible for all State of Connecticut Department of Public Health fees regarding inspection and resubmission. Town of East Hartford building permit fees are waived, however, State Fees are not.

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1.3 QUALITY ASSURANCE

- A. The methods, materials and equipment herein specified are intended to be the basis for receiving bids. Substitutions will be considered in accordance with the provisions stated in these specifications.
- B. Substitution of Equipment: Where particular brand names are specified, they are intended as a standard of quality and performance. Proposals based on the use of alternate equipment or equal substitutions must be submitted to the Owner and Architect 10 days prior to bid opening. The burden of proof of conformance of substitutes shall rest with the Contractor. Accompanying the substitution request, the Contractor shall provide a written description stating why the product is equal. The Architect/Owner shall be the sole judge with respect to interpretation of specifications or intent and conformance of substitute equipment or materials. In no case will alternates be accepted which increase the contract costs. Items which are designated as "No Substitutions" must be provided as specified since they match existing equipment being re-used, or meet the Town of East Hartford's standardized equipment for operation of Public Swimming Pools.

1.4 EXPERIENCE QUALIFICATIONS

- A. Experience Qualifications: The Contractor to be engaged under this contract shall have a minimum of five (5) years continuous experience in the construction, furnishing, and installation of equipment, and startup and balancing of systems of swimming pool projects comparable in scope to this. He shall furnish written evidence of satisfactory completion of at least five (5) pools comparable to the type specified hereunder which have been operating satisfactorily for at least two (2) years. The Owner reserves the right to reject the proposal of any bidder who fails to meet the qualifications stipulated herein.
- B. The foreman for the work performed under this section shall be capable of performing the work described and able to show successful experience for five (5) years on installation of pools of similar scope.

1.5 SUBMITTALS

- A. Submittals of Drawings:
  - 1. Within 10 days of pool meeting called for in item 1.2 B. Description of Work, and prior to commencement of work hereunder, the Contractor shall submit to the Architect three (3) sets of detailed drawings (fully compliant with requirements of submittals under Section 03300), hydraulic calculations verifying pipe sizes required for proposed system, equipment lists and catalog cuts for the work, materials and equipment he proposes to furnish. Drawings shall clearly indicate layout, dimensions, reinforcing schedules, thickness' of materials, and limits of work under this contract.

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2. The Contractor shall provide, prior to beginning any work, a complete shop drawing consisting of illustrations, schedules, performance charts, instructions, brochures, diagrams and other information to illustrate the requirements and operation of the system. The Contractor shall provide detail drawings for the complete circulation, filtration, chemical control, make-up water, etc. systems. Drawings shall include piping layouts and locations of connections, dimensions for roughing-in, foundation and support point and schematic diagrams and wiring diagrams or connection or interconnection diagrams. Detail drawings shall indicate pipe sizes, inverts, flow rates and clearances required for maintenance and operation. All valves shall be located and numbered.
3. Drawings submitted as "not to scale" will be summarily rejected.
4. In addition, complete shop drawings and equipment catalog sheets shall be submitted to Architect for approval before any work under this section may proceed.
5. Submit a sample of each test report form for approval prior to beginning pool installation. All test reports must be submitted on approved forms.
6. After completion of work, submit to Owner, manufacturer's written instructions for operation maintenance, and cleaning of all furnished items.
7. After completion of work, submit to Owner record drawings as called for in other sections of these specifications

#### 1.6 WARRANTIES

- A. The Contractor shall warranty the pool filtration system, recirculation system and chemical control system and surge tank structure against defective materials and workmanship for a period of five (5) years. The Contractor shall warrant that the pool system, if operated in accordance with written instruction delivered to the Owner, shall meet all Federal and State requirements. Other items of equipment shall be warranted by the appropriate manufacturers for a period of one (1) year from date of substantial completion.
- B. Leak test must be performed on the pool and surge tank in accordance with the following test requirements. All initial filling and draining is by the Contractor with water paid for by the Owner. If any structure leaks, it shall be repaired and retested according to the same requirements.

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## 1.7 LEAK TEST REQUIREMENTS

- A. On the pool and surge tank, the Contractor shall perform a 48 hour leak test to be supervised by the Architect/Owner.
- B. Structures shall be filled with water and allowed to stand for 24 hours. The Contractor shall then mark the level of the water in the respective structures. Twelve hours later the water level shall be checked by both parties. If said level is found not to have dropped more than 1/4" during the 12 hours standing period, the Contractor shall certify in writing with copies to the Architect that the structure appears to be watertight. The Contractor shall provide a "Control Body of Water" located on the pool deck for the duration of the test, in a leak proof vessel of known surface area for the purposes of establishing an evaporation rate, which the Architect will factor in to the evaluation of leak test.
- C. Should water level be found to have dropped more than 1/4", the structure shall be left standing another 12 hours and the loss measured. If the level has continued to drop in this ensuing 12 hour period, the structure(s) shall be emptied by the Contractor. The Contractor shall proceed to locate the source of the leak(s) and cause for same to be repaired. The offending structure shall then be retested until it tests watertight as noted above.

## 1.8 PATENTED MATERIALS

- A. The Contractor shall pay all royalties and license fees. He shall defend all suits or claims for the infringement of any patent rights and shall save the Owner, and the Architect harmless from loss on account thereof, except that the Contractor shall not be responsible for all such loss when a particular design, process or the product of a particular manufacturer or manufacturers is specified. If the Contractor has reason to believe that the design, process or product specified is an infringement of a patent, he shall be responsible for such loss unless he promptly notifies the Owner, or Architect. The Contractor shall bond the indemnity required by this paragraph.

## 1.9 RESPONSIBILITY FOR THE WORK

- A. The Contractor shall clearly define work limits and responsibilities to ensure timely completion of the work and an orderly construction process.
- B. The Contractor shall carefully review the work of all sections of these specifications, to verify that all items are included. It is the responsibility of the Contractor, to make sure that all items necessary are included and provided to provide a fully functioning system. Any conflicting requirements shall be resolved by the Contractor.

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#### 1.10 RELATED POOL REQUIREMENTS

- A. Submission of all data required to gain approval by regulatory agencies prior to, and following construction for the swimming pool structures and its equipment. The Contractor shall be responsible for code compliance of the swimming pool structural and mechanical design and the equipment supplied under Division 13.
- B. Supervision of excavation and labor for hand trimming as required.
- C. Coordination of all formwork, embeds, and penetrations as required for pool and surge tank construction. Contractor must review soils in soil report and topographic elevations to determine where form work inserts, penetrations, and accessories will be required.
- D. Coordination and installation of reinforcing steel as shown on the drawings and as specified.
- E. Furnishing and installation of main drain fittings and all pipe, fittings, and valves for the pool recirculation system from the pool, to the surge tank and to the filter room piping, equipment and chemical control systems, and return through the filtered water return inlets.
- F. Furnishing and installing all items of deck equipment and pool safety and maintenance equipment. Furnish and supervise installation of all anchors to be embedded in the deck.
- G. Providing common electrical ground bonding of pool structure(s), pool decks, pool fittings, and deck equipment in accordance with the International Building Code (latest edition) and National Electrical Code, (latest edition).
- H. Providing startup, balancing, and instruction service upon completion of work and furnish operating instructions and maintenance manuals to Owner (minimum four copies).
- J. Providing all pool testing and cleaning equipment.
- K. Furnishing and installation of all equipment and materials as shown, specified and/or required for a complete pool system.

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- L. Furnishing loose wall sleeves for installation in watertight concrete surge tank and sleeves in cover slab for reach rods. Sleeves shall be PVC no-leak flanged pipe nipples. Piping shall be watertight in these sleeves with the use of no-leak fittings cast in place.
- M. Furnishing and installation of all valves, controls, etc., to result in a functioning surge tank.
- N. Obtaining of final acceptance by the State of Connecticut Department of Public Health and any other Government agency having jurisdiction.

**1.11 RELATED GENERAL CONSTRUCTION REQUIREMENTS**

- A. Deck layout, bulk excavation and disposition of material. Dewatering and pumping of excavation as required. Fill materials as specified or required.
- B. Concrete footings, foundation walls, deck slabs, and pavement.
- C. Backfill of surge tank and concrete decks and equipment.
- D. Furnish supply and install access hatchway frame and cover for surge tank.
- E. Pipe trenches and backfill.
- F. Sealants.
- G. Waterstops.
- H. Initial filling and balancing of pool at completion of construction. Water shall be paid for by the Owner.
- J. Fittings and anchors required to be embedded in concrete work.

**1.12 RELATED ELECTRICAL REQUIREMENTS**

- A. Wiring to all items of pool equipment.
- B. Bonding /grounding steel reinforcing, and all deck equipment in accordance with the International Building Code (latest edition) and National Electrical Code, (latest edition).

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1.13 SYSTEM TRAINING

- A. A qualified representative of the Contractor performing work under this section shall fill, balance and test the pool systems and put the equipment into operation and instruct the Owner's representative in the operation of this equipment to the Owner's satisfaction prior to substantial completion.
- B. A minimum of three days (24 hours) of start up instructions and demonstration must be provided to Owner's representative in the operation of pool equipment, with an additional 48 hours of visits to be provided as requested by the Owner over a one-year period.

1.14 MAINTENANCE SERVICE

- A. The Contractor shall provide full maintenance service by skilled, competent employees for 2 years following date of project substantial completion. Include shut-down and start-up maintenance, performed during normal working hours on dates mutually agreeable to Owner and Contractor. Include repair and replacement of worn or defective parts of components and lubrication, cleaning, and adjusting as required for proper system operation in conformance with specified requirements. Exclude repair/replacement due to misuse, abuse, accidents or neglect caused by persons other than Installer's personnel.
- B. A report shall be issued to the Owner indicating type of tests and system status within seven (7) days following visits.
- C. The Installer shall be able to show that he has had successful experience in the complete maintenance of pool systems, employs trained and competent maintenance of pool systems, employs trained and competent personnel to handle this service, maintains locally an adequate stock of parts for replacement for emergency purposes and has qualified men available at such places to ensure the fulfillment of this service.
- D. Ninety (90) days prior to the completion date of this maintenance service agreement, submit a proposal for continuing maintenance contract to begin after expiration of agreement.

PART II - PRODUCTS - Not Used

PART III - EXECUTION - Not Used

END OF SECTION 13100

## SECTION 13150 - SWIMMING POOL SYSTEMS and EQUIPMENT

### PART I GENERAL

#### 1.1 Related Documents

Drawings and general provisions of the Contract, including General Conditions and Division 1 Specification Sections, apply to the work specified in this section.

#### 1.2 Scope of Work

- A. It is intended that the work of this section shall be performed by a single (sub) contractor who shall be solely responsible for a properly integrated system of components, materials, and workmanship which will conform to the requirements of these specifications and established standards of the aquatics industry.
- B. The work of this section shall include, but is not necessarily limited to the following:
  - 1. Provide and install new bottom drains, piping and fittings to new pool bottom modification as shown on the drawings and as specified.
  - 2. Provide and install all pool piping, fittings, valves, tubing and other required equipment as required to connect existing pool body and filtration, recirculation and water treatment system to new cast-in-place concrete surge tank.

#### 1.3 Related Work Specified in Other Sections, or to be performed by others.

- A. Division 2, excavation, selective demolition, pipe trenching, backfill.
- B. Section 03300, reinforced concrete surge tank and concrete embedment of equipment sockets.
- C. Section 13100, Swimming Pool General Requirements
- D. Electrical conduit, wiring, and power as required for lighting, receptacles, filter pumps and chemical pumps and control systems in accordance with NEC.

1.4 Pool Contractor Qualifications

- A. At least five years experience in the construction and equipping of public swimming pools.
- B. Satisfactory completion of at least five projects similar in scope to this project.
- C. Submit credentials and references with bid.

1.5 Codes and Standards

- A. International, Federal, State of Connecticut and Town of East Hartford, building codes, ordinances and statutes. Refer to drawings for listing of applicable codes.
- B. State of Connecticut Public Swimming Pool Design Guide.
- C. NSF Public Pool Equipment Standards.
- D. United States Swimming, Inc. Facilities and Equipment Standards.

1.6 Responsibilities and Limits of Work

- A. The Contractor shall clearly define the work limits between divisions of these specifications and is responsible for ensuring complete coordination and timely completion of the work and an orderly construction process.
- B. The Contractor shall carefully review the limits of work to verify that all items are included. It is the responsibility of the Contractor to make sure that all items necessary are included, provided and installed to provide a complete, fully functioning outdoor public swimming pool facility. Any conflicting requirements shall be resolved by the Contractor.
- C. NOTE: Any item of equipment or material obviously a part of this section or necessary for proper filter operation that is not mentioned in the specification and/or not detailed on the drawings shall be furnished by the Contractor as part of his work at no additional cost.

## PART II PRODUCTS

### 2.1 General

- A. All products, equipment, hardware and materials furnished shall be by manufacturers with at least five years' experience in the production of the item(s) provided.
- B. All products and materials furnished shall be certified by the manufacturer(s) or listed by established testing agencies (NSF, UL, etc.) as suitable for use on outdoor public swimming pool facilities.
- C. All materials shall be resistant to corrosion by chlorinated pool water and corrosive air environments.

### 2.2 Bottom (Main) Drains

- A. Bottom Drain Sump and Cover shall be Type 304 Stainless Steel, NSF Certified and ANSI/ASME A11 19.8-2007 / 8A.2008 approved. All components shall be VGB compliant and meet all Federal, State and Local laws, codes and ordinances.
- B. Provide Paddock Pool Equipment Company, Inc. stainless steel bottom drain (main drain) Model # 2424ESMD-DC 24" x 24" with stainless steel drain cover, No Substitutions.
- C. Provide all stainless steel hardware and fasteners.

### 2.3 Holding Tank Fittings

- A. Bottom Drain Modulating Valves
  - 1. PVC body with standard ASA mating flange.
  - 2. Stainless steel wafer, shaft, pins and float.
  - 3. Adjustable double float and stops.
  - 4. Provide with all necessary hardware and weights/counterweights, as required for proper operation.

- B. Anti-vortex Plates
  - 1. T304 stainless steel, 12 gauge, for attachment to standard ASA flange on pump suction pipe.
- C. Access Hatch: Re: Section 08311, "Access Doors".

## 2.4 Pool Piping, Fittings and Valves

- A. PVC Pipe: ASTM D 1785, Schedule 80.
  - 1. Fittings: ASTM D 2467, PVC.
  - 2. Joints: ASTM D 2855, solvent weld, or flanged.
  - 3. Connections to threaded fittings by socket to thread adapters, threaded pipe will not be acceptable.
  - 4. Provide waterproof flanges at all thru-wall sleeves. Sleeve and flange to be one-piece, factory fabricated to the correct size for pipe size and wall depth.
- B. Fittings
  - 1. Provide flanged connections or spool pieces as required for easy removal and replacement of system components.
  - 2. All hardware, i.e., nuts, bolts, washers, shall be stainless steel.
  - 3. Provide hangers, supports and thrust blocks as required to prevent excessive vibration of piping and stress on joints.
- C. Valves
  - 1. Non-immersed valves larger than 2 inches shall be BY Series Butterfly Valves as manufactured by Hayward Flow Control Systems, No Substitutions.
  - 2. Non-immersed valves 2 inches or smaller shall be TBB Series Industrial True Union Ball Valves as manufactured by Hayward Flow Control Systems, No Substitutions.
  - 3. Immersed valves shall be PVC wafer valves with stainless steel shafts and pins.
  - 4. Surge tank valves shall be provided with stainless steel extension rods to deck surface. Stainless steel deck access sockets with drop-in covers shall be provided for each valve extension. Sockets shall be furnished to deck work contractor for installation in concrete slab over holding tank. Stainless steel T-handle operator shall be provided.

## D. Pipe and Valve Identification

### 1. Piping System Identification

- a. All piping shall be painted and color coded as follows:
  - 1) Pool water: Blue
  - 2) Fill or makeup water, untreated water: Red
  - 3) Treated, filtered water: White
  - 4) Back wash water: Black
- b. Pipe markers shall be either pre-printed, semi-rigid snap-on, color coded plastic pipe markers, or pre-printed, permanent adhesive, color coded, pressure sensitive vinyl pipe markers. Include arrows to show direction of flow. Markers shall be located on piping at filter rooms, holding tanks, valve boxes and drainage structures.
- c. Locate pipe markers and arrows as follows:
  - 1) Near each major equipment item, valve and control device.
  - 2) At pipe runs a maximum of 4 feet on center.
  - 3) Near each branch.
  - 4) Near locations where pipes pass through walls or floors/ceilings or enters non-accessible enclosures.
  - 5) At access doors, manholes and similar access points which permit views of concealed piping.
  - 6) Near points of origination or termination.

## 2.5 Pool Deck Equipment

### A. Pool Ladders (Coordinate number of steps with pool depths)

1. Frames of T304 stainless steel tubing 1.5" O.D. by .109" thickness.
2. Step treads of 12 gauge T304 stainless steel, 18 inches by 3 inches with "non slip" surfaces. Treads bolted to frame with stainless steel hardware.
3. All bends 6" radius, frames bent in at bottom and fitted with PVC bumpers to rest against pool wall.
4. All welds by inert gas process. Welds, corner and sharp edges ground smooth and polished to match adjacent surfaces.
5. Provide non corrodible anchors with grounding lugs.

- B. Fixed Lifeguard Chairs (4-required) - shall be stainless steel. Units shall have four foot high seats. Steps with nonskid treads shall be provided. Chairs shall be equal to Paraflyte OSHA chair by Paragon Aquatics. Means of attaching a life ring and umbrella shall be provided.

## PART III EXECUTION

### 3.1 General

Unless otherwise declared by written notice to the Architect, commencement of work of this section constitutes acceptance by contractor and pool sub-contractor of existing conditions, substrates, previous work, and related work by others as satisfactory to receive the work of this section. This includes, but is not limited to, site excavation, site utilities, demolition, structural improvements, or installations.

### 3.2 Inspection and Verification

- A. Verify that related work necessary to start the work of this section is completed.
- B. Verify dimensions by field measurement before installing equipment.
- C. Notify General Contractor of defects requiring correction. Do not start work until approved by Architect and directed by construction manager.

### 3.3 Coordination of Work

- A. Coordinate with the General Contractor and sub-contractors for related work to assure orderly progress and timely completion of the project.
- B. Provide written instructions, drawings, diagrams, templates or on-site supervision as required to assure proper installation of equipment and accessories as provided "furnished only" under this section.

### 3.4 Product Delivery, Storage and Handling

- A. Deliver equipment and components to job site crated and packaged to prevent damage.
- B. Unload and store in designated area as directed by General Contractor.

### 3.5 Recirculation Equipment

- A. Install according to approved shop drawings. Assure adequate clearances for access, inspection, maintenance and safe operation.
- B. Set major components straight, plumb, and true; professional workmanship, neat and clean.
- C. Provide flanged connections, "spool pieces" and quick disconnects as required for easy removal and replacement of major components.

### 3.6 Piping

- A. Drawings indicate general arrangement of pool piping. Submit details of proposed departures due to field conditions for approval by Architect.
- B. Make no direct connections between pool piping and fresh water supply piping or waste water disposal piping.
- C. Inspect all pipe before installation to assure clean inside and undamaged.
- D. Cut pipe neat and square, finish ends smooth and remove burrs.
- E. Pipe laid in trenches shall be on at least 12 inches of hand tamped mason sand and covered with at least 12 inches of hand tamped mason sand. Do not backfill pipe trenches until pipe has been pressure tested.
- F. Buried piping shall be laid at least 12 inches clear of concrete footings, foundations and slabs.
- G. Securely plug ends of pipe to prevent entrance of contaminants while work is in progress.
- H. Brace and support piping while work is in progress to prevent stress on pipe and joints. Install permanent hangers, supports, and bracing as required to prevent vibration and stress on piping and joints.
- I. All joints in piping shall be solvent welded. Joints to system components and fittings shall be flanged or threaded. Threaded joints shall be by means of socket to thread adapters. All threaded joints shall use Teflon tape. Pipe dope on pipe is prohibited.

- J. Dry fit pipe to socket and mark to assure full penetration prior to application of solvents. Apply solvents and cement in strict accordance with manufacturer's instructions.
- K. Do not stress or move joint for 10 minutes after initial setting. Allow 24 hours cure prior to pressure testing.
- L. Pressure test all piping to 30 psi (hydrostatic). Hold pressure for one hour. All applicable codes shall be complied with.

### 3.7 Clean-Up

After each day's work, remove and legally dispose all packaging, wrapping, scrap materials and debris resulting from the work of this section.

### 3.8 Start-up and Balancing

- A. Consult with Owner to assist with chemical testing of pool water supply and advise Owner on initial chemical treatment required for proper chemical balancing. Contractor is responsible for the cost of all chemicals required to provide a balanced body of water, which meets the requirements of the State of CT, Dept. of Health as well as the Local Dept. of Health.
- B. Start pool recirculation systems, adjust for proper operation, and instruct Owner's designated representative in proper operation and maintenance of pools and pool systems. Remain with operator until pools are ready for use in accordance with requirements of State pool regulations.
- C. Provide three (3) bound sets of manufacturers' printed operating and maintenance instructions, product data, and guarantees for equipment and systems furnished hereunder.
- D. Provide one follow-up visit within 30 days of initial start-up, or as agreed with Owner, to inspect the operation of the pools and pool systems, provide corrective instructions if necessary, and submit a written report to the Owner.

END OF SECTION 13150