

## **INVATATION TO BID**

The Department of Children and Families is accepting sealed bids for:

### **JJ Girls Program Building Modifications**

DCF No. 28-CJTS-154

DCS No. BI-YS-174

Albert J. Solnit Children's Center, Middletown, CT

Bids must be submitted on the forms supplied and in the manner specified. Complete Bid Documents may be attached to this invitation.

A pre-bid conference will be held at Albert J. Solnit Children's Center, 915 River Road, Middletown, CT, at **9:00 A.M., TUESDAY, DECEMBER 3, 2013** in the maintenance office.

Bid is open only to those current in the State's Supplier Diversity Program (Set-Aside Program)

Bids will be accepted at the Department of Children and Families, Engineering Office, 505 Hudson Street, Hartford, CT 06106 until **2:00 P.M. local time on MONDAY, DECEMBER 18, 2013** at which time they will be publicly opened and read.

The Bid shall be accompanied by a Bid Bond in the amount of ten percent (10%) of the amount bid for any project in excess of \$100,000. All bonds required for this Project shall be acceptable to the DCF and as a minimum, issued through a bonding company licensed to transact such business in the State of Connecticut and named on the current list of "Surety Companies Acceptable on Federal Bonds" as published in the "Treasury Department Circular 570".

The successful Contractor shall be required to provide a Labor and Material Payment Bond and a Performance Bond for one hundred percent (100%) of the Contract price. The right is reserved to reject any or all Bids, in whole or in part, to award any item, group of items, or total Bid, and to waive any informality or technical defects, if it is deemed to be in the best interests of the DCF.

No Bidder may withdraw its Bid within ninety (90) days of the date of the Bid opening. Should there be reasons why the Contract cannot be awarded within the specified period; the time may be extended by mutual agreement between the DCF and the Bidder.

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	* <u>THESE DOCUMENTS MUST BE RETURNED WITH YOUR BID</u>	

**END OF SECTION**

## **INSTRUCTION TO BIDDERS AND CONDITIONS OF BID**

### **SEALED BIDS**

Bids must be submitted in a sealed envelope, clearly marked with the appropriate project number, date, time of bid opening, and name and address of the bidder. All pages of this Invitation & Bid Form must be submitted with your bid. Telephonic, faxed and emailed bids will not be accepted under any circumstances.

### **SUBMISSION OF BIDS**

Bids may be mailed, or delivered in person to the following address to arrive by the bid closing date and time. Late bids will not be accepted and will be returned to the bidder unopened. Extensions will not be granted. All bids shall be marked "Bid Proposal" along with the project name and number.

**Richard Grossman, Engineering Dept.  
Department of Children and Families  
505 Hudson Street  
Hartford, CT 06106**

### **PRE-BID MEETING**

A mandatory pre-bid meeting will be held on-site **Tuesday, December 3, 2013, 9:00AM**. The meeting will be at Albert J. Solnit Children's Center, Maintenance Office, 915 River Road, Middletown, CT. Contractors proposing for this project must visit and examine the site before proposing, to verify the job conditions and dimensions. This meeting is intended to review the Bid requirements and answer any questions that interested bidders may have about this Bid. Bidders who plan on attending and wish to receive a full size set of drawings shall contact Richard Grossman either by phone (860-550-6669) or email (Richard.grossman@ct.gov).

### **BID CLOSING DATE**

Bids must be received and stamped into the DCF Hartford Office no later than **Monday, December 16, 2013, 2:00PM** at the "Submission of Bids" location indicated above. All bids will be opened at the stipulated time and place. Any bidder who wishes to attend may do so.

### STATES RIGHTS

The State reserves the right to reject any and all bids, and to waive any informality in the bids. No bids may be withdrawn for at least 60 days after the scheduled closing times for receipt of bids.

### STANDARD CONDITIONS

1. Bid Security ó Bid security in the form of a certified check, bank check, or bid bond in the amount equal to 10% of the bid is required on all bids in excess of \$100,000.00. Checks should be made payable to:  

Treasure, State of Connecticut
2. Security for faithful performance ó Performance Bond and Labor and Material Bond in the amount of 100% of the purchase order price must be filed by the successful low bidder prior to the start of construction if the bid is in excess of \$50,000.00.
3. Personal liability and property damage insurance is required per the Certificate of Insurance included herein.
4. Contractor shall commence work within one week after receiving notice to proceed and continue for sixty (60) calendar days for completion of the project, unless otherwise specified or agreed.
5. Contact Persons: Richard Grossman, Plant Facility Eng, 860-550-6669; Fax 860-560-5019 (Richard.grossman@ct.gov)
6. Liquidated Damages: \$350.00 per day.

### SUPPLEMENTAL BIDS

Occasionally, the State may request óSupplemental Bidsö to a special project. When listed on the Invitation and Bid Form, each bidder is required to bid on each Supplement Bid. Award will be based on the "base bid" dollar figure. Supplements may be added by the Owner in the order of their listing.

### CONNECTICUT SALES AND USE TAX

All contractors shall familiarize themselves with the current regulations of the Department of Revenue Service. The tax on materials or supplies exempted by such regulations shall not be included as part of the Contractor's bid.

### DISCREPANCY IN AMOUNTS

In the event of any discrepancy between the amount written in words and the amount written in numerical figures, the amount written in words will be controlling. In case of error in the extension of prices in the bid, the unit price will govern.

### START AND COMPLETION DATES

All work is to be completed within the specified number of days from the starting date, which is to be established at the time the Contract is awarded.

### SUBLETTING OR ASSIGNING OF CONTACT

The contract or any portion thereof, or the work provided for therein, or the right, title, or interest of the contractor therein may not be sublet, sold, transferred, assigned or otherwise disposed of to any person, firm, or corporation without the written consent of the Commissioner.

No person, firm, corporation other than the contractor to whom the project was awarded shall be permitted to commence work at the site of the project until such consent has been granted.

### BASEBID

The base bid shall be the figure to perform all work associated with the contract documents, excluding any supplemental items. It is the owners' intention the base bid shall cover all plant, labor and materials necessary to complete the work as intended or implied.

### AWARD

The award will be determined by the lowest responsible bidder with the lowest total bid price.

END OF SECTION

## General Description and Project Scope

Project 28-CJTS-154  
BI-YS-174

### JJ Girls Program Modifications to Silvermine/Pueblo Buildings

This project consists of the conversion of nine (9) bedroom doors mounted in masonry from opening into the bedrooms to opening out of the bedroom, installing new gypsum ceilings in beds rooms along with owner furnished lights, adding two complete bathrooms, patching and painting where roofing leaks caused damage, adding "security" film to glazing and constructing a single bathroom.

The work includes but is not limited to:

1. Cutting masonry and installing new doors and frames.
2. HVAC design/sizing, installation and controls.
3. Electrical low and high voltage.
4. Painting.
5. Carpentry.
6. Case work
7. Flooring
8. Concrete work.
9. Life safety systems.
10. Plumbing

The intent of this project is to change some of the existing features to a building suitable for housing a new population.

As with all State projects, the bidder/contractor must comply with all Federal, State and Local Building, NFPA and ADA codes.

It is not the intent of these documents to provide every detail, but instead to provide, as a complement to the bidder/contractor for clearer understanding of the project and as an aid for pricing and construction. Under no circumstances shall the bidder/contractor take advantage of any errors or omissions.

The original design/construction drawings are also provided as an aid for both bidding and construction purposes. The Owner assumes no responsibility as to the accuracy of these documents. In addition to the mandatory pre-bid walk through, the bidder/contractor is invited to inspect the area at any time prior to the bid opening, provided he/she calls and schedules a site visit with the Maintenance Department. Under no circumstances will any unannounced or unscheduled visits be allowed.

This contract is to furnish all labor, materials and equipment whether stated or not in order to provide a complete project as defined.

## BID PROPOSAL FORM

TO: Richard Grossman, Engineering Dept.  
Department of Children and Families  
505 Hudson Street  
Hartford, CT 06106

FOR: JJ Girls Program Building Changes  
Albert J. Solnit Children's Center  
915 River Road  
Middletown, CT 06457  
DCF No. 28-CJTS-154  
DCS NO. BI-YS-174

DATE: \_\_\_\_\_

FROM: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

In compliance with the Instructions to Bidders and Conditions of Bid; and subject to all conditions thereof, the undersigned offers and agrees to furnish the labor and materials and to complete work called for by the project's plans and specifications within the allotted time (60) **sixty calendar days** for the Lump Sum of:

**Base Bid Price:**

WORDS \_\_\_\_\_ DOLLARS

Figures:(\$ \_\_\_\_\_ )

Award will be made based on the lowest "Base Bid Price" received from a qualified Bidder. Supplemental Bids may be added at the Owners discretion after Award and in order of listing.

**Supplemental Bids:**

**Add Alternate 1:** Furnish and Install windows films per plans and specifications for the Lump Sum of:

WORDS \_\_\_\_\_ DOLLARS

Figures:(\$ \_\_\_\_\_ )

**Add Alternate 2:** Furnish and Install Solid Vinyl Tile Flooring (SVT) and Vinyl Composite Tile Flooring (VCT) including cove base, per plans and specifications for the Lump Sum of:

WORDS \_\_\_\_\_ DOLLARS

Figures:(\$ \_\_\_\_\_ )

**Add Alternate 3:** Furnish and Install painted wall finishes per plans and specifications for the Lump Sum of:

WORDS \_\_\_\_\_ DOLLARS

Figures:(\$ \_\_\_\_\_ )

The General Contractor on this project will be required to perform not less than (50%) of the completed dollar value of the work with its own forces.

I (we), the undersigned, hereby declare that I am (we are) the only person(s) interested in this proposal: That it is made without any connection with any other person making any bid for the same work: that no person acting for, or employed by, the State of Connecticut is directly or indirectly interested in this proposal, or in any contract which may be under it, or in expected profits to arise there from: that this proposal is made without directly or indirectly influencing or attempting to influence any other person or corporation to bid or to refrain from bidding or to influence the amount of the bid of any other person or corporation: that this proposal is made in good faith without collusion or connection with any other person bidding for the same work; and that this proposal is made with distinct reference and relation to the plans and specifications prepared for this contract.

I (we) further declare that in regard to the conditions affecting the work to be done and the labor and materials needed, this proposal is based solely on my (our) own investigation and research and not in reliance upon any representations of any employee, officer or agent of the State.

Contractor (Owner/Officer): \_\_\_\_\_

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

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

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

City, State, Zip: \_\_\_\_\_

(AFFIX CORPORATE SEAL)

END OF SECTION 6 BID FORM

**DEPARTMENT OF CHILDREN AND FAMILIES  
STATE OF CONNIECTICUT**

STANDARD BID BOND

KNOW ALL MEN BY THESE PRESENTS, That we, \_\_\_\_\_

\_\_\_\_\_, hereinafter called the Principal,

of \_\_\_\_\_, as Principal,

and \_\_\_\_\_, hereinafter called the Surety, a corporation organized and existing under the laws of the State of

\_\_\_\_\_, and duly authorized to transact a surety business in the State of Connecticut, as Surety, are held and firmly bound unto the State of Connecticut, as Obligee, in the penal sum of ten (10) percent of the amount of the bid set forth in a

proposal hereinafter mentioned, \_\_\_\_\_

\_\_\_\_\_, lawful money of the United States of America, for the payment of which, well and truly to be made to the Obligee, the Principal and the Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

**THE CONDITION OF THIS OBLIGATION IS SUCH**, That, whereas the Principal has submitted or is about to submit a proposal to the Obligee related to a contract for Project No.: 28-CJTS-154 (BI-YS-174)

**NOW, THEREFORE**, if the said contract be awarded to the Principal and the Principal shall, within such time as may be specified, enter into the said contract in writing with the State of Connecticut and give the required bonds, with surety acceptable to the Obligee, or if the Principal shall fail to do so, pay to the Obligee the damages which the Obligee may suffer by reason of such failure not exceeding the penalty of this bond, then this obligation shall be void, otherwise to remain in full force and effect.

**SIGNED, SEALED AND DELIVERED** this \_\_\_\_\_ day of \_\_\_\_\_, 20 \_\_\_\_\_

\_\_\_\_\_  
PrincipalsøSignature

\_\_\_\_\_  
Surety

\_\_\_\_\_  
(Print Name)

by

\_\_\_\_\_  
Its attorney in fact

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

\_\_\_\_\_  
(Print Name)

**EXECUTIVE ORDERS:**

This contract is subject the provisions of Executive Order No. Three of Governor Thomas J Meskill, promulgated June 16, 1971, concerning labor employment practices; to Section 6 and 10 of Executive Order No. 7B of Governor M. Jodi Rell, promulgated November 16, 2005, concerning contracting reforms; Executive Order No. Sixteen of Governor John G. Rowland, promulgated August 4, 1999, concerning violence in the workplace, all of which are incorporated into, Executive Order No. Seventeen of Governor Thomas J. Meskill, promulgated February 15, 1973, concerning the listing of employment openings; and are made a part of this contract.

## **Connecticut General Statute Section 31-53 Summary of Connecticut's Prevailing Wage Law**

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Connecticut's prevailing wage law is codified in Connecticut General Statutes [Section 31-53](#) and [31-53a](#). The law applies to each contract for the construction, remodeling, refinishing, refurbishing, rehabilitation, alteration or repair of any public works project by the State or its agents, or by any political subdivision of the State.

### **Coverage**

Conn. Gen. Stat. Section [31-53\(g\)](#) provides monetary thresholds which must be met before the law is applicable. The prevailing wage law does not apply where the **total cost of all work to be performed by all contractors and subcontractors** in connection with new construction of a public works project is less than four hundred thousand (\$400,000) dollars. The prevailing wages law does not apply in connection with remodeling, refinishing, refurbishing, rehabilitation, alteration or repair of any public works project under one hundred thousand (\$100,000) dollars.

### **Prevailing Rate**

The prevailing rate consists of a base rate and a fringe benefit rate which may be paid in cash or benefits. Conn. Gen. Stat. Section [31-53\(d\)](#) permits the Labor Commissioner to adopt and use the prevailing wage rate determinations as have been made by the Secretary of Labor of the United States under the provisions of the Davis-Bacon Act, as amended. **The agent empowered to let such contract shall contact the Labor Commissioner at least ten, but not more than twenty days, prior to the date such contracts will be advertised for bid, to ascertain the proper prevailing rate. Under [Public Act 02-69](#) the rates will be adjusted annually on or before July 1st of each year. These new rates will be on Department of Labor website.**

### **Certifications**

Both the Contractor and the Contracting Agent must provide certifications to the Labor Commissioner. Prior to the award of any contract subject to the prevailing wage law, the contracting agent shall certify in writing to the Labor Commissioner the total dollar amount of work to be done in connection with the public works project, regardless of whether such project consists of one or more contracts. Upon the award of a contract subject to the prevailing wage law, the contractor who is awarded the contract shall also certify, under oath, to the Labor Commissioner the pay scale to be used by the contractor and any of his subcontractors for the work to be performed under the contract. Additionally, each employer subject to the prevailing wage law must file certified payrolls with the contracting agent including information, including but not limited to, employee names; occupations; hours worked; rates paid; and the employers compliance with various provisions of law.

### **Penalties**

There are various civil, criminal and administrative penalties for violations of the prevailing wage law. Failure to pay the prevailing rate is a crime which may be a felony depending upon the amount of unpaid wages. Knowingly filing a false certified payroll or failure to file a certified payroll is a Class D felony for which an employer may be fined up to five thousand dollars, imprisoned for up to five years, or both. Disregarding obligations under Conn. Gen. Stat. Section 31-53 may result in an administrative debarment which may preclude any firm, corporation, partnership or association in which such person or firms have an interest from receiving an award of a contract until a period of up to three years have elapsed. Additionally, civil penalties of \$300 per violation of law may also be assessed upon the employer.

**For additional information contact:  
Wage and Workplace Standards Division  
Public Contract Compliance (860) 263-6790**

### **Sec. 31-53. Construction, alteration or repair of public works projects by state or political subdivision; wage rates; certified payroll. Penalties for violations. (a)**

Each contract for the construction, remodeling, refinishing, refurbishing, rehabilitation, alteration or repair of any public works project by the state or any of its agents, or by any political subdivision of the state or any of its agents, shall contain the following provision: "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 this section, 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 in which such public works project is being constructed. 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 part of his wages the amount of payment or contribution for his classification on each pay day."

(b) Any person who knowingly or willfully employs any mechanic, laborer or

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workman in the construction, remodeling, refinishing, refurbishing, rehabilitation, alteration or repair of any public works project for or on behalf of the state or any of its agents, or any political subdivision of the state or any of its agents, at a rate of wage on an hourly basis which is less than the rate customary or prevailing for the same work in the same trade or occupation in the town in which such public works project is being constructed, remodeled, refinished, refurbished, rehabilitated, altered or repaired, or who fails to pay the amount of payment or contributions paid or payable on behalf of each such employee to any employee welfare fund, or in lieu thereof to the employee, as provided by subsection (a), shall be fined not less than two thousand five hundred dollars but not more than five thousand dollars for each offense and (1) for the first violation, shall be disqualified from bidding on contracts with the state or any political subdivision until the contractor or subcontractor has made full restitution of the back wages owed to such persons and for an additional six months thereafter and (2) for subsequent violations, shall be disqualified from bidding on contracts with the state or any political subdivision until the contractor or subcontractor has made full restitution of the back wages owed to such persons and for not less than an additional two years thereafter. In addition, if it is found by the contracting officer representing the state or political subdivision thereof that any mechanic, laborer or workman employed by the contractor or any subcontractor directly on the site for the work covered by the contract has been or is being paid a rate of wages less than the rate of wages required by the contract to be paid as required by this section, the state or contracting political subdivision thereof may (A) by written notice to the contractor, terminate such contractor's right to proceed with the work or such part of the work as to which there has been a failure to pay said required wages and to prosecute the work to completion by contract or otherwise, and the contractor and his sureties shall be liable to the state or the contracting political subdivision for any excess costs occasioned the state or the contracting political subdivision thereby or (B) withhold payment of money to the contractor or subcontractor. The contracting department of the state or the

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political subdivision thereof shall within two days after taking such action notify the Labor Commissioner in writing of the name of the contractor or subcontractor, the project involved, the location of the work, the violations involved, the date the contract was terminated, and steps taken to collect the required wages.

(c) The Labor Commissioner may make complaint to the proper prosecuting authorities for the violation of any provision of subsection (b).

(d) For the purpose of predetermining the prevailing rate of wage on an hourly basis and the amount of payment or contributions paid or payable on behalf of each employee to any employee welfare fund, as defined in subsection (h), in each town where such contract is to be performed, the Labor Commissioner shall (1) hold a hearing at any required time to determine the prevailing rate of wages on an hourly basis and the amount of payment or contributions paid or payable on behalf of each person to any employee welfare fund, as defined in subsection (h), upon any public work within any specified area, and shall establish classifications of skilled, semiskilled and ordinary labor, or (2) adopt and use such appropriate and applicable prevailing wage rate determinations as have been made by the Secretary of Labor of the United States under the provisions of the Davis-Bacon Act, as amended.

(e) The Labor Commissioner shall determine the prevailing rate of wages on an hourly basis and the amount of payment or contributions paid or payable on behalf of such employee to any employee welfare fund, as defined in subsection (h), in each locality where any such public work is to be constructed, and the agent empowered to let such contract shall contact the Labor Commissioner, at least ten but not more than twenty days prior to the date such contracts will be advertised for bid, to ascertain the proper rate of wages and amount of employee welfare fund payments or contributions and shall include such rate of wage on an hourly basis and the amount of payment or contributions paid or payable on behalf of each employee to any employee welfare fund, as defined in subsection (h), or in lieu thereof the amount to be paid directly to each employee for such payment or contributions as provided in subsection (a) for all classifications of

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labor in the proposal for the contract. The rate of wage on an hourly basis and the amount of payment or contributions to any employee welfare fund, as defined in subsection (h), or cash in lieu thereof, as provided in subsection (a), shall, at all times, be considered as the minimum rate for the classification for which it was established. Prior to the award of any contract subject to the provisions of this section, such agent shall certify in writing to the Labor Commissioner 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. Upon the award of any contract subject to the provisions of this section, the contractor to whom such contract is awarded shall certify, under oath, to the Labor Commissioner the pay scale to be used by such contractor and any of his subcontractors for work to be performed under such contract.

(f) Each employer subject to the provisions of this section or section 31-54 shall (1) keep, maintain and preserve such records relating to the wages and hours worked by each employee and a schedule of the occupation or work classification at which each mechanic, laborer or workman on the project is employed during each work day and week in such manner and form as the Labor Commissioner establishes to assure the proper payments due to such employees or employee welfare funds under this section or section 31-54, and (2) submit monthly to the contracting agency a certified payroll which shall consist of a complete copy of such records accompanied by a statement signed by the employer which indicates that (A) such records are correct; (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 subsection (h) of this section, 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 (d) of this section, and not less than those required by the contract to be paid; (C) the employer has complied with the provisions of this section and section 31-54; (D)

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each such employee is covered by a workers' compensation insurance policy for the duration of his employment, which shall be demonstrated by submitting to the contracting agency the name of the workers' compensation insurance carrier covering each such employee, the effective and expiration dates of each policy and each policy number; (E) the employer does not receive kickbacks, as defined in 41 USC 52, from any employee or employee welfare fund; and (F) pursuant to the provisions of section 53a-157a, 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. This subsection shall not be construed to prohibit a general contractor from relying on the certification of a lower tier subcontractor, provided the general contractor shall not be exempted from the provisions of section 53a- 157a if he knowingly relies upon a subcontractor's false certification. Notwithstanding the provisions of section 1-210, the certified payroll shall be considered a public record and every person shall have the right to inspect and copy such records in accordance with the provisions of section 1-212. The provisions of sections 31-59(a), 31-59(b), 31- 66 and 31-69 which are not inconsistent with the provisions of this section or section 31-54 shall apply to this section. Failing to file a certified payroll pursuant to subdivision (2) of this subsection 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.

(g) The provisions of this section shall not apply where the total cost of all work to be performed by all contractors and subcontractors in connection with new construction of any public works project is less than four hundred thousand dollars or where the total cost of all work to be performed by all contractors and subcontractors in connection with any remodeling, refinishing, refurbishing, rehabilitation, alteration or repair of any public works project is less than one hundred thousand dollars.

(h) As used in this section, section 31-54 and section 31-89a, "employee welfare fund" means any trust fund established by one or more employers and one or

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more labor organizations or one or more other third parties not affiliated with the employers to provide from moneys in the fund, whether through the purchase of insurance or annuity contracts or otherwise, benefits under an employee welfare plan; provided such term shall not include any such fund where the trustee, or all of the trustees, are subject to supervision by the Commissioner of Banking of this state or any other state or the Comptroller of the Currency of the United States or the Board of Governors of the Federal Reserve System, and "benefits under an employee welfare plan" means one or more benefits or services under any plan established or maintained for employees or their families or dependents, or for both, including, but not limited to, medical, surgical or hospital care benefits; benefits in the event of sickness, accident, disability or death; benefits in the event of unemployment, or retirement benefits.

(1949 Rev., S. 7372; March, 1950, S. 3018d, 3019d; 1961, P.A. 486, S. 1; 1963, P.A. 240, S. 1; 1967, P.A. 494, S. 1; P.A. 73-566, S. 1; P.A. 75-90, S. 1, 2; P.A. 77-442; 77-614, S. 161, 610; P.A. 79-325; P.A. 80-482, S. 200, 348; P.A. 83-537, S. 2; P.A. 85-355, S. 1-3; P.A. 87-9, S. 2, 3; P.A. 91-74, S. 1; 91-407, S. 40, 42; P.A. 93-392, S. 1; 93-435, S. 65, 95; P.A. 97-263, S. 14.)

History: 1961 act added provisions re political subdivision and employee welfare funds and added Subsecs. (f) and (g) re records and schedules which must be kept and re inapplicability of provisions where total cost of work is less than five thousand dollars; 1963 act substituted "alteration" for "remodeling" and "public works project" for references to public buildings; 1967 act added Subsec. (h) defining "employee welfare fund" and "benefits under an employee welfare plan" and substituted references to Subsec. (h) for references to Sec. 31-78; P.A. 73-566 amended Subsec. (b) to add provisions re termination of contract when discovery is made that employees are being paid less than the amount required under contract; P.A. 75-90 added references to remodeling, refurbishing, refurnishing and rehabilitation of projects in Subsecs. (a), (b) and (g); P.A. 77-442 added Subdiv. (2) in Subsec. (d) requiring commissioner to adopt and use appropriate and applicable prevailing wage rate determinations made by U.S.

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Secretary of Labor; P.A. 77-614 replaced bank commissioner with banking commissioner within the department of business regulation and made banking department the division of banking within that department, effective January 1, 1979; P.A. 79-325 replaced former provisions of Subsec. (g) which had rendered section inapplicable where total cost of project is less than fifty thousand dollars with provision rendering provisions inapplicable to new construction projects where total cost is less than fifty thousand dollars and to remodeling, refinishing etc. projects where total cost is less than ten thousand dollars; P.A. 80-482 restored banking division as independent department with commissioner as its head following abolition of business regulation department; P.A. 83-537 amended Subsec. (e) to require the local agent to contact the labor commissioner, to ascertain proper wage rates and payment levels, at least ten but not more than twenty days prior to putting the contract out to bid; P.A. 85-355 amended Subsec. (e) to require the agent to certify the total cost of work to be done on the public works project, and to require the contractor to certify the pay scale to be used on the project after having been awarded the contract and amended Subsec. (g) to make the prevailing wage requirements inapplicable to projects costing less than two hundred thousand dollars if new construction, or to projects costing less than fifty thousand dollars if remodeling; pursuant to P.A. 87-9 "banking commissioner" was changed editorially by the Revisors to "commissioner of banking"; P.A. 91-74 made a technical change in Subsec. (a), amended Subsec. (b) to increase fines from one hundred dollars to not less than two thousand five hundred dollars but not more than five thousand dollars and amended Subsec. (g) by changing the cost thresholds from two hundred thousand dollars to four hundred thousand dollars and from fifty thousand dollars to one hundred thousand dollars; P.A. 91-407 changed effective date of P.A. 91-74 from October 1, 1991, to July 1, 1991; P.A. 93-392 deleted reference to Sec. 51-53 in Subsec. (a) and added Subdiv. (2) in Subsec. (f) requiring employers subject to the state prevailing wage laws to file weekly certified payrolls with the contracting public agency and designating such certified payrolls as public

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records; P.A. 93-435 made technical change in Subsec. (a) to reinstate language in existence prior to amendment made by P.A. 93-392, effective June 28, 1993; P.A. 97-263 amended Subsec. (b) to add Subdivs. (1) and (2) disqualifying bidders from bidding on contracts with the state until certain requirements are met and to add provision permitting the withholding of payment of money to the contractor or subcontractor, amended Subsec. (d) to change "employee" to "person", amended Subsec. (f) to require monthly submission of certified payroll and to make failure to file a certified payroll a class D felony, and amended Subsec. (h) by redefining "employee welfare fund" to include one or more other third parties not affiliated with the employers.

See Sec. 7-112 re applicability of section to construction, remodeling or repair of public buildings by state agencies and political subdivisions of the state.

See Sec. 31-53a re (1) payments to mechanics, laborers and workmen from accrued payments withheld under the terms of a contract terminated pursuant to subsection (b) of this section, and their right of action and intervention, (2) the Labor Commissioner's duty to prepare and distribute lists of persons or firms found to be in violation of this section or barred from federal contracts pursuant to the Davis-Bacon Act, and (3) limitation on awarding of contracts to such persons or firms.

# ACORD™ CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

PRODUCER	THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW.	
INSURED	<b>INSURERS AFFORDING COVERAGE</b> INSURER A: INSURER B: INSURER C: INSURER D: INSURER E:	<b>NAIC #</b>

## COVERAGES

THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. AGGREGATE LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	ADD'L INSRD	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YY)	POLICY EXPIRATION DATE (MM/DD/YY)	LIMITS
		<b>GENERAL LIABILITY</b> <input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS MADE <input checked="" type="checkbox"/> OCCUR <input checked="" type="checkbox"/> Owner's & Contractor's Prot. <hr/> GEN'L AGGREGATE LIMIT APPLIES PER: <input type="checkbox"/> POLICY <input checked="" type="checkbox"/> PRO-JECT <input type="checkbox"/> LOC				EACH OCCURRENCE \$ 1,000,000 DAMAGE TO RENTED PREMISES (Ea occurrence) \$ MED EXP (Any one person) \$ 10,000 PERSONAL & ADV INJURY \$ 1,000,000 GENERAL AGGREGATE \$ 2,000,000 PRODUCTS - COMP/OP AGG \$ 2,000,000
		<b>AUTOMOBILE LIABILITY</b> <input checked="" type="checkbox"/> ANY AUTO <input type="checkbox"/> ALL OWNED AUTOS <input type="checkbox"/> SCHEDULED AUTOS <input type="checkbox"/> HIRED AUTOS <input type="checkbox"/> NON-OWNED AUTOS				COMBINED SINGLE LIMIT (Ea accident) \$ 1,000,000 BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$
		<b>GARAGE LIABILITY</b> <input type="checkbox"/> ANY AUTO				AUTO ONLY - EA ACCIDENT \$ OTHER THAN EA ACC \$ AUTO ONLY: AGG \$
		<b>EXCESS/UMBRELLA LIABILITY</b> <input type="checkbox"/> OCCUR <input type="checkbox"/> CLAIMS MADE <input type="checkbox"/> DEDUCTIBLE RETENTION \$				EACH OCCURRENCE \$ AGGREGATE \$ \$ \$ \$
		<b>WORKERS COMPENSATION AND EMPLOYERS' LIABILITY</b> ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? <input checked="" type="checkbox"/> Yes If yes, describe under SPECIAL PROVISIONS below				<input checked="" type="checkbox"/> WC STATU-TORY LIMITS <input type="checkbox"/> OTH-ER E.L. EACH ACCIDENT \$ 100,000 E.L. DISEASE - EA EMPLOYEE \$ 100,000 E.L. DISEASE - POLICY LIMIT \$ 500,000
		<b>OTHER</b>				

### DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES / EXCLUSIONS ADDED BY ENDORSEMENT / SPECIAL PROVISIONS

(Indicate the Project and Project number in this space.)

The State of Connecticut is endorsed as an Additional Insured on all of the above policies except Auto-Mobile Liability and Workers' Compensation. If Builders Risk is indicated, The State of Connecticut is endorsed as Loss Payee

### CERTIFICATE HOLDER

State of Connecticut  
 Department of Children and Families  
 505 Hudson Street  
 Hartford, CT 06106

### CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, THE ISSUING INSURER WILL ENDEAVOR TO MAIL 30 DAYS WRITTEN NOTICE TO THE CERTIFICATE HOLDER NAMED TO THE LEFT, BUT FAILURE TO DO SO SHALL IMPOSE NO OBLIGATION OR LIABILITY OF ANY KIND UPON THE INSURER, ITS AGENTS OR REPRESENTATIVES.

AUTHORIZED REPRESENTATIVE

## **IMPORTANT**

If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

## **DISCLAIMER**

The Certificate of Insurance on the reverse side of this form does not constitute a contract between the issuing insurer(s), authorized representative or producer, and the certificate holder, nor does it affirmatively or negatively amend, extend or alter the coverage afforded by the policies listed thereon.

## Agreement Between Owner and Contractor

### Owner

Department of Children and Families  
Albert J Solnit Children's Center, South Campus  
915 River Road  
Middletown, CT 06457

### Contractor

### Project

JJ Girls Program Building Modifications  
DCF No.:28-CJTS-154 (BI-YS-174)

---

The Owner and the Contractor for the considerations named herein as set forth below:

1. **Agreement Date:**
2. **Contract Sum:**
3. **Payment Schedule:**  
Owner will pay Contractor one payment, less 10% retention.  
Retention will be released 30 days after completion and when all close-out documents have been received and approved.
4. **Documentation required for payment:**  
Application for Payment (detailed invoice) of work completed to date. Waiver of lien for the amount of payment due. Supporting documents from suppliers and subcontractors. Inspection reports, signed approving work performed (where applicable). Signed change orders.
5. **Completion Schedule:** Start and Completion Date: Determined by the "Notice to Proceed".
  - a. Late Completion, the Owner will penalize the Contractor:  
\$350 per calendar day
6. **Scope of Work:**  
Perform building modification as described within the Contract Documents.
7. **Work NOT to be performed:**  
n/a

8. **Licenses, permits and bonds to be supplied and paid by the as follows:**  
Contractor to acquire and pay for permits and bonds related to the work to be performed.
9. **Warranty:**  
Contractor's Labor and Material warranty, 18 months.  
Manufacturer's warranty, where applicable.
10. **Insurance Requirements:**  
Certificate of Insurance, naming the owner as ADDITIONAL INSURED.  
Worker's Compensation and General Liability in the amounts as stated in the project specifications.  
Vehicle Coverage as stated in the project specifications.
11. **General Provisions:** Contractor is to include all labor and approved materials, appliances and services of every kind necessary for the execution of work. Contractor shall re-execute any work that fails to conform to the requirements of the contract. Contractor will remove all of his construction debris from the site and leave premises in broom-cleaned condition. All work shall be completed in a workmanship like manner and in accordance with all codes and other applicable laws. To the extent required by law, all work shall be performed by individuals duly licensed and authorized by law to perform said work. Contractor has the right to let other contracts in connection with the work contracted for so long as the comply with all the requirements of the documents. Contractor shall adequately protect the work, adjacent property and the public and shall be responsible for any damages or injury due to his act or neglect. Change Orders shall be in writing and signed by both parties to this agreement.
12. Contract Documents include this Agreement and others as follows:  
Plans dated 11/22/2013  
Specifications dated 11/22/2013  
Addendum none

13. See attachment(s):  yes  no

Owner

Contractor:

By: \_\_\_\_\_ Date \_\_\_\_\_ By: \_\_\_\_\_ Date \_\_\_\_\_

\_\_\_\_\_  
Name and Title

\_\_\_\_\_  
Name and Title

\_\_\_\_\_  
Witness

\_\_\_\_\_  
Witness

\_\_\_\_\_  
Name and Title

\_\_\_\_\_  
Name and Title

## LABOR AND MATERIAL BOND

### Know all men by these presents

**THAT** \_\_\_\_\_ of the  
Town of \_\_\_\_\_, Country of \_\_\_\_\_ and  
State of \_\_\_\_\_, as Principal (hereinafter called the Principal), and \_\_\_\_\_

---

(a surety company authorized to transact business in the State of Connecticut), as Surety (hereinafter called the Surety), are held and firmly bound unto the State of Connecticut (hereinafter called the Obligee) in the full penal sum of \_\_\_\_\_  
(\$ \_\_\_\_\_) Dollars, lawful money of the United States, to be paid to said State of Connecticut, to the which payment well and truly to be made and done, the said Principal binds himself, his heirs, executors, administrators and assigns (or itself, its successors and assigns), and the said Surety binds itself its successors and assigns jointly and severally firmly by these presents.

Signed, sealed and delivered this \_\_\_\_\_ day of \_\_\_\_\_ A. D. 20 \_\_\_\_\_

### THE CONDITION OF THIS OBLIGATION IS SUCH THAT

*WHEREAS* said Principal will enter into a certain written contract with said Obligee, to be dated the \_\_\_\_\_ day of \_\_\_\_\_ A. D. 20 \_\_\_\_\_ which written contract shall provide for the following:

which contract, including any hereafter made extension, modification or alteration thereof is hereby referred to, incorporated in and made a part of this bond as though herein fully set forth.

**NOW, THEREFORE**, if the said Principal shall promptly pay for all materials furnished and labor supplied or performed in the prosecution of the work included in and under the aforesaid contract, as it may be extended, modified or altered, whether or not the material or labor enters into and becomes a component part of the real asset, then this obligation shall be null and void, otherwise it shall remain and be in full force and effect.

Any party, whether a subcontractor or otherwise, who furnishes materials or supplies or performs labor or services in the prosecution of the work under said contract, as it may be extended, modified or altered, and who is not paid therefore, may bring suit on this bond in the name of the person suing and prosecute the same to final execution and judgment for such sum or sums as may be justly due.

***IN TESTIMONY WHEREOF***, the said Principal has hereunto set his / its hand and seal, and the said Surety has caused this instrument to be signed by its attorney in fact and its corporate seal to be hereunto affixed, the day and year first written.

**Witnesses as to Principal**

SEAL

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

**,Its Duly Authorized**

\_\_\_\_\_  
(Print Name)

\_\_\_\_\_

\_\_\_\_\_  
(Print Name)

**Witnesses as to Surety**

SEAL

\_\_\_\_\_

by

\_\_\_\_\_  
**Its attorney in fact**

\_\_\_\_\_  
(Print Name)

\_\_\_\_\_

\_\_\_\_\_  
(Print Name)

## PERFORMANCE BOND

### Know all men by these presents

**THAT** \_\_\_\_\_ of the  
Town of \_\_\_\_\_, Country of \_\_\_\_\_ and  
State of \_\_\_\_\_, as Principal (hereinafter called the Principal), and \_\_\_\_\_

---

(a surety company authorized to transact business in the State of Connecticut), as Surety (hereinafter called the Surety), are held and firmly bound unto the State of Connecticut (hereinafter called the Obligee) in the full penal sum of \_\_\_\_\_  
(\$ \_\_\_\_\_) Dollars, lawful money of the United States, to be paid to said State of Connecticut, to the which payment well and truly to be made and done, the said Principal binds himself, his heirs, executors, administrators and assigns (or itself, its successors and assigns), and the said Surety binds itself its successors and assigns jointly and severally firmly by these presents.

Signed, sealed and delivered this \_\_\_\_\_ day of \_\_\_\_\_ A. D. 20 \_\_\_\_\_

#### THE CONDITION OF THIS OBLIGATION IS SUCH THAT

*WHEREAS* said Principal will enter into a certain written contract with said Obligee, to be dated the \_\_\_\_\_ day of \_\_\_\_\_ A. D. 20 \_\_\_\_\_ which written contract shall provide for the following:

which contract, including any hereafter made extension, modification or alteration thereof is hereby referred to, incorporated in and made a part of this bond as though herein fully set forth.

**NOW, THEREFORE**, if the said Principal shall well and truly keep, perform and execute all the terms, conditions and stipulations of said contract, as it may be extended, modified or altered, according to its provisions on his or its part to be kept and performed or shall indemnify and reimburse the Obligee for any loss that it may suffer through the failure of the Principal to faithfully observe and perform each and every obligation and duty imposed upon the Principal by the said contract, as it may be extended, modified or altered, at the time and in the manner therein specified, then this obligation shall be null and void, otherwise it shall remain and be in full force and effect.

Any such extension, modification or alteration or any forbearance on the part of either the Obligee or the Principal, one to the other, shall not in any way release the Principal and/or the Surety, their heirs, executors, administrators, successors or assigns from liability hereunder, notice to the Surety of any such extension, modification, alteration or forbearance being hereby specifically and absolutely waived.

***IN TESTIMONY WHEREOF***, the said Principal has hereunto set his / its hand and seal, and the said Surety has caused this instrument to be signed by its attorney in fact and its corporate seal to be hereunto affixed, the day and year first written.

**Witnesses as to Principal**

SEAL

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

**,Its Duly Authorized**

\_\_\_\_\_  
(Print Name)

\_\_\_\_\_

\_\_\_\_\_  
(Print Name)

**Witnesses as to Surety**

SEAL

\_\_\_\_\_

**by \_\_\_\_\_  
Its attorney in fact**

\_\_\_\_\_  
(Print Name)

\_\_\_\_\_

\_\_\_\_\_  
(Print Name)

DIVISION 0

Bidding Requirements, Contract Forms, and Conditions of the Contract

Section 00415 ó Performance Bond

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**COMMISSION ON HUMAN RIGHTS AND OPPORTUNITIES  
CONTRACT COMPLIANCE REGULATIONS  
NOTIFICATION TO BIDDERS**

The contract to be awarded is subject to contract compliance requirements mandated by Sections 4a-60 and 4a-60a of the Connecticut General Statutes; and, when the awarding agency is the State, Sections 46a-71(d) and 46a-81i(d) of the Connecticut General Statutes. There are Contract Compliance Regulations codified at Section 46a-68j-21 through 43 of the Regulations of Connecticut State Agencies, which establish a procedure for awarding all contracts covered by Sections 4a-60 and 46a-71(d) of the Connecticut General Statutes.

According to Section 46a-68j-30(9) of the Contract Compliance Regulations, every agency awarding a contract subject to the contract compliance requirements has an obligation to “aggressively solicit the participation of legitimate minority business enterprises as bidders, contractors, subcontractors and suppliers of materials.” “Minority business enterprise” is defined in Section 4a-60 of the Connecticut General Statutes as a business wherein fifty-one percent or more of the capital stock, or assets belong to a person or persons: “(1) Who are active in daily affairs of the enterprise; (2) who have the power to direct the management and policies of the enterprise; and (3) who are members of a minority, as such term is defined in subsection (a) of Section 32-9n.” “Minority” groups are defined in Section 32-9n of the Connecticut General Statutes as “(1) Black Americans . . . (2) Hispanic Americans . . . (3) persons who have origins in the Iberian Peninsula . . . (4) Women . . . (5) Asian Pacific Americans and Pacific Islanders; (6) American Indians . . .” An individual with a disability is also a minority business enterprise as provided by Section 4a-60g of the Connecticut General Statutes. The above definitions apply to the contract compliance requirements by virtue of Section 46a-68j-21(11) of the Contract Compliance Regulations.

The awarding agency will consider the following factors when reviewing the bidder’s qualifications under the contract compliance requirements:

- (a) the bidder’s success in implementing an affirmative action plan;
- (b) the bidder’s success in developing an apprenticeship program complying with Sections 46a-68-1 to 46a-68-17 of the Administrative Regulations of Connecticut State Agencies, inclusive;
- (c) the bidder’s promise to develop and implement a successful affirmative action plan;
- (d) the bidder’s submission of employment statistics contained in the “Employment Information Form”, indicating that the composition of its workforce is at or near parity when compared to the racial and sexual composition of the workforce in the relevant labor market area; and
- (e) the bidder’s promise to set aside a portion of the contract for legitimate minority business enterprises. See Section 46a-68j-30(10)(E) of the Contract Compliance Regulations.

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**INSTRUCTIONS AND OTHER INFORMATION**

The following BIDDER CONTRACT COMPLIANCE MONITORING REPORT must be completed in full, signed, and submitted with the bid for this contract. The contract awarding agency and the Commission on Human Rights and Opportunities will use the information contained thereon to determine the bidders compliance to Sections 4a-60 and 4a-60a CONN. GEN. STAT., and Sections 46a-68j-23 of the Regulations of Connecticut State Agencies regarding equal employment opportunity, and the bidders’ good faith efforts to include minority business enterprises as subcontractors and suppliers for the work of the contract.

**1) Definition of Small Contractor**

Section 4a-60g CONN. GEN. STAT. defines a small contractor as a company that has been doing business under the same management and control and has maintained its principal place of business in Connecticut for a one year period immediately prior to its application for certification under this section, had gross revenues not exceeding ten million dollars in the most recently completed fiscal year, and at least fifty-one percent of the ownership of which is held by a person or persons who are active in the daily affairs of the company, and have the power to direct the management and policies of the company, except that a nonprofit corporation shall be construed to be a small contractor if such nonprofit corporation meets the requirements of subparagraphs (A) and (B) of subdivision 4a-60g CONN. GEN. STAT.

2) Description of Job Categories (as used in Part IV Bidder Employment Information) (Page 2)

<p><b>MANAGEMENT:</b> Managers plan, organize, direct, and control the major functions of an organization through subordinates who are at the managerial or supervisory level. They make policy decisions and set objectives for the company or departments. They are not usually directly involved in production or providing services. Examples include top executives, public relations managers, managers of operations specialties (such as financial, human resources, or purchasing managers), and construction and engineering managers.</p> <p><b>BUSINESS AND FINANCIAL OPERATIONS:</b> These occupations include managers and professionals who work with the financial aspects of the business. These occupations include accountants and auditors, purchasing agents, management analysts, labor relations specialists, and budget, credit, and financial analysts.</p> <p><b>COMPUTER SPECIALISTS:</b> Professionals responsible for the computer operations within a company are grouped in this category. Examples of job titles in this category include computer programmers, software engineers, database administrators, computer scientists, systems analysts, and computer support specialists</p> <p><b>ARCHITECTURE AND ENGINEERING:</b> Occupations related to architecture, surveying, engineering, and drafting are included in this category. Some of the job titles in this category include electrical and electronic engineers, surveyors, architects, drafters, mechanical engineers, materials engineers, mapping technicians, and civil engineers.</p> <p><b>OFFICE AND ADMINISTRATIVE SUPPORT:</b> All clerical-type work is included in this category. These jobs involve the preparing, transcribing, and preserving of written communications and records; collecting accounts; gathering and distributing information; operating office machines and electronic data processing equipment; and distributing mail. Job titles listed in this category include telephone operators, payroll clerks, bill and account collectors, customer service representatives, files clerks, dispatchers, shipping clerks, secretaries and administrative assistants, computer operators, mail clerks, and stock clerks.</p>	<p><b>BUILDING AND GROUNDS CLEANING AND MAINTENANCE:</b> This category includes occupations involving landscaping, housekeeping, and janitorial services. Job titles found in this category include supervisors of landscaping or housekeeping, janitors, maids, grounds maintenance workers, and pest control workers.</p> <p><b>CONSTRUCTION AND E TRACTION:</b> This category includes construction trades and related occupations. Job titles found in this category include boilermakers, masons (all types), carpenters, construction laborers, electricians, plumbers (and related trades), roofers, sheet metal workers, elevator installers, hazardous materials removal workers, paperhangers, and painters. Paving, surfacing, and tamping equipment operators; drywall and ceiling tile installers; and carpet, floor and tile installers and finishers are also included in this category. First line supervisors, foremen, and helpers in these trades are also grouped in this category..</p> <p><b>INSTALLATION, MAINTENANCE AND REPAIR:</b> Occupations involving the installation, maintenance, and repair of equipment are included in this group. Examples of job titles found here are heating, ac, and refrigeration mechanics and installers; telecommunication line installers and repairers; heavy vehicle and mobile equipment service technicians and mechanics; small engine mechanics; security and fire alarm systems installers; electric/electronic repair, industrial, utility and transportation equipment; millwrights; riggers; and manufactured building and mobile home installers. First line supervisors, foremen, and helpers for these jobs are also included in the category.</p> <p><b>MATERIAL MOVING WORKERS:</b> The job titles included in this group are Crane and tower operators; dredge, excavating, and lading machine operators; hoist and winch operators; industrial truck and tractor operators; cleaners of vehicles and equipment; laborers and freight, stock, and material movers, hand; machine feeders and offbearers; packers and packagers, hand; pumping station operators; refuse and recyclable material collectors; and miscellaneous material moving workers.</p>
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3) Definition of Racial and Ethnic Terms (as used in Part IV Bidder Employment Information)

<p><u>White</u> (not of Hispanic Origin)- All persons having origins in any of the original peoples of Europe, North Africa, or the Middle East.</p> <p><u>Black</u>(not of Hispanic Origin)- All persons having origins in any of the Black racial groups of Africa.</p> <p><u>Hispanic</u>- All persons of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race.</p>	<p><u>Asian or Pacific Islander</u>- All persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian subcontinent, or the Pacific Islands. This area includes China, India, Japan, Korea, the Philippine Islands, and Samoa.</p> <p><u>American Indian or Alaskan Native</u>- All persons having origins in any of the original peoples of North America, and who maintain cultural identification through tribal affiliation or community recognition.</p>
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# BIDDER CONTRACT COMPLIANCE MONITORING REPORT

## PART I - Bidder Information

(Page 3)

Company Name Street Address City & State Chief Executive	Bidder Federal Employer Identification Number _____ Or Social Security Number _____
Major Business Activity (brief description)	Bidder Identification (response optional/definitions on page 1)  -Bidder is a small contractor. Yes__ No__ -Bidder is a minority business enterprise Yes__ No__ (If yes, check ownership category) Black__ Hispanic__ Asian American__ American Indian/Alaskan Native__ Iberian Peninsula__ Individual(s) with a Physical Disability__ Female__
Bidder Parent Company (If any)	- Bidder is certified as above by State of CT Yes__ No__
Other Locations in Ct. (If any)	- DAS Certification Number _____

## PART II - Bidder Nondiscrimination Policies and Procedures

1. Does your company have a written Affirmative Action/Equal Employment Opportunity statement posted on company bulletin boards? <span style="float: right;">Yes__ No__</span>	7. Do all of your company contracts and purchase orders contain non-discrimination statements as required by Sections 4a-60 & 4a-60a Conn. Gen. Stat.? <span style="float: right;">Yes__ No__</span>
2. Does your company have the state-mandated sexual harassment prevention in the workplace policy posted on company bulletin boards? <span style="float: right;">Yes__ No__</span>	8. Do you, upon request, provide reasonable accommodation to employees, or applicants for employment, who have physical or mental disability? <span style="float: right;">Yes__ No__</span>
3. Do you notify all recruitment sources in writing of your company's Affirmative Action/Equal Employment Opportunity employment policy? <span style="float: right;">Yes__ No__</span>	9. Does your company have a mandatory retirement age for all employees? <span style="float: right;">Yes__ No__</span>
4. Do your company advertisements contain a written statement that you are an Affirmative Action/Equal Opportunity Employer? <span style="float: right;">Yes__ No__</span>	10. If your company has 50 or more employees, have you provided at least two (2) hours of sexual harassment training to all of your supervisors? <span style="float: right;">Yes__ No__ NA__</span>
5. Do you notify the Ct. State Employment Service of all employment openings with your company? <span style="float: right;">Yes__ No__</span>	11. If your company has apprenticeship programs, do they meet the Affirmative Action/Equal Employment Opportunity requirements of the apprenticeship standards of the Ct. Dept. of Labor? <span style="float: right;">Yes__ No__ NA__</span>
6. Does your company have a collective bargaining agreement with workers? <span style="float: right;">Yes__ No__</span> 6a. If yes, do the collective bargaining agreements contain non-discrimination clauses covering all workers? <span style="float: right;">Yes__ No__</span>  6b. Have you notified each union in writing of your commitments under the nondiscrimination requirements of contracts with the state of Ct? <span style="float: right;">Yes__ No__</span>	12. Does your company have a written affirmative action Plan? Yes__ No__ If no, please explain.  13. Is there a person in your company who is responsible for equal employment opportunity? If yes, give name and phone number. <span style="float: right;">Yes__ No__</span> _____ _____

## Part III - Bidder Subcontracting Practices

1. Will the work of this contract include subcontractors or suppliers? Yes__ No__  1a. If yes, please list all subcontractors and suppliers and report if they are a small contractor and/or a minority business enterprise. (defined on page 1 / use additional sheet if necessary)	1b. Will the work of this contract require additional subcontractors or suppliers other than those identified in 1a. above? <span style="float: right;">Yes__ No__</span>
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PLEASE COMPLETE REVERSE SIDE

**PART IV - Bidder Employment Information**

Date:

(Page 4)

JOB CATEGORY	OVERALL TOTALS	WHITE (not of Hispanic origin)		BLACK (not of Hispanic origin)		HISPANIC		ASIAN or PACIFIC ISLANDER		AMERICAN INDIAN or ALASKAN NATIVE	
		Male	Female	Male	Female	Male	Female	Male	Female	male	female
Management											
Business & Financial Ops											
Computer Specialists											
Architecture/Engineering											
Office & Admin Support											
Bldg/ Grounds Cleaning/Maintenance											
Construction & Extraction											
Installation , Maintenance & Repair											
Material Moving Workers											
TOTALS ABOVE											
Total One Year Ago											
FORMAL ON THE JOB TRAINEES (ENTER FIGURES FOR THE SAME CATEGORIES AS ARE SHOWN ABOVE)											
Apprentices											
Trainees											

**PART V - Bidder Hiring and Recruitment Practices**

1. Which of the following recruitment sources are used by you? (Check yes or no, and report percent used)				2. Check (X) any of the below listed requirements that you use as a hiring qualification  (X)		3. Describe below any other practices or actions that you take which show that you hire, train, and promote employees without discrimination	
SOURCE	YES	NO	% of applicants provided by source				
State Employment Service					Work Experience		
Private Employment Agencies					Ability to Speak or Write English		
Schools and Colleges					Written Tests		
Newspaper Advertisement					High School Diploma		
Walk Ins					College Degree		
Present Employees					Union Membership		
Labor Organizations					Personal Recommendation		
Minority/Community Organizations					Height or Weight		
Others (please identify)					Car Ownership		
					Arrest Record		
					Wage Garnishments		

Certification (Read this form and check your statements on it CAREFULLY before signing). I certify that the statements made by me on this BIDDER CONTRACT COMPLIANCE MONITORING REPORT are complete and true to the best of my knowledge and belief, and are made in good faith. I understand that if I knowingly make any misstatements of facts, I am subject to be declared in non-compliance with Section 4a-60, 4a-60a, and related sections of the CONN. GEN. STAT.

(Signature)	(Title)	(Date Signed)	(Telephone)
-------------	---------	---------------	-------------

**Affidavit for Certification of Subcontractors  
as Minority Business Enterprises (MBE)**  
*(to be completed only for subcontractors not certified as MBE's  
by the Department of Administrative Services)*

To document the **Agood faith efforts@** of the below named state contractor to include minority business enterprises as subcontractors (for services and/or material suppliers) on the state contract also identified below, I certify that the following subcontractors meet the criteria for minority business enterprises set forth in CONN. GEN. STAT. § 4a-60(b). I attest that each named minority business enterprise will be contracted by the named state contractor to participate on the identified state contract as a subcontractor.

The subcontractors being identified to be bona fide minority business enterprises are:

Subcontractor Name	Complete Address	Subcontractor's Principal Officer's Name

(use additional sheets as necessary)

I further certify and affirm that I have read and understand the contract compliance requirements codified at CONN. GEN. STAT. Sections 4a-60 & 46a-71(d), and the Contract Compliance Regulations codified at Sections 46a-68j-21 through 43 of the Administrative Regulations of Connecticut State Agencies. I also understand that any false statements made herein are punishable by law.

\_\_\_\_\_ state contractor legal name

\_\_\_\_\_ type full printed name and title of official  
submitting this affidavit on behalf of  
contractor

\_\_\_\_\_ state contract number

\_\_\_\_\_ signature of official

\_\_\_\_\_ state contract awarding agency

\_\_\_\_\_ date of affidavit

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

\_\_\_\_\_  
Notary Public/Commissioner of the Superior Court  
My Commission expires \_\_\_\_\_

**STATE OF CONNECTICUT  
COMMISSION ON HUMAN RIGHTS AND OPPORTUNITIES**

**NOTICE CONCERNING CONTRACT COMPLIANCE RESPONSIBILITIES**

TO ALL LABOR UNIONS, WORKER-S REPRESENTATIVES AND VENDORS:

Any contract this contractor has with the State of Connecticut or political subdivisions of the state other than municipalities shall be performed in accordance with CONN. GEN. STAT. Section 4a-60 and Section 4a-60a.

This means that this contractor:

1. Agrees to provide the Commission on Human Rights and Opportunities (CHRO) with any information concerning this contractor's employment practices and procedures which relates to our responsibilities under CONN. GEN. STAT. Sections 4a-60 or 46a-56 or Section 4a-60a.; and
2. Agrees to include the provisions of CONN. GEN. STAT. Section 46a-60(a) and Section 4a-60a in each and every subcontract and purchase order and to take whatever action the CHRO deems necessary to enforce these provisions.

WITH REGARD TO RACE, COLOR, RELIGIOUS CREED, AGE, MARITAL STATUS, NATIONAL ORIGIN, ANCESTRY, SEX, MENTAL RETARDATION OR PHYSICAL DISABILITY, this means that this contractor:

1. Shall not discriminate or permit discrimination against anyone;
2. Shall take affirmative action so that persons applying for employment are hired on the basis of job-related qualifications and that employees once hired are treated without regard to their race, color, religious creed, age, marital status, national origin, ancestry, sex, mental retardation or physical disability, unless the contractor can show that the disability prevents performance of the work involved;
3. Shall state in all advertisements for employees that it is an affirmative action-equal opportunity employer@;
4. Shall comply with CONN. GEN. STAT. Sections 4a-60, 46a-68e and 46a-68f and with each regulation or relevant order issued by the CHRO under CONN. GEN. STAT. Sections 46a-56, 46a-68e and 46a-68f; and
5. Shall make, if the contract is a public works contract, good faith efforts to employ minority business enterprises as subcontractors and suppliers of materials.

WITH REGARD TO SEXUAL ORIENTATION, WHICH INCLUDES HOMOSEXUALITY, BISEXUALITY AND HETEROSEXUALITY:

1. The contractor will not discriminate or permit discrimination against anyone, and employees will be treated without regard to their sexual orientation once employed; and
2. The contractor agrees to fully comply with Section 4a-60a and each regulation or relevant order issued by the CHRO under CONN. GEN. STAT. Section 46a-56.

Persons having questions about this notice or their rights under the law are urged to contact the:

**COMMISSION ON HUMAN RIGHTS AND OPPORTUNITIES  
DIVISION OF AFFIRMATIVE ACTION, MONITORING & CONTRACT COMPLIANCE**

21 Grand Street  
Hartford, Connecticut 06106  
(860) 541-3400

COPIES OF THIS NOTICE SHALL BE POSTED IN CONSPICUOUS PLACES  
AVAILABLE TO ALL EMPLOYEES AND APPLICANTS FOR EMPLOYMENT

# **Informational Bulletin**

## **THE 10-HOUR OSHA CONSTRUCTION SAFETY AND HEALTH COURSE, PROGRAM OR TRAINING**

(Applicable to public works contracts as described by Conn. Gen. Stat. § 31-53(g)  
entered into *a* , )

- (1) This requirement was created by Public Act No. 08-83, which is codified in Section 31-53b of the Connecticut General Statutes;
- (2) The course, program or training is required for public works contracts as described by Conn. Gen. Stat. § 31-53(g) entered into on or after July 1, 2009;
- (3) It is required of private workers (not state or municipal workers) and apprentices who perform the work of a mechanic, laborer or worker pursuant to the classifications of labor under Conn. Gen. Stat. § 31-53 on a public works project as described by Conn. Gen. Stat. § 31-53(g);
- (4) The ten-hour construction safety and health course, program or training pertains to the ten-hour Outreach Course conducted in accordance with federal OSHA Training Institute standards, a new mining training program approved by the Federal Mine Safety and Health Administration in accordance with 30 C.F. R. 48, or, 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) Proof of course, program or training completion shall be demonstrated through the presentation of a “completion document” (card, document, certificate or other written record issued by federal OSHA or by the Federal Mine Safety and Health Administration) as defined by Conn. State Agencies Regs. § 31-53b-1(2).
- (8) Any completion document with an issuance date more than 5 years prior to the commencement date of the public works project shall not constitute proof of compliance with § 31-53b;
- (9) For each person who performs the duties of a mechanic, laborer or worker on a public works project, the contractor shall affix a copy of the completion document

- to the certified payroll required to be submitted to the contracting agency for such project on which such worker's name first appears;
- (10) Any mechanic, laborer or worker on a public works project found to be in non-compliance shall be subject to removal from the project 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;
  - (11) Any such employee who is determined to be in noncompliance may continue to work on a public works project for a maximum of fourteen consecutive calendar days while bringing his or her status into compliance;
  - (12) The statute provides the minimum standards required for the completion of a construction safety and health course, program or training by employees on public works contracts; any contractor can exceed these minimum requirements.;
  - (13) Regulations pertaining to § 31-53b are located at Conn. State Agencies Regs. §31-53b-1 s , and are effective May 5, 2009. The regulations are posted on the CTDOL website;
  - (14) Any questions regarding this statute or the regulations 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/wgmenu.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.**

**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.

## **SPECIAL CONDITIONS**

### **Outside Contractors Working with-in the Facility**

#### **POLICY:**

Any employee who plans to work on grounds must be cleared first by the Department of Children and Families. Social Security numbers are required for this link check. Please provide this information sufficiently in advance of construction. Any change in personnel during the project will require the same clearance. Any individual not clear to be on site will be escorted from the site.

**All** outside contractors will coordinate all work with the Maintenance Supervisor or designee before beginning work.

#### **PROTOCOL:**

- Before beginning work, all outside contractors shall check in at the Maintenance Office. The outside contractor will supply the following information: scope of work, authorization, duration and any pertinent information that is required. He will also sign in and be issued a visitors badge that must be displayed at all times.
- **All** contractors shall work as professionally as possible so as not to aggravate students, staff and visitors.
- **All** contractors shall follow the Facility no smoking policy.
- If special parking is required, permission shall be granted and coordinated through the Maintenance Supervisor office.
- **All** contractors are to maintain their work area as clean as possible while working and clean up thoroughly when finished.
- If any utilities or critical systems are to be interrupted, notification to the Maintenance Supervisor is mandatory. Engineering Department personnel will in turn assist.
- **All** contractors are expected to use courtesy. Loud and abusive language will not be tolerated.
- Contractors must provide assurance not to block corridors and fire exits.

Upon completion of daily activities contractors are asked to check out and report progress to the Maintenance Supervisor's office.

When working in the building and on the grounds, it is important to remember that Riverview is a State of Connecticut Facility.

- Contact between residents and workers is to be avoided whenever possible. It is difficult to predict the reactions of our students to novel situations or unknown persons. A worker and student should never be alone without staff.
- All workers must assure that tools and supplies are maintained in a secure manner. Tools should not be left unattended.
- Please do not report to resident areas.
- MSDS sheets must be provided for any materials used on grounds before materials are brought on grounds.
- Contractors must show proof of proper licenses before the start of work.

**SUBJECT: Outside Contractors - Hazard Communications Program**

**POLICY:**

It is the responsibility of the **Maintenance Supervisor** to provide on-site contractors with the following information:

- Hazardous chemicals to which they may be exposed while on the job site. Precautions the contractor and his/her employees may take to lessen the possibility of exposure to lead or asbestos by usage of appropriate protective measures.

- It is the responsibility of the **Maintenance Supervisor** to contact each contractor before work is started to gather and disseminate information concerning hazards that the contractor will bring into the workplace. MSDS sheets must be given to the **Maintenance Supervisor before materials are received on site.**

Compliance with the OSHA Hazard Communications Standard is certified by:

**Maintenance Supervisor**

**Date**

---

Signature

**Contractors**

**Date**

---

Signature



***Connecticut  
Department of Children and Families***

***Volume 1 of 1  
Project Manual***

***JJ Girls Program Building Modifications  
915 River Rd, Middletown, CT  
Project No.: BI-YS-174***

***Prepared By:  
The SLAM Collaborative  
80 Glastonbury Blvd.  
Glastonbury, CT  
06033***

***Joette Katz – Commissioner  
CT Department of Children and Families  
505 Hudson Street  
Hartford, CT 06106***

***November 22, 2013***

DOCUMENT 00 0105 - PROJECT DIRECTORY

**PROJECT:** JJ Girls Program Building Modifications  
915 River Road  
Middletown, CT

**OWNER** CT Department of Children and Families  
550 Hudson Street  
Hartford, CT 06106

**ARCHITECT,  
STRUCTURAL ENGINEER** THE S/L/A/M COLLABORATIVE  
80 Glastonbury Boulevard  
Glastonbury, CT 06033-4415  
Tel: (860) 657-8077

**MECHANICAL, ELECTRICAL  
& PLUMBING ENGINEERS** Consulting Engineering Services, Inc  
811 Middle Street  
Middletown, CT 06457  
Tel: (860) 623-1682

END OF DOCUMENT 00 0105



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Document 00 0101	Cover
Document 00 0105	Project Directory
Document 00 0110	Table of Contents
Document 00 0115	List of Drawings
Document 00 7213	General Conditions of the Contract

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Section 01 2500	Substitution Procedures
Section 01 2500	Substitution Request Form
Section 01 2605	Contract Mod Procedures
Section 01 2900	Payment Procedures
Section 01 3100	Project Management
Section 01 3305	Submittal Cover Sheet
Section 01 3350	Submittal Procedures
Section 01 4000	Quality Requirements
Section 01 4200	References
Section 01 5000	Temporary Facilities
Section 01 6000	Product Requirements
	Substitution Request Form
Section 01 7300	Execution
Section 01 7700	Closeout
Section 01 7823	O&M Data

**DIVISION 02 – SITE**

Section 02 4119	Selective Structure Demolition
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**DIVISIONS 03 - CONCRETE**

Section 03 3000	Cast in Place Concrete
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**DIVISIONS 04 - MASONRY**

Section 04 2200	Concrete Unit Masonry
Section 04 0513	Masonry Mortar

**DIVISIONS 05 - METALS**

Not Used

**DIVISION 06 - WOOD AND PLASTICS**

Section 06 1053            Miscellaneous Rough Carpentry  
Section 06 4115            Plastic Laminate Clad Architectural Cabinets

**DIVISION 07 - THERMAL AND MOISTURE PROTECTION**

Section 07 8413            Penetration Firestopping  
Section 07 9200            Joint Sealants

**DIVISION 08 - OPENINGS**

Section 08 0000            Door Schedule  
Section 08 1113            Hollow Metal Frames  
Section 08 1416            Flush Wood Doors  
Section 08 7100            Door Hardware  
Section 08 8000            Glazing

**DIVISION 09 – FINISHES**

Section 09 0000            Finish Schedule  
Section 09 2900            Gypsum Board  
Section 09 3000            Tiling  
Section 09 6513            Resilient Base and Accessories  
Section 09 6525            Resilient Tile Flooring  
Section 09 9123            Interior Painting

**DIVISION 10 - SPECIALTIES**

Section 10 2805            Toilet Accessories

**DIVISION 11 - EQUIPMENT**

Section 11 1960            Security Fasteners

**DIVISIONS 12 - 20**

Not used

**DIVISION 21 – FIRE PROTECTION**

Fire protection contracted by Owner under separate contract.

**DIVISION 22 - PLUMBING**

Section 22 000            Plumbing Specification on drawings

**DIVISION 23 - HVAC**

Section 23 0000            Mechanical Specification on drawings

**DIVISION 26 - ELECTRICAL**

Section 26 0000      Electrical Specification on drawings

END OF DOCUMENT 00 0110

DOCUMENT 00 0115 - LIST OF DRAWINGS

**GENERAL**

COVER SHEET  
G101 GENERAL INFORMATION AND CODE INFORMATION

**ARCHITECTURAL**

AD101 FIRST FLOOR DEMOLITION PLAN  
A101 FIRST FLOOR PLAN  
A601 WALL TYPES, DOOR AND FRAME TYPES, DETAILS

**FIRE PROTECTION**

By Owner

**PLUMBING**

P1.0 PLUMBING FLOOR PLAN, DETAILS AND SCHEDULES  
P2.0 PLUMBING SPECIFICATIONS

**MECHANICAL**

M1.0 MECHANICAL FLOOR PLANS, DETAILS AND SCHEDULES  
M2.0 MECHANICAL SPECIFICATIONS

**ELECTRICAL**

E1.0 ELECTRICAL FLOOR PLANS  
E2.0 ELECTRICAL DETAILS AND SCHEDULES

END OF DRAWING LIST 00 0115

**General Conditions of the Contract for Construction  
 For Design-Bid-Build  
 Department of Construction Services  
 State of Connecticut  
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**ARTICLE 1**  
**DEFINITIONS**

WHENEVER THE FOLLOWING TERMS, OR PRONOUNS IN PLACE OF THEM, ARE USED THE INTENT AND MEANING SHALL BE AS FOLLOWS:

**1.1 ACCEPTANCE:** The Owner's acknowledgement of the Work from the Contractor upon certification by the Construction Administrator and Architect or Engineer that all Work has been completed.

**1.2 ADDITIONAL OR DELETED WORK:** Work required by the Department that, in the judgment of the Commissioner, involves any addition to, deduction from, or modification of the Work required by the Contract Documents.

**1.3 AGENCY:** The (User) Agency of the State of Connecticut having administrative authority of the facility in which the Work is being performed.

**1.4 APPLICATION FOR PAYMENT, PARTIAL PAYMENT OR REQUISITION:** Contractor's certified request for payment for completed portions of the Work and, if the Contract so provides, for materials or equipment suitably stored pending their incorporation into the Work.

**1.5 ARCHITECT OR ENGINEER:** A sole proprietor, partnership, firm, corporation or other business organization under Contract with the Owner, commissioned to prepare Contract Drawings and Specifications, to advise the Owner and in certain cases, to perform regular inspections during construction and when authorized to perform the duties of the Construction Administrator.

**1.6 AS-BUILT DRAWINGS:** Construction Drawings revised by the Contractor to show all significant Modifications made during the construction process.

**1.7 BASE BID:** Monetary value stated in the Bid Proposal Form as the sum for which the Bidder offers to perform the Work described in the Bidding Documents, exclusive of adjustments for Supplemental Bids.

**1.8 BID BOND:** Form of Bid Security executed by the Bidder as Principal and by a Surety to guarantee that the Bidder will enter into a Contract within a specified time and furnish any required bond as mandated by Connecticut General Statute Section 4b-92.

**1.9 BIDDER:** A sole proprietor, partnership, firm, corporation or other business organization submitting a Bid on the Bid Proposal Form for the Work contemplated.

**1.10 BIDDING DOCUMENTS:** Collectively, the Bidding Requirements and the proposed Contract Documents, including any addenda issued prior to receipt of Bids.

**1.11 BID OR BID PROPOSAL FORM:** A complete and duly signed proposal to perform Work (or a designated portion thereof) for a stipulated sum submitted in accordance with the Bidding Documents.

**1.12 BID SECURITY:** Certified check or Bid Bond submitted with Bid Proposal Form, which provides that the Bidder, if awarded the Contract, will execute such Contract in accordance with the requirements of the Bidding Documents.

**1.13 BUILDER'S RISK INSURANCE:** A specialized form of property insurance which provides coverage for loss or damage to the Work pursuant to the Contract Documents.

**1.14 CASH ALLOWANCE:** An amount established in the Contract Documents for inclusion in the Contract Sum to cover the cost of prescribed items not specified in detail, and as shown in the Allowance Schedule.

**1.15 CERTIFICATE OF ACCEPTANCE:** A document issued by the Owner to the Contractor stating that all Work specified in the Certificate of Acceptance has been completed and accepted by the Owner.

**1.16 CERTIFICATE OF COMPLIANCE:** A document stating that for the portion of the Project completed, either the design portion or the construction portion, has been performed in substantial compliance with all applicable building codes.

**1.17 CERTIFICATE OF OCCUPANCY:** Document issued by the authority having jurisdiction certifying that all or a designated portion of a building is approved for its designated use.

**1.18 CERTIFICATE OF SUBSTANTIAL COMPLETION:** A document prepared by the Architect or Engineer and approved by the Owner on the basis of an inspection stating:

**1.18.1** that the Work, or a designated portion thereof, is determined to be Substantially Complete;

**1.18.2** the date of Substantial Completion;

**1.18.3** the responsibilities of the Owner and the Contractor for security maintenance, heat, utilities, damage to the Work and insurance; and

**1.18.4** the time within which the Contractor shall complete the remaining Work.

**1.19 CHANGE ORDER:** Written authorization signed by the Owner, authorizing a modification in the Work, an adjustment in the Contract Sum, or an adjustment in the Contract Time.

**1.20 COMMISSIONER:** The State of Connecticut, Department of Construction Services (CT DCS) Commissioner acting directly or through specifically authorized CT DCS personnel or agent(s) having authority to perform duties defined in Article 25.

**1.21 COMMISSIONING AGENT (CxA):** An independent entity under contract directly with the Owner or Owner's Representative responsible for performing the specified commissioning procedures.

**1.22 CONSTRUCTION ADMINISTRATOR:** A sole proprietor, partnership, firm, corporation or other business organization, under Contract or employed by the Owner commissioned and/or authorized to oversee the fulfillment of all requirements

of the Contract Documents. The authorized Construction Administrator may be a Department of Construction Services Assistant Project Manager, Department of Construction Services Project Manager, a Clerk of the Works, an Architect, a Consulting Architect, a Consulting Construction Administrator, a Consulting Engineer etc. or any other designee as authorized and identified by the Owner.

**1.23 CONSTRUCTION CHANGE DIRECTIVE:** A written authorization signed by the Owner, directing a modification in the Work and stating a proposed basis for adjustment, if any, in the Contract Sum, Contract Time or both. Any Construction Change Directive effecting an adjustment to the Contract Sum or Contract Time shall result in a Change Order.

**1.24 CONTRACT DOCUMENTS OR CONTRACT:** The Agreement between Owner and Contractor, Conditions of the Contract (General Conditions, Supplementary Conditions, General Requirements and other Conditions), Drawings, Specifications, and Addenda issued prior to execution of the Contract, other documents listed in the Agreement and Modifications issued after execution of the Contract, all of which shall constitute the Contract.

**1.25 CONTRACTOR OR GENERAL CONTRACTOR:** A sole proprietor, partnership, firm or Corporation, under direct Contract with the Department of Construction Services, responsible for performing the Work under the Contract Documents. Whenever the words "Contractor" or "General Contractor" are used it shall be understood to mean Contractor.

**1.26 CONTRACTOR'S LIABILITY INSURANCE:** Insurance purchased and maintained by the Contractor that insures the Contractor for claims for property damage, bodily injury or death.

**1.27 CONTRACT START DATE OR DATE OF COMMENCEMENT OF THE WORK:** The date, specified by the Owner in the Notice to Proceed, on which the Contractor is required to start the Work.

**1.28 CONTRACT SUM:** The sum stated in the Contract, which is the total amount payable by the Owner to the Contractor for performance of the Work under the Contract Documents.

**1.29 CONTRACT TIME:** The period of time allotted in the Contract Documents for Substantial Completion of the Work, including authorized adjustments thereto. The Contract Time is the sum of all Working Days and Non-Working Days as further defined herein and specified in the Contract Documents.

**1.30 DAY:** Whenever the word Day is used it shall be understood to mean calendar day stated on the Bidding Documents, unless stated otherwise.

**1.31 DEPARTMENT OF CONSTRUCTION SERVICES (CT DCS) PROJECT MANAGER:** The individual employed by the Owner, designated and authorized by the Commissioner, to be

responsible for the overall management and oversight of the Project, and to represent the (User) Agency.

**1.32 DIESEL VEHICLE EMISSIONS CONTROL:** The reduction of air pollution emissions from diesel powered vehicles through the use of diesel engine emission control technologies.

**1.33 EQUAL(S):** Any deviation from the Specification which is defined as follows: A replacement for the specified material, device, procedure, equipment, etc., which is recognized and accepted as substantially equal to the first listed manufacturer or first listed procedure specified after review by the Architect/Engineer, and may be rejected or approved at the sole discretion of the Owner. All equals must be substantially equivalent to the first manufacturer or first procedure listed in the Specifications with reference to all of the following areas: the substance and function considering quality, workmanship, economy of operation, durability, and suitability for purposes intended; size, rating, and cost. The equal does not constitute a modification in the scope of Work, the Schedule, or Architect/Engineer's design intent of the specified material, device, procedure, equipment, etc.

**1.34 FINAL INSPECTION:** Review of the Work by the Architect or Engineer and Owner to determine whether Acceptance has been achieved.

**1.35 FINAL PAYMENT:** The last payment made by the Owner to the Contractor, made after notice of the Acceptance. Payment shall include the entire unpaid balance of the Contract Sum as adjusted by modifications.

**1.36 GENERAL CONDITIONS:** The General Conditions of the Contract for Construction, part of Division 00 of the Specifications.

**1.37 GENERAL REQUIREMENTS:** That part of the Contract Documents entitled General Requirements, which is Division 01 of the Specifications.

**1.38 GUARANTEE:** See Warranty.

**1.39 LIQUIDATED DAMAGES:** A sum established in a Contract, usually as a fixed sum per Day, as the predetermined measure of damages to be paid to the Owner due to the Contractor's failure to complete the Work within the Contract Time.

**1.40 LUMP SUM:** An item or category priced as a whole rather than broken down into its elements.

**1.41 MOBILE SOURCE:** A source designed or constructed to move from one location to another during normal operation except portable equipment and includes, but is not limited to, automobiles, buses, trucks, tractors, earth moving equipment, hoists, cranes, aircraft, locomotives operating on rails, vessels for transportation on water, lawnmowers, and other small home appliances.

**1.42 NON-WORKING DAYS:** All Saturdays, Sundays, Legal State Holidays (12), and any other Days identified in the

Contract Documents that the Contractor is not permitted to execute the Work. The restriction of Non-Working Days may be suspended upon the approval or direction of the Commissioner.

**1.43 NOTICE TO BIDDER:** A notice contained in the Bidding Document informing prospective Bidders of the opportunity to submit Bids on a Project.

**1.44 NOTICE TO PROCEED:** Written notice, issued by the Commissioner or the Commissioner's authorized representative, to the Contractor authorizing the Contractor to proceed with the Work and establishing the date for commencement of the Contract Time.

**1.45 OWNER OR DEPARTMENT:** The State of Connecticut, Department of Construction Services acting through its Commissioner or specifically authorized Department personnel or agent.

**1.46 OVERHEAD:** Indirect costs including: supervision (any position over the foreman), field and home office expense, insurance, and small tools and consumables.

**1.47 PAYMENT, BOND, LABOR BOND OR MATERIAL BOND:** A bond in which the Contractor and the Contractor's surety guarantee to the Owner that the Contractor will pay for labor and materials furnished for use in the performance of the Contract, as required by Connecticut General Statutes Section 49-41.

**1.48 PERFORMANCE BOND OR SURETY BOND:** A bond in which the Contractor and the Contractor's surety guarantee to the Owner that the Work will be performed in accordance with the Contract Documents, as required by Connecticut General Statutes Section 49-41.

**1.49 PERFORMANCE SPECIFICATION:** A description of the desired results or performance of a product, material, assembly, procedure, or a piece of equipment with criteria for identifying the standard.

**1.50 PLANS OR DRAWINGS:** All Drawings or reproductions of Drawings pertaining to the construction of the Work contemplated and its appurtenances.

**1.51 PROJECT:** The total construction of which the Work performed under the Contract Documents may be the whole or a part.

**1.52 PROJECT MANUAL:** The set of documents assembled for the Work which includes, but is not limited to, Contract Documents, Bidding Requirements, Sample Forms, General Conditions of the Contract for Construction, General Requirements, and the Specifications.

**1.53 PROPRIETARY SPECIFICATION:** A specification that describes a product, procedure, function, material, assembly, or piece of equipment by trade name and/or by naming the manufacturer(s) or manufacturer's procedure, exact model number, item, etc., of those products acceptable to the Owner.

**1.54 RETAINAGE:** A percentage of each Application for Payment and a percentage of the total Contract Sum retained by the Owner.

**1.55 SCHEDULE:** A Critical Path Method (CPM) or Construction Schedule as required by the Contract Documents which shall be a diagram, graph or other pictorial or written Schedule showing all events expected to occur and operations to be performed and indicating the Contract Time, start dates, durations and finish dates as well as Substantial Completion and Acceptance of the Work, rendered in a form permitting determination of the optimum sequence and duration of each operation.

**1.56 SCHEDULE OF VALUES:** A document furnished by the Contractor to the Architect or Engineer and Owner stating the portions of the Contract Sum allocated to the various portions of the Work, which is to be used for reviewing the Contractor's Applications for Payment.

**1.57 SECONDARY SUBCONTRACTOR:** A sole proprietor, partnership, firm or Corporation under direct Contract with the Subcontractor to the General Contractor.

**1.58 SENSITIVE RECEPTOR SITES:** Areas where concentrations of diesel emissions may be harmful to sensitive populations, including, but not limited to, hospitals, school and university buildings being occupied during a student semester, residential structures, daycare facilities, elderly housing, and convalescent facilities.

**1.59 SHOP DRAWINGS:** Drawings provided to Architect or Engineer and Owner by a Contractor that illustrate construction, materials, dimensions, installation, and other pertinent information for the incorporation of an element or item into the construction as detailed Contract Documents.

**1.60 SPECIFICATIONS:** The description, provisions and other requirements pertaining to the method and manner of performing the Work and/or to the quantities and quality of materials to be furnished under the Contract.

**1.61 SUBCONTRACTOR:** A sole proprietor, partnership, corporation or other business organization under direct Contract with the Contractor supplying labor and/or materials for the Work at the site of the Project.

**1.62 SUBMITTALS:** Documents including, but not limited to, samples, manufacturer's data, Shop Drawing, or other such items submitted to the Owner and Architect or Engineer by the Contractor for the purpose of approval or other action, as required by the Contract Documents.

**1.63 SUBSTANTIAL COMPLETION:** The stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents.

**1.64 SUBSTITUTION:** Any deviation from the specified requirements, which is defined as follows: A replacement for

the specified material, device, procedure, equipment, etc., which is not recognized or accepted as equal to the first manufacturer or procedure listed in the Specification after review by the Architect/Engineer, and may be rejected or approved by the Owner. The Substitution is not equal to the specified requirement in comparison to the first manufacturer or first procedure listed in the Specifications in one or more of the following areas: the substance and function considering quality, workmanship, economy of operation, durability, and suitability for purposes intended; size, cost, and rating. The Substitution constitutes a modification in the scope of Work, the Schedule, or the Architect/Engineer's design intent of the specified material, device, procedure, equipment, etc.

**1.65 SUPERINTENDENT:** The Contractor's representative at the site who is responsible for continuous field supervision, coordination, in, completion of the Work, and, unless another person is designated in writing by the Contractor to the Owner and the Construction Administrator, for the prevention of accidents.

**1.66 SUPPLEMENTAL BID:** The monetary value stated in the Bid to be added to the amount of the Base Bid if the corresponding Work, as described in the Bidding Documents, is accepted.

**1.67 SUPPLEMENTARY CONDITIONS:** An extension in the Bid to be added to the amount of the Base Bid if the corresponding Work, as described in the Bidding Documents, is accepted.

**1.68 THRESHOLD LIMIT BUILDING:** Any proposed (new) structures or additions as defined by the Connecticut General Statutes Section 29-276b.

**1.69 UNIT PRICE:** The monetary value stated by the Owner or the Contractor, as a price per unit of measurement for materials or services as described in the Contract Documents and/or Bidding Documents.

**1.70 WARRANTY:** A written, legally enforceable assurance of specified quality or performance of a product or Work or of the duration of satisfactory performance.

**1.71 WORK:** The construction and services required by the Contract Documents, and including all labor, materials, equipment and services provided or to be provided by the Contractor to fulfill the Contractor's obligations. The Work may constitute the whole or a part of the Project.

## **ARTICLE 2 CONDITIONS OF WORK**

**2.1** The Contractor shall carefully examine and study the conditions under which the Work is to be performed and the site of the Work, and compare the Contract Documents with each other and to information furnished by the Owner including but not limited to the Plans and Specifications, the form of the Contract, General Conditions, Supplementary Conditions, General Requirements, Bonds and all other Contract Documents associated with the Work.

**2.2** The Contractor shall report to the Construction Administrator all errors, inconsistencies or omissions discovered. The Contractor shall not be liable to the Owner for damage resulting from errors, inconsistencies or omissions in the Contract Documents unless the Contractor recognized such errors, inconsistencies or omission and failed to report it to the Construction Administrator. If the Contractor performs any actions or construction activity knowing it involves an error, inconsistency or omission in the Contract Documents without notice to the Construction Administrator, the Contractor shall assume responsibility for such performance and related costs for the correction and shall not be allowed to submit any claim related to error, inconsistencies or omission.

**2.3** The Contractor shall take field measurements and verify field conditions and shall carefully compare such field measurements and conditions and other information known to the Contractor with the Contract Documents before commencing activities. Errors, inconsistencies or omissions discovered shall be reported to the Construction Administrator at once; and it will be assumed that the Contractor has been satisfied as to all requirements of the Contract Documents. Any deterrent conditions at the site of the Work which are obvious and apparent upon examination of the site but are not indicated on the Plans shall be corrected by the Contractor without additional compensation.

**2.4** In performing the Work, the Contractor must employ such methods or means as will not cause any interruption of or interference with the Work of any other Contractor, nor any inordinate disruption with the normal routine of the Owner, institution or Agency operating at the site.

**2.5** No claims for additional compensation will be considered when additional costs result from conditions made known to, discovered by, or which should have been discovered by, the Contractor prior to Contract signing.

**2.6** All Communications from the Contractor concerning proposed changes to the Contract Sum, Contract Time, or Work shall be in writing.

**2.7** The Contractor shall perform the Work in accordance with the Contract Documents and approved Submittals pursuant to Article 5.

## **ARTICLE 3 CORRELATION OF CONTRACT DOCUMENTS**

**3.1** The Contract Documents are complementary, and what is called for by any one shall be as binding as if called for by all. Where discrepancies or conflict occur in the Contract Documents the following order of precedence shall be utilized:

**3.1.1** Amendments and addenda shall take precedence over previously issued Contract Documents.

**3.1.2** The Supplementary Conditions take precedence over the General Conditions.

**3.1.3** The General Conditions take precedence over the General Requirements.

3.1.4 The Specifications shall take precedence over the Plans.

3.1.5 Stated dimensions shall take precedence over scaled dimensions.

3.1.6 Large-scale detail Drawings shall take precedence over small-scale Drawings.

3.1.7 The Schedules contained in the Contract Documents shall take precedence over other data on the Plans.

3.2 Neither party to the Contract shall take advantage of any obvious error or apparent discrepancy in the Contract Documents. The Contractor shall give immediate written notification of any error or discrepancy discovered to the Construction Administrator, who shall take the necessary actions to obtain such corrections and interpretations as may be deemed necessary for the completion of the Work in a satisfactory and acceptable manner. The Contractor shall then promptly proceed under the direction of the Owner and the provisions of Article 13. The Contractor's failure to provide immediate notice shall mean the Contractor will not be entitled to any additional compensation, either monetary or Contract Time adjustment, with respect to any discrepancy.

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

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

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

#### **ARTICLE 4 COMMENCEMENT AND PROGRESS OF WORK**

4.1 The Work shall start upon the date given in the Notice to Proceed. The Contractor shall complete all the Work necessary for Final Payment, including but not limited to Substantial Completion, Contract close-out, testing and demonstration of all systems as required for Acceptance, punchlist Work, training and submission of Record Documents, manuals, Guarantees and Warranties as stated in the Contract Document.

4.2 Time is of the essence with respect to the Contract Time. By executing the Contract, the Contractor confirms and agrees that the Contract Time is a reasonable period to perform the Work. The Contractor shall proceed expeditiously with adequate forces and shall achieve Substantial Completion within the Contract Time. The Contractor may, at his discretion, plan to complete the Work and achieve Substantial Completion in less time than the Contract Time.

4.3 The Contractor's early completion Schedule

notwithstanding, the Owner reserves the right to order Modifications to the Work in accordance with Article 13 at any time during the Contract Time.

4.4 The Contractor shall not be entitled to costs for delay due to Owner ordered Modifications or any other circumstances for the period of time between the Contractor's elected early completion and the end of the Contract Time. Such costs include, but are not limited to, extended home office costs, field office costs, or supervisory and management costs incurred in performance of the Work. Early completion of the Work shall not merit additional compensation.

4.5 If the Contractor is delayed at any time in the progress of Work by acts of God, such as fire or flood or any action, injunction or stop order issued by any court, judge or officer of the court or any other court action beyond the Owner's control, then the Contract Time may be extended by Change Order for such reasonable time as demonstrated by the Contractor's Schedule and as the Owner may determine that such event has delayed the Work. In any event, the granting of an extension of time shall be solely within the discretion of the Owner.

4.6 Except as otherwise may be provided herein, extensions of time shall be the Contractor's sole remedy for such delay. No payment or compensation of any kind shall be made to the Contractor for damages because of hindrance in the orderly progress of Work caused by the aforesaid causes.

4.7 The Contractor acknowledges that the Contract amount includes and anticipates any and all delays, whether avoidable or unavoidable, from said orders, which may issue from any court, judge, court officer, or act of God, and that such delays shall not, under any circumstances, be construed as compensable delays.

4.8 Any extension of the Contract Time shall be by Change Order pursuant to Article 13.

4.9 The Contractor shall employ a competent project manager who shall represent the Contractor. Communications given to the project manager shall be binding as if given to the Contractor. The project manager will be employed full time on the Project and be located and assigned to the Project site during and for the duration of the Work.

4.10 The Contractor shall employ a competent Superintendent and necessary assistants who will be in attendance at the project site during the performance of the Work.

4.11 Upon execution of the Contract, materials may be purchased. No material escalation costs will be valid or compensable unless the Owner directs, in writing, a delay in the procurement.

#### **ARTICLE 5 SUBMITTALS, PRODUCT DATA, SHOP DRAWINGS AND SAMPLES**

5.1 Contractor shall review, approve, and submit to the Construction Administrator all Submittals including but not limited to, product data, Shop Drawings, and samples, with such promptness as to cause no delay in the Work.

5.2 Correction or approval of such Submittals, Shop Drawings, product data and samples will be made with reasonable promptness by the Architect or Engineer. Approval will be general only and shall not relieve the Contractor from responsibility for errors in dimensions, for construction and field coordination of the Work or for any departure from the Contract Documents, unless such departure has received the Owner's written approval.

5.3 No Work governed by such Shop Drawings, Schedules or samples shall be fabricated, delivered or installed until approved by the Architect or Engineer.

5.4 No damages for delays or time extensions will be granted, even if approvals deviate from the approved Schedule.

#### **ARTICLE 6 SEPARATE CONTRACTS**

6.1 The Owner reserves the right to perform Work in connection with the Contract with the Owner's own forces, or to let separate contracts relating to the Contract (Project) site or in connection with Work on adjoining sites. In such cases, the Contractor shall afford such parties reasonable opportunity for storage of materials and equipment and coordinate and connect the Work with the work on adjoining sites or other Projects, and shall fully cooperate with such parties in the matter required under Article 7 herein.

6.2 Contractors working in the same vicinity shall cooperate with one another and, in case of dispute, decision of the Owner shall be final and binding to all Contractors involved, including Contractors under separate Contracts.

6.3 The Contractor shall assume all liability, financial or otherwise, in connection with this Contract and shall protect and hold harmless the Owner from any and all damages or claims that may arise because of inconvenience or delay which the Contractor may cause other Contractors. If the Contractor experiences a loss because of the presence and operations of other Contractors working adjacent to or within the limits of the same Project, then as between the Owner and the Contractor, the Contractor shall bear such loss.

6.4 Insofar as possible, the Contractor shall arrange the Work and shall place and dispose of the materials being used so as not to interfere with the operations of other Contractors adjacent to or within the limits of the same Project. The Contractor shall join its Work with that of others in an acceptable manner, and perform the Work in proper accordance with that of the others.

6.5 In no event shall the Owner be responsible for any claim or damages that are the result of the Contractor's failure

to coordinate the Work with any other Contractor or Subcontractor.

#### **ARTICLE 7 COOPERATION OF TRADES**

7.1 The Contractor shall be responsible for and shall control all activities of their Subcontractors. The Subcontractors shall consult and cooperate with one another. Each Subcontractor shall furnish all necessary information to other Subcontractors and shall lay out and install their own Work so as to avoid any delays or interference with the Work of others.

7.2 Any cost or changes, cutting and/or repairing, made necessary by the failure to observe the above requirements shall be borne by the party or parties responsible for such failure or neglect or their faulty Work installed.

#### **ARTICLE 8 DAMAGES**

8.1 The Liquidated Damages, provided in the Bidding Documents, will be assessed at two distinct times, as follows:

• **8.1.1 Liquidated Damages – Substantial Completion:**

If the Contractor fails to achieve Substantial Completion of the Work by the Substantial Completion Date, and such delay is not otherwise excused under this Contract, then the Contractor agrees to pay to the Owner Liquidated Damages for the dollar amount specified in the Bid Proposal Form for this Project, for each Day beyond Substantial Completion that the Contractor fails to achieve Substantial Completion. The parties to this Contract acknowledge and agree that the actual damages that are to be anticipated as a result of the neglect, failure, or refusal of the Contractor to substantially complete the Project by the established Substantial Completion Date are uncertain in amount or extremely difficult to determine. Accordingly, the parties to this Contract do intend and in fact now agree to liquidate damages in advance and stipulate that the amount set forth in this subparagraph is reasonable and an appropriate remedy and is intended to constitute compensatory damages and does not constitute a penalty of any kind. The parties understand and agree that, by including a provision for Liquidated Damages in this Contract, or in pursuing any relief pursuant to such provision:

.1 the parties do not intend to set a price for the privilege not to perform;

.2 the availability of Liquidated Damages may not be relied upon as a basis for argument that the Owner has an adequate remedy at law; and

.3 the remedies available to the Owner under this Agreement are cumulative and not exclusive.

**8.1.2 Liquidated Damages – Acceptance:**

If the Contractor fails to complete all of the Work required for Acceptance of the Work within ninety (90) Days of Substantial Completion then the Contractor agrees to pay

to the Owner Liquidated Damages for the dollar amount specified in the Bid Proposal Form for each Day in excess of ninety (90) Days beyond the Substantial Completion Date that the Contractor fails achieve Acceptance. The parties to this Contract acknowledge and agree that the actual damages that are to be anticipated as a result of the failure of the Contractor to complete all of the Work required for Acceptance within ninety (90) Days of the established Substantial Completion Date are uncertain in amount or extremely difficult to determine. Accordingly, the parties to this Contract do intend and in fact now agree to liquidate damages in advance and stipulate that the amount set forth in this subparagraph is reasonable and an appropriate remedy and is intended to constitute compensatory damages and does not constitute a penalty of any kind. The parties understand and agree that, by including a provision for Liquidated Damages in this Contract, or in pursuing any relief pursuant to such provision:

- .1 the parties do not intend to set a price for the privilege not to perform;
- .2 the availability of Liquidated Damages may not be relied upon as a basis for argument that the Owner has an adequate remedy at law; and
- .3 the remedies available to the Owner under this Agreement are cumulative and not exclusive.

**8.2** The Liquidated Damages or any portion thereof may be waived at the sole discretion of the Commissioner.

**8.3** No payment by the Owner, either partial or final, shall be construed to waive the Owner's right to seek Liquidated Damages.

**8.4** In the event a court determines that the Contract herein is null and void for any reason, Contractor agrees that Contractor will not seek or pursue any lawsuit or claim for damages, including, but not limited to, claims for loss of Overhead or anticipated profits, against the Owner and the Owner shall not be liable for any damages which Contractor may incur as a result of such decision. In addition, if the court enjoins the Owner from entering into or proceeding with the Contract herein, the Owner shall not be liable for any damages arising out of or relating to the award of such Contract which Contractor may have incurred as a result of the injunction.

#### **ARTICLE 9 MINIMUM WAGE RATES**

**9.1** In accordance with the provisions of the Connecticut General Statutes Section 31-53, the following applies:

"The wages paid on an hourly basis to any person performing the work of any mechanic, laborer, or worker on the work herein contracted to be done and the amount of payment or contribution paid or payable on behalf of each such person to any employee welfare fund, as defined in subsection (h) of this section, 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 in which such public works project is being constructed. Any contractor who is not obligated by agreement

to make payment or contribution on behalf of such persons to any such employee welfare fund shall pay to each mechanic, laborer or worker as part of such person's wages the amount of payment or contribution for such person's classification on each payday."

**9.2** Each Contractor who is awarded a Contract on or after October 1, 2002 shall be subject to provisions of the Connecticut General Statutes, Section 31-53 as amended by Public Act 02-69, "An Act Concerning Annual Adjustments to Prevailing Wages."

No wage adjustment will be made to the Contract for any wage increase under this Article.

#### **ARTICLE 10 POSTING MINIMUM WAGE RATES**

**10.1** The Contractor shall post at conspicuous points on the site of the Contract a Schedule showing all determined wage rates for all trades and all authorized deductions, if any, from wages to be paid.

**10.2** The Contractor shall provide weekly certified payrolls to the Owner for all persons working on the site.

#### **ARTICLE 11 CONSTRUCTION SCHEDULES**

**11.1** Unless otherwise specified in the Contract Documents, within twenty-one (21) Days from the Contract Start Date, the Contractor shall submit the following to the Owner for approval:

**11.1.1** A comprehensive Schedule of Submittals required by the Specifications. Said Schedule shall include Submittal dates, required approval dates and date material must be on site.

**11.1.2** The Contractor shall allow a minimum of 14 Days for the Owner and its agents' review of Submittals. No extension of the Contract Time shall be granted for revisions and resubmission. Further, the Contractor shall allow a minimum of eight weeks for testing and Acceptance of the Work by the Owner.

**11.1.3** When the Contract Documents specify a "CPM Schedule" a detailed Critical Path Method Schedule is required using software approved by the Owner and/or Construction Administrator with as many activities as necessary to make the Schedule an effective tool for planning and monitoring the progress of the Work. The Contractor shall show all pertinent activities requiring coordination between trades.

**11.1.4** When the Contract Documents specify a "Construction Schedule" a detailed Construction Schedule is required using software approved by the Owner as a horizontal bar chart with a separate bar for each major portion of the Work or operation to make the Schedule an effective

tool for planning and monitoring the progress of the Work.

**11.2** Unless otherwise specified under the Contract Documents, the Contractor shall provide a monthly update of the CPM Schedule or Construction Schedule in the format required by the Owner as well as a disk of the updated Schedule and program. If, in the opinion of the Owner, the Work is falling behind Schedule, the Contractor shall submit a revised Schedule demonstrating a recovery plan to ensure Substantial Completion of the Work within the Contract Time.

**11.3** Overtime, increased manpower, and additional shifts: If ordered by the Owner in writing, the Contractor shall work overtime, and/or add additional manpower and/or shifts:

**11.3.1** If the Contractor is not behind Schedule, the Owner will pay the Contractor the actual additional premium portion of the wages for overtime or additional shift work not included in the Contract price, but the Contractor shall not be entitled to Overhead and Profit.

**11.3.2** If the Contractor, through its sole or partial fault or neglect is behind Schedule, the Owner may order the Contractor, at the Contractor's expense, to increase its manpower or to work any overtime or additional shifts or take other action necessary to expedite the Work to meet the Project Schedule.

**11.3.3** If the Schedule is shown to be more than 21 Days behind in any critical activity, overtime, increase manpower and/or additional shifts shall be implemented immediately regardless of who is at fault. A disagreement over the cause of the impact will not relieve the Contractor from the obligation of complying with this Article. Once liability for the impact is determined, compensation will be determined in accordance with 11.3.1 or 11.3.2.

**11.3.4** The Owner reserves the right to suspend activity under Paragraph 11.3. Suspension shall be in writing and at the sole discretion of the Commissioner.

**11.4** Requisitions for partial payment will not be processed until the Contractor has complied with this requirement.

#### **ARTICLE 12 PREFERENCE IN EMPLOYMENT**

**12.1** Should this Contract be for the construction or repair of any building, then in the employment of labor to perform the Work specified herein, preference shall be given to citizens of the United States, who are, and continuously for at least three (3) months prior to the date hereof, have been residents of the labor market area, as established by the State of Connecticut Labor Commissioner, in which such Work is to be done, and if no such qualified person is available, then to citizens who have continuously resided in the county in which the Work is to be performed for at least three (3) months prior to the date hereof, and then to citizens of the state who have continuously resided in the State at least three months prior to the date hereof.

**12.** Should this Contract be for a Construction Services

Project other than for the construction, remodeling or repairing of public buildings covered by Connecticut General Statutes 31-52, then in the employment of mechanics, laborers or workmen to perform the Work specified herein, preference will be given to residents of the state who are, and continuously for at least six (6) months prior to the date hereof have been residents of this State, and if no such person is available then to residents of other states.

**12.3** The provisions of this Article shall not apply where the state or any subdivision thereof may suffer the loss of revenue granted or to be granted from any Agency or Department of the federal government as a result of this Article or regulations related thereto.

#### **ARTICLE 13 COMPENSATION FOR CHANGES IN THE WORK**

**13.1** At any time, without invalidating the Contract and by a written order and without notice to the sureties, the Owner, through the Construction Administrator, may order modifications in the Work consisting of additions, deletions or other revisions. Upon request, the Contractor shall supply the Construction Administrator promptly with a detailed proposal for the same, showing quantities of and Unit Prices for the Work and that of any Subcontractor involved.

**13.2** Modifications to the Work will be authorized by a written Change Order, or if necessary to expedite the Work, a written Construction Change Directive, issued by the Owner as provided for in Article 25. Change Orders and Construction Change Directives shall be processed in accordance with the terms of the Contract Documents. Upon receipt of the written Change Order, the Contractor shall proceed with the Work when and as directed.

**13.3** If a Change Order makes the Work less expensive for the Contractor, the proper deductions shall be made from the Contract Sum, said deductions to be computed in accordance with the provisions listed in this Article 13.

**13.4** The Contractor shall not be entitled to an extension of time if in the opinion of the Owner the Additional Work in conjunction with the Work can be performed without impact on the Contract Time.

**13.5** The Contractor may request, and the Owner may grant additional Contract Time when, in the opinion of the Owner, the Contractor has demonstrated that the Additional Work cannot be performed in conjunction with the Work without impact on the original Substantial Completion and/or Acceptance (if applicable) date.

**13.6** The amount of compensation to be paid to the Contractor for any Additional or Deleted Work that results in a Change Order shall be determined in one of the following manners:

**13.6.1 AMOUNT OF COMPENSATION FOR CHANGE ORDER COSTS: LABOR, EQUIPMENT, BENEFITS AND MATERIAL:**

**13.6.1.1 Unit Price:** As stated in the Contract Documents.

**13.6.1.2 Unit Price:** As subsequently agreed upon by the Contractor and Owner

**13.6.1.3 Lump Sum:** Agreed upon sum by the Owner and the Contractor. The Owner may rely on costs, prices, and documentation provided by the Contractor or Subcontractor in agreeing to a Lump Sum. If the Owner believes that additional information is necessary to substantiate the accuracy of the cost, the Owner reserves the right to request and receive additional information from the Contractor. The Lump Sum must be based upon the following itemized costs:

**13.6.1.3.1 Labor:** (Contractor's or Subcontractor's own forces) No Change Order Proposal shall be negotiated if the request is solely for the increased labor rate over those originally carried by the Contractor in its original bid. Additional foreman hours shall not be included unless additional crews are added and/or a compensable time extension is granted. Project Executive time shall not be included as a direct cost as it is part of the overhead mark-up allowed. Project manager hours shall not be included unless a compensable time extension is granted.

**13.6.1.3.2 Material:** (Actual cost to the Contractor or Subcontractor) Cost shall not be based upon list pricing unless it reflects the actual prices being paid and no discounts or other offsets are being received by the Contractor or Subcontractor. No Change Order Proposal shall be negotiated if the request is solely for the escalation of material prices over those originally carried by the Contractor in its original bid.

**13.6.1.3.3 Benefits:** (The established rates of the following benefit costs inherent to the particular labor involved):

- 13.6.1.3.3.1** Workers Compensation.
- 13.6.1.3.3.2** Federal Social Security.
- 13.6.1.3.3.3** Connecticut Unemployment Compensation.
- 13.6.1.3.3.4** Fringe Benefits.

**13.6.1.4 Rented Equipment:** (Used directly on the Work and by the Contractor's or Subcontractor's own forces).

**13.6.1.5 Owned Equipment:** (Used directly on the Work and by the Contractor's or Subcontractor's own forces). Daily rate is not to exceed 3% of the monthly rental rate as identified by a nationally recognized construction cost estimating guide or service.

**13.6.1.6 Small Tools:**  
Include items such as shovels, picks, rakes, ladders, and power tools which are expected to be utilized on a project. Trade related equipment, hand tools, and power tools normally supplied with the labor or are normally expected to be owned in the performance of the typical work for a trade are not compensable. These costs shall not be approved as part of the Direct Cost of a Change Order as they are included in the Contractor's overhead mark-up percentage.

**13.6.2 OVERHEAD AND PROFIT PERCENTAGES:** (Maximum allowable percentages applied to labor, equipment, and material)

**13.6.2.1** Contractor's mark-up for Work performed by its own forces:

Change Order Amount	Overhead and Profit
\$0 to \$ 5,000	20%
\$5,001 to \$15,000	17%
\$15,001 to \$25,000	15%
\$25,000 and greater	12%

**13.6.3 OVERHEAD AND PROFIT PERCENTAGES:** (Maximum allowable percentages applied to labor, equipment, benefits and material)

**13.6.3.1** Contractor's mark-up for Work performed by its Subcontractor's forces and not allowable for any subsidiary in which the Contractor has a majority ownership:

Change Order Amount	Overhead and Profit
\$0 and greater	6%

**13.6.4 OVERHEAD AND PROFIT PERCENTAGES:** (Maximum allowable percentages applied to labor, equipment, benefits and material) Subcontractor's mark-up for Work performed by its own forces:

Change Order Amount	Overhead and Profit
\$0 to \$ 5,000	20%
\$5,001 to \$15,000	17%
\$15,001 to \$25,000	15%
\$25,000 and greater	12%

**13.6.5 OVERHEAD AND PROFIT PERCENTAGES:** (Maximum allowable percentages applied to labor, equipment, benefits and material)

**13.6.5.1** Subcontractor's mark-up for Work performed by its Secondary Subcontractor's forces. Limited to one level (tier) below the Subcontractor and not allowable for any subsidiary in which the Subcontractor has a majority ownership.

Change Order Amount	Overhead and Profit
\$0 and greater	6%

**13.7 BOND COSTS**

**13.7.1** Actual additional bonding costs associated with the value of the Change Order will be compensable only when supported by written documentation by the bonding company that the Change Order requires an increase to the original Performance, Payment, Labor or Material Bond.

**13.7.2** The Contractor shall notify the bonding company at each \$500,000 increase to the contract value as the cumulative result of change orders. A copy of the Consent of Surety must be provided to the Owner prior to the execution of any change order which exceeds each cumulative \$500,000.

**13.8** Trade discounts, rebates, and amounts received from the sales by the Contractor of surplus materials and equipment shall accrue to the Owner.

**13.9** If the parties cannot agree upon a Lump Sum, then the Commissioner, through the Project Manager, may at the option of the Commissioner take the following action(s):

**13.9.1** Issue a Construction Change Directive for the Additional or Deleted Work. The amount of compensation shall be computed by the actual net costs to the Contractor determined by time and material or Unit Prices based upon the same information required in Subparagraphs 13.6.1.3.3.1 through 13.6.1.5:

**13.9.1.1 Labor:** (Contractor's or Subcontractor's own forces).

**13.9.1.2 Material:** (Used by Contractor's or Subcontractor's own forces).

**13.9.1.3 Benefits:** (The established rates of the following benefit costs inherent to the particular labor involved):

**13.9.1.3.1 Workers Compensation.**

**13.9.1.3.2 Federal Social Security.**

**13.9.1.3.3 Connecticut Unemployment Compensation.**

**13.9.1.3.4 Fringe Benefits.**

**13.9.1.4 Rented Equipment:** (Used directly on the Work and by the Contractor's or Subcontractor's own forces).

**13.9.1.5 Owned Equipment:** (Used directly on the Work and by the Contractor's or Subcontractor's own forces). Daily rate is not to exceed 3% of the monthly rental rate that can be identified by a nationally recognized construction cost estimating guide or service.

**13.9.2** Issue a Change Order adjusting the Contract Sum in the amount as determined by the Commissioner.

**13.10** For any Change Order or Construction Change Directive the Contractor shall, when requested, promptly furnish in a form satisfactory to the Construction Administrator and the Owner a complete detailed accounting of all costs relating to the Additional Work, including but not limited to certified payrolls and copies of accounts, bills and vouchers to substantiate actual costs. Further, the Owner reserves the right to access and make copies of the Contractor's records at any time upon written request from the Commissioner.

**13.11** Failure of the Contractor to negotiate in good faith issues of time and costs or failure to provide requested documentation within fourteen (14) Days, or a time period accepted by the Commissioner, shall constitute a waiver by the Contractor of any claim. In such cases the Owner may elect to issue a unilateral Change Order in an amount deemed to be fair and equitable by the Commissioner. The provisions hereof shall not affect the power of the Contractor to act in case of emergency, threatened injury to persons, or damage to Work on any adjoining property. In this case the Commissioner, through the Project Manager, shall issue a Change Order for such amount as the Commissioner finds to be reasonable cost of such Work.

**ARTICLE 14  
DELETED WORK**

**14.1** Without invalidating any of the terms of the Contract, the Commissioner may order deleted from the Contract any items or portions of the Work deemed necessary by the Commissioner.

**14.2** The compensation to be deducted from the Contract Sum for such deletions shall be determined in the manner provided for under the provisions of Article 13 or in the event none of the provisions of Article 13 are applicable then by the value as estimated by the Owner.

**ARTICLE 15  
MATERIALS: STANDARDS**

**15.1** Unless otherwise specifically provided for in the Specifications, all equipment, materials and articles incorporated in the Work are to be new and of the best grade of their respective kinds for the purposes. Wherever in the Contract Documents a particular brand, make of material, device, or equipment is shown or specified, the first manufacturer listed in the specification section is to be regarded as the standard. When the specification is proprietary and only one manufacturer is listed, the Contractor shall use the named manufacturer and no Substitutions or Equals will be allowed.

**15.2** Any other brand, make of material, device, equipment, procedure, etc. which is a deviation from the specified requirement is prohibited from use, but may be considered by the Owner for approval as an Equal or Substitution. The Contractor is to adhere to the specific requirements of the Contract Documents. Substitutions are discouraged and are only approved by the Commissioner as an exception.

**15.3 Submittals – Equals and Substitution Requests:**

**15.3.1** Substitution of Materials and Equipment before Bid Opening. The Owner will consider requests for Equals or Substitutions, if made prior to the receipt of the Bid. The information on all materials shall be consistent with the information herein.

**15.3.1.1** Statement of Variances – a statement of variances must list all features of the proposed Substitution which differ from the Drawings, Specifications and/or product(s) specified and must further certify that the Substitution has no other variant features. A request will be denied if submitted without sufficient evidence.

**15.3.1.2** Substitution Denial – any Substitution request not complying with the above requirements will be denied. Substitution request sent after the deadline established in the Notice to Bidder will be denied.

**15.3.1.3** An addendum shall be issued to inform all prospective Bidders of any accepted Substitution in accordance with Owner's addenda procedures.

**15.3.2** Substitution of Materials and Equipment After Bid Opening: Subject to the Architect or Engineer's determination, if the material or equipment is Equal to the

one specified or pre-qualified and the CT DCS Project Manager's approval of such determination, Substitution of Material or Equipment may be allowed after the Letter of Award is issued only:

- 15.3.2.1** If the specified or pre-qualified item is delayed by unforeseeable contingencies beyond the control of the Contractor which would cause a delay in the Project completion;
- 15.3.2.2** If any specified or pre-qualified item is found to be unusable or unavailable due to a change by the manufacturer or other circumstances; or
- 15.3.2.3** If the Contractor desires to provide a more recently developed material, equipment, or manufactured model from the same named manufacturer than the one specified or pre-qualified; or
- 15.3.2.4** If the specified material and/or equipment inadvertently lists only a single manufacturer.

**15.4** Contractor shall submit each request for Equal or Substitution to the Architect or Engineer who shall review each request and make the following recommendations to the Owner:

- 15.4.1** Acceptance or non-acceptance of the adequacy of the submission and required back-up,
- 15.4.2** Determination of the category of the request for Substitution or Equal, and
- 15.4.3** Overall recommendation for approval or rejection of the Substitution or Equal. The determination of the category as a Substitution may be grounds for an immediate rejection by the Owner.

**15.5** Approval of the Owner for each Equal or Substitution shall be obtained before the Contractor proceeds with the Work. The decision of the Commissioner, in this regard, shall be final and binding on the Contractor.

**15.6** No extension of time will be allowed for the time period required for consideration of any Substitution or Equal. No extension of time will be allowed and no responsibility will be assumed by the Owner when a Contractor submits a request for Substitution or Equal, whether such request be approved or denied, and the Contractor shall not be entitled to any claim for damages for delay.

**15.7** If the Contractor submits any request for an Equal or a Substitution, he shall bear the burden of proof that such requested Equal or Substitution meets the requirements of the Plans and Specifications.

**15.8** The Contractor shall purchase no materials or supplies for the Work which is subject to any chattel mortgage or which are under a conditional sale or other agreement by which an interest is retained by the seller. The Contractor warrants that the Contractor has good title to all materials and supplies used by him in the Work.

**15.9** All products and systems supplied to the State as a result of a purchase by a Contractor shall be certified that, to the best of the supplier's knowledge, there are no materials that are classified as hazardous materials being used within the assembly. Hazardous materials include, but are not limited

to, products such as asbestos, lead, and other materials that have proven to cause a health risk by their presence.

## **ARTICLE 16 INSPECTION AND TESTS**

**16.1** The purpose of the inspections will be to assure that the Work is performed in accordance with the Contract Documents. These inspections shall include, but not be limited to, all inspections and testing as required by the Owner, and any authorities have jurisdiction.

**16.2** All material and workmanship, if not otherwise designated by the Specifications, shall be subject to inspection, examination and test by the Commissioner at any and all times during manufacture and/or construction and at any and all places where such manufacture and/or construction is carried on. The Contract Documents additionally identify the parties responsible for performing and paying for the required testing and inspections. All required tests performed in a laboratory will be obtained and paid for by the Owner, except when the tests show the Work to be defective. The Contractor shall pay for all the costs associated with re-tests and re-inspections for all tests and inspections which fail. The Owner will issue a deduct Change Order to recover said retesting costs from the Contractor. All other tests, unless otherwise specified, shall be made at the Contractor's expense. Notice of the time of all tests to be made at the site shall be given to all interested parties, including the Owner.

**16.3** Without additional cost to the Owner, the Contractor shall promptly furnish facilities, labor and materials necessary to coordinate and perform operational tests and checkout of the Work. The Contractor shall furnish promptly all reasonable facilities, labor, and materials necessary to make all such testing safe and convenient.

**16.4** If, at any time before final payment and Acceptance of the Work, the Commissioner considers it necessary or advisable to examine of any portion of the Work already completed by removing or tearing out the same, the Contractor shall, upon request, furnish promptly all necessary facilities, labor, and materials. If such Work is found to be defective in any material respect, as determined by the Owner, because of a fault of the Contractor or any of the Contractor's Subcontractors, or if any Work shall have been covered without the approval or consent of the Commissioner (whether or not it is found to be defective), the Contractor shall be liable for testing costs and all costs of correction, including removal and/or demolition of the defective Work, including labor, material, and testing, including labor, material, re-testing or re-inspecting, services of required consultants, additional supervision, the Commissioner's and the Construction Administrator's administrative costs, and other costs for services of other consultants.

**16.5 Cost of Systems Commissioning Retesting:** The cost to retest a pre-functional or functional test, if the Contractor is responsible for the deficiency, shall be the Contractor's. If the Contractor is not responsible, any cost

recovery for retesting costs shall be negotiated with the Contractor.

**16.5.1** For a deficiency identified, not related to any pre-functional checklist or start-up fault, the following shall apply: The Commissioning Agent (CxA) and Construction Administrator will direct the retesting of the equipment once at no "charge" to the Contractor for their time. However, the Commissioning Agent's and Construction Administrator's time for additional testing will be charged to the Contractor.

**16.5.2** The time for the Systems Commissioning Agent and Construction Administrator to direct any retesting required because a specific pre-functional checklist or start-up test item, reported to have been successfully completed, but determined during functional testing to be faulty, will be back charged to the Contractor.

**16.5.3** Any required retesting by any Subcontractor shall not be considered a justified reason for a claim of delay or for a time extension by the Contractor.

#### **ARTICLE 17 ROYALTIES AND PATENTS**

**17.1** If the Contractor desires to use any design, device, material or process covered by a patent or copyright, the Contractor shall provide for such use by suitable legal agreement with the holder of said patent or copyright. The Contractor shall furnish a copy of this legal agreement to the Owner.

**17.2** The Contractor shall indemnify and hold harmless the Owner and Construction Administrator for any costs, expenses and damage which it may be obliged to pay by reason of any infringement of a patent or a copyright, at any time during the prosecution or after the Final payment of the Work.

#### **ARTICLE 18 SURVEYS, PERMITS AND REGULATIONS**

**18.1** Unless otherwise provided for, the Contractor shall furnish surveys necessary for the execution of the Work. The Owner will furnish the Contractor with two base lines and a benchmark.

**18.2** The Contractor shall obtain and pay for permits and licenses necessary for the execution of the Work and the occupancy and use of the completed Work.

**18.3** The Contractor shall give all notices and comply with all laws, ordinances, rules and regulations including building and fire safety codes relating to the performance of the Work.

**18.4** If underground utilities may be involved in part of the Work the Contractor is required to request "Call-Before-You-Dig" to verify the location of underground utilities at least (3) Working Days, as further defined under Paragraph 1.71 herein, prior to the start of any excavation. The Contractor shall also notify the Owner and Agency at least (3) Working Days prior to the start of any excavation. If "Call-Before-You-Dig" fails or refuses to respond to the Contractor's request, then the Contractor shall obtain the services of a qualified

underground utility locating firm, at no additional cost to the Owner, to verify locations of underground utilities prior to the start of any excavation. The Contractor shall be held responsible for providing safety, protecting the Work and protecting workmen as necessary to perform the Work. The Contractor shall be responsible for maintaining and protecting all original utility mark-out at no additional cost to the Owner.

#### **ARTICLE 19 PROTECTION OF THE WORK, PERSONS AND PROPERTY**

**19.1** The Contractor shall continuously and adequately protect the Work against damage from any cause, and shall protect materials and supplies furnished by the Contractor or Subcontractors, whether or not incorporated in the Work, and shall make good any damage unless it be due directly to errors in the Contract Documents or is caused by agents or employees of the Owner.

**19.2** To the extent required by law, by public authority, or made necessary in order to safeguard the health and welfare of the personnel or occupants of any of the state institutions, the Contractor shall adequately protect adjacent property and persons, and provide and maintain all facilities, including but not limited, to passageways, guard fences, lights, and barricades necessary for such protection.

**19.3** The Contractor shall take all necessary precautions for the safety of employees on the Work and shall comply with applicable provisions of federal and state safety laws and building codes to prevent accidents or injury to persons on, about, or adjacent to the premises where the Work is being performed. The Contractor shall also comply with the applicable provisions of the Associated General Contractors' "Manual of Accident Prevention in Construction", the standards of the Connecticut Labor Department and Occupational Safety and Hazard Association (OSHA).

**19.4** The Contractor shall erect and properly maintain at all times, as required by the conditions and progress of the Work, all necessary safeguards for the protection of employees of the State and the public, and shall post danger signs warning against any dangerous condition or hazard created by such things as protruding nails, well holes, elevator hatchways, scaffolding, window openings, excavations, tripping hazards or slipping, stairways and falling materials.

**19.5** The Contractor shall designate a qualified and responsible on-site staff person, whose duty shall be the prevention of accidents. The name and position of the designated person shall be reported to the Owner by the Contractor at the commencement of the Contract.

**19.6** The Contractor shall at all times protect excavations, trenches, buildings, and all items of Work from damage by rain, water from melted snow or ice, surface water run off and subsurface water usual for the vicinity at the time of operations; and provide all pumps and equipment and enclosures to insure such protection.

19.7 The Contractor shall construct and maintain all necessary temporary drainage and provide all pumping necessary to keep excavation, basements, footings and foundations free of water.

19.8 The Contractor shall remove all snow and ice as may be required for access to the site and proper protection and prosecution of the Work.

19.9 The Contractor shall install bracing, shoring, sheathing, sheet piling, caissons and any other underground facilities as required for safety and proper execution of the Work, and shall remove this portion of the Work when no longer necessary.

19.10 During cold weather the Contractor shall protect all Work from damage. If low temperature makes it impossible to continue operations safely in spite of cold weather precautions, the Contractor may cease Work upon the written approval of the Commissioner.

#### **ARTICLE 20 TEMPORARY UTILITIES**

20.1 Unless expressly provided for otherwise in the Contract Documents, the Contractor shall include in the proposed contract bid price as stated on the Bid Proposal Form, the costs of all temporary utilities required for Project completion and protection of the Work. Said temporary utilities include, but are not limited to, lighting, heating, cooling, electrical power, water, telephone, sanitary facilities, and potable water.

#### **ARTICLE 21 CORRECTION OF WORK**

21.1 The Contractor shall promptly and without expense to the Owner remove from the premises all materials rejected by or unacceptable to the Commissioner as failing to conform to the Contract Documents, whether incorporated in the Work or not.

21.2 The Contractor shall promptly and without expense to the Owner replace any such materials, which do not conform to the Contract Documents, and shall bear the expense of making good all Work of other Contractors or Subcontractors destroyed or damaged by such removal or replacement.

21.3 If the Contractor, after receipt of notice from the Owner, shall fail to remove such rejected or unacceptable materials within a reasonable time as fixed in said notice, the Owner may remove and store such materials at the expense of the Contractor.

21.4 Such action shall not affect the obligation of the Contractor to replace and complete assembly and installation of the Work and to bear the expenses referred to above. Prior to the correction of rejected or unacceptable Work or if the Commissioner deems it inexpedient or undesirable to correct any portion of the Work which was rejected, deemed unacceptable, or not done in accordance with the Contract

Documents, the Contract Sum shall be reduced by such amount as, in the judgment of the Commissioner, shall be equitable.

21.5 No extension of time will be given to the Contractor for correction of rejected or unacceptable Work. All significant punchlist Work shall be completed before Substantial Completion is determined. The remaining minor punchlist Work, as determined by the Commissioner, shall be completed within ninety (90) Days of established Substantial Completion date.

21.6 Final Payment shall not relieve the Contractor of responsibility for the defects in material or workmanship.

21.7 Unless expressly provided for otherwise in the Contract Documents, the Contractor shall remedy any rejected or unacceptable Work, and any Work found to be not conforming to the Contract Documents which is discovered within 18 Months after the date of Substantial Completion. The Contractor shall pay for any damage to other Work caused by such nonconforming Work or any damage created in correcting the nonconforming Work.

#### **ARTICLE 22 GUARANTEES and WARRANTIES**

22.1 Unless expressly provided for otherwise in the Contract Documents, the Contractor shall provide a Warranty on the Work for an 18-Month period from the date of Substantial Completion. The Contractor shall warrant that the equipment, materials and workmanship are of good quality and new, unless permitted elsewhere by the Contract Documents, and that the Work shall be free from defects not inherent in the quality required or permitted and that the Work conforms to the Contract Documents.

22.2 Disclaimers and limitations from manufactures, Subcontractors, suppliers or installers to the Contractor shall not relieve the Contractor of the Warranty on the Work. The Contract Documents detail the related damages, reinstatement of Warranty, replacement cost and Owner's recourse.

#### **ARTICLE 23 CUTTING, FITTING, PATCHING, AND DIGGING**

23.1 The Contractor will perform or will cause the Subcontractors to perform all cutting, fitting, or patching of the portion(s) of the Work that may be required to make the several parts thereof joined and coordinated in a manner satisfactory to the Commissioner and in accordance with the Plans and Specifications.

23.2 The responsibility for defective or ill-timed Work shall be with the Contractor, but such responsibility shall not in any way relieve the Subcontractor who performed such Work. Except with the consent of the Commissioner, neither the Contractor nor any of its Subcontractors shall cut or alter the Work of any other Contractor or Subcontractor.

**ARTICLE 24**  
**CLEANING UP**

**24.1** The Contractor shall, on a daily basis, keep the premises free from accumulations of waste material or rubbish.

**24.2** Prior to Acceptance of the Work, the Contractor shall remove from and about the site of the Work, all rubbish, all temporary structures, tools, scaffolding, and surplus materials, supplies, and equipment which may have been used in the performance of the Work. If the Commissioner in his sole discretion determines that the Contractor has failed to clean the work site, the Owner may remove the rubbish and charge the cost of such removal to the Contractor. A deduct Change Order will be issued by the Owner to recover such cost.

**ARTICLE 25**  
**ALL WORK SUBJECT TO CONTROL OF THE COMMISSIONER**

**25.1** The Commissioner hereby declares that the CT DCS Project Manager is the Commissioner's only authorized representative to act in matters involving the Owner's, and/or Architect's or Engineer's, ability to revoke, alter, enlarge or relax any requirement of the Contract Documents; to settle disputes between the Contractor and the Construction Administrator; and act on behalf of the Commissioner. In all such matters, the provisions of Articles 13 and 14 herein shall guide the CT DCS Project Manager.

**25.2** In no event may the Contractor act on any instruction of the Agency without written consent of the Owner. In the event the Contractor acts without such consent, he does so at his own risk and at his own expense, not only for the Work performed, but for the removal of such Work as determined necessary by the Commissioner.

**25.3** In the performance of the Work, The Contractor shall abide by all orders, directions, and requirements of the Commissioner at such time and places and by such methods and in such manner and sequence as the Commissioner may require.

**25.4** The Commissioner shall determine the amount, quality, acceptability and fitness of all parts of the Work, shall interpret the plans, Specifications, Contract Documents and extra work orders and shall decide all other questions in connection with the Work.

**25.5** The Contractor shall employ no plant, equipment, materials, methods, or persons to which the Commissioner objects and shall remove no plant materials, equipment, or other facilities from the site of the Work without the permission of the Commissioner. Upon request, the Commissioner shall confirm in writing any oral order, direction, requirement or determination.

**25.6** In accordance with Section 4b-24 of the Connecticut General Statutes, the public auditors of the State of Connecticut and the auditors or accountants of the

Commissioner of Construction Services shall have the right to audit and make copies of the books of any Contractor employed by the Commissioner.

**ARTICLE 26**  
**AUTHORITY OF THE CONSTRUCTION ADMINISTRATOR**

**26.1** The Construction Administrator employed by the Commissioner is authorized to inspect all Work for conformance to the Contract Documents. The Construction Administrator is authorized to reject all Work found to be defective, unacceptable and nonconforming to the Contract Documents. Such inspections and rejections may extend to all or any part of the Work, and to the preparation or manufacture of the material to be used.

**26.2** The Construction Administrator is not empowered to revoke, alter, enlarge, or relax any requirements of the Contract Documents, or to issue instructions contrary to the Contract Documents. The Construction Administrator shall in no case act as foreman or perform other duties for the Contractor, nor shall the Construction Administrator interfere with the management of the Work by the Contractor. Any advice, which the Construction Administrator may give the Contractor, shall in no way be construed as binding the Commissioner or Owner in any way, nor releasing the Contractor from the fulfillment of the terms of the Contract.

**26.3** In any dispute arising between the Contractor and the Construction Administrator with reference to inspection and rejection of the Work, the Construction Administrator may suspend Work on the non-compliant portion of the Work until the dispute can be referred to and decided by the Commissioner.

**ARTICLE 27**  
**SCHEDULE OF VALUES,  
APPLICATION FOR PAYMENT**

**27.1** Immediately after the signing of the Contract, the Contractor shall furnish for the use of the Commissioner, as a basis for estimating partial payments, a certified Schedule of Values, totaling the Contract Sum and broken down into quantities and unit costs, as outlined in the Contract Documents and as directed by the Owner. The Schedule of Values must reflect true costs and be in sufficient detail to be an effective tool for monitoring the progress of the Work Upon request of the Commissioner; the Contractor shall supply copies of signed Contracts, vendor quotations, etc. as back up to the Schedule of Values.

**27.2** Approval of the Schedule of Values by the Commissioner is required prior to any payment by the Owner.

**27.3** The Schedule of Values shall include a breakdown of the Contractor's general condition costs.

**27.3.1** Non-recurring costs, (i.e. Mobilization costs, utility hook-ups, temporary heat) will be paid at the time of occurrence.

**27.3.2** Reoccurring costs will be paid in proportion to the percent of completion of the Project.

**27.3.3** Further detail can be found in the General Requirements 01.29.76; paragraphs 1.3.B.4 for this project.

**27.4** The Schedule of Values shall include a breakdown of Contract closeout costs including systems certification testing and acceptance, training, Warranties, Guarantees, As-Built Drawings and attic stock.

**27.5** The Contractor shall make periodic applications for payment, which shall be subdivided into categories corresponding with the approved Schedule of Values and shall be in such numbers of copies as may be designated by the Commissioner.

### **ARTICLE 28 PARTIAL PAYMENTS**

**28.1** Commissioner will examine the Contractor's Applications For Payments to determine, in the opinion of the Commissioner, the amounts that properly represent the value of the Work completed and the materials suitably stored on the site.

**28.2** In making such Application For Payment for the Work, there shall be deducted **seven** and **one-half** percent (7.5%) of the amount of each Application for Payment to be retained by the Owner as Retainage until Final Completion.

**28.2.1** The Commissioner has the sole discretion in the determination of reduction in Retainage. At fifty percent (50%) completion of the Work the Owner shall issue a "Contractor's Performance Evaluation". If the Contractor receives a performance evaluation score of "Good" or better, then the Retainage withheld may be reduced to five percent (5%). All subsequent Applications for Payment shall be subject to five percent (5%) Retainage. Upon Substantial Completion, the Retainage may be reduced at the request of the Contractor and recommendation of the CT DCS Project Manager. In the event of a reduction in Retainage to below five percent (5%), the minimum Retainage withheld shall not be less than the CT DCS Project Manager's estimate of the remaining Work or two and one-half percent (2.5%), which ever is greater. All requests for Retainage Reduction shall be done on CT DCS Form 7048 General Contractor Retainage Reduction Request, which can be found at the end of the General Conditions.

**28.2.2** Subsequent to Substantial Completion, in limited circumstances, at the sole discretion of the Commissioner, a reduction of Retainage below Two and one-half percent (2.5%) may be considered.

**28.2.3** A "Good" Contractor's Performance Evaluation score shall be defined as a minimum total score of sixty percent (60%).

**28.3** The decision of the Commissioner to reduce the Retainage rate will be based upon the Contractor's Performance Evaluation score for completed portions of the

Work as set out above and other factors that the Commissioner may find appropriate as follows:

**28.3.1** The Contractor's timely submission of an appropriate and complete CPM Schedule or Construction Schedule and Schedule of Values, in compliance with the Contract requirements and the prompt resolution of the Owner's and/or Architect's or Engineer's comments on the submitted material resulting in an appropriate basis for progress of the Work.

**28.3.2** The Contractor's timely and proper submission of all Contract Document required submissions: including, but not limited to, Shop Drawings, material certificates and material samples and the prompt resolution of the Owners and/or Architect's or Engineer's comments on the submitted material, resulting in an appropriate progress of the Work.

**28.3.3** The Contractor's provision of proper and adequate supervision and home office support of the Project.

**28.3.4** The Work completed to date has been installed or finished in a manner acceptable to the Owner.

**28.3.5** The progress of the Work is consistent with the approved CPM Schedule or Construction Schedule.

**28.3.6** All approved credit change orders have been invoiced.

**28.3.7** All Change Order requests for pricing are current.

**28.3.8** The Contractor has and is maintaining a clean worksite in accordance with the Contract Documents.

**28.3.9** All Subcontractor payments are current at the time of reduction request.

**28.3.10** Contractor is compliant with set-aside provisions of the contract.

**28.3.2.11** Pursuant to C.G.S. Sec. 4a-101, the General Contractor shall compile evaluation information during the performance of the contract on each of its subcontractors who are performing work with a value in excess of five hundred thousand dollars (\$500,000.00). The General Contractor shall complete and submit to the State of Connecticut Department of Construction Services (CT DCS) evaluations of each such subcontractor upon fifty percent (50%) completion of the project and upon Substantial Completion of the project. The General Contractor acknowledges that its failure to complete and submit these evaluations in a timely manner may, by statute; result in a delay in project funding and, consequently, payment to the General Contractor.

**28.4** No payments will be made for improperly stored or protected materials or unacceptable Work.

**28.5** At his or her sole discretion, the Commissioner may allow to be included in the monthly requisitions payment requests for materials and equipment stored off the site.

**28.5.1** In the event the Commissioner allows the Contractor to include in its requisitions payment requests for materials and equipment stored off the site, the Contractor shall also submit any additional bonds and/or insurance certificates relating to off-site stored materials

and equipment, and follow such other procedures as may be required by the State to obtain the Commissioner's approval of such requests.

**28.5.2** The Architect or Engineer, or Construction Administrator shall have inspected said materials and equipment and recommended payment therefore. The Contractor shall pay for the cost of the Architect's or Engineer's, or Construction Administrator's time and expense in performing these inspection services.

**ARTICLE 29**  
**DELIVERY OF STATEMENT SHOWING**  
**AMOUNTS DUE FOR WAGES, MATERIALS, AND**  
**SUPPLIES**

**29.1** For each Application for Payment under this Contract, the Owner reserves the right to require the Contractor and every Subcontractor to submit a written verified statement, in a form satisfactory to the Owner, showing in detail all amounts then due and unpaid by such Contractor or Subcontractor for daily or weekly wages to all laborers employed by it for the performance of the Work or to other persons for materials, equipment or supplies delivered at the site.

**29.2** The term "laborers" as used herein shall include workmen, workwomen, and mechanics.

**29.3** Failure to comply with this requirement may result in the Owner withholding the Application for Payment pursuant to Article 28.

**ARTICLE 30**  
**SUBSTANTIAL COMPLETION AND ACCEPTANCE**

**30.1 Substantial Completion:**

**30.1.1** When the Contractor considers that the Work or a portion thereof is Substantially Complete, the Contractor shall request an inspection of said Work in writing to the Construction Administrator. The request shall certify that the Contractor has completed its own inspection prior to the request and that the Contractor is compliant with all requirements of Section 01 77 00 of the General Requirements. The request must also include a statement that a principal or senior executive of the Contractor is ready, willing and able to attend a walk through inspection with the Architect or Engineer.

**30.1.2** Upon receipt of the request, the Architect or Engineer, Construction Administrator and Owner, will make an inspection to determine if the Work or designated portion thereof is Substantially Complete. A principal or senior executive of the Contractor shall accompany the Architect or Engineer during each inspection/re-inspection. If the inspection discloses any item, whether or not included on the inspection list, which is not in accordance with the requirements of the Contract Documents, the Contractor shall, before issuance of the Certificate of Substantial Completion, complete or correct such item.

**30.1.3** The Contractor shall then submit a request for another inspection. The determination of Substantial Completion is solely within the discretion of the Owner. Any

costs for re-inspection beyond one, shall be at the expense of the Contractor and such costs will be recovered by issuance of a credit Change Order. When the Work or designated portion thereof is determined to be Substantially Complete, the Contractor will be provided a Certificate of Substantial Completion from the Owner. The Certificate of Substantial Completion shall establish the date when the responsibilities of the Contractor for security, maintenance, heat, utilities, damage to the Work, and insurance, are transferred to the Owner and shall fix the time within which the Contractor shall finish all items on the inspection list accompanying the Certificate. If the punch list is not complete in 90 Days, the Owner reserves the right to complete the outstanding punch list items with their own forces or by awarding separate contracts and to deduct the cost thereof from the amounts remaining due to the Contractor.

**30.1.4** The Certificate of Substantial Completion shall be signed by the Construction Administrator, Owner, and Architect or Engineer. Upon Substantial Completion of the Work or designated portion thereof and upon application by the Contractor and certification by the Construction Administrator and Architect or Engineer, the Owner shall make payment reflecting adjustment in Retainage, if any, for such Work or portion thereof as provided in the Contract Documents.

**30.2 Acceptance:**

**30.2.1** Upon completion of the Work, the Contractor shall forward to the Construction Administrator a written notice that the Work is ready for inspection and Acceptance.

**30.2.2** When the Work has been completed in accordance with terms and conditions of the Contract Document as determined by the Owner a Certificate of Acceptance shall be issued by the Owner.

**ARTICLE 31**  
**FINAL PAYMENT**

**31.1** The Owner reserves the right to retain for a period of thirty (30) Days after filing of the Certificate of Acceptance the amount therein stated less all prior payments and advances whatsoever to or for the account of the Contractor.

**31.2** All prior estimates and payments, including those relating to extra or additional Work, shall be subject to correction by the Final Payment.

**31.3** No Application for Payment, Final or Partial, shall act as a release to the Contractor or the Contractor's sureties from any obligations under this Contract.

**31.4** The Architect or Engineer and Construction Administrator will promptly issue the Certificate for Payment, stating that to the best of their knowledge, information and belief, and on the basis of their observations and inspections, the Work has been completed in accordance with terms and conditions of the Contract Documents and that the entire balance found to be due the Contractor and noted in said Final Payment is due and payable.

**31.5** Final Payment shall not be released until a Certificate of Acceptance and a Certificate of Compliance have been issued.

**31.6** Neither Final Payment nor any Retainage shall become due until the Contractor submits to the Owner the following:

**31.6.1** An affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or the Owner's property might be responsible or encumbered (less amounts withheld by Owner) have been paid or otherwise satisfied.

**31.6.2** A certificate evidencing that insurance required by the Contract Documents to remain in force after Final Payment is currently in effect and will not be canceled or allowed to expire without at least 30 Days prior written notice to the Owner.

**31.6.3** A written statement that the Contractor knows of no substantial reason that the insurance will not be renewable to cover the period required by the Contract Documents.

**31.6.4** Written consent of surety, if any, to Final Payment.

**31.6.5** If required by the Owner, other data establishing payment or satisfaction of obligations, such as receipts, releases and waivers of liens, claims, security interests or encumbrances arising out of the Contract, to the extent and in such form as may be designated by the Owner. If a Subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor may furnish a bond satisfactory to the Owner to indemnify the Owner against such lien. If such lien remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging such lien, including all costs and reasonable attorney's fees.

#### ARTICLE 32

##### OWNER'S RIGHT TO WITHHOLD PAYMENTS

**32.1** The Commissioner may withhold a portion of any Payment due the Contractor that may, in the judgment of the Commissioner, be necessary:

**32.1.1** To assure the payment of just claims then due and unpaid to any persons supplying labor or materials for the Work.

**32.1.2** To protect Owner from loss due to defective, unacceptable or non-conforming Work not remedied by the Contractor.

**32.1** To protect the Owner from loss due to injury to persons or damage to the Work or property of other Contractors, Subcontractors, or others caused by the act or neglect of the Contractor or any of its Subcontractors.

**32.2** The Owner shall have the right to apply any amount withheld under this Article as the Owner may deem proper to satisfy protection from claims. The amount withheld shall be considered a payment to the Contractor.

**32.3** The Owner has the right to withhold payment if the Contractor fails to provide accurate submissions of Submittals,

up date the status including but not limited to the following: As-Built Drawings, request for information (RFI) log, Schedule, submittal log, Change Order log, certified payrolls and daily reports and all other requirement of the Contract Documents.

**32.4** If a Subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor may furnish a bond satisfactory to the Owner to indemnify the Owner against such lien. If such lien remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging such lien, including all costs and reasonable attorney's fees.

#### ARTICLE 33

##### OWNER'S RIGHT TO STOP WORK OR TERMINATE CONTRACT

**33.1** The Commissioner shall have the authority to suspend the Work wholly or in part, for such period or periods as the Commissioner considers being in the best interests of the State, or in the interests of public necessity, convenience or safety. During such periods the Contractor shall store all materials and equipment, in such a manner to prevent the materials and equipment from being damaged in any way, and the Contractor shall take precautions to protect the Work from damage.

**33.1.1** If the Commissioner, in writing, orders the performance of all or any portion of the Work to be suspended or delayed for an unreasonable period of time (i.e. not originally anticipated, customary, or inherent in the construction industry) and the Contractor believes that additional compensation and/or Contract Time is due as a result of such suspension or delay, the Contractor shall submit to the Commissioner in writing a request for a Contract adjustment within 7 Days of receipt of the notice to resume Work. The request shall set forth the specific reasons and support for said adjustment.

**33.1.2** The Commissioner shall evaluate any such requests received. If the Commissioner agrees that the cost and/or time required for the performance of the Contract has increased as a result of such suspension and that the suspension was caused by conditions beyond the control of and not the fault of the Contractor, its suppliers, or Subcontractors, and was not caused by weather, then the Commissioner will make a reasonable adjustment, excluding profit, of the Contract terms. The Commissioner will notify the Contractor of the determination as to what adjustments of the Contract, if any, that the Commissioner deems warranted.

**33.1.3** No Contract adjustment will be made unless the Contractor has submitted the request for adjustment within the time prescribed.

**33.1.4** No Contract adjustment will be made under this Article to the extent that performance would have been suspended or delayed by any other cause within the Contractor's control or by any factor for which the Contractor is responsible under the Contract; or that such an adjustment is provided for or excluded under other term or condition of this Contract.

**33.2** Notwithstanding any provision or language in the

Contract to the contrary, the State may terminate the Contract whenever the Commissioner determines at his sole discretion that such termination is in the best interests of the State. Any such termination shall be effected by delivery to the Contractor of a written Notice of Termination specifying the extent to which performance of Work under the Contract is terminated, and the date upon which such termination shall be effective.

**33.2.1** In the event of such termination, the Contractor shall be entitled to reasonable compensation as determined by the Commissioner, however, no claim for lost Overhead or profits shall be allowed.

**33.2.2** All Work and materials obtained by the Contractor for the Work, that have been incorporated into the Work, inspected, tested as required, accepted by the Commissioner, and paid for by the State, shall become the property of the State.

**33.2.3** Materials obtained by the Contractor for the Work that have been inspected, tested as required, and accepted by the Commissioner, and that are not incorporated into the Work, shall, at the option of the Commissioner, be purchased from the Contractor at actual cost as shown by receipted bills. To this cost shall be added all actual costs for delivery at such points of delivery as may be designated by the Commissioner, as shown by actual cost records.

**33.2.4** Termination of the Contract shall not relieve the Contractor or its Surety of their responsibilities for the completed Work, nor shall it relieve the Contractor's Surety of its obligations to ensure completion of the Work and to pay legitimate claims arising out of Work.

#### **ARTICLE 34** **SUBLETTING OR ASSIGNING OF CONTRACT**

**34.1** The Contract or any portion thereof, or the Work provided for therein, or the right, title, or interest of the Contractor therein may not be sublet, sold, transferred, assigned, or otherwise disposed of to any person, firm, or corporation without the written consent of the Commissioner.

**34.2** No person, firm, or corporation other than the Contractor to whom the Contract was awarded shall be permitted to commence Work at the site of the Contract until such consent has been granted.

#### **ARTICLE 35** **CONTRACTOR'S INSURANCE**

**35.1** The Contractor shall not start Work under the Contract until they have obtained insurance as stated in SECTIONS 00 62 16 CERTIFICATE OF INSURANCE and 00 40 13 BID PROPOSAL FORM, subsections 4.4.2 and 4.4.3, of the Project Manual and until the insurance has been approved by the Owner. The Contractor shall not allow any Subcontractor to start Work until the same insurance has been obtained by the Subcontractor and approved by the Owner or the Contractor's insurance provides coverage on behalf of the Subcontractor. The Contractor shall send Certificates of Liability Insurance to the Bidding and Contracts Unit, Department of Construction Services, 165 Capitol Avenue, Room G-35, Hartford, CT 06106 unless otherwise directed in

writing. Presented below is a narrative summary of the insurance required.

**35.1.1 Commercial General Liability** Insurance including contractual liability, products/completed operations, broad form property damage and independent Contractors. The limits shall be no less than \$1,000,000 each occurrence and \$2,000,000 annual aggregate. Coverage for hazards of explosion, collapse and underground (X-C-U) and for asbestos abatement when applicable to this Contract, must also be included when applicable to the Work to be performed. The State of Connecticut, the Department of Construction Services, and their respective officers, agents, and employees shall be named as an Additional Insured. This coverage shall be provided on a primary basis.

**35.1.2 Owner's and Contractor's Protective Liability** insurance providing a total limit of \$1,000,000 for all damages arising out of bodily injury or death of persons in any one accident or occurrence and for all damages arising out of injury or destruction of property in any one accident or occurrence and subject to a total (aggregate) limit of \$2,000,000 for all damages arising out of bodily injury to or death of persons in all accidents or occurrences and out of injury to or destruction of property during the policy period. This coverage shall be for and in the name of the State of Connecticut.

**35.1.3 Automobile Liability** The operation of all motor vehicles including those owned, non-owned and hired or used in connection with the Contract shall be covered by Automobile Liability insurance providing for a total limit of \$1,000,000 for all damages arising out of bodily injuries to or death of all persons in any one accident or occurrence and for all damages arising out of injury to or destruction of property in any one accident or occurrence. In cases where an insurance policy shows an aggregate limit as part of the automobile liability coverage, the aggregate limit must be at least \$2,000,000. This coverage shall be provided on a primary basis. Should the Contractor not own any automobiles, the automobile & liability requirement shall be amended to allow the Contractor to maintain only hired and non-owned liability coverage.

**35.1.4 Excess Liability** (Other than Umbrella Form) insurance in the amount of \$5,000,000 for bids of \$1,000,000 - \$10,000,000 and in the amount of \$10,000,000 for bids of \$10,000,001 - \$20,000,000. Refer to Section 00 92 00 Amendments of the Project Manual for Excess Liability insurance requirements for bids exceeding \$20,000,000.

**35.1.5 Workers' Compensation and Employer's Liability** as required by Connecticut Law and **Employers' Liability** with a limit of not less than \$100,000 per occurrence, \$500,000 disease policy limit and \$100,000 disease each employee. When Work is on or contiguous to navigable bodies of waterways and ways adjoining, the Contractor shall include the Federal Act endorsement for the U.S. Longshoremen's and Harbor Workers Act.

**35.1.6 Special Hazards Insurance**, if required, will be stated in SECTION 00 40 13 BID PROPOSAL FORM, subsection 4.4.2 of this Project Manual. This includes coverage for explosion, collapse or underground damage and for asbestos abatement when applicable to this Contract and shall be no less than \$1,000,000 each occurrence.

**35.1.7 Builder's Risk Insurance**, if required, will be stated in Section 00 40 13 Bid Proposal Form, subsection 4.4.3 of this Project Manual.

**35.1.8 Inland Marine/Transit Insurance:** With respect to property with values in excess of \$100,000 which is rigged, hauled or situated at the site pending installation, the Contractor shall maintain inland marine/transit insurance provided the coverage is not afforded by a Builder's Risk policy.

**35.1.9** When required to be maintained, the Builder's Risk and/or Inland Marine/Transit Insurance policy shall endorse the State of Connecticut as a Loss Payee and the policy shall state it is for the benefit of and payable to the State of Connecticut.

**35.2 Satisfying Limits Under an Umbrella Policy:** If necessary, the Contractor may satisfy the minimum limits required above for either Commercial General Liability, Automobile Liability, and Employer's Liability coverage under an Umbrella or Excess Liability policy. The underlying limits may be set at the minimum amounts required by the Umbrella or Excess Liability policy provided the combined limits meet at least the minimum limit for each required policy. The Umbrella or Excess Liability policy shall have an Annual Aggregate at a limit not less than two (2) times the highest per occurrence minimum limit required above for any of the required coverages. The State of Connecticut shall be specifically endorsed as an Additional Insured on the Umbrella or Excess Liability policy, unless the Umbrella or Excess Liability policy provides continuous coverage to the underlying policies on a complete "Follow-Form" basis.

**35.3** The Contractor shall, at its sole expense, maintain in full force and effect at all times during the life of the Contract or the performance of Work hereunder, insurance coverage as described herein. Certificates shall include a minimum thirty (30)-day endeavor to notify requirement to the Owner prior to any cancellation or non-renewal.

**35.4** The Contractor shall be fully and solely responsible for any costs or expenses as a result of a coverage deductible, coinsurance penalty, or self-insured retention, including any loss not covered because of the operation of such deductible, coinsurance penalty, or self-insured retention.

**35.5** The requirement contained herein as to types and limits of insurance coverage to be maintained by the Contractor are not intended to and shall not in any manner limit or qualify the liabilities and obligations assumed by the Contractor.

**35.6 Hold Harmless Provisions:** The Contractor shall at all times indemnify and save harmless the State of Connecticut, the Department of Construction Services, and their respective officers, agents, and employees, on account of any and all claims, damages, losses, litigation, expenses, counsel fees and compensation arising out of injuries (including death) sustained by or alleged to have been sustained by the officers, agents, and employees of said State or Department, or of the Contractor, his Subcontractor, or materialmen and from injuries (including death) sustained by or alleged to have been sustained by the public, any or all persons on or near the Work, or by any other person or property, real or personal (including property of said State or Department) caused in whole or in part by the acts, omissions, or neglect or the Contractor including, but not limited to, any neglect in safeguarding the Work or through the use of unacceptable materials in constructing the Work of the Contractor, any Subcontractor, materialman, or anyone directly employed by them or any of them while engaged in the performance of the Contract, including the entire elapsed time from the date of the Notice to Proceed or the actual Commencement Of The Work whichever occurs first until its completion as certified by the Department of Construction Services.

#### **ARTICLE 36 FOREIGN MATERIALS**

**36.1** Preference shall be given to articles or materials manufactured or produced in the United States, Canada, and Mexico, (the members of the North American Free Trade Agreement (NAFTA)); and the products shall meet all of the referenced standards and Specifications for conditions of performance, quality, and price with duty being equal.

**36.2** Only articles or materials manufactured or produced in the United States, Canada, and Mexico, (the members of the North American Free Trade Agreement (NAFTA)), will be allowed. The foregoing provisions shall not apply to foreign articles or materials required by the Contract Documents.

#### **ARTICLE 37 HOURS OF WORK**

**37.1** No person shall be employed to work or be permitted to work more than eight (8) hours in any Day or more than forty (40) hours in any week for any Work provided in the Contract, in accordance with Connecticut General Statute Section 31-57.

**37.2** The operation of such limitation of hours of work may be suspended during an emergency, upon the approval of the Commissioner, in accordance with Connecticut General Statute Section 31-57.

#### **ARTICLE 38 CLAIMS**

**38.1 General:** When filing a formal claim under Section 4-61 (referred to as "Section 4-61" below) of the Connecticut

General Statutes (as revised), either as a lawsuit in the Superior Court or as a demand for arbitration, the Contractor must follow the procedures and comply with the requirements set forth in this Article. This Section does not, unless so specified, govern informal claims for additional compensation which the Contractor may bring before the Department. The Contractor should understand, however, that the Department may need, before the Department can resolve such a claim, the same kinds of documentation and other substantiation that it requires under this Article. It is the intent of the Department to compensate the Contractor for actual increased costs caused by or arising from acts or omissions on the part of the Department that violate legal or contractual duties owed to the Contractor by the Department.

**38.2 Notice of Claim:** Whenever the Contractor intends to file a formal claim against the Department under Section 4-61, seeking compensation for additional costs, the Contractor shall notify the Commissioner in writing (in strict compliance with Section 4-61) of the details of said claim. Such written notice shall contain all pertinent information described in Paragraph 38.5 below.

Once formal notice of a claim under Section 4-61(b) (as revised) has been given to the Commissioner, the claimant may not change the claim in any way, in either concept or monetary amount, (1) without filing a new notice of claim and demand for arbitration to reflect any such change, and (2) without the minimum period of six months after filing of the new demand commencing again and running before any hearing on the merits of the claim may be held. The only exception to this limitation will be for damages that continue to accrue after submission of the notice, in ways described and anticipated in the notice.

**38.3 Record Keeping:** The Contractor shall keep daily records of all costs incurred in connection with its Work on behalf of the Department. The daily records shall identify each aspect of the Project affected by matters related to any claim for additional compensation that the Contractor has filed, intends to file, or has reason to believe that it may file against the Department; the specific Project locations where Project work has been so affected; the number of people working on the affected aspects of the Project at the pertinent time(s); and the types and number of pieces of equipment on the Project site at the pertinent time(s). Any potential or anticipated effect on the Project's progress or Schedule which may result in a claim by the Contractor shall be noted contemporaneously with the cause of the effect, or as soon thereafter as possible.

**38.4 Claim Compensation:** The payment of any claim, or any portion thereof, that is deemed valid by the Department shall be made in accordance with the following provisions of this Article:

**38.4.1 Compensable Items:** The liability of the Department for claims will be limited to the following specifically identified items of cost, insofar as they have not otherwise been paid for by the Department, and insofar as they were caused solely by the actions or omissions of the Department or its agents (except that with regard to payment for extra work, the Department will pay to the Contractor the Overhead and profit percentages provided for in Article 13.):

**38.4.1.1** Additional Project-site labor expenses.

**38.4.1.2** Additional costs for materials.

**38.4.1.3** Additional, unabsorbed Project-site Overhead (e.g., for mobilization and demobilization).

**38.4.1.4** Additional costs for active equipment.

**38.4.1.5** For each Day of Project delay or suspension caused solely by actions or omissions of the Department either:

**38.4.1.5.1** an additional ten percent (10%) of the total amount of the costs identified in Subparagraphs 38.4.1.1 through 38.4.1.4 above; except that if the delay or suspension period prevented the Contractor from incurring enough Project costs under Subparagraphs 38.4.1.1 through 38.4.1.4 during that period to require a payment by the Department that would be greater than the payment described in Subparagraph 38.4.1.5.2 below, then the payment for affected home office Overhead and profit shall instead be made in the following *per diem* amount:

**38.4.1.5.2** six percent (6%) of the original total Contract amount divided by the original number of Days of Contract Time. Payment under either 38.4.1.5.1 or 38.4.1.5.2 hereof shall be deemed to be complete and mutually satisfactory compensation for any unabsorbed home office overhead and any profit related to the period of delay or suspension.

**38.4.1.6** Additional equipment costs. Only actual equipment costs shall be used in the calculation of any compensation to be made in response to claims for additional Project compensation. Actual equipment costs shall be based upon records kept in the normal course of business and in accordance with generally accepted accounting principles. Under no circumstances shall Blue Book or other guide or rental rates be used for this purpose (unless the Contractor had to rent the equipment from an unrelated party, in which case the actual rental charges paid by the Contractor, so long as they are reasonable, shall be used). Idle equipment, for instance, shall be paid for based only on its actual cost to the Contractor.

**38.4.1.7** Subcontractor costs limited to, and determined in accordance with, Subparagraphs 38.4.1.1 through 38.4.1.5 above and applicable statutory and case law. Such Subcontractor costs may be paid for by the Department only: (a) in the context of an informal claims settlement; or (b) if the Contractor has itself paid or legally assumed, present unconditional liability for those Subcontractor costs.

**38.4.2 Excusable But Not Compensable Items:** The Contractor may be allowed Days but the Department will have no liability for the following non-compensable items:

**38.4.2.1** Abnormal or unusually severe weather

**38.4.2.2** Acts of God

**38.4.2.3** Force Majeure

**38.4.2.4** Concurrent Delay

**38.4.3 Non-Compensable Items:** The Department will have no liability for the following specifically-identified non-compensable items:

- 38.4.3.1** Profit, in excess of that provided for herein.
- 38.4.3.2** Loss of anticipated profit.
- 38.4.3.3** Loss of bidding opportunities.
- 38.4.3.4** Reduction of bidding capacity.
- 38.4.3.5** Home office overhead in excess of that provided for in Subparagraph 38.4.1.5 hereof.
- 38.4.3.6** Attorneys fees, claims preparation expenses, or other costs of claims proceedings or resolution.
- 38.4.3.7** Subcontractor failure to perform
- 38.4.3.8** Any other consequential or indirect expenses or costs, such as tort damages, or any other form of expense or damages not provided for in these specifications or elsewhere in the Contract.

**38.5 Required Claim Documentation:** All claims shall be submitted in writing to the Commissioner, and shall be sufficient in detail to enable the Department to ascertain the basis and the amount of each claim, and to investigate and evaluate each claim in detail. As a minimum, the Contractor must provide the following information for each and every claim and sub-claim asserted:

- 38.5.1** detailed factual statement of the claim, with all dates, locations and items of Work pertinent to the claim.
- 38.5.2** A statement of whether each requested additional amount of compensation or extension of time is based on provisions of the Contract or on an alleged breach of the Contract. Each supporting or breached Contract provision and a statement of the reasons why each such provision supports the claim must be specifically identified or explained.
- 38.5.3** Excerpts from manuals or other texts which are standard in the industry, if available, that support the Contractor's claim.
- 38.5.4** The details of the circumstances that gave rise to the claim.
- 38.5.5** The date(s) on which any and all events resulting in the claim occurred, and the date(s) on which conditions resulting in the claim first became evident to the Contractor.
- 38.5.6** Specific identification of any pertinent document, and detailed description of the substance of any material oral communication, relating to the substance of such claim.
- 38.5.7** If an extension of time is sought, the specific dates and number of Days for which it is sought, and the basis or bases for the extension sought. A critical path method, bar chart, or other type of graphical schedule that supports the extension must be submitted.
- 38.5.8** When submitting any claim over \$50,000, the Contractor shall certify in writing, under oath and in accordance with the formalities required by the contract, as to the following:
  - 38.5.8.1** That supporting data is accurate and complete to the Contractor's best knowledge and belief;

**38.5.8.2** That the amount of the dispute and the dispute itself accurately reflects what the Contractor in good faith believes to be the Department's liability;

**38.5.8.3** The certification shall be executed by:

**38.5.8.3.1** If the Contractor is an individual, the certification shall be executed by that individual.

**38.5.8.3.2** If the Contractor is not an individual, the certification shall be executed by a senior company official in charge at the Contractor's plant or location involved or an officer or general partner of the Contractor having overall responsibility for the conduct of the Contractor's affairs.

**38.6 Auditing of Claims:** All claims filed against the Department shall be subject to audit by the Department or its agents at any time following the filing of such claim. The Contractor and its Subcontractors and suppliers shall cooperate fully with the Department's auditors. Failure of the Contractor, its Subcontractors, or its suppliers to maintain and retain sufficient records to allow the Department or its agents to fully evaluate the claim shall constitute a waiver of any portion of such claim that cannot be verified by specific, adequate, contemporaneous records, and shall bar recovery on any claim or any portion of a claim for which such verification is not produced. Without limiting the foregoing requirements, and as a minimum, the Contractor shall make available to the Department and its agents the following documents in connection with any claim that the Contractor submits:

- 38.6.1** Daily time sheets and foreman's daily reports.
- 38.6.2** Union agreements, if any.
- 38.6.3** Insurance, welfare, and benefits records.
- 38.6.4** Payroll register.
- 38.6.5** Earnings records.
- 38.6.6** Payroll tax returns.
- 38.6.7** Records of property tax payments.
- 38.6.8** Material invoices, purchase orders, and all material and supply acquisition contracts.
- 38.6.9** Materials cost distribution worksheets.
- 38.6.10** Equipment records (list of company equipment, rates, etc.).
- 38.6.11** Vendor rental agreements.
- 38.6.12** Subcontractor invoices to the Contractor, and the Contractor's certificates of payments to Subcontractors.
- 38.6.13** Subcontractor payment certificates.
- 38.6.14** Canceled checks (payroll and vendors).
- 38.6.15** Job cost reports.
- 38.6.16** Job payroll ledger.
- 38.6.17** General ledger, general journal (if used), and all subsidiary ledgers and journals, together with all supporting documentation pertinent to entries made in these ledgers and journals.
- 38.6.18** Cash disbursements journals.

**38.6.19** Financial statements for all years reflecting the operations on the Project.

**38.6.20** Income tax returns for all years reflecting the operations on the Project.

**38.6.21** Depreciation records on all company equipment, whether such records are maintained by the company involved, its accountant, or others.

**38.6.22** If a source other than depreciation records is used to develop costs for the Contractor's internal purposes in establishing the actual cost of owning and operating equipment, all such other source documents.

**38.6.23** All documents which reflect the Contractor's actual profit and overhead during the years that the Project was being performed, and for each of the five years prior to the commencement of the Project.

**38.6.24** All documents related to the preparation of the Contractor's bid, including the final calculations on which the total proposed Contract bid price as stated in the Bid Proposal Form was based.

**38.6.25** All documents which relate to the claim or to any sub-claim, together with all documents that support the amount of damages as to each claim or sub-claim.

**38.6.26** Worksheets used to prepare the claim, which indicate the cost components of each item of the claim, including but not limited to the pertinent costs of labor, benefits and insurance, materials, equipment, and Subcontractors' damages, as well as all documents which establish the relevant time periods, individuals involved, and the Project hours and the rates for the individuals.

**38.6.27** The name, function, and pertinent activity of each Contractor's or Subcontractor's official, or employee, involved in or knowledgeable about events that give rise to, or facts that relate to, the claim.

**38.6.28** The amount(s) of additional compensation sought and a break-down of the amount(s) into the categories specified as payable under Paragraph 38.4 above.

**38.6.29** The name, function, and pertinent activity of each Department official, employee, or agent involved in or knowledgeable about events that give rise to, or facts that relate to, the claim.

### **ARTICLE 39 DIESEL VEHICLE EMISSIONS CONTROL**

**39.1** The Contractor shall be responsible for compliance with the following provisions:

**39.1.1** All Contractor and Subcontractor diesel powered non-road construction equipment with engine horsepower (HP) ratings of 60 HP and above, that are on the Project or are assigned to the Contract for a period in excess of 30 consecutive Days, shall be retrofitted with emission control devices in order to reduce diesel emissions. In addition, all motor vehicles and/or construction equipment (both on-highway and non-road) shall comply with all pertinent State and Federal regulations relative to exhaust emission controls and safety.

**39.1.2** Retrofit emission control devices shall consist of oxidation catalysts, or similar retrofit equipment control technology that is:

**39.1.2.1** Included on the U.S. Environmental Protection Agency (EPA) "Verified Technology List," as may be amended from time to time  
<http://www.epa.gov/otaq/retrofit/retroverifiedlist.htm>  
and

**39.1.2.2** Verified by EPA to provide a minimum emissions reduction of 20% particulate matter (PM<sub>10</sub>), 40% carbon monoxide (CO), and 50% hydrocarbons (HC).

**39.1.3** Construction shall not proceed until all diesel powered non-road construction equipment meeting the criteria in provision 39.1.1 have been retrofitted, unless the Commissioner grants a waiver under provision 39.2.

**39.1.4** The Contractor shall at least monthly, assess which diesel powered non-road construction equipment are subject to these provisions. The Contractor shall notify the CT DCS Project Manager of any violations of these provisions.

**39.1.5** Idling of delivery and/or dump trucks, or other diesel powered equipment shall be limited to three (3) minutes during non-active use in accordance with the Regulations of Connecticut State Agencies Section 22a-74-18(b)(3)(C), which states, in part:

*"[N]o person shall cause or allow a Mobile Source to operate for more than three (3) consecutive minutes when such Mobile Source is not in motion, except as follows:*

*When a Mobile Source is forced to remain motionless because of traffic conditions or mechanical difficulties over which the operator has no control,*

*When it is necessary to operate defrosting, heating or cooling equipment to ensure the safety or health of the driver or passengers,*

*When it is necessary to operate auxiliary equipment that is located in or on the Mobile Source to accomplish the intended use of the Mobile Source, (To bring the Mobile Source to the manufacturer's recommended)*

*When a Mobile Source is in queue to be inspected by U.S. military personnel prior to gaining access to a U.S. military installation."*

**39.1.6** All Work shall be conducted to ensure that no harmful effects are caused to adjacent Sensitive Receptor Sites. Diesel powered engines shall be located away from fresh air intakes, air conditioners, and windows.

**39.1.7** If any diesel powered non-road construction equipment is found to be in non-compliance with these provisions by the CT DCS Project Manager, the Contractor will be issued a Non-Conformance Notice and given a 24 hour period in which to bring the equipment into compliance or remove it from the Project. The Contractor's failure to comply with these provisions shall be reason to withhold payment as described in Article 33.

**39.1.8** Any costs associated with these provisions shall be included in the general cost of the contract. In addition, there shall be no time granted to the Contractor for compliance with these provisions. The Contractor's compliance with these provisions and any associated regulations shall not be grounds for a Change Order.

**39.2** The Commissioner reserves the right to waive all or portions of these provisions at his/her discretion. The Contractor may request a waiver to all or portions of these provisions with written justification to the Commissioner as to why the Contractor cannot comply with these provisions. A waiver, to be effective, must be granted in writing by the Commissioner.

**END**

## Appendix 1



**7048**  
**General Contractor**  
**Retainage Reduction Request**  
**(SAMPLE)**

Page 25 of 25

**To:** Allen V. Herring, P.E., CT DCS Chief Engineer  
 Room 265, 165 Capitol Avenue, Hartford, CT 06106

**From:** (Insert GC's Name), General Contractor

**Subject:** Project No. ( ) Reduction of Retainage at ( )% project completion

In accordance with the General Conditions, Article 28 Progress Payments, (insert GC's name) hereby requests a reduction of retainage to an amount of insert written percent Percent (insert numerical percent%). The following list of items required under the General Conditions is in compliance with the terms of the contract and has been verified by the General Contractor.

- DAS Contractor Performance Evaluation Score is a minimum of **Sixty (60%) Percent**.
- Timely submission of an appropriate and complete CPM Schedule and Schedule of Values, in compliance with the Contract requirements and the prompt resolution of the Owner's and/or A/E's comments on the submitted material resulting in an appropriate basis for progress of the Work.
- Timely and proper submission of all Contract Document required submissions: including but not limited to Shop Drawings, material certificates and material samples and the prompt resolution of the Owner's and/or Architect's or Engineer's comments on the submitted material resulting in an appropriate progress of the Work.
- Proper and adequate supervision and home office support of the Project.
- The Work completed to date has been installed or finished in a manner acceptable to the Owner.
- The progress of the Work is consistent with the approved CPM Schedule.
- All approved credit Change Orders have been invoiced.
- All Change Order requests for pricing are current.
- The General Contractor has and is maintaining a clean worksite in accordance with the Contract Documents.
- All Subcontractor payments are current at the time of reduction request.
- General Contractor is compliant with set-aside provisions of the contract.

**General Contractor Certification:** \_\_\_\_\_  
(Written Name) (Signature) (Date)

**Project Manager Recommendation:** \_\_\_\_\_  
(Written Name) (Signature) (Date)

**Approved:**  
 Allen V. Herring, P.E.  
 CT DCS Chief Engineer  
\_\_\_\_\_ (Signature) (Date)

## SECTION 01 2500 - SUBSTITUTION PROCEDURES

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section includes administrative and procedural requirements for substitutions.
- B. Related Sections:
  - 1. Divisions 02 through 33 Sections for specific requirements and limitations for substitutions.

#### 1.3 DEFINITIONS

- A. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.
  - 1. Substitutions for Cause: Changes proposed by Contractor that are required due to changed Project conditions, such as unavailability of product, regulatory changes, or unavailability of required warranty terms.
  - 2. Substitutions for Convenience: Changes proposed by Contractor or Owner that are not required in order to meet other Project requirements but may offer advantage to Contractor or Owner.

#### 1.4 SUBMITTALS

- A. Substitution Requests: Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
  - 1. Substitution Request Form: Use Form as attached to the end of this Section.
  - 2. Documentation: Show compliance with requirements for substitutions and the following, as applicable:
    - a. Statement indicating why specified product or fabrication or installation cannot be provided, if applicable.
    - b. Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by Owner and separate contractors that will be necessary to accommodate proposed substitution.
    - c. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Include annotated copy of applicable specification section. Significant

qualities may include attributes such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.

- d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
  - e. Samples, where applicable or requested.
  - f. Certificates and qualification data, where applicable or requested.
  - g. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners.
  - h. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
  - i. Research reports evidencing compliance with building code in effect for Project, from ICC-ES.
  - j. Detailed comparison of Contractor's construction schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.
  - k. Cost information, including a proposal of change, if any, in the Contract Sum.
  - l. Contractor's certification that proposed substitution complies with requirements in the Contract Documents except as indicated in substitution request, is compatible with related materials, and is appropriate for applications indicated.
  - m. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.
3. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within seven days of receipt of a request for substitution. Architect will notify Contractor of acceptance or rejection of proposed substitution within seven (7) days of receipt of request, or five (5) days of receipt of additional information or documentation, whichever is later.
- a. Forms of Acceptance: Change Order, Construction Change Directive, or Architect's Supplemental Instructions for minor changes in the Work.
  - b. Use product specified if Architect does not issue a decision on use of a proposed substitution within time allocated.

## 1.5 QUALITY ASSURANCE

- A. Compatibility of Substitutions: Investigate and document compatibility of proposed substitution with related products and materials. Engage qualified testing agency to perform compatibility tests recommended by manufacturers.

## 1.6 PROCEDURES

- A. Coordination: Modify or adjust affected work as necessary to integrate work of the approved substitutions.

## PART 2 - PRODUCTS

### 2.1 SUBSTITUTIONS

- A. Substitutions for Cause: Submit requests for substitution immediately upon discovery of need for change, but not later than ten (10) days prior to time required for preparation and review of related submittals.
1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:
    - a. Requested substitution is consistent with the Contract Documents and will produce indicated results.
    - b. Substitution request is fully documented and properly submitted.
    - c. Requested substitution will not adversely affect Contractor's construction schedule.
    - d. Requested substitution has received necessary approvals of authorities having jurisdiction.
    - e. Requested substitution is compatible with other portions of the Work.
    - f. Requested substitution has been coordinated with other portions of the Work.
    - g. Requested substitution provides specified warranty.
    - h. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.
- B. Substitutions for Convenience: Architect will consider requests for substitution if received within 10 days after the Notice to Proceed. Requests received after that time may be considered or rejected at discretion of Architect.
1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:
    - a. Requested substitution offers Owner a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities Owner must assume. Owner's additional responsibilities may include compensation to Architect for redesign and evaluation services, increased cost of other construction by Owner, and similar considerations.
    - b. Requested substitution does not require extensive revisions to the Contract Documents.
    - c. Requested substitution is consistent with the Contract Documents and will produce indicated results.
    - d. Substitution request is fully documented and properly submitted.
    - e. Requested substitution will not adversely affect Contractor's construction schedule.
    - f. Requested substitution has received necessary approvals of authorities having jurisdiction.
    - g. Requested substitution is compatible with other portions of the Work.
    - h. Requested substitution has been coordinated with other portions of the Work.
    - i. Requested substitution provides specified warranty.

- j. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 2500



SUBSTITUTION REQUEST (After the Bidding Phase)

Project: Substitution Request Number: From: To: Date: A/E Project Number: Re: Contract For:

Specification Title: Description: Section: Page: Article/Paragraph:

Proposed Substitution: Manufacturer: Address: Phone: Trade Name: Model No.: Installer: Address: Phone:

History: [ ] New product [ ] 2-5 years old [ ] 5-10 yrs old [ ] More than 10 years old

Differences between proposed substitution and specified product:

[ ] Point-by-point comparative data attached - REQUIRED BY A/E

Reason for not providing specified item:

Similar Installation:

Project: Architect: Address: Owner: Date Installed:

Proposed substitution affects other parts of Work: [ ] No [ ] Yes; explain

Savings to Owner for accepting substitution: (\$ )

Proposed substitution changes Contract Time: [ ] No [ ] Yes [Add] [Deduct] days.

Supporting Data Attached: [ ] Drawings [ ] Product Data [ ] Samples [ ] Tests [ ] Reports [ ]

**SUBSTITUTION  
REQUEST  
(Continued)**

The Undersigned certifies:

- Proposed substitution has been fully investigated and determined to be equal or superior in all respects to specified product.
- Same warranty will be furnished for proposed substitution as for specified product.
- Same maintenance service and source of replacement parts, as applicable, is available.
- Proposed substitution will have no adverse effect on other trades and will not affect or delay progress schedule.
- Cost data as stated above is complete. Claims for additional costs related to accepted substitution which may subsequently become apparent are to be waived.
- Proposed substitution does not affect dimensions and functional clearances.
- Payment will be made for changes to building design, including A/E design, detailing, and construction costs caused by the substitution.
- Coordination, installation, and changes in the Work as necessary for accepted substitution will be complete in all respects.

Submitted by: \_\_\_\_\_

Signed by: \_\_\_\_\_

Firm: \_\_\_\_\_

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

\_\_\_\_\_

Telephone: \_\_\_\_\_

Attachments: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**A/E's REVIEW AND ACTION**

- Substitution approved - Make submittals in accordance with Specification Section 01330.
- Substitution approved as noted - Make submittals in accordance with Specification Section 01330.
- Substitution rejected - Use specified materials.
- Substitution Request received too late - Use specified materials.

Signed by:

Date:

\_\_\_\_\_

Additional Comments:     Contractor     Subcontractor     Supplier     Manufacturer     A/E     \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

## SECTION 01 2605 - CONTRACT MODIFICATION PROCEDURES

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements for handling and processing Contract modifications.
- B. Related Sections include the following:
  - 1. Division 01 Section "Product Requirements" for administrative procedures for handling requests for substitutions made after Contract award.

#### 1.3 MINOR CHANGES IN THE WORK

- A. Architect will issue supplemental instructions authorizing Minor Changes in the Work, not involving adjustment to the Contract Sum or the Contract Time, on form included at end of Part 3.

#### 1.4 PROPOSAL REQUESTS

- A. Owner-Initiated Proposal Requests: Architect will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.
  - 1. Proposal Requests issued by Architect are for information only. Do not consider them instructions either to stop work in progress or to execute the proposed change.
  - 2. Within seven (7) after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.
    - a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
    - b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
    - c. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
- B. Contractor-Initiated Proposals: If latent or unforeseen conditions require modifications to the Contract, Contractor may propose changes by submitting a request for a change.

1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
4. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
5. Comply with requirements in Division 01 Section "Product Requirements" if the proposed change requires substitution of one product or system for product or system specified.

C. Proposal Request Form: Included at the end of Part 3.

#### 1.5 CHANGE ORDER PROCEDURES

- A. On Owner's approval of a Proposal Request, the Architect will issue a Change Order for signatures of Owner and Contractor on AIA Document G701.

#### 1.6 CONSTRUCTION CHANGE DIRECTIVE

- A. Construction Change Directive: Architect may issue a Construction Change Directive on form included at end of Part 3. Construction Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
  1. Construction Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.
- B. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive.
  1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 2605

## SECTION 01 2900 - PAYMENT PROCEDURES

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements necessary to prepare and process Applications for Payment.
- B. Related Sections include the following:
  - 1. Division 01 Section "Contract Modification Procedures" for administrative procedures for handling changes to the Contract.

#### 1.3 DEFINITIONS

- A. Schedule of Values: A statement furnished by Contractor allocating portions of the Contract Sum to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

#### 1.4 SCHEDULE OF VALUES

- A. Coordination: Coordinate preparation of the Schedule of Values with preparation of Contractor's Construction Schedule.
  - 1. Correlate line items in the Schedule of Values with other required administrative forms and schedules, including the following:
    - a. Application for Payment forms with Continuation Sheets.
    - b. Submittals Schedule.
    - c. Items required to be indicated as separate activities in Contractor's construction schedule.
  - 2. Submit the Schedule of Values to Architect at earliest possible date but no later than seven days before the date scheduled for submittal of initial Applications for Payment.
  - 3. Subschedules for Phased Work: Where the Work is separated into phases requiring separately phased payments, provide subschedules showing values correlated with each phase of payment.
  - 4. Subschedules for Separate Elements of Work: Where the Contractor's construction schedule defines separate elements of the Work, provide subschedules showing values correlated with each element.
- B. Format and Content: Use the Project Manual table of contents as a guide to establish line items for the Schedule of Values. Provide at least one line item for each Specification Section.

1. Identification: Include the following Project identification on the Schedule of Values:
  - a. Project name and location.
  - b. Name of Architect.
  - c. Architect's project number.
  - d. Contractor's name and address.
  - e. Date of submittal.
2. Arrange schedule of values consistent with format of AIA Document G703.
3. Arrange the Schedule of Values in tabular form with separate columns to indicate the following for each item listed:
  - a. Related Specification Section or Division.
  - b. Description of the Work.
  - c. Name of subcontractor.
  - d. Name of manufacturer or fabricator.
  - e. Name of supplier.
  - f. Change Orders (numbers) that affect value.
  - g. Dollar value of the following, as a percentage of the Contract Sum to nearest one-hundredth percent, adjusted to total 100 percent.
    - 1) Labor.
    - 2) Materials.
    - 3) Equipment.
4. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with the Project Manual table of contents.
  - a. Provide several line items for principal subcontract amounts, where appropriate. Include separate line items under required principal subcontracts for project closeout requirements, including operation and maintenance manuals, punch list activities, Project Record Documents, and demonstration and training, in the amount of 5 percent of the Contract Sum.
5. Round amounts to nearest whole dollar; total shall equal the Contract Sum.
6. Provide a separate line item in the Schedule of Values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.
  - a. Differentiate between items stored on-site and items stored off-site. If required, include evidence of insurance or bonded warehousing.
7. Provide separate line items in the Schedule of Values for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of the Work.
8. Allowances: Provide a separate line item in the schedule of values for each allowance. Show line-item value of unit-cost allowances, as a product of the unit cost, multiplied by measured quantity. Use information indicated in the Contract Documents to determine quantities.
9. Each item in the Schedule of Values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.

- a. Temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown either as separate line items in the Schedule of Values or distributed as general overhead expense, at Contractor's option.
10. Schedule Updating: Update and resubmit the Schedule of Values before the next Applications for Payment when Change Orders or Construction Change Directives result in a change in the Contract Sum.

## 1.5 APPLICATIONS FOR PAYMENT

- A. Each Application for Payment shall be consistent with previous applications and payments as certified by Architect and paid for by Owner.
  1. Initial Application for Payment, Application for Payment at time of Substantial Completion, and final Application for Payment involve additional requirements.
- B. Payment Application Times: The date for each progress payment is indicated in the Agreement between Owner and Contractor. The period of construction Work covered by each Application for Payment is the period indicated in the Agreement.
- C. Application for Payment Forms: Use AIA Document G702 and AIA Document G703 Continuation Sheets as form for Applications for Payment.
- D. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Architect will return incomplete applications without action.
  1. Entries shall match data on the Schedule of Values and Contractor's Construction Schedule. Use updated schedules if revisions were made.
  2. Include amounts for work completed following previous Application for Payment, whether or not payment has been received. Include only amounts for work completed at time of Application for Payment.
  3. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.
  4. Indicate separate amounts for work being carried out under Owner-requested project acceleration.
- E. Stored Materials: Include in Application for Payment amounts applied for materials or equipment purchased or fabricated and stored, but not yet installed. Differentiate between items stored on-site and items stored off-site.
  1. Provide certificate of insurance, evidence of transfer of title to Owner, and consent of surety to payment, for stored materials.
  2. Provide supporting documentation that verifies amount requested, such as paid invoices. Match amount requested with amounts indicated on documentation; do not include overhead and profit on stored materials.
  3. Provide summary documentation for stored materials indicating the following:
    - a. Materials previously stored and included in previous Applications for Payment.
    - b. Work completed for this Application utilizing previously stored materials.

- c. Additional materials stored with this Application.
  - d. Total materials remaining stored, including materials with this Application.
  
- F. Transmittal: Submit 3 signed and notarized original copies of each Application for Payment to Architect by a method ensuring receipt within 24 hours. One copy shall include waivers of lien and similar attachments if required.
  - 1. Transmit each copy with a transmittal form listing attachments and recording appropriate information about application.
  
- G. Waivers of Mechanic's Lien: With each Application for Payment, submit waivers of mechanic's liens from subcontractors, sub-subcontractors, and suppliers for construction period covered by the previous application.
  - 1. Submit partial waivers on each item for amount requested in previous application, after deduction for retainage, on each item.
  - 2. When an application shows completion of an item, submit final or full waivers.
  - 3. Owner reserves the right to designate which entities involved in the Work must submit waivers.
  - 4. Submit final Application for Payment with or preceded by final waivers from every entity involved with performance of the Work covered by the application who is lawfully entitled to a lien.
  - 5. Waiver Forms: Submit waivers of lien on forms, executed in a manner acceptable to Owner.
  
- H. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:
  - 1. List of subcontractors.
  - 2. List of principal suppliers and fabricators.
  - 3. Schedule of Values.
  - 4. Contractor's Construction Schedule (preliminary if not final).
  - 5. Products list (preliminary if not final).
  - 6. Schedule of unit prices.
  - 7. Submittals Schedule (preliminary if not final).
  - 8. List of Contractor's staff assignments.
  - 9. List of Contractor's principal consultants.
  - 10. Copies of building permits.
  - 11. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.
  - 12. Initial progress report.
  - 13. Report of preconstruction conference.
  - 14. Certificates of insurance and insurance policies.
  - 15. Performance and payment bonds.
  - 16. Data needed to acquire Owner's insurance.
  - 17. Initial settlement survey and damage report, if required.
  
- I. Application for Payment at Substantial Completion: After issuing the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.
  - 1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.

2. This application shall reflect Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of the Work.
- J. Final Payment Application: Submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:
1. Evidence of completion of Project closeout requirements.
  2. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
  3. Updated final statement, accounting for final changes to the Contract Sum.
  4. AIA Document G706, "Contractor's Affidavit of Payment of Debts and Claims."
  5. AIA Document G706A, "Contractor's Affidavit of Release of Liens."
  6. AIA Document G707, "Consent of Surety to Final Payment."
  7. Evidence that claims have been settled.
  8. Final meter readings for utilities, a measured record of stored fuel, and similar data as of date of Substantial Completion or when Owner took possession of and assumed responsibility for corresponding elements of the Work.
  9. Final liquidated damages settlement statement, if applicable.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 2900

## SECTION 01 3100 - PROJECT MANAGEMENT AND COORDINATION

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:
  - 1. General project coordination procedures.
  - 2. Coordination Drawings.
  - 3. Administrative and supervisory personnel.
  - 4. Project meetings.
  - 5. Requests for Information (RFIs).
- B. Related Sections include the following:
  - 1. Division 01 Section "Closeout Procedures" for coordinating closeout of the Contract.

#### 1.3 DEFINITIONS

- A. RFI: Request from Owner, Architect, or Contractor seeking interpretation or clarification of the Contract Documents.

#### 1.4 COORDINATION

- A. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different Sections that depend on each other for proper installation, connection, and operation.
  - 1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
  - 2. Coordinate installation of different components with other contractors to ensure maximum accessibility for required maintenance, service, and repair.
  - 3. Make adequate provisions to accommodate items scheduled for later installation.
  - 4. Where availability of space is limited, coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair of all components, including mechanical and electrical.
- B. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.

1. Prepare similar memoranda for Owner and separate contractors if coordination of their Work is required.
- C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
1. Preparation of Contractor's Construction Schedule.
  2. Preparation of the Schedule of Values.
  3. Installation and removal of temporary facilities and controls.
  4. Delivery and processing of submittals.
  5. Progress meetings.
  6. Preinstallation conferences.
  7. Project closeout activities.
  8. Startup and adjustment of systems.
- D. Conservation: Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials.
1. Salvage materials and equipment involved in performance of, but not actually incorporated into, the Work. Refer to other Sections for disposition of salvaged materials that are designated as Owner's property.

#### 1.5 KEY PERSONNEL

- A. Key Personnel Names: Within five (5) days of starting construction operations, submit a list of key personnel assignments, including superintendent and other personnel in attendance at Project site. Identify individuals and their duties and responsibilities, including individuals to contact 24 hours per day/7 days per week in the event of an emergency related to the project; list addresses and telephone numbers, including home and office telephone numbers. Provide names, addresses, and telephone numbers of individuals assigned as standbys in the absence of individuals assigned to Project.
1. Post copies of list in Project meeting room, in temporary field office, and by each temporary telephone. Keep list current at all times.

#### 1.6 ADMINISTRATIVE AND SUPERVISORY PERSONNEL

- A. General: In addition to Project superintendent, provide other administrative and supervisory personnel as required for proper performance of the Work.

#### 1.7 PROJECT MEETINGS

- A. General: Schedule and conduct meetings and conferences unless otherwise indicated.
1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Owner's Representatives and Architect of scheduled meeting dates and times.
  2. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.

3. Minutes: Record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including Owner's Representatives and Architect, within seven days of the meeting.
- B. Preconstruction Conference: Schedule and conduct a preconstruction conference before starting construction, at a time convenient to Owner's Representative and Architect, but no later than seven (7) days after execution of the Agreement. Hold the conference at the Project site or another convenient location.
1. Conduct the meeting to review responsibilities and personnel assignments.
  2. Attendees: Authorized representatives of Owner, Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the conference. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
  3. Agenda: Discuss items of significance that could affect progress, including the following:
    - a. Tentative construction schedule.
    - b. Phasing, if applicable.
    - c. Critical work sequencing and long-lead items.
    - d. Designation of key personnel and their duties.
    - e. Lines of communications.
    - f. Procedures for processing field decisions and Change Orders.
    - g. Procedures for RFIs.
    - h. Procedures for testing and inspecting.
    - i. Procedures for processing Applications for Payment.
    - j. Distribution of the Contract Documents.
    - k. Submittal procedures.
    - l. Preparation of Record Documents.
    - m. Use of the premises and existing building.
    - n. Work restrictions.
    - o. Working hours.
    - p. Owner's occupancy requirements.
    - q. Responsibility for temporary facilities and controls.
    - r. Procedures for moisture and mold control.
    - s. Procedures for disruptions and shutdowns.
    - t. Parking availability.
    - u. Office, work, and storage areas.
    - v. Equipment deliveries and priorities.
    - w. First aid.
    - x. Security.
    - y. Progress cleaning.
  4. Minutes: Record and distribute meeting minutes.
- C. Progress Meetings: Conduct progress meetings at the Project site at bi-weekly (twice a month) intervals.
1. Coordinate dates of meetings with preparation of payment requests.
  2. Attendees: In addition to representatives of Owner and Architect, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these

- meetings. All participants at the conference shall be familiar with the Project and authorized to conclude matters relating to the Work.
3. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
    - a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's Construction Schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
      - 1) Review schedule for next period.
    - b. Review present and future needs of each entity present, including the following:
      - 1) Interface requirements.
      - 2) Sequence of operations.
      - 3) Status of submittals.
      - 4) Deliveries.
      - 5) Off-site fabrication.
      - 6) Access.
      - 7) Site utilization.
      - 8) Temporary facilities and controls.
      - 9) Work hours.
      - 10) Hazards and risks.
      - 11) Progress cleaning.
      - 12) Quality and work standards.
      - 13) Status of correction of deficient items.
      - 14) Field observations.
      - 15) Status of RFIs.
      - 16) Status of proposal requests.
      - 17) Pending changes.
      - 18) Status of Change Orders.
      - 19) Pending claims and disputes.
      - 20) Documentation of information for payment requests.
  4. Minutes: Record the meeting minutes.
  5. Reporting: Distribute minutes of the meeting to each party present and to parties who should have been present.
    - a. Schedule Updating: Revise Contractor's Construction Schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.

#### 1.8 REQUESTS FOR INFORMATION (RFIs)

- A. Procedure: Immediately on discovery of the need for additional information or interpretation of the Contract Documents, and if not possible to request interpretation at Project meeting, Contractor shall prepare and submit an RFI in the form specified.
1. RFIs shall originate with Contractor. RFIs submitted by entities other than Contractor will be returned with no response.
  2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.
- B. Content of the RFI: Include a detailed, legible description of item needing interpretation and the following:
1. Project Name.
  2. Project Number.
  3. Date.
  4. Name of Contractor.
  5. Name of Architect.
  6. RFI number, numbered sequentially.
  7. RFI subject.
  8. Specification Section number and title and related paragraphs, as appropriate.
  9. Drawing number and detail references, as appropriate.
  10. Field dimensions and conditions, as appropriate.
  11. Contractor's suggested solution(s). If Contractor's solution(s) impact the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
  12. Contractor's signature.
  13. Attachments: Include drawings, descriptions, measurements, photos, Product Data, Shop Drawings, and other information necessary to fully describe items needing interpretation.
    - a. Supplementary drawings prepared by Contractor shall include dimensions, thicknesses, structural grid references, and details of affected materials, assemblies, and attachments.
- C. RFI Forms: Hard copy form AIA Document G716, a copy of which is included at the end of this Section, or an equivalent Software-generated form with substantially the same content as indicated above, acceptable to Architect.
1. Identify each page of attachments with the RFI number and sequential page number.
- D. Architect's Action: Architect will review each RFI, determine action required, and return it. Allow seven (7) business days for Architect's response for each RFI. RFIs received after 1:00 p.m. will be considered as received the following business day.
1. The following RFIs will be returned without action:
    - a. Requests for approval of submittals.
    - b. Requests for approval of substitutions.
    - c. Requests for coordination information already indicated in the Contract Documents.
    - d. Requests for adjustments in the Contract Time or the Contract Sum.
    - e. Requests for interpretation of Architect's actions on submittals.
    - f. Incomplete RFIs or RFIs with numerous errors.

2. Architect's action may include a request for additional information, in which case Architect's time for response will start again.
  3. Architect's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Proposal according to Division 01 Section "Contract Modification Procedures."
    - a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Architect in writing within seven (7) business days of receipt of the RFI response.
- E. On receipt of Architect's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Architect within seven (7) business days if Contractor disagrees with response.
- F. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log weekly. Use CSI Log Form 13.2B., or Software log acceptable to the Architect and Owner with not less than the following:
1. Project name.
  2. Name and address of Contractor.
  3. Name and address of Architect.
  4. RFI number including RFIs that were dropped and not submitted.
  5. RFI description.
  6. Date the RFI was submitted.
  7. Date Architect's response was received.
  8. Identification of related Minor Change in the Work, Construction Change Directive, and Proposal Request, as appropriate.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 3100

SECTION 01 3350 — SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for submittals required for performance of the Work, including the following:

- 1. Contractor's construction schedule.
- 2. Submittal schedule.
- 3. Daily construction reports.
- 4. Architect's CAD (electronic format) drawings.
- 5. Shop Drawings.
- 6. Product Data.
- 7. Samples.
- 8. Quality assurance submittals.

- B. Administrative Submittals: Refer to other Division 1 Sections and other Contract Documents for requirements for administrative submittals. Such submittals include, but are not limited to, the following:

- 1. Permits.
- 2. Applications for Payment.
- 3. Performance and payment bonds.
- 4. Insurance certificates.
- 5. List of subcontractors.

- C. Related Sections: The following Sections contain requirements that relate to this Section:

- 1. Division 1 Section "Quality Requirements" specifies requirements for submittal of inspection and test reports.
- 2. Division 1 Section "Closeout Procedures" specifies requirements for submittal of Project Record Documents and warranties at project closeout.

1.3 DEFINITIONS

- A. Coordination Drawings show the relationship and integration of different construction elements that require careful coordination during fabrication or installation to fit in the space provided or to function as intended.

1. Preparation of Coordination Drawings is specified in Division 1 Section "Project Management and Coordination" and may include components previously shown in detail on Shop Drawings or Product Data.
- B. Field samples are full-size physical examples erected on-site to illustrate finishes, coatings, or finish materials. Field samples are used to establish the standard by which the Work will be judged.
- C. Mockups are full-size assemblies for review of construction, coordination, testing, or operation; they are not Samples.

#### 1.4 SUBMITTAL PROCEDURES

- A. Coordination: Coordinate preparation and processing of submittals with performance of construction activities. Transmit each submittal sufficiently in advance of performance of related construction activities to avoid delay.
  1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that requires sequential activity.
  2. Coordinate transmittal of different types of submittals for related elements of the Work so processing will not be delayed by the need to review submittals concurrently for coordination.
    - a. The Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until all related submittals are received.
  3. Processing: To avoid the need to delay installation as a result of the time required to process submittals, allow sufficient time for submittal review, including time for resubmittals.
    - a. Allow 1 week for initial review. Allow additional time if the Architect must delay processing to permit coordination with subsequent submittals.
    - b. If an intermediate submittal is necessary, process the same as the initial submittal.
    - c. Allow 1 week for reprocessing each submittal.
    - d. No extension of Contract Time will be authorized because of failure to transmit submittals to the Architect sufficiently in advance of the Work to permit processing.
- B. Submittal Preparation: Place a permanent label or title block on each submittal for identification. Indicate the name of the entity that prepared each submittal on the label or title block.
  1. Provide a space approximately 4 by 5 inches (100 by 125-mm) on the label or beside the title block on Shop Drawings to record the Contractor's review and approval markings and the action taken.
  2. Include the following information on the label for processing and recording action taken.
    - a. Project name.
    - b. Date.
    - c. Name and address of the Architect.
    - d. Name and address of the Contractor.
    - e. Name and address of the subcontractor.
    - f. Name and address of the supplier.
    - g. Name of the manufacturer.
    - h. Number and title of appropriate Specification Section.

- i. Drawing number and detail references, as appropriate.
- C. Submittal Transmittal: Package each submittal appropriately for transmittal and handling. Transmit each submittal from the Contractor to the Architect using a transmittal form. The Architect will not accept submittals received from sources other than the Contractor.
- 1. On the transmittal, record relevant information and requests for data. On the form, or separate sheet, record deviations from Contract Document requirements, including variations and limitations. Include Contractor's certification that information complies with Contract Document requirements.
  - 2. Transmittal Form: Use AIA Document G810.
    - a. Contractor's standard transmittal form may be considered acceptable if similar in content to AIA Document G810.
  - 3. Submittal Cover Sheet: Accompany each submittal with a completed Submittal Coversheet. Include the Project name and address, Construction Manager/Contractor, and supplier/fabricator's names. Identify material or product, note deviations from the requirements of the Contract Documents, and complete other information as indicated.
    - a. Place the Submittal Cover Sheet immediately after the Transmittal Form.
    - b. Leave blank the space indicated for Review Stamps.
    - c. A copy of the Submittal Cover Sheet is included at the end of this Section.
  - 4. "Per the General Conditions, it is the Contractor's responsibility to "review, approve and submit to the Architect Shop Drawings, Product Data, Samples and similar submittals..." It is also the Contractor's responsibility to point out "deviations from requirements of the Contract Documents...at the time of submittal". **SUBMITTALS WITHOUT EVIDENCE OF THE CONTRACTOR'S REVIEW AND AN EXECUTED CERTIFICATION STAMP WILL NOT BE ACCEPTABLE AND WILL BE RETURNED WITHOUT ACTION.** Contractor's review shall show all deviations from the Contract Documents or state "No Deviations Made". On a resubmittal, the Contractor shall highlight any changes made other than those requested by the Architect's earlier review."

1.5 CONTRACTOR'S CONSTRUCTION SCHEDULE

- A. Bar-Chart Schedule: Prepare a fully developed, horizontal bar-chart-type, contractor's construction schedule. Submit within 7 days after the date established for "Commencement of the Work."
- 1. Provide a separate time bar for each significant construction activity. Provide a continuous vertical line to identify the first working day of each week. Use the same breakdown of units of the Work as indicated in the "Schedule of Values."
  - 2. Within each time bar, indicate estimated completion percentage in 10 percent increments. As Work progresses, place a contrasting mark in each bar to indicate Actual Completion.
  - 3. Prepare the schedule on a sheet, or series of sheets, of stable transparency, or other reproducible media, of sufficient width to show data for the entire construction period.
  - 4. Secure time commitments for performing critical elements of the Work from parties involved. Coordinate each element on the schedule with other construction activities; include minor elements involved in the sequence of the Work. Show each activity in proper sequence. Indicate graphically the sequences necessary for completion of related portions of the Work.

5. Coordinate the Contractor's Construction Schedule with the Schedule of Values, list of subcontracts, Submittal Schedule, progress reports, payment requests, and other schedules.
  6. Indicate completion in advance of the date established for Substantial Completion. Indicate Substantial Completion on the schedule to allow time for the Architect's procedures necessary for certification of Substantial Completion.
- B. Cost Correlation: At the head of the schedule, provide a cost correlation line, indicating planned and actual costs. On the line, show dollar volume of Work performed as of the dates used for preparation of payment requests.
1. Refer to Division 1 Section "Payment Procedures" for cost reporting and payment procedures.
- C. Distribution: Following response to the initial submittal, print and distribute copies to the Architect, Owner, subcontractors, and other parties required to comply with scheduled dates. Post copies in the Project meeting room and temporary field office.
1. When revisions are made, distribute to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in construction activities.
- D. Schedule Updating: Revise the schedule after each meeting, event, or activity where revisions have been recognized or made. Issue the updated schedule concurrently with the report of each meeting.

#### 1.6 SUBMITTAL SCHEDULE

- A. After development and acceptance of the Contractor's Construction Schedule, prepare a complete schedule of submittals. Submit the schedule within 10 days of the date required for submittal of the Contractor's Construction Schedule.
1. Coordinate Submittal Schedule with the list of subcontracts, Schedule of Values, and the list of products as well as the Contractor's Construction Schedule.
  2. Prepare the schedule in chronological order. Provide the following information:
    - a. Scheduled date for the first submittal.
    - b. Related Section number.
    - c. Submittal category (Shop Drawings, Product Data, or Samples).
    - d. Name of the subcontractor.
    - e. Description of the part of the Work covered.
    - f. Scheduled date for resubmittal.
    - g. Scheduled date for the Architect's final release or approval.
- B. Distribution: Following response to the initial submittal, print and distribute copies to the Architect, Owner, subcontractors, and other parties required to comply with submittal dates indicated. Post copies in the Project meeting room and field office.
1. When revisions are made, distribute to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in construction activities.

- C. Schedule Updating: Revise the schedule after each meeting or activity where revisions have been recognized or made. Issue the updated schedule concurrently with the report of each meeting.

#### 1.7 DAILY CONSTRUCTION REPORTS

- A. Prepare a daily construction report recording the following information concerning events at the site, and submit duplicate copies to the Architect at weekly intervals:
  1. List of subcontractors at the site.
  2. Approximate count of personnel at the site.
  3. High and low temperatures, general weather conditions.
  4. Accidents and unusual events.
  5. Meetings and significant decisions.
  6. Stoppages, delays, shortages, and losses.
  7. Meter readings and similar recordings.
  8. Emergency procedures.
  9. Orders and requests of governing authorities.
  10. Change Orders received, implemented.
  11. Services connected, disconnected.
  12. Equipment or system tests and startups.
  13. Partial Completions, occupancies.
  14. Substantial Completions authorized.

#### 1.8 ARCHITECT'S CAD DRAWINGS

- A. General: Electronic copies of CAD Drawings of the Contract Drawings will be provided by Architect for Contractor's use in preparing submittals if requested by the Contractor in writing in accordance with the following:
  1. The Architect, as to the compatibility of the electronic files, shall make no representation with the Contractor's hardware or software beyond the specified release of the referenced specifications.
  2. Data contained on the electronic files are part of the Architect's instruments of service and shall not be used by the Contractor or anyone else receiving this data through or from the Contractor for purpose(s) other than as a convenience in the preparation of shop drawings for the referenced project. Other use or reuse by the Contractor or by others will be at the Contractor's sole risk and without liability or legal exposure to the Architect. The Contractor shall agree to make no claim and shall waive, to the fullest extent permitted by law, claim or cause of action of any nature against the Owner, Architect, the Architect's officers, directors, employees, agents or consultants that may arise out of or in connection with the Contractor's use of the electronic files.
  3. Furthermore, the Contractor shall, to the fullest extent permitted by law, indemnify and hold the Owner and the Architect harmless against all damages, liabilities or cost, including reasonable attorneys' fees and defense costs, arising out of or resulting from the Contractor's use of the electronic files.
  4. The electronic files shall not be considered Contract Documents. Differences may exist between the electronic files and corresponding printed-copy Contract Documents. The Architect shall make no representation regarding the accuracy or completeness of the electronic files the Contractor shall receive. In the event that a conflict arises between the printed-copy Contract Documents prepared by the Architect or the Architect's consultants and the electronic files, the printed-copy Contract Documents shall govern. The Contractor shall be responsible for

determining if conflicts exist. By using the electronic files, the Contractor shall not be relieved of his duty to fully comply with the Contract Documents, including, and without limitations, the need to check, confirm and coordinate all dimensions and details, take field measurements, verify field conditions and coordinate the Contractor's work with that of other contractors for the project.

5. Because information presented on the electronic files can be modified, unintentionally or otherwise, the Architect reserves the right to remove all indication of ownership and / or involvement from each electronic display.
  - a. The Contractor shall remove all indication of the Architect's and his consultant's ownership and/or involvement from files, which the Contractor chooses to incorporate into a submittal.
6. The Contractor shall reimburse the Architect a flat fee of \$300.00 for each CD-ROM containing up to 10 files, and \$20.00 per file for each additional file thereafter.
7. Under no circumstances shall delivery of the electronic files for use by the contractor be deemed a sale by the owner or the architect, and the architect makes no warranties, either express or implied, of merchantability and fitness for any particular purpose. In no event shall the architect be liable for any lost profit or any consequential damages as a result of the contractor's use or reuse of the electronic files.

B. CAD Drawing Format:

1. Architectural CAD Drawings will be available in AutoDesk Architectural Desktop 3.3 Format.
2. Mechanical and Electrical CAD Drawings will be available in AutoDesk Architectural Desktop 3.3 Format.

C. Incorporation of Contract Drawing CAD Files

1. The Contractor shall limit incorporation of the Architect's and the Architect's consultant's CAD files into submittals for the purpose only of providing reference to work not directly a part of the submittal. Information on the CAD files shall not be directly used for delineating the required Scope of Work for the submittal.

1.9 SHOP DRAWINGS

- A. Submit newly prepared information drawn accurately to scale. Highlight, encircle, or otherwise indicate deviations from the Contract Documents. Do not reproduce Contract Documents or copy standard information as the basis of Shop Drawings. Standard information prepared without specific reference to the Project is not a Shop Drawing.
- B. Shop Drawings include fabrication and installation Drawings, setting diagrams, schedules, patterns, templates and similar Drawings. Include the following information:
  1. Dimensions.
  2. Identification of products and materials included by sheet and detail number.
  3. Compliance with specified standards.
  4. Notation of coordination requirements.
  5. Notation of dimensions established by field measurement.

6. 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 36 by 48 inches (890 by 1220 mm).
7. Initial Submittal: Submit one correctable, translucent, reproducible and one blue- or black-line print for the Architect's review. The Architect will return the reproducible.
8. Final Submittal: Submit 3 blue- or black-line prints; submit 5 prints where required for maintenance manuals. The Architect will retain 2 prints and return the remainder.
  - a. One of the prints returned shall be marked up and maintained as a "Record Document."
9. Do not use Shop Drawings without an appropriate final stamp indicating action taken.

C. Work by Consultants:

1. For work designed by one of the Architect's consultants, submit one additional blue- or black-line print, sample, product data or the like as required elsewhere in this section.
  - a. Make the submittal directly to the respective consultant in quantities specified.
2. Consultants are as follows:
  - a. For mechanical, electrical, plumbing and fire protection work, submit to:  
Consulting Engineering Services  
811 Middle Street  
Middletown, CT 06457

1.10 PRODUCT DATA

- A. Collect Product Data into a single submittal for each element of construction or system. Product Data includes printed information, such as manufacturer's installation instructions, catalog cuts, standard color charts, roughing-in diagrams and templates, standard wiring diagrams, and performance curves.
  1. Mark each copy to show applicable choices and options. Where printed Product Data includes information on several products that are not required, mark copies to indicate the applicable information. Include the following information:
    - a. Manufacturer's printed recommendations.
    - b. Compliance with trade association standards.
    - c. Compliance with recognized testing agency standards.
    - d. Application of testing agency labels and seals.
    - e. Notation of dimensions verified by field measurement.
    - f. Notation of coordination requirements.
  2. Do not submit Product Data until compliance with requirements of the Contract Documents has been confirmed.
  3. Preliminary Submittal: Submit a preliminary single copy of Product Data where selection of options is required.
  4. Submittals: Submit 2 copies of each required submittal; submit 4 copies where required for maintenance manuals. The Architect will retain one and will return the other marked with action taken and corrections or modifications required.

- a. Unless noncompliance with Contract Document provisions is observed, the submittal may serve as the final submittal.
  - b. Refer to "Work by Consultants" paragraph for applicable submittal procedures for work designed by one of the Architect's consultants.
5. Distribution: Furnish copies of final submittal to installers, subcontractors, suppliers, manufacturers, fabricators, and others required for performance of construction activities. Show distribution on transmittal forms.
- a. Do not proceed with installation until a copy of Product Data is in the Installer's possession.
  - b. Do not permit use of unmarked copies of Product Data in connection with construction.

#### 1.11 SAMPLES

- A. Submit full-size, fully fabricated Samples cured and finished as specified and physically identical with the material or product proposed. Samples include partial sections of manufactured or fabricated components, cuts or containers of materials, color range sets, and swatches showing color, texture, and pattern.
1. Mount or display Samples in the manner to facilitate review of qualities indicated. Prepare Samples to match the Architect's sample. Include the following:
    - a. Specification Section number and reference.
    - b. Generic description of the Sample.
    - c. Sample source.
    - d. Product name or name of the manufacturer.
    - e. Compliance with recognized standards.
    - f. Availability and delivery time.
  2. Submit Samples for review of size, kind, color, pattern, and texture. Submit Samples for a final check of these characteristics with other elements and a comparison of these characteristics between the final submittal and the actual component as delivered and installed.
    - a. Where variation in color, pattern, texture, or other characteristic is inherent in the material or product represented, submit at least 3 multiple units that show approximate limits of the variations.
    - b. Refer to other Specification Sections for requirements for Samples that illustrate workmanship, fabrication techniques, and details of assembly, connections, operation, and similar construction characteristics.
    - c. Refer to other Sections for Samples to be returned to the Contractor for incorporation in the Work. Such Samples must be undamaged at time of use. On the transmittal, indicate special requests regarding disposition of Sample submittals.
    - d. Samples not incorporated into the Work, or otherwise designated as the Owner's property, are the property of the Contractor and shall be removed from the site prior to Substantial Completion.
  3. Preliminary Submittals: Submit a full set of choices where Samples are submitted for selection of color, pattern, texture, or similar characteristics from a range of standard choices.

- a. The Architect will review and return preliminary submittals with the Architect's notation, indicating selection and other action.
4. Submittals: Except for Samples illustrating assembly details, workmanship, fabrication techniques, connections, operation, and similar characteristics, submit 3 sets. The Architect will return one set marked with the action taken.
5. Maintain sets of Samples, as returned, at the Project Site, for quality comparisons throughout the course of construction.
  - a. Unless noncompliance with Contract Document provisions is observed, the submittal may serve as the final submittal.
  - b. Sample sets may be used to obtain final acceptance of the construction associated with each set.
- B. Distribution of Samples: Prepare and distribute additional sets to subcontractors, manufacturers, fabricators, suppliers, installers, and others as required for performance of the Work. Show distribution on transmittal forms.
  1. Field samples are full-size examples erected on-site to illustrate finishes, coatings, or finish materials and to establish the Project standard.
    - a. Comply with submittal requirements to the fullest extent possible. Process transmittal forms to provide a record of activity.

#### 1.12 QUALITY ASSURANCE SUBMITTALS

- A. Submit quality-control submittals, including design data, certifications, manufacturer's instructions, manufacturer's field reports, and other quality-control submittals as required under other Sections of the Specifications.
- B. Certifications: Where other Sections of the Specifications require certification that a product, material, or installation complies with specified requirements, submit a notarized certification from the manufacturer certifying compliance with specified requirements.
  1. Signature: An officer of the manufacturer shall sign Certification or other individual authorized to sign documents on behalf of the company.
- C. Inspection and Test Reports: Requirements for submittal of inspection and test reports from independent testing agencies are specified in Division 1 Section "Quality Requirements."

#### 1.13 ARCHITECT'S ACTION

- A. Informational Submission: Certifications, inspection reports and test reports will be reviewed by the Architect and/or his consultants for compliance with the Contract Documents.
  1. If in compliance, submission will be filed.
  2. If not in compliance, response shall be in written (letter) form with instructions as to procedure/action required by the Contractor.

- B. Submittals for Review and Approval: Architect and/or his consultants shall review, indicate action taken (Approved Status) and direction to the Contractor (Response Required) and return.
- C. Architect's Review Stamp: Each submittal for approval will be stamped and marked to indicate the action taken and direction as follows:
1. Final Unrestricted Release: When the Architect marks a submittal "APPROVED", the work covered by the submittal may proceed provided it complies with the requirements of the Contract Documents. Payment for the work depends on that compliance.
  2. Final-But-Restricted Release: When the Architect marks a submittal "APPROVED AS CORRECTED" the work covered by the submittal may proceed provided it complies with notations or corrections on the submittal and it complies with the requirements of the Contract Documents. Payment depends on that compliance. At the discretion of the Architect, a mark of "RESUBMIT FOR RECORD WITH ALL CORRECTIONS INCORPORATED" shall require the submission of corrected copies for distribution to all parties.
  3. Returned for Resubmittal: When the Architect marks a submittal "REVISE AND RESUBMIT", "NOT APPROVED", or "SUBMIT SPECIFIED ITEM", do not proceed with the work covered by the submittal in any aspect. Do not use or allow others to use these submittals.
    - a. If "REVISE AND RESUBMIT", revise or prepare a new submittal according to notations and/or corrections; resubmit without delay. Repeat, if necessary, to obtain an approval status that will permit the work to proceed.
    - b. If "NOT APPROVED" or "SUBMIT SPECIFIED ITEM", the submittal is fundamentally not in compliance. No corrections or notations will be made. Discard submittal and prepare a new submittal immediately.
  4. Other Action: Where a submittal is for general information, record purposes, or special processing or other activity, the Architect will return the submittal marked "NO ACTION REQUIRED."
- D. Unsolicited Submittals: The Architect will discard unsolicited submittals without any review or action.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 01 3350

SECTION 01 4000 - QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for quality assurance and quality control.
- B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.
  - 1. Specific quality-assurance and -control requirements for individual construction activities are specified in the Sections that specify those activities, or in a Program of Test and Inspections. Requirements in those Sections may also cover production of standard products.
  - 2. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and -control procedures that facilitate compliance with the Contract Document requirements.
  - 3. Requirements for Contractor to provide quality-assurance and -control services required by Architect, Owner, or authorities having jurisdiction are not limited by provisions of this Section.
- C. Related Sections include the following:
  - 1. Divisions 02 through 33 Sections for specific test and inspection requirements.

1.3 DEFINITIONS

- A. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.
- B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Services do not include contract enforcement activities performed by Architect
- C. Mockups: Full-size, physical assemblies that are constructed on-site. Mockups are used to verify selections made under sample submittals, to demonstrate aesthetic effects and, where indicated, qualities of materials and execution; to review coordination, testing, or operation; to show interface between dissimilar materials; and to demonstrate compliance with specified installation tolerances. Mockups are not Samples. Unless otherwise indicated, approved mockups establish the standard by which the Work will be judged.

1. Laboratory Mockups: Full-size, physical assemblies constructed at testing facility to verify performance characteristics.
  2. Integrated Exterior Mockups: Mockups of the exterior envelope erected separately from the building but on the project site, consisting of multiple products, assemblies and subassemblies.
  3. Room Mockups: Mockups of typical interior spaces complete with walls and ceiling finishes, utility devices, casework, equipment, and lighting as indicated.
- D. Preconstruction Testing: Tests and inspections that are performed specifically for the Project before products and materials are incorporated into the Work to verify performance or compliance with specified criteria.
- E. Product Testing: Tests and inspections that are performed by an NRTL, an NVLAP, or a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with industry standards.
- F. Source Quality-Control Testing: Tests and inspections that are performed at the source, i.e., plant, mill, factory, or shop.
- G. Field Quality-Control Testing: Tests and inspections that are performed on-site for installation of the Work and for completed Work.
- H. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.
- I. Special Inspector: An individual with special expertise or qualification as required by a Program of Tests and Inspections who performs specific tests, inspections, or both.
- J. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations.
1. Using a trade-specific terminology such as "carpentry" in referring to a trade or entity does not require that certain construction activities be performed by accredited or unionized individuals, or that requirements specified apply exclusively to specific trade or trades.
- K. Experienced: When used with an entity, "experienced" means having successfully completed a minimum of five previous projects similar in size and scope to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

#### 1.4 CONFLICTING REQUIREMENTS

- A. General: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer uncertainties and requirements that are different, but apparently equal, to Architect for a decision before proceeding.
- B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with

these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Architect for a decision before proceeding.

### 1.5 ACTION SUBMITTALS

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

### 1.6 INFORMATIONAL SUBMITTALS

- A. Contractor's Quality-Control Plan: For quality-assurance and quality-control activities and responsibilities.
- B. Contractor's Quality-Control Manager Qualifications: For supervisory personnel.
- C. Contractor's Statement of Responsibility: When required by authorities having jurisdiction, submit copy of written statement of responsibility sent to authorities having jurisdiction before starting work on the following systems.
  - 1. Seismic-force resisting system, designated seismic system, or component listed in the designated seismic system quality assurance plan prepared by the Architect.
  - 2. Main wind-force resisting system or a wind-resisting component listed in the wind-force-resisting system quality assurance plan prepared by the Architect.
- D. Testing Agency Qualifications: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.

### 1.7 REPORTS AND DOCUMENTS

- A. Test and Inspection Reports: Prepare and submit certified written reports specified in other Sections. Include the following:
  - 1. Specification Section number and title.
  - 2. Description of test and inspection.
  - 3. Identification of applicable standards.
  - 4. Identification of test and inspection methods.
  - 5. Number of tests and inspections required.
  - 6. Time schedule or time span for tests and inspections.
  - 7. Entity responsible for performing tests and inspections.
  - 8. Requirements for obtaining samples.
  - 9. Unique characteristics of each quality-control service.
- B. Reports: Prepare and submit certified written reports that include the following:

1. Date of issue.
  2. Project title and number.
  3. Name, address, and telephone number of testing agency.
  4. Dates and locations of samples and tests or inspections.
  5. Names of individuals making tests and inspections.
  6. Description of the Work and test and inspection method.
  7. Identification of Specification Section.
  8. Complete test or inspection data.
  9. Test and inspection results and an interpretation of test results.
  10. Record of temperature and weather conditions at time of sample taking and testing and inspecting.
  11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
  12. Name and signature of laboratory inspector.
  13. Recommendations on retesting and reinspecting.
- C. Manufacturer's Technical Representative's Field Reports: Prepare written information documenting manufacturer's technical representative's tests and inspections specified in other Sections. Include the following:
1. Name, address, and telephone number of technical representative making report.
  2. Statement on condition of substrates and their acceptability for installation of product.
  3. Statement that products at Project site comply with requirements.
  4. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
  5. Results of operational and other tests and a statement of whether observed performance complies with requirements.
  6. Statement whether conditions, products, and installation will affect warranty.
  7. Other required items indicated in individual Specification Sections.
- D. Factory-Authorized Service Representative's Reports: Prepare written information documenting manufacturer's factory-authorized service representative's tests and inspections specified in other Sections. Include the following:
1. Name, address, and telephone number of factory-authorized service representative making report.
  2. Statement that equipment complies with requirements.
  3. Results of operational and other tests and a statement of whether observed performance complies with requirements.
  4. Statement whether conditions, products, and installation will affect warranty.
  5. Other required items indicated in individual Specification Sections.
- E. Permits, Licenses, and Certificates: For Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

## 1.8 QUALITY ASSURANCE

- A. General: Qualifications paragraphs in this Article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.
- B. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- C. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- D. Installer Qualifications: A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.
- E. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or products that are similar to those indicated for this Project in material, design, and extent.
- F. Specialists: Certain sections of the Specifications require that specific construction activities shall be performed by entities who are recognized experts in those operations. Specialists shall satisfy qualification requirements indicated and shall be engaged for the activities indicated.
  - 1. Requirement for specialists shall not supersede building codes and regulations governing the Work.
- G. Testing Agency Qualifications: An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspecting indicated, as documented according to ASTM E 329; and with additional qualifications specified in individual Sections; and where required by authorities having jurisdiction, that is acceptable to authorities.
  - 1. NRTL: A nationally recognized testing laboratory according to 29 CFR 1910.7.
  - 2. NVLAP: A testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program.
- H. Manufacturer's Technical Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to observe and inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project
- I. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

## 1.9 QUALITY CONTROL

- A. Owner Responsibilities: Where quality-control services are indicated as Owner's responsibility, Owner will engage a qualified testing agency to perform these services.

CONSTRUCTION SET

1. Owner will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of types of testing and inspecting they are engaged to perform.
  2. Costs for retesting and reinspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor, and the Contract Sum will be adjusted by Change Order.
- B. Contractor Responsibilities: Tests and inspections not explicitly assigned to Owner are Contractor's responsibility. Perform additional quality-control activities required to verify that the Work complies with requirements, whether specified or not.
1. Unless otherwise indicated, provide quality-control services specified and those required by authorities having jurisdiction. Perform quality-control services required of Contractor by authorities having jurisdiction, whether specified or not.
  2. Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these quality-control services.
    - a. Contractor shall not employ same entity engaged by Owner, unless agreed to in writing by Owner.
  3. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspecting will be performed.
  4. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
  5. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
  6. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.
- C. Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing as specified in Division 01 Section "Submittal Procedures."
- D. Manufacturer's Technical Services: Where indicated, engage a manufacturer's technical representative to observe and inspect the Work. Manufacturer's technical representative's services include participation in preinstallation conferences, examination of substrates and conditions, verification of materials, observation of Installer activities, inspection of completed portions of the Work, and submittal of written reports.
- E. Retesting/Reinspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspecting, for construction that replaced Work that failed to comply with the Contract Documents.
- F. Testing Agency Responsibilities: Cooperate with Architect and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.
1. Notify Architect and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
  2. Determine the location from which test samples will be taken and in which in-situ tests are conducted.

3. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
  4. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.
  5. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
  6. Do not perform any duties of Contractor.
- G. Associated Services: Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:
1. Access to the Work.
  2. Incidental labor and facilities necessary to facilitate tests and inspections.
  3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
  4. Facilities for storage and field curing of test samples.
  5. Delivery of samples to testing agencies.
  6. Preliminary design mix proposed for use for material mixes that require control by testing agency.
  7. Security and protection for samples and for testing and inspecting equipment at Project site.
- H. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and -control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.
1. Schedule times for tests, inspections, obtaining samples, and similar activities.
- I. Schedule of Tests and Inspections: Prepare a schedule of tests, inspections, and similar quality-control services required by the Contract Documents as a component of the Contractor's quality-control plan. Coordinate and submit concurrently with Contractor's construction schedule. Update as the Work progresses.
1. Distribution: Distribute schedule to Owner, Architect, testing agencies, and each party involved in performance of portions of the Work where tests and inspections are required.

## PART 2 - PRODUCTS (Not Used)

## PART 3 - EXECUTION

### 3.1 TEST AND INSPECTION LOG

- A. Prepare a record of tests and inspections. Include the following:
1. Date test or inspection was conducted.
  2. Description of the Work tested or inspected.
  3. Date test or inspection results were transmitted to Architect.
  4. Identification of testing agency or special inspector conducting test or inspection.

- B. Maintain log at Project site. Post changes and modifications as they occur. Provide access to test and inspection log for Architect's reference during normal working hours.

### 3.2 REPAIR AND PROTECTION

- A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.
  - 1. Provide materials and comply with installation requirements specified in other Specification Sections. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible.
  - 2. Comply with the Contract Document requirements for Division 01 Section "Cutting and Patching."
- B. Protect construction exposed by or for quality-control service activities.
- C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION 01 4000

SECTION 01 4200 - REFERENCES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 DEFINITIONS

- A. General: Basic Contract definitions are included in the Conditions of the Contract.
- B. "Approved": When used to convey Architect's action on Contractor's submittals, applications, and requests, "approved" is limited to Architect's duties and responsibilities as stated in the Conditions of the Contract.
- C. "Directed": A command or instruction by Architect. Other terms including "requested," "authorized," "selected," "approved," "required," and "permitted" have the same meaning as "directed."
- D. "Indicated": Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms including "shown," "noted," "scheduled," and "specified" have the same meaning as "indicated."
- E. "Regulations": Laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, and rules, conventions, and agreements within the construction industry that control performance of the Work.
- F. "Furnish": Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.
- G. "Install": Operations at Project site including unloading, temporarily storing, unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.
- H. "Provide": Furnish and install, complete and ready for the intended use.
- I. "Project Site": Space available for performing construction activities. The extent of Project site is shown on Drawings and may or may not be identical with the description of the land on which Project is to be built.

1.3 INDUSTRY STANDARDS

- A. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied



## 1.4 ABBREVIATIONS AND ACRONYMS

- A. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web-site addresses are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

AA	Aluminum Association, Inc. (The) www.aluminum.org	(202) 862-5100
AABC	Associated Air Balance Council www.aabchq.com	(202) 737-0202
AAMA	American Architectural Manufacturers Association www.aamanet.org	(847) 303-5664
AASHTO	American Association of State Highway and Transportation Officials www.transportation.org	(202) 624-5800
AATCC	American Association of Textile Chemists and Colorists (The) www.aatcc.org	(919) 549-8141
ABMA	American Bearing Manufacturers Association www.abma-dc.org	(202) 367-1155
ACI	ACI International (American Concrete Institute) www.aci-int.org	(248) 848-3700
ACPA	American Concrete Pipe Association www.concrete-pipe.org	(972) 506-7216
AEIC	Association of Edison Illuminating Companies, Inc. (The) www.aeic.org	(205) 257-2530
AF&PA	American Forest & Paper Association www.afandpa.org	(800) 878-8878 (202) 463-2700
AGA	American Gas Association www.aga.org	(202) 824-7000
AGC	Associated General Contractors of America (The) www.agc.org	(703) 548-3118
AHA	American Hardboard Association (Now part of CPA)	
AI	Asphalt Institute	(859) 288-4960

CONSTRUCTION SET

AIA	www.asphaltinstitute.org American Institute of Architects (The) www.aia.org	(800) 242-3837 (202) 626-7300
AISC	American Institute of Steel Construction www.aisc.org	(800) 644-2400 (312) 670-2400
AISI	American Iron and Steel Institute www.steel.org	(202) 452-7100
ALCA	Associated Landscape Contractors of America www.alca.org	(800) 395-2522 (703) 736-9666
ALSC	American Lumber Standard Committee, Incorporated www.alsc.org	(301) 972-1700
AMCA	Air Movement and Control Association International, Inc. www.amca.org	(847) 394-0150
ANSI	American National Standards Institute www.ansi.org	(202) 293-8020
AOSA	Association of Official Seed Analysts www.aosaseed.com	(505) 522-1437
API	American Petroleum Institute www.api.org	(202) 682-8000
ARI	Air-Conditioning & Refrigeration Institute www.ari.org	(703) 524-8800
ASCE	American Society of Civil Engineers www.asce.org	(800) 548-2723 (703) 295-6300
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers www.ashrae.org	(800) 527-4723 (404) 636-8400
ASME	ASME International (The American Society of Mechanical Engineers International) www.asme.org	(800) 843-2763 (212) 591-7722
ASSE	American Society of Sanitary Engineering www.asse-plumbing.org	(440) 835-3040
ASTM	ASTM International (American Society for Testing and Materials International) www.astm.org	(610) 832-9585
AWCI	AWCI International	(703) 534-8300

CONSTRUCTION SET

	(Association of the Wall and Ceiling Industries International) www.awci.org	
AWCMA	American Window Covering Manufacturers Association (Now WCSC)	
AWI	Architectural Woodwork Institute www.awinet.org	(800) 449-8811 (703) 733-0600
AWS	American Welding Society www.aws.org	(800) 443-9353 (305) 443-9353
AWWA	American Water Works Association www.awwa.org	(800) 926-7337 (303) 794-7711
BHMA	Builders Hardware Manufacturers Association www.buildershardware.com	(212) 297-2122
BIA	Brick Industry Association (The) www.bia.org	(703) 620-0010
BICSI	BICSI www.bicsi.org	(813) 979-1991
CDA	Copper Development Association Inc. www.copper.org	(800) 232-3282 (212) 251-7200
CFFA	Chemical Fabrics & Film Association, Inc. www.chemicalfabricsandfilm.com	(216) 241-7333
CGA	Compressed Gas Association	(703) 788-2700
CISCA	Ceilings & Interior Systems Construction Association www.cisca.org	(630) 584-1919
CISPI	Cast Iron Soil Pipe Institute www.cispi.org	(423) 892-0137
CPPA	Corrugated Polyethylene Pipe Association www.cppa-info.org	(800) 510-2772 (202) 462-9607
CRSI	Concrete Reinforcing Steel Institute www.crsi.org	(847) 517-1200
CSA	CSA International (Formerly: IAS - International Approval Services) www.csa-international.org	(800) 463-6727 (416) 747-4000
CSI	Construction Specifications Institute (The) www.csinet.org	(800) 689-2900 (703) 684-0300

CONSTRUCTION SET

CTI	Cooling Technology Institute (Formerly: Cooling Tower Institute) www.cti.org	(281) 583-4087
DHI	Door and Hardware Institute www.dhi.org	(703) 222-2010
EIA	Electronic Industries Alliance www.eia.org	(703) 907-7500
EIMA	EIFS Industry Members Association www.eima.com	(800) 294-3462 (770) 968-7945
EJMA	Expansion Joint Manufacturers Association, Inc. www.ejma.org	(914) 332-0040
ESD	ESD Association www.esda.org	(315) 339-6937
FCI	Fluid Controls Institute www.fluidcontrolsinstitute.org	(216) 241-7333
FM	Factory Mutual System (Now FMG)	
FMG	FM Global (Formerly: FM - Factory Mutual System) www.fmglobal.com	(401) 275-3000
FSA	Fluid Sealing Association www.fluidsealing.com	(610) 971-4850
FSC	Forest Stewardship Council www.fsc.org	52 951 5146905
GA	Gypsum Association www.gypsum.org	(202) 289-5440
GANA	Glass Association of North America www.glasswebsite.com	(785) 271-0208
GRI	(Now GSI)	
GSI	Geosynthetic Institute www.geosynthetic-institute.org	(610) 522-8440
HI	Hydraulic Institute www.pumps.org	(888) 786-7744 (973) 267-9700
HI	Hydronics Institute www.gamanet.org	(908) 464-8200

CONSTRUCTION SET

HPVA	Hardwood Plywood & Veneer Association www.hpva.org	(703) 435-2900
HPW	H. P. White Laboratory, Inc. www.hpwhite.com	(410) 838-6550
IAS	International Approval Services (Now CSA International)	
ICEA	Insulated Cable Engineers Association, Inc. www.icea.net	(770) 830-0369
ICRI	International Concrete Repair Institute, Inc.	(847) 827-0830
IEC	International Electrotechnical Commission www.iec.ch	41 22 919 02 11
IEEE	Institute of Electrical and Electronics Engineers, Inc. (The) www.ieee.org	(212) 419-7900
IESNA	Illuminating Engineering Society of North America www.iesna.org	(212) 248-5000
IGCC	Insulating Glass Certification Council www.igcc.org	(315) 646-2234
IGMA	Insulating Glass Manufacturers Alliance (The) www.igmaonline.org	(613) 233-1510
ISO	International Organization for Standardization www.iso.ch	41 22 749 01 11
ISSFA	International Solid Surface Fabricators Association www.issfa.net	(702) 567-8150
ITS	Intertek www.intertek.com	(800) 345-3851 (607) 753-6711
ITU	International Telecommunication Union www.itu.int/home	41 22 730 51 11
LMA	Laminating Materials Association (Now part of CPA)	
LPI	Lightning Protection Institute www.lightning.org	(800) 488-6864 (847) 577-7200
MFMA	Metal Framing Manufacturers Association www.metalframingmfg.org	(312) 644-6610

CONSTRUCTION SET

MPI	Master Painters Institute www.paintinfo.com	(888) 674-8937
MSS	Manufacturers Standardization Society of The Valve and Fittings Industry Inc. www.mss-hq.com	(703) 281-6613
NAAMM	National Association of Architectural Metal Manufacturers <a href="http://www.naamm.org">www.naamm.org</a>	(312) 332-0405
NACE	NACE International (National Association of Corrosion Engineers International) www.nace.org	(281) 228-6200
NADCA	National Air Duct Cleaners Association www.nadca.com	(202) 737-2926
NAIMA	North American Insulation Manufacturers Association (The) www.naima.org	(703) 684-0084
NCPI	National Clay Pipe Institute www.ncpi.org	(262) 248-9094
NCTA	National Cable & Telecommunications Association www.ncta.com	(202) 775-3550
NEBB	National Environmental Balancing Bureau www.nebb.org	(301) 977-3698
NECA	National Electrical Contractors Association www.necanet.org	(301) 657-3110
NeLMA	Northeastern Lumber Manufacturers' Association www.nelma.org	(207) 829-6901
NEMA	National Electrical Manufacturers Association www.nema.org	(703) 841-3200
NETA	International Electrical Testing Association www.netaworld.org	(303) 697-8441
NFPA	NFPA (National Fire Protection Association) <a href="http://www.nfpa.org">www.nfpa.org</a>	(800) 344-3555 (617) 770-3000
NFRC	National Fenestration Rating Council www.nfrc.org	(301) 589-1776
NGA	National Glass Association	(703) 442-4890

CONSTRUCTION SET

	www.glass.org	
NHLA	National Hardwood Lumber Association www.natlhardwood.org	(800) 933-0318 (901) 377-1818
NLGA	National Lumber Grades Authority www.nlga.org	(604) 524-2393
NRCA	National Roofing Contractors Association www.nrca.net	(800) 323-9545 (847) 299-9070
NRMCA	National Ready Mixed Concrete Association www.nrmca.org	(888) 846-7622 (301) 587-1400
NSF	NSF International (National Sanitation Foundation International) www.nsf.org	(800) 673-6275 (734) 769-8010
NSSGA	National Stone, Sand & Gravel Association www.nssga.org	(800) 342-1415 (703) 525-8788
OPL	Omega Point Laboratories, Inc. www.opl.com	(800) 966-5253 (210) 635-8100
PDCA	Painting & Decorating Contractors of America www.pdca.com	(800) 332-7322 (314) 514-7322
PDI	Plumbing & Drainage Institute www.pdionline.org	(800) 589-8956 (978) 557-0720
RCSC	Research Council on Structural Connections www.boltcouncil.org	(800) 644-2400 (312) 670-2400
RFCI	Resilient Floor Covering Institute www.rfci.com	(301) 340-8580
SAE	SAE International www.sae.org	(724) 776-4841
SEI	Structural Engineering Institute www.seinstitute.com	(800) 548-2723 (703) 295-6195
SGCC	Safety Glazing Certification Council	(315) 646-2234
SIA	Security Industry Association www.siaonline.org	(703) 683-2075
SIGMA	Sealed Insulating Glass Manufacturers Association (Now IGMA)	

CONSTRUCTION SET

SMACNA	Sheet Metal and Air Conditioning Contractors' National Association www.smacna.org	(703) 803-2980
SPIB	Southern Pine Inspection Bureau (The) www.spib.org	(850) 434-2611
SPRI	SPRI (Single Ply Roofing Institute) www.spri.org	(781) 647-7026
SSINA	Specialty Steel Industry of North America www.ssina.com	(800) 982-0355 (202) 342-8630
SSPC	SSPC: The Society for Protective Coatings www.sspc.org	(877) 281-7772 (412) 281-2331
STI	Steel Tank Institute www.steeltank.com	(847) 438-8265
SWRI	Sealant, Waterproofing, & Restoration Institute www.swrionline.org	(816) 472-7974
TIA/EIA	Telecommunications Industry Association/Electronic Industries Alliance www.tiaonline.org	(703) 907-7700
TMS	The Masonry Society www.masonrysociety.org	(303) 939-9700
UL	Underwriters Laboratories Inc. www.ul.com	(800) 285-4476 (847) 272-8800
UNI	Uni-Bell PVC Pipe Association www.uni-bell.org	(972) 243-3902
WASTEC	Waste Equipment Technology Association www.wastec.org	(800) 424-2869 (202) 244-4700
WCLIB	West Coast Lumber Inspection Bureau www.wclib.org	(800) 283-1486 (503) 639-0651
WCMA	Window Covering Manufacturers Association (Now WCSC)	
WCSC	Window Covering Safety Council (Formerly: WCMA - Window Covering Manufacturers Association) www.windowcoverings.org	(800) 506-4636 (212) 661-4261
WWPA	Western Wood Products Association	(503) 224-3930

CONSTRUCTION SET

[www.wvpa.org](http://www.wvpa.org)

- B. Code Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web-site addresses are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

CABO	Council of American Building Officials (See ICC)	
ICBO ES	ICBO Evaluation Service, Inc. (See ICC-ES)	
ICC	International Code Council (Formerly: CABO – Council of American Building Officials) <a href="http://www.iccsafe.org">www.iccsafe.org</a>	(703) 931-4533
ICC-ES	ICC Evaluation Service, Inc. <a href="http://www.icc-es.org">www.icc-es.org</a>	(800) 423-6587 (562) 699-0543
NES	National Evaluation Service (See ICC-ES)	

- C. Federal Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web-site addresses are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

CE	Army Corps of Engineers <a href="http://www.usace.army.mil">www.usace.army.mil</a>	
CPSC	Consumer Product Safety Commission <a href="http://www.cpsc.gov">www.cpsc.gov</a>	(800) 638-2772 (301) 504-6816
DOC	Department of Commerce <a href="http://www.commerce.gov">www.commerce.gov</a>	(202) 482-2000
DOD	Department of Defense <a href="http://www.dodssp.daps.mil">www.dodssp.daps.mil</a>	(215) 697-6257
DOE	Department of Energy <a href="http://www.eren.doe.gov">www.eren.doe.gov</a>	(202) 586-9220
EPA	Environmental Protection Agency <a href="http://www.epa.gov">www.epa.gov</a>	(202) 272-0167
FCC	Federal Communications Commission <a href="http://www.fcc.gov">www.fcc.gov</a>	(888) 225-5322

CONSTRUCTION SET

GSA	General Services Administration www.gsa.gov	(800) 488-3111 (202) 501-1888
LBL	Lawrence Berkeley National Laboratory www.lbl.gov	(510) 486-4000
NIST	National Institute of Standards and Technology www.nist.gov	(301) 975-6478
OSHA	Occupational Safety & Health Administration www.osha.gov	(800) 321-6742 (202) 693-1999
PBS	Public Building Service (See GSA)	
PHS	Office of Public Health and Science <a href="http://phs.os.dhhs.gov">http://phs.os.dhhs.gov</a>	(202) 690-7694
SD	State Department www.state.gov	(202) 647-4000
TRB	Transportation Research Board www.nas.edu/trb	(202) 334-2934

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 4200

SECTION 01 5000 - TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Related Sections include the following:
  - 1. Division 01 Section "Summary" for limitations on utility interruptions and other work restrictions.
  - 2. Division 01 Section "Submittal Procedures" for procedures for submitting copies of implementation and termination schedule and utility reports.
  - 3. Division 01 Section "Execution Requirements" for progress cleaning requirements.

1.3 DEFINITIONS

- A. Permanent Enclosure: As determined by Architect, permanent or temporary roofing is complete, insulated, and weathertight; exterior walls are insulated and weathertight; and all openings are closed with permanent construction or substantial temporary closures.

1.4 USE CHARGES

- A. General: Installation and removal of and use charges for temporary facilities shall be included in the Contract Sum, unless otherwise indicated. Allow other entities to use temporary services and facilities without cost, including, but not limited to, Owner's construction forces, Architect, testing agencies, and authorities having jurisdiction.
- B. Electric Power Service from Existing System: Electric power from Owner's existing system is available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations.
  - 1. The Contractor shall install temporary power distribution system, disconnects, extension cords and wiring devices of sufficient size, capacity and power characteristics to accommodate performance of work during the construction period.
  - 2. The Contractor shall provide temporary lighting in all work areas to meet or exceed standards required by O.S.H.A.

1.5 QUALITY ASSURANCE

- A. Electrical Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.
- B. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.
- C. Accessible Temporary Egress: Comply with applicable provisions in the U.S. Architectural & Transportation Barriers Compliance Board's ADA-ABA Accessibility Guidelines and the Massachusetts Architectural Access Board's Regulations (521 CMR).

1.6 PROJECT CONDITIONS

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

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Lumber and Plywood: comply with requirements in Division 06 Section "Miscellaneous Rough Carpentry."
- B. Gypsum Board: Minimum 5/8 inch (15.9 mm) thick by 48 inches (1219 mm) wide by maximum available lengths; Type X panels with tapered edges. Comply with ASTM C 36/C 36M and requirements in Division 09 Section "Gypsum Board."
- C. Paint: Comply with requirements in Division 09 painting Sections.
- D. Dust Control Adhesive-Surface Walk-off Mats: Provide mats minimum 36 by 60 inches (914 by 1624 mm).

2.2 TEMPORARY FACILITIES

- A. Common-Use Field Office: Provide a common use field office of sufficient size to accommodate needs of Owner's representative, Architect, and construction personnel office activities and to accommodate project meetings specified in other Division 01 Sections. Keep office clean and orderly. Furnish and equip offices as follows:
  - 1. Furniture required for Project-site documents including file cabinets, plan tables, plan racks, and bookcases.
  - 2. Conference room of sufficient size to accommodate meetings of 10 individuals. Provide electrical power service and 120-V ac duplex receptacles, with not less than 1 receptacle on each wall. Furnish room with conference table, chairs, and 4-foot- (1.2-m-) square tack and marker boards.

3. Drinking water.
  4. Coffee machine and supplies.
  5. Lighting fixtures capable of maintaining average illumination of 20 fc (215 lx) at desk height.
- B. Storage: Any product stored on site shall be within the contract limit lines unless other arrangements have been made with Building Management.

## 2.3 EQUIPMENT

- A. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.

## PART 3 - EXECUTION

### 3.1 TEMPORARY UTILITY INSTALLATION AND MAINTENANCE

- A. General: Install temporary service or connect to existing service.
1. Arrange with utility company and Owner's Representative for time when service can be interrupted, if necessary, to make connections for temporary services.
- B. Water Service: Use of Owner's existing water service facilities will be permitted, as long as facilities are cleaned and maintained in a condition acceptable to Owner. At Substantial Completion, restore these facilities to condition existing before initial use.
- C. Sanitary Facilities: Provide temporary toilets, wash facilities and drinking water for use of construction personnel, unless otherwise indicated. Comply with authorities having jurisdiction for type, number, location, operation and maintenance of fixtures and facilities.
1. Toilets: Use of Owner's existing toilet facilities will be permitted as directed by Owner. Facilities shall be cleaned and maintained in a condition acceptable to Owner. At Substantial Completion, restore these facilities to condition existing before initial use. Wash facilities shall not be used for cleaning tools or equipment.
- D. Isolation of Work Areas in Occupied Facilities: Prevent dust, fumes, and odors from entering occupied areas.
1. Prior to commencing work, isolate the HVAC system in area where work is to be performed in accordance with approved coordination drawings.
    - a. Disconnect supply and return ductwork in work area from HVAC systems servicing occupied areas.
  2. Maintain dust partitions during the Work. Use vacuum collection attachments on dust-producing equipment. Isolate limited work within occupied areas using portable dust containment devices.
- E. Ventilation and Humidity Control: Provide temporary ventilation required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse

effects of high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed. Coordinate ventilation requirements to provide ambient condition required and minimize energy consumption.

1. Provide dehumidification systems when required to reduce substrate moisture levels to level required to allow installation or application of finishes.
- F. Electric Power Service: Use of Owner's existing electric power service will be permitted as long as equipment is maintained in a condition acceptable to Owner.
- G. Lighting: Provide temporary lighting with local switching that provides adequate illumination for construction operations, observations, inspections, and traffic conditions.
1. Install and operate temporary lighting that fulfills security and protection requirements without operating entire system.
- H. Telephone Service: Provide temporary telephone service in common-use facilities for use by all construction personnel. Install one telephone line(s) for the field office.
1. At each telephone, post a list of important telephone numbers.
    - a. Police and fire departments.
    - b. Ambulance service.
    - c. Contractor's home office.
    - d. Architect's office.
    - e. Engineers' offices.
    - f. Owner's office.
    - g. Principal subcontractors' field and home offices.
  2. Provide superintendent with portable two-way radio for use when away from field office.

### 3.2 SUPPORT FACILITIES INSTALLATION AND MAINTENANCE

- A. Parking: Parking permitted on site per Owner's directive.

END OF SECTION 01 5000

SECTION 01 6000 - PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; and comparable products.
- B. Related Sections include the following:
  - 1. Division 01 Section "Substitution Procedures" for requests for substitutions.
  - 2. Division 01 Section "References" for applicable industry standards for products specified.
  - 3. Division 01 Section "Closeout Procedures" for submitting warranties for Contract closeout.
  - 4. Divisions 02 through 33 Sections for specific requirements for warranties on products and installations specified to be warranted.

1.3 DEFINITIONS

- A. Products: Items purchased for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
  - 1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation shown or listed in manufacturer's published product literature, that is current as of date of the Contract Documents.
  - 2. New Products: Items that have not previously been incorporated into another project or facility, except that products consisting of recycled-content materials are allowed, unless explicitly stated otherwise. Products salvaged or recycled from other projects are not considered new products.
  - 3. Comparable Product: Product that is demonstrated and approved through submittal process, or where indicated as a product substitution, to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.
- B. Basis-of-Design Product Specification: A specification in which a specific manufacturer's product is named and accompanied by the words "basis-of-design product," including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products of additional manufacturers named in the specification.

1.4 SUBMITTALS

- A. Product List: Submit a list to the Architect, in tabular form, showing specified products. Include generic names of products required. Include manufacturer's name and proprietary product names for each product.
1. Coordinate product list with Contractor's Construction Schedule and the Submittals Schedule.
  2. Form: Tabulate information for each product under the following column headings:
    - a. Specification Section number and title.
    - b. Generic name used in the Contract Documents.
    - c. Proprietary name, model number, and similar designations.
    - d. Manufacturer's name and address.
    - e. Supplier's name and address.
    - f. Installer's name and address.
    - g. Projected delivery date or time span of delivery period.
    - h. Identification of items that require early submittal approval for scheduled delivery date.
  3. Initial Submittal: Within 30 days after the date established for the Notice to Proceed, submit 3 copies of initial product list to Architect. Include a written explanation for omissions of data and for variations from Contract requirements.
    - a. At Contractor's option, initial submittal may be limited to product selections and designations that must be established early in Contract period.
  4. Completed List: Within 45 days after date established for the Notice to Proceed, submit 3 copies of completed product list. Include a written explanation for omissions of data and for variations from Contract requirements.
  5. Architect's Action: Architect will respond in writing to Contractor within 15 business days of receipt of completed product list. Architect's response will include a list of unacceptable product selections and a brief explanation of reasons for this action. Architect's response, or lack of response, does not constitute a waiver of requirement to comply with the Contract Documents.
- B. Comparable Product Requests: Submit three copies of each request for consideration of each comparable product. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
1. Include data to indicate compliance with the requirements specified in "Comparable Products" Article.
  2. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within one week of receipt of a comparable product request. Architect will notify Contractor of approval or rejection of proposed comparable product request within 15 business days of receipt of request, or 7 business days of receipt of additional information or documentation, whichever is later.
    - a. Form of Approval: As specified in Division 01 Section "Submittal Procedures."
    - b. Use product specified if Architect cannot make a decision on use of a comparable product request within time allocated.

- C. Basis-of-Design Product Specification Submittal: Comply with requirements in Division 01 Section "Submittal Procedures." Show compliance with requirements.

## 1.5 QUALITY ASSURANCE

- A. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, product selected shall be compatible with products previously selected, even if previously selected products were also options.

## 1.6 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft. Comply with manufacturer's written instructions.

- B. Delivery and Handling:

1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
4. Inspect products on delivery to ensure compliance with the Contract Documents and to ensure that products are undamaged and properly protected.

- C. Storage:

1. Store products to allow for inspection and measurement of quantity or counting of units.
2. Store materials in a manner that will not endanger Project structure.
3. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.
4. Store cementitious products and materials on elevated platforms.
5. Store foam plastic from exposure to sunlight, except to extent necessary for period of installation and concealment.
6. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
7. Protect stored products from damage and liquids from freezing.

## 1.7 PRODUCT WARRANTIES

- A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.

1. Manufacturer's Warranty: Preprinted written warranty published by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.

2. Special Warranty: Written warranty required by or incorporated into the Contract Documents, either to extend time limit provided by manufacturer's warranty or to provide more rights for Owner.
- B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution. Submit a draft for approval before final execution.
1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
  2. Specified Form: When specified forms are included with the Specifications, prepare a written document using appropriate form properly executed.
  3. Refer to Divisions 02 through 33 Sections for specific content requirements and particular requirements for submitting special warranties.
- C. Submittal Time: Comply with requirements in Division 01 Section "Closeout Procedures".

## PART 2 - PRODUCTS

### 2.1 PRODUCT SELECTION PROCEDURES

- A. General Product Requirements: Provide products that comply with the Contract Documents, that are undamaged and, unless otherwise indicated, that are new at time of installation.
1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
  2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
  3. Owner reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
  4. Where products are accompanied by the term "as selected," Architect will make selection.
  5. Where products are accompanied by the term "match sample," sample to be matched is Architect's.
  6. Descriptive, performance, and reference standard requirements in the Specifications establish "salient characteristics" of products.
  7. Or Equal: Where products are specified by name and accompanied by the term "or equal" or "or approved equal" or "or approved," comply with provisions in Part 2 "Comparable Products" Article to obtain approval for use of an unnamed product.
- B. Product Selection Procedures:
1. Product: Where Specifications name a single product and manufacturer, provide the named product that complies with requirements. Where indicated as "No Substitutions will be permitted", comparable products or substitutions for Contractor's convenience will not be considered.
  2. Manufacturer/Source: Where Specifications name a single manufacturer or source, provide a product by the named manufacturer or source that complies with requirements. Where indicated as "No Substitutions will be permitted", comparable products or substitutions for Contractor's convenience will not be considered.

3. Products:
    - a. Restricted List: Where Specifications include a list of names of both manufacturers and products, provide one of the products listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will be considered, unless otherwise indicated.
    - b. Nonrestricted List: Where Specifications include a list of names of both available manufacturers and products, provide one of the products listed, or an unnamed product, that complies with requirements. Comply with requirements in "Comparable Products" Article for consideration of an unnamed product.
  4. Manufacturers:
    - a. Restricted List: Where Specifications include a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will be considered, unless otherwise indicated.
    - b. Nonrestricted List: Where Specifications include a list of available manufacturers, provide a product by one of the manufacturers listed, or a product by an unnamed manufacturer, that complies with requirements. Comply with requirements in "Comparable Products" Article for consideration of an unnamed manufacturer's product.
  5. Basis-of-Design Product: Where Specifications name a product and include a list of manufacturers, provide the specified product or a comparable product by one of the other named manufacturers. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with provisions in Part 2 "Comparable Products" Article for consideration of an unnamed product by the other named manufacturers.
- C. Visual Matching Specification: Where Specifications require "match Architect's sample", provide a product that complies with requirements and matches Architect's sample. Architect's decision will be final on whether a proposed product matches.
1. If no product available within specified category matches and complies with other specified requirements, comply with requirements in Division 01 Section "Substitution Procedures" for proposal of product.
- D. Visual Selection Specification: Where Specifications include the phrase "as selected by Architect from manufacturer's full range" or similar phrase, select a product that complies with requirements. Architect will select color, gloss, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

## 2.2 COMPARABLE PRODUCTS

- A. Conditions for Consideration: Architect will consider Contractor's request for comparable product when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:

CONSTRUCTION SET

1. Evidence that the proposed product does not require extensive revisions to the Contract Documents, that it is consistent with the Contract Documents and will produce the indicated results, and that it is compatible with other portions of the Work.
2. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant qualities include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
3. Evidence that proposed product provides specified warranty.
4. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners, if requested.
5. Samples, if requested.

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 6000

SECTION 01 7300 - EXECUTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes general administrative and procedural requirements governing execution of the Work including, but not limited to, the following:

1. Construction layout.
2. Installation of the Work.
3. Cutting and patching.
4. Progress cleaning.
5. Starting and adjusting.
6. Protection of installed construction.
7. Correction of the Work.

- B. Related Sections:

1. Division 01 Section "Submittal Procedures" for submitting surveys.
2. Division 01 Section "Closeout Procedures" for submitting final property survey with Project Record Documents, recording of Owner-accepted deviations from indicated lines and levels, and final cleaning.
3. Division 07 Section "Penetration Firestopping" for patching penetrations in fire-rated construction.

1.3 DEFINITIONS

- A. Cutting: Removal of in-place construction necessary to permit installation or performance of other work.
- B. Patching: Fitting and repair work required to restore construction to original conditions after installation of other work.

1.4 QUALITY ASSURANCE

- A. Cutting and Patching: Comply with requirements for and limitations on cutting and patching of construction elements.

## CONSTRUCTION SET

1. Structural Elements: When cutting and patching structural elements, notify Architect and Construction Manager of locations and details of cutting and await directions from the Architect before proceeding. Shore, brace, and support structural element during cutting and patching. Do not cut and patch structural elements in a manner that could change their load-carrying capacity or increase deflection.
  2. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that result in increased maintenance or decreased operational life or safety. Operational elements include the following:
    - a. Primary operational systems and equipment.
    - b. Fire separation assemblies.
    - c. Air or smoke barriers.
    - d. Fire-suppression systems.
    - e. Mechanical systems piping and ducts.
    - f. Control systems.
    - g. Communication systems.
    - h. Conveying systems.
    - i. Electrical wiring systems.
    - j. Operating systems of special construction.
  3. Other Construction Elements: Do not cut and patch other construction elements or components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that result in increased maintenance or decreased operational life or safety. Other construction elements include but are not limited to the following:
    - a. Water, moisture, or vapor barriers.
    - b. Membranes and flashings.
    - c. Exterior curtain-wall construction.
    - d. Equipment supports.
    - e. Piping, ductwork, vessels, and equipment.
    - f. Noise- and vibration-control elements and systems.
  4. Visual Elements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch exposed construction in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.
- B. Cutting and Patching Conference: If requested by the Construction Manager, meet at Project site with the parties involved in cutting and patching, including mechanical and electrical trades. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.
- C. Manufacturer's Installation Instructions: Obtain and maintain on-site manufacturer's written recommendations and instructions for installation of products and equipment.

1.5 WARRANTY

- A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during installation or cutting and patching operations, by methods and with materials so as not to void existing warranties.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. General: Comply with requirements specified in other Sections.
- B. In-Place Materials: Use materials for patching 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 provide a match acceptable to the Architect for the visual and functional performance of in-place materials.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Existing Conditions: 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; underground electrical services, and other utilities.
  - 2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.
- B. Examination and Acceptance of Conditions: Before proceeding with each component of the Work, the Contractor shall examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. The Construction Manager will 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 and Owner's Representative 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 caused by differing field conditions outside the control of the Contractor, submit a request for information to Architect according to requirements in Division 01 Section "Project Management and Coordination."
- E. Surface and Substrate Preparation: Comply with manufacturer's recommendations for preparation of substrates to receive subsequent work.

### 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 the Architect.
- B. General: Lay out the Work using accepted surveying practices.
  1. Establish benchmarks and control points to set lines and levels at each story of construction and elsewhere as needed to locate each element of Project.
  2. Establish dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.
  3. Inform installers of lines and levels to which they must comply.
  4. Check the location, level and plumb, of every major element as the Work progresses.
  5. Notify Architect when deviations from required lines and levels exceed allowable tolerances.
- C. Site Improvements: Locate and lay out site improvements, including pavements, grading, fill and topsoil placement, utility slopes, and rim 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. Deviations from required lines and levels will be recorded. The Log will be made available for reference by Architect and Subcontractors.

### 3.4 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.
  - 4. Maintain minimum headroom clearance of 96 inches (2440 mm) in occupied spaces .
- 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. Attachment: Provide blocking and attachment plates and anchors and fasteners of adequate size and number to securely anchor each component in place, accurately located and aligned with other portions of the Work. Where size and type of attachments are not indicated, verify size and type required for load conditions.
  - 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.
- I. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

3.5 CUTTING AND PATCHING

- A. Cutting and Patching, General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.
  - 1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.
- B. Temporary Support: Provide temporary support of work to be cut.
- C. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.
- D. Adjacent Occupied Areas: Where interference with use of adjoining areas or interruption of free passage to adjoining areas is unavoidable, coordinate cutting and patching in accordance with requirements of Division 01 Section "Summary."
- E. 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.
  - 1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots neatly to minimum size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
  - 2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
  - 3. Concrete and Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
  - 4. Excavating and Backfilling: Comply with requirements in applicable Division 31 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.
- F. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other work. Patch with durable seams that are as invisible as practicable. Provide materials and comply with installation requirements specified in other Sections, where applicable.
  - 1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate physical 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 minimize evidence of patching and refinishing.

- a. Clean piping, conduit, and similar features before applying paint or other finishing materials.
  - b. Restore damaged pipe covering to its original condition.
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.
- a. Where patching occurs in a painted surface, prepare substrate and apply primer and intermediate paint coats appropriate for substrate over the patch, and apply final paint coat over entire unbroken surface containing the patch. Provide additional coats until patch blends with adjacent surfaces.
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.
- G. Cleaning: Clean areas and spaces where cutting and patching are performed. Remove paint, mortar, oils, putty, and similar materials from adjacent finished surfaces.

### 3.6 PROGRESS CLEANING

- A. General: Clean Project site and work areas daily, including common areas. 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 waste materials more than seven days during normal weather or three 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.
    - a. Utilize containers intended for holding waste materials of type to be stored.
  4. Coordinate progress cleaning for joint-use areas where more than one installer has worked.
- 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: Do not bury or burn waste materials on-site. Do not wash waste materials down sewers or into waterways. Comply with waste disposal requirements in Division 01 Section "Temporary Facilities and Controls."
- 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.
- 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. Coordinate startup and adjusting of equipment and operating components with requirements in Division 01 Section "General Commissioning Requirements."
- B. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.
- C. Adjust equipment for proper operation. Adjust operating components for proper operation without binding.
- D. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
- E. Manufacturer's Field Service: Comply with qualification requirements in Division 01 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.

CONSTRUCTION SET

1. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment.
- B. Restore permanent facilities used during construction to their specified condition.
- C. Remove and replace damaged surfaces that are exposed to view if surfaces cannot be repaired without visible evidence of repair.
- D. Repair components that do not operate properly. Remove and replace operating components that cannot be repaired.
- E. Remove and replace chipped, scratched, and broken glass or reflective surfaces.

END OF SECTION 01 7300

SECTION 01 7700 - CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:

- 1. Inspection procedures.
- 2. Substantial Completion procedures.
- 3. Final completion procedures.
- 4. Warranties.
- 5. Final cleaning.

- B. Related Sections include the following:

- 1. Division 01 Section "Payment Procedures" for requirements for Applications for Payment for Substantial and Final Completion.
- 2. Division 01 Section "Execution Requirements" for progress cleaning of Project site.
- 3. Division 01 Section "Operation and Maintenance Data" for operation and maintenance manual requirements.
- 4. Divisions 02 through 33 Sections for specific closeout and special cleaning requirements for the Work in those Sections.

1.3 SUBSTANTIAL COMPLETION

- A. Preliminary Procedures: Before requesting inspection for determining date of Substantial Completion, complete the following. List items below that are incomplete in request.

- 1. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.
- 2. Advise Owner of pending insurance changeover requirements.
- 3. Submit specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
- 4. Obtain and submit releases permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
- 5. Prepare and submit Project Record Documents, damage or settlement 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 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.
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.

#### 1.4 FINAL COMPLETION

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

1. Submit a final Application for Payment according to Division 01 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.

1.5 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

- A. Organization of List: Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction. Use CSI Form 14.1A.
1. 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.
  3. Include the following information at the top of each page:
    - a. Project name.
    - b. Date.
    - c. Name of Architect.
    - d. Name of Contractor.
    - e. Page number.
  4. Submit list of incomplete items in the following format:
    - a. Three paper copies of product schedule or list, unless otherwise indicated. Architect will return two copies.

1.6 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.
- B. Partial Occupancy: Submit properly executed warranties within 15 days of completion of designated portions of the Work that are completed and occupied or used by Owner during construction period by separate agreement with Contractor.
- C. Organize warranty documents into an orderly sequence based on the table of contents of the Project Manual.
1. Bind warranties and bonds in heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch (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 types description of the product of installation, including the name of the product and the name, address, and telephone number of Installer.
  3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.
- D. Provide additional copies of each warranty to include in operation and maintenance manuals.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Cleaning Materials and Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning materials or agents that are potentially hazardous to health or property or that might damage finished surfaces.
  - 1. Use cleaning materials only on surfaces recommended by cleaning material manufacturer.
  - 2. Ensure that cleaning agents and methods do not remove finishes and permanent protective coatings on surfaces being cleaned.

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 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:
    - a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, or 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, and similar spaces.
    - h. Sweep concrete floors broom clean in unoccupied spaces.
    - i. Vacuum carpet and similar soft surfaces, removing debris and excess nap.
    - j. Commercial cleaning required on all "existing carpet to remain" on 17<sup>th</sup> floor.
    - k. 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.

CONSTRUCTION SET

- l. Remove labels that are not permanent.
  - m. Remove grease, paint spots, dirt, dust, stains, labels, fingerprints and other foreign matter from interior and exterior surfaces; vacuum and dust behind grilles, louvers and screens; wash floor surfaces not otherwise finished; clean metal doors and frames; clean metal work; clean equipment; clean hardware; clean and polish glass on both sides; clean and polish mirrors.
  - n. 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.
  - o. Wipe surfaces of mechanical and electrical equipment, elevator equipment, and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
  - p. Replace parts subject to unusual operating conditions.
  - q. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
  - r. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
  - s. Clean ducts, blowers, and coils if units were operated without filters during construction.
    - 1) Clean HVAC system in compliance with NADCA Standard 1992-01. Provide written report upon completion of cleaning.
  - t. 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.
  - u. Leave Project site clean and ready for Owner's use.
- C. Pest Control: Engage an experienced, licensed exterminator to make a final inspection and rid Project site of rodents and other pests. Prepare a report.
- D. Construction Waste Disposal: Comply with waste disposal requirements in Division 01 Section "Temporary Facilities and Controls."
- E. 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.
- F. Provide protection of floors throughout building during installation of Owner's furniture and equipment. Protection shall be removed after the installation of Owner's furniture and equipment has been completed.

END OF SECTION 01 7700

SECTION 01 7823 - OPERATION AND MAINTENANCE DATA

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for preparing operation and maintenance manuals, including the following:
  - 1. Operation and maintenance documentation directory.
  - 2. Operation manuals for systems, subsystems, and equipment.
  - 3. Maintenance manuals for the care and maintenance of products, materials, finishes, and systems and equipment.
- B. Related Sections include the following:
  - 1. Division 01 Section "Submittal Procedures" for submitting copies of submittals for operation and maintenance manuals.
  - 2. Division 01 Section "Closeout Procedures" for submitting operation and maintenance manuals.
  - 3. Division 01 Section "Project Record Documents" for preparing Record Drawings for operation and maintenance manuals.
  - 4. Divisions 02 through 33 Sections for specific operation and maintenance manual requirements for the Work in those Sections.

1.3 DEFINITIONS

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

1.4 CLOSEOUT SUBMITTALS

- A. Manual Content: Operations and maintenance manual content is specified in individual specification sections to be reviewed at the time of Section submittals. Submit reviewed manual content formatted and organized as required by this Section.
  - 1. Where applicable, clarify and update reviewed manual content to correspond to modifications and field conditions.
- B. Format: Submit operations and maintenance manuals in the following format:

## CONSTRUCTION SET

1. Three paper copies. Include a complete operation and maintenance directory. Enclose title pages and directories in clear plastic sleeves. Architect will return two copies.
- C. Initial Manual Submittal: Submit draft copy of each manual at least 30 days before commencing demonstration and training. Architect will comment on whether general scope and content of manual are acceptable.
- D. Final Manual Submittal: Submit each manual in final form prior to requesting inspection for Substantial Completion and at least 15 days before commencing demonstration and training. Architect will return copy with comments.
  1. Correct or modify each manual to comply with Architect's comments. Submit copies of each corrected manual within 15 days of receipt of Architect's comments and prior to commencing demonstration and training.

### 1.5 COORDINATION

- A. Where operation and maintenance documentation includes information on installations by more than one factory-authorized service representative, assemble and coordinate information furnished by representatives and prepare manuals.

## PART 2 - PRODUCTS

### 2.1 OPERATION AND MAINTENANCE DOCUMENTATION DIRECTORY

- A. Organization: Include a section in the directory for each of the following:
  1. List of documents.
  2. List of systems.
  3. List of equipment.
  4. Table of contents.
- B. List of Systems and Subsystems: List systems alphabetically. Include references to operation and maintenance manuals that contain information about each system.
- C. List of Equipment: List equipment for each system, organized alphabetically by system. For pieces of equipment not part of system, list alphabetically in separate list.
- D. Tables of Contents: Include a table of contents for each emergency, operation, and maintenance manual.
- E. Identification: In the documentation directory and in each operation and maintenance manual, identify each system, subsystem, and piece of equipment with same designation used in the Contract Documents. If no designation exists, assign a designation according to ASHRAE Guideline 4, "Preparation of Operating and Maintenance Documentation for Building Systems."

- 2.2 REQUIREMENTS FOR EMERGENCY, OPERATION, AND MAINTENANCE 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 the following materials, in the order listed:
1. Title page.
  2. Table of contents.
  3. Manual contents.
- 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 and contact information for Contractor.
  6. Name and contact information for Architect.
  7. Names and contact information for major consultants to the Architect that designed the systems contained in the manuals.
  8. 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.
1. If operation or maintenance documentation requires more than one volume to accommodate data, include comprehensive table of contents for all volumes in each volume of the set.
- D. Manual Contents: Organize into sets of manageable size. Arrange contents alphabetically by system, subsystem, and equipment. If possible, assemble instructions for subsystems, equipment, and components of one system into a single binder.
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. If two or more binders are necessary to accommodate data of a system, organize data in each binder into groupings by subsystem and related components. Cross-reference other binders if necessary to provide essential information for proper operation or maintenance of equipment or system.
    - b. Identify each binder on front and spine, with printed title "OPERATION AND MAINTENANCE MANUAL," Project title or name, and subject matter of contents, and indicate Specification Section number on bottom of spine. 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. Supplementary Text: Prepared on 8-1/2-by-11-inch (215-by-280-mm) white bond paper.
5. 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.

## 2.3 OPERATION MANUALS

- A. Content: In addition to requirements in this Section, include operation data required in individual Specification Sections and the following information:
  1. System, subsystem, and equipment descriptions.
  2. Performance and design criteria if Contractor is delegated design responsibility.
  3. Operating standards.
  4. Operating procedures.
  5. Operating logs.
  6. Wiring diagrams.
  7. Control diagrams.
  8. Piped system diagrams.
  9. Precautions against improper use.
  10. License requirements including inspection and renewal dates.
- B. Descriptions: Include the following:
  1. Product name and model number.
  2. Manufacturer's name.
  3. Equipment identification with serial number of each component.
  4. Equipment function.
  5. Operating characteristics.
  6. Limiting conditions.
  7. Performance curves.
  8. Engineering data and tests.
  9. Complete nomenclature and number of replacement parts.
- C. Operating Procedures: Include the following, as applicable:
  1. Startup procedures.
  2. Equipment or system break-in procedures.
  3. Routine and normal operating instructions.
  4. Regulation and control procedures.
  5. Instructions on stopping.
  6. Normal shutdown instructions.
  7. Seasonal and weekend operating instructions.
  8. Required sequences for electric or electronic systems.

9. Special operating instructions and procedures.

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

#### 2.4 PRODUCT MAINTENANCE MANUALS

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

#### 2.5 SYSTEMS AND EQUIPMENT MAINTENANCE MANUALS

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

## CONSTRUCTION SET

- 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, and drawing or schedule designation or identifier where applicable.
- C. Manufacturers' Maintenance Documentation: Manufacturers' maintenance documentation including the following information for each component part or piece of equipment:
  - 1. Standard printed maintenance instructions and bulletins.
  - 2. Drawings, diagrams, and instructions required for maintenance, including disassembly and component removal, replacement, and assembly.
  - 3. Identification and nomenclature of parts and components.
  - 4. List of items recommended to be stocked as spare parts.
- D. Maintenance Procedures: Include the following information and items that detail essential maintenance procedures:
  - 1. Test and inspection instructions.
  - 2. Troubleshooting guide.
  - 3. Precautions against improper maintenance.
  - 4. Disassembly; component removal, repair, and replacement; and reassembly instructions.
  - 5. Aligning, adjusting, and checking instructions.
  - 6. Demonstration and training video recording, if available.
- E. Maintenance and Service Schedules: Include service and lubrication requirements, list of required lubricants for equipment, and separate schedules for preventive and routine maintenance and service with standard time allotment.
  - 1. Scheduled Maintenance and Service: Tabulate actions for daily, weekly, monthly, quarterly, semiannual, and annual frequencies.
  - 2. Maintenance and Service Record: Include manufacturers' forms for recording maintenance.
- F. Spare Parts List and Source Information: Include lists of replacement and repair parts, with parts identified and cross-referenced to manufacturers' maintenance documentation and local sources of maintenance materials and related services.
- G. 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.
  - 1. Include procedures to follow and required notifications for warranty claims.

### PART 3 - EXECUTION

#### 3.1 MANUAL PREPARATION

CONSTRUCTION SET

- A. Operation and Maintenance Documentation Directory: Prepare a separate manual that provides an organized reference to emergency, operation, and maintenance manuals.
- B. Product Maintenance Manual: Assemble a complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into the Work.
- C. Operation and Maintenance Manuals: Assemble a complete set of operation and maintenance data indicating operation and maintenance of each system, subsystem, and piece of equipment not part of a system.
  - 1. Engage a factory-authorized service representative to assemble and prepare information for each system, subsystem, and piece of equipment not part of a system.
  - 2. Prepare a separate manual for each system and subsystem, in the form of an instructional manual for use by Owner's operating personnel.
- 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.
  - 1. Prepare supplementary text if manufacturers' standard printed data are not available and where the information is necessary for proper operation and maintenance of equipment or systems.
- E. Drawings: Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems and to illustrate control sequence and flow diagrams. Coordinate these drawings with information contained in Record Drawings to ensure correct illustration of completed installation.
  - 1. Do not use original Project Record Documents as part of operation and maintenance manuals.
  - 2. Comply with requirements of newly prepared Record Drawings in Division 01 Section "Project Record Documents."
- F. Comply with Division 01 Section "Closeout Procedures" for schedule for submitting operation and maintenance documentation.

END OF SECTION 01 7823

SECTION 02 4119 - SELECTIVE STRUCTURE DEMOLITION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
  - 1. Demolition and removal of selected portions of building or structure.
  - 2. Salvage of existing items to be reused or recycled.
- B. Related Sections include the following:
  - 1. Division 01 Section "Summary" for use of premises and Owner-occupancy requirements.
  - 2. Division 01 Section "Temporary Facilities and Controls" for temporary construction and environmental-protection measures for selective demolition operations.
  - 3. Division 01 Section "Execution" for cutting and patching procedures.

1.3 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. 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.
- D. Remove and Reinstall: Detach items from existing construction, prepare them for reuse, and reinstall them where indicated.

1.4 MATERIALS OWNERSHIP

- A. Unless otherwise indicated, demolition waste becomes property of Contractor.
- B. Historic items, relics, antiques, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, and other items of interest or value to Owner that may be uncovered during demolition remain the property of Owner.
  - 1. Carefully salvage in a manner to prevent damage and promptly return to Owner.

## 1.5 PREDEMOLITION MEETINGS

- A. Predemolition Conference: Conduct conference at Project site.
  - 1. Inspect and discuss condition of construction to be selectively demolished.
  - 2. Review structural load limitations of existing structure.
  - 3. Review and finalize selective demolition schedule and verify availability of materials, demolition personnel, equipment, and facilities needed to make progress and avoid delays.
  - 4. Review requirements of work performed by other trades that rely on substrates exposed by selective demolition operations.
  - 5. Review areas where existing construction is to remain and requires protection.
  - 6. Review items to be removed and reinstalled, and items to be removed and salvaged.

## 1.6 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For demolition firm and professional engineer.
- B. Proposed Protection Measures: Submit report, including drawings, that indicates the measures proposed for protecting individuals and property, for environmental protection, for dust control and, for noise control. Indicate proposed locations and construction of barriers.
- C. Schedule of Selective Demolition Activities: Indicate the following:
  - 1. Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity. Ensure Owner's on-site operations are uninterrupted.
  - 2. Interruption of utility services. Indicate how long utility services will be interrupted.
  - 3. Coordination for shutoff, capping, and continuation of utility services.
  - 4. Use of elevator and stairs.
  - 5. Locations of proposed dust- and noise-control temporary partitions and means of egress.
  - 6. Coordination of Owner's continuing occupancy of portions of existing building and of Owner's partial occupancy of completed Work.
  - 7. Means of protection for items to remain and items in path of waste removal from building.
  - 8. Items to be removed and reinstalled, and items to be removed and salvaged.
- D. Inventory: After selective demolition is complete, submit a list of items that have been removed and salvaged.
- E. Warranties: Documentation indicated that existing warranties are still in effect after completion of selective demolition, if applicable.

## 1.7 CLOSEOUT SUBMITTALS

- A. Inventory: Submit a list of items that have been removed and salvaged.
- B. Landfill Records: Indicate receipt and acceptance of hazardous wastes, if any, by a landfill facility licensed to accept hazardous wastes, if applicable.

## 1.8 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. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.
- C. Standards: Comply with ANSI A10.6 and NFPA 241.

#### 1.9 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.
  - 1. Comply with requirements specified in Division 01 Section "Summary".
- B. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.
- C. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.
- D. Hazardous Materials: It is not expected that hazardous materials will be encountered in the Work due to Owner pre-initiation of hazard material abatement.
  - 1. If materials suspected of containing hazardous materials are encountered, do not disturb; immediately notify Architect and Owner. Owner will remove hazardous materials under a separate contract.
- 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.
  - 2. Refer to Division 01 Section "Summary" for additional requirements.

#### 1.10 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.
  - 1. Verify with Owner's Representative if any existing warranties are in effect for materials and/or equipment that may be affected by selective demolition operations.
- B. If any existing warranties are in effect, notify warrantor on completion of selective demolition, and obtain documentation verifying that existing system has been inspected and warranty remains in effect. Submit documentation at Project closeout.

#### PART 2 - PRODUCTS (Not Used)

2.1 PERFORMANCE REQUIREMENTS

- A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.
- B. Standards: Comply with ANSI/ASSE A10.6 and NFPA 241.

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. Consult with Owner to find acceptable location to store salvaged material for reuse.
- 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 and Owner.
- 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.
  - 1. Perform surveys as the Work progresses to detect hazards resulting from selective demolition activities.
- F. Survey of Existing Conditions: Record existing conditions by use of preconstruction photographs.
  - 1. Inventory and record the condition of items to be removed and salvaged. Provide photographs of conditions that might be misconstrued as damage caused by salvage operations.
  - 2. Before selective demolition or removal of existing building elements that will be reproduced or duplicated in final Work, make permanent record of measurements, materials, and construction details required to make exact reproduction.

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.
  - 1. Comply with requirements for existing services/systems interruptions specified in Division 01 Section "Summary."
- B. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:

1. All utility shutdowns shall occur only during the hours as pre-approved by the Owner's Representative.
  2. Prior to the start of each Work Phase, submit to the Owner and Architect an anticipated schedule of anticipated utility shutdowns.
  3. Do not proceed with utility interruptions without Owner's written permission.
- C. 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. Owner's Representative will arrange to shut off indicated services/systems when requested by Contractor.
  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. Disconnect, demolish, and remove fire-suppression systems, plumbing, and HVAC systems, equipment, and components indicated to be removed.
    - a. Piping to Be Removed: Remove portion of piping indicated to be removed and cap or plug remaining piping with same or compatible piping material.
    - b. Piping to Be Abandoned in Place: Drain piping and cap or plug piping with same or compatible piping material.
    - c. Equipment to Be Removed: Disconnect and cap services and remove equipment.
    - d. Equipment to Be Removed and Reinstalled: Disconnect and cap services and remove, clean, and store equipment; when appropriate, reinstall, reconnect, and make equipment operational.
    - e. Equipment to Be Removed and Salvaged: Disconnect and cap services and remove equipment and deliver to Owner.
    - f. Ducts to Be Removed: Remove portion of ducts indicated to be removed and plug remaining ducts with same or compatible ductwork material.
    - g. Ducts to Be Abandoned in Place: Cap or plug ducts with same or compatible ductwork material.
- D. Refrigerant: Remove refrigerant from mechanical equipment to be selectively demolished according to 40 CFR 82 and regulations of authorities having jurisdiction.

### 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 01 Sections "Temporary Facilities and Controls," "Interim Life Safety Requirements" and "Infection Control Requirements".
- B. Temporary Facilities: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
1. Provide protection to ensure safe passage of people around selective demolition area and to and from occupied portions of building.

2. Provide temporary weather protection, during interval between selective demolition of existing construction on exterior surfaces and new construction, to prevent water leakage and damage to structure and interior areas.
  3. Protect walls, ceilings, floors, and other existing finish work that are to remain or that are exposed during selective demolition operations.
  4. Cover and protect furniture, furnishings, and equipment that have not been removed.
  5. Comply with requirements for temporary enclosures, dust control, heating, and cooling specified in Division 01 Sections "Temporary Facilities and Controls," "Interim Life Safety Requirements" and "Infection Control Requirements".
- 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.
1. Strengthen or add new supports when required during progress of selective demolition.

### 3.4 SELECTIVE DEMOLITION, GENERAL

- 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. Proceed with selective demolition systematically, from higher to lower level. Complete selective demolition operations above each floor or tier before disturbing supporting members on the next lower level.
  2. 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.
  3. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
  4. 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 fire watch and portable fire-suppression devices during flame-cutting operations.
  5. Maintain adequate ventilation when using cutting torches.
  6. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
  7. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
  8. Dispose of demolished items and materials promptly.
- 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 cleaned and reinstalled in their original locations after selective demolition operations are complete.

### 3.5 SELECTIVE DEMOLITION PROCEDURES FOR SPECIFIC MATERIALS

- A. Core Drilling of Structural Concrete Floor Slab: Prior to core drilling existing structural concrete floor slab to accommodate installation of new MEP equipment and systems, perform a non-destructive X-Ray test (from above and below the concrete floor slab) to determine steel reinforcement location and spacing in each direction at the top and bottom of the slab.
  - 1. Submit results of X-Ray testing to Architect and obtain Architect's approval for locations of proposed core drilling prior to commencing core drilling operations.
- B. Concrete Slabs-on-Grade: Saw-cut perimeter of area to be demolished, then break up and remove.
- C. Resilient Floor Coverings: Remove floor coverings and adhesive according to recommendations in RFCI's "Recommended Work Practices for the Removal of Resilient Floor Coverings." Do not use methods requiring solvent-based adhesive strippers.
  - 1. Remove residual adhesive and prepare substrate for new floor coverings by one of the methods recommended by RFCI.

### 3.6 DISPOSAL OF DEMOLISHED MATERIALS

- A. General: Except for items or materials indicated to be recycled, reused, salvaged, 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. Do not allow demolished materials to accumulate on-site.
  - 2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
  - 3. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.
- B. Burning: Do not burn demolished materials.
- C. Disposal: Transport demolished materials off Owner's property and legally dispose of them.

### 3.7 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 02 4119

SECTION 03 3000 - CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

- A. Submittals: Product Data, concrete mix designs, laboratory test reports.
- B. Comply with ASTM C 94; ACI 301, "Specification for Structural Concrete"; ACI 117, "Specifications for Tolerances for Concrete Construction and Materials"; and CRSI's "Manual of Standard Practice."
- C. Engage a qualified independent testing agency to design concrete mixes.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Deformed Reinforcing Bars: ASTM A 615/A 615M, Grade 60(Grade 420).
- B. Steel Welded-Wire Fabric: ASTM A 185, flat sheets not rolls.
- C. Portland Cement: ASTM C 150, Type I / II.
- D. Aggregates: ASTM C 33, uniformly graded.
- E. Air-Entraining Admixture: ASTM C 260.
- F. Chemical Admixtures: ASTM C 494, water reducing, high-range water reducing, water reducing and accelerating, and water reducing and retarding.
- G. Vapor Retarder: Clear 10-mil-(0.25-mm-) thick polyethylene sheet

2.2 MIXES

- A. Proportion normal-weight concrete mixes to provide the following properties:
  - 1. Compressive Strength: 4000 psi (27.6 MPa)] at 28 days.
  - 2. Slump Limit: 4 inches (100 mm) at point of placement.
  - 3. Air Content: 5.5 to 7.0 percent for concrete exposed to freezing and thawing, 2 to 4 percent elsewhere.

PART 3 - EXECUTION

3.1 CONCRETING

- A. Construct formwork and maintain tolerances and surface irregularities within ACI 117 limits of Class A for concrete exposed to view and Class C for other concrete surfaces.
- B. Place vapor retarder on prepared subgrade, with joints lapped 6 inches(150 mm) and sealed.
- C. Accurately position, support, and secure reinforcement.
- D. Place concrete in a continuous operation and consolidate using mechanical vibrating equipment.
- E. Protect concrete from physical damage, premature drying, and reduced strength due to hot or cold weather during mixing, placing, and curing.
- F. Formed Surface Finish: Smooth-formed finish for concrete exposed to view, coated, or covered by waterproofing or other direct-applied material; rough-formed finish elsewhere.
- G. Slab Finishes:
  - 1. Troweled finish for floor surfaces and floors to receive floor coverings, paint, or other thin film-finish coatings.
  - 2. Nonslip-broom finish to exterior concrete platforms, steps, and ramps.
- H. Cure formed surfaces by moist curing for at least seven days.
- I. Begin curing concrete slabs after finishing. Keep concrete continuously moist for at least seven days
- J. Owner will engage a testing agency to perform field tests and to submit test reports.
- K. Protect concrete from damage. Repair surface defects in formed concrete and slabs.
- L. Repair slabs not meeting surface tolerances by grinding high areas and by applying a repair underlayment to low areas receiving floor coverings and a repair topping to low areas to remain exposed.

END OF SECTION 03 3000

## SECTION 04 0513 – MASONRY MORTAR

## PART 1 – GENERAL

## 1.1 DESCRIPTION:

This section includes mortar and grout for concrete unit masonry (CMU). The Contractor shall furnish all labor, materials, tools, and equipment and perform all operations necessary for masonry mortar and grout work as indicated on the Contract Documents and as specified herein.

## 1.2 RELATED WORK:

- A. Section 04 2200 - Concrete Unit Masonry

## 1.3 REFERENCES

The following Codes, Standards and Specifications, latest editions, form part of this specification as referenced.

2005 Connecticut State Building Code with latest Supplements & Amendments.

ACI 530.1/ ASCE 6/ TMS 602 Specification for Masonry Structures

ASTM C5 Standard Specification for Quicklime for Structural Purposes

ASTM C91 Standard Specification for Masonry Cement

ASTM C94 Standard Specification for Ready-Mixed Concrete

ASTM C144 Standard Specification for Aggregate for Masonry Mortar

ASTM C150 Standard Specification for Portland Cement

ASTM C207 Standard Specification for Hydrated Lime for Masonry Purposes

ASTM C270 Standard Specification for Mortar for Unit Masonry

ASTM C387 Standard Specification for Packaged, Dry, Combined Materials for Mortar and Concrete

ASTM C476 Standard Specification for Grout for Masonry

ASTM C780 Standard Test Method for Preconstruction and Construction Evaluation of Mortars for Plain and Reinforced Unit Masonry

## 1.3 SUBMITTALS

In accordance with the General Requirements, submit six (6) copies of mortar and grout design mixes with admixture limits, manufacturer installation instructions, and proposed methods for maintaining environmental conditions for Engineer/ Architect's review and approval. The submittals shall indicate conformance with the specifications here in and as indicated on the Contract Documents.

1.4 QUALITY ASSURANCE

- A. Contractor shall engage an independent testing/ inspection agency with experience in furnishing inspection services to monitor masonry construction as listed in the 2005 CT State Building Code Section 1704; to provide Level 1 Periodic Special Inspection per Table 1704.5.1.
- B. The source of supply of materials shall remain constant throughout the Work unless approved in writing by the Architect or Engineer.

PART 2 – PRODUCTS

Mortar and Grout materials and mixtures used for concrete masonry unit construction shall conform to the following Standards and Specifications, and as indicated on the Contract Documents.

2.1 MATERIALS

- A. Portland Cement: ASTM C 150, normal Type I; gray color.
- B. Masonry Cement: ASTM C 270, Type S.
- C. Mortar Aggregate: ASTM C 144, standard masonry type; clean, dry, protected against dampness, freezing, and foreign matter.
- D. Grout Aggregate: Fine mix.
- E. Hydrated Lime: ASTM C 207, Type S.
- F. Quicklime: ASTM C 5, non-hydraulic type.
- G. Premix Mortar: ASTM C 387, using gray cement.
- H. Water: Clean and potable.

2.2 ADMIXTURES

Plasticizers, accelerators, retardants, water repellent agents, or other admixtures are not to be used for mortar unless specifically required by the mortar and grout manufacturer and approved by the Architect/ Engineer.

2.3 MORTAR

- A. Mortar for Load Bearing Walls and Partitions: ASTM C 270, Type S.
- B. Mortar for Nonload Bearing Walls and Partitions: ASTM C 270, Type S.
- C. Pointing Mortar: One part portland cement, 1/8 part hydrated lime, and two parts graded (80 mesh) aggregate, proportioned by volume. Add aluminum tristearate, calcium stearate, or ammonium stearate equal to 2 percent of portland cement weight.

2.4 GROUT FILL

- A. Bond Beams: Lintels: 2000 psi (20.7 MPa) inch strength at 28 days 8 – 10 inches

B.

PART 3 – EXECUTION

3.1 MORTAR AND GROUT MIXING

- A. Thoroughly mix mortar ingredients in quantities needed for immediate use in accordance with ASTM C 270 and C 476.
- B. Add mortar color and admixtures in accordance with manufacturer's instructions. Provide uniformity of mix and coloration.
- C. Do not use antifreeze compounds to lower the freezing point of mortar or grout.
- D. If water is lost by evaporation, retemper within two (2) hours of mixing. Do not retemper mortar after two (2) hours of mixing.

3.2 INSTALLATION

- A. Maintain materials and surrounding air temperature to at least 50 degrees F prior to, during, and 48 hours after completion of masonry work.
- B. Clean concrete grout spaces and masonry units of excess mortar and debris.
- C. After inspection of concrete grout spaces by the Inspection Agency, plug cleanout holes with masonry units and brace against wet grout pressure.
- D. Install mortar and grout in accordance with Section 04 2200 - Concrete Unit Masonry, and the Contract Documents.
- E. Work grout into cores and cavities to eliminate voids.
- F. Do not displace reinforcing steel when placing grout.

END OF SECTION 04 0513

## SECTION 04 2200 – CONCRETE UNIT MASONRY

## PART 1 - GENERAL

## 1.1 DESCRIPTION

This section includes concrete unit masonry (CMU), reinforcement, anchorages including adhesive, embedments, and accessories for CMU masonry construction. The Contractor shall furnish all labor, materials, tools, and equipment and perform all operations necessary for masonry work as indicated on the Contract Documents and as specified herein.

## 1.2 RELATED WORK

- A. Section 04 0513 - Masonry Mortar

## 1.3 REFERENCES

The following Codes, Standards and Specifications, latest editions, form part of this specification as referenced.

ACI 530.1/ ASCE 6/ TMS 602 Specification for Masonry Structures

ACI 315 Details and Detailing of Concrete Reinforcement

ASTM A615 Standard Specification for Deformed and Plain Carbon Steel Bars for Concrete Reinforcement

ASTM C 90 Standard Specification for Loadbearing Concrete Masonry Units

AWS D12.1 Reinforcing Steel Welding Code

## 1.3 SUBMITTALS

In accordance with the General Requirements, submit six (6) copies of shop drawings for reinforcement anchorages and embedments, and concrete masonry unit manufacturer product literature for Engineer and Architect's approval. Other items and/or submittals required to indicate conformance with the Contract Documents shall be available for the Engineer/ Architect's inspection.

## PART 2 – PRODUCTS

## 2.1 CONCRETE MASONRY UNITS

- A. Hollow Load Bearing and Non-Load Bearing Units shall conform to ASTM C90; normal weight, face texture to match existing units. Strength of units shall be as indicated on the drawings with a minimum 2000 psi compressive strength.
- B. Masonry Units: Modular sized to 8x8x16 inch with 8x8 face pattern to match existing as shown on the Drawings; provide special units for corners, open ended, double open ended, bond beams and lintels. The use of LCC blocks is not permitted.

- C. Shapes: Provide shapes indicated and as follows, with exposed surfaces matching exposed faces of adjacent units unless otherwise indicated.
  - 1. Provide special shapes for lintels, corners, jambs, sashes, movement joints, headers, bonding, and other special conditions.
  - 2. Provide precast concrete window sill sections. Provide single length per opening.

## 2.2 REINFORCEMENT AND ANCHORAGES

- A. Single Wythe Joint Reinforcement: Ladder type 2-W1.7 (9 GA.), galvanized steel as manufactured by Dur-o-wall, or equal.
- B. Reinforcing Steel: Type and grade as specified in Section 03 2100 - Reinforcing Steel.
- C. Drill and Grout Dowels for masonry reinforcing shall be secured to existing concrete foundation with Hilti HIT RE 500-SD Adhesive or approved equal with a minimum 1½ inch embedment depth. If an alternate manufacturer is to be used, contractor shall submit product information for review by the engineer with load capacities and ICC-ES approval reports.2.4

## PART 3 – EXECUTION

### 3.1 PREPARATION

- A. Make all necessary field measurements to perform modify certain portions of the existing masonry as indicated on the Contract Drawings.
- B. Maintain materials and surrounding air temperature to at least 50 deg F(10 deg C) prior to, during, and 48 hours after completion of masonry work.
- C. Verify items provided by other sections of work are properly sized and located.
- D. Establish lines, levels, and coursing for new work to match and blend with existing masonry.

### 3.2 TEMPORARY SUPPORT

- A. Prior to repair and removal of any existing masonry, provide a temporary support system to support the existing structure as necessary to perform the work safely. The temporary support system shall be designed and certified by a Professional Engineer, and the design shall be available for the inspection of the Engineer.
- B. Provide temporary bracing for all new masonry work during erection. Maintain in place until building structure provides permanent bracing.

### 3.3 CUTTING, REMOVAL, AND DISPOSAL

- A. Cutting and removal of existing masonry shall be undertaken with proper precautions and planning so that the new work can be accommodated without extensive removal or damage to the existing structure.

- B. Obtain approval from the Architect/ Engineer prior to cutting or fitting areas not indicated or where appearance or strength of masonry work may be impaired.
- C. Removed masonry and waste from masonry work, except where otherwise provided, shall be disposed of by the Contractor.

### 3.3 COURSING

- A. Place masonry to lines and levels to match existing masonry and as indicated on the Contract Documents.
- B. Maintain masonry courses to uniform width. Vertical and horizontal mortar joints shall be installed between blocks, shall be equal and of uniform thickness. Exposed joints shall be tooled to a slightly concave profile to match existing; unexposed surfaces may be struck smooth. Walls and parapet surfaces which will receive membrane sheet flashing and counter-flashing shall be constructed to permit the installation of base flashing materials as specified in Division 07 – Thermal and Moisture Protection.
- C. Lay concrete masonry units in running bond. Course of one block unit and one mortar joint to equal approximately eight inches to match existing. Bond beams shall consist of alternately placed open ended and double open ended bond beam block, alternate open ended and double open ended blocks in each course.

### 3.4 PLACING AND BONDING

- A. Lay masonry in full bed of mortar, properly jointed with other work. Buttering corners of joints, and deep or excessive furrowing of mortar joints are not permitted.
- B. Fully bond intersections, and external and internal corners.
- C. Do not shift or tap masonry units after mortar has taken initial set. Where adjustment must be made, remove the mortar and replace.
- D. Remove excess mortar.
- E. Perform jobsite cutting with proper tools to provide straight unchipped edges. Take care to prevent breaking masonry unit corners or edges.

### 3.5 REINFORCEMENT AND ANCHORAGES

- A. Install horizontal joint reinforcement 16 inches on center as indicated on the drawings and listed herein.
- B. Place masonry joint reinforcement in first and second horizontal joints above and below openings. Extend at least 16 inches on each side of opening.
- C. Place joint reinforcement continuous in first and second joint below top of walls.
- D. Lap joint reinforcement ends at least 6 inches (150 mm). Extend at least 16 inches (400 mm) on each side of opening.
- E. Reinforce joint corners and intersections with strap anchors 16 inches (400 mm) on center.

### 3.6 REINFORCING STEEL

- A. Place reinforcement in accordance with ACI 315.
- B. Provide reinforcing dowels embedded into the foundation with adhesive per the drawings and as noted here in.
- C. Locate reinforcing splices at points of minimum stress. Splice locations shall be as shown on the Shop Drawings unless alternative locations of splices are approved by the Engineer.
- D. Where welding is approved by the Engineer, weld reinforcement in accordance with AWS D12.1.
- E. Place reinforcing bars supported and secured against displacement. Maintain position within 1/2-inch (13 mm) of true dimension.
- F. Verify that reinforcement is clean, free of scale, dirt, or other foreign coatings that would reduce bond to grout.

### 3.7 TOLERANCES

- A. Alignment of Pilasters: Maximum 1/4-inch (7 mm) from true line.
- B. Variation from Unit to Adjacent Unit: 1/32-inch (1 mm) maximum.
- C. Variation from Plane of Wall: 1/4-inch (7mm) in 10 feet and 1/2-inch (13 mm) in 20 feet (6 m) or more.
- D. Variation from Plumb: 1/4-inch (7mm) per story noncumulative; 1/2-inch (13 mm) in two stories or more.
- E. Variation from Level Coursing: 1/8-inch (3 mm) in 3 feet; 1/4-inch (7 mm) in 10 feet (3 m); 1/2-inch (13mm) maximum.
- F. Variation of Joint Thickness: 1/8-inch (3 mm) in 3 feet.
- G. Maximum Variation from Cross Sectional Thickness of Walls: +/- 1/4-inch (7 mm).

### 3.10 GROUTED COMPONENTS

- A. Reinforce masonry units as shown on the Construction Documents.
- B. Lap splices at least 24 bar diameters or as noted whichever is longer.
- C. Place and consolidate grout fill without disturbing reinforcing.
- D. Solid grout concrete masonry units in accordance with Construction Documents.

### 3.11 BUILT-IN WORK

- A. As work progresses, build-in door frames, and other items to be built in the work supplied by other sections.
- B. Build-in items plumb and level.
- C. Do not build-in organic materials subject to deterioration.

### 3.12 CLEANING

- A. Remove excess mortar and smears.
- B. Replace defective mortar. Match adjacent work.
- C. Clean soiled surfaces with a nonacidic solution that will not harm masonry or adjacent materials. Consult masonry manufacturer for acceptable cleaners.
- D. Use nonmetallic tools in cleaning operations.

3.13 PROTECTION

- A. Maintain protective boards at exposed external corners which may be damaged by construction activities.
- B. Provide protection without damaging completed work.
- C. At day's end, cover unfinished walls to prevent moisture infiltration.

END OF SECTION 04 220

SECTION 06 1053 - MISCELLANEOUS ROUGH CARPENTRY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:

- 1. Wood blocking and nailers.
- 2. Wood furring.
- 3. Fire retardant treated plywood (for bedroom ceilings).

- B. Related Sections include the following:

- 1. Division 26 and 27 Sections for electrical and communications equipment mounted to plywood backing panels.

1.3 DEFINITIONS

- A. Dimension Lumber: Lumber of 2 inches nominal (38 mm actual) or greater but less than 5 inches nominal (114 mm actual) in least dimension.

- B. Lumber grading agencies, and the abbreviations used to reference them, include the following:

- 1. NELMA - Northeastern Lumber Manufacturers Association.
- 2. NLGA - National Lumber Grades Authority.
- 3. WCLIB - West Coast Lumber Inspection Bureau.
- 4. WWPA - Western Wood Products Association.

1.4 SUBMITTALS

- A. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.

- 1. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Indicate type of preservative used and net amount of preservative retained, and chemical treatment manufacturer's written instructions for handling, storing, and installing treated material.

- a. Include chemical treatment manufacturer's written recommendations for fastener material to be used with treated material for corrosion resistance.

2. Include data for fire-retardant treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Include physical properties of treated materials based on testing by a qualified independent testing agency, both before and after exposure to elevated temperatures when tested according to ASTM D 5516 and ASTM D 5664.
  3. For products receiving a waterborne treatment, include statement that moisture content of treated materials was reduced to levels specified before shipment to Project site.
  4. Include copies of warranties from chemical treatment manufacturers for each type of treatment.
- B. Research/Evaluation Reports: For the following, showing compliance with building code in effect for Project:
1. Preservative-treated wood
  2. Fire-retardant-treated wood.
  3. Power-driven fasteners.
  4. Powder-actuated fasteners.
  5. Expansion anchors.

#### 1.5 INFORMATIONAL SUBMITTALS

- A. Evaluation Reports: For following products, from ICC-ES:
1. Fire-retardant-treated plywood.

#### 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Stack lumber, plywood, and other panels; place spacers between each bundle to provide air circulation. Provide for air circulation around stacks and under coverings.

### PART 2 - PRODUCTS

#### 2.1 WOOD PRODUCTS, GENERAL

- A. Lumber: DOC PS 20 and applicable rules of lumber grading agencies indicated. If no grading agency is indicated, provide lumber that complies with the applicable rules of any rules-writing agency certified by the ALSC Board of Review. Provide lumber graded by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated certified by the American Lumber Standards Committee Board of Review.
1. Factory mark each piece of lumber with grade stamp of grading agency.
  2. Where nominal sizes are indicated, provide actual sizes required by DOC PS 20 for moisture content specified. Where actual sizes are indicated, they are minimum dressed sizes for dry lumber.
  3. Provide dressed lumber, S4S, unless otherwise indicated.
- B. Wood Structural Panels: Plywood: DOC PS 1, and as follows:

1. Thickness: As needed to comply with requirements specified but not less than thickness indicated.
2. Factory mark panels according to indicated standard.

## 2.2 FIRE-RETARDANT-TREATED MATERIALS

- A. General: Where fire-retardant-treated materials are indicated, provide materials that comply with performance requirements in AWPA C20 (lumber) and AWPA C27 (plywood). Identify fire-retardant-treated wood with appropriate classification marking of UL, U.S. Testing, Timber Products Inspection, or another testing and inspecting agency acceptable to authorities having jurisdiction.
1. Use treatment for which chemical manufacturer publishes physical properties of treated wood after exposure to elevated temperatures, when tested by a qualified independent testing agency according to ASTM D 5664, for lumber and ASTM D 5516, for plywood.
  2. Use treatment that does not promote corrosion of metal fasteners.
  3. Use Interior Type A, unless otherwise indicated.
  4. Applications: Treat all interior miscellaneous wood framing, blocking, furring, plywood backing panels and other plywood panels in both concealed and exposed applications.
- B. Fire-Retardant-Treated Plywood by Pressure Process: Products with a flame-spread index of 25 or less when tested according to ASTM E 84, and with no evidence of significant progressive combustion when the test is extended an additional 20 minutes, and with the flame front not extending more than 10.5 feet (3.2 m) beyond the centerline of the burners at any time during the test.
1. Exterior Type: Treated materials shall comply with requirements specified above for fire-retardant-treated plywood by pressure process after being subjected to accelerated weathering according to ASTM D 2898. Use for exterior locations and where indicated.
  2. Interior Type A: Treated materials shall have a moisture content of 28 percent or less when tested according to ASTM D 3201 at 92 percent relative humidity. Use where exterior type is not indicated.
- C. Kiln-dry material after treatment to a maximum moisture content of 15 percent.
- D. Identify fire-retardant-treated plywood with appropriate classification marking of qualified testing agency.
- E. Application: Treat all plywood unless otherwise indicated.

## 2.3 MISCELLANEOUS LUMBER

- A. General: Provide lumber for support or attachment of other construction, including the following:
1. Blocking.
  2. Nailers.
  3. Furring.
- B. For items of dimension lumber size, provide Construction or No. 2 grade lumber with 19 percent maximum moisture content and any of the following species:

1. Hem-fir (north); NLGA.
  2. Hem-fir; WCLIB, or WWPA.
  3. Spruce-pine-fir; NLGA.
  4. Hem-fir; WCLIB, or WWPA.
  5. Spruce-pine-fir (south); NeLMA, WCLIB, or WWPA.
- C. For exposed boards, provide lumber with 19 percent maximum moisture content and any of the following species and grades:
1. Eastern white pine, Idaho white, lodgepole, ponderosa, or sugar pine; Premium or 2 Common (Sterling) grade; NeLMA, NLGA, WCLIB, or WWPA.
- D. For concealed boards, provide lumber with 19 percent maximum moisture content and any of the following species and grades:
1. Hem-fir or Hem-fir (north), Construction or 2 Common grade; NLGA, WCLIB, or WWPA.
  2. Spruce-pine-fir (south) or Spruce-pine-fir, Construction or 2 Common grade; NELMA, NLGA, WCLIB, or WWPA.
  3. Eastern softwoods, No. 2 Common grade; NELMA.
  4. Northern species, No. 2 Common grade; NLGA.
- E. For blocking not used for attachment of other construction Utility, Stud, or No. 3 grade lumber of any species may be used provided that it is cut and selected to eliminate defects that will interfere with its attachment and purpose.
- F. For blocking and nailers used for attachment of other construction, select and cut lumber to eliminate knots and other defects that will interfere with attachment of other work.

## 2.4 PANEL PRODUCTS

- A. Miscellaneous Concealed Plywood: Exposure 1 sheathing, span rating to suit framing in each location, and thickness as indicated or, if not indicated, not less than 3/4 inch (19 mm) thick.

## 2.5 FASTENERS

- A. General: Provide fasteners of size and type indicated that comply with requirements and products specified in this Article for material and manufacture.
1. Where carpentry is preservative treated, provide fasteners with hot-dip galvanized zinc coating complying with ASTM A 153/A 153M, or Type 304 stainless steel fasteners, as recommended in writing by wood-preservative-treatment manufacturer.
  2. Screws for Fastening to Metal Framing: ASTM C 1002 length as recommended by screw manufacturer for material being fastened.
- B. Nails, Brads, and Staples: ASTM F 1667.
- C. Power-Driven Fasteners: NES NER-272.
- D. Wood Screws: ASME B18.6.1.

- E. Screws for Fastening to Cold-Formed Metal Framing: ASTM C 954, except with wafer heads and reamer wings, length as recommended by screw manufacturer for material being fastened.
- F. Lag Bolts: ASME B18.2.1.(ASME B18.2.3.8M).
- G. Bolts: Steel bolts complying with ASTM A 307, Grade A (ASTM F 568M, Property Class 4.6); with ASTM A 563(ASTM A 563M) hex nuts and, where indicated, flat washers.
- H. Expansion Anchors: Anchor bolt and sleeve assembly of material indicated below with capability to sustain, without failure, a load equal to 6 times the load imposed when installed in unit masonry assemblies and equal to 4 times the load imposed when installed in concrete as determined by testing per ASTM E 488 conducted by a qualified independent testing and inspecting agency.
  - 1. Material: Carbon-steel components, zinc plated to comply with ASTM B 633, Class Fe/Zn 5, for interior applications.
  - 2. Material: Stainless steel with bolts and nuts complying with ASTM F 593 and ASTM F 594, Alloy Group 1 or 2 (ASTM F 738M and ASTM F 836M, Grade A1 or A4), for exterior applications.

## PART 3 - EXECUTION

### 3.1 INSTALLATION, GENERAL

- A. Discard units of material with defects that impair quality of carpentry and that are too small to use with minimum number of joints or optimum joint arrangement.
- B. Set carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit carpentry to other construction; scribe and cope as needed for accurate fit. Locate furring, nailers, blocking, and similar supports to comply with requirements for attaching other construction.
- C. Sort and select lumber so that natural characteristics will not interfere with installation or with fastening other materials to lumber. Do not use materials with defects that interfere with function of member or pieces that are too small to use with minimum number of joints or optimum joint arrangement.
- D. Apply field treatment complying with AWPA M4 to cut surfaces of preservative-treated lumber and plywood.
  - 1. Use inorganic boron for items that are continuously protected from liquid water.
  - 2. Use copper naphthenate for items not continuously protected from liquid water.
- E. Separate preservative treated wood from all metals, including metal decking, with rubberized-asphalt isolation flashing. Apply flashing to wood prior to installation.
- F. Cut panels at penetrations, edges, and other obstructions of work; fit tightly against abutting construction unless otherwise indicated.
- G. Securely attach to substrate by fastening in accordance with support grid manufactures recommendations.

H. Securely attach carpentry work as indicated and according to applicable codes and recognized standards.

1. NES NER-272 for power-driven fasteners.
2. Table 2304.9.1, "Fastening Schedule," in ICC's International Building Code.

I. Fasteners: Countersink fastener heads on exposed carpentry work and fill holes with wood filler. Use fasteners of appropriate type and length. Pre-drill members when necessary to avoid splitting wood.

### 3.2 WOOD BLOCKING AND NAILER INSTALLATION

A. Install where indicated and where required for attaching other work. Form to shapes indicated and cut as required for true line and level of attached work. Coordinate locations with other work involved.

B. Attach items to substrates to support applied loading. Recess bolts and nuts flush with surfaces, unless otherwise indicated.

END OF SECTION 06 1053

SECTION 06 4115 — PLASTIC-LAMINATE-CLAD ARCHITECTURAL CABINETS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
  - 1. Laminate clad countertops.
  - 2. Casework accessories.
- B. Related Sections: The following sections contain requirements that relate to this section:
  - 1. Division 06 Section "Miscellaneous Rough Carpentry" for furring, blocking, and other carpentry work that is not exposed to view.

1.3 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 01 Specification Sections.
- B. Product data for each type of product and process specified in this section and incorporated into items of architectural casework during fabrication, finishing, and installation.
  - 1. Include adhesive and composite wood materials manufacturer's product data indicating that products contain no urea-formaldehyde resin.
  - 2. Include manufacturers' product data for adhesives, including printed statement of VOC content and material safety sheets.
- C. Shop Drawings: Showing location of each item, dimensioned plans and elevations, large-scale details, (min. 1-1/2"=1'-0"), attachment devices, hardware and other components. Indicate adjacent construction.
  - 1. Show details full size.
  - 2. Show locations and sizes of furring, blocking, and hanging strips, including concealed blocking and reinforcement specified in other Sections.
  - 3. Show locations and sizes of cutouts and holes for plumbing fixtures, faucets and other items installed in architectural woodwork.
- D. Samples for Verification: Provide the following:

1. Laminate clad panel products, 8-1/2 inches by 11 inches for each type, color, pattern, and surface finish, with separate samples of unfaced panel product used for core, and specified PVC edge material applied to 1 edge.
- E. Product certificates signed by woodwork manufacturer certifying that products comply with specified requirements.

#### 1.4 QUALITY ASSURANCE

- A. Fabricator Qualifications: Shop that employs skilled workers who custom-fabricate products similar to those required for this Project and whose products have a record of successful in-service performance, with sufficient production capacity to produce required units without causing delay in the Work.
- B. Single-Source Responsibility: Arrange for production of casework by a single firm
- C. Installer Qualifications: Fabricator of plastic-laminate clad architectural cabinets.
- D. AWI Quality Standard: Comply with applicable requirements of "Architectural Woodwork Quality Standards" published by the Architectural Woodwork Institute (AWI) 2005 Edition unless indicated otherwise in this Section.
- E. Surface Burning Characteristics: Provide plastic-laminate-clad architectural casework as follows as determined by testing per ASTM E 84 for Class C products, unless otherwise indicated.
1. Flame Spread Index: 200 or less
  2. Smoke Developed Index: 450 or less

#### 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Protect casework during transit, delivery, storage, and handling to prevent damage, soilage, and deterioration.
- B. Do not deliver casework until painting, wet work, grinding, and similar operations that could damage, soil, or deteriorate casework have been completed in installation areas. If casework must be stored in other than installation areas, store only in areas whose environmental conditions meet requirements specified in "Project Conditions" Article.

#### 1.6 PROJECT CONDITIONS

- A. Environmental Conditions: Obtain and comply with Woodwork Manufacturer's and Installer's coordinated advice for optimum temperature and humidity conditions for casework during its storage and installation. Do not install casework until these conditions have been attained and stabilized so that casework is within plus or minus 1.0 percent of optimum moisture content from date of installation through remainder of construction period.
- B. Field Measurements: Where casework is indicated to be fitted to other construction, check actual dimensions of other construction by accurate field measurements before manufacturing woodwork;

show recorded measurements on final shop drawings. Coordinate manufacturing schedule with construction progress to avoid delay of Work.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

- A. General: Provide materials that comply with requirements of the AWI woodworking standard for each type of woodwork and quality grade indicated and, where the following products are part of woodwork, with requirements of the referenced product standards, that apply to product characteristics indicated.
- B. Wood Products: Comply with the following:
  - 1. Hardboard: AHA A135.4.
  - 2. Particleboard: Straw-based particleboard complying with requirements in ANSI A208.1, Grade M-2, except for density.
    - a. Acceptable Product: **"MICROSTRAND WHEAT"** straw-based particle board as manufactured by Environ Biocomposites Manufacturing, LLC; Tele: (800) 324-8187.
  - 3. Medium-Density Fiberboard: ANSI A208.2, Grade MD, made with binder containing no urea formaldehyde.
    - a. Acceptable Product: SierraPine **"Medite II"**, Tele: (800)676-3339.
- C. High-Pressure Decorative Laminate: NEMA LD 3, grades as indicated or, if not indicated, as required by woodwork quality standard.
  - 1. Basis-of-Design Products – Colors, Textures, and Patterns: Subject to compliance with requirements, provide high pressure decorative laminates identified in Division 09 Section "Finish Schedule", Article 3.2 Finish Color and Pattern List.

### 2.2 FABRICATION, GENERAL

- A. Interior Woodwork Grade: Unless otherwise indicated, provide Premium-grade interior woodwork complying with referenced quality standard.
- B. Wood Moisture Content: Comply with requirements of referenced quality standard for moisture content of lumber in relation to relative humidity conditions existing during time of fabrication and in installation areas.
- C. Fabricate woodwork to dimensions, profiles, and details indicated.
  - 1. Ease corners and edges of exposed trim; 1/8" radius if 3/4" or greater.
- D. Complete fabrication, including assembly, finishing, and hardware application, before shipment to project site to maximum extent possible. Disassemble components only as necessary for shipment and

installation. Where necessary for fitting at site, provide ample allowance for scribing, trimming, and fitting.

- E. Factory-cut openings, to maximum extent possible, to receive hardware, appliances, plumbing fixtures, electrical work, and similar items. Locate openings accurately and use templates or roughing-in diagrams to produce accurately sized and shaped openings. Smooth edges of cutouts and, where located in countertops and similar exposures, seal edges of cutouts with a water-resistant coating.

2.3 LAMINATE CLAD CABINETS (PLASTIC-COVERED CASEWORK)

- A. Quality Standard: Comply with AWI Section 400 and its Division 400B "Laminate Cabinets" for custom units and Section 1600 and its Division 1600 "Modular Cabinets" for modular units.

1. MINIMUM CUSTOM UNIT COMPONENTS FOR LAMINATE CLAD CABINETS.

<b>Body Members</b>	<b>Particleboard</b>	<b>3/4"</b>
<b>Rails</b>	<b>Lumber or Particleboard</b>	<b>3/4"</b>
<b>Shelves</b>	<b>Particleboard</b>	<b>3/4" to 36" span 1" to 42" span</b>
<b>Backs</b>	<b>Particleboard</b>	<b>1/2"</b>

- a. Applications: Open counters, and other specialty casework units.

- B. Grade: Premium.

- C. AWI Type of Cabinet Construction: Flush overlay.

- D. Laminate Cladding: High pressure decorative laminate complying with the following requirements:

- 1. Colors, Patterns, and Finishes: Provide materials and products that result in colors and textures of exposed laminate surfaces complying with the following requirements:

- a. Match color, pattern, and finish indicated in the Finish Schedule by reference to laminate manufacturer's standard designations for these characteristics.
- b. Semi-exposed surfaces shall match exposed surfaces, unless otherwise indicated.

- 2. Laminate Grade for Exposed Surfaces: Provide laminate cladding complying with the following requirements for type of surface and grade.

- a. Horizontal Surfaces Other Than Tops: Grade HGL (0.039-inch nominal thickness).
- b. Vertical Surfaces: Grade VGS (0.028-inch nominal thickness).
- c. Edges: 3 ml PVC "Dollken Woodtape", matching laminate in color, pattern and finish, unless otherwise noted.

## 2.4 PLASTIC-LAMINATE COUNTERTOPS

- A. High-Pressure Decorative Laminate Grade: HGS.
- B. Colors, Patterns, and Finishes: Provide materials and products that result in colors and textures of exposed laminate surfaces complying with the following requirements:
  - 1. As indicated by manufacturer's designations.
- C. Edge Treatment: Same as laminate cladding on horizontal surfaces.
- D. Core Material: Medium-density fiberboard made with exterior glue.
- E. Core Material at Sinks: Medium-density fiberboard made with exterior glue.
- F. Backer Sheet: Provide plastic-laminate backer sheet, Grade BKL, on underside of countertop substrate.
- G. Paper Backing: Provide paper backing on underside of countertop substrate.

## 2.5 CABINET HARDWARE AND ACCESSORY MATERIALS

- A. General: Provide cabinet hardware and accessory materials associated with architectural cabinets.
- B. Furring, Blocking, Shims, and Hanging Strips: Fire-retardant-treated softwood lumber, kiln dried to less than 19 percent moisture content, as specified in Division 06 Section "Miscellaneous Rough Carpentry."
- C. Adhesives, General: Do not use adhesives that contain urea formaldehyde.
- D. VOC Limits for Installation Adhesives and Glues: Use installation adhesives that comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):
  - 1. Wood Glues: 30 g/L.
  - 2. Contact Adhesives: 250g/L.
- E. Adhesive for Bonding Plastic Laminate: Unpigmented contact cement.
  - 1. Adhesive for Bonding Edges: Hot-melt adhesives that contain no urea formaldehyde.
- F. Miscellaneous Steel Support Framing: Provide steel support framing at open counter casework where indicated.

## 2.6 FASTENERS AND ANCHORS

- A. Screws: Select material, type, size, and finish required for each use. Comply with FS FF-S-111 for applicable requirements.

- B. Nails: Select material, type, size, and finish required for each use. Comply with FS FF-N-105 for applicable requirements.
- C. Anchors: Select material, type, size, and finish required by each substrate for secure anchorage. Provide nonferrous metal or hot-dip galvanized anchors and inserts on inside face of exterior walls and elsewhere as required for corrosion resistance. Provide toothed steel or lead expansion bolt devices for drilled-in-place anchors. Furnish inserts and anchors, as required, to be set into concrete or masonry work for subsequent woodwork anchorage.

### PART 3 - EXECUTION

#### 3.1 PREPARATION

- A. Condition casework to average prevailing humidity conditions in installation areas before installing.
- B. Deliver anchoring devices to be built into substrates well in advance of time substrates are to be built.
- C. Before installing architectural casework, examine shop-fabricated work for completion and complete work as required, including removal of packing.

#### 3.2 INSTALLATION

- A. Quality Standard: Install casework to comply with AWI Section 1700 for same grade specified in Part 2 of this section for type of woodwork involved.
- B. Install casework plumb, level, true, and straight with no distortions. Shim as required with concealed shims. Install to a tolerance of 1/8 inch in 8'-0" for plumb and level (including tops) and with no variations in flushness of adjoining surfaces.
- C. Scribe and cut casework to fit adjoining work and refinish cut surfaces or repair damaged finish at cuts.
- D. Anchor casework to anchors or blocking built in or directly attached to substrates. Secure to grounds, stripping and blocking with countersunk, concealed fasteners and blind nailing as required for a complete installation. Except where prefinished matching fastener heads are required, use fine finishing nails for exposed nailing, countersunk and filled flush with woodwork and matching final finish where transparent finish is indicated.
- E. Install steel support framing at open counter casework where indicated.
- F. Countertops: Anchor securely by screwing through corner blocks of base cabinets or other supports into underside of countertop.
  - 1. Install countertops with no more than 1/8 inch in 96-inch (3 mm in 2400-mm) sag, bow, or other variation from a straight line.
  - 2. Secure backsplashes to tops with concealed metal brackets at 16 inches (400 mm) o.c. and to walls with adhesive.
  - 3. Caulk space between backsplash and wall with sealant specified in Division 07 Section "Joint Sealants."

- G. Complete the finishing work specified in this Section to whatever extent it was not possible to complete at shop or before installation of casework.

### 3.3 ADJUSTMENT AND CLEANING

- A. Repair damaged and defective casework where possible to eliminate defects functionally and visually; where not possible to repair to Architect's satisfaction, replace casework. Adjust joinery for uniform appearance.
- B. Clean, lubricate, and adjust hardware.
- C. Clean casework on exposed and semiexposed surfaces. Touch up factory-applied finishes to restore damaged or soiled areas.

### 3.4 PROTECTION

- A. Provide final protection and maintain conditions, in a manner acceptable to manufacturer and Installer, that ensures that casework will be without damage or deterioration at time of Substantial Completion.

### 3.5 HARDWARE SCHEDULE

- A. Open Counter Metal Support Legs:
  - 1. Provide 2" diameter metal legs with floor mounting flanges to be bolted to floor and secured to underside of counter.
  - 2. Finish: Black powder coat.
- B. For concealed hardware, provide manufacturer's standard finish that complies with product class requirements in BHMA A156.9.

END OF SECTION 06 4115

## SECTION 07 8413 - PENETRATION FIRESTOPPING

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

## 1.2 SUMMARY

## A. Section Includes:

1. Penetrations in fire-resistance-rated walls.
2. Penetrations in horizontal assemblies.
3. Penetrations in smoke barriers.

## B. Related Sections:

1. Division 07 Section "Fire-Resistive Joint Systems" for joints in or between fire-resistance-rated construction, at exterior curtain-wall/floor intersections, and in smoke barriers.
2. Division 21 Section specifying fire-suppression piping penetrations.
3. Division 23 Section specifying duct and piping penetrations.
4. Division 26 Section specifying cable and conduit penetrations.

## 1.3 PERFORMANCE REQUIREMENTS

- A. General: For penetrations through the following fire-resistance-rated constructions, including both empty openings and openings containing penetrating items, provide through-penetration firestop systems that are produced and installed to resist spread of fire according to requirements indicated, resist passage of smoke and other gases, and maintain original fire-resistance rating of construction penetrated.

1. Fire-resistance-rated walls including fire barriers and smoke barriers.
2. Fire-resistance-rated horizontal floor assemblies.

- B. Rated Systems: Provide through-penetration firestop systems with the following ratings determined per ASTM E 814 or UL 1479:

1. F-Rated Systems: Provide through-penetration firestop systems with F-ratings indicated, but not less than that equaling or exceeding fire-resistance rating of constructions penetrated.
2. Provide through-penetration firestop systems that have been tested in accordance with ASTM E 119.
3. T-Rated Systems: For the following conditions provide through-penetration firestop systems with T-ratings indicated, as well as F-ratings, where systems protect penetrating items exposed to potential contact with adjacent materials in occupiable floor areas:

- a. Floor penetrations located outside wall cavities.
  - b. Floor penetrations located outside fire-resistance-rated shaft enclosures.
  - c. T-rating shall be not less than 1 hour, but not less than the required fire-resistance rating of the floor penetrated.
- C. For through-penetration firestop systems exposed to view, traffic, moisture, and physical damage, provide products that, after curing, do not deteriorate when exposed to these conditions both during and after construction.
- 1. For piping penetrations for plumbing and wet-pipe sprinkler systems, provide moisture-resistant through-penetration firestop systems.
  - 2. For floor penetrations with annular spaces exceeding 4 inches (100 mm) in width and exposed to possible loading and traffic, provide firestop systems capable of supporting floor loads involved, either by installing floor plates or by other means.
  - 3. For penetrations involving insulated piping, provide through-penetration firestop systems not requiring removal of insulation.
- D. For through-penetration firestop systems exposed to view, provide products with flame-spread and smoke-developed indexes of less than 25 and 450, respectively, as determined per ASTM E 84.

#### 1.4 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: For each through-penetration firestop system, show each type of construction condition penetrated, relationships to adjoining construction, and type of penetrating item. Include firestop design designation of qualified testing and inspecting agency that evidences compliance with requirements for each condition indicated.
- 1. Submit documentation, including illustrations, from a qualified testing and inspecting agency that is applicable to each through-penetration firestop system configuration for construction and penetrating items.
  - 2. Where Project conditions require modification to a qualified testing and inspecting agency's illustration for a particular through-penetration firestop condition, submit illustration, with modifications marked, approved by through-penetration firestop system manufacturer's fire-protection engineer as an engineering judgment or equivalent fire-resistance-rated assembly.
- C. Through-Penetration Firestop System Schedule: Indicate locations of each through-penetration firestop system, along with the following information:
- 1. Types of penetrating items.
  - 2. Types of constructions penetrated, including fire-resistance ratings and, where applicable, thicknesses of construction penetrated.
  - 3. Through-penetration firestop systems for each location identified by firestop design designation of qualified testing and inspecting agency.
- D. Qualification Data: For qualified installer.
- E. Installer Certificates: From Installer indicating penetration firestopping has been installed in compliance with requirements and manufacturer's written recommendations.

- F. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for penetration firestopping.

## 1.5 QUALITY ASSURANCE

- A. Installer Qualifications: A firm that has been approved by FMG according to FMG 4991, "Approval of Firestop Contractors," has been evaluated by UL and found to comply with its "Qualified Firestop Contractor Program Requirements", or a firm with installers that have been trained and certified by the through-penetration firestop system manufacturer.
  - 1. A firm experienced in installing through-penetration firestop systems similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful performance. Qualifications include having the necessary experience, staff, and training to install manufacturer's products per specified requirements.
  - 2. Manufacturer's willingness to sell its through-penetration firestop system products to Contractor or to Installer engaged by Contractor does not in itself confer qualification on buyer.
- B. Installation Responsibility: Assign installation of through-penetration firestop systems and fire-resistive joint systems in Project to a single qualified installer.
- C. Source Limitations: Obtain through-penetration firestop systems, for each kind of penetration and construction condition indicated, through one source from a single manufacturer.
- D. Fire-Test-Response Characteristics: Provide through-penetration firestop systems that comply with the following requirements and those specified in Part 1 "Performance Requirements" Article:
  - 1. Firestopping tests are performed by a qualified testing and inspecting agency. A qualified testing and inspecting agency is UL, or another agency performing testing and follow-up inspection services for firestop systems acceptable to authorities having jurisdiction.
  - 2. Through-penetration firestop systems are identical to those tested per testing standard referenced in "Part 1 Performance Requirements" Article. Provide rated systems complying with the following requirements:
    - a. Through-penetration firestop system products bear classification marking of qualified testing and inspecting agency.
    - b. Through-penetration firestop systems correspond to those indicated by reference to through-penetration firestop system designations listed by the following:
      - 1) UL in its "Fire Resistance Directory."
- E. Preinstallation Conference: Conduct conference at Project site.

## 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver through-penetration firestop system products to Project site in original, unopened containers or packages with intact and legible manufacturers' labels identifying product and manufacturer, date of manufacture, lot number, shelf life if applicable, qualified testing and inspecting agency's classification marking applicable to Project, curing time, and mixing instructions for multicomponent materials.

- B. Store and handle materials for through-penetration firestop systems to prevent their deterioration or damage due to moisture, temperature changes, contaminants, or other causes.

#### 1.7 PROJECT CONDITIONS

- A. Environmental Limitations: Do not install penetration firestopping when ambient or substrate temperatures are outside limits permitted by penetration firestopping manufacturers or when substrates are wet because of rain, frost, condensation, or other causes.
- B. Install and cure penetration firestopping per manufacturer's written instructions using natural means of ventilations or, where this is inadequate, forced-air circulation.

#### 1.8 COORDINATION

- A. Coordinate construction of openings and penetrating items to ensure that penetration firestopping is installed according to specified requirements.
- B. Coordinate sizing of sleeves, openings, core-drilled holes, or cut openings to accommodate penetration firestopping.
- C. Notify Owner's testing agency at least seven days in advance of penetration firestopping installations; confirm dates and times on day preceding each series of installations.
- D. Do not cover up through-penetration firestop system installations that will become concealed behind other construction until each installation has been examined by Building Inspector, if required by authorities having jurisdiction.

### PART 2 - PRODUCTS

#### 2.1 MANUFACTURERS

- A. Basis-of-Design Product, Through-Penetration Firestop Systems: In coordination with the UL Design Test Numbers indicated in the Drawings, the designs for materials are based on Hilti, Inc. Subject to compliance with requirements, provide either the named product, or another product accepted by the Architect which provides equal or better fire-resistive protection and is supported by acceptable testing and documentation, as manufactured by one of the following:
  - 1. Grace Construction Products.
  - 2. RectorSeal Corporation (The).
  - 3. 3M; Fire Protection Products Division.
  - 4. Specified Technologies Inc.
  - 5. Tremco; Sealant/Weatherproofing Division.

#### 2.2 PENETRATION FIRESTOPPING

- A. Compatibility: Provide penetration firestopping that is produced and installed to resist spread of fire according to requirements indicated, resist passage of smoke and other gases, and maintain original

fire-resistance rating of construction penetrated. Penetration firestopping systems shall be compatible with one another, with the substrates forming openings, and with penetrating items if any.

- B. Penetrations in Fire-Resistance-Rated Walls: Provide penetration firestopping with ratings determined per ASTM E 814 or UL 1479, based on testing at a positive pressure differential of 0.01-inch wg (2.49 Pa).
  - 1. Fire-resistance-rated walls include fire walls, fire-barrier walls, smoke-barrier walls, and fire partitions.
  - 2. F-Rating: Not less than the fire-resistance rating of constructions penetrated.
- C. Penetrations in Horizontal Assemblies: Provide penetration firestopping with ratings determined per ASTM E 814 or UL 1479, based on testing at a positive pressure differential of 0.01-inch wg (2.49 Pa).
  - 1. Horizontal assemblies include floors, floor/ceiling assemblies, and ceiling membranes of roof/ceiling assemblies.
  - 2. F-Rating: At least 1 hour, but not less than the fire-resistance rating of constructions penetrated.
  - 3. T-Rating: At least 1 hour, but not less than the fire-resistance rating of constructions penetrated except for floor penetrations within the cavity of a wall.
- D. Penetrations in Smoke Barriers: Provide penetration firestopping with ratings determined per UL 1479.
- E. Exposed Penetration Firestopping: Provide products with flame-spread and smoke-developed indexes of less than 25 and 450, respectively, as determined per ASTM E 84.
- F. VOC Content: Provide penetration firestopping that complies with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):
  - 1. Architectural Sealants: 250 g/L.
  - 2. Sealant Primers for Nonporous Substrates: 250 g/L.
  - 3. Sealant Primers for Porous Substrates: 775 g/L.
- G. Accessories: Provide components for each penetration firestopping system that are needed to install fill materials and to maintain ratings required. Use only those components specified by penetration firestopping manufacturer and approved by qualified testing and inspecting agency for firestopping indicated.
  - 1. Permanent forming/damming/backing materials, including the following:
    - a. Slag-wool-fiber or rock-wool-fiber insulation.
    - b. Sealants used in combination with other forming/damming/backing materials to prevent leakage of fill materials in liquid state.
    - c. Fire-rated form board.
    - d. Fillers for sealants.
  - 2. Temporary forming materials.
  - 3. Substrate primers.
  - 4. Collars.
  - 5. Steel sleeves.

2.3 FILL MATERIALS

- A. General: Provide through-penetration firestop systems containing the types of fill materials indicated in the Through-Penetration Firestop System Schedule at the end of Part 3 by referencing the types of materials described in this Article. Fill materials are those referred to in directories of referenced testing and inspecting agencies as "fill," "void," or "cavity" materials.
- B. Cast-in-Place Firestop Devices: Factory-assembled devices for use in cast-in-place concrete floors and consisting of an outer metallic sleeve lined with an intumescent strip, a radial extended flange attached to one end of the sleeve for fastening to concrete formwork, and a neoprene gasket.
- C. Latex Sealants: Single-component latex formulations that after cure do not re-emulsify during exposure to moisture.
- D. Firestop Devices: Factory-assembled collars formed from galvanized steel and lined with intumescent material sized to fit specific diameter of penetrant.
- E. Mortars: Prepackaged dry mixes consisting of a blend of inorganic binders, hydraulic cement, fillers, and lightweight aggregate formulated for mixing with water at Project site to form a nonshrinking, homogeneous mortar.
- F. Intumescent Composite Sheets: Rigid panels consisting of aluminum-foil-faced elastomeric sheet bonded to galvanized steel sheet.
- G. Intumescent Putties: Nonhardening dielectric, water-resistant putties containing no solvents, inorganic fibers, or silicone compounds.
- H. Intumescent Wrap Strips: Single-component intumescent elastomeric sheets with aluminum foil on one side.
- I. Intumescent Mastics: Spray, brush or trowel applied.
- J. Pillows/Bags: Reusable heat-expanding pillows/bags consisting of glass-fiber cloth cases filled with a combination of mineral-fiber, water-insoluble expansion agents, and fire-retardant additives.
- K. Silicone Foams: Multicomponent, silicone-based liquid elastomers that, when mixed, expand and cure in place to produce a flexible, nonshrinking foam.
- L. Silicone Sealants: Single-component, silicone-based, neutral-curing elastomeric sealants of grade indicated below:
  - 1. Grade for Horizontal Surfaces: Pourable (self-leveling) formulation for openings in floors and other horizontal surfaces.
  - 2. Grade for Vertical Surfaces: Nonsag formulation for openings in vertical and other surfaces requiring a non-slumping gunnable sealant, unless indicated firestop system limits use to nonsag grade for both opening conditions.

2.4 MIXING

- A. For those products requiring mixing before application, comply with penetration firestopping manufacturer's written instructions for accurate proportioning of materials, water (if required), type of

mixing equipment, selection of mixer speeds, mixing containers, mixing time, and other items or procedures needed to produce products of uniform quality with optimum performance characteristics for application indicated.

### PART 3 - EXECUTION

#### 3.1 EXAMINATION

- A. Examine substrates and conditions, with Installer present, for compliance with requirements for opening configurations, penetrating items, substrates, and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

#### 3.2 PREPARATION

- A. Surface Cleaning: Clean out openings immediately before installing penetration firestopping to comply with manufacturer's written instructions and with the following requirements:
  - 1. Remove from surfaces of opening substrates and from penetrating items foreign materials that could interfere with adhesion of penetration firestopping.
  - 2. Clean opening substrates and penetrating items to produce clean, sound surfaces capable of developing optimum bond with penetration firestopping. Remove loose particles remaining from cleaning operation.
  - 3. Remove laitance and form-release agents from concrete.
- B. Priming: Prime substrates where recommended in writing by manufacturer using that manufacturer's recommended products and methods. Confine primers to areas of bond; do not allow spillage and migration onto exposed surfaces.
- C. Masking Tape: Use masking tape to prevent penetration firestopping from contacting adjoining surfaces that will remain exposed on completion of the Work and that would otherwise be permanently stained or damaged by such contact or by cleaning methods used to remove stains. Remove tape as soon as possible without disturbing firestopping's seal with substrates.

#### 3.3 INSTALLATION

- A. General: Install penetration firestopping to comply with manufacturer's written installation instructions and published drawings for products and applications indicated.
- B. Install forming/damming/backing materials and other accessories of types required to support fill materials during their application and in the position needed to produce cross-sectional shapes and depths required to achieve fire ratings indicated.
  - 1. After installing fill materials and allowing them to fully cure, remove combustible forming materials and other accessories not indicated as permanent components of firestop systems.
- C. Install fill materials for firestop systems by proven techniques to produce the following results:

1. Fill voids and cavities formed by openings, forming materials, accessories, and penetrating items as required to achieve fire-resistance ratings indicated.
2. Apply materials so they contact and adhere to substrates formed by openings and penetrating items.
3. For fill materials that will remain exposed after completing Work, finish to produce smooth, uniform surfaces that are flush with adjoining finishes.

### 3.4 IDENTIFICATION

- A. Identify through-penetration firestop systems with preprinted metal or plastic labels. Attach labels permanently to surfaces adjacent to and within 6 inches (150 mm) of edge of the firestop systems so that labels will be visible to anyone seeking to remove penetrating items or firestop systems. Use mechanical fasteners for metal labels. For plastic labels, use self-adhering type with adhesives capable of permanently bonding labels to surfaces on which labels are placed and, in combination with label material, will result in partial destruction of label if removal is attempted. Include the following information on labels:
1. The words "Warning - Through-Penetration Firestop System - Do Not Disturb. Notify Building Management of Any Damage."
  2. Contractor's name, address, and phone number.
  3. Through-penetration firestop system designation of applicable testing and inspecting agency.
  4. Date of installation.
  5. Through-penetration firestop system manufacturer's name.
  6. Installer's name.

### 3.5 FIELD QUALITY CONTROL

- A. Owner will engage a qualified testing agency to perform tests and inspections.
1. Tests and inspections shall be conducted in accordance with the requirements of ASTM E 2174 "Standard Practice for On-Site Inspection of Installed Fire Stops".
- B. Where deficiencies are found or penetration firestopping is damaged or removed because of testing, repair or replace penetration firestopping to comply with requirements.
- C. Proceed with enclosing penetration firestopping with other construction only after inspection reports are issued and installations comply with requirements.

### 3.6 CLEANING AND PROTECTION

- A. Clean off excess fill materials adjacent to openings as the Work progresses by methods and with cleaning materials that are approved in writing by penetration firestopping manufacturers and that do not damage materials in which openings occur.
- B. Provide final protection and maintain conditions during and after installation that ensure that penetration firestopping is without damage or deterioration at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, immediately cut out and remove damaged or

deteriorated penetration firestopping and install new materials to produce systems complying with specified requirements.

END OF SECTION 07 8413

SECTION 07 9200 - JOINT SEALANTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes sealants for the following applications, including those specified by reference to this Section:
- B. This Section includes sealants for interior joints in the following vertical surfaces and horizontal nontraffic surfaces:
  - 1. Control and expansion joints on exposed interior surfaces.
  - 2. Perimeter joints between interior wall surfaces and frames of interior doors, and windows.
  - 3. Other joints as indicated.
- C. Related Sections include the following:
  - 1. Division 08 Section "Glazing" for glazing sealants.
  - 2. Division 09 Section "Gypsum Board Assemblies" for sealing perimeter joints of gypsum board partitions to reduce sound transmission.
  - 3. Division 09 Section "Acoustical Panel Ceilings" for sealing edge moldings at perimeters of acoustical ceilings.

1.3 PERFORMANCE REQUIREMENTS

- A. Provide elastomeric joint sealants that establish and maintain watertight and airtight continuous joint seals without staining or deteriorating joint substrates.
- B. Provide joint sealants for interior applications that establish and maintain airtight and water-resistant continuous joint seals without staining or deteriorating joint substrates.

1.4 SUBMITTALS

- A. Product Data: For each joint-sealant product indicated.
- B. Samples for Initial Selection: Manufacturer's color charts consisting of strips of cured sealants showing the full range of colors available for each product exposed to view.

- C. Samples for Verification: For each type and color of joint sealant required. Install joint sealants in 1/2-inch-(13-mm-) wide joints formed between two 6-inch-(150-mm-) long strips of material matching the appearance of exposed surfaces adjacent to joint sealants.
- D. Product Certificates: Signed by manufacturers of joint sealants certifying that products furnished comply with requirements and are suitable for the use indicated.
- E. SWRI Validation Certificate: For each elastomeric sealant specified to be validated by SWRI's Sealant Validation Program.
- F. 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.
- G. Preconstruction Field Test Reports: Indicate which sealants and joint preparation methods resulted in optimum adhesion to joint substrates based on preconstruction testing specified in "Quality Assurance" Article.
- H. Field Test Report Log: For each elastomeric sealant application. Include information specified in "Field Quality Control" Article.
- I. Compatibility and Adhesion Test Reports: From sealant manufacturer indicating the following:
  - 1. Materials forming joint substrates and joint-sealant backings have been tested for compatibility and adhesion with joint sealants.
  - 2. Interpretation of test results and written recommendations for primers and substrate preparation needed for adhesion.
- J. Product Test Reports: From a qualified testing agency indicating sealants comply with requirements, based on comprehensive testing of current product formulations.
- K. Warranties: Special warranties specified in this Section.

## 1.5 QUALITY ASSURANCE

- A. Installer Qualifications: An experienced installer who has specialized in installing joint sealants similar in material, design, and extent to those indicated for this Project and whose work has resulted in joint-sealant installations with a record of successful in-service performance.
- B. Source Limitations: Obtain each type of joint sealant through one source from a single manufacturer.
- C. Preconstruction Compatibility and Adhesion Testing: Submit to joint sealant manufacturers, for testing indicated below, samples of materials that will contact or affect joint sealants.
  - 1. Use manufacturers standard test methods to determine whether priming and other specific joint preparation techniques are required to obtain rapid, optimum adhesion of joint sealants to joint substrates.
    - a. Perform tests under environmental conditions replicating those that will exist during installation.

2. Submit not fewer than nine pieces of each type of material, including joint substrates, shims, joint-sealant backings, secondary seals, and miscellaneous materials.
  3. Schedule sufficient time for testing and analyzing results to prevent delaying the Work.
  4. For materials failing tests, obtain joint sealant manufacturer's written instructions for corrective measures, including the use of specially formulated primers.
  5. Testing will not be required if joint sealant manufacturers submit joint preparation data that are based on previous testing of current sealant products for adhesion to, and compatibility with, joint substrates and other materials matching those submitted.
- D. Product Testing: Obtain test results for "Product Test Reports" Paragraph in "Submittals" Article from a qualified testing agency based on testing current sealant formulations within a 36-month period.
1. Testing Agency Qualifications: An independent testing agency qualified according to ASTM C 1021 to conduct the testing indicated, as documented according to ASTM E 548.
  2. Test elastomeric joint sealants for compliance with requirements specified by reference to ASTM C 920, and where applicable, to other standard test methods.
  3. Test elastomeric joint sealants according to SWRI's Sealant Validation Program for compliance with requirements specified by reference to ASTM C 920 for adhesion and cohesion under cyclic movement, adhesion-in peel, and indentation hardness.
  4. Test other joint sealants for compliance with requirements indicated by referencing standard specifications and test methods.

#### 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to Project site in original unopened containers or bundles with labels indicating manufacturer, product name and designation, color, expiration date, pot life, curing time, and mixing instructions for multicomponent materials.
- B. Store and handle materials in compliance with manufacturer's written instructions to prevent their deterioration or damage due to moisture, high or low temperatures, contaminants, or other causes.

#### 1.7 PROJECT CONDITIONS

- A. Environmental Limitations: Do not proceed with installation of joint sealants under the following conditions:
  1. When ambient and substrate temperature conditions are outside limits permitted by joint sealant manufacturer or are below 40 deg F(4.4 deg C).
  2. When joint substrates are wet.
- B. Joint-Width Conditions: Do not proceed with installation of joint sealants where joint widths are less than those allowed by joint sealant manufacturer for applications indicated.
- C. Joint-Substrate Conditions: Do not proceed with installation of joint sealants until contaminants capable of interfering with adhesion are removed from joint substrates.

#### 1.8 WARRANTY

- A. General Warranty: Special warranties specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.
- B. Special Installer's Warranty: Written warranty, signed by Installer agreeing to repair or replace elastomeric joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.
  - 1. Warranty Period: Two years from date of Substantial Completion.
- C. Special Manufacturer's Warranty: Written warranty, signed by elastomeric sealant manufacturer agreeing to furnish elastomeric joint sealants to repair or replace those that do not comply with performance and other requirements specified in this Section within specified warranty period.
  - 1. Warranty Period: 20 years from date of Substantial Completion.
- D. Special warranties specified in this Article exclude deterioration or failure of elastomeric joint sealants from the following:
  - 1. Movement of the structure resulting in stresses on the sealant exceeding sealant manufacturer's written specifications for sealant elongation and compression caused by structural settlement or errors attributable to design or construction.
  - 2. Disintegration of joint substrates from natural causes exceeding design specifications.
  - 3. Mechanical damage caused by individuals, tools, or other outside agents.
  - 4. Changes in sealant appearance caused by accumulation of dirt or other atmospheric contaminants.

## PART 2 - PRODUCTS

### 2.1 PRODUCTS AND MANUFACTURERS

- A. Products: Subject to compliance with requirements, provide one of the products indicated for each type in the sealant schedules at the end of Part 3.

### 2.2 MATERIALS, GENERAL

- A. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by sealant manufacturer based on testing and field experience.
- B. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's full range for this characteristic.

### 2.3 ELASTOMERIC JOINT SEALANTS

- A. Elastomeric Sealant Standard: Comply with ASTM C 920 and other requirements indicated for each liquid-applied chemically curing sealant in the Elastomeric Joint-Sealant Schedule at the end of Part 3, including those referencing ASTM C 920 classifications for type, grade, class, and uses.
- B. Additional Movement Capability: Where additional movement capability is specified in the Elastomeric Joint-Sealant Schedule, provide products with the capability, when tested for adhesion and cohesion under maximum cyclic movement per ASTM C 719, to withstand the specified percentage change in the joint width existing at the time of installation and remain in compliance with other requirements of ASTM C 920 for uses indicated.
- C. Stain-Test-Response Characteristics: Where elastomeric sealants are specified in the Elastomeric Joint-Sealant Schedule to be nonstaining to porous substrates, provide products that have undergone testing according to ASTM C 1248 and have not stained porous joint substrates indicated for Project.
- D. Suitability for Contact with Food: Where elastomeric sealants are indicated for joints that will come in repeated contact with food, provide products that comply with 21 CFR 177.2600.

### 2.4 LATEX JOINT SEALANTS

- A. Latex Sealant Standard: Comply with ASTM C 834 for each product of this description indicated in the Latex Joint-Sealant Schedule at the end of Part 3.

### 2.5 JOINT-SEALANT BACKING

- A. General: Provide sealant backings of material and type that are nonstaining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.
- B. Cylindrical Sealant Backings: ASTM C 1330, of type indicated below and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance:
  - 1. Type C: Closed-cell material with a surface skin.
- C. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint where such adhesion would result in sealant failure. Provide self-adhesive tape where applicable.

### 2.6 MISCELLANEOUS MATERIALS

- A. Primer: Material recommended by joint sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.
- B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint

substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants with joint substrates.

- C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint-sealant performance.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 PREPARATION

- A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint sealant manufacturer's written instructions and the following requirements:
  - 1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.
  - 2. Clean surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants.
- B. Joint Priming: Prime joint substrates where recommended in writing by joint sealant manufacturer, based on preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.
- C. Masking Tape: Use masking tape where required to prevent contact of sealant with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

### 3.3 INSTALLATION OF JOINT SEALANTS

- A. General: Comply with joint sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.
- B. Sealant Installation Standard: Comply with recommendations of ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.

- C. Install sealant backings of type indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.
  - 1. Do not leave gaps between ends of sealant backings.
  - 2. Do not stretch, twist, puncture, or tear sealant backings.
  - 3. Remove absorbent sealant backings that have become wet before sealant application and replace them with dry materials.
- D. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and back of joints.
- E. Install sealants by proven techniques to comply with the following and at the same time backings are installed:
  - 1. Place sealants so they directly contact and fully wet joint substrates.
  - 2. Completely fill recesses provided for each joint configuration.
  - 3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.
- F. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.
  - 1. Remove excess sealants from surfaces adjacent to joint.
  - 2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
  - 3. Provide concave joint configuration per Figure 5A in ASTM C 1193, unless otherwise indicated.

### 3.4 FIELD QUALITY CONTROL

- A. Field-Adhesion Testing: Field-test joint-sealant adhesion to joint substrates as follows:
  - 1. Extent of Testing: Test completed elastomeric sealant joints as follows:
    - a. Perform one test for each 1000 feet(300 m) of joint length thereafter or one test per each floor per elevation.
  - 2. Test Method: Test joint sealants by hand-pull method described below:
    - a. Make knife cuts from one side of joint to the other, followed by two cuts approximately 2 inches(50 mm) long at sides of joint and meeting cross cut at one end. Place a mark 1 inch(25 mm) from cross-cut end of 2-inch(50-mm) piece.
    - b. Use fingers to grasp 2-inch(50-mm) piece of sealant between cross-cut end and 1-inch(25-mm) mark; pull firmly at a 90-degree angle or more in direction of side cuts while holding a ruler along side of sealant. Pull sealant out of joint to the distance recommended by sealant manufacturer for testing adhesive capability, but not less than

that equaling specified maximum movement capability in extension; hold this position for 10 seconds.

- c. For joints with dissimilar substrates, check adhesion to each substrate separately. Do this by extending cut along one side, checking adhesion to opposite side, and then repeating this procedure for opposite side.
3. Inspect joints for complete fill, for absence of voids, and for joint configuration complying with specified requirements. Record results in a field adhesion test log.
  4. Inspect tested joints and report on the following:
    - a. Whether sealants in joints connected to pulled-out portion failed to adhere to joint substrates or tore cohesively. Include data on pull distance used to test each type of product and joint substrate. Compare these results to determine if adhesion passes sealant manufacturer's field- adhesion hand-pull test criteria.
    - b. Whether sealants filled joint cavities and are free from voids.
    - c. Whether sealant dimensions and configurations comply with specified requirements.
  5. Record test results in a field adhesion test log. Include dates when sealants were installed, names of persons who installed sealants, test dates, test locations, whether joints were primed, adhesion results and percent elongations, sealant fill, sealant configuration, and sealant dimensions.
  6. Repair sealants pulled from test area by applying new sealants following same procedures used to originally seal joints. Ensure that original sealant surfaces are clean and new sealant contacts original sealant.
- B. Evaluation of Field-Test Results: Sealants not evidencing adhesive failure from testing or noncompliance with other indicated requirements, will be considered satisfactory. Remove sealants that fail to adhere to joint substrates during testing or to comply with other requirements. Retest failed applications until test results prove sealants comply with indicated requirements.

### 3.5 CLEANING

- A. Clean off excess sealants or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

### 3.6 PROTECTION

- A. Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from the original work.

### 3.7 LATEX JOINT-SEALANT SCHEDULE

- A. Latex Sealant: Where joint sealants of this type are indicated, provide products complying with the following:

1. Products: Provide one of the following:
  - a. AC-20; Pecora Corporation.
  - b. Sonolac; Sonneborn Building Products Div., ChemRex, Inc.
  - c. Tremflex 834; Tremco.
  
2. Applications: Interior joints.

END OF SECTION 07 9200



SECTION 08 1113 - HOLLOW METAL FRAMES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:

- 1. Custom interior hollow metal door frames (non-security frames).

- B. Related Sections:

- 1. Division 08 Sections "Flush Wood Doors" for wood doors installed within interior hollow metal frames.
  - 2. Division 08 Section "Door Hardware" for door hardware for hollow metal doors.
  - 3. Division 09 Section "Interior Painting" for field painting hollow frames.

1.3 DEFINITIONS

- A. Minimum Thickness: Minimum thickness of base metal without coatings.
- B. Custom Hollow Metal Work: Hollow metal work fabricated according to ANSI/NAAMM-HMMA 861.

1.4 SUBMITTALS

- A. Product Data: For each type of product indicated. Include construction details, material descriptions, core descriptions, fire-resistance rating, temperature-rise ratings, and finishes.
- B. Shop Drawings: Include the following:
  - 1. Frame details for each frame type, including dimensioned profiles and metal thicknesses.
  - 2. Locations of reinforcement and preparations for hardware.
  - 3. Details of each different wall opening condition.
  - 4. Details of anchorages, joints, field splices, and connections.
  - 5. Details of accessories.
  - 6. Details of conduit and preparations for control systems.
- C. Coordination Drawings: Drawings of each opening, including door and frame, drawn to scale and coordinating door hardware. Show elevations of each frame design type, showing dimensions, locations of door hardware, and preparations for power, signal, and electrified control systems.

A. Samples for Verification:

1. For the following items, prepared on Samples about 12 inches (305 mm) long to demonstrate compliance with requirements for quality of materials and construction:
  - a. Frames: Show profile, corner joint, floor and wall anchors, and silencers. Include separate section showing glazing if applicable.

B. Other Action Submittals:

1. Schedule: Provide a schedule of hollow metal work prepared by or under the supervision of supplier, using same reference numbers for details and openings as those on Drawings. Coordinate with door hardware schedule.

C. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for each type of hollow metal door and frame assembly.

1.5 QUALITY ASSURANCE

A. Source Limitations: Obtain hollow metal work from single source from single manufacturer.

B. Fire-Rated Door Frame Assemblies: Assemblies complying with NFPA 80 that are listed and labeled by a qualified testing agency, for fire-protection ratings indicated, based on testing at positive pressure according to NFPA 252 or UL 10C.

1. Test Pressure: Test according to NFPA 252 or UL 10C. After 5 minutes into the test, the neutral pressure level in furnace shall be established at 40 inches (1000 mm) or less above the sill.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver hollow metal work palletized, wrapped, or crated to provide protection during transit and Project-site storage. Do not use nonvented plastic.

B. Deliver welded frames with two removable spreader bars across bottom of frames, tack welded to jambs and mullions.

C. Store hollow metal work under cover at Project site. Place in stacks of five units maximum in a vertical position with heads up, spaced by blocking, on minimum 4-inch- (102-mm-) high wood blocking. Do not store in a manner that traps excess humidity.

1.7 PROJECT CONDITIONS

A. Field Measurements: Verify actual dimensions of openings by field measurements before fabrication.

1.8 COORDINATION

- A. Coordinate installation of anchorages for hollow metal frames. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors. Deliver such items to Project site in time for installation.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - 1. Ceco Door Products; an Assa Abloy Group company.
  - 2. Curries Company; an Assa Abloy Group company.
  - 3. Habersham Metal Products Company.
  - 4. Karpen Steel Custom Doors & Frames.
  - 5. Kewanee Corporation (The).
  - 6. The Philipp Manufacturing Company.

### 2.2 MATERIALS

- A. Cold-Rolled Steel Sheet: ASTM A 1008/A 1008M, Commercial Steel (CS), Type B; suitable for exposed applications.
- B. Hot-Rolled Steel Sheet: ASTM A 1011/A 1011M, Commercial Steel (CS), Type B; free of scale, pitting, or surface defects; pickled and oiled.
- C. Frame Anchors: ASTM A 591/A 591M, Commercial Steel (CS), 40Z (12G) coating designation; mill phosphatized.
  - 1. For anchors built into exterior walls, steel sheet complying with ASTM A 1008/A 1008M or ASTM A 1011/A 1011M, hot-dip galvanized according to ASTM A 153/A 153M, Class B.
- D. Inserts, Bolts, and Fasteners: Hot-dip galvanized according to ASTM A 153/A 153M.
- E. Powder-Actuated Fasteners in Concrete: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with clips or other accessory devices for attaching hollow metal frames of type indicated.

### 2.3 CUSTOM HOLLOW METAL FRAMES

- A. General: Fabricate frames of fully welded construction indicated. Close contact edges of corner joints tight with faces mitered and stops butted or mitered. Continuously weld faces and soffits and finish faces smooth. Comply with ANSI/NAAMM-HMMA 861.
  - 1. Door Frames for Openings 48 Inches (1219 mm) Wide or Less: Fabricated from 0.053-inch- (1.3-mm-) thick steel sheet.
  - 2. Door Frames for Openings More Than 48 Inches (1219 mm) Wide: Fabricated from 0.067-inch- (1.7-mm-) thick steel sheet.

- B. Interior Frames: Fabricated from cold-rolled steel sheet.
- C. Hardware Reinforcement: Fabricate according to ANSI/NAAMM-HMMA 861 with reinforcing plates from same material as frame.
- D. Head Reinforcement: Provide minimum 0.093-inch- (2.3-mm-) thick, steel channel or angle stiffener for opening widths more than 48 inches (1219 mm).

## 2.4 FRAME ANCHORS

- A. Jamb Anchors:
  - 1. Stud-Wall Type: Designed to engage stud, welded to back of frames; not less than 0.042 inch (1.0 mm) thick.
- B. Floor Anchors: Formed from same material as frames, not less than 0.042 inch (1.0 mm) thick, and as follows:
  - 1. Monolithic Concrete Slabs: Clip-type anchors, with two holes to receive fasteners.

## 2.5 STOPS AND MOLDINGS

- A. Fixed Frame Moldings: Formed integral with hollow metal frames, a minimum of 5/8 inch (16 mm) high unless otherwise indicated.

## 2.6 FABRICATION

- A. Fabricate hollow metal work to be rigid and free of defects, warp, or buckle. Accurately form metal to required sizes and profiles, with minimum radius for thickness of metal. Where practical, fit and assemble units in manufacturer's plant. To ensure proper assembly at Project site, clearly identify work that cannot be permanently factory assembled before shipment.
- B. Tolerances: Fabricate hollow metal work to tolerances indicated in ANSI/NAAMM-HMMA 861.
- C. Hollow Metal Frames: Where frames are fabricated in sections due to shipping or handling limitations, provide alignment plates or angles at each joint, fabricated of same thickness metal as frames.
  - 1. Welded Frames: Weld flush face joints continuously; grind, fill, dress, and make smooth, flush, and invisible.
  - 2. Provide countersunk, flat- or oval-head exposed screws and bolts for exposed fasteners unless otherwise indicated.
  - 3. Floor Anchors: Weld anchors to bottom of jambs and mullions with at least four spot welds per anchor.
  - 4. Jamb Anchors: Provide number and spacing of anchors as follows:
    - a. Stud-Wall Type: Locate anchors not more than 18 inches (457 mm) from top and bottom of frame. Space anchors not more than 32 inches (813 mm) o.c. and as follows:

- 1) Three anchors per jamb up to 60 inches (1524 mm) high.
  - 2) Four anchors per jamb from 60 to 90 inches (1524 to 2286 mm) high.
  - 3) Two anchors per head for frames above 42 inches (1066 mm) wide and mounted in metal-stud partitions.
5. Door Silencers: Except on weather-stripped doors, drill stops to receive door silencers as follows. Keep holes clear during construction.
- a. Single-Door Frames: Drill stop in strike jamb to receive three door silencers.
  - b. Double-Door Frames: Drill stop in head jamb to receive two door silencers.
- D. Fabricate concealed stiffeners, edge channels, and hardware reinforcement from either cold- or hot-rolled steel sheet.
- E. Hardware Preparation: Factory prepare hollow metal work to receive templated mortised hardware; include cutouts, reinforcement, mortising, drilling, and tapping according to the Door Hardware Schedule and templates furnished as specified in Division 08 Section "Door Hardware."
1. Locate hardware as indicated, or if not indicated, according to ANSI/NAAMM-HMMA 861.
  2. Reinforce doors and frames to receive nontemplated, mortised and surface-mounted door hardware.
  3. Comply with applicable requirements in ANSI/SDI A250.6 and ANSI/DHI A115 Series specifications for preparation of hollow metal work for hardware.
  4. Coordinate locations of conduit and wiring boxes for electrical connections for security control systems with Division 26 Sections.
- F. Stops and Moldings: Provide stops and moldings around glazed lites where indicated. Form corners of stops and moldings with butted or mitered hairline joints.
1. Provide fixed frame moldings on secure side of interior doors and frames.
  2. Coordinate rabbet width between fixed and removable stops with type of glazing and type of installation indicated.

## 2.7 STEEL FINISHES

- A. Prime Finish: Apply manufacturer's standard primer immediately after cleaning and pretreating.
1. Shop Primer: Manufacturer's standard, fast-curing, lead- and chromate-free primer complying with ANSI/SDI A250.10 acceptance criteria; recommended by primer manufacturer for substrate; compatible with substrate and field-applied coatings despite prolonged exposure.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

- B. Examine roughing-in for embedded and built-in anchors to verify actual locations before frame installation.
- C. For the record, prepare written report, endorsed by Installer, listing conditions detrimental to performance of the Work.
- D. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 PREPARATION

- A. Remove welded-in shipping spreaders installed at factory. Restore exposed finish by grinding, filling, and dressing, as required to make repaired area smooth, flush, and invisible on exposed faces.
- B. Prior to installation, adjust and securely brace welded hollow metal frames for squareness, alignment, twist, and plumbness to the following tolerances:
  - 1. Squareness: Plus or minus 1/16 inch (1.6 mm), measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.
  - 2. Alignment: Plus or minus 1/16 inch (1.6 mm), measured at jambs on a horizontal line parallel to plane of wall.
  - 3. Twist: Plus or minus 1/16 inch (1.6 mm), measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.
  - 4. Plumbness: Plus or minus 1/16 inch (1.6 mm), measured at jambs on a perpendicular line from head to floor.
- C. Drill and tap frames to receive nontemplated, mortised, and surface-mounted door hardware.

### 3.3 INSTALLATION

- A. General: Install hollow metal work plumb, rigid, properly aligned, and securely fastened in place; comply with Drawings and manufacturer's written instructions.
- B. Hollow Metal Frames: Install hollow metal frames of size and profile indicated. Comply with HMMA 840.
  - 1. Set frames accurately in position, plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is complete, remove temporary braces, leaving surfaces smooth and undamaged.
    - a. At fire-protection-rated openings, install frames according to NFPA 80.
    - b. Where frames are fabricated in sections because of shipping or handling limitations, field splice at approved locations by welding face joint continuously; grind, fill, dress, and make splice smooth, flush, and invisible on exposed faces.
    - c. Remove temporary braces necessary for installation only after frames have been properly set and secured.
    - d. Check plumbness, squareness, and twist of frames as walls are constructed. Shim as necessary to comply with installation tolerances.

2. Floor Anchors: Provide floor anchors for each jamb and mullion that extends to floor, and secure with postinstalled expansion anchors.
  - a. Floor anchors may be set with powder-actuated fasteners instead of postinstalled expansion anchors if so indicated and approved on Shop Drawings.
3. Metal-Stud Partitions: Solidly pack mineral-fiber insulation behind frames.
4. Installation Tolerances: Adjust hollow metal door frames for squareness, alignment, twist, and plumb to the following tolerances:
  - a. Squareness: Plus or minus 1/16 inch (1.6 mm), measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.
  - b. Alignment: Plus or minus 1/16 inch (1.6 mm), measured at jambs on a horizontal line parallel to plane of wall.
  - c. Twist: Plus or minus 1/16 inch (1.6 mm), measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.
  - d. Plumbness: Plus or minus 1/16 inch (1.6 mm), measured at jambs at floor.

#### 3.4 ADJUSTING AND CLEANING

- A. Final Adjustments: Check and readjust operating hardware items immediately before final inspection. Leave work in complete and proper operating condition. Remove and replace defective work, including hollow metal work that is warped, bowed, or otherwise unacceptable.
- B. Remove gypsum board compound and other bonding material from hollow metal work immediately after installation.
- C. Prime-Coat Touchup: Immediately after erection, sand smooth rusted or damaged areas of prime coat and apply touchup of compatible air-drying, rust-inhibitive primer.

END OF SECTION 08 1113

## SECTION 08 1416 - FLUSH WOOD DOORS

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.

## 1.2 SUMMARY

- A. This Section includes the following:
  - 1. Solid-core doors with wood-veneer, faces.
  - 2. Factory finishing flush wood doors.
  - 3. Factory fitting flush wood doors to frames and factory machining for hardware.
- B. Related Sections include the following:
  - 1. Division 08 Section "Hollow Metal Doors and Frames" for hollow metal frames for flush wood doors.
  - 2. Division 08 Section "Door Hardware" for door hardware for flush wood doors.
  - 3. Division 26 and 28 Sections for electrical connections including conduit and wiring for security control systems and door controls and operators.

## 1.3 SUBMITTALS

- A. Product Data: For each type of door. Include details of core and edge construction and trim for openings. Include factory-finishing specifications.
- B. Shop Drawings: Indicate location, size, and hand of each door; elevation of each kind of door; construction details not covered in Product Data; location and extent of hardware blocking; and other pertinent data.
  - 1. Indicate dimensions and locations of mortises and holes for hardware.
  - 2. Indicate dimensions and locations of cutouts.
  - 3. Indicate requirements for veneer matching.
  - 4. Indicate doors to be factory finished and finish requirements.
  - 5. Indicate fire ratings for fire doors.
  - 6. Details of conduit and preparations for door controls.
- C. Coordination Drawings: Drawings of each opening, including door and frame, drawn to scale and coordinating door hardware. Show elevations of each frame design type, showing dimensions, locations of door hardware, and preparations for power, signal and electrified control systems.
- D. Samples for Verification:

1. Factory finishes applied to actual door face materials, approximately 8 by 10 inches (200 by 250 mm), for each material and finish. For each wood species and transparent finish, provide set of three samples showing typical range of color and grain to be expected in the finished work.
2. Corner sections of doors, approximately 8 by 10 inches (200 by 250 mm), with door faces and edgings representing typical range of color and grain for each species of veneer and solid lumber required. Finish sample with same materials proposed for factory-finished doors.
3. Frames for light openings, 6 inches (150 mm) long, for each material, type, and finish required.

#### 1.4 QUALITY ASSURANCE

- A. Manufacturer Qualifications: A qualified manufacturer that is certified for chain of custody by an FSC-accredited certification body.
- B. Source Limitations: Obtain flush wood doors through one source from a single manufacturer.
- C. Quality Standard: Comply with AWI's "Architectural Woodwork Quality Standards Illustrated."
  1. Provide AWI Quality Certification Labels or an AWI letter of licensing for Project indicating that doors comply with requirements of grades specified.
- D. Fire-Rated Wood Doors: Doors complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire ratings indicated, based on testing according to NFPA 252 or UL10C.
  1. Test Pressure: After 5 minutes into the test, the neutral pressure level in furnace shall be established at 40 inches (1000 mm) or less above the sill.

#### 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Comply with requirements of referenced standard and manufacturer's written instructions.
- B. Package doors individually in cardboard cartons and wrap bundles of doors in plastic sheeting.
- C. Mark each door on top and bottom rail with opening number used on Shop Drawings.

#### 1.6 PROJECT CONDITIONS

- A. Environmental Limitations: Do not deliver or install woodwork until building is enclosed, wet work is complete, and HVAC system is operating and maintaining temperature between 60 and 90 deg F (16 and 32 deg C) and relative humidity between 25 and 55 percent during the remainder of the construction period.

#### 1.7 WARRANTY

- A. Special Warranty: Manufacturer's standard form, signed by manufacturer, Installer, and Contractor, in which manufacturer agrees to repair or replace doors that are defective in materials or workmanship, have warped (bow, cup, or twist) more than 1/4 inch (6.4 mm) in a 42-by-84-inch (1067-by-2134-mm)

section, or show telegraphing of core construction in face veneers exceeding 0.01 inch in a 3-inch (0.25 mm in a 75-mm) span.

1. Warranty shall also include installation and finishing that may be required due to repair or replacement of defective doors.
2. Warranty shall be in effect during the following period of time from date of Substantial Completion:
  - a. Solid-Core Interior Doors: Life of installation.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  1. Flush Wood Doors:
    - a. Algoma Hardwoods Inc.
    - b. Eggers Industries Architectural Door Division
    - c. Marshfield Door Systems, Inc.; formerly Weyerhaeuser Company.
    - d. VT Industries Inc.

### 2.2 DOOR CONSTRUCTION, GENERAL

- A. Low-Emitting Materials: Provide doors made with adhesives and composite wood products that do not contain urea formaldehyde.
- B. Doors for Transparent Finish:
  1. Grade: Premium, with Grade A faces.
  2. Species and Cut: Oak, plain sliced to match existing.
  3. Match between Veneer Leaves: match existing
  4. Assembly of Veneer Leaves on Door Faces: Center balance match.
  5. Pair and Set Match: Provide for doors hung in same opening or separated only by mullions.
  6. Room Match: Provide door faces of compatible color and grain within each separate room or area of building.
  7. Stiles: Applied wood edges of same species as faces and covering edges of crossbands.

### 2.3 SOLID-CORE DOORS

- A. Particleboard Cores: Comply with the following requirements:
  1. Particleboard: ANSI A208.1, Grade 1-LD-2, made with binder containing no urea-formaldehyde resin, unless otherwise indicated.
  2. Blocking: Provide wood blocking in particleboard-core doors as needed to eliminate through-bolting hardware, as follows:

- a. 5-inch (125-mm) top-rail blocking, in doors indicated to have closers.
- b. 5-inch (125-mm) bottom-rail blocking, in doors indicated to have protection plates.

B. Interior Veneer-Faced Doors:

1. Core: Particleboard, except where indicated to be structural composite lumber.
2. Construction: Five plies with stiles and rails bonded to core, then entire unit abrasive planed before veneering. Faces are bonded to core using a hot press.

C. Fire-Rated Doors:

1. Construction: Construction and core specified above for type of face indicated, or manufacturer's standard mineral-core construction as needed to provide fire rating indicated.
2. Blocking: For mineral-core doors, provide composite blocking with improved screw-holding capability approved for use in doors of fire ratings indicated as needed to eliminate through-bolting hardware as follows:
  - a. 5-inch (125-mm) top-rail blocking.
  - b. 5-inch (125-mm) bottom-rail blocking, in doors indicated to have protection plates.
  - c. 5-inch (125-mm) midrail blocking, in doors indicated to have exit devices.
3. Edge Construction: Provide edge construction with intumescent seals concealed by outer stile matching face veneer, and laminated backing at hinge stiles for improved screw-holding capability and split resistance.
4. Pairs: Furnish formed-steel edges and astragals with intumescent seals for pairs of fire-rated doors, unless otherwise indicated.
  - a. Finish: Finish steel edges and astragals to match door hardware (locksets or exit devices).

2.4 LIGHT FRAMES

- A. Wood Beads for Light Openings in Wood Doors: Provide manufacturer's standard wood beads as follows unless otherwise indicated.
1. Wood Species: Same species as door faces.
  2. Profile: Flush rectangular beads.

2.5 FABRICATION

- A. Factory fit doors to suit frame-opening sizes indicated, with the following uniform clearances and bevels, unless otherwise indicated:
1. Comply with clearance requirements of referenced quality standard for fitting. Comply with requirements in NFPA 80 for fire-rated doors.
- B. Factory machine doors for hardware that is not surface applied. Locate hardware to comply with DHI-WDHS-3. Comply with final hardware schedules, door frame Shop Drawings, DHI A115-W series standards, and hardware templates.

1. Coordinate measurements of hardware mortises in metal frames to verify dimensions and alignment before factory machining.
  2. Coordinate locations of conduit and wiring boxes for electrical connections with Division 26 and 28 Sections.
  3. Metal Astragals: Factory machine astragals and formed-steel edges for hardware for pairs of fire-rated doors.
- C. Openings: Cut and trim openings through doors to comply with applicable requirements of referenced standards for kind(s) of door(s) required.
1. Light Openings: Trim openings with moldings of material and profile indicated.
  2. Glazing: Factory install glazing in doors indicated to be factory finished. Comply with applicable requirements in Division 08 Section "Glazing."

## 2.6 FACTORY FINISHING

- A. General: Comply with referenced quality standard AWI's "Architectural Woodwork Quality Standards Illustrated" for factory finishing.
1. Finish faces, all four edges, edges of cutouts, and mortises. Stains and fillers may be omitted on top and bottom edges, edges of cutouts, and mortises.
- B. Finish doors at factory.
- C. Transparent Finish:
1. Grade: Premium.
  2. Finish: Manufacturer's standard finish with performance comparable to AWI System TR-6 catalyzed polyurethane.
  3. Staining: Custom stain to match existing doors.
  4. Sheen: Satin, 31-45 gloss units measured on 60-degree gloss meter per ASTM D 523.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine doors and installed door frames before hanging doors.
1. Verify that frames comply with indicated requirements for type, size, location, and swing characteristics and have been installed with level heads and plumb jambs.
  2. Reject doors with defects.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 INSTALLATION

- A. Hardware: For installation, see Division 08 Section "Door Hardware."
- B. Manufacturer's Written Instructions: Install doors to comply with manufacturer's written instructions, referenced quality standard, and as indicated.
1. Install fire-rated doors in corresponding fire-rated frames according to NFPA 80.

- C. Factory-Fitted Doors: Align in frames for uniform clearance at each edge.
- D. Factory-Finished Doors: Restore finish before installation if fitting or machining is required at Project site.

3.3 ADJUSTING

- A. Operation: Rehang or replace doors that do not swing or operate freely.
- B. Finished Doors: Replace doors that are damaged or do not comply with requirements. Doors may be repaired or refinished if work complies with requirements and shows no evidence of repair or refinishing.

END OF SECTION 08 1416

SECTION 08 7100 – DOOR HARDWARE

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes Commercial Finish Hardware for Swinging Doors.
- B. Extent of door hardware required is indicated on drawings and in schedules.
  - 1. Furnish and deliver all door hardware necessary for all doors, also hardware as specified herein and as enumerated in hardware sets and as indicated and required by actual conditions at the building. The hardware shall include the furnishing of all necessary screws, bolts, expansion shields, drop plates, and all other devices necessary for the proper application of the hardware.
- C. Related sections: The following Sections contain requirements that relate to this Section:
  - 1. Division 08 Section "Hollow Metal Frames".
  - 2. Division 08 Section "Flush Wood Doors".

1.3 SUBMITTALS

- A. Product Data: Include installation details, material descriptions, dimensions of individual components and profiles, and finishes.
- B. Samples: Submit samples of hardware items as requested by the Architect for approval.
  - 1. Samples will be returned to Contractor. Units that are acceptable and remain undamaged through submittal, review, and field comparison process may, after final check of operation, be incorporated into the Work, within limitations of keying requirements.
- C. Door Hardware Schedule: Prepared by or under the supervision of supplier, detailing fabrication and assembly of door hardware, as well as procedures and diagrams. Coordinate the final Door Hardware Schedule with doors, frames, and related work to ensure proper size, thickness, hand function, and finish of door hardware.
  - 1. Format: Comply with scheduling sequence and vertical format in DHI's "Sequence and Format for the Hardware Schedule." Horizontal Schedule shall not be acceptable.
  - 2. Organization: Organize the Door Hardware Schedule into door hardware sets indicating complete designations of every item required for each door or opening.
    - a. Organize door hardware sets in same order as in the Door Hardware Schedule at the end of Part 3.

3. Content: Include the following information:
    - a. Type, style, function, size, label, hand, manufacturer, and finish of each door hardware item.
    - b. Manufacturer of each item.
    - c. Fastenings and other pertinent information.
    - d. Location of each door hardware set, cross-referenced to Drawings, both on floor plans and in Door and Frame Schedule.
    - e. Explanation of abbreviations, symbols, and codes contained in schedule.
    - f. Mounting locations for door hardware as determined by the door and frame supplier.
    - g. Door and frame sizes and materials.
  4. Submittals Sequence: Submit the final Door Hardware Schedule at earliest possible date, particularly where approval of the Door Hardware Schedule must precede fabrication of other work that is critical in the Project construction schedule. Include Product Data, samples, Shop Drawings of other work affected by door hardware, and other information essential to the coordinated review of the Door Hardware Schedule.
- D. Warranties: Special warranties specified in this Section.
- E. Operations and Maintenance Data: For each type of door hardware.

#### 1.4 QUALITY ASSURANCE

- A. Supplier Qualifications: Door hardware supplier with warehousing facilities and who employs a qualified Architectural Hardware Consultant, available during the course of the Work to consult with Contractor and Owner about Door Hardware.
- B. Installer Qualifications: An experienced installer who has completed door hardware 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.
- C. Source Limitations: Obtain each type and variety of door hardware from a single manufacturer, unless otherwise indicated.
- D. Fire-Rated Openings: Provide door hardware for fire-rated openings that complies with NFPA Standard No. 80 and requirements of authorities having jurisdiction. Provide only items of door hardware that are listed and are identical to products tested by Underwriters Laboratories, Intertek Testing Services, or other testing and inspecting organizations acceptable to the authorities having jurisdiction for use on types and sizes of doors indicated in compliance with requirements of fire-rated door and door frame labels.
- E. Regulatory Requirements: Comply with provisions of the following:
  1. NFPA 101: Comply with the following for means of egress doors:
    - a. Latches and Locks: Not more than 15lbf (67N) to release the latch. Locks shall not require the use of a key, tool, or special knowledge for operation.

1. Door Closers: Not more than 30 lbf (133N) to set door in motion and not more than 15lbf (67N) to open door to minimum required width.
2. Comply with Americans with Disabilities Act (ADA), "Accessibility Guidelines for Buildings and Facilities (ADAAG)" and ICC/ANSI A117.1- 2003 as follows:
  - a. Handles, Pulls, Latches, Locks, and other Operating Devices: Shape that is easy to grasp with one hand and does not require tight grasping, tight pinching, or twisting of the wrist.
  - b. Door Closers: Comply with the following maximum opening-force requirements indicated:
    2. Interior Hinged Doors: 5 lbf (22.2 N) applied perpendicular to door.

#### 1.5 WARRANTY

- A. General Warranty: Special warranties specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.
  1. Warranty Period: One (1) year from date of Substantial Completion, unless otherwise indicated.
  2. Warranty Period for Manual Closers: Ten (10) years from date of Substantial Completion.
  3. Warranty Period for Cylindrical Locks: Five (5) years from date of Substantial Completion.
- B. No liability is to be assumed where damage or faulty operation is due to improper installation, improper use, or abuse.
- C. Products judged to be defective during the warranty period shall be replaced or repaired in accordance with the manufacturer's warranty, at no additional cost to the Owner.

#### 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Installer to Inventory door hardware on receipt and provide secure lock-up for door hardware delivered to Project site. Report damaged or missing items to supplier within 2 weeks of receipt of material at the project site.
- B. Tag each item or package separately with identification related to the final Door Hardware Schedule, and include basic installation instructions with each item or package.
- C. Each article of hardware shall be individually packaged in manufacturer's original packaging.
- D. Items damaged in shipment shall be replaced promptly and with proper material and paid for by whomever did the damage or caused the damage to occur.
- E. Hardware shall be handled in a manner to avoid damage, marring, or scratching. Irregularities that occur to the hardware after it has been delivered to the Project shall be corrected, replaced, or repaired by the Contractor. Hardware shall be protected against malfunction due to paint, solvent, cleanser, or any chemical agent.

#### 1.7 COORDINATION

- A. Templates: Obtain and distribute to the parties involved templates for doors, frames, and other work specified to be factory prepared for installing Finish Hardware. Check Shop Drawings of other work to

confirm that adequate provisions are made for locating and installing door hardware to comply with indicated requirements.

1.8 MAINTENANCE SERVICE

- A. Maintenance Tools and Instructions: Furnish a complete set of specialized tools and maintenance instruction as needed for Owner's continued adjustment, maintenance, and removal and replacement of Door Hardware.

PART 2 – PRODUCTS

2.1 SCHEDULED DOOR HARDWARE

- A. General: Provide Door Hardware for each door to comply with requirements in this Section, door hardware sets in the Door and Frame Schedule, and the Door Hardware Schedule at the end of Part 3.
- B. Hardware set locations are indicated in Division 08 Section "Door and Frame Schedule".
- C. Hand of Door: Drawings show direction of slide, swing, or hand of each door leaf. Furnish each item of hardware for proper installation and operation of door movement as shown.
- D. Where the hardware specified is not adaptable to the finished shape or size of the members requiring hardware, furnish suitable types having the same operation and quality as the type specified, subject to the Architect's approval.

2.2 HINGES

- A. Manufacturers: Subject to compliance with requirements, **provide products that match existing products on site** by the following:
  - 1. Stanley Commercial Hardware; Div. of The Stanley Works (STH).
  - 2. Schlage Inc.
  - 3. McKinney
  - 4. Hager
- B. Quantity: Provide the following, unless otherwise indicated:
  - 1. Two Hinges: For doors with heights up to 60 inches (1524 mm).
  - 2. Three Hinges: For doors with heights 61 to 90 inches (1549 to 2286 mm).
  - 3. Four Hinges: For doors with heights 91 to 120 inches (2311 to 3048 mm).
  - 4. For doors with heights more than 120 inches (3048 mm), provide 4 hinges, plus 1 hinge for every 30 inches (750 mm) of door height greater than 120 inches (3048 mm).

2.3 LOCKS AND LATCHES

- A. Basis-of-Design: Locksets and latchsets shall be "**ML 2200 Series**" extra heavy-duty commercial mortise lever locks by Corbin Russwin. **NSN Lever design, BHMA 612 satin bronze finish, to match existing.** Functions shall be as listed in the hardware sets.

## 2.4 STRIKES

- A. Standards: Comply with the following:
  - 1. Strikes for Bored Locks: BHMA A156.2.
  - 2. Dustproof Strikes: BHMA A156.16.
- B. Strikes: Provide manufacturer's standard strike with strike box for each lock bolt, with curved lip extended to protect frame, finished to match door hardware set.
- C. Dustproof Strikes: BHMA Grade 1.

## 2.5 DOOR CLOSERS

- A. **Door closers shall match existing building hardware.**
- B. Door closers shall have fully hydraulic, full rack and pinion action with a triple heat treated cold-formed steel spindle and a sintered steel piston, heat treated and precision machined. The case shall be high strength cast iron with a one-piece seamless forged spring tube. Springs shall be double heat treated and tempered.
- C. Hydraulic fluid shall be of a type requiring no seasonal closer adjustment for temperatures varying by 50 degrees F to 70 degrees F. Fluid shall be fireproof and shall pass the requirements of the UL10C "positive pressure" fire test.
- D. Spring power shall be continuously adjustable over the full range of closer sizes. Hydraulic regulation shall be by tamper-proof, non-critical valves. Closers shall have separate adjustment for latch speed, general speed, back check, and delayed action.
- E. All closers shall have solid forged steel main arms (and forged forearms for parallel arm closers).
- F. All closers shall have metal covers.
- G. Closer cylinders, arms, and metal covers shall have a powder coating finish which has been certified to exceed 100 hours salt spray testing by an independent testing laboratory used by BHMA for ANSI certification. For metal components that can't be powder coated, a special rust inhibiting finish (SRI) shall be used.

## 2.6 DOOR STOPS

- A. It shall be the responsibility of the hardware supplier to provide door stops for all doors in accordance with the following requirements:
  - 1. Wall stops shall be Rockwood Wall Bumper No. 409.
- B. Standards: Comply with the following:
  - 1. Stops and Bumpers: BHMA A156.16.

- C. Stops and Bumpers: BHMA Grade 1.
- D. Overhead Stops: BHMA Grade 1.
- E. Wall Stops: Provide wall stops for doors, unless otherwise scheduled or indicated. Floor stops shall not be permitted.

2.7 DOOR SILENCERS

- A. Standards: Comply with the following:
  - 1. Door Silencers: BHMA A156.16.
- A. Silencers for Metal Door Frames: BHMA Grade 1; neoprene or rubber, minimum diameter 1/2 inch (13 mm); fabricated for drilled-in application to frame.
  - 1. "Push-in" type silencers for each hollow metal frame; 3 for each single door frame, 2 for each double door frame.

2.8 FINISHES

- A. Standard: Comply with BHMA A156.18.
- B. Protect mechanical finishes on exposed surfaced from damage by applying a strippable, temporary protective covering before shipping.
- C. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Sample. Noticeable variations in the same piece shall not be acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.
- D. Hardware generally shall be BHMA 612 satin bronze finish to match existing. **Match new products to existing hardware finishes on site.**

2.9 KEYING

- A. Permanent cores shall be furnished and installed by the Owner.
- B. Door Locks: Keyed to Owners existing system.
- C. Keys:
  - 1. Two keys for each lock.

2.10 MANUFACTURERS

- A. Note that even though an acceptable substitute manufacturer may be listed, the product must provide all the functions and features of the specified product or it shall not be approved.

<u>Item</u>	<u>Scheduled Manufacturer</u>	<u>Acceptable substitutes</u>
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Hinges	Schlage, McKinney, Hager	
Locksets	Corbin Russwin	<b>No Substitution</b>
Door Closers	LCN	or match existing
Stops	Rockwood	GJ, Ives, Trimco
Silencers	Ives	

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine doors and frames, with installer present, for compliance with requirements for installation tolerances, labeled fire door assembly construction, wall and floor construction, and other conditions affecting performance.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.
- C. Receive, Check, and Store Door Hardware. Report any missing or damaged items to supplier within 2 weeks of receipt of material at the project site.

3.2 PREPARATION

- A. Steel Frames: Comply with DHI A115 series.
- A. Surface-Applied Door Hardware: Drill and tap frames according to SDI 107.

3.3 INSTALLATION

- A. Coordination:
  - 1. Prior to installation of hardware, schedule and hold a meeting for the purpose of instructing installers on proper installation and adjustment of finish hardware. Representatives of locks, closers and electrified hardware shall conduct training; provide at least 10 days notice to representatives. After training a letter of compliance, indicating when the training was held and who was in attendance, shall be sent to the Architect.
- B. Install each item of Door Hardware items to comply with manufacturer’s written instructions. Where cutting and fitting are required to install door hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation of surface protective trim units with finishing work specified in Division 09 Sections. Do not install surface-mounted items until finishes have been completed on substrates involved.
  - 1. Set units level, plumb, and true to line and location. Adjust and reinforce attachment substrates as necessary for proper installation and operation.
  - 2. Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors according to industry standards.

- C. Operating parts shall move freely and smoothly without binding, sticking, or excessive clearance.

### 3.4 FIELD QUALITY CONTROL

- A. Prior to Substantial Completion, the installer, accompanied by representatives of the manufacturers of locks, exit devices, closer, and any electrified hardware, shall perform the following work:
  - 1. Examine and re-adjust each item of door hardware as necessary to restore function of doors and hardware to comply with specified requirements.
  - 2. Consult with and instruct Owner's personnel in recommended additions to the maintenance procedures.
  - 3. Replace hardware items that have deteriorated or failed due to faulty design, materials, or installation of hardware units.
  - 4. Prepare a written report of current and predictable problems of substantial nature in the performance of the hardware.

### 3.5 ADJUSTING

- A. Initial Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced regulatory requirements.
  - 1. Door Closers: Unless otherwise required by authorities having jurisdiction, adjust sweep period so that, from an open position of 70 degrees, the door will take at least 3 seconds to move to a point 3 inches (75 mm) from the latch, measured to the leading edge of the door.
- B. Six-Month Adjustment: Approximately six months after date of Substantial Completion, Installer shall perform the following:
  - 1. Examine and readjust each item of door hardware as necessary to ensure function of doors, door hardware, and electrified door hardware.
  - 2. Consult with and instruct Owner's personnel on recommended maintenance procedures.
  - 3. Replace door hardware items that have deteriorated or failed due to faulty design, materials, or installation of door hardware units.

### 3.6 CLEANING AND PROTECTION

- A. Clean adjacent surfaces soiled by door hardware installation.
- B. Clean operating items as necessary to restore proper function and finish.
- C. Provide final protection and maintain condition that ensure that door hardware is without damage or deterioration at time of Substantial Completion.

### 3.7 HARDWARE SETS

- A. General: Provide hardware for each door to comply with requirements of Section "Door Hardware", hardware set numbers indicated in Door and Frame Schedule, and in the following schedule of hardware sets.
- B. The following schedule lists typical openings. It is the responsibility of the Door Hardware Supplier to visit the site, examine the drawings and door schedule and provide all necessary hardware as shown. Where specified hardware is not indicated or scheduled for a particular opening, provide the same hardware required for similar doors, openings and conditions elsewhere in the building. It shall be the responsibility of the Contractor and Door Hardware Supplier to furnish and install all such hardware, whether or not indicated herein.
- C. Quantities shown in these hardware sets represent basic requirements for each leaf. The door hardware supplier shall be responsible for adjustments to quantities and sizing of hardware to suit each opening.

**Hardware Sets**

**Set #1 – Not used**

**Set #2 – Bathroom 107B (staff)**

- 3 ea Butts
- 1 ea Standard mortise Lockset – Privacy function
- 1 ea Closer
- 1 ea Wall stop
- 3 ea Silencers

**Set #3 Bedrooms**

**Note: All hardware supplied by Owner and installed under this contract**

- 3 ea Butts
- 1 ea Security Lockset
- 1 ea Electric strike (provided by Owner, installed under this contract)
- 1 ea Concealed Closer
- 1 ea Wall stop
- 3 ea Silencers

END OF SECTION 08 7100

SECTION 08 8000 - GLAZING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes glazing for the following products and applications, including those specified in other Sections where glazing requirements are specified by reference to this Section:

- 1. Interior borrowed lites

- B. DEFINITIONS

- C. Glass Manufacturer: A firm that produces primary glass or fabricated glass as defined in referenced glazing publications.

- D. Glass Thicknesses: Indicated by thickness designations in millimeters according to ASTM C 1036.

- E. Interspace: Space between lites of an insulating-glass unit that contains dehydrated air or a specified gas.

- F. Deterioration of Coated Glass: Defects developed from normal use that are attributed to the manufacturing process and not to causes other than glass breakage and practices for maintaining and cleaning coated glass contrary to manufacturer's written instructions. Defects include peeling, cracking, and other indications of deterioration in metallic coating.

- G. Deterioration of Laminated Glass: Defects developed from normal use that are attributed to the manufacturing process and not to causes other than glass breakage and practices for maintaining and cleaning laminated glass contrary to manufacturer's written instructions. Defects include edge separation, delamination materially obstructing vision through glass, and blemishes exceeding those allowed by referenced laminated-glass standard.

1.3 PERFORMANCE REQUIREMENTS

- A. General: Provide glazing systems capable of withstanding normal thermal movement and wind and impact loads (where applicable) without failure, including loss or glass breakage attributable to the following: defective manufacture, fabrication, and installation; failure of sealants or gaskets to remain watertight and airtight; deterioration of glazing materials; or other defects in construction.

1.4 ACTION SUBMITTALS

- A. Product Data: For each glass product and glazing material indicated.

1. For glazing sealants used inside the weatherproofing system, include printed statement of VOC content.
- B. Glass Samples: For the following products, in the form of 12-inch-(300-mm-) square Samples for glass.
  1. Glass for each designation indicated.
- C. Glazing Accessory Samples: For gaskets, sealants and colored spacers, in 12-inch (300-mm) lengths. Install sealant Samples between two strips of material representative in color of the adjoining framing system.
- D. Glazing Schedule: List glass types and thicknesses for each size opening and location. Use same designations indicated on Drawings.

#### 1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For installers, manufacturers of insulating-glass units with sputter-coated, low-e coatings, glass testing agency and sealant testing agency.
- B. Product Certificates: For glass and glazing products, from manufacturer.

#### 1.6 QUALITY ASSURANCE

- A. Manufacturer Qualifications for Insulating-Glass Units with Sputter-Coated, Low-E Coatings: A qualified insulating-glass manufacturer who is approved and certified by coated-glass manufacturer.
- B. Source Limitations for Glass: Obtain coated float glass and insulating glass from single source from single manufacturer for each glass type.
- C. Source Limitations for Glazing Accessories: Obtain from single source from single manufacturer for each product and installation method.
- D. Glazing Publications: Comply with published recommendations of glass product manufacturers and organizations below, unless more stringent requirements are indicated. Refer to these publications for glazing terms not otherwise defined in this Section or in referenced standards.
  1. GANA Publications: GANA's "Laminated Glazing Reference Manual" and GANA's "Glazing Manual."
  2. IGMA Publication for Insulating Glass: SIGMA TM-3000, "North American Glazing Guidelines for Sealed Insulating Glass Units for Commercial and Residential Use."
- E. Safety Glazing Labeling: Where safety glazing labeling is indicated, permanently mark glazing with certification label of the SGCC or another certification agency acceptable to authorities having jurisdiction. Label shall indicate manufacturer's name, type of glass, thickness, and safety glazing standard with which glass complies.

#### 1.7 DELIVERY, STORAGE, AND HANDLING

- A. Protect glazing materials according to manufacturer's written instructions and as needed to prevent damage to glass and glazing materials from condensation, temperature changes, direct exposure to sun, or other causes.

## 1.8 PROJECT CONDITIONS

- A. Environmental Limitations: Do not proceed with glazing when ambient and substrate temperature conditions are outside limits permitted by glazing material manufacturers and when glazing channel substrates are wet from rain, frost, condensation, or other causes.
  - 1. Do not install liquid glazing sealants when ambient and substrate temperature conditions are outside limits permitted by glazing sealant manufacturer or below 40 deg F(4.4 deg C).

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:
  - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the manufacturers specified, unless otherwise indicated.

### 2.2 GLASS PRODUCTS, GENERAL

- A. Strength: Where fully tempered glass is indicated, provide Kind FT heat-treated float glass.
- B. Thermal and Optical Performance Properties: Provide glass with performance properties specified, as indicated in manufacturer's published test data, based on procedures indicated below:
  - 1. For monolithic-glass lites, properties are based on units with lites 6.0 mm thick.

### 2.3 GLASS PRODUCTS

- A. Float Glass: ASTM C 1036, Type I, Quality-Q3, Class I (clear) unless otherwise indicated.
- B. Heat-Treated Float Glass: ASTM C 1048; Type I; Quality-Q3; Class I (clear) unless otherwise indicated; of kind and condition indicated.
  - 1. Fabrication Process: By horizontal (roller-hearth) process with roll-wave distortion parallel to bottom edge of glass as installed unless otherwise indicated.
  - 2. For uncoated glass, comply with requirements for Condition A.
  - 3. For coated vision glass, comply with requirements for Condition C (other coated glass).
  - 4. Provide Kind FT (fully tempered) float glass in place of annealed or Kind HS (heat-strengthened) float glass where safety glass is indicated.

### 2.4 GLAZING TAPES

- A. Back-Bedding Mastic Glazing Tape: Preformed, butyl-based elastomeric tape with a solids content of 100 percent; nonstaining and nonmigrating in contact with nonporous surfaces; with or without spacer

rod as recommended in writing by tape and glass manufacturers for application indicated; packaged on rolls with a release paper backing; and complying with ASTM C 1281 and AAMA 800 for products indicated below:

1. AAMA 806.3 tape, for glazing applications in which tape is subject to continuous pressure.
2. AAMA 807.3 tape, for glazing applications in which tape is not subject to continuous pressure.

## 2.5 MISCELLANEOUS GLAZING MATERIALS

- A. General: Provide products of material, size, and shape complying with referenced glazing standard, requirements of manufacturers of glass and other glazing materials for application indicated, and with a proven record of compatibility with surfaces contacted in installation.
- B. Cleaners, Primers, and Sealers: Types recommended by sealant or gasket manufacturer.
- C. Setting Blocks: Elastomeric material with a Shore A durometer hardness of 85, plus or minus 5.
- D. Spacers: Elastomeric blocks or continuous extrusions with a Shore A durometer hardness required by glass manufacturer to maintain glass lites in place for installation indicated.
- E. Edge Blocks: Elastomeric material of hardness needed to limit glass lateral movement (side walking).
- F. Cylindrical Glazing Sealant Backing: ASTM C 1330, Type O (open-cell material), of size and density to control glazing sealant depth and otherwise produce optimum glazing sealant performance.

## 2.6 FABRICATION OF GLASS AND OTHER GLAZING PRODUCTS

- A. Fabricate glass and other glazing products in sizes required to glaze openings indicated for Project, with edge and face clearances, edge and surface conditions, and bite complying with written instructions of product manufacturer and referenced glazing publications, to comply with system performance requirements.
- B. Clean-cut or flat-grind vertical edges of butt-glazed monolithic lites in a manner that produces square edges with slight kerfs at junctions with indoor and outdoor faces.
- C. Grind smooth and polish exposed glass edges.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine framing glazing, with Installer present, for compliance with the following:
  1. Manufacturing and installation tolerances, including those for size, squareness, and offsets at corners.
  2. Presence and functioning of weep system.
  3. Minimum required face or edge clearances.
  4. Effective sealing between joints of glass-framing members.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 PREPARATION

- A. Clean glazing channels and other framing members receiving glass immediately before glazing. Remove coatings not firmly bonded to substrates.

### 3.3 GLAZING, GENERAL

- A. Comply with combined written instructions of manufacturers of glass, sealants, gaskets, and other glazing materials, unless more stringent requirements are indicated, including those in referenced glazing publications.
- B. Glazing channel dimensions, as indicated on Drawings, provide necessary bite on glass, minimum edge and face clearances, and adequate sealant thicknesses, with reasonable tolerances. Adjust as required by Project conditions during installation.
- C. Protect glass edges from damage during handling and installation. Remove damaged glass from Project site and legally dispose of off Project site. Damaged glass is glass with edge damage or other imperfections that, when installed, could weaken glass and impair performance and appearance.
- D. Apply primers to joint surfaces where required for adhesion of sealants, as determined by preconstruction sealant-substrate testing.
- E. Install setting blocks in sill rabbets, sized and located to comply with referenced glazing publications, unless otherwise required by glass manufacturer. Set blocks in thin course of compatible sealant suitable for heel bead.
- F. Do not exceed edge pressures stipulated by glass manufacturers for installing glass lites.
- G. Provide spacers for glass lites where the length plus width is larger than 50 inches(1270 mm) as follows:
  - 1. Locate spacers directly opposite each other on both inside and outside faces of glass. Install correct size and spacing to preserve required face clearances, unless gaskets and glazing tapes are used that have demonstrated ability to maintain required face clearances and to comply with system performance requirements.
  - 2. Provide 1/8-inch(3-mm) minimum bite of spacers on glass and use thickness equal to sealant width. With glazing tape, use thickness slightly less than final compressed thickness of tape.
- H. Provide edge blocking where indicated or needed to prevent glass lites from moving sideways in glazing channel, as recommended in writing by glass manufacturer and according to requirements in referenced glazing publications.
- I. Set glass lites in each series with uniform pattern, draw, bow, and similar characteristics.
- J. Where wedge-shaped gaskets are driven into one side of channel to pressurize sealant or gasket on opposite side, provide adequate anchorage so gasket cannot walk out when installation is subjected to movement.
- K. Square cut wedge-shaped gaskets at corners and install gaskets in a manner recommended by gasket manufacturer to prevent corners from pulling away; seal corner joints and butt joints with sealant recommended by gasket manufacturer.

### 3.4 TAPE GLAZING

- A. Position tapes on fixed stops so that, when compressed by glass, their exposed edges are flush with or protrude slightly above sightline of stops.
- B. Install tapes continuously, but not necessarily in one continuous length. Do not stretch tapes to make them fit opening.
- C. Where framing joints are vertical, cover these joints by applying tapes to heads and sills first and then to jambs. Where framing joints are horizontal, cover these joints by applying tapes to jambs and then to heads and sills.
- D. Place joints in tapes at corners of opening with adjoining lengths butted together, not lapped. Seal joints in tapes with compatible sealant approved by tape manufacturer.
- E. Do not remove release paper from tape until just before each glazing unit is installed.
- F. Apply heel bead of elastomeric sealant.
- G. Center glass lites in openings on setting blocks and press firmly against tape by inserting dense compression gaskets formed and installed to lock in place against faces of removable stops. Start gasket applications at corners and work toward centers of openings.
- H. Apply cap bead of elastomeric sealant over exposed edge of tape.

### 3.5 PROTECTION AND CLEANING

- A. Protect exterior glass from damage immediately after installation by attaching crossed streamers to framing held away from glass. Do not apply markers to glass surface. Remove nonpermanent labels, and clean surfaces.
- B. Protect glass from contact with contaminating substances resulting from construction operations, including weld splatter. If, despite such protection, contaminating substances do come into contact with glass, remove them immediately as recommended by glass manufacturer.
- C. Examine glass surfaces adjacent to or below exterior concrete and other masonry surfaces at frequent intervals during construction, but not less than once a month, for build-up of dirt, scum, alkaline deposits, or stains; remove as recommended by glass manufacturer.
- D. Remove and replace glass that is broken, chipped, cracked, abraded, or damaged in any way, including natural causes, accidents, and vandalism, during construction period.
- E. Wash glass on both exposed surfaces in each area of Project not more than four days before date scheduled for inspections that establish date of Substantial Completion. Wash glass as recommended by glass manufacturer.

### 3.6 GLASS SCHEDULE

- A. Monolithic Float-Glass Units (TS):
  - 1. Uncoated Clear Float-Glass Units, 3/8" typical unless noted as 1/4" on drawings.

2. Kind FT (fully tempered).
3. Applications: Typical for interior glazing.

B. Observation Mirror Glass (MG): For observation window in Office 101.

1. Basis-of-Design Product: Viridian Observa laminated safety one way observation glazing as manufactured by New World Glass.
  - a. Light ratio of 7:1 (subject side: observer side).

3.7 LAMINATED GLASS

A. Tempered Laminated Glass Units (LS): Where glass of this designation is indicated, provide glass lites complying with the following:

1. Kind LT, consisting of two lites of fully tempered float glass.
2. Inner Lite: Type I (transparent glass, flat) float glass.
  - a. Class 1 (clear).
  - b. Thickness: 3 mm.
3. Plastic Interlayer: 0.030 inch (0.76 mm) thick, but not less than that required to comply as a Type II safety glass material.
  - a. Interlayer Color: Clear.
4. Outer Lite: Type I (transparent glass, flat) float glass.
  - a. Class 1 (clear).
  - b. Thickness: 3 mm.
5. Application: Interior doors and sidelites where indicated, and where required by Code.

B. Laminated Glass: Where glass of this designation is indicated, provide glass lites complying with the following:

1. Kind LT, consisting of two lites of fully tempered float glass.
2. Inner Lite: Type I (transparent glass, flat) float glass.
  - a. Class 1 (clear).
  - b. Thickness: 5 mm (3/16 inch).
3. Plastic Interlayer: 0.030 inch (0.76 mm) thick, but not less than that required to comply as a Type II safety glass material.
  - a. Interlayer Color: Clear.
4. Outer Lite: Type I (transparent glass, flat) sputter-coated float glass as specified for Insulating Glass Type IG3.
  - a. Class 1 (clear).

- b. Thickness: 5 mm (3/16 inch).
- 5. Application: Interior lite of exterior vertical insulating glass-units where indicated, and where required by Code.

END OF SECTION 08 8000

SECTION 09 0000 – FINISH SCHEDULE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section contains finish nomenclature with regard to project finishes and a Finish Schedule.
- B. Related Sections are listed in Article 3.2 - Finish Color and Pattern List.

1.3 ABBREVIATIONS

- A. Abbreviations for specific finishes are listed in the Finish Color and Pattern List in Article 3.2.

1.4 SUBMITTALS

- A. Refer to and comply with the requirements of each Related Section listed in Article 3.2 - Finish Color and Pattern List for specific submittals of product data, samples, shop drawings, etc.

PART 2 – PRODUCTS (Not Used)

## PART 3 - EXECUTION

### 3.1 FINISH NOTES

General Notes Applicable to the entire project:

1. Refer to Article 3.2 - Finish Color and Pattern List for definition of materials and substrates.
2. For purposes of this schedule, North is as indicated on the Drawings.
3. All hollow metal frames and painted doors to match existing color, semi-gloss finish.
4. Install new vinyl reducer transition strips at all locations where material changes (new to existing, new to new) occurs.

3.1-A. The Following notes are included on the Finish Schedule

Note A. Refer to A101

3.2 FINISH COLOR AND PATTERN LIST

Reference I.D.	Manufacturer	Description Size	Color/Pattern	Typical Location	Remarks	Rev. No.	Manufacturer Contact Information
<b>FLOOR</b>							
SVT - Solid Vinyl Tile - Division 09 Section "Resilient Flooring"							
SVT1	Mannington	plank	Nature's Path Plank - Applewood 12118	bedrooms			
VCT - Vinyl Composition Tile - Division 09 Section "Resilient Flooring"							
VCT1	Armstrong	Stonetex, Excelon 12x12	TBD	stair tower	Note A		
CT - Ceramic Tile - Division 09 Section "Tile"							
CT1	Daltile	2x2	TBD	toilet rooms	Note A		
<b>WALL</b>							
P - Interior Painting - Division 09 Section "Interior Painting"							
P1	ICI Glidden	Semi-gloss	match existing - off white	CMU walls	Note A		
P2	ICI Glidden	Eggshell	match existing - white	upper walls	Note A		
P3	ICI Glidden	Semi-gloss	match existing - blue	hollow metal door frames and doors	Note A		
<b>BASE</b>							
RB - Resilient Wall Base - Division 09 Section "Resilient Base and Accessories"							
RB1	Johnsonite	4" Rubber base	to match room R129	bedrooms	cove base		
RB2	Johnsonite	4" Rubber base	TBD	all other	cove base		
CTB - Ceramic Tile Wall Base - Division 09 Section "Tile"							
CTB1	Daltile	4" cove base	TBD	toilet rooms	cove base		
<b>CEILING</b>							
PGB - Painted Gypsum Board Ceilings - Division 09 Section "Interior Painting"							
PGB1		Painted Gypsum Board Ceiling, flat finish	ceiling white	gyp bd ceilings	Note A		
<b>MISCELLANEOUS</b>							
PL - Plastic Laminate - Division 06 Section "Interior Architectural Woodwork / Plastic Laminate Clad Architectural Cabinets"							
PL1	Wilsonart Laminate		TBD	vanity counter			
WF - Window Film - Division 09							
WF1-S	3M	safety film	Ultra S600 Safety and Security	bedrooms, patient areas			
WF2-D	3M	decorative frosted film	Frosted - white	Exam			



SECTION 09 2900 - GYPSUM BOARD

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
  - 1. Interior gypsum wallboard.
  - 2. Non-load-bearing steel framing.
  - 3. Gypsum board suspended ceiling systems.
- B. Related Sections include the following:
  - 1. Division 06 Section "Miscellaneous Carpentry" for wood framing, blocking and furring.

1.3 DEFINITIONS

- A. Gypsum Board Terminology: Refer to ASTM C 11 for definitions of terms for gypsum board assemblies not defined in this Section or in other referenced standards.

1.4 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: Detail fabrication and installation of prefabricated aluminum column enclosures. Include plans, elevations, sections, and details of components and their connections. Show anchorage and accessory items.
- C. Samples: For the following products:
  - 1. Trim Accessories: Full-size samples in 12-inch-long lengths for each trim accessory indicated.

1.5 QUALITY ASSURANCE

- A. Sound Transmission Characteristics: For gypsum board assemblies with STC ratings, provide materials and construction identical to those tested in assembly indicated according to ASTM E 90 and classified according to ASTM E 413 by a qualified independent testing agency.

1. STC-Rated Assemblies: Indicated by design designations from GA-600, "Fire Resistance Design Manual."

## 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in original packages, containers, or bundles bearing brand name and identification of manufacturer or supplier.
- B. Store materials inside under cover and keep them dry and protected against damage from weather, direct sunlight, surface contamination, corrosion, construction traffic, and other causes. Stack gypsum panels flat to prevent sagging.

## 1.7 PROJECT CONDITIONS

- A. Environmental Limitations: Comply with ASTM C 840 requirements or gypsum board manufacturer's written recommendations, whichever are more stringent.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  1. Steel Framing and Furring:
    - a. Clark Steel Framing Systems.
    - b. Consolidated Systems, Inc.
    - c. Dale Industries, Inc. - Dale/Incor.
    - d. Dietrich Industries, Inc.
    - e. MarinoWare; Division of Ware Ind.
    - f. National Gypsum Company.
    - g. Unimast, Inc.
  2. Gypsum Board and Related Products:
    - a. G-P Gypsum Corp.
    - b. National Gypsum Company.
    - c. United States Gypsum Co.

### 2.2 STEEL SUSPENDED CEILING AND SOFFIT FRAMING

- A. Components, General: Comply with ASTM C 754 for conditions indicated.
- B. Tie Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 0.0625-inch- (1.59-mm-) diameter wire, or double strand of 0.0475-inch- (1.21-mm-) diameter wire.
- C. Hangers: As follows:

1. Wire Hangers: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 0.162-inch (4.12-mm) diameter.
  2. Rod Hangers: ASTM A 510 (ASTM A 510M), mild carbon steel.
    - a. Diameter: 7/32-inch (5.56-mm).
    - b. Protective Coating: Corrosion-resistant paint.
    - c. Protective Coating: ASTM A 153/A 153M, hot-dip galvanized at locations 10 feet or less from exterior walls.
- D. Carrying Channels: Cold-rolled, commercial-steel sheet with a base metal thickness of 0.0538 inch (1.37 mm), a minimum 1/2-inch- (12.7-mm-) wide flange, and as follows:
1. Manufacturer's standard corrosion-resistant zinc coating, unless otherwise noted.
  2. Hot-dip galvanized coating, ASTM A 653/A 653M, G40 (Z120), at high-humidity areas, and 10 feet or less from exterior walls.
  3. Depth: 2 inches (50.8 mm).
- E. Furring Channels (Furring Members): Commercial-steel sheet with manufacturer's standard corrosion-resistant zinc coating.
1. Cold Rolled Channels: 0.0538-inch (1.37-mm) bare steel thickness, with minimum 1/2-inch- (12.7-mm-) wide flange, 3/4 inch (19.1 mm) deep.
  2. Steel Studs: ASTM C 645.
    - a. Minimum Base Metal Thickness: 0.0179 inch (0.45 mm).
    - b. Depth: 1-5/8 inches (41.3 mm).
- F. Grid Suspension System for Interior Ceilings and Soffit Framing: ASTM C 645, direct-hung system composed of main beams and cross-furring members that interlock. Basis of design Chicago Metallic 640 Non-fire Rated Drywall Grid System or equal as approved by architect.
1. Suspension System Components:
    - a. Furring Runners: Manufactured from 0.020-inch-thick steel, 1-3/8-inches-wide with knurled face by 1-1/2-inches-high by 144-inches-long with factory punched cross tee slots, hanger holes, and non-direction bayonet end tab couplings.
    - b. Furring Tees: Manufactured from 0.020-inch-thick steel, 1-3/8-inch-wide with knurled face by 1-1/2-inches-high by 48 inches-long with hook-over end tab couplings, factory-punched cross tee slots, and hanger holes.
    - c. Furring Cross Channel: Manufactured from 0.020-inch-thick steel 1-3/8-inches-wide with knurled face by 7/8-inch-high by 48-inches-long with straight looking end tabs.
    - d. Cross Tees: Manufactured from 0.020-inch-thick steel 15/16-inch-wide by 1-1/2-inches-high by 48-inches-long with staked-on clip end tab couplings, factory-punched cross tee slots, and hanger holes.
      - 1) Finish: Factory-applied white, baked-on enamel paint finish.
    - e. Wall Track: manufactured from 0.020-inch-thick steel 1-9/16-inches-high by 120-inches-long with staked-on end clip end tab couplings, factory finished.
    - f. Suspension system components shall be manufactured from hot-dipped galvanized steel.

2. Product: Subject to compliance with requirements, provide one of the following:
  - a. "Furring Systems/Drywall," Armstrong World Industries, Inc.
  - b. "Drywall Furring 640-C Heavy-Duty System," Chicago Metallic Corporation.
  - c. "Drywall Suspension System," USG Interiors, Inc.

### 2.3 STEEL PARTITION AND INTERIOR SOFFIT FRAMING

#### A. Components, General: As follows:

1. Comply with ASTM C 754 for conditions indicated.
2. Steel Sheet Components: Complying with ASTM C 645 requirements for metal and with manufacturer's standard corrosion-resistant zinc coating.
  - a. Provide hot-dip galvanized coating, ASTM A 653/A 653M, G60 (Z120), at high-humidity areas, and 10 feet or less from exterior walls.

#### B. Steel Studs and Runners: ASTM C 645.

1. Minimum Base Metal Thickness: 0.0179 inch (0.45 mm).
2. Depth: As indicated.

#### C. Deep-Leg Deflection Track: ASTM C 645 top runner with 2-inch- (50.8-mm-) deep flanges.

#### D. Flat Strap and Backing Plate: Steel sheet for blocking and bracing in length and width indicated.

1. Minimum Base Metal Thickness: 0.0312 inch (0.79 mm).

#### E. Cold-Rolled Channel Bridging: 0.0538-inch (1.37-mm) bare steel thickness, with minimum 1/2-inch- (12.7-mm-) wide flange.

1. Depth: 1-1/2 inches (38.1 mm).
2. Clip Angle: 1-1/2 by 1-1/2 inch (38.1 by 38.1 mm), 0.068-inch- (1.73-mm-) thick, galvanized steel.

#### F. Hat-Shaped, Rigid Furring Channels: ASTM C 645.

1. Minimum Base Metal Thickness: 0.0179 inch (0.45 mm).
2. Depth: 7/8 inch (22.2 mm), unless otherwise indicated.

#### G. Resilient Furring Channels: 1/2-inch-(12.7-mm-) deep, steel sheet members designed to reduce sound transmission.

1. Configuration: Asymmetrical, with face attached to single flange by a slotted leg (web).

#### H. Fasteners for Metal Framing: Of type, material, size, corrosion resistance, holding power, and other properties required to fasten steel members to substrates.

### 2.4 INTERIOR GYPSUM WALLBOARD

- A. Panel Size: Provide in maximum lengths and widths available that will minimize joints in each area and correspond with support system indicated.
- B. Gypsum Wallboard: ASTM C 36, Type X.
  - 1. Thickness: 5/8 inch (15.9 mm).
  - 2. Long Edges: Tapered.
  - 3. Location: All locations.

## 2.5 TRIM ACCESSORIES

- A. Interior Trim: ASTM C 1047.
  - 1. Material: Galvanized or aluminum-coated steel sheet, rolled zinc, plastic, or paper-faced galvanized steel sheet.
  - 2. Shapes:
    - a. Cornerbead: Use at outside corners, unless otherwise indicated.
    - b. Bullnose Bead: Use at outside corners.
    - c. LC-Bead: J-shaped; exposed long flange receives joint compound; use at exposed panel edges.
    - d. L-Bead: L-shaped; exposed long leg receives joint compound; use.
    - e. Expansion (Control) Joint: Use where indicated.

## 2.6 JOINT TREATMENT MATERIALS

- A. General: Comply with ASTM C 475.
- B. Joint Tape:
  - 1. Interior Gypsum Wallboard: Paper.
  - 2. Tile Backing Panels: As recommended by panel manufacturer.
- C. Joint Compound for Interior Gypsum Wallboard: For each coat use formulation that is compatible with other compounds applied on previous or for successive coats.
  - 1. Prefilling: At open joints and damaged surface areas, use setting-type taping compound.
  - 2. Embedding and First Coat: For embedding tape and first coat on joints, fasteners, and trim flanges, use setting-type taping compound.
    - a. Use setting-type compound for installing paper-faced metal trim accessories.
  - 3. Fill Coat: For second coat, use setting-type, sandable topping compound.
  - 4. Finish Coat: For third coat, use drying-type, all-purpose compound.
- D. Joint Compound for Tile Backing Panels:
  - 1. Cementitious Backer Units: As recommended by manufacturer.

## 2.7 ACOUSTICAL MATERIALS

- A. Sound Attenuation Blankets: ASTM C 665, Type I (blankets without membrane facing) produced by combining thermosetting resins with mineral fibers manufactured from glass, slag wool, or rock wool.
  - 1. Basis-of-Design Products: Subject to compliance with requirements, provide one of the following:
    - a. **"ROXUL AFB"**; ROXUL Inc.
    - b. **"Thermafiber SAFB"**; Thermafiber, Inc.
  - 2. Fire-Resistance-Rated Assemblies: Comply with mineral-fiber requirements of assembly.
  - 3. Acoustical Performance: Provide sound attenuation blankets with the following minimum Co-Efficients at Frequencies indicated for 3-inch thickness when tested in accordance with ASTM C423:
    - a. 125 Hz: 0.51
    - b. 250 Hz: 0.96
    - c. 500 Hz: 1.18
    - d. 1000 Hz: 1.03
    - e. 2000 Hz: 0.99
    - f. 4000 Hz: 0.96
    - g. NRC: 1.05

## 2.8 AUXILIARY MATERIALS

- A. General: Provide auxiliary materials that comply with referenced installation standards and manufacturer's written recommendations.
- B. Steel Drill Screws: ASTM C 1002, unless otherwise indicated.
  - 1. Use screws complying with ASTM C 954 for fastening panels to steel members from 0.033 to 0.112 inch (0.84 to 2.84 mm) thick.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine areas and substrates, with Installer present, and including welded hollow-metal frames, cast-in anchors, and structural framing, for compliance with requirements and other conditions affecting performance. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 PREPARATION

- A. Suspended Ceilings: Coordinate installation of ceiling suspension systems with installation of overhead structure to ensure that inserts and other provisions for anchorages to building structure have been installed to receive ceiling hangers at spacing required to support ceilings and that hangers will develop their full strength.

1. Furnish concrete inserts and other devices indicated to other trades for installation in advance of time needed for coordination and construction.

### 3.3 INSTALLING STEEL FRAMING, GENERAL

- A. Installation Standards: ASTM C 754, and ASTM C 840 requirements that apply to framing installation.
- B. Install supplementary framing, blocking, and bracing at terminations in gypsum board assemblies to support fixtures, equipment services, heavy trim, grab bars, toilet accessories, furnishings, or similar construction. Comply with details indicated and with gypsum board manufacturer's written recommendations or, if none available, with United States Gypsum's "Gypsum Construction Handbook."
- C. Isolate steel framing from building structure at locations indicated to prevent transfer of loading imposed by structural movement.
  1. Isolate ceiling assemblies where they abut or are penetrated by building structure.
  2. Isolate partition framing and wall furring where it abuts structure, except at floor. Install slip-type joints at head of assemblies that avoid axial loading of assembly and laterally support assembly.
    - a. Use deep-leg deflection track where indicated.

### 3.4 INSTALLING STEEL SUSPENDED CEILING AND SOFFIT FRAMING

- A. Suspend ceiling hangers from building structure as follows:
  1. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structural or ceiling suspension system. Splay hangers only where required to miss obstructions and offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.
  2. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with the location of hangers required to support standard suspension system members, install supplemental suspension members and hangers in form of trapezes or equivalent devices. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced standards.
  3. Secure wire hangers by looping and wire-tying, either directly to structures or to inserts, eyescrews, or other devices and fasteners that are secure and appropriate for substrate, and in a manner that will not cause them to deteriorate or otherwise fail.
  4. Secure rod hangers to structure, including intermediate framing members, by attaching to inserts, eyescrews, or other devices and fasteners that are secure and appropriate for structure and hanger, and in a manner that will not cause hangers to deteriorate or otherwise fail.
  5. Do not support ceilings directly from permanent metal forms. Furnish cast-in-place hanger inserts that extend through forms.
  6. Do not attach hangers to steel deck tabs.
  7. Do not attach hangers to steel roof deck. Attach hangers to structural members.
  8. Do not connect or suspend steel framing from ducts, pipes, or conduit.

- B. Installation Tolerances: Install steel framing components for suspended ceilings so members for panel attachment are level to within 1/8 inch in 12 feet (3 mm in 3.6 m) measured lengthwise on each member and transversely between parallel members.
- C. Sway-brace suspended steel framing with hangers used for support.
- D. Wire-tie or clip furring channels to supports.
- E. Install suspended steel framing components in sizes and spacings indicated, but not less than that required by the referenced steel framing and installation standards.
  - 1. Hangers: 48 inches (1219 mm) o.c.
  - 2. Carrying Channels (Main Runners): 48 inches (1219 mm) o.c.
  - 3. Furring Channels (Furring Members): 16 inches (406 mm) o.c.
- F. Grid Suspension System: Attach perimeter wall track or angle where grid suspension system meets vertical surfaces. Mechanically join main beam and cross-furring members to each other and butt-cut to fit into wall track.

### 3.5 INSTALLING STEEL PARTITION AND SOFFIT FRAMING

- A. Install tracks (runners) at floors, ceilings, and structural walls and columns where gypsum board assemblies abut other construction.
- B. Installation Tolerance: Install each steel framing and furring member so fastening surfaces vary not more than 1/8 inch (3 mm) from the plane formed by the faces of adjacent framing.
- C. Install steel studs and furring at the following spacings:
  - 1. Single-Layer Construction: 16 inches (406 mm) o.c., unless otherwise indicated.
  - 2. Multilayer Construction: 16 inches (406 mm) o.c., unless otherwise indicated.
- D. Install steel studs so flanges point in the same direction and leading edge or end of each panel can be attached to open (unsupported) edges of stud flanges first.
- E. Frame door openings to comply with GA-600 and with gypsum board manufacturer's applicable written recommendations, unless otherwise indicated. Screw vertical studs at jambs to jamb anchor clips on door frames; install runner track section (for cripple studs) at head and secure to jamb studs.
  - 1. Install two studs at each jamb, unless otherwise indicated.
  - 2. Install cripple studs at head adjacent to each jamb stud, with a minimum 1/2-inch (13-mm) clearance from jamb stud to allow for installation of control joint.
  - 3. Extend jamb studs through suspended ceilings and attach to underside of floor or roof structure above.
- F. Frame openings other than door openings the same as required for door openings, unless otherwise indicated. Install framing below sills of openings to match framing required above door heads.

### 3.6 APPLYING AND FINISHING PANELS, GENERAL

- A. Gypsum Board Application and Finishing Standards: ASTM C 840 and GA-216.
- B. Install sound attenuation blankets before installing gypsum panels, unless blankets are readily installed after panels have been installed on one side.
- C. Install ceiling board panels across framing to minimize the number of abutting end joints and to avoid abutting end joints in the central area of each ceiling. Stagger abutting end joints of adjacent panels not less than one framing member.
- D. Install gypsum panels with face side out. Butt panels together for a light contact at edges and ends with not more than 1/16 inch (1.5 mm) of open space between panels. Do not force into place.
- E. Locate edge and end joints over supports, except in ceiling applications where intermediate supports or gypsum board back-blocking is provided behind end joints. Do not place tapered edges against cut edges or ends. Stagger vertical joints on opposite sides of partitions. Do not make joints other than control joints at corners of framed openings.
- F. Attach gypsum panels to steel studs so leading edge or end of each panel is attached to open (unsupported) edges of stud flanges first.
- G. Attach gypsum panels to framing provided at openings and cutouts.
- H. Form control and expansion joints with space between edges of adjoining gypsum panels.
- I. Cover both faces of steel stud partition framing with gypsum panels in concealed spaces (above ceilings, etc.), except in chases braced internally.
  - 1. Unless concealed application is indicated or required for sound, fire, air, or smoke ratings, coverage may be accomplished with scraps of not less than 8 sq. ft.(0.7 sq. m) in area.
- J. Space fasteners in gypsum panels according to referenced gypsum board application and finishing standard and manufacturer's written recommendations.
  - 1. Space screws a maximum of 12 inches (304.8 mm) o.c. for vertical applications.
- K. Space fasteners in panels that are tile substrates a maximum of 8 inches (203.2 mm) o.c.

### 3.7 PANEL APPLICATION METHODS

- A. Single-Layer Application:
  - 1. On ceilings, apply gypsum panels before wall/partition board application to the greatest extent possible and at right angles to framing, unless otherwise indicated.
  - 2. On partitions/walls, apply gypsum panels horizontally (perpendicular to framing), unless otherwise indicated or required by fire-resistance-rated assembly, and minimize end joints.
    - a. Stagger abutting end joints not less than one framing member in alternate courses of board.
    - b. At high walls, install panels horizontally, unless otherwise indicated or required by fire-resistance-rated assembly.
- B. Single-Layer Fastening Methods: Apply gypsum panels to supports with steel drill screws.

### 3.8 INSTALLING TRIM ACCESSORIES

- A. General: For trim with back flanges intended for fasteners, attach to framing with same fasteners used for panels. Otherwise, attach trim according to manufacturer's written instructions.
- B. Control Joints: Install control joints according to ASTM C 840 and in specific locations approved by Architect for visual effect.

### 3.9 FINISHING GYPSUM BOARD ASSEMBLIES

- A. General: Treat gypsum board joints, interior angles, edge trim, control joints, penetrations, fastener heads, surface defects, and elsewhere as required to prepare gypsum board surfaces for decoration. Promptly remove residual joint compound from adjacent surfaces.
- B. Prefill open joints and damaged surface areas.
- C. Apply joint tape over gypsum board joints, except those with trim having flanges not intended for tape.
- D. Gypsum Board Finish Levels: Finish panels to levels indicated below, according to ASTM C 840, for locations indicated:
  - 1. Level 1: Embed tape at joints in ceiling plenum areas, concealed areas, and where indicated, unless a higher level of finish is required for fire-resistance-rated assemblies and sound-rated assemblies.
  - 2. Level 2: Embed tape and apply separate first coat of joint compound to tape, fasteners, and trim flanges where panels are substrate for tile and where indicated.
  - 3. Level 4: Embed tape and apply separate first, fill, and finish coats of joint compound to tape, fasteners, and trim flanges at panel surfaces that will be exposed to view, unless otherwise indicated.
  - 4. Level 5: Embed tape and apply separate first, fill, and finish coats of joint compound to tape, fasteners, and trim flanges, and apply skim coat of joint compound over entire surface at all curved panel surfaces.

END OF SECTION 09 2900

SECTION 09 3000 - TILING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
  - 1. Interior unglazed ceramic mosaic floor tile and base.
  - 2. Stone thresholds installed as part of tile installations.
  - 3. Waterproof membrane for thin-set tile installations.
- B. Related Sections include the following:
  - 1. Division 07 Section "Joint Sealants" for sealing of expansion, contraction, control, and isolation joints in tile surfaces.
  - 2. Division 09 Section "Gypsum Board" for glass-mat, water-resistant backer board.

1.3 DEFINITIONS

- A. Facial Dimension: Nominal tile size as defined in ANSI A137.1.

1.4 PERFORMANCE REQUIREMENTS

- A. Static Coefficient of Friction: For tile installed on walkway surfaces, provide products with the following values as determined by testing identical products per ASTM C 1028:
  - 1. Level Surfaces: Minimum 0.6.

1.5 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: Show locations of each type of tile and tile pattern. Show widths, details, and locations of expansion, contraction, control, and isolation joints in tile substrates and finished tile surfaces.
- C. Samples for Initial Selection: For each type of tile and grout submitted other than Basis-of-Design products specified. Include Samples of accessories involving color selection.

D. Samples for Verification:

1. Full-size units of each type and composition of tile and for each color and finish required.
2. Assembled samples mounted on a rigid panel, with grouted joints, for each type and composition of tile and for each color and finish required. Make samples at least 12 inches (300 mm) square, but not fewer than 4 tiles. Use grout of type and in color or colors approved for completed work.
3. Full-size units of each type of trim and accessory for each color and finish required.
4. Stone thresholds in 6-inch (150-mm) lengths.

E. Master Grade Certificates: For each shipment, type, and composition of tile, signed by tile manufacturer and Installer.

F. Product Certificates: For each type of product, signed by product manufacturer.

G. Qualification Data: For qualified Installer.

H. Material Test Reports: For each tile-setting and -grouting product.

1.6 QUALITY ASSURANCE

A. Source Limitations for Tile: Obtain all tile of same type and color or finish from one source or producer.

1. Obtain tile from same production run and of consistent quality in appearance and physical properties for each contiguous area.

B. Source Limitations for Setting and Grouting Materials: Obtain ingredients of a uniform quality for each mortar, adhesive, and grout component from a single manufacturer and each aggregate from one source or producer.

C. Source Limitations for Other Products: Obtain each of the following products specified in this Section through one source from a single manufacturer for each product:

1. Stone thresholds.
2. Waterproofing.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Deliver and store packaged materials in original containers with seals unbroken and labels intact until time of use. Comply with requirement in ANSI A137.1 for labeling sealed tile packages.

B. Store tile and cementitious materials on elevated platforms, under cover, and in a dry location.

C. Store liquid latexes in unopened containers and protected from freezing.

D. Handle tile that has temporary protective coating on exposed surfaces to prevent coated surfaces from contacting backs or edges of other units. If coating does contact bonding surfaces of tile, remove coating from bonding surfaces before setting tile.

1.8 PROJECT CONDITIONS

- A. Environmental Limitations: Do not install tile until construction in spaces is complete and ambient temperature and humidity conditions are maintained at the levels indicated in referenced standards and manufacturer's written instructions.

## 1.9 EXTRA MATERIALS

- A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
  - 1. Tile and Trim Units: Furnish quantity of full-size units equal to 3 percent of amount installed, for each type, composition, color, pattern, and size indicated.
  - 2. Grout: Furnish quantity of grout equal to 3 percent of amount installed for each type, composition, and color indicated.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. Basis-of-Design Products: The design for each tile type is based on the products named in Division 09 Section "Finish Schedule," Article 3.2 Interior Finishes Color and Pattern List. Subject to compliance with requirements, provide either one of the named products or a comparable product as approved by the Architect.

### 2.2 PRODUCTS, GENERAL

- A. ANSI Ceramic Tile Standard: Provide tile that complies with ANSI A137.1, "Specifications for Ceramic Tile," for types, compositions, and other characteristics indicated.
  - 1. Provide tile complying with Standard grade requirements, unless otherwise indicated.
  - 2. For facial dimensions of tile, comply with requirements relating to tile sizes specified in Part 1 "Definitions" Article.
- B. ANSI Standards for Tile Installation Materials: Provide materials complying with ANSI A108.02, ANSI standards referenced in other Part 2 articles, ANSI standards referenced by TCA installation methods specified in tile installation schedules, and other requirements specified.
- C. Factory Blending: For tile exhibiting color variations within ranges selected during Sample submittals, blend tile in factory and package so tile units taken from one package show same range in colors as those taken from other packages and match approved Samples.
- D. Mounting: For factory-mounted tile, provide back- or edge-mounted tile assemblies as standard with manufacturer, unless otherwise indicated.
  - 1. Where tile is indicated for installation in wet areas, do not use back- or edge-mounted tile assemblies unless tile manufacturer specifies in writing that this type of mounting is suitable for installation indicated and has a record of successful in-service performance.

- E. Factory-Applied Temporary Protective Coating: Where recommended by tile manufacturer, protect exposed surfaces of tile against adherence of mortar and grout by precoating with continuous film of petroleum paraffin wax, applied hot. Do not coat unexposed tile surfaces.

### 2.3 TILE PRODUCTS

- A. Interior Unglazed Ceramic Mosaic Floor Tile and Base (**CT1 and CTB1**): As indicated in Division 09 Section "Finish Schedule," Article 3.2 Interior Finishes Color and Pattern List.
  - a. **CTB1**: Coved bullbosed-top base.
  - b. External Corners for Thin-Set Mortar Installations: Surface bullnose.
  - c. Internal Corners: Field-buttet square corners. For coved base and cap, use angle pieces designed to fit with stretcher shapes.

### 2.4 THRESHOLDS

- A. General: Fabricate to sizes and profiles indicated or required to provide transition between adjacent floor finishes.
  - 1. Bevel edges at 1:2 slope, aligning lower edge of bevel with adjacent floor finish. Limit height of bevel to ½ inch (12.7 mm) or less, and finish bevel to match face of threshold.
- B. Marble Thresholds: ASTM C 503 with a minimum abrasion resistance of 12 per ASTM C1353 or ASTM C241 and with honed finish.
  - 1. Description: Uniform, fine-to medium-grained white stone with gray veining.

### 2.5 WATERPROOFING FOR THIN-SET TILE INSTALLATIONS

- A. General: General: Manufacturer's standard product, selected from one of the following, that complies with ANSI A118.10 and is recommended by the manufacturer for the application indicated. Include reinforcement and accessories recommended by manufacturer.
- B. Fabric-Reinforced, Modified-Bituminous Sheet: Self-adhering, SBS-modified-bituminous sheet with woven reinforcement facing; 0.040-inch (1.01-mm) nominal thickness.
  - 1. Product: Subject to compliance with requirements, provide the following:
    - a. National Applied Construction Products, Inc.; "**Strataflex**".
- C. Fabric-Reinforced, Fluid-Applied Product: System consisting of liquid-latex rubber and fabric reinforcement.
  - 1. Product: Subject to compliance with requirements, provide the following:
    - a. LATICRETE International Inc.; "**Laticrete 9235 Waterproof Membrane**".

### 2.6 SETTING AND GROUTING MATERIALS

- A. Basis-of-Design Products: Provide setting and grouting materials as manufactured by LATICRETE International Inc.; or subject to compliance with requirements provide comparable products by the following:
  - 1. MAPEI Corporation.
- B. Latex-Portland Cement Mortar (Thin Set): ANSI A118.4, consisting of the following:
  - 1. Prepackaged dry-mortar mix combined with styrene-butadiene-rubber liquid-latex additive.
    - a. Basis-of-Design Product: **“Laticrete 254 Platinum Multipurpose Thin-Set Mortar”**.
    - b. For wall applications, provide mortar that complies with Paragraph F-4.6.1 in addition to the other requirements in ANSI A118.4.
- C. Polymer-Modified Tile Grout: ANSI A118.7.
  - 1. Polymer Type: Styrene-butadiene rubber in liquid-latex form for addition to prepackaged dry-grout mix.
    - a. Basis-of-Design Product: **“Laticrete Tri-Poly Unsanded Fortified Grout (1600 Series)”** gauged with **“Laticrete 1776 Admix Plus”**.
    - b. Unsanded grout mixture for all floor and wall joints 1/8 inch (3.2 mm) and narrower.
  - 2. Color: Provide colors to match manufacturer's designations indicated in the Finish Schedule.

## 2.7 ELASTOMERIC SEALANTS

- A. General: Provide manufacturer's standard chemically curing, elastomeric sealants of base polymer and characteristics indicated that comply with applicable requirements in Division 07 Section "Joint Sealants."
  - 1. Use sealants that have a VOC content of 250 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
- B. Colors: Provide colors of exposed sealants to match colors of grout in tile adjoining sealed joints, unless otherwise indicated.

## 2.8 MISCELLANEOUS MATERIALS

- A. Trowelable Underlayments and Patching Compounds: Latex-modified, portland cement-based formulation provided or approved by manufacturer of tile-setting materials for installations indicated.
- B. Temporary Protective Coating: Either product indicated below as recommended by the tile manufacturer and that is formulated to protect exposed surfaces of tile against adherence of mortar and grout; compatible with tile, mortar, and grout products; and easily removable after grouting is completed without damaging grout or tile.
  - 1. Petroleum paraffin wax, fully refined and odorless, containing at least 0.5 percent oil with a melting point of 120 to 140 deg F(49 to 60 deg C) per ASTM D 87.

2. Grout release in form of manufacturer's standard proprietary liquid coating that is specially formulated and recommended for use as temporary protective coating for tile.
- C. Tile Cleaner: A neutral cleaner capable of removing soil and residue without harming tile and grout surfaces, specifically approved for materials and installations indicated by tile and grout manufacturers.
  - D. Grout Sealer: Manufacturer's standard silicone product for sealing grout joints that does not change color or appearance of grout.

## 2.9 MIXING MORTARS AND GROUT

- A. Mix mortars and grouts to comply with referenced standards and mortar and grout manufacturers' written instructions. Refer to Division 09 Section "Finish Schedule" for grout color requirements.
- B. Add materials, water, and additives in accurate proportions.
- C. Obtain and use type of mixing equipment, mixer speeds, mixing containers, mixing time, and other procedures to produce mortars and grouts of uniform quality with optimum performance characteristics for installations indicated.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates, areas, and conditions where tile will be installed, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of installed tile.
  1. Verify that substrates for setting tile are firm, dry, clean, free of coatings that are incompatible with tile-setting materials including curing compounds and other substances that contain soap, wax, oil, or silicone; and comply with flatness tolerances required by ANSI A108.01 for installations indicated.
  2. Verify that concrete substrates for tile floors installed with thin-set mortar comply with surface finish requirements in ANSI A108.01 for installations indicated.
    - a. Verify that surfaces that received a steel trowel finish have been mechanically scarified.
    - b. Verify that protrusions, bumps, and ridges have been removed by sanding or grinding.
  3. Verify that installation of grounds, anchors, recessed frames, electrical and mechanical units of work, and similar items located in or behind tile has been completed before installing tile.
  4. Verify that joints and cracks in tile substrates are coordinated with tile joint locations; if not coordinated, adjust joint locations in consultation with Architect.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 PREPARATION

- A. Remove coatings, including curing compounds and other substances that contain soap, wax, oil, or silicone, that are incompatible with tile-setting materials.
- B. Provide concrete substrates for tile floors installed with thin-set mortar that comply with flatness tolerances specified in referenced ANSI A108 Series of tile installation standards.
  - 1. Fill cracks, holes, and depressions with trowelable leveling and patching compound according to tile-setting material manufacturer's written instructions. Use product specifically recommended by tile-setting material manufacturer.
  - 2. Remove protrusions, bumps, and ridges by sanding or grinding.
- C. Blending: For tile exhibiting color variations within ranges selected during Sample submittals, verify that tile has been factory blended and packaged so tile units taken from one package show same range of colors as those taken from other packages and match approved Samples. If not factory blended, either return to manufacturer or blend tiles at Project site before installing.
- D. Field-Applied Temporary Protective Coating: Where recommended by tile manufacturer and needed to prevent grout from staining or adhering to exposed tile surfaces, precoat them with continuous film of temporary protective coating, taking care not to coat unexposed tile surfaces.

### 3.3 INSTALLATION, GENERAL

- A. Comply with TCA's "Handbook for Ceramic Tile Installation" for TCA installation methods specified in tile installation schedules. Comply with parts of the ANSI A108 Series "Specifications for Installation of Ceramic Tile" that are referenced in TCA installation methods, specified in tile installation schedules, and apply to types of setting and grouting materials used.
- B. Extend tile work into recesses and under or behind equipment and fixtures to form complete covering without interruptions, unless otherwise indicated. Terminate work neatly at obstructions, edges, and corners without disrupting pattern or joint alignments.
- C. Accurately form intersections and returns. Perform cutting and drilling of tile without marring visible surfaces. Carefully grind cut edges of tile abutting trim, finish, or built-in items for straight aligned joints. Fit tile closely to electrical outlets, piping, fixtures, and other penetrations so plates, collars, or covers overlap tile.
- D. Jointing Pattern: Lay tile in grid pattern, unless otherwise indicated. Align joints when adjoining tiles on floor, base, walls, and trim are same size. Lay out tile work and center tile fields in both directions in each space or on each wall area. Adjust to minimize tile cutting. Provide uniform joint widths, unless otherwise indicated.
  - 1. For tile mounted in sheets, make joints between tile sheets same width as joints within tile sheets so joints between sheets are not apparent in finished work.
  - 2. Where adjoining tiles on floor, base, walls, or trim are specified or indicated to be same size, align joints.
- E. Grout tile to comply with requirements of the following tile installation standards:
  - 1. For ceramic tile grouts (sand-portland cement; dry-set, commercial portland cement; and latex-portland cement grouts), comply with ANSI A108.10.

### 3.4 WATERPROOFING INSTALLATION

- A. Install waterproofing to comply with ANSI A108.13 and waterproofing manufacturer's written instructions to produce waterproof membrane of uniform thickness bonded securely to substrate.
- B. Do not install tile over waterproofing until waterproofing has cured and been tested to determine that it is watertight.

### 3.5 FLOOR TILE INSTALLATION

- A. General: Install tile to comply with requirements in the Floor Tile Installation Schedule, including those referencing TCA installation methods and ANSI A108 Series of tile installation standards.
  - 1. For installations indicated below, follow procedures in ANSI A108 Series tile installation standards for providing 95 percent mortar coverage.
    - a. Tile floors in wet areas.
- B. Joint Widths: Install tile that is not factory-mounted on sheets on floors with the following joint widths:
  - 1. Ceramic Floor tile: 1/16 inch (1.6 mm).
- C. Stone Thresholds: Install stone thresholds at locations indicated; set in same type of setting bed as abutting field tile, unless otherwise indicated.
  - 1. Do not extend waterproofing or crack isolation membrane under thresholds set in latex-portland cement mortar. Fill joints between such thresholds and adjoining tile set on waterproofing or crack isolation membrane with elastomeric sealant.
- D. Grout Sealer: Apply grout sealer to cementitious grout joints according to grout-sealer manufacturer's written instructions. As soon as grout sealer has penetrated grout joints, remove excess sealer and sealer that has gotten on tile faces by wiping with soft cloth.

### 3.6 WALL TILE INSTALLATION

- A. Install types of tile designated for wall installations to comply with requirements in the Wall Tile Installation Schedule, including those referencing TCA installation methods and ANSI setting-bed standards.
- B. Joint Widths: Install tile that is not factory-mounted on sheets on walls with the following joint widths:
  - 1. Wall Tile: 1/16 inch (1.6 mm).
  - 2. Wall Tile Trim Units: 1/16 inch (1.6 mm).

### 3.7 CLEANING AND PROTECTING

- A. Cleaning: On completion of placement and grouting, clean all ceramic tile surfaces so they are free of foreign matter.

1. Remove latex-portland cement grout residue from tile as soon as possible.
2. Clean grout smears and haze from tile according to tile and grout manufacturer's written instructions, but no sooner than 10 days after installation. Use only cleaners recommended by tile and grout manufacturers and only after determining that cleaners are safe to use by testing on samples of tile and other surfaces to be cleaned. Protect metal surfaces and plumbing fixtures from effects of cleaning. Flush surfaces with clean water before and after cleaning.
3. Remove temporary protective coating by method recommended by coating manufacturer that is acceptable to tile and grout manufacturer. Trap and remove coating to prevent it from clogging drains.

- B. When recommended by tile manufacturer, apply coat of neutral protective cleaner to completed tile walls and floors. Protect installed tile work with kraft paper or other heavy covering during construction period to prevent staining, damage, and wear.
- C. Prohibit foot and wheel traffic from tiled floors for at least seven days after grouting is completed.
- D. Before final inspection, remove protective coverings and rinse neutral cleaner from tile surfaces.

### 3.8 INTERIOR FLOOR TILE INSTALLATION SCHEDULE

- A. Tile Installation: Interior floor installation on crack-suppression membrane (full coverage) over concrete; thin-set mortar; TCA F125A and ANSI A108.5.

1. Tile Type: As indicated.
2. Thin-Set Mortar: Latex-portland cement mortar.
3. Grout: Polymer-modified unsanded grout.
4. Application: Typical for all First Floor tile installations, unless otherwise indicated.

- B. Tile Installation: Interior floor installation on waterproof membrane over concrete; thin-set mortar; TCA F122 and ANSI A108.5.

1. Tile Type: As indicated.
2. Thin-Set Mortar: Latex-portland cement mortar.
3. Grout: Polymer-modified unsanded grout.
4. Waterproof Membrane: Fabric-reinforced, modified-bituminous sheet or fabric-reinforced, fluid-applied product.
5. Application: Typical for all toilet rooms.

### 3.9 INTERIOR WALL TILE INSTALLATION SCHEDULE

- A. Interior Walls, Masonry or Concrete: Thin-set mortar; TCA W202 and ASNI A108.5.

1. Tile Type: As indicated.
2. Mortar: Latex-portland cement mortar.
3. Grout: Polymer-modified sanded or unsanded grout.

END OF SECTION 09 3000

SECTION 09 6513 - RESILIENT BASE AND ACCESSORIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
  - 1. Resilient base.
  - 2. Resilient molding accessories.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Samples for Verification: For each type of product indicated, in manufacturer's standard-size Samples but not less than 12 inches (300 mm) long, of each resilient product color, texture, and pattern required.

1.4 QUALITY ASSURANCE

- A. Fire-Test-Response Characteristics: As determined by testing identical products according to ASTM E 648 or NFPA 253 by a qualified testing agency.
  - 1. Critical Radiant Flux Classification: Class I, not less than 0.45 W/sq. cm.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Store resilient products and installation materials in dry spaces protected from the weather, with ambient temperatures maintained within range recommended by manufacturer, but not less than 50 deg F(10 deg C) or more than 90 deg F(32 deg C).

1.6 PROJECT CONDITIONS

- A. Maintain ambient temperatures within range recommended by manufacturer, but not less than 70 deg F(21 deg C) or more than 95 deg F(35 deg C), in spaces to receive resilient products during the following time periods:
  - 1. 48 hours before installation.

2. During installation.
  3. 48 hours after installation.
- B. Until Substantial Completion, maintain ambient temperatures within range recommended by manufacturer, but not less than 55 deg F(13 deg C) or more than 95 deg F(35 deg C).
- C. Install resilient products after other finishing operations, including painting, have been completed.

## 1.7 EXTRA MATERIALS

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
1. Furnish not less than 10 linear feet(3 linear m) for every 500 linear feet(150 linear m) or fraction thereof, of each type, color, pattern, and size of resilient product installed.

## PART 2 - PRODUCTS

### 2.1 RESILIENT BASE RB1, RB2

- A. Resilient Base Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. Johnsonite.
  2. Musson, R. C. Rubber Co.
  3. Nora Rubber Flooring; Freudenberg Building Systems, Inc.
- B. Resilient Base Standard: ASTM F 1861.
1. Material Requirement: Type TP (rubber, thermoplastic).
  2. Manufacturing Method: Group I (solid, homogeneous).
  3. Style: Cove (base with toe).
  4. Color: per finish schedule.
- C. Minimum Thickness: 0.125 inch(3.2 mm).
- D. Height: 4 inches(102 mm).
- E. Lengths: Coils in manufacturer's standard length.
- F. Outside Corners: Job formed.
- G. Inside Corners: Job formed.

### 2.2 RESILIENT MOLDING ACCESSORY

- A. Products: Provide the following resilient molding accessory items, manufactured by Roppe corporation or equal:

1. Carpet edge for glue-down applications: “#38” or “#39 Edge Guard” to suit carpet thickness.
2. Reducer strip for resilient floor covering: “#22 Reducer Strip.”
3. Joiner for tile and carpet: “#50 Tile/Carpet Joiner.”

B. Material: Rubber.

### 2.3 INSTALLATION MATERIALS

- A. Trowelable Leveling and Patching Compounds: Latex-modified, portland cement based or blended hydraulic-cement-based formulation provided or approved by manufacturer for applications indicated.
- B. Adhesives: Water-resistant type recommended by manufacturer to suit resilient products and substrate conditions indicated.
- C. Stair-Tread-Nose Filler: Two-part epoxy compound recommended by resilient tread manufacturer to fill nosing substrates that do not conform to tread contours.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates, with Installer present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.
- B. Verify that finishes of substrates comply with tolerances and other requirements specified in other Sections and that substrates are free of cracks, ridges, depressions, scale, and foreign deposits that might interfere with adhesion of resilient products.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 PREPARATION

- A. Prepare substrates according to manufacturer's written instructions to ensure adhesion of resilient products.
- B. Concrete Substrates for Resilient Stair Treads and Accessories: Prepare according to ASTM F 710.
  1. Verify that substrates are dry and free of curing compounds, sealers, and hardeners.
  2. Remove substrate coatings and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, using mechanical methods recommended by manufacturer. Do not use solvents.
  3. Alkalinity and Adhesion Testing: Perform tests recommended by manufacturer.
- C. Fill cracks, holes, and depressions in substrates with trowelable leveling and patching compound and remove bumps and ridges to produce a uniform and smooth substrate.
- D. Do not install resilient products until they are same temperature as the space where they are to be installed.

1. Move resilient products and installation materials into spaces where they will be installed at least 48 hours in advance of installation.
- E. Sweep and vacuum clean substrates to be covered by resilient products immediately before installation.

### 3.3 RESILIENT BASE INSTALLATION

- A. Comply with manufacturer's written instructions for installing resilient base.
- B. Apply resilient base to walls, columns, pilasters, casework and cabinets in toe spaces, and other permanent fixtures in rooms and areas where base is required.
- C. Install resilient base in lengths as long as practicable without gaps at seams and with tops of adjacent pieces aligned.
- D. Tightly adhere resilient base to substrate throughout length of each piece, with base in continuous contact with horizontal and vertical substrates.
- E. Do not stretch resilient base during installation.
- F. Job-Formed Corners:
1. Outside Corners: Use straight pieces of maximum lengths possible. Form without producing discoloration (whitening) at bends.
  2. Inside Corners: Use straight pieces of maximum lengths possible.

### 3.4 RESILIENT ACCESSORY INSTALLATION

- A. Comply with manufacturer's written instructions for installing resilient accessories.
- B. Resilient Molding Accessories: Butt to adjacent materials and tightly adhere to substrates throughout length of each piece. Install reducer strips at edges of carpet and resilient floor covering that would otherwise be exposed.

### 3.5 CLEANING AND PROTECTION

- A. Comply with manufacturer's written instructions for cleaning and protection of resilient products.
- B. Perform the following operations immediately after completing resilient product installation:
1. Remove adhesive and other blemishes from exposed surfaces.
  2. Sweep and vacuum surfaces thoroughly.
  3. Damp-mop surfaces to remove marks and soil.
- C. Protect resilient products from mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period.

- D. After installation is completed, perform initial maintenance procedures in accordance with manufacturer's requirements
- E. Cover resilient products until Substantial Completion.

END OF SECTION 09 6513

SECTION 09 6525 - RESILIENT TILE FLOORING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
  - 3. Solid Vinyl Plank (SVT).
  - 4. Vinyl composition tile (VCT).
- B. Related Sections include the following:
  - 1. Division 09 Section "Resilient Base and Accessories" for resilient base, reducer strips, and other accessories installed with resilient floor coverings.
- C. Unit Prices: Administrative and procedural requirements for unit prices for epoxy-based moisture barrier adhesive system are specified in Division 01 Section "Unit Prices".

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated.
  - 1. Include manufacturer's product data for adhesives, including printed statement of VOC content and material safety sheets.
- B. Sustainable Design Submittal:
  - 1. Manufacturer's Product Data: For adhesives, including printed statement of VOC content.
- C. Shop Drawings: For each type of floor tile. Include floor tile layouts, edges, columns, doorways, enclosing partitions, built-in furniture, cabinets, and cutouts.
  - 1. Show details of special patterns.
- D. Samples for Initial Selection: For each type of resilient tile flooring product submitted other than Basis-of-Design products specified.
- E. Samples for Verification: Full-size units of each color and pattern of resilient floor tile required.
- F. Product Schedule: For floor tile. Use same designations indicated on Drawings.

- G. Qualification Data: For qualified Installer.
- H. Maintenance Data: For resilient products to include in maintenance manuals.

#### 1.4 QUALITY ASSURANCE

- A. Installer Qualifications: A qualified installer who employs workers for this Project who are competent in techniques required by manufacturer for floor tile installation indicated.
- B. Fire-Test-Response Characteristics: As determined by testing identical products according to ASTM E 648 or NFPA 253 by a qualified testing agency.
  - 1. Critical Radiant Flux Classification: Class I, not less than 0.45 W/sq. cm.
- C. Mockups: Build mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
  - 1. Build mockups for each type of floor tile including resilient base and accessories.
    - a. Size: Minimum 100 sq. ft. (9.3 sq. m) for each type, color, and pattern in locations directed by Architect.

#### 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Store resilient products and installation materials in dry spaces protected from the weather, with ambient temperatures maintained within range recommended by manufacturer, but not less than 50 deg F (10 deg C) or more than 90 deg F (32 deg C). Store tiles on flat surfaces.

#### 1.6 PROJECT CONDITIONS

- A. Maintain temperatures within range recommended by manufacturer, but not less than 70 deg F (21 deg C) or more than 95 deg F (35 deg C), in spaces to receive floor tile during the following time periods:
  - 1. 48 hours before installation.
  - 2. During installation.
  - 3. 48 hours after installation.
- B. After postinstallation period, maintain temperatures within range recommended by manufacturer, but not less than 55 deg F (13 deg C) or more than 95 deg F (35 deg C).
- C. Close spaces to traffic during floor covering installation.
- D. Close spaces to traffic for 48 hours after floor covering installation.
- E. Install resilient products after other finishing operations, including painting, have been completed.

#### 1.7 EXTRA MATERIALS

- A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
  - 1. Floor Tile: Furnish 1 box for every 50 boxes or fraction thereof, of each type, color, and pattern of floor tile installed.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Basis-of-Design Products: The design for each type of floor tile product is based on the products named in Division 09 Section "Finish Schedule", Article 3.2 Interior Finishes Color and Pattern List and as specified in this Section. Subject to compliance with requirements, provide either the named products or comparable products as approved by the Architect.

2.2 SOLID VINYL PLANK - Drawing Designations **SVT1**

- A. Basis-of-Design Products: The designs for solid vinyl plank tile are based on products as manufactured by Mannington Corporation.
- B. Tile Standard: ASTM F 1344.
- C. Wearing Surface: As indicated.
- D. Thickness: As indicated.
- E. Size: As indicated.
- F. Seaming Method: Standard.

2.3 VINYL COMPOSITION TILE - Drawing Designations **VCT1**

- A. Basis-of-Design Product: The designs for vinyl composition tile are based "Stontex EXCELON as manufactured by Armstrong World Industries.
- B. Tile Standard: ASTM F 1066.
- C. Class: 2 (through-pattern tile).
- D. Wearing Surface: Smooth.
- E. Thickness: 0.125 inch (3.2 mm).
- F. Size: 12 by 12 inches (305 by 305 mm).
- G. Colors and Patterns: As indicated by manufacturer's designations in Division 09 Section "Finish Schedule," Article 3.2 – Interior Finishes Color and Pattern List.

## 2.4 INSTALLATION MATERIALS

- A. Trowelable Leveling and Patching Compounds: Latex-modified, portland cement based or blended hydraulic cement based formulation provided or approved by resilient product manufacturer for applications indicated.
- B. Adhesives: Water-resistant type recommended by manufacturer to suit resilient products and substrate conditions indicated, unless otherwise indicated.
  - 1. Use adhesives that have a VOC content of 50 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24), unless otherwise indicated.
- C. Floor Polish: Provide protective liquid floor polish products as recommended by manufacturer.
  - a. Coordinate selection of floor polish with Owner's maintenance service.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates, with Installer present, for compliance with requirements for installation tolerances, moisture content, and other conditions affecting performance.
- B. Verify that finishes of substrates comply with tolerances and other requirements specified in other Sections and that substrates are free of cracks, ridges, depressions, scale, and foreign deposits that might interfere with adhesion of resilient products.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 PREPARATION

- A. Prepare substrates according to manufacturer's written recommendations to ensure adhesion of resilient products.
- B. Concrete Substrates: Prepare according to ASTM F 710.
  - 1. Verify that substrates are dry and free of curing compounds, sealers, and hardeners.
  - 2. Remove substrate coatings and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, using mechanical methods recommended by manufacturer. Do not use solvents.
  - 3. Alkalinity and Adhesion Testing: Perform tests recommended by manufacturer. Proceed with installation only after substrates pass testing.
  - 4. Moisture Testing: Perform tests recommended by manufacturer and as follows. Proceed with installation only after substrates pass testing.
    - a. Perform anhydrous calcium chloride test, ASTM F 1869. Proceed with installation only after substrates have maximum moisture-vapor-emission rate of 3 lb of water/1000 sq. ft. (1.36 kg of water/92.9 sq. m) in 24 hours, or in compliance with moisture-vapor-emission rate acceptable to the flooring manufacturer.

- b. Perform relative humidity test using in situ probes, ASTM F 2170. Proceed with installation only after substrates have a maximum 75% relative humidity level measurement.
- C. Remove substrate coatings and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, using mechanical methods recommended by manufacturer. Do not use solvents.
- D. Use trowelable leveling and patching compound to fill cracks, holes, and depressions in substrates to produce a uniform and smooth substrate.
- E. Move resilient products and installation materials into spaces where they will be installed at least 48 hours in advance of installation.
  - 1. Do not install resilient products until they are same temperature as space where they are to be installed.
- F. Sweep and vacuum clean substrates to be covered by resilient products immediately before installation. After cleaning, examine substrates for moisture, alkaline salts, carbonation, and dust. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.3 FLOOR TILE INSTALLATION

- A. Comply with manufacturer's written instructions for installing floor tile.
- B. Lay out tiles from center marks established with principal walls, discounting minor offsets, so tiles at opposite edges of room are of equal width. Adjust as necessary to avoid using cut widths that equal less than one-half tile at perimeter.
  - 1. Lay tiles square with room axis, unless otherwise indicated.
- C. Match tiles for color and pattern by selecting tiles from cartons in the same sequence as manufactured and packaged, if so numbered. Discard broken, cracked, chipped, or deformed tiles.
  - 1. Lay tiles with grain running in one direction, unless otherwise indicated.
- D. Scribe, cut, and fit tiles to butt neatly and tightly to vertical surfaces and permanent fixtures including built-in furniture, cabinets, pipes, outlets, edgings, door frames, thresholds, and nosings.
- E. Extend tiles into toe spaces, door reveals, closets, and similar openings. Extend floor tiles to center of door openings.
- F. Maintain reference markers, holes, and openings that are in place or marked for future cutting by repeating on floor tiles as marked on substrates. Use chalk or other nonpermanent, nonstaining marking device.
- G. Install floor tiles on covers for telephone and electrical ducts, and similar items in finished floor areas. Maintain overall continuity of color and pattern between pieces of tile installed on covers and adjoining tiles. Tightly adhere tile edges to substrates that abut covers and to cover perimeters.

- H. Adhere tiles to flooring substrates using a full spread of adhesive applied to substrate to produce a completed installation without open cracks, voids, raising and puckering at joints, telegraphing of adhesive spreader marks, and other surface imperfections.

3.4 CLEANING AND PROTECTION

- A. Comply with manufacturer's written instructions for cleaning and protection of floor tile.
- B. Perform the following operations immediately after completing resilient product installation:
  - 1. Remove adhesive and other blemishes from exposed surfaces.
  - 2. Sweep and vacuum surfaces thoroughly.
  - 3. Damp-mop surfaces to remove marks and soil. Do not wash surfaces until after time period recommended by manufacturer.
- C. Floor Polish: Remove soil, visible adhesive, and surface blemishes from floor tile surfaces before applying liquid floor polish.
  - 1. Apply minimum two coat(s), or as otherwise recommended by the resilient floor tile manufacturer.
- D. Protect resilient products from mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period. Use protection methods recommended in writing by manufacturer.
  - 1. Cover products installed on horizontal surfaces with undyed, untreated building paper until Substantial Completion.
  - 2. Do not move heavy and sharp objects directly over surfaces. Place hardboard or plywood panels over flooring and under objects while they are being moved. Slide or roll objects over panels without moving panels.

END OF SECTION 09 6525

SECTION 09 9125 - INTERIOR PAINTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes surface preparation and the application of paint systems on the following interior substrates:
  - 1. Concrete masonry units (CMU).
  - 2. Steel.
  - 3. Gypsum board.
- B. Related Sections include the following:
  - 1. Division 08 Section "Hollow Metal Doors and Frames", for factory priming steel doors and frames.

1.3 SUBMITTALS

- 1. Product Data: For each type of product indicated, including printed statement of VOC content and chemical components.
- B. Samples for Verification: For each type of paint system and in each color and gloss of topcoat indicated.
  - 1. Submit Samples on rigid backing, 8 inches (200 mm) square.
  - 2. Step coats on Samples to show each coat required for system.
  - 3. Label each coat of each Sample.
  - 4. Label each Sample for location and application area.
- C. Product List: For each product indicated, include the following:
  - 1. Cross-reference to paint system and locations of application areas. Use same designations indicated on Drawings and in schedules.
  - 2. Printout of current "MPI Approved Products List" for each product category specified in Part 2, with the proposed product highlighted.

1.4 QUALITY ASSURANCE

- A. MPI Standards:
  - 1. Products: Complying with MPI standards indicated and listed in "MPI Approved Products List."

2. Preparation and Workmanship: Comply with requirements in "MPI Architectural Painting Specification Manual" for products and paint systems indicated.
- B. VOC Content of Field-Applied Interior Paints and Coatings: Provide products that comply with the following limits for VOC content, exclusive of colorants added to a tint base, when calculated according to 40 CFR 59, Subpart D (EPA Method 24); these requirements do not apply to paints and coatings that are applied in a fabrication or finishing shop:
1. Flat Paints, Coatings, and Primers: VOC content of not more than 50 g/L.
  2. Nonflat Paints, Coatings, and Primers: VOC content of not more than 150 g/L.
  3. Anti-Corrosive and Anti-Rust Paints Applied to Ferrous Metals: VOC not more than 250 g/L.
  4. Flat Topcoat Paints: VOC content of not more than 50 g/L.
  5. Nonflat Topcoat Paints: VOC content of not more than 150 g/L.
- C. Chemical Components of Field-Applied Interior Paints and Coatings: Provide topcoat paints and anti-corrosive and anti-rust paints applied to ferrous metals that comply with the following chemical restrictions; these requirements do not apply to paints and coatings that are applied in a fabrication or finishing shop:
1. Aromatic Compounds: Paints and coatings shall not contain more than 1.0 percent by weight of total aromatic compounds (hydrocarbon compounds containing one or more benzene rings).
  2. Restricted Components: Paints and coatings shall not contain any of the following:
    - a. Acrolein.
    - b. Acrylonitrile.
    - c. Antimony.
    - d. Benzene.
    - e. Butyl benzyl phthalate.
    - f. Cadmium.
    - g. Di (2-ethylhexyl) phthalate.
    - h. Di-n-butyl phthalate.
    - i. Di-n-octyl phthalate.
    - j. 1,2-dichlorobenzene.
    - k. Diethyl phthalate.
    - l. Dimethyl phthalate.
    - m. Ethylbenzene.
    - n. Formaldehyde.
    - o. Hexavalent chromium.
    - p. Isophorone.
    - q. Lead.
    - r. Mercury.
    - s. Methyl ethyl ketone.
    - t. Methyl isobutyl ketone.
    - u. Methylene chloride.
    - v. Naphthalene.
    - w. Toluene (methylbenzene).
    - x. 1,1,1-trichloroethane.
    - y. Vinyl chloride.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F(7 deg C).
  - 1. Maintain containers in clean condition, free of foreign materials and residue.
  - 2. Remove rags and waste from storage areas daily.

1.6 PROJECT CONDITIONS

- A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg F(10 and 35 deg C).
- B. Do not apply paints when relative humidity exceeds 85 percent; at temperatures less than 5 deg F(3 deg C) above the dew point; or to damp or wet surfaces.

1.7 EXTRA MATERIALS

- A. Furnish extra materials described below that are from same production run (batch mix) as materials applied and that are packaged for storage and identified with labels describing contents.
  - 1. Quantity: Furnish an additional 5 percent, but not less than 1 gal.(3.8 L) of each material and color applied.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - 1. Benjamin Moore & Co.
  - 2. ICI Paints.
  - 3. PPG Architectural Finishes, Inc.
  - 4. Sherwin-Williams Company (The).

2.2 PAINT, GENERAL

- A. Material Compatibility:
  - 1. Provide materials for use within each paint system 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.
  - 2. For each coat in a paint system, provide products recommended in writing by manufacturers of topcoat for use in paint system and on substrate indicated.
- B. 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. Colors: As Indicated in the Finish Schedule.

## 2.3 BLOCK FILLERS

- A. Interior/Exterior Latex Block Filler: MPI #4.

- 1. VOC Content: E Range of E2 or E3.
  - a. Benjamin Moore: Moorcraft - Super Craft Latex Block Filler; No. 285-01.
  - b. ICI Paints: Devoe Coatings - Bloxfil Acrylic Block Filler; No. 4000-1000.
  - c. PPG: Speedhide - Int/Ext. Acrylic Masonry Block Filler; No. 6-15.
  - d. Sherwin-Williams: PrepRite - Int/Ext Block Filler; No. B25W25.

## 2.4 PRIMERS/SEALERS

- A. Interior Latex Primer/Sealer: MPI #50.

- 1. VOC Content: E Range of E0, E1, E2 or E3.
  - a. Benjamin Moore: Moorcraft - Latex Undercoater & Primer Sealer; No. 253-00.
  - b. ICI Paints: Prep-N-Prime - PVA Interior Water-Based Primer ; No. 1030-1200.
  - c. PPG: Speedhide - Int. Latex Primer Sealer; No. 6-2.
  - d. Sherwin-Williams: Quali-Kote - Interior Latex Primer; No. B28WQ8001.

## 2.5 METAL PRIMERS

- A. Alkyd Anticorrosive Metal Primer: MPI #79.

- 1. VOC Content: E Range of E1 or E2.
  - a. Benjamin Moore: Super Spec- D.T.M. Alkyd Low Lustre Enamel, No. Z163.
  - b. ICI Paints: Devoe Paints – Devguard Multi-Purpose Tank & Structural Primer, No. 4160.
  - c. PPG: Speedhide – Speedhide Int/Ext Rust Inhibitive Steel Primers, No. 6-212.
  - d. Sherwin-Williams: Kem Kromik – Universal Metal Primer – Brown, No. B50NZ6.

- B. Rust-Inhibitive Primer (Water Based): MPI #107.

- 1. VOC Content: E Range of E2 or E3.
  - a. Benjamin Moore: Super Spec High Performance Acrylic Metal Primer, No. P04/KP04.
  - b. ICI Paints: Devoe Coatings - Devflex DTM Flat Int/Ext W.B. Primer, No. 4020.
  - c. PPG: Pitt-Tech Plus- Int/Ext DTM Industrial Primer, Gray of White; No. 90-909 or 90-912.
  - d. Sherwin-Williams: Industrial & Marine - DTM Acrylic Primer/Finish, No. B66W1.

## 2.6 LATEX PAINTS

- A. Institutional Low-Odor/VOC Latex (Eggshell / Satin): MPI #144 (Gloss Level 2).
  - 1. VOC Content: E Range of E3.
    - a. Benjamin Moore: Eco Spec - Int. Latex Eggshell Enamel, No. 223.
    - b. ICI Paints: Dulux-Lifemaster Eggshell Interior Latex Enamel, No. 9300-0100.
    - c. PPG: Pure Performance - Interior Eggshell Latex, No. 9-445.
    - d. Sherwin-Williams: Harmony - Interior Latex Eg-Shel, No. B09W00951.
  
- B. Institutional Low-Odor/VOC Latex (Semigloss): MPI #147 (Gloss Level 5).
  - 1. VOC Content: E Range of E3.
    - a. Benjamin Moore: Eco Spec - Int. Latex Semi-Gloss Enamel, No. 224.
    - b. ICI Paints: Dulux-Lifemaster - Semi-Gloss Interior Latex Enamel, No. 9200-0100.
    - c. PPG: Pure Performance - Interior Semi-Gloss Latex, No. 9-500.
    - d. Sherwin-Williams: Harmony - Interior Latex Semi-Gloss, No. B10W00951.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of work.
  
- B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:
  - 1. Concrete: 12 percent.
  - 2. Masonry (Clay and CMU): 12 percent.
  - 3. Gypsum Board: 12 percent.
  
- C. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.
  
- D. Begin coating application only after unsatisfactory conditions have been corrected and surfaces are dry.
  - 1. Beginning coating application constitutes Contractor's acceptance of substrates and conditions.

### 3.2 PREPARATION

- A. Comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual" applicable to substrates indicated.

- B. Remove plates, machined surfaces, and similar items already in place that are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.
  - 1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.
  - 2. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
- C. Clean substrates of substances that could impair bond of paints, including dirt, oil, grease, and incompatible paints and encapsulants.
  - 1. Remove incompatible primers and reprime substrate with compatible primers as required to produce paint systems indicated.
- D. Concrete Substrates: Remove release agents, curing compounds, efflorescence, and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces to be painted exceeds that permitted in manufacturer's written instructions.
- E. Concrete Masonry Substrates: Remove efflorescence and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces to be painted exceeds that permitted in manufacturer's written instructions.
- F. Steel Substrates: Remove rust and loose mill scale. Clean using methods recommended in writing by paint manufacturer.
- G. Galvanized-Metal Substrates: Remove grease and oil residue from galvanized sheet metal fabricated from coil stock by mechanical methods to produce clean, lightly etched surfaces that promote adhesion of subsequently applied paints.
- H. Gypsum Board Substrates: Do not begin paint application until finishing compound is dry and sanded smooth.

### 3.3 APPLICATION

- A. Apply paints according to manufacturer's written instructions.
  - 1. Use applicators and techniques suited for paint and substrate indicated.
  - 2. Paint surfaces behind movable equipment and furniture same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed equipment or furniture with prime coat only.
  - 3. Paint front and backsides of access panels, removable or hinged covers, and similar hinged items to match exposed surfaces.
- B. Tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Tint undercoats to match color of topcoat, but provide sufficient difference in shade of undercoats to distinguish each separate coat.
- C. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.

- D. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.
- E. Painting Mechanical and Electrical Work: Paint items exposed in equipment rooms and occupied spaces including, but not limited to, the following:
  - 1. Mechanical Work:
    - a. Uninsulated metal piping.
    - b. Uninsulated plastic piping.
    - c. Pipe hangers and supports.
    - d. Tanks that do not have factory-applied final finishes.
    - e. Visible portions of internal surfaces of metal ducts, without liner, behind air inlets and outlets.
    - f. Duct, equipment, and pipe insulation having cotton or canvas insulation covering or other paintable jacket material.
    - g. Mechanical equipment that is indicated to have a factory-primed finish for field painting.
  - 2. Electrical Work:
    - a. Switchgear.
    - b. Panelboards.
    - c. Electrical equipment that is indicated to have a factory-primed finish for field painting.

### 3.4 FIELD QUALITY CONTROL

- A. Testing of Paint Materials: Owner reserves the right to invoke the following procedure at any time and as often as Owner deems necessary during the period when paints are being applied:
  - 1. Owner will engage the services of a qualified testing agency to sample paint materials 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 tests for compliance with product requirements.
  - 3. Owner may direct Contractor to stop applying paints if test results show materials being used do not comply with product requirements. Contractor shall remove noncomplying-paint materials from Project site, pay for testing, and repaint surfaces painted with rejected materials. Contractor will be required to remove rejected materials from previously painted surfaces if, on repainting with complying materials, the two paints are incompatible.

### 3.5 CLEANING AND PROTECTION

- A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.
- B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.
- C. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.

- D. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

### 3.6 INTERIOR PAINTING SCHEDULE

#### A. Steel Substrates:

- 1. Institutional Low-Odor/VOC Latex System: MPI INT 5.1S.
  - a. Prime Coat: Rust-inhibitive primer (water based).
  - b. Intermediate Coat: Institutional low-odor/VOC interior latex matching topcoat.
  - c. Topcoat: Institutional low-odor/VOC interior latex (semigloss).
  - d. Applications: All interior applications, except as indicated in Subparagraph 3.6 A.2.

#### B. Galvanized-Metal Substrates:

- 1. Water-Based Dry-Fall System: MPI INT 5.3H.
  - a. Prime Coat: Waterborne dry fall.
  - b. Topcoat: Waterborne dry fall.
  - c. Applications: All exposed galvanized interior structure and ceilings indicated to be painted.
- 2. Institutional Low-Odor/VOC Latex System: MPI INT 5.3N.
  - a. Prime Coat: Waterborne galvanized-metal primer.
  - b. Intermediate Coat: Institutional low-odor/VOC interior latex matching topcoat.
  - c. Topcoat: Institutional low-odor/VOC interior latex (semigloss).
  - d. Applications: Interior galvanized metal fabrications.

#### C. Gypsum Board Substrates:

- 1. Institutional Low-Odor/VOC Latex System: MPI INT 9.2M.
  - a. Prime Coat: Interior latex primer/sealer.
  - b. Intermediate Coat: Institutional low-odor/VOC interior latex matching topcoat.
  - c. Topcoat: Institutional low-odor/VOC interior latex flat and eggshell where indicated in the "Finish Schedule".

#### D. CMU Substrates:

- 1. Institutional Low-Odor/VOC Latex System: MPI INT 4.2E.
  - a. Prime Coat: Interior/exterior latex block filler.
  - b. Intermediate Coat: Institutional low-odor/VOC interior latex matching topcoat.
  - c. Topcoat: Institutional low-odor/VOC interior latex (eggshell).

END OF SECTION 09 9125

SECTION 10 2805 - TOILET AND BATH ACCESSORIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Washroom Accessories:
  - 1. Mirrors.
  - 2. Grab bars.
  - 3. Shower curtain rods.
  - 4. Shower curtains.
- B. Owner-Furnished/Contractor-Installed Accessories:
  - 1. Toilet Paper Dispensers
  - 2. Paper Towel Dispensers
  - 3. Soap Dispensers.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated. Include the following:
  - 1. Construction details and dimensions.
  - 2. Anchoring and mounting requirements, including requirements for cutouts in other work and substrate preparation.
  - 3. Material and finish descriptions.
  - 4. Features that will be included for Project.
  - 5. Manufacturer's warranty.
- B. Product Schedule: Indicating types, quantities, sizes, and installation locations by room of each accessory required.
  - 1. Identify locations using room designations indicated on Drawings.
  - 2. Identify products using designations indicated on Drawings.
- C. Maintenance Data: For toilet and bath accessories to include in maintenance manuals.

1.4 COORDINATION

- A. Coordinate accessory locations with other work to prevent interference with clearances required for access by people with disabilities, and for proper installation, adjustment, operation, cleaning, and servicing of accessories.
- B. Deliver inserts and anchoring devices set into concrete or masonry as required to prevent delaying the Work.

## 1.5 WARRANTY

- A. Special Mirror Warranty: Manufacturer's standard form in which manufacturer agrees to replace mirrors that develop visible silver spoilage defects and that fail in materials or workmanship within specified warranty period.
  - 1. Warranty Period: Fifteen years from date of Substantial Completion.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

- A. Stainless Steel: ASTM A 666, Type 304, 0.0312-inch (0.8-mm) minimum nominal thickness, unless otherwise indicated.
- B. Brass: ASTM B 19 flat products; ASTM B 16 (ASTM B 16M), rods, shapes, forgings, and flat products with finished edges; or ASTM B 30, castings.
- C. Steel Sheet: ASTM A 1008/A 1008M, Designation CS (cold rolled, commercial steel), 0.0359-inch (0.9-mm) minimum nominal thickness.
- D. Galvanized Steel Sheet: ASTM A 653/A 653M, with G60 (Z180) hot-dip zinc coating.
- E. Galvanized Steel Mounting Devices: ASTM A 153/A 153M, hot-dip galvanized after fabrication.
- F. Fasteners: Screws, bolts, and other devices of same material as accessory unit and tamper-and-theft resistant where exposed, and of galvanized steel where concealed.
- G. Chrome Plating: ASTM B 456, Service Condition Number SC 2 (moderate service).
- H. Mirrors: 20 gauge stainless steel, No 8 architectural finish. Front mounted with security fasteners.

### 2.2 WASHROOM ACCESSORIES

- A. Basis-of-Design Products: The design for accessories is based on products manufactured by American Specialties, Inc., unless otherwise indicated. Subject to compliance with requirements, provide either the named products or comparable products by one of the following:
  - 1. Bobrick Washroom Equipment, Inc.
  - 2. Bradley Corporation.

## 2.3 TOILET AND BATH ACCESSORY SCHEDULE

A. Mirror Units **T4**:

1. Basis-of-Design Product: Bradley Corporation.; **Model No. 748-2436.**
2. Stainless-Steel, Unbreakable front mounted wall mirror: Fabricated of 20 gauge stainless steel polished to No. 8 architectural finish. Stretcher leveled for uniform finish. Mount with security fasteners.
3. Products: Provide the following where indicated on the Drawings:
  - a. Type **T4**: 24 inches wide by 36 inches high.

B. Anti-Ligature Grab Bars **T11**, **T12**, and **T16**:

1. Basis-of-Design Products: Bradley Corporation.
2. Stainless-Steel Nominal Thickness: Minimum 0.05 inch (1.3 mm).
3. Mounting: Concealed with manufacturer's anti ligature flanges and anchors.
4. Gripping Surfaces: Manufacturer's standard slip-resistant texture.
5. Outside Diameter: 1-1/2 inches (38 mm) for heavy-duty applications.
6. Products:
  - a. Type **T11**, 36 inches long: No. SA70-001360.
  - b. Type **T12**, 42 inches long: No. SA70-001420.
  - c. Type **T16**, 18 inches long: No. SA70-001180.

C. Swing-Up Grab Bar **T15**:

1. Basis-of-Design Products: Bobrick Washroom Equipment, Inc.; No. **B-4998.99.**
2. Swing-Up Operation: Manually raised for approach or departure and lowered to horizontal position for support; once grab bar is raised more than 45° from horizontal position, counterweighted design prevents grab bar from falling back down to full horizontal position.
3. Stainless-Steel Nominal Thickness: Minimum 0.05 inch (1.3 mm).
4. Mounting: Provide manufacturer's standard concealed anchor plate and vandal-resistant, stainless steel, flat-head machine screws.
5. Gripping Surfaces: Manufacturer's standard slip-resistant texture.
6. Outside Diameter: 1-1/4 inches (32 mm) for medium-duty applications.

D. Shower Curtain Track, Hooks and Shower Curtain **T21**:

1. Basis-of-Design Products: Imperial Fastener Company.
2. Shower Curtain Track and Break Away Hooks: Track – 88001 Privacy Cubicle Track, ceiling mounted with 88104 Privacy Cubicle Break Away Safety Curtain Carriers, color: white.
  - a. Length: As indicated.
3. Antibacterial Shower Curtain: Sure-check breakaway – no mesh, vinyl material with integral antibacterial agent, flame resistant and tear resistant.
  - a. Size: Minimum 6 inches (152 mm) wider than opening by 72 inches (1830 mm) high.

- b. Color: White.

## 2.4 FABRICATION

- A. General: Fabricate units with tight seams and joints, and exposed edges rolled. Hang doors and access panels with full-length, continuous hinges. Equip units for concealed anchorage and with corrosion-resistant backing plates.
- B. Keys: Provide universal keys for internal access to accessories for servicing and resupplying. Provide minimum of six keys to Owner's representative.

## PART 3 - EXECUTION

### 3.1 INSTALLATION

- A. Install accessories according to manufacturers' written instructions, using fasteners appropriate to substrate indicated and recommended by unit manufacturer. Install units level, plumb, and firmly anchored in locations and at heights indicated.
- B. Grab Bars: Install to withstand a downward load of at least 250 lbf (1112 N), when tested according to method in ASTM F 446.

### 3.2 ADJUSTING AND CLEANING

- A. Adjust accessories for unencumbered, smooth operation. Replace damaged or defective items.
- B. Remove temporary labels and protective coatings.
- C. Clean and polish exposed surfaces according to manufacturer's written recommendations.

END OF SECTION 10 2805

## SECTION 11 1960 – SECURITY FASTENERS

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. Security Fasteners shall be used in all areas on this project other than those listed below:
  - 1. Mechanical, electrical, generator, or communications equipment and rooms, including roof-mounted equipment.
  - 2. Above suspended ceilings, behind access panels, and within pipe or duct chases.
  - 3. Movable furnishings, storage shelving, cabinet hardware.
  - 4. Drywall screws.

#### 1.2 REFERENCES

- A. AIA A305 – Contractor’s Qualification Statement:

#### 1.3 SUBMITTALS

- A. Submit shop drawings showing type and location of each type of security fastener.

#### 1.4 QUALITY ASSURANCE

- A. All security fasteners shall be operable by tools produced for use on the specified security fasteners by the fasteners’ manufacturers or other fabricators licenses by them.
- B. The detention equipment subcontractor shall assume the responsibility of coordinating the type of security fasteners for this entire project with other subcontractors that shall be operable by a maximum of two different sets of tools. The detention equipment subcontractor shall furnish and install all security fasteners for security metal doors and frames, detention hardware, security glazing, detention accessories, security mesh partitions, and security access doors. All other subcontractors shall furnish and install security fasteners for their respective work.

### PART 2 - PRODUCTS

#### 2.1 SECURITY FASTENERS

- A. Security fasteners’ head style shall be selected as appropriate for installation requirements, strength, and finish of adjacent materials, except that all screws in painted materials shall be stainless steel. Size and shape variations shall be such that no more than two different tools/wrenches are required for all security screws on the project. Security fasteners shall consist of the following types and meet the following requirements:

1. Types of security fasteners:
    - a. Type "A" – Pinned "Torx" head
    - b. Type "B" – Flush "break-off" head style.
  2. Diameter: #4 through 3/4" (19 mm).
  3. Material: black grade 9 alloy steel or austenitic stainless steel or martensitic steel as required for particular strength or finish.
  4. Head Styles: Socket head cap, button, flat or low head as required by application or as indicated.
  5. Plating: Cadmium, zinc, nickel, phosphate, and chrome to match adjacent materials.
- B. The detention equipment subcontractor shall deliver to the Owner six (6) complete sets of tools for security fasteners and a gross of each type of security fastener used on this project. Each set shall be packaged in a tool kit for easy handling and storage.
- C. Type "B" – Flush "Break-Off" Head Style Fasteners shall be used for installation of all prison locks utilizing the prison paracentric key and for installation for the associated cover plates for these locks.

### PART 3 - EXECUTION

#### 3.1 INSTALLATION

- A. Security fasteners as specified herein shall be obtained by the manufacturers, supplier, or installed of each component requiring their use, and it shall be their collective responsibility in coordination with the detention equipment subcontractor to ensure use of proper size and type of security screws for each required application.
- B. Security fastener installation shall be the responsibility of whoever installs the fasteners under normal application conditions.

END OF SECTION 11 1960

**FLOOR PLAN LEGEND**

- NEW GYP BD WALL CONSTRUCTION
- NEW CMU WALL CONSTRUCTION
- EXISTING WALL CONSTRUCTION TO REMAIN
- DESIGNATION OF CONCRETE AREA INFILL (MATCHING FINISH FLOOR)
- ACCESSIBLE FIXTURE, WORKSTATION, ETC.
- FLOOR PLAN KEYNOTE
- FLOOR/WALL BASE CLG.
- FINISH TAG (EX=EXISTING TO REMAIN)

**GENERAL FLOOR PLAN NOTES**

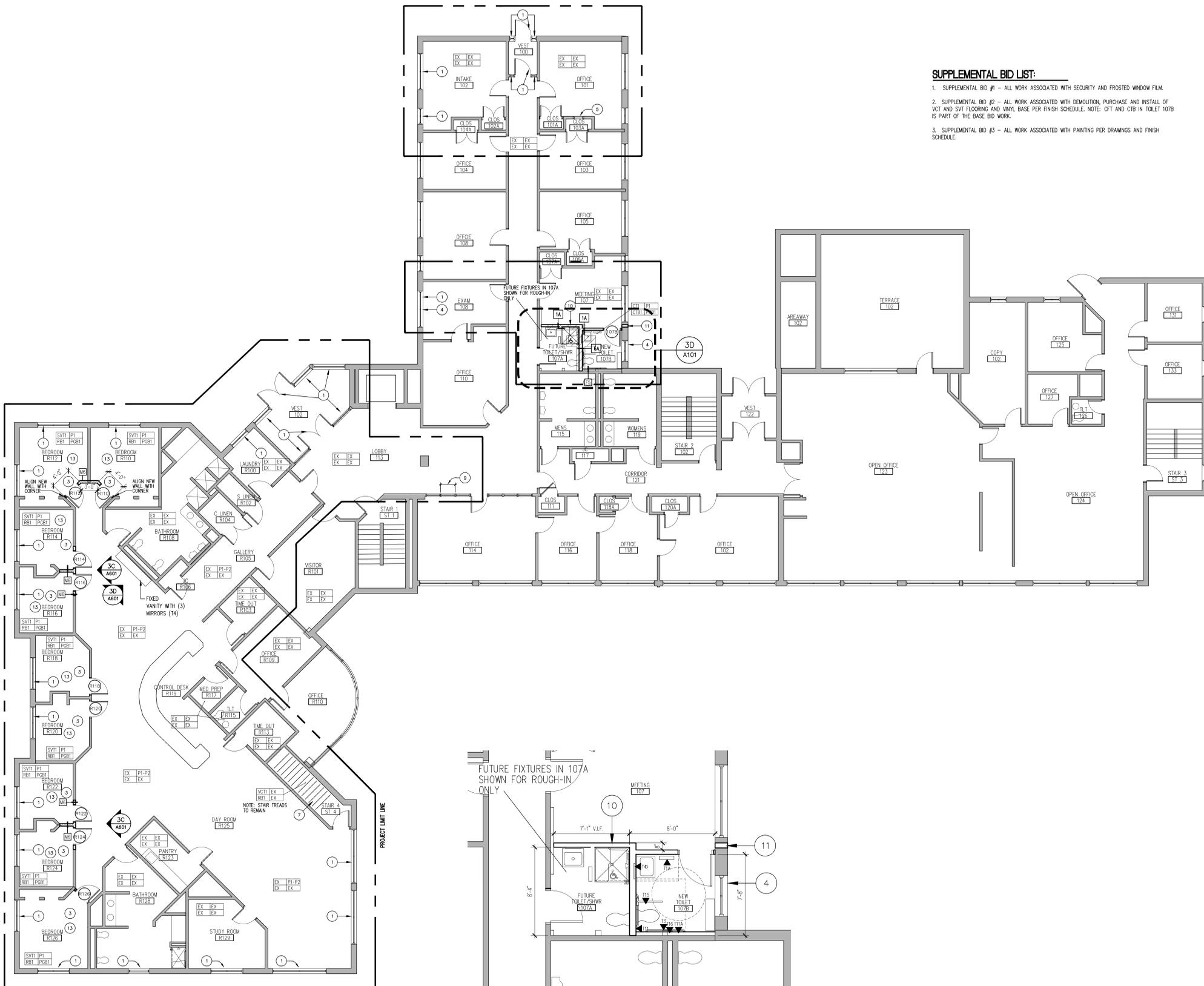
1. REFER TO DWG. G01 FOR LIST OF TYPICAL ABBREVIATIONS AND TYPICAL ARCHITECTURAL GRAPHIC LEGENDS AND SYMBOLS.
2. REFER TO DWG. A601 FOR TYPICAL PARTITION TYPES AND DETAILS INDICATED. ALL PARTITIONS SHALL BE TYPE 1 U.O.N. ALL MASONRY PARTITIONS SHALL BE TYPE M6 U.O.N.
3. REFER TO THE FIRE SAFETY PLAN G001 FOR LOCATIONS OF FIRE-RESISTANCE RATED PARTITIONS AND NON-FIRE-RESISTANCE RATED SMOKE PARTITIONS.
4. ALIGN PARTITIONS WITH COLUMN OR MULLION CENTERLINE, UNLESS OTHERWISE NOTED.
5. DIMENSIONS ARE FROM FACE OF WALL TO FACE OF WALL (I.E. FACE OF GYPSUM BOARD OR MASONRY) OR FROM FACE OF EXISTING CONDITION OR FROM COLUMN CENTERLINE, UNLESS OTHERWISE NOTED. DIMENSIONS NOTED AS "CLEAR" SHALL BE FROM FINISH FACE TO FINISH FACE, (I.E. FACE OF CERAMIC TILE TO FACE OF CERAMIC TILE). VERIFY ALL EXISTING DIMENSIONS IN THE FIELD.
6. ALL MASONRY DIMENSIONS, INDICATED "M.O.", ARE NOMINAL DIMENSIONS, UNLESS OTHERWISE NOTED. ACTUAL MASONRY OPENING DIMENSION = NOMINAL MASONRY OPENING DIMENSION + ONE MORTAR JOINT.
7. REFER TO PLAN ENLARGEMENTS FOR ADDITIONAL DIMENSIONS.

8. REFER TO THIS SHEET FOR DOOR AND FRAME DETAILS. PROVIDE MINIMUM 4-INCH CLEARANCE FROM FACE OF DOOR JAMB TO FACE OF ADJACENT WALL, UNLESS OTHERWISE NOTED.
9. REFER TO DWG. A701 FOR TYPICAL MOUNTING LOCATIONS AND HEIGHTS FOR TOILET ACCESSORIES, EQUIPMENT, WALL SPECIALTY DESIGNATIONS, VISUAL DISPLAY BOARDS, ETC.; TYPICAL TOILET ROOM ELEVATIONS AND TOILET ACCESSORY SCHEDULE.
10. REFER TO THE PROJECT MANUAL FOR THE DOOR AND FRAME SCHEDULE AND FINISH SCHEDULE.

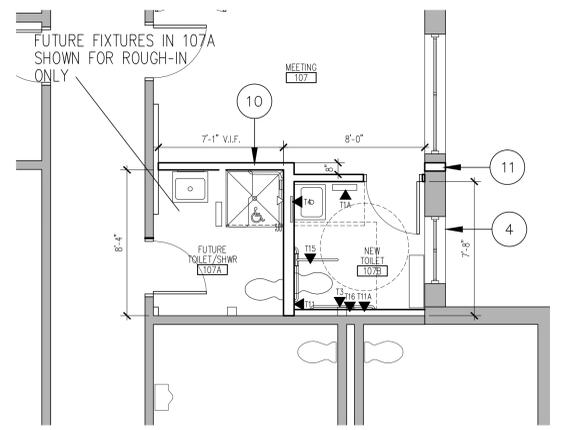
11. PROVIDE FIRE-TREATED WOOD BLOCKING OR MINIMUM 0.0312-INCH THICK STEEL STRAP AND BACKING PLATE AT, BUT NOT LIMITED TO, THE FOLLOWING LOCATIONS: TOILET ACCESSORIES, CASEWORK, MILLWORK, DOOR WALL BUMPERS, AND ALL OTHER WALL MOUNTED EQUIPMENT OR DEVICES.
12. ALL EXISTING PARTITIONS INDICATED ON THE FIRE SAFETY PLANS TO BE SMOKE PARTITIONS, SMOKE BARRIERS, OR FIRE-RATED PARTITIONS THAT DO NOT CURRENTLY EXTEND TO UNDERSIDE OF FLOOR SLAB SHALL BE MODIFIED TO EXTEND TO SLAB AND SHALL COMPLY WITH DETAILS SHOWN FOR NEW PARTITIONS. ALL PENETRATIONS OR VOIDS SHALL BE SEALED SMOKE-TIGHT AND/OR BE FIRE-STOPPED AS REQUIRED.
13. PATCHING TO MATCH EXISTING:
  - A) PROVIDE ALL OPENINGS REQUIRED FOR ALL TRADES AND PATCH TO MATCH EXISTING, AT EXISTING CONSTRUCTION ALTERED OR DISTURBED BY THE INSTALLATION, RELOCATION, OR REMOVAL OF HEATING, VENTILATING, AIR CONDITIONING, PLUMBING AND/OR ELECTRICAL EQUIPMENT AND DEVICES.
  - B) PATCH TO MATCH EXISTING (P.M.E.), ALL AREAS ADJACENT TO, OR DISTURBED BY, NEW CONSTRUCTION OR EXISTING CONSTRUCTION TO BE REMOVED. PATCH TO MATCH INCLUDES FINISH MATERIAL (PAINT OR VMC OR CERAMIC TILE, ETC.) TO MATCH EXISTING.
  - C) PATCH ALL DEFECTS IN, AND FINISH TO MATCH EXISTING, ALL AREAS WHICH ARE TO RECEIVE NEW MATERIALS, FINISHES AND ITEMS CALLED FOR IN THE CONTRACT DOCUMENTS. PREPARE ALL EXISTING SURFACES TO RECEIVE NEW FINISHES AS REQUIRED.

**FLOOR PLAN KEYNOTES**

1. PROVIDE & INSTALL WINDOW SECURITY FILM ON NOTED WINDOWS AND DOORS SHOWN ON PLAN. FILM TO BE 3M ULTRA 5050 SAFETY AND SECURITY WINDOW FILM OR APPROVED EQUAL. PROVIDE CLEAR FILM, 6.0 MIL THICK, TENSILE STRENGTH 30,000 PSI, BREAK STRENGTH 180 LBS. TEAR RESISTANCE GREATER THAN 1,150 LBS. FILM TO BE INSTALLED WITH 3M IMPACT PROTECTION ADHESIVE ATTACHMENT SYSTEM. FOLLOW MANUFACTURERS INSTRUCTIONS FOR ADHESIVE AND FILM INSTALLATION. SUPPLEMENTAL BID #1.
2. CONSTRUCT SLOPED-TOP AT NEW DOORS - SEE ELEVATION 3C/A601.
3. PROVIDE NEW SECURITY-LEVEL GYPSUM BOARD CEILING PER DETAIL 1C0/A601.
4. PROVIDE FROSTED FILM ON WINDOWS NOTED. SEE SPECIFICATION. - SUPPLEMENTAL BID #1.
5. INSTALL NEW BORROWED LITE (WITH OBSERVATION GLASS) AT LOCATION SHOWN. TOP OF FRAME SHALL ALIGN WITH TOP OF ADJACENT DOOR FRAME. TYPICAL - SEE DETAIL 1E/A101.
6. NOT USED.
7. PROVIDE & INSTALL NEW VCT AT STAIR 4 AS SHOWN. SUPPLEMENTAL BID #2.
8. NOT USED.
9. PROVIDE AND INSTALL NEW TEMPERED SAFETY GLASS AND STOP WITHIN EXISTING FRAME. PAINT NEW STOP TO MATCH EXISTING.
10. INFILL CONCRETE FLOOR TO MATCH EXISTING ADJACENT FINISH FLOOR.
11. RESTORE EXISTING WALL TO ORIGINAL CONDITION AND PROVIDE WEATHERPROOF INSTALLATION AT NEW LOUVER (SPECIFIED IN MEP DRAWINGS).
12. PATCH AND REPAIR EXISTING CMU AS REQUIRED FOR INSTALLATION OF NEW DOOR FRAMES. FRAMES PROVIDED BY OWNER & INSTALLED UNDER THIS CONTRACT FOR DOORS R110, R112, R114, R116, R118, R120, R122, R124 & R126.
13. PROVIDE & INSTALL NEW WOOD TRIM AT CEILING LINE TO MATCH EXISTING AS REQUIRED AT REALIGNED BEDROOM DOORS.



**2D FIRST FLOOR PLAN**  
1/8" = 1'-0"



**3D ENLARGED PLAN AT TOILET ROOMS**  
1/4" = 1'-0"

— NOTE: TOILET ROOM 107A TO BE BUILT AS SHELL SPACE, PLUMBING ROUGHED-IN ONLY.

**SUPPLEMENTAL BID LIST:**

1. SUPPLEMENTAL BID #1 - ALL WORK ASSOCIATED WITH SECURITY AND FROSTED WINDOW FILM.
2. SUPPLEMENTAL BID #2 - ALL WORK ASSOCIATED WITH DEMOLITION, PURCHASE AND INSTALL OF VCT AND SVT FLOORING AND VINYL BASE PER FINISH SCHEDULE. NOTE: COT AND CTB IN TOILET 107B IS PART OF THE BASE BID WORK.
3. SUPPLEMENTAL BID #3 - ALL WORK ASSOCIATED WITH PAINTING PER DRAWINGS AND FINISH SCHEDULE.

Somerset Square  
 80 Glastonbury Boulevard  
 Glastonbury  
 Connecticut 06033-4465  
 Telephone 860-657-8077  
 Fax 860-657-0911

Drawn  
**SJS**  
 Checked  
**CJE**

**JJ Girls Program  
 Bldg Modifications  
 BI-YS-174**  
 Solnit Children's Center  
 Middletown, CT

Number	M/D/Y	Issued For

**FIRST FLOOR PLAN**

Date  
**11-22-13**  
 Scale  
**1/8"=1'-0"**  
 Proj. Number  
**12035.05**

Drawing Number  
**A101**





*The* **S / L / A / M** *Collaborative*

# ***JJ Girls Program Bldg Modifications***

*915 River Road  
Middletown, Connecticut  
Project No. BI-YS-174*

*Owner:  
Department of Children and Families  
Hartford, Connecticut*

*Architect:  
The S/L/A/M Collaborative  
Glastonbury, Connecticut*

*Mechanical, Electrical, Plumbing Engineer  
Consulting Engineering Services, Inc.  
Middletown, Connecticut*

*Issued For : Construction  
Date : 11/22/13  
Project No. : 12035.05*



ABBREVIATIONS

Table of abbreviations for architectural drawings, including terms like A.B., A.C., A.D., A.E., A.F., A.G., A.H., A.I., A.L., A.M., A.N., A.O., A.P., A.R., A.S., A.T., A.U., A.V., A.W., A.X., A.Y., A.Z., B.C., B.D., B.E., B.F., B.G., B.H., B.I., B.J., B.K., B.L., B.M., B.N., B.O., B.P., B.Q., B.R., B.S., B.T., B.U., B.V., B.W., B.X., B.Y., B.Z., C.A., C.B., C.C., C.D., C.E., C.F., C.G., C.H., C.I., C.J., C.K., C.L., C.M., C.N., C.O., C.P., C.Q., C.R., C.S., C.T., C.U., C.V., C.W., C.X., C.Y., C.Z., D.A., D.B., D.C., D.E., D.F., D.G., D.H., D.I., D.J., D.K., D.L., D.M., D.N., D.O., D.P., D.Q., D.R., D.S., D.T., D.U., D.V., D.W., D.X., D.Y., D.Z., E.A., E.B., E.C., E.D., E.E., E.F., E.G., E.H., E.I., E.J., E.K., E.L., E.M., E.N., E.O., E.P., E.Q., E.R., E.S., E.T., E.U., E.V., E.W., E.X., E.Y., E.Z., F.A., F.B., F.C., F.D., F.E., F.F., F.G., F.H., F.I., F.J., F.K., F.L., F.M., F.N., F.O., F.P., F.Q., F.R., F.S., F.T., F.U., F.V., F.W., F.X., F.Y., F.Z., G.A., G.B., G.C., G.D., G.E., G.F., G.G., G.H., G.I., G.J., G.K., G.L., G.M., G.N., G.O., G.P., G.Q., G.R., G.S., G.T., G.U., G.V., G.W., G.X., G.Y., G.Z., H.A., H.B., H.C., H.D., H.E., H.F., H.G., H.H., H.I., H.J., H.K., H.L., H.M., H.N., H.O., H.P., H.Q., H.R., H.S., H.T., H.U., H.V., H.W., H.X., H.Y., H.Z., I.A., I.B., I.C., I.D., I.E., I.F., I.G., I.H., I.I., I.J., I.K., I.L., I.M., I.N., I.O., I.P., I.Q., I.R., I.S., I.T., I.U., I.V., I.W., I.X., I.Y., I.Z., J.A., J.B., J.C., J.D., J.E., J.F., J.G., J.H., J.I., J.J., J.K., J.L., J.M., J.N., J.O., J.P., J.Q., J.R., J.S., J.T., J.U., J.V., J.W., J.X., J.Y., J.Z., K.A., K.B., K.C., K.D., K.E., K.F., K.G., K.H., K.I., K.J., K.K., K.L., K.M., K.N., K.O., K.P., K.Q., K.R., K.S., K.T., K.U., K.V., K.W., K.X., K.Y., K.Z., L.A., L.B., L.C., L.D., L.E., L.F., L.G., L.H., L.I., L.J., L.K., L.L., L.M., L.N., L.O., L.P., L.Q., L.R., L.S., L.T., L.U., L.V., L.W., L.X., L.Y., L.Z., M.A., M.B., M.C., M.D., M.E., M.F., M.G., M.H., M.I., M.J., M.K., M.L., M.M., M.N., M.O., M.P., M.Q., M.R., M.S., M.T., M.U., M.V., M.W., M.X., M.Y., M.Z., N.A., N.B., N.C., N.D., N.E., N.F., N.G., N.H., N.I., N.J., N.K., N.L., N.M., N.N., N.O., N.P., N.Q., N.R., N.S., N.T., N.U., N.V., N.W., N.X., N.Y., N.Z., O.A., O.B., O.C., O.D., O.E., O.F., O.G., O.H., O.I., O.J., O.K., O.L., O.M., O.N., O.O., O.P., O.Q., O.R., O.S., O.T., O.U., O.V., O.W., O.X., O.Y., O.Z., P.A., P.B., P.C., P.D., P.E., P.F., P.G., P.H., P.I., P.J., P.K., P.L., P.M., P.N., P.O., P.P., P.Q., P.R., P.S., P.T., P.U., P.V., P.W., P.X., P.Y., P.Z., Q.A., Q.B., Q.C., Q.D., Q.E., Q.F., Q.G., Q.H., Q.I., Q.J., Q.K., Q.L., Q.M., Q.N., Q.O., Q.P., Q.Q., Q.R., Q.S., Q.T., Q.U., Q.V., Q.W., Q.X., Q.Y., Q.Z., R.A., R.B., R.C., R.D., R.E., R.F., R.G., R.H., R.I., R.J., R.K., R.L., R.M., R.N., R.O., R.P., R.Q., R.R., R.S., R.T., R.U., R.V., R.W., R.X., R.Y., R.Z., S.A., S.B., S.C., S.D., S.E., S.F., S.G., S.H., S.I., S.J., S.K., S.L., S.M., S.N., S.O., S.P., S.Q., S.R., S.S., S.T., S.U., S.V., S.W., S.X., S.Y., S.Z., T.A., T.B., T.C., T.D., T.E., T.F., T.G., T.H., T.I., T.J., T.K., T.L., T.M., T.N., T.O., T.P., T.Q., T.R., T.S., T.T., T.U., T.V., T.W., T.X., T.Y., T.Z., U.A., U.B., U.C., U.D., U.E., U.F., U.G., U.H., U.I., U.J., U.K., U.L., U.M., U.N., U.O., U.P., U.Q., U.R., U.S., U.T., U.U., U.V., U.W., U.X., U.Y., U.Z., V.A., V.B., V.C., V.D., V.E., V.F., V.G., V.H., V.I., V.J., V.K., V.L., V.M., V.N., V.O., V.P., V.Q., V.R., V.S., V.T., V.U., V.V., V.W., V.X., V.Y., V.Z., W.A., W.B., W.C., W.D., W.E., W.F., W.G., W.H., W.I., W.J., W.K., W.L., W.M., W.N., W.O., W.P., W.Q., W.R., W.S., W.T., W.U., W.V., W.W., W.X., W.Y., W.Z., X.A., X.B., X.C., X.D., X.E., X.F., X.G., X.H., X.I., X.J., X.K., X.L., X.M., X.N., X.O., X.P., X.Q., X.R., X.S., X.T., X.U., X.V., X.W., X.X., X.Y., X.Z., Y.A., Y.B., Y.C., Y.D., Y.E., Y.F., Y.G., Y.H., Y.I., Y.J., Y.K., Y.L., Y.M., Y.N., Y.O., Y.P., Y.Q., Y.R., Y.S., Y.T., Y.U., Y.V., Y.W., Y.X., Y.Y., Y.Z., Z.A., Z.B., Z.C., Z.D., Z.E., Z.F., Z.G., Z.H., Z.I., Z.J., Z.K., Z.L., Z.M., Z.N., Z.O., Z.P., Z.Q., Z.R., Z.S., Z.T., Z.U., Z.V., Z.W., Z.X., Z.Y., Z.Z.

GRAPHIC LEGEND

Graphic legend table showing symbols for Earthwork, Stone, Concrete, Masonry, Metal, Wood, Insulation, Wall Designation, Door Designation, Column Lines and Tags, Fire Rating Designations, and Finish Types Symbol.

GRAPHIC LEGEND

Graphic legend table showing symbols for Detail/Drawing Title, Building Section Indicator, Wall Section Indicator, Detail Indicator Non-Directional Section, Exterior Elevation Tag, Interior Elevation Tag, Room Tag, Revision Indicator, Ceiling Height Tag, Wall Tag, Door Tag, Window Tag, Toilet Accessories Symbol, and Demolition Keynote.

DRAWING LIST

Drawing list table with columns for General, Architectural, Plumbing, HVAC, and Electrical, listing drawing titles and sheet numbers.

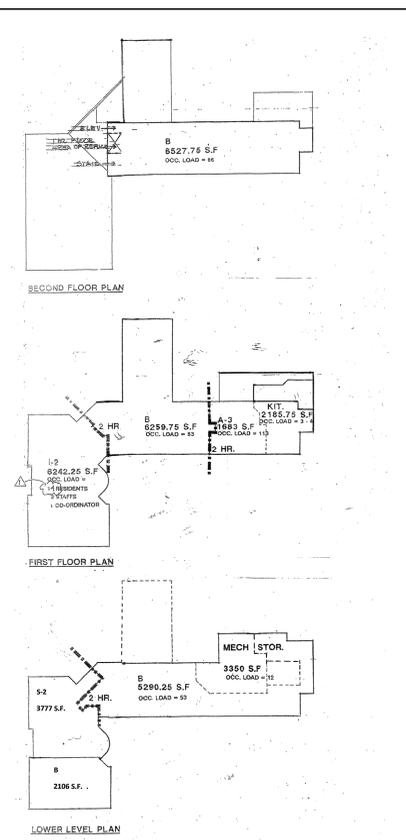
CT BASIC BUILDING CODE

Table of Connecticut Basic Building Code requirements, including Use Group Classifications, Construction Type, Building Height, Building Area, Fire Resistant Ratings, and Occupancy Loads.

GENERAL CODE INFORMATION

Table of general code information, including Modifications, Accessible Building, Minimum Plumbing Fixture Count, Sprinkler Protection, Codes to which this project was designed, Number of Exits, Threshold Limit Building, Historic Building, Fire Protection Systems, and Travel Distance.

EXISTING RATINGS



The S I L I A M Collaborative logo and contact information for Architecture, Planning, Interiors, Engineering, Landscape Architecture, and Construction Services Technology.

Drawn SJS, Checked CJE

JJ Girls Program Bldg Modifications BI-YS-174, Solnit Children's Center Middletown, CT

GENERAL INFORMATION CODE INFORMATION, Date 11-22-13, Drawing Number G101, Scale AS NOTED, Proj. Number 12035.05

A

B

C

D

E

PLUMBING SYMBOL LEGEND	
SYMBOL	DESCRIPTION
	BALL VALVE
	FLOOR DRAIN WITH PIPE TRAP
	TRAP PRIMER
	FIXTURE TYPE
	PIPE TRAP
	ADA ACCESSIBLE FIXTURE
	CONNECT NEW TO EXISTING

PLUMBING ABBREVIATIONS	
ABBREVIATION	DESCRIPTION
CD	CONDENSATE DRAIN
CO	CLEANOUT
CW	COLD WATER
DN	DOWN
FCO	FLOOR CLEANOUT
FCU	FAN COIL UNIT
FD	FLOOR DRAIN
HW	HOT WATER
LAV	LAVATORY
SAN	SANITARY
TYP	TYPICAL
V	VENT
W	WASTE
WC	WATER CLOSET
WHA	WATER HAMMER ARRESTOR
W&V	WASTE AND VENT

PLUMBING PIPING LEGEND	
SYMBOL	DESCRIPTION
	COLD WATER
	HOT WATER (110°F)
	SANITARY WASTE ABOVE FLOOR
	SANITARY WASTE BURIED
	VENT
	CONDENSATE DRAIN ABOVE FLOOR
	90° ELBOW DOWN
	90° ELBOW UP
	TEE UP
	TEE DOWN
	DROP AND RUN
	TEE OFF TOP OF PIPE
	TEE OFF BOTTOM OF PIPE
	UNION
	END CAP
	CLEANOUT
	FLOOR CLEANOUT
	DIRECTION OF FLOW

PLUMBING SPECIALTIES SCHEDULE					
SYMBOL	MANUFACTURER/ MODEL NUMBER	DESCRIPTION	COMPONENTS AND ACCESSORIES	MOUNTING HEIGHT	REMARKS
CO-1	JR. SMITH MODEL # 4402C-U	WALL CLEANOUT: DUCO CAST IRON, SPIGOT FERRULE, CAST BRONZE THREAD PLUG, STAINLESS STEEL ROUND COVER AND SCREW.	VANDAL PROOF SCREWS.	-	#3
FCO-1	JR. SMITH MODEL # 40235-PB-U	FLOOR CLEANOUT: CAST IRON BODY, ROUND ADJUSTABLE STRAINER, POLISHED BRONZE TOP, FLANGE, CASSET INSIDE, CALK OUTSIDE, VANDAL PROOF & BRONZE PLUG.	FLASHING CLAMP FOR CARPETED FLOORS	-	#2
FD-1	WADE MODEL # 1100-STD5-1-27	FLOOR DRAIN: 6" ROUND NICKEL BRASS STRAINER, SEDIMENT BUCKET, CAST IRON BODY, CAST IRON DRAINAGE FLANGE, FLASHING CLAMP	VANDAL PROOF GRATE & SCREWS.	-	#3
TP-1	PRECISION PLUMBING "PRIME-RITE" MODEL # PR-500	TRAP PRIMER: INTERNAL VACUUM BREAKER AND BACKFLOW PREVENTER UNIT, 1/2" INLET AND OUTLET	DISTRIBUTION UNITS MODEL #DU-U AS REQUIRED FOR THE NUMBER OF FLOOR DRAINS SHOWN ON THE DRAWINGS.	-	#1,3

REMARKS:

- PROVIDE ISOLATION VALVES AT THE SUPPLY PIPE CONNECTIONS.
- REFER TO FLOOR PLANS FOR SIZES.
- THE TRAP PRIMER SHALL BE INSTALLED A MINIMUM OF 1 FOOT ABOVE FINISHED FLOOR FOR EVERY 20 FEET OF PRIMER LINE.

PLUMBING GENERAL NOTES	
1.	THESE GENERAL NOTES ARE APPLICABLE TO ALL PLUMBING DRAWINGS.
2.	DRAWINGS ARE DIAGRAMMATIC AND SHOW GENERAL INTENT OF WORK, SEE DETAILS, SCHEDULES AND SPECIFICATIONS FOR ADDITIONAL INFORMATION.
3.	PLUMBING CONTRACTOR MUST REVIEW DRAWINGS OF THE OTHER TRADES AS PART OF THIS CONTRACT FOR ADDITIONAL WORK REQUIRED AND OR COORDINATION OF HIS WORK FOR OPERATIONS OR CONNECTIONS TO OTHER SYSTEMS.
4.	THE PLUMBING CONTRACTOR IS RESPONSIBLE FOR THE INSTALLATION OF PLUMBING FIXTURES AND ACCESSORIES DRAINS, SINK TAILPIECES, AND OTHER TRIM AND ACCESSORIES SUPPLIED WITH EQUIPMENT. THE PLUMBING CONTRACTOR MUST REVIEW THE DESIGN DOCUMENTS AND SPECIFICATIONS AS PART OF THIS CONTRACT FOR ADDITIONAL WORK AND OR COORDINATION REQUIRED.
5.	THE PLUMBING CONTRACTOR SHALL PROVIDE PIPE EXPANSION JOINTS ON PIPING PASSING THRU ALL BUILDING EXPANSION JOINT LOCATIONS AS REQUIRED PER BUILDING CODES WHETHER OR NOT SHOWN ON DRAWINGS. REVIEW ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR EXACT BUILDING EXPANSION JOINT LOCATIONS AND EXPANSION DIMENSIONS.
6.	MAINTAIN ALL H&CW, WASTE AND VENT PIPING TO ALL FIXTURES THAT ARE NOTED TO REMAIN.

PLUMBING FIXTURE SCHEDULE				
SYMBOL	MANUFACTURER/ MODEL NUMBER	DESCRIPTION OF FIXTURE	TRIM AND ACCESSORIES	REMARKS
L-1	AMERICAN STANDARD "DECLYN" MODEL 0321.026	LAVATORY: ACCESSIBLE, WALL HUNG SINGLE BOWL, VITREOUS CHINA LAVATORY	SYMMONS SYMMETRIX, #5-20-2-G-W-FR, 4" MOUNT, CHROME PLATED FAUCET, WITH EXTRA LONG, SINGLE LEVER, CHROME PLATED GRID DRAIN ASSEMBLY. PROVIDE JR. SMITH SERIES 700 CONCEALED SUPPORT AND 0.5 GPM FLOW RESTRICTOR.	#1,2,3,4,7,9,10
WC-1	AMERICAN STANDARD "MADERA FLOWSE" SYSTEM MODEL #2857.128	WATER CLOSET: 16.5" HIGH BOWL, FLOOR MOUNTED, FLOOR OUTLET, ELONGATED BOWL, WHITE VITREOUS CHINA, 1-1/2" TOP SPUD	AMERICAN STANDARD #6047.121 MANUAL FLUSH VALVE WITH INTEGRAL STOP AND VACUUM BRAKES, 1.28GPF, PROVIDE WHITE OLSONITE #9555 OPEN FRONT, COVERLESS SEAT. (FLUSH VALVE IS INCLUDED WITH FIXTURE.)	#1,3,4,5,10

REMARKS:

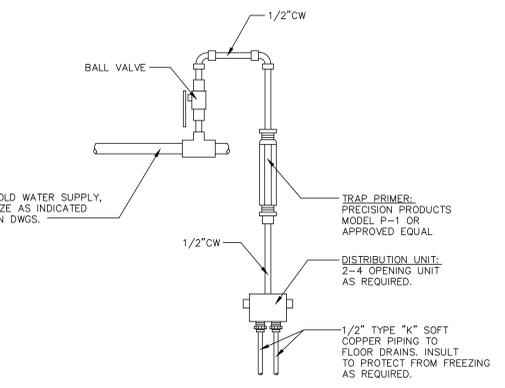
- COLOR SHALL BE WHITE.
- INSTALL TRUEBRO INC. MODEL #102, HANDI LAV-GUARD PROTECTOR ON THE HOT, COLD, AND DRAIN PIPING UNDER FIXTURE.
- FIXTURES AND TRIM AS NOTED SHALL BE "ACCESSIBLE" AND SHALL BE INSTALLED TO ADA / ANSI A117 AND FEDERAL 504 REQUIREMENTS.
- PROVIDE ISOLATION VALVES AT THE PIPE CONNECTIONS.
- PROVIDE WATER HAMMER ARRESTORS AT THE PIPE CONNECTIONS.
- NOT USED
- NOT USED
- PROVIDE CHROM-PLATED COPPER WALL SUPPLIES WITH SCREWDIVER STOPS, CHROME PLATED BRASS P-TRAP WITH CLEANOUT; CHROME-PLATED BRASS COVER TUBE AND ESCUTCHEON FOR WASTE CONNECTION.
- NOT USED
- DISTANCE FROM FRONT OF LAVATORY AND HANDLE OF FAUCET SHALL NOT EXCEED 13".
- CONTRACTOR SHALL REFER TO ARCHITECTURAL DRAWINGS FOR MOUNTING HEIGHTS OF ALL FIXTURES.

PLUMBING FIXTURE CONNECTION SCHEDULE				
FIXTURE TYPE	WASTE CONNECTION	VENT CONNECTION	COLD WATER CONNECTION	HOT WATER CONNECTION
LAVATORY	1 1/2"	1 1/2"	1/2"	1/2"
SHOWER	3"	1 1/2"	1/2"	1/2"
WATER CLOSET (FLUSH VALVE)	4"	2"	1"	-

NOTES:

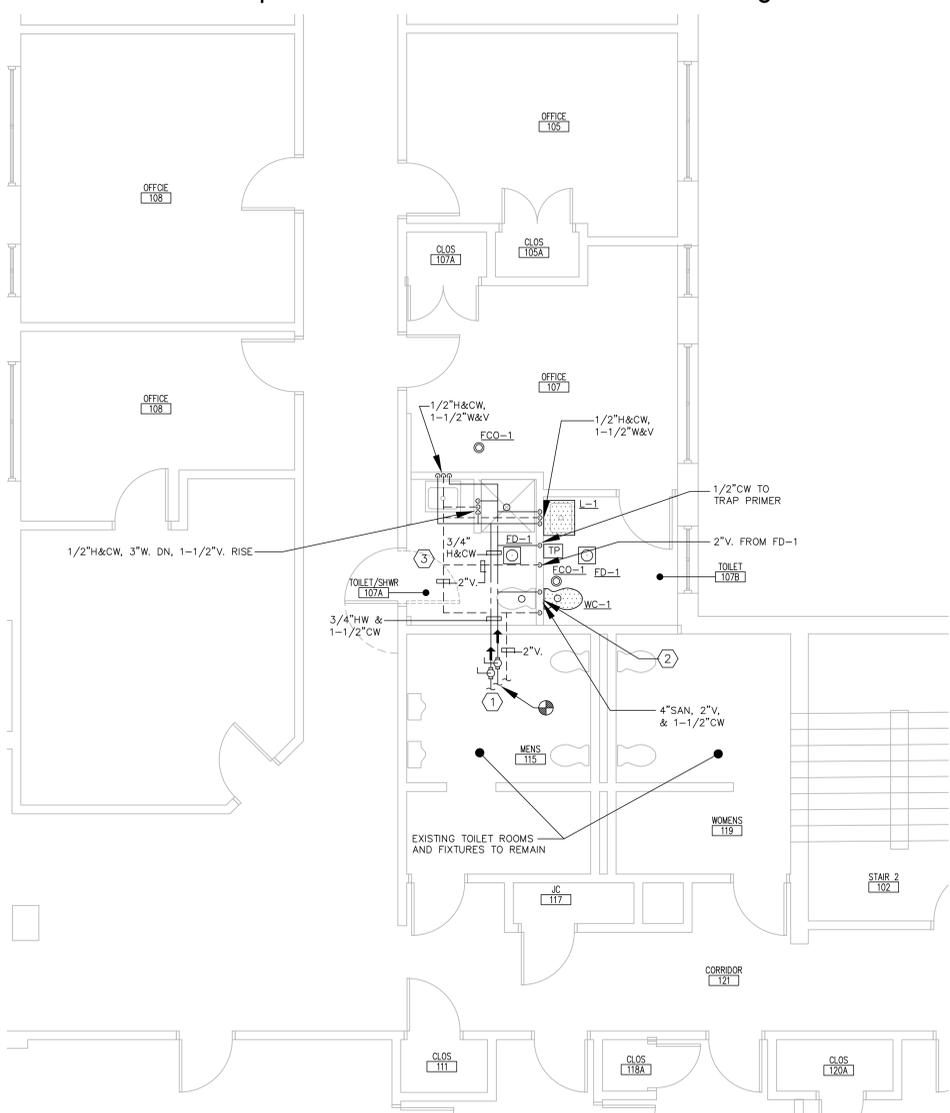
- REFER TO ARCHITECTURAL DRAWINGS FOR ALL PLUMBING FIXTURE MOUNTING HEIGHTS.
- ALL PIPE TRAPS AT LAVATORIES SHALL BE CHROME PLATED BRASS.

PLUMBING KEY NOTES	
1	CONNECT NEW 3/4"H.W. 1-1/2"C.W. & 2" VENT TO NEAREST ADEQUATELY SIZED PIPING SYSTEMS SERVING EXISTING TOILET ROOMS. FIELD VERIFY EXISTING CONDITIONS.
2	PROVIDE 12X12 KEYS LOCKABLE METAL ACCESS PANEL FOR FLUSH VALVE ACCESS ON THIS SIDE OF WALL.
3	PROVIDE ROUGH IN FOR WATER CLOSET, SHOWER AND LAV LOCATED IN THIS ROOM. ALL ROUGH INS SHALL BE CAPPED FOR FUTURE USE BY OWNER.

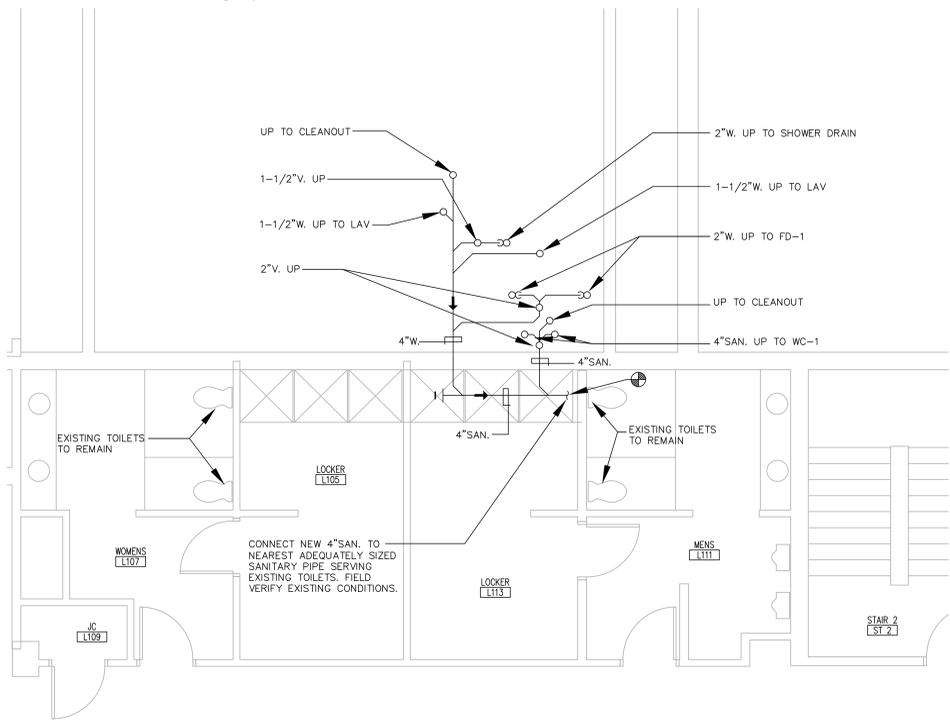


NOTE: CONTRACTOR SHALL BE RESPONSIBLE FOR WATER PIPE ROUTING FROM DISTRIBUTION UNIT TO FLOOR DRAIN. REFER TO PLANS FOR LOCATIONS.

**1 TRAP PRIMER DETAIL**  
N.T.S.



**2 PLUMBING FIRST FLOOR PLAN**  
1/4" = 1'-0"



**1 PLUMBING BASEMENT FLOOR PLAN**  
1/4" = 1'-0"

The **SILAM** Collaborative  
Architecture  
Planning  
Interiors  
Engineering  
Landscape Architecture  
Construction Services  
Technology

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Connecticut 06033-4465  
Telephone 860 657-8077  
Fax 860 657-9401

Drawn  
**LB**  
Checked  
**DTB**

**CES**  
Consulting Engineering Services, Inc.  
1811 Middle Street  
Middletown, CT 06457  
Tel: (860) 632-1982  
Fax: (860) 632-1788  
CES #2013289.00

**JJ Girls Program  
Bldg Modifications  
BI-YS-174**

**Solnit Children's Center  
Middletown, CT**

Number M/D/Y Issued For

**PLUMBING  
FLOOR PLANS  
DETAILS & SCHEDULES**

Date  
11/22/13  
Scale  
AS NOTED  
Proj. Number  
12035.05

Drawing Number  
**P1.0**

PLUMBING SPECIFICATIONS

1. PROVIDE ALL MATERIALS, EQUIPMENT AND LABOR NECESSARY TO COMPLETE THE WORK OUTLINED ON THESE CONTRACT DOCUMENTS. THE CONTRACTOR IS TO NOTE THAT THESE DOCUMENTS ARE DIAGRAMATIC ONLY AND THAT FINAL PLACEMENT OF EQUIPMENT OR DEVICES IN THE FIELD MAY NOT DIRECTLY CORRESPOND TO THAT WHICH IS SHOWN ON THE DRAWINGS. IF A CONFLICT IN POSITIONING OCCURS THE CONTRACTOR IS TO NOTIFY THE ENGINEER IMMEDIATELY TO ASCERTAIN WHAT THE INTENT WAS BY THE DESIGN PROFESSIONAL.

2. ALL WORK SHALL BE COMPLETED IN ACCORDANCE WITH THE LATEST STATE OF CONNECTICUT BUILDING CODE AND LIFE SAFETY CODE.

3. PROVIDE ALL NECESSARY ELECTRICAL WORK, MATERIALS, EQUIPMENT AND LABOR TO PROVIDE POWER AND CONTROL WIRING TO ALL ITEMS OF MECHANICAL EQUIPMENT INDICATED ON THESE CONTRACT DOCUMENTS. PROVIDE ALL NECESSARY JUNCTION BOXES, PULL BOXES, PULL WIRES, COVER PLATES AND OTHER MISCELLANEOUS EQUIPMENT WHICH ARE NOT SHOWN ON THE CONTRACT DOCUMENTS BUT NECESSARY TO COMPLETE THE WORK.

4. ALL ELECTRICAL WORK SHALL BE COMPLETED IN ACCORDANCE WITH THE LATEST STATE OF CONNECTICUT ACCEPTED REVISION OF THE NATIONAL ELECTRIC CODE (NEC), NFPA 70 AND THE NFPA 701 LIFE SAFETY CODE.

5. THE FOLLOWING DEFINITIONS APPLY TO THIS CONTRACT:

A. FURNISH: THE TERM "FURNISH" MEANS TO "SUPPLY AND DELIVER TO THE PROJECT SITE, READY FOR UNLOADING, UNPACKING, ASSEMBLY, INSTALLATION, AND SIMILAR OPERATIONS."

B. INSTALL: THE TERM "INSTALL" IS USED TO DESCRIBE OPERATIONS AT PROJECT SITE INCLUDING THE ACTUAL "UNLOADING, UNPACKING, ASSEMBLY, ERECTION, PLACING, ANCHORING, APPLYING, WORKING TO DIMENSION, FINISHING, CURING, PROTECTING, CLEANING, AND SIMILAR OPERATIONS."

C. PROVIDE: THE TERM "PROVIDE" MEANS "TO FURNISH AND INSTALL, COMPLETE AND READY FOR THE INTENDED USE."

D. REMOVE: THE TERM "REMOVE" MEANS "TO DISCONNECT FROM ITS PRESENT POSITION, REMOVE FROM THE PREMISES AND TO DISPOSE OF IN A LEGAL MANNER."

E. SUBSTITUTIONS: "SUBSTITUTIONS" ARE REQUESTS FOR CHANGES IN PRODUCTS, MATERIALS AND METHODS OF CONSTRUCTION AS PROPOSED BY THE CONTRACTOR AFTER AWARD OF THE CONTRACT.

6. INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS

7. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS REQUIRED BY THE AUTHORITIES HAVING JURISDICTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ARRANGING FOR INSPECTIONS AND BEING AVAILABLE FOR INSPECTIONS BY THE AUTHORITY HAVING JURISDICTION.

8. SUBMIT TO THE OWNER AN OFFICIAL CERTIFICATE OF INSURANCE FOR THEIR RECORDS.

9. DO NOT BURN WASTE MATERIALS. DO NOT BURY DEBRIS OR EXCESS MATERIALS ON THE OWNER'S PROPERTY. DO NOT DISCHARGE VOLATILE, HARMFUL OR DANGEROUS MATERIALS INTO DRAINAGE SYSTEMS. REMOVE AND DISPOSE OF ALL WASTE MATERIALS, PACKAGING MATERIAL, SKIDS ETC. FROM THE SITE AND DISPOSE OF IN A LAWFUL MANNER IN ACCORDANCE WITH MUNICIPAL, STATE AND FEDERAL REGULATIONS.

10. PROVIDE TEMPORARY HEAT DURING CONSTRUCTION PERIOD AS REQUIRED TO MAINTAIN THE BUILDING TEMPERATURE AT 50 DEGREES F. PROVIDE TEMPORARY VENTILATION AS REQUIRED TO MAINTAIN TOLERABLE WORKING CONDITIONS IN RESPECT TO FRESH AIR, TEMPERATURE AND FILTRATION.

11. PROVIDE FIRESTOPPING AROUND ALL MECHANICAL PENETRATIONS THROUGH FIRE RATED PARTITIONS. PROVIDE ASBESTOS FREE FIRESTOPPING SYSTEM CAPABLE OF MAINTAINING AN EFFECTIVE BARRIER AGAINST FLAME AND GASES. SYSTEM SHALL BE UL LISTED AND COMPLY WITH ASTM E 814.

12. PRIOR TO ORDERING ANY MATERIALS AND EQUIPMENT, THOROUGHLY REVIEW THE SITE CONDITIONS TO DETERMINE IF ADEQUATE CLEARANCES AND ACCESS IS ALLOWED TO INSTALL THE COMPONENTS. ORDER EQUIPMENT BROKEN DOWN AS NECESSARY TO ALLOW FOR PROPER RIGGING THROUGH THE PROJECT AREA. PROVIDE ALL NECESSARY ALTERATIONS TO THE STRUCTURE OF THE BUILDING AS NECESSARY TO RIG THE EQUIPMENT IN PLACE.

13. CAREFULLY INSPECT ALL BUILDING ELEMENTS PRIOR TO CUTTING OR DRILLING INTO WALL, FLOORS OR CEILING. PATCH AND PAINT SURFACES DISTURBED BY WORK UNDER THIS CONTRACT AS REQUIRED TO RESTORE THEM TO THEIR ORIGINAL CONDITION.

14. THE CONTRACTOR SHALL BE REQUIRED TO PROPERLY STORE MATERIALS AND EQUIPMENT SO AS TO AVOID THEFT OR VANDALISM. IF THEFT OR VANDALISM OCCURS, THE CONTRACTOR SHALL REPAIR OR REPLACE SUCH ITEMS AT THE DIRECTION OF THE ENGINEER.

15. THE CONTRACTOR SHALL COORDINATE ALL INTERRUPTIONS OF SERVICES AND LIMITATIONS OF ACCESS WITH THE OWNER NO LESS THAN 5 DAYS PRIOR TO THE INTERRUPTION.

16. ACCESS DOORS SHALL BE PROVIDED IN CEILINGS, WALLS AND FLOORS AT ALL DAMPERS, VALVES, CONTROL DEVICES, AND OTHER APPARATUS AND EQUIPMENT REQUIRING PERIODIC SERVICE AND INSPECTION. COORDINATE TYPE AND LOCATION WITH ARCHITECTURAL PLANS.

17. PIPING AND FITTINGS

A. DOMESTIC WATER PIPING SHALL BE COPPER TUBING TYPE L. SOLDER FILLER METALS SHALL BE 95-5 TIN-ANTIMONY.

B. WASTE AND VENT PIPING SHALL BE HUBLESS, SERVICE WEIGHT, CAST-IRON SOIL PIPE AND FITTINGS, WITH NEOPRENE GASKETS. BURIED PIPING SHALL BE HUB AND SPOUT FITTINGS.

C. PIPING INSTALLATIONS

- INSTALL UNIONS OR FLANGES IN PIPES ADJACENT TO EACH VALVE, CONTROL DEVICE AND AT FINAL CONNECTIONS EACH PIECE OF EQUIPMENT.
- INSTALL DIELECTRIC UNIONS TO JOIN DISSIMILAR METALS.
- INSTALL AND ANCHOR PIPING TO ENSURE PROPER EXPANSION AND CONTRACTION.
- PIPE HANGERS AND SUPPORTS SHALL MEET THE REQUIREMENTS OF MSS SP-69 AND SP-69 DEVELOPED BY THE MANUFACTURERS STANDARDIZATION SOCIETY OF THE VALVES AND FITTINGS INDUSTRY INC.
- PROVIDE MANUAL AIR VENTS AT ALL HIGH POINTS AND DRAIN VALVES AT ALL LOW POINTS.

18. INSULATION

A. INSULATION THICKNESS SHALL BE IN ACCORDANCE WITH LATEST EDITION OF ASHRAE 90.1 EXCEPT THAT PIPE INSULATION SHALL NOT BE LESS THAN 1" THICK. ALL INSULATION MATERIALS, ADHESIVES, COATINGS, AND OTHER ACCESSORIES SHALL HAVE FLAME SPREAD RATINGS OF 25 OR LESS, AND SMOKE DEVELOPED RATINGS OF 50 OR LESS AS TESTED BY ASTM E-84 (NFPA 255) METHOD. ALL INSULATION MATERIALS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS AND IN ACCORDANCE WITH THE LATEST EDITION OF SMACNA AND ASHRAE STANDARDS.

B. PIPE INSULATION SHALL BE FIBERGLASS WITH VAPOR BARRIER JACKET. PROVIDE INSULATION FOR THE FOLLOWING PIPING SYSTEMS:

- DOMESTIC WATER PIPING

19. MECHANICAL IDENTIFICATION

A. MECHANICAL IDENTIFICATION WORK SHALL COMPLY WITH ANSI A13.1. NAMES, ABBREVIATIONS AND OTHER DESIGNATIONS USED IN MECHANICAL IDENTIFICATION WORK, SHALL CORRESPOND WITH ANSI A13.1 OR OWNER'S STANDARDS.

B. WHERE IDENTIFICATION IS TO BE APPLIED TO SURFACES WHICH REQUIRE INSULATION, PAINTING OR OTHER COVERING OR FINISH, INSTALL IDENTIFICATION AFTER COMPLETION OF COVERING AND PAINTING. INSTALL IDENTIFICATION PRIOR TO INSTALLATION OF ACUSTICAL CEILING AND SIMILAR REMOVABLE CONCEALMENT.

C. PIPING SYSTEM IDENTIFICATION:

- 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 NORMAL DIRECTION OF FLOW.
- LOCATE PIPE MARKERS AND COLOR BANDS ON EXPOSED PIPING (OR CONCEALED BY REMOVABLE CEILING) AS FOLLOWS:
  - SPACE MARKERS A MAXIMUM OF 50' ALONG EACH PIPING RUN, OR 25' IN CONGESTED AREAS.
  - NEAR EACH MAJOR EQUIPMENT ITEM, VALVE AND CONTROL DEVICE.
  - NEAR EACH BRANCH, EXCLUDING SHORT TAKE-OFFS.
  - NEAR LOCATIONS WHERE PIPES PASS THROUGH WALLS OR FLOORS/CEILINGS, OR ENTER NON-ACCESSIBLE ENCLOSURES.
  - AT ACCESS DOORS, MANHOLES AND SIMILAR ACCESS POINTS WHICH PERMIT VIEW OF CONCEALED PIPING.
- VALVE IDENTIFICATION:
  - VALVE TAGS SHALL BE 1-1/2" DIAMETER, 19-GAUGE POLISHED BRASS WITH STAMP-ENGRAVED LETTERING. PROVIDE VALVE TAG ON EVERY ISOLATION VALVE, AND CONTROL DEVICE IN EACH PIPING SYSTEM; EXCLUDE CHECK VALVES AND SHUT-OFF VALVES AT PLUMBING FIXTURES, HVAC TERMINAL DEVICES AND SIMILAR ROOM-IN CONNECTIONS OF END-USE FIXTURES AND UNITS.
  - ACCESS PANEL MARKERS SHALL BE 1/16" THICK ENGRAVED PLASTIC LAMINATE ACCESS PANEL MARKERS WITH ABBREVIATIONS AND NUMBERS CORRESPONDING TO CONCEALED VALVE.
  - SUBMIT VALVE SCHEDULE FOR EACH PIPING SYSTEM, TYPEWRITTEN AND REPRODUCED ON 8-1/2" X 11" BOND PAPER. TABULATE VALVE NUMBER, PIPING SYSTEM, SYSTEM ABBREVIATION (AS SHOWN ON TAG), LOCATION OF VALVE (ROOM OR SPACE), AND VARIATIONS FOR IDENTIFICATION (IF ANY). MARK VALVES WHICH ARE INTENDED FOR EMERGENCY SHUT-OFF AND SIMILAR SPECIAL USES, BY SPECIAL "FLAGS", IN MARGIN OF SCHEDULE. MOUNT VALVE SCHEDULE FRAMES AND SCHEDULES IN MACHINE ROOMS WHERE INDICATED OR, IF NOT OTHERWISE INDICATED, WHERE DIRECTED BY ARCHITECT/ENGINEER.

E. MECHANICAL EQUIPMENT IDENTIFICATION: PROVIDE LAMINATED PLASTIC NAMEPLATES FOR ALL EQUIPMENT. NAMEPLATES SHALL BE MELAMINE PLASTIC, 0.125-INCH THICK, WHITE WITH BLACK CENTER CORE. SURFACE SHALL BE MATTE FINISH. MINIMUM SIZE OF NAMEPLATES SHALL BE 1 BY 2.5 INCHES. LETTERING SHALL BE A MINIMUM OF 0.25-INCH HIGH.

20. SEISMIC RESTRAINTS SHALL BE INSTALLED AS REQUIRED PER STATE OF CONNECTICUT BUILDING CODE AND FIRE SAFETY CODE. RESTRAINTS SHALL BE INSTALLED IN ACCORDANCE WITH NFPA 13 AND SMACNA STANDARDS. SUBMIT SHOP DRAWINGS INCLUDING SEISMIC CALCULATIONS WITH PROFESSIONAL ENGINEER'S SEAL FOR REVIEW BY ENGINEER.

A. PROVIDE SEISMIC BRACING FOR ALL DUCTWORK, PIPING AND EQUIPMENT AS REQUIRED PER THE CODES REFERENCED ABOVE.

21. SHOP DRAWINGS:

A. SUBMIT NEWLY PREPARED INFORMATION, DRAWN TO ACCURATE SCALE OF 1/4"=1'-0". HIGHLIGHT, ENCIRCLE, OR OTHERWISE INDICATE DEVIATIONS FROM THE CONTRACT DOCUMENTS. DO NOT REPRODUCE CONTRACT DOCUMENTS OR COPY STANDARD INFORMATION AS THE BASIS OF SHOP DRAWINGS. STANDARD INFORMATION PREPARED WITHOUT SPECIFIC REFERENCE TO THE PROJECT IS NOT CONSIDERED SHOP DRAWINGS.

B. SHOP DRAWINGS INCLUDE EQUIPMENT SUBMITTALS, FABRICATION AND INSTALLATION DRAWINGS, SETTING DIAGRAMS, SCHEDULES, PATTERNS, TEMPLATES AND SIMILAR DRAWINGS. INCLUDE THE FOLLOWING INFORMATION:

- DIMENSIONS.
- IDENTIFICATION OF PRODUCTS AND MATERIALS INCLUDED.
- COMPLIANCE WITH SPECIFIED STANDARDS AND PERFORMANCE DATA AS INDICATED.
- NOTATION OF COORDINATION REQUIREMENTS.
- NOTATION OF DIMENSIONS ESTABLISHED BY FIELD MEASUREMENT.

C. SUBMIT 3 BLACK-LINE PRINTS AND 2 ADDITIONAL PRINTS WHERE REQUIRED FOR MAINTENANCE MANUALS, PLUS THE NUMBER OF PRINTS NEEDED BY THE ENGINEER FOR DISTRIBUTION. ONE PRINT WILL BE RETAINED; THE REMAINDER RETURNED. ONE OF THE PRINTS RETURNED SHALL BE MARKED-UP AND MAINTAINED AS A "RECORD DOCUMENT"

D. DO NOT USE SHOP DRAWINGS WITHOUT AN APPROPRIATE FINAL STAMP INDICATING ACTION TAKEN IN CONNECTION WITH CONSTRUCTION.

E. DO NOT ORDER ANY MATERIALS OR EQUIPMENT PRIOR TO RECEIVING FINAL APPROVED SHOP DRAWINGS.

22. TESTING, ADJUSTING AND BALANCING

A. ALL PIPING SYSTEMS INSTALLED UNDER THIS CONTRACT SHALL BE PRESSURE TESTED WITH CLEAN WATER, UNLESS NOTED OTHERWISE, TO INSURE TIGHTNESS. HYDROSTATIC TESTING SHALL BE MADE AT NOT LESS THAN A DURATION OF TWO HOURS. CARE MUST BE TAKEN TO EXHAUST ALL ENTRAPPED AIR AND HAVE THE PIPING COMPLETELY FULL OF WATER. PRESSURE TESTING SHALL BE PERFORMED AS FOLLOWS:

- DOMESTIC WATER AND HVAC HYDRONIC PIPING SHALL BE TESTED TO 100 PSIG.
- DRAINAGE AND VENT PIPING SHALL BE TESTED TO 10 FOOT HEAD OF WATER.

23. AS-BUILT DRAWINGS

A. PREPARE AS-BUILT DRAWINGS TO A SCALE OF 1/4"=1'-0" OR LARGER, DETAILING THE ACTUAL INSTALLATION OF MAJOR ELEMENTS, COMPONENTS, AND SYSTEMS OF MECHANICAL EQUIPMENT AND MATERIALS. WHERE SHOP DRAWINGS ARE USED, RECORD A CROSS-REFERENCE TO THE CORRESPONDING LOCATION ON THE AS-BUILT DRAWINGS. GIVE PARTICULAR ATTENTION TO CONCEALED ELEMENTS THAT WOULD BE DIFFICULT TO MEASURE AND RECORD AT A LATER DATE.

B. MARK NEW INFORMATION THAT IS IMPORTANT TO THE OWNER, BUT WAS NOT SHOWN ON CONTRACT DRAWINGS OR SHOP DRAWINGS.

C. NOTE RELATED CHANGE ORDER NUMBERS WHERE APPLICABLE.

D. ORGANIZE AS-BUILT DRAWINGS INTO MANAGEABLE SETS, BIND WITH DURABLE PAPER COVER SHEETS, AND PRINT SUITABLE TITLES, DATES AND OTHER IDENTIFICATION ON THE COVER OF EACH SET.

24. CLEAN, PRIME AND PAINT MECHANICAL EQUIPMENT AND THE EXPOSED PORTION OF THE PIPING SYSTEMS TO MATCH THE FINISH OF THE ADJACENT SURFACES OR TO MEET THE INDICATED OR SPECIFIED SAFETY CRITERIA OR TO MEET THE COLOR SCHEME SET BY THE ARCHITECT.

25. SUBSTITUTIONS

A. SUBSTITUTION REQUEST SUBMITTALS: REQUESTS FOR SUBSTITUTION WILL BE CONSIDERED IF RECEIVED WITHIN 45 DAYS AFTER COMMENCEMENT OF THE WORK. REQUESTS RECEIVED MORE THAN 45 DAYS AFTER COMMENCEMENT OF THE WORK MAY BE CONSIDERED OR REJECTED AT THE DISCRETION OF THE ENGINEER.

B. SUBMIT 3 COPIES OF EACH REQUEST FOR SUBSTITUTION FOR CONSIDERATION.

C. IDENTIFY THE PRODUCT, OR THE FABRICATION OR INSTALLATION METHOD TO BE REPLACED IN EACH REQUEST. INCLUDE RELATED DRAWING NUMBERS. PROVIDE COMPLETE DOCUMENTATION SHOWING COMPLIANCE WITH THE REQUIREMENTS FOR SUBSTITUTIONS, AND THE FOLLOWING INFORMATION, AS APPROPRIATE:

- PRODUCT DATA, INCLUDING DRAWINGS AND DESCRIPTIONS OF PRODUCTS, FABRICATION AND INSTALLATION PROCEDURES.
- SAMPLES, WHERE APPLICABLE OR REQUESTED.
- A DETAILED COMPARISON OF SIGNIFICANT QUALITIES OF THE PROPOSED SUBSTITUTION WITH THOSE OF THE WORK SPECIFIED. SIGNIFICANT QUALITIES MAY INCLUDE ELEMENTS SUCH AS SIZE, WEIGHT, DURABILITY, PERFORMANCE AND VISUAL EFFECT.
- COORDINATION INFORMATION, INCLUDING A LIST OF CHANGES OR MODIFICATIONS NEEDED TO OTHER PARTS OF THE WORK AND TO CONSTRUCTION PERFORMED BY THE OWNER AND SEPARATE CONTRACTORS, THAT WILL BE NECESSARY TO ACCOMMODATE THE PROPOSED SUBSTITUTION.
- A STATEMENT INDICATING THE SUBSTITUTION'S EFFECT ON THE CONTRACTOR'S CONSTRUCTION SCHEDULE COMPARED TO THE SCHEDULE WITHOUT APPROVAL OF THE SUBSTITUTION. INDICATE THE EFFECT OF THE PROPOSED SUBSTITUTION ON OVERALL CONTRACT TIME.
- COST INFORMATION, INCLUDING A PROPOSAL OF THE NET CHANGE, IF ANY IN THE CONTRACT SUM.
- CERTIFICATION BY THE CONTRACTOR THAT THE SUBSTITUTION PROPOSED IS EQUAL TO OR BETTER IN EVERY SIGNIFICANT RESPECT TO THAT REQUIRED BY THE CONTRACT DOCUMENTS AND THAT IT WILL PERFORM ADEQUATELY IN THE APPLICATION INDICATED. INCLUDE THE CONTRACTOR'S WAIVER OF RIGHTS TO ADDITIONAL PAYMENT OR TIME, THAT MAY SUBSEQUENTLY BECOME NECESSARY BECAUSE OF THE FAILURE OF THE SUBSTITUTION TO PERFORM ADEQUATELY.

D. ENGINEER'S ACTION: WITHIN ONE WEEK OF RECEIPT OF THE REQUEST FOR SUBSTITUTION, THE ENGINEER WILL REQUEST ADDITIONAL INFORMATION OR DOCUMENTATION NECESSARY FOR EVALUATION OF THE REQUEST. WITHIN 2 WEEKS OF RECEIPT OF THE REQUEST, OR ONE WEEK OF RECEIPT OF THE ADDITIONAL INFORMATION OR DOCUMENTATION, WHICHEVER IS LATER, THE ENGINEER WILL NOTIFY THE CONTRACTOR OF ACCEPTANCE OR REJECTION OF THE PROPOSED SUBSTITUTION. IF A DECISION ON USE OF A PROPOSED SUBSTITUTE CANNOT BE MADE OR OBTAINED WITH THE TIME ALLOCATED, USE THE PRODUCT SPECIFIED BY NAME. ACCEPTANCE OF A PRODUCT SUBSTITUTION WILL BE IN THE FORM OF A CHANGE ORDER.

E. OTHER CONDITIONS: THE CONTRACTOR'S SUBSTITUTION REQUEST WILL BE RECEIVED AND CONSIDERED BY THE ENGINEER WHEN ONE OR MORE OF THE FOLLOWING CONDITIONS ARE SATISFIED, AS DETERMINED BY THE ENGINEER; OTHERWISE REQUESTS WILL BE RETURNED WITHOUT ACTION EXCEPT TO RECORD NONCOMPLIANCE WITH THESE REQUIREMENTS.

- THE REQUEST IS DIRECTLY RELATED TO AN "OR EQUAL" CLAUSE OR SIMILAR LANGUAGE IN THE CONTRACT DOCUMENTS.
- THE SPECIFIED PRODUCT OR METHOD OF CONSTRUCTION CANNOT BE PROVIDED WITHIN THE CONTRACT TIME. THE REQUEST WILL NOT BE CONSIDERED IF THE PRODUCT OR METHOD CANNOT BE PROVIDED AS A RESULT OF FAILURE TO PURSUE THE WORK PROMPTLY OR COORDINATE ACTIVITIES PROPERLY.
- A SUBSTANTIAL ADVANTAGE IS OFFERED THE OWNER, IN TERMS OF COST, TIME, ENERGY CONSERVATION OR OTHER CONSIDERATIONS OF MERIT, AFTER DEDUCTING OFFSETTING RESPONSIBILITIES THE OWNER MAY BE REQUIRED TO BEAR. ADDITIONAL RESPONSIBILITIES FOR THE OWNER MAY INCLUDE ADDITIONAL COMPENSATION TO THE ENGINEER FOR REDESIGN AND EVALUATION SERVICES, INCREASED COST OF OTHER CONSTRUCTION BY THE OWNER OR SEPARATE CONTRACTORS, AND SIMILAR CONSIDERATIONS.

A

B

C

D

E

Drawn  
LB

Checked  
DTB



**JJ Girls Program  
Bldg Modifications  
BI-YS-174**

**Solnit Children's Center  
Middletown, CT**



Number	M/D/Y	Issued For

**PLUMBING  
SPECIFICATION**

A

B

C

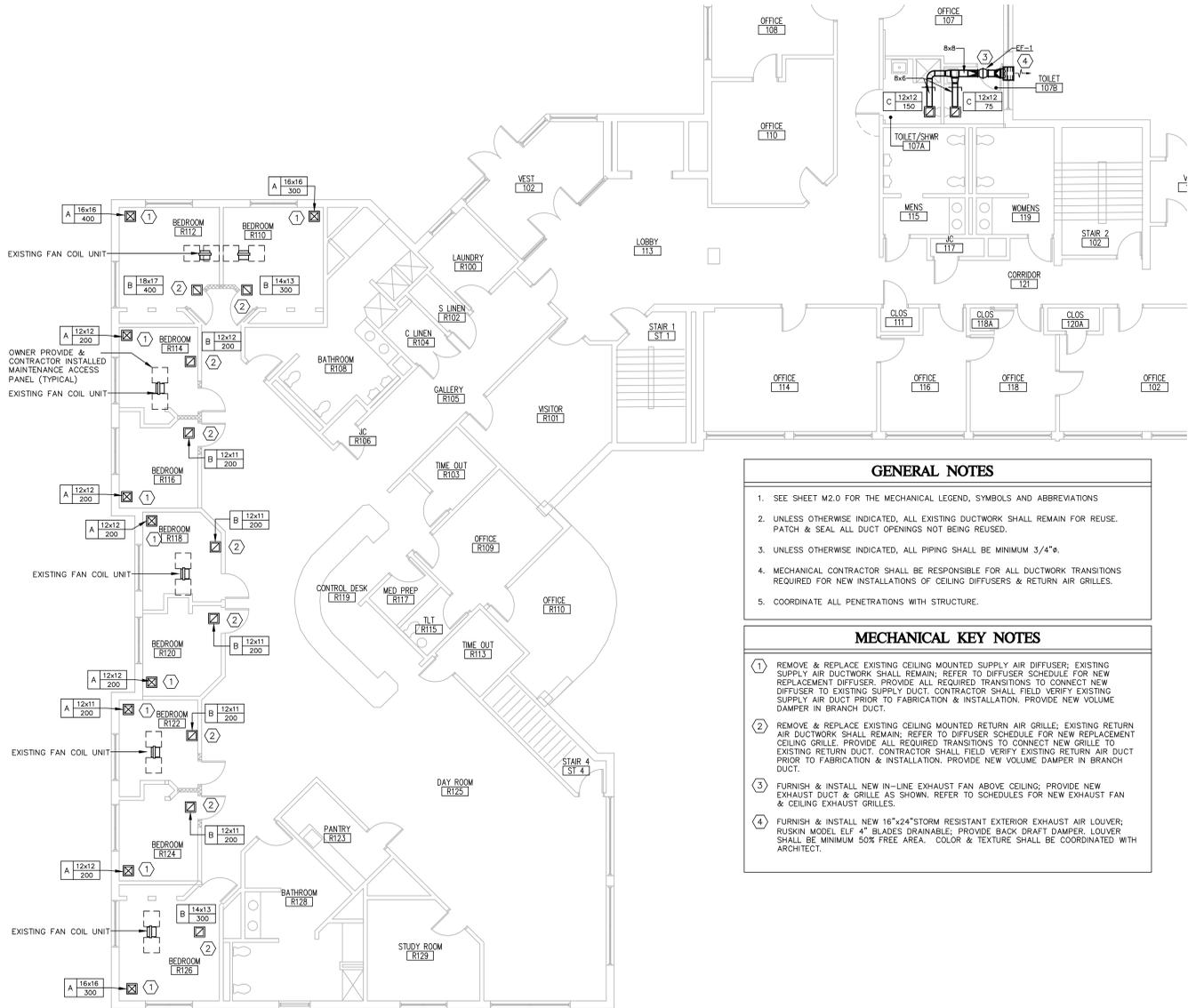
D

E

HVAC DUCTWORK LEGEND	
SYMBOL	DESCRIPTION
	ACOUSTICAL LINED DUCTWORK
	FLEXIBLE DUCTWORK
	RETURN DUCT DROP (DOUBLE LINE)
	RETURN DUCT RISE (DOUBLE LINE)
	SUPPLY DUCT DROP (DOUBLE LINE)
	SUPPLY DUCT RISE (DOUBLE LINE)
	VOLUME DAMPER
	MOTORIZED DAMPER
	RETURN/EXHAUST/OUTSIDE AIR ARROW
	SUPPLY ARROW
	UNDERCUT DOOR
	CONNECT TO EXISTING POINT OF CONNECTION
	IN-LINE EXHAUST FAN
	SUPPLY DIFFUSER (ARROWS DESIGNATE PATTERN REQUIREMENTS)
	RETURN REGISTER
	THERMOSTAT

PIPING LEGEND	
SYMBOL	DESCRIPTION
	HWS HOT WATER SUPPLY
	HWR HOT WATER RETURN
	CHWS CHILLED WATER SUPPLY
	CHWR CHILLED WATER RETURN
	GATE VALVE
	BALL VALVE
	GLOBE VALVE
	BUTTERFLY VALVE
	CHECK VALVE
	UNION
	STRAINER WITH VALVED BLOWDOWN
	PIPE ANCHOR
	PIPE DROP
	PIPE RISE

ABBREVIATIONS	
SYMBOL	DESCRIPTION
EA	EXHAUST AIR
OA	OUTDOOR AIR
RA	RETURN AIR
SA	SUPPLY AIR
TYP	TYPICAL
FCU	FAN COIL UNIT
COND	CONDENSATE DRAIN PIPE



1 MECHANICAL FIRST FLOOR PLAN  
1/8" = 1'-0"

- GENERAL NOTES**
- SEE SHEET M2.0 FOR THE MECHANICAL LEGEND, SYMBOLS AND ABBREVIATIONS
  - UNLESS OTHERWISE INDICATED, ALL EXISTING DUCTWORK SHALL REMAIN FOR REUSE. PATCH & SEAL ALL DUCT OPENINGS NOT BEING REUSED.
  - UNLESS OTHERWISE INDICATED, ALL PIPING SHALL BE MINIMUM 3/4"Ø.
  - MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DUCTWORK TRANSITIONS REQUIRED FOR NEW INSTALLATIONS OF CEILING DIFFUSERS & RETURN AIR GRILLES.
  - COORDINATE ALL PENETRATIONS WITH STRUCTURE.

- MECHANICAL KEY NOTES**
- REMOVE & REPLACE EXISTING CEILING MOUNTED SUPPLY AIR DIFFUSER; EXISTING SUPPLY AIR DUCTWORK SHALL REMAIN; REFER TO DIFFUSER SCHEDULE FOR NEW REPLACEMENT DIFFUSER. PROVIDE ALL REQUIRED TRANSITIONS TO CONNECT NEW DIFFUSER TO EXISTING SUPPLY DUCT. CONTRACTOR SHALL FIELD VERIFY EXISTING SUPPLY AIR DUCT PRIOR TO FABRICATION & INSTALLATION. PROVIDE NEW VOLUME DAMPER IN BRANCH DUCT.
  - REMOVE & REPLACE EXISTING CEILING MOUNTED RETURN AIR GRILLE; EXISTING RETURN AIR DUCTWORK SHALL REMAIN; REFER TO DIFFUSER SCHEDULE FOR NEW REPLACEMENT CEILING GRILLE. PROVIDE ALL REQUIRED TRANSITIONS TO CONNECT NEW GRILLE TO EXISTING RETURN DUCT. CONTRACTOR SHALL FIELD VERIFY EXISTING RETURN AIR DUCT PRIOR TO FABRICATION & INSTALLATION. PROVIDE NEW VOLUME DAMPER IN BRANCH DUCT.
  - FURNISH & INSTALL NEW IN-LINE EXHAUST FAN ABOVE CEILING; PROVIDE NEW EXHAUST DUCT & GRILLE AS SHOWN. REFER TO SCHEDULES FOR NEW EXHAUST FAN & CEILING EXHAUST GRILLES.
  - FURNISH & INSTALL NEW 16"x24" STORM RESISTANT EXHAUST AIR LOUVER; RUSKIN MODEL ELF 4" BLADES DRAINABLE; PROVIDE BACK DRAFT DAMPER. LOUVER SHALL BE MINIMUM 50% FREE AREA. COLOR & TEXTURE SHALL BE COORDINATED WITH ARCHITECT.

DIFFUSER AND REGISTER SCHEDULE								
SYMBOL	MANUFACTURER/ MODEL NUMBER	DUTY	TYPE	BORDER TYPE	CONSTRUCTION			REMARKS
					OBD	FRAME	BLADES	
A	ANEMOSTAT SV432	SUPPLY	DD	SURFACE MOUNT	NONE	STEEL	STEEL	2
B	ANEMOSTAT SV3	RETURN	LF	SURFACE MOUNT	NONE	STEEL	STEEL	2
C	KRUEGER S80	RETURN	LF	SURFACE MOUNT	NONE	STEEL	STEEL	1

TYPES:  
 DD - DIRECTIONAL DIFFUSER  
 LB - LINEAR BAR  
 LF - LOUVERED FACE  
 LS - LINEAR SLOT  
 SW - SIDEWALL REGISTER  
 PLO - PLAQUE DIFFUSER

INDICATES -  
 INDICATES UNIT TYPE  
 INDICATES NECK SIZE  
 INDICATES UNIT CFM CAPACITY

NOTES:  
 TYPE A & B-DIFFUSER & GRILLE SELECTIONS BASED ON ANEMOSTAT; APPROVED EQUALS ARE TITUS & PRICE.  
 TYPE C & D-REGISTERS & GRILLE SELECTIONS BASED ON KRUEGER; APPROVED EQUALS ARE PRICE & TITUS  
 REMARKS:  
 1. 3/4" BLADE SPACING. 35' BLADE DEFLECTION  
 2. MECHANICAL CONTRACTOR SHALL FIELD INSTALL DIFFUSERS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

EXHAUST FAN SCHEDULE														
SYMBOL	MANUFACTURER/ MODEL NUMBER	TYPE	LOCATION	SERVING	AIR FLOW (CFM)	SP (IN WG)	FAN SPEED (RPM)	DRIVE	BHP	MOTOR DATA			WEIGHT (LBS)	REMARKS
										WATTS	VOLTS	PHI		
EF-1	FANTECH FGC 6M EC	IN-LINE	TOILET RM CEILING	TOILET RM	225	0.250	2480	D	N/A	77.6	120	1	25	ALL

NOTES:  
 EXHAUST FAN SELECTIONS BASED ON FANTECH; APPROVED EQUALS ARE PANASONIC, KANAFLAKT

DRIVE:  
 B = BELT DRIVE  
 D = DIRECT DRIVE

REMARKS:  
 1. PROVIDE WITH DISCONNECT SWITCH.  
 2. PROVIDE WITH GRAVITY BACKDRAFT DAMPER.  
 3. PROVIDE WITH ECM MOTOR  
 4. PROVIDE WITH UNIT MOUNTED SPEED CONTROLLER  
 5. PROVIDE WITH TIMELOCK WITH MANUAL OVERRIDE SWITCH. LOCATE TIMELOCK JANITORS CLOSET 117.

**SEQUENCE OF OPERATIONS**

EF-1:  
EXHAUST FAN SHALL RUN CONTINUOUSLY DURING OCCUPIED HOURS. EXHAUST FAN SHALL BE CONTROLLED BY LOCAL TIME CLOCK.

The **SILAM** Collaborative

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**JJ Girls Program  
Bldg Modifications  
BI-YS-174**

**Solnit Children's Center  
Middletown, CT**

Number	M/D/Y	Issued For

**MECHANICAL  
FLOOR PLANS  
DETAILS & SCHEDULES**

Date **11/22/13**  
Scale **AS NOTED**  
Proj. Number **12035.05**

Drawing Number **M1.0**

MECHANICAL SPECIFICATIONS

- 1. PROVIDE ALL MATERIALS, EQUIPMENT AND LABOR NECESSARY TO COMPLETE THE WORK OUTLINED ON THESE CONTRACT DOCUMENTS. THE CONTRACTOR IS TO NOTE THAT THESE DOCUMENTS ARE DIAGRAMMATIC ONLY AND THAT FINAL PLACEMENT OF EQUIPMENT AND DEVICES IN THE FIELD MAY NOT DIRECTLY CORRESPOND TO THAT WHICH IS SHOWN ON THE DRAWINGS. IF A CONFLICT IN POSITIONING OCCURS THE CONTRACTOR IS TO NOTIFY THE ENGINEER IMMEDIATELY TO ASCERTAIN WHAT THE INTENT WAS BY THE DESIGN PROFESSIONAL.
- 2. ALL WORK SHALL BE COMPLETED IN ACCORDANCE WITH THE LATEST STATE OF CONNECTICUT BUILDING CODE AND LIFE SAFETY CODE.
- 3. PROVIDE ALL NECESSARY ELECTRICAL WORK, MATERIALS, EQUIPMENT AND LABOR TO PROVIDE POWER AND CONTROL WIRING TO ALL ITEMS OF MECHANICAL EQUIPMENT INDICATED ON THESE CONTRACT DOCUMENTS. PROVIDE ALL NECESSARY JUNCTION BOXES, PULL BOXES, PULL WIRES, COVER PLATES AND OTHER MISCELLANEOUS EQUIPMENT WHICH ARE NOT SHOWN ON THE CONTRACT DOCUMENTS BUT NECESSARY TO COMPLETE THE WORK.
- 4. ALL ELECTRICAL WORK SHALL BE COMPLETED IN ACCORDANCE WITH THE LATEST STATE OF CONNECTICUT ACCEPTED REVISION OF THE NATIONAL ELECTRIC CODE (NEC), NFPA 70 AND THE NFPA 101 LIFE SAFETY CODE.
- 5. THE FOLLOWING DEFINITIONS APPLY TO THIS CONTRACT:
  - A. FURNISH: THE TERM "FURNISH" MEANS TO "SUPPLY AND DELIVER TO THE PROJECT SITE, READY FOR UNLOADING, UNPACKING, ASSEMBLY, INSTALLATION, AND SIMILAR OPERATIONS."
  - B. INSTALL: THE TERM "INSTALL" IS USED TO DESCRIBE OPERATIONS AT PROJECT SITE INCLUDING THE ACTUAL "UNLOADING, UNPACKING, ASSEMBLY, ERECTION, PLACING, ANCHORING, APPLYING, WORKING TO DIMENSION, FINISHING, CURING, PROTECTING, CLEANING, AND SIMILAR OPERATIONS."
  - C. PROVIDE: THE TERM "PROVIDE" MEANS TO FURNISH AND INSTALL, COMPLETE AND READY FOR THE INTENDED USE.
  - D. REMOVE: THE TERM "REMOVE" MEANS "TO DISCONNECT FROM ITS PRESENT POSITION, REMOVE FROM THE PREMISES AND TO DISPOSE OF IN A LEGAL MANNER."
  - E. SUBSTITUTIONS: "SUBSTITUTIONS" ARE REQUESTS FOR CHANGES IN PRODUCTS, MATERIALS AND METHODS OF CONSTRUCTION AS PROPOSED BY THE CONTRACTOR AFTER AWARD OF THE CONTRACT.
- 6. INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS
- 7. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS REQUIRED BY THE AUTHORITIES HAVING JURISDICTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ARRANGING FOR INSPECTIONS AND BEING AVAILABLE FOR INSPECTIONS BY THE AUTHORITY HAVING JURISDICTION.
- 8. SUBMIT TO THE OWNER AN OFFICIAL CERTIFICATE OF INSURANCE FOR THEIR RECORDS.
- 9. DO NOT BURN WASTE MATERIALS. DO NOT BURY DEBRIS OR EXCESS MATERIALS ON THE OWNER'S PROPERTY. DO NOT DISCHARGE VOLATILE, HARMFUL OR DANGEROUS MATERIALS INTO DRAINAGE SYSTEMS. REMOVE AND DISPOSE OF ALL WASTE MATERIALS, PACKAGING MATERIAL, SKIDS ETC. FROM THE SITE AND DISPOSE OF IN A LAWFUL MANNER IN ACCORDANCE WITH MUNICIPAL, STATE AND FEDERAL REGULATIONS.
- 10. PROVIDE TEMPORARY HEAT DURING CONSTRUCTION PERIOD AS REQUIRED TO MAINTAIN THE BUILDING TEMPERATURE AT 50 DEGREES F. PROVIDE TEMPORARY VENTILATION AS REQUIRED TO MAINTAIN TOLERABLE WORKING CONDITIONS IN RESPECT TO FRESH AIR, TEMPERATURE AND HUMIDITY.
- 11. PROVIDE FIRESTOPPING AROUND ALL MECHANICAL PENETRATIONS THROUGH FIRE RATED PARTITIONS. PROVIDE ASBESTOS FREE FIRESTOPPING SYSTEM CAPABLE OF MAINTAINING AN EFFECTIVE BARRIER AGAINST FLAME AND GASES. SYSTEM SHALL BE UL LISTED AND COMPLY WITH ASTM E 814.
- 12. PRIOR TO ORDERING ANY MATERIALS AND EQUIPMENT, THOROUGHLY REVIEW THE SITE CONDITIONS TO DETERMINE IF ADEQUATE CLEARANCES AND ACCESS IS ALLOWED TO INSTALL THE COMPONENTS. ORDER EQUIPMENT BROKEN DOWN AS NECESSARY TO ALLOW FOR PROPER RISINGS THROUGH THE PROJECT AREA. PROVIDE ALL NECESSARY ALTERATIONS TO THE STRUCTURE OF THE BUILDING AS NECESSARY TO RIG THE EQUIPMENT IN PLACE.
- 13. CAREFULLY INSPECT ALL BUILDING ELEMENTS PRIOR TO CUTTING OR DRILLING INTO WALL, FLOORS OR CEILINGS. PATCH AND PAINT SURFACES DISTURBED BY WORK UNDER THIS CONTRACT AS REQUIRED TO RESTORE THEM TO THEIR ORIGINAL CONDITION.
- 14. THE CONTRACTOR SHALL BE REQUIRED TO PROPERLY STORE MATERIALS AND EQUIPMENT SO AS TO AVOID THEFT OR VANDALISM. IF THEFT OR VANDALISM OCCURS, THE CONTRACTOR SHALL REPAIR OR REPLACE SUCH ITEMS AT THE DIRECTION OF THE ENGINEER.
- 15. THE CONTRACTOR SHALL COORDINATE ALL INTERRUPTIONS OF SERVICES AND LIMITATIONS OF ACCESS WITH THE OWNER NO LESS THAN 5 DAYS PRIOR TO THE INTERRUPTION.
- 16. ACCESS DOORS SHALL BE PROVIDED IN CEILINGS, WALLS AND FLOORS AT ALL DAMPERS, VALVES, CONTROL DEVICES, AND OTHER APPARATUS AND EQUIPMENT REQUIRING PERIODIC SERVICE AND INSPECTION. COORDINATE TYPE AND LOCATION WITH ARCHITECTURAL PLANS.
- 17. DUCTWORK AND ACCESSORIES
  - A. ALL DUCTWORK AND ACCESSORIES AS ITEMIZED HERE-IN SHALL BE GALVANIZED STEEL CONSTRUCTION INCLUDING ALL FITTINGS AND FASTENERS AND SHALL COMPLY WITH THE LATEST EDITION OF SMACNA STANDARDS FOR 1" PRESSURE CLASS. ALL DUCTWORK DIMENSIONS SHOWN ARE INSIDE CLEAR DIMENSIONS. ALL SQUARE DUCT ELBOWS ARE TO BE INSTALLED WITH TURNING VANES. ALL RADIUS DUCT ELBOWS SHALL HAVE MINIMUM CENTER LINE RADIUS EQUAL TO 1-1/2 TIMES THE DUCT WIDTH.
  - B. FLEXIBLE DUCT RUNOUTS SHALL NOT EXCEED 6 FEET IN LENGTH. SHALL BE PREINSULATED WITH VAPOR BARRIER, CPE INNER LINER, FACTORY FABRICATED, AND SHALL COMPLY WITH NFPA 90A AND UL 181. THE INSULATION MATERIAL SURFACE SHALL NOT BE EXPOSED TO THE AIR STREAM. FLEXIBLE DUCT RUNOUTS SHALL BE INSTALLED FULLY EXTENDED AND SUPPORTED TO MINIMIZE BENDS. FLEXIBLE DUCT SHALL BE AS MANUFACTURED BY THERMAFLEX, TUTTLE AND BAILEY OR APPROVED EQUAL. FLEXIBLE DUCT CONNECTORS APPROXIMATELY 6 INCHES IN LENGTH SHALL BE PROVIDED WHERE SHEET METAL CONNECTIONS ARE MADE TO AIR HANDLING EQUIPMENT.
  - C. DUCT ACCESS DOORS SHALL BE PROVIDED IN DUCTWORK AT ALL AUTOMATIC DAMPERS, COILS, CONTROL DEVICES, AND OTHER APPARATUS REQUIRING SERVICE AND INSPECTION.
  - D. MANUAL BALANCING DAMPERS SHALL BE PROVIDED FOR EACH DIFFUSER, GRILLE AND REGISTER, EACH BRANCH OF THE MAIN TRUNK DUCT AND AS INDICATED ON THE DRAWINGS.
  - E. INSTALLATION OF DIFFUSERS GRILLES AND REGISTERS SHALL BE COORDINATED WITH AND SUITABLE FOR INSTALLATION IN, ON, OR FROM CEILING, WALL OR FLOORS SPECIFIED ON THE ARCHITECTURAL PLANS. THE CONTRACTOR MUST VERIFY THE CEILING OR WALL TYPES PRIOR TO ORDERING.
  - F. FIRE DAMPERS SHALL BE 1-1/2 HR FIRE RATED UNLESS OTHERWISE INDICATED AND SHALL CONFORM TO THE REQUIREMENTS OF NFPA 90A UL 105 AND UL 555. FIRE DAMPERS SHALL BE AUTOMATIC OPERATING TYPE, SHALL BE APPROVED FOR THE SPECIFIC APPLICATION, AND SHALL BE INSTALLED IN ACCORDANCE WITH THEIR LISTING. FIRE DAMPERS SHALL BE CURTAIN TYPE "B" WITH DAMPER BLADES OUT OF THE AIR STREAM. FIRE DAMPERS SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF SMACNA STANDARDS AND THE MANUFACTURER'S INSTRUCTIONS AS REQUIRED TO MAINTAIN THE DAMPER'S LISTING. FIRE DAMPERS SHALL BE RUSIN TYPE BID OR APPROVED EQUAL AS MANUFACTURED BY GREENHECK OR AIR BALANCE.
- 18. PIPING AND FITTINGS
  - A. HVAC HYDRONIC PIPING: FOR PIPE SIZES 2" DIAMETER AND LESS, PIPING SHALL BE TYPE L COPPER TUBING WITH 95-5 TIN-ANTIMONY SOLDER JOINTS. FOR PIPE SIZES LARGER THAN 2" DIAMETER, PIPING SHALL BE SCHEDULE 40 CARBON STEEL WITH THREADED, WELDED OR FLANGED JOINTS. CHILLED WATER PIPING SHALL BE SCHEDULE 40 CARBON STEEL WITH ROLL GROOVED PIPE AND FITTINGS.
  - B. PIPING INSTALLATIONS
    - 1. INSTALL UNIONS OR FLANGES IN PIPES ADJACENT TO EACH VALVE, CONTROL DEVICE AND AT FINAL CONNECTIONS EACH PIECE OF EQUIPMENT.
    - 2. INSTALL DIELECTRIC UNIONS TO JOIN DISSIMILAR METALS.
    - 3. INSTALL AND ANCHOR PIPING TO ENSURE PROPER EXPANSION AND CONTRACTION.
    - 4. PIPE HANGERS AND SUPPORTS SHALL MEET THE REQUIREMENTS OF MSS SP-89 AND SP-89 DEVELOPED BY THE MANUFACTURERS STANDARDIZATION SOCIETY OF THE VALVES AND FITTINGS INDUSTRY INC.
    - 5. PROVIDE MANUAL AIR VENTS AT ALL HIGH POINTS AND DRAIN VALVES AT ALL LOW POINTS.
- 19. INSULATION
  - A. INSULATION THICKNESS SHALL BE IN ACCORDANCE WITH LATEST EDITION OF ASHRAE 90.1 EXCEPT THAT PIPE INSULATION SHALL NOT BE LESS THAN 1" THICK AND FLEXIBLE DUCTWORK INSULATION SHALL NOT BE LESS THAN 1-1/2" THICK. ALL INSULATION MATERIALS, ADHESIVES, COATINGS, AND OTHER ACCESSORIES SHALL HAVE FLAME SPREAD RATINGS OF 25 OR LESS, AND SMOKE DEVELOPED RATINGS OF 50 OR LESS AS TESTED BY ASTM E-84 (NFPA 255) METHOD. ALL INSULATION MATERIALS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS AND IN ACCORDANCE WITH THE LATEST EDITION OF SMACNA AND ASHRAE STANDARDS.
  - B. PIPE INSULATION SHALL BE FIBERGLASS WITH VAPOR BARRIER JACKET. PROVIDE INSULATION FOR THE FOLLOWING PIPING SYSTEMS:
    - 1. HVAC HYDRONIC SUPPLY AND RETURN PIPING
  - C. DUCT INSULATION MATERIALS SHALL BE FLEXIBLE FIBERGLASS DUCTWORK INSULATION WITH VAPOR BARRIER JACKET. DUCT INSULATION INSTALLED WITHIN MECHANICAL ROOMS SHALL BE RIGID, BOARD TYPE, MINIMUM 1" THICK. DUCTWORK ACOUSTIC LINING SHALL BE CELLULAR GLASS WITH FACE BONDED TO PROVIDE A SMOOTH DAMAGE RESISTANT FINISH. PROVIDE INSULATION FOR THE FOLLOWING DUCTWORK SYSTEMS:
    - 1. SUPPLY AIR DUCTWORK
    - 2. RETURN AIR DUCTWORK IN UNCONDITIONED SPACES (WHERE SPACE TEMPERATURE IS MORE THAN 10 DEGREES F DIFFERENT FROM DUCT TEMPERATURE)
    - 3. OUTSIDE AIR INTAKE DUCTWORK
    - 4. OUTSIDE AIR AND EXHAUST PLENUMS AT LOUVER CONNECTIONS
- 20. MECHANICAL IDENTIFICATION
  - A. MECHANICAL IDENTIFICATION WORK SHALL COMPLY WITH ANSI A13.1. NAMES, ABBREVIATIONS AND OTHER DESIGNATIONS USED IN MECHANICAL IDENTIFICATION WORK, SHALL CORRESPOND WITH ANSI A13.1 OR OWNER'S STANDARDS.
  - B. WHERE IDENTIFICATION IS TO BE APPLIED TO SURFACES WHICH REQUIRE INSULATION, PAINTING OR OTHER COVERING OR FINISH, INSTALL IDENTIFICATION AFTER COMPLETION OF COVERING AND PAINTING. INSTALL IDENTIFICATION PRIOR TO INSTALLATION OF ACOUSTICAL CEILINGS AND SIMILAR REMOVABLE CONCEALMENT.
  - D. PIPING SYSTEM IDENTIFICATION:
    - 1. 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 NORMAL DIRECTION OF FLOW.
    - 2. LOCATE PIPE MARKERS AND COLOR BANDS ON EXPOSED PIPING (OR CONCEALED BY REMOVABLE CEILING)AS FOLLOWS:
      - A. SPACE MARKERS A MAXIMUM OF 50' ALONG EACH PIPING RUN, OR 25' IN CONGESTED AREAS.
      - B. NEAR EACH MAJOR EQUIPMENT ITEM, VALVE AND CONTROL DEVICE.
      - C. NEAR EACH BRANCH, EXCLUDING SHORT TAKE-OFFS.
      - D. NEAR LOCATIONS WHERE PIPES PASS THROUGH WALLS OR FLOORS/CEILINGS, OR ENTER NON-ACCESSIBLE ENCLOSURES.
      - E. AT ACCESS DOORS, MANHOLES AND SIMILAR ACCESS POINTS WHICH PERMIT VIEW OF CONCEALED PIPING.
  - F. VALVE IDENTIFICATION:
    - 1. VALVE TAGS SHALL BE 1-1/2" DIAMETER, 19-GAGE POLISHED BRASS WITH STAMP-ENGRAVED LETTERING. PROVIDE VALVE TAG ON EVERY ISOLATION VALVE, AND CONTROL DEVICE IN EACH PIPING SYSTEM. EXCLUDE CHECK VALVES AND SHUT-OFF VALVES AT PLUMBING FIXTURES, HVAC TERMINAL DEVICES AND SIMILAR ROUGH-IN CONNECTIONS OF END-USE FIXTURES AND UNITS.
    - 2. ACCESS PANEL MARKERS SHALL BE 1/16" THICK ENGRAVED PLASTIC LAMINATE ACCESS PANEL MARKERS, WITH ABBREVIATIONS AND NUMBERS CORRESPONDING TO CONCEALED VALVE.
    - 3. SUBMIT VALVE SCHEDULE FOR EACH PIPING SYSTEM, TYPEWRITTEN AND REPRODUCED ON 8-1/2" X 11" BOND PAPER, TABULATE VALVE NUMBER, PIPING SYSTEM, SYSTEM ABBREVIATION (AS SHOWN ON TAG), LOCATION OF VALVE (ROOM OR SPACE), AND VARIATIONS FOR IDENTIFICATION (IF ANY). MARK VALVES WHICH ARE INTENDED FOR EMERGENCY SHUT-OFF AND SIMILAR SPECIAL USES, BY SPECIAL "FLAGS", IN MARGIN OF SCHEDULE. MOUNT VALVE SCHEDULE FRAMES AND SCHEDULES IN MACHINE ROOMS WHERE INDICATED OR, IF NOT OTHERWISE INDICATED, WHERE DIRECTED BY ARCHITECT/ENGINEER.
    - G. MECHANICAL EQUIPMENT IDENTIFICATION: PROVIDE LAMINATED PLASTIC NAMEPLATES FOR ALL EQUIPMENT. NAMEPLATES SHALL BE MELAMINE PLASTIC, 0.125-INCH THICK, WHITE WITH BLACK CENTER CORE. SURFACE SHALL BE MATTE FINISH. MINIMUM SIZE OF NAMEPLATES SHALL BE 1 BY 2.5 INCHES. LETTERING SHALL BE A MINIMUM OF 0.25-INCH HIGH.
- 21. SEISMIC RESTRAINTS SHALL BE INSTALLED AS REQUIRED PER STATE OF CONNECTICUT BUILDING CODE AND FIRE SAFETY CODE. RESTRAINTS SHALL BE INSTALLED IN ACCORDANCE WITH NFPA 13 AND SMACNA STANDARDS. SUBMIT SHOP DRAWINGS INCLUDING SEISMIC CALCULATIONS WITH PROFESSIONAL ENGINEER'S SEAL FOR REVIEW BY ENGINEER.
- A. PROVIDE SEISMIC BRACING FOR ALL DUCTWORK, PIPING AND EQUIPMENT AS REQUIRED PER THE CODES REFERENCED ABOVE.
- 22. SHOP DRAWINGS:
  - A. SUBMIT NEWLY PREPARED INFORMATION, DRAWN TO ACCURATE SCALE OF 1/4"=1'-0" HIGHLIGHT ENCLOSE OR OTHERWISE INDICATE DEVIATIONS FROM THE CONTRACT DOCUMENTS. DO NOT REPRODUCE CONTRACT DOCUMENTS OR COPY STANDARD INFORMATION AS THE BASIS OF SHOP DRAWINGS. STANDARD INFORMATION PREPARED WITHOUT SPECIFIC REFERENCE TO THE PROJECT IS NOT CONSIDERED SHOP DRAWINGS.
  - B. SHOP DRAWINGS INCLUDE EQUIPMENT SUBMITTALS, FABRICATION AND INSTALLATION DRAWINGS, LAYOUT DIAGRAMS, SCHEDULES, PATTERNS, TEMPLATES AND SIMILAR DRAWINGS. INCLUDE THE FOLLOWING INFORMATION:
    - 1. DIMENSIONS.
    - 2. IDENTIFICATION OF PRODUCTS AND MATERIALS INCLUDED.
    - 3. COMPLIANCE WITH SPECIFIED STANDARDS AND PERFORMANCE DATA AS INDICATED.
    - 4. NOTATION OF COORDINATION REQUIREMENTS.
    - 5. NOTATION OF DIMENSIONS ESTABLISHED BY FIELD MEASUREMENT.
  - C. SUBMIT 3 BLACK-LINE PRINTS AND 2 ADDITIONAL PRINTS WHERE REQUIRED FOR MAINTENANCE MANUALS, PLUS THE NUMBER OF PRINTS NEEDED BY THE ENGINEER FOR DISTRIBUTION. ONE PRINT WILL BE RETAINED; THE REMAINDER RETURNED. ONE OF THE PRINTS RETURNED SHALL BE MARKED-UP AND MAINTAINED AS A "RECORD DOCUMENT".
  - D. DO NOT USE SHOP DRAWINGS WITHOUT AN APPROPRIATE FINAL STAMP INDICATING ACTION TAKEN IN CONNECTION WITH CONSTRUCTION.
  - E. DO NOT ORDER ANY MATERIALS OR EQUIPMENT PRIOR TO RECEIVING FINAL APPROVED SHOP DRAWINGS.
- 23. TESTING, ADJUSTING AND BALANCING
  - A. THE MECHANICAL CONTRACTOR SHALL PROVIDE THE SERVICES OF AN INDEPENDENT TESTING, ADJUSTING, AND BALANCING (TAB) AGENCY TO PROVIDE TAB SERVICES FOR THE MECHANICAL SYSTEMS. THE TAB AGENCY SHALL BE CERTIFIED BY NATIONAL ENVIRONMENTAL BALANCING BUREAU (NEBB) OR THE ASSOCIATED AIR BALANCE COUNCIL (AABC) IN THOSE TESTING AND BALANCING DISCIPLINES REQUIRED FOR THIS PROJECT. THE TAB AGENCY SHALL HAVE AT LEAST ONE PROFESSIONAL ENGINEER REGISTERED IN THE STATE IN WHICH THE SERVICES ARE TO BE PERFORMED AND CERTIFIED BY NEBB OR AABC AS A TEST AND BALANCE ENGINEER.
  - B. PRIOR TO TESTING, ADJUSTING, AND BALANCING, THE MECHANICAL CONTRACTOR SHALL VERIFY THAT THE SYSTEMS HAVE BEEN INSTALLED AND ARE OPERATING AS SPECIFIED. APPROVED SHOP DRAWINGS, AS BUILT DRAWINGS, AND ALL OTHER DATA REQUIRED FOR EACH SYSTEM AND/OR COMPONENT TO BE TESTED SHALL BE MADE AVAILABLE AT THE JOB SITE DURING THE ENTIRE TAB EFFORT. THE OWNER SHALL BE NOTIFIED IN WRITING OF ALL EQUIPMENT, COMPONENTS, OR BALANCING DEVICES, THAT ARE DAMAGED, INCORRECTLY INSTALLED, OR MISSING, AS WELL AS ANY DESIGN DEFICIENCIES THAT WILL PREVENT PROPER TESTING, ADJUSTING, AND BALANCING. TESTING, ADJUSTING, AND BALANCING SHALL NOT COMMENCE UNTIL APPROVED BY THE OWNER.
  - C. PERFORM TESTING AND BALANCING PROCEDURES ON EACH SYSTEM IDENTIFIED, IN ACCORDANCE WITH THE DETAILED PROCEDURES OUTLINED IN EITHER NEBB "PROCEDURAL STANDARDS FOR TESTING, ADJUSTING, AND BALANCING OF ENVIRONMENTAL SYSTEMS" OR AABC "NATIONAL STANDARDS FOR TOTAL SYSTEM BALANCE." THE TAB AGENCY SHALL TEST, ADJUST, AND BALANCE THE FOLLOWING MECHANICAL SYSTEMS:
    - 1. ALL AIR HANDLING EQUIPMENT
    - 2. ALL SUPPLY AIR SYSTEMS
    - 3. ALL RETURN AIR SYSTEMS
    - 4. ALL EXHAUST AIR SYSTEMS
    - 5. ALL HVAC HYDRONIC SYSTEMS
    - 6. VERIFY OPERATION OF ALL TEMPERATURE CONTROL SYSTEMS
  - D. SUBMIT TESTING, ADJUSTING, AND BALANCING REPORTS BEARING THE SEAL AND SIGNATURE OF THE TAB PROFESSIONAL ENGINEER. PREPARE A REPORT OF RECOMMENDATIONS FOR CORRECTING UNSATISFACTORY MECHANICAL PERFORMANCES WHEN A SYSTEM CANNOT BE SUCCESSFULLY BALANCED.
  - E. ALL PIPING SYSTEMS INSTALLED UNDER THIS CONTRACT SHALL BE PRESSURE TESTED WITH CLEAN WATER, UNLESS NOTED OTHERWISE, TO INSURE TIGHTNESS. HYDROSTATIC TESTING SHALL BE MADE AT NOT LESS THAN A DURATION OF TWO HOURS. CARE MUST BE TAKEN TO EXPEL ALL ENTRAPPED AIR AND HAVE THE PIPING COMPLETELY FULL OF WATER. PRESSURE TESTING SHALL BE PERFORMED AS FOLLOWS:
    - 1. HVAC HYDRONIC PIPING SHALL BE TESTED TO 100 PSIG
- 24. AS-BUILT DRAWINGS
  - A. PREPARE AS-BUILT DRAWINGS TO A SCALE OF 1/4"=1'-0" OR LARGER; DETAILING THE ACTUAL INSTALLATION OF MAJOR ELEMENTS, COMPONENTS, AND SYSTEMS OF MECHANICAL EQUIPMENT AND MATERIALS. WHERE SHOP DRAWINGS ARE USED, RECORD A CROSS-REFERENCE AT THE CORRESPONDING LOCATION ON THE AS-BUILT DRAWINGS. GIVE PARTICULAR ATTENTION TO CONCEALED ELEMENTS THAT WOULD BE DIFFICULT TO MEASURE AND RECORD AT A LATER DATE.
  - B. MARK NEW INFORMATION THAT IS IMPORTANT TO THE OWNER, BUT WAS NOT SHOWN ON CONTRACT DRAWINGS OR SHOP DRAWINGS.
  - C. NOTE RELATED CHANGE ORDER NUMBERS WHERE APPLICABLE.
  - D. ORGANIZE AS-BUILT DRAWINGS INTO MANAGEABLE SETS, BIND WITH DURABLE PAPER COVER SHEETS, AND PRINT SUITABLE TITLES, DATES AND OTHER IDENTIFICATION ON THE COVER OF EACH SET.
- 25. CLEAN, PRIME AND PAINT MECHANICAL EQUIPMENT AND THE EXPOSED PORTION OF THE DUCTWORK AND PIPING SYSTEMS TO MATCH THE FINISH OF THE ADJACENT SURFACES OR TO MEET THE INDICATED OR SPECIFIED SAFETY CRITERIA OR TO MEET THE COLOR SCHEME SET BY THE ARCHITECT.
- 26. SUBSTITUTIONS
  - A. SUBSTITUTION REQUEST SUBMITTALS REQUESTS FOR SUBSTITUTION WILL BE CONSIDERED IF RECEIVED WITHIN 45 DAYS AFTER COMMENCEMENT OF THE WORK. REQUESTS RECEIVED MORE THAN 45 DAYS AFTER COMMENCEMENT OF THE WORK MAY BE CONSIDERED OR REJECTED AT THE DISCRETION OF THE ENGINEER.
  - B. SUBMIT 3 COPIES OF EACH REQUEST FOR SUBSTITUTION FOR CONSIDERATION.
  - C. IDENTIFY THE PRODUCT, OR THE FABRICATION OR INSTALLATION METHOD TO BE REPLACED IN EACH REQUEST. INCLUDE RELATED DRAWING NUMBERS. PROVIDE COMPLETE DOCUMENTATION SHOWING COMPLIANCE WITH THE REQUIREMENTS FOR SUBSTITUTIONS, AND THE FOLLOWING INFORMATION, AS APPROPRIATE:
    - 1. PRODUCT DATA INCLUDING DRAWINGS AND DESCRIPTIONS OF PRODUCTS, FABRICATION AND INSTALLATION PROCEDURES.
    - 2. SAMPLES, WHERE APPLICABLE OR REQUESTED.
    - 3. A DETAILED COMPARISON OF SIGNIFICANT QUALITIES OF THE PROPOSED SUBSTITUTION WITH THOSE OF THE WORK SPECIFIED. SIGNIFICANT QUALITIES MAY INCLUDE ELEMENTS SUCH AS SIZE, WEIGHT, DURABILITY, PERFORMANCE AND VISUAL EFFECT.
    - 4. COORDINATION INFORMATION, INCLUDING A LIST OF CHANGES OR MODIFICATIONS NEEDED TO OTHER PARTS OF THE WORK AND TO CONSTRUCTION PERFORMED BY THE OWNER AND SEPARATE CONTRACTORS, THAT WILL BECOME NECESSARY TO ACCOMMODATE THE PROPOSED SUBSTITUTION.
    - 5. A STATEMENT INDICATING THE SUBSTITUTION'S EFFECT ON THE CONTRACTOR'S CONSTRUCTION SCHEDULE COMPARED TO THE SCHEDULE WITHOUT APPROVAL OF THE SUBSTITUTION. INDICATE THE EFFECT OF THE PROPOSED SUBSTITUTION ON OVERALL CONTRACT TIME.
    - 6. COST INFORMATION, INCLUDING A PROPOSAL OF THE NET CHANGE, IF ANY IN THE CONTRACT SUM.
    - 7. CERTIFICATION BY THE CONTRACTOR THAT THE SUBSTITUTION PROPOSED IS EQUAL TO OR BETTER IN EVERY SIGNIFICANT RESPECT TO THAT REQUIRED BY THE CONTRACT DOCUMENTS AND THAT IT WILL PERFORM ADEQUATELY IN THE APPLICATION INDICATED. INCLUDE THE CONTRACTOR'S WAIVER OF RIGHTS TO ADDITIONAL PAYMENT OR TIME, THAT MAY SUBSEQUENTLY BECOME NECESSARY BECAUSE OF THE FAILURE OF THE SUBSTITUTION TO PERFORM ADEQUATELY.
  - D. ENGINEER'S ACTION: WITHIN ONE WEEK OF RECEIPT OF THE REQUEST FOR SUBSTITUTION, THE ENGINEER WILL REQUEST ADDITIONAL INFORMATION OR DOCUMENTATION NECESSARY FOR EVALUATION OF THE REQUEST. WITHIN 2 WEEKS OF RECEIPT OF THE REQUEST, OR ONE WEEK OF RECEIPT OF THE ADDITIONAL INFORMATION OR DOCUMENTATION, WHICHEVER IS LATER, THE ENGINEER WILL NOTIFY THE CONTRACTOR OF ACCEPTANCE OR REJECTION OF THE PROPOSED SUBSTITUTION. IF A DECISION ON USE OF A PROPOSED SUBSTITUTE CANNOT BE MADE OR OBTAINED WITH THE TIME ALLOCATED, USE THE PRODUCT SPECIFIED BY NAME. ACCEPTANCE OF A PRODUCT SUBSTITUTION WILL BE IN THE FORM OF A CHANGE ORDER.
  - E. OTHER CONDITIONS: THE CONTRACTOR'S SUBSTITUTION REQUEST WILL BE RECEIVED AND CONSIDERED BY THE ENGINEER WHEN ONE OR MORE OF THE FOLLOWING CONDITIONS ARE SATISFIED, AS DETERMINED BY THE ENGINEER. OTHERWISE REQUESTS WILL BE RETURNED WITHOUT ACTION EXCEPT TO RECORD NONCOMPLIANCE WITH THESE REQUIREMENTS:
    - 1. THE REQUEST IS DIRECTLY RELATED TO AN "OR EQUAL" CLAUSE OR SIMILAR LANGUAGE IN THE CONTRACT DOCUMENTS.
    - 2. THE SPECIFIED PRODUCT OR METHOD OF CONSTRUCTION CANNOT BE PROVIDED WITHIN THE CONTRACT TIME. THE REQUEST WILL NOT BE CONSIDERED IF THE PRODUCT OR METHOD CANNOT BE PROVIDED AS A RESULT OF FAILURE TO PURSUE THE WORK PROMPTLY OR COORDINATE ACTIVITIES PROPERLY.
    - 3. A SUBSTANTIAL ADVANTAGE IS OFFERED THE OWNER, IN TERMS OF COST, TIME, ENERGY CONSERVATION OR OTHER CONSIDERATIONS OF MERIT. AFTER DEDUCTING OFFSETTING RESPONSIBILITIES THE OWNER MAY BE REQUIRED TO BEAR. ADDITIONAL RESPONSIBILITIES FOR THE OWNER MAY INCLUDE ADDITIONAL COMPENSATION TO THE ENGINEER FOR REDESIGN AND EVALUATION SERVICES, INCREASED COST OF OTHER CONSTRUCTION BY THE OWNER OR SEPARATE CONTRACTORS, AND SIMILAR CONSIDERATIONS.
- 27. PROVIDE ALL NECESSARY CONTROL DEVICES, EQUIPMENT, MATERIALS, LABOR, WIRE AND CONDUIT TO PERFORM THE SEQUENCES OF OPERATION AS INDICATED. WIRING AND CONDUIT SHALL BE INSTALLED IN ACCORDANCE WITH DIVISION 16. ALL CONTROL WIRING INSTALLED WITHIN AIR PLENUM SPACES TO BE TEFLON COATED RATED FOR PLENUM CEILINGS.

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**JJ Girls Program  
Bldg Modifications  
BI-YS-174**

**Solnit Children's Center  
Middletown, CT**

Number	M/D/Y	Issued For
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**MECHANICAL  
SPECIFICATIONS**

Date  
11/22/13

Scale  
AS NOTED

Proj. Number  
12035.05

Drawing Number  
**M2.0**

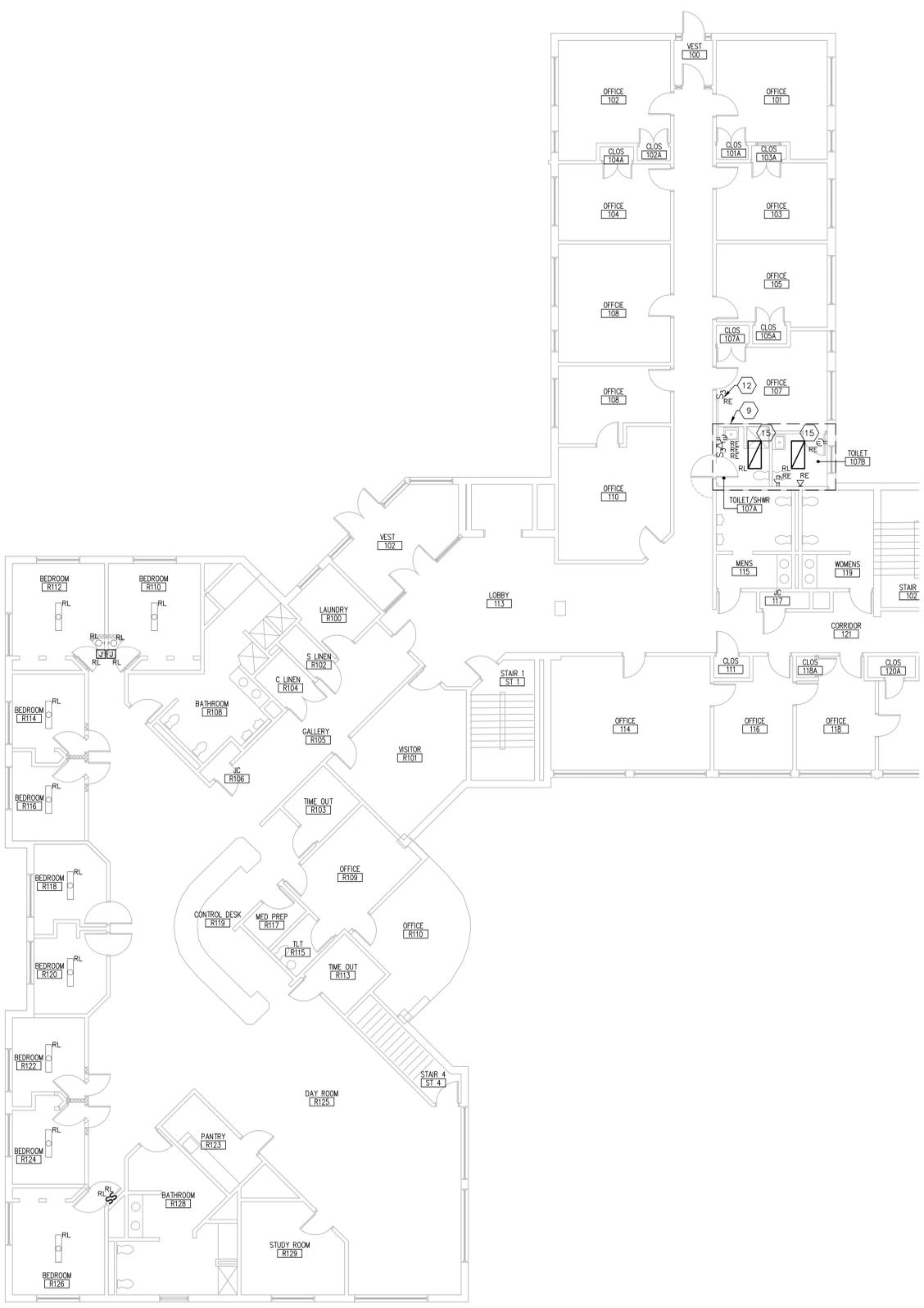
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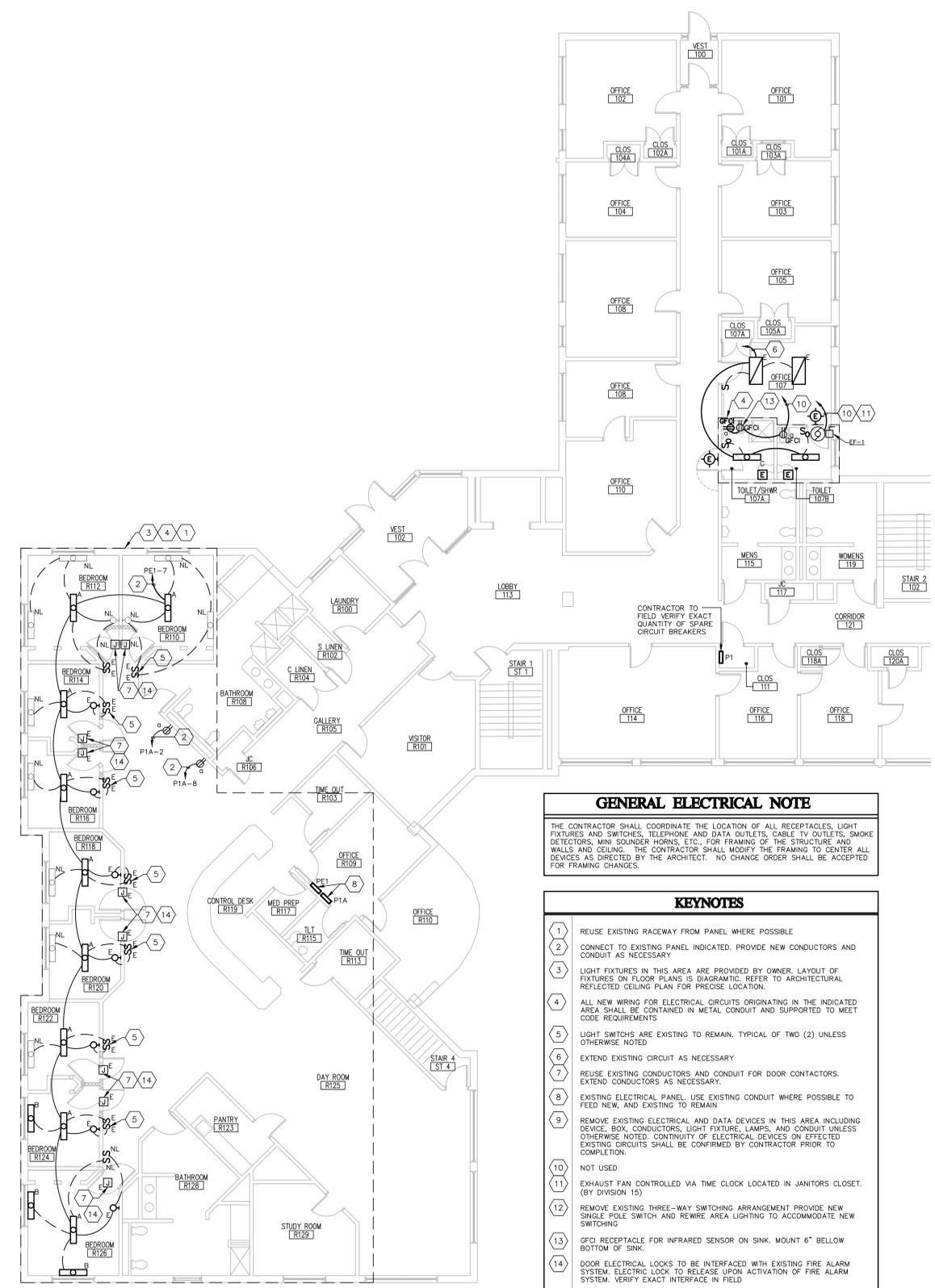
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1 FIRST FLOOR DEMOLITION PLAN  
1/8" = 1'-0"



2 ELECTRICAL FIRST FLOOR PLAN  
1/8" = 1'-0"

**GENERAL ELECTRICAL NOTE**  
THE CONTRACTOR SHALL COORDINATE THE LOCATION OF ALL RECEPTACLES, LIGHT FIXTURES AND SWITCHES, TELEPHONE AND DATA OUTLETS, CABLE TV OUTLETS, SMOKE DETECTORS, MINI SOUNDER HORNS, ETC., FOR FRAMING OF THE STRUCTURE AND WALLS AND CEILING. THE CONTRACTOR SHALL MODIFY THE FRAMING TO CENTER ALL DEVICES AS DIRECTED BY THE ARCHITECT. NO CHANGE ORDER SHALL BE ACCEPTED FOR FRAMING CHANGES.

- KEYNOTES**
- 1 REUSE EXISTING RACEWAY FROM PANEL WHERE POSSIBLE
  - 2 CONNECT TO EXISTING PANEL INDICATED. PROVIDE NEW CONDUCTORS AND CONDUIT AS NECESSARY
  - 3 LIGHT FIXTURES IN THIS AREA ARE PROVIDED BY OWNER. LAYOUT OF FIXTURES ON FLOOR PLANS IS DIAGRAMATIC. REFER TO ARCHITECTURAL REFLECTED CEILING PLAN FOR PRECISE LOCATION.
  - 4 ALL NEW WIRING FOR ELECTRICAL CIRCUITS ORIGINATING IN THE INDICATED AREA SHALL BE CONTAINED IN METAL CONDUIT AND SUPPORTED TO MEET CODE REQUIREMENTS
  - 5 LIGHT SWITCHES ARE EXISTING TO REMAIN. TYPICAL OF TWO (2) UNLESS OTHERWISE NOTED
  - 6 EXTEND EXISTING CIRCUIT AS NECESSARY
  - 7 REUSE EXISTING CONDUCTORS AND CONDUIT FOR DOOR CONTACTORS. EXTEND CONDUCTORS AS NECESSARY.
  - 8 EXISTING ELECTRICAL PANEL. USE EXISTING CONDUIT WHERE POSSIBLE TO FEED NEW, AND EXISTING TO REMAIN
  - 9 REMOVE EXISTING ELECTRICAL AND DATA DEVICES IN THIS AREA INCLUDING DEVICE, BOX, CONDUCTORS, LIGHT FIXTURE, LAMPS, AND CONDUIT UNLESS OTHERWISE NOTED. CONTINUITY OF ELECTRICAL DEVICES ON EFFECTED EXISTING CIRCUITS SHALL BE CONFIRMED BY CONTRACTOR PRIOR TO COMPLETION.
  - 10 NOT USED
  - 11 EXHAUST FAN CONTROLLED VIA TIME CLOCK LOCATED IN JANITORS CLOSET. (BY DIVISION 15)
  - 12 REMOVE EXISTING THREE-WAY SWITCHING ARRANGEMENT PROVIDE NEW SINGLE POLE SWITCH AND REWIRE AREA LIGHTING TO ACCOMMODATE NEW SWITCHING
  - 13 GFCI RECEPTACLE FOR INFRARED SENSOR ON SINK. MOUNT 6" BELOW BOTTOM OF SINK.
  - 14 DOOR ELECTRICAL LOCKS TO BE INTERFACED WITH EXISTING FIRE ALARM SYSTEM. ELECTRIC LOCK TO RELEASE UPON ACTIVATION OF FIRE ALARM SYSTEM. VERIFY EXACT INTERFACE IN FIELD

- ELECTRICAL DEMOLITION NOTES**
1. CONTRACTOR SHALL BE RESPONSIBLE FOR LEGAL DISPOSAL OF MERCURY-CONTAINING LAMPS AND PCB BALLASTS.
  2. CONTRACTOR SHALL BE RESPONSIBLE FOR STORAGE AND HANDLING OF EXISTING TO BE RELOCATED EQUIPMENT.
  3. CONTRACTOR SHALL MODIFY EXISTING CIRCUITS, WHEN EXISTING DEVICES ARE REMOVED, AS REQUIRED TO MAINTAIN CIRCUIT CONTINUITY.
  4. THIS PLAN IS DIAGRAMMATIC AND NOT INTENDED TO DEPICT THE ENTIRE SCOPE OF ELECTRICAL DEMOLITION. ADDITIONAL DEMOLITION AND MODIFICATION WORK NOT SHOWN SHOULD BE ANTICIPATED
  5. PRIOR TO SUBMITTING BID, VISIT SITE AND IDENTIFY EXISTING CONDITIONS AND DIFFICULTIES THAT WILL AFFECT WORK TO BE PERFORMED. NO COMPENSATION WILL BE GRANTED FOR ADDITIONAL WORK CAUSED BY UNFAMILIARITY WITH SITE CONDITIONS THAT ARE VISIBLE OR READILY IDENTIFIED BY EXPERIENCED OBSERVERS. INCLUDE IN THE BID ALL DEMOLITION WORK REQUIRED.
  6. REFER TO DRAWING E-2.0 FOR SYMBOL LIST.

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Solnit Children's Center  
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Number	M/D/Y	Issued For

**ELECTRICAL  
FLOOR PLANS**

Date  
11/22/13

Scale  
**AS NOTED**

Proj. Number  
12035.05

Drawing Number  
**E1.0**

ELECTRICAL ABBREVIATIONS	
A/AMP	AMPERE
AC	ALTERNATING CURRENT
ACU	AIR CONDITIONING UNIT
AF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AHU	AIR HANDLING UNIT
AIC	AMPS INTERRUPTING CURRENT
ATS	AUTOMATIC TRANSFER SWITCH
AWG	AMERICAN WIRE GAUGE
BSMT	BASEMENT
C	CONDUIT
CATV	CABLE TELEVISION
C/B	CIRCUIT BREAKER
CKT	CIRCUIT
COMP	COMPRESSOR
CP	CONDENSATE PUMP
CT	CURRENT TRANSFORMER
CUH	CONDENSING UNIT, COPPER
CUH	CABINET UNIT HEATER
DEGREE	DEGREE
DIA/Ø	DIAMETER
DWG	DRAWING
E	EXISTING TO REMAIN
ELEC	ELECTRICAL
ELEV	ELEVATOR
EUH	ELECTRIC METALLIC TUBING
EUH	ELECTRIC UNIT HEATER
EWC	ELECTRIC WATER COOLER
EMH	ELECTRIC WATER HEATER
F	FAHRENHEIT
FA	FIRE ALARM
FACP	FIRE ALARM CONTROL PANEL
FC	FOOT CANDLE
FCU	FAN COIL UNIT
G	GROUND
GFI	GROUND FAULT INTERRUPTER
HPS	HIGH PRESSURE SODIUM
HR	HOUR
HZ	HERTZ
IG	ISOLATED GROUND
IN	INCHES
JB	JUNCTION BOX
KV	KILOVOLT
KVA	KILOVOLT AMPERE
KW	KILOWATT
MAX	MAXIMUM
MAU	MAKE UP AIR UNIT
MCC	MOTOR CONTROL CENTER
MCCB	MOLDED CASE CIRCUIT BREAKER
MIN	MINIMUM
MLO	MAIN LUGS ONLY
NA	NOT APPLICABLE
NEC	NATIONAL ELECTRICAL CODE
NIC	NOT IN CONTRACT
NL	NEW LOCATION OF EXISTING
NR	NEW TO REPLACE EXISTING
NTS	NOT TO SCALE
P	POLE
PE	PRIMARY ELECTRICAL SERVICE
PF	POWER FACTOR
PH/Ø	PHASE
PNL	PANEL
RELOCATE	RELOCATE EXISTING
RGS	RIGID GALVANIZED STEEL CONDUIT
RL	RELOCATE EXISTING
RM	ROOM
RR	REMOVE AND REPLACE ON NEW SURFACE
RTU	ROOF TOP UNIT
SE	SECONDARY ELECTRICAL SERVICE
SPEC	SPECIFICATION
SWBD	SWITCHBOARD
TELE	TELECOMMUNICATIONS/TELEPHONE
TV	TELEVISION
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSION
TR	TRANSFORMER
TYP	TYPICAL
UH	UNIT HEATER
V	VOLTS
VA	VOLT AMPERE
VAC	VOLTS ALTERNATING CURRENT
W	WATT, WIRE
WG	WIRE GUARD
WP	WEATHERPROOF

LIGHTING FIXTURE SCHEDULE				
TYPE	MANUFACTURER	VOLTAGE	LAMPS	FIXTURE DESCRIPTION
A	OWNER PROVIDED L.C. DOANE SW120-323-DOW-12DEL-15-TPD (OR APPROVED EQUAL)	120	(3) 32W 4'-T8	OWNER PROVIDED MEDIUM SECURITY FLUORESCENT SURFACE MOUNTED FIXTURE
B	OWNER PROVIDED L.C. DOANE SW932-DCW-12DEL-15-TPD (OR APPROVED EQUAL)	120	(2) 32W 4'-T8	OWNER PROVIDED MEDIUM SECURITY FLUORESCENT SURFACE MOUNTED FIXTURE
C	VR SERIES GEROLUX VRSE4835562L-1564-N-120-B33 (OR APPROVED EQUAL)	120	(2) 54W 4'-T8	MEDIUM SECURITY FLUORESCENT SURFACE MOUNTED FIXTURE

NOTES:

- REFER TO THE ELECTRICAL SPECIFICATIONS FOR ADDITIONAL GENERAL REQUIREMENTS.
- FIXTURES SHALL BE UL OR ETL LISTED.
- MOUNTING HARDWARE SUCH AS HANGERS, BRACKETS, RAILS, YOKES, STEMS, CHAINS, ETC., SHALL BE PROVIDED AS NECESSARY TO MOUNT SPECIFIED FIXTURE.
- REFER TO ARCHITECTURAL DRAWINGS AND REFLECTED CEILING PLANS FOR SPECIFIC DETAILS, ARRANGEMENT, MOUNTING HEIGHTS, CEILING CONSTRUCTION, ETC., COLORS AND FINISHES SHALL BE SELECTED BY THE ARCHITECT.
- FIXTURES SHALL BE SEISMICALLY SUPPORTED AS REQUIRED BY THE APPLICABLE BUILDING CODE. RECESSED FLUORESCENT FIXTURES SHALL BE SUPPORTED FROM THE BUILDING STRUCTURE WITH A MINIMUM OF 2 SUPPORTS.
- WIRE EMERGENCY FIXTURES AND EXIT SIGNS AHEAD OF SWITCHED LEGS.

MOTOR CIRCUIT SCHEDULE											
EQUIPMENT	SOURCE PANEL	O.C.P. DEVICE	BRANCH CIRCUIT	LOCAL DISC. SW.	MOTOR STARTER	LOAD	REMARKS				
EF-1	P1	20A/FP	2#12, #12G, 3/4"C	M.T.S.	TYPE	SIZE	LOCATION	AMP	PH	VOLT	
								0.64	1	120	

1. REFER TO SPECIFICATIONS FOR STANDARD FEATURES. DISCONNECT SWITCHES SHALL BE HEAVY DUTY TYPE.

2. ABBREVIATIONS:  
MAN = MANUAL STARTER  
FVNR = FULL VOLTAGE NON-REVERSING  
DIV. 15 = EQUIPMENT FURNISHED BY DIVISION CONTRACTOR

3. O.C.P. DEVICE (OVERCURRENT PROTECTIVE) SHALL BE MOLDED CASE CIRCUIT BREAKER UNLESS NOTED WITH AN "F" FOR FUSE.

4. STARTERS SHALL BE SQUARE D CLASS 8536 OR APPROVED EQUAL.

M.T.S. MOTOR RATED TOGGLE SWITCH

ELECTRICAL SYMBOL LIST			
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
[Symbol]	SURFACE MOUNTED PANELBOARD	S	SINGLE POLE TOGGLE SWITCH
[Symbol]	RECESSED PANELBOARD	S <sub>3</sub>	THREE WAY TOGGLE SWITCH
[Symbol]	DISCONNECT SWITCH	S <sub>4</sub>	FOUR WAY TOGGLE SWITCH
[Symbol]	FUSED DISCONNECT SWITCH	S <sub>0</sub>	OCCUPANCY SENSOR SWITCH
[Symbol]	COMBINATION STARTER/DISCONNECT SWITCH	Stol	SWITCH WITH THERMAL OVERLOAD PROTECTION
[Symbol]	ELECTRICAL MOTOR	[E]	EMERGENCY CALL TOGGLE SWITCH
[Symbol]	TRANSFORMER	[E]	EMERGENCY CALL FOR AID COMBINATION BUZZER/LIGHT
[Symbol]	ELECTRICAL METER	[R]	RELAY
[Symbol]	TRANSIENT VOLTAGE SURGE SUPPRESSER	[FP]	POWER PACK
[Symbol]	BRANCH CIRCUIT WIRING, CONCEALED IN WALLS OR CEILINGS	[TC]	TIME CLOCK
[Symbol]	HOMERUN TO PANELBOARD, UNLESS INDICATED OTHERWISE SHALL BE CONNECTED TO A 1 POLE, 20 AMP CIRCUIT BREAKER	[OS]	WALL MOUNTED OCCUPANCY SENSOR
[Symbol]	BRANCH CIRCUIT WIRING, SWITCHED	[Symbol]	SURFACE MOUNTED FLUORESCENT LIGHTING FIXTURE
[Symbol]	CONDUIT RUN ON SURFACE OF WALLS/CEILING	[Symbol]	PENDANT MOUNTED FLUORESCENT LIGHTING FIXTURE
[Symbol]	BRANCH CIRCUIT WIRING BELOW GRADE/SLAB	[Symbol]	PENDANT MOUNTED FLUORESCENT EMERGENCY LIGHTING FIXTURE
[Symbol]	UNDERGROUND PRIMARY ELECTRICAL SERVICE	[Symbol]	RECESSED FLUORESCENT LIGHTING FIXTURE
[Symbol]	UNDERGROUND SECONDARY ELECTRICAL SERVICE	[Symbol]	RECESSED FLUORESCENT EMERGENCY LIGHTING FIXTURE
[Symbol]	JUNCTION BOX	[Symbol]	RECESSED HIGH OUTPUT STEP LIGHT LUMINAIRE
[Symbol]	DUPLEX WALL MOUNTED RECEPTACLE	[Symbol]	WALL MOUNTED LIGHTING FIXTURE
[Symbol]	DOUBLE DUPLEX WALL MOUNTED RECEPTACLE	[Symbol]	WALL MOUNTED EMERGENCY LIGHTING FIXTURE
[Symbol]	DUPLEX RECEPTACLE, MOUNT ABOVE COUNTER HEIGHT	[Symbol]	RECESSED DOWNLIGHT FIXTURE
[Symbol]	DUPLEX RECEPTACLE, MOUNT 12" BELOW FINISHED CEILING	[Symbol]	RECESSED DOWNLIGHT EMERGENCY FIXTURE
[Symbol]	DUPLEX RECEPTACLE WITH GROUND FAULT CIRCUIT INTERRUPTION	[Symbol]	SURFACE MOUNTED DOWNLIGHT FIXTURE
[Symbol]	DUPLEX RECEPTACLE WITH WEATHERPROOF COVER	[Symbol]	SURFACE MOUNTED DOWNLIGHT EMERGENCY FIXTURE
[Symbol]	DUPLEX RECEPTACLE FOR WALL MOUNTED ELECTRICAL WATER COOLER WITH GROUND FAULT CIRCUIT INTERRUPTION	[Symbol]	PENDANT HUNG LIGHTING FIXTURE
[Symbol]	SPECIAL PURPOSE CONNECTION	[Symbol]	PENDANT HUNG EMERGENCY LIGHTING FIXTURE
[Symbol]	SPECIAL PURPOSE RECEPTACLE, NEMA CONFIGURATION AS INDICATED	[Symbol]	WALL MOUNTED LIGHTING FIXTURE
[Symbol]	COMBINATION TELEPHONE / COMPUTER OUTLET, TWO GANG BACKBOX WITH 3/4" CONDUIT STUBBED INTO ACCESSIBLE CEILING, PROVIDE NYLON PULL STRING AND BUSHING	[Symbol]	WALL MOUNTED EMERGENCY LIGHTING FIXTURE
[Symbol]	TELEPHONE OUTLET, TWO GANG BACKBOX WITH 3/4" CONDUIT STUBBED INTO AN ACCESSIBLE CEILING, PROVIDE NYLON PULL STRING AND BUSHING, MOUNTED 48" AFF	[Symbol]	WALL MOUNTED EXIT SIGN
[Symbol]	ABOVE-CEILING MOUNTED DATA OUTLET FOR WIRELESS ROUTER	[Symbol]	CEILING MOUNTED EXIT SIGN
[Symbol]	SELF CONTAINED EMERGENCY LIGHTING FIXTURE WITH BATTERY	[Symbol]	WALL MOUNTED COMBINATION HORN/STROBE LIGHT WITH AN ADA 15/75 CANDELA STROBE MOUNT AT 6'-8" AFF
[Symbol]		[Symbol]	WALL MOUNTED ADA 15/75 CANDELA STROBE UNIT ONLY
[Symbol]		[Symbol]	WALL MOUNTED FIRE ALARM MANUAL PULL STATION, MOUNT AT 48" AFF
[Symbol]		[Symbol]	CEILING MOUNTED SMOKE DETECTOR
[Symbol]		[Symbol]	FIRE ALARM CONTROL PANEL

ELECTRICAL SPECIFICATIONS	
1. THIS PROJECT COMPRISES ALTERATIONS AND RENOVATIONS TO THE EXISTING BUILDING. THE EXISTING BUILDING IS CURRENTLY OCCUPIED AND THE PROJECT WILL PROCEED IN A MANNER WHICH WILL MINIMIZE ANY INTERFERENCE TO THE BUILDING OCCUPANTS.	24. PHASE CONDUCTORS SHALL BE IDENTIFIED BY COLOR CODING. THE COLOR OF THE INSULATION ON PHASES A, B, AND C RESPECTIVELY (FOR THREE PHASE) OR PHASES A AND B RESPECTIVELY (FOR SINGLE PHASE) OF DIFFERENT VOLTAGE SYSTEMS SHALL BE AS FOLLOWS: 120/208 VOLT, 3-PHASE: BLACK, RED, AND BLUE. 120/240 VOLT, SINGLE-PHASE: BLACK AND RED. ON 3-PHASE, 4-WIRE DELTA SYSTEM, HIGH LEG SHALL BE ORANGE, AS MANDATED BY NFPA 70.
2. PRIOR TO SUBMITTING BID, VISIT SITE AND IDENTIFY EXISTING CONDITIONS AND DIFFICULTIES THAT WILL AFFECT WORK TO BE PERFORMED. NO COMPENSATION WILL BE GRANTED FOR IDENTIFYING WORK UNLESS IT IS IDENTIFIED BY EXPERIENCED OBSERVERS. INCLUDE IN THE BID ALL DEMOLITION WORK REQUIRED.	25. UNLESS OTHERWISE INDICATED, THE WIRING METHOD SHALL CONSIST OF THE INSTALLATION OF INSULATED CONDUCTORS INSTALLED IN ELECTRICAL METALLIC AND/OR NONMETALLIC TUBING. METALLIC-ARMORED CABLES MAY BE INSTALLED IN GYPSUM CEILING ABOVE FINISHED CEILING AND IN PROTECTED AREAS AS PERMITTED BY NFPA 70. PROVIDE INSULATED, GREEN EQUIPMENT GROUNDING CONDUCTOR IN FEEDER AND BRANCH CIRCUITS, INSTALLED IN CONDUIT OR RACEWAYS, INCLUDING LIGHTING CIRCUITS. GROUNDING CONDUCTOR SHALL BE SEPARATE FROM ELECTRICAL SYSTEM NEUTRAL. CONDUCTOR METAL CONDUIT SHALL EXTEND THROUGH SHAFTS FOR MINIMUM DISTANCE OF 6 INCHES. CONDUIT SIZES SHOWN ARE BASED ON USE OF COPPER CONDUCTORS WITH INSULATION TYPES AS INDICATED HEREIN. IF THE USE OF ALUMINUM CONDUCTORS IS ALLOWED, THE CONTRACTOR SHALL UPSIZE ALL CONDUITS ACCORDING TO NFPA 70. MINIMUM SIZE OF RACEWAYS SHALL BE 3/4 INCH, ONLY METAL CONDUITS WILL BE PERMITTED WHEN CONDUITS ARE REQUIRED FOR SHIELDING OR OTHER SPECIAL PURPOSES INDICATED, OR WHEN REQUIRED BY CONFORMANCE TO NFPA 70.
3. SCOPE OF WORK DEMOLITION OF INSTALLATION OF MATERIALS TO BE FURNISHED UNDER THE CONTRACT DOCUMENTS AND WITHOUT LIMITING GENERALITY THEREOF CONSISTS OF FURNISHING LABOR, MATERIALS, EQUIPMENT, HOISTING, PLANT, TRANSPORTATION, RIGGING, STAGING, AMPUTERANCES, AND SERVICES NECESSARY AND/OR INCIDENTAL TO PROPERLY COMPLETE ALL ELECTRICAL WORK AS SHOWN ON THE DRAWINGS AS DESCRIBED HEREIN.	26. ELECTRICAL METALLIC TUBING MAY BE INSTALLED ONLY WITHIN BUILDINGS. ELECTRICAL METALLIC TUBING MAY NOT BE INSTALLED IN CONCRETE OR EXTERIOR TO BUILDINGS. EMT SHALL NOT BE INSTALLED IN DAMP OR WET LOCATIONS. DO NOT USE IN AREAS SUBJECT TO SEVERE PHYSICAL DAMAGE INCLUDING BUT NOT LIMITED TO EQUIPMENT ROOMS WHERE MOVING OR REPLACING EQUIPMENT COULD PHYSICALLY DAMAGE THE EMT. BUSHINGS, MANUFACTURED FITTINGS OR BOXES PROVIDING EQUIVALENT MEANS OF PROTECTION SHALL BE INSTALLED ON THE ENDS OF ALL CONDUITS AND SHALL BE OF THE INSULATING TYPE, WHERE REQUIRED BY NFPA 70. ONLY UL LISTED ADAPTERS SHALL BE USED TO CONNECT EMT TO RIGID METAL CONDUIT. CAST BOXES, AND CONDUIT BOXES, DO NOT USE IN FIRE PUMP ROOMS. METALLIC CONDUITS AND TUBING SHALL BE SECURELY AND RIGIDLY FASTENED IN PLACE AS REQUIRED BY NFPA 70.
4. THE FOLLOWING DEFINITIONS APPLY TO THIS CONTRACT:	27. SINGLE AND DUPLEX RECEPTABLES SHALL BE RATED 20 AMPERES, 125 VOLTS, TWO-POLE, THREE-WIRE, GROUNDING TYPE WITH POLARIZED, PARALLEL, SLOTS. BODIES SHALL BE IVORY. RECEPTACLE SHALL BE SIDE-OR BACK-WIRED WITH TWO SCREWS PER TERMINAL. THE THIRD GROUNDING POLE SHALL BE TERMINAL. THE METAL MOUNTING YOKE, SWITCHED RECEPTABLES SHALL BE THE SAME AS OTHER RECEPTABLES SPECIFIED EXCEPT THAT THE UNGROUNDED POLE OF EACH SUITABLE RECEPTACLE SHALL BE PROVIDED WITH A SEPARATE TERMINAL ONLY THE TOP RECEPTACLE OF A DUPLEX RECEPTACLE SHALL BE WIRED FOR SWITCHING APPLICATION. RECEPTABLES WITH GROUND FAULT CIRCUIT INTERRUPTERS SHALL HAVE THE CURRENT RATING AS INDICATED, AND SHALL BE UL CLASS A TYPE UNLESS OTHERWISE SHOWN. GROUND FAULT CIRCUIT PROTECTION SHALL BE PROVIDED AS REQUIRED BY NFPA 70 AND AS INDICATED ON THE DRAWINGS.
A. FURNISH: THE TERM "FURNISH" IS USED TO MEAN "SUPPLY AND DELIVER TO THE PROJECT SITE, READY FOR UNLOADING, UNPACKING, ASSEMBLY, INSTALLATION, AND SIMILAR OPERATIONS."	28. WEATHERPROOF RECEPTABLES SHOWN SHALL BE MOUNTED IN A BOX WITH A GASKETED, WEATHERPROOF, CAST-METAL COVER PLATE AND GASKETED CAP OVER EACH RECEPTACLE OPENING.
B. INSTALL: THE TERM "INSTALL" IS USED TO DESCRIBE OPERATIONS AT PROJECT SITE INCLUDING THE ACTUAL "UNLOADING, UNPACKING, ASSEMBLY, ERECTION, PLACING, ANCHORING, APPLYING, WORKING TO DIMENSION, FINISHING, CURING, PROTECTING, CLEANING, AND SIMILAR OPERATIONS."	29. WALL SWITCHES SHALL BE OF THE TOTALLY ENCLOSED TUMBLER TYPE. THE WALL SWITCH HANDLE AND SWITCH PLATE COLOR SHALL BE IVORY. WIRING TERMINALS SHALL BE OF THE SCREW TYPE OR OF THE SCREWLESS PRESSURE TYPE HAVING SUITABLE CONDUCTOR-RELEASE ARRANGEMENT. SWITCHES SHALL BE RATED 20-AMPERE 120/277-VOLT FOR USE ON ALTERNATING CURRENT ONLY.
C. PROVIDE: THE TERM "PROVIDE" MEANS TO FURNISH AND INSTALL, COMPLETE AND READY FOR THE INTENDED USE."	30. DEVICE PLATES SHALL BE ONE-PIECE TYPE AND BE PROVIDED FOR ALL RECEPTABLES, OUTLETS, SWITCHES AND FITTINGS. PLATES ON UNFINISHED WALLS AND ON FINISHED WALLS SHALL BE OF SATIN FINISH CORROSION RESISTANT STAINLESS STEEL OR SATIN FINISH CHROME PLATED BRASS. PLATES SHALL BE INSTALLED WITH ALL FOUR EDGES IN CONTINUOUS CONTACT WITH FINISHED WALL SURFACES WITHOUT THE USE OF MATS OR PATCH DEVICES. PLASTER FILLINGS WILL NOT BE PERMITTED. PLATES SHALL BE INSTALLED WITH AN ALIGNMENT TOLERANCE OF 1/16 INCH (1/16 INCH). THE USE OF SECTIONAL-TYPE DEVICE PLATES WILL NOT BE PERMITTED.
D. REMOVE: THE TERM "REMOVE" MEANS "TO DISCONNECT FROM ITS PRESENT POSITION, REMOVE FROM THE PREMISES AND TO DISPOSE OF IN A LEGAL MANNER."	31. MOUNT LIGHTING SWITCHES 48 INCHES ABOVE FINISHED FLOOR, RECEPTABLES 18 INCHES ABOVE FINISHED FLOOR, AND OTHER DEVICES AS INDICATED. MEASURE MOUNTING HEIGHTS OF WIRING DEVICES AND OUTLETS TO TOP OF DEVICE OR OUTLET.
5. PROVIDE ALL NECESSARY MATERIALS, EQUIPMENT AND LABOR NECESSARY TO COMPLETE THE WORK OUTLINED ON THESE CONTRACT DOCUMENTS. THE CONTRACTOR IS TO NOTIFY THAT THESE DOCUMENTS ARE DIAGRAMMATIC ONLY AND THAT FINAL PLACEMENT OF EQUIPMENT OR DEVICES IN THE FIELD MAY NOT DIRECTLY CORRESPOND TO THAT WHICH IS SHOWN ON THE DRAWINGS. IF A CONFLICT IN POSITIONING OCCURS THE CONTRACTOR IS TO NOTIFY THE ENGINEER IMMEDIATELY TO ASCERTAIN WHAT THE INTENT WAS BY THE DESIGN PROFESSIONAL.	32. CEILING FIXTURES SHALL BE COORDINATED WITH AND SUITABLE FOR INSTALLATION IN, ON, OR FROM THE SUSPENDED CEILING SPECIFIED ON THE ARCHITECTURAL PLANS. THE CONTRACTOR MUST VERIFY THE CEILING TYPES PRIOR TO ORDERING THE FIXTURES. INSTALLATION AND SUPPORT OF FIXTURES SHALL BE IN ACCORDANCE WITH THE NFPA 70 AND MANUFACTURER'S RECOMMENDATIONS. PROVIDE SEISMIC RESTRAINTS FOR ALL LIGHT FIXTURES SPECIFIED HEREIN. RECESSED FIXTURES SHALL HAVE ADJUSTABLE FITTINGS TO PERMIT ALIGNMENT WITH CEILING PANELS. RECESSED FIXTURES INSTALLED IN FIRE-RESISTIVE TYPE OF SUSPENDED CEILING CONSTRUCTION SHALL HAVE THE SAME FIRE RATING AS THE CEILING OR SHALL BE PROVIDED WITH FIREPROOFING BOXES HAVING MATERIALS OF THE SAME FIRE RATING AS THE CEILING PANELS, IN CONFORMANCE WITH UL-03 SURFACE-MOUNTED FIXTURES SHALL BE SUITABLE FOR FASTENING TO THE STRUCTURAL SUPPORT FOR CEILING PANELS.
6. ALL WORK SHALL BE COMPLETED IN ACCORDANCE WITH THE LATEST STATE OF CONNECTICUT ACCEPTED REVISION OF THE NATIONAL ELECTRIC CODE (NEC), NFPA 70, AND THE NFPA 101 LIFE SAFETY CODE.	33. PROVIDE ALL NECESSARY JUNCTION BOXES, PULL BOXES, PULL WIRES, COVER PLATES AND OTHER MISCELLANEOUS EQUIPMENT WHICH IS NOT SHOWN ON THE CONTRACT DOCUMENTS BUT NECESSARY TO COMPLETE THE WORK.
7. OBTAIN IN OWNER'S NAME WRITTEN EQUIPMENT AND MATERIAL WARRANTIES OFFERED IN MANUFACTURER'S PUBLISHED PRODUCT DATA WITHOUT EXCLUSION OR LIMITATION.	34. PROVIDE FIRESTOPPING AROUND ELECTRICAL PENETRATIONS IN ACCORDANCE WITH FIRESTOPPING REQUIREMENTS. PROVIDE ASBESTOS FREE FIRESTOPPING SYSTEM CAPABLE OF MAINTAINING AN EFFECTIVE BARRIER AGAINST FLAME AND GASES. SYSTEM SHALL BE UL LISTED AND COMPLY WITH ASTM E 814.
8. GUARANTEE WORK OF THESE CONTRACT DOCUMENTS IN WRITING FOR NOT LESS THAN ONE YEAR FROM DATE OF FINAL NOTICE OF ACCEPTANCE. REPAIR OR REPLACE DEFECTIVE MATERIALS, EQUIPMENT, WORKMANSHIP AND INSTALLATION THAT DEVELOP WITHIN THIS PERIOD, PROMPT AND TO OWNER'S SATISFACTION AND CORRECT DAMAGE CAUSED IN MAKING NECESSARY REPAIRS AND REPLACEMENTS UNDER GUARANTEE WITHIN CONTRACT PRICE.	35. CLEAN, PRIME AND PAINT ELECTRICAL EQUIPMENT AND THE EXPOSED PORTION OF THE CONDUIT SYSTEM TO MATCH THE FINISH OF THE ADJACENT SURFACES OR TO MEET THE INDICATED OR SPECIFIED SAFETY CRITERIA OR TO MEET THE COLOR SCHEME SET BY THE ARCHITECT. PAINTING SHALL BE AS SPECIFIED IN SECTION 09900, "PAINTING".
9. SUPPLY TO THE OWNER AN OFFICIAL CERTIFICATE OF INSURANCE FOR THEIR RECORDS.	36. PROVIDE PRE-LABELED, SNAP AROUND PIPE MARKERS ON ALL CONDUITS. MARKERS SHALL COMPLY WITH ANSI A 13.1-1988 STANDARDS AND INDICATED VOLTAGE.
10. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS REQUIRED BY THE AUTHORITIES HAVING JURISDICTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ARRANGING AND BEING AVAILABLE FOR INSPECTIONS BY THE AUTHORITY HAVING JURISDICTION.	37. PROVIDE ALL NECESSARY WIRE, CONDUIT AND EQUIPMENT TO SUPPLY POWER TO THE HEATING, VENTILATION AND AIR CONDITIONING EQUIPMENT, PLUMBING EQUIPMENT AND FIRE PROTECTION EQUIPMENT. CONTROL WIRING AND CONDUIT SHALL BE PROVIDED UNDER DIVISION 15.
11. USE ADEQUATE NUMBERS OF SKILLED WORKMEN WHO ARE THOROUGHLY TRAINED AND EXPERIENCED IN THE NECESSARY CRAFTS AND WHO ARE COMPLETELY FAMILIAR WITH THE SPECIFIED REQUIREMENTS AND THE METHODS NEEDED FOR PROPER PERFORMANCE OF THE WORK.	38. ALL BACKBOARDS SHALL UTILIZE FIRE RETARDANT 3/4 INCH PLYWOOD, SIZED AS INDICATED ON THE DRAWINGS.
12. ARRANGE INSTALLATION TO PROVIDE ACCESS TO EQUIPMENT FOR EASY MAINTENANCE AND REPAIR.	39. PROVIDE SHOP DRAWINGS FOR SERVICE ENTRANCE EQUIPMENT, PANELBOARDS, DISCONNECT SWITCHES, LIGHT FIXTURES, ...
13. DO NOT SCALE DRAWINGS. SCALE INDICATED ON DRAWINGS IS FOR ESTABLISHING REFERENCE POINTS ONLY. ACTUAL FIELD CONDITIONS SHALL GOVERN ALL DIMENSIONS.	40. COORDINATE ALL WORK WITH OTHER TRADES AND ARRANGE INSTALLATION TO AVOID CLASHES BETWEEN EQUIPMENT, WORK OF OTHER TRADES AND BUILDING STRUCTURE.
14. MATERIALS AND EQUIPMENT SHALL BE UL LISTED WHERE STANDARD HAS BEEN ESTABLISHED.	
15. DO NOT BURN WASTE MATERIALS. DO NOT BURY DEBRIS OR EXCESS MATERIALS ON THE OWNER'S PROPERTY. DO NOT DISCHARGE VOLATILE, HARMFUL OR DANGEROUS MATERIALS INTO DRAINAGE SYSTEMS. REMOVE AND DISPOSE OF ALL WASTE MATERIALS, PACKAGING MATERIAL, SIGNS ETC. FROM THE SITE AND DISPOSE OF IN A LAWFUL MANNER IN ACCORDANCE WITH MUNICIPAL, STATE AND FEDERAL REGULATIONS.	
16. PRIOR TO ORDERING ANY MATERIALS AND EQUIPMENT, THOROUGHLY REVIEW THE SITE CONDITIONS TO DETERMINE IF ADEQUATE CLEARANCE AND ACCESS IS ALLOWED TO INSTALL THE COMPONENTS. ORDER EQUIPMENT BROKEN DOWN AS NECESSARY TO ALLOW FOR PROPER HANDLING THROUGH THE PROJECT AREA. PROVIDE ALL NECESSARY ALTERATIONS TO THE STRUCTURE OF THE BUILDING AS NECESSARY TO RIG THE EQUIPMENT IN PLACE. CAREFULLY INSPECT ALL BUILDING ELEMENTS PRIOR TO CUTTING OR DRILLING INTO WALL, FLOORS OR CEILINGS.	
17. THE CONTRACTOR SHALL BE REQUIRED TO PROPERLY STORE MATERIALS AND EQUIPMENT SO AS TO AVOID THEFT OR VANDALISM. IF THEFT OCCURS, THE CONTRACTOR SHALL REPAIR OR REPLACE SUCH ITEMS AT THE DIRECTION OF THE ENGINEER.	
18. THE CONTRACTOR MUST COORDINATE ALL INTERRUPTIONS OF SERVICES AND LIMITATIONS OF ACCESS WITH THE OWNER NO LESS THAN 3 DAYS PRIOR TO THE INTERRUPTION.	
19. MOUNT PANELBOARDS, CIRCUIT BREAKERS, AND DISCONNECTING SWITCHES SO HEIGHT OF OPERATING HANDLE AT ITS HIGHEST POSITION IS MAXIMUM 78 INCHES ABOVE FLOOR.	
20. PROVIDE LAMINATED PLASTIC NAMEPLATES FOR EACH PANELBOARD, EQUIPMENT ENCLOSURE, RELAY, SWITCH, AND DEVICE. EACH NAMEPLATE INSCRIPTION SHALL IDENTIFY THE FUNCTION AND, WHEN APPLICABLE, THE POSITION. NAMEPLATES SHALL BE MELAMINE PLASTIC, 0.125-INCH THICK, WHITE WITH BLACK CENTER CORE. SURFACE SHALL BE MATTE FINISH. CORNERS SHALL BE SQUARE. ACCURATELY ALIGN LETTERING AND ENGRAVE INTO THE CORE. MINIMUM SIZE OF NAMEPLATES SHALL BE 1" BY 2.5 INCHES. LETTERING SHALL BE A MINIMUM OF 0.25-INCH HIGH NORMAL BLOCK STYLE.	
21. GROUNDING SHALL BE COMPLETED IN ACCORDANCE WITH NFPA 70. GROUND EXPOSED, NON-CURRENT-CARRYING METALLIC PARTS OF ELECTRICAL EQUIPMENT, METALLIC RACEWAY SYSTEMS, GROUNDING CONDUCTOR IN METALLIC AND NONMETALLIC RACEWAYS, AND NEUTRAL CONDUCTOR OF WIRING SYSTEMS.	
22. CONDUCTORS NO. 8 AWG AND LARGER DIAMETER SHALL BE STRANDED ANNEALED COPPER. CONDUCTORS NO. 10 AWG AND SMALLER DIAMETER SHALL BE SOLID ANNEALED COPPER. EXCEPT THAT CONDUCTORS FOR REMOTE CONTROL, ALARM, AND SIGNAL CIRCUITS, CLASSES 1, 2, AND 3, SHALL BE STRANDED UNLESS SPECIFICALLY INDICATED OTHERWISE. CONDUCTOR SIZES AND AMPACITIES SHOWN ARE BASED ON COPPER UNLESS INDICATED OTHERWISE. UNLESS SPECIFIED OR INDICATED OTHERWISE OR REQUIRED BY NFPA 70, POWER AND LIGHTING WIRES SHALL BE 600-VOLT, TYPE THHN/THWN ANNEALED COPPER, REMOTE-CONTROL AND SIGNAL CIRCUITS SHALL BE TYPE TW, THW, OR TF ANNEALED COPPER. WHERE LIGHTING FIXTURES REQUIRE 90 DEGREE C CONDUCTORS, PROVIDE ONLY CONDUCTORS WITH 90 DEGREE C INSULATION OR BETTER.	
23. MAKE ALL SPLICES IN ACCESSIBLE LOCATIONS. MAKE SPLICES IN CONDUCTORS NO. 10 AWG AND SMALLER DIAMETER WITH INSULATED, PRESSURE-TYPE CONNECTOR. MAKE SPLICES IN CONDUCTORS NO. 8 AWG AND LARGER WITH SOLIDLESS CONNECTOR AND COVER WITH INSULATION MATERIAL EQUIVALENT TO CONDUCTOR INSULATION.	

