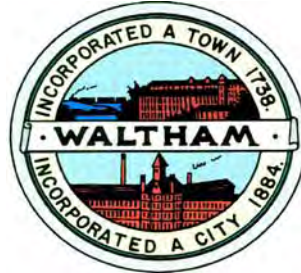


The City of Waltham



**Invites
Interested Parties
To propose the best offer and or bid
For the service or product herewith described:**

RENOVATIONS OF THE EXISTING SERVERY SECTION OF THE WALTHAM HIGH SCHOOL CAFETERIA

Bid Opening for General Contractors:

- **Friday July 26, 2013 At 10:00 AM**

Last Day for Written Questions:

- **Monday July 22, 2013 At 10:00 AM**

Bid Opening for Sub Bids:

- **Friday July 19, 2013 At 10:00 AM**

Pre Bid meeting and Inspection Date:

- **Monday July 15, 2013 At 10 AM**

(Meet at Waltham High School 617 Lexington Street, Waltham)

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ADVERTISEMENT

The City of Waltham, the Awarding Authority, invites sealed bids from **General Contractors** for the *Renovation of Waltham High School Cafeteria's Servery* in Waltham, Massachusetts, in accordance with the documents in this solicitation

The Project consists of renovation of an existing school cafeteria at the Waltham High School, Lexington Street, Waltham, MA. The work is estimated to cost \$ 150,000.00.

Bids are subject to M.G.L. c.149 §44A-J & to minimum wage rates as required by M.G.L. c.149 §§26 to 27H inclusive. This is a prevailing wage-based project and as such the selected vendor shall comply with the prevailing wage laws. The prevailing wage schedule is found on line at www.city.waltham.ma.us/open-bids.

General bidders must be certified by the Division of Capital Asset Management (DCAM) in the following category of work, General Building Construction, and must submit a current DCAM Certificate of Eligibility and a signed Update Statement (CQ3).

General Bids will be received until 10:00 a.m. on July 26, 2008 and publicly opened, forthwith. **Filed sub-bids for the trade listed below will be received until 10:00 a.m. on July 19, 2008** and opened forthwith.

Filed sub-bidders must be DCAM certified for the trades listed below and bidders must include a current DCAM Sub-Bidder Certificate of Eligibility and a signed DCAM Sub-Bidder's Update Statement.

SUB-TRADES Electrical – Section 16100

All Bids should be delivered to: **Joseph Pedulla, MCPPO, Chief Procurement Officer, Purchasing Department, 610 Main Street, Waltham, MA 02452** and received no later than the date and time specified above. General bids and sub-bids shall be accompanied by a **bid deposit** that is not less than five **(5%)** of the greatest possible bid amount (considering all alternates), and made payable to the City of Waltham.

A pre-bid briefing and site inspection session will be held Monday July 15, 2013 at 10:00 a.m. Meet at the Waltham High School 617 Lexington Street Waltham,

Bid Forms, all future addenda and Contract Documents will be/are available in the city web site at www.city.waltham.ma.us/open-bids

INSTRUCTIONS TO BIDDERS

ARTICLE 1 - BIDDER'S REPRESENTATION

- 1.1 Each General Bidder or Sub-bidder (hereinafter called the "Bidder") by making a bid or sub-bid (hereinafter called "bid") represents that:
1. The Bidder has read and understands the Contract Documents and the bid is made in accordance therewith.
 2. The Bidder has visited the site and is familiar with the local conditions under which the Work has to be performed.
- 1.2 Failure to so examine the Contract Documents and site will not relieve any Bidder from any obligation under the bid as submitted.

ARTICLE 2 - GENERAL BIDDER'S AND FILED SUB-BIDDER'S CERTIFICATION

- 2.1 General bids shall be submitted with the following:
1. A Certificate of Eligibility on the appropriate form prescribed and issued by the City of Waltham, showing that the Bidder is eligible to bid on projects of this size in the specified category of work; and
 2. A Contractor Update Statement.
 3. The Contractor Update Statement is not a public record and will not be open to public inspection.
 4. Compliance documents in the compliance section
- 2.2 Filed sub-bids shall be submitted with the following:
1. A Sub-Bidder Certificate of Eligibility on the appropriate form prescribed and issued showing that the sub-bidder is eligible to bid on public projects in the specified category of work; and
 2. A Sub-Bidder Update Statement.
- 2.3 It is the Sub-Bidder's responsibility to obtain the necessary forms and make application in sufficient time for evaluation of the application and issuance of a Sub-Bidder Certificate of Eligibility prior to bid.
- 2.4 The Sub-Bidder Update Statement is not a public record and will not be open to public inspection.
- 2.5 **Be advised that a new Massachusetts law has been enacted that requires all employees who work on Massachusetts public works construction sites must have no less than 10 hours of OSHA-approved safety and health training. See Chapter 306 of the Acts of 2004.**
1. This requirement will apply to any general bid or sub bid submitted after July 1, 2006 and to any contract awarded after July 1, 2006.

2. This law directs the Massachusetts Attorney General to restrain the award of construction contracts to any contractor who is in violation to this requirement and to restrain the performance of these contracts by non-complying contractors.
3. The Contractor and all subcontractors on this project will be required to provide certification of this compliance with this requirement in accordance with the provisions of Section 01100 of these Contract Documents. Non-compliance with this new Massachusetts Law will disqualify you from bidding on public contracts.

ARTICLE 3 - MBE AND WBE PARTICIPATION

NOT APPLICABLE

ARTICLE 4 - REQUESTS FOR INTERPRETATION

- 4.1 Bidders shall promptly notify the Owner of any ambiguity, inconsistency, or error which they may discover upon examination of the Contract Documents, the site, and local conditions.
- 4.2 Bidders requiring clarification or interpretation of the Contract Documents shall make a written request to the Owner. The Owner will answer such requests if received seven (7) calendar days before the date for receipt of the bids.
- 4.3 Interpretation, correction, or change in the Contract Documents will be made by written Addenda which will become part of the Contract Documents. Neither the City of Waltham nor the Architect will be held accountable for any oral interpretations, corrections, or changes.
- 4.4 Addenda will be e-mailed by the Owner, to every individual or firm on record as having registered with the Owner. All of the addenda will be publicly posted in the City web site at www.city.waltham.ma.us/open-bids

ARTICLE 5 - PREPARATION AND SUBMISSION OF BIDS

5.1 Forms and Bid Preparation

Bids shall be submitted on the "Form for General Bid" or the "Form for Sub-Bid", as appropriate. The forms enclosed in the Project Manual shall not be extracted or used. Additional forms are available at the location listed in the Advertisement.

5.1.1 All entries on the bid form shall be made by typewriter or in ink.

5.1.2 Sums shall be expressed in both words and figures in the space indicated on the bid form. Where there is a discrepancy between the bid sum expressed in words and the bid sum expressed in figures, the words shall control.

5.1.3 If the requirement of Performance and Payment Bonds for filed sub-contractors is left

blank by the General Bidder on the Form for General Bid, it shall be interpreted as a "yes". No increase in contract price will be allowed for providing these bonds.

5.1.4 Costs for subcontractor's bond premiums shall be paid for by the General Contractor in accordance with M.G.L. c.149 §44F.

5.2 Bid Deposits shall be:

5.2.1 at least five percent (5%) of the greatest possible bid amount, considering all alternates;

5.2.2 made payable to the City of Waltham;

5.2.3 conditioned upon faithful performance by the principal of the agreements contained in the bid, and

5.2.4 in the form of: .1 certified check, treasurer's or cashier's check issued by a responsible bank or trust company, or .2a bid bond issued by a surety company licensed to do business in the Commonwealth of Massachusetts.

5.2.5 retained until the execution and delivery of the Owner/Contractor Agreement if they represent the bid deposit of one of the three (3) lowest responsible and eligible General Bidders or one of the three (3) lowest Sub-bidders in a filed sub-bid trade, or a sub-bidder listed by one of the three (3).lowest General Bidders.

5.3 Delivery of Filed Sub-Bids

Sub-bids, including the bid deposit, Sub-Bidder Certificate of Eligibility, Compliance forms and a signed Sub-Bidder Update Statement shall, be enclosed in a sealed envelope with the following plainly marked on the outside:

Filed Sub-Bid for:

- Project Name and Project Number
- Sub-bid Section Number
- Trade
- Sub-bidder's Name, Business Address, and Phone Number

5.4 Delivery of General Bids

General Bids, including the bid deposit, Certificate of Eligibility and Update Statement, Compliance Forms shall be enclosed in a sealed envelope with the following plainly marked on the outside:

General Bid for:

- Project Name and Project Number
- Bidder's Name, Business Address, and Phone Number

5.4.1 Date and time for receipt of bids is set forth in the Advertisement.

5.4.2 Timely delivery of a bid to the location designated shall be the full responsibility of the

Bidder.

5.5 Sub-Trade Solicitations

- 5.5 .1 If the General Bidders are instructed to carry an amount for a given sub-trade listed under Item 2, General Bidder's shall list the sub-trade, and amount provided. The line under bonds required on the General Bid Form should be left blank or marked N/A in order for subparagraph 5.5.2.2 to be applicable.
- 5.5 .2 Upon solicitation of a subcontractor to perform the work required by the sub-trade as mentioned in subparagraph 5.5.1, the selected General Contractor's contract amount will be adjusted as follows:
 - 1. The difference between the subcontract amount and the amount carried in the bid.
 - 2. The total cost of the subcontractor's bonds, if the selected General Contractor requires such bonds after the solicitation is completed and if the selected General Contractor complied with 5.4.1 above, and
 - 3. The resultant cost difference for General Contractor's Bonds premiums.
- 5.5.3 Overhead and Profit for supervision of the sub-trade in question shall be included by all General Bidders in Item 1.
- 5.5 4 Additional overhead and profit is not allowed on the incremental difference as stated in M.G.L. c.149 §44F(4)(a)(2) nor on the costs for the additional bond premiums.

ARTICLE 6 - ALTERNATES

6.1 Not Applicable

ARTICLE 7 - WITHDRAWAL OF BIDS

7.1 Before Opening of Bids

- 7.1.1 Any bid may be withdrawn prior to the time designated for receipt of bids upon written request. Withdrawal of bids must be confirmed over the Bidder's signature by written notice post-marked or sent by facsimile on or before the date and time set for receipt of bids.
- 7.1.2 Withdrawn bids may be resubmitted up to the time designated for the receipt of bids.

7.2 After Opening of Bids

Bidders may withdraw a bid, without penalty, any time up to the time of Award as defined in paragraph 8.1, and upon demonstrating to satisfaction, that a bona fide clerical error was made during the preparation of the bid. Failure to conclusively demonstrate a bona fide clerical error may result in forfeiture of the bid deposit.

7.3 In the event of a general bid withdrawal after opening of bids, the City of Waltham shall consider the bid from next lowest eligible and responsible bidder.

7.4 Sub-bid Withdrawal/Substitution

7.4.1 Selection - Should a filed sub-bidder listed on the Form for General Bid of the selected General Contractor (per Article 8 of these instructions) withdraw its bid, be unable to provide performance and payment bonds as required by the selected General Contractor, or otherwise refuse to sign a subcontract with the selected General Contractor, the housing authority and the selected General Contractor shall consider the other sub-bids to which the housing authority and the selected General Contractor make no objection and substitute a new sub bidder for such trade.

7.4.2 Process: If the selected General Contractor:

1. required bonds (on the Form for General Bid) for the sub-bidder who withdrew then the selected General Contractor's contract amount shall be adjusted to account for:
 1. the difference between the amount of the sub-bid listed on the Form for General Bid and the amount of the replacement sub-bid, and
 2. the incremental difference in the cost of the General Contractor bonds premiums, but
 3. there will be no compensation for additional subcontractor bond premiums
2. did not require bonds (on the Form for General Bid) for the sub-bidder who withdrew and now the selected General Contractor wants bonds from the replacement sub-bidder, then the selected General Contractor's contract amount shall be adjusted:
 1. to account for the difference between the amount of the sub-bid listed on the Form for General Bid and the amount of the replacement sub-bid,
 2. the amount for the new sub-bidder's performance and payment bonds, and
 3. The incremental difference in the cost of the General Contractor bond premiums.

7.4.3 There shall be no adjustment to the selected General Contractor's contract amount except as set forth in 7.4.2.1 and 7.4.2.2. Additional overhead and profit is not allowed on the incremental difference in the sub-bids nor on the costs for the additional bond premiums.

ARTICLE 8 - CONTRACT AWARD

8.1 Award means both the determination and selection of the lowest, responsible and eligible bidder, by City of Waltham board vote.

- 8.2 The City of Waltham will award the contract to the lowest responsible and eligible bidder within sixty (60) days, Saturdays, Sundays, and legal holidays excluded after the opening of bids in accordance with M.G.L. c.149 §44A.
- 8.3 The Contract will be awarded to the lowest responsible and eligible Bidder, except in the event of substitution as provided under M.G.L. c.149 §§44E and 44F, in which cases the procedure as required by said sections shall govern the award of the Contract.
- 8.4 The award of this Contract is subject to the approval of the City of Waltham. Contracts without City of Waltham approval shall not be considered valid.
- 8.5 The City of Waltham reserves the right to waive any informalities in or to reject any or all Bids if it be in the public interest to do so.
- 8.6 The City of Waltham also reserves the right to reject any sub-bid if it determines that such sub-bid does not represent the bid of a person competent to perform the work as specified, or if less than three sub-bids are received for a sub-trade, or if bid prices are not reasonable for acceptance without further competition.
- 8.7 As used herein, the term "lowest responsible and eligible bidder" shall mean the General Bidder whose bid is the lowest of those Bidders demonstrably possessing the skill, ability, and integrity necessary for the faithful performance of the work, and who meets the requirements for Bidders set forth in M.G.L. c.149 §44A-J and is not debarred from bidding under M.G.L. c.149 §44C; and who shall certify that they are able to furnish labor that can work in harmony with all other elements of labor employed or to be employed on the work.

ARTICLE 9 - FORMS REQUIRED FOR CONTRACT APPROVAL

- 9.1 Upon Award, the General Bidder shall complete the following forms to ensure prompt contract validation. These forms will be provided to the selected General Bidder. **Submit (3) originals of each.**
- 9.2 Owner/Contractor Agreement and Form of Corporate Vote.
- 9.3 Form of Performance Bond and Form of Payment Bond must be submitted by the General Contractor, in accordance with Article 18 of the General Conditions. The dates on the bonds must coincide with the contract date, and a current Power-of-Attorney must be attached to each bond.
- 9.4 Performance and Payment Bonds must also be submitted for all filed subcontractors, if required by the General Bidder on its Form for General Bid, in the total amount of the subcontract payable to the General Contractor.
- 9.5 Insurance Certificates for the General Contractor and all filed subcontractors are required and must be submitted in accordance with Article 16 of the General Conditions.

- 9.6 General Contractors must indicate on special perils insurance or installation floater if stored materials are covered.
- 9.7 Form of Subcontract for all filed subcontractors -executed and submitted on the statutory subcontract form.
- 9.8 All completed forms in the Compliance section

ARTICLE 10 - CONTRACT VALIDATION

- 10.1 The Owner-Contractor Agreement shall not be valid until signed by the Mayor of the City of Waltham.
- 10.2 The Notice to Proceed for construction shall not be issued until the Owner/Contractor Agreement has been validated by the City of Waltham.
- 10.3 Incomplete or unacceptable submissions of forms required by paragraphs 9.2 - 9.7 will delay the validation of the Owner/Contractor Agreement by City of Waltham.

END OF SECTION

FORM FOR GENERAL BID

TO THE AWARDING AUTHORITY

A. The undersigned proposes to furnish all labor and materials required for the **Waltham High School Cafeteria Renovation Project, City of Waltham** in Waltham, Massachusetts in accordance with Contract Documents.

For the contract price specified below, subject additions and deductions according to the terms of the specifications

B. This bid includes addenda number(s):

C. The proposed contract price is:

_____ *(Bid Amount in Words)*

Dollars \$ _____ *(Bid Amount in Numbers)*

D. The subdivision of the proposed contract price is as follows:

ITEM 1. The work of the general contractor, being all work other than that covered by

ITEM 2.

TOTAL OF ITEM 1\$ _____

ITEM 2. Sub-bids as follows:

Sub-trade	Name of Filed Sub-bidder	Sub-bid Amount	Bond Required (Y/N)
------------------	---------------------------------	-----------------------	----------------------------

_____	_____	_____	_____
-------	-------	-------	-------

_____	_____	_____	_____
-------	-------	-------	-------

_____	_____	_____	_____
-------	-------	-------	-------

_____	_____	_____	_____
-------	-------	-------	-------

TOTAL OF ITEM 2 \$ _____

The undersigned agrees that each of the above named sub-bidders will be used for the work indicated at the amount stated, unless a substitution is made. The undersigned further agrees to pay the premiums for the performance and payment bonds furnished by sub-bidders as requested herein and that all of the cost of all such premiums is included in the amount set forth in Item I of this bid.

The undersigned agrees that if selected as general contractor, they will promptly confer with the awarding authority on the question of sub-bidders; and that the awarding authority may substitute for any sub-bid listed above a sub-bid filed with the awarding authority by another sub-bidder for the sub-trade against whose standing and ability the undersigned makes no objection; and that the undersigned will use all such finally selected sub-bidders at the amounts named in their respective sub-bids and be in every way as responsible for them and their work as if they had been originally named in this general bid, the total contract price being adjusted to conform thereto.

E. The undersigned agrees that, if selected as general contractor, he will within five days, Saturdays, Sundays, and legal holidays excluded, after presentation thereof by the awarding authority, execute a contract in accordance with the terms of this bid and furnish a performance bond and also a labor and materials or payment bond, each of a surety company qualified to do business under the laws of the Commonwealth and satisfactory to the awarding authority and each in the sum of the contract price, the premiums for which are to be paid by the general contractor and are included in the contract price.

The undersigned hereby certifies that he is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed on the work; that all employees to be employed at the worksite will have successfully completed a course in construction safety and health approved by the United States Occupational Safety and Health Administration that is at least 10 hours in duration at the time the employee begins work and who shall furnish documentation of successful completion of said course with the first certified payroll report for each employee; and that he will comply fully with all laws and regulations applicable to awards made subject to section 44A.

The undersigned further certifies under the penalties of perjury that this bid is in all respects bona fide, fair and made without collusion or fraud with any other person. As used in this subsection the word "person" shall mean natural person, joint venture, partnership, corporation or other business or legal entity. The undersigned further certifies under penalty of perjury that the said undersigned is not presently debarred from doing public construction work in the Commonwealth under the provisions of section twenty-nine F of chapter twenty-nine, or any other applicable debarment provisions of any other chapter of the General Laws or any rule or regulation promulgated thereunder.

F. The bidder acknowledges receipt of addenda number: _____, _____, _____, _____, _____,
_____, _____, _____, _____, _____, _____, _____, _____, _____,

Name of General Bidder

Signature & Title of person signing bid

Business Address

(City and State)

Date

Note: If the bidder is a corporation, indicate state of incorporation under signature, and affix corporate seal; if a partnership, give full names and residential addresses of partners if different from business addresses.

FORM FOR SUB BID

TO ALL GENERAL BIDDERS EXCEPT THOSE EXCLUDED:

A. The undersigned proposes to furnish all labor and materials required for completing, in accordance with the hereinafter described plans, specifications and addenda, all the work specified in Section No. _____ of the specifications and in any plans specified in such section prepared for the **Waltham High School Cafeteria Servery Renovation Project**, in Waltham, Massachusetts for the contract sum of:

_____ (Bid Amount in Words)

Dollars \$ _____ (Bid Amount in Numbers)

Each Alternate shall be listed separately

B. This bid includes addenda number(s): _____, _____, _____, _____, _____, _____.

C. This Sub-bid

May be used by any General Bidder Except:

May only be used by the following General Bidders:

(To exclude general bidders, insert "X" in one box only and fill in blank following that box. Do not answer C if no general bidders are excluded.)

D. The undersigned agrees that, if selected as a sub-bidder, they will, within five days, Saturdays, Sundays and legal holidays excluded, after presentation of a subcontract by the general bidder selected as the general contractor, execute with such general bidder a subcontract in accordance with the terms of this sub-bid, and contingent upon the execution of the general contract, and, if requested to do so in the general bid by such general bidder, who shall pay the premiums therefore, furnish a performance and payment bond of a surety company qualified to do business under the laws of the Commonwealth and satisfactory to the awarding authority, in the full sum of the subcontract price.

E. The names of all persons, firms and corporations furnishing to the undersigned labor or labor and materials for the class or classes or part thereof of work for which the provisions of the section of the specifications for this sub-trade require a listing in this paragraph, including the undersigned if customarily furnished by persons on his own payroll and in the absence of a contrary provision in the specification the name of each such class of work or part thereto and the bid price for such class of work or part thereof are:

NAME	CLASS OF WORK	BID PRICE

(Do not give bid price for any class or part thereof furnished by the undersigned.)

F. The undersigned agrees that the above list of bids of the undersigned represents bona fide bids based on hereinbefore described plans, specifications and addenda, and that, if the undersigned is awarded the contract, they will be used for the work indicated at the amounts stated, if satisfactory to the awarding authority.

G. The undersigned further agrees to be bound to the general contractor by the terms of the hereinbefore described plans, specifications (including all general conditions stated therein) and addenda, and to assume toward him all the obligations and responsibilities that the contractor, by those documents, assumes toward the owner.

H. The undersigned offers the following information as evidence of the contractor's qualifications to perform the work as bid upon according to all the requirements of the plans and specifications:

1. Have been in business under present business name for years

2. Ever failed to complete any work awarded?
3. List one or more recent buildings with names of general contractor and architect on which you served as subcontractor for work of similar character as required for the above - named building:

Building Type	Architect	General Contractor	Contract Amount
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

4. Bank Reference: _____

I. The undersigned hereby certifies that he is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed on the work; that all employees to be employed at the worksite will have successfully completed a course in construction safety and health approved by the United States Occupational Safety and Health Administration that is at least 10 hours in duration at the time the employee begins work and who shall furnish documentation of successful completion of said course with the first certified payroll report for each employee; and that he will comply fully with all laws and regulations applicable to awards of subcontracts subject to section 44F. The safety training requirement in this paragraph is effective July 1, 2006.

The undersigned further certifies under penalty of perjury that this sub-bid is in all respects bona fide, fair and made without collusion or fraud with any other person. As used in this subsection the word "person" shall mean any natural person, joint venture, partnership, corporation or other business or legal entity. The undersigned further certifies under penalty of perjury that the said undersigned is not presently debarred from doing public construction work in the Commonwealth under the provisions of section twenty-nine F of chapter twenty-nine, or any other applicable debarment provisions of any other chapter of the General Laws or any rule or regulation promulgated there under.

Name of Sub-Bidder

Signature & Title of person signing bid

Date: _____

Business Address

(City and State)

Note: If the bidder is a corporation, indicate state of incorporation under signature, and affix corporate seal; if a partnership, give full names and residential addresses of partners if different from business addresses.

J. The sub-bidder acknowledges receipt of addenda Number: _____, _____, _____, _____,
_____, _____, _____, _____, _____, _____,

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS:

That we, _____ (*NAME OF CONTRACTOR*) as **Principal**,

And _____ (*NAME OF SURETY*) as **Surety**, are held and firmly bound unto

The _____ (*CITY OR TOWN NAME*), as **Obligee**, in the sum of

_____ (*CONTRACT AMOUNT IN WORDS*) dollars \$ _____

to be paid to the Obligee, for which payments, well and truly to be made, we bind ourselves, our respective heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the said **Principal** has made a contract with the **Obligee**, bearing the date of _____ (*M/D/Y*)

for the construction of _____ (*Project Description*) in **Waltham**, Massachusetts

NOW, the condition of this obligation is such that if the **Principal** and all Subcontractors under said contract shall well and truly keep and perform all the undertakings, covenants, agreement, terms and conditions of said contract on its part to be kept and performed during the original term of said contract and any extensions thereof that may be granted by the Obligee, with or without notice to the **Surety**, and during the life and any guarantee required under the contract, and shall also well and truly keep and perform all the undertakings, covenants, agreements, terms and conditions of any and all duly authorized modifications, alterations changes or additions to said contract that may hereafter be made, notice to the **Surety** of such modifications, alterations, changes or additions being hereby waived, then this obligation shall become null and void; otherwise, it shall remain in full force and virtue.

IN THE EVENT, that the contract is abandoned by the **Principal**, or in the event that the Obligee, under the provisions of Article 19 of the General Conditions of said contract terminates the employment of the **Principal** or the authority of the **Principal** to continue the work, said **Surety** hereby further agrees that said **Surety** shall, if requested in writing by the Obligee, take such action as is necessary to complete said contract.

IN WITNESS WHEREOF, the **Principal** and **Surety** have hereunto set their hands and seals this:

_____ **th** Day of _____ of 20____

PRINCIPAL _____
CONTRACTORS'S NAME

SURETY _____
SURETY NAME

By: _____
Seal

By: _____
Attorney-in Fact

Attest: _____

Attest _____

The rate for this bond is _____ % for the first \$ _____ and _____ % for the next \$ _____

The total premium for this bond is \$ _____

Bond No. _____

PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS:

That we, _____ CONTRACTOR'S NAME as **Principal**,
And _____ SURETY NAME as **Surety**, are held and firmly bound unto
The _____ CITY OR TOWN, as **Obligee**, in the sum of
_____ CONTRACT AMOUNT IN WORDS dollars \$ _____.

to be paid to the Obligee, for which payments, well and truly to be made, we bind ourselves, our respective heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the said **Principal** has made a contract with the **Obligee**, bearing the date of _____ (M/D/Y)
for the construction of _____ PROJECT DESCRIPTION Here in **Waltham**,
Massachusetts

NOW the conditions of this obligation are such that if the **Principal** and all subcontractors under said contract shall pay for all labor performed or furnished and for all materials used or employed in said contract and in any and all duly authorized modifications, alterations, extensions of time, changes or additions to said contract that may hereafter be made, notice to the **Surety** of such modifications, alterations, extensions of time, changes or additions being hereby waived, the foregoing to include any other purposes or items set out in, and to be subject to, provisions of M.G.L. c.30 §39A, and M.G.L. c.149 §29, as amended, then this obligation shall become null and void; otherwise it shall remain in full force and virtue.

IN WITNESS WHEREOF, the **Principal** and **Surety** have hereunto set their hands and seals this:

_____ th Day of _____ 20_____

PRINCIPAL _____
Contractor's Name

SURETY _____
Surety Name

By: _____
Seal

By: _____
Attorney-in Fact

Attest: _____

Attest _____

The rate for this bond is _____ % for the first \$ _____ and _____ % for the next \$ _____

The total premium for this bond is \$ _____

COMPLIANCE FORMS

(PLEASE COMPLETE AND SUBMIT THESE FORMS WITH YOUR RESPONSE)

NON-COLLUSION FORM AND TAX COMPLIANCE FORM

CERTIFICATE OF NON-COLLUSION

The undersigned certifies under penalties of perjury that this bid or proposal has been made and submitted in good faith and without collusion or fraud with any other person. As used in this certification, the word "person" shall mean any natural person, business, partnership, corporation, union, committee, club, or other organization, entity or group of individuals. The undersigned certifies that no representations made by any City officials, employees, entity, or group of individuals other than the Purchasing Agent of the City of Waltham was relied upon in the making of this bid

_____, _____
(Signature of person signing bid or proposal) Date

(Name of business)

TAX COMPLIANCE CERTIFICATION

Pursuant to M.G.L. c. 62C, & 49A, I certify under the penalties of perjury that, to the best of my knowledge and belief, I am in compliance with all laws of the Commonwealth relating to taxes, reporting of employees and contractors, and withholding and remitting child support.

_____, _____
Signature of person submitting bid or proposal Date

Name of business

NOTE

Failure to submit any of the required documents, in this or in other sections, with your bid response package may cause the disqualification of your proposal.

CERTIFICATE OF VOTE OF AUTHORIZATION

Date:

I _____, Clerk of _____ hereby certify that at a meeting of the Board of Directors of said Corporation duly held on the _____ day of _____ at which time a quorum was present and voting throughout, the following vote was duly passed and is now in full force and effect:

VOTED: That _____ (*name*) is hereby authorized, directed and empowered for the name and on behalf of this Corporation to sign, seal with the corporate seal, execute, acknowledge and deliver all contracts and other obligations of this Corporation; the execution of any such contract to be valid and binding upon this Corporation for all purposes, and that this vote shall remain in full force and effect unless and until the same has been altered, amended or revoked by a subsequent vote of such directors and a certificate of such later vote attested by the Clerk of this Corporation.

I further certify that _____ is duly elected/appointed _____ of said corporation

SIGNED:

(Corporate Seal)

Clerk of the Corporation:

Print Name: _____

COMMONWEALTH OF MASSACHUSETTS

County of _____

Date:

Then personally appeared the above named and acknowledged the foregoing instrument to be their free act and deed before me, _____

Notary Public;

My Commission expires: _____

CORPORATION IDENTIFICATION

The bidder for the information of the Awarding Authority furnishes the following information.

If a Corporation:

Incorporated in what state _____

President _____

Treasurer _____

Secretary _____

Federal ID Number _____

If a foreign (out of State) Corporation – Are you registered to do business in Massachusetts?

Yes _____, No _____

If you are selected for this work you are required under M.G.L.ch. 30S, 39L to obtain from the Secretary of State, Foreign Corp. Section, State House, Boston, a certificate stating that you Corporation is registered, and furnish said certificate to the Awarding Authority prior to the award.

If a Partnership: (Name all partners)

Name of partner _____

Residence _____

Name of partner _____

Residence _____

If an Individual:

Name _____

Residence _____

If an Individual doing business under a firm's name:

Name of Firm _____

Name of Individual _____

Business Address _____

Residence _____

Date _____

Name of Bidder _____

By _____

Signature _____

Title _____

Business Address _____ (POST OFFICE BOX NUMBER NOT ACCEPTABLE)

City _____

State _____

Telephone Number _____

Today's Date _____

WEEKLY PAYROLL RECORDS REPORT & STATEMENT OF COMPLIANCE

In accordance with Massachusetts General Law c. 149, §27B, a true and accurate record must be kept of all persons employed on the public works project for which the enclosed rates have been provided, A Payroll Form has been printed on the reverse of this page and includes all the information required to be kept by law. Every contractor or subcontractor is required to keep these records and preserve them for a period of three years from the date of completion of the contract. In addition, every contractor and subcontractor is required to submit, on a weekly basis, a copy of his or her weekly payroll records to the awarding authority. For every week in which an apprentice is employed, a photocopy of the apprentice's identification card must be attached to the payroll report. Once collected, the awarding authority is also required to preserve those reports for three years. In addition, each such contractor, subcontractor, or public body shall furnish to the awarding authority directly, within fifteen days after completion of its portion of the work, a statement, executed by the contractor, subcontractor or public body who supervises the payment of wages, in the following form:

STATEMENT OF COMPLIANCE

_____, 201__

I _____,
(Name of signatory party) _____ (Title)

I do hereby state that I pay or supervise the payment of the persons employed by _____
(Contractor, subcontractor or public body) On the _____
(Building or project)

and that all mechanics and apprentices, teamsters, chauffeurs and laborers employed on said project have been paid in accordance with wages determined under the provisions of sections twenty-six and twenty-seven of chapter one hundred and forty nine of the General Laws.

Signature _____, Title _____

Print _____, Date _____

RIGHT TO KNOW LAW

Any vendor who receives an order or orders resulting from this invitation agrees to submit a Material Safety Data Sheet (MSDS) for each toxic or hazardous substance or mixture containing such substance, pursuant to M.G.L. c. 111F, §§8,9 and 10 and the regulations contained in 441 CMR 21.06 when deliveries are made. The vendor agrees to deliver all containers properly labeled pursuant to M.G.L. c. 111F §7 and regulations contained in 441 CMR 21.05. Failure to furnish MSDS and/or labels on each container may result in civil or criminal penalties, including bid debarment and action to prevent the vendor from selling said substances, or mixtures containing said substances within the Commonwealth. All vendors furnishing substances or mixtures subject to Chapter 111F or M.G.L. are cautioned to obtain and read the laws, rules and regulations referenced above. Copies may be obtained from the State House Bookstore, Secretary of State, State House, Room 117, Boston, MA (617) 727-2834.

Authorized Signature Indicating Compliance with the Right-to-know laws:

Signature

Date

Print Name

NOTE

Failure to submit any of the required documents, in this or in other sections, with your bid response package may cause the disqualification of your proposal.

DEBARMENT CERTIFICATION

In connection with this bid and all procurement transactions, by signature thereon, the respondent certifies that neither the company nor its principals are suspended, debarred, proposed for debarment, declared ineligible, or voluntarily excluded from the award of contracts, procurement or non procurement programs from the Commonwealth of Massachusetts, the US Federal Government and /or the City of Waltham. "Principals" means officers, directors, owners, partners and persons having primary interest, management or supervisory responsibilities with the business entity. Vendors shall provide immediate written notification to the Purchasing Agent of the City of Waltham at any time during the period of the contract of prior to the contract award if the vendor learns of any changed condition with regards to the debarment of the company or its officers. This certification is a material representation of fact upon which reliance will be placed when making the business award. If at any time it is determined that the vendor knowingly misrepresented this certification, in addition to other legal remedies available to the City of Waltham, the contract will be cancelled and the award revoked.

Company Name _____

Address _____

City _____, State _____, Zip Code _____

Phone Number (____) _____

E-Mail Address _____

Signed by Authorized Company Representative: _____

Print Name _____, Date _____

10 HOURS OSHA TRAINING CONFIRMATION

Chapter 306 of the Acts of 2004

CONSTRUCTION PROJECTS

AN ACT RELATIVE TO THE HEALTH AND SAFETY ON PUBLIC

The undersigned hereby certifies that all employees to be employed at a worksite for construction, reconstruction, alteration, remodeling, repair, installation, demolition, maintenance or repair of any public work or any public building estimated to cost more than \$10,000.00 have successfully completed a course in construction safety and health approved by the United States Occupational Safety and Health Administration that is at least 10 hours in duration at the time the employee begins work and who shall furnish documentation of successful completion of said course with the first payroll report for each employee and will comply with all laws and regulations applicable to awards of subcontracts subject to section 44F.

Company Name: _____

Address: _____

Signature: _____

Title: _____

Print Name _____

Date _____

See following Chapter 306 of the Acts of 2004

NOTE

Failure to submit any of the required documents, in this or in other sections, with your bid response package will be cause for the disqualification of your company.

FORM OF SUBCONTRACT

THIS AGREEMENT MADE THIS _____ DAY OF _____ 2013 , by and between _____ a corporation organized and existing under the laws of _____ an individual doing business as _____ hereinafter called the "Contractor" and _____ a corporation organized and existing under the laws of _____ an individual doing business as _____ hereinafter called the "Subcontractor".

1. The Subcontractor agrees to furnish all labor and materials required for the completion of all work specified in Section No. _____ of the specifications for _____ **(name of sub-trade)** and the plans referred to therein for the:

For the sum of _____ (\$ _____) and the Contractor agrees to pay the Subcontractor said sum for said work.

(a) The Subcontractor agrees to be bound to the Contractor by the terms of the hereinbefore described plans; specifications **(including all general conditions stated therein)** and Addenda No(s).____, ____ , ____ , ____ , and to assume to the Contractor all the obligations and responsibilities that the Contractor by those documents assumes to the _____ City of Waltham hereinafter called the "Awarding Authority", except to the extent that provisions contained therein are by their terms or by law applicable only to the Contractor.

(b) The Contractor agrees to be bound to the Subcontractor by the terms of the hereinbefore described documents and to assume to the Subcontractor all the obligations and responsibilities that the Awarding Authority by the terms of the hereinbefore described documents assumes to the Contractor, except to the extent that provisions contained therein are by their terms or by law applicable only to the Awarding Authority.

2. The Contractor agrees to begin, prosecute and complete the entire work specified by the Awarding Authority in an orderly manner so that the Subcontractor will be able to begin, prosecute and complete the work described in this subcontract; and, in consideration thereof, upon notice from the Contractor, either oral or in writing, the Subcontractor agrees to begin, prosecute and complete the work described in this Subcontract in an orderly manner and with due consideration to the date or time specified by the Awarding Authority for the completion of the entire work.

3. The Subcontractor agrees to furnish to the Contractor within a reasonable time after the execution of this subcontract, evidence of workmen's compensation insurance as required by

law and evidence of public liability and property damage insurance of the type and in limits required to be furnished to the Awarding Authority by the Contractor.

4. The Contractor agrees that no claim for services rendered or materials furnished by the Contractor to the Subcontractor shall be valid unless written notice thereof is given by the Contractor to the Subcontractor during the first ten (10) days of the calendar month following that in which the claim originated.

5. This agreement is contingent upon the execution of a general contract between the Contractor and the Awarding Authority for the complete work.

IN WITNESS WHEREOF, the parties hereto have executed this agreement the date and year first above-written.

SEAL

ATTEST _____

Name of Subcontractor

By: _____
Signature

SEAL

ATTEST _____

Name of Contractor

By: _____
Signature

SPECIAL NOTICE TO AWARDING AUTHORITY
BIDDERS' UPDATE STATEMENTS ARE NOT PUBLIC RECORDS AND
ARE NOT OPEN TO PUBLIC INSPECTION (M.G.L. C.149, §44D)

PRIME/GENERAL CONTRACTOR UPDATE STATEMENT

TO ALL BIDDERS AND AWARDING AUTHORITIES

A COMPLETED AND SIGNED PRIME/GENERAL CONTRACTOR UPDATE STATEMENT MUST BE SUBMITTED WITH EVERY PRIME/GENERAL BID FOR A CONTRACT PURSUANT TO M.G.L. c.149, §44A AND M.G.L. c. 149A. ANY PRIME/GENERAL BID SUBMITTED WITHOUT AN APPROPRIATE UPDATE STATEMENT IS INVALID AND MUST BE REJECTED.

Caution: This form is to be used for submitting Prime/General Contract bids. It is not to be used for submitting Filed Sub-Bids or Trade Sub-Bids.

AWARDING AUTHORITIES

If the Awarding Authority determines that the bidder does not demonstrably possess the skill, ability, and integrity necessary to perform the work on the project, it must reject the bid.

BIDDER'S AFFIDAVIT

I swear under the pains and penalties of perjury that I am duly authorized by the bidder named below to sign and submit this Prime/General Contractor Update Statement on behalf of the bidder named below, that I have read this Prime/General Contractor Update Statement, and that all of the information provided by the bidder in this Prime/General Contractor Update Statement is true, accurate, and complete as of the bid date.

Bid Date

Name of Prime/General Contractor

Project Number (or
name if no number)

Business Address

Awarding Authority

Telephone Number

SIGNATURE⇒

Bidder's Authorized Representative

INSTRUCTIONS

INSTRUCTIONS TO BIDDERS

- This form must be completed and submitted by all Prime/General contractors bidding on projects pursuant to M.G.L. c. 149, §44A and M.G.L. c. 149A.
- You must give complete and accurate answers to all questions and provide all of the information requested. **MAKING A MATERIALLY FALSE STATEMENT IN THIS UPDATE STATEMENT IS GROUNDS FOR REJECTING YOUR BID AND FOR DEBARRING YOU FROM ALL PUBLIC CONTRACTING.**
- Information is to cover the period from the date your most recent annual Certificate of Eligibility was issued (not extended) to the date of the bid.
- You must use this official form of Update Statement. Copies of this form may be obtained from the awarding authority and from the Asset Management Web Site: www.mass.gov/cam
- If additional space is needed, please copy the appropriate page of this Update Statement and attach it as an additional sheet.
- See the section entitled "Bidding Limits" in the *Instructions to Awarding Authorities* for important information concerning your bidding limits.

INSTRUCTIONS TO AWARDING AUTHORITIES

Determination of Bidder Qualifications

- It is the awarding authority's responsibility to determine who is the lowest eligible and responsible bidder. You must consider all of the information in the low bidder's Update Statement in making this determination. **Remember:** this information was not available to the Division of Capital Asset Management at the time of certification.
- The bidder's performance on the projected listed in Parts 1 and 2 must be part of your review. Contact the project references.
- **AWARDING AUTHORITIES ARE STRONGLY ENCOURAGED TO REVIEW THE LOW BIDDER'S ENTIRE CERTIFICATION FILE AT THE DIVISION OF CAPITAL ASSET MANAGEMENT. Telephone (617) 727-9320 for an appointment.**

Bidding Limits

Single Project Limit: The total amount of the bid, including all alternates, may not exceed the bidder's Single Project Limit.

Aggregate Work Limit: The annual value of the work to be performed on the contract for which the bid is submitted, when added to the annual cost to complete the bidder's other currently held contracts, may not exceed the bidder's Aggregate Work Limit. Use the following procedure to determine whether the low bidder is within its Aggregate Work Limit:

Step 1 Review Update Statement Question #2 to make sure that all requested information is provided and that the bidder has accurately calculated and totaled the annualized value of all incomplete work on its currently held contracts (column 9).

Step 2 Determine the annual dollar value of the work to be performed on your project. This is done as follows:

(i) If the project is to be completed in less than 12 months, the annual dollar value of the work is equal to the full amount of the bid.

(ii) If the project will take more than 12 months to complete, calculate the number of years given to complete the project by dividing the total number of months in the project schedule by 12 (calculate to 3 decimal places), then divide the amount of the bid by the calculated number of years to find the annual dollar value of the work.

Step 3 Add the annualized value of all of the bidder's incomplete contract work (the total of column 9 on page 5) to the annual dollar value of the work to be performed on your project. **The total may not exceed the bidder's Aggregate Work Limit.**

Correction of Errors and Omissions in Update Statements

Matters of Form: An awarding authority shall not reject a contractor's bid because there are mistakes or omissions of form in the Update Statement submitted with the bid, provided the contractor promptly corrects those mistakes or omissions upon request of the awarding authority. [810 CMR 4.09(1)].

Correction of Other Defects: An awarding authority may, in its discretion, give a contractor notice of defects, other than mistakes or omissions of form, in the contractor's Update Statement, and an opportunity to correct such defects, provided the correction of such defects is not prejudicial to fair competition. An awarding authority may reject a corrected Update Statement if it contains unfavorable information about the contractor that was omitted from the Update Statement filed with the contractor's bid. [810 CMR 4.09(2)].

PART 1 - COMPLETED PROJECTS

LIST ALL PUBLIC AND PRIVATE *BUILDING* PROJECTS YOUR FIRM HAS COMPLETED SINCE THE DATE YOUR CURRENT CERTIFICATE OF ELIGIBILITY WAS ISSUED (NOT EXTENDED). *

PROJECT TITLE & LOCATION	WORK CATEGORY	CONTRACT PRICE	START DATE	DATE COMPLETED

Attach additional sheets if necessary

* If your firm has been terminated from a project prior to completion of the work or has failed or refused to complete its work under any contract, full details and an explanation must be provided. See Part 3 of this Update Statement.

PROVIDE THE FOLLOWING REFERENCE INFORMATION FOR EACH COMPLETED PROJECT LISTED ON THE PREVIOUS PAGE.

PROJECT TITLE	COMPANY NAME	CONTACT PERSON	TELEPHONE
	OWNER:		
	DESIGNER:		
	GC:		
	OWNER:		
	DESIGNER:		
	GC:		
	OWNER:		
	DESIGNER:		
	GC:		
	OWNER:		
	DESIGNER:		
	GC:		
	OWNER:		
	DESIGNER:		
	GC:		
	OWNER:		
	DESIGNER:		
	GC:		

Is your company or any individual who owns, manages or controls your company affiliated with any owner, designer or general contractor named above, either through a business or family relationship? YES NO

Are any of the contact persons named above affiliated with your company or any individual who owns, manages or control your company, either through a business or family relationship? YES NO

If you have answered YES to either question, explain: _____

PART 2 - CURRENTLY HELD CONTRACTS

LIST ALL PUBLIC AND PRIVATE BUILDING AND NON-BUILDING CONSTRUCTION PROJECTS YOUR FIRM HAS UNDER CONTRACT ON THIS DATE REGARDLESS OF WHEN OR WHETHER THE WORK COMMENCED.

1	2	3	4	5	6	7	8	9
PROJECT TITLE & LOCATION	WORK CATEGORY	START AND END DATES	ON SCHEDULE (yes / no)	CONTRACT PRICE	% NOT COMPLETE	\$ VALUE OF WORK NOT COMPLETE (col. 5 x col. 6)	NO. OF YEARS REMAINING (see note below)	ANNUALIZED VALUE OF INCOMPLETE WORK (col. 7 ÷ col. 8)

ANNUALIZED VALUE OF ALL INCOMPLETE CONTRACT WORK (Total of Column 9)

\$ _____

- Column 8
- If less than one year is left in the project schedule, write 1.
 - If more than 12 months are left in the project schedule, divide the number of months left in the project schedule by 12 (calculate to three decimal places).

PROVIDE THE FOLLOWING REFERENCE INFORMATION FOR EACH INCOMPLETE PROJECT LISTED ON THE PREVIOUS PAGE.

PROJECT TITLE	COMPANY NAME	CONTACT PERSON	TELEPHONE
	OWNER:		
	DESIGNER:		
	GC:		
	OWNER:		
	DESIGNER:		
	GC:		
	OWNER:		
	DESIGNER:		
	GC:		
	OWNER:		
	DESIGNER:		
	GC:		
	OWNER:		
	DESIGNER:		
	GC:		
	OWNER:		
	DESIGNER:		
	GC:		

Is your company or any individual who owns, manages or controls your company affiliated with any owner, designer or general contractor named above either through a business or family relationship? YES NO

Are any of the contact persons named above affiliated with your company or any individual who owns, manages or control your company, either through a business or family relationship? YES NO

If you have answered YES to either question, explain: _____

PART 3 - PROJECT PERFORMANCE

Please answer the following questions. Information is to cover the period from the date your current Certificate of Eligibility was issued to the bid date.

If you answer YES to any question, on a separate page provide a complete explanation. Include all details [project name(s) and location(s), names of all parties involved, relevant dates, etc.].

	YES	NO
A. Has your firm been terminated on any contract prior to completing its work?	<input type="checkbox"/>	<input type="checkbox"/>
B. Has your firm failed or refused either to perform or complete any of its work under any contract prior to substantial completion?	<input type="checkbox"/>	<input type="checkbox"/>
C. Has your firm failed or refused to complete any punchlist work under any contract?	<input type="checkbox"/>	<input type="checkbox"/>
D. Has your surety taken over or been asked to complete any of your work under any contract?	<input type="checkbox"/>	<input type="checkbox"/>
E. Has your surety made payment to a materials supplier or other party under your payment bond on any contract?	<input type="checkbox"/>	<input type="checkbox"/>
F. Has any subcontractor filed a demand for direct payment with an awarding authority on a public project for any of your contracts?	<input type="checkbox"/>	<input type="checkbox"/>
G. Have any of your subcontractors or suppliers filed litigation to enforce a mechanic's lien against property in connection with work performed or materials supplied under any of your contracts?	<input type="checkbox"/>	<input type="checkbox"/>
H. Have there been any deaths of employee or others occurring in connection with any of your projects?	<input type="checkbox"/>	<input type="checkbox"/>
I. Has any employee or other person suffered an injury resulting in complete disability in excess of thirty working days in connection with any of your projects?	<input type="checkbox"/>	<input type="checkbox"/>

PART 4 - LEGAL PROCEEDINGS

Please answer the following questions. Information is to cover the period from the date your current Certificate of Eligibility was issued to the bid date.

The term "Administrative Proceeding" as used in this Update Statement includes (i) any action or proceeding brought by a governmental agency, department or officer to enforce any law, regulation, code or other legal requirement, except for those brought in state or federal courts, and (ii) any action taken by a governmental agency, department or officer imposing penalties, fines or other sanctions for failure to comply with any such legal requirement.

If you answer YES to any question, on a separate page provide a complete explanation of each proceeding and any judgement or decision. Include all details (name of court or administrative agency, title of case or proceeding, case number, date action was commenced, date judgement or decision was entered, fines or penalties imposed, etc.).

	YES	NO
A. Have any judicial proceedings (other than criminal proceedings) been brought or concluded adversely against your firm or a principal or officer of your firm relating to the procurement or performance of any construction contract, including actions to obtain payment brought by subcontractors, suppliers or others?	<input type="checkbox"/>	<input type="checkbox"/>

B. Have any criminal proceedings been brought or concluded adversely against your firm or a principal or officer of your firm relating to any of the following offenses: graft, embezzlement, forgery, bribery, falsification or destruction of records, receipt of stolen property or environmental offenses?	<input type="checkbox"/>	<input type="checkbox"/>
C. Have any judicial or administrative proceedings been brought or concluded adversely against your firm or a principal or officer of your firm relating to a violation of state or federal antitrust laws arising out of the submission of bids or proposals?	<input type="checkbox"/>	<input type="checkbox"/>
D. Have any judicial or administrative proceedings been brought or concluded adversely against your firm or a principal or officer of your firm relating to a violation of state or federal laws regulating campaign contributions?	<input type="checkbox"/>	<input type="checkbox"/>
E. Have any judicial or administrative proceedings been brought or concluded adversely against your firm or a principal or officer of your firm relating to a violation of chapter 268A of the Massachusetts General Laws?	<input type="checkbox"/>	<input type="checkbox"/>
F. Have any judicial or administrative proceedings been brought or concluded adversely against your firm or a principal or officer of your firm relating to a violation of any state or federal law regulating prevailing wages?	<input type="checkbox"/>	<input type="checkbox"/>
G. Have any judicial or administrative proceedings been brought or concluded adversely against your firm or a principal or officer of your firm relating to a violation of any state or federal law regulating hours of labor, minimum wages, overtime pay, equal pay, child labor or worker's compensation?	<input type="checkbox"/>	<input type="checkbox"/>
H. Have any judicial or administrative proceedings been brought or concluded adversely against your firm or a principal or officer of your firm relating to a violation of any state or federal law prohibiting discrimination in employment?	<input type="checkbox"/>	<input type="checkbox"/>
I. Have any judicial or administrative proceedings been brought or concluded adversely against your firm or a principal or officer of your firm relating to a claim of repeated or aggravated violation of any state or federal law regulating labor relations or occupational health or safety?	<input type="checkbox"/>	<input type="checkbox"/>
J. Have any proceedings been brought by any state or federal agency to debar or suspend your firm or any principal or officer of your firm from public contracting?	<input type="checkbox"/>	<input type="checkbox"/>
K. Has your firm been fined by OSHA or any other state or federal agency for violations of any laws or regulations related to occupational health or safety?	<input type="checkbox"/>	<input type="checkbox"/>

PART 5 - SUPERVISORY PERSONNEL

List all supervisory personnel, such as project managers and superintendents, who will be assigned to the project if your firm is awarded the contract. **Attach the resume of each person listed below.**

NAME	TITLE OR FUNCTION

PART 6 - CHANGES IN BUSINESS ORGANIZATION OR FINANCIAL CONDITION

Have there been any changes in your firm's business organization, financial condition or bonding capacity since the date your current Certificate of Eligibility was issued? Yes No

If YES, attach a separate page providing complete details.

SPECIAL NOTICE TO AWARDING AUTHORITY
SUB-BIDDERS' UPDATE STATEMENTS ARE NOT PUBLIC RECORDS AND
ARE NOT OPEN TO PUBLIC INSPECTION (M.G.L. C.149, §44D)

SUB-BIDDER UPDATE STATEMENT

TO ALL SUB-BIDDERS, TRADE CONTRACTORS AND AWARDING AUTHORITIES

A COMPLETED AND SIGNED SUB-BIDDER UPDATE STATEMENT MUST BE SUBMITTED WITH EVERY FILED SUB-BID PURSUANT TO M.G.L. c.149, §44F AND EVERY TRADE SUB-BID PURSUANT TO M.G.L. c. 149A. ANY FILED SUB-BID OR TRADE SUB-BID SUBMITTED WITHOUT AN APPROPRIATE SUB-BIDDER UPDATE STATEMENT IS INVALID AND MUST BE REJECTED.

Caution: This form is to be used for submitting Filed Sub-Bids and Trade Sub-Bids. It is not to be used for submitting Prime/General Contract bids.

AWARDING AUTHORITIES

If the Awarding Authority determines that the sub-bidder is not competent to perform the work as specified on the project, it should reject the bid.

SUB-BIDDER'S AFFIDAVIT

I swear under the pains and penalties of perjury that I am duly authorized by the bidder named below to sign and submit this Sub-bidder Update Statement on behalf of the bidder named below, that I have read this Sub-bidder Update Statement, and that all of the information provided by the bidder in this Sub-bidder Update Statement is true, accurate, and complete as of the bid date.

Bid Date

Print Name of Sub-bidder or Trade Contractor

Project Number (or
name if no number)

Business Address

Awarding Authority

Telephone Number

SIGNATURE⇒

Bidder's Authorized Representative

INSTRUCTIONS

INSTRUCTIONS TO SUB-BIDDERS

- This form must be completed and submitted by all Filed Sub-Bidders bidding on projects pursuant to M.G.L. c. 149, §44F and Trade Contractors bidding on projects pursuant to M.G.L. c. 149A.
- You must give complete and accurate answers to all questions and provide all of the information requested. **MAKING A MATERIALLY FALSE STATEMENT IN THIS SUB-BIDDER UPDATE STATEMENT IS GROUNDS FOR REJECTING YOUR BID AND FOR DEBARRING YOU FROM ALL PUBLIC CONTRACTING.**
- Information is to cover the period from the date your most recent annual Sub-bidder Certificate of Eligibility was issued (not extended) to the date of the bid.
- You must use this official form of Sub-bidder Update Statement. Copies of this form may be obtained from the awarding authority and from the DCAM Web Site: www.mass.gov/cam
- If additional space is needed, please copy the appropriate page of this Sub-bidder Update Statement and attach it as an additional sheet.

INSTRUCTIONS TO AWARDING AUTHORITIES

Determination of Sub-Bidder Qualifications

- It is the awarding authority's responsibility to determine each responsible bidder. You must consider all of the information in the bidder's Sub-bidder Update Statement in making this determination. **Remember:** this information was not

available to the Division of Capital Asset Management at the time of certification.

- The sub-bidder's performance on the projected listed in Parts 1 and 2 must be part of your review. Contact the project references.
- **AWARDING AUTHORITIES ARE STRONGLY ENCOURAGED TO REVIEW THE SUB-BIDDER'S ENTIRE CERTIFICATION FILE AT THE DIVISION OF CAPITAL ASSET MANAGEMENT.** Telephone (617) 727-9320 for an appointment.

Correction of Errors and Omissions in Sub-bidder Update Statements

Matters of Form: An awarding authority shall not reject a sub-bidder's bid because there are mistakes or omissions of form in the Sub-bidder Update Statement submitted with the bid pursuant to M.G.L. c.149, §44D, provided the sub-bidder promptly corrects those mistakes or omissions upon request of the awarding authority. [810 CMR 8.13 (1)].

Correction of Other Defects: An awarding authority may, in its discretion, give a sub-bidder notice of minor defects and omissions as to form in the Sub-bidder's Update Statement and provide an opportunity to correct its Sub-bidder Update Statement. However, the sub-bidder shall not be allowed to make corrections to a Sub-bidder Update Statement if material information about the sub-bidder was omitted from the Sub-bidder Update Statement filed with the sub-bidder's bid. The Awarding Authority shall advise DCAM of any material omissions in a Sub-bidder's Update Statement.. [810 CMR 8.13(2)].

PART 1 - COMPLETED PROJECTS

LIST ALL PUBLIC AND PRIVATE PROJECTS OF \$20,000 OR MORE THAT YOUR FIRM HAS COMPLETED SINCE THE DATE YOUR CURRENT SUB-BIDDER CERTIFICATE OF ELIGIBILITY WAS ISSUED (NOT EXTENDED). *

PROJECT TITLE & LOCATION	WORK CATEGORY	CONTRACT PRICE	START DATE	DATE COMPLETED

Attach additional sheets if necessary

* If your firm has been terminated from a project prior to completion of the work or has failed or refused to complete its work under any contract, full details and an explanation must be provided. See Part 3 of this Sub-bidder Update Statement.

PROVIDE THE FOLLOWING REFERENCE INFORMATION FOR EACH COMPLETED PROJECT LISTED ON THE PREVIOUS PAGE.

PROJECT TITLE	COMPANY NAME	CONTACT PERSON	TELEPHONE
	OWNER:		
	DESIGNER:		
	GC:		
	OWNER:		
	DESIGNER:		
	GC:		
	OWNER:		
	DESIGNER:		
	GC:		
	OWNER:		
	DESIGNER:		
	GC:		

Is your company or any individual who owns, manages or controls your company affiliated with any owner, designer or general contractor named above, either through a business or family relationship? YES NO

Are any of the contact persons named above affiliated with your company or any individual who owns, manages or control your company, either through a business or family relationship? YES NO

If you have answered YES to either question, explain: _____

PART 2 - CURRENTLY HELD CONTRACTS

LIST ALL PUBLIC AND PRIVATE PROJECTS OF \$20,000 OR MORE THAT YOUR FIRM HAS UNDER CONTRACT ON THIS DATE REGARDLESS OF WHEN OR WHETHER THE WORK COMMENCED.

1	2	3	4	5	6	7
PROJECT TITLE & LOCATION	WORK CATEGORY	START AND END DATES	ON SCHEDULE (yes / no)	CONTRACT PRICE	% NOT COMPLETE	\$ VALUE OF WORK NOT COMPLETE (col. 5 x. col. 6)

PROVIDE THE FOLLOWING REFERENCE INFORMATION FOR EACH INCOMPLETE PROJECT LISTED ON THE PREVIOUS PAGE.

PROJECT TITLE	COMPANY NAME	CONTACT PERSON	TELEPHONE
	OWNER:		
	DESIGNER:		
	GC:		
	OWNER:		
	DESIGNER:		
	GC:		
	OWNER:		
	DESIGNER:		
	GC:		
	OWNER:		
	DESIGNER:		
	GC:		
	OWNER:		
	DESIGNER:		
	GC:		
	OWNER:		
	DESIGNER:		
	GC:		

Is your company or any individual who owns, manages or controls your company affiliated with any owner, designer or general contractor named above either through a business or family relationship? YES NO

Are any of the contact persons named above affiliated with your company or any individual who owns, manages or control your company, either through a business or family relationship? YES NO

If you have answered YES to either question, explain: _____

PART 3 - PROJECT PERFORMANCE

Please answer the following questions. Information is to cover the period from the date your current Sub-bidder Certificate of Eligibility was issued to the bid date.

If you answer YES to any question, on a separate page provide a complete explanation. Include all details [project name(s) and location(s), names of all parties involved, relevant dates, etc.].

	YES	NO
A. Has your firm been terminated on any contract prior to completing its work?	<input type="checkbox"/>	<input type="checkbox"/>
B. Has your firm failed or refused either to perform or complete any of its work under any contract prior to substantial completion?	<input type="checkbox"/>	<input type="checkbox"/>
C. Has your firm failed or refused to complete any punchlist work under any contract?	<input type="checkbox"/>	<input type="checkbox"/>
D. Has your surety taken over or been asked to complete any of your work under any contract?	<input type="checkbox"/>	<input type="checkbox"/>
E. Has your surety made payment to a materials supplier or other party under your payment bond on any contract?	<input type="checkbox"/>	<input type="checkbox"/>
G. Have there been any deaths of employee or others occurring in connection with any of your projects?	<input type="checkbox"/>	<input type="checkbox"/>
H. Has any employee or other person suffered an injury resulting in complete disability in excess of thirty working days in connection with any of your projects?	<input type="checkbox"/>	<input type="checkbox"/>

PART 4 - LEGAL PROCEEDINGS

Please answer the following questions. Information is to cover the period from the date your current Sub-bidder Certificate of Eligibility was issued to the bid date.

The term “Administrative Proceeding” as used in this Sub-bidder Update Statement includes (i) any action or proceeding brought by a governmental agency, department or officer to enforce any law, regulation, code or other legal requirement, except for those brought in state or federal courts, and (ii) any action taken by a governmental agency, department or officer imposing penalties, fines or other sanctions for failure to comply with any such legal requirement.

If you answer YES to any question, on a separate page provide a complete explanation of each proceeding and any judgement or decision. Include all details (name of court or administrative agency, title of case or proceeding, case number, date action was commenced, date judgement or decision was entered, fines or penalties imposed, etc.).

	YES	NO
A. Have any judicial proceedings (other than criminal proceedings) been brought or concluded adversely against your firm or a principal or officer of your firm relating to the procurement or performance of any construction contract, including actions to obtain payment brought by subcontractors, suppliers or others?	<input type="checkbox"/>	<input type="checkbox"/>
B. Have any criminal proceedings been brought or concluded adversely against your firm or a principal or officer of your firm relating to any of the following offenses: graft, embezzlement, forgery, bribery, falsification or destruction of records, receipt of stolen property or environmental offenses?	<input type="checkbox"/>	<input type="checkbox"/>
C. Have any judicial or administrative proceedings been brought or concluded adversely against your firm or a principal or officer of your firm relating to a violation of state or federal antitrust laws arising out of the submission of bids or proposals?	<input type="checkbox"/>	<input type="checkbox"/>
D. Have any judicial or administrative proceedings been brought or concluded adversely against your firm or a principal or officer of your firm relating to a violation of state or federal laws regulating campaign contributions?	<input type="checkbox"/>	<input type="checkbox"/>
E. Have any judicial or administrative proceedings been brought or concluded adversely against your firm or a principal or officer of your firm relating to a violation of chapter 268A of the Massachusetts General Laws?	<input type="checkbox"/>	<input type="checkbox"/>
F. Have any judicial or administrative proceedings been brought or concluded adversely against your firm or a principal or officer of your firm relating to a violation of any state or federal law regulating prevailing wages?	<input type="checkbox"/>	<input type="checkbox"/>
G. Have any judicial or administrative proceedings been brought or concluded adversely against your firm or a principal or officer of your firm relating to a violation of any state or federal law regulating hours of labor, minimum wages, overtime pay, equal pay, child labor or worker's compensation?	<input type="checkbox"/>	<input type="checkbox"/>
H. Have any judicial or administrative proceedings been brought or concluded adversely against your firm or a principal or officer of your firm relating to a violation of any state or federal law prohibiting discrimination in employment?	<input type="checkbox"/>	<input type="checkbox"/>
I. Have any judicial or administrative proceedings been brought or concluded adversely against your firm or a principal or officer of your firm relating to a claim of repeated or aggravated violation of any state or federal law regulating labor relations or occupational health or safety?	<input type="checkbox"/>	<input type="checkbox"/>
J. Have any proceedings been brought by any state or federal agency to debar or suspend your firm or any principal or officer of your firm from public contracting?	<input type="checkbox"/>	<input type="checkbox"/>
K. Has your firm been fined by OSHA or any other state or federal agency for violations of any laws or regulations related to occupational health or safety?	<input type="checkbox"/>	<input type="checkbox"/>

PART 5 - SUPERVISORY PERSONNEL

List all supervisory personnel who will be assigned to the project if your firm is awarded the contract. **Attach the resume of each person listed below.**

NAME	TITLE OR FUNCTION

PART 6 - CHANGES IN BUSINESS ORGANIZATION OR FINANCIAL CONDITION

Have there been any changes in your firm’s business organization, financial condition or bonding capacity since the date your current Certificate of Eligibility was issued? Yes No

If YES, attach a separate page providing complete details.

PART 7 – LIST OF COMPLETED CONSTRUCTION PROJECTS SUBMITTED TO THE DIVISION OF CAPITAL ASSET MANAGEMENT WITH FIRM’S MOST RECENT APPLICATION FOR CERTIFICATION ALONG WITH CERTIFICATION PAGE.

Attach here a copy of the list of completed construction projects which was submitted with your firm’s most recent Application for Sub-bidder Certificate of Eligibility to the Division of Capital Asset Management, or if your firm was certified as a sub-bidder without submitting a separate sub-bidder application, attach the list of completed construction projects which was submitted with your firm’s Application for Prime/General Certificate of Eligibility to the Division of Capital Asset Management. The Attachment should include a complete copy of the entire Section F – “Completed Projects” (Section G – “Completed Projects” for firms certified based upon their Prime/General Application), and the final page – “Certification Page”, (Section I in the Sub-bidder Application or Section J in Prime/General Application) containing the signature and date that the Completed Projects list (Section F or G) was submitted to the Division of Capital Asset Management.

DRAWING INDEX
July 2013

COVER - INDEX SHEET, ABBREVIATIONS, & SYMBOLS
G1.1 CODE REVIEW & EGRESS PLAN

ARCHITECTURAL:

AD0.1 DEMOLITION PLAN
A1.1 FLOOR PLAN
A3.1 FINISH PLAN
A7.1 REFLECTED CEILING PLAN

ELECTRICAL:

E0.1 ELECTRICAL SYMBOLS, ABBREVIATIONS & GENERAL NOTES
E1.1 ELECTRICAL DEMO POWER & LIGHTING PLAN
E2.1 ELECTRICAL PROPOSED POWER FLOOR PLAN
E2.2 ELECTRICAL PROPOSED LIGHTING FLOOR PLAN
E2.3 ELECTRICAL PROPOSED FIRE ALARM PLAN
E5.1 ELECTRICAL DETAILS
E6.1 ELECTRICAL RISER DIAGRAMS
E7.1 ELECTRICAL SCHEDULES

PLUMBING:

P0.1 PLUMBING LEGEND & GENERAL NOTES
P1.1 PLUMBING KITCHEN PAT PLANS

CONTRACT DOCUMENTS

GENERAL CONDITIONS

1. INFORMATION

All information shall come from the Office of the City Purchasing Agent. The Contractor shall inquire at this office for any information needed. Wherever the words “or equal as approved” are used, it is to be understood that the opinion of the City Purchasing Agent shall govern.

2. SUITS

The Contractor shall assume defense of and shall indemnify and hold the City and its agents harmless from all suits and claims against the City and its sub-contractors arising from the use of any invention, patent right labor or employment, or from any act of omission or neglect of the City, its agents, employees or any subcontractor in performing the work, under this contract.

3. LAWS AND REGULATIONS

The Contractor shall conform to all the applicable rules, regulations, laws and ordinances of the City of Waltham, the Commonwealth of Massachusetts, the United States of America and all agencies having jurisdiction over this contract.

4. PROTECTION OF PROPERTY

The Contractor shall take all proper precautions to protect the City’s property from damage and unnecessary inconvenience. Any City property damaged by the Contractor in carrying out the provisions of this contract shall be restored to its original condition, by and at the expense of the Contractor.

5. PROTECTION OF PERSONS

The Contractor shall take all proper precautions to protect persons from injury, unnecessary inconvenience, and shall be responsible for his failure to do so. The Contractor agrees to hold the City harmless from any and all liabilities of every nature and description, which may be suffered through bodily injury, including death, to any person, by reason of negligence of the Contractor, his agents or employees, or any subcontractor.

6. INSURANCE

A. **WORKMAN’S COMPENSATION:** The Contractor shall provide by insurance for the payment of compensation and furnishing of other benefits under Chapter 152 of the General Laws of the Commonwealth of Massachusetts to all persons to be employed under this contract, the premiums for which shall be paid by the Contractor.

B. **COMPREHENSIVE GENERAL LIABILITY**

Bodily Injury:	\$1,000,000 Each Occurrence
	\$2,000,000 Aggregate

Property Damage:	\$1,000,000 Each Occurrence
	\$2,000,000 Aggregate
C. AUTOMOBILE (VEHICLE) LIABILITY	
Bodily Injury	\$2,000,000 Each Occurrence
Property Damage	\$1,000,000 Aggregate
D. UMBRELLA POLICY	
General liability	\$2,000,000

Your bid response must include a Certificate of Insurance with the above limits as a minimum. In addition, the Certificate of Insurance must have the following text contained in the bottom left box of the Certificate: “The City of Waltham is a named Additional Insured for all Insurance”. The Certificate of Insurance must be mailed directly to:

Office of the Purchasing Agent
Purchasing Department
City of Waltham
610 Main Street
Waltham, MA 02452

7. LABOR AND MATERIALS BOND

The Contractor agrees to execute and deliver to the City, a Labor and Materials or Payment Bond equal to 100% of the contract value. This contract shall not be in force until said bond has been delivered and accepted by the City. Bond shall be issued by a company licensed by the Commonwealth of Massachusetts.

A LETTER FROM A SURETY COMPANY CERTIFYING THAT THE CONTRACTOR IS QUALIFIED AND CAPABLE OF OBTAINING THE ABOVE BONDS MUST BE INCLUDED WITH HIS/HERS BID.

8. PERSONNEL:

The Contractor shall employ a competent supervisor and all properly licensed personnel necessary to perform the services required in this contract. The City Purchasing Agent shall have the right to require the Contractor to remove and/or replace any of the personnel for nonperformance or for unprofessional behavior. The City Purchasing Agent may require the Contractor to submit a weekly performance record of the areas and of the work performed, on forms approved by the City Purchasing Agent. The Contractor or his supervisor shall be available to inspect such work as required by the City Purchasing Agent.

9. PREVAILING WAGES

The Contractor is required to pay the prevailing wages as determined under the provisions of Chapter 149, Sections 26 and 27D of the Massachusetts General Laws, including the submission of weekly payrolls to the awarding authority. The prevailing Wage schedule will be found at www.city.waltham.ma.us/open-bids

10. MATERIALS

The City or its Agent reserves the right to approve or reject any supplies, material or equipment used by the Contractor. The Contractor agrees to replace any supplies, material or equipment used by the Contractor. The Contractor agrees to replace any rejected supplies, materials or equipment, to the satisfaction of the City or its Agents.

11. TERMINATION OF CONTRACT

This contract may be terminated by the City upon deliverance to the Contractor of a five-day written notice of said termination.

12. CONTRACT OBLIGATIONS

Contract obligations on behalf of the City are subject to an annual appropriation to cover the contract obligation.

13. BIDDER EXPERIENCE EVALUATION

Each bidder shall submit with his bid, all the information relative to their experience and qualifications in performing the work required under this contract and shall have been in business for a minimum of five (5) years, in order for their bid to be considered.

14. NOT-TO-EXCEED AMOUNT

The bid amount proposed in your company's response is a "not-to- Exceed" amount unless the City makes changes, in writing, to the scope of work to be performed. The Change Order must be signed and approved by the City's Purchasing Agent, City Auditor, Law Department and the Mayor prior to the commencement of the change order work. No work is to begin until the proper approvals have been obtained. A change order will be priced at the unit price. Failure to comply with this procedure will result in the cancellation of the contract and the non-payment of services provided

15. FINANCIAL STATEMENTS.

The City may require, within five (5) days after the bid opening, a complete and detailed Financial Statement prepared by a Certified Public Account, to determine a bidder's financial stability.

16. BREACH OF CONTRACT/ NON PERFORMANCE

If the Contractor shall provide services in a manner, which is not to the satisfaction of the City, the City may request that the Contractor refurnish services at no additional cost to the City until approved by the City. If the Contractor shall fail to provide services, which are satisfactory to the City, the City in the alternative may make any reasonable purchase or Contract to purchase services in substitution for those due from the Contractor. The City may deduct the cost of any substitute Contract for nonperformance of services together with incidental and consequential damages from the Contract price and shall withhold such damages from sums due or to become due to the Contractor. If the damages sustained by the City exceed sums due or to become due, the Contractor shall pay the difference to the City upon demand.

The Contractor shall not be liable for any damages sustained by the City due to the Contractor's failure to furnish services under the terms of this Contract if such failure is in fact caused by the occurrence of a contingency the nonoccurrence of which was a basic assumption under which this Contract was made, including a state of war, embargoes, expropriation of labor strike or any unanticipated federal, state or municipal governmental regulation of order, provided that the Contractor has notified the City in writing of such cause within seven (7) days after its occurrence.

17. RIGHT TO AUDIT

The City of Waltham has the right to review and audit documents related to this contract. This right extends to any subcontractor, supplier or other entity used by the prime contractor to fulfill the obligations under this contract.

18. CITY ORDINANCE. APPROVAL OF CONTRACTS BY MAYOR, SEC. 3-12 OF THE CITY ORDINANCES.

All contract made by any department, board or commission where the amount involved is two thousand dollars (\$2,000) or more shall be in writing, and no such contract shall be deemed to have been made or executed until the approval of the Mayor is affixed thereto. Any construction contract shall, and all other contracts may, where the contract exceed five thousand dollars (\$5,000) be required to be accompanied by a bond with sureties satisfactory to the Mayor.

19. BID OPENING INCLEMENT WEATHER

If, at the time of the originally scheduled bid opening, City Hall is closed to inclement weather or another unforeseeable event, the bid opening will be extended until 2:00 PM on the next normal business day. Bids will be accepted until that date and time.

20. CHANGE ORDERS.

Change orders are not effective until, if, as and when signed by the Mayor and no work is to commence until the change orders are fully executed. Change Order must be signed and approved by the City's Purchasing Agent, City Auditor, Law Department and the Mayor prior to the commencement of the change order work. No work is to begin until the proper approvals have been obtained. A change order will be priced at the unit price. Failure to comply with this procedure will result in the cancellation of the contract and the non-payment of services provided.

SECTION 01010

SUMMARY OF WORK

PART 1 GENERAL

1.01 WORK COVERED BY CONTRACT DOCUMENTS

- A. The work of this Contract shall consist of:
 - 1. The renovation of the existing servery of the Waltham High School Cafeteria, Waltham, MA. The construction includes selective demolition, installation of new finishes. The work will include removal and the installation of food service equipment, a minor amount of electrical and plumbing work.
 - 2. All Work either shown on the Drawings or included in the specifications unless specifically indicated not to be done.
 - 3. Making connections to food service equipment provided by other contractors and the Owner.
- B. In addition the Work under the Contract includes:
 - 1. Work outside the Project Site as called for in the Contract Documents and as required for the performance of the work.
 - 2. The restoration of any items damaged or destroyed by encroaching upon areas outside the Project Site.
 - 3. Providing and restoring after use, where appropriate, all areas used for temporary facilities.
- C. The High School may continue to occupy the building during the construction period. The Contractor will conduct his operations so as not to interfere with the ongoing operations of the Owner.

1.02 WORK SEQUENCE AND TIME OF COMPLETION

- A. The work shall commence on a timely basis and thereafter be carried out in a diligent and forthright manner, with a proper supply of labor, materials, plant, and equipment to assure the satisfactory completion of the work.
- B. In accordance with Article 9 of the General Conditions, the Work shall start as stated in the Notice to Proceed and shall be complete in 31 calendar days.

1.03 WORK UNDER SEPARATE CONTRACT

- A. Coordination by the Owner.

1. As provided in Article 7 of the General Conditions the following shall be provided by others under a separate agreement with the Owner for which the Owner has coordinating responsibility.

- a. Provision and setting in place of food service equipment

B. Coordination by the Contractor.

1. The following items shall be provided by others under a separate agreement with the Owner for which the Contractor has coordinating responsibility.

- a. Testing Services (see Section 01410, TESTING LABORATORY SERVICES.

1.04 ITEMS FURNISHED BY THE OWNER

- A. The following items will be furnished and delivered f.o.b. to the Project site by others at no expense to the Contractor

1. Existing food service related equipment.

PART 2 PRODUCTS

Not applicable to this section.

PART 3 EXECUTION

Not applicable to this section.

END OF SECTION

SECTION 01030

FIELD ENGINEERING

PART 1 GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Provide and pay for field engineering services required for Project:
 - 1. Survey work required in execution of project.
 - 2. Civil, structural, and other professional engineering services specified, or required to execute Contractor's construction methods.
- B. Owner's Representative will identify existing control points and property line corner stakes indicated on the Drawings, as required.

1.02 RELATED REQUIREMENTS

- A. Conditions of the Contract: GENERAL CONDITIONS and Document 00800, SUPPLEMENTARY CONDITIONS.
- B. Record documents: Section 01720, PROJECT RECORD DOCUMENTS.

1.03 QUALIFICATIONS OF SURVEYOR OR ENGINEER

- A. Qualified engineer or registered land surveyor, acceptable to Architect and Owner.
- B. Registered professional engineer of the discipline required for the specific service on the Project, licensed in the location of the project.

1.04 SURVEY REFERENCE POINTS

- A. Existing basic horizontal and vertical control points for the Project are those designated on Drawings.
- B. Locate and protect control points prior to starting site work, and preserve all permanent reference points during construction.
 - 1. Make no changes or relocations without prior written notice to Architect.
 - 2. Report to Architect when any reference point is lost or destroyed, or requires relocation because of necessary changes in grades or locations.
 - 3. Require surveyor to replace Project control points which may be destroyed.
 - a. Establish replacements based on original survey control.

1.05 PROJECT SURVEY REQUIREMENTS

- A. Establish a minimum of two permanent benchmarks on-site, referenced to data established by survey control points.
 - 1. Record locations, with horizontal and vertical data, on Project Record Documents.
- B. Establish lines and levels, locate and lay out, by instrumentation and similar appropriate means:
 - 1. Site improvements.
 - a. Stakes for grading, fill, and top soil placement.
 - b. Utility slopes and invert elevations.
 - 2. Batter boards for structures.
 - 3. Building foundation, column locations, and floor levels.
 - 4. Controlling lines and levels required for mechanical and electrical trades.
- C. From time to time, verify layouts by same methods.

1.06 RECORDS

- A. Maintain a complete, accurate log of all control and survey work as it progresses.

1.07 SUBMITTALS

- A. Submit name and address of surveyor and professional engineer to Architect.
- B. On request of Architect, submit documentation to verify accuracy of field engineering work.
- C. Submit certificate signed by registered engineer or surveyor certifying that elevation and locations of improvements are in conformance, or non-conformance, with Contract Documents.

PART 2 PRODUCTS

Not applicable to this section.

PART 3 EXECUTION

Not applicable to this section.

END OF SECTION

SECTION 01070

CUTTING AND PATCHING

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Contractor shall be responsible for all cutting, fitting, and patching, including attendant excavation and backfill, required to complete the Work or to:
 - 1. Make its several parts fit together properly.
 - 2. Uncover portions of the Work to provide for installations of ill-timed work.
 - 3. Remove and replace defective work.
 - 4. Remove and replace work not conforming to requirements of Contract Documents.
 - 5. Remove samples of installed work as specified for testing.
 - 6. Provide routine penetrations of non-structural surfaces for installation of piping and electrical conduit.

1.02 RELATED REQUIREMENTS

- A. Substitutions and product options: Section 01600, MATERIAL AND EQUIPMENT.

1.03 QUALITY ASSURANCE

- A. Permission to patch any items of work does not imply a waiver of the Architect's right to require complete removal and replacement in said areas and of said items if, in Architect's opinion, said patching does not satisfactorily restore the quality and appearance of the work.
- B. Requirements for Structural Work: Do not reduce load-carrying capacity or load/deflection ratio.
- C. Operational and Safety Limitations: Do not cut and patch operational elements and safety-related components in a manner resulting in a reduction of capacities to perform in the manner intended or resulting in decreased operational life, increased maintenance, or decreased safety.
- D. Visual Requirements: Do not cut and patch exposed work in exterior and occupied spaces so that visual qualities are reduced or cut and patch work is visible, as judged by the Architect. Remove and replace unsatisfactory work as directed by Architect.

1.04 SUBMITTALS

- A. Submit a written request to Architect well in advance of executing any cutting or alteration which affects:
 - 1. Work of the Owner or any separate contractor.

2. Structural value or integrity of any element of the Project.
 3. Integrity or effectiveness of weather-exposed or moisture-resistant elements or systems.
 4. Efficiency, operational life, maintenance, or safety of operational elements.
 5. Visual qualities of sight-exposed elements.
- B. Request shall include:
1. Identification of the Project.
 2. Description of affected work.
 3. The necessity for cutting, alteration, or excavation.
 4. Effect on work of Owner or any separate contractor, or on structural or weatherproof integrity of project.
 5. Description of proposed work:
 - a. Description of why cutting and patching cannot (reasonably) be avoided.
 - b. Scope of cutting, patching, alteration, or excavation.
 - c. Methods.
 - d. How structural elements (if any) will be reinforced.
 - e. Trades who will execute the work.
 - f. Products proposed to be used.
 - g. Extent of refinishing to be done.
 - h. Approximate dates of the work, and anticipated results in terms of variations from the work as originally completed (structural, operational, visual, and other qualities of significance).
 6. Alternatives to cutting and patching.
 7. Cost proposal, when applicable.
 8. Written permission of any separate contractor whose work will be affected.
- C. Should conditions of work or the schedule indicate a change of products from original installation, submit request for substitution as specified in Section 01600, MATERIALS AND EQUIPMENT.
- D. Submit written notice to Architect designating date and time the work will be uncovered.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Except as otherwise indicated or authorized by the Architect, provide materials for cutting and patching shall be selected to produce equal-or-better work than the work being cut and patched. In terms of performance characteristics and visual effect. Use materials identical to original materials where feasible and satisfactory.
- B. Comply with specifications and standards for each specific product involved.

PART 3 EXECUTION

3.01 INSPECTION

- A. Inspect existing conditions of Project, including elements subject to damage or to movement during cutting and patching.
- B. After uncovering work, inspect conditions affecting installation of Products, or performance of work.
- C. Report unsatisfactory or questionable conditions to Architect in writing; do not proceed with work until Architect has provided further instructions.

3.02 PREPARATION

- A. Provide adequate temporary support as necessary to assure structural value or integrity of affected portion of work.
- B. Provide devices and methods to protect other portions of Project from damage.
- C. Provide protection from elements for that portion of the Project which may be exposed by cutting and patching work, and maintain excavations free from water.

3.03 PERFORMANCE

- A. Execute cutting and demolition by methods which prevent damage to other work, and provide proper surfaces to receive installation of repairs.
 - 1. In general, where mechanical cutting is required, cut work with sawing and grinding tools, not with hammering and chopping tools. Core drill openings through concrete work.
- B. Employ excavating and backfilling methods that prevent settlement or damage to other work.
- C. Employ original installer or fabricator to cut and patch for:
 - 1. Weather-exposed or moisture-resistant elements.
 - 2. Sight-exposed finished surfaces.
- D. Execute fitting and adjustment of products to provide specified products, functions, tolerances, and finishes.

- E. Restore work which has been but or removed; install new products to provide complete work in accordance with requirements of Contract Documents.
- F. Fit work airtight to pipes, sleeves, ducts, conduits, and other penetrations through surfaces.
- G. Patch with seams which are durable and as invisible as possible. Comply with specified tolerances for the work.
- H. Restore exposed finishes of patched areas; extend finish restoration to retained work to eliminate evidence of patching.
 - 1. Where patch occurs in a smooth painted surface, extend final paint coat over entire unbroken surface containing patch.
- I. Refinish entire surfaces as necessary to provide even finish to match adjacent finishes:
 - 1. For continuous surfaces, refinish to nearest intersection.
 - 2. For an assembly, refinish entire unit.

END OF SECTION

SECTION 01100

LABOR REGULATIONS

1. MINIMUM MINORITY PERCENTAGES

A. The following minimum minority percentages are applicable as per Article 14 of the General Conditions.

Location	Not Less than
Boston Impact Area Jamaica Plain (part), Mattapan, South Cove, Chinatown, Bay Village, Roxbury, Dorchester, South End):-----	30%
Boston: Other Areas:-----	10%
Cambridge: -----	12%
New Bedford:-----	18%
Springfield: -----	10%
All other cities and towns: -----	5%

B. These percentages shall apply to the Contractor and to all Subcontractors, regardless of tier, for all on-site Work.

2. WAGE RATES

A. The rate per hour to be paid to mechanics, apprentices, teamsters, chauffeurs, and laborers employed on the Work shall not be less than the rate of wages in the attached "Minimum Wage Rates" as determined by the Director of the Department of Labor and Work Force Development. This schedule shall continue to be the minimum rate of wages for said employees during the life of this Contract. Any questions relative to the applicability of any wage rate shall be directed to the Department of Labor and Workforce Development.

B. Keep posted on the site a legible copy of said schedule. Provide the Owner, on a weekly basis, and keep an on-site file of the wage rates and classifications of labor employed on this Work in order that they may be available for inspection by the Owner, Department, Architect, or any other agency having jurisdiction. .

C. Apprentices employed pursuant to this determination of wage rates must be registered and approved by the State Apprenticeship Council wherever rates for journeymen or apprentices are not listed.

D. Pay reserve police officers employed on the Work the prevailing rate of wages paid to regular police officers as required by MGL c149 § 34B, as amended. Such police officers shall be covered by Worker's Compensation Insurance and Employers Liability Insurance provided by the Contractor.

E. The Contractor and all subcontractors shall provide certified payroll affidavits verifying compliance with MGL c.149 §§26 - 27H.

F. The Contractor and all subcontractors shall provide a Statement of Compliance within 15 days of the completion of its portion of the work. This statement shall be submitted to the Owner on the form found elsewhere in this section.

G. The Contractor and all its subcontractors shall furnish to the Owner, with the first certified payroll report, documentation indicating that each employee has successfully completed 10 hours of a course in construction safety and health. This course must be approved by the United States Occupational Health and Safety Administration (OSHA).

H. Current prevailing wage rates follow this section.

END OF SECTION

SECTION 01200

PROJECT MEETINGS

PART 1 GENERAL

1.01 REQUIREMENTS INCLUDED

- A. The Owner shall schedule and administer pre-construction meeting, periodic progress meetings, and specially called meetings throughout progress of the Work.
- B. The Contractor shall:
 - 1. Prepare agenda for meetings.
 - 2. Distribute written notice of each meeting four days in advance of meeting date.
 - 3. Make physical arrangements for meetings.
 - 4. Preside at the meetings.
 - 5. Record the minutes; include significant proceedings and decisions.
 - 6. Reproduce and distribute copies of minutes within three days after each meeting.
 - a. To participants in the meeting.
 - b. To parties affected by decisions made at the meeting.
 - c. Furnish one copy of minutes to Architect.
- C. Representatives of contractors, subcontractors, and suppliers attending meetings shall be qualified and authorized to act on behalf of the entity each represents.
- D. Architect may attend meetings to ascertain that Work is expedited consistent with Contract Documents and construction schedules.

1.02 RELATED REQUIREMENTS

- A. Shop Drawings: Section 01340, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
- B. Record documents: Section 01720, PROJECT RECORD DOCUMENTS.
- C. Operation and maintenance data: Section 01730, OPERATING AND MAINTENANCE DATA.

1.03 PRE-CONSTRUCTION MEETING

- A. Schedule within 15 days after date of Notice to Proceed.
- B. Location: A central site, convenient for all parties, designated by Contractor.
- C. Attendance:

1. Owner's Representative.
2. Architect and his Professional Consultants.
3. Resident Project Representative.
4. Contractor's Superintendent.
5. Major Subcontractors.
6. Major suppliers.
7. Others as appropriate.

D. Suggested Agenda:

1. Distribution and discussion of:
 - a. List of major subcontractors and suppliers.
 - b. Projected Construction Progress Schedules.
2. Critical work sequencing.
3. Major equipment deliveries and priorities.
4. Project Coordination.
 - a. Designation of responsible personnel.
5. Procedures and processing of:
 - a. Field Decisions.
 - b. Proposal Requests.
 - c. Submittals.
 - d. Change Orders.
 - e. Application for Payment.
6. Adequacy of distribution of Contract Documents.
7. Procedures for maintaining Record Documents.
8. Use of premises:
 - a. Office, work, and storage areas.
 - b. Owner's requirements.
9. Construction facilities, controls, and construction aids.

10. Temporary utilities.
11. Safety and first-aid procedures.
12. Security procedures.
13. Housekeeping procedures.

1.04 PROGRESS MEETINGS

- A. Schedule regular periodic meetings, as required.
- B. Hold called meetings as required by progress of the Work.
- C. Location of the meetings: Project site at location designated by the Contractor.
- D. Attendance:
 1. Owner
 2. Architect, and his professional consultants as needed.
 3. Subcontractors as appropriate to the agenda.
 4. Suppliers as appropriate to the agenda.
 5. Mechanical and electrical subcontractors.
 6. Others.
- E. Suggested Agenda:
 1. Review and approval of minutes of previous meeting.
 2. Review of Work progress since previous meeting.
 3. Field observations, problems, conflicts.
 4. Problems which impede Construction Progress Schedule.
 5. Review of off-site fabrication, and delivery schedules.
 6. Corrective measures and procedures to regain project schedule.
 7. Revisions to Construction Progress Schedule.
 8. Progress schedule during succeeding work period.
 9. Coordination of schedules.
 10. Review submittal schedules; expedite as required.
 11. Maintenance of quality standards.

12. Pending changes and substitutions.
13. Review proposed changes for:
 - a. Effect on Construction Progress Schedule and on completion date.
 - b. Effect on other contracts of the Project.
14. Other business.

PART 2 PRODUCTS

Not applicable to this section.

PART 3 EXECUTION

Not applicable to this section.

END OF SECTION

SECTION 01300

SUBMITTALS

PART 1 GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Progress Schedules.
- B. Schedule of Values.
- C. Manufacturer's Certificates.

1.02 RELATED DOCUMENTS

- A. Testing Laboratory Reports: Section 01410, TESTING LABORATORY SERVICES.
- B. Manufacturer's instructions: Section 01600, MATERIAL AND EQUIPMENT.
- C. Contractor's list of Products: Section 01600, MATERIAL AND EQUIPMENT.
- D. Shop drawings submittals: Section 01340, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
- E. Closeout submittals: Section 01720, PROJECT RECORD DOCUMENTS; Section 01730, OPERATING AND MAINTENANCE DATA and Section 01740, WARRANTIES AND BONDS.

1.03 PROCEDURES

A. General

1. Deliver submittals to Architect at address listed on cover of Project Manual. Send 1 copy of a complete submittal to Owner concurrently.
2. Provide each submittal in form and content acceptable to Architect.
3. After Architect review of submittal, if not approved, revise and resubmit as required, identifying changes made since previous submittal.
4. Distribute copies of approved submittals to concerned persons. Instruct recipients to promptly report any inability to comply with provisions.
5. Resubmit periodically when conditions are changed so as to warrant resubmission or as directed by the Architect.
6. Within 5 days of notice to proceed all submittals will be made on the following long lead time items.

1. (NA)

B. Progress Schedules

1. Prepare schedule in bar chart form or alternate form as approved by Architect.
2. Show progress of job on weekly basis for each major element of construction.
3. Identify fixed milestones and critical path elements.
4. Revise schedule on a weekly basis and submit with application for payment. Submit initial schedule within 15 days after award of contract.
5. For subsequent submittals, provide written narrative explaining deviations from originally submitted schedule.

C. Schedule of values

1. Submit schedule of values for the component parts of the work in sufficient detail to serve as a basis for computing values for progress payments during construction.
2. The sum of all values listed in the schedule shall equal the total contract sum.
3. The application for payment shall use the same values and categories as the approved schedule of values.
4. Resubmit schedule of values until approval by Architect is obtained.
5. Submit schedule of values within 10 days of award of project. Final approval must be obtained before approval of first application for payment.

D. Manufacturer's Certificates

1. Submit certificates in duplicate, in accordance with the requirements of each specification section.
2. Provide proper identification of each submittal; project, contractor, subcontractor, supplier and specification section or drawing number.

PART 2 PRODUCTS

Not applicable to this section.

PART 3 EXECUTION

Not applicable to this section.

END OF SECTION

SECTION 01340

SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES

PART 1 GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Submit Shop Drawings, Product Data, and Samples required by Contract Documents.

1.02 RELATED REQUIREMENTS

- A. Definitions and Additional Responsibilities of Parties: GENERAL CONDITIONS and MODIFICATIONS TO THE GENERAL CONDITIONS.
- B. Submittal of manufacturer's certificates: Section 01300, SUBMITTALS.
- C. Record documents: Section 01720, PROJECT RECORD DOCUMENTS.

1.03 SUBMITTAL SCHEDULE

- A. A Schedule of shop drawings, product data, and samples shall be submitted indicating by trade the date by which each such item is to be submitted and the date by which final approval of each item must be obtained. This schedule shall be revised as required by conditions of the Work, subject to Architect's approval. In each case, reasonable time must be permitted for Architect's review, Consultant's review, and for resubmittals if required.

1.04 SHOP DRAWINGS

- A. Drawings shall be presented in a clear and thorough manner.
 - 1. Details shall be identified by reference to Project name and number, Architect's name, sheet and detail number, schedule or room numbers shown on Contract Drawings.
- B. Minimum sheet size: 8-1/2 x 11 in.
- C. Each submittal shall be accompanied by appropriate transmittal form.
- D. Submittals in Electronic Format is acceptable.

1.05 PRODUCT DATA

- A. Preparation
 - 1. Clearly mark each copy to identify pertinent products or models.
 - 2. Show performance characteristics and capacities.
 - 3. Show dimensions and clearances required.
 - 4. Show wiring and piping diagrams and controls.

- B. Manufacturer's standard schematic drawings and diagrams:
 - 1. Modify drawings and diagrams to delete information not applicable to the Work, and to identify clearly applicable products and work.
 - 2. Supplement standard information to provide information specifically applicable to the Work.

1.06 SAMPLES

- A. Office samples shall be of sufficient size and quantity to clearly illustrate:
 - 1. Functional characteristics of the product, with integrally related parts and attachment devices.
 - 2. Full range of color, texture, and pattern.
- B. Field samples and mock-ups:
 - 1. Contractor shall erect, at the Project site, at a location acceptable to the Architect.
 - 2. Size or area: that specified in the respective specification section.
 - 3. Fabricate each sample and mock-up complete and finished.
 - 4. Remove mock-ups at conclusion of Work or when acceptable to the Architect, unless incorporated in the Work.

1.07 CONTRACTOR RESPONSIBILITIES

- A. Review Shop Drawings, Product Data, and Samples prior to submission.
- B. Determine and verify:
 - 1. Field measurements.
 - 2. Field construction criteria.
 - 3. Catalog numbers and similar data.
 - 4. Conformance with specifications.
- C. Submit Shop Drawings, Product Data and Samples for individual items of work as single package.
- D. Submit interior finish samples as single package.
- E. Coordinate each submittal with requirements of the Work and of the Contract Documents.
- F. Notify the Architect in writing, at time of submission, of any deviations in the submittals from requirements of the Contract Documents.

- G. Do not begin work that requires Submittals until return of Submittals with Architect's approval.

1.08 SUBMISSION REQUIREMENTS

- A. Make submittals promptly in accordance with approved schedule, and in such sequence as to cause no delay in the Work or in the work of any other contractor.
- B. Number of submittals required:
 - 1. Shop Drawings:
 - a. Architectural Work: Submit one reproducible transparency and one opaque reproduction.
 - b. Engineering Consultant's Work: Submit one reproducible transparency and one opaque reproduction directly to the consultant; submit one opaque reproduction to the Architect with a copy of the transmittal sent to the consultant. The Consultant's review and comments will be made on the reproducible which will be forwarded to the Architect who will then return the reproducible to the Contractor.
 - 2. Product Data:
 - a. Architectural Work: Submit the number of copies which the Contractor requires, plus two which will be retained by the Architect.
 - b. Engineering Consultant's Work: Submit the number of copies which the Contractor requires, plus three to the consultant and one to the Architect with a copy of the transmittal sent to the consultant. The Consultant's review and comments will be made on the Product Data which will be forwarded to the Architect who will then return the Product Data to the Contractor.
 - 3. Samples: Submit the number stated in each specification section.
- C. Submittals shall contain:
 - 1. The date of submission and the dates of any previous submissions.
 - 2. The Project title and number.
 - 3. Contract identification.
 - 4. The names of:
 - a. Contractor.
 - b. Supplier.
 - c. Manufacturer.
 - 5. Identification of the product, with the specification section number.
 - 6. Field dimensions, clearly identified as such.

7. Relation to adjacent and critical features of the Work and materials.
8. Reference to shop drawings to the work of other trade(s) shall designate such trade(s); the term "By Others" shall not be used.
9. Applicable standards, such as ASTM, ANSI, or Federal Specification Numbers.
10. Identification of deviations from Contract Documents.
11. Identification of revisions on resubmittals.
12. An 8 in. x 3 in. blank space for Contractor and Architect stamps.
13. Contractor's stamp, initialed or signed, certifying to review of submittal, verification of products, field measurements and field construction criteria, and coordination of the information within the submittal with requirements of the Work and of Contract Documents.

1.09 ARCHITECT'S REVIEW

- A. Architect's stamp shall contain the following data:

"Review/approval neither extends nor alters any contractual obligations of the Architect or Contractor.

APPROVED

APPROVED AS NOTED

REVISE AND RESUBMIT

REJECTED"

- B. The Architect will insert the date of action taken and an identification of the person taking the action.

- C. Explanation of the designated actions is as follows:

APPROVED: No corrections, no marks: Resubmission not required.

APPROVED AS NOTED: Minor amount of corrections; all items can be fabricated without further corrections to original submittal; checking is complete and all corrections are deemed obvious without ambiguity. Resubmission not required.

REVISE AND RESUBMIT: Amount of corrections requires that noted items must not be fabricated without further corrections of original submittal; checking is complete; details of items noted by checker are to be clarified further before full approval can be given for fabrication. Resubmission required.

REJECTED: Submittal is rejected as not in accord with the Contract Documents, too many corrections, or other justifiable reasons. When returning submittal, Architect will state reasons for rejection. Correct and resubmit. Do not fabricate.

1.09 RESUBMISSION REQUIREMENTS

- A. Make any corrections or changes in the submittals required by the Architect and resubmit until approved.
- B. Shop Drawings and Product Data:
 - 1. Revise initial drawings or data, and resubmit as specified for the initial submittal.
 - 2. Indicate any changes which have been made other than those requested by the Architect.
- C. Samples: Submit new samples as required for initial submittal.

1.10 DISTRIBUTION

- A. Distribute reproductions of Shop Drawings and copies of Product Data which carry the Architect's stamp of approval to:
 - 1. Job site file.
 - 2. Record Documents file.
 - 3. Other affected contractors.
 - 4. Subcontractors.
 - 5. Supplier or fabricator.
 - 6. Owner
- B. Distribute samples which carry the Architect stamp of approval as directed by the Architect.

1.11 ARCHITECT DUTIES

- A. Review submittals with reasonable promptness and in accord with the schedule and the requirements of the GENERAL CONDITIONS.
- B. Affix stamp and initials or signature, and indicate requirements for resubmittal, or approval of submittal.
- C. Return submittals to Contractor for distribution, or for resubmission.

PART 2 PRODUCTS

Not applicable to this section.

PART 3 EXECUTION

Not applicable to this section.

END OF SECTION

SECTION 01410

TESTING LABORATORY SERVICES

PART 1 GENERAL

1.01 REQUIREMENTS INCLUDED

- A. The Owner reserves the right, at his sole discretion, to select and pay for the services of an Independent Testing Laboratory to perform specified services and testing as may be in the Owner's best interest.
 - 1. Contractor shall cooperate with the laboratory to facilitate the execution of its services.
 - 2. Employment of the laboratory shall in no way relieve Contractor's obligations to perform the Work of the Contract.

1.02 RELATED REQUIREMENTS.

- A. Inspections and testing required by laws, ordinances, rules, regulations, orders or approvals of public authorities: Condition of the Contract.
- B. Respective sections of specifications: Certification of products.
- C. Laboratory tests required, standards for testing, and certification of products: Divisions 2 through 16.

1.03 REFERENCED STANDARDS

- A. American Society for Testing and Materials (ASTM):
 - E 329 Inspection and Testing Agencies for Concrete, Steel, and Bituminous Materials as Used in Construction

1.04 QUALIFICATION OF LABORATORY

- A. Meet "Recommended Requirements for Independent Laboratory Qualification", published by American Council of Independent Laboratories.
- B. Meet requirements of ASTM E 329.
- C. Authorized to operate in the state in which the project is located.
- D. Submit copy of report of inspection of facilities made by Materials Reference Laboratory of National Bureau of Standards during the most recent tour of inspection, with memorandum of remedies of any deficiencies reported by the inspection.
- E. Testing Equipment:
 - 1. Calibrated at reasonable intervals by devices of accuracy traceable to either:
 - a. National Bureau of Standards.

- b. Accepted values of natural physical constants.

1.05 LABORATORY DUTIES

- A. Cooperate with Architect and Contractor; provide qualified personnel promptly on notice.
- B. Acquaint Owner's, Architect's and Contractor's superintendent with testing procedures and with all special conditions encountered at the site.
- C. Inspections, sampling, and testing of materials and construction methods shall be as specified in individual technical specification sections.
 - 1. Comply with specified standards, ASTM, ANSI, and other recognized authorities.
 - 2. Conduct and interpret the tests and state in each report whether the test specimens comply with the requirements, and specifically state any deviations therefrom.
 - 3. Obtain Contractor's written acknowledgment of each inspection, sampling, and test made.
- D. Promptly notify Architect and Contractor of irregularities or deficiencies of Work or Products which are observed during performance of services.
- E. Promptly submit written report of each test and inspection; one copy each to Architect, Owner, Contractor, and one copy to Project Record Documents File. Each report shall include:
 - 1. Date issued.
 - 2. Project title and number.
 - 3. Testing laboratory name, address, and telephone number.
 - 4. Name and signature of laboratory inspector.
 - 5. Date and time of sampling or inspection.
 - 6. Record of temperature and weather conditions.
 - 7. Date of test.
 - 8. Identification of Product and Specification section.
 - 9. Location of sample or test in the Project.
 - 10. Type of inspection or test.
 - 11. Results of tests and compliance with Contract Documents.
 - 12. Interpretation of test results, when requested by Architect.
 - 13. Observations regarding compliance with Contract Documents.

- F. Perform properly authorized additional services as required by the Owner.

1.06 LIMITATIONS OF AUTHORITY OF TESTING LABORATORY

- A. Laboratory is not authorized to:
 - 1. Release, revoke, alter, or enlarge on requirements of Contract Documents.
 - 2. Approve or accept any portion of the Work, except as specifically authorized by the specifications.

1.07 CONTRACTOR'S RESPONSIBILITIES

- A. Cooperate with laboratory personnel, provide access to Work, and to Manufacturer's operations.
 - 1. Monitor each inspection, sampling, and test.
 - 2. Provide Laboratory or Agency with written acknowledgment of each inspection, sampling, and test.
 - 3. Within 24 hours notify Architect and Owner in writing of reasons for not acknowledging Laboratory results.
- B. Secure and deliver to the Laboratory adequate quantities of representational samples of materials proposed to be used and which require testing.
- C. Provide to the Laboratory the preliminary design mix proposed to be used for concrete, and other materials mixes which require control by the testing laboratory.
- D. Furnish copies of Product test reports as required.
- E. Furnish incidental labor and facilities:
 - 1. To provide access to Work to be tested.
 - 2. To obtain and handle samples at the Project site or at the source of the Product to be tested.
 - 3. To facilitate inspections and tests.
 - 4. For storage and curing of test samples.
- F. Furnish verification of materials and equipment compliance with Contract Documents.
- G. Identify materials to be tested or inspected by Testing Laboratory or Agency.
- H. After determination of need for testing or inspecting by Owner, notify Laboratory sufficiently in advance, minimum five days, of operations to allow for its assignment of personnel and scheduling of tests.
 - 1. When tests or inspections cannot be performed after such notice, reimburse Owner for laboratory personnel and travel expenses incurred due to Contractor's negligence.

- I. Employ and pay for the services of a separate, equally qualified independent testing laboratory to perform additional inspections, sampling, and testing required:
 1. For the Contractor's convenience; and
 2. When initial tests indicate Work does not comply with Contract Documents.

1.08 CONDUCT OF INSPECTIONS AND TESTS

- A. The Contractor shall notify the Owner, Architect, and Testing Laboratory in sufficient time before the performance of work to permit the proper conduct of Owner-authorized inspections and tests.
- B. Representatives of Testing Laboratory shall inspect the manufacture, assembly, and placement of materials as required and as authorized by the Owner, and shall report their findings to the Architect, Owner, and Contractor.
- C. Work shall be checked as it progresses, but failure to detect any defective work or materials shall in no way prevent later rejection when such defect is discovered nor shall it obligate the Owner to accept such work.

PART 2 PRODUCTS

Not applicable to this section.

PART 3 EXECUTION

Not applicable to this section.

END OF SECTION

SECTION 01510
TEMPORARY UTILITIES

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Furnish, install and maintain temporary utilities required for construction; remove temporary utilities when work is complete.

1.02 RELATED REQUIREMENTS

- A. Conditions of the Contract: GENERAL CONDITIONS and Document 00800, SUPPLEMENTARY CONDITIONS.

1.03 REFERENCED STANDARDS

- A. National Fire Protection Association (NFPA):
70 National Electrical Code

1.04 REQUIREMENTS OF REGULATORY AGENCIES

- A. Comply with NFPA 70.
- B. Comply with Federal, State, and local codes and regulations and with utility company requirements.

PART 2 - PRODUCTS

2.01 MATERIALS, GENERAL

- A. Materials may be new or used, but shall be adequate in capacity for the required usage, shall not create unsafe conditions, and shall not violate requirements of applicable codes and standards.

2.02 TEMPORARY ELECTRICITY AND LIGHTING

- A. Provide metered connections to existing facilities, sized to provide service required for power and lighting. Owner will pay the costs of power used; metering is for Owner's accounting purposes only.
- B. Install circuit and branch wiring, with area distribution boxes located so that power and lighting is available throughout the construction from construction-type power cords.
- C. Provide adequate artificial lighting where natural light is not adequate for work, and for areas accessible to the public. Temporary lighting shall be based on one 200 watt lamp for each 1,000 sq. ft. of floor area. Work of this Section excludes power for hoisting, welding and operation of compressors.

- E. Ensure that no electricity is used outside of normal working hours beyond that reasonably necessary for security.
- F. Work shall meet applicable requirements of NFPA 70 and Division 16, ELECTRICAL.

2.03 TEMPORARY HEAT AND VENTILATION

- A. Provide temporary heat and ventilation as required to maintain adequate environmental conditions to facilitate progress of the Work, to meet specified minimum conditions for the installation of materials, and to protect materials and finishes from damage due to temperature and humidity.
- B. Provide adequate forced ventilation of enclosed areas for curing of installed materials, to disperse humidity, and to prevent hazardous accumulations of dust, fumes, vapors, and gases.
- C. Portable heaters shall be standard approved units with integral controls.
- D. Provide metered connections to existing fuel and power sources. Extend and supplement existing systems with temporary units as required to comply with requirements. Pay costs of installation, maintenance, operation, and removal. Owner will pay costs of fuel used from the existing system. Metering is for Owner's accounting purposes only.

2.04 TEMPORARY TELEPHONE SERVICE

- A. Arrange with local telephone service company to provide direct line telephone service to construction site for personnel and employees and for Architect and Owner's representative.
- B. Pay costs for installation, maintenance, and removal, and pay service charges for local calls. Toll charges shall be paid by party who places call.

2.05 TEMPORARY WATER

- A. Provide metered connections to existing facilities. Provide water for drinking and construction purposes; Owner will pay costs of water used. Metering is for Owner's accounting purposes only.
- B. Install branch piping with taps located so that water is available throughout the construction by the use of hoses. Protect piping and fittings against freezing.

2.06 TEMPORARY SANITARY FACILITIES

- A. Provide sanitary facilities in compliance with laws and regulations.
- B. Service, clean, and maintain facilities and enclosures.

2.07 TEMPORARY FIRE PROTECTION

- A. Provide and maintain suitable fire protection equipment and services, and establish procedures for fire protection for welding and other potentially hazardous construction operations.
- B. Ascertain and comply with requirements of Project insurance carrier, local city/town Fire Department.

- C. Permanent fire protection system may be activated to meet these requirements. Replace fusible link heads and other expended or discharged components at time of Substantial Completion.

PART 3 - EXECUTION

3.01 GENERAL

- A. Comply with applicable requirements specified in Division 15-MECHANICAL, and in Division 16-ELECTRICAL.
- B. Maintain and operate systems to assure continuous service.
- C. Modify and extend systems as work progress requires.

3.02 REMOVAL

- A. Remove completely temporary materials and equipment when their use is no longer required.
- B. Clean and repair damage caused by temporary installations or use of temporary facilities.
- C. Restore permanent facilities used for temporary services to specified condition.
 - 1. Prior to final inspection, remove temporary lamps and install new lamps.

END OF SECTION

SECTION 01530

BARRIERS AND ENCLOSURES

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Furnish, install and maintain suitable barriers and enclosures as required to prevent public entry, and to protect the Work, and existing facilities from construction operations; remove when no longer needed, or at completion of Work.

1.02 RELATED REQUIREMENTS

- A. Temporary heat: Section 01510, TEMPORARY UTILITIES

PART 2 - PRODUCTS

2.01 MATERIALS, GENERAL

- A. Materials may be new or used, suitable for intended purpose, and shall meet requirements of applicable codes and standards.

2.02 FENCING

- A. Minimum fence height shall be 6 ft., or as indicated on Drawings.
- B. Chain Link Fence:
 - 1. No. 11 gauge, 2 in. mesh, 72 in. high galvanized chain link fabric, with extension arms and three strands of galvanized barbed wire.
 - 2. Galvanized steel posts; 1-1/2 in. line posts and 2 in. corner posts.

2.03 BARRIERS

- A. Materials to Contractor's option, as appropriate to serve required purpose.

2.04 ENCLOSURES

- A. Materials to Contractor's option, as appropriate for sufficient protection of work and materials.

PART 3 - EXECUTION

3.01 GENERAL

- A. Install facilities of a neat and reasonable uniform appearance, structurally adequate for required purposes.

- B. Maintain barriers and enclosures during entire construction period.
- C. Relocate barriers and enclosures as required by progress of construction.

3.02 FENCES

- A. Prior to start of work at the Project site, install enclosure fence with suitably locked entrance gates.
 - 1. Locate fence to enclose substantially entire Project site, or that portion the Contractor establishes as required to encompass entire Project construction operation, subject to the approval of the Owner.
 - 2. Locate vehicular entrance gates in suitable relation to construction facilities; and to avoid interference with traffic on public thoroughfares.
 - 3. Locate pedestrian entrance as required to provide controlled personnel entry, in suitable relation to construction parking facilities.
- B. Construct chain link fence in accordance with industry standards.

3.03 REMOVAL

- A. Completely remove barricades and enclosures, including foundations, when construction has progressed to the point that they are no longer needed, and when approved by Architect.
- B. Clean and repair damage caused by installation, fill and grade areas of the site to required elevations and slopes, and clean the area.

END OF SECTION

SECTION 01560
TEMPORARY CONTROLS

PART 1 GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Provide and maintain methods, equipment, and temporary construction, as necessary to provide controls over environmental conditions at the construction site and related areas under Contractor's control; remove physical evidence of temporary facilities at completion of Work.

1.02 RELATED REQUIREMENTS

- A. Temporary utilities: Section 01510, TEMPORARY UTILITIES.
- B. Cleaning: Section 01710, CLEANING.

1.03 NOISE CONTROL

- A. Noise levels shall not exceed those stipulated by Occupational Safety and Health Administration.

1.04 DUST CONTROL

- A. Provide positive methods and apply dust control materials to minimize raising dust from construction operations, and provide positive means to prevent air-borne dust from dispersing into the atmosphere.

1.05 WATER CONTROL

- A. Provide methods to control surface water to prevent damage to Project, site, and adjoining properties.
 - 1. Control fill, grading, and ditching to direct surface drainage away from excavations, pits, tunnels, and other construction areas; and to direct drainage to proper runoff.
- B. Provide, operate, and maintain hydraulic equipment of adequate capacity to control surface and water.
- C. Dispose of drainage water in a manner to prevent flooding, erosion, or other damage to any portion of the site or to adjoining areas and properties.

1.06 PEST AND RODENT CONTROL

- A. The Owner will provide pest and rodent control as necessary to prevent infestation of construction and storage areas.
- B. The Contractor will cooperate with the owner to coordinate and schedule rodent and pest control activities during construction. The Contractor shall notify the owner of specific areas requiring attention as soon as it is evident.

1.07 DEBRIS CONTROL

- A. Maintain all areas under Contractor's control free of extraneous debris.
- B. Initiate and maintain a specific program to prevent accumulation of debris at construction site, storage and parking areas, or along access roads and haul routes.
 - 1. Provide containers for deposit of debris as specified in Section 01710, CLEANING.
 - 2. Prohibit overloading of trucks to prevent spillages on access and haul routes.
 - a. Provide periodic inspection of traffic areas to enforce requirements.
- C. Schedule periodic collection and disposal of debris as specified in Section 01710, CLEANING.
 - 1. Provide additional collections and disposals of debris whenever the periodic schedule is inadequate to prevent accumulation.

1.08 POLLUTION CONTROL

- A. Provide methods, means, and facilities required to prevent contamination of soil, water, or atmosphere by the discharge of noxious substances from construction operations.
- B. Provide equipment and personnel, perform emergency measures required to contain any spillages and to remove contaminated soils or liquids.
 - 1. Excavate and dispose of any contaminated earth off-site, and replace with suitable compacted fill and topsoil.
- C. Take special measures to prevent harmful substances from entering public waters.
 - 1. Prevent disposal of wastes, effluents, chemicals, or other such substances adjacent to streams, or in sanitary or storm sewers.
- D. Provide systems for control of atmospheric pollutants.
 - 1. Prevent toxic concentrations of chemicals.
 - 2. Prevent harmful dispersal of pollutants to atmosphere.

PART 2 PRODUCTS

Not applicable to this section.

PART 3 EXECUTION

Not applicable to this section.

END OF SECTION

SECTION 01600

MATERIAL AND EQUIPMENT

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Products.
- B. Workmanship.
- C. Manufacturer's Instructions.
- D. Transportation and Handling.
- E. Storage and Protection.
- F. Substitutions and Product Options.

1.02 RELATED REQUIREMENTS

- A. Conditions of the Contract: Document 00700, GENERAL CONDITIONS and Document 00810, SUPPLEMENTARY CONDITIONS.
- B. Submittal of manufacturer's certificates: Section 01300, SUBMITTALS.
- C. Shop Drawings, Product Data submittals: Section 01340, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
- D. Maintenance of approved Submittals on site: Section 01720, PROJECT RECORD DOCUMENTS.
- E. Operation and maintenance data: Section 01730, OPERATING AND MAINTENANCE DATA.
- F. Warranties and Bonds: Section 01740, WARRANTIES AND BONDS.

1.03 PRODUCTS

- A. Product include material, equipment, and systems.
- B. Comply with Specifications and referenced standards as minimum requirements.
- C. Components required to be supplied in quantity within a Specification Section shall be the same, and shall be interchangeable.
- D. Do not use materials and equipment removed from existing structure, except as specifically required, or allowed, by Contract Documents.

1.04 WORKMANSHIP

- A. Comply with industry standards except when more restrictive tolerances or specified requirements indicate more rigid standards or more precise workmanship.

- B. Perform work by persons qualified to produce workmanship of specified quality.
- C. Secure Products in place with positive anchorage devices designed and sized to withstand stresses, vibration, and racking.

1.05 MANUFACTURERS' INSTRUCTIONS

- A. When work is specified to comply with manufacturers' instructions, submit copies of published instructions as part of product data required in Section 01300, SUBMITTALS. Distribute copies as specified and maintain one set in field office as required in Section 01720, PROJECT RECORD DOCUMENTS.
- B. Perform work in accordance with details of instructions and specified requirements. Should a conflict exist between Specifications and manufacturer's instructions, consult with Architect.

1.06 TRANSPORTATION AND HANDLING

- A. Arrange deliveries of products in accordance with construction schedules. Coordinate to avoid conflict with work and conditions at site.
- B. Prevent damage to and soiling of materials and equipment in transit and in handling, deliver in dry, undamaged condition in manufacturer's unopened containers or packaging.
- C. Promptly inspect shipments to assure that Products comply with requirements, quantities are correct, and products are undamaged.

1.07 STORAGE AND PROTECTION

- A. Store Products in accordance with manufacturer's instructions, with seals and labels intact and legible. Store sensitive Products in weathertight enclosures; maintain within temperature and humidity ranges required by manufacturer's instructions.
- B. For exterior storage of fabricated Products, place on sloped supports above ground. Cover Products subject to deterioration with impervious sheet covering; provide ventilation to avoid condensation.
- C. Store loose granular materials on solid surfaces in a well-drained area; prevent mixing with foreign matter.
- D. Arrange storage to provide access for inspection. Periodically inspect to ensure that Products are undamaged and are maintained under required conditions.
- E. After installation, provide coverings to protect Products from damage from traffic and construction operations, remove when no longer needed.

1.08 PRODUCT OPTIONS

- A. Within 30 days after date of Contract, submit complete list of materials and equipment proposed, with names of manufacturers, trade names, and model designations.
- B. Options:
 - 1. Products specified only by reference standard: Any Product meeting that standard.

2. Products specified by naming several manufacturers: Products of any named manufacturer meeting Specifications.
3. Products specified by naming one or more manufacturers and "or approved equal": Submit a request for substitution for any manufacturer not specifically named.
4. Products specified by naming only one manufacturer: No option.

1.09 MATERIAL SUBSTITUTIONS

- A. Where products or materials are specified by manufacturer's name, trade name or catalog reference, the words "or approved equal" shall be understood to follow unless there is a statement specifically indicating that no substitution will be allowed. An item shall be considered equal to the item so named or described if in the opinion of the Architect:
 1. It is at least equal in quality, durability, appearance, strength and design; including compliance with applicable specifications and compatibility with physical space allocations provided for the item;
 2. It performs at least equally the function imposed by the general design for the work;
 3. It conforms substantially, even with deviations, to the detailed requirements for the item as indicated by the Specifications.
- B. Where two or more products or materials are specified, the choice of these shall be optional with the Contractor.
- C. Should the Contractor, after the award of the Contract, wish to use any products or materials other than those specified, he shall request written permission of the Architect. His request shall name and adequately describe (including shop drawings) the proposed substitutions, furnish any information requested by the Architect, and state what difference, if any, will be made in the Contract price, including the cost of changes in the Work, for such substitutions should they be accepted. Upon receipt of complete information from the Contractor, the Architect will consider all aspects of the proposed substitution and advise the Contractor in writing approving or disapproving the substitution. The principal reasons for approval or disapproval of the substitution will be enumerated by the Architect. Disapproval of the substitution shall not cause for an increase in contract price or a delay in schedule.
- D. Request constitutes a representation that Contractor:
 1. Has investigated proposed Product and determined that it meets or exceeds, in all respects, specified Product.
 2. Will provide the same warranty for substitution as for specified Product.
 3. Will coordinate installation and make other changes which may be required for Work to be complete in all respects.
 4. Waives claims for additional costs which may subsequently become apparent.
- E. Substitutions will not be considered when they are indicated or implied on Shop Drawing or Product Data submittals without separate written request, or when acceptance will require substantial revision of Contract Documents.

- F. Architect will determine acceptability of proposed substitution, and will accept or reject substitutions in writing within a reasonable time.

PART 2 PRODUCTS

Not applicable to this section.

PART 3 EXECUTION

Not applicable to this section.

END OF SECTION

SECTION 01700
CONTRACT CLOSEOUT

PART 1 GENERAL

1.01 SUMMARY

- A. The following are prerequisites to substantial completion. Provide the following:
 - 1. Punch list.
 - 2. Supporting documentation.
 - 3. Warranties.
 - 4. Certifications.
 - 5. Occupancy permit.
 - 6. Start-up and testing of building systems.
 - 7. Change over of locks.
 - 8. Start up and testing of all food service equipment.

- B. Provide the following requisites to final acceptance:
 - 1. Final payment request with supporting affidavits.
 - 2. Completed punch list.

- C. Provide a marked-up reproducible set of drawings including changes which occurred during construction. (Record Documents)

- D. Provide the following closeout procedures:
 - 1. Submission of record documents.
 - 2. Submission of maintenance manuals.
 - 3. Training and turnover to Owner's personnel.
 - 4. Final cleaning and touch-up.
 - 5. Removal of temporary facilities, including all restoration and repair work required.

PART 2 PRODUCTS

Not applicable to this section.

PART 3 EXECUTION

Not applicable to this section.

END OF SECTION

SECTION 01710

CLEANING

PART 1 GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Execute cleaning during progress of the Work and at completion of the Work, as required by GENERAL CONDITIONS.

1.02 RELATED REQUIREMENTS

- A. Conditions of the Contract and Special Conditions Relative to Cleaning Requested by the Owner: GENERAL CONDITIONS and MODIFICATIONS TO THE GENERAL CONDITIONS.
- B. Cleaning for specific Products or Work: Division 2 through 16.

1.03 DISPOSAL REQUIREMENTS

- A. Conduct cleaning and disposal operations to comply with codes, ordinances, regulations, and antipollution laws.

1.04 QUALITY ASSURANCE

- A. Do not allow accumulation of waste materials or rubbish. At the completion of Work remove all waste materials and rubbish from the Project as well as all tools, equipment, machinery, and surplus materials. Restore all areas used for storage of debris or rubbish to rough grade condition. Where storage of trash is designated, such storage shall be in an orderly manner as directed by the Owner.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Use cleaning materials that pose no hazards to health or property, and will not damage surfaces.
- B. Use those cleaning materials and methods recommended by manufacturer of surface material to be cleaned.
- C. Use cleaning materials only on surfaces recommended by cleaning material manufacturer.

PART 3 EXECUTION

3.01 DURING CONSTRUCTION

- A. Execute daily cleaning to keep the Work, the site, and adjacent properties free from accumulations of waste materials, rubbish, and windblown debris resulting from construction operations.

- B. Provide on-site containers for collection of waste materials, debris, and rubbish.
- C. Remove waste materials, debris, and rubbish from the site periodically and dispose of at legal disposal areas away from the site.

3.02 DUST CONTROL

- A. Clean interior spaces prior to the start of finish painting and continue cleaning on an as-needed basis until painting is finished.
- B. Schedule operations so that dust and other contaminants resulting from cleaning process will not fall on wet or newly-coated surfaces.

3.03 FINAL CLEANING

- A. Employ skilled workers for final cleaning.
- B. Clean and restore adjoining surfaces and other work which was soiled or damaged superficially during the installation; replace other work damaged beyond successful restoration. Where the performance of subsequent work could possibly result in damage to the complete unit or element, provide protective covering or other provisions to minimize possible damage.
- C. Remove, grease, mastic, adhesives, dust, dirt, stains, fingerprints, labels, and other foreign materials from sight-exposed interior and exterior surfaces.
- D. Wash and shine glazing and mirrors.
- E. Polish glossy surfaces to clear shine.
- F. Heating, Ventilating and Air Conditioning Equipment:
 - 1. Clean permanent filters and replace disposable filters units in units that are operated during construction.
 - 2. Do not operate equipment without filters during construction and testing.
- G. Broom clean exterior paved surfaces; rake clean other surfaces of the grounds.
- H. Before final completion and Owner-occupancy, inspect sight-exposed interior and exterior surfaces and work areas to verify that Work is clean.

END OF SECTION

SECTION 01720
PROJECT RECORD DOCUMENTS

PART 1 GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Maintain at the site for the Owner one record copy of:
 - 1. Project Manual and Specifications, including discrete sets of Contract Documents for:
 - a. Site work and architectural and structural work,
 - b. Plumbing work,
 - c. Fire protection work,
 - d. HVAC work, and
 - e. Electrical work.
 - 2. Drawings.
 - 3. Addenda and Bulletins.
 - 4. Change Orders and other modifications to the Contract.
 - 5. Architect's Supplemental Instructions or other written instructions.
 - 6. Approved Shop Drawings, Product Data, and Samples.
 - 7. Field test records.
 - 8. Construction photographs.
 - 9. Copies of building, electric, plumbing, and public safety codes.

1.02 RELATED REQUIREMENTS

- A. Manufacturer's certificates: Section 01300, SUBMITTALS.
- B. Shop Drawings, etc.: Section 01340, SHOP DRAWINGS, PRODUCT DATA AND SAMPLES.

1.03 MAINTENANCE OF DOCUMENTS AND SAMPLES

- A. Store documents and samples in Contractor's field office apart from documents used for construction.
 - 1. Provide files and racks for storage of record documents.
 - 2. Provide locked cabinet or secure storage space for storage of samples.

- B. File documents and samples in accordance with Construction Specifications Institute Master format.
- C. Maintain documents in a clean, dry, legible condition and in good order. Do not use record documents for construction purposes.
- D. Make documents and samples available at all times for inspection by Architect.

1.04 MARKING DEVICES

- A. Provide felt tip marking pens for recording information in color code designated by Architect.

1.05 RECORDING

- A. Maintain current, discrete sets of Record Documents for general construction (site work and architectural and structural work) and for Plumbing, Fire Protection, HVAC, and Electrical Work.
- B. Label each document "PROJECT RECORD" in neat large printed letters.
- C. Record information concurrently with construction progress. Do not conceal any work until required information is recorded.
- D. Drawings: Legibly mark to record actual construction:
 - 1. Depths of various elements of foundations in relation to finish first floor datum.
 - 2. Horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
 - 3. Location of internal utilities and appurtenances concealed in the construction, referenced to visible and accessible features of the structure.
 - 4. Field changes of dimensions and detail.
 - 5. Changes made by Architect's Supplemental Instructions or Change Order.
 - 6. Details not on original Contract Drawings.
- E. Specifications and Addenda; Legibly mark each Section to record:
 - 1. Manufacturer, trade name, catalog number, and supplier of each Product and item of equipment actually installed.
 - 2. Changes made by Architect's Supplemental Instructions or by Change Order.

1.06 SUBMITTAL

- A. At Contract closeout, deliver complete electronic CAD drawing files for each trade compatible with Owner's requirements and reproducible copies of each set of Record

Documents to Architect for Owner. Revisions shall be neat, legible, accurate and consistent with original Drawings in quality of drafting.

B. Accompanying submittal with transmittal letter in duplicate, containing:

1. Date.
2. Project title and number.
3. Contractor's name and address.
4. Title and number of each Record Document.
5. Signature of Contractor or his authorized representative.

PART 2 PRODUCTS

Not applicable to this section.

PART 3 EXECUTION

Not applicable to this section.

END OF SECTION

SECTION 01730

OPERATING AND MAINTENANCE DATA

PART 1 GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Compile product data and related information appropriate for Owner's maintenance and operation of products furnished under the Contract.
 - 1. Prepare operating and maintenance data as specified in this Section and as referenced in other pertinent Sections of the Specifications.
- B. Instruct Owner's personnel in maintenance of products and in operation of equipment and systems.

1.02 RELATED REQUIREMENTS

- A. Submittals: Section 01340, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
- B. Record Specifications and Drawings: SECTION 01720, PROJECT RECORD DOCUMENTS.
- C. Warranties and bonds: Section 01740, WARRANTIES AND BONDS.

1.03 QUALITY ASSURANCE

- A. Preparation of data shall be done by personnel:
 - 1. Trained and experienced in maintenance and operation of described products.
 - 2. Familiar with requirements of this Section.
 - 3. Skilled as technical writer to the extent required to communicate essential data.
 - 4. Skilled as draftsman competent to prepare required drawings.

1.04 FORM OF SUBMITTALS

- A. Prepare data in form of an instructional operating and maintenance manual for use by Owner's personnel.
- B. Format:
 - 1. Size: 8-1/2 in. X 11 in.
 - 2. Paper: 20 pound minimum, white, for typed pages.
 - 3. Text: Manufacturer's printed data, or neatly typewritten.
 - 4. Drawings:
 - a. Provide reinforced punched binder tab, bind in with text.

- b. Fold larger drawings to size of text pages.
5. Provide fly-leaf for each separate product or each piece of operating equipment.
 - a. Provide typed description of product and major component parts of equipment.
 - b. Provide indexed tabs.
6. Cover: Identify each volume with typed or printed title "OPERATING AND MAINTENANCE INSTRUCTIONS". List:
 - a. Title of Project.
 - b. Identity of general subject matter covered in the manual.

C. Binders:

1. Commercial quality three-ring binders with durable and cleanable plastic covers.
2. Maximum ring size: 1 inch.
3. When multiple binders are used, correlate the data into related consistent groupings.

1.05 CONTENT OF MANUAL

A. Neatly typewritten table of contents for each volume, arranged in systematic order.

1. Contractor, name of responsible principal including address, and telephone number.
2. A list of each product required to be included, indexed to content of the volume.
3. List, with each product, name, address, and telephone number of:
 - a. Subcontractor or installer.
 - b. Maintenance contractor, as appropriate.
 - c. Identify area of responsibility of each.
 - d. Local source of supply for parts and replacement.
4. Identify each product by product name and other identifying symbols as set forth in Contract Documents.

B. Product Data:

1. Include only those sheets which are pertinent to the specific product.
2. Annotate each sheet to:
 - a. Clearly identify specific product or part installed.
 - b. Clearly identify data applicable to installation.

c. Delete references to inapplicable information.

C. Drawings:

1. Supplement Product Data with drawings as necessary to clearly illustrate:
 - a. Relations of component parts of equipment and systems.
 - b. Control and flow diagrams.
2. Include reduced photocopies or microfiche aperture cards of Project Record Drawings for Plumbing, Fire Protection, HVAC and Electrical work. Provide additional maintenance and operations drawings keyed to Record Drawings.

D. Written text, as required to supplement product data for the particular installation:

1. Organize in consistent format under separate headings for different procedures.
2. Provide logical sequence of instructions for each procedure.

E. Copy of each warranty, bond, and service contract issued.

1. Provide information sheet for owner's personnel, give:
 - a. Proper procedures in event of failure.
 - b. Instances which might affect validity of warranties or bonds.

1.06 MANUAL FOR MATERIALS AND FINISHES

A. Submit four copies of complete manual in final form.

B. Content; for architectural products, applied materials and finishes:

1. Manufacturer's data, giving full information on products.
 - a. Catalog number, size, composition.
 - b. Color and texture designations.
 - c. Information required for re-ordering special manufactured products.
2. Instructions for care and maintenance.
 - a. Manufacturer's recommendation for types of cleaning agents and methods.
 - b. Cautions against cleaning agents and methods which are detrimental to product.
 - c. Recommended schedule for cleaning and maintenance.

C. Content, for moisture-protection and weather-exposed products:

1. Manufacturer's data, giving full information on products.

- a. Applicable standards.
- b. Chemical composition.
- c. Details of installation.
2. Instructions for inspection, maintenance, and repair.

D. Additional requirements for maintenance data: Respective sections of Specifications.

1.07 MANUAL FOR EQUIPMENT AND SYSTEMS

- A. Submit four copies of complete manual in final form.
- B. Content, for each unit of equipment and system, as appropriate:
 1. Description of unit and component parts.
 - a. Function, normal operating characteristics, and limiting conditions.
 - b. Performance curves, engineering data, and tests.
 - c. Complete nomenclature and commercial number of replaceable parts.
 2. Operating procedures:
 - a. Start-up, break-in, routine and normal operating instructions.
 - b. Regulation, control, stopping, shut-down and emergency instructions.
 - c. Summer and winter operating instructions.
 - d. Special operating instructions.
 3. Maintenance Procedures:
 - a. Routine operations.
 - b. Guide to "trouble-shooting".
 - c. Disassembly, repair, and reassembly.
 - d. Alignment, adjusting, and checking.
 4. Servicing and lubrication schedule.
 - a. List of lubricants required.
 5. Manufacturer's printed operating and maintenance instructions.
 6. Description of sequence of operation by control manufacturer.

7. Original manufacturer's parts list, illustrations, assembly drawings and diagrams required for maintenance, including:
 - a. Predicted life of parts subject to wear.
 - b. Items recommended to be stocked as spare parts.
 8. As-installed control diagrams by controls manufacturer.
 9. Each contractor's coordination drawings.
 - a. As-installed color code piping diagrams.
 10. Charts of valve tag numbers, with location and function of each valve.
 11. List of original manufacturer's spare parts recommendations, manufacturer's current prices, and recommended quantities to be maintained in storage.
 12. Other data as required under pertinent sections of specifications.
- C. Contents, for each electric and electronic system, as appropriate:
1. Description of system and component parts.
 - a. Function, normal operating characteristics, and limiting conditions.
 - b. Performance curves, engineering data, and tests.
 - c. Complete nomenclature and commercial number of replaceable parts.
 2. Circuit directories of panelboards.
 - a. Electrical service.
 - b. Controls.
 - c. Communications.
 3. As-installed color coded wiring diagrams.
 4. Operating procedures:
 - a. Routine and normal operating instructions.
 - b. Sequences required.
 - c. Special operating instructions.
 5. Maintenance procedures:
 - a. Routine operations.
 - b. Guide to "trouble-shooting".

- c. Disassembly, repair and reassembly.
- d. Adjustment and checking.
- 6. Manufacturer's printed operating and maintenance instructions.
- 7. List of original manufacturer's spare parts, manufacturer's current prices, and recommended quantities to be maintained in storage.
- 8. Other data as required under pertinent sections of specifications.
- D. Prepare and include additional data when the need for such data becomes apparent during instruction of Owner's personnel.
- E. Additional requirements for operating and maintenance data: Respective sections of Specifications.

1.08 SUBMITTAL SCHEDULE

- A. Submit two copies of preliminary draft of proposed formats and outlines of contents prior to start of Work.
 - 1. Architect will review draft and return one copy with comments.
- B. Submit one copy of complete data in final form 15 days prior to final inspection or acceptance.
 - 1. Copy will be returned after final inspection or acceptance, with comments.
- C. Submit four copies of approved data in final form within ten days after final inspection or acceptance.

1.09 INSTRUCTION OF OWNER'S PERSONNEL

- A. Before final inspection or acceptance, instruct Owner's designated operating and maintenance personnel in the operation, adjustment and maintenance of products, equipment, and systems.
- B. Operating and maintenance manual shall constitute the basis of instruction. Review contents of manual with personnel in full detail to explain all aspects of operating and maintenance.

PART 2 PRODUCTS

Not applicable to this section.

PART 3 EXECUTION

Not applicable to this section.

END OF SECTION

SECTION 01740
WARRANTIES AND BONDS

PART 1 GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Compile specified warranties and bonds.
- B. Compile specified service and maintenance contracts.
- C. Co-execute submittals to verify compliance with Contract Documents.
- D. Review submittals to verify compliance with Contract Documents.
- E. Submit to Architect for review and transmittal to Owner.

1.02 RELATED REQUIREMENTS

- A. General warranty of construction: GENERAL CONDITIONS.
- B. Operating and maintenance data: Section 01730, OPERATING AND MAINTENANCE DATA.
- C. Warranties and Bonds required by Specific Products: Divisions 2 through 16.

1.03 SUBMITTAL REQUIREMENTS

- A. Assemble warranties, bonds, and service and maintenance contracts, executed by each of the respective manufacturers, suppliers, and subcontractors.
- B. Number of original signed copies required: Two each.
- C. Table of Contents: Neatly typed, in orderly sequence. Provide complete information for each item including:
 1. Product or work item.
 2. Firm, with name of principal, address, and telephone number.
 3. Scope.
 4. Date of beginning of warranty, bond, or service and maintenance contract.
 5. Duration of warranty, bond, or service and maintenance contract.
 6. Provide information for Owner's personnel:
 - a. Proper procedures in case of failure.
 - b. Instances which might affect the validity of warranty or bond.
 7. Contractor, name of responsible principal, address, and telephone number.

1.04 FORM OF SUBMITTALS

- A. Prepare in duplicate packets.
- B. Format:
 - 1. Size 8-1/2 in. X 11 in., punched sheets for standard three-ring binder.
 - a. Fold larger sheets to fit into binders.
 - 2. Cover: Identify each packet with typed or printed title "WARRANTIES AND BONDS".
List:
 - a. Title of Project.
 - b. Name of Contractor.
- C. Binders: Commercial quality, three-ring, with durable and cleanable plastic covers.

1.05 TIME OF SUBMITTALS

- A. For equipment or components parts of equipment put into service during progress of construction:
 - 1. Submit documents within ten days after inspection and acceptance.
- B. Otherwise make submittals within ten days after Date of Substantial Completion, prior to final request for payment.
- C. For items of work where acceptance is delayed materially beyond Date of Substantial Completion, provide updated submittal within ten days after acceptance, listing date of acceptance as start of warranty period.

1.06 SUBMITTALS REQUIRED

- A. Submit warranties, bonds, service, and maintenance contracts as specified in respective section of Specifications.

PART 2 PRODUCTS

Not applicable to this section.

PART 3 EXECUTION

Not applicable to this section.

END OF SECTION

SECTION 02112

SELECTIVE DEMOLITION AND CLEANING

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Scope: Include all selective demolition and cleaning work as required to complete the work of the Contract as indicated. Include, but do not limit to:
1. All selective demolition work within, on, or relative to, the existing building as specifically called for on the Drawings and as required to accommodate the additions and renovation work, except specific demolition and removal work specified to be done as work of other Sections.
 2. Cutting of all grooves, chases, openings, holes, etc., required for all trades through or into existing construction, except cutting and drilling specified to be done as work of other Sections.
 3. Removal from site and legal disposal of all removed materials, trash, debris, etc., removed by selective demolition operations, except any items indicated to be reused on the project or to be stored by Owner's future use.
 4. Careful removal of items indicated to be reused on the project, and safe storage until time for reinstallation.
 5. Careful removal of items indicated to be salvaged for Owner's future use, including safe storage within the existing building.
 6. General cleaning of all interior and exterior work areas of the building followed by thorough cleaning and surface preparation of all interior surfaces to be exposed in the finished work, and all interior and exterior surfaces to receive subsequent new finishes, in the finished work..
 7. Full cleaning of affected streets and roadways with sweepers and by any means necessary to remove debris, dust, earth, rocks, etc. caused by the construction of this contract on a regular basis in order to maintain a clean roadway at all times. Work shall be accomplished to the satisfaction of the Owner's designated representative.
- B. NOTE: It is the intent of this specification that demolition work be done by the demolition contractor. It will be the responsibility of each trade to mark and coordinate with the demolition contractor for all items in his trade that are to remain in place, be salvaged or to be removed. The individual trades shall disconnect, cap, or deactivate all items that are to be removed by the demolition contractor. The completion of any work not covered under the separate contracts of the subcontractors will be the responsibility of the General Contractor.

1.02 RELATED REQUIREMENTS

1. Weather protection enclosures, dust barriers and curtaining and miscellaneous protective barriers.

2. Disconnecting, plugging, capping, etc., of existing mechanical and electrical work to be removed and demolition and removal of portions of existing mechanical and electrical work to be removed which are indicated and/or specified to be removed by Mechanical and Electrical trades.
3. Pest and rodent control.

1.03 REFERENCES

- A. The BIDDING REQUIREMENTS, CONTRACT FORMS AND CONDITIONS OF THE CONTRACT and applicable parts of DIVISION 1 - GENERAL REQUIREMENTS, as listed in the Table of Contents, shall be included in and made a part of this section.
- B. Examine all drawings and all other sections of the specifications for requirements therein affecting the work of this section.

PART 2 - PRODUCTS

Not applicable to this section.

PART 3 - EXECUTION

3.01 EXECUTION

- A. Phasing and Commencement of Work: It is intended that by the date of execution of the Contract agreement the work areas for work of this contract will be fully evacuated by Owner and ready for demolition work to begin. However, no work shall be started in or on the existing building for any of the phases until prior written approval has been issued to the Contractor by the Owner, such approval not to be unreasonably withheld.
- B. Selective Demolition:
 1. Do all work to conform to the governing laws and building codes. All permits required for the selective demolition work shall be procured by the Contractor.
 - a. Provide unobstructed legal exits at all times.
 - b. Meet Requirements of Clean Air Act.
 - c. Provide demolition so as not to release hazardous materials into the environment.
 2. Carry out selective demolition work with utmost care, using appropriate and safe tools and methods to assure that the building structures or finishes are not damaged or are not subjected to damaging shock or vibration. Do not endanger building structure by cutting, removal, overloading, or other cause. Contractor will coordinate with owner to ensure noise control methods and the timing of the work meets with his satisfaction.
 3. Cut or remove work causing openings in exterior walls, roofs, or other elements providing weather protection, only after temporary weatherproof enclosures have been provided under Section 01560, TEMPORARY CONTROLS.

4. Repair damage done to elements of building to remain, except repairs specified to be provided under other Sections. Provide neat cutting and trimming of elements to remain wherever cutting is required, to provide straight, true, and sharp, cut-lines and edges. Do not overcut or overdrill, nor break, puncture, tear down, or otherwise damage existing construction beyond the limits needed for proper preparation of openings or for proper passage of penetrating elements. Where existing finishes, except paint or varnish, are indicated to be removed, remove down to bare subsurfaces without causing damage to the subsurfaces.
5. Do not allow debris to accumulate. Sprinkle during handling and loading to reduce dust. Either store debris outside of building temporarily in dumpster type container(s) or remove from premises daily. Carry debris out in containers or drop in fully enclosed chutes, in no case passing through, throwing from, or dropping free from windows, wall openings, etc.
6. Block or effectively filter return air systems in a safe manner to prevent intrusion of dust into remaining air handling systems.
7. Items to be Reused: Carefully remove all existing items specified or designated on Drawings to be reused on the work in manner to assure least possible damage. After removal, store in protected storage areas for later refurbishing and/or reinstallation, as specified. Replace with equivalent new items all items designated to be reused which, in the opinion of the Architect, have become too damaged to be satisfactorily reused, without additional cost to the Owner.
8. The Owner will remove all items that he requires for salvage before the building or portion of the building to be demolished is turned over to the Contractor for Construction with the exception of items specifically tagged or indicated on the drawings to be turned over to the owner at the location designated by the owner.
9. Disposal: Remove and legally dispose of off-the-site all materials removed which are not designated on Drawings to be reused on the project or salvaged for Owner's use. Contractor shall, upon removal from the site, have rights of salvage of the materials.

C. Cleaning:

1. Upon completion of selective demolition work in any exterior or interior work are; remove all loose and crumbling finish materials, paint, etc., and all loose dust and debris, brush down all exposed surfaces, and leave the area broom clean, ready for subsequent work on the Contract.
2. Following broom cleaning, thoroughly clean all exposed interior surfaces throughout which are to be left exposed in the finished work and all exterior and interior surfaces to receive new finishes, including painting, in the finished work. Clean in a manner suitable for each of the materials, such as to cause no damage to same or to surrounding materials to remain. Except for items subject to water damage, provide wet cleaning with bristle brush, clean water, and caustic detergent followed by careful, controlled, thorough, rinsing with fresh, clean water. Clean items subject to water damage by effective dry method(s). Exercise extreme care to control wash water and rinse water run-off, splashing, etc., to prevent damage to the building surfaces or finishes to remain.

END OF SECTION

SECTION 07271

FIRE PENETRATION SEALANTS

PART 1 GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Provide all equipment and materials, and do all work necessary to complete the firestop sealant work for the entire project. The general contractor shall be responsible for the actual field locations of penetrations through fire rated partitions and or floors as required.

1.02 RELATED REQUIREMENTS

- A. Section 07900, SEALANTS
- B. Division 15, MECHANICAL INSULATION
- C. Section 15300, FIRE PROTECTION
- D. Division 16, BASIC ELECTRICAL MATERIALS AND METHODS

1.03 REFERENCES

- A. ASTM E 814: Test Method of Fire Tests of Through-Penetration Firestops.
- B. UL 1479: Fire Tests of Through-Penetration Firestops.
- C. UL Fire Resistance Directory: Through-Penetration Firestops Systems (XHEZ).
- D. NFPA 70: National Electrical Code.
- E. NFPA 101: Life Safety Code.

1.04 DEFINITION

- A. Firestopping: A material, or combination of materials, used to retain the integrity of fire-rated construction by maintaining an effective barrier against the spread of flame (and to impede passage of smoke, gases and water) through penetrations in fire-rated wall and floor assemblies.

1.05 SUBMITTALS

- A. Submit under provision of Section 01300 SUBMITTALS.
- B. Product Data: Provide data on product characteristics, product performance, limitation criteria and documentation of proposed through-penetration firestop systems which reflect actual job conditions.
- C. Manufacturer's installation instructions: Indicate preparation and installation instructions.

1.06 QUALITY ASSURANCE

- A. Qualifications: Applicator shall receive training on installation of through-penetration firestop materials from manufacturer's representative.

1.07 REGULATORY REQUIREMENTS

- A. Conform to applicable code requirements.

1.08 DELIVERY, STORAGE AND HANDLING

- A. Deliver materials in original unopened containers identified with manufacturer's brand designation and UL label where applicable.
- B. Store materials under cover and protect from damage in accordance with manufacturer's instructions.
- C. Do not use damaged or expired materials.
- D. Before handling, read product and material safety data sheets.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Subject to compliance with through penetration firestop systems (XHEZ) listed in Volume II of the UL Fire Resistance Directory. This specification is written based on Hilti Construction Chemicals, Inc. but "or equal" is acceptable. Provide products of the following manufacturers as identified below:

Hilti Construction Chemicals, Inc.
Tremco Construction Products
United States Gypsum

2.02 MATERIALS

- A. Use only firestop products that have been UL 1479 or ASTM E 814 tested for the specific fire-rated construction conditions being firestopped, conforming to construction assembly type, penetrating item size and type, annular space requirements, and fire-rating involved for each distinct application.
 - 1. For penetrations by non-combustible items including steel pipe, copper pipe, rigid steel conduit and electrical metallic tubing (EMT), the following materials are acceptable: Hilti FS 601 Elastomeric Firestop Sealant; Hilti FS 605 High Performance Firestop Sealant or equal.
 - 2. For fire-rated construction joints or other gaps, the following material is acceptable: Hilti FS 610 Elastomeric Firestop Sealant or equal.
 - 3. For penetrations by plastic pipe, the following materials are acceptable: Hilti CP 642 Firestop Collars; Hilti FS 611A Intumescent Firestop Sealant or equal.

4. For penetrations by combustible items (penetrants consumed by high heat and flame) including insulated metal pipe, PVC jacketed, flexible cable or cable bundles the following material is acceptable: Hilti FS 611A Intumescent Firestop Sealant or equal.
 5. For large size/complex penetrations made to accommodate cable trays, multiple steel and copper pipes, electrical busways and raceways, the following material is acceptable: Hilti FS 635 Trowelable Firestop Compound or equal.
- B. Provide a firestop system with an "F" rating as determined by UL 1479 or ASTM E 814 which is equal or higher than the time rating of construction being penetrated.

PART 3 EXECUTION

3.01 PREPARATION

- A. Clean surfaces to receive firestopping materials of dirt, dust, grease, oil, loose material, and other matter which may effect bond of firestopping material or the fire resistance.
- B. Insure that surface to be firestopped is prepared in accordance with manufacturer's instructions.

3.02 INSTALLATION

- A. Refer to Underwriter's Laboratories, Inc. (UL) Fire Resistance Directory; "Through-Penetration Firestop Systems (XHEZ)" for system details.
- B. Install firestopping materials in accordance with manufacturer's instructions.

END OF SECTION

SECTION 07900

SEALANTS

PART 1 GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Caulk and seal joints as indicated on the Drawings and as specified. Include, but do not limit to:
 - 1. Sealing of expansion joints and control joints in exterior concrete.
 - 2. Sealing of joints between perimeter of exterior door frames, window frames, skylights, and other items occurring in openings in exterior walls, and the surrounding construction, including bed sealing of thresholds.
 - 3. Sealing and caulking of interior perimeter joints at door frames, window frames, skylight systems, and other wall openings.
 - 4. Acoustical caulk at the junction of materials to prevent the passage of sound as indicated on the Construction Documents.
 - 5. Sealant at all joints between finished surfaces and between finished surfaces and fixed equipment in kitchen, food preparation, and food serving, food storage, and dish washing areas.
 - 6. All other exterior and interior sealing called for, or reasonably inferred from the Drawings, and as required to provide weather tight conditions in exterior walls.

1.02 RELATED REQUIREMENTS

- A. Acoustical sealing of gypsum drywall work: Section 09250, GYPSUM DRYWALL.
- B. Acoustical sealing at masonry walls: Section 04200, UNIT MASONRY.
- C. Food Service Equipment: Section 11400, FOOD SERVICE EQUIPMENT.

1.03 REFERENCES

- A. The BIDDING REQUIREMENTS, CONTRACT FORMS AND CONDITIONS OF THE CONTRACT and applicable parts of DIVISION 1 - GENERAL REQUIREMENTS, as listed in the Table of Contents, shall be included in and made a part of this Section.
- B. Examine all Drawings and all other Sections of the Specifications for requirements therein affecting the work of this Section.

1.04 REFERENCED STANDARDS

- A. American Society for Testing and Materials (ASTM):
 - C 790 Use of Latex Sealing Compounds
 - C 834 Latex Sealing Compounds

C 920 Elastomeric Joint Sealants

C 962 Use of Elastomeric Joint Sealants

B. Federal Specifications (Fed. Spec.):

TT-S-00227 Sealing Compound: Elastomeric Type, Multi-Component (For Caulking, Sealing, and Glazing in Buildings and Other Structures)

TT-S-001543A Sealing Compound: Silicone Rubber Base (For Caulking, Sealing, and Glazing in Buildings and Other Structures)

1.05 COMPATIBILITY

- A. Sealant and sealant joint backing materials selected shall be suitable for the use intended and compatible with the material with which they will be in contact. Compatibility of sealant and accessories shall be verified by the sealant manufacturer.

1.06 SUBMITTALS

- A. Manufacturers' product data shall be submitted for each sealant and sealant material proposed. Product data shall include test results and shall be in conformance with reference applicable standards where standards or testing requirements have been specified.
- B. Manufacturer's standard color chart of sealants shall be submitted for selection of colors.
- C. Samples of the following shall be submitted for approval:

<u>Item</u>	<u>Quantity and Size</u>
Joint Backer	Two pieces, full size 4 in. length
Sealant, each type	Cured sample of each color selected for the Architect 2 x 2 in.

- D. Furnish samples of any other materials of this Section requested by Architect for approval. Form of samples shall be as requested by the Architect.
- E. Do not order materials or begin installation until Architect's approval of submittals has been obtained.

1.07 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Materials under this Section shall be delivered to, and stored at, the job site in unbroken factory sealed containers with labels intact.

1.08 WARRANTY

- A. Furnish joint sealant manufacturer's written single-source performance warranty that joint sealant work will be free of defects related to workmanship or material deficiency for five years from date of Substantial Completion.

PART 2 PRODUCTS

2.01 EXTERIOR SEALANTS

- A. Sealant for exterior horizontal joints shall be non-staining, two component polyurethane based sealant conforming to Fed. Spec. TT-S-00227, Class A, with a Shore A Hardness of 30 ± 5 , or better.
 - 1. Sealant shall be Type I (self-leveling), equal to Tremco THC-900, or approved equal.
 - 2. Color of sealants shall be selected by the Architect from the manufacturer's standard color chart.
 - 3. Primer shall be that recommended by the sealant manufacturer.
 - 4. Sealant and primer shall be products of the same manufacturer.

- B. Sealant for general use at exterior joints in vertical building surfaces shall be (1) two-part, low-modulus, polyurethane sealant, gun-grade, non-sagging type, conforming to Fed. Spec. TT-S-00227, Type II, Class A, and to ASTM C 920, Type M, Grade NS, Class 25, Use NT. Sealant shall be equal to "Dymeric" manufactured by Tremco Mfg. Co., "Dynatrol II" manufactured by Pecora Corp., "Vulcan 227" manufactured by Mameco International, or "Iso-Flex 2000" manufactured by H.S. Peterson Co., Inc.
 - 1. Color(s) of sealant shall be manufacturer's standard color(s), as selected by Architect, to match, or contrast with adjacent materials.

2.02 INTERIOR SEALANT

- A. Sealant for general interior uses shall be paintable acrylic-latex sealant, conforming to ASTM C 834. Sealant shall be "AC-20 Acrylic- Latex", manufactured by Pecora Co. or equivalent product manufactured by DAP or Gibson-Holman Co.
 - 1. Color(s) of sealant shall be manufacturer's standard color(s) as selected by Architect to match or contrast with adjacent materials.
 - 2. At interior joints greater than 1/2 in. in width or subjected to periodic building movement, substitute exterior type sealant as specified above.
 - 3. Where surrounding wall surfaces are to be unpainted, substitute exterior type sealant as specified above.

- B. Sealant for interior use at plumbing fixtures, showers, and other areas of high humidity shall be General Electric SCS 1702 Sanitary Sealant or approved equal. Silicone sealant shall be specifically formulated to resist growth of mold and mildew and shall meet requirements of Fed. Spec. TT-S-001543A.

- C. Acoustical Sealant:
 - 1. Sealant for concealed applications shall be "BA-98 Acoustical Sealant," manufactured by Pecora Chemical Corp., equivalent product manufactured by U.S. Gypsum co., National Gypsum Co., or approved equal.
 - 2. Sealant for exposed applications shall be paintable "AC-20 Acrylic Latex Caulk," manufactured by Pecora Chemical Corp., equivalent product manufactured by DAP or Gibson Homans Co., or approved equal.

- D. Primer for sealants shall be as recommended by manufacturer for each specific material.

2.03 JOINT BACKING

- A. Joint backing for general use in joints in vertical surfaces shall be compressible, closed-cell, polyurethane foam, or a similar plastic foam recommended by manufacturer.
- B. Joint backing for general use at joints in horizontal surfaces shall consist of two rows of butyl rubber or neoprene foam rod in contact with one another, and each compressed to approximately $2/3$ original width when in place.
- C. All such materials shall not be of type which will bleed through sealant, discolor its surface, or produce other deleterious effects. In each instance, size shall be selected to provide compression to approximately $2/3$ original width when in place. Profile of backing material shall be concave profile to the rear of the sealant, and shall be equipped with a bond-breaking film.

PART 3 EXECUTION

3.01 PREPARATION OF JOINTS TO RECEIVE SEALANT

- A. Unless otherwise indicated, use of sealants shall conform to the following: ASTM C 790 for latex sealants and ASTM C 962 for other sealants.
- B. Preparation of Joints:
 - 1. Examine all joints to receive sealant prior to application, and notify the Architect in writing of all conditions detrimental to achieving positive, weather tight and air-tight seals. Do not commence work in any area where such notice of adverse conditions has been sent until corrective work has been completed or waived. Start of work in any area without issuances of such notice shall constitute acceptance of conditions as correct to properly receive the work of this Section.
 - 3. Preparation of joints shall conform to manufacturer's printed recommendations. Joints and spaces to be sealed shall be sound, clean, dry, and free of dust, loose mortar, and other foreign matter. Wire brush joints in concrete and masonry, and air-blow or vacuum clean.
 - 4. Surfaces which have been given protective coatings and all those which contain oil or grease shall be thoroughly cleaned with xylol or MEK solvent, with due precautions taken to minimize hazards.
 - 5. Prime all surfaces where and as recommended by sealant manufacturer.
 - 6. Exterior joints shall be backed with joint backing material to eliminate back bond. Where width of joint is $1/2$ in. or less, prepare joint so depth of sealant bead is approximately equal to its width. Where width of joint exceeds $1/2$ in., prepare joint so depth of sealant bead is approximately equal to $1/2$ its width or $1/2$ in., whichever is greater.

7. Backing of joints to receive interior sealant will not be required except where depth of joint exceeds width of joint, in which case it shall be backed to that depth by use of compressible foam, as above, or non-staining oakum.

3.02 GENERAL SEALANT APPLICATION

- A. Sealing of joints shall be scheduled for as long as possible a time following completion of concrete work.
 1. Concrete work shall be thoroughly dried and cured prior to start of sealant application.
- B. Joints to be sealed shall be thoroughly cleaned and primed shall be applied to surfaces that will be sealed. Adjacent surfaces shall be suitably protected from staining and other damage during sealant application. Sealant shall be applied to clean, dry surfaces, within three hours after primer application.
- C. Primer and sealant shall be applied in accordance with the sealant manufacturer's written recommendations, using hard guns or pressure equipment. Temperature of sealant and surfaces to be sealed shall be as recommended by the sealant manufacturer.
- D. Sealant shall be forcibly gunned into the joint to obtain maximum bond to joint shoulders.
 1. Sealed joints shall be left with a uniform, slightly concave profile, free from gaps, cracks, and entrapped air.
 2. Joints shall be filled completely to within 1/16 in. of finished surface.
 3. Where required, light tooling of the joint can be performed immediately after sealant application.
- E. Thresholds of exterior doors shall be set in full beds of exterior sealant, not less than 3/8 in. thick. At Contractor's option, a polybutene or polyisobutylene sealant by same manufacturer may be used at thresholds.

3.03 CLEANING

- A. Remove smears from adjacent surfaces immediately, as the work progresses. Exercise particular care to prevent smearing or staining of surrounding surfaces which will be exposed in the finished work, and repair any damage done to same as result of this Work without additional cost to the Owner.
- B. Remove all cartons, debris, emptied containers, and tubes, etc., as the work progresses, and finally at completion of work of this Section. Legally dispose of the same off the site.

END OF SECTION

SECTION 09250

GYPSUM DRYWALL

PART 1 GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Furnish and install gypsum drywall work, as indicated on the Drawings and as specified herein. Include, but do not limit to:
 - 1. Steel suspension systems for interior gypsum wallboard ceilings.
 - 2. Screwable steel stud interior partition framing.
 - 3. Screwable steel stud framed and furred enclosures at columns and beams.
 - 4. Rated fire walls and shaft-wall construction at vertical chases and at mechanical shafts where indicated.
 - 5. Blockings and attachments for fixture supports on exterior and interior walls.
 - 6. Gypsum wallboard finishes for interior ceilings, walls, partitions, ceiling edgings, soffits, interior skylight wells, column enclosures, beam enclosures, etc.
 - 7. Acoustical sealing and acoustical insulation of gypsum wallboard finishes at steel stud framed partitions and furrings where indicated.
 - 8. Other gypsum drywall work called for on the Drawings or reasonably required to complete the Project intent.
 - 9. Install access panels required in gypsum drywall work.
 - 10. The drywall contractor must provide all required cranes and lifts.

1.02 RELATED REQUIREMENTS

- A. Wood blocking, furring, grounds, etc., except plumbing fixture support blocking: Section 06100, ROUGH CARPENTRY.
- B. Access doors: Section 08305, ACCESS DOORS.
- C. Painting: Section 09900, PAINTING.
- D. Wood trim: Section 06200, FINISH CARPENTRY.
- E. Corner guards: Section 10260, CORNER GUARDS

1.03 REFERENCES

- A. The BIDDING REQUIREMENTS, CONTRACT FORMS AND CONDITIONS OF THE CONTRACT and applicable parts of DIVISION 1 - GENERAL REQUIREMENTS, as listed in the Table of Contents, shall be included in and made a part of this Section.

- B. Examine all Drawings and all other Sections of the Specifications for requirements therein affecting the work of this Section.

1.04 REFERENCED STANDARDS

- A. American Society for Testing and Materials (ASTM):
 - C 36 Specification for Gypsum Wallboard
 - C 79 Test Method for Gypsum Sheathing Board
 - C 442 Specification for Gypsum Backing Board and Coreboard
 - C 475 Joint Treatment Materials for Gypsum Wallboard Construction
 - C 514 Specification for Nails for the Application of Gypsum Wallboard
 - C 630 Specification for Water-Resistant Gypsum Backing Board
 - C 645 Specification for Non-Load (Axial) Bearing Steel Studs, Runners (Track), and Rigid Furring Channels for Screw Application of Gypsum Board
 - C 646 Specification for Steel Drill Screws for the Application of Gypsum Board to Light-Gauge Steel Studs
 - C 754 Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Board
 - C 840 Specifications for Application and Finishing of Gypsum Board
 - C 893 Type G Steel Screws for the Application of Gypsum Board to Gypsum Board
 - C 894 Type W Screws for the Application of Gypsum Board to Wood Framing
 - C 919 Sealants in Acoustical Applications
 - C 931 Specification for Exterior Gypsum Soffit Board
 - C 954 Specification for Steel Drill Screws for the Application of Gypsum Board to Steel Studs from 0.033 in. (0.84-mm) to 0.112 in. (2.84-mm) in Thickness
 - C 1002 Specification for Steel Drill Screws for the Application of Gypsum Board or Metal Plaster Bases
 - C 1047 Specification for Accessories for Gypsum Wallboard and Gypsum Veneer Base
- B. Level of finish of gypsum wallboard products:
 - GA-214 Level of Finish Consensus Document - Gypsum Association
- C. All products used in the Project shall be manufactured by the same manufacturer.

1.05 SUBMITTALS

- A. Shop Drawings: Furnish complete shop drawings and product cuts of all work of this Section to Architect for approval, showing all pertinent details of construction and installation, and sizes, gauges, configurations, and connections of all components. Confirm on shop drawings that deflection will not exceed $L/360$ of length.
- B. Samples: Furnish samples of materials to be furnished under this Section to Architect for approval.

1.06 QUALITY ASSURANCE

- A. Reference Standards: Conform to governing laws, building code and manufacturer's printed standards.

1.07 COORDINATION

- A. Work of this Section shall be coordinated with the work of other Sections to assure the steady progress of all the work of the Contract. Obtain complete information regarding wall and ceiling mounted fixtures, grilles, registers, access panels, equipment, accessories, etc. to be used on the work from other trades. In no case shall work of other Sections be concealed until it has been inspected.

1.08 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver all manufactured materials to site in original packages, containers, or bundles bearing the manufacturer's name and brand names, type of material, and contents.
- B. Store materials in interior spaces, above floors, under cover, away from sweating walls and other damp surfaces, and with good ventilation.
- C. Handle gypsum boards to prevent damage to edges, ends, or surfaces. Protect metal corner beads, casing beads, and trim from being bent or damaged.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Materials shall be manufactured by Gold Bond Building Products, United States Gypsum Co., Georgia-Pacific Co.
- B. Cement board fiberglass reinforced lightweight concrete panel "Wonder Board" by Modulars, Inc., Hamilton, OH or "Durock" by USG Industries, Chicago, IL.
- C. "High Impact" or gypsum/wood fiber panels: Louisiana-Pacific, Portland, OR. "Fiberbond" panels in $\frac{1}{2}$ " and $\frac{5}{8}$ " thickness as indicated on drawings. Provide in 48" widths with tapered edges by lengths as required to minimize joints.

2.02 MATERIALS

- A. Ceiling Suspension System: Shall be a complete, mechanical suspension system, conforming to ASTM C 645, consisting of cold-rolled steel channel main runners, screwable steel furring

channels, hangers, and anchors, and all required clips and other components, required for complete installation.

1. Hanger anchors shall be of type suitable for each of project conditions, and of sufficient capacity (not less than 150 lb. live load each) for purpose intended.
 2. Hangers shall be 12 gauge, minimum, galvanized and annealed steel wire.
 3. Steel runner channels shall be 1-1/2 in. cold-rolled 16 gauge steel channels, weighing 475 lb. per 1,000 lin. ft., shop painted black.
 4. Screwable steel ceiling furring channels shall be 25 gauge hot-dip galvanized, screwable, pressed steel furring channels, 7/8 in. thick, hat section.
 5. Clips for attachment of steel furring channels to steel carrying channels shall be proprietary clips as recommended by manufacturer.
 6. Tie Wire: Not less than 16 gauge annealed and galvanized.
- B. Screwable Steel Stud Framing System: Unless otherwise indicated, shall be a complete proprietary framing system consisting of prefabricated, non-load bearing, screwable 20 gauge (heavy gauge) and 25 gauge (light gauge) hot-dip galvanized steel studs, and all required steel track, anchors, and related items, conforming to ASTM C 645, all hot-dip galvanized.
1. Steel studs at jambs of door and fixed glass frames, at open partition ends, where the partition is to receive wall-mounted shelves, heavy fixtures, etc., and where use of light gauge studs is limited by manufacturer's structural design tables shall be 20 gauge. At other locations studs shall be 25 gauge.
 2. Wood blockings for support of fixtures, accessories, etc., shall be Construction and/or Standard Grade Hem-fir.
- C. Screwable Steel Wall Furring Channels: 25 gauge hot-dip galvanized, screwable, pressed steel furring channels, 7/8 in. thick, hat section, Z furring channels, lin., 1-1/2 in. and 2 in. Z shaped channels.
- D. Gypsum Wallboard: Indicated thickness(es) by 48 in. width by lengths as required, tapered edge, paper finish, conforming to ASTM C36. Where used in fire-rated assemblies, Type X fire resistant type shall be used. Moisture resistant gypsum wall board shall be used at toilet rooms and kitchen areas and as indicated on the drawings.
- E. Joint Treatment Materials: Joint treatment materials shall conform to ASTM C 475.
1. Laminating Adhesive and Joint Finishing compound: As recommended by gypsum wallboard manufacturer, interior type for interior general use, exterior type for use at water-resistant gypsum backer board.
 2. Joint Tape: 2 in. to 2-1/2 in. wide paper tape, as recommended by gypsum wallboard manufacturer.

- F. Screws:
1. Screws for Attachment of Gypsum Wallboard to Steel Framing and Furring Members: Self-drilling, Type S, bugle head screws, conforming to ASTM C 646, with bugle-type Phillips-head, appropriate size and length in each case as recommended by manufacturer.
 2. Screws for Attachment of Gypsum Wallboard to Wood Blocking: Self-drilling Type W screws conforming to ASTM C 894, with bugle-type Phillips-head. Screw length and size in each case shall be as recommended by gypsum wallboard manufacturer.
 3. Screws for Attachment of Steel Framing and Furring Members to Other Steel Members: Self-drilling, Type S, pan head screws, conforming to ASTM C 646, appropriate size and length in each case as recommended by manufacturer.
- G. Accessories shall conform to ASTM C 840 and the following:
1. Corner Bead: 1 in. by 1 in. perforated flange, standard type, 26 gauge, galvanized steel, for compound finishing.
 2. Metal Trim: 24 gauge, galvanized steel, with perforated flanges, for compound finishing.
 3. Control Joint: 26 gauge, galvanized steel, "Vee" type, with perforated flanges, for compound finishing.
- H. Acoustical Insulation:
1. Blanket/Batt Insulation: Indicated thickness by 16-1/8 in. and 24-1/8 in. wide, as appropriate, equal to "Fiberglas CWI Unfaced Insulation", manufactured by Owens-Corning Fiberglas Corp., or approved equal.
 2. Packing Wool Insulation: Fiberglas or mineral wool packing insulation, equal to products manufactured by U.S. Gypsum Co. or Owens-Corning Fiberglas Corp.
 3. Fire Safing Insulation: Mineral fiber fire-rated fire safing insulation in conformance with the governing laws and building code, manufactured by U.S. Gypsum Co. or approved equal.
- I. Acoustical Sealant:
1. Sealant for concealed applications shall be "BA-98 Acoustical Sealant", manufactured by Pecora Chemical Corp., equivalent product manufactured by U.S. Gypsum Co., National Gypsum Co., or approved equal.
 2. Sealant for exposed applications shall be paintable "AC-20 Acrylic Latex Caulk", manufactured by Pecora Chemical Corp., equivalent product manufactured by DAP or Gibson Homans Co., or approved equal.
- J. Exterior Sheathing: Exterior sheathing shall be Dens-Glass Gold as manufactured by G-P Gypsum Corporation on structural steel studs as indicated on drawings. Spacing of studs to be as recommended by manufacturer for applications indicated. Panel to panel joints shall be sealed with Dow Corning 795 Building sealant according to manufacturer's recommendations.

- k. Exterior Soffits: Exterior soffits shall be Dens-Glass Gold as manufactured by G-P Gypsum Corporation on suspended steel assembly as indicated on drawings. Board application shall meet requirements for fire rating as indicated on the drawings.

PART 3 EXECUTION

3.01 INSPECTION AND COORDINATION

- A. Inspect job conditions and related work and report to Architect in writing, all conditions interfering with the proper installation of work of this Section. Commencement of work in any given area shall constitute acceptance of conditions in that area as acceptable to receive work of this Section.
- B. Make all changes and adjustments in work of this Section as needed to accommodate the work of other trades, providing all cutting and patching until it has been inspected.

3.02 GENERAL REQUIREMENTS

- A. Work shall conform to published specifications and installation instructions of each manufacturer, the approved shop drawings, above-referenced quality assurance standards, the governing laws and code. Refer to Drawings to determine location of fire-resistive, fire-protective, and acoustically-rated work, and construct this work to conform to the specifications and installation instructions of UL or other testing agency(ies). Also refer to the Drawings to determine the number of layers of gypsum board, thickness of board, etc., for each of the installations.
- B. Erect gypsum drywall work, rigidly support, and securely fasten in place, in such manner that plumb, level, and true finished lines and surfaces will result in the finished work in accordance with the requirements of ASTM C 754 and ASTM C 840.
- C. Do gypsum drywall work only after all windows and door openings are enclosed and a temperature of not less than 55 degrees F. is maintained during and up to completion of the drywall work.
- D. Gypsum drywall work only after permanent heat is installed.
- E. At all column/pilaster locations GWB finish level is to be in conformance with the Level 5 USG Finish Level Definitions.

3.03 STEEL FRAMING AND FURRING

- A. Suspended Ceilings: Install complete suspended steel ceiling framing system in accordance with ASTM C 754, and the following:
 - 1. Install hangers at ends of, and 48 in. on center along lengths of main runners, securing to ceiling structure above with the appropriate anchors. Provide all additional secondary framing as required to provide support by primary framing members or deck above. Do not anchor hangers to pipes, ducts, or other overhead non-structural elements.
 - 2. Install steel runner channels 48 in. on center maximum and within 6 ft. of walls.

3. Install screwable steel furring channels perpendicular to main runners and spaced 24 in. on center along length of, and within 6 in. of walls without wall angles, and within 8 in. of ends of panels and clipped to, the main runners.
 4. Entire installation shall be level and true, with maximum variation from level 1/8 in. when measured with a 10 ft. straight-edge, and with accumulation of variation of level not to exceed 1/2 in. per room or area.
- B. Screwable Steel Stud Partition construction shall conform to ASTM C754, and the following:
1. Installation of Partition Track: Align standard steel track at floors and ceiling construction according to partition layouts and secure with suitable fasteners to the floor and ceiling construction at a spacing not to exceed 24 in. o.c. Carry all walls and partitions full height as noted on the Drawings above ceiling to underside of floor and roof decks. Fill all voids above track, such as steel deck flutes, solidly with packing wool or fiberglass insulation at non-fire rated partitions, and with mineral wool fire-safing insulation at fire rated partitions for smoke and fire-stopping purposed in flutes of steel deck directly above top track where partitions run perpendicular to flutes, to achieve effective closure and to assure the rated performance at fire-rated assemblies. Where partitions run parallel to trusses provide 2 X 6 bridging 2'0" o.c. Where acoustical partitions (those to receive acoustical insulation) and fire-rated partitions run parallel to trusses, install all the track in continuous bed of acoustical or thermal sealant formed by applying a 1/4 in. minimum bead of sealant to the rear of the track and pressing into place. At fire-rated partitions also install tightly backed fire-safing insulation in the voids for smoke and fire-stopping purposes to achieve effective closure and to assure the rated performance of the fire-rated assemblies.
 2. Installation of Steel Studs: Steel studs shall be one piece, without splices installed at spacing not to exceed 16 in. o.c. (or other spacing indicated) and located at abutting construction and at the internal apex of corners. Provide additional studs at corner conditions, frame jambs, etc., as called for on the Drawings and specified herein.
 3. Position steel studs vertically engaging both floor and runners. Anchor studs located adjacent to door and floor glass frames, partition intersections, corners, and over partition ends, to the floor and ceiling runner flanges with positive screw engagement with 3/8 in. Type S partition screws or by locking the studs with metal lock fasteners and to the ceiling runner flanges by screw engagement. Allow for relief of 1/2 in. roof or ceiling deflection at tops of all partitions by screwing through slotted holes.
 4. Install double stud at door and fixed glass frame jambs and securely attach to the frame anchors by at least two screws per anchor. Over steel door and fixed glass frames, install steel track header and install studs above, with back-to-back pair, centered over the door to secure control joints. Run continuous length of cold-rolled steel channel through the stud cores, overlapping at least one stud beyond jamb studs at each end. Frame out for recessed cabinets, accessories, grilles, etc., as recommended by the manufacturer for each of the project conditions.
- C. Steel Stud Chase Walls: Construct partitions on both sides of non-fire rated chase walls in same manner as other partitions, with studs in direct alignment across the chase. Brace with three gypsum wallboard gussets, per pair of studs, across the chase, located at quarter points, and screwed to the studs. Comply with manufacturer's published details.
- D. Steel Furring: Install screwable steel furring channels over faces of concrete or masonry walls to receive gypsum wallboard finishes, continuously along tops and bottoms of walls and in

continuous vertical rows space 16 in. o.c. along full length of each furring member, through alternate flanges.

- E. Metal Access Panels: Install all metal access panels at partitions, furrings, and suspended ceilings. Access panels will be furnished to this trade loose under other Section(s).
- F. Fixture Attachments: Before any wallboard is installed, a complete survey of all fixtures, accessories, cabinet work, shelves, rail brackets, door stops, or other items to be attached to the finished work of this Section shall be made and wood blocking or other attachments shall be installed within the steel framing and furring work to receive the loads. Blockings or other attachments for the various loads shall be as recommended by the manufacturer and shall be described on the shop drawings. All such fixture attachments shall be observed by the Contractor before commencing installation of wallboard. All such blockings and attachments shall be provided as work of this Section.
- G. Miscellaneous Framing and Furring: Construct all special miscellaneous screwable steel stud framing and furring, such as at ceiling edgings, soffits, column and beam enclosures, skylight wells, etc., as detailed and as required to achieve the shapes and profiles indicated and other miscellaneous framing indicated and/or reasonably required for the thorough completion of the Project.
 - 1. Thoroughly fasten together, anchor, and brace to provide absolutely rigid structural conditions fully capable of supporting the loads to be applied with factor of safety not less than 2-1/2 to 1. Carry out the work generally as detailed, strictly following instructions of the manufacturer for steel and stud structural framing use. Screw all connections with self-tapping metal screws or other appropriate fasteners and provide all additional reinforcement required to assure the required performance.

3.04 GYPSUM WALLBOARD APPLICATION

- A. Unless otherwise indicated, application of gypsum wallboard shall conform to ASTM C840.
- B. Apply thickness and layers of gypsum wallboard at ceilings, walls, partitions, column and beam enclosures as indicated. Stagger joints in each layer. Locate joints in first layer on opposite sides of partitions to occur on different studs. Apply wallboard at ceilings with long dimension perpendicular to furring channels, with each end occurring over a framing member. Install wallboard at walls and partitions with long dimension vertical, and with each end and edge lying over a framing member.
 - 1. At double layer installations apply second layer by combination of laminating adhesive and mechanical fastenings (through first layer into the steel framing and/or furring member behind), in strict accordance with manufacturer's printed recommendations for each project condition.
- C. Carry gypsum wallboard, each side, continuously from floor to underside of deck construction above, including above suspended ceilings, for acoustical and fire-resistive performances.
- D. To minimize end joints, use maximum practical lengths. Bring gypsum wallboard panels into contact, but do not force into place. Fit abutting ends and edges neatly. Provide slots for sealant at top, bottom, ends, and corners of wallboard at all walls and partitions indicated to receive acoustical insulation, as indicated. Also provide slots for sealant where wallboard abuts other finish materials, as specified hereinbelow.

- E. Spacing and installation of drywall screws for the various applications and fire-rating requirements shall conform to the printed standards of the manufacturer.
- F. Set heads of fasteners flush with surface of the paper, but not breaking the paper. Where attached loosely to a framing or furring member, a second fastener shall be installed within 1-1/2 in.
- G. Cut gypsum wallboard neatly at corners, edges, etc., and for pipes, electrical outlets, electrical conduit and raceway, recessed cabinets, and other projections.

3.05 ACOUSTICAL INSULATION

- A. Walls and partitions indicated on the Drawings with a STC Rating or indicated to receive acoustical insulation shall have a single, continuous layer of insulation installed as indicated and specified, filling the entire open space between the framing members. Carry insulation behind backs of all electric boxes and similar appurtenances. Provide mechanical attachment to prevent future settlement.

3.06 INSTALLATION OF WALLBOARD ACCESSORIES

- A. Install accessories at gypsum wallboard installations, as follows, in strict accordance with manufacturer's instructions.
 - 1. Install joint reinforcement tape at all joints, and at all internal corners where abutting surfaces are both gypsum wallboard construction.
 - 2. Install corner beads at all external wallboard corners.
 - 3. Install casing bead wherever finish wallboard abuts dissimilar materials and other places where specifically called for on the Drawings.
 - 4. Install control joints generally over (and under) centers of all major wall openings (those greater than 40% of wall height, measured floor to ceiling), over all door frames, over control joints in back-up materials, and at maximum distance of 30 ft. in walls, 60 ft. or to limit areas to not more than 2400 sq. ft., at ceilings (except where lesser distance is indicated), and other places specifically called for on the Drawings. Interrupt furring and/or framing behind the control joints. In all cases, specific locations of control joints shall be as indicated or as directed by the Architect, and this information must be in hand before control joint installation is begun.
 - 5. Install access panels supplied by others as required. Before installation, verify correct rating of panel to be installed.

3.07 JOINT FINISHING

- A. The level of finish shall be equal to "Level 4" as indicated by the Gypsum Association document GA-214 unless otherwise indicated on the documents. Level 0 may be suitable for temporary construction. Level 1 is often called "fire-taping" and may be suitable for locations above ceilings that are not exposed to view or required for finishing. Level 2 finish can be used for areas where finish appearance is not a concern or where used as a substrate for another solid finish material such as tile. Level 3 finish is suitable for areas that will be covered with a heavy textured spray or heavy wall covering finish is specified. Level 5 is used for areas requiring a high degree of smoothness and durability in the final finish that may have a gloss or semi-gloss finish applied. This finish is often called "veneer plaster.

- B. Finish all corners, joints, and edges of gypsum wallboard and gypsum soffit board work, and all corner beads, casing beads, control joints and other trim to provide complete finishing of all exposed wallboard surfaces, in strict accordance with manufacturer's printed instructions and ASTM C 840. Finish to absolutely flush, true surface showing no irregularity when tested by light source parallel to the plane of the nominal wallboard face.
- C. Finish all concealed joints in wallboard above ceiling finishes flush with tape and a minimum of two coats of compound to provide a continuous, uninterrupted plane for acoustical and fire-resistive performance. Concealed joints may be left in rough condition without finish sanding.

3.08 ACOUSTICAL SEALING

- A. Walls and partitions designated on the Drawings with an STC Rating and/or indicated to receive acoustical or thermal insulation, including interior faces of exterior steel framed curtain walls, do all sealing work required, as indicated on the Drawings and generally as listed below.
 - 1. Seal all joints between the gypsum wallboard and surrounding construction.
 - 2. Seal full perimeters of all frames, sleeves, ducts, and other items set into, or passing through, gypsum wallboard construction.
 - 3. Seal full perimeters of all projections through the gypsum wallboard construction, such as pipes, conduits, etc.
 - 4. Seal all control joints in the gypsum wallboard work.
 - 5. Seal all joints between gypsum wallboard and adjoining gypsum wallboard panels at corners and intersections.
 - 6. Seal all joints between gypsum wallboard and adjoining door and window frames in exterior walls.
 - 7. Do all other sealing called for on the Drawings or reasonably required to produce maximum thermal and sound transmission reduction through the walls and partitions.
- B. Seal joints in partitions continuing above suspended ceilings, in similar manner, for acoustical purposes.
- C. Sealing shall be done using sealant of type specified hereinbefore, in strict accordance with manufacturer's printed instructions and applicable requirements of ASTM C 919. Sealant shall thoroughly fill void for a complete sound and thermal seal, and shall be tooled to dense, smooth, concave finish.
 - 1. Except as may be otherwise specifically called for on the Drawings, in two layer wallboard work seal only the outer layer.

3.09 EXTERIOR SHEATHING INSTALLATION

- A. Install on framing according to manufacturer's recommendations using corrosion resistant screws at 8" on center. Waterproof all surface joints with 3/8" bead of specified sealant and trowel flat. Apply enough of same material to each fastener to cover completely when

troweled flat. Apply sealant at edges of all flashing such that infiltrated water will be shed to the exterior of the building.

3.10 EXTERIOR SOFFIT INSTALLATION

- A. Apply per manufacturer's recommendations for track and hanger spacing. Provide control joints at every 30 feet or as indicated on drawings. Finish joints with 2" wide 10 x 10 woven glass mesh tape and G-P Gypsum GyProc 90 setting type joint compound. Provide skim coat of G-P Gypsum GyProc 90 setting type joint compound to prepare for paint primer.

3.11 PROTECTION AND CLEANING

- A. Protect the work of other trades and work of this Section already installed against soiling and damage by the exercise of reasonable care and precautions. Repair or replace any work so damaged or soiled.

- A. Protect the work of other trades and work of this Section already installed against soiling and damage by the exercise of reasonable care and precautions. Repair or replace any work so damaged or soiled.

END OF SECTION

SECTION 09310

WALL AND FLOOR TILE

PART 1 GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Remove existing floor and base tile where damaged and prepare floor surfaces as required for proper installation of quarry tile work.
- B. Extent of tile as indicated on drawings and schedules. Types of tiles are as follows:
 - 1. Quarry Floor Tile (QT)
- C. Grout & mortar for tile systems.
- D. Remove damaged grout and replace with grout matching existing. Allow 100 LF of joint repair.

1.02 RELATED REQUIREMENTS

- A. Concrete Floors: Section 03550, CONCRETE FLOOR TOPPING
- B. Millwork: Section 06200, FINISH CARPENTRY
- C. Gypsum Wallboard: Section 09250, GYPSUM DRYWALL

1.03 REFERENCES

- A. The BIDDING REQUIREMENTS, CONTRACT FORMS AND CONDITIONS OF THE CONTRACT and applicable parts of DIVISION 1 - GENERAL REQUIREMENTS, as listed in the Table of Contents, shall be included in and made a part of this Section.
- B. Examine all Drawings and all other Sections of the Specifications for requirements therein affecting the work of this Section.

1.04 Submittals

- A. Certificates of Compliance: The manufacturer shall furnish Certificates of Compliance stating conformance with all requirements of American National Standards Institute Specification ANSI A137.1 1988.
- B. Master Grade Certificate: Furnish Master Grade Certificates for each shipment and type of tile signed by the manufacturer and the installer.
- C. Samples: Submit samples of each type of tile for each color and texture required, not less than 12" square. A full size sample of each type of trim for each color is required.

1.05 QUALITY ASSURANCE

- A. Source of Materials: Provide materials obtained from one source for each type and color of tile, grout and setting materials.

- B. Work shall be executed and tested in accordance with current editions of the following standards:
1. ANSI A108.1 - Installation of ceramic tile with Portland Cement.
ANSI A108.4 - Installation of ceramic tile with water resistant organic adhesives.
ANSI A108.5 - Installation of ceramic tile installed with dry set Portland Cement Mortar or Latex Portland Cement Mortar.
ANSI A108.6 - Installation for ceramic tile installed with chemical resistant epoxy.
 2. American Society for Testing and Materials (ASTM)
ASTM C150 - Specifications for Portland Cement
ASTM C206 - Specifications for Hydrated Lime
 3. Federal Specifications (FS)
FS TT-S 001543 Class A or B (COM-NBS) One Part Silicone Rubber
 4. "Handbook of Ceramic Tile Installation" - latest edition, as published by the Tile Council of America.

1.06 PRODUCT HANDLING

- A. Deliver to job site and store packaged material in original containers with labels intact. Prevent damage to materials by water, freezing or other causes.

1.07 PROJECT CONDITIONS

- A. Maintain temperatures at not less than 50 degrees F in tiled areas during installation, and for 7 days after completion unless higher temperatures are required by manufacturer's instructions.

PART 2 PRODUCTS

2.01 TILE MATERIALS

- A. Tile to be as indicated in following schedule:
- QT-1 6" x 6" unglazed quarry floor tile as manufactured by American Olean, "Quarry Tile", color Canyon Red Q01 to match existing.
- QT-2 5"x6" cove base as manufactured by American Olean, "Quarry Tile", color Canyon Red Q01 to match existing.
- Alternate Manufacturer and Tile: "Red Blaze" by DalTile Corporation.
- B. Sizes, colors, textures and patterns as selected by the architect. See drawings and schedules.
- C. Provide necessary trim or bullnose pieces to provide smooth, cleanable edges at all wall tile locations.
- D. Accessories - Furnish accessories to match or harmonize with color and finish of tile. Accessories required where shown on drawings and/or in specification.

1. Provide Schluter Jolly edge system in ANI or ACGB finish at exposed ends of ceramic wall tile runs.

2.02 SETTING MATERIALS

- A. Portland Cement Mortar Installation Materials: Provide materials to comply with ANSI A108.1 as required for installation method designated.
- B. Cleavage Membranes: Polyethylene film. 4 mil. ASTM C171 Type 1.1.2.
- C. Underlayment Reinforcing Mesh: Welded wire fabric 2" x 2" 16/16 gauge or self bonding, sheet applied elastomeric membrane, ECB Membrane as manufactured by National Applied Construction Products or equal.
- D. Floor and wall thin set mortar shall be KER 121 as manufactured by Mapei (or equal) meeting requirements of ANSI A118.4.
- E. Dry Set Portland Cement Mortar: ANSI 118.1 water retentive Portland Cement mortar where thinset mortar applications are indicated.
- F. Latex-Portland Cement: ANSI A118.4. Mixture of Portland Cement, sand and special latex additives. Latices vary considerably. Follow manufacturer's directions explicitly.
- G.. Organic Adhesive: ANSI A136.1 Type 1 for areas requiring prolonged water resistance. Provide primer sealer as recommended by the manufacturer.
- H. Epoxy Mortar: ANSI 118.3 Formula AAR-II or high temperature resistance formula where indicated.

2.03 GROUTING MATERIALS

- A. Grout: Polymer-modified sanded tile grout shall be "Ultra/Color" as manufactured by Mapei (or equal) meeting requirements of ANSI A118.6. Color is to be selected by architect and owner from manufacturer's full range of colors.
- B. Latex Portland Grout: Use latex additive in grout compatible with latex Portland Cement mortar.
- C. Epoxy Grout: ANSI 118.3 AAR-II or HITOR for high temperature requirements.
- D. 100% silicone neutral cure polymer glass sealant by G.E. (for glass tile)

PART 3 EXECUTION

3.01 GENERAL

- A. Verify that substrate conditions meet requirements of manufacturer for setting the product. Commencement of work indicates contractor has accepted substrate conditions.

Before installation begins, substrate surfaces shall not show variations in excess of:

	Floor	Wall
Dry Set Mortar	1/8" in 10'	1/8" in 8'

Organic Adhesive	1/16" in 3'	1/8" in 8'
Latex Portland Cement Mortar	1/8" in 10'	1/8" in 8'
Epoxy	1/16" in 3'	

- B. Set tile only at climatic conditions acceptable to manufacturer of product to be set.
- C. Tile shall be set according to standards set by the Tile Council of America.
- E. Tile shall be laid in tile pattern(s) as indicated on drawings and, when field conditions are met that conflict with drawings, as approved in field by architect.
- F. New tile shall be laid so that an even, flush surface is maintained with the existing adjacent tile.
- G. Tile flooring contractor will coordinate his work with the work of other trades and install tile flooring in accordance with the schedule set by the General Contractor coordinating the work.

3.02 TILE REMOVAL

- A. Remove tile at locations indicated on drawings for patching. Allow at each patching location for the removal of one square foot of tile (4 tiles in a square). Remove all grout and setting materials.

3.03 TILE INSTALLATION

- A. Thoroughly clean and dry floor surface. Provide bond coat as required. Install floor tile meeting requirements of TCA Method F113-98, ANSI A118.4 and tile setting material manufacturer's printed instructions. Misplaced tiles shall be replaced.
- B. Bring each tile to true and level plane by use of a beating block; test plane distortion with a straight-edge. Lay tile from the centerline of space outward; making adjustments along walls, partitions and borders. Joints between tile shall be 5/32 inch wide. Coordinate with work of others, including abrasive nosing at steps.
- C. Clean and prime backing surfaces of wall surfaces for base application of tile. Spread a 1/8 inch thick layer of setting adhesive on wall surface according to requirements of TCA Method W223-98. Set in and plumb tile with uniform joints, joints shall align with floor joints. Comply with ANSI A118.4 for installation.

3.04 GROUTING

- A. Tiles must be firmly set and setting bed completely dry. Joints must be free of any debris, excess setting material or foreign matter before grouting.
- B. Grout for tile systems:
 - 2. Dry-set with latex grout for ordinary floor tile applications subject to wetting.
- C. Mix grout according to Manufacturer's instructions and ANSI A118.6.
- D. After grout has slaked, joints shall be thoroughly filled and wiped flush. Care is to be taken not to scratch tiles. Clean all excess grout from all exposed surfaces. Keep expansion joints

clean and open for the installation of sealant. When required by manufacturer provide damp curing.

3.05 SEALANTS

- A. Install polyurethane sealant with a Shore A hardness of 35 or greater in matching color at expansion joints according to details indicated on drawings and meeting manufacturer's requirements.
- B. Sealant color to be approved by architect. Provide backer rod and bond breaker at building expansion joints.
- C. Provide CeramaSeal or equal tile and grout sealant.

3.06 CLEANING

- A. Clean floor and base according to manufacturer's instructions.

3.07 PROTECTION

- A. After quarry tile has been grouted and expansion joints sealed, cover entire floor with waterproof kraft paper for a minimum period of seventy-two (72) hours.
- B. Protect with suitable mats, boards, or other protection from foot or wheel traffic for seven (7) days after installation.
- C. Provide temperature and humidity control to meet manufacturer's printed recommendations for full curing time.

3.08 EXTRA TILE

- A. Provide additional 30 pieces for QT-1, and 5 pieces of QT-2 in sealed and marked boxes for Owner's future repair and maintenance.

3.09 CLEAN-UP

- A. Upon completion of the work of this section, remove all debris relating to the conduct of this portion of the work from the premises.

END OF SECTION

SECTION 09510
ACOUSTICAL CEILINGS

PART 1 GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Scope: Furnish all materials and install all acoustical ceiling work and related items, to complete the work as indicated on the Drawings. Include:
 - 1. New acoustical ceiling tile.
 - 2. Accessories and trim.

1.02 RELATED REQUIREMENTS

- A. Adjacent Gypsum Soffits: Section 09250, GYPSUM DRYWALL.
- B. Section 16000, ELECTRICAL.
- C. HVAC Registers and Grills: Mechanical.
- D. Sprinklers: Section 15300, FIRE PROTECTION.

1.03 REFERENCES

- A. The BIDDING REQUIREMENTS, CONTRACT FORMS AND CONDITIONS OF THE CONTRACT and applicable parts of DIVISION 1 - GENERAL REQUIREMENTS, as listed in the Table of Contents, shall be included in and made a part of this Section.
- B. Examine all Drawings and all other Sections of the Specifications for requirements therein affecting the work of this Section.

1.04 SUBMITTALS

- A. Shop Drawings: Submit to Architect for approval complete shop drawings of all acoustical ceiling work. Obtain approval of shop drawings before proceeding with installation of acoustical materials.
- B. Samples: Submit to the Architect for approval samples of acoustical tiles, panels and members of suspension system proposal for use.

1.05 QUALITY ASSURANCE

- A. Surface Burning Characteristics
 - 1. Class A per ASTM E1264
 - 2. Flame spread of 25 or less per ASTM E84
 - 3. Smoke developed of 50 or less per ASTM E84

1.06 DELIVERY, STORAGE AND HANDLING

- A. Delivery of acoustic ceiling products will be in the original unopened packages with the manufacturer's label intact
- B. Handling and storage should be in accordance with the manufacturer's Material Safety Data Sheets (MSDS)
- C. Individual panels should be handled carefully to avoid damage

1.07 PROJECT CONDITIONS

- A. Environmental Limitations
 - 1. Install acoustic panels only in conditions that are within the manufacturer's published limits for temperature and humidity

1.08 COORDINATION

- A. Coordinate the installation of the acoustic ceiling system with any and all trades whose work is impacted by that installation

1.09 EXTRA MATERIALS

- A. Provide extra materials in the manufacturer's unopened packaging, with the manufacturer's label intact, as detailed below
 - 1. Acoustic Panels – Minimum 5% of each type installed
 - 2. Suspension System Components – Minimum 5% of each type installed

PART 2 PRODUCTS

- A. ACT-1
 - 1. Name: Ecophon Hygiene Protec A
 - 2. Physical Characteristics
 - a. Type: XII (per ASTM E1264)
 - b. Form: 2 (per ASTM E1264)
 - c. Pattern: G (per ASTM E1264)
 - d. Size: [2'x2', 2'x4']
 - e. Thickness: 3/4"
 - f. Edge: Square, Painted
 - g. Finished Surface: Akutex T
 - h. Finished Surface Color: White
 - i. Panel Backing: Painted
 - j. Core Composition: Glasswool
 - k. Recycled Content: 75%
 - 1) 5% (pre-consumer)
 - 2) 70% (post-consumer)
 - 3. Performance Criteria

- a. Sound Absorption Rating per ISO 11654 (E-200 mounting)
 - 1) Class A absorber
 - b. Noise Reduction Coefficient (NRC) per ASTM C423 (E-400 mounting)
 - 1) 0.85
 - c. Sound Absorption Average (SAA) per ASTM C423 (E-400 mounting)
 - 1) 0.84
 - d. Articulation Class (AC): per ASTM E1111
 - 1) 170
 - e. Light Diffusion per DIN 5036
 - 1) 99%
 - f. Light Reflectance (LR) per ASTM E1477
 - 1) 0.84
 - g. Humidity Resistance per ISO 4611
 - 1) Warranted to withstand relative humidity of up to 95% at 104°F without sagging, warping or delaminating for 10-years
 - h. Clean Room Classification per ISO 14644-1
 - 1) Class 5 (M2.5)
4. Independent Certifications and Recommendations
- a. Indoor Climate Label – highest class for ceiling panels
 - b. Nordic Swan Eco-label
 - c. Recommended by Swedish Asthma and Allergy Association
 - d. M1 classification from Building Information Foundation (RTS)
 - e. Collaborative for High Performance Schools (CHPS)
 - 1) Low-emitting materials table
http://www.chps.net/manual/lem_table.htm#Acoustics
5. Suspension System
- a. Name: [15/16" Classic, 15/16" Aluminum Capped]
 - b. Physical Characteristics:
 - 1) Structural Classification: [Intermediate Duty, Heavy Duty] (per ASTM C635)
 - 2) Double web design manufactured of hot-dipped galvanized steel
 - 3) Flange Size: 15/16"
 - 4) Color: White
 - c. Components
 - 1) Main Runners, Size 12'
 - 2) Cross Tees, Size: [4', 2']
 - 3) Joinery: [Hook, Stab]
 - d. Edge Molding
 - 1) Type: [angle, shadow-line, channel]
 - 2) Profile: As selected by the Architect
 - e. Optional components
 - 1) Connect Inspection Hatch
 - 2) Connect Hygiene clip 20 (hold-down clip)
 - 3) Connect edge sealant
 - f. Attachment Devices: Anchors sufficient for five-times design load indicated in ASTM C635 (Table 1). Wire for hangers of size and type to suit intended application, complying with ASTM C641, Class 1 zinc coating, not less than 12 gauge
 - 1) Seismic Restraints: Pursuant to Cisca recommendations, ASTM E580 and local code requirements

Alternate Product:

ACT-1 Standard Ceiling Panels for Servery Areas

1. 2' x 2' x 3/4" beveled tegular white ceiling panels Ultima #1912 for 9/16" Suprafine grid as manufactured by Armstrong with AirGuard™ Coating.
2. 2 x 2 x 9/16" white finished Suprafine XL ceiling grid meeting requirements of ASTM E 580 as manufactured by Armstrong.

B. ACT-2 (THIS IS ADD/ALT #1)

1. Name: USG Sheetrock Lay-In Clima Plus Ceiling Panel
2. Physical Characteristics
 - a. Size: 2'x2'
 - b. Color: White
 - c. Material: Sheetrock panel with vinyl
3. Suspension System: Donn DXLA or ZXLA 15/16" fire-rated galvanized steel system

PART 3 EXECUTION

3.01 INSTALLATION

A. Installation:

1. Installation of ceiling systems shall be done by an authorized representative or franchised applicator of the manufacturer, or an applicator approved by the manufacturer, in strict accordance with the manufacturer's printed instructions. It shall conform to the governing laws and building code and to the standards specified under ASTM Standard C636.
 2. Provide all secondary framing required to avoid interference with overhead work of other trades.
 3. Install grid system in accordance with layout on the Reflected Ceiling Plans, flush and level with exposed "Tees" in perfect alignment. Install acoustical panels, maintaining direction of pattern and "mill-run" in one direction throughout. Subcontractor shall contact related trades and coordinate ceiling system with the integration of electrical fixtures/systems and mechanical systems.
1. Where indicated on Drawings for panels to meet at angled intersections tile-to-tile glue beveled edges together in conformance with manufacturer's instructions. Cut tile to match tegular profile and finish edges at cut tile in grids so that tile appearance at cut edges matches pre-cut factory edges.
- B.** At completion of work review all installation and replace damaged tile and grid to provide a completely new and workman-like appearance.
- C.** Remove all debris from the work of this section and dispose of in an approved manner recycling materials where appropriate (See Section 01505, CONSTRUCTION WASTE MANAGEMENT).

END OF SECTION

SECTION 09900

PAINTING

PART 1 GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Furnish and install painting and finishing work throughout the exterior and interior of the Project as indicated on the Drawings and as specified herein.
- B. Examine all Sections of the Specifications and the complete set of Drawings with care, in order to determine the full extent of the painting and finishing work required. Materials provided under other Sections which necessitate painting or finishing and which are left unfinished under the requirements of the other Sections of these Specifications shall be painted and finished to completion under this Section, unless specifically scheduled herein to be left unfinished.
- C. All preparatory work of materials and surfaces to receive paint beyond that specified to be done as work of other Sections, shall be included as work of this Section.
- D. The finish schedule will indicate the general category of painting required by the following designations:

P	=	Standard Painting Products
SP	=	Special Painting Products
EP	=	Epoxy Painting Products

1.02 RELATED REQUIREMENTS

- A. Wood preservative treatments: Section 06100, ROUGH CARPENTRY.
- B. Prime coat on hollow steel doors and frames: Section 08100, STEEL DOORS AND FRAMES.
- C. Factory finish and prime coats on mechanical and electrical fixtures and equipment: Division 15, MECHANICAL and Division 16, ELECTRICAL.
- D. Prefinished metal work: Section 05500, METAL FABRICATIONS.

1.03 REFERENCES

- A. The BIDDING REQUIREMENTS, CONTRACT FORMS AND CONDITIONS OF THE CONTRACT and applicable parts of DIVISION 1 - GENERAL REQUIREMENTS, as listed in the Table of Contents, shall be included in and made a part of this Section.
- B. Examine all Drawings and all other Sections of the Specifications for requirements therein affecting the work of this Section.

1.04 REFERENCED STANDARDS

- A. Federal Specifications (Fed. Spec.):
 - TT-D-65 Drier; Paint, Liquid

TT-T-801 Turpentine, Gum Spirits, Steam Distilled, Sulfate Wood, and Destructively Distilled

B. Steel Structures Painting Council (SSPC):

SP 3 Power Tool Cleaning

C. All Wood work should follow AWI standards for finishes. Reference Section 06200, Finish Carpentry.

1.05 SUBMITTALS

- A. Product Data: Submit manufacturer's product data to Architect for approval, consisting of complete product description and specifications, complete test data, complete preparation and application instructions, and other pertinent technical data required for complete product, and product use information.
- B. Obtain Architect's approval of submittals before ordering materials or proceeding with the work.

1.06 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Materials shall be delivered to the building in unopened original containers bearing the manufacturer's labels.
- B. Materials shall be stored in fully sealed containers, outside the building, preferably in exterior storage shed. Oily rags and waste must be removed from the building every night, and under no circumstances will be allowed to accumulate. Each space containing stored paint materials shall be provided with UL labeled fire extinguisher of suitable type, class, and capacity.

1.07 WARRANTY

- A. Furnish and deliver standard written manufacturer's warranty in Owner's name covering all materials and workmanship under this Section, in addition to, and not in lieu of, guarantee requirements set forth under GENERAL CONDITIONS and MODIFICATION TO THE GENERAL CONDITIONS, and other liabilities which the Contractor may have by law or other provisions of the Contract Documents.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Materials used shall be best grade products of their respective kinds. The Painting Schedule and color selections are based on products manufactured by Benjamin Moore as a standard of measure.
- B. Only products with low or zero volatile organic compounds (VOC) will be used.
- C. Assume full responsibility for the proper performance of all materials used, for appropriateness of method of application with respect to materials and substrates encountered, and for the compatibility of any materials applied with shop coats and other coats previously applied, including primers, sealers, preservative treatments, etc. Notwithstanding specific schedules herein below to the contrary, select the primer which has been verified to be appropriate for each of the substrates and finishes encountered.

- D. Other painting materials required, but not specifically described, such as linseed oil, shellac, turpentine, and thinner shall be of the highest quality and shall have identifying labels on containers.
- E. It is to be understood by the general contractor and the painting contractor that all coatings must conform to all state and local regulations including VOC/VOS rules at the time of application.

2.02 COLORS AND SAMPLES

- A. Color scheme shall be in accordance with schedule provided by the Architect, and all tinting and matching shall be to the satisfaction of the Architect. Provide facilities for comparison and adjustment of colors. No limit is placed on the number of colors that may be required. Refer to Architectural Finish Schedule.
- B. For all transparent wood finishes, samples shall be prepared in accordance with the specifications on pieces of the same kind of wood, at least 12 in. X 12 in., until the finish is approved.
- C. For painted finishes, samples including prime coat(s) shall be prepared as directed on pieces of like substrate as specified for the project, at least 36 in. X 36 in. until the finish is approved.
- D. If so directed by the Architect, a full wall/column sample will be painted in the finished space for approval by the Architect.

2.03 FILLERS, SOLVENTS, AND MISCELLANEOUS MATERIALS

- A. Turpentine shall be pure gum spirits of turpentine conforming to Fed. Spec. TT-T-801.
- B. Drier shall conform to Fed. Spec. TT-D-65.
- C. Tinting materials shall be of best quality, ground in pure boiled linseed oil, limeproof, and non-fading.

PART 3 EXECUTION

3.01 ACCEPTANCE OF SURFACES

- A. Inspect all surfaces to receive finishes to ensure that they are in proper condition to receive the work to be performed under this Section.
- B. If the surfaces are not thoroughly dry or if they cannot be put in proper condition to receive paint or other finish by customary cleaning methods, sanding, or spackling, notify the Architect in writing.
- C. The starting of work on any surface will be construed as acceptance of the surface as being satisfactory to properly receive the work of this Section. Any corrections subsequently required will be at the expense of the Contractor.

3.02 JOB CONDITIONS

- A. No work shall be done in rain, dew or fog, when the temperature is below 50°F., or before the materials to be painted or finished have thoroughly dried out. Avoid finishing exterior surfaces while they are exposed to the hot sun.
- B. Floors and adjacent surfaces, as well as the surface to be painted, shall be clean before painting.
- C. Piping and heating equipment shall not be painted while heated. Piping and heating equipment shall remain cold until after the final coat has thoroughly dried.

3.03 PROTECTION

- A. Furnish and lay drop clothes in all rooms and areas where painting and finishing is being done, to adequately protect flooring and other work from all damage during the painting work.
- B. Remove or otherwise protect plated hardware, accessories, device plates, lighting fixtures, factory finished work, and similar items; or provide ample in-place protection. Use only skilled mechanics for removal, resetting, and protection.

3.04 SURFACE PREPARATION

- A. Prepare all surfaces to receive finishes in strict accordance with the manufacturer's printed preparation instructions applicable to each of the project materials, conditions, and finishes.
- B. Substrate shall be clean and dry before coating is applied. Surfaces with a shop or existing coat shall be well covered by touching up bare or abraded spots with the same material used for shop coat. Substrate shall be smooth, free from raised grain; putty sags, cracks, rust, grease, dirt, or other foreign matter or defect.

Gypsum Drywall and Plaster:

- C. Nail holes, cracks, and similar blemishes shall be neatly puttied, sanded smooth, and tinted to match before finish coats are applied. Putty shall be allowed to set up properly before being painted. Filled holes shall not be detectable in the finished work.
 - 1. Holes, dents, and similar flaws in gypsum wallboard and plaster shall be filled with plaster of Paris or spackling compound, and cracks shall be cut out and filled. Sandpaper shall not be used on gypsum wallboard surfaces. Surface of patch shall be left smooth and flush with adjacent surfaces. Patched areas shall not be detectable in the finished work.
 - 2. Before painting new plaster surfaces shall be tested with a moisture detecting device, such as Kaydel Plaster Test, Type CP-48, manufactured by Hard Moisture Gauges, Inc. Sealer or paint shall not be applied when the moisture content of the plaster exceeds 8%, as determined by the test. Testing shall be done in the presence of the Architect and in as many locations as directed. Plaster shall be thoroughly dry-brushed before painting or sealing.

D. Concrete and Masonry:

1. Wire-brush clean all concrete and masonry surfaces previously painted.
2. Thoroughly clean of dirt, grit, loose materials, mortar drippings, and other deleterious substances.
3. Major patching and repair of concrete and masonry under the other appropriate Sections.
4. Concrete floor which is to receive sealer shall be thoroughly washed with a cleaning and degreasing solution, in accordance with the recommendations of the sealer manufacturer.
5. The first coat for masonry is a fill coat, and shall be well brushed into the surface in accordance with the manufacturer's directions. Preliminary coats on masonry are to take up all absorption of the surface, and additional undercoats shall be applied if necessary to achieve perfect uniformity of the finish coat.

E. Wood to be Painted: (as per AWI standards)

1. Sand smooth and free of marks before applying the first coat.
2. Wash sap spots and knots with mineral spirits. When dry, touch-up spots and knots with an approved sealer for exterior work and with two coats of shellac for interior work.
3. Fill all nail holes, cracks, open joints, and other defects, with filler putty after the primer is dry.
4. After fitting by the carpenter, top and bottom of all doors must be primed with the same as the face of the doors.

F. Wood to be Transparent Finished: (as per AWI standards)

1. Sand smooth and free of marks before applying the first coat.
2. Fill all nail holes, cracks, open joints, and other defects after first coat is dry, using an exterior filler compatible with the finished specified and tinted to camouflage repairs.
3. After fitting by the carpenter, top and bottom of all doors must be primed with the same as the face of the doors.

G. Field-Welded Ferrous Metal:

1. After installation and field-welding and grinding, and immediately before painting, remove all rust, loose mill scale, dirt, weld flux, weld spatter, weld smoke stains, burnt primer, and other foreign material with wire brushes and/or steel scrapers. Hand tool cleaning in accordance with SSPC-SP2-63. Power tool clean in accordance with SSPC-SP3-63. Remove all grease and oil by use of solvent recommended by paint manufacturer. Sandpaper exposed surfaces, and between coats, as required to product smooth, even finishes.
2. Sand smooth and spot prime all welded areas, and all areas where prime coat has damaged or abraded, using rust-inhibitive primer scheduled herein below.

H. Other Ferrous Metals:

1. Remove rust, mill scale, and all foreign materials. Wire brush or sand damaged or rusted area to bright metal. Remove grease or dirt by use of solvent recommended by paint manufacturer just prior to applying paint.
2. Spot prime all areas where shop coat has been damaged or abraded, using same type paint as used for shop coat.

I. Metal Galvanized Iron:

1. All new surfaces must be aggressively cleaned with a grease-cutting solvent such as mineral spirits, to remove fabricating oils.
2. Abraded areas that have begun to rust must be sanded clean and spot primed without delay, with one of Moore's IronClad Rust Inhibitive Paints.

J. Other Non-Ferrous Metal:

1. Shop primed non-ferrous metals shall be prepared similarly to ferrous metals, above.
2. Unprimed non-ferrous metals shall be thoroughly cleaned of oil, grease, and temporary protective coatings by use of appropriate solvent as recommended by primer manufacturer, and shall then be given any additional pretreatment recommended by the primer manufacturer to assure the permanent adhesion of the paint coats.

K. Other Materials:

1. Preparation of other materials shall be in accordance with recommendations of the manufacturers of the materials to be finished and the primers and finishes to be applied.

3.05 APPLICATION

- A. Painting Schedule, herein below, lists minimum number of coats required. If complete coverage and hiding of the base materials is not obtained with the specified minimum number of coats, provide all additional coats required for complete coverage and for uniform finished appearance without additional cost to the Owner.
- B. Workmanship shall be top-quality in all respects, in strict accordance with the manufacturer's printed instructions. Materials shall be applied in strict accordance with the manufacturer's directions. No material shall be thinned in any way, except as directed by manufacturer.
- C. Each coat applied must be inspected and approved by the Architect before the application of the succeeding coat, otherwise no credit for the coat applied will be given and the work in question shall be recoated without additional expense to the Owner. Notify the Architect when each coat is ready for inspection.
- D. Minimum drying time shall comply with that recommended by manufacturer. However, each coat shall be thoroughly dry before application of subsequent coat.
- E. Finishes shall be lightly sanded between coats using #00 sandpaper.

- F. The prime coat on gypsum wallboard shall be tinted slightly darker than the color of the final shade.
- G. Closets shall be finished inside the same as adjoining rooms, unless otherwise specified.
- H. Paint all doors, panels, etc., in the "open" position.
- I. Finished work shall be free from runs, sags, hairs, defective brushing, an clogging of lines and angles. Flaws visible in the completed work shall be removed and the area satisfactorily repaired.
- J. Concrete floor to receive sealer:
 - 1. The sealer shall be applied at a rate of not more than 200 sq. ft./gal.
 - 2. After the first coat has cured for 24 hours but not more than 72 hours, the second coat shall be applied at a rate of not more than 400 sq. ft./gal.
- K. Pipe, conduit, and similar items exposed to view and required to be painted shall, if, adjacent or close to wall or ceiling, match the surface on or near which they are mounted, unless otherwise directed.

3.06 BACKPAINTING AND PRIMING

- A. Architectural Woodwork:
 - 1. Architectural woodwork for paint finish shall be sealed or primed on rear surfaces and other concealed surfaces with one coat of wood sealer, primer, or undercoat before being installed and as soon as delivered to job. Standards shall meet AWI criteria of premium grade.
 - 2. Architectural woodwork for transparent finish shall be sealed on the back and on all surfaces which will be concealed after erection. Standards shall meet AWI criteria of premium grade.
 - 3. Seal or prime all wood glazing rabbets and sealant slots before glazing or sealant work is begun.
- B. Sealing of Wood Doors:
 - 1. Wood doors scheduled for transparent finish shall be sealed with one coat of specified varnish, as appropriate, on all surfaces as soon as delivered to job, except that if stained finish is required obtain alternate instructions from Architect. Standards shall meet AWI criteria of premium grade.
 - 2. Wood doors scheduled for paint finish shall be sealed with one coat of specified primer on all surfaces as soon as delivered to job.
 - 3. Seal all cut-outs in similar manner prior to installation of butts, locks, and closers.
 - 4. After being fitted by the carpenter, all cut edges shall be sealed again, in similar manner, and then top and bottom edges shall be given an additional seal coat.

3.07 COMPLETION

- A. **Cleaning:** At the completion of the work, remove all paint and varnish spots and all oil, grease, or other stains caused by this work, from all surfaces leaving their finishes in a satisfactory condition.
- B. At the completion of the work, masking materials and other debris shall be removed, and fixtures, plates, etc., removed to facilitate application of the paint shall be replaced.
- C. **Retouching:** Touch-up and repair any applied finishes which, for any reason have been damaged during construction work. All finished work applied under this Section shall have perfect surfaces when completed work is ready for inspection for Substantial Completion.
- D. **Final Inspection:** Protect all painted surfaces against damage until the date of Substantial Completion of Work. The Architect will at this time conduct a final inspection of all painting work. All areas which do not comply with the requirements of this Specification shall be repainted or retouched to the satisfaction of the Architect at no additional cost to the Owner.

3.08 PAINTING SCHEDULE

- A. Number of coats scheduled is a minimum. Refer to Paragraph 3.05A, hereinbefore.
- B. **Surfaces not to be Finished:** Finishes for the following items are either included under other appropriate Sections or require no painting, except as may be otherwise specifically scheduled with subsequent Exterior and Interior Schedules.
 - 1. Chrome or nickel plating, stainless steel, bronze, brass, and aluminum other than mill finished, unless otherwise specified.
 - 2. Factory finished mechanical and electrical equipment, pumps, and machinery, which occur in mechanical or equipment rooms or areas.
 - 3. Galvanized ducts, pipes, conduits, etc., occurring within mechanical areas or spaces. Also all such items fully concealed from view in the finished work.
 - 4. Factory finished materials, specialties, and accessories unless otherwise specified.
 - 5. Ceramic and clay products, glass, plastic, and other surfaces with "integral" finishes, except as otherwise scheduled herebelow.
 - 6. Surfaces specified as "unfinished" in the following schedule.
- C. **PAINTING SCHEDULE FOR EXTERIOR SURFACES:**
 - 1. **Exterior Concrete:** (if required)
 - 1-2 Coats: Benjamin Moore Epoxy Ester Gloss Enamel (M25)
 - 2. **Exterior Masonry:** (if required)
 - 1 Coat: Benjamin Moore Waterborne Epoxy Block Filler (M31/M32)
 - 1-2 Coats: Benjamin Moore Moorlastic 100% Acrylic Elastomeric Waterproof Coating in Flat (056) or Low Lustre (055)

3. Exterior Woodwork: (if required)
 - 1 Coat: Benjamin Moore Alkyd Primer (366)
 - 1-2 Coats: Benjamin Moore Alkyd Hardwood Finish (321)
4. Exterior Galvanized Metals:
 - Before Installation:
 - 1 Coat (all surfaces): Benjamin Moore Metal Bonding Primer (M15)
 - 1 Coat (all surfaces): Benjamin Moore Urethane Alkyd Gloss Enamel (M22)
 - After Installation:
 - 1 Coat (exposed surfaces): Benjamin Moore Urethane Alkyd Gloss Enamel (M22)
5. Other Exterior Metals:
 - 1 Coat: Approved primer, in shop under other Sections (where specified)
 - 1 Coat: Field Primer: Benjamin Moore Alkyd Metal Primer (M06). See *note below*.
 - 1 Coat: Benjamin Moore Moorcraft Super Spec D.T.M. Alkyd Enamel (Z163, Z24 or Z26)

Note: 2 Coats of the Moorcraft Super Spec D.T.M. may be used in lieu of field primer.
6. Sheet Metal Work:
 - Requires no further finishing under this Section.

D. PAINTING SCHEDULE FOR INTERIOR SURFACES:

Important Note: Notwithstanding anything in the following schedule to the contrary, interior painting and finishing shall conform to the applicable laws and building code regarding fire hazard classifications of finish materials.

1. Interior Gypsum Wallboard Walls for Latex Eggshell Finish:
 - 1 Coat: Benjamin Moore Eco Spec Interior Latex Primer Sealer (231)
 - 2 Coats: Benjamin Moore Eco Spec Interior Latex Eggshell Enamel" (223)
2. Interior Gypsum Wallboard Ceilings for Flat Finish:
 - 1 Coat: Benjamin Moore Eco Spec Interior Latex Primer Sealer (231)
 - 2 Coats: Benjamin Moore Eco Spec Interior Latex Flat (219)
3. Interior concrete block walls for Semi-Gloss finish:

1 Coat: Benjamin Moore Moorcraft Super Craft Latex Block Filler (285)

1 Coat: Moorcraft Super Spec Epoxy (256) with Catalyst 256-86 semi-gloss

4. Interior Architectural Woodwork and Doors for Paint Finish (all softwoods and paint grade hardwoods and veneers):

1 Coat: Benjamin Moore Alkyd Primer (366)

2 Coats: Benjamin Moore Alkyd Hardwood Finish (321)

5. Interior Architectural Woodwork and Doors for Transparent Finish (all hardwoods and hardwood veneers, except paint grade and factory-finished items):

1st Coat: Benwood Paste wood filler (238), tinted to shade of the stain with universal tinting colors. (Omit for close grained woods).

2nd Coat: Moore's Interior Wood Finishes Penetrating Stain (241). (Omit if to be natural).

Finish: 2 coats Benwood Polyurethane Finish Low Lustre (435)

6. Interior Metal Handrail Assemblies:

1 Coat: Epoxy Primer in shop, under other Section

After Installation:

Prime Coat: Benjamin Moore Alkyd Metal Primer (M06).

Finish: Benjamin Moore Moorcraft Super Spec D.T.M. Alkyd Enamel (Z163, Z24 or Z26)

8. Concrete Floors:

2 Coats: Sika Chemical "Sikagard 619" or
PPG "Aquapon Polyamide-Epoxy Clear Concrete Sealer and Finish 97
57/98".

9. Mechanical and Electrical Work (Paint all exposed items through-out the project except factory finished items with factory-applied baked enamel finishes which occur in mechanical rooms or areas, and excepting chrome or nickel plating, stainless steel, and aluminum other than mill finished. Paint all exposed ductwork and inner portion of all ductwork visible through grilles and registers):

Same as specified for other interior metals, hereinabove.

END OF SECTION

SECTION 15400

PLUMBING [FILED SUB-BID NOT REQUIRED]

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

- A. All of the Contract Documents, including General and Supplementary Conditions and Division 1 General Requirements, apply to the work of this section.

1.02 DESCRIPTION OF WORK

- A. The work under this Section shall include furnishing all material, labor, equipment and supplies and the performance of all operations to provide a complete working system as required by the Drawings and as specific herein, in general, to include, but not limited to the following items:
1. Sanitary waste and vent system
 2. Connection to existing to remain systems.
 3. Alterations, additions and/or removals to the existing plumbing systems and fixtures within the renovated area in order to conform to new space requirements.
 4. Identifying, cutting, capping and making safe all existing plumbing systems and components within an occupied and unoccupied areas and areas where existing components are accessible. Make same ready for removal by the General Contractor in accordance with SECTION 02070 requirements.
 5. Installation of fittings, accessories and connections in accordance with SECTION 11400
- B. The PLUMBING contractor to core drills penetrations for the services provided under this section of the work. Work to be performed by a qualified firm and mechanics.
- C. The PLUMBING contractor to furnish and install the sleeves related to his work.
- D. Obtain all permits, licenses and certificates required to perform all work under this SECTION of the contract, as noted hereinafter under subsection 1.09.
- E. Coordination drawings in accordance with SECTION 01040 - Coordination and Project Procedures. Failure to provide timely and accurate coordination drawings, prior to proceeding with the installation work and the fabrication or the purchasing the equipment shall be at the complete risk of the PLUMBING contractor. No additional cost will be accepted by the Owner due in part to the failure to comply with the requirements of coordination drawings.
- F. Field verification and documentation plans to the Architect of the existing systems and equipment. Work under this section to include, but not limited to, notation of the existing plans with areas or items missing on the project plans. The PLUMBING contractor to perform this work prior to the start of any construction work and coordination drawings.
- G. Provide seismic support for all equipment and piping per Massachusetts State Building Code 8th edition, Article 16, subsection 1612.7.

1. Provide complete seismic support of the equipment and piping systems as required by code. Work includes the design, selection and application of the seismic supports by the PLUMBING contractor.
- H. Coordinate and cooperate with the asbestos abatement contractor, furnishing installers, and with other parties that the Owner will designate.
- I. Services and systems are to be provided to accommodate the project phasing and construction requirements, multiple start-ups and testing to be provided as required. Provide all multiple acceptance tests prior to Owners occupancy or use.
 1. Provide temporary work and systems to accommodate the project requirements and Owners occupancy and use.

1.03 RELATED WORK

- A. Carefully examine all of the Contract Documents for requirements which affect the work of this section. Other specifications, which directly relate to the work of this section include, but are not limited to, the following:
 1. SECTION 01011- Project Phasing
 2. SECTION 01013 - Existing Condition Information
 3. SECTION 01030 – Alternates
 4. SECTION 01047- Patching & Repair
 5. SECTION 01500 - Temporary Facilities and Construction
 6. SECTION 02070 - Selective Demolition
 7. SECTION 07270 – Firestopping
 8. SECTION 07900- Joint Sealant and Fillers.
 9. SECTION 08305- Access Doors
 10. SECTION 11400 - Food Service Equipment

1.04 COORDINATION OF TRADES

- A. The work shall be so performed that the progress of the entire building construction, including all other trades shall not be delayed or interfered with. Material and apparatus shall be installed as fast as conditions of the building will permit and must be installed promptly when and as desired.
- B. Check with Heating, Ventilating, and Air Conditioning, Fire Protection, and Electrical Work, as to install Plumbing work in such a manner as to avoid interference with other trades.
- C. Coordinate with the General Contractor all connections and piping requirements for the casework and furnishings provide by other trades or the Owner.
- D. The PLUMBING contractor to review all architectural drawings for rating and location of fire rated walls, floors and ceilings.

1.05 DEMOLITION AND ALTERATIONS

- A. The PLUMBING contractor shall perform all work necessary for cutting, capping and the demolition and disassembly of existing piping, equipment and appurtenances required for the completion of the work as indicated on the drawings and as herein specified. Refer to

SECTION 02070 - SELECTIVE DEMOLITION for requirements included as part of this specification.

- B. The PLUMBING contractor shall furnish all materials and perform all work necessary for the selective alteration and modification of existing piping, equipment, appurtenances and systems required for the completion of the work as indicated on the drawings and as herein specified.
 - 1. Work to include the following:
 - a. Reuse of the existing sanitary and domestic water piping systems.
 - b. Relocation, repiping and resetting of the existing plumbing work to accommodate and fit within all the new work area.
 - c. Removal of all existing piping, equipment and insulation within the work area; lower to floor for disposal by the General Contractor.

1.06 CUTTING AND PATCHING

- A. The PLUMBING contractor shall coordinate and leave adequate space for in all common chases or openings for the installation of his own or any other contractor's or contractor's work and shall see that all sleeves or forms are at the work and properly set in ample time to prevent delays. He shall see that all such common chases, openings, and sleeves are located accurately and are of proper size and shape and shall consult with the General Contractor and contractors in reference to this work.
- B. The PLUMBING contractor to core drill all penetrations through all concrete or solid masonry wall, floors and roofs for the services provided. Work to be performed by a qualified firm and mechanics.
- C. All patching and cutting per SECTION 01047- Patching & Repair.

1.07 MISCELLANEOUS REQUIREMENTS

- A. No piping shall be installed in a manner to permit back siphonage or any flow or polluted water or other liquid into water service or distribution piping under any conditions.
- B. Air gaps, receptor type drains, approved backflow preventers and approved vacuum breaking devices shall be provided as required by State and local codes and ordinances. Piping to inlets below fixture overflow shall have vacuum breakers of make, design, size and location approved by the local Inspector of Plumbing. Breakers shall not be concealed and full size of pipe.
- C. All Materials shall contain no more than 3% lead.
- D. The PLUMBING contractor is to employ a licensed electrician for the electrical portion of this work that is furnished and installed as part of this section of work.
- E. Services shall be provided to accommodate the project construction requirements including multiple start-ups, testing and disinfecting will be provided as required.

1.08 SPARE PARTS AND REPAIR KITS [NOT USED]

- A. Spare parts, furnish unit(s) for each size, type and model provided per the manufacturers recommendations.

- B. Repair kits furnish for each size, type and model provided per the manufacturers recommendations.

1.09 CODES, ORDINANCES AND PERMITS

- A. All materials and the installation thereof shall conform to the requirements of the State Building Code, and State and local laws, rules and regulations and codes pertaining thereto and also to the requirements of the National Board of Fire Underwriters and all applicable Sections of the NFPA. Where Provisions of the Contract drawings conflict with any codes, rules and regulations, the contract provisions shall govern unless the Architect rules otherwise. Written notification to be given Architect in a timely manner to prevent any delays.
 - 1. All equipment including water meters, backflow preventers, etc., shall be submitted for approval by local authorities by the PLUMBING contractor.
- B. The PLUMBING contractor shall give the proper authorities all required notices or information relating to work in his charge, obtain all licenses, permits, inspections and certificates, and comply with applicable codes.

1.10 SUBMITTALS

Submit the following as specified in SECTION 01300.

- A. Product Data- General:
 - 1. Submittal of manufacturer's specifications, catalog data, descriptive matter, illustrations, diagrams, motor data, etc. for all equipment and materials furnished by this Contractor. Edit all submittals to exclude equipment not furnished as part of this work.
 - 2. Operating and maintenance instruction and parts lists.
 - 3. Installation manual and instructions.
- B. Manufacturers Data- Specific:
 - 1. Insulation.
 - 2. Piping and fitting materials.
 - 3. Valves water.
 - 4. Pipe hangers and supports, general.
- C. Shop Drawings:
 - 1. Insulation with size and system listings.
 - 2. Valve tags location and listings.
 - 3. Identification nameplates locations and listings.
 - 4. Material for all piping, valving and fittings with system listings.
- D. Certificates:
 - 1. Photocopy of plumber licenses.
- E. Reports:
 - 1. Disinfecting water systems test.
- F. Other:
 - 1 As-built drawings use the submitted piping plans new and demolition work. Drawings shall be corrected to indicate all field conditions, corrections, modifications and change orders. Incorporation of sketches by reference or attachment not acceptable.

- Mark all (new & existing) valve tag numbers on the as-built drawings at the appropriate locations.
2. Existing field survey drawings.
 3. Operating and maintenance instruction and parts lists.
 4. Provide coordination drawings as required in SECTION 01040 -- Coordination and Project Procedures. Clearly indicate all piping, fixtures and supports; types and locations.
- G. All submittals shall clearly indicate by annotation of all items, components, fixtures, appurtenances and equipment specifically related to this project.
- H. Refer to SECTION-01300 Submittals for project requirements. In addition review by the architect and engineer shall be limited to not more than two (2) submissions. The PLUMBING contractor shall be responsible for reimbursement to the reviewers for additional submissions that are required to confirm project compliance.

1.11 QUALITY ASSURANCE

- A. Provisions
1. The PLUMBING contractor shall be responsible for the locations in the most practical manner free from interference's with other equipment, lights, piping or structural features. If any changes from the drawings are deemed advisable, details of such proposed changes shall be submitted to the Architect for written approval by the PLUMBING contractor. Maintain maximum headroom and space conditions at all points. Where headroom or space conditions appear inadequate the Architect shall be notified before proceeding with the installation for direction and correction.
 2. Drawings and specifications direct attention to certain features of equipment, but do not purport to cover all details entering into design and construction of the equipment, controls, or appurtenances. The PLUMBING contractor to verify all piping inverts and set all not indicated after coordinating.
 3. Drawings show piping diagrammatically, sizes of pipes, methods of running; offsets and fittings as shown but not intended to show every offset and fitting, nor every structural difficulty that may be encountered.
 4. Consideration given only to products of manufacturers who demonstrate successful experience in manufacture, operation, and servicing equipment of type, size, performance, and reliability equal to that specified. Equipment and components the product of a single manufacturer insofar as possible.
 5. Equipment furnished to fit within the space allocated with adequate clearance for proper operation and maintenance. Location shown on the drawings are approximate.
 6. Where specific manufacturers model or type listed it is intended to indicate minimum requirements. Or EQUAL will be accepted, the PLUMBING contractor to provide data and submittals to the satisfaction of the Architect.
 7. All valves to be full line size unless otherwise accepted by the Engineer.
 8. The PLUMBING contractor shall coordinate the sizes and locations of all his work that is required to fit within the casework with the General Contractor prior to submission of shop drawings. The PLUMBING contractor shall indicate if there is insufficient space for fitting and connecting his work.
- B. Workmanship and Design
1. All parts of the equipment provided to be amply proportioned for long, continuous, and uninterrupted service. Provisions to be made for easy lubrication, adjustment, or replacement of all parts. Corresponding parts of multiple units to be interchangeable.

2. All materials used in construction of equipment to be new and of the best quality and entirely suitable in every respect for service required.
 3. Installed equipment will comply and be acceptable to all state, local and federal codes and regulations.
- C. Alternate Equipment Arrangement
1. If any equipment submitted for acceptance requires arrangement differing from that indicated or specified, the PLUMBING contractor shall prepare a complete and detailed submittal for review, submittal to include, structural, mechanical and electrical drawings, and equipment lists showing all necessary changes and all special features of equipment proposed. Changes are at no additional compensation to the Plumbing contractor.
- D. Electric Motors and Equipment
1. All motors and motor control equipment shall meet the requirements of the National Electrical Code, and comply with the requirements of NEMA, the local public utility furnishing current to the building and other applicable specification for the project.
- E. Putting Equipment In Operation:
1. All mechanical equipment installed in connection with the work shall be put into operation in the presence of the Architect or Owners representative. The PLUMBING contractor to demonstrate, as required, satisfactory operation and function of all the equipment and systems provided by the PLUMBING contractor. The PLUMBING contractor to repeat demonstration until acceptance by the Architect or Owners representative. This section is to be performed prior to project final acceptance and to comply with project phasing. Compliance by the contractor with this section is not to be considered part of the start-up or Owner training sessions project requirements.

1.12 WARRANTIES

- A. The PLUMBING contractor will warranty that all labor and work installed will be free from any and all defects in workmanship and/or materials and that all apparatus will develop capacities and characteristics specified.
- B. If, during a period of one year from the date of completion and acceptance of the work or any designated portion thereof as substantially complete; any defects in workmanship, material or performance the PLUMBING contractor will, without cost to the Owner, remedy such defects within a reasonable time to be specified in notice from the Owner or Architect.
- C. The PLUMBING contractor will correct all damage to insulation, paint, woodwork or building caused by defects in his work, equipment, and its operation. Warranty shall include all labor and materials and 24-hour service during the warranty period.
- D. Any apparatus that requires excessive service during the first year of operation will be considered defective and shall be replaced at no additional compensation to the Plumbing contractor. Architect will have final judgment and determination on defective part for replacement.
- E. Refer to SECTION 01740 - Warranties for additional requirements.

1.13 OPERATION AND MAINTENANCE MANUALS

- A. Operating instructions outlining the step-by-step procedures required for system start-up, operation, and testing shall be furnished. The instructions shall include the manufacturer's name, model number, catalog cuts, diagrams, drawings, parts list, and descriptive data covering the proper operator and testing.
- B. Maintenance instructions listing routine maintenance procedures, possible breakdowns and repairs shall be furnished. The instructions shall include simplified diagrams for the entire system as installed. Indicate all valves with their individual tag identification.
- C. The Manual shall include the following:
 - 1. Summary description of the systems' operation.
 - 2. Manufacturers' literature, illustrations, and technical data.
 - 3. Warranty data and registrations.
 - 4. Parts list and parts numbers.
 - 5. Maintenance, lubrication, and replacement charts.
 - 6. Trouble-shooting charts.
 - 7. Approved copy of all submittals.
 - 8. As-built drawings.
 - 9. Reports, testing and start-up.
- C. At least two(2) months prior to the time of substantial completion, secure and deliver to the Architect complete indexed operating and maintenance manuals.
- D. Non-availability of the operating and maintenance manuals or inaccuracies contained therein will be grounds for cancellation and postponement of any scheduled final inspections by the Architect until such time as the discrepancy has been corrected.
- E. All submitted material shall be clearly edited and noted for this specific project.
- G. The PLUMBING contractor to refer to SECTION 01720 - Record Documents for additional requirements.

1.14 START-UP SERVICES [NOT USED]

- A. The PLUMBING contractor shall provide the services of a factory-trained service engineer or technician, not contractors personnel, specifically trained on type of equipment specified, to place equipment in satisfactory operation. The PLUMBING contractor shall provide written report of start-up service acceptance. Services provided under start-up are not part of training services.
- B. Services shall be provided to accommodate the project construction requirements, multiple start-ups will be provided as required.

1.15 TRAINING SERVICES [NOT USED]

- A. The PLUMBING contractor shall provide training sessions by contractors personnel. Training sessions are to review location of equipment, mixing & tempering valves, isolation valves, etc. and the repair and maintenance procedures of the installed systems and equipment.
- G. Services provided under this section are not part of the start-up services.

- H. Training sessions are to be scheduled at the Owners convenience. Training shall be given to the Owner's employee appointed to familiarize himself with the systems and equipment. Copies of the operating manual, parts list, and bulletins shall be delivered to the Owner for each item or equipment two weeks prior to the date of training.
- I. Man-day shall be defined as one continuous 8-hour period, exclusive of breaks, lunch, travel time, etc.
- E. Training sessions to the Owner will be performed after the operation and maintenance manuals are submitted and accepted. Training sessions to the Owner shall not take place without proper delivery and acceptance of the manuals.

1.16 CLOSEOUT

- A. See SECTION 01700- Contract Closeout for additional requirements.
- B. Submit the following items and as specified herein:
 - 1. 'As-builts' per subsection 1.10.F.
 - 2. Warranties per subsection 1.12.
 - 3. Operations and maintenance manuals per subsection 1.13.
 - 4. Training services per subsection 1.15.
 - 5. Test Reports per subsections 3.10 and 3.11.

1.17 REFERENCES- STANDARDS & ABBREVIATIONS

- A. Listed standards are to be the latest published and approved.
 - 1. American National Standards Institute, Inc. (ANSI)
 - 2. American Welding Society (AWS)
 - 3. American Waterworks Association (AWWA)
 - 4. American Society of Plumbing Engineers (ASPE)
 - 5. American Society of Mechanical Engineers (ASME)
 - 6. American Society of Sanitary Engineering (ASSE)
 - 6. American Society for Testing and Materials (ASTM)
 - 7. American Gas Association (AGA)
 - 8. Factory Mutual (FM)
 - 9. Manufacturers Standardization Society (MSS)
 - 10. National Electrical Code (NEC)
 - 11. National Electrical Manufacturers Association (NEMA)
 - 12. National Fire Protection Association (NFPA)
 - 13. Plumbing and Drainage Institute (PDI)
 - 14. Underwriters' Laboratories (UL)
- B. Applicable Publications:
 - 1. American National Standards Institute (ANSI):
 - A112.6.1M Supports for Off-the-floor Plumbing Fixtures for Public Use
 - A112.18.1M Finished and Rough Brass Plumbing Fixture Fittings
 - A112.19.2M Vitreous China Plumbing Fixtures
 - A112.19.3M Stainless Steel Plumbing Fixtures
 - A112.19.5 Trim For Water-closet Bowls, Tanks, and Urinals
 - A112.21.1M Floor Drains
 - A112.21.2M Roof Drains
 - A112.26.1M Water Hammer Arresters

- A112.36.2M Cleanouts
 - B16.1 Cast Iron Pipe Flanges and Flange Fittings
 - B16.3 Malleable Iron Threaded Fittings
 - B16.22 Wrought Copper and Copper-alloy Solder Joint Pressure Fittings
 - B16.24 Bronze Pipe Flanges and Flanged Fittings, Class 150 and 300
 - B40.1 Gages - Pressure Indicating Dial Type - Elastic Element
 - AGA Lc1-1991 Corrugated Stainless Steel Tubing and Fittings
 - 2. American Society of Sanitary Engineering (ASSE):
 - 1003 Water Pressure Reducing Valves for Domestic Water Supply Systems
 - 1019 Wall Hydrants, Frost Proof Automatic Draining, Anti-backflow Types
 - 3. American Society for Testing and Materials (ASTM):
 - A47 Malleable Iron Castings
 - A53 Pipe, Steel, Black and Hot-dipped, Zinc coated, Welded and Seamless
 - A74 Cast Iron Soil Pipe and Fittings
 - A183 Carbon Steel Track Bolts and Nuts
 - A536 Ductile Iron Castings
 - B61 Steam or Valve Bronze Castings
 - B62 Composition Bronze or Ounce Metal Castings
 - B88 Seamless Copper Water Tube
 - B210 Aluminum-Alloy Seamless Tubes
 - B241 Aluminum-Alloy Seamless Pipe and Seamless Extruded Tube
 - B306 Copper Drainage Tube (DWV)
 - C534 Preformed Flexible Elastomeric Cellular Thermal Insulation in Sheet and Tubular Form
 - C564 Rubber Gaskets for Cast Iron Soil Pipe and Fittings
 - 4. American Water Works Association (AWWA):
 - C104 Cement Mortar Lining for Ductile Iron and Gray Iron Pipe and Fittings for Water
 - C105 Polyethylene Encasement for Ductile Iron Piping for Water and Other Liquids
 - C110 Gray Iron and Ductile Iron Fittings, 2 Inches through 48 Inches for Water and Other Liquids
 - C111 Rubber Gasket Joints for Ductile Iron and Gray Iron Pressure Pipe and Fittings
 - C151 Ductile Iron Pipe, Centrifugal Cast in Metal Molds or Sand-lined Molds, for Water and Other Liquids
 - C504 Rubber-seated Butterfly Valves
 - C651 Disinfecting Water Mains
 - 5. Building Officials Code Administrators International (BOCA):
 - National Plumbing Code 1990.
 - 6. Cast Iron Soil Pipe Institute (CISPI):
 - 301 Cast Iron Soil Pipe and Fittings for Hubless Cast Iron Sanitary System
 - 310 Patented Joint For Use in Connection with Hubless Cast Iron Sanitary System
 - HSN 85 Neoprene Rubber Gaskets for Hub and Spigot Cast Iron Soil Pipe and Fittings
- C. Abbreviations;
- OS&Y- Outside Stem & Yoke
 - WOG- Water, oil, gas
 - WSP- Water, steam pressure
 - UL- Underwriters Laboratory
 - FM- Factory Mutual

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. The SPECIFICATIONS indicate manufacturer, model, type, capabilities and ratings of equipment for this project. Performance, capacities, etc., shall be interpreted as the minimum requirements. The manufacturers' names indicated represent a standard of materials, appearance, finishes, performance, etc.
- B. Subject to compliance with the requirements, acceptable manufacturers, (or products) include, but not limited to, the following:
1. Valves:
 - Apollo Division, Conbraco Industries, Inc., Pageland, SC.
 - Kennedy Valve Mfg. Co., Elmira, NY
 - Watts Regulator Co., Lawrence, MA
 2. Pipe Hangers, Supports and Seismic Hangers:
 - B-Line Systems Inc., Highland, IL
 - Elcen Metal Products Co., Franklin Park, IL
 - ITT Grinnell Corp., Providence, RI

2.02 PIPE AND FITTINGS

- A. PIPING - GENERAL
1. Copper: Tube drawn seamless, type K ASTM B88.
 2. Cast Iron: standard weight, ANSI A21, cement lining conforming to ANSI A21.4.
 3. Ductile Iron: ANSI A21, cement lining conforming to ANSI A21.4.
 4. Steel: Schedule 40, ASTM 120, A530 or A153.
 5. Chrome plated brass: heavy duty brass, 14 gage minimum with chrome polished finished.
- B. FITTINGS - GENERAL
1. Steel Pipe: Threaded or welded, welded joints with forged steel welding fittings. Screwed joints 2 1/2-inch maximum size. Flanged or screwed, cast iron ANSI B16, steel ANSI B.5, B16 or B.25 or ASTM A234.
 2. Couplings and Unions: Screwed unions 2-inch and less, non-screwed type 2 1/2-inch and greater.
 3. Cast or Ductile Iron: Cast iron or ductile iron.
 4. Copper Tube: Cast copper, ANSI B16 or wrought copper ANSI B16.
- C. SYSTEMS
1. Domestic Water: Copper type L exposed, type K buried.
 2. Drainage: Soil, waste, roof and vent;
 - a. Standard weight cast iron soil pipe and fittings. Alternative joint were permitted by local code, push-on or hubless-joint pipe.
 - b. Vent; Standard weight cast iron soil pipe and fittings or copper DWV
 - c. Kitchen fixtures, drains copper

2.03 PIPE HANGERS AND SUPPORTS-GENERAL

- A. MSS Standards SP-58, SP-69. Select size to allow continuous insulation through the hanger or support.
- B. Beam clamps, adjustable clevis, band and roller type hangers, Type 40 shields, structural members, fastening hardware.

- C. Galvanized or primed steel hangers for steel pipe; copper plated for copper pipe.
- D. Chain, strap, perforated bar or wire hangers will not be approved.
- E. Approved gang hangers may be used in lieu of separate hangers on pipes running parallel to each other and close together.

PART 3 - EXECUTION

3.01 PREPARATION

- A. Arrange all applications, permits, inspections, and tests, in accordance with applicable State and local codes, at the PLUMBING contractor's expense. Early installation of buried piping systems. All measurements to be verified at job site.
- B. Avoid interference's with other trades.
- C. Install equipment as recommended by manufacturer unless otherwise indicated or directed.

3.02 INSTALLATION- GENERAL

- A. Furnish and install all plumbing fixtures and equipment, water, vent, sanitary drainage, storm drainage piping. Install all faucets, outlets and traps and make all connections for cold water, hot water, drain and water piping. Install equipment at locations indicated. Make piping connections to equipment preventing excessive strain on equipment; install flexible connections where indicated or required.
- B. Fixtures Accessories:
 - 1. Install where indicated, height per manufacturer's recommendations unless otherwise indicated or directed by the Architect.
 - 2. Install escutcheons at all wall and floor penetrations.
- C. Drains: For drains installed above basements, flashing clamp, 8 inch of 16 oz. sheet copper flashing, all around; extend 4 lb.. sheet lead flashing 8 inch from roof drain into membrane waterproofing.
- D. Cleanouts and Traps: Install floor cleanout plugs just below finished floor level, provide brass access cover.

3.03 INSTALLATION OF PIPING

- A. General:
 - 1. Install to accurate lines and grades, parallel to building walls where possible.
 - 2. Use rigid temporary supports to prevent shifting or distortion.
 - 3. Do not run pipe through, over or in front of electrical switchboards or panels. Maintain 3 foot horizontal clearance.
 - 4. Do not use close nipples on threaded piping.
 - 5. Allow 3 inch clearance from walls, ceiling, floors or other piping and electrical conduits.

6. Allow for 1-1/2 inch expansion for hot water piping and 3/4 inch for cold water piping per 100 ft. run. Contractor to size, locate and select all expansion loops and joints, unless otherwise indicated.
 7. Install isolation or service valves on all supply branch and sub-branch piping and at equipment inlet and outlet connections. Furnish additional isolation valves per local codes and as directed by Plumbing Inspector.
 8. Install dielectric bushings or unions at joints between ferrous and non-ferrous piping.
 9. Install unions at piping connections for equipment and appurtenances unless flanged.
 10. Install pipeline strainer upstream of pressure control valves.
 11. Install shock absorbers on plumbing hot and cold water supply piping near each quick closing type faucet, flush valve or control valve; and as indicated.
 12. Install socket joints for PVC pipe and fittings using solvent cement provided by pipe manufacturer.
 13. Provide complete seismic support of the piping system as required by code. Work includes the design, selection and application of the seismic supports by a professional engineer.
 14. All exterior copper piping, valves and fittings shall be protected with Tapecoat TC cold prime and covered with Tapecoat CT pressure sensitive coal tar tape.
- B. Pipe Pitch:
1. Sanitary and roof drainage piping, 1/4 inch per foot when possible, minimum 1/8 inch per foot.
- C. Drainage Systems:
1. The interior drainage systems shall be constructed using materials and methods as specified and/or indicated.
 2. Provide properly trapped and vented waste connections to fixtures, floor drains, and special equipment. Each drain leaving the building shall have cleanout installed to meet the approval of the Plumbing Inspector.
 3. Drain piping shall be uniformly pitched to conform with local and state code requirements; the inverts indicated on drawings shall be checked and accurately set. In the absence of invert elevations, check site utility drawings and verify location, size and elevation of street sewers before proceeding with installation.
 4. Cleanouts shall be installed at the base of all stacks, beyond running traps, at changes in direction of more than 45 degrees, at not over 50 foot intervals in horizontal runs. Cleanout tees shall not be used where it is possible to use a straight tee.
 5. Traps of material and design approve by local or State Plumbing Inspector shall be furnished and installed by the PLUMBING contractor for all equipment and appliances. All traps shall have the bottom cleanouts where access can be provided.
 6. Vents through roof shall be base flashed by roofer, flashing by the Plumbing contractor. Vents shall extend at least two feet above the roof. Terminate all vents at least 25 feet from any air intake but not less than 10 feet sh. All vents that terminate within 10 feet of the air intake shall be 2 feet above the top of the air intake. Provide all offsets below the roofline as required.
 7. Carefully inspect for damaged materials. Run piping as shown on the drawings, making changes in direction with long sweep 1/8 and/or 1/16 bends. Connections to stacks may be with sanitary T-fittings.
 8. Plastic piping shall be protected from damage due to thermal expansion. Install expansion fittings as required by code and in accordance with the manufacturer's recommendations.

3.04 INSTALLATION OF PIPE JOINTS AND CONNECTIONS

A. General:

1. Cut pipe and remove burrs.
2. Clean dirt, chips and foreign matter from inside before assembly.
3. Final connections to equipment made with unions or flanges. Unions in copper tubing 125 lb. WSP, all bronze, ground joint seat; standard PVC unions in PVC pipe; all other 150 lb. WSP, malleable iron, ground brass-to-iron seat.
4. Plastic piping connections to other materials shall be made with male or female adapter if threaded, or with approved sleeve and stainless steel clamp if the outside diameter of the two pipes is the same.
5. Threaded joints, made with lead free sealant applied to the male thread only.

B. Copper Pipe:

1. Water piping
 - a. Solder with 95 percent tin and 5 percent antimony for all domestic water piping. Comply with local authority requirements. Do not use cored solder.
 - b. Potable Water: make joints using filler materials comply with ANSI-ASME Standard AWS/A5.8 lead free fluxes.
1. Gas piping, brazed joints with silver solder or flared brass connections.
2. Use flaring tool for flared connection, make-up with sleeve unit. Do not use flared connections for buried piping.

C. Soil Pipe:

1. Caulked joints: use picked oakum and lead between hub and pipe; place 1 inch deep molten lead in one pour.
2. Use compression type gaskets for dry joint piping assembled with special tools per manufacturer's recommendations. Provide tight seal with 10 degree deflection.
3. Make joints between soil and steel pipe with malleable iron Manhoff fittings.
4. Install cleanouts in soil and waste piping at branch ends, in traps and stacks, at points of change in flow direction, and at convenient points in long pipe runs; install cleanout access cover flush with floor on buried piping.

3.05 INSTALLATION OF PIPE HANGERS AND SUPPORTS

A. General:

1. Install a hanger at each change of direction or offset; install additional hangers at concentrated loads. Do not support from the roof deck, all attachments to be a side attachment type located on the top cord of the structure.
2. Use proper components for maximum pressure and temperature.
3. Support vertical piping to prevent swaying or vibration.
4. Use protection shields for insulated pipe, insulation to be continuous through hanger, unless otherwise indicated.
5. Use trapeze hanger for several parallel pipes.
6. Set inserts for hangers before concrete is placed.
7. Attached all hangers to the roof support structure or wall framing with proper attachment.
8. Steel hangers field prime.
9. Provide anchors and supports for all expansion loops and joints as required.

- B. Horizontal piping shall be hung with adjustable wrought iron or malleable iron pipe hangers, spaced as follows:

<u>Pipe Size</u>	<u>Copper</u>	<u>Steel</u>	<u>Rod Size</u>
3/4" to 1"	6 ft.	8 ft.	3/8"
1-1/4" to 2"	8ft.	10 ft.	3/8"
2-1/2" to 4"	10 ft.	14 ft.	1/2"

- Notes: 1. Existing building areas main roof structure 8 ft. spacing. Intermediate attachment to the roof/deck panel support by means of strap (Grinnell FIG.262, sized to suit.)
2. Use self-drilling anchors/screws for attachment to the existing roof/deck panel support.

- C. Cast iron soil pipe shall be supported at 5 foot intervals at hub. Copper tube straps may be used on water lines up to 1 inch for wood joist construction only. Bands or rings supporting copper tubing shall be heavily copper plated.
- D. Hangers shall be located not more than 4 feet from elbow or 10 feet on screwed piping. For copper tubing, the hangers shall be copperized. Hangers for piping larger than 4 inch shall be adjustable clevis, wrought iron or malleable iron.
- E. Vertical stacks of soil, waste, vent and conductor piping shall have friction clamps on each floor. Vertical supply risers shall be supported at each floor by friction clamps or inserting around the supply pipe, a coupling which shall rest on pipe sleeve. Soil, waste and conductor stacks shall be firmly supported at their base, either by a suitable hanger placed on the horizontal line near the riser, or by a base fitting set on a pedestal or foundation carried down to a firm bearing. Copper tubing 1-inch and smaller shall have added support at midpoint between floors.
- F. Seismic hangers and supports as specified and in compliance with code complete.

3.06 MISCELLANEOUS IRON AND STEEL:

- A. Provide steel supports and hangers as shown on drawings or as required to support piping, pumps, tanks or other equipment furnished or installed by the PLUMBING Contractor.
- B. All work shall be cut, assembled, welded, and finished by skilled mechanics. All shop fabricated iron and steel work shall be cleaned and dried and given a shop coat of paint on all surfaces and in all openings.
- A. The PLUMBING contractor to coordinate with General Contractor and furnish all data and information required to assure proper structural support and building integrity.

3.07 PROTECTION AND CLEANING:

- A. The PLUMBING contractor shall take effective measures to protect all materials, fixtures and fittings from loss or damage; and all pipe openings from obstruction, throughout the construction. Heavy jute-inserted type paper shall be taped securely for complete covering and protection of fixtures and equipment.
- B. All dirt and debris resulting from the work shall be thoroughly taken up and removed from the premises. All fixtures, fittings, exposed trim and equipment shall be cleaned and polished to leave for inspection and use in the best possible condition.

3.08 TESTING:

A. General:

1. Clean and flush pipe before testing. Use compressed air for air and gas piping; water for all other.
2. Remove equipment and appurtenances which may be damaged during test.
3. Perform test in presence of Architect, Owners representative and the building or plumbing inspector as local codes require. Notice for witnessing test shall be given with sufficient time, but not less than ten working days.
4. Test underground piping before backfilling.
5. Test concealed piping separately.
6. Test before painting or applying insulation.
7. Furnish all testing materials, equipment and labor.
8. Disconnect pumps during test.
9. Remedy leaks by replacing defective materials; do not remedy with caulking or chemicals.

B. Test Procedures:

1. Test plumbing piping with water for liquid under pressure; 2 hours continuous at 100 psig or 150 percent normal working pressure, whichever is greater.

3.09 DISINFECTION

- A. After testing, the PLUMBING contractor is to disinfect the complete (new & existing) water systems per the applicable plumbing code.
1. Work shall include multiple system disinfecting to comply with the project phasing.
- B. Provide copy of all test results indicating compliance with the applicable code requirements.

3.10 COMPLETION - FINAL ACCEPTANCE

- A. Provide properly executed certificate of inspections from authority having jurisdiction.
- A. Instruct such persons as the Owner designates in the proper operation and maintenance of the equipment of the systems and their parts. Submit to Architect a letter naming the person(s) so instructed and the dates of such instructions, subject to the Owners acceptance.
- D. Prepare literature showing operation, service and replacement data for all equipment which will require periodic maintenance or replacement. Deliver all literature prior to final acceptance.
- E. Deliver all spare parts and repair kits, prior to final acceptance.
- F. Verify that project record documents are complete and accurate as specified under submittals of record documents.
- G. Refer to subsection 1.16 of this specification for additional requirements regarding project closeout.

‘END OF SECTION’

SECTION 16000

ELECTRICAL
(FILED SUB-BID REQUIRED)

PART 1 - GENERAL

1.02 GENERAL PROVISIONS, FILED SUB-BIDS REQUIRED

- A. Time, Manner, and Requirements for Submitting Sub-Bids: The work of this section is stipulated as a Filed Sub-bid under the Form of General Bid. Sub-Bids for the work of this section shall be for the complete work and filed with the Awarding Authority in strict compliance with and before the date and time stated in the Instructions to Bidders and Notice to Contractors. Contractor to review DIVISION 0- GENERAL DOCUMENTS for all bidding and contract requirements.
- B. Sub-Sub Bid Requirements: The sub-bidders attention is directed to Mass. G.L. Chapter 149, Section 44F, as amended. This section of the Specifications required that the following classes of work shall be listed in Paragraph E under the conditions indicated herein.

CLASSES OF WORK

REFERENCE PARAGRAPHS

None

Not Applicable

- C. Drawings: The work of this filed sub-bid is shown on the following Electrical Contract Drawings: E0.1 thru E7.1
- D. For additional work the ELECTRICAL Contractor shall completely review all of the related project contract drawings including applicable specifications.

1.01 RELATED DOCUMENTS

- A. All of the Contract Documents, including General and Supplementary Conditions and Division 1 General Requirements, apply to the work of this section.

1.02 DESCRIPTION OF WORK

- A. Electrical work generally includes selective field surveying, selective demolition, new construction, and field testing including miscellaneous fire stopping, etc. Where available, all installations shall be vandal resistant via heavy duty concrete expansion attachment anchors and tamper-proof screws due to the public school locations.
- B. The Electrical Sub-Contractor (EC) after the field survey shall selectively demolish the existing affected electrical equipment (i.e. – lighting fixtures, receptacles, etc) and associated wiring. EC shall also selectively demo, revise and add onto the existing fire alarm system. In addition, the existing kitchen main panelboard shall be revised (as affected by the selective demolition) plus a new feeder circuit breaker shall be furnished and installed as indicated on the electrical contract drawings.
- C. The scope of electrical work consists of the installation of all materials to be furnished under this section, and without limiting the generality thereof, consists of furnishing all

labor, materials, equipment, plant, transportation, rigging, staging up to 8 feet, appurtenances, and services necessary and/or incidental to properly complete all work as shown on the electrical system drawings, as described in the Specifications, or as reasonably inferred from either, in the opinion of the Architect.

- D. Electrical Sub-Contractor (EC) shall furnish and install electrical devices (i.e. - power, lighting, upgrades for the existing high school cafeteria as noted on the drawings. In addition, EC shall furnish/install wiring for the new kitchen equipment which is furnished/installed by the General Contractor. EC's work includes all necessary coordination with both the existing building conditions, new construction and "as supplied" kitchen equipment.
- E. EC shall relocate the affected fire alarm system's heat detectors, signal horn/lights and manual pull stations. EC shall coordinate any FA system outages with both the school management personnel and the Waltham Fire Department. EC shall note if required by the fire department, a "fire watch" shall be provided or a temporary FA system
- F. EC shall furnish/install new tele/data outlet boxes with nylon pull strings to above the hung ceiling. The School's tele/data contractor shall furnish/install the new T/D outlets, UTP cabling, terminations, field testing, revised T/D system documentation, etc. EC's work includes all necessary coordination with the school's T/D contractor.
- G. The electrical work includes all necessary field surveying (i.e. – field tracing and tagging, etc) of the existing affected electrical equipment and wiring including determining the existing building conditions which affects the electrical construction. The bidders shall visit the site in order to determine all existing conditions which affects the demolition and new electrical construction. No additional compensation shall be provided for the lack of knowledge of the existing conditions unless there are uncovered existing conditions that can affect the proposed selective demolition and new electrical work. The EC must assume there are no as-built electrical drawings for any of the existing electrical systems.
- H. The EC's work shall include all required, fire stopping, plaster, patching, etc. which is required to furnish and install the electrical systems. All general construction painting shall be furnished and installed by other applicable specifications' sections. The EC's work also includes all necessary selective demolition of the affected electrical systems (i.e. – equipment and wiring) as noted herein. EC's work also includes fire stopping of raceway sleeves and cables as indicated on the drawings. All fire stopping shall be UL listed assemblies (i.e. – material and installation).
- I. The work of this section shall also include all necessary coordination work with the local city building and electrical inspectors including the city fire department. No new electrical material release and/or installation shall be completed by the EC until the local authorities review and coordination has been completed. EC must schedule a site meeting with all authorities and Contractors in order to complete this important construction coordination work item.
- K. Furnish and install all hot dipped galvanized miscellaneous mounting steel and hardware as necessary for mounting and wiring of the new electrical equipment and wiring. Note, all supports must be NEC 2011 compliant.

- L. The EC shall provide all of the electrical work in strict accordance with Section 01010 – SUMMARY OF WORK and Section 01050 – CONDUCT OF THE WORK with regards to construction phasing, continuation of services, etc.
- M. The EC shall furnish/install new power pedestals and poke-through floor boxes, which will be used to power the new kitchen servery equipment. EC shall provide core drilling as necessary. EC must coordinate the power pedestals receptacles, toggle disconnect switches or fused disconnect switches with the “as supplied” new kitchen equipment.
- N. For equipment and wiring testing, EC shall provide electrical field testing as herein specified to verify installation and operation. Refer to the execution section of the electrical specification.
- O. The lighting fixtures in the cooking part of the kitchen is a bidding alternate item. EC shall provide separate ‘ADD’ pricing in their bid to the General Contractor for the kitchen lighting upgrade (add Alternat4e #1).

1.04 RELATED WORK SPECIFIED ELSEWHERE

- A. The Electrical Subcontractor shall review all other applicable contract drawings and specifications sections which relate to the electrical work. This shall include the kitchen equipment (both drawings and specifications).
- B. The EC’s work also includes furnishing/installing equipment power plugs so they can be powered from the new receptacles.

1.05 REFERENCE STANDARDS

- A. UL: Underwriters Laboratories, Inc., 33 Pfcngsten Road, Northbrook, IL
- B. NEMA: National Electrical Manufacturers Association, 2101 L Street, Northwest, Washington, DC
- C. FM: Factory Mutual Engineering Corporation, Factory Mutual System, 1151 Boston/Providence Turnpike, Norwood, MA

1.06 QUALITY ASSURANCE

- A. Install electrical work in conformance with the rules and requirements of National Fire Protection Association Standard No. 70 (National Electrical Code), the Massachusetts Electrical Code, the City of Waltham’s Building and Electrical Inspectors including the City Fire Department’s technical regulations.
- B. All materials and apparatus required for the work shall be new, of first-class quality, and shall be furnished, delivered, erected, connected and finished in every detail, and shall be so selected and arranged as to fit properly into the building spaces. Prior to any equipment release or rough wiring the EC shall coordinate all proposed equipment and wiring with the City of Salem’s electrical inspector.
- C. Specification and drawing reference to equipment, product, fixture, or material name,

make or catalog number, shall be interpreted as establishing a minimum standard of quality and shall not be construed as limiting competition. The Contractor may, at their option, use any equipment, product, material, fixture, form or type of construction which, in the opinion of the Engineer, expressed in writing, is equal to that specified. However, all "OR EQUAL" substitutions shall be submitted by the EC with a complete technical comparison that clearly proves the "OR EQUAL" product meets or exceeds the design construction and performance of the specified item.

1.07 BASIS OF DESIGN

- A. Where specific makes or brands are listed for a specified item in the specifications, and/or as scheduled or shown on the drawings, the item detailed and shown constitutes the basis of design. All other makes or brand items listed in these specifications, or approved, must be checked for proper connections, capacities and dimensions before submitting shop drawings to assure total compliance with the specification details by the EC. Variances in space requirements, capacity, connections, and construction details are adequate reasons for disapproval. Since there are variations in size, wiring, etc for "or equal" electrical products, EC must coordinate the "as supplied" electrical equipment with both the existing / revised building conditions and the new "as supplied" mechanical equipment.

1.08 CODES, RULES, PERMITS, AND FEES

- A. The Contractor shall give all necessary notices, obtain all permits and pay all sales taxes, fees and other costs, including utility connections or extensions, in connection with his work. They shall also file all necessary plans, prepare all documents and obtain all necessary approvals of all governmental departments having jurisdiction. They shall obtain all required certificates of inspection for his work and deliver same to the Architect before request for acceptance and final payment for the work. EC's work includes any time for meetings with city, utility, Owner or A/E personnel for construction, coordination, demolition, construction phasing, etc.

1.09 SUBMITTALS

- A. Attention is directed to Specification Section 01300 – SUBMITTALS.
- B. Submit shop drawings for review/approval by the Engineer. The shop drawings, bills of material, panel and equipment layouts, catalog data, wiring diagrams and other documentary or descriptive information as required for each assembly submitted in one package. Prepare shop drawing submittals with identification by specification section and article. Clearly mark the particular make, model number, accessories, and options.
1. Bills of material: Include a numbered list of all components, with manufacturer's name, catalog number, rating, and other identification. Place item number or similar identification, on all other drawings where item appears.
 2. Where additions and modifications are made to existing equipment, provide drawings that include both retained existing equipment and new work.
 3. Shop drawings required are contained in, but not necessarily limited to, the following list:
 - a. Conduit, cables, wires and boxes
 - b. Lighting Fixtures
 - c. Circuit Breaker
 - d. Fire Stopping

- e. Panelboard
 - f. Pedistals
 - g. Poke-through floor boxes
 - h. Wiring Devices (receptacles, switches, etc)
 - i. Miscellaneous Electrical Construction Material
4. Mark shop drawings and data submitted showing only items applicable to specific contract. Note all deviations on each shop drawing from the contract plans and/or specification.

1.10 STANDARD COMPLIANCE

- A. All materials or equipment must conform to the standards of organizations such as the American National Standards Institute (ANSI), American Society for Testing and Materials (ASTM), National Electrical Manufacturers' Association (NEMA), and Underwriters' Laboratories (UL), proof of such conformance shall be submitted to the Designer for approval. If an organization uses a label or listing to indicate compliance with a particular standard, the label or listing will be acceptable evidence, unless otherwise specified in the individual sections. In lieu of the label or listing, the Contractor shall submit a certificate from an independent testing organization which is competent to perform acceptable tests and is approved by the Designer. The certificate shall state that the item has been tested in accordance with the specified organization's test methods and that the item conforms to the specified organization's standard.
- B. For materials and equipment whose compliance with organizational standards or specifications is not regulated by an organization using its own listing or label as proof of compliance, a certificate of compliance from the manufacturer shall be submitted for approval. The certificate shall identify the manufacturer, the product, the referenced standard, and shall simply state that the manufacturer certifies that the product conforms to all requirements of the project specification and of the referenced standards listed. In lieu of independent test reports, written approval of equipment by local electrical inspecting authority will be acceptable. Tests and/or inspections necessary for approval of equipment will be performed at no additional cost to Agency.
- C. Clearly mark equipment, devices and material with name or trademark of manufacturer with rating in volts and amperes and other pertinent information on a nameplate.

1.11 INTERFERENCE AND ERRONEOUS LOCATIONS

- A. Locations of electrical equipment, devices, outlets, and similar items, as indicated, are approximate only. Exact locations to be field determined by the Electrical Sub-Contractor during construction which includes coordination with all trades. This also includes all wall coring, wiring routing, etc.
- B. Verify, in field, all data and final locations of work, done under other sections of specifications, required for placing of electrical work.
- C. In case of interference with other work or erroneous locations with respect to equipment or structures, furnish all labor and materials necessary to complete work.

1.12 OPERATIONS AND MAINTENANCE (O&M) MANUAL

- A. Refer to Section 01700 for the Operating and Maintenance Manual requirements for this Contract. The EC shall provide three (3) sets of operating and maintenance instructions of all electrical equipment furnished and installed under this section.
- B. Furnish an operation and maintenance manual for the Electrical Systems. The manual shall include, but not be limited to, the following:
 - 1. Contractor and Major Parts Suppliers Contact Information.
 - 2. Start and Stop Dates for the First Year Warranty.
 - 3. Shop drawings, equipment catalog data
 - 4. Wiring and control diagrams
 - 5. Installation, maintenance and testing instructions
 - 6. Safety precautions
 - 7. Parts list plus recommended spare parts.
 - 8. Operating Instructions
- C. The parts list for equipment shall indicate the sources of supply, recommended spare parts, and the service organization that is reasonably convenient to the building site. The manual shall be complete in all respects for all equipment, controls, and accessories provided.

1.13 OPERATING INSTRUCTIONS

- A. Upon completion of all work and of all field tests, provide the necessary skilled labor for start-up, testing and operating all systems and equipment for a period of 1/2 day (4 hours per day), and as otherwise specified. During this period, instruct the Owner's representative fully in the operation, adjustment and maintenance of all equipment furnished.

1.14 PRODUCT DELIVERY AND STORAGE

- A. Equipment and materials shall be properly stored, adequately protected, and carefully handled to prevent damage before and during installation. Equipment and materials shall be handled, stored, and protected in accordance with the manufacturer's recommendations and as approved by the Engineer. Electrical conduit shall be stored to provide protection from the weather and accidental damage. Cables shall be sealed, stored, and handled carefully to avoid damage to the outer covering or insulation and damage from moisture and weather. Damaged or defective items, in the opinion of the Engineer, shall be replaced with new items at no additional cost to the Owner. EC shall provide a site storage trailer(s) in order to protect the electrical material prior to installation. Note, prior to any selective demolition and re-construction, EC must have stored material ready for installation. In addition, prior to any work, EC must have already successfully completed all specified coordination with the city authorities, school facilities management personnel and other project Contractors in order to minimize service outages, construction problems, etc.

1.15 ELECTRICAL SERVICES

- A. The electrical service voltage for the equipment shall operate on grounded 120/208 volts - 3 phase - 4 wire - 60 hertz current. The service shall be obtained from the building's revised electrical kitchen panelboard.

1.16 EQUIPMENT SPECIFIED ELSEWHERE

- A. Certain items of kitchen, etc equipment (i.e. – food servery) are indicated on electrical drawings for powering and connection, but are specified in other sections pertaining to fans, etc. Such equipment items are not furnished as part of electrical work, however EC must furnish/install power supply and power wiring as indicated on the electrical drawings. EC must coordinate with the “as supplied” kitchen equipment prior to any electrical equipment release and/or rough wiring.

1.17 RECORD DRAWINGS

- A. Refer to Specifications Section 01720 Survey and Record Drawings for additional requirements of this section.
- B. The marked up As Built Drawings required to be maintained under this section shall be keep up to date on a monthly basis. The Architect shall verify prior to approval of any monthly pay requisitions.

1.18 WARRANTIES

- A. The EC shall warranty that all electrical material and installation shall be free from any and all defects in workmanship and/or materials and that all apparatus will develop capacities and characteristics specified. EC shall provide six (6) duplicate original warranty documents to the Owner.
- B. If, during a period of one (1) year from the date of completion and acceptance of the work or any designated portion thereof as substantially complete; any defects in workmanship, material or performance the EC shall without cost to the Owner, remedy such defects within a reasonable time to be specified in notice from the Owner or Architect.
- C. The EC shall correct all damage to insulation, paint, woodwork or building caused by defects in his work, equipment, and its operation. Warranty shall include all labor and materials and 24-hour service during the warranty period.
- D. Any apparatus that requires excessive service during the first year of operation will be considered defective and shall be replaced at no additional compensation to the EC. The Architect will have final judgment and determination on defective part for replacement.
- E. The EC shall furnish all manufacturers’ written warranties completely filled out and dated after the acceptance of the completed system.
 - 1. Manufacturer's warranty for all items and equipment that is a manufacturer's standard.
 - a. Provide all individual items, equipment and appurtenance warranties.
- F. Refer to SECTION 01700- PROJECT CLOSEOUT for additional requirements. Warranty start date shall be upon acceptance of the system.

PART 2 - PRODUCT

2.01 CATALOGED PRODUCTS

- A. Materials and equipment shall be the cataloged products of manufacturers regularly engaged in production of such materials or equipment and shall be manufacturer's latest standard design that complies with the specification requirements. When two or more units of the same type, class, and size of equipment are required, these units shall be products of a single manufacturer; however, the component parts of the system need not be the products of the same manufacturer. All equipment component and assemblies shall be UL listed.
- B. Each major component of equipment shall have the manufacturer's name, address, and the model and serial number on a nameplate securely affixed in a conspicuous place; the nameplate of the distributing agent will not be acceptable.

2.02 ACCEPTABLE MANUFACTURERS OF STEEL CHANNEL

- A. Electrical Sub-contractor shall furnish/install galvanized "U" channels and hardware for mounting of all electrical equipment. Acceptable suppliers of channels are listed below.
 - 1. Unistrut Corp., Wayne, MI
 - 2. Power-Strut Division, Van Huffel Tube Corp., Warren, OH
 - 3. TJ Cope, Div. of Cyprus Mines Corp., Collegeville, PA
 - 4. Or acceptable equivalent

2.03 CONDUIT AND WIRE

- A. Furnish conduit and wire for all of the new electrical systems equipment and field devices. Conduit / wire includes power, fire alarm, telephone and cable TV as indicated on the electrical drawings and herein specified.
- B. Acceptable manufacturers of conduit and wire are as follows:
 - 1. Allied Tube & Conduit Inc.
 - 2. Triangle / PWC Inc.
 - 3. Robroy Industries Inc.
 - 4. Acceptable Equivalent
- C. All conduit and wire must meet or exceed all applicable NEC, NEMA, UL, ASTM and ANSI applicable technical standards. Conduit and wire shall be furnished as follows:
 - 1. Rigid steel and intermediate metal conduit: hot dipped galvanized with threaded couplings (ANSI Std C80.1).
 - 2. Electric metallic tubing : galvanized with set-screw connectors.
 - 3. Flexible metal conduit : hot dipped galvanized flexible inner jacket and watertight synthetic outer jacket (UL Std 360).
 - 4. Surface mounted raceways : painted steel raceways with pre-assembled one piece units, ivory painted finish, complete line of fittings, wiring devices, etc.
 - 5. Power and control wire: copper conductors with type "THHN/THWN" insulation (600 Volts rated).
- D. Conduit and wire shall be installed as follows:
 - 1. For inside exposed electrical wiring, use type "EMT" raceways with type "THHN/THWN" copper conductors.
 - 2. For inside concealed wiring, use type "MC" cables with copper conductors.
 - 3. All wires shall be identified by alphanumeric tag numbers which

- are recommended by each equipment manufacturer and/or Engineer. All wire shall also be color coded by voltage and use.
4. All wires shall be installed without any intermediate splices. In addition, all wiring shall be terminated in strict accordance with each manufacturer's technical requirements. EC shall verify all equipment, wiring devices, etc requirements prior to any installations or terminations.
 - E. Boxes, fittings, channels and hardware shall be galvanized steel which match the raceways connected.
 - F. Use matching fire alarm system field wiring to the existing FA building wiring.

2.04 CIRCUIT BREAKER

- A. Furnish and install a new power feeder circuit breaker into the existing kitchen Square D Company power panelboard. EC shall note the selective demolition will "free up" space within the structure. However, the EC's work includes all necessary power bus and supports (as required) to install the new feeder circuit breaker. The new circuit breaker shall generally match the existing similar circuit breakers.

2.05 LIGHTING FIXTURES / LAMPS / BALLASTS

- A. Furnish and install new lighting fixtures as indicated on the electrical drawings including the associated lighting fixtures schedule. EC must coordinate the "as supplied" lighting with both the existing building conditions and new construction prior to release and/or rough wiring.
- B. The new lighting fixtures shall be mounted as indicated on the architectural RCP drawings and as dictated by existing field conditions.
- C. Upon completion of the work, all new lighting shall be 100% field tested to verify proper operation. The EC shall provide written testing forms and certifications on all field-testing. Note, a letter certification shall be submitted which verifies the existing and new emergency exit and egress lighting properly operates.
- D. Lighting equipment manufacturers are indicated on the Lighting Fixture Schedule on the drawings. If alternate "or equal" lighting fixture manufacturers are furnished only high quality nationally known lighting manufacturers shall be proposed. The lighting fixtures schedule indicates alternate acceptable manufacturers. Final acceptability of alternate manufacturers and fixtures shall be the Architect's exclusive decision. All substituted lighting fixtures must equal or exceed the design, construction and performance of the specified manufacturers and catalog numbers. Any alternate manufacturers' submittals must be in conformance with the General Specifications requirements on "OR EQUALS".
- F. Furnish lamps of types and wattages shown on fixture schedule. Note, the Architect shall finalize the selection of the lamp colors (i.e. – 3500K cool white, etc).

- G All incandescent lamps shall be commercial rated 130 volt powered with a 5000 hour published life expectancy.
- H. The Electrical Sub-Contractor shall replace all burned out lamps after the spaces have been substantially completed and accepted by the Architect and the final punch list has been prepared by the Architect.
- I. EC shall provide spare lamps as follows: one (1) dozen of each lamp type which are boxed and labeled for storage by the school personnel.

2.06 WIRING DEVICES

- A. The following is a list of acceptable manufacturers of wiring devices that are offered as a acceptable level of quality. In addition, all wiring devices shall be high quality heavy duty "SPECIFICATION GRADE" in order to be acceptable. All energy saving wiring devices shall meet or exceed the power company standards in order to comply with their energy rebate programs (whether or not in effect).
 - 1. Arrow-Hart, Inc., Florence, KY
 - 2. Allen-Bradley Co., Milwaukee, WI
 - 3. Appleton Electric Co., Chicago, IL
 - 4. Bryant Electric, Bridgeport, CT
 - 5. Cutler Hammer, Inc., Milwaukee, WI
 - 6. Crouse-Hinds Co., Syracuse, NY
 - 7. Harvey Hubbell, Inc., Bridgeport, CT
 - 8. Leviton Mfg. Co., Little Neck, NY
 - 9. Sierra Electric - Sola Basic Inc., Gardena, CA
 - 10. Or acceptable equivalent.
- B. Provide alternating current, general-use, time delay switches, in totally enclosed composition case, with insulated mounting yoke and side-wired, binding screw-type terminals. Single-pole, switches rated 300 watts at 120 volts AC.

PART 3 - EXECUTION

3.01 GENERAL DEMOLITION NOTES

- A. The electrical demolition drawings generally only indicate the electrical equipment demolition without indicating any existing field wiring and its demolition. No existing as-built electrical wiring drawings are available. The Electrical Sub-contractor (EC) shall provide all necessary material and labor to field survey and selectively demolish/revise/re-wire all existing wiring as required, and to determine the existing wiring revisions as required for the proposed new work. EC has the option to re-use the existing raceways (if feasible) in lieu of new raceways.
- B. The electrical demolition work shall be performed by the Electrical Sub-Contractor in cooperation with the other trades and as scheduled and approved by the Architect. The demo work shall include the detailed field survey as specified.

- C. The electrical Sub-contractor shall (EC) visit the site before submitting the electric sub-contract bid to become familiarized with the existing conditions and the extent of the work. No extra compensation will be allowed for work required to be performed or to overcome existing conditions by failure to visit the site. .
- D. All existing electrical power wiring, raceways, panelboards, pull boxes, junction boxes, lighting fixtures, devices and supports not shown on the plan shall remain unless the area is to be revised only to the extent shown on the contract drawings. Power sources that originate in panels, junction or pull boxes that feed lighting, power or equipment in areas that are not being renovated, shall remain active. Where applicable, existing conduits, raceways and boxes related to devices, equipment, fixtures, etc. affected by the scope of work shall be reused for new / revised work.
- E. All demolition work must be provided in strict accordance with the Massachusetts electrical code, national codes and all local codes, and to the approval of the Engineer, Architect and Owner.
- F. All wiring feeding areas that are not part of this contract shall only be interrupted by permission and scheduling with the School's representative.
- G. Any non exposed electrical conduit or wiring uncovered by the removal of existing ceilings that penetrates limits of this contract and that supplies power to circuits or equipment that are to remain, shall be relocated or rerouted to suit the field conditions including new construction.
- H. All existing electrical work, conduit, junction boxes, circuits, splices, etc. to remain shall be left in satisfactory operating condition in compliance with all codes and conditions as specified under this contract. Any existing electrical material or wiring which is not in conformance with any current codes shall be brought to the attention of the Architect.
- I. All conflicts between existing concealed electrical work and the installation of new work of any trade shall be brought to the attention of the Architect for resolution prior to proceeding with the work. The EC after completion of the field survey shall coordinate the new / revised electrical material and wiring.
- J. Adequate access shall be provided for all new or relocated equipment, junction or pull boxes to comply with codes.
- K. Power outages caused by demolition that affect other areas shall be coordinated with the other users and the owner. Any prime overtime labor required to perform electrical demolition work or new electrical work within the allowable outage schedule shall be carried as part of the contract cost.
- L. The EC will be responsible for any and all damages which might be occasioned by its failure to exactly locate and preserve any and all remaining equipment and associated wiring.
- M. All removed electrical devices in existing walls or ceilings to remain shall have blanking field-paintable steel plates furnished and installed by the EC. All field painting of blanking shall be furnished and installed by the painting sub-contractor.

3.02 GENERAL CONSTRUCTION NOTES

- A. All electrical equipment and installation work shall be in accordance with the national, Massachusetts state and local town building and electrical codes applicable sections.
- B. All electrical material shall be of the highest quality specification grade and UL- listed. The electrical contractor (EC) shall submit all electrical material shop drawings to the architect for review and acceptability prior to installation.
- C. All electrical installations shall be in accordance with the local electrical inspector requirements. All permit fees costs paid by the Electrical Sub-Contractor. The EC shall coordinate all electrical inspector requirements prior to any electrical construction and/or equipment release.
- D. All electrical lighting fixtures, devices and wiring shall be in conformance with the relevant applicable architectural drawings, details and reflected ceiling plans. The EC shall fully review the architectural drawings including coordination with the as-built field conditions to verify all general and electrical construction coordination requirements prior to the start of any release of electrical material and construction. Notify architect of any discrepancies.
- E. The equipment layouts, conduit/wire sizes and wiring diagram represents a suggested design based upon generally available electrical equipment sizes and wiring requirements. This also applies to equipment provided by others but wired by the EC. Modifications acceptable to the architect may be made by the EC to accommodate actually installed equipment. The basic sequence and method of control must be maintained as indicated on the drawings and specifications. The electrical sub-contractor shall coordinate all equipment wiring requirements, prior to any construction. Differing equipment locations or wiring due to incomplete coordination shall be provided by the electrical sub-contractor at no additional costs to the owner.
- F. New outlet boxes, switches, receptacles, pull/junction boxes, terminal boxes, etc. shall be provided with NEMA "1" enclosures for all indoor locations. All outdoor equipment and wiring shall be NEMA "3R" rated.
- G. All wiring penetrations thru fire rated walls and floors shall be sealed with a fire stopping caulking. All wiring crossing building expansion joints shall have expansion fittings. For locations of fire rated walls and expansion joints refer to the applicable architectural and structural drawings. All fire stopping shall be furnished and installed by the Electrical Sub-contractor.
- H. Electrical Sub-contractor (EC) shall field survey the existing kitchen switchboard and associated wiring to confirm all branch wiring. EC shall note that existing electrical power & lighting and wiring indicated on the drawings are not "as-built". EC shall make field adjustments as necessary. The locations were provided by a general field survey by the A/E (only) with precise dimensioning.
- I. EC shall furnish and install all necessary labor and material to revise any affected existing bldg wiring due to the demolition and new general construction.
- J. EC shall furnish and install new devices, equipment and lighting fixtures as shown on plans. Existing branch wiring raceways shall be reused where possible. all unused wiring conductors shall be removed completely.
- K. Power and lighting wiring which is not shown shall be furnished and installed by the EC in conformance with the specs. EC shall use the existing raceways with

modifications as required. Otherwise, concealed wiring (non-metallic) and wiring devices shall be furnished/installed by EC.

- L. EC, whenever possible, shall run new conduit and wire concealed. No new wiring shall be installed exposed unless reviewed/approved by the Architect.

3.03 INSTALLATION AND WIRING OF ELECTRICAL EQUIPMENT

- A. All electrical equipment shall be installed in strict accordance with each manufacturer's recommendations. .
- B. Ground each piece of electrical equipment by means of a grounding conductor installed in raceway feeding that piece of equipment.
- C. Install conductors continuous from outlet to outlet and make no splices except within outlet or junction boxes.
- D. EC shall field determine all new wiring, field wiring routing, etc as required which coordinates with both the existing building and new construction conditions.

3.04 FEEDER CIRCUIT BREAKER

- A. Selectively modify the existing kitchen panelboard including but not limited to front covers, bussing, CB supports, wiring, etc. EC's work includes adding a new gypsum ceiling access panel (as required) in order to install the new CB above ceiling wiring.
- B. EC's work includes adding new circuit breaker engraved plastic nameplates for the new and revised existing branch circuit breakers. Note, all disconnected panelboard breakers from the selective demolition shall be marked as "SPARES". EC shall also furnish/install new sticky type NEC electrical shock and OSAH arc flash warning labels.

3.05 LIGHTING FIXTURES AND LAMPS

- A. Install types and sizes indicated, complete, deliver lamps of proper type, wattage and voltage rating to site and install in fixtures prior to completion of project.
- B. Install all fixtures to comply with applicable provisions of National Electrical Code.
- C. Install accessories necessary for proper installation.
- D. The Electrical Sub-contractor shall make all necessary revisions to the existing lighting wiring when replacing the existing lighting with new lighting. EC shall coordinate all new lighting wiring with the lighting fixtures which is required to connect the new lighting to the existing electrical wiring .
- E. All new lighting and supports shall be installed in strict accordance with the manufacturers' recommendations.

- F. The EC shall verify the adequacy of the branch wiring circuits capacity from the new and existing lighting ballasts and lamps wattages prior to wiring.

3.06 FIELD TESTING OF ELECTRICAL SYSTEMS

- A. All electrical systems furnished and/or installed by this project shall be 100 % field tested. The Electrical Contractor shall complete the field testing after each specified construction phase. All testing shall be fully documented and submitted to the Architect as verification of completion of specified work. The Electrical Sub-Contractor shall provide 48 hours advance notice to the Architect and the THA prior to any final testing. The following field testing is required.
 1. Meggar test (500 volts) the new power feeder cables.
 2. Plug in test all new receptacles. The tester shall verify grounding, polarity, GF tripping, OL tripping, etc.
 3. Insulate test all new fire alarm field wiring for both wire to wire and wire to ground resistance. In addition, field test all of the new and existing/relocated FA field devices back to the existing FA control panel and annunciator. EC shall obtain the services of the existing FA O&M contractor who must complete all FA field testing per NFPA 72 technical requirements including letter certification with NFAP testing forms attached.
 4. Program (per office occupant) the occupancy sensor/switch and field test to verify its proper operation.
 5. EC shall assist the field testing of the new kitchen equipment. As minimum EC shall verify all new power outlets have proper service voltage plus the receptacle is properly installed. (see testing item # 2).

3.07 INSPECTION AND COORDINATION

- A. Examine the areas and conditions under which electrical work will be installed and notify the Engineer in writing of conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions have been corrected in an acceptable manner.
- B. All electrical equipment, wiring, etc shall be fully coordinated by the EC prior to any equipment release and installation with the existing / revised building conditions, “as supplied” equipment, utility companies technical requirements and Owner / Architect construction phasing requirements.

3.08 COORDINATION

- A. Electrical work shall be coordinated with other trades involved in the construction project. All work shall be carefully laid out in advance, coordinating electrical features with architectural, structural, and mechanical features of construction.

3.09 DRAWINGS AND SPECIFICATIONS

- A. Drawings and specifications are typical of work done and of arrangement desired. Furnish and install accessories and appurtenances for a complete installation.

3.10 COOPERATION WITH OTHER TRADES

- A. Closely schedule work so that work will be installed at the proper time and without delaying the completion of the entire project.
- B. If the work is installed before coordinating with other trades or so as to cause interference with work of other trades, or cause un-acceptable headroom clearance problems, make necessary changes in work to correct the conditions without extra charge.
- C. Symbols, section details, and wiring diagrams are used in conjunction with drawings and specifications to define the work. Reference to any item on the drawings shall be construed as being the same as having that item fully developed on the drawing. All work and material shall be installed in accordance with the details and diagrams with any necessary accessories and modifications to adapt the typical detail to actual field conditions. All such modifications shall be approved by the Architect prior to installation.

3.11 SPECIAL REQUIREMENTS

- A. Provide all wiring and connections and miscellaneous accessories necessary for the complete installation of and final connections to equipment furnished under other divisions of the specifications. Make all final connections to such, including installation of all special devices furnished with the new kitchen equipment.

3.12 PROTECTION OF ELECTRICAL EQUIPMENT

- A. Protect electrical equipment from the weather, especially from water dripping or splashing on it, at all times during shipment, storage, and construction. Do not store equipment outdoors. Where equipment is installed or stored in moist areas, such as unheated buildings, etc., provide acceptable means to prevent moisture damage, such as uniformly distributed source of heat to prevent condensation. Protective means, as acceptable by the Engineer.

3.13 DEFECTIVE OR DAMAGED EQUIPMENT

- A. Dry out thoroughly, equipment or material subjected to possible damage by water, and put through special dielectric test as directed, without additional compensation.

3.14 SUPERVISION

- A. Provide the services of an experienced licensed superintendent, who shall be constantly in charge of the electrical installation of the work, together with any skilled workmen required to unload, transfer, erect, connect-up, adjust, start, operate, and test each system. The Superintendent shall be qualified and authorized to make decisions and answer questions put by the Engineer regarding progress and details of the work.

3.15 MANUFACTURER'S RECOMMENDATIONS & CERTIFICATIONS

- A. Where installation procedures are specified to be in accordance with the recommendations of the manufacturer of the material or equipment being installed, printed copies of these recommendations shall be furnished to the Designer prior to installation. Installation of the item will not be allowed to proceed until the recommendations are received. Failure to furnish these recommendations can be cause for rejection of the material. The equipment manufacturer's representatives shall field inspect and verify all new equipment has been properly manufactured, transported, installed, wired and started up. Each manufacturer (power and fire alarm) representative shall provide a written letter of certification in order to verify the equipment's guarantee.

3.16 START-UP AND FIELD TESTING

- A. No electrical equipment shall be started up or field tested without a prior inspection by the Engineer to assure that the installation complies with the drawings and specifications. The power and fire alarm equipment, field devices and wiring shall be started up and field tested by the EC and equipment representative. Provide a letter of certification after successfully starting up and field testing.

3.17 DRILLING AND FIRE STOPPING

- A. Electrical Sub-Contractor shall furnish all field wiring, EMT sleeves and fire stopping as required for the installations as indicated on the electrical drawings. EC shall refer to the architectural drawings for any fire or smoke ratings.

3.19 COVERING OF WORK

- A. No conduit, fitting, or other work of any kind shall be covered up or hidden from view before it has been examined or approved by the Engineer and/or other authority having jurisdiction over the same. Any faulty or imperfect work or materials that may be discovered shall be removed and corrected immediately after being condemned and other work and materials shall be provided to the satisfaction of the Engineer.

3.20 WATER-PROOFING

- A. Where any work pierces waterproofing, including waterproof concrete, the method of installation shall be as approved by Engineer before work is done.
- B. Provide all necessary conduit wall seals and caulking required to make opening absolutely watertight. Where conduit penetrates the roof, furnish and install cap flashing.

3.23 EQUIPMENT INSTALLATION

- A. The new panelboard shall be installed as indicated. EC to verify its field installation relative to any overhead piping or ductwork prior to any rough wiring.

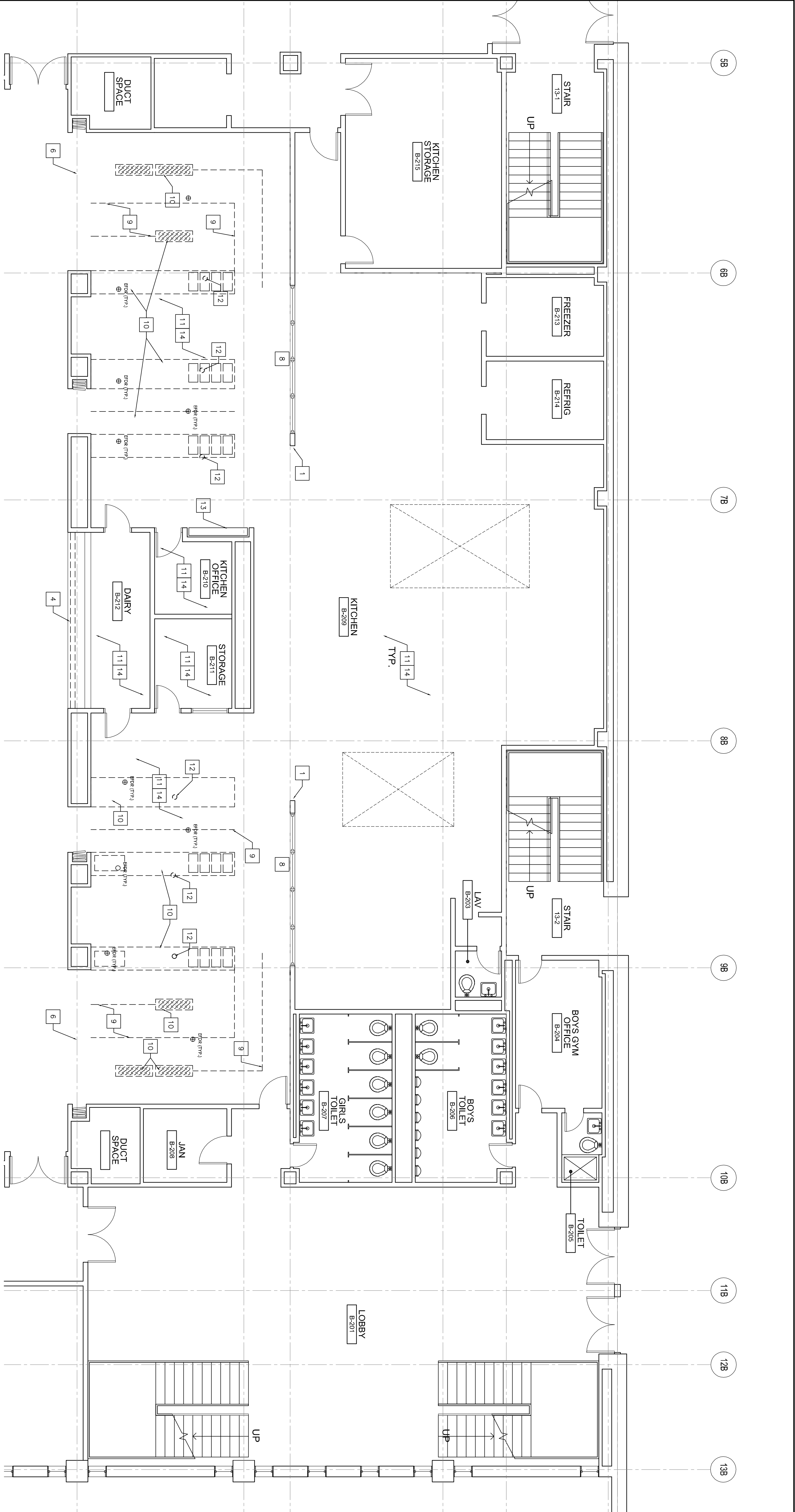
3.25 FINAL INSPECTION

- A. Arrange and schedule final inspection of work. Notify the Engineer in writing that the work has been thoroughly checked and is ready for final acceptance during entire period scheduled for these inspections. Contractor and representatives of each manufacturer of equipment involved shall be present. All of these organizations shall have sufficient and competent personnel present so that adjustments can be made to all systems without delay.

- B. Certificates on completion of the work, obtain certificates of compliance, approval or acceptance from all authorities having jurisdiction over the work and deliver these certificates to the Owner. The work shall not be deemed to have reached a state of completion until the certificates have been delivered.

- C. Protection
 - 1. Protect the work and material of all trades from damage by the Contractor's work or workmen, and make good all damage thus caused.
 - 2. Responsibility for work and equipment shall remain under this Division until finally inspected, tested and accepted. Protect work against theft, injury or damage and carefully store material and equipment received on site which are not immediately installed. Close open ends of work with temporary covers or plugs during construction to prevent entry of obstructing material.

- END OF SECTION



DEMOLITION PLAN LEGEND:

- EXISTING WALL TO BE REMOVED
- EXISTING WALL TO REMAIN
- REMOVE EXISTING QUARRY TILE FLOOR CLEAN & LEVEL TO RECEIVE NEW TILE FLOOR
- ⊕ EXISTING FLOOR DRAIN TO REMAIN

GENERAL DEMOLITION NOTES:

1. CONTRACTOR TO PROVIDE AND MAINTAIN BARRIERS AROUND TO BE OCCUPIED DURING CONSTRUCTION FROM CONSTRUCTION NOISE, ACTIVITY, DUST, AND DEBRIS DURING DEMOLITION. CONTRACTOR TO MAINTAIN NEGATIVE AIR PRESSURE IN WORK AREA TO CONTROL THE MIGRATION OF DUST TO OCCUPIED SPACES.
2. CONTRACTOR TO PROTECT ALL EXISTING CONSTRUCTION AND EQUIPMENT TO REMAIN.
3. REFER TO MEP DWG'S FOR SCOPE OF MEP EQUIPMENT, PIPES AND CONDUIT TO BE DISCONNECTED, MADE SAFE, CAPPED, AND DROPPED TO FLOOR BY RESPECTIVE MEP TRADES.

GENERAL DEMOLITION NOTES:

6. CONTRACTOR SHALL DEMOLISH AND REMOVE ALL ITEMS THAT ARE DISCONNECTED, MADE OBSOLETE, OR NOT TO BE REMOVED FOR THE INSTALLATION OF NEW WORK.
7. REMOVE CEILING, FLOOR, AND WALL FINISHES TO EXTENT REQ'D. TO INSTALL NEW WORK. REFER TO FLOOR & REFLECTED CEILING PLAN & ROOM FINISH SCHEDULE.
8. PROVIDE SHORING AND BRACING AS REQ'D BEFORE ALL STRUCTURAL REMOVALS.
9. WHERE EXISTING FLOOR TILES ARE DAMAGED, THEY ARE TO BE REPAIRED AND REFINISHED TO MATCHING QUARRY TILE ACCORDING TO THE SPECIFICATION.

DEMOLITION KEY NOTES:

- 1 REMOVE DAMAGED TILE BASE AT CORNER
- 2 NOT USED
- 3 NOT USED
- 4 EXPAND CMU OPENING TO RECEIVE NEW UNDER COUNTER F.S.E. RETAIN EXISTING WOOD TRIM FOR REUSE.
- 5 EXISTING SECURITY SCREEN INCLUDING ALL TRACK & MOUNTING SYSTEMS TO BE REMOVED IN ITS ENTIRETY
- 6 EXISTING SECURITY SCREEN TO REMAIN
- 7 NOT USED
- 8 EXISTING WINDOWS TO REMAIN

DEMOLITION KEY NOTES:

- 9 REMOVE S.S. RAIL AND POSTS IN THEIR ENTIRETY. A TOTAL OF 22 FORMER POST LOCATIONS WILL REQUIRE TILE REPLACEMENT. REFER TO SPEC FOR INSTRUCTIONS.
- 10 DISCONNECT & REMOVE EXISTING F.S.E. AS INDICATED. DISCONNECT & REMOVE ALL ELECTRICAL & PLUMBING CONNECTIONS AND PREPARE FOR NEW FLOORING AS PER SPECIFICATION & DRAWINGS.
- 11 REMOVE ALL LIGHT FIXTURES THIS AREA IN THEIR ENTIRETY. REFER TO MEP DWG'S FOR ADDITIONAL INFO.
- 12 REMOVE ALL DISCONNECTED ELECTRICAL FLOOR OUTLET BOXES FROM DISCONNECTED F.S.E.
- 13 EXISTING ELEC. PANEL TO REMAIN. REFER TO ELEC. DWG'S.
- 14 REMOVE FINISHED CEILING ALONG SUSPENSION SYSTEM IN ITS ENTRY THIS AREA.

PROJECT:
WALTHAM HIGH SCHOOL CAFETERIA RENOVATION

WALTHAM, MA

PROJECT #:
LE1214

DRAWN BY:
AVL

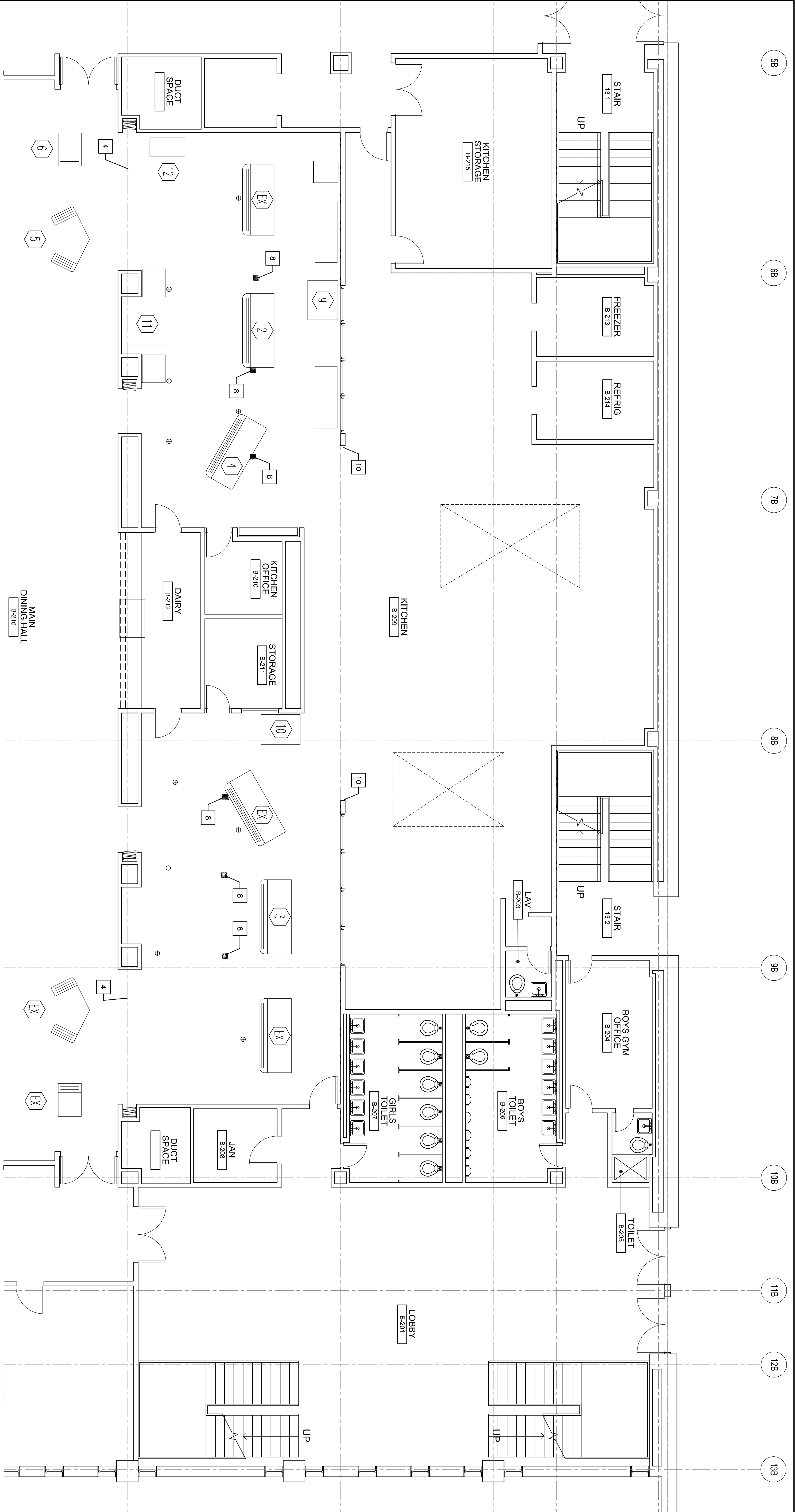
CHECKED BY:
BA

APPROVED BY:
RL

SCALE:
3/16"=1'-0"

- REVIEW
 - SCHEMATIC DESIGN
 - 90% REVIEW
 - 95% DEVELOPMENT
 - FINAL REVIEW
 - BIDDING
 - PERMIT
 - CONSTRUCTION
 - NOT FOR CONSTRUCTION
 - FOR RECORD
- DATE: 07 / 3 / 2013

DRAWING:
DEMOLITION PLAN



SCHEDULE OF EQUIPMENT

ITEM	QTY	DESCRIPTION	REMARKS
1	1	SPARE	
2	1	DELI UNIT	
3	1	HOT SANDWICH UNIT	
4	1	HOT/COLD SERVING UNIT	
5	1	CASHER	
6	1	CASHER	
7	1	SPARE	
8	1	SPARE	
9	1	MOBILE REFRIGERATED CABINET	
10	1	MOBILE HEATED CABINET	
11	1	MILK COOLER	
12	1	SELF-SERVE REFRIG. MERCHANDISER	
EX		RELOCATED EXISTING EQUIPMENT	

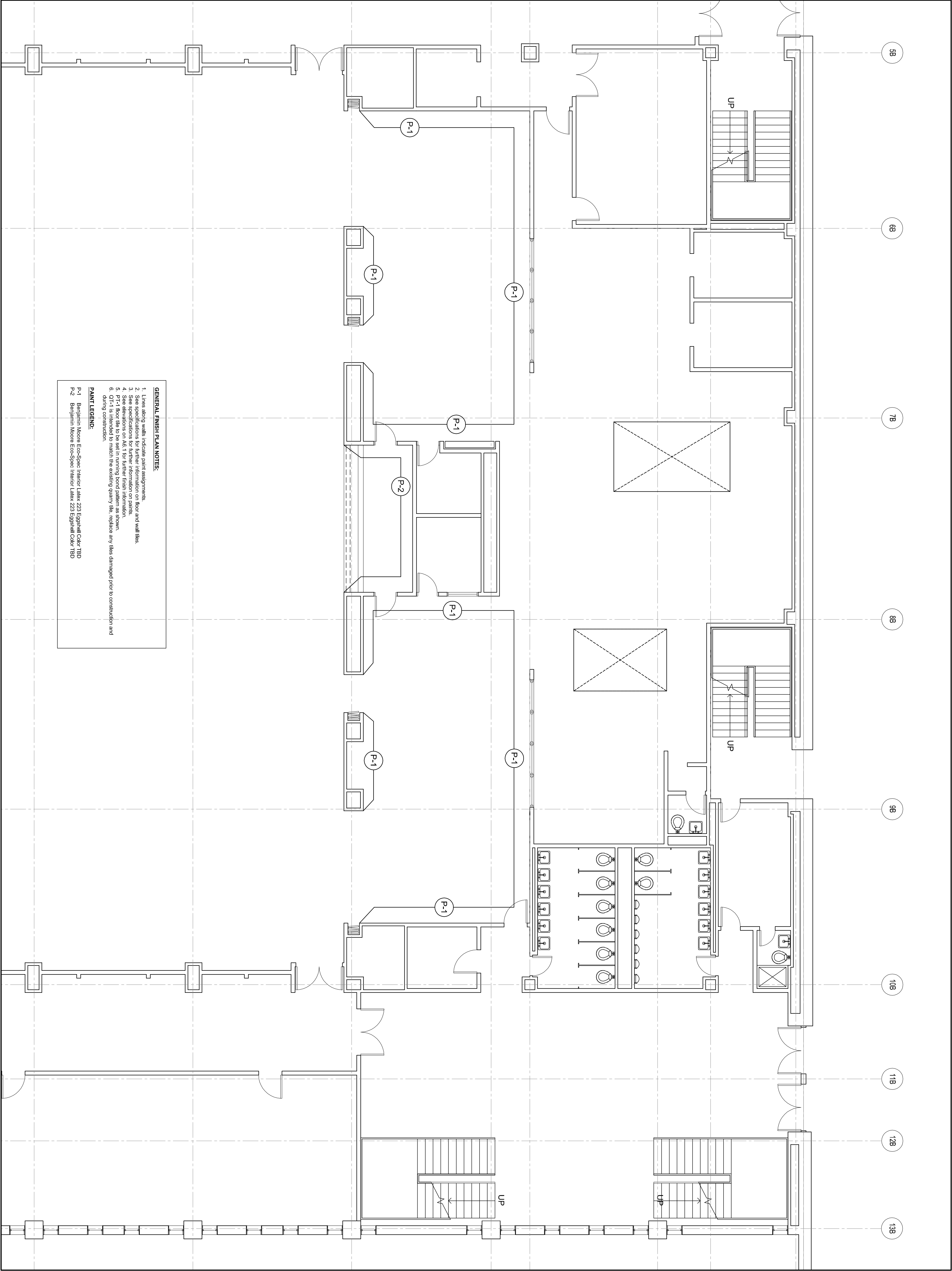
- FLOOR PLAN LEGEND:**
- EXISTING WALL TO REMAIN
 - NEW FULL HEIGHT WALL
 - FIRE EXTINGUISHER
 - FIRE EXTINGUISHER CABINET
 - S.S. CORNER GUARD
 - DOOR DESIGNATION
 - WINDOW DESIGNATION

- GENERAL FLOOR PLAN NOTES:**
- FURNITURE N.I.C. UNLESS OTHERWISE NOTED
 - FOR ALL FLOOR SLABS WITH FLOOR DRAINS, SLOPE TO DRAIN MAINTAINING FULL DIMENSION OF SLAB.
 - FOOD SERVICE EQUIPMENT (FSE) SHOWN FOR LOCATION ONLY.

- FLOOR PLAN KEY NOTES:**
- 4 EXISTING SECURITY SCREEN TO REMAIN
 - 8 REPLACE EXISTING FLOORING O.T. WHERE DAMAGED & REMOVED EXISTING FOOD SERVICE EQUIPMENT & ATTACHED W/ET CONNECTIONS O.D.E.

- FLOOR PLAN (CONT.):**
- 10 REPLACE DAMAGED BASE TILE AT CORNER AS NECESSARY

58 68 78 88 98 108 118 128 138



GENERAL FINISH PLAN NOTES:

1. Lines along walls indicate paint assignments.
2. See specifications for further information on floor and wall finishes.
3. See elevations on AG-1 for further finish information.
4. See elevations on AG-1 for further finish information.
5. PT-1 floor tile to be set in running bond pattern as shown.
6. CT-1 is intended to match the existing quarry tile, replace any tiles damaged prior to construction and during construction.

PAINT LEGEND:

P-1 Benjamin Moore Eco-Spec Interior Latex 223 Eggshell Color TBO
P-2 Benjamin Moore Eco-Spec Interior Latex 223 Eggshell Color TBO

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WALTHAM HIGH SCHOOL CAFETERIA RENOVATION

WALTHAM, MA

PROJECT #:
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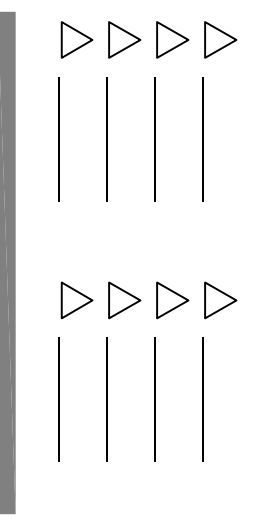
CHECKED BY:
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APPROVED BY:
RL

SCALE
3/16"=1'-0"

PLAN NORTH

- REVIEW
 - SCHEMATIC DESIGN
 - 90% REVIEW
 - 95% REVIEW
 - FINAL DEVELOPMENT
 - FINAL REVIEW
 - BIDDING
 - PERMIT
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- DATE: 07 / 3 / 2013



FINISH PLAN

A3.1

Waltham High School Cafeteria

617 Lexington Street
Waltham, MA 02453
June 12, 2008

Revised to Comply with Massachusetts State Building Code 780 CMR (State Edition) 7/28/07, NFPA 101-1995, NFPA 1033-98A, NFPA 1032-98, NFPA 1031-98, NFPA 720-05, NFPA 720-06, NFPA 720-07, NFPA 720-08, NFPA 720-09, NFPA 720-10, NFPA 720-11, NFPA 720-12, NFPA 720-13, NFPA 720-14, NFPA 720-15, NFPA 720-16, NFPA 720-17, NFPA 720-18, NFPA 720-19, NFPA 720-20, NFPA 720-21, NFPA 720-22, NFPA 720-23, NFPA 720-24, NFPA 720-25, NFPA 720-26, NFPA 720-27, NFPA 720-28, NFPA 720-29, NFPA 720-30, NFPA 720-31, NFPA 720-32, NFPA 720-33, NFPA 720-34, NFPA 720-35, NFPA 720-36, NFPA 720-37, NFPA 720-38, NFPA 720-39, NFPA 720-40, NFPA 720-41, NFPA 720-42, NFPA 720-43, NFPA 720-44, NFPA 720-45, NFPA 720-46, NFPA 720-47, NFPA 720-48, NFPA 720-49, NFPA 720-50, NFPA 720-51, NFPA 720-52, NFPA 720-53, NFPA 720-54, NFPA 720-55, NFPA 720-56, NFPA 720-57, NFPA 720-58, NFPA 720-59, NFPA 720-60, NFPA 720-61, NFPA 720-62, NFPA 720-63, NFPA 720-64, NFPA 720-65, NFPA 720-66, NFPA 720-67, NFPA 720-68, NFPA 720-69, NFPA 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720-996, NFPA 720-997, NFPA 720-998, NFPA 720-999, NFPA 720-1000.

Summary: The Project is a renovation of an existing kitchen and dining area in the Waltham High School. The work is to reconfigure the kitchen space to enhance its operations, replace some of the kitchen equipment and provide an option to some of the kitchen. The project also includes the installation of new kitchen equipment, including a new range hood, and the installation of new kitchen cabinets. For the purposes of this review we have assigned the construction of the building to be Type I, Protected, Non-Combustible.

302.1 Building use groups: Assembly (A-3), Dining Area

Storage (S-2): Low Hazard Material, freezers, coolers and dry storage

302.1.1 Occupancy requirements: Storage (A) - More than 50 sq ft and less than 100 sq ft - Provide automatic fire suppression with smoke partitions. (NA)

313.1.2 Non-Separated Use Groups: The use groups will not be separated. The most restrictive requirement will apply.

402 This building is not a covered mall building.

403 This building is not a high-rise building (occupied floors more than 72' above lowest level of fire department vehicle access).

Table 503 Allowable tubular area and height: Construction Type I (Protected, Non-Combustible):

Use group: A-3 No limit

Use Group Egress Group: 2 No limit

504.2 Height increases allowed by sprinkling: (NA)

505 Area modifications allowed by free frontage increase: (NA)

506 Area modifications allowed by sprinklers: (NA)

Table 602

Structural Elements - Fire Resistance Ratings, Construction Type 2A (Table 602)

602 Elements

1. Exterior walls

Fire Separation less than 5'0" (Table 702.2) 2 hrs

Fire Separation 5'0" or more (Table 702.2) 2 hrs

Fire Separation longer than 10' 0 hrs

Exterior Beading Wall 3 hrs

Exterior Non-load Bearing Wall Same as above

ELECTRICAL SYMBOLS

	A1	DUPLEX WALL MTD RECEPTACLE WITH CIRCUIT NUMBER MOUNTED 18" UON
		DEDICATED DUPLEX WALL MTD RECEPTACLE
		SPECIAL POWER RECEPTACLE
		QUADPLEX WALL MTD RECEPTACLE
		COMPUTER DATA/TELEPHONE WALL MTD OUTLET
		TELEPHONE WALL MOUNTED OUTLET
	S	CONTROL SWITCH : TOGGLE TYPE WALL MTD
	S _D	CONTROL SWITCH : DIMMER WALL MTD
	S ₃	CONTROL SWITCH : THREE WAY WALL MTD
	S _T	TOGGLE TYPE HOMERUN DISCONNECT SWITCH
	A1	BRANCH CIRCUIT HOMERUN TO PANELBOARD WITH NO. OF CONDUCTORS AND PNLBD CKT NO. NOTED
	L1	RECESSED MTD FLUORESCENT LIGHTING FIXTURE WITH TYPE, CKT NO. AND LTG. CONTROL SWITCH NOTED
	L1	RECESSED MTD FLUORESCENT LIGHTING FIXTURE WITH TYPE, CKT NO. NOTED, WITH "BODINE" BALLASTS FOR EMERGENCY EGRESS LIGHTING
	L3	WALL-MTD LIGHTING FIXTURE W/TYPES, CKT No. AND LTG. CONTROL SWITCH NOTED
	X1	EXIT CEILING MTD LIGHTING FIXTURE WITH TYPE AND CKT NO. NOTED
	X3	EXIT WALL MTD (SINGLE FACE) LIGHTING FIXTURE WITH TYPE CKT NO. & DIRECTION OF EXIT NOTED.
	L2	RECESSED DOWNLIGHT FIXTURE WITH TYPE, CKT NO. AND LTG. CONTROL SWITCH NOTED
	L2	RECESSED DOWN LIGHT WALL WASHER WITH TYPE, CKT NO. AND LTG. CONTROL SWITCH NOTED
	CR	CARD READER BACKBOX W/ CONDUIT TO ABOVE CLG (READER & WIRING F.B.O.)
	S _T	EMERGENCY CENTRAL BATTERY UNIT W/ DISCONNECT SWITCH
	OR	SINGLE OR DUAL HEAD REMOTE BATTERY POWERED EMERGENCY LIGHTING
		POWER & TELE/DATA FLOOR OUTLETS
		INTRUSION - MOTION DETECTOR
		WALL MTD CABLE TV OUTLET
		MAGNETIC LATCH
		EXIT PUSHBUTTON

ELECTRICAL ABBREVIATIONS LIST

A	AMPERES	EZ	EXISTING ELECTRICAL EQUIPMENT, FIXTURE OR DEVICE TO REMAIN, BUT BE MODIFIED AS SHOWN HEREIN.
ABV	ABOVE	F	FURNITURE MOUNTED DEVICE (SYSTEMS FURNITURE)
AFF	ABOVE FINISHED FLOOR	F.B.O.	FURNISHED BY OTHERS
AIC	AMPERES INTERRUPTING CAPACITY	F&I	FURNISHED & INSTALLED
C	COUNTER HEIGHT MOUNTED	GF	GROUND FAULT INTERRUPTER
CB	CIRCUIT BREAKER	HP	HORSE POWER
CKT	CIRCUIT	JB	JUNCTION BOX
CLG	CEILING	MTD	MOUNTED
EBU	EMERGENCY BATTERY UNIT	NEC	NATIONAL ELECTRICAL CODE
EC	DENOTES ELECTRICAL SUB-CONTRACTOR	NIC	NOT IN CONTRACT
EF	HVAC EXHAUST FAN	NTS	NOT TO SCALE
E	EXISTING ELECTRICAL EQUIPMENT, CONDUIT AND WIRING TO REMAIN	PNL	PANEL
EM	EXISTING ELECTRICAL EQUIPMENT OR DEVICE SHALL BE MODIFIED AS INDICATED	PNLBD	PANELBOARD
ER	EXISTING ELECTRICAL EQUIPMENT SHALL BE REMOVED AND RELOCATED, EXISTING WIRING SHALL REMAIN, EXTEND TO LOCATION AND RECONNECT TO EQUIPMENT	SP	SURGE PROTECTED
EX	EXISTING ELECTRICAL EQUIPMENT OR DEVICE AND WIRING TO BE REMOVED, AT SAME LOCATION INSTALL NEW EQUIPMENT OR DEVICE AND WIRING, REUSE EXISTING CONDUIT(WHERE POSSIBLE)	UC	UNDER-COUNTER
EY	EXISTING ELECTRICAL EQUIPMENT OR DEVICE AND WIRING TO BE REMOVED, REUSE EXISTING CONDUIT BUT EXTEND TO NEW LOCATION, AT NEW LOCATION INSTALL NEW EQUIPMENT OR DEVICE AND WIRING	UL	UNDERWRITERS LABORATORIES INC.
		U.O.N.	UNLESS OTHERWISE NOTED
		V	VOLTS

ELECTRICAL FIT-UP CONSTRUCTION NOTES

① EC MUST ALSO BE COMPLIANT WITH THE SCHOOL DEPARTMENT'S REQUIREMENTS WITH REGARDS TO WORKING HOURS, BUILDING ACCESS, NOISE, CORING, AND TESTING, ETC.

NOT ALL SYMBOLS AND ABBREVIATIONS USED, PROVIDED FOR GENERAL REFERENCE ONLY

GENERAL ELECTRICAL DEMOLITION NOTES

- PRIOR TO BIDDING, THE ELECTRICAL CONTRACTOR (EC) MUST VISIT THE SITE IN ORDER TO DETERMINE THE EXISTING BUILDING CONDITIONS WHICH AFFECT THEIR BIDDING. IT SHOULD BE NOTED, THE EC MUST DEMOLISH INDIVIDUAL ELECTRICAL DEVICES, EQUIPMENT AND/OR SYSTEMS AS SHOWN ON THE DEMO PLANS. HOWEVER IT MUST BE ASSUMED THAT THE MAJOR POWER DISTRIBUTION EQUIPMENT/WIRING, BRANCH WIRING, FIRE ALARM ETC WILL REMAIN.
- NO EXISTING AS-BUILT ELECTRICAL DRAWINGS ARE AVAILABLE. THE ELECTRICAL CONTRACTOR (EC) SHALL PROVIDE ALL NECESSARY MATERIAL AND LABOR TO FIELD SURVEY AND SELECTIVELY DEMOLISH/REVISE ALL REMAINING EXISTING EQUIPMENT AND WIRING AS REQUIRED DUE TO THE ELECTRICAL, MECHANICAL AND GENERAL CONSTRUCTION DEMOLITION AND NEW CONSTRUCTION WORK, WHETHER OR NOT FULLY INDICATED OR SPECIFIED.
- THE ELECTRICAL DEMOLITION WORK SHALL BE PERFORMED BY THE ELECTRICAL CONTRACTOR IN COOPERATION WITH THE OTHER TRADES AND AS SCHEDULED AND APPROVED BY THE GC. THE DEMO WORK SHALL INCLUDE THE FIELD SURVEY, AS SPECIFIED, AND SHALL BE COMPLETED IN ACCORDANCE WITH THE OVERALL PROJECT PHASING PLAN.
- THE ELECTRICAL CONTRACTOR SHALL VISIT THE SITE BEFORE SUBMITTING THE ELECTRIC FIT-UP DRAWINGS TO THE ARCHITECT. THE EXISTING CONDITIONS AND THE EXTENT OF THE WORK, NO EXTRA COMPENSATION WILL BE ALLOWED FOR WORK REQUIRED TO BE PERFORMED OR TO OVERCOME EXISTING CONDITIONS, BY FAILURE TO VISIT THE SITE. IT MUST BE ASSUMED THAT ANY AVAILABLE EXISTING ELECTRICAL DRAWINGS ARE NOT "AS-BUILT". COPIES OF AVAILABLE EXISTING ELECTRICAL DRAWINGS WILL BE PROVIDED TO THE EC BY THE ARCHITECT AFTER CONTRACT AWARD.
- ELECTRICAL DEMOLITION WORK INCLUDES FIELD SURVEY OF EXISTING ELECTRICAL POWER, LIGHTING, TELE/DATA AND FIRE ALARM SYSTEMS EQUIPMENT AND WIRING IN ORDER TO DETERMINE THE EXISTING WIRING REVISIONS AS REQUIRED FOR THE PROPOSED WORK. SUCH FIELD SURVEYS SHALL INCLUDE LOCATING CONDUITS AND/OR WIRING WHICH MIGHT BE ACCIDENTALLY CUT INTO OR DAMAGED DURING ELECTRICALLY- OR MECHANICALLY-ASSOCIATED CORE DRILLING DURING THE CONSTRUCTION PHASE.
- EXISTING WIRING SHALL BE REUSED WHEREVER POSSIBLE FOR BRANCH WIRING FROM PANELBOARDS AND OTHER ELECTRICAL SYSTEMS WIRING IN EXISTING AREAS. ALL EXISTING CONDUIT/WIRING AND JUNCTION BOXES NOT BEING REUSED SHALL BE REMOVED, CONDUIT TURNING UP FROM FLOOR IN WALLS BEING REMOVED SHALL BE CUT FLUSH WITH FLOORS. CUT RACEWAY SHALL BE GROUDED BY THE GENERAL CONTRACTOR. THE EC SHALL ASSUME THE WORST CASE FOR EXISTING WIRING (IE - CONCEALED OR EXPOSED) FOR PRICING OF THE ELECTRICAL DEMOLITION WORK.
- ALL POWER SOURCES FEEDING CIRCUITS, FEEDERS OR EQUIPMENT THAT ARE TO BE REMOVED SHALL BE DISCONNECTED AND "TAGGED OFF" AT THE SOURCE PRIOR TO REMOVAL OF ANY WORK PER OSHA REQUIREMENTS.
- ALL EXISTING ELECTRICAL POWER WIRING, RACEWAYS, PANELBOARDS, PULL BOXES, JUNCTION BOXES, LIGHTING FIXTURES, DEVICES AND SUPPORTS NOT SHOWN ON THE PLAN SHALL REMAIN UNLESS THE AREA IS TO BE REVISED ONLY TO THE EXTENT SHOWN ON THE CONTRACT DRAWINGS. POWER SOURCES THAT ORIGINATE IN PANELS, JUNCTION OR PULL BOXES THAT FEED LIGHTING, POWER OR EQUIPMENT IN AREAS THAT ARE NOT BEING RENOVATED, SHALL REMAIN ACTIVE.
- ALL DEMOLITION WORK MUST BE PROVIDED IN STRICT ACCORDANCE WITH THE MASSACHUSETTS ELECTRICAL CODE, NATIONAL CODES AND ALL LOCAL CODES, AND THE APPROVAL OF THE ENGINEER, ARCHITECT AND OWNER.
- PRIOR TO REMOVAL FROM THE SITE, ALL ELECTRICAL EQUIPMENT, CONDUIT AND WIRE SHALL BE EXAMINED BY REPRESENTATIVES OF THE OWNER TO DETERMINE IF ANY MATERIALS WILL BE RETAINED FOR MAINTENANCE OR SALVAGE PURPOSES.
- ALL WIRING FEEDING AREAS THAT ARE NOT PART OF THIS CONTRACT SHALL ONLY BE INTERRUPTED BY PERMISSION AND SCHEDULING WITH THE OWNER'S REPRESENTATIVE.
- ANY NON-EXPOSED ELECTRICAL CONDUIT OR WIRING UNCOVERED BY THE REMOVAL OF EXISTING PARTITIONS, WALLS OR CEILINGS THAT PENETRATES LIMITS OF THIS CONTRACT THAT SUPPLIES POWER TO CIRCUITS OR EQUIPMENT THAT ARE TO REMAIN, SHALL BE RELOCATED OR REROUTED TO SUIT THE FIELD CONDITIONS INCLUDING NEW CONSTRUCTION.
- ALL EXISTING ELECTRICAL WORK, CONDUIT, JUNCTION BOXES, CIRCUITS, SPLICES, ETC. SHALL BE LEFT IN SATISFACTORY OPERATING CONDITION IN COMPLIANCE WITH ALL CODES AND CONDITIONS AS SPECIFIED UNDER THIS CONTRACT.
- ALL CONFLICTS BETWEEN EXISTING CONCEALED ELECTRICAL WORK AND THE INSTALLATION OF NEW WORK OF ANY TRADE SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT FOR RESOLUTION PRIOR TO PROCEEDING WITH THE WORK.
- ALL EXISTING FIXTURES, SWITCHES AND DEVICES AS INDICATED ON DRAWINGS SHALL BE REMOVED INCLUDING WIRES, BOXES AND RACEWAYS OR SHALL REMAIN AND BE REUSED.
- ADEQUATE ACCESS SHALL BE PROVIDED FOR ALL NEW OR RELOCATED EQUIPMENT, JUNCTION OR PULL BOXES TO COMPLY WITH CODES.
- THE LOCATIONS OF EXISTING EQUIPMENT TO REMAIN, ARE SHOWN IN AN APPROXIMATE LOCATION ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING EQUIPMENT BEFORE COMMENCING WORK. THE EC AGREES TO BE RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THEIR FAILURE TO EXACTLY LOCATE AND PROTECT ANY AND ALL EQUIPMENT.
- REGARDING POWER OUTAGES CAUSED BY DEMOLITION THAT AFFECT OTHER AREAS: SHUT-DOWNS SHALL BE COORDINATED WITH THE OTHER USERS AND THE OWNER. ANY PRIME TIME REQUIRED TO PERFORM ELECTRICAL DEMOLITION WORK OR NEW ELECTRICAL WORK SHALL BE CARRIED AS PART OF THE CONTRACT COST.
- THE ELECTRICAL CONTRACTOR WHENEVER POSSIBLE SHALL RUN CONDUIT AND WIRE CONCEALED. ALL NEW RACEWAYS IN AREAS WITH EXPOSED CEILINGS SHALL BE INSTALLED ALONG THE EXISTING STRUCTURE AND AT THE WALL/CEILING CORNERS TO MINIMIZE THEIR APPEARANCE. NO NEW WIRING SHALL CROSS ANY OPEN STRUCTURES.
- EXISTING POWER SOURCES TO EQUIPMENT, CIRCUITS, OR DEVICES LOCATED IN THE NOTED AREAS TO REMAIN THAT ORIGINATE AT PANELBOARDS OR BOXES BEING REMOVED SHALL BE EXTENDED TO NEW PANELS OR SOURCES TO SUIT CONDITIONS. CONDUIT AND WIRE SIZES SHALL MATCH EXISTING IN SIZE AND CHARACTERISTICS.
- ALL REMOVED ELECTRICAL DEVICES IN EXISTING WALLS OR HARD CEILINGS TO REMAIN SHALL HAVE ASSOCIATED BOXES AND CONDUITS REMOVED, SO WALL/CEILING CAN BE PATCHED AND REFINISHED. ALL FIELD PATCHING AND REFINISHING SHALL BE BY GENERAL CONTRACTOR.
- THE ELECTRICAL CONTRACTOR SHALL DEMOLISH ALL EXISTING TELE AND/OR DATA OUTLETS AND WIRING. EC SHALL CONTACT THE OWNER TO COORDINATE TELE/DATA DEMOLITION WITH THE ELECTRICAL DEMOLITION WORK. SEE NOTE 10 ABOVE REGARDING FLOOR FEED AND UNDERFLOOR DUCT FITTINGS, ETC.
- EC SHALL CONTACT AND COORDINATE ALL FIRE ALARM DEVICES AND DEMOLITION WORK WITH THE OWNER AND THEIR FIRE ALARM CONTRACTOR/SUPPLIER. THE EC'S WORK INCLUDES MAINTAINING A TEMPORARY FA SYSTEM INCLUDING BUT NOT LIMITED TO HEAT DETECTORS, PULL STATIONS AND SIGNALING DEVICES. ONLY THE OWNER'S FA CONTRACTOR SHALL DISCONNECT AND RECONNECT ANY ACTIVE FA WIRING.
- ALL LIGHTING FIXTURES AND OTHER EQUIPMENT (NOT INCLUDING STANDARD RECEPTACLES AND LOW VOLTAGE OUTLETS) SHOWN AS BEING DEMOLISHED, SHALL BE CAREFULLY DISCONNECTED, REMOVED AND PROTECTED BY THE EC AND RETURNED TO THE OWNER FOR HIS REUSE OR DISPOSITION.
- EC SHALL NOTE THAT THE EXISTING WIRING WHICH IS NOT NOTED SHALL BE REVISED AS REQUIRED FOR THE PROPOSED DEMOLITION AND NEW WORK.
- EC'S WORK SHALL INCLUDE THE FIELD-SURVEYING AND DEMOLITION OF THE AFFECTED TELE AND DATA WIRING AND DEVICES, AND PA SPEAKERS/WIRING. EC SHALL COORDINATE THIS WITH SCHOOL'S TELE/DATA CONTRACTOR.

ELECTRICAL GENERAL NOTES

- ALL ELECTRICAL EQUIPMENT AND INSTALLATION WORK SHALL BE IN ACCORDANCE WITH THE NATIONAL, MASSACHUSETTS STATE AND LOCAL CITY BUILDING AND ELECTRICAL CODES APPLICABLE SECTIONS. ALL ELECTRICAL PERMITS AND INSPECTIONS AND ANY ASSOCIATED COSTS SHALL BE OBTAINED AND PAID FOR BY THE ELECTRICAL CONTRACTOR.
- ALL ELECTRICAL MATERIAL SHALL BE OF THE HIGHEST QUALITY SPECIFICATION GRADE AND UL LISTED. THE ELECTRICAL CONTRACTOR SHALL SUBMIT ALL ELECTRICAL MATERIAL SHOP DRAWINGS TO THE ARCHITECT FOR REVIEW AND ACCEPTABILITY PRIOR TO INSTALLATION.
- ALL ELECTRICAL INSTALLATIONS SHALL BE IN ACCORDANCE WITH THE LOCAL ELECTRICAL INSPECTOR REQUIREMENTS. THE ELECTRICAL CONTRACTOR SHALL COORDINATE ALL ELECTRICAL INSPECTOR REQUIREMENTS PRIOR TO ANY CONSTRUCTION.
- ALL ELECTRICAL CONSTRUCTION SHALL BE IN CONFORMANCE WITH THE SPECIFIED PROJECT'S CONSTRUCTION PHASING PLAN. ALL EXISTING ELECTRICAL SYSTEMS SHALL BE KEPT FULLY OPERATIONAL WITH MINIMUM SHUTDOWNS UNTIL THE NEW SYSTEMS ARE FULLY OPERATIONAL. ALL SYSTEMS DISRUPTIONS AND SHUTDOWNS MUST BE PLANNED, SCHEDULED AND ACCEPTABLE TO THE ARCHITECT AND OWNER. IT MUST BE ASSUMED THE ELEC SUB-CONTRACTOR WILL HAVE TO PROVIDE TEMPORARY ELECTRICAL SYSTEMS OR UTILITIES AS REQUIRED TO PROVIDE CONTINUATION OF ELECTRICAL SERVICES.
- ALL NEW AND EXISTING ELECTRICAL EQUIPMENT SHALL HAVE ENGRAVED PLASTIC NAMEPLATES. ALL PANELBOARDS CIRCUIT DIRECTORIES SHALL BE TYPED. ALL WIRING SHALL BE IDENTIFIED BY ALPHA-NUMERICAL TAGS.
- THE ELECTRICAL CONTRACTOR SHALL PROVIDE FIELD SURVEY MARKED UP ELECTRICAL DRAWINGS. "AS-BUILT" ELECTRICAL DRAWINGS AND INTERCONNECTION WIRING DIAGRAMS ELECTRICAL DRAWINGS. THE EC SHALL ALSO SUBMIT 1/4" SCALE DRAWINGS OF ALL ELECTRICAL EQUIPMENT INSTALLATIONS, SHOWING THAT THE AS-SUPPLIED EQUIPMENT CAN BE INSTALLED AS SHOWN, MEETING ALL CODE REQUIREMENTS. THE ELECTRICAL WORK SHALL NOT BE CONSIDERED SUBSTANTIALLY COMPLETE UNTIL ALL ELECTRICAL DRAWINGS HAVE BEEN SUBMITTED AND REVIEWED TO BE ACCEPTABLE BY THE ARCHITECT. NO ROUGH WIRING SHALL COMMENCE UNTIL THE INTERCONNECTION WIRING DIAGRAMS HAVE BEEN SUBMITTED/APPROVED. NO ADDITIONAL FUNDING SHALL BE ALLOWED TO CORRECT INSTALLATIONS DUE TO LACK OF THESE SUBMISSIONS.
- ALL ELECTRICAL CONDUCTORS SHALL BE COPPER WITH TYPE "THHN/THWN" INSULATION. THE MINIMUM CONDUIT AND POWER CONDUCTOR SIZES SHALL BE 3/4 INCH AND NO 12 AWG. RACEWAYS SHALL BE TERMINATED WITH FLEXIBLE RACEWAYS TO EQUIPMENT FOR BOTH VIBRATION ISOLATION AND MAINTENANCE.
- ALL ELECTRICAL LIGHTING FIXTURES, DEVICES AND WIRING SHALL BE IN CONFORMANCE WITH THE RELEVANT APPLICABLE ARCHITECTURAL DRAWINGS, DETAILS AND REFLECTED CEILING PLANS. THE ELECTRICAL CONTRACTOR SHALL FULLY REVIEW THE ARCHITECTURAL DRAWINGS TO VERIFY ALL GENERAL AND ELECTRICAL CONSTRUCTION COORDINATION REQUIREMENTS PRIOR TO THE START OF ANY ELECTRICAL CONSTRUCTION. NOTIFY ARCHITECT OF ANY DISCREPANCIES.
- ALL MATERIAL AND CONSTRUCTION WORK SHALL BE ROUGH AND FINAL INSPECTED BY THE ARCHITECT, ELECTRICAL ENGINEER AND CITY CODE ENFORCEMENT OFFICIAL PRIOR TO ACCEPTANCE AND PAYMENTS. ALL CIRCUITS AND EQUIPMENT SHALL BE VERIFIED FOR PROPER WIRING AND OPERATION. ELECTRICAL CONTRACTOR SHALL GUARANTEE ALL WORK AND MATERIAL (PARTS AND LABOR) FOR ONE YEAR AFTER FINAL ACCEPTANCE.
- CONDUIT RUNS ARE SHOWN DIAGRAMMATICALLY ONLY AND SHALL BE INSTALLED IN A MANNER TO PREVENT CONFLICTS WITH EQUIPMENT AND BUILDING CONDITIONS. ALL "AS-SUPPLIED" ELECTRICAL EQUIPMENT AND WIRING MUST BE FULLY COORDINATED BY THE EC PRIOR TO INSTALLATION.
- THE EQUIPMENT LAYOUTS, CONDUIT/WIRE SIZES AND WIRING DIAGRAM REPRESENT A SUGGESTED DESIGN BASED UPON GENERALLY AVAILABLE ELECTRICAL EQUIPMENT SIZES AND WIRING REQUIREMENTS. THIS ALSO APPLIES TO EQUIPMENT PROVIDED BY OTHERS BUT WIRED BY THE ELECTRICAL CONTRACTOR. MODIFICATION ACCEPTABLE TO THE ARCHITECT MAY BE MADE BY THE ELECTRICAL CONTRACTOR TO ACCOMMODATE ACTUALLY INSTALLED EQUIPMENT. THE BASIC SEQUENCE AND METHOD OF CONTROL MUST BE MAINTAINED AS INDICATED ON THE DRAWINGS AND SPECIFICATIONS. THE ELECTRICAL CONTRACTOR SHALL COORDINATE ALL EQUIPMENT WIRING REQUIREMENTS, PRIOR TO ANY CONSTRUCTION, DIFFERING EQUIPMENT LOCATIONS OR WIRING DUE TO INCOMPLETE COORDINATION SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR AT NO ADDITIONAL COSTS TO THE OWNER.
- CONDUIT AND WIRE AS INDICATED BY THE CONDUIT/WIRE SCHEDULE SHALL BE RGS, EMT OR MC AS SPECIFIED FOR DIFFERENT AREAS. IN ADDITION, ALL CONDUIT AND WIRE NOT SHOWN INTERCONNECTING THE LIGHTING, RECEPTACLES AND EQUIPMENT SHALL BE AS SPECIFIED. GENERALLY, THE TYPES OF WIRING PER BUILDING AREA ARE AS FOLLOWS:
 A) USE TYPE "EMT" WIRING FOR ALL EXPOSED WIRING IN AREAS WITHOUT HUNG CEILINGS.
 B) USE TYPE "MC" WIRING FOR ALL WIRING WITHIN WALLS, BEAMS AND ABOVE HUNG CEILINGS. ALL EXISTING WALLS SHALL BE "FISHED" WITH NEW "MC" WIRING UNLESS EXISTING WALLS ARE HARD MASONRY TYPE WALLS WHERE SURFACE MOUNTED RACEWAYS (WIREMOLD TYPE "G2000") SHALL BE FURNISHED AND INSTALLED.
 C) USE MULTI-CONDUCTOR PLENUM RATED WIRING FOR CONCEALED FA WIRING.
 D) FOR UNDERFLOOR DUCT WIRING, USE WIRING SIMILAR TO "EMT" WIRING AS DESCRIBED HEREIN AND IN ELECTRICAL SPECIFICATION. EC SHALL USE UNDERFLOOR DUCTS WHEREVER POSSIBLE TO ROUTE WIRING TO FIELD DEVICES.
- CONDUIT AND WIRE NOT SHOWN INTERCONNECTING THE FIRE ALARM, TELEPHONE, DATA, ETC SPECIAL ELECTRICAL SYSTEMS SHALL BE PROVIDED AS INDICATED IN THE CONTRACT DOCUMENTS.
- PANELBOARD 3-PHASE BRANCH CIRCUIT HOMERUNS SHALL BE IN "MC" CABLES WITH OVERSIZED NEUTRALS.
- OUTLET BOXES, SWITCHES, RECEPTACLES, PULL/JUNCTION BOXES, TERMINAL BOXES, ETC. SHALL BE PROVIDED WITH NEMA "1" ENCLOSURES FOR ALL INDOOR LOCATIONS AND NEMA "3R" ENCLOSURES FOR ALL OUTDOOR LOCATIONS.
- ALL WIRING PENETRATIONS THRU FIRE OR SMOKE RATED WALLS AND FLOORS SHALL BE SEALED WITH A FIRE STOPPING CAULKING. ALL WIRING CROSSING BUILDING EXPANSION JOINTS SHALL HAVE EXPANSION FITTINGS. FOR LOCATIONS OF FIRE RATED WALLS AND EXPANSION JOINTS REFER TO THE APPLICABLE ARCHITECTURAL AND STRUCTURAL DRAWINGS. ALL FIRE STOPPING SHALL BE FURNISHED AND INSTALLED BY THE GENERAL CONTRACTOR.
- EC WHERE POSSIBLE SHALL RE-USE EXISTING RECEPTACLES AND/OR TELE/DATA OUTLETS WITH NEW/REVISED WIRING IN LIEU OF INSTALLING NEW OUTLETS.
- ALL NEW ELECTRICAL POWER, LOW VOLTAGE, FIRE ALARM, AND CONTROL DEVICES SHOWN ON THE VARIOUS PLANS FOR A GIVEN LOCATION SHALL ALL ALIGN VERTICALLY, AS NOTED ON THE ARCHITECTURAL PLANS. SEE ARCHITECTURAL PLANS FOR FURTHER INFORMATION ON THIS.

ELECTRICAL DRAWINGS REFERENCE NOTES

- FOR ELECTRICAL SYMBOLS, ABBREVIATIONS & NOTES, REFER TO DWG #E0.1
- FOR ELECTRICAL POWER, LIGHTING AND FA DEMO/PROP PLANS, REFER TO DWGS #E1.1 THRU E2.3
- FOR ELECTRICAL DETAILS AND NOTES, REFER TO DWGS #E5.1
- FOR ELECTRICAL RISER DIAGRAMS AND SCHEDULES, REFER TO DWGS #E6.1 & E7.1

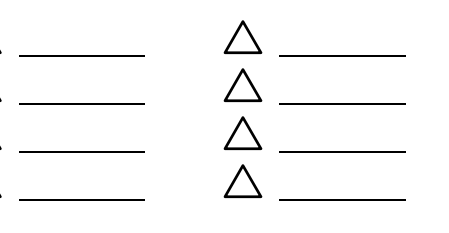
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WALTHAM, MA

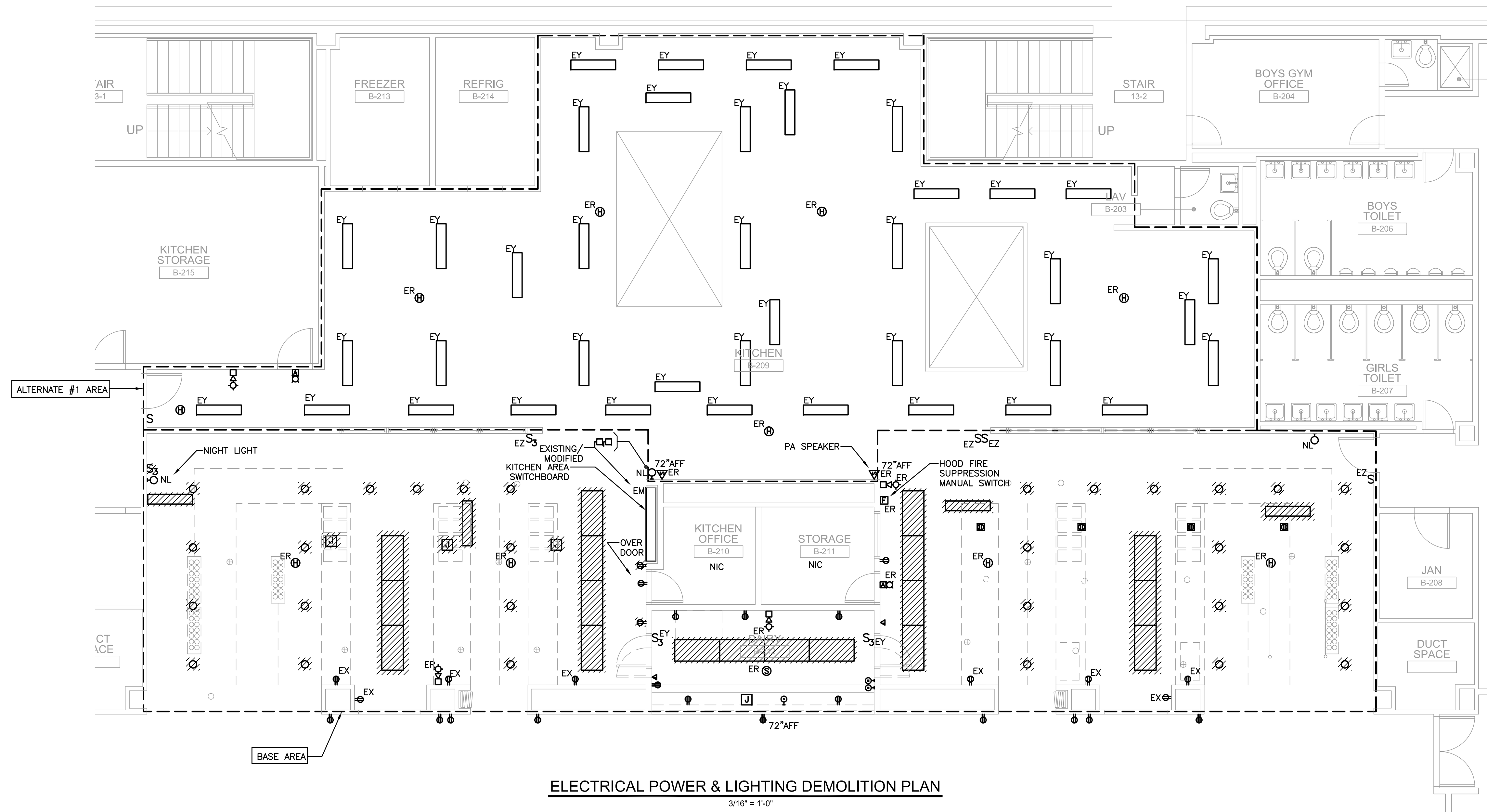
PROJECT #: 13065.00
 DRAWN BY: DGK
 CHECKED BY: WPE
 APPROVED BY: MRR
 SCALE: AS SHOWN

- REVIEW
- SCHEMATIC DESIGN
- 90% - REVIEW
- DESIGN DEVELOPMENT
- FINAL REVIEW
- BIDDING
- PERMIT
- CONSTRUCTION
- NOT FOR CONSTRUCTION
- FOR RECORD

DATE: 7/3/2013



DRAWING: ELECTRICAL SYMBOLS, ABBREVIATIONS & GENERAL NOTES



ELECTRICAL POWER & LIGHTING DEMOLITION PLAN

3/16" = 1'-0"

ELECTRICAL POWER DEMOLITION PLAN NOTES

- 1 ELECTRICAL CONTRACTOR (EC) SHALL COMPLETELY FIELD SURVEY THE EXISTING EQUIPMENT AND WIRING IN THE KITCHEN SUFFICIENTLY TO PROVIDE RELEVANT INFORMATION IN ORDER TO SELECTIVELY DEMOLITION AND RE-CONSTRUCT AS INDICATED ON THE PROPOSED PWR & LTG PLANS. THERE ARE NO "AS-BUILT" ELECTRICAL DRAWINGS. INFORMATION INDICATED WAS OBTAINED FROM A/E GENERAL FIELD WALK-THRU INVESTIGATIONS. THE DESIGN INTENT IS TO SELECTIVELY DEMOLISH THE EXISTING POWER, LIGHTING, FIRE ALARM, TELE/DATA, ETC. EQUIPMENT, FIELD DEVICES AND WIRING (WHICH IS NOT INDICATED).
- 2 EC SHALL ALSO COMPLETELY FIELD SURVEY THE EXISTING PANELBOARDS AND ASSOCIATED BRANCH WIRING SUFFICIENTLY TO PROVIDE RELEVANT INFORMATION IN ORDER TO REVISE AND ADD ONTO THE EXISTING CIRCUITS
- 3 AFTER FIELD SURVEY, ELECTRICAL CONTRACTOR (EC) MAY RE-USE (AT THEIR OPTION) THE EXISTING WIRING IF FOUND TO BE ACCEPTABLE FOR REUSE FOR THE PROPOSED POWER, LTG AND FIRE ALARM WORK, WHERE PRACTICAL TO DO SO. IF THE EXISTING WIRING IS NOT REUSED IT SHALL BE COMPLETELY DEMOLISHED.
- 4 EC SHALL INCLUDE IN THEIR WORK ALL ELECTRICAL DEMOLITION ASSOCIATED WITH THE ARCHITECTURAL AND MECHANICAL DEMOLITION DRAWINGS.

- 5 PRIOR TO STARTING DEMOLITION, EC SHALL COORDINATE THE DISPOSITION OF ALL ELECTRICAL EQUIPMENT, CONDUIT AND WIRING SHOWN AS BEING DEMOLISHED OR RELOCATED WITH THE OWNER'S REPRESENTATIVE. ITEMS TO BE RETAINED/RELOCATED SHALL BE CAREFULLY REMOVED AND PROTECTED AS APPROPRIATE BY THE EC AND DELIVERED TO THE OWNER. ANY SUCH ITEMS DAMAGED BY THE EC SHALL BE REPAIRED/REPLACED BY THE EC, AT THE OWNER'S OPTION. FOR BIDDING PURPOSES, EC SHALL ASSUME THAT ALL EQUIPMENT, ETC. SHOWN AS BEING REMOVED SHALL BE RETAINED AND RETURNED.
- 6 ALL UNUSED WIRING ASSOCIATED WITH THE DEMOLISHED DEVICES, EQUIPMENT AND FIXTURES SHALL BE COMPLETELY DEMOLISHED, UNLESS PLANNED BY EC FOR REUSE IN PROPOSED WORK.
- 7 EC SHALL EITHER REVISE/REUSE OR DEMO/REPLACE THE EXISTING WIRING IN WALLS WHICH WILL BE DEMOLISHED OR REPLACED. EC SHALL ASSUME THERE IS CONCEALED WIRING IN ALL WALLS BEING DEMOLISHED.
- 8 PRIOR TO DEMOLISHING CONDUITS/RACEWAYS OF UNKNOWN PURPOSE, THE EC SHALL SURVEY THE CONDUITS TO SEE IF THEY AFFECT ITEMS TO REMAIN IN AREAS OUTSIDE OF PROJECT AREA, AND REROUTE/REWIRE AS NECESSARY TO SUPPORT THOSE ITEMS.
- 9 EC'S DEMOLITION WORK SHALL INCLUDE A TEMPORARY FIRE ALARM HEAT DETECTOR SYSTEM WHEN THE SPRINKLERS ARE DEMOLISHED AND TAKEN OUT OF SERVICE. EC TO COORDINATE WITH THE GENERAL CONTRACTOR AND THE SPRINKLER SUBCONTRACTOR

ELECTRICAL LIGHTING DEMOLITION PLAN NOTES

- 1 ELECTRICAL CONTRACTOR (EC) SHALL COMPLETELY FIELD SURVEY THE EXISTING LIGHTING, CONTROLS AND WIRING IN THE KITCHEN SUFFICIENTLY TO PROVIDE RELEVANT INFORMATION IN ORDER TO SELECTIVELY DEMOLITION AND RECONSTRUCT AS INDICATED ON THE PROPOSED LTG PLAN. THERE ARE NO "AS-BUILT" ELECTRICAL DRAWINGS. INFORMATION INDICATED WAS OBTAINED FROM A/E GENERAL FIELD WALK-THRU INVESTIGATIONS. THE DESIGN INTENT IS TO SELECTIVELY DEMOLISH THE EXISTING POWER, LIGHTING, FIRE ALARM, TELE/DATA, ETC. EQUIPMENT, FIELD DEVICES AND WIRING (WHICH IS NOT INDICATED).
- 2 EC SHALL ALSO COMPLETELY FIELD SURVEY THE EXISTING PANELBOARDS AND ASSOCIATED BRANCH WIRING SUFFICIENTLY TO PROVIDE RELEVANT INFORMATION IN ORDER TO REVISE AND ADD ONTO THE EXISTING CIRCUITS. NOTE, EC MUST FIELD SURVEY THE EXISTING EMERGENCY EXIT/EGRESS LIGHTING CIRCUIT WIRING IN ORDER TO REVISE AS INDICATED.
- 3 AFTER FIELD SURVEY, ELECTRICAL CONTRACTOR (EC) MAY RE-USE (AT THEIR OPTION) THE EXISTING WIRING IF FOUND TO BE ACCEPTABLE FOR REUSE FOR THE PROPOSED POWER, LTG AND FIRE ALARM WORK, WHERE PRACTICAL TO DO SO. IF THE EXISTING WIRING IS NOT REUSED IT SHALL BE COMPLETELY DEMOLISHED.
- 4 PRIOR TO STARTING DEMOLITION, EC SHALL COORDINATE THE DISPOSITION OF ALL ELECTRICAL LIGHTING FIXTURES, AS BEING DEMOLISHED WITH THE OWNER'S REPRESENTATIVE. ITEMS TO BE DEMOLISHED SHALL BE CAREFULLY REMOVED AND PROTECTED AS APPROPRIATE BY THE EC AND DELIVERED TO THE OWNER. ANY SUCH ITEMS DAMAGED BY THE EC SHALL BE REPAIRED/REPLACED BY THE EC, AT THE OWNER'S OPTION. FOR BIDDING PURPOSES, EC SHALL ASSUME THAT ALL LIGHTING, ETC. SHOWN AS BEING REMOVED SHALL BE RETAINED AND RETURNED. OTHERWISE, IT SHALL BE DEMOLISHED BY THE EC.
- 5 ALL UNUSED WIRING ASSOCIATED WITH THE DEMOLISHED LIGHTING FIXTURES SHALL BE COMPLETELY DEMOLISHED, UNLESS PLANNED BY EC FOR REUSE IN PROPOSED.
- 6 EC SHALL EITHER REVISE/REUSE OR DEMO/REPLACE THE EXISTING WIRING IN WALLS WHICH WILL BE DEMOLISHED OR REPLACED. EC SHALL ASSUME THERE IS CONCEALED WIRING IN ALL WALLS BEING DEMOLISHED.
- 7 PRIOR TO DEMOLISHING CONDUITS/RACEWAYS OF UNKNOWN PURPOSE, THE EC SHALL SURVEY THE CONDUITS TO SEE IF THEY AFFECT ITEMS TO REMAIN IN AREAS OUTSIDE OF PROJECT AREA, AND REROUTE/REWIRE AS NECESSARY TO SUPPORT THOSE ITEMS.
- 8 LIGHT FIXTURES IN THE ALTERNATE # 1 AREA SHALL BE REMOVED AND STORED FOR REINSTALLATION AFTER NEW SUSPENDED CEILING IS INSTALLED. EC SHALL COORDINATE WITH GENERAL CONTRACTOR. FOR BIDDING PURPOSES, THE EC SHALL PROVIDE AN ALTERNATE FOR NEW LIGHT LIGHT FIXTURES IN THIS AREA.

ELECTRICAL DRAWINGS REFERENCE NOTES

- 1) FOR ELECTRICAL SYMBOLS, ABBREVS & NOTES, REFER TO DWG #E0.1
- 2) FOR ELECTRICAL POWER, LIGHTING AND FA DEMO/PROP PLANS, REFER TO DWGS #E1.1 THRU E2.3
- 3) FOR ELECTRICAL DETAILS AND NOTES, REFER TO DWGS #E5.1
- 4) FOR ELECTRICAL RISER DIAGRAMS AND SCHEDULES, REFER TO DWGS #E6.1 & E7.1

PROJECT:
WALTHAM HIGH SCHOOL CAFETERIA RENOVATION

WALTHAM, MA

PROJECT #: 13065.00
DRAWN BY: DGK
CHECKED BY: WPE
APPROVED BY: MRR
SCALE: 3/16"=1'-0"

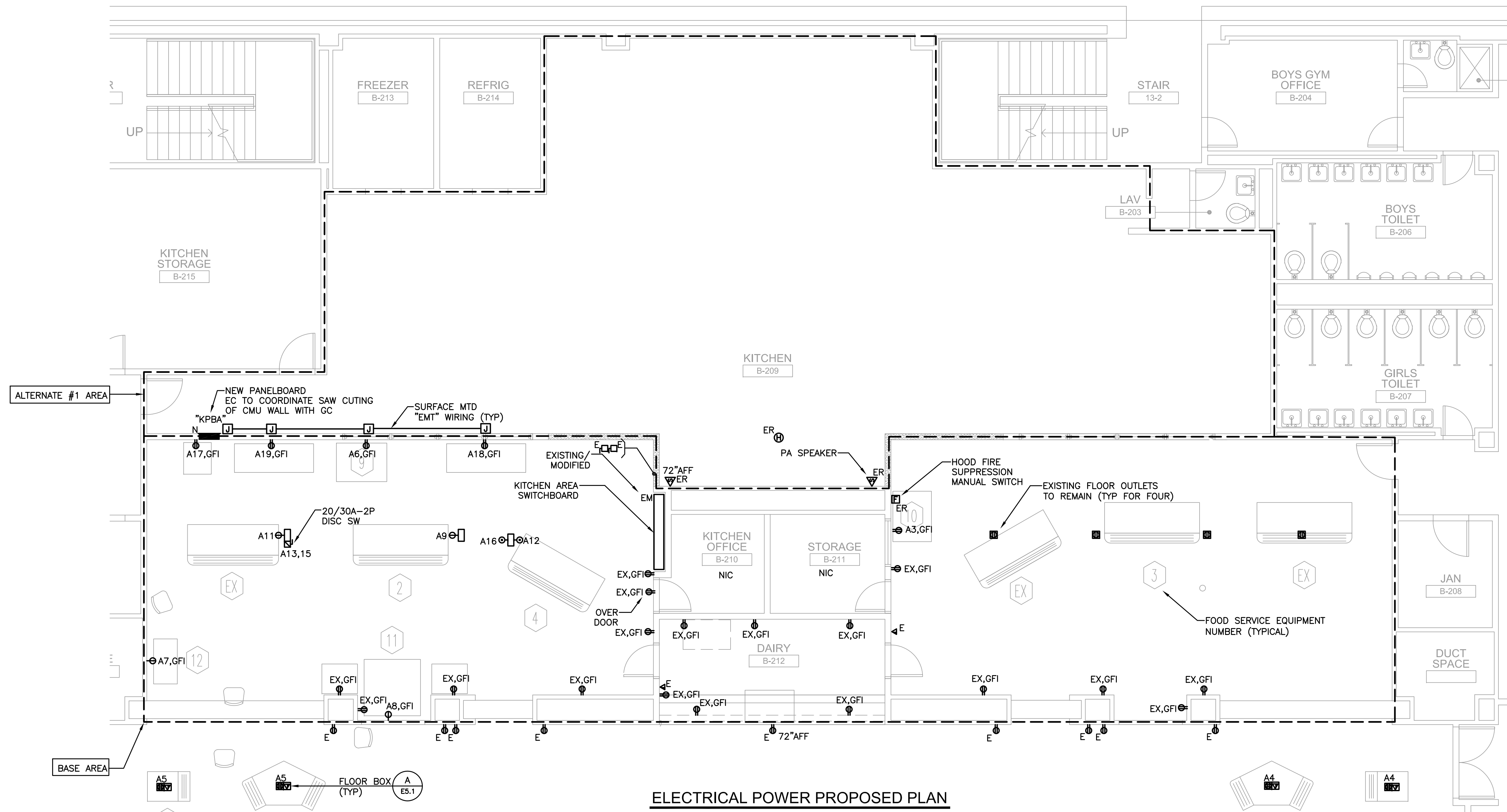
- REVIEW
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- 90% - REVIEW
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DATE: 7/3/2013

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DRAWING:
ELECTRICAL POWER & LIGHTING DEMOLITION PLAN

E1.1



ELECTRICAL POWER PROPOSED PLAN
3/16" = 1'-0"

PROPOSED POWER PLAN NOTES

- 1 EC SHALL PROVIDE "AS-BUILT" DWG'S MARKUPS OF BRANCH CIRCUITING WITH THE FINAL "AS-BUILT" REVISED PANELBOARD SCHEDULES FOR THE NEW PANELBOARDS. EC SHALL FURNISH AND INSTALL ELEC EQUIPMENT NAMEPLATES AND TYPED BRANCH CIRCUITS DIRECTORIES.
- 2 EC SHALL FURNISH AND INSTALL RECEPTACLES AND EQUIPMENT WIRING WHICH IS NOT INDICATED PER THE GENERAL NOTES & DETAILS. EC SHALL FURNISH AND INSTALL SPECIAL POWER RECEPTACLES & ASSOCIATED WIRING. EC SHALL COORDINATE EACH RECEPTACLE WITH THE EQUIPMENT'S PLUG PRIOR TO RELEASE AND ROUGH WIRING. THE EC SHALL REVIEW THE KITCHEN EQUIPMENT CATALOG INFORMATION FOR ADDITIONAL INFORMATION.
- 3 EC SHALL FURNISH AND INSTALL OUTLET BOXES WITH NYLON PULL STRINGS AND/OR BOXES WITH CONDUITS AND NYLON PULL STRINGS FOR ALL TELE/DATA OUTLETS SHOWN ON ELECTRICAL PLANS, RUN TO ABOVE THE HUNG CEILING FOR SPACES WITH HUNG CEILINGS. TELE/DATA WIRING AND OUTLET INSTALLATION SHALL BE BY SCHOOL'S TELE/DATA CONTRACTOR.
- 4 REFER TO ARCHITECTURAL DRAWINGS FOR MOUNTING HEIGHTS OF ALL POWER RECEPTACLES AND TELE/DATA OUTLET BACKBOXES.
- 5 ELECTRICAL SUBCONTRACTOR (EC) SHALL REFER TO THE ARCHITECTURAL DRAWINGS FOR THE SERVING EQUIPMENT LIST. EC SHALL COORDINATE WITH AS-SUPPLIED AND EXISTING OWNER SUPPLIED EQUIPMENT FOR RECEPTACLE TYPE AND MOUNTING HEIGHTS OF RECEPTACLES AND JUNCTION BOXES.
- 6 FOR SERVING EQUIPMENT WHICH DOES NOT HAVE A POWER PLUG, EC HAS OPTION TO EITHER ADD A POWER PLUG TO THE EQUIPMENT OR FURNISH/INSTALL A TOGGLE TYPE POWER DISCONNECT SWITCH IN ORDER TO PROVIDE THE LOCAL POWER DISCONNECT.
- 7 REFER TO THE FOOD SERVICE EQUIPMENT SCHEDULE FOR EQUIPMENT DESCRIPTIONS AND RECEPTACLE TYPES.

PANELBOARD CIRCUITS SCHEDULE	
CKTS	FED BY PANELBOARDS
"A"	120/208 VOLT PANELBOARD "KPBA"
"B"	EXISTING SERVING AREA LTG CKT

- FOOD SERVICE EQUIPMENT NOTE**
- 1 EC SHALL REFER TO THE FOOD SERVICE EQUIPMENT FOR REFERENCE TO THE NOTED EQUIPMENT NUMBERS

PROJECT:
WALTHAM HIGH SCHOOL CAFETERIA RENOVATION

WALTHAM, MA

PROJECT #: 13065.00
DRAWN BY: DGK
CHECKED BY: WPE
APPROVED BY: MRR
SCALE: 3/16"=1'-0"

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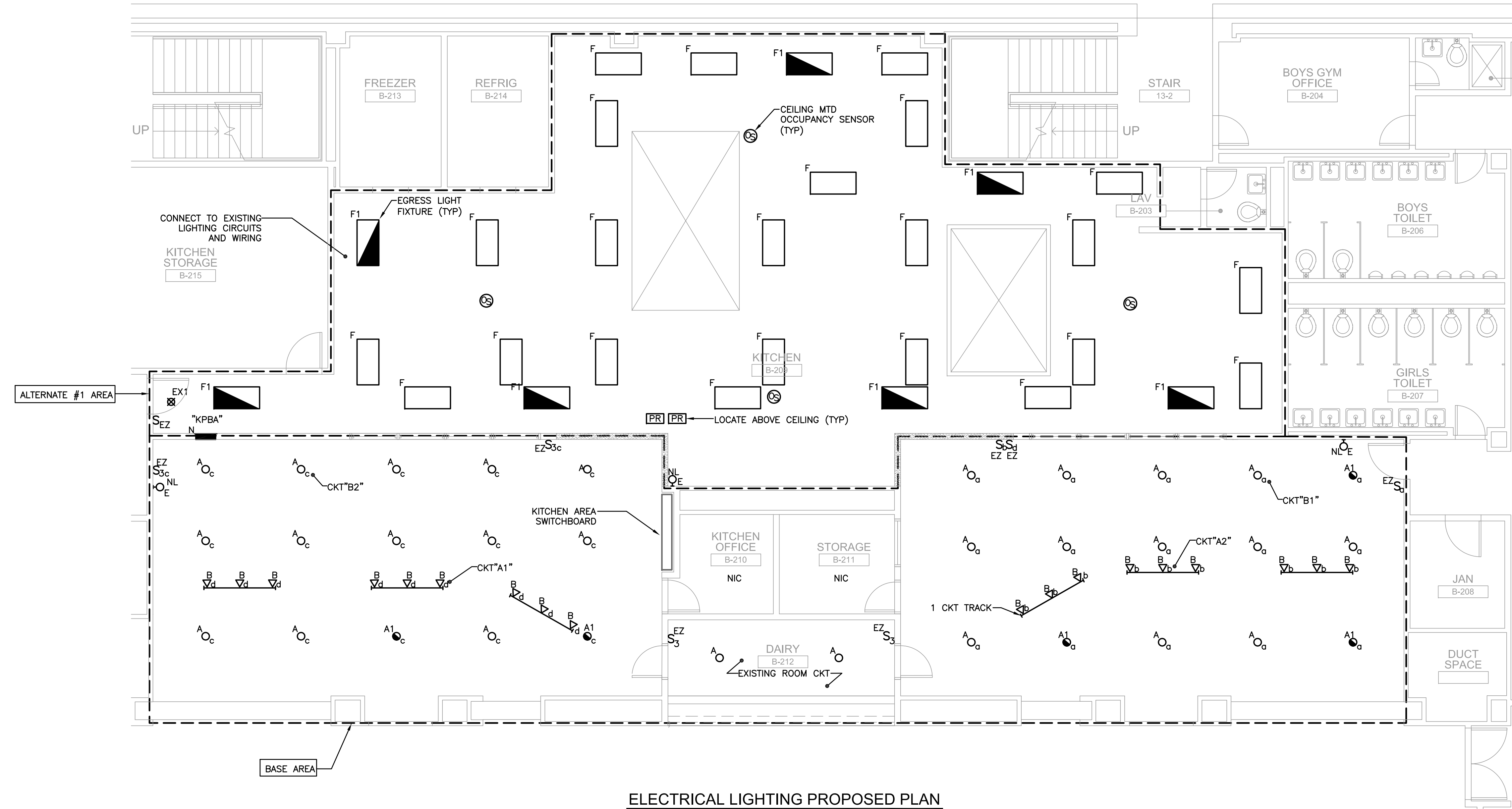
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DRAWING:
ELECTRICAL PROPOSED POWER PLAN

E2.1

ELECTRICAL DRAWINGS REFERENCE NOTES

- 1) FOR ELECTRICAL SYMBOLS, ABBREV'S & NOTES, REFER TO DWG #E0.1
- 2) FOR ELECTRICAL POWER, LIGHTING AND FA DEMO/PROP PLANS, REFER TO DWGS #E1.1 THRU E2.3
- 3) FOR ELECTRICAL DETAILS AND NOTES, REFER TO DWGS #E5.1
- 4) FOR ELECTRICAL RISER DIAGRAMS AND SCHEDULES, REFER TO DWGS #E6.1 & E7.1



ELECTRICAL LIGHTING PROPOSED PLAN
3/16" = 1'-0"

ELECTRICAL PROPOSED LIGHTING PLAN NOTES

- ① ELECTRICAL CONTRACTOR (EC) SHALL FURNISH AND INSTALL NEW LIGHTING FIXTURES AS SHOWN HEREIN. FIXTURES MUST BE COORDINATED WITH BOTH THE EXISTING BLDG CONDITIONS PLUS THE NEW CONSTRUCTION PRIOR TO RELEASE BY THE EC.
- ② LIGHTING BRANCH WIRING (NOT SHOWN) SHALL BE FURNISHED AND INSTALLED IN STRICT ACCORDANCE WITH THE APPLICABLE NOTES, DETAILS AND SPECIFICATION REQUIREMENTS. EC MAY REUSE EXISTING WIRING AS DETERMINED APPROPRIATE IN THE FIELD.
- ③ ALL LIGHTING SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE ARCHITECT'S REFLECTED CEILING PLANS AND ANY OTHER APPLICABLE DETAILS. IN ADDITION, THE EC SHALL COORDINATE ALL LIGHTING WITH THE GENERAL CONSTRUCTION, EXISTING BUILDING CONDITIONS AND OTHER BUILDING TRADES PRIOR TO LIGHTING RELEASE AND ROUGH WIRING.
- ④ EC SHALL FIELD-TEST THE EXIT AND EGRESS LIGHTING AND PROVIDE A WRITTEN CERTIFICATION OF COMPLIANCE WITH ALL REQUIRED CODES. EC'S WORK INCLUDES FIELD DETERMINING THE EXISTING EMERGENCY LIGHTING CIRCUIT LOAD PRIOR TO CONNECTING ANY NEW EXIT/EGRESS LIGHTING FIXTURES.
- ⑤ EC SHALL FURNISH AND INSTALL NEW LIGHTING CONTROLS (I.E. - OCCUPANCY SENSORS, POWER RELAYS, ETC.) AS INDICATED AND WIRE PER THE DRAWING AND DETAILS. IN GENERAL, THE SERVING LINE AND KITCHEN SPACE LIGHTING SHALL BE CONTROLLED BY THE EXISTING MODIFIED SWITCHING.
- ⑥ EC SHALL FURNISH AND INSTALL OCCUPANCY SENSOR/SWITCHES AS INDICATED.
- ⑦ EC SHALL PROVIDE REVISED SWITCHING AS SHOWN ON THE PLAN. ALL DEVICES TO BE FLUSH-MOUNTED IN WALL, UNLESS OTHERWISE NOTED IN ELECTRICAL OR ARCHITECTURAL DRAWINGS.
- ⑧ FOR BIDDING PURPOSES, THE EC SHALL PROVIDE AN ALTERNATE FOR INSTALLING NEW LIGHT FIXTURES IN THE KITCHEN.

PANELBOARD CIRCUITS SCHEDULE	
CKTS	FED BY PANELBOARDS
"A"	120/208 VOLT PANELBOARD "KPBA"
"B"	EXISTING SERVING AREA LTG CKT*

* EC SHALL FIELD SURVEY TO VERIFY EXISTING LIGHTING CIRCUITS

PROJECT:
WALTHAM HIGH SCHOOL CAFETERIA RENOVATION

WALTHAM, MA

PROJECT #: 13065.00
DRAWN BY: DGK
CHECKED BY: WPE
APPROVED BY: MRR
SCALE: 3/16"=1'-0"

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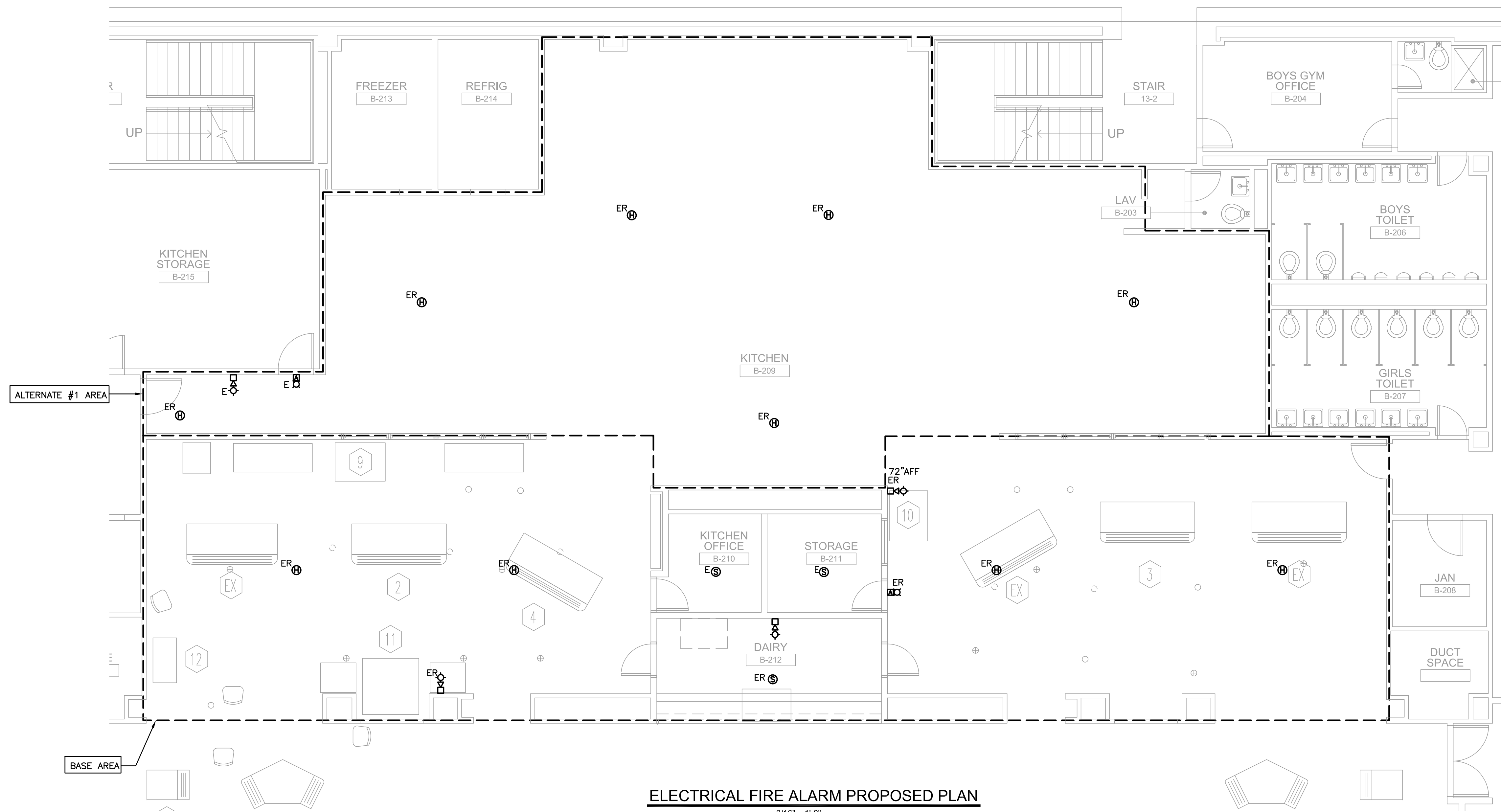
DATE: 7/3/2013

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DRAWING:
ELECTRICAL PROPOSED LIGHTING PLAN

ELECTRICAL DRAWINGS REFERENCE NOTES

- 1) FOR ELECTRICAL SYMBOLS, ABBREVS & NOTES, REFER TO DWG #E0.1
- 2) FOR ELECTRICAL POWER, LIGHTING AND FA DEMO/PROP PLANS, REFER TO DWGS #E1.1 THRU E2.3
- 3) FOR ELECTRICAL DETAILS AND NOTES, REFER TO DWGS #E5.1
- 4) FOR ELECTRICAL RISER DIAGRAMS AND SCHEDULES, REFER TO DWGS #E6.1 & E7.1



ELECTRICAL FIRE ALARM PROPOSED PLAN

3/16" = 1'-0"

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PROJECT:
WALTHAM HIGH SCHOOL CAFETERIA RENOVATION

WALTHAM, MA

PROJECT #: 13065.00
DRAWN BY: DGK
CHECKED BY: WPE
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SCALE: 3/16"=1'-0"

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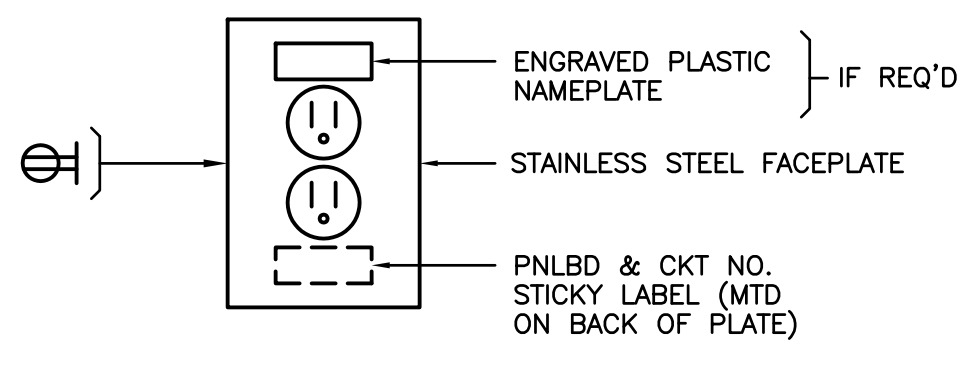
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DRAWING:
ELECTRICAL PROPOSED FIRE ALARM PLAN

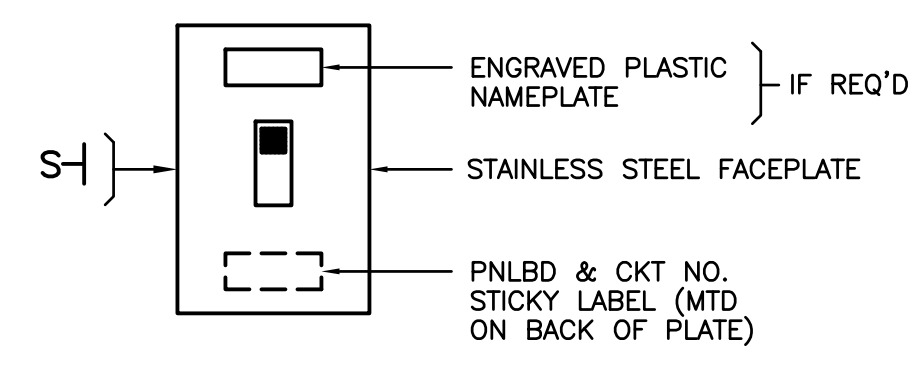
E2.3

ELECTRICAL DRAWINGS REFERENCE NOTES

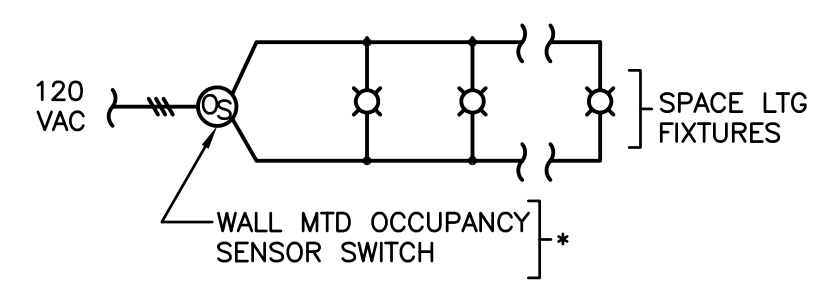
- 1) FOR ELECTRICAL SYMBOLS, ABBREVIATIONS & NOTES, REFER TO DWG #E0.1
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TYPICAL RECEPTACLE DETAIL
NOT TO SCALE

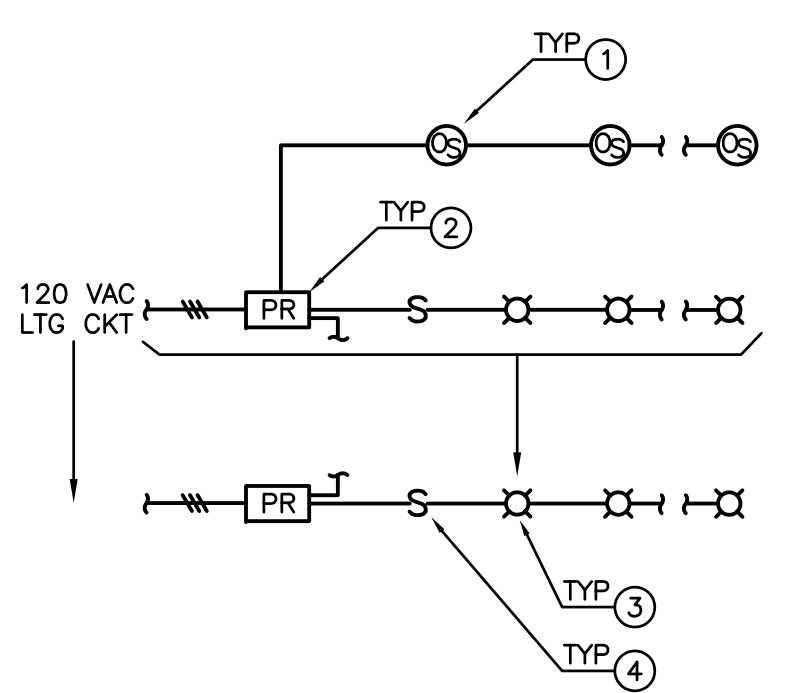


TYPICAL LTG CONTROL SWITCH DETAIL
NOT TO SCALE



WALL MOUNTED TYPICAL LIGHTING OCCUPANCY SENSOR/SWITCH WIRING DIAGRAM *
NOT TO SCALE

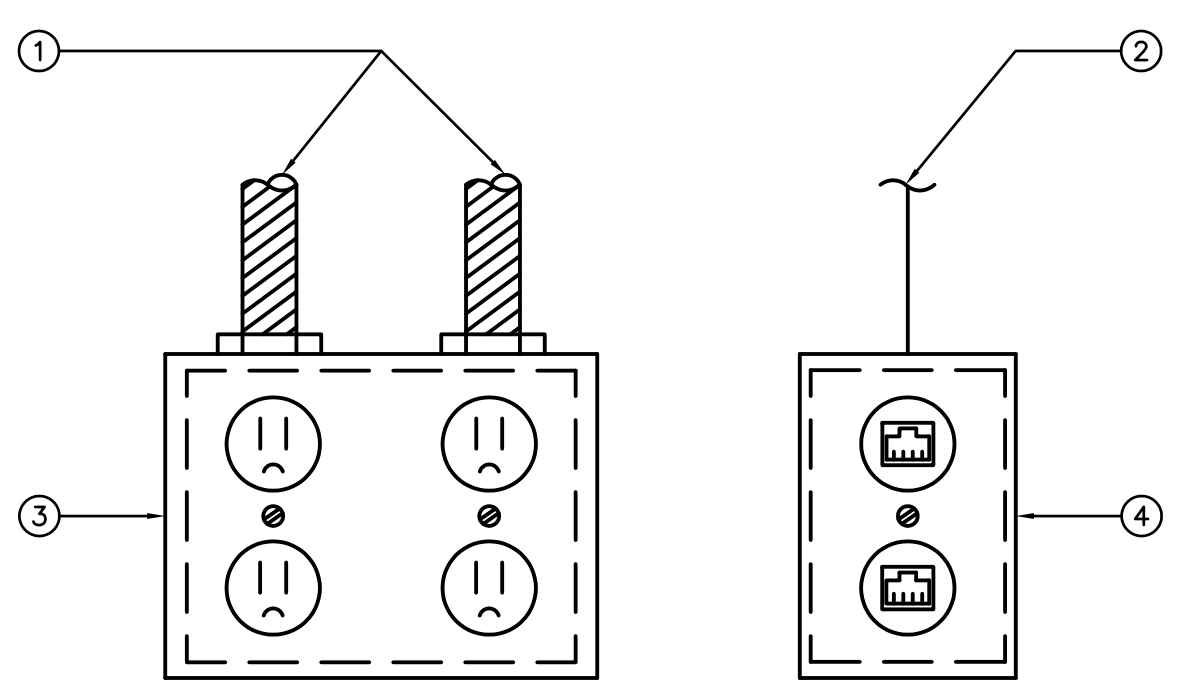
* OCCUPANCY SENSORS BY "WATT STOPPER" (MODEL # PW-100) OR EQUAL



⑤⑥ TYPICAL SERVERY LIGHTING CONTROL WIRING DIAGRAM*
NOT TO SCALE

SERVERY LIGHTING CONTROL WIRING DIAGRAM NOTES

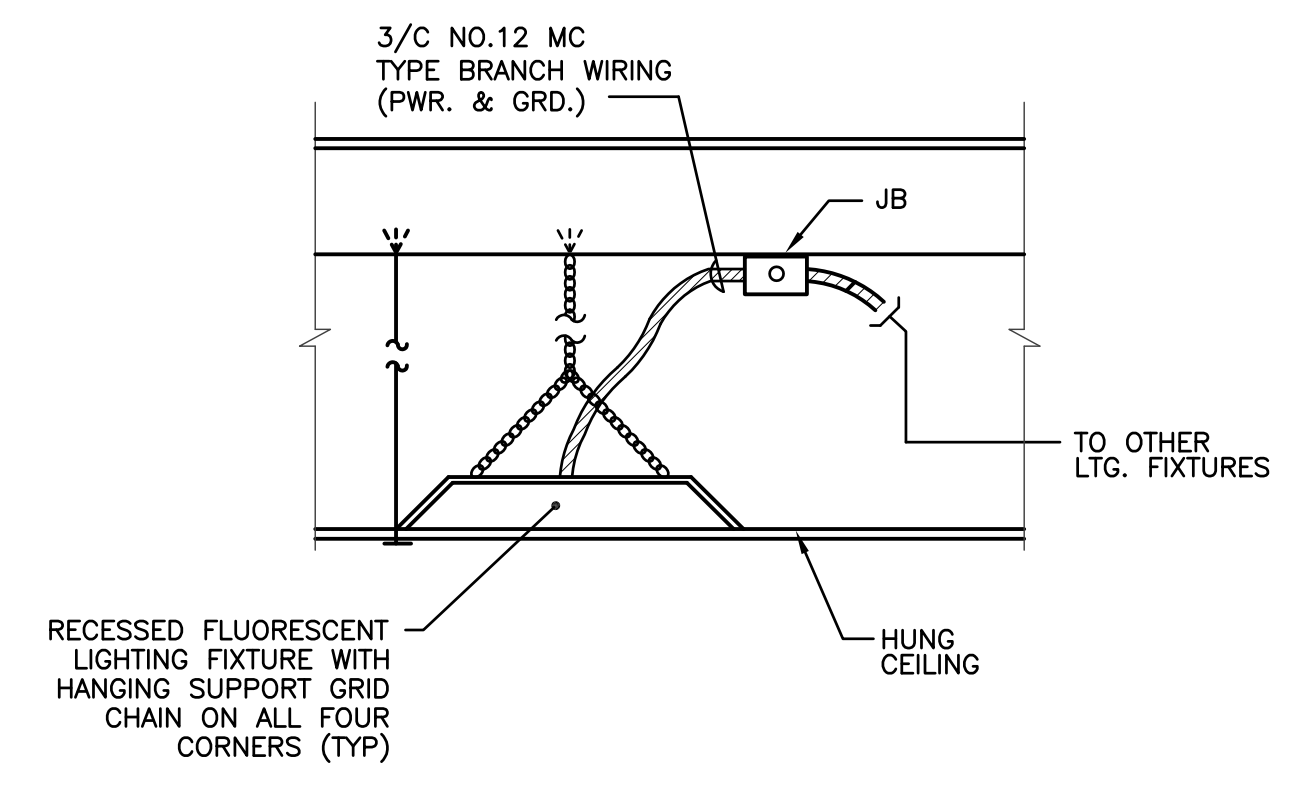
- EC SHALL FURNISH AND INSTALL LOW VOLTAGE DUAL TECHNOLOGY OCCUPANCY SENSOR (WATT STOPPER # DT-300 OR EQUAL). FOR NUMBER AND LOCATION, REFER TO THE LTG PLAN DRAWING.
- EC SHALL FURNISH AND INSTALL LOW/LINE VOLTAGE POWER PACK AND SLAVE PACK (WATT STOPPER # B120-P OR EQUAL). FOR NUMBER AND LOCATION, REFER TO THE LTG PLAN DWG.
- SERVERY ROOM GENERAL LIGHTING FIXTURE (EXCLUDES ANY TASK LIGHTING OR HEAT LAMPS FIXTURES). FOR NUMBER AND LOCATION, REFER TO THE LTG PLAN DWG.
- LOCAL "OVERRIDE" CONTROL SWITCH. FOR NUMBER AND LOCATION, REFER TO THE LTG PLAN DRAWING.
- FOR THE KITCHEN LIGHTING UPGRADE ALTERNATIVE # 1, EC SHALL FURNISH/INSTALL SIMILAR OCCUPANCY SENSORS AND POWER PACKS.
- EC'S WORK INCLUDES ALL NECESSARY COORDINATION WITH THE LIGHTING FIXTURES, EXISTING LIGHTING CIRCUITS, EXISTING BLDG CONDITIONS AND NEW CONSTRUCTION. EC SHOULD NOT RELEASE ANY ELEC EQUIPMENT OR ANY ROUGH WIRING UNTIL THE COORDINATION HAS BEEN COMPLETED.



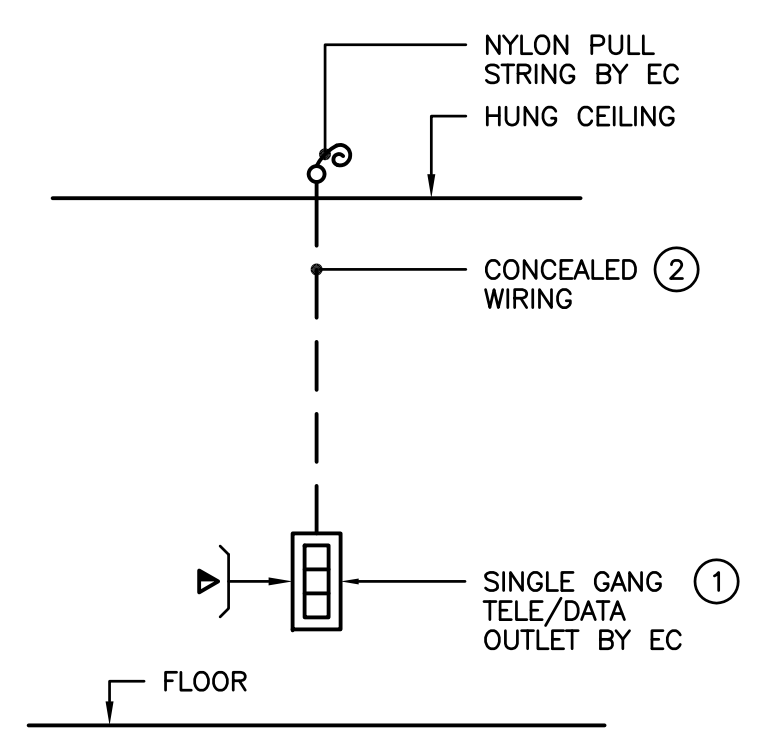
TYPICAL OFFICE WORKSTATIONS POWER & TELE/DATA OUTLETS & WIRING DETAIL
NOT TO SCALE

OFFICE OUTLETS DETAIL NOTES

- POWER OUTLET TYPE "MC" POWER BRANCH WIRING (CONCEALED IN BUILDING WALL)
- TELE/DATA OUTLET NYLON PULL STRING FROM OUTLET TO ABOVE HUNG CEILING (CONCEALED IN BUILDING WALL)
- TWO GANG POWER OUTLET BOX WITH QUADPLEX GROUNDED OUTLET WITH STAINLESS STEEL FACEPLATE
- (TELE/DATA OUTLET AND "UTP" WIRING BY SCHOOL'S TELE/DATA CONTRACTOR)



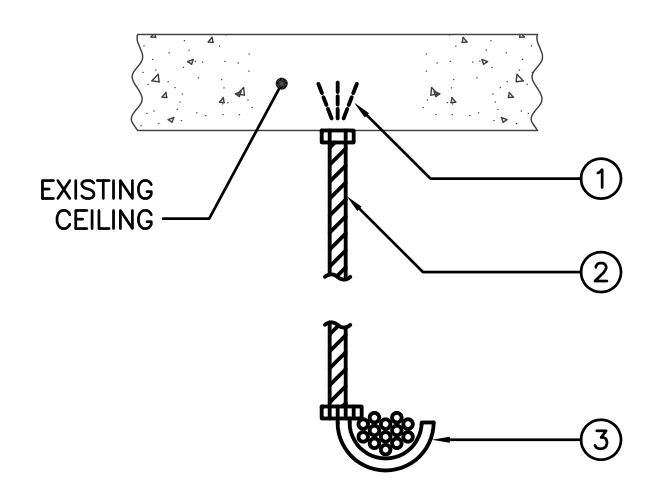
TYPICAL RECESSED LIGHTING FIXTURE MOUNTING & WIRING DETAIL
NOT TO SCALE



TYPICAL TELE/DATA OUTLET WIRING DETAIL ③④
NOT TO SCALE

TELE / DATA RISER DIAGRAM NOTES

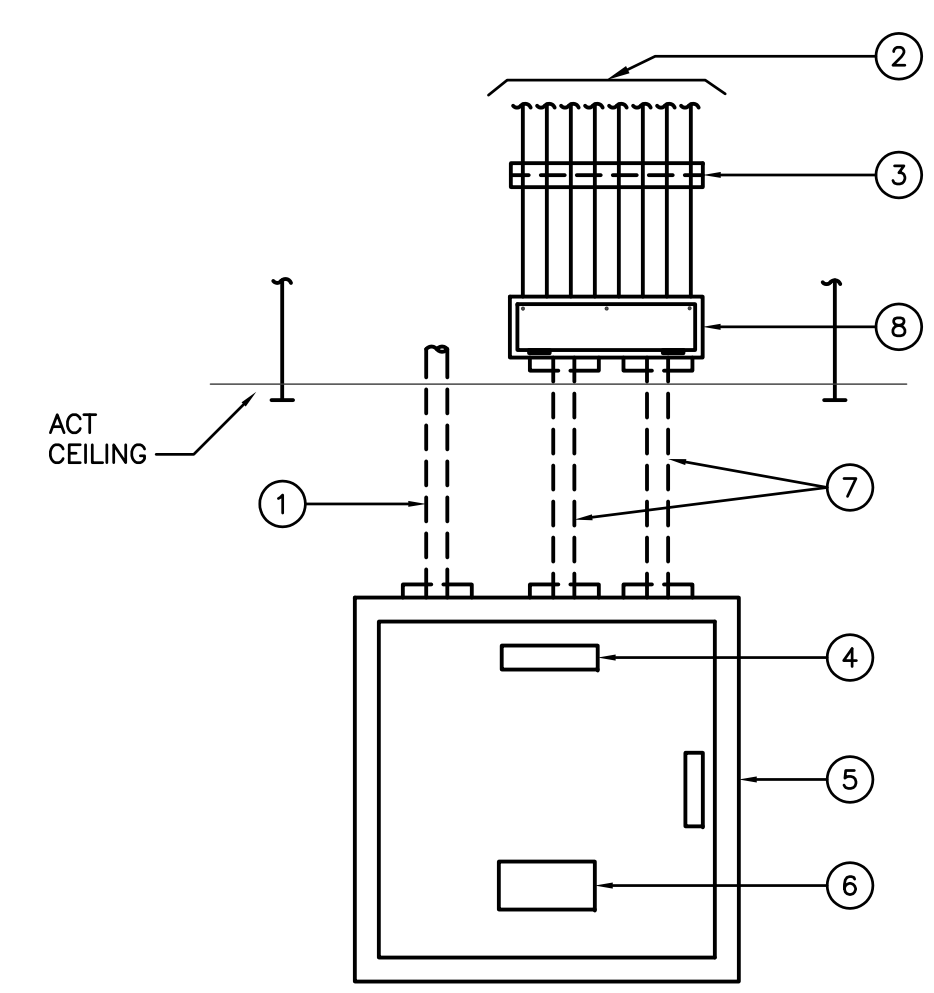
- ELECTRICAL SUB-CONTRACTOR (EC) SHALL FURNISH AND INSTALL EMPTY OUTLET BOXES (SINGLE FOR ONE TO TWO JACKS) AND DOUBLE FOR THREE TO FOUR JACKS).
- EC SHALL FURNISH AND INSTALL NYLON PULL STRINGS FROM THE OUTLET TO THE HUNG CEILING. FOR OUTLETS WITHOUT VERTICAL ACCESS, EC SHALL FURNISH AND INSTALL 1" EMT SLEEVES.
- EC SHALL COORDINATE WITH THE SCHOOL'S TELE/DATA SUPPLIER WHO WILL FURNISH AND INSTALL THE TELE/DATA OUTLETS AND UTP CABLES.
- FOR NUMBER OF TELE/DATA OUTLETS, REFER TO THE POWER DRAWINGS.



TYPICAL "LV" CABLES SUPPORT DETAIL ④
NOT TO SCALE

"LV" CABLES SUPPORT DETAIL NOTES

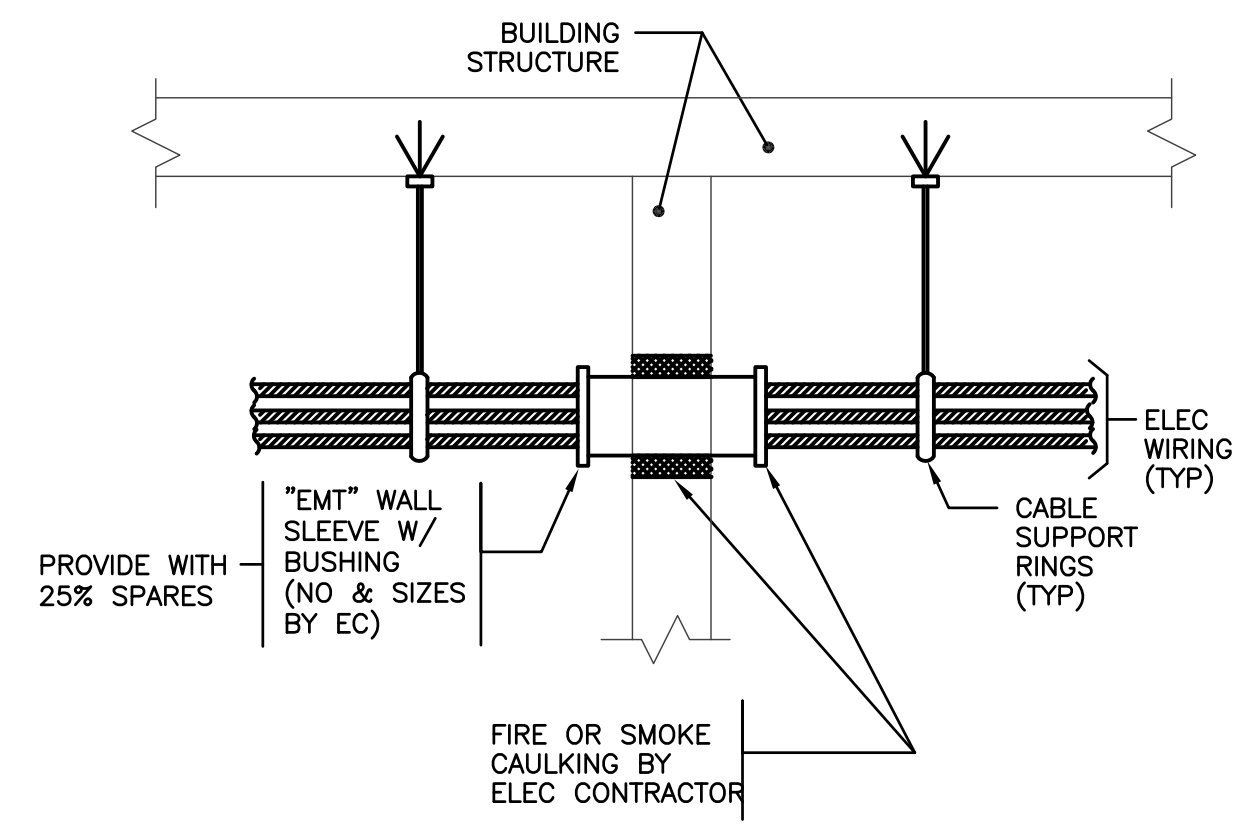
- GALV CONCRETE EXPANSION ROD SUPPORT INSERT AND BOLT
- GALV 3/8" DIAM THREADED SUPPORT ROD
- LV CABLES (IE - FIRE ALARM, SECURITY, TELE/DATA, CCTV, ETC) SUPPORT "J" HOOKS. HOOKS SHALL BE COMPLIANT FOR EACH CABLE TYPE.
- SUPPORTS MOUNTING HEIGHTS AND ROUTING SHALL BE FIELD DETERMINED. ALL SUPPORTS SHALL BE SUBMITTED FOR REVIEW/APPROVAL BY THE STRUCTURAL ENGINEER.



PANELBOARD WIRING DETAIL
NOT TO SCALE

NEW/REVISED PANELBOARD WIRING DETAIL NOTES

- PANELBOARD POWER FEEDER CONDUIT/WIRE
- PANELBOARD BRANCH TYPE "MC" CABLES (AS REQUIRED)
- "U" CHANNELS (BOLTED TO WALL) WITH METAL CLIPS FOR "MC" CABLES (AS REQ'D)
- ENGRAVED PLASTIC NAMEPLATE WITH NAME, TAG, VOLTAGE AND POWER SUPPLY
- "DEAD FRONT" PANELBOARD
- NEC/OSHA WARNING LABELS (AS REQUIRED) (MTD INSIDE COVER)
- 2" EMT SLEEVE WITH PNLBD HOMERUN WIRES
- PAINTED STEEL WIREWAY (SIZED TO SUIT) WITH HINGED FRONT COVER

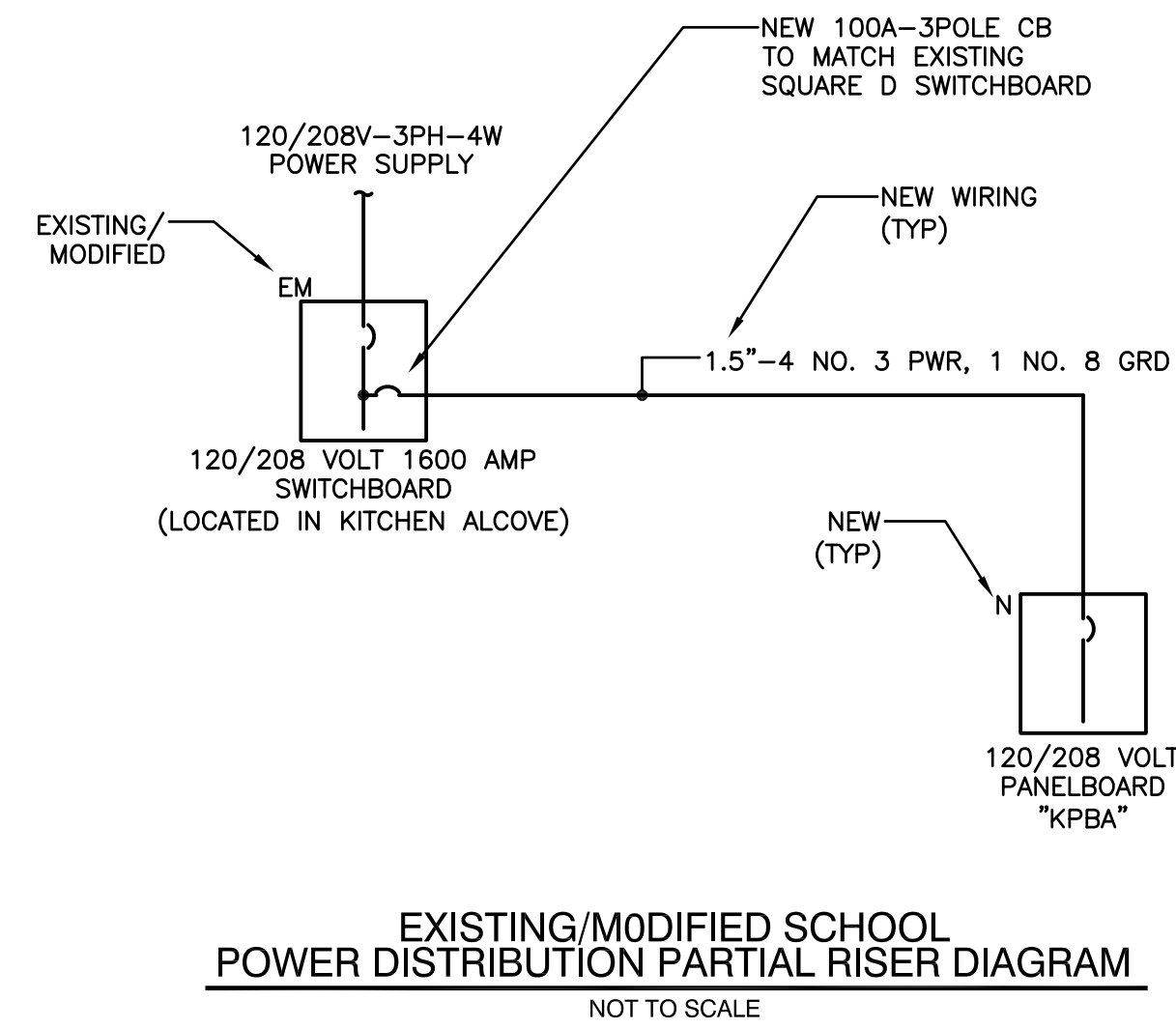


TYPICAL ELECTRICAL WIRING THRU FIRE OR SMOKE RATED WALLS WIRING DETAIL *
NOT TO SCALE

* EC SHALL PROVIDE "EMT" WALL SLEEVES FOR BOTH LINE AND LOW VOLTAGE WIRING.

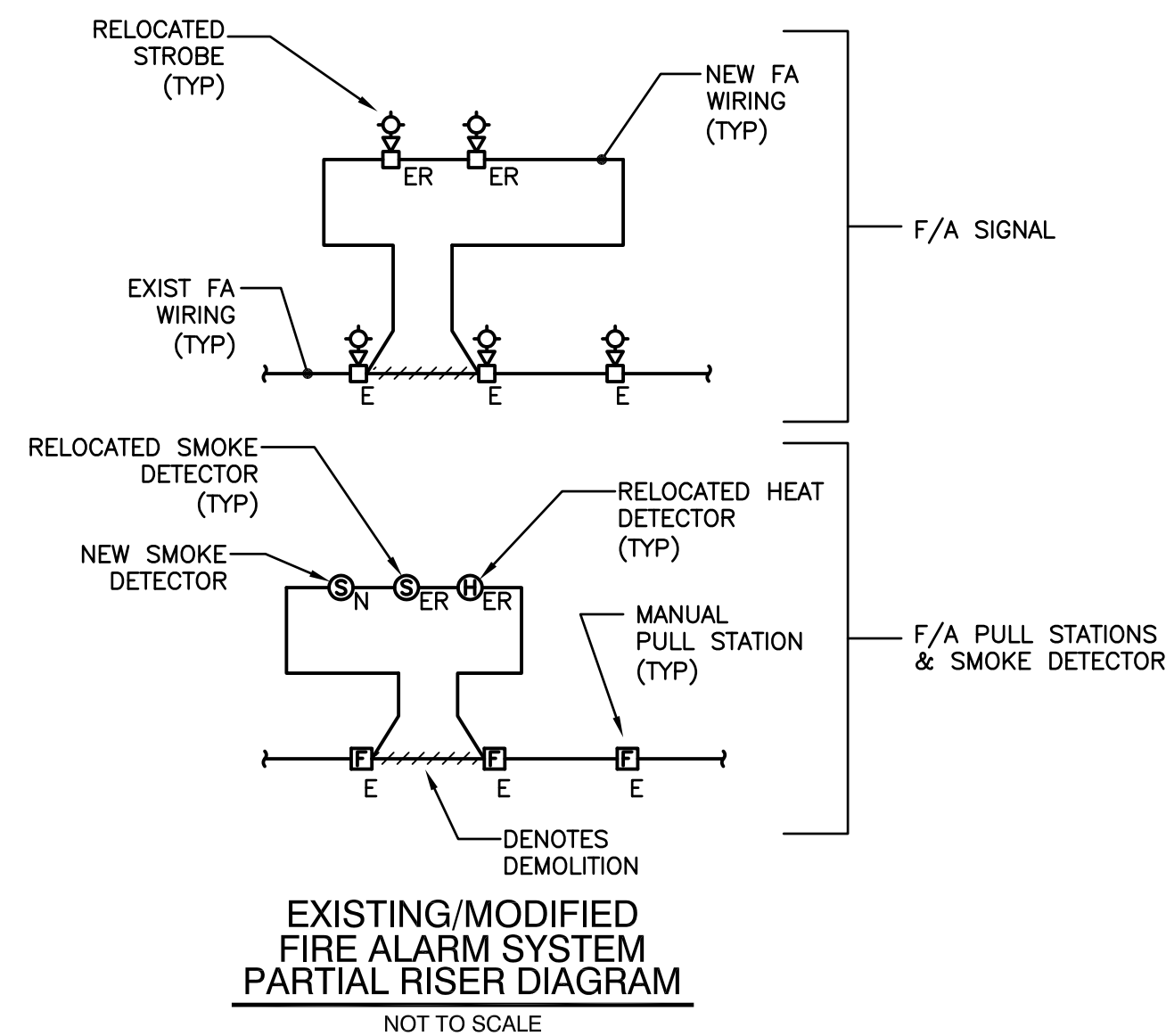
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- FOR ELECTRICAL RISER DIAGRAMS AND SCHEDULES, REFER TO DWGS #E6.1 & E7.1



ELECTRICAL DISTRIBUTION SYSTEM RISER DIAGRAM NOTE

- ① ELEC CONTRACTOR (EC) SHALL FIELD SURVEY THE EXISTING KITCHEN SWITCHBOARD IN ORDER TO SELECTIVELY DEMOLISH AND INSTALL NEW KITCHEN PANELBOARD.
- ② EC SHALL FURNISH AND INSTALL NEW PANELBOARD (NO LOAD CENTER IS PERMITTED) AND ASSOCIATED WIRING.
- ③ EC SHALL PROVIDE NEW ENGRAVED NAMEPLATES FOR NEW AND EXISTING POWER DISTRIBUTION EQUIPMENT THAT INDICATE THE TAG NAME, VOLTAGE/PHASE AND FED FROM "XXX" INFORMATION. EC SHALL FURNISH/INSTALL "NEC ELECTRICAL SHOCK" AND OSHA "ARC FLASH" WARNING LABELS.
- ④ EC SHALL PROVIDE "AS-BUILT" TYPED PANELBOARD BRANCH CIRCUIT SCHEDULES FOR THE NEW AND AND MODIFIED PANELBOARDS.
- ⑤ EC'S WORK INCLUDES ALL REQUIRED COORDINATION WITH THE NEW "AS SUPPLIED" FOOD SERVICE EQUIPMENT PRIOR TO RELEASE AND/OR ANY ROUGH WIRING. NOTE, EC SHALL REVIEW THE "AS SUPPLIED" FOOD SERVICE CATALOG INFORMATION.
- ⑥ EC SHALL MAKE "SPARE" ANY EXISTING BRANCH CIRCUIT BREAKERS WHICH ARE PART OF THE SELECTIVE DEMOLITION OF THE EXISTING FOOD SERVICE EQUIPMENT.



FIRE ALARM SYSTEM RISER DIAGRAM NOTES

- ① ELEC CONTRACTOR (EC) SHALL FIELD SURVEY THE AFFECTED EXISTING FIRE ALARM SYSTEM (I.E. - PANEL, FIELD DEVICES, WIRING, ETC.) IN ORDER TO SELECTIVELY DEMOLISH AND RE-VERSE AS INDICATED ON THE ELECTRICAL POWER DRAWINGS.
- ② NEW FIRE ALARM FIELD WIRING SHALL MATCH THE EXISTING FIRE ALARM FIELD WIRING. NOTE, THE NEW FA FIELD DEVICES SHALL BE CONNECTED TO THE EXISTING FA DETECTION AND SIGNALING CIRCUITS. HOWEVER, THE FACP PROGRAMMING SHALL BE REVISED AS REQUIRED.
- ③ EC MUST SUBCONTRACT WITH THE EXISTING BUILDING FA CONTRACTOR (I.E. - TESTING FIRM) WHO WILL REVIEW / APPROVE THE FA SYSTEM REVISIONS INCLUDING MAKING FINAL TERMINATIONS, FIELD TESTING AND RECERTIFICATION OF THE REVISED FAA SYSTEM.
- ④ EC'S FA WORK ALSO INCLUDES ALL NECESSARY REVISIONS TO THE FA SYSTEM DOCUMENTATION. IN ADDITION, EC'S FA WORK INCLUDES ALL NECESSARY LOCAL FIRE DEPT REQUIREMENTS FOR THE FA PERMIT, PLANS/SHOP DWGS REVIEW/APPROVAL, FIELD TESTING, ETC.
- ⑤ NEW FA FIELD DEVICE (I.E.- SMOKE DETECTOR) SHALL MATCH EXISTING SIMILAR UNITS.

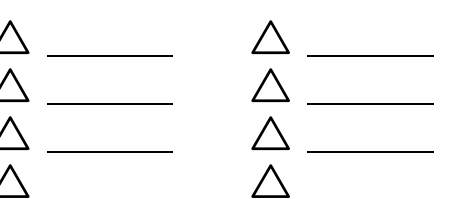
PROJECT:
WALTHAM HIGH SCHOOL CAFETERIA RENOVATION

WALTHAM, MA

PROJECT #: 13065.00
DRAWN BY: DGK
CHECKED BY: ELD
APPROVED BY: WPE
SCALE: AS NOTED

- REVIEW
- SCHEMATIC DESIGN
- 90% - REVIEW
- DESIGN DEVELOPMENT
- FINAL REVIEW
- BIDDING
- PERMIT
- CONSTRUCTION
- NOT FOR CONSTRUCTION
- FOR RECORD

DATE: 7/3/2013



DRAWING:
**ELECTRICAL
RISER DIAGRAMS**

E6.1

ELECTRICAL DRAWINGS REFERENCE NOTES

- 1) FOR ELECTRICAL SYMBOLS, ABBREVIATIONS & NOTES, REFER TO DWG #E0.1
- 2) FOR ELECTRICAL POWER, LIGHTING AND FA DEMO/PROP PLANS, REFER TO DWGS #E1.1 THRU E2.3
- 3) FOR ELECTRICAL DETAILS AND NOTES, REFER TO DWGS #E5.1
- 4) FOR ELECTRICAL RISER DIAGRAMS AND SCHEDULES, REFER TO DWGS #E6.1 & E7.1

NEW KITCHEN PANELBOARD "KPBA" SCHEDULE							
120/208V - 100A - 3PH - 4W - 22KAIC - 30P							
RECESS MOUNTED : 100AT /100AF MCB							
POLE NO.	LOAD	KVA	CB	POLE NO.	LOAD	KVA	CB
1	TRACK LIGHTS LEFT SIDE	0.6	20A	2	TRACK LIGHTS RIGHT SIDE	0.6	20A
3	HEAT CABINET	1.0	20A	4	RCPT-CASHIER EX	0.8	20A
5	RCP-CASHIER STA 5,6	0.8	20A	6	RCP-REFG-CABINET	0.8	20A
7	RCPT-REFG MERCHANDIZER	1.8	20A	8	MILK COOLER	0.8	20A
9	DELI SERVING COUNTER	0.8	20A	10	SPARE		20A
11	PIZZA-SALAD STATION	0.8	20A	12	SERVING COUNTER HOT/COLD	2.0	30A
13	PIZZA-SALAD STATION	2.0	20A-	14	SPARE		20A
15	* * * * *		2P	16	SERVING COUNTER COLD/COLD	2.0	30A
17	RCPT-LEFT SIDE	0.2	20A	18	RCPT-LEFT SIDE	0.2	20A
19	RCPT-LEFT SIDE	0.2	20A	20	SPARE		20A-
21	SPARE		30A	22	* * * * *		2P
23	SPARE		20A	24	SPARE		20A
25	SPARE		20A	26	SPARE		20A
27	SPACE		1P	28	SPACE		1P
29	SPACE		1P	30	SPACE		1P
CONNECTED LOAD "KVA" = 15.4							

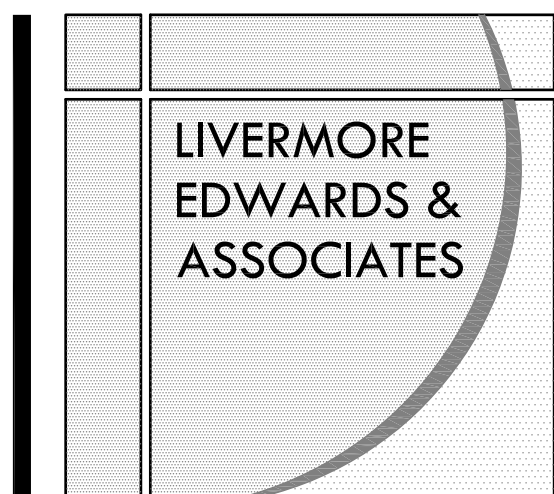
PANELBOARD "KPBA" NOTES -
1) BRANCH CIRCUITS NOTED AS "A"
2) PANELBOARD SHALL HAVE GROUND BUS, SIDE PIANO HINGE, NEC/OSHA WARNING LABELS & ENGRAVED NAMEPLATE
3) PANELBOARD SHALL HAVE "GFI" CIRCUIT BREAKERS FOR CIRCUITS # A3, A4, A5,A6,A7,A8, A9,A11,A17,A18 & A19

NEW SERVING LINE			
LIGHTING FIXTURE SCHEDULE			
FIXT TYPE	LAMP TYPE & WATTS	DESCRIPTION	MANUFACTURER/ MODEL
A	FLUORESCENT 2 @ 26W (TRT)	8 INCH DOWN LIGHT WITH DIFFUSE WHITE PAINTED CONE W/ ADJUSTABLE INNER REFLECTOR RETAINED BY WHITE ACRYLIC DIFFUSER, CLEAR ACRYLIC LENS, FOAM GASKET AND MULTIVOLT ELECTRONIC BALLAST (RECESSED ACT CEILING MOUNTED)	GOTHAM CANDEO # PDGF-2/26TRT-8AR-LD-WHT-MVOLT-CAL-GSKT OR APPROVED EQUAL
A1	FLUORESCENT 2 @ 26W (TRT)	SAME AS "A" BUT WITH EMERGENCY BATTERY PACK AND REMOTE TEST SWITCH	GOTHAM CANDEO # PDGF-2/26TRT-8AR-LD-TAN-MVOLT-CAL-GSKT-ELR2LP OR APPROVED EQUAL
B	METAL HALIDE 1 @ 20W(MR16)	TRACK LIGHT LIGHT WITH ALUMINUM PAINTED ALUMINUM HOUSING W/ ETCHED SOFTENING LENS, CAST ALUMINUM BALLAST HOUSING, AND 120 VOLT ELECTRONIC BALLAST (TRACK MOUNTED)	LIGHTOLIER # 23C20MRAL WITH AF25FR, MATCHING TRACK AND TRACK FEED
F	FLUORESCENT 2 @ 32W(T8)	2' X 4' WET LOCATION LENS TROFFER WITH WHITE PAINTED BODY AND ALUMINUM DOOR, PATTERN 12 ACRYLIC LENS, CLOSED CELL NEOPRENE FOAM GASKET BETWEEN LENS, DOOR FRAME, HOUSING AND MOUNTING SURFACE AND MULTI-VOLT ELECTRONIC BALLAST (RECESSED ACT CEILING MOUNTED)	LITHONIA # 2WRT-G-332-A12125-MVOLT-GEB10IS OR APPROVED EQUAL
F1	FLUORESCENT 3 @ 32W(T8)	SAME AS "F" BUT WITH EMERGENCY BATTERY PACK	LITHONIA # 2WRT-G-332-A12125-MVOLT-GEB10IS-EL OR APPROVED EQUAL
EX1	LED 5W(MAX)	EXIT SIGN WITH SINGLE FACE, RED LETTERS, WHITE PAINTED ALUMINUM BODY, NFPA 101 AND UL LISTED WITH MAINTENANCE FREE SEALED NICKEL- CADMIUM BATTERY, 120/277 VOLTS AND WET LOCATION LISTED (UNIVERSAL WALL OR CEILING SURFACE MTD)	LITHONIA # LVS-W-1-R-120/277-UM-ELM-CW OR APPROVED EQUAL

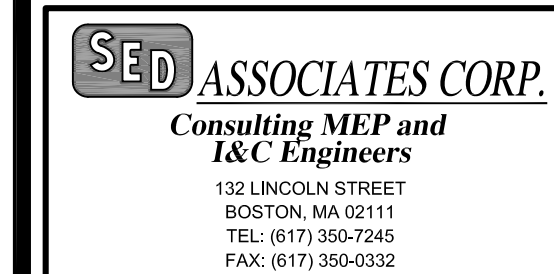
- LIGHTING FIXTURES NOTES -
- 1) ALL LAMPS SHALL BE SUPPLIED WITH THE FIXTURES.
 - 2) ALL FLUORESCENT LAMPS SHALL BE "WARM WHITE" PER BLDG STANDARDS. (ARCHITECT TO VERIFY)
 - 3) ALL LIGHTING FIXTURE BALLASTS SHALL MEET OR EXCEED THE POWER COMPANY STANDARDS FOR ENERGY REBATES (WHETHER OR NOT IN EFFECT)
 - 4) EC SHALL COORDINATE ALL FIXTURES WITH THE ARCHITECTURAL CEILINGS TYPES AND CONDITIONS PRIOR TO RELEASE.
 - 5) EC SHALL FURNISH AND INSTALL SPECIFIED LIGHTING FIXTURES. "OR EQUAL" FIXTURES MUST BE SUBMITTED TO THE ARCHITECT/ENGINEER FOR APPROVAL PRIOR TO RELEASE
 - 6) CATALOG NUMBERS PROVIDED MUST BE VERIFIED BY THE EC'S LIGHTING SUPPLIER FOR CONFORMANCE WITH FIXTURE DESCRIPTIONS AND APPLICABLE DRAWING REQUIREMENTS PRIOR TO BIDDING, RELEASE AND INSTALLATION.
 - 7) THE LIGHTING SUPPLIERS SHALL BE RESPONSIBLE FOR ALL CATALOG NUMBERS ACCURACY. REGARDLESS OF THE CATALOG NUMBER THE FIXTURE'S SPECIFIED FEATURES MUST BE PROVIDED.
 - 8) EC SHALL COORDINATE ALL FIXTURES WITH THE ARCHITECTURAL CEILINGS TYPES AND EXISTING BLDG CONDITIONS INCLUDING NEW CONSTRUCTION PRIOR TO RELEASE. EC MUST ALSO COORDINATE THE LIGHTING FIXTURES VOLTAGES WITH THE BRANCH WIRING.
 - 9) FIXTURES E, E1, E2 AND EX1 ARE FOR ALTERNATE # 1 KITCHEN CEILING REPLACEMENT ONLY
 - 10) ALL TYPE E, E1 & E2 FLUORESCENT LIGHTING FIXTURES SHALL HAVE "BUILT-IN" UL LISTED "LOAD-BREAK" POWER CONNECTORS AS REQUIRED BY NEC 2008

ELECTRICAL DRAWINGS REFERENCE NOTES

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- 2) FOR ELECTRICAL POWER, LIGHTING AND FA DEMO/PROP PLANS, REFER TO DWGS #E1.1 THRU E2.3
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PROJECT:
WALTHAM HIGH SCHOOL CAFETERIA RENOVATION

WALTHAM, MA
PROJECT #: 13065.00
DRAWN BY: DGK
CHECKED BY: ELD
APPROVED BY: WPE
SCALE: AS NOTED

- REVIEW
- SCHEMATIC DESIGN
- 90% - REVIEW
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DRAWING:
ELECTRICAL SCHEDULES

E7.1

DEMOLITION GENERAL NOTES

- DIMENSIONS AND LOCATIONS OF EXISTING PIPING, EQUIPMENT, APPURTENANCES AND STRUCTURES HAVE BEEN OBTAINED FROM EXISTING RECORD AND CONTRACT DRAWINGS. ADDITIONAL INFORMATION HAS BEEN OBTAINED THROUGH FIELD SURVEYS.
- CERTAIN EXISTING PIPES, EQUIPMENT AND STRUCTURES NOT DIRECTLY RELATED TO THE WORK PERFORMED UNDER THIS CONTRACT HAVE BEEN OMITTED FOR THE SAKE OF CLARITY. IT IS NOT WARRANTED THAT THE LOCATIONS AND DIMENSIONS OF THE EXISTING PIPING, EQUIPMENT, APPURTENANCES AND STRUCTURES ARE EXACT. IT IS THE RESPONSIBILITY OF THIS SUBCONTRACTOR TO FIELD VERIFY ALL DIMENSIONS AND LOCATIONS OF EXISTING PIPING, EQUIPMENT, ELECTRICAL CONDUITS, HVAC DUCTS, ETC. AS REQUIRED FOR THE NEW CONSTRUCTION.
- THE DEMOLITION, MODIFICATIONS OR ALTERATIONS OF EXISTING BUILDINGS, EQUIPMENT, PIPING AND STRUCTURES SHALL BE PERFORMED IN ACCORDANCE WITH ALL APPLICABLE LOCAL REGULATIONS AND STATE CODES. REFER TO SPECIFICATIONS FOR FURTHER DETAILS.
- LIMITS OF DEMOLITION AND SALVAGE OF EXISTING EQUIPMENT AND PIPING ARE DEFINED ON THE DEMOLITION DRAWINGS AND IN THE SPECIFICATIONS.
- ALL HOLES CUT FOR NEW PIPING OR EQUIPMENT THROUGH EXISTING CONCRETE OR MASONRY WALLS, SLABS OR ARCHES SHALL BE CORE DRILLED. NO STRUCTURAL MEMBER SHALL BE CUT WITHOUT APPROVAL OF THE ARCHITECT. REFER TO SPECIFICATIONS FOR FURTHER DETAILS.
- FOR MAINTENANCE OF EXISTING BUILDING OPERATION AND FOR CONSTRUCTION SEQUENCE REFER TO SPECIFICATION SECTION 01700.
- THE FOLLOWING SYMBOLS AND TERMS ARE USED ON THE DRAWINGS:

EXISTING TO REMAIN	EXISTING EQUIPMENT, PIPING AND APPURTENANCES TO REMAIN IN SERVICE. CERTAIN ITEMS OF EQUIPMENT AND PIPING MAY BE DISCONNECTED TEMPORARILY TO ALLOW FOR THE CONSTRUCTION OF THE NEW FACILITIES. REFER TO CONSTRUCTION SEQUENCE FOR FURTHER DETAILS.
NEW OR NEW WORK	IDENTIFIES ALL NEW PIPING, EQUIPMENT AND STRUCTURES.
REMOVE/STORE	REMOVE EXISTING EQUIPMENT, PIPING AND/OR APPURTENANCES AND STORE AS DEFINED IN THE SPECIFICATIONS.
RELOCATE	REMOVE EXISTING EQUIPMENT, PIPING AND/OR APPURTENANCES AS SHOWN ON THE DRAWINGS. CLEAN, FLUSH AND DRAIN THE INTERIOR OF THE REMOVED ITEMS AND INSTALL IN THE NEW LOCATIONS AS SHOWN ON THE DRAWINGS.
ABANDON	EXISTING PIPING, EQUIPMENT AND APPURTENANCES TO BE TAKEN OUT OF SERVICE AND LEFT IN PLACE UNDISTURBED. SECTION OF PIPING AND/OR EQUIPMENT MAY BE REMOVED TO ALLOW FOR THE NEW CONSTRUCTION. ALL ABANDONED PIPING SHALL BE DRAINED AND ISOLATED AS DEFINED IN THE SPECIFICATIONS.
DEMOLISH	INDICATES EXISTING PIPING AND/OR EQUIPMENT TO BE REMOVED, REMOVED/STORED, RELOCATED OR SALVAGED.

GENERAL NOTES

- THE PLUMBING DRAWINGS ARE DIAGRAMMATIC AND ARE TO BE USED FOR THE PURPOSE OF ESTABLISHING GENERAL LOCATIONS OF PIPING RUNS, SIZES OF PIPING, AND QUANTITIES OF FIXTURES AND EQUIPMENT TO BE FURNISHED HEREIN. REFER TO ARCHITECTURAL DRAWINGS FOR DIMENSIONS FOR EXACT LOCATIONS OF ALL PLUMBING FIXTURES, AND EQUIPMENT, INCLUDING FLOOR DRAINS, AND MOUNTING HEIGHTS. IN THE EVENT OF CONFLICT OR IF DIMENSIONS ARE NOT SHOWN, OBTAIN FIELD DIRECTIVE FROM THE ARCHITECT AS TO THE LOCATIONS OF ALL VISIBLE EQUIPMENT. PAY PARTICULAR CARE TO COORDINATE WITH THE ARCHITECT'S FIELD REPRESENTATIVE ALL FLOOR DRAIN AND FLOOR CLEANOUT LOCATIONS.
- ALL PIPING SHOWN ON THIS PLAN SHALL BE RUN CONCEALED ABOVE SUSPENDED CEILINGS, IN CHASES, OR IN PARTITIONS UNLESS SPECIFICALLY NOTED OTHERWISE.
- INSTALL ALL NEW VALVES SO AS TO BE EASILY ACCESSIBLE AND OPERABLE.
- MAINTAIN PLUMBING SYSTEMS IN OTHER BUILDING AREAS AT ALL TIMES DURING THE CONSTRUCTION. REFER TO PHASING PLANS AND SPECIFICATIONS ON THE ARCHITECT'S DRAWINGS AND SPECIFICATIONS.
- EXISTING BUILDING AREAS PROVIDE ADDITIONAL STEEL SUPPORTS AND ATTACHMENTS TO SUIT. DO NOT ATTACH TO ROOF DECK PANELS.
- EXISTING SYSTEMS AND EQUIPMENT OUTSIDE OF WORK AREA FOR INFORMATION ONLY, UNLESS OTHERWISE NOTED.
- PROVIDE ALL NEW EQUIPMENT AND METERS WITH PERMANENT ID TAGS. MARKER LABELS ARE NOT ACCEPTABLE.

SYMBOLS & ABBREVIATION

PIPING

	SOIL, WASTE, OR LEADER OR SANITARY SEWER (ABOVE GRADE)
	SOIL, WASTE, OR LEADER OR SANITARY SEWER (BELOW GRADE)
	VENT OR VENT PIPE (ABOVE GRADE)
	VENT OR VENT PIPE (BELOW GRADE)
	POTABLE COLD WATER PIPE
	POTABLE HOT WATER PIPE
	POTABLE HOT WATER RETURN PIPE
	GAS PIPE
	SOLENOID GAS VALVE
	GATE VALVE
	BALL VALVE (BALANCING)
	BALL VALVE (SHUT OFF)
	CHECK VALVE
	FLOOR DRAIN
	FLOOR SINK W/DESIG.
	WALL HYDRANT (FREEZE PROOF)
	HOSE BIBB
	BALL VALVE
	BACKFLOW PREVENTER
	CHECK VALVE
	PIPE UNION
	PIPE TURN DOWN
	PIPE TURN UP
	PIPING OR ITEM TO BE REMOVED OR DEMOLISHED
	CAPPED PIPE
	FLOOR CLEANOUT
	WALL CLEANOUT
	FIXTURE TRAP
	KITCHEN FIXTURE KEC

FIXTURES

	CONNECT TO EXISTING
	MOP BASIN
	VENT through ROOF(ELEVATION)
	VENT through ROOF(PLAN)
	WATER CLOSET
	LAVATORY

	AFF	ABOVE FINISH FLOOR
	C&C	CUT & CAP
	CD	CONDENSATE DRAIN
	CO	CLEANOUT
	CTE	CONNECT TO EXISTING
	CW	DOMESTIC COLD WATER
	DF	DRINKING FOUNTAIN
	ETR	EXISTING TO REMAIN
	FCO	FLOOR CLEANOUT
	FD	FLOOR DRAIN
	FS	FLOOR SINK
	G	GAS (NATURAL)
	GPH	GALLONS PER HOUR
	GPM	GALLONS PER MINUTE
	GT	GREASE TRAP
	GWH	GAS WATER HEATER
	HB	HOSE BIBB
	HLAV	HANDICAPPED LAVATORY
	HW	DOMESTIC HOT WATER (120°F)
	HW(140°)	DOMESTIC HOT WATER (140°F)
	HWC	HANDICAPPED WATER CLOSET
	HWLAV	HANDICAPPED WALL LAVATORY
	HLAV	HANDICAPPED LAVATORY
	HUR	HANDICAPPED URINAL
	KEC	KITCHEN EQUIPMENT CONTRACTOR
	MC	MECHANICAL CONTRACTOR
	MV	MIXING VALVE
	MB	MOP BASIN
	MAU	MAKE UP AIR UNIT
	NC	NORMALLY CLOSED
	NIC	NOT IN CONTRACT
	NO	NORMALLY OPENED
	NTS	NOT TO SCALE
	PC	PLUMBING CONTRACTOR
	RTU	ROOFTOP UNIT
	S	SANITARY
	TD-6	TRENCH DRAIN AND LENGTH
	UR	URINAL
	VIF	VERIFY IN FIELD
	W	WASTE
	WC	WATER CLOSET
	WCO	WALL CLEANOUT
	WV	WASTE VENT
	X	EXISTING

PROJECT:
WALTHAM HIGH SCHOOL CAFETERIA RENOVATION

WALTHAM, MA

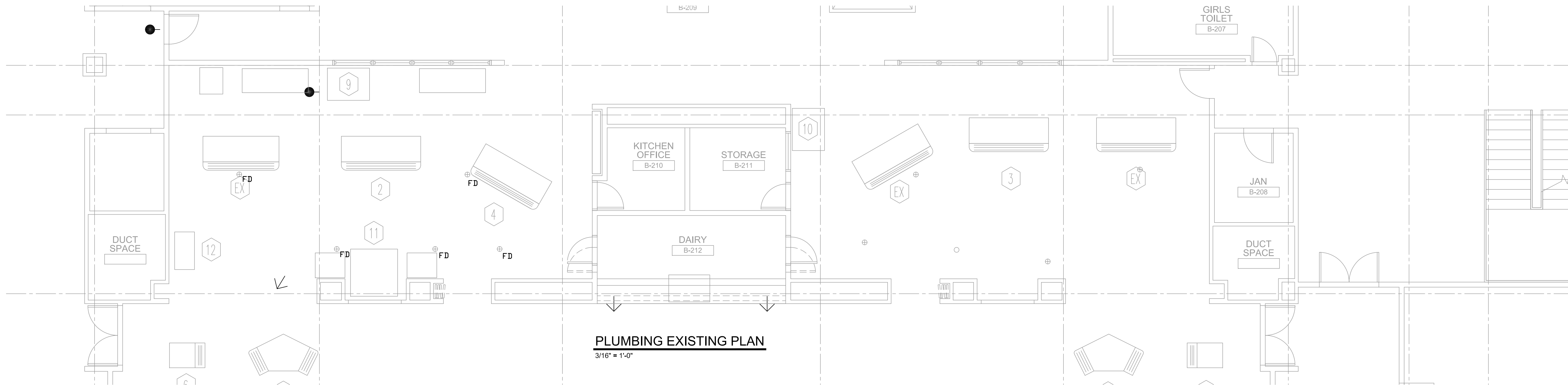
PROJECT #: 13065.00
DRAWN BY: AR
CHECKED BY: MR
APPROVED BY: MR
SCALE: NONE

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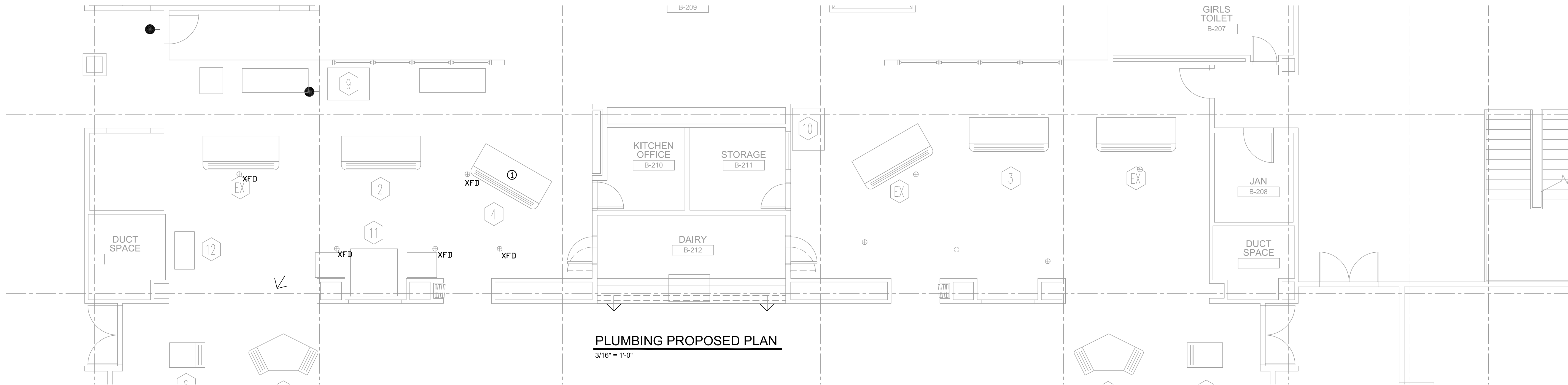
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DRAWING:
**PLUMBING
LEGEND & GENERAL
NOTES**



PLUMBING EXISTING PLAN
3/16" = 1'-0"



PLUMBING PROPOSED PLAN
3/16" = 1'-0"

PROPOSED NOTES

- ① PROVIDE I.W. AS REQUIRED IN SCHEDULE TO XFD.

PLUMBING EQUIPMENT SCHEDULE							
TAG	NAME	CW	HW	WASTE	VENT	I.W.	REMARKS
4	SWING STATION	--	--	--	--	3/4"	

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WALTHAM HIGH SCHOOL CAFETERIA RENOVATION

WALTHAM, MA

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DRAWING:
**PLUMBING
KITCHEN PLANS**