

PROJECT MANUAL

**HVAC Upgrades
Gately Youth Center**

Cambridge, MA

**Owner:
City of Cambridge, Massachusetts**

**Architect:
HKT Architects Inc.**



March 28, 2010

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FILE NO. 5177

INVITATION TO BID

The City of Cambridge, Massachusetts, the Awarding Authority, invites sealed bids for the project: HVAC Upgrades, Gately Youth Center

Bidding procedures shall be in accordance with M.G.L. c. 149, SS44A-44J, and all other applicable laws.

All parties desiring to submit general bids must submit with their bids a copy of the Contractor's certificate of eligibility (DCAM Form CQ7) and an Update Statement (DCAM Form CQ3), both in the work category of: **Heating Ventilating and Air Conditioning**

The estimated project value is: **\$110,000.00**

Please submit an original and one copy of all bids.

Sealed General Contractor bids will be received at the Purchasing Department, City Hall, 795 Massachusetts Avenue, Room 303, Cambridge, MA 02139 until **Thursday April 22, 2010 @ 2:00 PM** at which time all general bids will be publicly opened and read aloud.

Plans and specifications will be available from Monday 8:30 a.m. to 8:00 p.m., Tuesday through Thursday, 8:30 a.m. to 5:00 p.m. and Friday 8:30 a.m. to 12:00 noon, at the Purchasing Department, City Hall, 795 Massachusetts Avenue, Room 303, Cambridge, MA 02139 from **Thursday, March 25, 2010**.

Copies of the plans & specifications may be downloaded from the City's web page: www.cambridgema.gov, Online Services, Purchasing, Current Bid List, Construction.

The contract documents may be examined at the Office of the Purchasing Agent, Room 303, City Hall, 795 Massachusetts Avenue, Cambridge, MA 02139, or at the plan room of Dodge Reports, 24 Hartwell Avenue, Lexington, MA 02173, Construction Market Data, 75 Second Avenue, Suite 320, Needham, MA 02194, New England Construction News, 100 Radnor Road, Suite 102, State College, PA.

All questions must be faxed no later than 5:00 PM on Tuesday, April 13, 2010, to the City of Cambridge Purchasing Department, fax #617-349-4008.

All general bids shall be accompanied by a bid deposit in the form of a certified, cashier's or treasurer's check issued by a responsible bank or trust company made payable to the City of Cambridge or a bid bond, in an amount not less than five percent (5%) of the value of the bid. The successful general bidder will be required to furnish a Performance Bond and a Labor and Material (Payment) Bond each in the amount of one hundred percent (100%) of the contract sum. Bonds shall be obtained from a surety licensed to do business in the Commonwealth of Massachusetts and the form shall be satisfactory to the City of Cambridge.

The successful bidder will also be required to comply with the provisions of Chapter 306 of the Acts of 2004 in regard to required OSHA approved safety & health training.

The City of Cambridge reserves the right to reject any or all general bids if it is in the public interest to do so. The City of Cambridge reserves the right to reject any sub-bid on any sub-trade if it determines that such sub-bid does not represent the sub-bid of a person competent to perform the work as specified or that less than three such sub-bids were received and that the prices are not reasonable for acceptance without further competition.

No less than the minimum wage rates as set forth in the schedule contained in the Contract Documents must be paid on this project.

Attention is called to the following programs and ordinances of the City of Cambridge:

1. Supplemental Equal Employment Opportunity Anti-Discrimination and Affirmative Action Program;
2. Minority Business Enterprise Program
3. Cambridge Employment Plan: minority/women/resident hiring ordinance.
4. Cambridge Responsible Employer Plan.
5. Cambridge Living Wage Ordinance
6. OSHA Certification
7. CORI City Policy

Copies of the above are bound in the bid documents and are fully integral portions of the conditions of the contract with which each contractor and sub-contractor must comply.

A pre-bid conference for all bidders will be held as follows:

Date: **Tuesday, April 6, 2010**

Time: **10:00 AM**

Place: **Gately Youth Center, 70 Rear Rindge Avenue, Cambridge**

Cynthia H. Griffin
Purchasing Agent

INFORMATION FOR AND INSTRUCTIONS TO BIDDERS

DIVISION 00100

1. DEFINITIONS AND TERMINOLOGY

Article 1, Definitions, of the General Terms and Conditions of the Contract for Construction, Reconstruction, Installation, Demolition, Maintenance, or Repair of any City of Cambridge Public Building ("General Terms and Conditions") are incorporated by reference as if fully rewritten herein. In the event of a conflict between the within definitions and those found in the General Terms and Conditions, the former govern for the purposes of these Instructions only. All other terms which are not herein defined have their ordinary dictionary meaning.

ADDENDUM (ADDENDA, PLURAL)-An Addendum is a document issued by the City prior to the opening of the General Bids which clarifies, amends, or modifies the Bidding Documents.

ALTERNATE BID-An Alternate Bid (or An Alternate) is an amount that is either added to or deducted from the Base Bid depending on the designation on the Bid form.

BASE BID-A Base Bid is the sum proposed by a Bidder to perform the Work and does not include any Alternate Bids.

BID-A Bid is a proposal to do the Work for a specified sum and includes accompanying forms which are required to be submitted.

BIDDER-A Bidder is a person who or an entity that submits a Bid pursuant to M.G.L. c. 149, §§44E and/or F and thus includes Filed Sub-Bidders, except when specifically referred to as either General Bidder or Sub-Bidder. The pronouns "it" and "they" are used herein when referring to a Bidder or Bidders, respectively.

BIDDING DOCUMENTS-The Bidding Documents are comprised of the entire Project Manual, which includes, but is not limited to, the Invitation to Bid (advertisement), the Instructions to Bidders, all of the forms (e.g., Bid forms, sample Agreement form, bond forms), the wage rates, the General Terms and Conditions of the Contract, any supplementary terms and conditions thereto, the Plans, the Specifications, and all addenda.

BUSINESS DAYS-Business days are defined as all days of the week excluding Saturdays, Sundays, and those holidays for which the City offices are closed for observance.

FILED SUB-BID/SUB-BID-A Filed Sub-Bid, or Sub-Bid, is a Bid submitted pursuant to M.G.L. c. 149, §44F.

FILED SUB-BIDDER/SUB-BIDDER-A Filed Sub-Bidder, or Sub-Bidder, is a person who or an entity that has submitted a Sub-Bid pursuant to M.G.L. c. 149, §44F. The

pronouns "it" and "they" are used herein when referring to a Filed Sub-Bidder or Filed Sub-Bidders, respectively.

GENERAL BID-A General Bid is a Bid that is submitted pursuant to M.G.L. c. 149, §§44E.

GENERAL BIDDER-A General Bidder is a person who or an entity that submits a General Bid pursuant to M.G.L. c. 149, §§44E. The pronouns "it" and "they" are used herein when referring to a General Bidder or General Bidders, respectively.

PURCHASING DEPARTMENT-The Purchasing Department refers to the City of Cambridge Purchasing Department located at 795 Massachusetts Avenue, Third Floor, Cambridge, MA 02139.

2. COPIES OF BIDDING DOCUMENTS

A Bidder may obtain one set of Bidding Documents without charge, except for a fully refundable deposit in an amount set forth in the Invitation to Bid, if the Bidding Documents, including all addenda, are returned to the Purchasing Department in good condition within thirty (30) calendar days from the date of the opening of the General Bids. The Bidder will forfeit the deposit if the Bidding Documents are not returned within this time period. Any Bidding Documents returned to the Purchasing Department by mail should require a signature evidencing the date of receipt by the City. In the event of a dispute as to whether the Bidding Documents were received by the City in a timely fashion, the only document which will be accepted as proof of timely delivery is the mail carrier's official receipt. The City is not responsible for any delays caused by the mail carrier service.

The City shall charge a Bidder a fee for each set obtained after the first set, in an amount set forth in the Invitation to Bid.

The City is not responsible for delays in mail service where a Bidder has requested that the Bidding Documents be mailed.

No partial sets of Bidding Documents will be issued.

The Contractor may retain the Bidding Documents; however, the Contractor shall request a refund of its deposit within ten (10) calendar days after the date of the Notice of Award. Otherwise, the deposit shall be forfeited.

It is the responsibility of the Bidder to insure that it has obtained a complete set of Bidding Documents. Complete sets of Bidding Documents shall be used in preparing Bids. Neither the City nor the Architect assumes any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents in preparing the Bids.

Distribution of the Bidding Documents is for the sole purpose of obtaining Bids and does not confer a license or grant permission for any other use of the Bidding Documents.

Reference: M.G.L. c. 149, §44B(1).

3. LIST OF BIDDERS

A list of all persons who have requested a set of Bidding Documents are posted at the Purchasing Department and sent on a weekly basis to the Central Register and to such other publications as the Purchasing Department deems appropriate.

4. STATE WAGE RATE REQUIREMENTS

The minimum prevailing wage rates are included with the Bidding Documents and apply to this Project.

5. CITY EMPLOYMENT REQUIREMENTS

The requirements of the Minority Business Enterprise Program, the Cambridge Employment Plan, the Cambridge Responsible Employer Plan, and the Supplemental Equal Employment Opportunity Program are included with the Bidding Documents and apply to this Project.

Each Bidder must review the material provided herein carefully in order to understand the requirements that will be imposed for this Project.

6. QUESTIONS AND INTERPRETATIONS

All questions about the meaning or intent of the Bidding Documents shall be received in writing no later than the end of the business day seven calendar days before the date herein set for the opening of General Bids. Any questions received after such time will be answered at the discretion of the City. Questions may be mailed to the Purchasing Department or faxed to (617) 349-4008.

Written clarifications or interpretations will be issued by the Purchasing Department in the form of an Addendum. Only questions answered by an Addendum will be binding. Oral clarifications or interpretations will be without legal effect. Addenda will either be faxed or mailed to all persons having received Bidding Documents from the Purchasing Department.

Each Bidder shall be responsible for determining that it has received all Addenda issued.

7. THE BID

Bidder's Representations.

In submitting a Bid, the Bidder represents that:

- it has read and examined the Bidding Documents thoroughly;
- it understands the Bidding Documents;
- the Bid is made in accordance with the Bidding Documents;
- it has visited the site, has become familiar with the conditions of the site and the surrounding area, and has familiarized itself with local conditions that may in any manner affect cost, progress, or performance of the Work;
- it has correlated its own observations with the Bidding Documents;

- it has found no errors, conflicts, ambiguities, or omissions in the Bidding Documents, except for those that it has brought to the Purchasing Department's attention either orally at a pre-bid conference or in writing at least seven (7) calendar days prior to submitting its Bid;
- it is familiar with all of the applicable Massachusetts laws affecting its Bid, including, but not limited to, M.G.L. c. 149, §§44A-J, inclusive; M.G.L. c. 149, §§27, 27B and 29; and M.G.L. c. 30, §§39F, 39I, 39J, 39K, 39L, 39M, 39N, and 39O, is familiar with the applicable rules, procedures, and ordinances of the City, and is familiar with all applicable

Federal laws, rules, and regulations and its Bid is in conformity with those laws, procedures, and ordinances; and

- the Bidder has complied with every requirement of these Instructions and that the Bidding Documents are sufficient in scope and detail to indicate and convey an understanding of all terms and conditions for the performance of the Work.

Contents of a bid.

The checklists below are included for the bidders' convenience and in no way waive or abridge the City's right to reject any or all bids.

A general Bid must include:

- a completed General Bid form;
- a Bid deposit;
- DCAM Certification Form and Update Statement;
- MBE Forms 1 and 2 or Forms 3 and 4 (City of Cambridge form);
- MBE/WBE Forms 1 and 2 or Forms 3 and 4 (applies if the project is subject to Chapter 193, Acts of 2004)
- Projected Workforce Certification (City of Cambridge form);
- General Contractor's Certification (City of Cambridge form);
and
- Cambridge Responsible Employer Plan General Contractor's Certificate (City of Cambridge form for projects over \$100,000 only).
- OSHA Certification Form
- CORI Compliance Form

A Filed Sub-Bid must include:

- a completed filed Sub-Bid form;
- a Bid deposit;
- DCAM Certification Form and Update Statement
- Sub-Contractor's Certification (City of Cambridge form);
and

- Cambridge Responsible Employer Plan Subcontractor's Certificate (City of Cambridge form for projects over \$100,000 only, where filed sub-bid is over \$25,000).
- OSHA Certification Form
- CORI Compliance Form

Note to Filed Sub-Bidders: Every Sub-Bidder duly filing a Sub-Bid with the City shall be bound thereby to every General Bidder not excluded therein from the use thereof; and any variance from such Sub-Bid communicated to a General Bidder shall be of no effect. *Reference: M.G.L. c. 149, §§44F(3).*

RIGHT TO WAIVE INFORMALITIES AND PERMIT CURATIVE MEASURES.

The City reserves the right to waive any Bid informalities. The City may permit bidders who fail to include all non-statutory, City of Cambridge forms to cure such omission(s) within five days of bid opening, subject to the City's discretion.

Bid Deposits: Every Bid must be accompanied by a Bid deposit in the form of a Bid bond, certified check on, or a treasurer's or cashier's check issued by, a responsible bank or trust company, payable to the City of Cambridge. The Bid bond shall be (a) in a form satisfactory to the City, (b) with a surety company qualified to do business in the Commonwealth and satisfactory to the City, and (c) conditioned upon the faithful performance by the principal of the agreements contained in the Bid. The Bid deposit shall be no less than five percent (5%) of the value of the Bid. *Reference: M.G.L. c. 149, §44B(2).*

Bids Forms. Each Bid shall be submitted on the Bid form included in the Project Manual. Bid prices must be stated in both dollar figures and words. In the case of a conflict, written amounts shall control over numbers. All blank spaces must be filled. Do not leave any blanks. Print "N/A" in any space not needed or used. The Bid form shall be completed in ink or by typewriter.

Acknowledgment of Addenda. Each Bidder is required to acknowledge the receipt of all Addenda (the numbers of which are to be filled in on the Bid form by the Bidder). The City, in its sole discretion, may deem a Bidder's failure to acknowledge any Addendum a minor informality.

Submission of a bid.

Prior to the deadline for receipt of Bids, each Bid must be submitted to the Purchasing Department in a sealed envelope which is plainly marked on the outside with the name and address of the Bidder, the title of the Project, the portion of the Work which the Bid represents, and the date and time of the Bid opening. A separate Bid must be submitted for each Filed Sub-Bid. Any hand delivered Bid received after the deadline will not be accepted. Any other Bid received after the deadline will be returned to the addressee. Any Bid submitted to any other office or department of the City and received by the Purchasing Department after the deadline for receipt of Bids will not be accepted. It is the responsibility of the Bidder to ensure that its Bid is received by the Purchasing Department in a timely fashion. The deadline for receipt of Bids can be extended by Addendum only.

Bids may not be submitted orally, by facsimile, by telephone, or by any other method except for the methods described above.

Modification of a bid.

A Bid may be modified only by submitting any such modification in the form of a document executed in the same manner as a Bid, delivered in a sealed envelope in the same manner as a Bid, designated as a modification to the original Bid and submitted to the Purchasing Department prior to the time designated for the opening of Bids.

Withdrawal of a bid.

Prior to Bid opening. A Bid may be withdrawn before the time designated for opening Bids. The Bidder requesting such withdrawal must make the request in writing and in a specific manner

designated by the City if the City so requires. Withdrawal of a Bid prior to the Bid opening time will not prejudice the right of a Bidder to resubmit a Bid. A Bid cannot be withdrawn after the Bid opening time except as provided by law.

After Bid opening. In the case of death, disability, bona fide clerical error or mechanical error of a substantial nature or other unforeseen circumstances affecting a Bidder, a Bidder may withdraw its Bid after the time designated for Bid opening, if within five (5) days of the date designated for opening its Bid, such Bidder submits a statement under the penalties of perjury to the Purchasing Department detailing the basis for withdrawal. The City will then make a determination as to whether such Bidder has satisfied both the statutory and City requirements for such withdrawal. If the City is satisfied, the Bid Deposit will be returned to such Bidder. *Reference: M.G.L. c. 149, §§44B(3) and (4).*

Bid opening.

All Bids received prior to the date and time designated for the Bid opening will be opened publicly and read aloud at a location designated by the Purchasing Department. *Reference: M.G.L. c. 149, §§44E(3) and F(3).*

Bidders list.

Sub-bidders. At least two (2) business days prior to the date for opening general Bids, the City shall mail to every person on record as having taken a set of plans and specifications a list of Sub-Bidders arranged by sub-trades and listing for each sub-trade the name, address and Sub-Bid price of every Sub-Bidder submitting a Sub-Bid thereon not rejected by the City and the names of the General Bidders excluded from using such Sub-Bid. A person shall not be named by a General Bidder as a Sub-Bidder for a sub-trade on the General Bid form unless such person is included for such sub-trade in said list. If a General Bidder not excluded in said list from doing so names as a Sub-Bidder for a sub-trade on the General Bid form a person included for such sub-trade in said list at the Sub-Bid price stated in said list, neither the General Bid of such General Bidder nor the general contract executed on the basis of such General Bid shall be invalid or rejected because of the invalidity of such Sub-Bid, or because of error on said list, nor shall such General Bid be rejected nor shall such general contract be invalid because of any invalid action taken by the City in

connection with any Sub-Bid or Sub-Bids; but there shall be a substitution of Sub-Bidders and an adjustment of the contract price as if paragraph (c) of section forty-four F(4) were applicable. *Reference: M.G.L. c. 149, §44F(3).*

Public bid review and inspection.

Upon opening, all Bids become public records except for portions thereof that are not subject to public disclosure as a matter of law. *Reference: M.G.L. c. 149, §44D(2).*

Bids may be reviewed by the public in a manner set forth by the Purchasing Department.

Any Bidder who objects to a Bid may protest the Bid. In order to be considered, the protest must be received by the Purchasing Department within two (2) business days after the Bid opening date. The protest must be in writing, must state in detail the basis for the protest, and must be signed by the protester.

8. RESERVATION OF RIGHTS TO REJECT BIDS

General and Sub-Bids.

The City reserves the right to reject any or all general Bids, if it is in the public interest to do so. The City reserves the right to reject any Sub-Bid on any sub-trade, if it determines that such Sub-Bid does not represent the Sub-Bid of a person or entity competent to perform the Work as specified or that less than three such Sub-Bids were received and that the prices are not reasonable for acceptance without further competition. *Reference: M.G.L. c. 149, §44E(1).*

The City reserves the right to reject any or all Bids if it determines that the Bidder does not possess the qualifications to perform the Work specified in the Bidding Documents.

The City reserves the right to reject the Bid of any Bidder who the City has determined has not completed a prior project, whether with the City or elsewhere, because of the fault of the Bidder, its Subcontractors or employees; has been declared in default on a prior contract whether with the City or elsewhere; has failed to complete a prior project in a timely fashion whether with the City or elsewhere; based on its work record, is not capable of performing the within Contract whether due to lack of sufficient prior experience, as determined by the City, or any other reason; has a work record of its Subcontractors demanding direct payment from the City; has a work record of its Subcontractors, employees or material suppliers complaining to the City or other awarding authority regarding the Bidder's failure to pay them; has a record of complaints made to the City or other awarding authority by persons offended by the behavior of the Bidder, its Subcontractors or employees; or has a record of its failure to comply with the Commonwealth and/or City laws or requirements. "Work record" or "record" constitutes a minimum of one event in the work history of the Bidder.

Sub-Bids.

Within two business days after the Bid opening, the City shall reject every Sub-Bid which is not accompanied by a Bid deposit as prescribed in sub-section (2) of section forty-four B, or which otherwise does not conform with sections forty-four A to forty-

four H, inclusive, or which is on a form not completely filled in, or which is incomplete, conditional or obscure, or which contains any addition not called for; provided, however, that the failure of the City to reject such Sub-Bid within such period shall not validate such a Sub-Bid nor preclude the City from subsequently rejecting it. No Sub-Bid shall be rejected because of the failure to submit prices for or information relating to any item or items for which no space is provided on the Sub-Bid form furnished by the City, but this sentence shall not be applicable to any failure to furnish prices or information required by section forty-four F to be furnished in the Form for Sub-Bid. *Reference: M.G.L. c. 149, §44F(3).*

General Bids.

The City shall reject every general Bid which is not accompanied by a Bid deposit as prescribed in sub-section (2) of section forty-four B, or which otherwise does not conform with sections forty-four A to forty-four H, inclusive, or which is on a form not completely filled in, or which is incomplete, conditional or obscure, or which contains any addition not called for. No such Bid shall be rejected because of the failure to submit prices form or information relating to any item or items for which no specific space is provided in the Bid form furnished by the City. No General Bid shall be rejected (1) because the sum of the prices for all work of the general contractor and Sub-Bids does not equal the General Bid price set forth on the Bid form for that purpose or (2) because of error in setting forth the name, the Sub-Bid price of a Sub-Bidder, or the total Sub-Bids as long as the Sub-Bidder or Sub-Bidders designated are clearly identifiable, or (3) because the plans and specifications do not accompany the Bid or are not submitted with the Bid. *Reference: M.G.L. c. 149, §44E(3).*

9. AWARD OF CONTRACT

The City shall award the contract to the lowest responsible (demonstrably possessing the skill, ability, and integrity necessary to faithfully perform the work called for by the Contract, based upon a determination of competent workmanship and financial soundness in accordance with the provisions of M.G.L. c. 149, §44D-see M.G.L. c. 149, §44A(1)) and eligible (able to meet all requirements for Bidders set forth in M.G.L. c. 149, §§44A-H and not debarred from bidding under §44C or any other applicable law, and who shall certify that it is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed on the work-see M.G.L. c. 149, §44A(1)) General Bidder within thirty (30) Business Days after the date of the opening of the General Bids. If the Bidder selected as the general contractor fails to perform its agreement to execute a general contract in accordance with the terms of its Bid and furnish a performance bond and a labor and materials or payment bond as stated in its Bid in accordance with M.G.L. c. 149, §44E, an award shall be made to the next lowest responsible and eligible Bidder, subject to the provision of M.G.L. c. 149, §§44A-H, inclusive. The thirty-day time limit shall not be applicable to a second or subsequent award made after the expiration of the time limit with the consent of the next lowest responsible and eligible Bidder, and made because the original award made within the time limit was invalid, or because the Bidder failed to execute the Agreement or to provide a performance and labor and materials or payment bond.

Any General Bidder who fails to perform its agreement to execute a Contract and furnish a performance bond and a labor and materials or payment bond shall forfeit its Bid deposit which shall become the property of the City, but the amount forfeited

shall not exceed the difference between its Bid price and the Bid price of the next lowest responsible and eligible bidder. *Reference: M.G.L. c. 149, §44B(3).*

If a selected Sub-Bidder fails to perform its agreement to execute a sub-contract with the General Bidder selected as the general contractor, contingent upon the execution of the general contract, and, if requested to do so in the General Bid by such General Bidder to furnish a performance and payment bond as stated in its Sub-Bid in accordance with §44F(2), the Bid deposit of such Sub-Bidder shall become and be the property of the City as liquidated damages, provided that the amount retained shall not exceed the difference between its Bid price and the Bid price of the next lowest responsible and eligible Sub-Bidder. *Reference: M.G.L. c. 149, §44B(4).*

The City will notify the selected General Bidder and all other Bidders of the award.

The City will submit to the selected General Bidder a Notice of Award and at least four (4) unsigned copies of the Agreement between the City and the Contractor. The selected General Bidder will be required to return to the Purchasing Department within ten (10) business days of the date notice of award all of the copies of the Agreement between the City and the Contractor signed, its performance bond, its labor and materials or payment bond and all required certificates of insurance. Failure of the selected General Bidder to submit all of the required documents in a timely fashion may result in the withdrawal of the award. The City will return one fully signed copy of the Agreement to the Contractor. Time is of the essence in the performance of the Agreement.

10. COMPLETION TIME

Bidder must agree to commence work on or before **seven (7) calendar** days following receipt of a written " Notice to Proceed" of the Owner and to fully complete the project within **one hundred and twenty (120) calendar** days from the date in the Notice to Proceed thereafter. Bidder must agree also to pay as liquidated damages the sum of **two hundred dollars (\$200.00)** for each consecutive calendar day thereafter that the work remains unfinished.

Cynthia H. Griffin, Purchasing Agent

ABBREVIATIONS AND REFERENCES

AASHTO - American Association of State Highways and Transportation Officials

ASTM - American Society of Testing Materials

MHD - Massachusetts Highway Department (formerly MDPW, Massachusetts Department of Public Works)

AAB – Architectural Access Board

ADA – American Disabilities Act

Where reference is made to a specification by one of the above-mentioned or other relevant agencies, it is understood that the latest revision thereof shall apply.

In case of conflict, the specification issued by the City of Cambridge shall take precedence over the above-noted specifications.

PERMITS AND FEES

Public Works Department permits to obstruct or excavate the public way must be obtained prior to beginning work. Permit fees shall be waived. The Cambridge Traffic, Parking and Transportation Department must be contacted directly for permit requirements and fees.

Permits to excavate the public way cannot be issued until the applicant has notified the appropriate utility companies, as required by Massachusetts General Laws, Chapter 370 of the Acts of 1963. The applicant must either: 1) obtain written receipts from the affected utilities, and provide copies of same to the owner; or 2) utilize the Dig-Safe System for the required notifications, and also submit written notifications for those utilities not participating in the Dig-Safe System. Written notifications must state that utility companies have been notified and the contractor cleared to begin work.

The following utility companies must be notified in writing:

M.B.T.A. (617) 222-6133
Attention: Ms. Pat Cargill, Supt. Of Transportation
21 Arlington Ave.
Charlestown, MA 02129

M.W.R.A. (617) 242-6000
100 First Avenue
Charlestown Navy Yard
Boston, MA 02129

The following utility companies must be notified in writing or through Dig-Safe.

Algonquin Gas Transmission Corp. (617) 254-4050
Attention: Tom Wooden Evening No. 1-800-726-8383
Waltham Woods Corporate Center
890 Winter St.
Suite 30
Waltham, MA 02451

Verizon (781) 376-0243
Attention: Mr. Bob Millirick
275 Wildwood St.
Woburn, MA 01801

NSTAR Electric (617) 541-5736
Planning
Attention: Mr. William Lemos
Right of Way
1165 Massachusetts Avenue
Dorchester, MA 02125

KeySpan Gas (617) 323-9210
Attention: Mr. Dennis Peri
201 Rivermoor Street
West Roxbury, MA 02132

NStar Electric. (617) 541-7072
Attention: Mr. Wendell Berthelson x4195
1165 Massachusetts Avenue
Dorchester MA 02125

NStar Electric (617) 541-7805
Construction
Attn.: Brian McDevitt
1165 Massachusetts Avenue
Dorchester, MA 02125

Dalkia Energy Services LLC (781) 792-0640
Attention: Thomas Herlihy
Senior Project Manager
300 Cordwainer Drive
Suite 202
Norwell, MA 02061

NStar Gas (617) 369-5591
Attention: Mr. Kevin Kelly ext. 4620
101 Linwood Drive
Somerville, MA 02143

COMCAST (617) 279- 7650
Attention: Robert DeStefano
55 Concord St.
North Reading, MA 01864

HKT Architects Inc.
HKT Project Number 20910

HVAC Upgrades
Gately Youth Center

Cambridge Public Works Department (Main Number)
Attn.: Permit Department
147 Hampshire Street
Cambridge, MA 02139

(617) 349-4800

Cambridge Water Department
250 Fresh Pond Parkway
Cambridge, MA 02138

(617) 349-4770

Cambridge Electrical Department
489 Broadway
Cambridge, MA 02138

(617) 349-4900

Level 3
Ben Whitaker
300 Bent St
Cambridge, MA 02141

(617) 429-3847

Dig-Safe

1-800-322-4844

The contractor shall have all utilities marked out along the course of this work by such means as the Engineer shall approve and shall preserve such marked locations until the work has progressed to the point where the encountered utility is fully exposed and protected as required. It shall be the contractor's responsibility to notify utilities at least 48 hours prior to the start of any excavation.

The contractor is responsible for contacting any other utilities that are not listed herein.

CAMBRIDGE EMPLOYMENT PLAN **Municipal Ordinance Sections 2.66.060, ET SEQ.**

MINORITY/WOMEN/RESIDENT HIRING

HIRING REQUIREMENTS

On any construction project which is funded in whole or in part by City, State or Federal funds, or funds which the City expends or administers in accordance with a federal grant, or on any construction project for which the City is a signatory to the construction contract, the worker hours shall be performed as follows:

1. No less than **TWENTY-FIVE PERCENT (25%)** of the total employee worker hours shall be performed by **BONA FIDE CAMBRIDGE RESIDENTS**. A Cambridge resident is any person for whom the principal place where that person normally eats and sleeps and maintains his or her normal personal and household effects is within the City of Cambridge.
2. No less than **TWENTY-FIVE PERCENT (25%)** of the total employee worker hours shall be performed by **MINORITY PERSONS**. Minority Persons means and includes those persons who are Black, Hispanic, Asian, Native American or Cape Verdean.
3. No less than **TEN PERCENT (10%)** of the total employee worker hours shall be performed by **WOMEN**.

COMPLIANCE, ENFORCEMENT, SANCTIONS

1. All Contractors entering into construction contracts shall:
 - a. Certify that they have read the provisions of Cambridge Municipal Ordinance Section 2.66.060, et seq. and that they shall comply with them;
 - b. List all job openings with Employment Resources, Inc. ("ERI") and keep accurate records as to action taken on referrals from that agency;
 - c. Maintain personnel records listing names, addresses, sex and race of their employees; and require their subcontractors to do likewise. All records required to be maintained by this section shall be made available on request to representatives of said Cambridge Community Development Department. All such records shall be maintained for the duration of the construction project and for one year thereafter.
2. Failure to comply with these requirements will result in the impositions of sanctions permitted by the Cambridge Municipal Code.
3. The following standards will be used to determine whether the Contractor has acted in good faith in attempting to meet the requirements of Cambridge Municipal Ordinance Section 2.66.060, et seq. for hiring residents, minorities and women:

The Contractor must demonstrate that it has done all of the following except where such requirement would conflict with a collective bargaining agreement:

1. Prior to construction and during construction, when necessary, it posted jobs with ERI and all appropriate trade unions and requested that referrals be made in the proportions necessary to meet the Cambridge Employment Plan's employment standards;
2. Interviewed all qualified applicants and returned completed interview forms to ERI within one week of each respective interview;
3. It provided the City with the name and telephone number of the person designated as Compliance Officer to work directly with the City; and
4. It submitted to the City a projection of workforce needs over the course of construction of the project. Such submission shall reflect the needs, by trade, for each month of the construction process.

In addition, at the discretion of the City, Contractors may be required to comply with the following:

1. Place its own ads in local and local minority newspapers or tabloids;
2. Place a State Department Employment and Training ad.

CITY OF CAMBRIDGE RESPONSIBLE EMPLOYER PLAN

Ordinance Number 1260

Final Publication Number 2965. First Publication in the Chronicle on July 31, 2002.

City of Cambridge

In the Year Two Thousand and Two

AN ORDINANCE

In amendment to the Ordinance entitled "Municipal Code of the City of Cambridge"

Be it ordained by the City Council of the City of Cambridge as follows:

That Title 2 of the Municipal Code entitled "Administration and Personnel" be amended in Chapter 2.66 entitled "Cambridge Employment Plan" by striking out Section 2.66.080 entitled "Contractor qualifications and sanctions" and substituting in place thereof the following new section.

Section 2.66.080 Contractor qualifications and sanctions.

A. All bidders and all subcontractors under the bidder for projects subject to G.L. c. 149, §44A(2) and G.L. c 30 §39M shall, as a condition for bidding, agree in writing that they shall comply with the following obligations:

1. The bidder and all subcontractors under the bidder shall comply with the Cambridge Employment Plan as it currently exists and as it may, from time to time, be amended, and specifically shall comply with the worker hours requirements of Section 2.66.060(A).

2. The bidder and all subcontractors under the bidder must comply with the obligations established under G.L. c. 149 and G.L. c 30 §39M to pay the appropriate lawful prevailing wage rates to their employees.

3. The bidder and all subcontractors under the bidder must maintain or participate in a bona fide apprentice training program as defined by c. 23, §§11H and 11I for each apprenticeable trade or occupation represented in their workforce that is approved by the Division of Apprentice Training of the Department of Labor and Industries and must abide by the apprentice to journeymen ratio for each trade prescribed therein in the performance of the contract.

4. The bidder and all subcontractors under the bidder must furnish, at their expense, hospitalization and medical benefits for all their employees employed on the project and/or coverage at least comparable in value to the hospitalization and medical benefits provided by the health and welfare plans in the applicable craft recognized by G.L. c. 149, §26 and G.L. c 30 §39M in establishing minimum wage rates.

5. The bidder and all subcontractors under the bidder must maintain appropriate industrial accident insurance coverage for all the employees employed on the project in accordance with G.L. c. 152.

6. The bidder and all subcontractors under the bidder must properly classify employees as employees rather than independent contractors and treat them accordingly for purposes of workers' compensation insurance coverage, unemployment taxes, social

security taxes and income tax withholding in accordance with G.L. c. 149, §148B and G.L. c 30 §39M.

B. All bidders and subcontractors under the bidder who are awarded or who otherwise obtain contracts on projects subject to G.L. c. 149, §44A(2) and G.L. c 30 §39M shall comply with the obligations numbered 1 through 6 as set forth in subsection A of this section for the entire duration of their work on the project, and an officer of each such bidder or subcontractor under the bidder shall certify under oath and in writing on a weekly basis that they are in compliance with such obligations.

C. Any bidder or subcontractor under the bidder who fails to comply with any one of obligations 1 through 6 as set forth in subsection A of this section for any period of time shall be, at the sole discretion of the City Manager, subject to one or more of the following sanctions: (1) cessation of work on the project until compliance is obtained; (2) withholding of payment due under any contract or subcontract until compliance is obtained; (3) permanent removal from any further work on the project; (4) liquidated damages payable to the City in the amount of five percent of the dollar value of the contract.

D. In addition to the sanctions outlined in subsection C of this section, a general bidder or contractor shall be equally liable for the violations of its subcontractor with the exception of violations arising from work performed pursuant to subcontracts that are subject to G.L. c. 149, §44F and G.L. c 30 §39M. Any contractor or subcontractor who has been determined to have violated any of the obligations set forth in subsections A and B of this section shall be barred from performing any work on any future projects for six months for a first violation, for three years for a second violation, and permanently for a third violation.

E. The provisions of this section shall not apply to construction projects for which the low general bid was less than one hundred thousand dollars or to work performed pursuant to subcontracts that are subject to G.L. c. 149, §44F and G.L. c 30 §39M and that were bid for less than twenty-five thousand dollars, or to re-bids for construction projects for which the City receives fewer than three qualified general contract bidders in the original bid. (Ord. 1162, 1995)

In City Council September 9, 2002.

Passed to be ordained.

Yeas 8; Nays 0; Absent 1.

Attest: - D. Margaret Drury, City Clerk.

A true copy;

ATTEST:

D. Margaret Drury
City Clerk

SUPPLEMENTAL EQUAL EMPLOYMENT OPPORTUNITY ANTI-DISCRIMINATION AND AFFIRMATIVE ACTION PROGRAM

I. DEFINITIONS

For the purpose of this Contract, "minority" refers to Asians, Blacks, Hispanics, North American Indians, and Cape Verdeans.

II. NONDISCRIMINATION AGREEMENT

During the performance of this Contract, the **Contractor** and all of the Subcontractors (hereinafter, in this Article, collectively referred to as the **Contractor**), all assignees, and successors in interest, agree as follows:

1. In connection with the performance of work under this Contract, the **Contractor** shall not discriminate against any employee or applicant for employment because of race, color, religious creed, national origin or ancestry, age, disability, sexual orientation, marital status, family status, military status, source of income, or sex. The aforesaid provision shall include, but not be limited to the following: employment upgrading, demotion or transfer; recruitment advertising; recruitment layoff; termination; rates of pay or other forms of compensation; conditions or privileges of employment; and selection for apprenticeship. The **Contractor** shall post notices in conspicuous places, available for employees and applicants for employment, to be provided by the **City** setting forth the provisions of the Fair Employment Practices Law of the Commonwealth (M.G.L. c. 151B).
2. In connection with the performance of Work under this Contract, the **Contractor** shall undertake in good faith affirmative action measures designed to eliminate any discriminatory barriers in the terms and conditions of employment on the grounds of race, color, religious creed, national origin or ancestry, age, disability, sexual orientation, marital status, family status, military status, source of income, or sex and to eliminate and remedy any effects of such discrimination in the past. Such affirmative action shall entail positive and aggressive measures to ensure equal opportunity in the areas of hiring, upgrading, demotion or transfer, recruitment, layoff or termination, rate of compensation, and in-service or apprenticeship training programs. This affirmative action shall include all action required to guarantee equal employment opportunity for all persons regardless of race, color, religious creed, national origin or ancestry, age, disability, sexual orientation, marital status, family status, military status, source of income, or sex. A purpose of this provision is to ensure to the fullest extent possible an adequate supply of skilled tradespersons for this and future **City** public construction projects.

III. NEGOTIATIONS WITH MINORITY SUBCONTRACTORS

If the **Contractor** shall use any subcontractor on any Work performed under this Contract, it shall take affirmative action to negotiate with qualified MBE subcontractors that are certified by SOMWBA. This affirmative action shall cover both pre-bid and post-bid periods. It shall include notification to the Affirmative Action Officer or its designee, while bids are in

preparation, of all products, work, or services for which the **Contractor** intends to negotiate bids.

IV. COMPLIANCE WITH REQUIREMENTS

The **Contractor** shall comply with the provisions of Executive Order No. 74, as amended by Executive Order No. 116 dated May 1, 1975, M.G.L. c. 151B, as amended, and Chapters 2.66 (Cambridge Employment Plan) of the Cambridge Municipal Code, all of which are herein incorporated by reference and made a part of this Contract.

As part of its obligation of remedial action under the foregoing section the **Contractor** shall maintain on its Project a not less than 25% ratio of minority employee work hours to total work hours in each job category, including, but not limited to, bricklayers, carpenters, cement, masons, electricians, ironworkers, operating engineers, and those "classes of work" enumerated in M.G.L. c. 149, §44C.

V. NON-DISCRIMINATION

The **Contractor**, in the performance of all Work after the award, and prior to completion of the Contract Work, will not discriminate on grounds of race, color, religious creed, national origin or ancestry, age, disability, sexual orientation, marital status, family status, military status, source of income, or sex in employment practices, in the selection or retention of Subcontractors, or in the procurement of materials and rentals of equipment.

VI. SOLICITATION FOR SUBCONTRACTS AND FOR THE PROCUREMENT OF MATERIALS AN EQUIPMENT

In all solicitations either by competitive bidding or negotiation made by the **Contractor** either for work to be performed under a subcontract or for the procurement of materials or equipment, each potential subcontractor or supplier shall be notified in writing by the **Contractor** of the **Contractor's** obligations under this Contract relative to non-discrimination and affirmative action.

VII. COMPLIANCE-INFORMATION, REPORTS AND SANCTIONS

The **Contractor** will provide all information and reports required by the **City** and will permit access to its facilities and any books, records, accounts and other sources of information which may be determined by the **City** to affect the employment of personnel.

Whenever the **City** believes the **Contractor** may not be operating in compliance with the terms of this Contract, the **City** directly, or through its designated agent, shall conduct an appropriate investigation, and may confer with the parties, to determine if such **Contractor** is operating in compliance with the terms of this Contract. If the **City** or its agent finds the **Contractor** not in compliance, it shall make a preliminary report on the non-compliance and notify such **Contractor** in writing of such steps as will the judgment of the **City** or its agent bring such **Contractor** into compliance. In the event that such **Contractor** fails or refuses to fully perform such steps, the **City** shall make a final report on non-compliance and may impose of one or more of the sanctions listed or permitted by law. If, however, the **City** believes the **Contractor** has taken or is taking every possible measure to achieve compliance, it shall not make a final report of non-compliance.

3. Within fourteen (14) days of the issuance of the report, the **City** shall move to impose one or more of the following sanctions, as it may deem appropriate to attain full and effective enforcement:

- a. The recovery by the **City** from the General **Contractor** of 1/100 of 1% of the Contract award price or \$1,000 whichever sum is greater, in the nature of liquidated damages or if a Subcontractor is in non-compliance, the recovery by the **City** from the **Contractor**, to be assessed by the **Contractor** as a back charge against the Subcontractor of 1/10 of 1% of the subcontract price, or \$400 whichever sum is greater, in the nature of liquidated damages, for each week that such party fails or refuses to comply;
- b. The suspension of any payment or part thereof due under the Contract until such time as the **Contractor** is able to demonstrate its compliance with the terms of the Contract;
- c. The termination, or cancellation, of the Contract, in whole or in part, unless the **Contractor** is able to demonstrate within a specified time its compliance with the terms of the Contract; or
- d. The denial to the **Contractor** of the right to participate in any future contracts awarded by the **City** for a period of up to three (3) years.

If at any time after the imposition of sanctions as **Contractor** is able to demonstrate that it is in compliance with this Contract, it may request the **City** to suspend the sanctions conditionally, pending a final determination by the **City** as to whether the **Contractor** is in compliance. Upon final determination, the **City** shall either lift the sanctions or reimpose them.

VIII. SEVERABILITY

The provisions of this Article are severable and if any of these provisions shall be held unconstitutional by any court of competent jurisdiction, the decision of such court shall not affect or impair any of the remaining provisions.

Chapter 2.121

LIVING WAGE ORDINANCE

Sections:

2.121.010 Title and Purpose

2.121.020 Definitions

2.121.030 Living Wage

2.121.040 Waivers and

Exceptions

**2.121.050 Notification
Requirements**

**2.121.060 Duties of covered
Employers**

2.121.070 Community

Advisory

Board

2.121.080 Enforcement

2.121.090 Severability

2.121.100 Effective Date

2.121.010 Title and Purpose.

This Chapter shall be known as the "Cambridge Living Wage Ordinance". The purpose of this ordinance is to assure that employees of the City of Cambridge and employees of City contractors, subcontractors and beneficiaries of tax abatements, loans, grants, subsidies and other assistance provided by the City earn an hourly wage that is needed to support a family of four.

2.121.020 Definitions.

For the purposes of this ordinance, the term:

(a) "Applicable Department" means the Personnel Department for employees of the City of Cambridge, the Purchasing Department, with the advice and assistance of the appropriate

department which receives the services, for Covered Employers who contract or subcontract with the City of Cambridge, the School Department for employees, contractors and subcontractors of the School Department, and the City Manager's Office for any other Person who is a Beneficiary of assistance other than a contract or subcontract.

(b) "Assistance" means:

(1) any grant, loan, tax incentive, bond financing, subsidy, or other form of assistance valued at least \$10,000 that an employer receives by or through the authority or approval of the City of Cambridge, including, but not limited to, c. 121A tax abatements, industrial development bonds, Community Development Block Grant (CDBG) loans and grants, Enterprise Zone designations awarded after the effective date of this Chapter, and the lease of city owned land or buildings below market value; and

(2) any service contract, as defined herein, of at least \$10,000 with the City of Cambridge that is made with an employer to provide services pursuant to G.L.c. 30B or other public procurement laws, awarded, renegotiated or renewed after the effective date of this Chapter.

(3) any service subcontract, as defined herein, of at least \$10,000.

(c) "Beneficiary" means:

(1) any person who is a recipient of Assistance;

(2) any company or person that is a tenant or sub-tenant, leaseholder or sub-leaseholder of a

recipient of Assistance, provided that said company or person employs at least 25 persons and occupies property or uses equipment or property that is improved or developed as a result of Assistance, after the effective date of this Chapter; and

(d) "Covered Employer" means the City of Cambridge or a Beneficiary of Assistance.

(e) "Covered Employee" means:

(1) a person employed by the City of Cambridge except for persons in those positions listed in Section 2.121.040(j) of this ordinance; and

(2) a person employed by a Covered Employer, or a person employed by an independent contractor doing business with a Covered Employer, who would directly expend any of his or her time on the activities funded by the contract or the activities for which the Beneficiary received the Assistance, except for persons in those positions listed in Section 2.121.040(j) of this ordinance..

(f) "Living Wage" has the meaning stated in Section 2.121.030.

(g) "Person" means one or more of the following or their agents, employees, servants, representatives, and legal representatives: individuals, corporations, partnerships, joint ventures, associations, labor organizations, educational institutions, mutual companies, joint-stock companies, trusts, unincorporated organizations,

trustees, trustees in bankruptcy, receivers, fiduciaries, and all other entities recognized at law by the Commonwealth of Massachusetts.

(h) "Service Contract" means a contract let to a contractor by the City of Cambridge for the furnishing of services, to or for the City, except contracts where services are incidental to the delivery of products, equipment or commodities. A contract for the purchase or lease of goods, products, equipment, supplies or other property is not a "service contract" for the purposes of this definition.

(i) "Service Subcontract" means a subcontract primarily for the furnishing of services, to or for a recipient of Assistance, except where services are incidental to the delivery of products, equipment or commodities. A contract for the purchase or lease of goods, products, equipment, supplies or other property is not a "service subcontract" for the purposes of this definition.

2.121.030 Living Wage.

(a) Applicability. Covered Employers shall pay no less than the Living Wage to their employees.

(b) Amount of wage. The Living Wage shall be calculated on an hourly basis and shall be no less than \$10.00, subject to adjustment as provided herein. The Living Wage shall be upwardly adjusted each year no later than March first in proportion to the increase at the

immediately preceding December 31 over the year earlier level of the Annual Average Consumer Price Index for All Urban Consumers (CPI -U) Boston-Lawrence-Salem, MA - NH, as published by the Bureau of Labor Statistics, United States Department of Labor applied to \$10.00.

(c) No reduction in collective bargaining wage rates. Nothing in this Chapter shall be read to require or authorize any beneficiary to reduce wages set by a collective bargaining agreement.

(d) Cuts in non-wage benefits prohibited. No Beneficiary will fund wage increases required by this Chapter, or otherwise respond to the provisions of this Chapter, by reducing the health, insurance, pension, vacation, or other non-wage benefits of any of its employees.

2.121.040 Waivers and Exceptions.

(a) Waivers. A Covered Employer may request that the City Manager grant a partial or whole waiver to the requirements of this Chapter.

(b) General Waivers. Waivers may be granted where application of this Chapter to a particular form of Assistance is found by the City Solicitor to violate a specific state or federal statutory, regulatory or constitutional provision or provisions, and the City Manager approves the waiver on that basis.

(c) Hardship Waivers for certain not-for-profit employers. An employer, who

has a contract with the City of Cambridge which is not subject to the provisions of G.L. c. 30B, may apply to the City Manager for a specific waiver where payment of the Living Wage by a not-for-profit Covered Employer would cause a substantial hardship to the Covered Employer.

(d) Chapter 30B contract waivers. Prior to issuing an invitation for bids for a procurement contract subject to the provisions of G.L. c. 30B, any Applicable Department may apply to the City Manager for a waiver of the application of the Living Wage to the contract where payment of the Living Wage by a Covered Employer would make it inordinately expensive for the City to contract for the services or would result in a significant loss of services, because the contracted work cannot be segregated from the other work of the Covered Employer.

(e) General Waiver Request Contents. All General Waiver requests shall include the following:

(1) The nature of the Assistance to which this Chapter applies;

(2) The specific or official name of the Assistance and Assistance program, the statutory or regulatory authority for the granting of the Assistance, and a copy of that authority;

(3) The conflicting statutory, regulatory, or constitutional provision or provisions that makes compliance with this Chapter unlawful, and a copy of each such provision; and

(4) A factual explication and legal analysis of how compliance with this Chapter would violate the cited provision or provisions, and the legal consequences that would attach if the violation were to occur.

(f) Hardship Waiver Request Contents. All Hardship Waiver requests shall include the following:

(1) The nature of the Assistance to which this Chapter applies;

(2) A detailed explanation of why payment of the Living Wage would cause a substantial hardship to the Covered Employer; and

(3) A statement of proposed wages below the Living Wage.

(g) Chapter 30B Contract Waiver Request Contents. A Chapter 30B contract waiver request shall include the following:

(1) The nature of the Assistance to which this Chapter applies;

(2) A detailed explanation of why the contracted work cannot be segregated from the other work of the bidding Covered Employers thereby making the cost of the contract with the payment of the Living Wage inordinately expensive or would result in a significant loss of services;

(h) Community Advisory Board review and recommendation regarding waiver requests. The Community Advisory Board, as described in Section 2.121.070 of this ordinance, shall consider waiver requests along with their supporting documentation and analysis, and may hold a public

hearing to consider the views of the public before making a recommendation to the City Manager regarding the waiver request. For a hardship waiver, the Community Advisory Board shall offer an opportunity to be heard to employees of the Covered Employer. After reviewing the recommendation of the Community Advisory Board, the City Manager may approve and grant or deny all or part of a request. The City Manager may in his or her discretion grant a temporary hardship waiver pending the hearing before the Community Advisory Board. For Chapter 30B contract waivers, the Community Advisory Board shall make its recommendation to the City Manager no more than thirty days after it is notified of the request for a Chapter 30B contract waiver.

(i) Terms of exceptions. If an employer is subject to this Chapter as a result of its receipt of more than one kind of Assistance covered by this Chapter, and if the City Manager grants a waiver with respect to one form of Assistance, the City Manager need not find that this Chapter is inapplicable to the employer with respect to another form of Assistance received by the employer.

(j) Exceptions. The following positions will be excepted from the requirement of the payment of the Living Wage upon certification in an affidavit in a form approved by the Applicable Department and signed by a principal officer of the Covered Employer that the positions are as follows:

(1) youth hired pursuant to a city, state, or federally funded program which employs youth as defined by city, state, or federal guidelines, during the summer, or as part of a school to work program, or in other related seasonal or part-time program;

(2) work-study or cooperative educational programs;

(3) trainees who are given a stipend or wage as part of a job training program that provides the trainees with additional services, which may include, but are not limited to, room and board, case management, or job readiness services.

(4) persons working in a recognized supported employment program that provides workers with additional services, which may include, but are not limited to, room and board, case management, counseling, or job coaching;

(5) positions where housing is provided by the employer;

(6) employees who are exempt from federal or state minimum wage requirements; and

(7) individuals employed by the City of Cambridge where the employment of such individuals is intended primarily to provide a benefit or subsidy to such individuals, although the City is compensating them for work performed.

2.121.050 Notification Requirements.

All Applicable Departments shall provide in writing an explanation of the requirements of this ordinance in all requests for bids for service contracts and to all

persons applying for Assistance as defined by this ordinance. All persons who have signed a service contract with the City of Cambridge or a contract for Assistance shall forward a copy of such requirements to any person submitting a bid for a subcontract on the Assistance contract.

2.121.060 Duties of Covered Employers.

(a) Notification Requirements.

Covered employers shall provide each Covered employee with a fact sheet about this ordinance and shall post a notice about the ordinance in a conspicuous location visible to all employees. The fact sheet and poster shall be provided to the Covered Employer by the Applicable Department and shall include:

(1) notice of the Living Wage amount;

(2) a summary of the provisions of this ordinance;

(3) a description of the enforcement provisions of the ordinance;

(4) the name, address, and phone number of a person designated by the Applicable Department to whom complaints of noncompliance with this ordinance should be directed.

(b) Contract for Assistance. At the time of signing a contract for assistance with the City of Cambridge or with a Beneficiary, the contract must include the following:

(1) the name of the program or project under which the contract or subcontract is being awarded;

(2) a local contact name, address, and phone number for the Beneficiary;

(3) a written commitment by the Beneficiary to pay all Covered Employees not less than the Living Wage as subject to adjustment under this ordinance and to comply with the provisions of this ordinance;

(4) a list of Covered Employees under the contract with the employees' job titles;

(5) a list of all subcontracts either awarded or that will be awarded to Beneficiaries with funds from the Assistance. Upon signing any subcontracts, the Covered Employer shall forward a copy of the subcontract to the Applicable Department.

(c) Maintenance of payroll records. Each Covered Employer shall maintain payrolls for all Covered Employees and basic records relating thereto and shall preserve them for a period of three years. The records shall contain the name and address of each employee, the job title and classification, the number of hours worked each day, the gross wages, deductions made, actual wages paid, and copies of social security wage and withholding reports, and evidence of payment thereof and such other data as may be required by the Applicable Department from time to time.

(d) Applicable Department duties. The Applicable Department shall cause investigations to be made as may be necessary to determine whether there has been compliance with this Ordinance. The Applicable

Department shall report the findings of all such investigations to the Community Advisory Board.

(e) Covered Employer to cooperate. The Covered Employer shall submit payroll records on request to the Applicable Department. The Covered Employer shall permit City representatives to observe work being performed upon the work site, to interview employees and to examine the books and records relating to the payrolls being investigated to determine payment of wages.

(f) City Assistance Reports. Each Applicable Department shall file a City Assistance Report with the City Manager and the Community Advisory Board by July 31 of each year. The report shall include, for each Assistance package or contract approved during the preceding fiscal year:

(1) the name of the Applicable Department (awarding agency), the name of the specific program under which the Assistance was awarded, and the origin of funds for Assistance;

(2) a description of the purpose or project for which the Assistance was awarded;

(3) the name, address, and phone number of a local contact person for the Covered Employer;

(4) the total cost to the City of Assistance provided to each Beneficiary, including both face-value of Assistance, as well as revenue not collected as a result of the Assistance.

2.121.070 Community Advisory

Board.

(a) Purpose. The purpose of the Community Advisory Board shall be to review the effectiveness of this Ordinance at creating and retaining Living Wage jobs, to make recommendations to the City Manager regarding the granting of Waivers to Covered Employers, to review the implementation and enforcement of this ordinance, and to make recommendations from time to time in connection therewith.

(b) Composition. The Community Advisory Board shall be composed of nine members and shall include representatives of labor unions, community organizations and the business community. All members will be appointed by the City Manager. Members of the Board shall serve a three-year term. Whenever a vacancy shall occur the City Manager shall appoint a replacement within thirty days of said vacancy.

(c) Meetings. The Community Advisory Board shall meet quarterly and in special session as required. All meetings of the Board shall be open to the public and will allow for public testimony on the uses of the City Assistance generally, and on specific instances of Assistance or proposed Assistance as received or sought by individual enterprises.

(d) Conflict of Interest. No member of the Community Advisory Board shall participate in any proceeding concerning a Beneficiary, a Covered Employer or

a Covered Employee, or applicant for waiver or exemption, if the member or any member of his or her immediate family has a direct or indirect financial interest in the outcome of said proceeding.

2.121.080 Enforcement.

(a) Enforcement powers. In order to enforce this Chapter, the Applicable Department may, with the approval and assistance of the City Solicitor, issue subpoenas, compel the attendance and testimony of witnesses and production of books, papers, records, and documents relating to payroll records necessary for hearing, investigations, and proceedings. In case of failure to comply with a subpoena, the City may apply to a court of appropriate jurisdiction for an order requiring the attendance and testimony of witnesses and the productions of books, papers, records, and documents. Said court, in the case of a refusal to comply with any such subpoena, after notice to the person subpoenaed, and upon finding that the attendance or testimony of such witnesses or the production of such books, papers, records, and documents, as the case may be, is relevant or necessary for such hearings, investigation, or proceedings, may issue an order requiring the attendance or testimony of such witnesses or the production of such documents and any violation of the court's order may be punishable by the court as contempt thereof.

(b) Complaint procedures. An employee who believes that he or she is a Covered Employee or an

applicant for a position to be filled by a Covered Employee who believes that his or her employer is not complying with requirements of this Chapter applicable to the employer may file a complaint with the Applicable Department or with the Community Advisory Board. Complaints of alleged violations may also be filed by concerned citizens or by the City Council. Complaints of alleged violations may be made at any time, but in no event more than three years after the last date of alleged violation, and shall be investigated promptly by the Applicable Department. Statements written or oral, made by an employee, shall be treated as confidential and shall not be disclosed to the Covered Employer without the consent of the employee.

(c) Investigations and hearings. The Applicable Department shall investigate the complaint, and may, in conjunction with the City Solicitor, and in accordance with the powers herein granted, require the production by the employer of such evidence as required to determine compliance. Prior to ordering any penalty the applicable Department shall give notice to the employer and conduct a hearing. If at any time during these proceedings, the employer voluntarily makes restitution of the wages not paid to the employee making the complaint and to any similarly situated employees, by paying all back wages owed plus interest at the average prior year Massachusetts passbook savings bank rate, or otherwise remedies the violation alleged if the violation involves matters other than wages, then the Applicable Department

shall thereafter dismiss the complaint against the employer.

(d) Remedies. In the event that the Applicable Department, after notice and hearing, determines that any Covered Employer has failed to pay the Living Wage rate or has otherwise violated the provisions of this Chapter, the Applicable Department may order any or all of the following penalties and relief:

(1) Fines up to the amount of \$300 for each Covered Employee for each day that the Covered Employer is in violation of this Ordinance, except if the violation was not knowing and willful, then the total fine shall not exceed the amount of back wages plus interest owed;

(2) Suspension of ongoing contract and subcontract payments;

(3) Ineligibility for future City Assistance for up to three years beginning when all penalties and restitution have been paid in full. In addition, all Covered Employers having any principal officers who were principal officers of a barred beneficiary shall be ineligible under this section; and

(4) Any other action deemed appropriate and within the discretion and authority of the city. Remedies in this section shall also apply to the party or parties aiding and abetting in any violation of this chapter.

(e) Private right of action. Any Covered Employee, or any person who was formerly employed by a Beneficiary, may bring an action to enforce the provisions of this Chapter to recover back pay and

benefits, attorneys fees and costs, by filing suit against a Beneficiary in any court of competent jurisdiction.

(f) Remedies herein non-exclusive. No remedy set forth in this Chapter is intended to be exclusive or a prerequisite for asserting a claim for relief to enforce the right granted under this Chapter in a court of law. This Chapter shall not be construed to limit an employee's right to bring a common law cause of action for wrongful termination.

(g) Retaliation and discrimination barred. A Covered Employer shall not discharge, reduce the compensation or otherwise retaliate against any employee for making a complaint to the City, otherwise asserting his or her rights under this Chapter, participating in any of its proceedings or using any civil remedies to enforce his or her rights under the Chapter. The City shall investigate allegations of retaliation or discrimination and shall, if found to be true, after notice and a hearing, order appropriate relief as set out in paragraphs (c) and (d) herein

2.121.090 Severability.

In the event any provision of this ordinance shall be held invalid or unenforceable by any court of competent jurisdiction, such holding shall not invalidate or render unenforceable any other provisions hereof.

2.121.100 Effective Date.

This law shall be effective sixty (60) after final passage.

The Living Wage Ordinance (2.121) provides, at 1.121.030(b) that the wage shall be upwardly adjusted each year no later than March 1st in proportion to the increase in the Annual Average Consumer Price Index for the prior calendar year for All Urban Consumers (CPI-U) in the Boston area, as published by the federal Bureau of Labor Statistics.

For calendar year 1999, the CPI-U increased by 2.5%. Therefore the new living wage, as of March 1, 2000 is \$10.25.

For calendar year 2000, the CPI-U increased by 4.3%. Therefore the new living wage, as of March 1, 2001 is \$ 10.68.

For calendar year 2001, the CPI-U increased by 4.3%. Therefore the new living wage, as of March 1, 2002 is \$11.11.

For calendar year 2002, the CPI-U increased by 2.6% . Therefore the new living wage, as of March 1, 2003 is \$11.37.

The City Council has voted to amend the section of the Living Wage Ordinance (1.121.030 (b) that provides the method for calculating cost of living increases each year. As a result of this change, the living wage as of March 30, 2003 is \$11.44.

For calendar year 2003, the CPI-U increased by 3.76%. Therefore the new living wage, as of March 1, 2004 is \$11.87.

For calendar year 2004, the CPI-U increased by 2.7%. Therefore the new living wage, as of March 1, 2005 is \$12.19.

For calendar year 2005, the CPI-U increased by 3.3%. Therefore the new living wage, as of March 1, 2006 is \$12.59.

For calendar year 2006 the CPI-U increased by 3.1 %. Therefore the new living wage, as of March 1, 2007 is \$12.98.

For calendar year 2007 the CPI-U increased by 1.9 %. Therefore the new living wage, as of March 1, 2008 is \$13.23.

For calendar year 2008 the CPI-U increased by 3.5 %. Therefore the new living wage, as of March 1, 2009 is \$13.69.

For calendar year 2009 the CPI-U decreased by .67 %. Therefore the new living wage, as of March 1, 2010 will remain at \$13.69.

AMERICANS WITH DISABILITIES ACT (42 U.S.C. 12131)

Section 504 of the Rehabilitation Act of 1973 Tax Compliance/Anti-Collusion Statement

The American with Disabilities Act ("the Act") applies to all employers of fifteen or more employees. All Contractors that are subject to the Act must comply with its provisions. In further compliance with the Act, all Contractors who enter into contracts with the City are prohibited from discrimination against the City's employees, regardless of the size of the Contractor.

The Act protects against discrimination on the basis of "disability", which is defined as a physical or mental impairment that substantially limits at least one "major life activity"; discrimination against a person having a history or has a record of such impairment; and discrimination against an individual regarded - even if inaccurately - as having such an impairment. The Act also expressly prohibits job discrimination that is based on an individual's relationship or association with a disabled person.

The bidder shall not discriminate against any qualified employee or job applicant with a disability and will make the activities, programs and services covered by any contract awarded through this procurement readily accessible to and usable by individuals with disabilities. To be qualified for a job, or to avail oneself of a bidder's services, the individual with the disability must meet the essential eligibility requirements for receipt of the bidder's services or participation in the bidder's programs or activities with or without: 1) reasonable modifications to the bidder's rules, policies and practices; 2) removal of architectural, communication, or transportation barriers; or, 3) provisions of auxiliary aids and services

By submitting its bid, the bidder certifies to the City of Cambridge that it understands and will comply with all applicable provisions of the Act, including compliance with applicable provisions of Section 504 of the Rehabilitation Act of 1973, if the bidder is receiving federal funds.

The undersigned certifies under penalty 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 "person" shall mean any natural person, business, partnership, corporation, union, committee, club, or other organization, entity, or group of individuals.

As required by M.G.L. c. 62C, 49A, the undersigned certifies under the penalties of perjury that the bidder has complied with all laws of the commonwealth relating to taxes, reporting of employees and contractors, and withholding and remitting child support.

Date: _____

(Print name of person signing bid)

(Signature & Title)

This form must be submitted with your bid

City of Cambridge CORI Policy

Where Criminal Offender Record Information (CORI) checks are part of a general background check for employment or volunteer work, the following practices and procedures will generally be followed.

CORI checks will only be conducted as authorized by Criminal History Systems Board (CHSB). All applicants will be notified that a CORI check will be conducted. If requested, the applicant will be provided with a copy of the CORI policy.

An informed review of a criminal record requires adequate training. Accordingly, all personnel authorized to review CORI in the decision-making process will be thoroughly familiar with the educational materials made available by the CHSB.

Prior to initiating a CORI check, the City will review the qualifications of the applicant to determine if the applicant is otherwise qualified for the relevant position. The City will not conduct a CORI check on an applicant that is not otherwise qualified for the relevant position.

Unless otherwise provided by law, a criminal record will not automatically disqualify an applicant. Rather, determination of suitability based on CORI checks will be made consistent with this policy and any applicable law or regulations.

If a criminal record is received from CHSB, the authorized individual will closely compare the record provided by CHSB with the information on the CORI request form and any other identifying information provided by the applicant, to ensure the record relates to the applicant.

If, in receiving a CORI report, the City receives information it is not authorized to receive (e.g. cases with dispositions such as not guilty or dismissal, in circumstances where the City is only authorized to receive convictions or case-pending information), the City will inform the applicant and provide the applicant with a copy of the report and a copy of CHSB's *Information Concerning the Process in Correcting a Criminal Record* so that the applicant may pursue correction with the CHSB.

If the City of Cambridge is planning to make an adverse decision based on the results of the CORI check, the applicant will be notified immediately. The applicant shall be provided with a copy of the criminal record and the City's CORI policy, advised of the part(s) of the record that make the individual unsuitable for the position and given an opportunity to dispute the accuracy and relevance of the CORI record.

Applicants challenging the accuracy of the criminal record shall be provided a copy of CHSB's *Information Concerning the Process in Correcting a Criminal Record*. If the CORI record provided does not exactly match the identification information provided by the applicant, the City of Cambridge will make a determination based on a comparison of the CORI record and documents provided by the applicant. The City of Cambridge may contact CHSB and request a detailed search consistent with CHSB policy.

If the City of Cambridge reasonably believes the record belongs to the applicant and is accurate, then the determination of suitability for the position will be made. Unless otherwise provided by law, factors considered in determining suitability may include, but not be limited to the following:

- (a) Relevance of the crime to the position sought;
- (b) The nature of the work to be performed;
- (c) Time since the conviction;
- (d) Age of the candidate at the time of offense;
- (e) Seriousness and specific circumstances of the offense;
- (f) The number of offenses;
- (g) Whether the applicant has pending charges;
- (h) Any relevant evidence of rehabilitation or lack thereof;
- (i) Any other relevant information, including information submitted by the candidate or requested by the City.

The Personnel Department will assist affected departments, in assessing the suitability of candidates in accordance with paragraph 10 a through i above, to ensure consistency, fairness, and protection of employment opportunities and the public interest.

The City of Cambridge will notify the applicant of the decision and the basis of the decision in a timely manner.

CORI information shall not be disseminated or shared with any unauthorized employees or other, but shall be maintained in confidence consistent with the obligations of law.

Revised May 5, 2007

CITY CORI ORDINANCE

Ordinance Number 1312

Final Publication Number 3155. First Publication in the Chronicle on December 13, 2007.

City of Cambridge

In the Year Two Thousand and Eight

AN ORDINANCE

In amendment to the Ordinance entitled "Municipal Code of the City of Cambridge"

Be it ordained that Cambridge Municipal Code Chapter 2.112 is hereby amended by adding a new Section 2.112.060 entitled "CORI Screening by Vendors of the City of Cambridge" as follows:

Adding after Section 2.112.050 the following new sections:

SECTION 2.112.060

CORI SCREENING BY VENDORS OF THE CITY OF CAMBRIDGE

Sections:

2.112.061 Purpose

2.112.062 Definitions

2.112.063 CORI-Related Standards of the City of Cambridge

2.112.064 Waiver

2.112.065 Applicability

2.112.061 Purpose

These sections are intended to ensure that the persons and businesses supplying goods and/or services to the City of Cambridge deploy fair policies relating to the screening and identification of persons with criminal backgrounds through the CORI system.

2.112.062 Definitions

Unless specifically indicated otherwise, these definitions shall apply and control.

Awarding Authority means the City of Cambridge Purchasing Agent or designee.

Vendor means any vendor, contractor, or supplier of goods and/or services to the City of Cambridge.

2.112.063 CORI-Related Standards of the City of Cambridge

The City of Cambridge employs CORI-related policies, practices and standards that are fair to all persons involved and seeks to do business with vendors that have substantially similar policies, practices and standards. The City of Cambridge will do business only with vendors who, when required by law to perform CORI checks, employ CORI-related policies, practices, and standards that are consistent with policies, practices and standards employed by the City of Cambridge. The awarding authority shall consider any vendor's deviation from policies, practices and standards employed by the City of Cambridge as grounds for rejection, rescission, revocation, or any other termination of the contract.

2.112.064 Waiver

The City Manager may grant a waiver to anyone who or which has submitted a request for waiver if it is objectively reasonable; and the City Manager, or a delegate, shall report promptly in writing to the City Council all action taken with respect to every request for a waiver and the reasons for the decision.

2.112.065 Applicability

If any provision of these sections imposes greater restrictions or obligations than those imposed by any other general law, special law, regulation, rule, ordinance, order, or policy then the provisions of these sections shall control.

In City Council January 28, 2008.

Passed to be ordained by a ye and nay vote: -

Yeas 9; Nays 0; Absent 0.

Attest: - D. Margaret Drury, City Clerk.

A true copy;

ATTEST:-

D. Margaret Drury

City Clerk

POLICE DETAIL REQUIREMENTS

Scheduling Police Details shall be the responsibility of the Contractor. A Police Detail is to be present during all construction activity. To schedule a detail officer, call (617) 349-3350.

The Cambridge Police Department requires 24-hour advance notice to obtain a Police Detail, except in emergencies and 4-hour advance notice to cancel a detail.

The Contractor must submit all signed detail forms to the project managers or engineer, so that Public Works can pay all submitted and approved Police detail invoices. Any invoices that are not approved will be the responsibility of the contractor to pay.

The City of Cambridge Police Department shall bill the City of Cambridge Department of Public Works or whatever department has oversight of the contract for the services of uniformed police officers provided by the Police department

The Contractor will be required to reimburse Public Works or whatever department has oversight of the contract for Police Details, if the Contractor fails to show for the job or if the Contractor fails to cancel the detail with adequate advance notice.

FORM FOR GENERAL BID

To the Awarding Authority:

A. The Undersigned proposes to furnish all labor and materials required for **HVAC Upgrades at the Gately Youth Center** in Cambridge, Massachusetts, in accordance with the accompanying plans and specifications prepared by HKT Architects Inc. (name of architect or engineer) for the contract price specified below, subject to additions and deductions according to the terms of the specifications.

B. This bid includes addenda numbered _____

C. The proposed contract price is _____ dollars
(\$_____).

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. \$_____

E. The undersigned agrees that, if he is 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.

NAME OF BIDDER: _____

FORM FOR GENERAL BID – PAGE 2

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 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 thereunder.

Date _____

(Name of General Bidder)

by _____
(Name of person signing bid and title)

(Business Address)

(City and State)

CITY OF CAMBRIDGE, MASSACHUSETTS BID BOND

We, the undersigned _____ as Principal, and _____, as Surety, are hereby held and firmly bound unto the CITY OF CAMBRIDGE, a municipality in the County of Middlesex and Commonwealth of Massachusetts, in the penal sum of Dollars (\$_____), for the payment of which, well and truly to be made. We hereby jointly and severally bind ourselves, our heirs, executors, administrators, successors and assigns.

The condition of the above obligation is such that the Principal has submitted to the City of Cambridge, Massachusetts a certain Bid attached hereto and hereby made a part hereof for the Project described as **HVAC Upgrades at the Gately Youth Center.**

If the Principal fails to perform their agreement to execute a contract and furnish a performance bond and a labor and materials or payment bond as stated in their bid in accordance with the applicable state statute or fails in all other respects to perform the agreement created by the acceptance of said bid, their bid deposit shall become and be the property of the City of Cambridge as liquidated damages.

If said Bid shall be rejected because of death, disability, bona fide clerical or mechanical error of a substantial nature, or other similar unforeseen circumstances affecting the Principal, their bid bond shall be returned to their.

The Surety, for value received, hereby agrees that its obligations and its bond shall in no way be impaired or affected by an extension of the time in which the City of Cambridge may accept such bid and said Surety does hereby waive notice of any such extension.

IN WITNESS WHEREOF, the Principal and the Surety have set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereto affixed and have caused this bond to be signed by their proper officers on this _____ day of _____ 20__.

SEAL PRINCIPAL

SEAL SURETY

MINORITY BUSINESS ENTERPRISE REQUIREMENTS

GENERAL

On June 30, 1983 the City of Cambridge put into effect a city wide Minority Business Enterprise (MBE) Program. To comply with the requirements of this program, a general contractor must submit the appropriate MBE Forms with its bid. The process is explained below. Failure to meet the requirements may result in automatic disqualification of the bidder. Upon request or upon its own initiative, the City may grant an extension of time for submission of the appropriate MBE Forms. Extensions shall be granted only upon a finding by the City that the bidder's failure to submit the appropriate MBE forms was excusable.

PROCEDURE

Steps you should take to comply with the City's MBE requirements are as follows:

1. Secure a copy of the State Office Minority and Women Business Assistance (SOMWBA) Certified Minority/Women Business Directory. Only MBE firms approved by SOMWBA will be accepted by the City of Cambridge.
2. Attempt to develop a bid that includes at least ten percent (10%) of your total bid price in the form of work subcontracted to (or materials purchased from) one or more Minority Businesses.
3. To make the attempt to secure at least 10% Minority business participation, you (the General Contractor) must contact as many of the subcontractors or suppliers in the SOMWBA directory as necessary. Please note that MBE FORM #3 - CONTRACT REQUEST-FOR-EXTENSION and MBE FORM #4 -INFORMATION ON UNSUCCESSFUL MBE CONTACT require you to provide a list of each firm contacted and other related information.
4. If you are successful in securing 10% or more Minority Businesses participation, you must
 - A. Complete and submit MBE FORM #1 CONTRACTOR CERTIFICATION OF COMPLIANCE.
 - B. Have your participating Minority Business each fill out MBE FORM #2 LETTER OF INTENT TO PARTICIPATE, to be submitted with your bid.
5. If, after contacting all SOMWBA-approved firms in the trades or materials categories you should include in your bid, you have not been able to secure 10% Minority business participation, then complete and submit with your bid MBE FORM#3 - CONTRACTOR REQUEST FOR EXTENSION and MBE FORM #4 -INFORMATION ON UNSUCCESSFUL MBE CONTRACT.

If you have any questions about the above steps, please call Duane Brown, Minority Business Compliance Officer, at 349-4332.

MINORITY BUSINESS ENTERPRISE PROGRAM COMPLIANCE DETAILS

PERCENTAGE OF MBE PARTICIPATION - percentage of MBE participation shall be that percentage of the total bid price represented by the amount to be paid to MBE(s). The General Bidder's compliance with the percentage requirement shall continue to be determined by reference to the above-described method throughout the term of the contract, even though the actual project price may be greater or less than the bid price. The General Bidder shall submit to the Minority Business Compliance Officer signed copies of its subcontracts with all MBE's involved in meeting the percentage of Minority Business Enterprise Requirement.

ROLE OF THE MBE REVIEW COMMITTEE - The MBE Review Committee shall have referred to it by the Purchasing Agent and the Minority Business Compliance Officer all questions of interpretation of the MBE Program that arise during the Program's operation. The MBE Review Committee shall have the responsibility and authority to respond with binding answers to these questions. It also has the responsibility and authority to recommend to the City Manager whatever improvements it believes can be made in the program, based on operating experience.

CHANGES OF MBE STATUS - Any change or substitution of the officers or stockholders in a participating MBE company that reduces the minority ownership or control to less than the requisite percentage will immediately rescind the MBE designation given by SOMWBA. The General Bidder (Prime Contractor) shall immediately notify the Minority Business Compliance Officer upon learning of such a change in MBE status. In this event, the Prime Contractor shall submit to the Minority Business Compliance Officer a revised Contractor Certification of Compliance with MBE Requirements, showing how the lost MBE participation will be replaced.

SANCTIONS

A. If the Prime Contractor does not comply with the terms of the Minority Business Enterprise requirements of the contract, the City may (1) suspend any payment for the activity that should have been performed by the MBE pursuant to the contract, or (2) require specific performance of the Prime Contractor's obligation by requiring the Prime Contractor to subcontract with any MBE for any contract or specialty item at the contract price established for that item in the proposal submitted by the Prime Contractor.

B. To the extent that the Prime Contractor has not complied with the MBE requirements of the contract, the City may retain an amount determined by multiplying the bid price of this contract by the required percentage of MBE participation, less the amount of paid to MBEs for work performed under the contract and any payments already suspended under "A" above.

C. In addition, or as an alternative, to the remedies under "A" and "B" above, the City may suspend, terminate or cancel this contract, in whole or in part, or may call upon the Prime Contractor's surety to perform all terms and conditions in the contract, unless the Prime Contractor is able to demonstrate its compliance with the MBE requirements, and may further deny to the Prime Contractor the right to participate in any future contracts awarded by the City for a period of up to three years.

D. In any proceeding involving the imposition of sanctions by the City, no sanctions shall be imposed if the City finds that the Prime Contractor has taken every possible measure to comply with MBE requirements, or that some other justifiable reason exists for waiving the MBE requirements in whole or in part.

E. Any bidder or contractor shall provide such information as is necessary in the judgment of the City to ascertain its compliance with the MBE Requirements.

F. No sanctions shall be imposed by the City except in an adjudicatory proceeding under Chapter 30A of the General Laws.

G. A Prime Contractor shall have the right to request suspension of any sanctions imposed by the City upon showing that it is once again in compliance with the MBE Requirements.

CONTRACTOR CERTIFICATION OF COMPLIANCE

FORM 1
M.B.E.

Minority Business Enterprise Requirements

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. GRAND TOTAL FOR MINORITY BUSINESS COMMITMENT \$

8. PERCENTAGE MBE PARTICIPATION (Line 7 Divided by total bid price)
_____ %

The below-signed bidder certifies that it will honor the above Minority Business Enterprise Commitment and that it understands that a breach of this commitment constitutes a breach of the contract.

Date

General Contractor

Authorized Signature

Business Address

LETTER OF INTENT TO PARTICIPATE

FORM 1
M.B.E.

Minority Business Enterprise Requirements

To: _____
(Name of General Bidder)

1. My company intends to perform work under the above-identified contract as:

- _____an individual
- _____a partnership
- _____a corporation
- _____a joint venture with_____
- _____other

(explain)_____

2. My company has been certified by the State Office of Minority and Women Business Assistance (SOMWBA) as a Minority Business Enterprise and is listed as such in the most recently issued SOMWBA Minority/Women Business Directory. I hereby certify that my company's qualification as a Minority Business Enterprise have not changed since its application was submitted to SOMWBA. I further certify that my company will give immediate notification in writing to both SOMWBA and your Company in the event that its minority ownership, control, or management should change.

3. My company understands that if your company is awarded the contract, your company intends to enter into an agreement with my company to perform the activity described below for the prices indicated. My firm also understands that your firm, as General Bidder, will make substitutions and quantity changes only as allowed or required by the provisions of the contract with the City of Cambridge.

ITEM NO.	DESCRIPTION OF MY COMPANY'S ACTIVITY*	QUANTIT Y	UNIT PRICE	AMOUNT

TOTAL AMOUNT \$_____

* Description of activity should include notations such as "Labor Only", "Material Only", etc.

Date

General Contractor

Authorized Signature

Business Address

CONTRACTOR REQUEST FOR EXTENSION

Minority Business Enterprise Requirements

CONTRACTOR REQUEST-FOR-EXTENSION OF MINORITY BUSINESS ENTERPRISE REQUIREMENTS

The below signed General Bidder certifies that it made a good faith effort to develop the required ten percent (10%) Minority Business Enterprise participation in this contract, but was able to develop only %.

The below-signed General Bidder further certifies that it contacted the below-listed firms from the SOMWBA MINORITY/WOMEN BUSINESS DIRECTORY that said contacts were bona fide efforts to develop the required Minority Business Enterprise participation in the above-identified contract but were unsuccessful due to circumstances beyond the control of the General Bidder; and that the information given on the following pages about each contract has made is accurate and complete.

MBE Companies Contacted

- | | |
|----------|-----------|
| 1. _____ | 6. _____ |
| 2. _____ | 7. _____ |
| 3. _____ | 8. _____ |
| 4. _____ | 9. _____ |
| 5. _____ | 10. _____ |

The below-signed General Bidder therefore requests that the City of Cambridge grant an extension of ten working days in order to provide the General Bidder an opportunity to secure the required percentage of Minority Business participation.

Date

General Contractor

Authorized Signature

Business Address

FORM 4

M.B.E.

INFORMATION ON UNSUCCESSFUL M.B.E. CONTACT

Minority Business Enterprise Requirements

Additional copies of this information form shall be prepared by the General Bidder in the quantity necessary to comply with bidding requirements.

ITEM NUMBER ON REQUEST-FOR-EXTENSION

NAME OF MBE COMPANY CONTACTED

ADDRESS OF " "

TELEPHONE NO. " "

DATE OF INITIAL CONTACT

HOW WAS CONTACT MADE? (Check appropriate answer)

TELEPHONE _____
IN-PERSON _____

SUB-CONTRACT WORK OFFERED TO THIS MBE

COMPANY _____

RESULT OF CONTACT(check appropriate answer) MBE Firm Declined Job _____;
MBE Firm offered to do job at price of \$ _____, which was determined by our
company to be too high _____; MBE offered to do the job at a price of \$
_____, which was satisfactory, but the MBE company was judged by our company
to be unqualified for the job _____.

NAME AND TITLE OF THE MBE COMPANY OFFICER WHO CAN VERIFY ABOVE INFORMATION
AS TO MBE COMPANY'S RESPONSE

It is certified herewith by the below-signed officer of the General Bidder that the above

Date

General Contractor

Authorized Signature

Business Address

General Contractor's Certification

A contractor will not be eligible for award of a contract unless such contractor has submitted the following certification, which is deemed a part of the resulting contract:

GENERAL CONTRACTOR'S CERTIFICATION

_____ certifies that:
(General Contractor)

1. it shall obtain from each of its subcontractors and submit to the contracting or administering agency prior to the performance of any work under said subcontract a certification by each subcontractor, regardless of tier, that it will comply with the minority/women/resident workforce ratio;
2. it read, understands and shall comply with the Minority/Women/Resident hiring requirements set forth in the Cambridge Employment Plan, Cambridge Municipal Code §2.66.060, et seq.;
3. it is aware that failure to comply with the Cambridge Employment Plan will result in, at minimum, the following: 1) it will be ineligible to bid for future contracts with the City of Cambridge and 2) the City of Cambridge will notify DCAM of such failure which may affect the contractor's future qualification to bid for public contracts throughout the commonwealth.
4. it has read, understands and shall comply with all the pertinent provisions of the Americans with Disabilities Act and will be subject to sanctions for failure to do so.
5. it has read, understands and shall comply with all the provisions of the Supplemental Equal Employment Opportunity Anti-Discrimination and Affirmative Action Program and will be subject to sanctions for failure to do so.

Signed under the penalties of perjury.

Signature of authorized representative of contractor

Print name of authorized representative of contractor

Dated: _____

Subcontractor's Certification

Prior to the award of any subcontract, regardless of tier, the prospective subcontractor must execute and submit to the General Contractor the following certification, which will be deemed a part of the resulting subcontract:

SUBCONTRACTOR'S CERTIFICATION

_____ (Subcontractor) certifies that:

1. it will obtain from each of its subcontractors prior to the award of any subcontract under this subcontract the subcontractor certification required by these bid conditions;
2. it read, understands and shall comply with the Minority/Women/Resident hiring requirements set forth in Cambridge Municipal Code $\text{}\text{2.66.060}$, et seq.;
3. it is aware that failure to comply with the Cambridge Employment Plan will result in, at minimum, the following: 1) it will be ineligible to bid for future contracts with the City of Cambridge, and 2) the City of Cambridge will notify DCAM of such failure which may affect the contractor's future qualification to bid for public contracts throughout the Commonwealth;
4. it has read, understands and shall comply with all the pertinent provisions of the Americans with Disabilities Act and will be subject to sanctions for failure to do so;
5. it has read, understands and shall comply with all the provisions of the Supplemental Equal Employment Opportunity Anti-Discrimination and Affirmative Action Program and will be subject to sanctions for failure to do so.

Signed under the penalty of perjury.

Signature of authorized representative of subcontractor

Print name of authorized representative of subcontractor

Dated

In order to ensure that the subcontractor's certification becomes part of all subcontracts under the prime contract, no subcontract shall be executed until an authorized representative of the City agency (or agencies) administering this project or the Affirmative Action Officer has determined,

in writing, that the said certification has been incorporated in such subcontract, regardless of tier. Any subcontract executed without such written approval shall be void.

CAMBRIDGE RESPONSIBLE EMPLOYER PLAN GENERAL CONTRACTOR'S CERTIFICATION - BID FORM

_____ hereby certifies that it, (Name of General Bidder)

and all its subcontractors who are not filed subbidders shall:

(1) comply with the Cambridge Employment Plan as it currently exists and as it may be, from time to time, amended, and specifically shall comply with the worker hours requirements of §2.66.060(A);

(2) comply with the obligations established under M.G.L. c.149 and G.L. c30§39M to pay the appropriate lawful prevailing wage rates to its employees;

(3) maintain or participate in a bona fide apprentice training program as defined by c.23 §§ 11H and 11I for each apprenticeship trade or occupation represented in its workforce that is approved by the Division of Apprentice Training of the Department of Labor and Industries and shall abide by the apprentice to journeymen ratio for each trade prescribed therein in the performance of the contract;

(4) furnish, at its expense, hospitalization and medical benefits for all its employees employed on the project and/or coverage at least comparable in value to the hospitalization and medical benefits provided by the health and welfare plans in the applicable craft recognized by M.G.L. c.149, §26 and G.L. c30§39M in establishing minimum wage rates;

(5) maintain appropriate industrial accident insurance coverage for all its employees employed on the project in accordance with M.G.L. c.152;

(6) properly classify employees as employees rather than independent contractors and treat them accordingly for purposes of workers' compensation insurance, unemployment taxes, social security taxes and income tax withholding; and

(7) certify under oath and in writing on a weekly basis for the entire duration of its work on the project, that it is in compliance with the above obligations.

Signed under the penalties of perjury. _____(date)

Signature of authorized representative of contractor

Print name of authorized representative of contractor

THIS CERTIFICATE APPLIES ONLY TO GENERAL BIDS OVER \$100,000 INCLUDING ALL ALTERNATES, IF ANY.

RETURN THIS FORM WITH YOUR BID

Project:
Contract#:

**CAMBRIDGE RESPONSIBLE EMPLOYER PLAN
GENERAL CONTRACTOR'S CERTIFICATION -
WEEKLY CONTRACT FORM**

_____ hereby certifies that it, (Name of General Contractor)
and all its subcontractors who are not filed subbidders:

(1) are complying with the Cambridge Employment Plan as it currently exists and as it may be, from time to time, amended, and specifically are complying with the worker hours requirements of §2.66.060(A);

(2) are complying with the obligations established under M.G.L. c.149 and G.L. c30§39M to pay the appropriate lawful prevailing wage rates to its employees;

(3) are maintaining or participating in a bona fide apprentice training program as defined by c.23 §§ 11H and 11I for each apprenticable trade or occupation represented in its workforce that is approved by the Division of Apprentice Training of the Department of Labor and Industries and are abiding by the apprentice to journeymen ratio for each trade prescribed therein in the performance of the contract;

(4) are furnishing, at its expense, hospitalization and medical benefits for all its employees employed on the project and/or coverage at least comparable in value to the hospitalization and medical benefits provided by the health and welfare plans in the applicable craft recognized by M.G.L.c.149, §26 and G.L. c30§39M in establishing minimum wage rates;

(5) are maintaining appropriate industrial accident insurance coverage for all its employees employed on the project in accordance with M.G.L. c.152; and

(6) are properly classifying employees as employees rather than independent contractors and treat them accordingly for purposes of workers' compensation insurance, unemployment taxes, social security taxes and income tax withholding.

The General Contractor certifies under oath that it is in compliance with the above obligations.

Signed under the penalties of perjury, week of: _____ (date)

Signature of authorized representative of contractor

Print name of authorized representative of contractor

**THIS FORM MUST BE SUBMITTED TO THE CITY OF CAMBRIDGE PURCHASING
DEPARTMENT ON A WEEKLY BASIS FOR THE LIFE OF THE PROJECT**

**CAMBRIDGE RESPONSIBLE EMPLOYER PLAN
FILED SUBBIDDER'S CERTIFICATION - BID FORM**

_____ hereby certifies that it, (Name of Subbidder) shall:

(1) comply with the Cambridge Employment Plan as it currently exists and as it may be, from time to time, amended, and specifically shall comply with the worker hours requirements of §2.66.060(A);

(2) comply with the obligations established under M.G.L. c.149 and G.L. c30§39M to pay the appropriate lawful prevailing wage rates to its employees;

(3) maintain or participate in a bona fide apprentice training program as defined by c.23 §§ 11H and 11I for each apprenticable trade or occupation represented in its workforce that is approved by the Division of Apprentice Training of the Department of Labor and Industries and shall abide by the apprentice to journeymen ratio for each trade prescribed therein in the performance of the contract;

(4) furnish, at its expense, hospitalization and medical benefits for all its employees employed on the project and/or coverage at least comparable in value to the hospitalization and medical benefits provided by the health and welfare plans in the applicable craft recognized by M.G.L. c.149, §26 and G.L. c30§39M in establishing minimum wage rates;

(5) maintain appropriate industrial accident insurance coverage for all its employees employed on the project in accordance with M.G.L. c.152;

(6) properly classify employees as employees rather than independent contractors and treat them accordingly for purposes of workers' compensation insurance, unemployment taxes, social security taxes and income tax withholding; and

(7) certify under oath and in writing on a weekly basis for the entire duration of its work on the project, that it is in compliance with the above obligations.

Signed under the penalties of perjury. _____(date)

Signature of authorized representative of contractor

Print name of authorized representative of contractor

**THIS CERTIFICATE APPLIES ONLY TO FILED SUBBIDS OVER \$25,000 AND OVER
INCLUDING ALL
ALTERNATES, IF ANY.**

RETURN THIS FORM WITH YOUR BID

Project:
Contract #:

CAMBRIDGE RESPONSIBLE EMPLOYER PLAN NON-FILED SUBCONTRACTOR CERTIFICATION - WEEKLY CONTRACT FORM

_____ hereby certifies that it:
(Name of Subcontractor)

(1) complies with the Cambridge Employment Plan as it currently exists and as it may be, from time to time, amended, and specifically shall comply with the worker hours requirements of §2.66.060(A);

(2) complies with the obligations established under M.G.L. c.149 and G.L. c30§39M to pay the appropriate lawful prevailing wage rates to its employees;

(3) maintains or participates in a bona fide apprentice training program as defined by c.23 §§ 11H and 11I for each apprenticable trade or occupation represented in its workforce that is approved by the Division of Apprentice Training of the Department of Labor and Industries and shall abide by the apprentice to journeymen ratio for each trade prescribed therein in the performance of the contract;

(4) furnishes, at its expense, hospitalization and medical benefits for all its employees employed on the project and/or coverage at least comparable in value to the hospitalization and medical benefits provided by the health and welfare plans in the applicable craft recognized by M.G.L. c.149, §26 and G.L. c30§39M in establishing minimum wage rates;

(5) maintains appropriate industrial accident insurance coverage for all its employees employed on the project in accordance with M.G.L. c.152; and

(6) properly classifies employees as employees rather than independent contractors and treat them accordingly for purposes of workers' compensation insurance, unemployment taxes, social security taxes and income tax withholding.

The Subcontractor certifies under oath that it is in compliance with the above obligations.

Signed under the penalties of perjury, week of: _____(date)

Signature of authorized representative of subcontractor

Print name of authorized representative of subcontractor

THIS FORM MUST BE SUBMITTED TO THE CITY OF CAMBRIDGE PURCHASING DEPARTMENT ON A WEEKLY BASIS FOR THE ENTIRE DURATION OF ITS WORK ON THE CONTRACT

**CHAPTER 306 OF THE ACTS OF 2004
AN ACT RELATIVE TO THE HEALTH AND SAFETY ON
CONSTRUCTION PROJECTS**

GENERAL CONTRACTOR'S CERTIFICATION - BID FORM

_____ (Name of General Bidder) hereby certifies that it,
and all its subcontractors who are not filed subbidders shall:

(1) who shall certify 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 a 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.

Signed under the penalties of perjury. _____(date)

Signature of authorized representative of contractor

Print name of authorized representative of contractor

RETURN THIS FORM WITH YOUR BID

CORI COMPLIANCE FORM

Persons and businesses supplying goods and/or services to the City of Cambridge ("Vendors"), who are required by law to perform CORI checks, are further required by Section 2.112.060 of the Cambridge Municipal Code to employ fair policies, practices and standards relating to the screening and identification of persons with criminal backgrounds through the CORI system. Such Vendors, when entering into contracts with the City of Cambridge, must affirm that their policies, practices and standards regarding CORI information are consistent with the policies, practices and standards employed by the City of Cambridge as set forth in the City of Cambridge CORI Policy ("CORI Policy") attached hereto.

CERTIFICATION

The undersigned certifies under penalties of perjury that the Vendor employs CORI related policies, practices and standards that are consistent with the provisions of the attached CORI Policy. **All Vendors must check one of the three lines below.**

1. _____ CORI checks are not performed on any Applicants.
2. _____ CORI checks are performed on some or all Applicants. The Vendor, by affixing a signature below, affirms under penalties of perjury that its CORI policies, practices and standards are consistent with the policies, practices and standards set forth in the attached CORI Policy.

_____ CORI checks are performed on some or all Applicants. The Vendor's CORI policies, practices and standards are not consistent with the attached CORI Policy. Please explain on a separate sheet of paper.

(Typed or printed name of person signing quotation, bid or Proposal)

Signature

(Name of Business)

NOTE:

The City Manager, in his sole discretion may grant a waiver to any Vendor on a contract by contract basis.

Instructions for Completing CORI Compliance Form:

A Vendor should not check Line 1 unless it performs NO CORI checks on ANY applicant. A Vendor who checks Line 2 certifies that the Vendor's CORI policy conforms to the policies, practices and standards set forth in the City's CORI Policy. A Vendor with a CORI policy that does NOT conform to the City's CORI Policy must check Line 3 and explain the reasons for its nonconformance in writing. Vendors who check Line 3 will not be permitted to enter into contracts with the City, absent a waiver by the City Manager.

THIS FORM MUST BE SUBMITTED WITH YOUR BID.

**HVAC Upgrades
Gately Youth Center**

DIVISION B: CONTRACT FORMS

File No.

AGREEMENT BETWEEN THE CITY OF CAMBRIDGE AND CONTRACTOR

The City of Cambridge ("the City"), a municipal corporation, acting through its City Manager, and _____ "the Contractor"),

_____(address)
agree as follows:

THE CONTRACT DOCUMENTS

The Contract Documents form the Contract between the City and the Contractor and consist only of those documents listed under the definition of "Contract Documents" in the General Terms and Conditions of the Contract for Construction, Reconstruction, Installation, Demolition, Maintenance, or Repair of any City of Cambridge Public Building, Drawings, numbered _____ through inclusive, and dated _____ and Addenda numbers , inclusive. All said documents are incorporated by reference as if fully rewritten herein. The Contract represents the entire and integrated agreement between the parties and supersedes any prior negotiations, representations, or agreements, whether oral or written.

THE ARCHITECT

The Project has been designed by _____.

THE WORK

The Contractor shall perform the Work as specified in the Contract Documents.

CONTRACT TIME

The Contract Time shall be ____ calendar days commencing on the date set forth in the Notice to Proceed.

The Contractor agrees that the Work shall be prosecuted regularly, diligently, uninterruptedly and at such rate of progress as will insure full completion thereof within the Contract Time. It is expressly understood and agreed that the Contract Time is reasonable for the completion of the Work, taking all factors into consideration.

CONTRACT SUM

The City will pay the Contractor for performance of the Work in accordance with the Contract Documents the sum of \$_____ as set forth on the Contractor's bid form.

The City shall not be liable for any claims or requests for payment by the Contractor which would cause the total claims or payments under this Contract to exceed the amount certified by the City Auditor as being appropriated for this Contract.

LIQUIDATED DAMAGES

The City and the Contractor recognize that time is of the essence of this Contract and that the City will suffer financial loss if the Work is not completed within the Contract Time plus any authorized extensions. They also recognize the delay, expense, and difficulty involved in proving the actual loss suffered by the City if the Work is not completed within the Contract Time. Accordingly, instead of requiring any such proof, the City and the Contractor agree that the Contractor shall pay to the City as liquidated damages, not as a penalty, the sum of **\$200.00** per day for each calendar day of delay until the Work is completed. The Contractor agrees to allow the City to deduct any such amounts from progress payments and retainage.

This Contract is effective as of _____, the date the Agreement is signed by the City Manager.

THE CITY OF CAMBRIDGE

THE CONTRACTOR

Robert W. Healy
City Manager

Name of Contractor (Print)

Contractor Signature

APPROVED AS TO FORM: BY:

BY: _____
Print Name and Title
(Corporate Seal)

Donald A. Drisdell
City Solicitor

APPROVED AS TO THE AVAILABILITY
OF APPROPRIATION OF FUNDS:

Budget Code: _____

James Monagle
City Auditor

Cynthia H. Griffin
Purchasing Agent

PERFORMANCE BOND

We, the undersigned,

(Name of Contractor)

(Address of Contractor)

hereinafter called Principal, and

(Name of Surety)

(Address of

Surety) hereinafter called Surety, are held and firmly bound unto CITY OF CAMBRIDGE, 795 Massachusetts Avenue, Cambridge, MA 02139, hereinafter called Owner, in the penal sum of _____ Dollars \$(_____) in lawful money of the United States, for the payment of which sum well and truly to be made. We hereby jointly and severally bind ourselves, our heirs, executors, administrators, successors, and assigns.

The condition of this obligation is such that the Principal entered into a certain contract with the Owner, dated the ____ day of _____, 20____, a copy of which is attached hereto and made a part hereof, for the project known as **HVAC Upgrades to the Gately Youth Center** and the Principal and Surety bind themselves to the Owner for the performance of the contract.

Now, therefore, if the Principal shall well, truly and faithfully perform its duties, all the undertakings, covenants, terms, conditions, and agreements of said contract during the original term thereof, and any extensions thereof which may be granted by the Owner, with or without notice to the Surety and during the guaranty period set forth in the contract, and if it shall satisfy all claims and demands incurred under such contract, and shall fully indemnify and save harmless the Owner from all costs and damages which it may suffer by a reason of failure to do so, and shall reimburse and repay the Owner all outlay and expenses which the Owner may incur in making good any default, then this obligation shall be void; otherwise, this bond shall remain in full force and effect; provided, further, that the said Surety for value received hereby agrees that no change, extension of time, alteration or addition to the terms of the contract or to the work to be performed there under of the specifications accompanying the same shall in any wise affect its obligation on this Bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract or to the work or to the specifications. Provided, further, that no final settlement between the Owner and the Contractor shall abridge the right of any beneficiary hereunder whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed on this

_____ day of _____, 20____.

CONTRACTOR
AS PRINCIPAL

SURETY

(signature)
Name and Title:
SEAL

(signature)
Name and Title:
SEAL

PAYMENT BOND

We, the undersigned,

(Name of Contractor)

(Address of Contractor)

_____, hereinafter called Principal, and
(Corporation, Partnership, or Individual)

_____(Name of Surety)

_____(Address of Surety)

**hereinafter called Surety, are held and firmly bound unto CITY OF CAMBRIDGE,
795 Massachusetts Avenue, Cambridge, MA 02139, hereinafter called Owner, in
the penal sum of**

_____ Dollars \$(_____) in lawful money of the
United States, for the payment of which sum well and truly to be made. We hereby jointly
and severally bind ourselves, our heirs, executors, administrators, successors, and assigns.

The condition of this obligation is such that the Principal entered into a certain contract with
the Owner, dated the _____ day of _____, 20____, a copy of which is
attached hereto and made a part hereof, for the project known as **HVAC Upgrades to the
Gately Youth Center.**

Now, therefore, if the Principal shall promptly make payment to all persons, firms,
subcontractors, and corporations furnishing materials for or performing labor in the
prosecution of the work provided for in such contract, and any authorized extension or
modification thereof, including all amounts due for materials used in connection with the
work, and all insurance premiums on said work, and for all labor, performed in such work
whether by subcontractor or otherwise, then this obligation shall be void; otherwise this
bond is remain in full force and effect. Provided, further, that the said Surety for value
received hereby agrees that no change, extension of time, alteration or addition to the
terms of the contract or to the work to be performed there under of the Specifications
accompanying the same shall in any wise affect its obligation on this Bond, and it does
hereby waive notice of any such change, extension of time, alteration or addition to the
terms of the contract or to the work or to the specifications.

Provided, further, that no final settlement between the Owner and the Contractor shall
abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed on this _____ day of _____ 20_____.

CONTRACTOR AS PRINCIPAL

SURETY

(Signature)
Name and Title:
SEAL

(Signature)
Name and Title:
SEAL

**MEETING OF THE BOARD OF DIRECTORS
CERTIFICATE OF AUTHORITY**

20____

At a meeting of the Directors of the _____ duly called and held at _____ on the ____ day of _____, at which a quorum was present and acting, it was

VOICED THAT _____

the _____ of this corporation is hereby authorized and empowered to make, enter into, sign, seal and deliver, in behalf of this corporation, a contract for **HVAC Upgrades to the Gately Youth Center** with the City of Cambridge..

I DO HEREBY CERTIFY that the above is a true and correct copy of the record, that said vote has not been amended or repealed and is in full force and effect on this date, and that

_____ is duly elected _____ of this Corporation.

ATTEST:

Clerk or Secretary of the Corporation



THE COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF LABOR AND WORKFORCE DEVELOPMENT
DIVISION OF OCCUPATIONAL SAFETY



DEVAL L. PATRICK
Governor

TIMOTHY P. MURRAY
Lieutenant Governor

As determined by the Commissioner under the provisions of the
Massachusetts General Laws, Chapter 149, Sections 26 to 27H

JOANNE F. GOLDSTEIN
Secretary of Labor and Workforce Development

GEORGE E. NOEL
Director of Labor

LAURA M. MARLIN
Commissioner of Division of Occupational Safety

Prevailing Wage Rates

Awarding Authority: City of Cambridge Purchasing Department

Contract Number:

City/Town: CAMBRIDGE

Description of Work: HVAC Upgrades, Gately Youth Center

Job Location: 70 Rear Rindge Avenue, Cambridge, MA

Classification	Effective Dates and Total Rates					
Construction						
(2 AXLE) DRIVER - EQUIPMENT	12/01/2009	\$44.330	06/01/2010	\$44.930	12/01/2010	\$45.530
	06/01/2011	\$46.280	12/01/2011	\$46.940	06/01/2012	\$47.590
	12/01/2012	\$48.620				
(3 AXLE) DRIVER - EQUIPMENT	12/01/2009	\$44.400	06/01/2010	\$45.000	12/01/2010	\$45.600
	06/01/2011	\$46.350	12/01/2011	\$47.010	06/01/2012	\$47.660
	12/01/2012	\$48.690				
(4 & 5 AXLE) DRIVER - EQUIPMENT	12/01/2009	\$44.520	06/01/2010	\$45.120	12/01/2010	\$45.720
	06/01/2011	\$46.470	12/01/2011	\$47.130	06/01/2012	\$47.780
	12/01/2012	\$48.810				
ADS/SUBMERSIBLE PILOT	08/01/2009	\$101.110	08/01/2010	\$104.640	08/01/2011	\$108.760
AIR TRACK OPERATOR	12/01/2009	\$47.850	06/01/2010	\$48.850	12/01/2010	\$50.100
	06/01/2011	\$51.100	12/01/2011	\$52.350		
	12/01/2009	\$40.250				
ASBESTOS REMOVER - PIPE / MECH. EQUIPT.	12/01/2009	\$47.350	06/01/2010	\$48.350	12/01/2010	\$49.600
ASPHALT RAKER	06/01/2011	\$50.600	12/01/2011	\$51.850		
ASPHALT/CONCRETE/CRUSHER PLANT-ON SITE	12/01/2009	\$58.530	06/01/2010	\$59.780	12/01/2010	\$61.030
BACKHOE/FRONT-END LOADER	12/01/2009	\$58.530	06/01/2010	\$59.780	12/01/2010	\$61.030
BARCO-TYPE JUMPING TAMPER	12/01/2009	\$47.350	06/01/2010	\$48.350	12/01/2010	\$49.600
	06/01/2011	\$50.600	12/01/2011	\$51.850		
BLOCK PAVER, RAMMER / CURB SETTER	12/01/2009	\$47.850	06/01/2010	\$48.850	12/01/2010	\$50.100
	06/01/2011	\$51.100	12/01/2011	\$52.350		
BOILER MAKER	10/01/2008	\$54.800				
APPRENTICE: BOILERMAKER - Local 29						
Ratio	Step	1	2	3	4	5
1:5	%	65.00	65.00	70.00	75.00	80.00
						85.00
						90.00
						95.00
BRICK/STONE/ARTIFICIAL MASONRY (INCL. MASONRY WATERPROOFING)	02/01/2010	\$68.010	08/01/2010	\$69.910	02/01/2011	\$70.900
	08/01/2011	\$73.000	02/01/2012	\$73.990		
APPRENTICE: BRICK/PLASTER/CEMENT MASON - Local 3 Boston						
Ratio	Step	1	2	3	4	5
1:5	%	50.00	60.00	70.00	80.00	90.00
BULLDOZER/GRADER/SCRAPER	12/01/2009	\$58.190	06/01/2010	\$59.430	12/01/2010	\$60.680
CAISSON & UNDERPINNING BOTTOM MAN	12/01/2009	\$48.250	06/01/2010	\$49.250	12/01/2010	\$50.500
	06/01/2011	\$51.500	12/01/2011	\$52.750		
CAISSON & UNDERPINNING LABORER	12/01/2009	\$47.100	06/01/2010	\$48.100	12/01/2010	\$49.350
	06/01/2011	\$50.350	12/01/2011	\$51.600		
CAISSON & UNDERPINNING TOP MAN	12/01/2009	\$47.100	06/01/2010	\$48.100	12/01/2010	\$49.350
	06/01/2011	\$50.350	12/01/2011	\$51.600		
CARBIDE CORE DRILL OPERATOR	12/01/2009	\$47.350	06/01/2010	\$48.350	12/01/2010	\$49.600
	06/01/2011	\$50.600	12/01/2011	\$51.850		

This wage schedule must be posted at the work site in accordance with M.G.L. ch. 149, sec. 27

Failure of the employer to pay "prevailing wage rates," which are the minimum wage rates listed above, on public works projects is a violation of M.G.L. ch. 149, sec. 27. Employees not receiving such rates should report the violation to the Office of Fair Labor and Business Practices, 100 Cambridge Street, Boston, MA 02108; Tel: 617-727-3465.



THE COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF LABOR AND WORKFORCE DEVELOPMENT
DIVISION OF OCCUPATIONAL SAFETY



DEVAL L. PATRICK
Governor

As determined by the Commissioner under the provisions of the
Massachusetts General Laws, Chapter 149, Sections 26 to 27H

JOANNE F. GOLDSTEIN
Secretary of Labor and Workforce Development

TIMOTHY P. MURRAY
Lieutenant Governor

GEORGE E. NOEL
Director of Labor

LAURA M. MARLIN
Commissioner of Division of Occupational Safety

Prevailing Wage Rates

Awarding Authority: City of Cambridge Purchasing Department

Contract Number:

City/Town: CAMBRIDGE

Description of Work: HVAC Upgrades, Gately Youth Center

Job Location: 70 Rear Rindge Avenue, Cambridge, MA

Classification		Effective Dates and Total Rates									
CARPENTER		03/01/2010	\$59.800	09/01/2010	\$60.680	03/01/2011	\$61.550				
		09/01/2011	\$62.680	03/01/2012	\$63.800						
APPRENTICE: CARPENTER - Zone 1 Metro Boston											
Ratio	Step	1	2	3	4	5	6	7	8		
1:5	%	50.00	60.00	70.00	75.00	80.00	80.00	90.00	90.00		
CEMENT MASONRY/PLASTERING		02/01/2010	\$66.200	08/01/2010	\$67.670	02/01/2011	\$68.440				
		08/01/2011	\$70.060	02/01/2012	\$70.830						
CHAIN SAW OPERATOR		12/01/2009	\$47.350	06/01/2010	\$48.350	12/01/2010	\$49.600				
		06/01/2011	\$50.600	12/01/2011	\$51.850						
CLAM SHELLS/SLURRY BUCKETS/HEADING MACHINES		12/01/2009	\$59.530	06/01/2010	\$60.780	12/01/2010	\$62.030				
COMPRESSOR OPERATOR		12/01/2009	\$47.890	06/01/2010	\$48.810	12/01/2010	\$49.740				
DELEADER (BRIDGE)		01/01/2010	\$63.410								
DEMO: ADZEMAN		12/01/2009	\$47.100	06/01/2010	\$48.100	12/01/2010	\$49.350				
		06/01/2011	\$50.350	12/01/2011	\$51.600						
DEMO: BACKHOE/LOADER/HAMMER OPERATOR		12/01/2009	\$48.100	06/01/2010	\$49.100	12/01/2010	\$50.350				
		06/01/2011	\$51.350	12/01/2011	\$52.600						
DEMO: BURNERS		12/01/2009	\$47.850	06/01/2010	\$48.850	12/01/2010	\$50.100				
		06/01/2011	\$51.100	12/01/2011	\$52.350						
DEMO: CONCRETE CUTTER/SAWYER		12/01/2009	\$48.100	06/01/2010	\$49.100	12/01/2010	\$50.350				
		06/01/2011	\$51.350	12/01/2011	\$52.600						
DEMO: JACKHAMMER OPERATOR		12/01/2009	\$47.850	06/01/2010	\$48.850	12/01/2010	\$50.100				
		06/01/2011	\$51.100	12/01/2011	\$52.350						
DEMO: WRECKING LABORER		12/01/2009	\$47.100	06/01/2010	\$48.100	12/01/2010	\$49.350				
		06/01/2011	\$50.350	12/01/2011	\$51.600						
DIRECTIONAL DRILL MACHINE OPERATOR		12/01/2009	\$58.190	06/01/2010	\$59.430	12/01/2010	\$60.680				
DIVER		08/01/2009	\$75.090	08/01/2010	\$77.440	08/01/2011	\$80.190				
DIVER TENDER		08/01/2009	\$60.220	08/01/2010	\$62.570	08/01/2011	\$65.320				
DIVER TENDER (EFFLUENT)		08/01/2009	\$78.810	08/01/2010	\$82.330	08/01/2011	\$86.460				
DIVER/SLURRY (EFFLUENT)		08/01/2009	\$101.110	08/01/2010	\$104.640	08/01/2011	\$108.760				
ELECTRICIAN		03/01/2010	\$65.790	09/01/2010	\$67.030	03/01/2011	\$68.270				
APPRENTICE: ELECTRICIAN - Local 103											
Ratio	Step	1	2	3	4	5	6	7	8	9	10
2:3***	%	40.00	40.00	45.00	45.00	50.00	55.00	60.00	65.00	70.00	75.00
App Prior 1/1/03; 30/35/40/45/50/55/65/70/75/80											
ELEVATOR CONSTRUCTOR		01/01/2010	\$65.190	01/01/2011	\$66.690	01/01/2012	\$68.190				

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DIVISION OF OCCUPATIONAL SAFETY



DEVAL L. PATRICK
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TIMOTHY P. MURRAY
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As determined by the Commissioner under the provisions of the
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GEORGE E. NOEL
Director of Labor

LAURA M. MARLIN
Commissioner of Division of Occupational Safety

Prevailing Wage Rates

Awarding Authority: City of Cambridge Purchasing Department

Contract Number:

City/Town: CAMBRIDGE

Description of Work: HVAC Upgrades, Gately Youth Center

Job Location: 70 Rear Rindge Avenue, Cambridge, MA

Classification

Effective Dates and Total Rates

APPRENTICE: ELEVATOR CONSTRUCTOR - Local 4		1	2	3	4	5				
Ratio	Step									
1:1	%	50.00	55.00	65.00	70.00	80.00				
							Steps 1-2 are 6 mos.; Steps 3-5 are 1 year			
ELEVATOR CONSTRUCTOR HELPER					01/01/2010	\$51.330	01/01/2011	\$52.830	01/01/2012	\$54.330
FENCE & GUARD RAIL ERECTOR					12/01/2009	\$47.350	06/01/2010	\$48.350	12/01/2010	\$49.600
					06/01/2011	\$50.600	12/01/2011	\$51.850		
FIELD ENG. - INST. PERSON (BLDG, SITE, HVY CONST)					11/01/2009	\$55.850	05/01/2010	\$56.950	11/01/2010	\$58.190
					05/01/2011	\$59.430				
FIELD ENG. - ROD PERSON (BLDG, SITE, HVY CONST)					11/01/2009	\$40.870	05/01/2010	\$41.520	11/01/2010	\$42.250
					05/01/2011	\$42.980				
FIELD ENG.-CHIEF OF PARTY (BLDG, SITE, HVY CONST)					11/01/2009	\$57.210	05/01/2010	\$58.320	11/01/2010	\$59.570
					05/01/2011	\$60.820				
FIRE ALARM INSTALLER					03/01/2010	\$65.790	09/01/2010	\$67.030	03/01/2011	\$68.270
FIRE ALARM REPAIR / MAINTENANCE					03/01/2010	\$53.800	09/01/2010	\$54.730	03/01/2011	\$55.660
FIREMAN (ASST. ENGINEER)					12/01/2009	\$52.740	06/01/2010	\$53.810	12/01/2010	\$54.890
FLAGGER & SIGNALER					12/01/2009	\$36.300	06/01/2010	\$37.300	12/01/2010	\$37.300
					06/01/2011	\$38.300	12/01/2011	\$38.300		
FLOORCOVERER					03/01/2010	\$59.630	09/01/2010	\$60.380	03/01/2011	\$61.130
					09/01/2011	\$62.380	03/01/2012	\$63.630		
APPRENTICE: FLOORCOVERER - Local 2168 Zone 1		1	2	3	4	5	6	7	8	
Ratio	Step									
1:1	%	50.00	55.00	60.00	65.00	70.00	75.00	80.00	85.00	
Steps are 750 hrs.										
FORK LIFT/CHERRY PICKER					12/01/2009	\$58.530	06/01/2010	\$59.780	12/01/2010	\$61.030
GENERATOR/LIGHTING PLANT/HEATERS					12/01/2009	\$47.890	06/01/2010	\$48.810	12/01/2010	\$49.740
GLAZIER (GLASS PLANK/AIR BARRIER/INTERIOR SYSTEMS)					01/01/2010	\$58.700				
APPRENTICE: GLAZIER - Local 35 Zone 1		1	2	3	4	5	6	7	8	
Ratio	Step									
1:1	%	50.00	55.00	60.00	65.00	70.00	75.00	80.00	90.00	
Steps are 750 hrs.										
HOISTING ENGINEER/CRANES/GRADALLS					12/01/2009	\$58.530	06/01/2010	\$59.780	12/01/2010	\$61.030
APPRENTICE: HOIST/PORT. ENG.- Local 4		1	2	3	4	5	6	7	8	
Ratio	Step									
1:6	%	55.00	60.00	65.00	70.00	75.00	80.00	85.00	90.00	

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LAURA M. MARLIN
Commissioner of Division of Occupational Safety

Prevailing Wage Rates

Awarding Authority: City of Cambridge Purchasing Department

Contract Number:

City/Town: CAMBRIDGE

Description of Work: HVAC Upgrades, Gately Youth Center

Job Location: 70 Rear Rindge Avenue, Cambridge, MA

Classification	Effective Dates and Total Rates							
HVAC (DUCTWORK)	02/01/2010	\$63.470	08/01/2010	\$64.720	02/01/2011	\$65.970		
	08/01/2011	\$67.220	02/01/2012	\$68.470	08/01/2012	\$69.720		
	02/01/2013	\$70.970						
HVAC (ELECTRICAL CONTROLS)	03/01/2010	\$65.790	09/01/2010	\$67.030	03/01/2011	\$68.270		
HVAC (TESTING AND BALANCING - AIR)	02/01/2010	\$63.470	08/01/2010	\$64.720	02/01/2011	\$65.970		
	08/01/2011	\$67.220	02/01/2012	\$68.470	08/01/2012	\$69.720		
	02/01/2013	\$70.970						
HVAC (TESTING AND BALANCING -WATER)	03/01/2010	\$68.730						
HVAC MECHANIC	03/01/2010	\$68.730						
HYDRAULIC DRILLS	12/01/2009	\$47.850	06/01/2010	\$48.850	12/01/2010	\$50.100		
	06/01/2011	\$51.100	12/01/2011	\$52.350				
INSULATOR (PIPES & TANKS)	09/01/2009	\$59.260	09/01/2010	\$61.660				
	APPRENTICE: ASBESTOS INSULATOR (Pipes & Tanks) - Local 6 Boston							
Ratio	Step	1	2	3	4			
1:4	%	50.00	60.00	70.00	80.00			
Steps are 1 year								
IRONWORKER/WELDER	09/16/2009	\$59.560	03/16/2010	\$60.960				
	APPRENTICE: IRONWORKER - Local 7							
Ratio	Step	1	2	3	4	5	6	
	%	60.00	70.00	75.00	80.00	85.00	90.00	
Structural 1:6; Ornamental 1:4								
JACKHAMMER & PAVING BREAKER OPERATOR	12/01/2009	\$47.350	06/01/2010	\$48.350	12/01/2010	\$49.600		
	06/01/2011	\$50.600	12/01/2011	\$51.850				
LABORER	12/01/2009	\$47.100	06/01/2010	\$48.100	12/01/2010	\$49.350		
	06/01/2011	\$50.350	12/01/2011	\$51.600				
APPRENTICE: LABORER - Zone 1								
Ratio	Step	1	2	3	4			
1:5	%	60.00	70.00	80.00	90.00			
LABORER: CARPENTER TENDER	12/01/2009	\$47.100	06/01/2010	\$48.100	12/01/2010	\$49.350		
	06/01/2011	\$50.350	12/01/2011	\$51.600				
LABORER: CEMENT FINISHER TENDER	12/01/2009	\$47.100	06/01/2010	\$48.100	12/01/2010	\$49.350		
	06/01/2011	\$50.350	12/01/2011	\$51.600				
LABORER: HAZARDOUS WASTE/ASBESTOS REMOVER	12/01/2009	\$47.100	06/01/2010	\$48.100	12/01/2010	\$49.350		
	06/01/2011	\$50.350	12/01/2011	\$51.600				
LABORER: MASON TENDER	12/01/2009	\$47.350	06/01/2010	\$48.350	12/01/2010	\$49.600		
	06/01/2011	\$50.600	12/01/2011	\$51.850				
LABORER: MULTI-TRADE TENDER	12/01/2009	\$47.100	06/01/2010	\$48.100	12/01/2010	\$49.350		
	06/01/2011	\$50.350	12/01/2011	\$51.600				

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Commissioner of Division of Occupational Safety

Prevailing Wage Rates

Awarding Authority: City of Cambridge Purchasing Department

Contract Number:

City/Town: CAMBRIDGE

Description of Work: HVAC Upgrades, Gately Youth Center

Job Location: 70 Rear Rindge Avenue, Cambridge, MA

Classification

Effective Dates and Total Rates

Classification	Effective Date	Hourly Rate	Effective Date	Hourly Rate	Effective Date	Hourly Rate
LABORER: TREE REMOVER	12/01/2009	\$47.100	06/01/2010	\$48.100	12/01/2010	\$49.350
	06/01/2011	\$50.350	12/01/2011	\$51.600		

This classification applies to the wholesale removal of standing trees including all associated trimming of branches and limbs, and applies to the removal of branches at locations not on or around utility lines.

LASER BEAM OPERATOR	12/01/2009	\$47.350	06/01/2010	\$48.350	12/01/2010	\$49.600
	06/01/2011	\$50.600	12/01/2011	\$51.850		

MARBLE & TILE FINISHERS	02/01/2010	\$56.950	08/01/2010	\$58.470	02/01/2011	\$59.270
	08/01/2011	\$60.950	02/01/2012	\$61.740		

APPRENTICE: MARBLE-TILE-TERRAZZO FINISHER - Local 3 Marble & Tile

Ratio	Step	1	2	3	4	5
1:3	%	50.00	60.00	70.00	80.00	90.00

Steps are 800 hrs.

MARBLE MASONS, TILELAYERS & TERRAZZO MECH	02/01/2010	\$68.050	08/01/2010	\$69.950	02/01/2011	\$70.940
	08/01/2011	\$73.040	02/01/2012	\$74.030		

APPRENTICE: MARBLE-TILE-TERRAZZO MECHANIC - Local 3 Marble & Tile

Ratio	Step	1	2	3	4	5
1:3	%	50.00	60.00	70.00	80.00	90.00

MECH. SWEEPER OPERATOR (NON-CONSTRUCTION)	07/01/2009	\$28.300	07/01/2010	\$29.000	07/01/2011	\$29.700
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MECH. SWEEPER OPERATOR (ON CONST. SITES)	12/01/2009	\$58.190	06/01/2010	\$59.430	12/01/2010	\$60.680
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MECHANICS MAINTENANCE	12/01/2009	\$58.190	06/01/2010	\$59.430	12/01/2010	\$60.680
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MILLWRIGHT (Zone 1)	03/01/2009	\$54.400				
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APPRENTICE: MILLWRIGHT - Local 1121 Zone 1

Ratio	Step	1	2	3	4	5	6	7	8
1:5	%	50.00	55.00	60.00	65.00	70.00	75.00	80.00	85.00

MORTAR MIXER	12/01/2009	\$47.350	06/01/2010	\$48.350	12/01/2010	\$49.600
	06/01/2011	\$50.600	12/01/2011	\$51.850		

OILER (OTHER THAN TRUCK CRANES, GRADALLS)	12/01/2009	\$41.750	06/01/2010	\$42.480	12/01/2010	\$43.220
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OILER (TRUCK CRANES, GRADALLS)	12/01/2009	\$44.720	06/01/2010	\$45.550	12/01/2010	\$46.380
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OTHER POWER DRIVEN EQUIPMENT - CLASS II	12/01/2009	\$58.190	06/01/2010	\$59.430	12/01/2010	\$60.680
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Painter (BRIDGES/TANKS)	01/01/2010	\$63.410				
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APPRENTICE: PAINTER - Local 35 Zone 1

Ratio	Step	1	2	3	4	5	6	7	8
1:1	%	50.00	55.00	60.00	65.00	70.00	75.00	80.00	90.00

Steps are 750 hrs.

PAINTER (SPRAY OR SANDBLAST, NEW) *	01/01/2010	\$60.100				
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* If 30% or more of surfaces to be painted are new construction, NEW paint rate shall be used.

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Commissioner of Division of Occupational Safety

Prevailing Wage Rates

Awarding Authority: City of Cambridge Purchasing Department

Contract Number:

City/Town: CAMBRIDGE

Description of Work: HVAC Upgrades, Gately Youth Center

Job Location: 70 Rear Rindge Avenue, Cambridge, MA

Classification

Effective Dates and Total Rates

Classification	Ratio	Step	1	2	3	4	5	6	7	8	Effective Dates and Total Rates
APPRENTICE: PAINTER - Local 35 Zone 1	1:1	%	50.00	55.00	60.00	65.00	70.00	75.00	80.00	90.00	Steps are 750 hrs.
PAINTER (SPRAY OR SANDBLAST, REPAINT)											01/01/2010 \$58.160
APPRENTICE: PAINTER - Local 35 Zone 1	1:1	%	50.00	55.00	60.00	65.00	70.00	75.00	80.00	90.00	Steps are 750 hrs.
PAINTER (TRAFFIC MARKINGS)											12/01/2009 \$47.100 06/01/2010 \$48.100 12/01/2010 \$49.350 06/01/2011 \$50.350 12/01/2011 \$51.600
PAINTER / TAPER (BRUSH, NEW) *											01/01/2010 \$58.700
* If 30% or more of surfaces to be painted are new construction, NEW paint rate shall be used.											
APPRENTICE: PAINTER - Local 35 Zone 1	1:1	%	50.00	55.00	60.00	65.00	70.00	75.00	80.00	90.00	Steps are 750 hrs.
PAINTER / TAPER (BRUSH, REPAINT)											01/01/2010 \$56.760
APPRENTICE: PAINTER - Local 35 Zone 1	1:1	%	50.00	55.00	60.00	65.00	70.00	75.00	80.00	90.00	Steps are 750 hrs.
PANEL & PICKUP TRUCKS DRIVER											12/01/2009 \$44.160 06/01/2010 \$44.760 12/01/2010 \$45.360 06/01/2011 \$46.110 12/01/2011 \$46.770 06/01/2012 \$47.420 12/01/2012 \$48.450
PIER AND DOCK CONSTRUCTOR (UNDERPINNING AND DECK)											08/01/2009 \$60.220 08/01/2010 \$62.570 08/01/2011 \$65.320
PILE DRIVER											08/01/2009 \$60.220 08/01/2010 \$62.570 08/01/2011 \$65.320
APPRENTICE: PILE DRIVER - Local 56 Zone 1	1:3	%	60.00	65.00	70.00	75.00	80.00	85.00	90.00	95.00	
PIPEFITTER & STEAMFITTER											03/01/2010 \$68.730

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Prevailing Wage Rates

Awarding Authority: City of Cambridge Purchasing Department

Contract Number:

City/Town: CAMBRIDGE

Description of Work: HVAC Upgrades, Gately Youth Center

Job Location: 70 Rear Rindge Avenue, Cambridge, MA

Classification

Effective Dates and Total Rates

Classification	Effective Dates	Total Rates
APPRENTICE: PIPEFITTER - Local 537		
Ratio Step 1 2 3 4 5		
** % 40.00 45.00 60.00 70.00 80.00		
** 1:3; 3:15; 1:10 thereafter		Steps are 1 yr; Refrig/AC Mechanic Steps & Hrs Same as above
Refrig/AC Mechanic **1:1;1:2;2:4;3:6;4:8;5:10;6:12;7:14;8:17;9:20;10:23(Max)		
PIPELAYER	12/01/2009 \$47.350 06/01/2010 \$48.350 12/01/2010 \$49.600	06/01/2011 \$50.600 12/01/2011 \$51.850
PLUMBERS & GASFITTERS	03/01/2010 \$67.500	
APPRENTICE: PLUMBER - Local 12		
Ratio Step 1 2 3 4 5		
** % 35.00 40.00 55.00 65.00 75.00		
** 1:2; 2:6; 3:10; 4:14; 5:19		Steps are 1 year; Step 4 w/ license-70; Step 5 w/ license-80
PNEUMATIC CONTROLS (TEMP.)	03/01/2010 \$68.730	
PNEUMATIC DRILL/TOOL OPERATOR	12/01/2009 \$47.350 06/01/2010 \$48.350 12/01/2010 \$49.600	06/01/2011 \$50.600 12/01/2011 \$51.850
POWDERMAN & BLASTER	12/01/2009 \$48.100 06/01/2010 \$49.100 12/01/2010 \$50.350	06/01/2011 \$51.350 12/01/2011 \$52.600
POWER SHOVEL/DERRICK/TRENCHING MACHINE	12/01/2009 \$58.530 06/01/2010 \$59.780 12/01/2010 \$61.030	
PUMP OPERATOR (CONCRETE)	12/01/2009 \$58.530 06/01/2010 \$59.780 12/01/2010 \$61.030	
PUMP OPERATOR (DEWATERING, OTHER)	12/01/2009 \$47.890 06/01/2010 \$48.810 12/01/2010 \$49.740	
READY-MIX CONCRETE DRIVER	05/01/2009 \$42.470 05/01/2010 \$43.040 05/01/2011 \$43.650	
RECLAIMERS	12/01/2009 \$58.190 06/01/2010 \$59.430 12/01/2010 \$60.680	
RESIDENTIAL WOOD FRAME CARPENTER **	04/01/2009 \$38.870	
** The Residential Wood Frame Carpenter classification applies only to the construction of new, wood frame residences that do not exceed four stories including the basement.		
As of 9/1/09 Carpentry work on wood-frame residential WEATHERIZATION projects shall be paid the RESIDENTIAL WOOD FRAME CARPENTER rate.		
RIDE-ON MOTORIZED BUGGY OPERATOR	12/01/2009 \$47.350 06/01/2010 \$48.350 12/01/2010 \$49.600	06/01/2011 \$50.600 12/01/2011 \$51.850
ROLLER/SPREADER/MULCHING MACHINE	12/01/2009 \$58.190 06/01/2010 \$59.430 12/01/2010 \$60.680	
ROOFER (Inc.Roofers Waterproofing &Roofers Damproofg)	02/01/2009 \$53.860	
APPRENTICE: ROOFER - Local 33		
Ratio Step 1 2 3 4 5		
** % 50.00 60.00 65.00 75.00 85.00		
** 1:5; 2:6 -10 thereafter 1:10 (or portion thereof)		Step 1 is 2000 hrs.; Steps 2-5 are 1000 hrs.
Roofers (Reroofing): Same Steps and Hours as Above ** 1:4; Thereafter 1:1		
SHEETMETAL WORKER	02/01/2010 \$63.470 08/01/2010 \$64.720 02/01/2011 \$65.970	08/01/2011 \$67.220 02/01/2012 \$68.470 08/01/2012 \$69.720
	02/01/2013 \$70.970	

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Prevailing Wage Rates

Awarding Authority: City of Cambridge Purchasing Department

Contract Number:

City/Town: CAMBRIDGE

Description of Work: HVAC Upgrades, Gately Youth Center

Job Location: 70 Rear Rindge Avenue, Cambridge, MA

Classification

Effective Dates and Total Rates

APPRENTICE: SHEET METAL WORKER - Local 17-A											
Ratio	Step	1	2	3	4	5	6	7			
1:4	%	40.00	45.00	50.00	60.00	65.00	75.00	85.00			
Steps 1-3 are 1 year; Steps 4-7 are 6 mos.											
SIGN ERECTOR						06/01/2009	\$37.780				
APPRENTICE: SIGN ERECTOR - Local 35 Zone 1											
Ratio	Step	1	2	3	4	5	6	7	8	9	
1:1	%	50.00	55.00	60.00	65.00	70.00	75.00	80.00	85.00	90.00	
Steps are 4 mos.											
SLATE / TILE / PRECAST CONCRETE ROOFER						02/01/2009	\$54.110				
SPECIALIZED EARTH MOVING EQUIP < 35 TONS						12/01/2009	\$44.620	06/01/2010	\$45.220	12/01/2010	\$45.820
						06/01/2011	\$46.570	12/01/2011	\$47.230	06/01/2012	\$47.880
						12/01/2012	\$48.910				
SPECIALIZED EARTH MOVING EQUIP > 35 TONS						12/01/2009	\$44.910	06/01/2010	\$45.510	12/01/2010	\$46.110
						06/01/2011	\$46.860	12/01/2011	\$47.520	06/01/2012	\$48.170
						12/01/2012	\$49.200				
SPRINKLER FITTER						09/16/2009	\$68.450	03/16/2010	\$69.700		
APPRENTICE: SPRINKLER FITTER - Local 550											
Ratio	Step	1	2	3	4	5	6	7	8	9	10
1:1	%	40.00	45.00	50.00	55.00	60.00	65.00	70.00	75.00	80.00	85.00
STEAM BOILER OPERATOR						12/01/2009	\$58.190	06/01/2010	\$59.430	12/01/2010	\$60.680
TAMPERS, SELF-PROPELLED OR TRACTOR DRAWN						12/01/2009	\$58.190	06/01/2010	\$59.430	12/01/2010	\$60.680
TELECOMMUNICATION TECHNICIAN						03/01/2010	\$53.800	09/01/2010	\$54.730	03/01/2011	\$55.660
APPRENTICE: TELECOMMUNICATION TECHNICIAN - Local 103											
Ratio	Step	1	2	3	4	5	6	7	8		
1:1	%	40.00	45.00	50.00	55.00	60.00	65.00	75.00	80.00		
TERRAZZO FINISHERS						02/01/2010	\$66.950	08/01/2010	\$68.850	02/01/2011	\$69.840
						08/01/2011	\$71.940	02/01/2012	\$72.930		
APPRENTICE: MARBLE-TILE-TERRAZZO FINISHER - Local 3 Marble & Tile											
Ratio	Step	1	2	3	4	5					
1:3	%	50.00	60.00	70.00	80.00	90.00					
Steps are 800 hrs.											
TEST BORING DRILLER						12/01/2009	\$48.500	06/01/2010	\$49.500	12/01/2010	\$50.750
						06/01/2011	\$51.750	12/01/2011	\$53.000		
TEST BORING DRILLER HELPER						12/01/2009	\$47.220	06/01/2010	\$48.220	12/01/2010	\$49.470
						06/01/2011	\$50.470	12/01/2011	\$51.720		

This wage schedule must be posted at the work site in accordance with M.G.L. ch. 149, sec. 27

Failure of the employer to pay "prevailing wage rates," which are the minimum wage rates listed above, on public works projects is a violation of M.G.L. ch. 149, sec. 27. Employees not receiving such rates should report the violation to the Office of Fair Labor and Business Practices, 100 Cambridge Street, Boston, MA 02108; Tel: 617-727-3465.



DEVAL L. PATRICK
Governor
TIMOTHY P. MURRAY
Lieutenant Governor

THE COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF LABOR AND WORKFORCE DEVELOPMENT
DIVISION OF OCCUPATIONAL SAFETY



JOANNE F. GOLDSTEIN
Secretary of Labor and Workforce Development
GEORGE E. NOEL
Director of Labor
LAURA M. MARLIN
Commissioner of Division of Occupational Safety

Prevailing Wage Rates

**As determined by the Commissioner under the provisions of the
Massachusetts General Laws, Chapter 149, Sections 26 to 27H**

Awarding Authority: City of Cambridge Purchasing Department

Contract Number:

City/Town: CAMBRIDGE

Description of Work: HVAC Upgrades, Gately Youth Center

Job Location: 70 Rear Rindge Avenue, Cambridge, MA

Classification	Effective Dates and Total Rates					
TEST BORING LABORER	12/01/2009	\$47.100	06/01/2010	\$48.100	12/01/2010	\$49.350
	06/01/2011	\$50.350	12/01/2011	\$51.600		
TRACTORS/PORTABLE STEAM GENERATORS	12/01/2009	\$58.190	06/01/2010	\$59.430	12/01/2010	\$60.680
	12/01/2009	\$45.200	06/01/2010	\$45.800	12/01/2010	\$46.400
TRAILERS FOR EARTH MOVING EQUIPMENT	06/01/2011	\$47.150	12/01/2011	\$47.810	06/01/2012	\$48.460
	12/01/2012	\$49.490				
	12/01/2009	\$59.430	06/01/2010	\$60.680	12/01/2010	\$61.930
TUNNEL WORK - COMPRESSED AIR	06/01/2011	\$63.180	12/01/2011	\$64.430		
	12/01/2009	\$61.430	06/01/2010	\$62.680	12/01/2010	\$63.930
TUNNEL WORK - COMPRESSED AIR (HAZ. WASTE)	06/01/2011	\$65.180	12/01/2011	\$66.430		
	12/01/2009	\$51.500	06/01/2010	\$52.750	12/01/2010	\$54.000
TUNNEL WORK - FREE AIR	06/01/2011	\$55.250	12/01/2011	\$56.500		
	12/01/2009	\$53.500	06/01/2010	\$54.750	12/01/2010	\$56.000
TUNNEL WORK - FREE AIR (HAZ. WASTE)	06/01/2011	\$57.250	12/01/2011	\$58.500		
	12/01/2009	\$44.620	06/01/2010	\$45.220	12/01/2010	\$45.820
VAC-HAUL	06/01/2011	\$46.570	12/01/2011	\$47.230	06/01/2012	\$47.880
	12/01/2012	\$48.910				
	12/01/2009	\$47.350	06/01/2010	\$48.350	12/01/2010	\$49.600
WAGON DRILL OPERATOR	06/01/2011	\$50.600	12/01/2011	\$51.850		
	12/01/2009	\$58.530	06/01/2010	\$59.780	12/01/2010	\$61.030
WASTE WATER PUMP OPERATOR	12/01/2009	\$58.530	06/01/2010	\$59.780	12/01/2010	\$61.030
WATER METER INSTALLER	03/01/2010	\$67.500				

Additional Apprentices Information:

Minimum wage rates for apprentices employed on public works projects are listed above as a percentage of the pre-determined hourly wage rate established by the Commissioner under the provisions of the M.G.L. c. 149, ss. 26-27D. Apprentices ratios are established by the Division of Apprenticeship Training pursuant to M.G.L. c. 23, ss. 11E-11L.

All apprentices must be registered with the Division of Apprenticeship Training in accordance with M.G.L. c. 23, ss. 11E-11L.

All steps are six months (1000 hours) unless otherwise specified.

- * Ratios are expressed in allowable number of apprentices to journeymen or fraction thereof.
- ** Multiple ratios are listed in the comment field.
- *** The job site ratio of 2 apprentices (APP) for every 3 journeymen (JM) is allowed as follows:
1 JM: 1 APP; 2-3 JM: 2 APP; 4-6 JM: 4 APP; 7-9 JM: 6 APP; 10-12 JM: 8 APP; 13-15 JM: 10 APP; etc.
- **** The job site ratio of 2 apprentices (APP) for every 3 journeymen (JM) is allowed as follows:

This wage schedule must be posted at the work site in accordance with M.G.L. ch. 149, sec. 27

Failure of the employer to pay "prevailing wage rates," which are the minimum wage rates listed above, on public works projects is a violation of M.G.L. ch. 149, sec. 27. Employees not receiving such rates should report the violation to the Office of Fair Labor and Business Practices, 100 Cambridge Street, Boston, MA 02108; Tel: 617-727-3465.

**HVAC Upgrades
Gately Youth Center**

DIVISION C: GENERAL CONDITIONS

**GENERAL TERMS AND CONDITIONS OF THE CONTRACT
FOR CONSTRUCTION, RECONSTRUCTION, INSTALLATION,
DEMOLITION, MAINTENANCE, OR REPAIR OF ANY
CITY OF CAMBRIDGE PUBLIC BUILDING**

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**GENERAL TERMS AND CONDITIONS OF THE CONTRACT
FOR CONSTRUCTION, RECONSTRUCTION, INSTALLATION,
DEMOLITION, MAINTENANCE, OR REPAIR OF ANY
CITY OF CAMBRIDGE PUBLIC BUILDING**

ARTICLE 1 DEFINITIONS

1.1. In General.

1.1.1. Well-known meanings. When words or phrases which have a well-known technical or construction industry or trade meaning are used in the Contract Documents, such words or phrases shall be interpreted in accordance with that meaning, unless otherwise stated.

1.1.2. Capitalization. The words and terms defined in this Article are capitalized in these General Terms and Conditions of the Contract. Other capitalized words may refer to a specific document found in the Contract Documents.

1.1.3. Persons. Whenever the word person or persons is used, it includes, unless otherwise stated, entity or entities, respectively, including, but not limited to, corporations, partnerships, and joint venturers.

1.1.4. Singular and Plural. The following terms have the meanings indicated which are applicable to both the singular and the plural thereof.

1.2. Definitions.

1.2.1. Agreement-The Agreement is the written document between the **City** and the **Contractor** which is titled: Agreement between the City of Cambridge and the Contractor, which is the executed portion of the Contract, and which forms a part of the Contract. The Agreement also includes all documents required to be attached thereto, including, but not limited to, the performance bond, the labor and materials or payment bonds, certificates of insurance, and all Modifications of the Agreement.

1.2.2. Architect-The **Architect** is the person lawfully licensed to practice architecture and has been selected by the **City** to administer the Contract and named in the Agreement. The term "**Architect**," while referred to in the singular, means the **Architect** and/or the **Architect's** representative.

1.2.3. Change Order-A Change Order is a document which is signed by the **Contractor**, the **Architect**, and the **City**; which is directed to the **Contractor**; which authorizes the **Contractor** to make an addition to, a deletion from or a revision in the Work, or an adjustment in the Contract Sum or in the Contract Time; and which is issued on or after the date of the Agreement between the **Contractor** and the **City**.

1.2.4. City - The **City** refers to the City of Cambridge, which is the owner of the Project and is the public awarding authority with whom the **Contractor** has entered into the Contract and for whom the Work is to be provided.

1.2.5. Claim - A Claim is a dispute, demand, or assertion by one of the parties arising out of or relating to the Contract for which such party is seeking relief.

1.2.6. Contract -The Contract consists of all the Contract Documents. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. The Contract may be amended or modified only by a Modification to the Contract signed by both parties.

1.2.7. Contract Documents-The Contract Documents consist of the Agreement; the notice of award of the Contract; the Notice to Proceed; the entire Project Manual; Change Orders; Work Change Directives; the **Contractor's** Bid and all accompanying documents accepted by the City; and the **Architect's** written interpretations and clarifications issued on or after the issuance of the Notice to Proceed. Shop Drawing submittals and reports or drawings utilized by the **Architect** in preparing the Contract Documents are not Contract Documents.

1.2.8. Contractor - The **Contractor** is the person who is awarded the Contract for the Project herein pursuant to , inclusive, and is identified in the Agreement as such. The term "**Contractor**" is intended to include the **Contractor** as well as its authorized representative(s).

1.2.9. Contract Sum-The Contract Sum is the total amount stated in the Agreement payable by the **City** to the **Contractor** for the completion of the Work in accordance with the Contract Documents.

1.2.10. Contract Time-Unless otherwise provided, the Contract Time is the number of days allotted in the Contract Documents or the dates stated in the Agreement, including authorized adjustments, for Substantial Completion.

1.2.11. Coordination Drawings-Coordination Drawings are those drawings which are prepared by the **Contractor** or a Subcontractor which show the exact alignment, physical locations, and configuration of the plumbing, fire protection, mechanical, electrical, security, and technology installations in relation to both new and existing architectural and structural elements.

1.2.12. Day - The term "day" shall mean calendar day unless otherwise stated.

1.2.13. Field Order- A Field Order is a written order issued by the **Architect** which orders minor changes in the Work, but which does not involve a change in the Contract Sum or the Contract Time.

1.2.14. Filed Subcontractor-A Filed Subcontractor is a person that files a sub-bid pursuant to M.G.L. c.149 §44F and receives a subcontract as a result of that filed sub-bid.

1.2.15. Final Completion-Final Completion is the point in time when the Architect finds that the Work has been fully completed in accordance with the Contract Documents. Final Completion shall be no later than thirty (30) days after Substantial Completion.

1.2.16. General Requirements-General Requirements refer to Sections of Division 1 of the Specifications.

1.2.17. Modification - A Modification is a written instrument which amends the Contract after execution of the Agreement.

1.2.18. Notice to Proceed-A Notice to Proceed is a written notice given by the **City**, or the **Architect**, to the **Contractor** fixing the date on which the Contract Time will begin to run and on

which the **Contractor** shall start to perform its obligations under the Contract Documents.

1.2.19. Drawings - The Drawings are the drawings which are the graphic and pictorial portions of the Contract Documents, wherever located and whenever issued, showing the design, location, dimensions, scope, extent, and character of the Work to be furnished and performed by the **Contractor** and which have been prepared or approved by the **Architect**.

1.2.20. Product Data-Product Data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams, and other information furnished by the General **Contractor** to illustrate materials or equipment for some portion of the Work. Product Data are not considered part of the Contract Documents.

1.2.21. Project - The Project is the total Work to be provided under the Contract that may be the whole or a part of the Project as indicated elsewhere in the Contract Documents and may include construction by the **City** or by separate contractors. The Project is the Work described in the invitation to bid (advertisement) and Specifications, and illustrated by the Drawings, including Modifications.

1.2.22. Project Manual-The Project Manual is the entire set of bidding documents which includes, but is not limited to, the invitation to bid (advertisement), the instructions to bidders, all of the forms, the wage rates, all City and state requirements, the General Terms and Conditions of the Contract, any supplementary conditions thereto, the Drawings, the Specifications, and all addenda.

1.2.23. Proposed Change Order-A Proposed Change Order is a Change Order that has been submitted by the **Contractor** to the **Architect**, is under review, and has not been approved by the **City**.

1.2.24. Samples - Samples are physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and which establish the standards by which such portion of the Work will be judged. Samples are not considered part of the Contract Documents.

1.2.25. Shop Drawings-Shop Drawings are all drawings, diagrams, illustrations, schedules, and other information which are specifically prepared or assembled by or for the **Contractor** and submitted by the **Contractor** to illustrate some portion of the Work. Shop Drawings are not considered part of the Contract Documents.

1.2.26. Site - The Site is the location of the Project and of the Work.

1.2.27. Specifications - Specifications are those portions of the Contract Documents consisting of written technical descriptions of materials, equipment, construction systems, standards, and workmanship as applied to the Work and certain administrative details applicable thereto.

1.2.28. Subcontractor - A Subcontractor is a person who contracts directly with the **Contractor** and which includes Filed Subcontractors, unless otherwise stated.

1.2.29. Submittals - Submittals are those Shop Drawings, Product Data, Samples, or any other required document which are provided to the Architect for review and approval.

1.2.30. Substantial Completion-Substantial Completion means that the Work has been completed and the Site or the facility is opened to public use, except for minor incomplete or unsatisfactory items that do not materially impair the usefulness of the Work. The **Architect**

shall decide what constitutes "minor," "incomplete," "unsatisfactory," and "materially" and the **Architect's** decision shall be final.

1.2.31. Sub-subcontractor-A Sub-subcontractor is a person who has contracted directly with a Subcontractor.

1.2.32. Supplier-A Supplier is a manufacturer, fabricator, distributor, material person, or vendor having a direct contract with the Contractor or with any Subcontractor to furnish materials or equipment to be incorporated into the Work by the Contractor or any Subcontractor.

1.2.33. Work-Work refers to the services and the entire completed construction or the various separately identifiable parts thereof required by the Contract Documents, including all labor, materials, and equipment furnished, furnished and incorporated into the Project, or to be provided by the **Contractor** to fulfill the **Contractor's** obligations. The Work may constitute the whole or a part of the Project.

1.2.34. Work Change Directive-A Work Change Directive is a written directive to the **Contractor** ordering an addition to, a deletion from, or a revision to the Work issued on or after the date of the Agreement, signed by the **City**, and recommended by the **Architect**.

ARTICLE 2 ABOUT THE CONTRACT DOCUMENTS

2.1. Priority/Conflict

2.1.1 Priority Among Contract Documents. In the event of conflict among the Contract Documents, the Contract Documents shall be construed according to the following priorities:

Highest Priority:	Modifications
Second Priority:	Agreement
Third Priority:	Addenda-later date to take precedence
Fourth Priority:	Supplementary General Conditions
Fifth Priority:	General Conditions
Sixth Priority:	Drawings and Specifications

2.1.1.1. If there is a conflict within the Drawings, the figured dimensions shall govern over the scaled dimensions. Detailed Drawings shall govern over the general Drawings. Larger scale Drawings shall take precedence over smaller scale Drawings. Drawings shall govern over Shop Drawings. Whenever there is a conflict concerning quality or quantity between or among notes, specifications, dimensions, details, or schedules in the Specifications or in the Drawings, or between the Specifications and the Drawings, or in all other instances not specifically noted above, the **Contractor** shall provide, unless otherwise directed by a Modification of the Contract, the better quality or greater quantity of Work at no increase in the Contract Sum or in the Contract Time.

Compliance with these priority conditions shall not justify any changes in the Work or any increase in the Contract Sum or Contract Time, unless any such compliance results in work that may not be reasonably inferred from the Contract Documents as being required to produce the intended result as determined by the **Architect**.

2.1.2 Review of the Contract Documents and Field Conditions and Discovery of Conflict,

Error, Ambiguity, or Discrepancy. Before starting the Work, and during the progress thereof, the **Contractor** shall carefully study and compare the Contract Documents with each other and with the information furnished by the **City** pursuant to Article 3 and shall at once report to the **Architect** any error, inconsistency, or omission the **Contractor** may discover. Any necessary change shall be ordered as provided in Article 11, subject to the requirements of any other provisions of the Contract Documents. The **Contractor** shall not proceed with the Work affected thereby (except in an emergency) until a Modification has been issued. If the **Contractor** proceeds with the Work having discovered such errors, inconsistencies, or omissions contrary to the provisions contained herein, or if by reasonable study of the Contract Documents the **Contractor** could have discovered such, the **Contractor** shall bear all costs arising therefrom. The **Contractor** shall be liable to the **City** for failure to report any conflict, error, ambiguity, or discrepancy of which it knew or should have known.

2.1.3 Field Measurements. The **Contractor** shall take field measurements and verify field conditions and shall carefully compare such field measurements and conditions and other information known to the **Contractor** with the Contract Documents before commencing activities. Errors, inconsistencies, or omissions discovered shall be reported to the **Architect** at once.

2.1.4 Statutory Provisions. The **City** and the **Contractor** recognize that other rights duties and obligations with respect to public construction contracts are provided for by statute, notwithstanding the fact that they may not be provided for in the Contract Documents. In case of conflict between the statutory provisions and other provisions of the Contract Documents, the statutory provisions shall govern.

2.1.5. Voided or Unlawful Provisions. In the event any provision in the Contract is voided or deemed unlawful, such provision shall be deleted without affecting the remainder of the Contract.

2.2. Execution.

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

2.3. Intent.

2.3.1. Entire Agreement. The Contract Documents comprise the entire agreement between the **City** and the **Contractor** concerning the Work. The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the **Contractor**. The Contract Documents are complementary; what is required by one shall be as binding as if required by all. Performance by the **Contractor** shall be required only to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the intended results. All Work mentioned or indicated in the Contract Documents shall be performed by the **Contractor** as part of this Contract unless it is specifically indicated in the Contract Documents that such Work is to be done by others.

2.3.2. Statutory Provisions Each and every provision of law, code, and regulation, required by law to be inserted in these Contract Documents shall be deemed to be inserted herein, and they shall be read and enforced as though it were included herein, and if through mistake or otherwise, any such provision is not inserted, or if not correctly inserted, then upon the application of either party, the Contract Documents shall forthwith be physically amended to make such insertion.

2.3.3. Functionally Complete Project. It is the intent of the Contract Documents to describe a functionally complete Project. The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the **Contractor**. Any Work, materials, or equipment that may be reasonably inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the intended result will be furnished and performed by the **Contractor** whether or not specifically called for in the Contract Documents.

2.3.4. Indications or Notations. All indications or notations which apply to one of a number of similar situations, materials, or processes shall be deemed to apply to all such situations, materials, or processes wherever they appear in the Work, except where a contrary result is clearly indicated by the Contract Documents.

2.3.5. Standards or Quality of Materials of Workmanship. Where no explicit quality or standards for materials or workmanship are established for work, such work is to be of good quality for the intended use and consistent with the quality of the surrounding Work and of the construction of the Project generally.

2.3.6. Manufactured Projects. All manufactured articles, materials, and equipment shall be applied, installed, connected, erected, used, cleaned, and conditioned in accordance with the manufacturer's written or printed directions and instructions unless otherwise indicated in the Contract Documents.

2.3.7. Mechanical, Electrical, Plumbing, Security, Technology, and Fire Protection Drawings. The mechanical, electrical, plumbing, security, technology, and fire protection Drawings are diagrammatic only and are not intended to show the alignment, physical locations, or configurations of such Work. Such Work shall be installed without additional cost to the **City** to clear all obstructions, permit proper clearances for the Work of other trades, and present an orderly appearance where exposed. Prior to beginning such Work, the **Contractor** shall prepare Coordination Drawings and demonstrate to the **Architect's** satisfaction that the installations will comply with the preceding sentence. The **Contractor** shall be responsible to conduct coordination meetings with the Subcontractors as necessary to prepare Coordination Drawings. The **Contractor** shall be solely liable and responsible for any costs and/or delays resulting from the **Contractor's** failure to prepare such Coordination Drawings.

2.3.8. Locations of Fixtures and Outlets. Exact locations of fixtures and outlets shall be obtained from the **Architect** as provided in Article 5 before the Work is roughed in. Work installed without such information from the **Architect** shall be relocated at the **Contractor's** expense.

2.3.9. Tests. When test boring or soil test information are included with the Contract Documents or otherwise made available to the **Contractor** and such test boring or soil test information was obtained by the **City** for use by the **Architect** in the design of the Project or Work, the **City** does not hold out such information to the **Contractor** as an accurate or approximate indication of subsurface conditions, and no claim for extra cost or extension of time resulting from a reliance by the **Contractor** on such information shall be allowed except as otherwise provided herein. Any such reports are not part of the Contract Documents.

2.3.10. Joining Work. Where the Work is to fit with existing conditions or work to be performed by others, the **Contractor** shall fully and completely join the Work with such conditions or work, unless otherwise specified.

2.4. Organization.

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

2.5. References.

2.5.1. Where codes, manuals, specifications, standards, requirements and publications of public and private bodies are referred to in the Contract Documents whether specifically or by implication, references shall be understood to be to the latest revision prior to the date of receiving bids, except where otherwise indicated. Where statutes are referred to in the Contract Documents whether specifically or by implication, references shall be understood to be to the latest revision.

2.5.2. References herein to particular paragraphs or Articles are solely to facilitate finding additional information with regard to the specific matters and are not to be construed in any way as limiting the possible paragraphs and Articles in which such matters may be found elsewhere in this document.

2.6. Reuse of Architect's Written Instruments.

2.6.1. Neither the **Contractor** nor any Subcontractor or Supplier shall have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents prepared by the **Architect** and shall not reuse any of such Drawings, Specifications, or other documents without prior written consent of the **City** and the **Architect**.

2.7. Written Material of the Contractor.

2.7.1. All written material prepared or collected by the **Contractor** in the course of completing the Work shall be the exclusive property of the **City** and shall not be used by the **Contractor** for any purpose other than the purpose of this Contract.

2.8. Modifying Words.

2.8.1. In the interest of simplicity, modifying words such as "all" and "any" may be omitted, but the fact that such words may be absent from one sentence and appear in another is not intended to affect the interpretation of either statement.

2.9 Use of Certain Words and Terms.

2.9.1 Whenever in the Contract Documents the terms "as ordered," "as directed," "as required," "as allowed," "as approved," or terms of like effect or import are used, or the adjectives "reasonable," "suitable," "acceptable," "proper," "satisfactory," or adjectives of like effect or import are used to describe a requirement, direction, review, or judgment of the **City** or of the **Architect** as to the Work, it is intended that such requirement, direction, review, or judgment will be solely to evaluate, in general, the completed Work for compliance with the requirements of and information in the Contract Documents and conformance with the design concept of the completed Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise).

2.9.2. The use of any such term or adjective shall not be effective to change the duties and responsibilities of the **City** or the **Architect** from those assigned in the Contract Documents or to

assign any duty or authority to supervise or direct the furnishing or performance of the Work or any duty or authority to undertake responsibility contrary to the provisions of the Contract Documents.

2.9.3. When the words "Contractor," "Subcontractor," "Sub-subcontractor," and "Supplier" are used, they are intended to include their employees and agents, unless otherwise specified.

2.10 Modification of the Contract Documents.

2.10.1. Major Modifications. Major Modifications may affect the Contract Sum or the Contract Time. The Contract Documents may be amended to provide for additions, deletions, and revisions in the Work or to modify the terms and conditions thereof in one or more of the following ways, all of which must contain a written endorsement by the **City**:

2.10.1.1. a formal written amendment;

2.10.1.2. a Change Order;

2.10.1.3. a Work Change Directive; or

2.10.1.4. the **Architect's** written interpretation, clarification, or decision.

2.10.2. Minor Modifications. Minor modifications do not affect the Contract Sum or the Contract Time. The requirements of the Contract Documents may be supplemented and minor variations and deviations of the Work may be authorized in one or more of the following ways:

2.10.2.1. a Field Order; or

2.10.2.2. the **Architect's** approval of a Shop Drawing or Sample.

ARTICLE 3 THE CITY

3.1. Signatory.

3.1.1. All documents which require a signature or an endorsement by the **City** must be signed by the City Manager in order to be deemed ratified by the **City**.

3.2. Requirements to Provide Documents.

3.2.1. To the extent they are available, the **City** shall furnish surveys describing physical characteristics, legal limitations, and utility locations for the site of the Project, and a legal description of the Site.

3.2.2. The **City** shall obtain and pay for necessary approvals, easements, assessments, and charges which are customarily secured prior to the execution of the Contract.

3.2.3. The **City** shall furnish information or services required of the **City** hereunder with reasonable promptness after receipt from the **Contractor** of a written request for such information or services.

3.2.4. The **City** shall provide the **Contractor**, at no charge, such copies of the Project Manual as are reasonably necessary for the execution of the Work.

3.3. Clerk of the Works.

3.3.1. The **City** may engage a Clerk of the Works for this Project, in which case the **City** shall, upon request of the **Contractor**, provide the **Contractor** with a written statement of the duties, responsibilities, and limitations of authority of such Clerk of the Works. Except as expressly set forth in such written statement, the Clerk of the Works shall have no authority to approve Work, to approve Change Orders, or to exercise any of the power and authority of the **City** or the **Architect**. The Clerk of the Works shall have access to all areas of the Project at all times. The **Contractor** shall fully cooperate with the Clerk of the Works in the performance of the Clerk's duties.

3.4. City's Right to Perform Construction and to Award Separate Contracts.

3.4.1. The **City** reserves the right to perform construction or operations at the Site with its own forces or others. If the **Contractor** claims that a delay or additional cost is involved because of such action by the **City**, the **Contractor** shall make such Claim as provided elsewhere in the Contract Documents.

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

3.4.3. The **City** shall provide for coordination of the activities of the **City's** own forces and of each separate contractor with the Work of the **Contractor**, who shall cooperate with them. The **Contractor** shall afford each other person access to the Site and shall properly coordinate its Work with that of the persons performing other work. The **Contractor** shall participate with other separate contractors and the **City** in reviewing their construction schedules when directed to do so. The **Contractor** shall make any revisions to the construction schedules deemed necessary after a joint review and mutual agreement. The construction schedules shall then constitute the schedules to be used by the **Contractor**, separate contractors, and the **City** until subsequently revised.

3.5. Limitations on the City's Responsibilities.

3.5.1. The **City** shall not supervise, direct, or have control or authority over, nor be responsible for the **Contractor's** means, methods, techniques, sequences, or procedures of construction or the safety precautions and programs incident thereto, or for any failure of the **Contractor** to comply with laws, codes and regulations applicable to the furnishing or performance of the Work. The **City** will not be responsible for the **Contractor's** failure to perform or furnish the Work in accordance with the Contract Documents. The **City** is not responsible for the acts or omissions of the **Contractor**, any Subcontractor, Supplier, or anyone for whose acts the **Contractor**, any Subcontractor or Suppliers may be liable.

3.5.2. The **City's** authority to review any of the **Contractor's** progress schedules, or its decision to raise or not to raise any objections about such schedules shall not impose on the **City** any responsibility for the timing, planning, scheduling, or execution of the Work, nor in any way give rise to any duty or responsibility on the part of the **City** to exercise this authority for the benefit of the **Contractor**, any Subcontractor or Supplier or any other party.

3.5.3. The **City's** decision to raise or not to raise objections with regard to any aspects of the **Contractor's** insurance shall in no way give rise to any duty or responsibility on the part of the **City** to or for the benefit of the **Contractor**, any Subcontractor, any Supplier, or any other party.

3.6. Reservation of Rights.

3.6.1. The **City** reserves the right to correct at any time any error in any progress payment that may have been made.

3.6.2. Should defective Work be discovered subsequent to final payment, the **City** reserves the right to make a claim and recover all costs and professional fees associated therewith, including the cost of removing and/or replacing the defective Work.

3.7. Waivers.

3.7.1. All waivers by the **City** are valid only to the extent that they are signed by the **City**. Any such waivers pertain only to the specific matter contained in the waiver and not to any similar, subsequent matters.

ARTICLE 4 THE ARCHITECT

4.1 City's Representative.

4.1.1. The **Architect** is the **City's** representative (1) during construction, (2) until final payment is due, and (3) with the **City's** concurrence, from time to time during the correction period described in Article 10. The **Architect** will advise and consult with the **City**. The **Architect** will have authority to act on behalf of the **City** only to the extent provided in the Contract Documents, unless otherwise modified by a written instrument in accordance with other provisions of the Contract.

4.1.2. The duties, responsibilities, and the limitations of authority of the **Architect** as the **City's** representative during construction are set forth in the Contract Documents and shall not be extended without the written consent of the **City** and the **Architect**.

4.2. Administration of the Contract.

4.2.1. The **Architect** will provide administration of the Contract as described in the Contract Documents, unless the **City** has engaged a construction manager.

4.3. Visits to the Site.

4.3.1. The **Architect** will visit the site at intervals appropriate to the stage of construction to become generally familiar with the progress and quality of the completed Work and to determine in general if the Work is being performed in a manner indicating that the Work, when completed, will be in accordance with the Contract Documents. However, the **Architect** will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. On the basis of on-site observations as an architect, the **Architect** will keep the **City** informed of progress of the Work in writing and will endeavor to guard the **City** against defects and deficiencies in the Work.

4.4. Communications Facilitating Contract Administration

4.4.1. Except as otherwise provided in the Contract Documents or when direct communications have been specially authorized, the **City** and the **Contractor** shall endeavor to communicate through the **Architect**. Communications by and with the **Architect's** consultants shall be through the **Architect**. Communications by and with Subcontractors and Suppliers shall be

through the **Contractor**. Communications by and with **City** employees and separate contractors shall be through the **City**.

4.4.2. When it deems it necessary or expedient, the **City** may communicate directly with the **Contractor**, any Subcontractors, Suppliers, or consultants.

4.5. Certification of Applications for Payment.

4.5.1. Based on the **Architect's** observations and evaluations of the **Contractor's** applications for payment, the **Architect** will review and certify the amounts due the **Contractor** and will issue certificates for payment in such amounts.

4.6. Rejection of Work.

4.6.1. The **Architect** will have authority to reject or disapprove Work which (1) does not conform to the Contract Documents; (2) which the **Architect** believes to be defective; and (3) the **Architect** believes will not produce a completed Project that conforms to the Contract Documents or that will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Whenever the **Architect** considers it necessary or advisable for implementation of the intent of the Contract Documents, the **Architect** will have authority to require additional inspection or testing of the Work in accordance with Article 9, whether or not such Work is fabricated, installed, or completed. However, neither this authority of the **Architect** nor a decision made in good faith either to exercise or not to exercise such authority shall give rise to a duty or responsibility of the **Architect** to the **Contractor**, Subcontractors, Suppliers, or other persons performing portions of the Work.

4.7. Review of Submittals.

4.7.1. The **Architect** will review or take other appropriate action upon the **Contractor's** submittals such as Shop Drawings, Product Data, and Samples, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents and only to the extent which the **Architect** believes desirable to protect the **City's** interest. The **Architect's** action will be taken with reasonable promptness, while allowing sufficient time in the **Architect's** professional judgment to permit adequate review, taking into account the time periods set forth in the latest schedule prepared by the **Contractor** and approved by the **Architect**. Review of such submittals is not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the **Contractor** as required by the Contract Documents. The **Architect's** review of the **Contractor's** submittals shall not relieve the **Contractor** of the obligations under Article 5. The **Architect's** review shall not constitute approval of safety precautions or of any construction means, methods, techniques, sequences, or procedures. The **Architect's** approval of a specific item shall not indicate approval of an assembly of which the item is a component.

4.8. Preparation of Change Orders and Work Change Directives.

4.8.1. The **Architect** will prepare Change Orders and Work Change Directives and may authorize minor Modifications in the Work as provided in Article 11.

4.9. Inspections.

4.9.1. The **Architect** will conduct inspections to determine the date or dates of Substantial

Completion and the date of final completion; will receive and forward to the **City** for the **City's** review and records written warranties and related documents required by the Contract and assembled by the **Contractor**; and will issue a final certificate for payment upon the **Contractor's** compliance with all of the requirements of the Contract Documents.

4.10. Interpretations, Clarifications, and Decisions.

4.10.1. The **Architect** will interpret and decide matters concerning performance under and requirements of the Contract Documents on written request of either the **City** or the **Contractor**. The **Architect's** response to such requests will be made with reasonable promptness and within the time set forth in the Agreement between the **City** and the **Architect**. Any such written interpretations, clarifications, and decisions shall be binding on the **Contractor**.

4.10.2. Interpretations, clarifications, and decisions of the **Architect** will be consistent with the intent of and reasonably inferable from the Contract Documents and will be in writing or in the form of drawings. The **Architect** will not be liable to the **Contractor**, any Subcontractor, or Supplier for results of interpretations, clarifications, or decisions so rendered in good faith.

4.10.3. The **Architect** may, as the **Architect** judges desirable, issue additional drawings or instructions indicating in greater detail the construction or design of the various parts of the Work; such drawings or instructions may be effected by a Field Order or other notice to the **Contractor**, and provided such drawings or instructions are reasonably consistent with the previously existing Contract Documents, the Work shall be executed in accordance with such additional drawings or instructions without any additional cost or an extension of the Contract Time.

4.10.4. The **Architect's** decisions on matters relating to aesthetic effect must be consistent with the **City's** and will be final.

4.11. Limitation on the Architect's Responsibilities.

4.11.1. Neither the **Architect's** authority to act under the provisions of the Contract Documents nor any decision made by the **Architect** in good faith to exercise or not to exercise such authority shall give rise to any duty or responsibility of the **Architect** to the **Contractor**, any Subcontractor, any Supplier, any surety for any of them or any other person.

4.11.2 The **Architect** will not have control over or charge of and will not be responsible for construction means, methods, techniques, sequences, or procedures, or for safety precautions and programs in connection with the Work, since these are solely the **Contractor's** responsibility as provided in Article 5. The **Architect** will not be responsible for the **Contractor's** failure to carry out the Work in accordance with the Contract Documents. The **Architect** will not have control over or charge of and will not be responsible for acts or omissions of the **Contractor**, Subcontractors, Suppliers, or of any other persons performing portions of the Work.

ARTICLE 5 THE CONTRACTOR

5.1. Relationship with the City.

5.1.1. The **Contractor** is an independent contractor and not an employee of the **City**. The **Contractor** is engaged by virtue of the Contract to perform only those services contained therein. The **Contractor** is not authorized to contract on behalf of the **City** or to incur any liability on the part of the **City**.

5.2. Code of Conduct.

5.2.1. Chapter 2.117 of the Cambridge Municipal Code, Code of Conduct for **City** Officials and Employees, establishes standards of conduct for officials and employees of the **City**. The **Contractor** is subject to certain provisions contained therein. The **Contractor** shall familiarize itself with the ordinance and act accordingly.

5.3. Quality Assurance.

5.3.1. The **Contractor** shall be responsible for ensuring that it, all Subcontractors, Suppliers, and all persons employed to do the Work under the Contract Documents perform in a professional manner, provide a high quality of service and Work, and perform in accordance with the Contract Documents.

5.4. Supervision.

5.4.1. Competence and Efficiency. The **Contractor** shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills, attention and expertise as may be necessary to perform the Work in accordance with the Contract Documents.

5.4.2. Construction Means, Methods, Techniques, Etc. The **Contractor** shall be solely responsible for and have control over construction means, methods, techniques, sequences, and procedures and for coordinating all portions of the Work under the Contract. Where the Contract Documents refer to particular construction means, methods, techniques, sequences, or procedures or indicate or imply that such are to be used in the Work, such mention is intended only to indicate that the operations of the **Contractor** shall be such as to produce at least the quality of Work implied by the operations described. The actual determination of whether or not the described operations may be safely and suitably employed on the Work shall be the responsibility of the **Contractor**, who shall notify the **Architect** in writing, prior to implementation, of the actual means, methods, techniques, sequences, or procedures which will be employed on the Work, if these differ from those mentioned in the Contract Documents. All loss, damage, liability or cost of correcting defective work arising from the employment of any construction means, methods, techniques, sequences, or procedures shall be borne by the **Contractor**, notwithstanding that such construction means, methods, techniques, sequences, or procedures are referred to, indicated or implied by the Contract Documents, unless the **Contractor** has given timely notice to the **City** and the **Architect** in writing that such means, methods, techniques, sequences, or procedures are not safe or suitable, and the **City** has then instructed the **Contractor** in writing to proceed at the **City's** risk.

5.4.3. Variance between the Contract Documents and Statutes, Ordinances, Codes, Rules and Regulations. The **Contractor** shall promptly notify the **Architect** and the **City** in writing of any variances between the Contract Documents and statutes, ordinances, codes, rules, and regulations. If the **Contractor**, without written notice to the **Architect** and the **City**, performs Work knowing that it is contrary to statutes, ordinances, codes, rules, and regulations, the **Contractor** shall assume full responsibility for such Work and shall bear the costs associated therewith, i.e., replacement, repairs, removal, and fines.

5.4.4. Acts and Omissions. The **Contractor** shall be responsible to the **City** for the acts and omissions of all persons performing or supplying the Work.

5.4.5. Inspections. The **Contractor** shall be responsible for inspection of portions of Work already performed under this Contract to determine whether such portions are in proper

condition to receive subsequent Work.

5.5. Personnel.

5.5.1. Suitability. The **Contractor** shall provide competent, properly licensed and/or certified, suitably qualified, and reliable personnel to perform the Work required by the Contract Documents. The **Contractor** shall enforce strict discipline and maintain good order at the site at all times. The **Contractor** shall not employ any Subcontractor, Supplier, or other person, whether initially or as a substitute, against whom the **City** may have reasonable objection. Acceptance of any Subcontractor or other person by the **City** shall not constitute a waiver of any right of the **City** to reject defective Work.

5.5.2. Sexual Harassment. The **City** has a policy against sexual harassment. The **Contractor**, Subcontractors, and all other persons responsible for any portion of the Work are subject to the **City's** policy. The **Contractor** shall be responsible for any acts of sexual harassment committed by any persons responsible for any portion of the Work. The **Contractor** shall take appropriate action against any such individuals. Notwithstanding any remedial action taken by the **Contractor**, the **City** reserves the right to enforce its policy.

5.5.3. Weapons and Illegal Drugs. No weapons or illegal drugs are permitted on the Site. It is the responsibility of the **Contractor** to ensure that no weapons or illegal drugs are brought to the Site.

5.5.4. Maximum Work Day and Work Week. (*Reference: M.G.L. c.149 §§30 and 34*). No laborer, worker, mechanic, foreperson or inspector working within this Commonwealth in the employ of the **Contractor**, Subcontractor or other person doing or contracting to do the whole or part of the work contemplated by the Contract, shall be required or permitted to work more than eight (8) hours in any one day or more than forty-eight (48) hours in any one week, or more than six (6) days in any one week, except in cases of emergency.

5.5.5. Lodging. (*Reference: M.G.L. c. 149, §25*). Every employee under this Contract shall lodge, board and trade where and with whom he or she elects, and neither the **Contractor** nor its agents or employees shall, either directly or indirectly, require as a condition of the employment of any person that the employee shall lodge, board or trade at a particular place or with a particular person.

5.5.6 Wage Rates. (*Reference: M.G.L. c. 149, §27*). Mechanics and apprentices, teamsters, chauffeurs and laborers performing Work shall be paid no less than the minimum rate of wages included in the Project Manual and which are made part of the Contract. They shall continue to be the minimum rate of wages for said employees during the life of the Contract. The **Contractor** shall keep a legible copy of the wage rates posted in a conspicuous place at the site during the life of the Contract. These rates of wages shall include payments by employers to health and welfare plans, pension plans and supplementary unemployment benefit plans as provided in , and such payments shall be considered as payments to persons under M.G.L. c. 149, §27 performing work as therein provided. If the **Contractor** does not make payments to a health and welfare plan, a pension plan and a supplementary unemployment benefit plan, where such payments are included in the rates of wages, the **Contractor** shall pay the amount of said payments directly to each employee engaged in the Work. If the **Contractor** pays less than the rate of wages, including payments to health and welfare funds and pension funds, or the equivalent payments in wages to any person performing Work within the classifications as determined by the Commissioner of Labor and Industries, and if the **Contractor** takes or receives for its own use or the use of any other person, as a rebate, refund or gratuity, or in any other guise, any part or portion of the wages, including payments to health and welfare funds

and pension funds, or the equivalent payment in wages, paid to such person for Work done or service rendered on the Project, the **Contractor** will be subject to the penalties set forth in M.G.L. c. 149, §27.

5.5.7. Payroll Records of Employees. (*Reference:* M.G.L. c. 149 §27B). The **Contractor** and all Subcontractors who are subject to M.G.L. c. 149, §§27 and 27A shall keep a true and accurate record of all mechanics and apprentices, teamsters, chauffeurs, and laborers performing Work showing the name, address and occupational classification of each such employee, the hours worked by and the wages paid to all such employees. The **Contractor** and the Subcontractors shall submit a copy of said record to the **City** on a weekly basis.

5.5.7.1. (*Reference:* M.G.L. c. 149, §27B). The **Contractor** and all Subcontractors who are subject to M.G.L. c. 149, §§27 and 27A shall preserve their payroll records for a period of three (3) years from the date of completion of the Contract.

5.5.7.2. (*Reference:* M.G.L. c. 149, §27B). The **Contractor** and all Subcontractors who are subject to M.G.L. c. 149, §§27 and 27A shall furnish to the Commissioner of Labor and Industries and the **City** within fifteen (15) days after completion of their portion of the Work a statement executed by the **Contractor** or Subcontractor or by any authorized officer or employee of the **Contractor** or Subcontractor who supervises the payment of wages in the form found in M.G.L. c.149, §27B.

5.6. Superintendence.

5.6.1. Employment of a Superintendent. The **Contractor** shall employ a competent, properly licensed superintendent, reasonably acceptable to the **City**, and necessary assistants who shall be in attendance at the Site full time during the progress of the Work until the date of Substantial Completion and for such additional time thereafter as the **Architect** or the **City** may determine to be necessary for the expeditious completion of the Work.

5.6.2. Removal/Replacement of Superintendent. The **Contractor** shall remove the superintendent if requested to do so in writing by the **City** and shall promptly replace such superintendent with a competent person reasonably acceptable to the **City**. The superintendent shall represent the **Contractor**, and communications given to the superintendent shall be as binding as if given to the **Contractor**. The **Contractor** shall not replace the superintendent without written notice to the **City** and the **Architect**.

5.6.3. Registered Professional Engineer or Registered Land Surveyor. The **Contractor** shall retain a competent Registered Professional Engineer or Registered Land Surveyor, acceptable to the **Architect**, who shall establish the exterior lines and required elevations of all buildings and structures to be erected on the site and shall establish sufficient lines and grades for the construction of associated Work such as, but not limited to, roads, utilities, and site grading. The Engineer or Land Surveyor shall certify as to the actual location of the constructed facilities in relation to property lines, building lines, easements, and other restrictive boundaries.

5.6.4. Building Grades, Lines, Etc. The **Contractor** shall establish the building grades; lines; levels; and column, wall and partition lines required by the various Subcontractors in laying out their Work.

5.6.5. Coordination and Supervision. The **Contractor** shall coordinate and supervise the Work performed by Subcontractors to the end that the Work is carried out without conflict between trades and so that no trade, at any time, causes delay to the general progress of the Work. The **Contractor** and all Subcontractors shall at all times afford each trade, any separate

contractor, or the **City**, every reasonable opportunity for the installation of Work and the storage of materials.

5.6.6. Job Meetings. There shall be job meetings held on a weekly basis, or more often if required by the **City**. The **Contractor** shall arrange for and attend weekly job meetings with the **Architect** and such other persons as the **Architect** may from time to time wish to have present. The **Contractor** shall be represented by a principal, project manager, general superintendent or other authorized main office representative, as well as by the **Contractor's** own superintendent. An authorized representative of any Subcontractor or Sub-subcontractor shall attend such meetings if the representative's presence is requested by the **Architect**. Such representatives shall be empowered to make binding commitments on all matters to be discussed at such meetings, including costs, payments, Change Orders, time schedules and workforce power. Any notices required under the Contract may be served on such representatives.

5.7. Materials, Labor, Equipment, Etc.

5.7.1. Provision of. Unless otherwise provided in the Contract Documents, the **Contractor** shall furnish and assume full responsibility for all materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the furnishing, performance, testing, start-up, and completion of the Work.

5.7.2. Quality and Use of. All materials and equipment shall be of good quality and new, except as otherwise provided in the Contract Documents. If required by the **Architect**, the **Contractor** shall furnish satisfactory evidence (including reports of required tests) as to the kind and quality of materials and equipment. All materials and equipment shall be applied, installed, connected, erected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise provided in the Contract Documents.

5.7.3. Discrepancies or Defects. If the **Contractor** is unable to perform its Work because of discrepancies or defects in the work of the **City's** own forces or of a separate contractor, the **Contractor** shall immediately notify the **Architect** and the **City** in writing of the conditions that render the **Contractor** unable to so perform. Failure to notify the **Architect** constitutes an acknowledgment and acceptance of the other work as being fit and proper for integration with the **Contractor's** Work except for latent or non-apparent defects and deficiencies in the other work.

5.8. Contractor's Management and Financial Statement Requirements. (Reference: M.G.L. c. 30 §39R)

5.8.1. The words defined herein shall have the meaning stated below whenever they appear in this Paragraph:

5.8.1.1. "**Contractor**" means any person, corporation, partnership, joint venture, sole proprietorship, or other entity awarded a contract pursuant to M.G.L. c.149, §44A-H, inclusive.

5.8.1.2. "Contract" means any contract awarded or executed pursuant to M.G.L. c. 149, §44A-H, inclusive, which is for an amount or estimate amount that exceed the dollar amount set forth in M.G.L. c. 30, §39R.

5.8.1.3. "Records" means books of original entry, accounts, checks, bank statements and all other banking documents, correspondence, memoranda, invoices, computer

printouts, tapes, discs, papers and other documents or transcribed information of any type, whether expressed in ordinary or machine language.

5.8.1.4. "Independent Certified Public Account" means a person duly registered in good standing and entitled to practice as a certified public accountant under the laws of the place of his/her residence or principal office and who is in fact independent. In determining whether an accountant is independent with respect to a particular person, appropriate consideration should be given to all relationships between the accountant and that person or any affiliate thereof. Determination of an accountant's independence shall not be confined to the relationships existing in connection with the filing of reports with the **City**.

5.8.1.5. "Audit," when used in regard to financial statement, means an examination of records by an independent certified public accountant in accordance with generally accepted accounting principles and auditing standards for the purpose of expressing a certified opinion thereon, or, in the alternative, a qualified opinion or a declination to express an opinion for stated reasons.

5.8.1.6. "Accountant's Report," when used in regard to financial statements, means a document in which an independent certified public accountant indicates the scope of the audit which s/he has made and sets forth his/her opinion regarding the financial statements taken as a whole with listing of noted exceptions and qualifications, or an assertion to the effect that an overall opinion cannot be expressed. When an overall opinion cannot be expressed the reason therefor shall be stated. An accountant's report shall include as part thereof a signed statement by the responsible corporate officer attesting that management has fully disclosed all material facts to the independent certified public accountant, and that the audited financial statement is a true and complete statement of the financial condition of the contractor.

5.8.1.7. "Management," when used herein, means the chief executive officers, partners, principals or other person or persons primarily responsible for the financial and operational policies and practices of the contractor.

5.8.1.8. Accounting terms, unless otherwise defined herein shall have a meaning in accordance with generally accepted accounting principles and auditing standards.

5.8.2. The **Contractor** shall make, and keep for at least six (6) years after final payment, books, records, and accounts which in reasonable detail accurately and fairly reflect the transactions and dispositions of the contractor, and

5.8.3. until the expiration of six (6) years after final payment, the office of inspector general, and the deputy commissioner of capital planning and operations shall have the right to examine any books, documents, papers or records of the **Contractor** or of his/her subcontractors that directly pertain to, and involve transactions relating to, the **Contractor** or his/her subcontractors, and

5.8.4. the **Contractor** shall describe any change in the method of maintaining records or recording transactions which materially affect any statements filed with the **City**, including in his/her description the date of the change and reasons therefor, and shall accompany said description with a letter from the **Contractor's** independent certified public accountant approving or otherwise commenting on the changes, and

5.8.5. the **Contractor** has filed a statement of management on internal accounting controls as

set forth below prior to the execution of the contract, and

5.8.6. the **Contractor** has filed prior to the execution of the contract and will continue to file annually, an audited financial statement for the most recent completed fiscal year as set forth below.

5.8.7. The **Contractor** shall file with the **City** a statement of management as to whether the system of internal accounting controls of the contractor and its subsidiaries reasonably assures that:

5.8.7.1. transactions are executed in accordance with management's general and specific authorization;

5.8.7.2. transactions are recorded as necessary

5.8.7.2.1. to permit preparation of financial statements in conformity with generally accepted accounting principles, and

5.8.7.2.2. to maintain accountability for assets;

5.8.7.3. access to assets is permitted only in accordance with management's general or specific authorization; and

5.8.7.4. the recorded accountability for assets is compared with the existing assets at reasonable intervals and appropriate action was taken with respect to any difference.

5.8.7.5. The **Contractor** shall also file with the **City** a statement prepared and signed by an independent certified public accountant stating that s/he has examined the statement of management on internal accounting controls, and expressing an opinion as to:

5.8.7.5.1. whether the representation of management in response to this paragraph and paragraphs 5.8.2. through 5.8.6 above are consistent with the result of management's evaluation of the system of internal accounting controls; and

5.8.7.5.2. whether such representations of management are, in addition, reasonable with respect to transactions and assets in amounts which would be material when measured in relation to the applicant's financial statements.

5.8.8. The **Contractor** shall annually file with the Commissioner of Capital Planning and Operations during the term of the contract a financial statement prepared by an independent certified public accountant on the basis of an audit by such accountant. The final statement filed shall include the date of final payment. All statements shall be accompanied by an accountant's report. Such statements shall be made available to the **City** upon request.

5.9. Taxes.

5.9.1. The **Contractor** shall pay all sales, consumer, use, and other similar taxes for the Work or portions thereof which are provided by the **Contractor** which are legally enacted when bids are received, whether or not yet effective or merely scheduled to go into effect. However, the **Contractor** shall not pay, and the **City** shall not reimburse or pay the **Contractor** for, any sales taxes for building supplies or materials for which an exemption is provided in . The **City's** tax exemption number to be used by the **Contractor** in this regard is E046001383.

5.10. Permits, Licenses and Fees.

5.10.1. Unless otherwise provided, the **Contractor** shall obtain and pay the fees for all permits, licenses, and inspections which are necessary for the proper execution and completion of the Work and which are customarily secured after execution of the Contract and which are legally required. All fees for permits, licenses, and inspections required by any **City** department shall be waived.

5.11. Notices Required By Statutes, Ordinances, Codes, Rules, Regulations and Orders of the City.

5.11.1. The **Contractor** shall give notices required by statutes, ordinances, codes, rules, regulations, and orders of the **City** bearing on performance of the Work.

5.12. Additional Information from Architect.

5.12.1. The **Contractor** shall perform the Work in accordance with the Contract Documents and submittals approved pursuant to Article 4.

5.12.2. The **Contractor** shall give the **Architect** timely notice of any additional Drawings, Specifications, or instructions required to define the Work in greater detail, or to permit the proper progress of the Work.

5.12.3. The **Contractor** shall not proceed with any Work not clearly and consistently defined in detail in the Contract Documents, but shall request additional drawings or instructions from the **Architect** as provided in the previous Paragraph. If the **Contractor** proceeds with such Work without obtaining further drawings, Specifications, or instructions, the **Contractor** shall correct Work incorrectly done at the **Contractor's** own expense.

5.13. "Or Equal."

5.13.1. Requirements for Substitutions. (*Reference: M.G.L. c.30 §39M (b)*). Where products or materials are prescribed by manufacturer name, trade name, or catalog reference, the words "or approved equal" shall be understood to follow. An item shall be considered equal to the item so named or described if, in the opinion of the **Architect**:

- (a) it is at least equal in quality, durability, appearance, strength and design;
- (b) it performs at least equally the function imposed by the general design for the work;
- (c) it conforms substantially, even with deviations, to the detailed requirements for the Items as indicated by the specifications.

5.13.2. Net Savings. No proposed substitution will be permitted unless the **Contractor** certifies that the proposed substitution will yield a net savings to the **City** and will not extend the Contract Time.

5.13.3. Contractor's Expense. Any structural or mechanical changes made necessary to accommodate substituted equipment under this paragraph shall be at the expense of the **Contractor** or Subcontractor responsible for the Work item.

5.13.3.1. Any additional cost, or any loss or damage arising from the substitution of any material or any method for those originally specified shall be borne by the **Contractor**,

notwithstanding approval or acceptance of such substitution by the **City** or the **Architect**, unless such substitution was made at the written request or direction of the **City** or the **Architect**.

5.13.3.2. All data to be provided by the **Contractor** in support of any proposed "or equal" or substitute item will be at the **Contractor's** expense.

5.13.4. Meeting Requirements. The **Contractor** shall be responsible for determining that all materials furnished for the Work meet all requirements of the Contract Documents. The **Architect** may require the **Contractor** to produce reasonable evidence that a material meets such requirements, such as certified reports of past tests by qualified testing laboratories, reports of studies by qualified experts, or other evidence which, in the opinion of the **Architect**, would lead to a reasonable certainty that any material used, or proposed to be used, in the Work meets the requirements of the Contract Documents. All such data shall be furnished at the **Contractor's** expense. This provision shall not require the **Contractor** to pay for periodic testing of different batches of the same material, unless such testing is specifically required by the Contract Documents to be performed at the **Contractor's** expense.

5.13.5. Named Manufacturer's Product. In all cases in which a manufacturer's name, trade name, or other proprietary designation is used in connection with materials or articles to be furnished under this Contract, whether or not the phrase "or equal" is used after such name, the **Contractor** shall furnish the product of the name manufacturer(s) without substitution, unless a written request for a substitute has been submitted by the **Contractor** and approved in writing by the **Architect** as provided in the following paragraph.

5.13.6. Deviations. If the **Contractor** proposes to use a material which while suitable for the intended use, deviates in any way from the detailed requirements of the Contract Documents, the **Contractor** shall inform the **Architect** in writing of the nature of such deviations at the time the material is submitted for approval and shall request written approval of the deviation from the requirements of the Contract Documents.

5.13.7. Rejection of Deviations. In requesting approval of deviations or substitutions, the **Contractor** shall provide, upon request, evidence leading to a reasonable certainty that the proposed substitution or deviation will provide a quality of result at least equal to that otherwise attainable. If, in the opinion of the **Architect**, the evidence presented by the **Contractor** does not provide a sufficient basis for such reasonable certainty, the **Architect** may reject such substitution or deviation without further investigation.

5.13.8. Consistent Character and Quality of Design. The Contract Documents are intended to produce a building of consistent character and quality of design. All components of the building including visible items of mechanical and electrical equipment have been selected to have a coordinated design in relation to the overall appearance of the building. The **Architect** shall judge the design and appearance of proposed substitutes on the basis of their suitability in relation to the overall design of the Project, as well as for their intrinsic merits. The **Architect** will not approve as equal to materials specified proposed substitutes which, in the **Architect's** opinion, would be out of character, obtrusive, or otherwise inconsistent with the character or quality of design of the Project. In order to permit coordinated design of color and finishes the **Contractor** shall, if required by the **Architect**, furnish the substituted material in any color, finish, texture, or pattern which would have been available from the manufacturer originally specified, at no additional cost to the **City**.

5.13.9. Warranty. The warranties provided herein shall be in addition to and not in limitation of any other warranty required by the Contract Documents or otherwise prescribed by law.

5.13.10. Architect's Approval. The **Architect** will be the sole judge of acceptability. No "or equal" or substitute will be ordered, installed, or utilized without the **Architect's** prior written acceptance which will be evidenced by either a Change Order or an approved Shop Drawing. The **City** may require the **Contractor** to furnish at the **Contractor's** expense a special performance guarantee or other surety with respect to any "or equal" or substitute. The **Architect** will record the time required by the **Architect** and its consultants in evaluating substitutes proposed or submitted by the **Contractor** and in making changes in the Contract Documents (or in the provisions of any other direct contract with the **City** for work on the Project) occasioned thereby. Whether or not the **Architect** accepts a substitute item so proposed or submitted by the **Contractor**, the **Contractor** shall reimburse the **City** for the charges of the **Architect** and its consultants for evaluating each such proposed substitute item.

5.14. Substitute Construction Methods or Procedures.

5.14.1. If a specific means, method, technique, sequence, or procedure of construction is shown or indicated in and expressly required by the Contract Documents, the **Contractor** may furnish or utilize a substitute means, method, technique, sequence or procedure of construction acceptable to the **Architect**. The **Contractor** shall submit sufficient information to allow the **Architect**, in the **Architect's** sole discretion, to determine whether the substitute proposed is equivalent to that expressly called for by the Contract Documents.

5.15. Contractor's Progress Schedule.

5.15.1. Before Starting Construction. Within ten (10) days after the date of the Notice to Proceed, the **Contractor** shall submit to the **Architect** for review:

5.15.1.1. a preliminary progress schedule indicating the times (number of days or dates) for starting and completing the various stages of the Work;

5.15.1.2. a preliminary schedule of Shop Drawing and Sample submittals which will list each required submittal and the times for submitting, reviewing, and processing such submittal; and

5.15.1.3. a preliminary schedule of values for all of the Work which will include quantities and prices of items aggregating the Contract Sum and will subdivide the Work into component parts in sufficient detail to serve as the basis for progress payments during construction. Such prices will include and appropriate amount of overhead and profit applicable to each item of Work.

5.15.2. Review of Progress Schedule. At least ten (10) days prior to the commencement of construction, the **Architect**, the **Contractor**, and any other appropriate persons will meet to review and discuss the acceptability to the **Architect** of the progress schedule. The **Contractor** will have an additional ten (10) days to make corrections and adjustments and to complete and resubmit the schedule. No progress payment shall be made to the **Contractor** until the schedule is submitted to and acceptable to the **Architect** as provided below.

5.15.3. Acceptability of Progress Schedule. The progress schedule will be acceptable to the **Architect** if, according to the **Architect**, it provides an orderly progression of the Work to completion within any specified time frame, but such acceptance will neither impose on the **Architect** responsibility for the sequencing, scheduling, or progress of the Work nor interfere with or relieve the **Contractor** from the **Contractor's** full responsibility therefor. The **Contractor's** schedule of Submittals must be acceptable to the **Architect** if it provides a

workable arrangement for reviewing and processing the required Submittals. The **Contractor's** schedule of values must be acceptable to the **Architect** as to form and substance.

5.15.4. Sepia and Copies. After the **Architect** has approved the schedule, the **Contractor** shall submit to the **Architect** one (1) sepia and four (4) copies bearing the **Contractor's** stamp of approval as a representation to the **City** that the **Contractor** has determined or verified all data on that progress schedule and that the **Contractor**, the Subcontractors and Suppliers have reviewed and coordinated the sequences in that progress schedule with the requirements of the Work.

5.15.5. Adjustment of Schedule. The **Contractor** shall adhere to the established progress schedule which may be adjusted from time to time as follows: the **Contractor** shall submit to the **Architect** for acceptance proposed adjustments in the progress schedule that will not change the Contract Time. Such adjustments will conform generally to the progress schedule then in effect and will comply with any provisions of the requirements applicable thereto.

5.15.6. During Construction. The **Contractor** shall submit monthly progress schedules to the **Architect**. The schedules shall stay current with the **Contractor's** approach to the Work remaining. The **Contractor** shall present a revised progress schedule at the job meetings at least once per month.

5.15.7. Schedule of Submittals. The **Contractor** shall prepare and keep current, for the **Architect's** approval, a schedule of Submittals which is coordinated with the **Contractor's** construction schedule and allows the **Architect** reasonable time to review Submittals.

5.16. Project Coordination.

5.16.1. In General. The **Contractor** shall be responsible for the proper coordination of the Work of all of the trades.

5.16.2. Coordination with Subcontractors. The **Contractor** shall coordinate the work of each Subcontractor with the Work of every other Subcontractor whose Work affects the other.

5.16.3. Coordination with the City's Own Forces or Separate Contractors. The **Contractor** shall coordinate its operations with those of the **City's** own forces or separate contractors. The **Contractor** shall provide the **City's** own forces and separate contractors a reasonable opportunity for the handling, unloading and storage of their materials and equipment and execution of their work. The **Contractor** shall connect and coordinate its Work with theirs.

5.16.4. Coordination with Utility Companies. The **Contractor** shall coordinate its operations with all the appropriate utility companies to assure that the utilities required on the Project are available and functioning properly pursuant to the requirements of the Contract Documents.

5.17. Project Photographs

5.17.1 In General. The **Contractor** shall take, at its own expense, interior and exterior photographs at the site, from different vantages as directed by the **Architect** or the **City**, before beginning any Work and thereafter on the first work day of each month until final completion of the Work, including final Site photos. The photographs shall be taken by a skilled commercial photographer. The number of photographs required shall be at the discretion of the **City** or the **Architect**.

5.17.2. Prints and Negatives. Within fourteen (14) days after the photographs have been

taken, the **Contractor** shall cause prints to be made and delivered to the **City** and the **Architect**. All photographs shall be 8" x 10". Each print shall state the date of the photograph, the name of the Project, the description of the view and the name and address of the photographer. The **City** shall receive all the negatives and two glossy prints. The **Architect** shall receive one glossy print. The City also requires all photographs to be provided on a Compact Disc (CD) at the end of the Project.

5.17.3. Failure to Comply. Should the **Contractor** fail to adhere to any requirement set forth in the previous two paragraphs, the **City** may have the photographs taken at the **Contractor's** expense or receive a set-off against the **Contractor's** next application for payment.

5.18. Record Documents and Samples at the Site.

5.18.1. The **Contractor** shall maintain in a safe place at the site one record copy of all Drawings, Specifications, Modifications, Change Orders, Work Change Directives, Field Orders and written interpretations and clarifications in good order and annotated neatly, legibly and accurately at the end of each working day to show the exact location of Work installed, and any variations from the Contract Documents. These record documents together with all approved Samples and a counterpart of all approved Shop Drawings will be available to the **Architect** for reference. Upon completion of the Work, these record documents, Samples and Shop Drawings will be delivered by the **Contractor** to the **Architect** for the **City**.

5.19. Submittals.

5.19.1. Purpose. The purpose of Submittals is to demonstrate for those portions of the Work for which Submittals are required the way the **Contractor** proposes to conform to the information given and the design concept expressed in the Contract Documents.

5.19.2. Submittal Procedure. Within ten (10) days from the Notice to Proceed, the **Contractor** shall submit to the **Architect** a completed Submittals schedule. The **Contractor** shall review, approve, and submit to the **Architect** Submittals required by the Contract Documents with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of the **City** or of separate contractors. Submittals made by the **Contractor** which are not required by the Contract Documents may be returned without action. The schedules shall be updated and resubmitted each month. All Submittals will be identified as the **Architect** may require and in the number specified in the General Requirements. The data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show the **Architect** the materials and equipment that the **Contractor** proposes to provide and to enable the **Architect** to review the information for the limited purposes stated below.

5.19.3. Samples. The **Contractor** shall also submit Samples to the **Architect** for review and approval in accordance with said accepted schedule of Submittals. Each Sample will be identified clearly as to material, Supplier, pertinent data such as catalog numbers and the use for which it is intended and otherwise as the **Architect** may require to enable the **Architect** to review the Submittal for the limited purposed stated below. The numbers of each Sample to be submitted will be as specified in the Specifications. Unless otherwise specified in the Specifications, three (3) specimens of each Sample shall be submitted.

5.19.3.1. The Samples shall be of sufficient size to permit proper evaluation of material. Where variations in color or other characteristics are to be expected, samples showing the minimum range of variation shall be submitted. Materials exceeding the range of variation of the approved Samples will not be approved on the Work.

5.19.3.2. All costs associated with delivery of Samples will be paid by the **Contractor**.

5.19.4. Contractor's Verifications. Before submitting each Submittal, the **Contractor** shall have determined and verified:

5.19.4.1. all field measurements, quantities, dimensions, specified performance criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;

5.19.4.2. all materials with respect to intended use, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and

5.19.4.3. all information relative to the **Contractor's** sole responsibilities in respect of means, methods, techniques, sequences, and procedures of construction and safety precautions and programs incident thereto.

5.19.5. Contractor's Representations. By approving and providing Submittals, the **Contractor** thereby represents that the **Contractor** has determined and verified all dimensions, quantities, field dimensions, relations to existing Work, coordination with Work to be installed later, coordination with information on previously accepted Submittals and verification of compliance with all the requirements of the Contract Documents. The accuracy of all such information is the responsibility of the **Contractor**. In reviewing Submittals, the **Architect** shall be entitled to rely upon the **Contractor's** representation that such information is correct and accurate.

5.19.6. Coordination. The **Contractor** shall also have reviewed and coordinated each Submittal with other Submittals and with the requirements of the Work and the Contract Documents.

5.19.7. Stamp or Specific Written Indication. Each Submittal will bear a stamp or specific written indication that the **Contractor** has satisfied the **Contractor's** obligations under the Contract Documents with respect to the **Contractor's** review and approval of that Submittal.

5.19.8. Written Notice of Variations. At the time of each Submittal, the **Contractor** shall give the **Architect** specific written notice of such variations, if any, that the Submittal may have from the requirements of the Contract Documents. Such notice is to be in a written communication separate from the Submittal. Moreover, the **Contractor** shall make a specific notation on each Submittal to the **Architect** for review and approval of each such variation.

5.19.9. Review and Approval by the Architect. The **Contractor** shall perform no portion of the Work requiring a Submittal until the respective Submittal has been approved by the **Architect**. Such Work shall be in accordance with approved Submittals.

5.19.9.1. The **Architect** will review and approve Submittals in accordance with the schedule of Submittals accepted by the **Architect** as required above. The **Architect's** review and approval will be only to determine if the items covered by the Submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. The **Architect's** review and approval will not extend to means, method, technique, sequences, or procedures of construction (except where a particular means, method, technique, sequences or procedures of construction is specifically and expressly called for by the Contract

Documents) or to safety precautions or programs incident thereto. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.

5.19.10. Deviations. The **Contractor** shall not be relieved of responsibility for deviations from requirements of the Contract Documents by the **Architect's** approval of Submittals unless the **Contractor** has specifically informed the **Architect** in writing of such deviation at the time of Submittal and the **Architect** has given written approval to the specific deviation. The **Contractor** shall not be relieved of responsibility for errors or omissions in Submittals by the **Architect's** approval thereof.

5.19.11. Revisions. The **Contractor** shall make corrections required by the **Architect** and shall return the required number of corrected copies of Submittals and submit as required new Submittals for review and approval. The **Contractor** shall direct specific attention, in writing or on resubmitted Submittals, to revisions other than those requested by the **Architect** on previous Submittals. Unless such written notice has been given, the **Architect's** approval of a resubmitted Submittal shall not constitute approval of any changes not requested on the prior Submittal.

5.19.12. Related Work. Where a Submittal is required by the Contract Documents or the schedule of Submittals accepted by the **Architect**, any related Work performed prior to the **Architect's** review and approval of the pertinent Submittal will be at the sole expense and responsibility of the **Contractor**.

5.19.13. Informational Submittals. Informational Submittals upon which the **Architect** is not expected to take responsive action may be so identified in the Contract Documents.

5.19.14. Certification. When professional certification of performance criteria of materials, systems or equipment is required by the Contract Documents, the **City** shall be entitled to rely upon such certifications, and neither the **City** nor the **Architect** shall be expected to make any independent examination with respect thereto.

5.20. Continuing the Work.

5.20.1. The **Contractor** shall carry on the Work and adhere to the progress schedule during all disputes or disagreements with the **City**. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, except as otherwise provided herein or as the **City** and the **Contractor** may agree in writing.

5.21. Use of Site; Access to the Work .

5.21.1. The right of possession of the premises and the improvements made thereon by the **Contractor** shall remain at all times in the **City**. The **Contractor's** right to entry and use thereof arises solely from the permission granted by the **City** under the Contract Documents. The **Contractor** shall confine the **Contractor's** apparatus, the storage of materials, and the operations of the **Contractor's** workers to limits indicated by law, ordinance, the Contract Documents and permits and/or directions of the **Architect** and shall not unreasonably encumber the premises with the **Contractor's** materials. The **City** shall not be liable to the **Contractor**, the Subcontractors, Suppliers, or anyone else with respect to the conditions of the premises, except for a condition caused directly and solely by the negligence of the **City**.

5.21.2. At all times, the **City** and the **Architect** shall have access to the Work.

5.22. Protection of Persons and Property.

5.22.1. In General. The **Contractor** shall be responsible for initiating, maintaining, and supervising all health and safety precautions and programs in connection with the performance of the Contract. The **Contractor** is responsible for the implementation of all Federal, State, and local health and safety requirements.

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

5.22.2.1. employees on the site and other persons who may be affected thereby;

5.22.2.2. the Work, materials, and equipment to be incorporated therein, whether in storage on or off the site, under the care, custody or control of the **Contractor**, Subcontractors, or Sub-subcontractors;

5.22.2.3. other property at the site or adjacent or in close proximity thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures, and utilities not designated for removal, relocation, or replacement in the course of construction; and

5.22.2.4. any other property of the **City**, whether or not forming part of the Work, located at the site or adjacent thereto in areas to which the **Contractor** has access.

5.22.3. Notices and Compliance. The **Contractor** shall give notices and comply in all other respects with applicable laws, ordinances, rules, regulations, codes, and lawful orders of public authorities bearing on the safety of persons or property or their protection from damage, injury, or loss. The **Contractor** shall notify owners of adjacent and nearby properties of underground facilities and utility owners when prosecution of the Work may affect them and shall cooperate with them in the protection, removal, relocation, and replacement of their property.

5.22.4. Erection and Maintenance of Safeguards. The **Contractor** shall erect and maintain, as required by existing conditions and the terms of the Contract, reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards, promulgating safety regulations and notifying owners and users of adjacent and nearby sites and utilities.

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

5.22.6. Damage to Property. The **Contractor** shall promptly remedy damage and loss to property referred to above. If the damage or loss is due in whole or in part to the **Contractor's** failure to take the precautions required herein, the **Contractor** shall bear the cost, subject to any reimbursement to which the **Contractor** is entitled under property insurance required by the Contract Documents. The **Contractor** shall be fully and solely responsible for all Work and other operations carried out on adjacent properties. The insurance required under Article 8 shall cover such Work or operations, and the **Contractor** shall indemnify and defend the **City**, the **Architect**, and the owners of such adjacent or nearby properties from and against all claims, suits, losses, or costs arising out of such Work or operations.

5.22.7. Fire Protection Equipment and Services. The **Contractor** shall provide and maintain in good operating condition suitable and adequate fire protection equipment and services and shall comply with all reasonable recommendations regarding fire protection made by

the representatives of the fire insurance company carrying insurance on the Work or by the local fire chief or fire marshal. The **Contractor** shall submit a letter to the Architect stating that the Contractor has complied with such recommendations. The area within the site limits shall be kept orderly and clean and all combustible rubbish shall be promptly removed from the site.

5.22.8. Protection of Excavations, Trenches, Etc. The **Contractor** shall at all times protect excavations, trenches, buildings and materials from rain water, ground water, backup or leakage of sewers, drains and other piping, and from water of any other origin and shall remove promptly any accumulation of water. The **Contractor** shall provide and operate all pumps, piping, and other equipment necessary to this end.

5.22.9. Snow and Ice Removal. The **Contractor** shall remove snow and ice which might result in damage or delay.

5.22.10. Safety Representative. The **Contractor** shall designate a qualified and experienced safety representative at the site whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and programs.

5.22.11. Weather Protection. (*Reference:* M.G.L. c.149). The **Contractor** shall install weather protection and furnish adequate heat in the protected area from November 1 through March 31.

5.22.12. Security. The **Contractor** shall provide, within the Contract Sum, a sufficient number of security personnel at the Site at all times when the **Contractor's** personnel are not present, from commencement of the Work until Substantial Completion to assure that the Site, the facility, and the Work, and all materials and equipment stored at the Site are fully and completely protected against loss or damage due to vandalism, theft, or malicious mischief. If the **Contractor** elects, in addition, to use guard dogs for this purpose, each dog shall at all times be accompanied by an adult handler. If the **Contractor** fails to comply with the requirements of this paragraph, then the **City** may provide appropriate security and charge the cost thereof to the **Contractor**. The **City's** provision of such security, or failure to do so, shall not relieve the **Contractor** of its responsibility to pay for loss or damage due to vandalism, theft, or malicious mischief at the Site.

5.22.13. Hazard Communication Programs. The **Contractor** shall be responsible for coordinating any exchange of material safety data sheets or other hazard communications information required to be made available to or exchanged between or among employers at the site in accordance with laws, codes and regulations.

5.22.14. Noise Pollution Control. The **Contractor** shall comply with all applicable provisions of Cambridge Municipal Code Chapter 8.16.

5.23. Cutting and Patching.

5.23.1. In General. Unless otherwise provided in the Contract Documents, the **Contractor** shall be responsible for cutting, fitting, or patching required to complete the Work or to make its parts fit together properly, including the work of the City or of separate contractors.

5.23.2. Damage to Work of City or of Separate Contractor. The **Contractor** shall not damage or endanger a portion of the Work or fully or partially completed construction of the **City** or separate contractors by cutting, patching, or otherwise altering such construction, or by excavation. The **Contractor** shall not cut or otherwise alter such construction by the **City** or a separate contractor except with prior written consent of the **City** and of such separate contractor;

such consent shall not be unreasonably withheld. The **Contractor** shall not unreasonably withhold from the **City** or a separate contractor the **Contractor's** consent to cutting or otherwise altering the Work.

5.23.3. Damage Caused by Contractor. Should the **Contractor** cause damage to the work or property of any separate contractor at the Site, or should any claim arising out of the **Contractor's** performance of Work at the Site be made by any separate contractor against the **Contractor**, the **City**, the **Architect**, or any of the **Architect's** consultants, the **Contractor** shall promptly attempt to settle with such other contractor by agreement, or to otherwise resolve the dispute by arbitration or at law. The **Contractor** shall, to the fullest extent permitted by laws and regulations, indemnify and hold harmless the **City**, the **Architect**, and the **Architect's** consultants from and against all claims, damages, losses and expenses (including, but not limited to, fees of engineers, architects, attorneys and other professionals, and court and arbitration or mediation costs) arising directly, indirectly or consequentially out of any action, legal or equitable, brought by any separate contractor against the **City**, the **Architect**, or any of the **Architect's** consultants, to the extent based on a claim arising out of the **Contractor's** performance of the Work. Should a separate contractor cause damage to the Work or property of the **Contractor** or should the performance of work by any separate contractor at the site give rise to any other claim, the **Contractor** shall not institute any action, legal or equitable, against the **City**, the **Architect**, or any of the **Architect's** consultants, or permit any action against any of them to be maintained and continued in its name or for its benefit in any court or before any arbiter which seeks to impose liability on or to recover damages from the **City**, the **Architect**, or any of the **Architect's** consultants, on account of any such damage or claim. If the **Contractor** delays at any time in performing or furnishing Work by any act or neglect of a separate contractor and the City and the Contractor are unable to agree as to the extent of any adjustment in the Contract Time attributable thereto, the **Contractor** may make a claim for an extension of time in accordance with Article 16. An extension of the Contract Time shall be the **Contractor's** exclusive remedy with respect to the **City**, the **Architect**, and the **Architect's** consultants, for any delay, disruption, interference, or hindrance caused by any separate contractor.

5.24. Cleaning Up.

5.24.1. During the progress of the Work, the **Contractor** shall keep the premises and surrounding area free from accumulation of waste materials and rubbish caused by operations under the Contract or other debris. At the completion of the Work, the **Contractor** shall remove from and about the Project all waste materials, rubbish, debris, the **Contractor's** tools, construction equipment, machinery and surplus materials. The **Contractor** shall leave the site clean and ready for occupancy by the **City** at Substantial Completion of the Work. Immediately prior to the **Architect's** inspection for Substantial Completion, the **Contractor** shall completely clean the premises. Concrete and ceramic surfaces shall be cleaned and washed. Resilient coverings shall be cleaned, waxed and buffed. Woodwork shall be dusted and cleaned. Sash, fixtures and equipment shall be thoroughly cleaned. Stains, spots, dust, marks and smears shall be removed from all surfaces. Hardware and all metal surfaces shall be cleaned and polished. Glass and plastic surfaces shall be thoroughly cleaned by professional window cleaners. All damaged, broken or scratched glass or plastic shall be replaced by the **Contractor** at the **Contractor's** expense. The **Contractor** shall restore to original condition all property not designated for alteration by the Contract Documents.

5.24.2. If the **Contractor** fails to clean up as provided herein, the **City** may do so and charge the cost thereof to the **Contractor**.

5.25. Royalties and Patents.

5.25.1. The **Contractor** shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others. To the fullest extent permitted by law, the **Contractor** shall indemnify and hold harmless the **City** and the **Architect** from and against all claims, costs, losses, and damages arising out of or resulting from any infringement of patent rights or copyrights incident to the use in the performance of the work or resulting from the incorporation in the work of any invention, design, process, product, or device not specified in the Contract Documents.

5.26. Contractor's Obligation to Perform.

5.26.1. The **Contractor's** obligation to perform and complete the Work in accordance with the Contract Documents is absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of the **Contractor's** obligation to perform the Work in accordance with the Contract Documents:

5.26.1.1. observations by the **Architect**;

5.26.1.2. recommendation of any progress or final payment by the **Architect**;

5.26.1.3. the issuance of a certificate of Substantial Completion or any payment by the **City** to the **Contractor** under the Contract Documents;

5.26.1.4. use or occupancy of the Work, Project, or Site, or any part thereof, by the **City**;

5.26.1.5. any acceptance by the **City** or any failure to do so;

5.26.1.6. any review and approval of a Shop Drawing or Sample submittal or the issuance of a notice of acceptance by the **Architect**;

5.26.1.7. any inspection, test, or approval by others; or

5.26.1.8. any correction of defective Work by the **City**.

5.27. Indemnification and Covenant Not to Sue.

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

5.27.2. In claims against any person or entity indemnified under the foregoing paragraph by an employee of the **Contractor**, a Subcontractor, anyone directly or indirectly employed by them or

anyone for whose acts they may be liable, the indemnification obligation under the foregoing paragraph shall not be limited by a limitation on the amount or type of damages, compensation or benefits payable by or for the **Contractor** or a Subcontractor under Workers' Compensation laws, disability benefit acts or other employee benefit acts.

5.27.3. The obligations of the **Contractor** in this Article shall not extend to the liability of the **Architect**, the **Architect's** consultants, and agents or employees of any of them arising out of (1) the preparation of maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications, or (2) directions or instructions given by the **Architect**, the **Architect's** consultants and agents or employees of any of them, provided such instructions or directions are the primary cause of the injury or damage.

5.27.4. The **Contractor**, or any successor, assign, or subrogee of the **Contractor** agrees not to bring any civil suit, action, or other proceeding in law, equity or arbitration against the **Architect**, or the officers, employees, agents, or consultants of the **Architect**, for the enforcement of any action which the **Contractor** may have arising out of or in any manner connected with the Work. The **Contractor** shall assure that this covenant not to sue is contained in all subcontracts and sub-subcontracts of every tier and shall assure its enforcement. The **Architect**, its officers, employees, agents, and consultants are intended third-party beneficiaries of this covenant not to sue, and are entitled to enforce this covenant in law or equity.

5.28. Survival of Obligations.

5.28.1. All representations, indemnifications, warranties, and guarantees made in, required by or given in accordance with the Contract Documents, as well as all continuing obligations indicated in the Contract Documents, will survive final payment, completion and acceptance of the Work and termination or completion of the Contract.

ARTICLE 6 SUBCONTRACTORS

6.1. Use of Subcontractors.

6.1.1. The **Contractor** shall use the Subcontractors named in the **Contractor's** Bid.

6.2. Substitution of Subcontractors.

6.2.1. The **Contractor** shall not substitute another Subcontractor therefor without notice to the **City** and the **City's** prior written consent of such substitution.

6.3. Names of Subcontractors.

6.3.1. Upon execution of the Contract with the **City**, the **Contractor** shall provide in writing to the **City**, through the **Architect**, the names, addresses, telephone numbers, and fax numbers of all persons proposed for each principal portion of the Work.

6.4. Objections to Subcontractors.

6.4.1. The **Contractor** shall not use any Subcontractor against whom the **City** has a reasonable objection. The **Contractor** shall not be required to contract with any person or entity against whom it has a reasonable objection.

6.5. Form of the Subcontract.

6.5.1. All Work performed by a Subcontractor shall be through an appropriate subcontract. The

Contractor shall use the form of subcontract set forth in M.G.L. c.149, §44F when subcontracting with filed sub-bidders. The form of subcontract for non-filed sub-bidders shall be submitted to the **Purchasing Agent** for her approval, which shall not be unreasonably withheld or delayed.

6.6. Content of the Subcontract.

6.6.1. In addition to all statutorily mandated provisions and provisions required elsewhere in the Contract Documents, each subcontract shall expressly provide that:

6.6.1.1. Each subcontract agreement for a portion of the Work is assigned by the **Contractor** to the **City** provided that:

6.6.1.1.1. the assignment is effective only after termination of the Contract by the **City** or the **Contractor** and only for those subcontract agreements which the **City** accepts by notifying the Subcontractor in writing; and

6.6.1.1.2. the assignment is subject to the prior rights of the surety, if any, obligated under bond relating to the Contract.

6.6.1.2. Each Subcontractor is bound by the requirements of the Contract Documents for the express benefit of the **City**.

6.6.1.3. Each Subcontractor shall assume toward the **Contractor** all the obligations which the **Contractor** assumes toward the **City** and the **Architect**, unless otherwise provided by law.

ARTICLE 7 PERFORMANCE AND PAYMENT BONDS

7.1. Form of Bonds.

7.1.1. The performance and labor and material or payment bonds shall be in the form required by the **City**, copies of which are included in the Project Manual. The **City** reserves the right to reject any bond which does not conform to the **City's** requirements.

7.2. Furnished by the Contractor.

7.2.1. (*Reference: M.G.L. c.149, §44E(2), M.G.L. c.149 §29*). The **Contractor** shall furnish a performance bond and a labor and materials or payment bond, each with a surety company qualified to do business under the laws of the Commonwealth and satisfactory to the **City** and each in the sum of the Contract Sum, the premiums for which are to be paid by the **Contractor** and are included in the Contract Sum. The bonds shall remain in effect until final payment is made. The sum of the performance bond shall increase each time the Contract Sum is increased as a result of a Change Order.

7.3. Furnished by the Subcontractor.

7.3.1. (*Reference: M.G.L. c.149 §44F(3)*). A Subcontractor shall furnish a performance and a labor and materials or payment bond at the request of the **Contractor**. In the case of prequalification the Sub-contractor must furnish to the Contractor a performance bond and a labor and materials or payment bond, each with a surety company qualified to do business under the laws of the Commonwealth and each in the sum of the subcontract sum, the premiums for

which are paid by the subcontractor. Said bonds shall be for the benefit of the **Contractor** and shall secure the performance of the subcontract by the subcontractor and shall indemnify and hold harmless the **Contractor** and the surety or sureties under the labor and materials or payment bond furnished by the **Contractor** to the **City** against (1) any and all loss and expense arising out of any and all claims in connection with the performance of said subcontract which would be required to be paid under the labor and materials or payment bond furnished by the **Contractor** to the **City** and (2) attorneys' fees in the event that the Subcontractor, after notice, fails to assume the defense of and defend such claims.

7.4. Submission to the City.

7.4.1. The **Contractor** must submit the performance and a labor and materials or payment bonds to the **City** upon the **Contractor's** execution of the Agreement. Contractor must also submit a copy of the subcontractor's performance and labor and materials or payment bond to the City.

ARTICLE 8 INSURANCE REQUIREMENTS

8.1. Worker's Compensation.

8.1.1. (*Reference: M.G.L. c.149 §34A*). Before commencing performance of the Contract, the **Contractor** shall provide by insurance for the payment of compensation and the furnishing of other benefits under M.G.L. c. 152 to all persons to be employed under the Contract, and the **Contractor** shall continue such insurance in full force and effect during the term of the Contract. Sufficient proof of compliance with this paragraph must be furnished at the time of execution of this Contract.

8.2 Additional Insured.

8.2.1. Each policy excluding only the Worker's Compensation and Owners Protective Liability must list the **City** as an additional insured.

8.3. Insurance Rating.

8.3.1. Any insurance carrier utilized to fulfill the insurance requirements of this Contract shall have a minimum A.M. Best rating of A-X.

8.4. Premiums.

8.4.1. The **Contractor** must provide the required insurance at its own expense. Failure to provide and continue in force shall be deemed a material breach of the Contract and shall operate as an immediate termination thereof. No cancellation of such insurance, whether by the insurer or by the insured, shall be valid unless written notice thereof is given by the party proposing cancellation to the other party and to the **City** at least fifteen (15) days prior to the intended effective date thereof, which date shall be expressed in said notice.

8.5. Notice of Occurrence.

8.5.1. Notice of occurrence shall be given to the **City** Manager, **City** of Cambridge, **City** Hall, 795 Massachusetts Avenue, Cambridge, MA 02139 and, at the option of the **Contractor**, any other **City** official permitted by law to receive notice.

8.6. Waiver of Subrogation.

8.6.1. The **Contractor** and all Subcontractors waive subrogation rights against the **City** for all losses.

8.7. Coverage Period.

8.7.1. Each insurance policy must cover the entire contract period and beyond as specified in the following sections.

8.8. Policies and Limits.

8.8.1. The insurance required shall include all major division of coverage and shall be on a [comprehensive] commercial general form basis including Premise and Operations (including X-C-U), bodily injury(including death);broad form property damage (including completed operations) including injury to, or destruction of tangible property, including loss of use therefrom; personal injury; Owner's Protective (as a separate policy), Products and Completed Operations, and Owned, Non-owned, Leased, and Hired Motor Vehicles. Such insurance shall be written for not less than any limits of liability required by law or the following limits, whichever are greater:

Owner's Protective Liability (as a separate policy)	
Each Occurrence	\$1 Million
Aggregate	\$2 Million
Commercial Liability	
General Aggregate - per project	\$2 Million
Products Completed Operations	
Aggregate – per project	\$1 Million
Personal Injury and Advertising Limit	\$1 Million
Each Occurrence	\$1 Million

This policy shall include contractual liability coverage insuring the contractor's indemnity obligations under this Contract. The contractual and completed operations coverage shall be maintained on the City's and Indemnitees' behalf for a period of two (2) years after final completion and acceptance by City. If the Work includes work to be performed within 50 feet of a railroad, any exclusion for liability assumed under contract for work within 50 feet of a railroad shall be deleted.

This policy shall include City and any other party at interest requested by City as an additional insured with endorsements equivalent to ISO CG 20 10 for ongoing operations and to ISO CG 20 37 for completed operations. This policy shall be primary and non-contributory with respect to any other insurance available to an additional insured. The policy shall include endorsement equivalent to ISO CG 24 04, a Waiver of Subrogation in favor of City. The policy shall include endorsement CG 24 10, Coverage for injury to leased workers.

Railroad Protective Liability (if required by an abutter, permittee or other)

Each Occurrence	\$2 Million
Aggregate	\$6 Million

Automotive-for all owned, non-owned, hired and leased vehicles

Combined single limit	\$1 Million
or	

Bodily injury- each person	\$100,000
each accident	\$1 Million
Property damage-each occurrence	\$1 Million

If hauling contaminants and/or pollutants, the policy shall include a CA 99 48 Broadened Pollution Endorsement. must adhere to Sections 29 and 30 of the Motor Carrier Act of 1980, which shall contain coverage Form MCS-90. The policy shall name City as an additional insured. The policy shall contain a Waiver of Subrogation in favor of City.

Builder's Risk (Value of the contract)

The Contractor shall purchase and maintain coverage against loss or damage on all Work included in this Contract in an amount equal to the Initial Contract Sum, plus the value of subsequent contract modifications and the cost of materials supplied or installed by others, comprising the total value for the entire Project on the site on a replacement cost basis without optional deductibles. Such coverage shall be written on an all risks basis or equivalent form and shall include, without limitation, insurance against perils of fire (with extended coverage) and physical loss or damage including, without duplication of coverage, theft, vandalism, malicious mischief, terrorism, collapse, earthquake, flood, windstorm, false work, testing and startup, temporary buildings and debris removal including demolition occasioned by enforcement of any applicable legal requirements, and shall cover reasonable compensation for Architect's services and expenses and City's loss of use in a mutually agreed amount, required as a result of an insured loss. This policy and/or installation floater shall include transportation and stored materials coverage in an amount equal to the value of the stored materials as required below.

The Contractor shall maintain insurance on delivered and/or stored material designated to be incorporated in the Work against fire, theft or other hazards, while stored at an off site location. The policy or policies shall specifically state they shall include the interests of the City, the Contractor and sub contractors of every tier as insured's.

Coverage shall include any costs for work performed by the Architect or any consultant as the result of a loss experienced during the term of this Contract.

Coverage shall include permission for temporary occupancy.

Coverage shall be maintained until final completion and acceptance by the City of the Work and final payment has been made.

The Contractor is responsible for the payment of any and all deductibles under all of the insurance provided by the Contractor.

Contractor Pollution Liability

Combined single limit- per occurrence	\$1 Million
Annual aggregate	\$3 Million

The Contractor shall purchase and maintain coverage for bodily injury and property damage resulting from liability arising out of pollution related exposures such as mold, fungi, or bacteria abatement, asbestos abatement, lead paint abatement, tank removal, removal of contaminated soil, etc. The insurance policy shall cover the liability of the Contractor during the processes of identification, removal, storage, transport and disposal of hazardous waste, lead, contaminated soil and/or asbestos abatement. The policy shall include coverage for on-Site and off-Site bodily injury and loss of, damage to, or loss of use of property, directly or indirectly arising out of the discharge, dispersal, release or escape of smoke, vapors, soot, fumes, acids, alkalis, toxic chemicals, liquids or gas, waste materials or other irritants, contaminants or pollutants into or upon the land, the atmosphere or any water course or body of water, whether it be gradual or sudden and accidental. The policy shall also include defense and clean-up costs. The City shall be named as an additional insured and coverage must be on an occurrence basis.

Excess Umbrella Liability	
Combined single limit	\$15 Million
General aggregate	\$15 Million

Worker's Compensation		
Coverage A	Statutory	
Coverage B	Each Accident	\$100,000
	Disease-Policy limit	\$500,000
	Disease-Each Employee	\$100,000

8.9. Excess Umbrella Liability Insurance.

8.9.1. The **Contractor** may purchase and maintain excess liability insurance in the umbrella form in order to satisfy the limits of liability required for the insurance to be purchased and maintained in accordance with the requirements set forth above. Any such amounts must be in addition to the umbrella limits required, must list all underlying policies, and must list the **City** as an additional insured. Evidence of such excess liability shall be delivered to the **City** in the same form and manner as the required insurance policies.

8.10. Amendment of Requirements.

8.10.1. The **City** reserves the right, at its sole discretion, to amend the insurance requirements contained herein.

8.11. Occurrence Basis.

8.11.1. All insurance shall be written on an occurrence basis, unless the **City** approves in writing coverage on a claims-made basis. Coverages whether written on an occurrence or a claims-made basis shall be maintained without interruption from the date of commencement of the Work until the date of final payment and termination of any coverage required to be maintained after final payment.

8.12. Certificates of Insurance.

8.12.1. Certificates of Insurance acceptable to the **City** and confirming the insurance coverage required herein are attached to the Contract. The **City** shall have no obligation to execute the Contract and may award the Contract to the next lowest responsible and responsive bidder, if such insurance certificates have not been provided to the **City** within five (5) business days after presentation of the Contract to the **Contractor** for execution. If requested by the **City** the **Contractor** will provide complete certified copies of every insurance policy before commencing and during performance of the Contract.

8.13. Endorsements.

8.13.1. The **Contractor** shall furnish to the **City** copies of any endorsements that are subsequently issued amending limits of coverage.

8.14. Property Insurance.

8.14.1. The **City** does not intend to purchase property insurance covering the Project or the Work. The **Contractor** shall be required to provide such insurance, and the **Contractor** should procure property insurance which will protect the interests of the **Contractor**, Subcontractor and Sub-subcontractors in the Work. The **Contractor** understands that such property insurance is solely the **Contractor's** responsibility, and the **Contractor**, its Subcontractors and Sub-subcontractors shall have no claim against the **City** on account of the **City's** failure to provide such property insurance. The **Contractor** shall promptly replace all damaged Work in which it or its Subcontractors and Sub-subcontractors have an insurable interest, and all Work which is stolen, vandalized, or damaged due to the **Contractor's** failure to protect the site as required by Article 5, at no additional cost to the **City**, whether or not the **Contractor** procures property insurance with respect to such Work as hereinabove provided.

ARTICLE 9 TESTS AND INSPECTIONS

9.1. Access.

9.1.1. The **City**, the **Architect**, and all other persons designated by the **City** shall have access to the Work at reasonable times for observing, inspecting, and testing. The **Contractor** shall provide them with proper and safe conditions for such access and advise them of the **Contractor's** site safety procedures and programs so that they may comply therewith as applicable.

9.2. Tests and Inspections.

9.2.1. The **Contractor** shall give the **Architect** timely notice of readiness of the Work for all required inspections, tests, or approvals and shall cooperate with inspection and testing personnel to facilitate required inspections or tests.

9.2.2. Unless otherwise provided, the **Contractor** shall make arrangements for such tests, inspections, and approvals with an independent testing laboratory or entity acceptable to the **City**, or with the appropriate public authority and shall bear all related costs of tests, inspections, and approvals. If the laws or regulations of any public body having jurisdiction require any Work or part thereof specifically to be inspected, tested, or approved by an employee or other representative of such public body, the **Contractor** shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith and furnish the **Architect** with the required certificates of inspection, testing, or approval.

9.2.3. The **Contractor** shall be responsible for arranging and obtaining and shall pay all costs in connection with any inspections, tests, or approvals required for the **Architect's** acceptance of materials or equipment to be incorporated into the Work, or of materials, mix designs, or equipment submitted for approval prior to the **Contractor's** purchase thereof for incorporation into the Work.

9.2.4. If any Work that is to be inspected, tested, or approved is covered by the **Contractor**, Subcontractor, or Sub-subcontractor without the prior written consent of the **Architect**, it must be uncovered for observation, inspection, testing, or approval, if requested by the **Architect**. The **Contractor** must recover the Work at its own expense.

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

ARTICLE 10 UNCOVERING AND CORRECTING WORK

10.1. Uncovering Work.

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

10.1.2. If a portion of the Work has been covered which the **Architect** has not specifically requested to observe prior to its being covered, the **Architect** may request to see such Work, and it shall be uncovered by the **Contractor**. If it is found that such Work is in accordance with the Contract Documents, costs of uncovering and replacing shall, by appropriate Change Order, be charged to the **City**. If it is found that such Work is defective or not in accordance with the Contract Documents, the **Contractor** shall pay all claims, costs, losses, and damages caused by, arising out of or resulting from such uncovering, exposure, observation, inspection, and testing and of satisfactory replacement or reconstruction (including, but not limited to, all costs of repair or replacement of work of others); and the **City** shall be entitled to an appropriate decrease in the Contract Sum. The **City** may take such decrease by reducing the then current application for payment accordingly or subsequent applications, if necessary, until the decrease is paid in full.

10.2. Correcting Work.

10.2.1. The **Contractor** shall promptly correct Work rejected by the **Architect** or failing to conform to the requirements of the Contract Documents, whether observed before or after Substantial Completion and whether or not fabricated, installed, or completed. The **Contractor** shall bear all costs of correcting such rejected Work including additional testing and inspections and compensation for the **Architect's** services and expenses made necessary thereby and any cost, loss, or damages to the **City** resulting from such failure or defect.

10.2.2. If, within one (1) year after the date of Substantial Completion of the Work or designated portion thereof, or after the date for commencement of warranties established in Article 15, or by terms of an applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly after receipt of written notice from the **City** to do so, unless the **City** has previously given the **Contractor** a written acceptance of such condition. This period of one (1) year shall be extended with respect to portions of Work first performed after Substantial Completion by the period of time between Substantial Completion and the actual performance of the Work. This obligation to correct under this paragraph shall survive acceptance of the Work under the Contract and termination of the Contract. The **City** shall give such notice promptly after discovery of the condition.

10.2.3. The **Contractor** shall correct, remove, or replace portions of the Work which are not in accordance with the requirements of the Contract Documents and are neither corrected by the **Contractor** nor accepted by the **City**.

10.2.4. If the **Contractor** fails within a reasonable time to correct nonconforming Work, or to remove and replace rejected Work, or fails to perform the Work in accordance with the Contract Documents, the **City** may correct it in accordance with the provisions herein. If the **Contractor** does not proceed with correction, removal, or replacement of such nonconforming Work within

seven (7) days from the date of written notice from the **Architect**, the **City** may correct it and store any salvable materials or equipment at the **Contractor's** expense. If the **Contractor** does not pay costs of any such removal and storage within ten (10) days after written notice, the **City** may upon ten (10) additional days' written notice sell such materials and equipment at auction or at private sale and shall account for the proceeds thereof, after deducting costs and damages that should have been borne by the **Contractor**, including compensation for the **Architect's** services and expenses made necessary thereby. If such proceeds of sale do not cover all the costs which the **Contractor** should have borne, the Contract Sum shall be reduced by the deficiency. If payments then or thereafter due the **Contractor** are not sufficient to cover such amount, the **Contractor** shall pay the difference to the **City**.

10.2.5. The **Contractor** shall bear the cost of correcting destroyed or damaged construction, whether completed or partially completed, of the **City** or separate contractors caused by the **Contractor's** correction or removal of Work which is not in accordance with the requirements of the Contract Documents.

10.2.6. Nothing contained in this paragraph shall be construed to establish a period of limitation with respect to other obligations which the **Contractor** might have under the Contract Documents. Establishment of the time period of one (1) year as described in the above paragraph related only to the specific obligation of the **Contractor** to correct the Work and has no relationship to the time within which the obligation to comply with the Contract Documents may be sought to be enforced nor to the time within which proceedings may be commenced to establish the **Contractor's** liability with respect to the **Contractor's** obligations other than specifically to correct the Work.

10.3. Acceptance of Nonconforming Work.

10.3.1. If, instead of requiring correction or removal and replacement of defective or nonconforming Work, the **City** prefers to accept Work which is not in accordance with the requirements of the Contract Documents, the **City** may do so instead of requiring its removal and correction, in which case the **Contractor** shall pay all claims, costs, losses, and damages attributable to the **City's** evaluation of and determination to accept such defective or nonconforming Work. The Contract Sum will be reduced as appropriate. Such adjustment shall be effected whether or not final payment has been made.

ARTICLE 11 CHANGES IN THE WORK

11.1. In General.

11.1.1. The Contract Sum constitutes the total compensation (subject to authorized adjustments) payable to the **Contractor** for performing the Work. All duties, responsibilities and obligations assigned to or undertaken by the **Contractor** shall be at the **Contractor's** expense without any change in the Contract Sum.

11.1.2. Without invalidating the Contract and without notice to any surety, the **City** may, at any time or from time to time, order additions to, deletions from, or revisions in the Work. Such additions, deletions, or revisions will be authorized by a Change Order, a Modification or a Work Change Directive. Upon receipt of any such document, the **Contractor** shall promptly proceed with the Work involved which will be performed under the applicable conditions of the Contract Documents (except as otherwise specifically provided).

11.1.3. The **Contractor** shall not be entitled to an increase in the Contract Sum or an extension of the Contract Time with respect to any Work performed that is not required by the Contract

Documents as amended, modified, or supplemented, except as otherwise provided herein.

11.2. Change Orders.

11.2.1. (*Reference:* M.G.L. c.30, §39I). The **Contractor** shall perform all the Work required by this Contract in conformity with the Drawings and Specifications contained herein. No willful and substantial deviation from said Drawings and Specifications shall be made unless authorized in writing by the **Architect** and the **City** in charge of the Work who is duly authorized by the **City** to approve such deviations. In order to avoid delays in the prosecution of the Work required by such Contract, such deviation from the Drawings or Specifications may be authorized by a written order of the **City** or the **Architect** so authorized to approve such deviation. Within thirty (30) days thereafter, such written order shall be confirmed by a certificate of the **City** stating: (1) If such deviation involves any substitution or elimination of materials, fixtures or equipment, the reasons why such materials, fixtures, or equipment were included in the first instance and the reasons for substitution or elimination, and, if the deviation is of any other nature, the reasons for such deviation, giving justification therefor; (2) that the specified deviation does not materially injure the Project as a whole; (3) that either the work substituted for the Work specified is of the same cost and quality, or that an equitable adjustment has been agreed upon between the **City** and the **Contractor** and the amount in dollars of said adjustment; and (4) that the deviation is in the best interest of the **City**.

11.3. Work Change Directive.

11.3.1. A Work Change Directive shall be used in the absence of total agreement on the terms of a Change Order.

11.3.2. Upon request of the **City** or the **Architect**, the **Contractor** shall without cost to the **City** submit to the **Architect** in such form as the **Architect** may require, an accurate written estimate of the cost of any proposed extra work or change. The estimate shall indicate the quantity and unit cost of each item of materials, and the number of hours of work and hourly rate for each class of labor, as well as the description and amounts of all other costs chargeable under the terms of this Article. Unit labor costs for the installation of each item of materials shall be shown if required by the **Architect**. If required by the **Architect**, in order to establish the exact cost of new Work added or of previously required Work omitted, the **Contractor** shall obtain and furnish to the **Architect** bona fide proposals from recognized Suppliers for furnishing any material included in such Work. Such estimates shall be furnished promptly so as to occasion no delay in the Work, and shall be furnished at the **Contractor's** expense.

11.3.3. The **Contractor** shall state in the estimate any extension of time required for the completion of the Work if the change or extra Work is ordered. The **Contractor** shall document, through a critical path analysis, or some other clearly delineated explanation, how the proposed change affects other aspects of the Work, and why it would require an extension of time. The **Contractor** shall promptly revise and resubmit such estimate if the **Architect** determines that it is not in compliance with the requirements of this Article, or that it contains errors of fact or mathematical errors.

11.3.4. If the Work Change Directive provides for an adjustment to the Contract Sum, the adjustment shall be based on one of the following methods, as selected by the **City**, selection of which does not require the consent of the **Contractor**:

11.3.4.1. By unit prices stated in the Contract Documents or otherwise mutually agreed upon.

11.3.4.2. By Cost and Percentages estimated by the **Contractor** as provided herein and accepted by the **City**; the **Contractor's** estimate shall become a fixed price which shall not be changed by any variation in the actual cost of executing the Work covered by the change.

11.3.4.3. By actual Cost determined after the Work covered by the change is completed, plus Percentage.

11.3.4.4. By submission to arbitration or a court, which shall determine the fair value of the Work covered by the change.

11.3.5. As used in this paragraph, "Cost" shall mean the estimated or actual net increase or decrease in cost to the **Contractor**, Subcontractor, or Sub-subcontractor for performing the Work covered by the change, including actual payments for materials, equipment rentals, expendable items, wages, and associated benefits to the workers and to supervisors employed full time at the Site, insurance, bonds, and other provable direct costs, but not including any administrative, accounting or expediting costs, or other indirect or overhead costs, or any wages or benefits of supervisory personnel not assigned full time to the Site, or any amount for profit or fee to the **Contractor**, Subcontractor, or Sub-subcontractor.

11.3.6. "Percentage" shall mean an allowance to be added to or subtracted from the Cost in lieu of overhead and profit and of any other expense which is not included in the Cost of the Work covered by the change, as defined above. Percentage for a Sub-subcontractor shall be 8% of any net increase or decrease of Cost of any Work performed by the Sub-subcontractor's own forces plus 4% of any net increase or decrease in Cost of any Work performed for the Sub-subcontractor by lower tier Sub-subcontractors. Percentage for a Subcontractor shall be 12% of any net increase or decrease of Cost of any Work performed by the Subcontractor's own forces plus 4% of the Cost of Work performed by Sub-subcontractors. Percentage for the **Contractor** shall be 15% of any net increase or decrease of Cost of any Work performed by the **Contractor's** own forces plus 5% of any net increase or decrease in the Cost for all other Work covered by the change. When the **Contractor** is also performing Work as a Subcontractor or Sub-subcontractor, the **Contractor** shall only be entitled to a total of no more than 15% of any net increase or decrease of Cost of any Work.

11.3.7. When in the reasonable judgment of the **Architect** a series of Work Change Directives or Change Orders effect a single change, Percentage shall be calculated on the cumulative net increase or decrease in Cost, if any.

11.3.8. If unit prices are stated in the Contract Documents or are subsequently agreed upon, and if quantities originally contemplated are so changed in a Proposed Change Order or Work Change Directive that the application of such unit prices to quantities of Work proposed will cause substantial inequity to the **City** or the **Contractor**, the applicable unit prices shall be equitably adjusted.

11.3.9. If the **City** elects to determine the Cost of the Work as provided in 11.3.4.1 using unit prices stated in the Contract Documents or subsequently agreed upon, the unit prices shall be subject to the prior paragraph. Notwithstanding the inclusion of unit prices in the Contract Documents, it shall be the **City's** option to require the Cost of any given change to be determined by one of the other methods stated in 11.3.4. If the **City** elected to determine the Cost of the change by unit prices and the nature of the work is such that its extent cannot readily be measured after the completion of such work or any subsequent Work, the **Contractor** shall keep daily records, available at all times to the **Architect** for inspection, of the actual quantities of such Work put in place, and delivery receipts or other adequate evidence, acceptable to the

Architect, indicating the quantities of materials delivered to the Site for use in such unit price Work, and distinguishing such from other similar material delivered for use in Work included in the base Contract Sum. If so required by the **Architect**, materials for use in unit price Work shall be stored apart from all other materials on the Project.

11.3.10. If the **City** elects to determine the Cost of the Work as provided in methods 11.3.4.3. or 11.3.4.4. or if the method of determining the Cost has not been established before the Work is begun, the **Contractor** shall keep detailed daily records of labor and material costs applicable to the Work.

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

11.3.12. A Work Change Directive signed by the **Contractor** indicates the agreement of the **Contractor** therewith, including adjustment in the Contract Sum and Contract Time or the method for determining them. Such agreement shall be effective immediately and shall be recorded as a Change Order.

11.3.13. If the **Architect** and the **Contractor** do not agree with the adjustment in the Contract Time or the method for determining it, the adjustment or the method shall be referred to the **Architect** for determination.

11.4. Minor Changes in the Work.

11.4.1. The **Architect** has the authority to order minor changes in the Work. "Minor changes" as used in this paragraph mean changes which are so insignificant as to not affect the Contract Sum or the Contract Time and which are not inconsistent with the intent of the Contract Documents. Any minor change shall be committed to a written order which shall be binding on both the **City** and the **Contractor** and which shall be promptly carried out by the **Contractor**.

11.5. Certificate of Appropriations.

11.5.1. (*Reference:* M.G.L. c.44, §31C). This Contract shall not be deemed to have been made until the **City's** auditor has certified thereon that an appropriation in the amount of this Contract is available therefor and that an officer or agent of the **City** has been authorized to execute said Contract and approve all requisitions and change orders. No order to the **Contractor** for a change in or addition to the Work, whether in the form of a drawing, plan, detail or any other written instruction, unless it is an order which the **Contractor** is willing to perform without any increase to the Contract price, shall be deemed to be given until the auditor has certified thereon that an appropriation in the amount of such order is available therefore; but such certificate shall not be construed as an admission by the **City** of its liability to pay for such work. The certificate of the auditor that an appropriation in the amount of this Contract or in the amount of such order is available shall bar any defense by the **City** on the grounds of insufficient appropriation.

ARTICLE 12 CHANGE IN THE CONTRACT TIME

12.1. Date of Commencement.

12.1.1. The date of commencement of the Work is the date established in the Notice to

Proceed. The date shall not be postponed by the failure to act of the **Contractor** or persons or entities for whom the **Contractor** is responsible.

12.2. Progress and Completion.

12.2.1. Time is of the essence; all time limits stated in the Contract Documents are of the essence of the Contract. By executing the Agreement, the **Contractor** confirms that the Contract Time is a reasonable period for performing the Work.

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

12.2.3. At least ten (10) working days before the first application for payment, the **Contractor** shall submit to the **Architect** a progress schedule showing for each class of Work included in the schedule of values, the percentage of completion to be obtained and the total dollar value of Work to be completed as of the first of each month until Substantial Completion. All calculations shall be on the basis of Work in place, but may include, at the **Architect's** discretion, the value of materials delivered but not in place.

12.2.4. The progress schedule shall be based on an orderly progression of the Work, allowing adequate time for each operation (including adequate time for submission and review of submittals), and leading to a reasonable certainty of Substantial Completion by the date established in the Agreement. The progress schedule will be reviewed by the **Architect** for compliance with the requirements of this Article and will be accepted by the **Architect** or returned to the **Contractor** for revision and resubmittal. Unless specifically required by law, no payment under this Contract shall be due until the progress schedule has been approved by the **Architect**. The **Architect's** review of the progress schedule shall not impose any duty on the **Architect** or the **City** with respect to the timing, planning, scheduling, or execution of the Work. In particular, if the **Contractor** proposes a progress schedule indicating a date of Substantial Completion which is earlier than the Contract Time, the **Contractor** shall not be entitled to additional payment or compensation of any kind if, for any reason, the full Contract Time is required to achieve Substantial Completion of the Work.

12.2.5. If in any Application for Payment, the total value of the completed Work in place, as certified by the **Architect**, is less than 90% of the total value of the Work in place estimated in the progress schedule, the **City** may, at the **City's** option, require the **Contractor** to accelerate the progress of the Work without cost to the **City** by increasing the workforce or hours of work or by other reasonable means approved by the **Architect**.

12.2.6. If each of three successive applications, as certified by the **Architect**, indicate that the actual Work completed is less than 90% of the values estimated in the progress schedule to be completed by the respective dates, the **City** may at the **City's** option, treat the **Contractor's** delinquency as a default justifying the action permitted under Article 18.

12.2.7. If the **Architect** has determined that the **Contractor** should be permitted to extend the time for completion as provided below, the calendar dates in the progress schedule shall be adjusted accordingly to retain their same relationship to the adjusted date of Substantial Completion, and the dollar value of the Work to be completed as of the first of each month shall be adjusted pro rata.

12.2.8. If the **Contractor** fails to submit any application for payment in any month, the **Architect** shall, for the purpose of this evaluation of progress, certify separately to the actual value of the Work in place completed as of the first of the month to the best of the **Architect's**

knowledge.

12.2.9. Nothing herein shall limit the **City's** right to liquidated or other damages for delays by the **Contractor** or to any other remedy which the **City** may be entitled or may possess under other provisions of the Contract Documents or by law.

12.3. Delays and Extensions of Time.

12.3.1. If the **Contractor** is delayed at any time in the progress of the Work by an act or neglect of the **City** or the **Architect**, or of an employee of either, or of a separate contractor employed by the **City**, or by changes ordered in the Work, or by labor disputes, fire, unusual delay in deliveries, unavoidable casualties, or other causes (except weather) beyond the **Contractor's** control, or by delay authorized by the **City**, or by other causes which the **Architect** determines may justify delay, then the Contract Time shall be extended by Change Order or Work Change Directive for such reasonable time as the **Architect** may determine.

12.3.2. Claims relating to time shall be made in accordance with applicable provisions of Article 16.

12.3.3. No claim for extension of time shall be allowed on account of failure of the **Architect** to furnish Drawings, Specifications or instructions or to return Shop Drawings or Samples until fifteen (15) days after receipt by the **Architect** by registered or certified mail of written demand for such instructions, Drawings, Specifications, or Samples, and then not unless such claim is reasonable.

12.3.4. No extensions of time shall be granted because of seasonal or abnormal variations in temperature, humidity or precipitation, which conditions shall be wholly at the risk of the **Contractor**, whether occurring within the time originally scheduled for completion or within the period of any extension granted. There shall be no increase in the Contract Sum on account of any additional costs of operations or conditions resulting therefrom.

12.3.5. The **Contractor** hereby agrees that the **Contractor** shall have no claim for damages of any kind against the **City** or the **Architect** on account of any delay in the commencement of the Work and/or any hindrance, delay, or suspension of any portion of the Work, whether such delay is caused by the **City**, the **Architect**, or otherwise, except as and to the extent expressly provided under M.G.L. c. 30, §390, in the case of written orders by the **City**. The **Contractor** acknowledges that the **Contractor's** sole remedy for any such delay and/or suspension will be an extension of time as provided in this Article.

12.3.6. (*Reference: M.G.L. c.30, §390*). (a) The **City** may order the **Contractor** in writing to suspend, delay, or interrupt all or any part of the Work for such period of time as it may determine to be appropriate for the convenience of the **City**, provided however that if there is a suspension, delay, or interruption for fifteen (15) days or more due to a failure of the **City** to act within the time specified in this Contract, the **City** shall make an adjustment in the Contract prices for any increase in the cost of performance of this Contract but shall not include any profit to the Contractor on such increase; and provided, further, that the **City** shall not make adjustment in the Contract price under this provision for any suspension, delay, interruption, or failure to act to the extent that such is due to any cause for which this Contract provides for an equitable adjustment of the Contract price under any other Contract provisions. (b) The **Contractor** must submit the amount of a claim under provision (a) to the **City** in writing as soon as practicable after the end of the suspension, delay, interruption, or failure to act and, in any event, not later than the date of final payment under this Contract and, except for costs due to a suspension order, the **City** shall not approve any costs in the claim incurred more than twenty

(20) days before the **Contractor** notified the **City** in writing of the act or a failure to act involved in the Claim.

In the event a suspension, delay, interruption, or failure to act of the **City** increases the cost of performance to any Subcontractor, that Subcontractor shall have the same rights against the **Contractor** for payment for an increase in the cost of its performance as provisions (a) and (b) give the **Contractor** against the **City**, but nothing in provisions (a) and (b) shall in any way change, modify, or alter any other rights which the **Contractor** or the Subcontractor may have against each other.

12.4. Liquidated Damages.

12.4.1. If the **Contractor** shall fail to achieve Substantial Completion within the Contract Time, it shall be liable to pay the **City** the daily amount specified in the Agreement, not as a penalty, but as fixed and agreed upon damages for breach of contract. The said amount is fixed and agreed upon because of the difficulty of ascertaining the **City's** actual damages. It is mutually understood that the said amount is a reasonable approximation or estimate thereof as of the date of the Agreement. The **City** may elect to withhold said amount from periodic or final payments due to the **Contractor**, in addition to retainage and other back charges.

12.5. Changes in the Contract Time.

12.5.1. How. The Contract Time may only be changed by a Change Order or a Modification. Any claim for an adjustment of the Contract Time shall be based on a written notice delivered to the party making the claim to the other party and to the **Architect** promptly (but in no event later than seven (7) days) after the occurrence of the event giving rise to the claim and stating the general nature of the claim. Notice of the extent of the claim with supporting data shall be delivered within thirty (30) days after such occurrence and shall be accompanied by the claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant has reason to believe it is entitled as a result of the occurrence of said event. All claims for adjustment in the Contract Time shall be determined by the **Architect** in accordance with Article 16. No claim for an adjustment in the Contract Time will be valid if not submitted in accordance with the requirements of this paragraph.

12.5.2. Early Completion. The Contract Time shall not be changed due to a delay in the **Contractor's** early completion date.

ARTICLE 13 PAYMENTS

13.1. Schedule of Values.

13.1.1. The **Contractor** shall submit to the **Architect** a schedule of values which shall subdivide the Work into its component parts and shall include quantities, direct craft labor worker hours, labor cost and material/equipment cost. Labor cost shall include an appropriate amount of construction equipment costs, supplemental costs, administrative expenses, contingencies, and profit. The **Contractor** shall prepare the schedule of values in such form and supported by such data to substantiate its accuracy as the **Architect** may require and shall be revised if later found by the **Architect** to be inaccurate. This schedule, unless objected to by the **Architect**, shall be used as a basis for reviewing the **Contractor's** applications for payment.

13.2. Content and Submission of Applications for Payment.

13.2.1. At least ten (10) days before the date established for each progress payment, the **Contractor** shall submit to the **Architect** six (6) copies of an itemized application for payment for Work completed in accordance with the schedule of values. Such application shall be in a form or format established or approved by the **Architect** and shall be supported by documentation substantiating the **Contractor's** right to payment.

13.2.2. When Work Change Directives have set forth an adjustment to the Contract Sum but have not yet been included in Change Orders, the value established by the **City** may be included in the application.

13.2.3. Applications covering Work of Subcontractors or Suppliers shall not include requests for payments of amounts the **Contractor** does not intend to pay to a Subcontractor or Supplier because of a dispute or other reason. The **Contractor** shall not be paid for any Work performed by a Subcontractor unless and until the **City** receives for that Subcontractor a certificate of insurance which conforms to the requirements of the Contract Documents .

13.2.4. Unless otherwise provided in the Contract Documents, payments shall be made on account of materials and equipment delivered and suitably stored at the Site for subsequent incorporation in the Work. If approved in advance by the **City**, payment may similarly be made for materials and equipment suitably stored off the Site at a location agreed upon in writing. Payment for materials and equipment stored on or off the Site shall be conditioned upon the application for payment being accompanied by a bill of sale, an invoice, or other documentation warranting that the **City** has received the materials and equipment free and clear of all liens, claims, security interests, or encumbrances, hereinafter collectively referred to as "liens," and evidence that the materials and equipment are covered by appropriate insurance and other arrangements to protect the **City's** interest therein.

13.2.5. Each application for payment or periodic estimate requesting payment shall be accompanied by, at the **City's** option, a certificate from each Subcontractor stating that the Subcontractor has been paid all amounts due the Subcontractor on the basis of the previous periodic payment to the **Contractor**, or else stating the amount not so paid and the reason for the discrepancy. In the event of any such discrepancy, the **Contractor** shall furnish the **Contractor's** own written explanation to the **City** through the **Architect**. Such waiver or certificate shall be in a form acceptable to the **City**.

13.3. False Applications for Payment.

13.3.1. (*Reference: M.G.L. c.93, §9B*). Any person who shall make or cause to be made, or present or cause to be presented, for payment or approval, to or by any employee, department, or agency, any claim upon or against any department or agency, knowing such claim to be false, fictitious or fraudulent, or who, for the purpose of obtaining or aiding to obtain the payment or approval of such claim, makes, uses, or causes to be made or used, any false bill, receipt, voucher, toll, account, claim, certificate, affidavit, or deposition knowing the same to contain any fraudulent or fictitious statement or entry, shall forfeit and pay to the **City** the sum of two thousand dollars (\$2,000.00) and, in addition, double the amount of damages which the **City** may have sustained by reason of the doing or committing of such act, together with the costs of the action.

13.4. Review of Applications for Payment.

13.4.1. The **Architect** shall review each application for payment and will reject any application that (1) is not accompanied by the required documentation or (2) contains errors, mathematical or otherwise.

13.4.2. Within five (5) business days after receipt of an application for payment, the **Architect** will either (1) return the application to the **Contractor** with a written explanation as to why it was rejected or (2) issue to the **City** a certificate for payment, with a copy to the **Contractor**, for such amount as the **Architect** determines is properly due. In the event an application is returned to the **Contractor**, the date of receipt of the application shall be the date of receipt of the corrected application.

13.4.3. The **Architect** or the **City** may make changes to any application submitted by the **Contractor**.

13.4.4. By recommending any payment, the **Architect** will not thereby be deemed to have represented that: (1) exhaustive or continuous on-site inspections have been made to check the quality or the quantity of the Work beyond the responsibilities specifically assigned to the **Architect** in the Contract Documents or (2) that there may not be other matters or issues between the parties that might entitle the **Contractor** to be paid additionally by the **City** or entitle the **City** to withhold payment to the **Contractor**. The **Architect's** approval of the application for payment and the accompanying documentation shall indicate that to the best of the **Architect's** knowledge, information, and belief, the Work has progressed to the point indicated by the **Contractor**, and that the quality of the Work is in accordance with the Contract Documents, subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, the results of any subsequent tests specified in the Contract Documents, final determination of quantities and classifications for unit price work and any other qualifications so stated.

13.4.5. The **Architect's** recommendation of any payment shall not mean that the **Architect** is responsible for the **Contractor's** means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of the **Contractor** to comply with laws and regulations applicable to the furnishing or performance of Work, or for any failure of the **Contractor** to perform or furnish Work in accordance with the Contract Documents.

13.4.6. No certificate given or payment made shall be evidence of the performance of this Contract, either wholly or in part and no payment, whether made upon the final certificate or otherwise, shall be construed as an acceptance of defective work or materials.

13.5. Decisions to Withhold Certification.

13.5.1. The **Architect** may refuse to recommend the whole or any part of any payment if, in the **Architect's** opinion, it would be incorrect to make the representations to the **City** referred to above.

13.5.2. If the **Contractor** and the **Architect** cannot agree on a revised amount, the **Architect** will promptly approve a certificate for payment for the amount for which the **Architect** is able to make such representations to the **City**. The **Architect** may also decide not to certify payment or, because of subsequently discovered evidence or subsequent observations, may nullify the whole or a part of a certificate for payment previously issued, to such extent as may be necessary in the **Architect's** opinion to protect the **City** from loss because of:

13.5.2.1. defective Work not remedied;

13.5.2.2. third party claims filed or reasonable evidence indicating probable filing of such claim

S;

13.5.2.3. failure of the **Contractor** to make payments properly to Subcontractors or for labor, materials or equipment;

13.5.2.4. reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;

13.5.2.5. damage to the **City** or another contractor;

13.5.2.6. reasonable evidence that the Work will not be completed within the Contract Time, and that retainage currently held by the **City** would not be adequate to cover actual or liquidated damage for the anticipated delay;

13.5.2.7. persistent failure to carry out the Work in accordance with the Contract Documents; or

13.5.2.8. failure of mechanical, electrical, plumbing, fire protection, security, or technology trade subcontractors to comply with mandatory requirements for maintaining record drawings. The **Contractor** shall check record drawings of subcontractors each month. Written confirmation that the record drawings are current will be required by the **Architect** before approval of the **Contractor's** monthly payment requisition.

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

13.6. Progress Payments.

13.6.1. After the **Architect** has issued a certificate for payment, the **City** shall make payment in the manner and within the time provided in the Contract Documents.

13.6.2. (*Reference:* M.G.L. c30 §39K). Within fifteen (15) days after the receipt from the **Contractor**, at the place designated by the **City** if such a place is so designated, of a periodic estimate requesting payment of the amount due for the preceding month, the **City** will make a periodic payment to the **Contractor** for the Work performed during the preceding month and for the materials not incorporated in the Work but delivered and suitably stored at the Site (or some location agreed upon in writing) to which the **Contractor** has title or to which a Subcontractor has title and has authorized the **Contractor** to transfer title to the **City** less (1) a retention based on its estimate of the fair value of its claims against the **Contractor** and less (2) a retention for direct payments to Subcontractors based on demands for same in accordance with the provisions of M.G.L. c.30 §39F and less (3) a retention not exceeding five percent (5%) of the approved amount of the periodic payment. After the receipt of a periodic estimate requesting final payment and within sixty-five (65) days after (a) the **Contractor** fully completes the Work or substantially completes the Work so that the value of the Work remaining to be done is, in the estimate of the **City**, less than one percent (1%) of the original Contract price, or (b) the **Contractor** substantially completes the Work and the **City** takes possession for occupancy, whichever occurs first, the **City** shall pay the **Contractor** the entire balance due on the Contract less (1) a retention based on its estimate of the fair value of its claims against the **Contractor** and of the cost of completing the incomplete and unsatisfactory items of Work and less (2) a retention for direct payments to subcontractors based on demand for same in accordance with the provisions of M.G.L. c. 30, §39F, or based on the record of payments by the **Contractor** to the Subcontractors under this Contract if such record of payment indicates that the **Contractor** has not paid Subcontractors as provided in M.G.L. c. 30, §39F. If the **City** fails to make payment

as herein provided there shall be added to each such payment daily interest at the rate of three percentage points above the rediscount rate then charged by the Federal Reserve Bank of Boston commencing on the first day after said payment is due and continuing until the payment is delivered or mailed to the **Contractor**; provided, that no interest shall be due, in any event, on the amount due on a periodic estimate for final payment until fifteen (15) days after receipt of such periodic estimate from the **Contractor**, at the place designated by the **City** if such a place is so designated. The **Contractor** agrees to pay to each Subcontractor a portion of any such interest paid in accordance with the amount due each Subcontractor.

13.6.3. The **City** may make changes in any periodic estimate submitted by the **Contractor**, and the payment due on said periodic estimate shall be computed in accordance with the changes so made, but such changes or any requirement for a corrected periodic estimate shall not affect the due date for the periodic payment or the date for the commencement of interest charges on the amount of the periodic payment computed in accordance with the changes made, as provided herein; provided, that the **City** may, within seven (7) days after receipt, return to the **Contractor** for correction, any periodic estimate which is not in the required form or which contains computations not arithmetically correct and, in that event, the date of receipt of such periodic estimate shall be the date of receipt of the correct periodic estimate in proper form and with arithmetically correct computations. The date of receipt of a periodic estimate received on a Saturday, Sunday, or legal holiday shall be the first working day thereafter.

13.6.4. All periodic estimates shall be submitted to the **City**, or to its designee as set forth in writing to the **Contractor**, and the date of receipt by the **City** or its designee shall be marked on the estimate. All periodic estimates shall contain a separate item for each filed subtrade and each sub-subtrade listed in the sub-bid form as required by specifications and a column listing the amount paid to each subcontractor and sub-subcontractor as of the date the periodic estimate is filed. The person making payment for the **City** shall add the daily interest provided for herein to each payment for each day beyond the due date based on the date of receipt marked on the estimate.

13.6.5. A certificate of the **Architect** to the effect that the **Contractor** has fully or substantially completed the Work shall, subject to the provisions of M.G.L. c.30, §39J, be conclusive for the purposes of M.G.L. c. 30, §39K.

13.7. Final Payment.

13.7.1. After final inspection and after the **Contractor** has completed all the required corrections to the satisfaction of the **Architect** and the **City** and delivered in accordance with the Contract Documents all maintenance and operating instructions, schedules, guarantees, bonds, certificates, or other evidence of insurance, certificates of inspection, marked-up record documents, and all other documents called for in the Contract Documents, as well as any surplus materials requested by the **City**, the **Contractor** may make an application for final payment as provided below.

13.7.2. The making and acceptance of final payment will constitute a waiver of all claims by the **Contractor** against the **City** other than those previously made in writing and still unsettled.

13.8. Payments to Subcontractors.

13.8.1. Neither the **City** nor the **Architect** shall have an obligation to pay or see to the payment of money to a Subcontractor, Sub-subcontractor, or Supplier except as may otherwise be required by law.

13.8.2. (Reference: M.G.L. c.30, §39F).

(1)(a) Forthwith after the **Contractor** receives payment on account of a periodic estimate, the **Contractor** shall pay to each Subcontractor the amount paid for the labor performed and the materials furnished by that Subcontractor, less any amount specified in any court proceedings barring such payment and also less any amount claimed due from the Subcontractor by the **Contractor**. **(b)** Not later than the sixty-fifth day after each Subcontractor substantially completes its Work in accordance with the Drawings and Specifications, the entire balance due under the subcontract, less amounts retained by the **City** as the estimated cost of completing the incomplete and unsatisfactory items of Work, shall be due the Subcontractor; and the **City** shall pay that amount to the **Contractor**. The **Contractor** shall forthwith pay to the Subcontractor the full amount received from the **City** less any amount specified in any court proceeding barring such payment and also less any amount claimed due from the Subcontractor by the **Contractor**. **(c)** Each payment made by the **City** to the **Contractor** pursuant to paragraphs (a) and (b) of M.G.L. c. 30, §39F(1), for the labor performed and the materials furnished by a Subcontractor shall be made to the **Contractor** for the account of that Subcontractor; and the **City** shall take reasonable steps to compel the **Contractor** to make each such payment to each such Subcontractor. If the **City** has received a demand for direct payment from a Subcontractor for any amount which has already been included in a payment to the **Contractor** or which is to be include in a payment to the **Contractor** for payment to the Subcontractor as provided in paragraphs (a) and (b) of M.G.L. c. 30, §39F(1), the **City** shall act upon the demand as provided in M.G.L. c. 30, §39F. **(d)** If, within seventy (70) days after the Subcontractor has substantially completed the subcontract Work, the Subcontractor has not received from the **Contractor** the balance due under the subcontract including any amount due for extra labor and materials furnished to the **Contractor**, less any amount retained by the **City** as the estimated cost of completing the incomplete and unsatisfactory items of Work, the Subcontractor may demand direct payment of that balance from the **City**. The demand shall be by a sworn statement delivered to or sent by certified mail to the **City**, and a copy shall be delivered to or sent by certified mail to the **Contractor** at the same time. The demand shall contain a detailed breakdown of the balance due under the subcontract and also a statement of the status of completion of the subcontract Work. [The demand letter shall indicate the certified mail number assigned by the postal service or the date of delivery to the **Contractor**.] Any demand made after substantial completion of the subcontract Work shall be valid even if delivered or mailed prior to the seventieth day after the Subcontractor has substantially completed the subcontract Work. Within ten (10) days after the Subcontractor has delivered or so mailed the demand to the **City** and delivered or so mailed a copy to the **Contractor**, the **Contractor** may reply to the demand. The reply shall be by a sworn statement delivered to or sent by certified mail to the **City**, and a copy shall be delivered to or sent by certified mail to the Subcontractor at the same time. The reply shall contain a detailed breakdown of the balance due under the subcontract, including any amount due for extra labor and materials furnished to the **Contractor** and of the amount due for each claim made by the **Contractor** against the Subcontractor. **(e)** Within fifteen (15) days after receipt of the demand by the **City**, but in no event prior to the seventieth day after substantial completion of the subcontract Work, the **City** shall make direct payment to the Subcontractor of the balance due under the subcontract, including any amount due for extra labor and materials furnished to the **Contractor**, less any amount (i) retained by the **City** as the estimated cost of completing the incomplete or unsatisfactory items of Work, (ii) specified in any court proceedings barring such payment, or (iii) disputed by the **Contractor** in the sworn reply; provided that the **City** shall not deduct from a direct payment any amount as provided in part (iii) if the reply is not sworn to, or for which the sworn reply does not contain the detailed

breakdown required by subparagraph (d) above. The **City** shall make further direct payments to the Subcontractor forthwith after the removal of the basis for deductions from direct payments made as provided in parts (i) and (ii) of this paragraph. **(f)** The **City** shall forthwith deposit the amount deducted from a direct payment as provided in part (iii) of subparagraph (e) above in an interest-bearing joint account in the names of the **Contractor** and the Subcontractor in a bank in Massachusetts selected by the **City** or agreed upon by the **Contractor** and the Subcontractor and shall notify the **Contractor** and the Subcontractor of the date of the deposit and the bank receiving the deposit. The bank shall pay the amount in the account, including accrued interest, as provided in an agreement between the **Contractor** and the Subcontractor or as determined by decree of a court of competent jurisdiction. **(g)** All direct payments and all deductions from demands for direct payments deposited in an interest-bearing account or accounts in a bank pursuant to the previous paragraph shall be made out of amounts payable to the **Contractor** at the time of receipt of a demand for direct payment from a Subcontractor and out of amounts which later become payable to the **Contractor** and in the order of receipt of such demands from Subcontractors. All direct payments shall discharge the obligation of the **City** to the **Contractor** to the extent of such payment. **(h)** The **City** shall deduct from payments to a **Contractor** amounts which, together with the deposits in interest-bearing accounts pursuant to paragraph (f), are sufficient to satisfy all unpaid balances of demands for direct payment received from Subcontractors. All such amounts shall be earmarked for such direct payments, and the Subcontractors shall have a right in such deductions prior to any claims against such amounts by creditors of the **Contractor**. **(i)** If the Subcontractor does not receive payment as provided in paragraph (a) or if the **Contractor** does not submit a periodic estimate for the value of the labor or materials performed or furnished by the Subcontractor and the Subcontractor does not receive payment for same when due less the deductions provided for in paragraph (a), the Subcontractor may demand direct payment by following the procedure in paragraph (d) and the **Contractor** may file a sworn reply as provided in that same paragraph. A demand made after the first day of the month following that for which the Subcontractor performed or furnished the labor and materials for which the Subcontractor seeks payment shall be valid even if delivered or mailed prior to the time payment was due on a periodic estimate from the **Contractor**. Thereafter the **City** shall proceed as provided in paragraphs (e), (f), (g), and (h). "Subcontractor" as used in this paragraph (1)(i) shall mean a person who files a sub-bid and receives a subcontract as a result of that filed sub-bid or who is approved by the **City** in writing as a person performing labor or both performing labor and furnishing materials pursuant to a contract with the **Contractor**.

(2) Any assignment by a Subcontractor of the rights under this section to a surety company furnishing a bond under the provisions of M.G.L. c.149, §29 shall be invalid. The assignment and subrogation rights of the surety to amounts included in a demand for direct payment which are in the possession of the **City** or which are on deposit pursuant to paragraph (g) shall be subordinate to the rights of all Subcontractors who are entitled to be paid under this section and who have not been paid in full.

(3) A **Contractor** or a Subcontractor shall enforce a claim to any portion of the amount of a demand for direct payment deposited as provided in herein by a petition in equity in the superior court against the other and the bank shall not be a necessary party. A Subcontractor shall enforce a claim for direct payment or a right to require a deposit as provided in paragraph (f) by a petition in equity in the superior court against the **City** and the **Contractor** shall not be a necessary party. Upon motion of any party the court shall advance for speedy trial any petition filed as provided in this paragraph. M.G.L. c. 231, §§59 and 59B shall apply to such petitions. The court shall enter an interlocutory decree upon which execution shall issue for any part of a claim found due pursuant to §§59 and

59B and, upon motion of any party, shall advance for speedy trial the petition to collect the remainder of the claim. Any party aggrieved by such interlocutory decree shall have the right to appeal therefrom as from a final decree. The court shall not consolidate for trial the petition of any Subcontractor with the petition of one or more Subcontractors or the same general contract unless the court finds that a substantial portion of the evidence of the same events during the course of construction (other than the fact that the claims sought to be consolidated arise under the same general contract) is applicable to the petitions sought to be consolidated and that such consolidation will prevent unnecessary duplication of evidence. A decree in any such proceeding shall not include interest on the disputed amount deposited in excess of the interest earned for the period of any such deposit. No person except a Subcontractor filing a demand for direct payment for which no funds due the **Contractor** are available for direct payment shall have a right to file a petition in court of equity against the **City** claiming a demand for direct payment is premature, and such Subcontractor must file the petition before the **City** has made a direct payment to the Subcontractor and has made a deposit of the disputed portion as provided in part (iii) of paragraph (e) and in paragraph (f).

(4) In any petition to collect any claim for which a Subcontractor has filed a demand for direct payment the court shall, upon motion of the **Contractor**, reduce by the amount of any deposit of a disputed amount by the **City** as provided in part (iii) of paragraph (e) and in paragraph (f) any amount held under a trustee writ or pursuant to a restraining order or injunction.

ARTICLE 14 SUBSTANTIAL COMPLETION

14.1. Substantial Completion.

14.1.1. Upon Substantial Completion of the Work, the **Contractor** shall present in writing to the **City** its certification that the Work has been substantially completed and include in its certification (1) a list of items to be completed or corrected, (2) all special warranties required by the Contract Documents, endorsed by the **Contractor** and in a form reasonably acceptable to the **Architect** and (3) the permits and certificates referred to in 13.7.1., or elsewhere. The failure to include any item on the list mentioned in the preceding sentence does not alter the responsibility of the **Contractor** to complete all Work in accordance with the Contract Documents. When the **Architect** on the basis of an inspection determines that the Work or designated portion thereof is substantially complete and the other conditions have been met, the **Architect** will then prepare a certificate of Substantial Completion which shall establish the date of Substantial Completion, shall state the responsibilities of the **City** and the **Contractor** for security, maintenance, heat, utilities, damage to the Work, and insurance, and shall fix the time within which the **Contractor** shall complete the items listed therein. The certificate of Substantial Completion shall be submitted to the **City** and the **Contractor** for their written acceptance of the responsibilities assigned to them in such certificate.

14.1.2. Within twenty-one (21) days after receipt of the certification from the **Contractor**, the **City** shall present to the **Contractor** either a written declaration that the Work has been substantially completed or an itemized list of incomplete or unsatisfactory work items required by the Contract sufficient to demonstrate that the Work has not been substantially completed. The **City** may include with such list a notice setting forth a reasonable time within which the **Contractor** must achieve Substantial Completion of the Work. If the **City** fails to respond, by presentation of a written declaration or itemized list as aforesaid, to the **Contractor's** certification within the twenty-one (21) day period, the **Contractor's** certification shall take effect as the **City's** declaration that the Work has been substantially completed.

14.2. Partial Use of Occupance of the Premises.

14.2.1. The **City** may occupy or use any completed or partially completed portion of the Work at any stage. Such partial occupancy or use may begin whether or not the portion is substantially complete, provided that the respective responsibilities of the **City** and the **Contractor** with respect to payments, retainage, if any, security, maintenance, heat, utilities, damage to the Work, insurance, correction of the Work, and warranties shall be established by agreement of the **City** and the **Contractor** or, absent such agreement, shall be determined by the **Architect** subject to the right of either party to contest such determination as provided in Article 16.

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

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

14.2.4. Within sixty-five (65) days after the effective date of a declaration of Substantial Completion, the **City** shall prepare and send to the **Contractor** for acceptance a Substantial Completion estimate for the quantity and price of the Work done and all but one percent (1%) retainage on that Work, including the quantity, price and all but one percent (1%) retainage for the undisputed part of each item and extra work item in dispute, but excluding the disputed part thereof, less the estimated cost of completing all incomplete and unsatisfactory items and less the total periodic payments made to date for the Work. The **City** shall also deduct from the Substantial Completion estimate an amount equal to the sum of all demands for direct payment filed by Subcontractors and not yet paid to Subcontractors or deposited in joint accounts pursuant to M.G.L. c. 30, §39F.

14.2.5. Within fifteen (15) days after the effective date of the declaration of Substantial Completion, the **City** shall send to the **Contractor** by certified mail, return receipt requested, a complete list of all incomplete or unsatisfactory items, and unless delayed by causes beyond its control, the **Contractor** shall complete all such items within forty-five (45) days after the receipt of such list or before the date for final payment and acceptance, whichever is later. If the **Contractor** fails to complete such Work within such time, the **City** may, subsequent to seven (7) days' written notice to the **Contractor** by certified mail, return receipt requested, terminate the Contract and complete the incomplete or unsatisfactory items and charge the cost of same to the **Contractor**.

14.3. Final Inspection.

14.3.1. Upon written notice from the **Contractor** that the entire Work or an agreed portion thereof is complete, the **Architect** will make a final inspection with the **City** and the **Contractor** and will notify the **Contractor** in writing of all particulars which this inspection reveals that the Work is incomplete or defective. The **Contractor** shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

ARTICLE 15 GUARANTEES AND WARRANTIES

15.1. In General.

15.1.1. All guarantees and warranties specifically called for by the Specifications shall expressly

run to the benefit of the **City**.

15.2. Warranties.

15.2.1. Warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work or designated portion thereof, unless otherwise provided in the certificate of Substantial Completion.

15.2.2. The **Contractor** warrants that the materials and equipment furnished under the Contract will be new and of recent manufacture unless otherwise specified, and that all Work will be of good quality, free from faults and defects, and in conformance with the Contract Documents. Work not conforming to these requirements, including substitutions not properly approved and authorized, may be considered defective. The **Contractor's** warranty excludes remedy for damage or defect caused by abuse, Modifications not executed by the **Contractor**, improper or insufficient maintenance, improper operation, or normal wear and tear under normal usage. If required by the **Architect**, the **Contractor** shall furnish satisfactory evidence as to the kind and quality of material and equipment.

15.2.3. The **Contractor** warrants that title to all Work covered by an application for payment will pass to the **City** either by incorporation in the construction or upon the receipt of payment by the **Contractor**, whichever occurs first, free and clear of all liens. The **Contractor** further agrees that the submission of any application for payment shall conclusively be deemed to waive all liens with respect to said Work to which the **Contractor** may then be entitled, provided that such waiver of the lien rights shall not waive the **Contractor's** right to payment for such Work.

15.2.4. The **Contractor** warrants and guarantees that title to all Work, materials, and equipment covered by any application for payment, whether incorporated in the Project or not, will pass to the **City** no later than the time of payment free and clear of all liens.

15.2.5. No materials or supplies for the Work shall be purchased by the **Contractor** or Subcontractor subject to any chattel mortgage or under a conditional sale contract or other agreement by which an interest is retained by the seller. The **Contractor** warrants that it has good title to all materials and supplies used by it in the Work, free from all liens.

15.2.6. The **Contractor** shall indemnify and hold the **City** harmless from all claims growing out of the lawful demands of Subcontractors, laborers, workers, mechanics, material persons, and furnishers of machinery and parts thereof, equipment, power tools, and all supplies, including commissary, incurred in the furtherance of the performance of this Contract. The **Contractor** shall at the **City's** request, furnish satisfactory evidence that all obligations of the nature hereinabove designated have been paid, discharged, or waived. If the **Contractor** fails to do so, then the **City** may, after having served written notice on the **Contractor** either pay unpaid bills, of which the **City** has written notice, direct, or withhold from the **Contractor's** unpaid compensation a sum of money deemed reasonably sufficient to pay any and all such lawful claims until satisfactory evidence is furnished that all liabilities have been fully discharged whereupon payment to the **Contractor** shall be resumed, in accordance with the terms of this Contract, but in no event shall the provisions of this sentence be construed to impose any obligations on the **City** to either the **Contractor** or its surety. In paying any unpaid bills of the **Contractor**, the **City** shall be deemed the agent of the **Contractor** and any payment so made by the **City** shall be considered as payment made under the Contract by the **City** to the **Contractor** and the **City** shall not be liable to the **Contractor** for any such payment made in good faith.

15.3. Extended Warranties and Guarantees.

15.3.1. Any defective Work that is either corrected or replaced will be warranted and guaranteed for a period of one (1) year from the date of such correction or replacement, except as otherwise stated where the warranted period is extended in accordance with the specifications.

ARTICLE 16 CLAIMS

16.1. In General.

16.1.1. Written Notice. A Claim must be made by written notice to the other party.

16.1.2. Content of Notice. The notice must include all written supporting data.

16.1.3. Burden of Proof. The party making the Claim must substantiate the Claim.

16.2. Time Limits on Claims.

16.2.1. Unless otherwise provided, all Claims must be made within twenty-one (21) days after the occurrence of the event giving rise to such Claim or within twenty-one (21) days after the claimant first recognizes the condition giving rise to the Claim, whichever is later. Any change or addition to a previously made Claim shall be made by a written notice within the twenty-one-day period in order to be valid.

16.3. Continuing Contract Performance.

16.3.1. Pending final resolution of a Claim including arbitration, unless otherwise agreed in writing, the **Contractor** shall proceed diligently with performance of the Contract and the **City** shall continue to make payments in accordance with the Contract Documents.

16.4. Types of Claims.

16.4.1. Claims for Differing Subsurface or Latent Physical Conditions. (*Reference: M.G.L. c.30, §39N*). If, during the progress of the Work, the **Contractor** or the **City** discovers that the actual subsurface or latent physical conditions encountered at the Site differ substantially or materially from those shown on the Drawings or indicated in the Contract Documents, either the **Contractor** or the **City** may request an equitable adjustment in the Contract Sum of the Contract applying to Work affected by the differing Site conditions. A request for such an adjustment shall be in writing and shall be delivered by the party making such claim to the other party as soon as possible after such conditions are discovered. Upon receipt of such a claim from a **Contractor**, or upon its own initiative, the **City** shall make an investigation of such physical conditions, and if they differ substantially or materially from those shown on the Drawings or indicated in the Contract Documents or from those ordinarily encountered and generally recognized as inherent in Work of the character provided for in the Drawings and Contract Documents and are of such a nature as to cause an increase or decrease in the cost of performance of the Work or a change in the construction methods required for the performance of the Work which results in an increase or decrease in the cost of the Work, the **City** shall make an equitable adjustment in the Contract Sum and the Contract shall be modified in writing accordingly.

16.4.2. Claims for Additional Cost. If the **Contractor** claims that any acts or omissions of the **City** or the **Architect**, including any instructions or orders, whether oral, written, by drawings, or otherwise, involve extra cost or time, and the **Contractor** has not received a written acknowledgment by the **City** or the **Architect** that extra payment will be made or time extended on account thereof, the **Contractor** shall promptly so notify the **Architect** in writing of such

Claim and shall proceed with the Work relating to such Claim and all rights of both parties with respect to such Claim shall be deemed to have been reserved. No Claim by the **Contractor** on account of such acts, omissions, instructions, or orders shall be valid unless the **Contractor** has so notified the **Architect** before proceeding.

16.4.2.1. Under no circumstances shall a Claim be made for additional cost where adverse weather conditions are the basis for the Claim.

16.4.3. Claims for Additional Time. If the **Contractor** wishes to make a Claim for an increase in the Contract Time, written notice as provided herein shall be given. The **Contractor** shall have the burden of demonstrating the effect of the claimed delay on the Contract Time and shall furnish the **Architect** with such documentation relating thereto as the **Architect** may reasonably require. Under no circumstances shall the **Contractor** make a Claim for an increase in the Contract Time due to a change in the **Contractor's** early completion date. If the increase in the Contract Time extends beyond the Contract Time established by the **City**, only the time that so extends beyond the Contract Time shall be reviewed and considered. In the case of a continuing delay, only one Claim is necessary.

16.4.3.1. Under no circumstances shall a Claim be made for additional time where adverse weather conditions are the basis for the Claim.

16.4.4. Claims for Injury to Person or Damage to Property. Should either party to the Contract suffer injury to person or damage to property because of any error, omission, or act of the other party or of any of the other party's employees or agents or others for whose acts the other party is legally liable, a Claim will be made in writing to the other party within twenty-one (21) days of the occurrence of the act giving rise to the injury or damage.

16.5. Review of Claims.

16.5.1. Initial Referral. All Claims, the bases of which arise prior to final payment or the earlier termination of the Contract, shall be referred initially to the **Architect** for action as provided herein.

16.5.2. Time Period and Action. The **Architect** shall review Claims and shall do one of the following within fourteen (14) days of receipt of the Claim:

16.5.2.1. defer any action with respect to all or any part of a Claim for the purpose of requesting and receiving additional information from either party;

16.5.2.2. decline in writing to render a decision for any reason which it deems appropriate (including, but not limited to, the fact that the Claim involves allegations of fault on the part of the **Architect**); or

16.5.2.3. render a decision on all or a part of the Claim.

16.5.3. If the **Architect** requests additional information, the **Architect** shall take action with respect to the Claim no later than fourteen (14) days after receipt of the additional information. The **Architect** shall notify the parties in writing of its disposition of such Claim. If the **Architect** renders a decision or declines to render a decision, either party may proceed in accordance with paragraph 16.7.

16.6. Decisions.

16.6.1. Decisions by the City or the Architect. (*Reference: M.G.L. c.30, §39P*). In every case in which this Contract requires the **City**, any official, or its **Architect** to make a decision on interpretation of the Specifications, approval of equipment, material or any other approval, or progress of the Work, the decision shall be made promptly and, in any event, no later than thirty (30) days after the written submission for decision; but if such decision requires extended investigation and study, the **City**, the official, or the **Architect** shall, within thirty (30) days after the receipt of the submission, give the party making the submission written notice of the reasons why the decision cannot be made within the thirty (30) period and the date by which the decision will be made.

16.6.2. When Decision of the Architect is Final and Binding. The decision of the **Architect** shall be final and binding on the parties, unless a party files suit or a demand for arbitration within thirty (30) days after the date of the decision.

16.6.3. When Decision of the Architect is Not Final and Binding. (*Reference: M.G.L. c. 30, §39J*). Notwithstanding any contrary provision of this Contract, no decision by the **City** or by the **Architect** on a dispute, whether of fact or of law, arising under said Contract shall be final or conclusive if such decision is made in bad faith, fraudulently, capriciously, arbitrarily, is unsupported by substantial evidence, or is based upon error of law.

16.6.4. Resolved Claims. If a Claim is resolved, the **Architect** shall obtain or prepare the appropriate documentation and provide the **City** and the **Contractor** with a copy of same.

16.7. Arbitration.

16.7.1. Controversies and Claims Subject to Arbitration. Any controversy of Claim arising out of or related to the Contract, or the breach thereof, shall be settled by arbitration in accordance with the Construction Industry Arbitration Rules of the American Arbitration Association, and judgment upon the award rendered by the arbitrator or arbitrators may be entered in any court having jurisdiction thereof, except controversies of Claims relating to aesthetic effect, subject to the provisions of paragraph 16.7.7. In any such arbitration in which the amount stated in the demand is \$100,000 or less, the American Arbitration Association shall appoint a single arbitrator in accordance with such Rules, who shall be a lawyer. In any such arbitration in which the amount stated in the demand is in excess of \$100,000, the demand shall include the name of an arbitrator appointed by the claimant. The respondent shall appoint a second arbitrator and shall notify the claimant in writing of such appointment within thirty (30) days of receipt of the demand, failing which the matter shall be decided by the arbitrator named in the claimant's demand. Within thirty (30) days after the claimant's receipt of notice of the appointment of the second arbitrator, the two arbitrators shall appoint a neutral arbitrator and shall notify the parties in writing of such appointment, failing which either party may apply to the American Arbitration Association to appoint such neutral arbitrator. If such neutral arbitrator is appointed by the American Arbitration Association, he or she shall be a lawyer.

16.7.2. Rules for Arbitration. If the neutral arbitrator is appointed by the American Arbitration Association, the said Association shall administer the arbitration and its Construction Industry Arbitration Rules shall govern all aspects of the proceeding including the enforcement of any award. If the neutral arbitrator is not appointed by the American Arbitration Association, then the panel of arbitrators shall act as the administrator of the arbitration but the Construction Industry Arbitration Rules of the Association shall nonetheless govern all aspects of the proceeding, including the enforcement of any award, provided however that the arbitration panel shall have all of the powers and duties conferred on the Association pursuant to said rules. In addition, the following rules shall govern the selection of arbitrators and the proceedings:

16.7.2.1. Neither party may appoint as arbitrator an employee or an owner of that party, nor the parent, spouse, or child of an employee or owner of that party.

16.7.2.2. After the neutral arbitrator has been appointed, neither party may engage in *ex parte* communication with any arbitrator.

16.7.3. When Arbitration May Be Demanded. Demand for arbitration of any Claim, the basis of which arises prior to final payment or the earlier termination of the Contract may not be made before the earlier of (1) the date on which the **Architect** has rendered a written decision on the Claim or has notified the parties in writing that such decision will not be rendered or (2) forty-five (45) days following receipt by the **Architect** of a written request for a decision sent by registered or certified mail to both the **Architect** and the other party to this Contract.

16.7.3.1. In no event shall a demand for arbitration be made after the date when the institution of legal or equitable proceedings based on such Claim would be barred by the applicable statute of limitations.

16.7.4. Limitation on Consolidation or Joinder. No arbitration arising out of or relating to the Contract Documents shall include, by consolidation or joinder or in any other manner, the **Architect**, the **Architect's** employees or consultants, except by written consent containing specific reference to the Contract and signed by the **Architect**, the **City**, the **Contractor**, and any other person or entity sought to be joined. No arbitration shall include, by consolidation or joinder or in any other manner, parties other than the **City**, the **Contractor**, a separate contractor, and other persons substantially involved in a common question of fact or law whose presence is required if complete relief is to be accorded in arbitration. No person or entity other than the **City**, the **Contractor**, or a separate contractor shall be included as an original third party or additional third party to an arbitration whose interest or responsibility is insubstantial. Consent to arbitration involving an additional person or entity shall not constitute consent to arbitration of a dispute not described therein or with a person or entity so named or described herein. The foregoing agreement to arbitrate and other agreements to arbitrate with an additional person or entity duly consented to by parties to the Contract shall be specifically enforceable under applicable law in any court having jurisdiction thereof.

16.7.5. Claims and Timely Assertion of Claims. A party who files a notice of demand for arbitration must assert in the demand all Claims then known to that party on which arbitration is permitted to be demanded. When a party fails to include a Claim through oversight, inadvertence, or excusable neglect, or when a Claim has matured or been acquired subsequently, the arbitrator or arbitrators may permit amendment.

16.7.6. Award Final. The award rendered by the arbitrator or arbitrators shall be final, and judgment entered upon it in accordance with applicable law in any court having jurisdiction thereof.

16.7.7. The City's Reservation of Rights. Notwithstanding any provision contained in this Article 16 or elsewhere in the Contract Documents, the **City** reserves the following rights in connection with Claims between the **City** and the **Contractor**, which right may be exercised by the **City** unilaterally, in the **City's** sole discretion, and without the consent of the **Contractor**:

16.7.7.1. the right to institute legal action against the **Contractor** in any court of competent jurisdiction in lieu of demanding arbitration, in which case the dispute or disputes which are the subject of such action shall be decided by such court, and not by arbitration;

16.7.7.2. the right to obtain from any court of competent jurisdiction a stay of any arbitration instituted by the **Contractor**, provided that the application for such stay is made before the appointment of the neutral arbitrator in such arbitration, in which case the dispute or disputes which are the subject of such arbitration shall be decided by such court and not by arbitration;

16.7.7.3. the right to require the **Contractor** to join as a party in any arbitration between the **City** and the **Architect** relating to the Project, in which case the **Contractor** agrees to be bound by the decision of the arbitrator or arbitrators in such arbitration.

16.7.8. In case the **City** elects to proceed in accordance with 16.7.7.1. or 16.7.7.2. above, the word "litigation" shall be deemed to replace the word "arbitration" wherever the latter word appears in the Contract Documents.

ARTICLE 17 EMERGENCIES

17.1. In an emergency affecting the health and safety of persons or property, the **Contractor** shall act to prevent threatened damage, injury, or loss.

17.2. In emergencies affecting the health, safety, or protection of persons, the Work or property at the Site or adjacent thereto, the **Contractor**, without special instruction or authorization from the **City** or the **Architect**, is obligated to act to prevent threatened damage, injury, or loss. The **Contractor** shall give the **Architect** prompt written notice if the **Contractor** believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby. If the **Architect** determines that a change in the Contract Documents is required because of the action taken by the **Contractor** in response to such an emergency, a Work Change Directive or Change Order will be issued to document the consequences of such action.

ARTICLE 18 TERMINATION OR SUSPENSION OF THE CONTRACT

18.1. Suspension by the City.

18.1.1. At any time and without cause, the **City** may suspend the Work or any portion thereof for a period of not more than ninety (90) days by notice in writing to the **Contractor** and the **Architect** which will fix the date on which Work will be resumed. The **Contractor** shall resume Work on the date so fixed. The **Contractor** shall be allowed an adjustment in the Contract Sum or an extension of the Contract Time, or both, directly attributable to any such suspension if the **Contractor** makes an approved Claim therefor.

18.1.2. If the Work is defective, if the **Contractor** fails to provide a sufficient number of skilled workers or suitable materials or equipment, or if the **Contractor** defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a seven-day period after receipt of written notice from the **City** to begin and prosecute correction of such default or neglect with diligence and promptness, the **City** may correct such deficiencies, without prejudice to other remedies the **City** may have. In such case, an appropriate Work Change Directive shall be issued deducting from payments then or thereafter due to the **Contractor** the cost of correcting such deficiencies including compensation for the **Architect's** additional services and

expenses made necessary by such default, neglect, or failure and any and all direct, indirect, or consequential costs associated with the order to stop the Work. If such payments then or thereafter due the **Contractor** are not sufficient to cover such amounts, the **Contractor** shall immediately pay the difference to the **City**. The **Contractor** shall remain responsible for maintaining progress and shall not be entitled to any increase in the Contract Time or the Contract Sum.

18.2. Termination by the Contractor.

18.2.1. If, through no act or fault of the **Contractor**, a Subcontractor, or a Sub-subcontractor, the Work is suspended for a period of more than ninety (90) days by the **City**, or under an order of court or other public authority, or the **Architect** fails to act on any application for payment within thirty (30) days after it is submitted in proper form and content or the **City** fails for thirty (30) days to pay the **Contractor** any sum finally determined to be due, then the **Contractor** may terminate the Contract upon seven (7) days' written notice to the **City**, provided that the **City** does not remedy such suspension or failure within that time.

18.3. Termination by the City.

18.3.1. If the **Contractor** is adjudged a bankrupt, or if the **Contractor** makes a general assignment for the benefit of the **Contractor's** creditors, or if a receiver is appointed on account of the **Contractor's** insolvency, or if the **Contractor** persistently or repeatedly refuses or fails, except in cases for which extension of time is provided, to supply enough properly skilled workers or proper materials, or if the **Contractor** fails to make prompt payment to Subcontractors or for materials or labor, or persistently disregards laws, ordinances, rules, regulations, or orders of any public authority having jurisdiction or disregards an instruction, order, or decision of the **Architect**, or otherwise is guilty of substantial violation of any provision of the Contract, then the **Contractor** shall be in default, and the **City** may, without prejudice to any other right or remedy and upon written notice to the **Contractor**, take possession of all materials, tools, appliances, equipment, construction equipment and machinery and vehicles, offices and other facilities on the Project Site, and all materials intended for the Work, wherever stored, and, seven (7) days after such notice, may terminate the employment of the **Contractor**, accept assignment of any or all subcontracts pursuant to Paragraph 6.6.1.1, and finish the Work by whatever method the **City** may deem expedient. The **City** shall be entitled to collect from the **Contractor** all direct, indirect, and consequential damages suffered by the **City** on account of the **Contractor's** default, including without limitation additional services and expenses of the **Architect** made necessary thereby. The **City** shall be entitled to hold all amounts due to the **Contractor** at the date of termination until all of the **City's** damages have been established, and to apply such amounts to such damages.

18.3.2. (*Reference:* Cambridge Municipal Code Chapter 2.117, Section 2.117.110C). In the event the **Contractor** or any of its agents or employees violates any provision of Cambridge Municipal Code Chapter 2.117 which is applicable to **City** contractors in connection with the awarding, administration, or performance of the Contract, the **City** may terminate the Contract.

ARTICLE 19 AMERICANS WITH DISABILITIES ACT (42 U.S. 12131)

19.1. On July 26, 1994, the Americans with Disabilities Act ("the Act") became effective for employers of fifteen or more employees.

19.2. The Act protects against discrimination on the basis of "disability," which is defined as a physical or mental impairment that substantially limits at least one "major life activity;" or discrimination against an individual who has a record of such impairment; or discrimination

against an individual being regarded - even if inaccurately - as having such impairment. The Act also expressly prohibits job discrimination that is based on any individual's relationship or association with a disabled person.

19.3. If the **Contractor** is subject to the Act, it must comply with its provisions.

ARTICLE 20 WRITTEN NOTICE TO THE PARTIES

20.1. In General.

20.1.1. All written communications from the **Architect** to the **Contractor** shall be copied to the **City**. All written communications from the **Contractor** to the **Architect** shall be copied to the **City**. All written communications from the **Contractor** to the **City** shall be copied to the **Architect**.

20.2. Addresses.

20.2.1. To the City. Written notice to the **City** shall be sent or hand-delivered to:

City Manager
City of Cambridge
Massachusetts Avenue
Cambridge, MA 02139

20.2.2. To the Contractor. Both the address given on the bid form upon which the Agreement is founded and the **Contractor's** office at or near the Site of the Work are hereby designated as places to either of which notices, letters, and other communications to the **Contractor** shall be certified, mailed, or delivered. Delivery of any notice, letter, or other communication to the **Contractor** at or depositing same in a postpaid wrapper directed to either place shall be deemed sufficient service thereof upon the **Contractor**. Written notice shall be deemed to have been duly served on the **Contractor** if it is sent or hand-delivered to any member or officer of the **Contractor**. The date of said service shall be the date of such delivery or mailing. The address may be changed at any time by an instrument in writing, executed and acknowledged by the **Contractor** and delivered to the **City** and to the **Architect**. Nothing herein contained shall be deemed to preclude or render inoperative the service of any notice, letter, or other communication upon the **Contractor** personally. Moreover, any notice, letter, or other communication required under the Contract may be served on the **Contractor's** representative at job meetings. The **Contractor** shall provide the **City** with its change of address seven (7) days prior to its effective date.

20.2.3. To the Architect. Written notice to the **Architect** shall be sent or hand-delivered to the address appearing on the Project Manual. Written notice shall be deemed to have been duly served on the **Architect** if it is sent or hand-delivered to any member or officer of the **Architect**.

ARTICLE 21 MISCELLANEOUS PROVISIONS

21.1. Governing Law.

21.1.1. This Contract shall be governed by the laws of the Commonwealth of Massachusetts.

21.2. Venue.

21.2.1. Venue for any court action or proceeding shall be Middlesex County in the Commonwealth of Massachusetts only. The **Contractor**, all Subcontractors, and Suppliers waive any and all jurisdictional and venue defenses.

21.3. Successors and Assigns.

21.3.1. The **Contractor** shall not assign, in whole or in part, its rights and obligations under the Contract Documents without prior written consent of the **City**. An assignment without the prior written consent of the **City** shall not relieve the **Contractor** of its obligations thereunder.

21.3.2. The **City** and the **Contractor** respectively bind themselves, their partners, successors, assigns, and legal representatives to the other party hereto and to partners, successors, assigns, and legal representatives of such other party in respect to covenants, agreements, and obligations contained in the Contract Documents.

21.4. Statutory Limitation Period.

21.4.1. It is expressly agreed that the obligations of the **Contractor** hereunder arise out of contractual duties, and that the failure of the **Contractor** to comply with the requirements of the Contract Documents shall constitute a breach of contract, not a tort, for the purpose of applicable statutes of limitations and repose. Any cause of action which the **City** may have on account of such failure shall be deemed to accrue only when the **City** has obtained actual knowledge of such failure, not before.

21.5. Rights and Remedies.

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

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

THIS IS THE END OF THE GENERAL TERMS AND CONDITIONS

**HVAC Upgrades
Gately Youth Center**

DIVISION D: TECHNICAL SPECIFICATIONS

SECTION 01110 - SUMMARY OF WORK

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes:
1. Project description.
 2. Contract Duration
 3. Interpretation of drawings.
 4. Definitions.
 5. Abbreviations used in specifications.
 6. Project Schedule.

1.02 PROJECT DESCRIPTION

- A. Owner:
1. City of Cambridge
- B. Architect:
- HKT Architects, Inc.
35 Medford Street
Somerville, MA 02143
phone: 617-776-6545
fax: 617-776-6678
- C. Mechanical Engineer:
- VAV International, Inc.
400 W. Cummings Park
Suite 4700
Woburn, MA 01801
phone: (781) 935-7228
fax: (781) 935-1822
- D. Project Name: HVAC Upgrades, Gately Youth Center
- E. Project Description. The work includes addition of air conditioning to the gymnasium at the Gately Youth Center. Work will include but not limited to removal of existing heating and ventilating unit which is above the ceiling of the adjacent fitness room, adding a new cooling only rooftop unit on the low roof above, retrofitting the ductwork and installing a new hot water coil in supply duct. Incidental work includes electrical, carpentry to open up the roof deck and opening up and patching the existing roof. The hung ceiling in the adjacent fitness room will be removed as needed to do the work and the suspension system shall be replaced. In addition, new acoustic ceiling tiles will be installed in the room.

1.03 PERMITS AND FEES

- A. The Contractor and Subcontractors for the work of this Contract shall obtain all permits, pay all governmental taxes, fees and other costs in connection with their work and file for necessary approvals with the Authorities having jurisdiction under which the work is to be performed.
- B. Each contractor and subcontractor shall obtain all required certificates of inspection for his work.

1.04 CONTRACT DURATION

- A. The Work shall commence on June 1, 2010 and be substantially complete by September 30, 2010.
- B. Final Completion shall be reached within 30 days of Substantial Completion or within 30 days after the time set for the contract duration, whichever is earliest.

1.05 INTERPRETING THE DRAWINGS AND SPECIFICATIONS

- A. Specification Section numbers in this Contract are based upon *MasterFormat, 1995 Edition* published by the Construction Specification Institute.
- B. Referenced Codes and Standards: References to codes, standards, requirements and publications of public and private bodies referred to in the Specifications shall be to the revision in force at the date of the Contract Documents, except where otherwise indicated.
- C. Extent: Where a material is indicated, it is intended that such material be used throughout the entire length and height of walls, partitions, spandrels, panels, windows, lights, areas, etc., and the detail in which it occurs is intended for other similar locations throughout the building, unless another material is indicated.
- D. Quantities: Wherever an item, device or part of equipment is referred to in the drawings or specifications in singular number, provide as many items, devices, parts as are required for complete installation.
- E. Quality: Where no explicit quality or standards for materials or workmanship are established for work, make work of good quality for the intended use and consistent with the quality of the surrounding work and of the construction of the Project generally.
- F. Typical Details: Where a typical or representative detail is shown on the plans, this detail shall constitute the standard in workmanship and material throughout the corresponding parts of building and site. Where necessary, the Contractor shall adapt such detail for use in corresponding parts of the building or site. Adaptations shall be subject to the Architect's approval.
- G. Manufacturers Instructions: Handle, install, connect and clean manufactured articles, materials and equipment in accordance with the manufacturer's written or printed instructions and recommendations, unless more particular or more stringent directions are given in these Contract Documents.

- H. The Mechanical and Electrical Drawings are diagrammatic only, and are not intended to show the exact physical locations or configurations of work. Install all such work so that it clears obstructions, permits proper clearances for the work of other trades, and presents an orderly appearance where exposed. Coordinate exact locations of fixtures and outlets with other surrounding work and request review by the Architect before the work is roughed in; Work installed without such coordination and review shall be relocated at the Contractor's expense if necessary to achieve proper function and good appearance.
- I. Any conflict between the General Conditions of the General Contract and the General Requirements of any technical specification, the more restrictive of the two shall apply.
- J. If exact location of fixtures, switches, outlets and similar objects is not clearly dimensioned on the drawings, obtain this information from the Architect before the Work is roughed in.

1.06 DEFINITIONS

- A. "As Required", "As Necessary": to the degree necessary to achieve adequate strength or good appearance or to make the work conform to the standards of good trade practice.
- B. "Equal": capable of performing the same function, with equivalent performance, and with similar appearance of design, with only minor deviations which do not alter the design or functional characteristics of the project, in the opinion of the Architect.
- C. "Furnish": to purchase and deliver to a specific location within the building or site.
- D. "Install": to receive, unpack, mount and connect, and dispose of packing material.
- E. "Match": to provide identical visual characteristics and material quality as determined by the Architect.
- F. "Provide": to furnish and install.

1.07 ABBREVIATIONS

- A. Abbreviations used in specifications:
 - 1. ° C: degrees Celsius
 - 2. ° F: degrees Fahrenheit
 - 3. deg. C: degrees Celsius
 - 4. deg. F: degrees Fahrenheit
 - 5. dft: dry film thickness
 - 6. ft: feet
 - 7. ft²: square feet
 - 8. ft³: cubic feet
 - 9. g: gram
 - 10. ga: gauge
 - 11. hp: horsepower

12. in: inch
13. in²: square inches
14. kg: kilogram
15. kPa: kiloPascal
16. L: liter
17. lb: pounds
18. lbf: pounds force
19. m: meters
20. m²: square meters
21. m³: cubic meters
22. min: minute or minimum
23. mm: millimeters
24. mm²: square millimeter
25. mph: miles per hour
26. N: Newton
27. oz: ounce
28. Pa: Pascal
29. V: volt
30. x'-x": feet and inches (where "x" is a number)
31. y²: square yards

1.08 PROJECT SCHEDULE

- A. Project Schedule: Shal be submitted to the Architect prior to sarning any work.

PART 2 - PRODUCTS — [NOT USED]

PART 3 - EXECUTION — [NOT USED]

END OF SECTION

SECTION 01290 - PAYMENT AND MODIFICATION PROCEDURES

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Schedule of values.
 - 2. Procedures for Applications for Payment.
 - 3. Payment for stored materials.
 - 4. Initial Application for Payment.
 - 5. Final Application for Payment.
 - 6. Procedures for changes in the work.
- B. Related Sections:
 - 1. Section 01780 - Closeout.

1.02 SCHEDULE OF VALUES

- A. Prior to making first Application for Payment, submit a Schedule of Values in a form acceptable to the Architect, to be used by the Architect and the Owner as a basis for reviewing the Contractor's Applications for Payments.
- B. Format: Type schedule on 8-1/2 by 11 inch white paper, in tabular form.
- C. Break out the Work, including general conditions and general work specified in Division 1, in sufficient detail to serve as a basis for computing values for progress payments during construction. Follow the table of contents of this Project Manual in listing the major categories of work. Identify each line item with the number and title of the respective major section of the specification.
- D. List the installed value of each of the component parts of the Work. Include a directly proportional amount of the Contractor's profit in each line item.
 - 1. List sub-values of major products or operations under the item. Break down major subcontracts into smaller portions by phase, area or other measurable division.
 - 2. For items on which payments will be requested for stored materials, break down the total value into the cost of the materials (delivered and unloaded, with taxes paid) and the value of the labor to install.
 - 3. For products for which a unit cost allowance is specified in the Contract Documents, show the quantities of materials required.
- E. Break down the line items for the General Conditions and Division 1 - General Requirements into sub-values for at least the following items and such other values as may be useful or requested by the Architect for computing progress payments:
 - 1. Bonds.
 - 2. Insurance premiums.
 - 3. Job mobilization.

4. Field supervision and offices.
5. Construction aids.
6. Field offices.
7. De-mobilization and cleaning.
8. Record Drawings.

- F. Verify that the sum of all values listed in the schedule equals the total Contract Sum.

1.03 APPLICATIONS FOR PAYMENT

- A. Timing: Submit Applications for Payment in accordance with the payment schedule indicated in the Owner-Contractor Agreement.
 1. If the payment schedule is not listed, submit applications monthly.
- B. Form of Application: Use AIA Document G702 and Continuation Sheets G703. Alternate forms with the same information are acceptable.
- C. One week prior to the date established for submission of Applications for Payment, submit a draft Application to the Architect and Owner for review. Confer with the Architect and Owner on each line item. Where disagreement exists provide supporting documentation for that item, or adjust the amount as agreed.
- D. Execution: Each Application for Payment shall be signed by the Contractor and notarized.
- E. Content: Information on Application for Payment shall be consistent with the current Schedule of Values and with previous Applications for Payment. Include amounts of Change Orders and Construction Change Directives issued prior to the last day of the construction period covered by the application.
- F. Subcontractor's Certifications of Payment: With each Application for Payment, submit a certificate from each subcontractor stating that all amounts due that subcontractor on the basis of the previous periodic payment to the Contractor have been paid. If any subcontractor has not been paid all amounts due, submit (1) subcontractor's certificate stating the amount paid and the amount not paid and the reason for the discrepancy and (2) Contractor's written explanation for the discrepancy.
- G. Number of Copies: Submit 5 executed copies of each Application for Payment with 1 copy of supporting documentation.
- H. Progress Payments: The Architect reserves the right to require, as a condition of payment, that as-built documents be up-to-date.

1.04 PAYMENT FOR STORED MATERIALS

- A. Obtain Owner's approval in advance for payment for materials stored off-site.
- B. Provide supporting documentation for the value of stored materials. Acceptable form of supporting documentation include a certified and notarized invoice from

the manufacturer or supplier which indicates the actual amount due, including discounts to which the Contractor may be entitled, and the date which the invoice was paid.

- C. Provide notice to Architect 48 hours in advance, and provide transportation for Architect and Clerk to the site where materials are stored to permit inspection of the materials.
- D. With Application for Payment, submit notarized certificate of title and evidence of insurance for materials stored off-site.
- E. With each subsequent Application for Payment, indicate in the appropriate columns the value of stored material which has been taken from off-site location and brought to the project site. Provide supporting documentation.

1.05 INITIAL APPLICATION FOR PAYMENT

- A. Submit the following documentation prior to or at the time of the initial Application for Payment. Comply with specific requirements for earlier submittal specified in other Sections of the Contract Documents.
 - 1. List of subcontractors.
 - 2. List of principal suppliers and fabricators.
 - 3. Contractor's preliminary Construction Schedule.
 - 4. Contractor's preliminary Submittal Schedule.
 - 5. Identification of Contractor's project manager, principal staff and consultants.
 - 6. Copies of building permits.
 - 7. Copies of authorizations and licenses from governing authorities.
 - 8. Certificates of insurance and insurance policies.
 - 9. Performance and payment bonds.
 - 10. Information needed by Owner to acquire Owner's insurance.

1.06 FINAL APPLICATION FOR PAYMENT

- A. Substantial Completion: Payment at Substantial Completion will be contingent on Architect's issuance of Certificate of Substantial Completion. Refer to Section 01780 - Closeout for concurrent requirements.
- B. Final Completion: Prior to submitting final Application for Payment complete the project closeout requirements specified in Section 01780 - Closeout.

1.07 CONTRACT MODIFICATION PROCEDURES

- A. In addition to the requirements of the Conditions of the Contract, comply with the procedural requirements of this Section.
- B. Proposal Request: Reply to Architect's Proposal Requests with a Change Order Request.
- C. Change Order Request:
 - 1. Reply to Proposal Requests with a Change Order Request.

2. Provide a detailed cost breakdown with each Change Order Request. List each cost item as enumerated in Paragraph 7.3.6 of the General Conditions. Provide supporting documentation for each item if requested by the Architect.
3. Include requested change in Contract Time. Document requested changes in time with a revised progress schedule, demonstrating impact on schedule.
4. Refer to relevant parts of the Contract Documents, Proposal Requests, sketches and other documents supporting the requested change.

1.08 CHANGE ORDERS

A. Calculation of Mark-up:

1. For Item 2 Filed Sub-Bid Work, the Filed Sub-Bidder shall be entitled to a mark-up of 15% of the cost of labor, equipment and materials, and the General Contractor shall be entitled to a mark-up of 7% on the Filed Sub-Bidder's work.
2. For Work performed by the Contractor's own forces, the Contractor shall be entitled to a mark-up of 15% of the cost of labor, equipment and materials.
3. For work performed by sub-contractors who are not Filed Sub-Bidders, the Contractor shall be entitled to a mark-up of 15% of the sub-contractor's work.

PART 2 - PRODUCTS — [NOT USED]

PART 3 - EXECUTION — [NOT USED]

END OF SECTION

SECTION 01310 - PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Project management.
 - 2. Pre-construction conference.
 - 3. Pre-installation conferences.
 - 4. Progress meetings.
 - 5. Coordination of the Work.
 - 6. Coordination drawings.
- B. Related Sections:
 - 1. Reports: Section 01320 - Construction Progress Documentation.
 - 2. Review of existing conditions: Section 01730 - Execution.
 - 3. Final record documents: Section 01780 - Closeout.

1.02 SUBMITTALS

- A. Prepare submittals in accordance with the General Conditions and Section 01330 - Submittal Procedures.
- B. Qualifications: Submit qualifications of professional moving contractor.

1.03 PROJECT MANAGEMENT

- A. Project Manager:
 - 1. Employ a project manager to provide supervision and management from the Contractor's home office. The Contractor's project manager shall be an individual empowered to make binding commitments on behalf of the Contractor. The project manager shall be on-site as necessary to keep progress moving on schedule and to complete the Work.
 - 2. Do not reassign or replace the project manager without the Owner's approval for the duration of the project. If requested by the Owner, for reasons of project harmony, the Contractor shall replace the project manager with another who is acceptable to the Owner.

1.04 PRE-CONSTRUCTION CONFERENCE

- A. Schedule a pre-construction conference before starting construction at a time convenient to the Owner and the Architect, but no later than 15 days after execution of the Agreement. Conduct the meeting to review responsibilities and personnel assignments.
- B. Attendees: Authorized representatives of the Owner, Architect, and their consultants; the Contractor's Project Manager; major subcontractors; manufacturers; suppliers; and other concerned parties shall attend the

conference. All participants at the conference shall be familiar with the Project and authorized to conclude matters relating to the Work.

- C. Agenda: Discuss items of significance that could affect progress, including the following:
1. Tentative construction schedule.
 2. Critical work sequencing.
 3. Designation of responsible personnel.
 4. Procedures for processing field decisions and Change Orders.
 5. Procedures for processing Applications for Payment.
 6. Distribution of Contract Documents.
 7. Submittal of Shop Drawings, Product Data, and Samples.
 8. Preparation of record documents.
 9. Use of the premises.
 10. Parking availability.
 11. Office, work, and storage areas.
 12. Equipment deliveries and priorities.
 13. Security.
 14. Housekeeping.
 15. Working hours.

1.05 PROGRESS MEETINGS

- A. Attend progress meetings at the Project Site at regular intervals. Coordinate with the Owner and the Architect for acceptable dates.
- B. Progress Meetings: The Contractor's project manager shall attend each project meeting. If the agenda involves work of any subcontractor or sub-subcontractor, a representative of the subcontractor or sub-subcontractor who is empowered to make binding commitments on matters to be discussed at that meeting shall also attend.
- C. The Contractor will record the minutes and distribute to attendees. The Contractor shall distribute the minutes to the Owner, Architect and affected subcontractors and suppliers.
- D. Contractor's Construction Schedule: The Contractor shall review progress since the last meeting. Determine where each activity is in relation to the Contractor's Construction Schedule, whether on time or ahead or behind schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to insure that current and subsequent activities will be completed within the Contract Time.

1.06 COORDINATION OF THE WORK

- A. Coordinate construction operations to assure efficient and orderly installation of each part of the Work. Coordinate construction operations included under different Sections that depend on each other for proper installation, connection, and operation.

1. Schedule construction operations in the sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
 2. Coordinate installation of different components to assure maximum accessibility for required maintenance, service, and repair.
 3. Make provisions to accommodate items scheduled for later installation.
- B. The Contractor shall be responsible to ensure that the work between trades is fully coordinated. Consider lead times and fabrication times for each item such that the work is not delayed.
- C. Conduct regular on-site meetings between each sub-contractor with significant portions of the work for the purpose of coordinating their respective work. At a minimum, include sub-contractors for plumbing, HVAC, electrical, wall and ceiling work. Discuss the project conditions, record the results, and distribute to each trade which may be affected by the work discussed.
- D. No additional compensation will be paid by the Owner for work necessary to modify installed work as a result of failure of the Contractor to provide sufficient coordination.

PART 2 - PRODUCTS — [NOT USED]

PART 3 - EXECUTION — [NOT USED]

END OF SECTION

SECTION 01320 - CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Construction schedule.
 - 2. Bi-weekly meeting reports.
 - 3. Maintaining as-built documents.
- B. Related Sections:
 - 1. Close-Out Submittals: Submittal of warranties, record documents, operating manuals, and maintenance materials: Section 01780 - Closeout.
 - 2. Preparation of Record Documents: Section 01780 - Closeout.

1.02 CONSTRUCTION SCHEDULE

- A. Submit initial construction schedule as required by the General Conditions of the Contract within 14 calendar days after award of Contract.
- B. Form of Schedule: Prepare schedule in the form of a horizontal bar chart. Draw schedule on transparent medium from which prints can be made.
 - 1. Lay out the time scale horizontally from left to right. Identify the first work day for each week.
 - 2. List trades or operations vertically in the chronological order of the start of each item. Provide a separate horizontal bar for each trade or operation.
 - 3. Prepare charts with sufficient size and length to permit notations and future revisions.
- C. Content: Show the complete sequence of construction by activity. Indicate by vertical lines and notations the estimated beginning and completion of each major element of construction.
- D. Phasing:
 - 1. Indicate start and completion dates of each phase. Indicate scheduled date for installation of systems furniture and moving-in for each phase.
 - 2. Show sufficient time in schedule to permit moves to be accomplished with minimal disruption to Owner's operations.
- E. Submit three copies of the schedule to Architect for review by Architect and Owner. Distribute additional copies to job site file, subcontractors, and other concerned parties.
- F. With each application for payment submit an updated progress schedule, indicating current state of completion of the work and bearing the current date.

1.03 CONSTRUCTION SCHEDULE - CRITICAL PATH METHOD

- A. Prepare a Construction schedule in the form of a network analysis in accordance with procedures generally referred to as Critical Path Method (CPM). Submit this schedule within 30 days after award of the Contract for construction.
 - 1. Include all significant activities and events involved in the construction of the Project.
 - 2. Include work being performed by all subcontractors.
 - 3. Furnish with the initial network analysis a tabular listing of activities identified on the network analysis. For each activity list the earliest and latest start times, the earliest and latest finish times, and the slack time. Indicate activities on the critical path.
 - 4. Submit three reproducible copies of the schedule and the tabular listing to the Architect for review by the Owner and the Architect.
- B. With each application for payment, submit an updated progress schedule bearing the current date. Distribute copies to job site file, subcontractors, and other concerned parties.
- C. Changes to the Work:
 - 1. When a proposed change affects the Contract completion date, furnish a revised schedule to the Architect showing the effect of the proposed change to assist the Architect in reviewing the Change Order request.
 - 2. When an actual Change Order or other approved change affects the schedule, revise the original schedule to incorporate the change and indicate the effect of the change on the Project as a whole.
 - 3. Distribute copies of the revised schedule to job site file, subcontractors, and other concerned parties.
- D. If, in the opinion of the Architect, the Contractor falls behind the progress schedule, the Contractor shall take such steps as may be necessary to improve the progress and shall submit for review a revised schedule which demonstrates the manner in which the agreed rate of progress will be regained, all without additional cost to the Owner.

1.04 AS-BUILT DOCUMENTS

- A. Record asbuilt conditions on the drawings as the Work progresses. Maintain at the site a set of Contract Drawings and shop drawings in clean, undamaged condition, to be marked up as the as-built drawing mark-up set. Do not use these documents for construction purposes; protect from deterioration and loss in a secure, fire-resistive location. Provide access to record documents for Architect's reference during normal working hours.
 - 1. Mark up these drawings to show actual installations which vary from the work shown on Contract Documents. Record actual construction, including:
 - a. Location of internal utilities and appurtenances concealed in the construction, referenced to visible and accessible features of structure, including existing utilities discovered during work.
 - b. Field changes of dimension and detail.
 - c. Changes made by supplementary instruction or change order.
 - d. Details not on original Contract Drawings.

- e. Depths of various elements of foundation in relation to finish first floor grades.
 - f. Horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
 2. Require mechanical and electrical trades subcontractors to record their own work.
 3. Mark whichever drawing is most capable of showing field condition fully and accurately, however, where shop drawings are used for mark-up, record a cross-reference at corresponding location on working drawings. Mark with red erasable pencil and, where feasible, use other colors to distinguish separate categories of work. Show new information which is recognized to be of importance to Owner, but was for some reason not shown on either Contract Drawings or shop drawings. Give particular attention to concealed work, which would be difficult to measure and record at a later date.
 4. Note related change-order numbers where applicable.
- B. Record as-built conditions on the specifications as the work progresses. Maintain one copy of specifications, including addenda, change orders and similar modifications issued in printed form during construction for marking up.
1. Mark up these specifications to show substantive changes where work installed deviates from the original specifications. Give particular attention to substitutions, selection of options, and similar information on work where it is concealed or cannot otherwise be readily discerned at a later date by direct observation. Include, at a minimum, the following:
 - a. Manufacturer, trade name, catalog name, and supplier of each products and item of equipment actually installed.
 - b. Changes made by supplemental instructions or Change Order.
 2. Require mechanical and electrical trades subcontractors to record their own work.
 3. Note related record drawing information and product data, where applicable.
- C. Keep marked-up drawings and specifications current so that, at all times, they accurately reflect the progress of the work. If mark-up documents are not maintained up-to-date, progress payments may be withheld.
- D. At completion of construction, utilize marked-up as-built documents in the preparation of record documents specified in Section 01780 - Closeout.

PART 2 - PRODUCTS — [NOT USED]

PART 3 - EXECUTION — [NOT USED]

END OF SECTION

SECTION 01330 - SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Submittal schedule.
 - 2. Shop drawings, product data and samples.
- B. Related Sections:
 - 1. Schedule of Values and Applications for Payment: Section 01290 - Payment Procedures.
 - 2. Submittal of warranties, record documents, operating manuals, and maintenance materials: Section 01780 - Closeout.
 - 3. Submittals Required: Types of submittals required are listed in each product section. Number and manner of submittal for submissions listed in product sections shall be as specified here.

1.02 SUBMITTAL SCHEDULE

- A. General: Submit within 3 days of Award of Contract a typed Schedule of Submittals, including product data, shop drawings, samples and other required submittals, complying with the following.
- B. Present the schedule in the form of a table, with the first column listing the applicable section number for the submission followed by columns for the type of submittals required, the proposed date for Contractor to make his submission, and date Contractor will require reviewed shop drawings back from Architect. Allow at least 5 working days for Architect's review.
- C. Coordination: Schedule submittals so that Architect may review them in a sequence which reflects the logical sequence of the Work and the relative priority of the construction components. When appropriate, schedule and coordinate submittals for related work so that items which must be coordinated, such as colors of finishes, may be reviewed together.

1.03 PREPARATION OF SUBMITTALS

- A. Submittals include shop drawings, product data and samples as required in individual Specification Sections.
- B. Provide the following on each submittal:
 - 1. Date of submission, and dates of previous submissions if resubmittal.
 - 2. Project title and number; contract identification.
 - 3. Applicable Specification Section.
 - 4. Names of Contractor, subcontractor, supplier, and manufacturer.
 - 5. Identification of products and materials.
 - 6. Relation to adjacent critical features of Work or materials; field dimensions.

7. Applicable standards as specified.
 8. Identification of deviations from Contract Documents.
 9. Identification of revisions on re-submittals.
 10. A space 4 by 8 inches (100 mm by 200 mm) for Architect and Engineer review stamps.
- C. Contractor's Initial Review and Transmittal:
1. Review each submittal from sub-contractors and suppliers and verify accuracy of contents. As a minimum, verify:
 - a. Materials.
 - b. Field dimensions.
 - c. Adjacent construction.
 - d. Conformance with specified environmental and job conditions.
 - e. Coordination with other work.
 - f. Conformance with the contract documents.
 2. Stamp with Contractor's review stamp and sign each submittal to signify that it has been reviewed by the Contractor.
 3. Give each submission a unique number. Maintain a log of submissions by number indicating status of each.
 4. Transmit each submittal with a numbered Letter of Transmittal stating:
 - a. Date of submission.
 - b. Project title and number.
 - c. Names of Contractor, sub-contractor, supplier, and manufacturer.
 - d. Specification section number and identification of the product.
 - e. Identification of deviations from contract documents.
 5. Do not transmit submittals to Architect via facsimile machine.
 6. Provide clearly readable copies. Do not submit copies which are multiple generation photocopies or facsimile copies unless text and diagrams are clear and plainly readable. Require suppliers and vendors to use super-fine resolution on facsimile transmissions.
- D. Shop Drawings:
1. Prepare shop drawings specific to this project to describe the fabrication and installation of products; manufacturer's pre-printed standard details are not shop drawings.
 2. Draw clearly and present complete information. Include plans and elevations and large scale details, as appropriate to the work shown. Note field dimensions and adjacent construction. Include schedules, patterns, calculations and instructions regarding coordination and installation as required.
 3. Identify details by reference to Contract Drawings sheet and detail, schedule, room number, door number or other applicable identification.
 4. Submit one reproducible transparency and three opaque reproductions.
- E. Product Data:
1. Submit manufacturer's pre-printed data. Clearly mark each copy to identify pertinent products or models; cross-out information which is not applicable to the work and supplement standard information to provide information which is specifically applicable to the work.

2. Show performance characteristics and capacities. Show dimensions and clearances required. Show wiring or piping diagrams and controls. Show dimensions and clearances required for proper operation and maintenance.
 3. Submit the number of copies which the Contractor requires to be returned (for job file, Contractor's own records, distribution to subcontractors, etc.) plus 3 additional copies retained by the Architect.
- F. Samples:
1. Provide samples of adequate size to permit proper evaluation of material. Where variations in color or in other characteristics are to be expected, submit samples showing the maximum range of variation.
 2. Submit samples of interior finishes simultaneously to permit coordinated selection of colors and finishes.
 3. Tag or permanently mark each sample to identify the item; indicate applicable transmittal number on tag.
 4. Submit 2 of each type required, unless otherwise specified in the section requiring the samples.
- G. Distribution: After review by the Architect or Engineer (as applicable), distribute reproductions of shop drawings and copies of product data which carry the Architect/Engineer stamp of acceptance as follows:
1. Send one copy to each affected subcontractor and supplier.
 2. File one copy in Record Documents file.
- 1.04 QUALITY ASSURANCE AND CONTROL SUBMITTALS
- A. Provide certifications, qualification statements, test reports and similar submittals where specified for submittals, quality assurance, or quality control.
- B. Quality assurance and control submittals are informational submittals, and will not be approved or returned by the Architect.
- 1.05 ARCHITECT'S REVIEW
- A. The Architect will review only those submittals explicitly required by the contract documents or requested by the Architect as the work proceeds.
- B. The Architect will stamp each submittal to indicate the action taken. Fabrication or installation of work for which Architect's review is required should not begin until the submittal is acceptable to the Architect. Fabrication or installation begun without Architect's acceptance is undertaken at the Contractor's sole risk.
- C. If submittal is stamped "No Exceptions Taken" or "Furnish As Corrected" the shop drawings, product data or samples need not be resubmitted. Make changes noted to the actual item prior to fabrication and installation.
- D. Resubmission:
1. If submittal is stamped "Revise And Resubmit" make corrections or changes required by the Architect in the submittals and resubmit until accepted.
 2. If submittal is stamped "Rejected" resubmit in conformance with the Contract Documents.

3. In resubmitting, comply with requirements specified for the initial submittal. Transmit each resubmittal with a new letter of transmittal and note the transmittal number of the first submission on the transmittal form.

PART 2 - PRODUCTS — [NOT USED]

PART 3 - EXECUTION — [NOT USED]

END OF SECTION

SECTION 01500 - TEMPORARY FACILITIES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. All of the Contract Documents, including General and Supplementary Conditions and Division 1, General Requirements, are hereby made a part of the work of this Section. Where paragraphs of this section conflict with Division 1, requirements of this Section shall govern.

1.02 SUMMARY

- A. Section Includes: Furnish, install, maintain and remove temporary utilities, construction aids, barriers and other construction facilities and temporary controls required to perform the work.
- B. This section specifies minimum requirements for construction facilities and temporary controls for this Project. It is not intended to limit types and amounts of temporary work required, and an omission from this section is not intended by the Architect as an indication that such temporary activity is not required. Nor is it intended to instruct the Contractor with regard to construction means, methods, techniques, sequences or procedures, or safety precautions and programs in connection with the work, which are the Contractor's responsibility in accordance with the General Conditions of the Contract.
- C. Types of temporary facilities and services specified in this section include:
 - 1. Construction Aids, including hoists and staging.
 - 2. Barriers and enclosures.
 - 3. Protection of the work and adjacent areas during construction, including tree protection and fire protection.
 - 4. Temporary fire alarm coordination.
 - 5. Cleaning during construction.
 - 6. Field offices in existing spaces designated by Owner.
- D. Payment for Utility Consumption: The Owner shall pay for consumption of gas, fuel oil, water and power; water will be available from Owner's existing sources within the building.

1.03 REQUIREMENTS OF REGULATORY AGENCIES

- A. Carry out work of this Section in accordance with the applicable Federal, State and local codes and regulations.

PART 2 - PRODUCTS — [NOT USED]

PART 3 - EXECUTION

3.01 FIELD OFFICES AND SHEDS

- A. General: Maintain temporary field offices at the project sites in a space as designated by the Owner.
 - 1. Contractor's Office: At Contractor's option, provide mobile unit with heated and air-conditioned

3.02 TEMPORARY LIGHT AND POWER

- A. The Electrical Subcontractor may be required under Division 16, Electrical, to provide temporary feeders of sufficient capacity from the local utility company to take care of the electric light and power requirements during construction. Include any utility company connection fees or permit charges in the electrical sub-bid. All electric power for the Contractor's use shall be provided by the Owner.
- B. The General Contractor and all Subcontractors, individually, shall furnish all extension cords, sockets, lamps, motors, and accessories required for their work. Use copper wire only. They shall also pay for all temporary wiring of construction offices and buildings used by them.
- C. All temporary wiring installed by the Electrical Subcontractor shall be removed by the Electrical Subcontractor after it has served its purpose.
- D. Special feeders required for welding shall be provided and paid for by the Trades requiring them.

3.03 TEMPORARY WATER

- A. The Contractor and all of the subcontractors may use water at each site without any additional cost or reimbursement to the Owner.
- B. If required, 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.
- C. At the completion of the work, remove temporary water service equipment and piping and replace worn or damaged parts of the permanent system. Leave permanent equipment and distribution system in first-class condition equal to new.
- D. Furnish drinking water with suitable containers and cups and at convenient locations for use by construction personnel.

3.04 TEMPORARY HEAT AND VENTILATION

- A. Provide temporary heat as required during construction to protect the Work from freezing or frost damage and as necessary to ensure suitable conditions for the construction operations of all trades. In areas of the building where work is being conducted, the temperature shall be maintained as specified in the various sections of the Specifications but not less than 45oF. Under no circumstances shall the temperature be allowed to reach a level which will cause damage to any portion of the Work which may be subject to damage by low temperatures. Utility costs for maintaining temporary heat shall be borne by the Owner.
- B. Until the building, or any major portion thereof, is enclosed, temporary heating shall be by smokeless portable unit heaters of type listed by Underwriter's Laboratories, and approved by Factory Mutual and the Fire Marshal. Interior or exterior surfaces damaged by the use of these space heaters shall be replaced by new materials or be refinished. The use of propane heaters is forbidden.
- C. Provide adequate ventilation as required to keep the temperature of the building within 10° F of the ambient outdoor temperature when such ambient temperature exceeds 70° F, and to prevent accumulation of excess moisture or to prevent excess thermal movement in the building.
- D. Before Final Acceptance of the Work remove temporary heating equipment and piping and replace worn or damaged parts of the permanent system. Leave permanent equipment and distribution system in first-class condition equal to new.
 - 1. Permission by the Owner to use the permanent heating system by temporary heat does not constitute acceptance of the system or any portion thereof.
 - 2. Warranties for heating or cooling equipment shall begin to run on the Date of Substantial Completion, not from the time system was used for temporary heating.

3.05 WEATHER PROTECTION

- A. Provide temporary enclosures and temporary heat as necessary to allow construction work to proceed without seasonal interruption during the months of November to April. After the building is enclosed by permanent construction, requirements of article on Temporary Heat elsewhere in this section apply.
- B. This requirement does not extend to operations which would be economically infeasible to protect, such as excavation, steel erection, or roofing, but does extend to (without limitation) structural concrete work, unit masonry work of all kinds, and interior framing and finishing.
- C. Generally, minimum temperature requirements are specified in each individual section and these requirements shall govern the type of enclosure (if any) and temporary heat required.
- D. Maintain a basic minimum ambient temperature of 40°F to make general construction operations feasible throughout the winter months, unless specifically

higher temperatures are required or specifically lower temperatures are permitted by the individual trade sections.

- E. Provide an accurate Fahrenheit thermometer within each enclosure, and an additional thermometer for each 2000 square feet of floor space.

3.06 TEMPORARY SANITARY FACILITIES

- A. The Contractor may use existing toilet facilities in each location.
- B. Maintain and clean existing facilities used by Contractor's personnel.

3.07 TEMPORARY FIRE PROTECTION

- A. General: Take all necessary steps to prevent damage to the Work and any stored materials and temporary facilities by fire.
- B. Housekeeping:
 - 1. Do not store flammable liquids in the building or in field offices. Employ only code-approved storage containers
 - 2. Provide trash barrels with covers to contain debris. Empty regularly.
 - 3. Keep job site free of paper and debris. Wet down flammable debris if necessary until it can be removed from site.
 - 4. Do not light fires about the site. Do not use salamanders for heating.
- C. Fire extinguishers: Provide and maintain U.L. rated type A-B-C fire extinguishers in adequate numbers at well-marked locations about the job site if no existing fire extinguishers are available. Provide red-painted plywood standards for each extinguisher. Provide a dry chemical fire extinguisher at each location where welding and cutting is in progress.
- D. Inspection: Make arrangements for periodical inspection of the Work by local fire prevention authorities and by insurance inspectors. Cooperate with these inspectors and promptly carry out their recommendations.
- E. Tarpaulins: Use only flame-proofed type tarpaulins.
- F. Welding and Cutting: Properly supervise welding and cutting by torch. Obtain permission from local authorities for such work where required by law. Employ shields to prevent spread of fire. Provide special fire extinguishers at welding and cutting work. Provide for proper storage of gas tanks on the job. Promptly remove welding equipment from the job site where no longer required.

3.08 TEMPORARY FIRE ALARM COORDINATION RESPONSIBILITIES

- A. The General Contractor shall be responsible for coordination with the City of Cambridge Fire Department for protocol regarding existing fire alarm system and improvements.
 - 1. Establish mutually acceptable notification procedures for alarm shut-downs.
 - 2. Establish procedure for insuring night time and weekend coverage.

3.09 CONSTRUCTION AIDS

- A. General: Provide construction aids and equipment required by personnel and to facilitate the execution of the Work including, without limitation, scaffolds, staging, ladders, stairs, ramps, runways, platforms, railings, hoists, cranes, chutes and other such facilities and equipment.
- B. Use of Elevators: Use of elevators for movement of men and material shall be at the Owner's discretion. Obtain written permission for such use and cease use of elevators if permission is withdrawn because of misuse. Protect hoistway entrances, jambs and soffits, by effective means to prevent damage. Obtain written approval from elevator installer releasing elevator for use during construction.

3.10 PROTECTIVE BARRIERS

- A. Barriers: Furnish, install and maintain suitable barriers as required to prevent public entry to the work area and to protect existing facilities and new construction from construction operations.
- B. Barricades: Erect and maintain adequate barricades and caution signs at open excavations, trenches and other hazards to prevent injury to persons and property.
- C. Maintain exits from the site free of construction materials, rubbish and debris for the safe passage of building occupants.
- D. Protection of Trees and Shrubs: Take particular care to avoid damage to the trees within and adjacent to the work area. Protect trees close to the work from injury; if necessary, erect fences or barricades around trees to protect them from mobile equipment. Trim branches that are vulnerable to damage from construction operations, but do not remove any tree without approval of Owner.

3.11 CONTRACTOR'S RESPONSIBILITY FOR SITE SECURITY

- A. Upon beginning work at the job site, assume full responsibility for site security. Take full security measures which may be necessary to protect the existing buildings and new work from unauthorized entry, vandalism and theft.
- B. Lock or otherwise disable mobile equipment parked at the job site at the end of each working day.

3.12 VEHICLE ACCESS AND EXTERIOR STAGING AREAS

- A. The Contractor shall maintain in passable condition at all times such roads, driveways, parking and storage areas as may be employed on or adjacent to the site for delivery and storage of materials, removal of rubbish, storage of equipment, and parking of workmen's vehicles.

3.13 CLEANING AND DISPOSAL OF DEBRIS

- A. Perform cleaning during the progress of the Work as required by the General Conditions and as specified below.
- B. Comply with governing codes, ordinances, regulations and anti-pollution laws when performing clean-up operations.
- C. Cleaning During Construction:
 - 1. Clean-up as frequently as required to keep the Work, the site and adjacent properties free from accumulation of waste materials, rubbish and windblown debris.
 - 2. Provide on-site containers for the collection of waste materials, debris and rubbish.
- D. Garbage: Provide marked containers with sturdy "raccoon proof" covers for all edible rubbish and enforce their use by employees. Empty containers and remove garbage from the site as often as required to avoid attracting scavengers.
- E. Dust Control During Painting:
 - 1. Clean interior spaces before the start of finish painting and continue cleaning on an as-needed basis until painting is finished.
 - 2. Schedule operations so that dust and other contaminants resulting from cleaning process will not fall on wet or newly-coated surface.
- F. Disposal of Debris: Remove waste materials, debris and rubbish from the site periodically and dispose of it at legal disposal areas away from the site.
- G. Related Requirements Specified in Other Sections:
 - 1. Initial cleaning of specific products or work, if required, is specified under the Specification Section for that work.
 - 2. Final cleaning is specified in Section 01700 - Contract Closeout.

3.14 REMOVAL OF TEMPORARY FACILITIES

- A. Remove temporary facilities when construction has progressed to the point that they are no longer needed, and when approved by Architect. Clean and repair damage caused by installation. Clean the area and remove debris from the site.
- B. Where temporary facilities outside the building have altered the grading, regrade the site to required elevations. Restore landscaping and site improvements that have been damaged by the work; repair to the satisfaction of the Owner.
- C. Where permanent facilities or equipment have been used temporarily for construction purposes, repair damage done by construction activities, replace such disposable components as lamps and air filters, clean, and restore to first-class condition equal to new.

END OF SECTION

SECTION 01600 - PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Product delivery, storage and handling.
 - 2. Substitution procedures.
 - 3. Products furnished by Owner.
- B. Related Sections:
 - 1. Section 01330 - Submittal Procedures.

1.02 PRODUCT OPTIONS

- A. For products specified by naming one or more brand names or manufacturers, select one of the named products.
- B. For products specified by description of physical properties or performance, submit a product meeting the specified requirements and provide sufficient documentation of performance testing to demonstrate compliance with the requirements to the satisfaction of the Architect.
- C. For products specified only by reference standard, select any product meeting that standard.
- D. Substitution of listed products is permitted by the phrase "or equal". If the Contractor wishes to provide a product other than one of those listed, provide information about the proposed product as specified below for substitutions, to enable the Architect to evaluate the product.

1.03 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle products according to the manufacturer's recommendations, using means and methods that will prevent damage, deterioration, and loss, including theft.
- B. Schedule delivery to minimize long-term storage at the site and to prevent overcrowding of construction spaces.
- C. Coordinate delivery with installation time to assure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
- D. Deliver products to the site in an undamaged condition in the manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.

- E. Inspect products upon delivery to ensure compliance with the Contract Documents and to ensure that products are undamaged and properly protected.
- F. Store products at the site in a manner that will facilitate inspection and measurement of quantity or counting of units.
- G. Store heavy materials away from the Project structure in a manner that will not endanger the supporting construction.
- H. Store products subject to damage by the elements above ground, under cover in a weathertight enclosure, with ventilation adequate to prevent condensation. Maintain temperature and humidity within range required by manufacturer's instructions.

1.04 REQUESTS FOR SUBSTITUTIONS

- A. Substitutions: Changes in products, materials, equipment, and methods of construction required by the Contract Documents proposed by the Contractor after award of the Contract are considered to be requests for substitutions.
- B. Substitution of products of lesser quality than those specified will not be accepted.
- C. Cost savings for substituted products shall revert 100% to the Owner.
- D. Conditions: The Architect will receive and consider the Contractor's request for substitution when the following conditions are satisfied, as determined by the Architect. If the following conditions are not satisfied, the Architect will return the requests without action except to record noncompliance with these requirements.
 - 1. Extensive revisions to the Contract Documents are not required.
 - 2. Proposed changes are in keeping with the general intent of the Contract Documents.
 - 3. The request is timely, fully documented, and properly submitted.
 - 4. The request is directly related to an "or-equal" clause or similar language in the Contract Documents.
 - 5. The request is timely and necessary to maintain the project schedule due to long lead time of the specified item.
- E. The Contractor's submittal and the Architect's acceptance of Shop Drawings, Product Data, or Samples for construction activities not complying with the Contract Documents do not constitute an acceptable or valid request for substitution, nor do they constitute approval.
- F. Procedure: Submit a separate written request for each product, supported with product data, with drawings and samples as appropriate, and with the following information on costs and coordination:
 - 1. Comparison of the qualities of the proposed substitution with those of the product specified.
 - 2. Changes required in other components of the work because of the substitution.
 - 3. Effect on the construction schedule and on the Contract Sum.

4. Cost data comparing the proposed substitution with the Product specified, and including incidental cost of modifications to related work.
 5. Any required license fees or royalties.
 6. Availability of maintenance service and source of replacement materials.
 7. Coordination information, including changes needed to other parts of the Work necessary to accommodate the proposed substitution.
 8. Product Data, including Drawings and descriptions of products and fabrication and installation procedures.
 9. Samples, where applicable or requested.
 10. The Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of the failure of the substitution to perform adequately.
- G. By making a request for a substitution, the Contractor makes the following representations:
1. The Contractor has investigated the proposed substitute product and determined that it is equal or superior in all respects to that specified.
 2. The Contractor, Manufacturer and Installer (as applicable) can and will provide at least the same warranty for the substitution that the specifications require for the product specified.
 3. The cost data presented is complete and includes all related costs under this Contract except the Architect's redesign costs, and the Contractor will make no claims for additional costs related to the substitution which subsequently become apparent.
 4. Cost savings for the substituted product, if any, shall be returned to the Owner in a credit change order.
- H. The Architect will review the proposed substitution for appearance, where relevant, as well as for performance and quality of construction and shall be the final judge of the acceptability of the proposed substitution.
- I. If the substitution is accepted, the Contractor shall assume responsibility for coordinating the substitution with other work, including the work of other trades, and for incidental costs.

1.05 ARCHITECT'S ACCEPTANCE OF SUBSTITUTIONS

- A. The Contract Documents are intended to produce a building of consistent character and quality of design. All components, including visible items of mechanical and electrical equipment, have been selected in relation to the overall appearance of the building. The Architect shall judge the design and appearance of proposed substitutes on the basis of their suitability in relation to the overall design of the Project, as well as for their intrinsic merits. The Architect will not approve as equal to materials specified proposed substitutes which, in the architect's opinion, would be out of character, obtrusive, or otherwise inconsistent with the character or quality of design of the Project.
- B. In order to permit coordinated design of color and finishes, the Contractor shall, if required by the Architect and at no additional cost to the Owner, furnish the substituted material in any color, finish, texture or pattern which would have been available from the manufacturer originally specified.

- C. The Architect shall be the final judge of the acceptability of the proposed substitution.

PART 2 - PRODUCTS — [NOT USED]

PART 3 - EXECUTION — [NOT USED]

END OF SECTION

SECTION 01710 - EXAMINATION AND PREPARATION

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Maintenance of existing utility services.
 - 2. Review of documents and field conditions.
 - 3. Field measurements.
 - 4. Protection of the work.
- B. Related Sections:
 - 1. Coordination with the occupants: Section 01140 - Work Restrictions.

1.02 MAINTENANCE OF EXISTING UTILITY SERVICES

- A. Maintain in operation existing utilities including but not limited to electrical, drainage, gas, and water, which may be encountered during the course of this Work.
- B. Obtain required permission and give adequate notice prior to temporarily interrupting any service.

1.03 REVIEW OF CONTRACT DOCUMENTS AND FIELD CONDITIONS

- A. Take field measurements and verify field conditions and carefully compare this information with the Contract Documents before beginning work. Report errors, inconsistencies and omissions to the Architect at once.
- B. If the Contractor performs any construction activity knowing it involves a recognized error, inconsistency, omission or other questionable item and does not give notice to the Architect, the Contractor shall be held partly responsible and shall bear an appropriate amount of the cost for correction.

1.04 FIELD MEASUREMENTS

- A. Continually check and compare dimensions at the site with those shown on the Drawings. Immediately bring discrepancies to the attention of the Architect in writing.
- B. Mark on shop drawings, prior to submission to the Architect, all relevant field dimensions and note any conflicts with the submitted material.

1.05 PROTECTION OF THE WORK DURING CONSTRUCTION

- A. Protect the Work against damage from normal day-to-day construction activities including, without limitation, movement of materials and personnel, traffic of all

kinds, weather hazards, spillage and any other reasonably foreseeable danger to stored materials, existing construction to remain or new construction.

- B. Typical Situations: Without limiting the generality of this Article, protect the Work against the following hazards and abuses:
1. Protect roof surfaces against construction traffic. Do not allow materials to be stored on roofs.
 2. Protect window and door jambs against collision.
 3. Protect finished floors against traffic soiling, scratching and dinging.
 4. Protect walls and floors scheduled to receive subsequent finishes from soiling which would impair the adhesion of those finishes.
 5. Protect stored or installed glass and mirrors against breakage.
 6. Protect stored materials against weather damage.

PART 2 - PRODUCTS — [NOT USED]

PART 3 - EXECUTION — [NOT USED]

END OF SECTION

SECTION 01730 - EXECUTION

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:

1. Specific cutting and patching of ceiling and roof deck above the exercise room adjacent to the gymnasium to install the new AC unit. In addition, provide patching for pipe penetration and rubber membrane roof patching that is incidental to the installation.
2. Remove and reinstall all or parts of acoustic grid ceilings as required to perform this contract. Provide new acoustic tile for the exercise room to replace the existing tile. Patch and repair the suspension grid as required.
3. After the ceiling of the exercise room is opened up and the existing mechanical unit is removed, contact the Architect to review the structural condition of the deck so that the new rooftop unit can be properly supported. Do not do any work that would interfere with potential structural modifications until reviewed by the Architect.
4. General cutting and patching.
5. Miscellaneous work resulting from alterations, renovations and modifications to existing construction.
6. Selective demolition work in preparation for renovation.
7. Salvage materials as scheduled or indicated.

B. Related Sections:

1. Preparation of coordination drawings: Section 01310 - Project Management and Coordination.

1.02 QUALITY CONTROL

- A. Provide patching, alterations, modifications and repairs equal in quality and appearance to existing surrounding construction, and which results in work which is as invisible as possible. Use materials of equal or better quality, applied according to the manufacturer's recommendations.
- B. Provide sufficient new work to ensure that alterations are well-blended into existing construction. Continue work to corners, returns and similar breaks in surfaces unless alterations can be demonstrated to be invisible from a distance of 3 ft (900 mm).

1.03 PERMITS, TAXES AND LICENSES

- A. Obtain and pay for all permits and licenses required by governing authorities to carry out the work of this Section.
- B. Pay all legally imposed fees and taxes on the work of this Section.

1.04 COORDINATION

- A. Schedule demolition work in sequence which accommodates the Owner's requirements for access and use of the site during demolition.
- B. Submit a written request to the Architect, and secure Architect's approval well in advance of executing any cutting or alteration which affects:
 - 1. The Work of the Owner or any separate contractor.
 - 2. The strength or integrity of any structural element.
 - 3. The weathertightness or watertightness of the building envelope or of any interior waterproof assemblies.
 - 4. The efficiency, operating life, maintenance or safety of any major piece of equipment.
 - 5. The appearance of any element exposed to view.

1.05 SUBMITTALS

- A. Prepare submittals in accordance with the General Conditions and Section 01330 - Submittal Procedures.
- B. Product Data and Samples: Provide submittals where product or material options exist requiring selection by the Architect in order to determine suitability or appropriateness of match to existing construction. Submit product data and samples as required. Submit samples of existing materials.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Use materials that are identical to existing materials. If identical materials are not available or cannot be used where exposed surfaces are involved, notify the Architect. After approval of Architect, use materials that match existing adjacent surfaces to the fullest extent possible with regard to visual effect. Use materials whose installed performance will equal or surpass that of existing materials.
- B. For cutting and patching new work, use the same materials as adjacent areas that are to be patched. No substitute materials shall be permitted without written approval of the Architect.
- C. Do not provide materials which contain asbestos, lead paint, PCBs or other known similar hazards.
- D. Paint Remover: Chemical paste, lye based; neutralizer.
 - 1. Product: Dumond Chemical; *Peel-Away*.
- E. Plaster and Drywall Patching Materials:
 - 1. Vinyl joint compound, fiberglass tape, acrylic caulk and patching plaster as appropriate for area being patched.
 - 2. Veneer Plaster: Provide ASTM C587 standard one-component plaster for application directly to gypsum base, equal to Gold Bond, *Uni-Kal* or United States Gypsum Co., *Imperial Finish*.

3. Bonding Agent: Provide PVA bonding agent for preparation of existing plaster or concrete surfaces to receive new plaster, equal to one of the following:
 - a. Silpro Masonry Systems, Inc.; *Weld-O-Bond Plus*.
 - b. Larsen Products Corp.; *Plaster-Weld*.
 - F. Masonry Materials:
 1. Block: ASTM C90 hollow load bearing concrete masonry units, grade N, Type 1.
 2. Mortar: ASTM C270, type N, portland cement mortar.
 - G. Concrete Patch: Polymer modified portland cement patching compound.
 - H. Roof: Rubber membrane to match existing.
- 2.02 EQUIPMENT AND PARTS
- A. Parts, Accessories and Equipment: Provide new by same manufacturer as original construction; except where products by alternative manufacturer's are indistinguishable from original.

PART 3 - EXECUTION

3.01 INSPECTION

- A. Prior to cutting and patching, inspect existing conditions, paying particular attention to elements which may be subject to damage or to movement during cutting and patching.
 1. Before proceeding, meet at the site with parties involved in cutting and patching, including mechanical and electrical trades. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.
 2. See Paragraph 1.01A, article 3 of this section.
- B. After uncovering work, inspect the conditions affecting the installation of products, or performance of the work.
- C. Report unsatisfactory or questionable conditions to the Architect in writing; do not proceed with the work until the Architect has provided further instructions.

3.02 PROTECTION

- A. Provide adequate temporary support as necessary to maintain the strength and integrity of the Work until permanent support is in place.
- B. Protection: Protect existing construction during cutting and patching and demolition to prevent damage. Provide protection from adverse weather conditions for portions of the Project that might be exposed during work.
- C. Protect adjacent windows from flying debris.

- D. Take all precautions necessary to avoid cutting existing pipe, conduit or ductwork serving the building, but scheduled to be removed or relocated until provisions have been made to bypass them.

3.03 CUTTING AND PATCHING

- A. Intent is for subcontractors to provide coring for piping, conduits ductwork and similar openings where required for their own work, subject to review by General Contractor. Cutting and patching in masonry walls requiring support lintels shall be performed by the Masonry subcontractor. Saw cutting as part of Selective Demolition will be performed by the Demolition Subcontractor.
- B. Provide cutting and patching for the following conditions:
 - 1. Cutting and patching of existing construction to accommodate the work of this Contract.
 - 2. Cutting and patching the work of various trades under this Contract as required to complete the Work or to make its several parts fit together properly.
 - 3. Cutting openings in walls, ceilings and other structural surfaces for installation of piping and electrical conduit.
 - a. Coring for piping and conduits is specified in Divisions 15 and 16.
 - 4. Removing samples of installed work for testing.
 - 5. Uncovering portions of the Work to provide for installation of ill-timed work.
 - 6. Cutting and patching required to correct work which does not conform to the requirements of the Contract Documents.
- C. General: Employ skilled workmen to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time and complete without delay.
 - 1. Cut existing construction to provide for installation of other components or performance of other construction activities and the subsequent fitting and patching required to restore surfaces to their original condition.
 - 2. When cutting and patching work installed under this contract, employ the original Installer or Fabricator under this Contract to cut and patch elements which will be exposed to weather in the finished work, or are intended to be moisture-resistant, and for finished surfaces exposed to view.
- D. Cutting: Cut existing construction using methods least likely to damage elements to be retained or adjoining construction. Where possible review proposed procedures with the original installer; comply with the original installer's recommendations.
 - 1. In general, where cutting is required use hand or small power tools designed for sawing or grinding, not hammering and chopping. Cut holes and slots neatly to size required with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
 - 2. To avoid marring existing finished surfaces, cut or drill from the exposed or finished side into concealed surfaces.
 - 3. Cut through concrete and masonry using a machine such as a carborundum saw or diamond core drill.
 - 4. By-pass utility services such as pipe or conduit, before cutting, where services are shown or required to be removed, relocated or abandoned. Cut-off pipe or conduit in walls or partitions to be removed. Cap, valve or plug and seal the remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after by-passing and cutting.

- E. Provide penetrations through structural surfaces for installation of piping and electrical conduit. Secure Architect's approval before penetrating any structural element.
 - 1. Coring for piping and conduits is specified in Divisions 15 and 16.
- F. Patching: Patch with durable seams that are as invisible as possible. Comply with specified tolerances.
 - 1. Employ the original installer or fabricator under this Contract to cut and patch elements which will be exposed to weather in the finished work, or are intended to be moisture-resistant, and for finished surfaces exposed to view.
 - 2. Where feasible, inspect and test patched areas to demonstrate integrity of the installation.
 - 3. Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.
 - 4. Fit work airtight to pipes, sleeves, ducts, conduit and other penetrations through surfaces.
 - 5. Refinish entire surfaces to provide an even finish matching adjacent finishes. For continuous surfaces, refinish to nearest intersection; for an assembly, refinish the entire unit.
 - 6. When backfilling, employ methods which will prevent damage to other work.
- G. Restore fireproofing and firestopping which is removed or damaged during construction so that the original fire-resistance rating of building components is maintained. Mechanical and electrical trades shall be responsible for patching of firestopping and fireproofing required by their own work.

3.04 SELECTIVE DEMOLITION IN PREPARATION FOR RENOVATION

- A. Provide demolition of existing construction not indicated, specified or required to remain which would detract from the intended appearance of the finished work.
- B. Provide demolition necessary to permit the construction of the Work.
- C. Remove equipment, structures and finishes indicated for removal or required to be removed to permit new construction. Carefully cut material to be removed to eliminate damage to portions to remain.
- D. Pull nails and fasteners which remain after removal of attached material. Remove lath, strapping and other substructures associated with finishes to be removed.
- E. Floors: Grind, scarify or etch floor surfaces as necessary to completely remove old finishes and adhesives and to even out floors until surfaces are acceptable to the installer of the new floor finish.
- F. Mechanical and Electrical Items: Each trade shall disconnect, cut, drop and make safe items scheduled for demolition. Refer to respective Division 15 and 16 sections.
 - 1. Fixtures, wiring and piping: Disconnect existing fixtures to be removed or services to be abandoned, and piping, wiring, and conduit which would otherwise be exposed in the finished work. Remove from site disconnected fixtures and piping not to be reused.

- G. Demolition: Where concrete items are indicated to be removed, perform demolition by saw cutting.
 - 1. Cut through concrete and masonry using a machine such as a carborundum saw or diamond core drill.
 - 2. Cut trenches for underslab work with concrete saws, do not jackhammer.

3.05 REVIEW OF CONDITIONS

- A. After selective demolition, review existing conditions for potential conflicts with new work as follows:
 - 1. Ceilings: Ducts, beams, equipment and other items which will conflict with installation of new light fixtures or other equipment.
 - 2. Plumbing: Existing plumbing lines, beams, ductwork and other items which conflict with installation of new work.
 - 3. Substrates: Existing floor, ceiling or wall surfaces, which are in unsuitable condition for application of new finishes.
 - 4. Floor Levelness: Verify floor levelness, and report variations of more than 1/4 inch in 10 feet (4 mm in 2 m) to Architect.
- B. Incorporate the review of field conditions into the preparation of coordination drawings.
- C. After preparation of coordination drawings, notify Architect if conflicts are found for clarification or design modifications. Contractor shall perform required modifications at no cost to the Owner if such notification is not made.

3.06 PLASTER PATCHING

- A. Prepare and patch all existing damaged plaster surfaces to remain to a sound, smooth a flush condition. Include repairs to cracks, weather damaged plaster, loose plaster, missing plaster, and other damaged or defective conditions. Patch where existing hardware and fixtures are removed.
- B. Patch cracks larger than hairline by cutting plaster back to sound material and create a key for proper bond of patching materials.
- C. Patch hairline cracks by applying fiberglass mesh tape and three coats of joint compound.
- D. Remove minor miscellaneous areas of loose plaster to sound material and patch flush with surrounding surface.
- E. Sand rough and irregular areas. Include areas with existing patches and areas where items were removed prior to this contract (including, for example, where electrical fixtures and wire mold has been removed from ceilings).
- F. Apply specified bonding agent to surfaces where plaster is to be applied in thin layers, and where veneer plaster is to be applied.
- G. Apply patching materials and feather into existing surface.
- H. Apply caulking at cracks at inside corners. Apply caulking at large cracks at door and window frames and similar conditions.

3.07 PATCHING DAMAGED DRYWALL

- A. General: Where removal of partitions leaves irregular or damaged surfaces, patch and repair drywall to provide an even surface of uniform appearance. Remove existing wall coverings and replace with new materials, if necessary to achieve uniform color and appearance.
- B. Repairs: Repair holes in drywall and large damaged areas by repairs as follows:
 - 1. Cut out damaged drywall leaving a rectangular opening with straight edges and square corners. Use a rasp or knife to bevel edges inward at 45°.
 - 2. Cut a section of drywall from a sound panel to fit snugly into the opening; trim edges to exact fit.
 - 3. If opening does not span completely between 2 studs, cement extra piece of gypsum panel to back of face layer forming a tab to support face layer.
 - 4. Install patch with drywall screws or adhesives.
 - 5. Butter edges and finish as a butt joint with joint compound.

3.08 FLOORING SUBSTRATE REPAIR

- A. Where removal of walls or partitions extends one finished surface into another, patch and repair floor substrate to provide an even surface suitable for installation of new floor finishes specified. Remove existing floor finishes and replace with new materials, if necessary to achieve uniform color and appearance.
- B. Prepare areas where adhesives remain after removal of existing floor finish. Scrape adhesive blobs, ridges and high spots which would telegraph through new finishes.
- C. Patching of Substrate:
 - 1. Repair spalled areas greater than 1/4 inch (6 mm) deep, and cracks greater than 1/4 inch (6 mm) wide.
 - 2. Chip out loose material, and blow or brush dust and debris from area to be patched.
 - 3. Mix patching material according to manufacturers recommendations. Dampen or prime substrate if required by manufacturer's instructions.
 - 4. Fill void with patching material and trowel smooth, feathering into adjacent surface. After patching material has set up, trowel smooth and flat with steel trowel.

3.09 PAINTING TOUCH-UP

- A. Where patching occurs in a painted surface, extend final paint coat over entire unbroken surface containing the patch, after the patched area has received primer and first coat.

3.10 FIRE SUPPRESSION, PLUMBING AND HVAC MODIFICATIONS

- A. In areas to receive new mechanical items, leave existing services indicated to remain in place and temporarily cap for reuse.
- B. In locations where no new mechanical work is required, remove existing piping or ductwork to a point behind wall or under floor and provide permanent caps.

Verify if vents are in use and advise Architect prior to demolition. Remove valves on remaining lines which do not service fixtures.

3.11 ELECTRICAL MODIFICATIONS

- A. Perform initial survey to determine existing lighting and branch wiring circuits to avoid disrupting service to areas occupied by Owner.
- B. Existing secondary distribution panels located on partitions to be removed are to be relocated. During demolition phase, secure panels temporarily if partition to which panel is mounted is scheduled for demolition. Maintain circuits servicing Owner's on-going operations.

3.12 ADJUSTING

- A. Make minor adjustments to existing products and equipment which remain in place to provide smooth and proper functioning. Lubricate as required.

3.13 FINISH CARPENTRY PATCHING

- A. Remove and replace standing and running trim to complete new work.
- B. Replace damaged or missing trim. Match existing profiles, and for transparent finishes match species of wood.
- C. Install with scarf joints to existing material and between new pieces. Where nailing or screwing is not practical because of lack of suitable substrate, adhere trim with construction adhesive.

3.14 DEBRIS AND DUST CONTROL

- A. Do not throw trash from windows or from roof. Erect chutes from upper levels to contain debris.
- B. Wet down debris to prevent air pollution by dust rising from demolition work.
- C. Empty dumpsters regularly. Keep dumpsters covered and wet down to prevent fires caused by vandals.
- D. Employ tarpaulins on trucks carrying debris to prevent spreading dust or debris.

3.15 CLEAN UP

- A. Daily pile debris in a safe manner and place loose debris in containers.
- B. Continuously clean drives and walks of fallen or wind-blown debris.
- C. At the conclusion of the demolition work, remove all debris and surplus materials and leave work area neat.
- D. Repair or replace any existing structure, utility, finish or stored material damaged or marred by the work of this Section.

3.16 DEMOLITION AND SALVAGE SCHEDULE

- A. Items to be removed:
 - 1. Construction shown on Drawings to be removed.
 - 2. Partitions not shown to remain, including wiring and plumbing within.
 - 3. Carpet and base.
 - 4. Wall finishes, to the extent required to prepare for new finishes.
 - 5. Suspended ceiling system not shown to remain.
 - 6. Light fixtures, except as specifically noted on drawings.
 - 7. Concealed and exposed wiring and raceway which is not to be reused.
 - 8. Piping and ductwork which is not to be reused.

- B. Items to be salvaged for reuse on project:
 - 1. None.

- C. Items to be salvaged for reuse by Owner:
 - 1. None.

END OF SECTION

SECTION 01780 – CLOSEOUT

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Certificates of inspection and occupancy.
 - 2. Prerequisites to Substantial Completion
 - 3. Final acceptance.
 - 4. Record documents.
 - 5. Equipment and systems maintenance manual.
 - 6. Instruction of Owner's personnel.
 - 7. Warranties and bonds.
 - 8. Spare parts and maintenance materials.
 - 9. Final cleaning.
 - 10. Pest Control.

- B. Related Sections:
 - 1. Maintaining as-built documents: Section 01320 - Construction Progress Documentation.

1.02 CERTIFICATES OF INSPECTION AND OCCUPANCY

- A. Obtain and submit to the Architect evidence of compliance with the requirements of relevant governing authorities, including, but not limited to:
 - 1. Certificates of Inspection for:
 - a. Plumbing and mechanical systems.
 - b. Electrical work.

1.03 SUBSTANTIAL COMPLETION

- A. When Contractor considers the Work substantially complete and the specified prerequisites complete, submit to Architect a written notice that the Work, or designated portion thereof, is substantially complete. Include with the notice a list of items to be completed or corrected (Contractor's punch list), and request Architect's inspection.

- B. Complete the following prerequisites prior to requesting Architect's determination of Substantial Completion:
 - 1. Completion of final cleaning and touch-up.
 - 2. Obtain Certificates of Inspection.
 - 3. Submit Project Record Documents.
 - 4. Submit warranties, bonds, maintenance agreements, final certifications and similar documents.
 - 5. Deliver spare parts and maintenance materials to Owner.
 - 6. Complete start-up and testing of systems, and instruction of Owner's personnel.
 - 7. Advise Owner of pending insurance change-over requirements.

8. Discontinue and remove from project site temporary facilities and services, along with construction tools and facilities, mock-ups, and similar elements.
 9. Change locks and transmit keys to Owner, and advise Owner's personnel of change-over in security provisions.
- C. If the Architect notifies the Contractor that the Work is not substantially complete as specified, the Contractor shall promptly complete work, and send a second written notice of substantial completion to the Architect with an updated punch-list.
- D. When the Architect concurs that the work is sufficiently complete and in accordance with the contract documents, such that the Owner can occupy and utilize the work for the use for which it is intended, the Architect will issue a certificate of Substantial Completion and a punch-list of items to be completed or corrected.

1.04 FINAL ACCEPTANCE

- A. Notify the Architect when punch list work is completed. The Architect will conduct a final inspection to confirm completion of work. If the Architect determines that the work is not complete, the cost of the Architect's time for additional inspections shall be borne by the Contractor.
- B. Complete the following prerequisites prior to requesting Architect's determination of Final Completion:
1. Complete Architect's punch-list.
 2. Complete start-up testing of systems and instruction of Owner's personnel.
 3. Re-clean premises as necessary to bring them to the level specified for final cleaning.
 4. Submit final application for payment with final releases, lien waivers, and supporting documentation not previously submitted and accepted.
 5. Submit certificate of insurance for products and completed operations, where required.
 6. If performance and payment bonds were required by Owner, submit consent of surety to final payment.
- C. Final Application for Payment:
1. Submit final statement of accounts which reflects all adjustments to the Contract sum.
 2. Submit final meter readings for utilities, measured record of stored fuel, and similar data as of time of substantial completion or when Owner took possession of and responsibility for corresponding elements of the work.
 3. If necessary, the Architect will then prepare a final Change Order reflecting approved adjustments to the Contract Sum which were not previously made by Change Orders.
 4. Prepare and submit the final Application for Payment, incorporating this final Change Order. Attach final releases, lien waivers, and certificates of insurance for products and completed operations, and all other similar closeout documentation required by the Contract Documents.

1.05 RECORD DOCUMENTS

- A. Maintain as-built documents as specified in Section 01320 - Construction Progress Documentation. At completion of construction, transfer information from as-built documents to record documents as specified.
- B. Obtain Architect's initial approval of draft set of as-built documents prior to commencing preparation of record documents.
- C. CADD Record Drawings:
 - 1. At the completion of the work, turn over to the Owner complete record drawings produced with computer aided drawing and design (CADD).
 - 2. The Architect will provide construction drawings prepared in Autocad Release 14 on diskette or via electronic transmission. Included will be layer listings and pen weight assignments used to produce the drawings.
 - 3. The Contractor shall update the drawings using Autocad Release 14. Changes shall be made by personnel skilled in the use of Autocadd. Use outside computer service support if skilled personnel are not available on the Contractor's staff.
 - 4. Record changes using the drawing layers intended for recording record information as indicated in the layer list provided. Where special layers are not shown, use layers in which the drawing entities to be modified are located.
 - 5. Provide copies of the file in electronic form to the Architect and Owner with the as-built information added. Provide one set of mylar reproducible plots.
- D. As a prerequisite to Final Payment, submit:
 - 1. The approved record drawings and one set of black-line prints.
 - 2. The originals and one copy of the record specifications.
- E. Filed Sub-bid Work: Each Sub-Contractor performing Filed Sub-Bid work shall be responsible for recording its own work on the General Contractor's record set of Drawings and Specifications.

1.06 EQUIPMENT AND SYSTEMS MAINTENANCE MANUAL

- A. General: Submit two copies of each completed manual on equipment and systems, in final form, to the Architect for distribution. Provide separate manuals for each unit of equipment, each operating system, and each electric and electronic system.
 - 1. Refer to individual specification sections for additional requirements on the operating and maintenance of the various pieces of equipment and operating systems.
- B. Format requirements:
 - 1. Bind information in plastic covered three-ring binders.
 - 2. Cover: Clearly identify each binder with a the typed or printed title "OPERATING AND MAINTENANCE INSTRUCTIONS." On cover, list systems included in binder, and building or location in which systems are installed.
 - 3. Present information in 8-1/2 by 11 inch (215 by 280 mm) format, except that larger drawings may be included and folded to size.

4. Paper: 20 pound minimum, white, for typed pages.
 5. Provide tab index divider for each separate product, or each piece of operating equipment.
- C. Equipment and Systems: Provide the following information for each piece of equipment, each building operating system, and each electric or electronic system, as appropriate.
1. Equipment or System function.
 2. Operating Characteristics.
 3. Limiting Conditions.
 4. Performance Curves.
 5. Engineering Data and Tests.
 6. Complete nomenclature and commercial number of replacement parts.
- D. Manufacturer's Information: For each manufacturer of a component part of piece of equipment provide the following information:
1. Printed operating and maintenance instructions.
 2. Assembly drawings and diagrams required for maintenance.
 3. List of items recommended to be stocked as spare parts.
- E. Maintenance Procedures: Provide information detailing essential maintenance procedures, including but not limited to the following:
1. Routine Operations.
 2. Trouble-shooting Guide
 3. Disassembly, repair and reassemble.
 4. Alignment, adjusting and checking.
- F. Operating Procedures: Provide information on equipment and system operating procedures, including, but not limited to the following:
1. Start-up procedures.
 2. Equipment or system break-in.
 3. Routine and normal operating instructions.
 4. Regulation and control procedures.
 5. Instructions on stopping.
 6. Shut-down and emergency instructions.
 7. Summer and Winter operating instructions.
 8. Required sequences for electric or electronic systems.
 9. Special operating instructions.
- G. Servicing Schedule: Provide a schedule of routine servicing and routine requirements, including a list of required lubricants for pieces of equipment with moving parts.
- H. Controls: Provide both a description of the sequence of operation and as-installed control diagrams by the control manufacturer for systems requiring controls.
- I. Coordination Drawings: Provide each Contractor's coordination drawings.
1. Provide as-installed color-coded piping diagrams, where required for identification.

- J. Valve Tags: Provide charts of valve tag numbers, with the location and function of each valve.
- K. Circuit Directories: For electric and electronic systems, provide complete circuit directories of panel boards, including the following:
 - 1. Electric service.
 - 2. Controls.
 - 3. Communication.

1.07 WARRANTIES AND BONDS

- A. Submit to Architect for transmittal to Owner two original signed copies of each specified warranty, bond, service or maintenance contract, executed by each of the respective manufacturers, suppliers and subcontractors, and co-executed by Contractor when so specified. Review submittals to verify compliance with Contract Documents.
- B. Submittal Requirements:
 - 1. Assemble warranties, bonds and service and maintenance contracts in a durable plastic-covered three-ring binder.
 - 2. Provide a cover sheet titled "WARRANTIES AND BONDS" and showing the name of the Project and the Contractor.
 - 3. Provide a Table of Contents, neatly typed, in orderly sequence. Provide indexed tab dividers for each item.
- C. With each actual warranty, provide a separate page identifying the product or work item and giving the following information:
 - 1. Firm(s) issuing the warranty, with name of principal, address and telephone number.
 - 2. Subcontractors who furnished and installed the item, with name of responsible principal, address and telephone number.
 - 3. Date of beginning of warranty, bond or service and maintenance contract.
 - 4. Duration of warranty, bond or service maintenance contract.
- D. Time of Submittals:
 - 1. For equipment or component parts of equipment put into service during progress of construction, submit documents within 10 days after inspection and acceptance. Otherwise make submittals within ten days after Date of Substantial Completion, prior to final request for payment.
 - 2. For items of work, where acceptance is delayed materially beyond the Date of Substantial Completion, provide updated submittal within ten days after acceptance, listing the date of acceptance as the start of the warranty period.

1.08 INSTRUCTION OF OWNER'S PERSONNEL

- A. Prior to final inspection, instruct the Owner's designated operating personnel in the operation, adjustment, and maintenance of products, equipment and systems. Provide instruction at mutually agreed upon times.

1. Provide personnel who are factory-trained in the operation of each piece of equipment. Where equipment is provided by different manufacturers, provide personnel trained by each manufacturer.
2. For equipment that requires seasonal operation, provide instruction during the season equipment is intended to operate.
3. Use the operation and maintenance manuals for each piece of equipment or system as the basis of instruction. Review the contents of each manual in detail to explain all aspects of operation and maintenance.

PART 2 - PRODUCTS — [NOT USED]

PART 3 - EXECUTION

3.01 FINAL CLEANING

- A. Cleaning the work immediately before presenting it for final inspection. Employ skilled workers for final cleaning. Employ cleaning materials and methods recommended by manufacturer for specific item to be cleaned. Do not use hazardous solvents or abrasive cleaners.
- B. Provide final cleaning in addition to cleaning requirements specified in individual sections:
 1. Remove grease, mastic, adhesive, dust, dirt, stains, fingerprints, labels, and other foreign materials from interior and exterior surfaces exposed to view.
 2. Wash and polish glass and mirrors. Replace chipped, scratched and broken glass.
 3. Polish glossy surfaces to a clear shine.
 4. Ventilating Systems: Clean permanent filters and replace disposable filters if units were operated during construction. Clean ducts, blowers and coils if units were operated without filters during construction.
 5. Clean light fixtures of all accumulated dust.
 6. Broom clean exterior paved surfaces; rake clean other surfaces of the grounds.
 7. Remove surplus materials and rubbish.
 8. Touch-up or otherwise repair and restore marred exposed finishes.

3.02 PEST CONTROL

- A. Prior to presenting work for final acceptance, engage an experienced exterminator to make an inspection of the project and to rid project of rodents, insects and other pests.
- B. Forward evidence of this inspection in the form of a receipted bill or other satisfactory written certification to the Architect.

END OF SECTION

SECTION 15600
HVAC

PART 1 - GENERAL

1.01: GENERAL REQUIREMENTS

- A. The "Conditions of the contract" and "Division 1, General Requirements" shall be part of this Section.
- B. The terms "Contractor", "Mechanical (HVAC) Contractor" and Mechanical (HVAC) Subcontractor" shall all mean the Mechanical (HVAC) Contractor, and the terms "Drawings", "Specifications", "Plans", and "Contract Drawings" shall all mean the Contract Drawings.

1.02: DESCRIPTION OF WORK

- A. Existing Conditions Description:
 - 1. Gym is served by a heating and ventilating unit. The hot water coil is served by dual temperature piping. The boilers are located in the Fitzgerald School Basement and an air-cooled chiller is located on the roof. The school performs a seasonal switch over.
- B. Prior to Starting Any Work:
 - 1. Submit shop drawings for review.
- C. Work Included: Provide labor, material, and equipment necessary to complete the work of this Section, including but not limited to the following:
 - 1. General:
 - a. As per drawings and specifications.
 - 2. Basis of Design:
 - a. Summer outside design condition- 88F DB/ 74F WB.
 - b. Summer inside design conditions- 74F/50%RH for air conditioned spaces. Maximum 10F above ambient for ventilated spaces.
 - c. Winter- 0F outside, 70F inside.
 - d. Ventilation- 20 CFM/person for gyms.
 - e. Pressurization- Building is to be neutral or slightly positive to ambient.
 - f. Filtration- 30% prefilters + 80% filters for equipment available with such options.

3. Demolition and removal of:
 - a. Piping, equipment, and controls indicated to be removed or replaced.
 - d. Removal of ductwork as indicated and as noted, including but not limited to ductwork, dampers, control dampers, diffusers, insulation, grilles and louvers.
 - e. Removal of hot water piping insulation in areas indicated, to be replaced with current code compliant insulation.
 - f. Removal of unused brackets, hangers, clips and all supporting appurtenance. Such removal shall include items rendered unused by the indicated removal, or any unused items found in the areas of scope.
4. Rooftop Unit, RTU-1:
 - a. RTU-1 replaces the existing heating and ventilating unit in the ceiling of the weight room adjacent to the gym.
 - b. RTU-1 is located on the low roof. Provide adequate service clearances and OSHA required guard rails.
 - c. RTU-1 is a packaged, constant volume, cooling only rooftop unit. A duct-mounted hot water coil is provided for heating.
6. Automatic temperature controls associated with the work.
7. All equipment requiring services; including but not limited to fire dampers, clean-outs and valves; to enclosed within walls, plaster ceiling space, under floor, and other inaccessible spaces shall be furnished with access panels, in accordance with section 15501,1.02, D, 2, 3 & 4. Exact locations shall be coordinated with Designer, and its location shall be marked clearly by this subcontractor.
8. The extent of the Heating, Ventilating and Air Conditioning (hereinafter, referred to as HVAC) Work is as shown on the Drawings and as specified herein.
9. Assist Commissioning Agent as required. In particular, a substantial involvement by ATC and TAB sub-subcontractors are foreseen.
10. This subcontractor shall maintain the area free of accumulation of debris by removing the debris from the area and site to the satisfaction of the Owner.
11. Ductwork and insulation as indicated.
12. Piping and insulation as indicated.
13. Re-insulation of abated pipes: NA.
14. Testing & Balancing (TAB):

- a. Reading of all existing exhaust fan CFM and TSP prior to any work.
 - b. TAB of all new work and as indicated.
 - c. Shall be selected from list of prequalified TAB sub-subcontractors.
- D. Items to be Installed Only: install the following items as furnished by the designated Sections:
Provide any other component or related system (whether or not listed) which is part of the overall design and basic equipment and deemed necessary for its completion, thoroughness and readiness for operation in perfect condition.
1. Section 16000 - Electrical
 - a. Duct mounted smoke detectors.
 - b. Occupancy sensors with auxiliary contacts for office areas. Function of this is primarily for electrical's lighting controls, but the auxiliary contacts shall be used by ATC subsubcontractor for occupancy status determination.
- E. Items to be Furnished Only: Furnish the following items for installation by the designated Sections:
1. Section 09250 - Gypsum Board Assemblies
 - a. Furnish access doors for installation in walls and ceilings at locations to permit access for adjustment, removal, replacement and servicing of all concealed equipment, valves and materials installed under this Section of the specification. Access doors shall be as specified in Section 08330.
 - b. Furnish pipe and duct sleeves for placement into Gypsum Board Assemblies.
 2. Section 16000 - Electrical:
 - a. Starters.
- F. Reference Drawings:
1. Work to be performed is shown on drawings numbered:

<u>Drawing No.</u>	<u>Title</u>
M-1	HVAC Schedules, Legend & Details
M-2	Partial Second Floor HVAC Plans
M-3	Partial Roof Level HVAC Plan
 2. The drawings are generally diagrammatic and are intended to convey the scope of the work and indicated general arrangement of equipment, ducts, piping, and conduit fixtures. The locations of all items shown on the drawings or called for in the specifications that are not definitely fixed by the dimensions are approximate only. The exact locations necessary to secure the best conditions and results must be determined at the project and shall have the approval of the Designer before being installed.

3. Where headroom and space conditions appear inadequate, Designers shall be notified before proceeding with the installation. If desired by the Designer, the Contractor shall, without extra charge, make reasonable modifications in the layout as needed to prevent conflict with the work of other trades or for proper execution of the work. All such changes shall be clearly recorded on the Record Drawings.
- G. Related Work: The following items are generally not included in this Section and will be performed under the designated Sections, but it is responsibility of this contractor to refer to the followings sections, in particular regarding the Cutting and Patching, for this contractor's responsibility:
1. Section 01045 - Cutting and Patching
 - a. Cutting and patching for piping and ductwork penetrations in walls, floor and roof, except as noted.
 2. Section 07840 - Firestopping
 - a. Fire stopping around the pipe and ductwork, which are penetrating the fire rated wall and floors.
 3. Section 09900 - Painting
 4. Section 16000 - Electrical
 - a. Power and disconnects for all HVAC equipments, installation of HVAC furnished starters.
 - b. Power for control circuits, to be on the future stand-by power panel.
 - c. Duct mounted smoke detectors.
- H. Project Sequencing:
1. Refer to Section 01500 - Construction Facilities & Controls for project sequencing.
- I. Building Demolition:
1. Refer to Section 02070 - Selective Demolition for building demolition requirements.
- J. All equipment having electrical components shall have UL label.
- 1.03 SUBMITTAL
- A. Refer to Section 01330 - SUBMITTAL PROCEDURES for submittal provisions and procedures.
 - B. Shop Drawings:

1. Rooftop Unit.
2. Duct Construction Standards.
3. Piping Standards, Valves and Piping Specialties.
4. Duct-Mounted Hot Water Coil.
5. Insulation.
6. Dampers.
7. Automatic Temperature Controls.
8. Hangers, Vibration Isolation and Seismic Restraint Designs.
9. Pipe, Duct and Equipment Labeling Standards.
10. Air and Water Balancing Procedures. Initial existing air balance report of supply and exhaust system as indicated herein. Submit full Air and Water Balancing Report.
11. Applicable Testing Procedures. Balancing items and specific intent, and request for final air balancing directives based on fume hood selection.

1.04 QUALITY ASSURANCE

- A. The requirements of the Massachusetts State Building Code establish the minimum acceptable quality of workmanship and materials, and all work shall conform thereto unless more stringent requirements are indicated or specified by the Contract Documents

1.05 REFERENCE STANDARDS

- A. The latest published issue of the Standards, Recommendations or Requirements of the following listed Societies, Associations or Institutes in effect at the date of Contract are part of this Specification. In case of conflict between published requirements, the Designer shall determine which is to be followed.
 1. AABC - Associated Air Balance Council
 2. AFI- Air Filter Institute
 3. AMCA - Air Moving and Conditioning Association
 4. ANSI- American National Standards Institute
 5. ASHRAE- American Society of Heating, Refrigerating and Air Conditioning Engineers

6. ASME- American Society of Mechanical Engineers
7. ASTM- American Society for Testing and Materials
8. FIA- Factory Insurance Association
9. IEEE- Institute of Electrical and Electronic Engineers
10. MCAA- Mechanical Contractors Association of America
11. NEMA- National Electrical Manufacturers Association
12. SMACNA- Sheet Metal and Air Conditioning Contractors National Association
13. UL - Underwriters' Laboratories, Inc.
14. NFPA - Bulletin No. 90A & B; 92A & 96.

1.06 DELIVERY STORAGE AND HANDLING

- A. All materials for the work of this Section shall be delivered, stored and handled so as to preclude damage of any nature. Manufactured materials shall be delivered and stored in their original containers, plainly marked with the product's and manufacturer's name. Materials in broken containers or in package showing watermarks or other evidence of damage, shall not be used and shall be removed from the site.

1.07 GUARANTEE / WARRANTY

- A. All workmanship and materials shall be guaranteed in accordance with the provisions of the General Conditions.
- B. The guarantee shall be in writing, in a form acceptable to the Designer, countersigned by the General Contractor and delivered to the Designer for the transmittal to the Owner.
- C. Furnishing of the guarantee shall be condition precedent to final payment.

1.08: RECORD DRAWINGS

- A. As work progresses, the Contractor shall keep one set of the contract documents to clearly record all installations documenting actual installations. Refer to Division 1, Part on Record drawings for uniform project format requirements.

PART 2 - PRODUCTS

2.01: MATERIALS AND EQUIPMENT

- A. All materials and equipments shall be new and perform their intended function. All materials and equipments shall be in accordance with the latest commercial and Industrial(where applicable) Heating & Ventilating Guides, Standards and Codes.

2.02: INSULATION AND SOUND PROOFING

A. General

1. All insulation for all applicable ductwork, hot water piping & condensate piping shall be glass fiber (UNLESS OTHERWISE NOTED) as manufactured by Johns Manville, Owens-Corning, or Pittsburgh Plate Glass, and shall be installed by competent journeymen skilled in the trade, and applied in accordance with the manufacturer's recommendations by a franchised insulating subcontractor.
2. Do not insulate piping and ductwork until tested as required and approved for tightness. All piping shall be dry when covered.
3. Adhesives, sealers, mastics, etc.: Products as hereinafter specified or, specific products recommended by the selected one of the listed approved manufacturers Johns Manville, Owens-Corning, or Pittsburgh Plate Glass.
4. Banding wire: #16 gauge copper.
 - a. Provide glass fiber packing between all ducts and pipes and sleeves or openings. Packing should fill the entire void, but if this is impractical, a minimum of 2" depth from each end will be acceptable after approval for each specified instance. Use UL and NFPA approved sealant maintain the building wall and floor fire ratings at all penetrations.
 - b. Existing hot water piping, steam piping, and steam condensate piping within spaces under this scope shall have its insulation replaced.
 - c. Insulation of abated piping, plus 10% allowance. Refer to Division 2 for specific requirements.

B. Piping Insulation

1. Insulation shall be 6 lb. heavy density Johns-Manville Micro-Lok, or equal, fiber glass pipe insulation with factory applied fire retardant jacket. Insulation shall be complete on all valve bodies, strainers, fittings, heat exchanger, traps, and receivers without exception.
2. Piping Insulation thickness:

Dual Temperature Water Supply & Return (HCS & R)- Pipe sizes 1.5" & smaller - 1" thick; pipe sizes 2" & larger - 2" thick.
3. Approved equal shall be Owens-Corning or PPG.

1. All pipe, valves, strainers and fittings 8-feet within the occupied space floor level or entirely within finished floor shall be finished with a PVC jacket equal to Johns-Manville Zeston 2000, or equal by Owens-Corning or Pittsburgh Plate Glass and installed in strict accordance with manufacturer's instructions. All seams shall be taped with PVC adhesive tape.
2. Concealed piping shall be secured with aluminum bands; 2 bands at elbow; 3 bands at tees; and 3 bands per section of covering. Standard field adhered jacket on fitting and valve insulation.
3. Exposed Indoor Piping: additional factory or field adhered jacket on pipe insulation. Field adhered jacket on insulation on fittings and valves. All seams and overlap field adhered with overlap towards walls or ceiling. Finished jacket to be PVC material similar to Zeston, or equal by Owens-Corning or Pittsburgh Plate Glass. All jackets shall be adhered with selected manufacturer=s recommended adhesive and PVC tape.
4. Where insulation is required:
 - a. All new piping.
 - b. Where indicated on drawings.
 - c. Existing piping 4 feet beyond the connection points to new piping.
 - d. Abated piping. Refer to Division 2.

C. Ductwork Insulation

1. Duct Wrap:
 - a. In concealed space shall be UL, NFPA 90A & B approved fiberglass insulation with Class-1 foil faced vapor barrier equal to Johns-Manville R-series Microlite or equal by Owens-Corning or PPG; all concealed HVAC supply and return ductwork shall be 2" thick type 100 having a minimum installed R-value of 6.0. Outdoor ducts shall be 2" thick rigid duct board having R-value of 8.0.
 - b. Outdoor ductwork shall be finished with single membrane rubber roofing and made completely water tight against weather and its top surface shall be pitched to minimize snow build up and to prevent any water pooling. Membrane shall be furnished with adequate amount of air relief to prevent ballooning. The roofing membrane shall be painted to color selected by Designer. Upon completion of installation, test outdoor section for water tightness.
 - c. Indoor exposed ductwork in conditioned spaces- wrapping is not required.
2. Duct Lining:
 - a. Where indicated on drawings, or specified hereinafter, shall have 1" thick Johns-Manville Linacoustics or approved equal rated for 250 degrees F, secured with approved adhesives, weld-on pins and edging, in strict accordance with the manufacturer's and SMACNA recommendations.
 - b. Generally speaking, duct lining shall be permitted only for the return

- ductwork upstream of filters and in the exhaust ductwork.
- c. Requirement for duct lining shall not negate the requirement for duct wrapping.

2.03: VIBRATION ISOLATION

A. General:

1. Vibration isolators shall be selected for specific equipment to be installed, taking in consideration of its actual weight distribution, so as to produce uniform deflection under normal operating conditions.
2. Vibration isolators shall be selected for the lowest operating speed (or critical speed) of the equipment.
3. Spring isolators shall be laterally stable, complete with resilient guide inserts leveling adjustment bolts and adequate facilities for bolting to both equipment and supporting structure.
4. Vibration isolator hangers shall contain a spring series with a simple rubber and fabric noise isolator washer. Spring diameter shall be no less than 0.8 times the compressed height of the spring at rated load. Spring shall have a minimum additional travel to solid equal to 50% of the rated deflection.
5. Vibration isolation equipments shall be installed in strict accordance with the manufacturer's recommendations, and as per ASHRAE recommendations to assure proper intended performance. All retaining bolts shall be released and final inspections shall be made by the manufacturer to assure that no short-circuiting occurs.
6. Submit evidence that selections were made with approval by a registered structural engineer to comply with Seismic restraint requirements of this State.

B. Specific

1. All connections to fans shall be made with flexible connections having minimum of 2" longitudinal free movement.
2. All Fans shall be properly isolated using spring type isolators having minimum of 1-1/2" of static deflection, flexible duct connections, and flexible pipes as required. Provide proper horizontal and thrust restraints as required. Air handling units having proper internal fan isolation does not need to have flexible duct and pipe connections, except for reason of ease of installation.
3. All pipe connection to air handling equipments, chillers, condensing units, air conditioning equipments, and condensers shall have double sphere neoprene type Vibration Mountings Company VMT for 2-1/2" and larger and type VMU for 1-1/2" and smaller.
4. All spring mounts and hangers shall be designed for the seismic restraint

requirements as per latest Edition of the State Building Code.

5. Refer to drawings for specific additional requirements.

C. Manufacturer

1. Vibration isolators shall be Vibration Mountings & Controls, Inc., Mason Industries, or approved equal by Coppers.
2. All outdoor spring isolators shall have powder coated and color coded springs, UV resistant neoprene elements, and remainder of the components shall be galvanized.

2.04: HANGERS, GUIDES and ANCHORS

- A. As manufactured by Carpenter & Patterson, Grinnell, B-Line Systems or equal. Hangers shall transmit the load exclusively to the building structure. All hangers and supports to conform to MSS standards SP-58 and ANSI B 31.1.
- B. Hanger for piping 4 inches and above shall be adjustable roll type. Hangers for piping below 4 inches shall be clevis type. Hanger for piping in tunnels on strut support frames shall be roller type, similar to Fig. B379 by B-Line Systems. Additionally, the first five pipe hangers on both sides of all pump piping shall be of spring isolator type. Refer to Vibration Isolation section.
- C. Provide all additional structural steel required for proper installation of hangers, anchors, guides and supports; hangers shall be arranged to maintain the required grading and pitch of piping, to prevent vibration and to provide for expansion and contraction. All hanger, guides and anchors shall be secured to the building structure.

D. Maximum spacing of hangers and supports for steel piping:

<u>Pipe Size (inches)</u>	<u>Spacing (feet)</u>
Up to 1	6
1-1/4 to 2-1/2	9
3 to 6	12
8 and up	18

- E. Branch piping and runouts of over 5 feet shall have at least one hanger or support.
- F. Pipe support or hangers for copper piping shall have copper finish to prevent galvanic action.
- G. Furnish additional hangers or supports at change in direction and at location of concentrated loads due to valves, fittings, strainers and accessories.
- H. Hangers and supports shall provide minimum of 2" of vertical adjustments.
- I. Hanger rods shall be steel, threaded and furnished with two removable nuts at each

end of positioning rod and hanger and locking each in place.

J. Hangers rods shall have the following minimum sizes:

<u>Pipe Sizes (inches)</u>	<u>Rod Diameters (inches)</u>
Up to 2	3/8
2-1/2 & 3	2
4 & 5	5/8
6	3/4
8	Double 3/4
10	Double 7/8
12	Double 1

K. Pipe covering protection saddles shall not be loaded to more than 80% of maximum loading as rated by the manufacturer.

L. Insulated piping insulation shields:

1. Up to 3" pipe size: 18 gauge galvanized steel, located outside the vapor barrier, minimum 180 degrees arc, 12" long, or pipe covering protection saddles.
2. Pipe sizes 4" and larger: pipe covering protection saddles.

M. Vertical support shall be by means of riser clamps (anchors with split ring type allowable up to 2" size only) and adjustable pipe support with flange anchored to floor.

N. Rods, clamps and hangers shall be electric galvanized coated.

O. All clamps, hangers and rods in the high moisture environments shall be PVC coated.

P. Valves and piping supports, from floor, shall be equal to Carpenter & Paterson, Inc. Figure 101, adjustable pipe support and complete with pipe standard and flange, anchored to floor. Supports shall be installed at each control valve, riser, tee or elbow and where any unsupported section exceeds 48" in length measured along piping centerline.

Q. Upper Attachment to Building Structure:

1. Existing Reinforced Concrete Construction: Upper attachment welded or clamped to steel clip angles which are expansion-bolted to the concrete. Expansion bolting shall be located so that piping loads placed in shear. Submit details for approval.
2. Structural Steel Framing: upper attachment welded or clamped to structural steel members. Additional steel members may be necessary in some support locations where piping locations differ from that known contract drawings. Submit details for approval.

3. Expansion Fasteners and Power Set Fasteners: In existing concrete slab construction, expansion fasteners may be used for hanger loads up to 1/3 the manufacturer=s rated strength of the expansion fastener. Power set fastener may be used for loads up to 1/4 rated load. When greater hanger loads are countered, additional fasteners may be used and interconnected with steel members combining to support the hanger.

R. All hangers and shields exposed to the exterior shall be galvanized steel and PVC coated to manufacturer>s standard thickness.

2.05: PIPING AND FITTINGS

A. General

1. Pipe materials and fitting materials shall be as indicated in Schedule of Pipe and Fitting Materials.
2. Specifically approved dielectric fittings shall be sued when dissimilar metals are joined.
 - a. Flanged connections- insulating gasket, plastic bolt sleeves, and insulating washers for bolt heads and nuts, to completely assure electrical isolation between two dissimilar metals.
 - b. Screwed connections- 18" long naval brass. Galvanized piping section with insulation inner sleeve shall not be accepted.

B. Schedule of Pipe and Pipe Fitting Materials

SERVICE	SYSTEMS DESCRIPTION	PIPE SIZE	PIPE MATERIAL	JOINTS	FITTING MATERIAL	FITTING RATING PSI/CLASS / WEIGHT
Dual Temp. Water	HCS/R	2" and under	Copper, B88, Type L or	Soldered 95/5 Tin/ Antimony	Wrought copper, B16.22	Class 150
			Steel A53, Grade B, Smls or ERW, Schedule 40	Threaded	Malleable Iron, B16.3	Class 150
		2-1/2" and over	Steel A53 Grade B, Smls or ERW Schedule 40 Standard	Butt Welded or Mechanic al grooved piping	Wrought Steel, A234 Grade WPB Or	Standard Weight

SERVICE	SYSTEMS DESCRIPTION	PIPE SIZE	PIPE MATERIAL	JOINTS	FITTING MATERIAL	FITTING RATING PSI/CLASS / WEIGHT
				system	Ductile iron grooved end fittings	
Equipment Drains	D	2" and under	Copper, B88, Type L or	Soldered 95/5 Tin/Antimony	Wrought copper, B16.22	Class 150
Chemical Feed	CF	2-1/2" and over	Steel A53, Grade B, Smls or ERW, Schedule 40	Threaded	Malleable Iron, B16.3	Class 150
			Steel A53 Grade B, Smls or ERW Schedule Standard	Butt Welded	Wrought Steel, A234 Grade WPB	Standard Weight
Air conditioning Condensate Drain	CD	All	Copper, B88, Type L	Soldered 95/5 Tin/Antimony	Wrought copper, B16.22	Class 150
Cold Water	CW	All	Copper, B88, Type L	Soldered 95/5 Tin/Antimony	Wrought Copper, B16.22	Class 150
Refrigerant	R	All	Copper, ACR	Silver Brazed	Wrought Copper	200 PSI
Vents	V	All	Galv. Stl., A53 or A120, Smls or ERW, Schedule 40	Threaded	Galv. Malleable Iron, B16.3	Class 150

C. Connections

1. Provide dielectric fittings at connections of dissimilar materials. Refer to specific requirement above.

2. Provide eccentric reducing couplings to bring pipes flush on top for water service and flush on bottom for steam service.
 3. Branch lines in welded piping shall be made with welding tees except that branch lines less than one-half diameter of main may be made with Weld-O-Lets or Sock-O-Lets.
 4. Nipples shall be same material, make and thickness as pipe with which they are used. Close nipples shall not be used.
 5. Make piping connections 2-1/2" diameter and larger to valves and equipment with welding neck flanges, ANSI B16.5, pressure rating to match system, flat or raised face as required.
 6. Make piping connections 2" dia. and smaller to valves and equipment with steel body, 300 psi brass seat unions on steel piping and with heavy semi-flushed brass unions on copper tubing.
 7. Fit flanged joints with Johns-Manville or approved equal full face gaskets. Flanges shall be faced and drilled to ASA standards and fitted with semi-finished hexagon machine bolts and nuts of proper number and size.
 8. Make screw joints tight with Teflon (polytetrafluoroethylene) tape or litharge-glycerin mixture applied to male threads. Use tapered threads.
 9. Make fusion welded joints as required by ANSI B31.1. Make changes in direction of pipe with welded fittings only. Bevel connections before welding, mechanically or by flame cutting.
- D. Grooved Piping Systems (may be used for hot water system 2-1/2" and larger):
1. Paragraph titles, service designation references, listings, descriptions, instructions, etc. in following paragraphs shall be used as a guide in establishing materials and performance standards. This shall in no way limit provisions of Contract Documents, nor change, reduce or limit Contractor's responsibility to comply fully with provisions of Contract Documents.
 2. Pipe, used with grooved fittings, shall be Schedule 40 steel, or as specified in the "Piping" paragraph.
 3. Products
 - a. Grooved Piping- Grooved couplings may be used in lieu of welding, threaded or flanging on 2 1/2" and over carbon steel pipe, on water services from - 30 F. to 230 F. within the manufacturer's rated working pressures. Pipe grooving shall be cut grooved and/or rolled grooved as per manufacturer's latest recommendations.

- b. Piping Components- Grooved couplings shall consist of two or more pieces of ductile or malleable iron. Coupling gaskets will be a synthetic rubber gasket with a central cavity pressure responsive design. Coupling bolts and nuts shall be heat treated carbon steel, trackhead conforming to physical properties of ASTM-A-183. All grooved couplings shall be manufactured by Victaulic Co. Style 77 or 07 or equal. Flexible couplings may be used with the Designer's approval as outlined in the Pipe Hanging paragraph of this Alternate..
 - c. Branch Connections- For piping 2 1/2" and larger, full size branch connections shall be made with manufactured grooved end tees. Branch connections for less than full size shall be made with Victaulic hole cut products or equal. Branch connections with locating collar engaging into hole or outlet coupling used to join grooved pipe and to create a branch connection.
 - d. Gaskets- All gaskets shall be Victaulic Grade "E" or equal EPDM compound with working temperature of -30°F to 230°F. Flanges- Flanges shall be Vic-Flange Style 741 (2-24") or equal for connection to ANSI class 125 and 150 flanged components, or Vic-Flange Style 743 or equal (2" - 12") for connection to class 300 flanged components.
 - e. Fittings- Fittings shall be full flow cast fittings, steel fittings or segmentally welded fittings with grooves or shoulders designed to accept grooved end couplings.
 - f. Standard Fittings - shall be cast of ductile iron conforming to ASTM A-536 (Grade 65-45-12) or malleable iron conforming to ASTM A-47, Grade 32510, painted with a rust inhibiting modified vinyl alkyd enamel or hot dip galvanized to ASTM A-153 or zinc electroplated to ASTM B-633, as required.
 - g. Standard Steel Elbow Fittings - (14" - 24") shall be forged steel conforming to ASTM A-106 Grade B (0.375" wall), painted with rust inhibiting modified vinyl alkyd enamel or hot dip galvanized to ASTM A-153.
 - h. Standard Segmentally Welded Fittings - shall be factory fabricated, by fitting manufacturer, of carbon steel pipe as follows: 3/4" - 4" conforming to ASTM A-53, Type F; 5" - 6" Sch. 40 conforming to ASTM A-53, Type E or S, Grade B; 8" - 12" Sch. 30 conforming to ASTM A-53, Type E or S, Grade B; 14" - 24" O.375" wall conforming to ASTM A-53, Type E or S, Grade B, painted with rust inhibiting modified vinyl alkyd enamel or hot dip galvanized to ASTM A-153, as required.
4. Valves, Strainers, Suction Diffusers
- a. Vic 300 grooved end butterfly valve or equal may be used for all services up to and including 300 PSI. Valve body shall be ductile iron with grooved ends designed to accept grooved mechanical couplings. Valves shall have ductile iron disc core with integrally cast drive hub and bonded resilient coating molded onto the disc. Disc seal (EPDM) shall be rated for service up to 230°F.

- b. Ball Valves shall be Vic Ball style 721 or equal Ball Valves, designed for 600 PSI (WOG) bubble tight working pressure.
- c. Check Valves Single Disc, non-slamming, spring loaded check valves with a welded in nickel seat. Ductile iron body and disc designed for 300 PSI. Installed in the vertical and horizontal positions. Style 716, 779.
- d. Strainer shall be Victaulic Style 732 or Wye Pattern Strainer for easy access and cleaning with grooved ends for installation in vertical down flow or horizontal flow position.
- e. Suction Diffuser shall be Victaulic Style 731 or equal. Ductile iron body conforming to ASTM A-536. Diffuser stainless steel type 304 frame and perforated sheet with 3/16" diameter holes.

5. Hanging and Installation

- a. All grooved components installed and requirements for hanging, supporting, anchoring, expansion and contraction shall be in accordance with the latest published manufacturer's instructions.
- b. Pressure and temperature ratings shall be as shown in manufacturer's latest published literature for individual style of coupling and gasket. Pressure and temperature ranges for valves shall conform to those in valves paragraph in Part Two of this specification.
- c. Grooved Pipe Hanging:
 - 1) Rigid piping systems, using Style 07 Zero Flex couplings or equal, shall be supported as shown on drawings, as called for in Part Two of these specifications and as called for by the ASME Building Services Piping Standard B-31.9.
 - 2) Piping systems using Style 77, other flexible Victaulic couplings or equal may be used if explicitly approved by Designer. The contractor shall submit a schematic piping diagram to the Designer. The diagram shall show all points of anchorage, where flexible type couplings are used and where rigid couplings are used. The diagram shall show expansion joints (if any).

2.06: SLEEVES

- A. Furnish sleeves for pipes passing through walls, or building construction. Sleeves shall be not less than 1" larger than the pipe and ductwork, with its covering, and extending full depth of construction pierced.
- B. Pack sleeves through walls with Thermafibre Fire stopping. Caulk with fire resistant, resilient waterproof compound, Flintguard 120-13, STI SpecSeal, or approved equal products by 3M. Ensure that fire ratings of floor and ductwork/piping are maintained.
- C. Pipes Through Interior Non-Masonry Walls: Sleeves shall be made of 18 gauge galvanized sheet steel, rolled and tack welded, set flush with finished surfaces on both sides.

- D. Pipes Through Interior Masonry Walls: Sleeves shall be machine cut and reamed standard weight steel piping, set flush with finished surfaces on inside and to suit flashing on outside.

2.07: VALVES & PIPING SPECIALTIES

A. Water Service:

1. Valves on condenser water, chilled water, hot water and fuel oil services shall be 150 psi unless noted otherwise.
2. Provide balancing valves where shown on Drawings, and where water balancing is required.
3. Provide air vents with ball valve at all high points, and drains with hose bib connection and cap at all low points. Installation shall be required on all high and low points without exception.
4. Valves shall have name of manufacturer and guaranteed working pressure cast or stamped on bodies. Valves of similar type shall be by single manufacturer. Provide chain operators for valves 7 feet and higher above floor.
5. Provide butterfly valves for shutoff on chilled, hot and condenser water services 2-1/2" and larger. Do not use butterfly valves for balancing service.
 - a. Valves shall be rated 175 psi maximum working pressure, iron body, threaded-lug with resilient EPDM seats, bronze disc and 416 stainless stem, by Centerline, DeZurik, Keystone, or Bray.
 - b. Valves 6" and larger shall have gear or chain operators.
 - c. Valves smaller than 6" shall have seven position lever or chain operators.
 - d. Test valves at 110% of rated pressure.
6. Provide bronze body ball valves with reinforced Teflon seats, seals, bearings and packing. Ball valves shall be used for chilled, hot and condenser water services in sizes 2" and smaller. Do not use ball valves for balancing service. Valves on insulated piping shall have 2" extended stems. Valves shall be by Apollo, Cannon, Nibco, Milwaukee, or Watts. Valves shall be rated 600 psi wog.
7. Provide globe valves for balancing and throttling steam and medium pressure condensate services by Crane, Jenkins, Milwaukee, Stockham or Walworth as follows:
 - a. Valves 2-1/2" and larger shall be iron body, flanged ends, bronze mounted, outside screw and yoke, renewable seat.

- b. Valves 2" and smaller shall be bronze body, screwed ends, bronze trim.
 - c. Valves shall be ANSI B16.5 rated for minimum 150 pound service.
8. Check valves sized 2-1/2" and larger shall be iron body, flanged ends, bronze mounted, swing pattern. Check valves 2" and smaller shall be bronze, screwed ends, swing pattern. Check valves for hot water, chilled water and condenser water pump discharge shall be spring loaded, silent check, by APCO, Milwaukee, Mueller or Stockham.
9. Relief valves shall be brass with external lever, ASME-approved. Pipe discharge to floor drain with open connection at floor.
10. Strainers
- a. Strainers 2" and smaller shall be 250 lb. bronze body, stainless steel, screen with 20 mesh screen opening, Y-pattern, screwed ends, Sarco Type BT, Mueller, Watts or Armstrong.
 - b. Strainers 2-1/2" and larger shall be 125 lb., cast iron body, stainless steel screen with manufacturer's recommended screen openings, Y-pattern, flanged, Sarco Type AF-125 or equivalent by Mueller, Watts or Armstrong.
 - c. Provide blow off valve on each strainer.
 - d. Pump suction strainers 2" and smaller shall have 0.062 screen openings. Pump suction strainers 2-1/2" and larger shall have 0.125 screen openings.
 - e. Strainer gaskets shall not contain asbestos.
11. Suction Diffusers
- a. Suction diffuser/strainers shall have 200 psi cast iron body and stainless steel strainer with 5/32" perforations. Units shall include flanged connections, removable gasketed cover and straightening vanes. Diffusers shall be Taco, B&G or Mueller.
 - b. Provide 16 mesh start-up strainer.
 - c. Provide blow off tapping on bottom of unit.
 - d. Provide full size inlet and outlet.
 - e. Combination Balancing/Flow Measurement/Shut-off Valves
 - f. Valves shall be Y-pattern style with multi-turn hand wheel.
12. Balancing Valves- Valves shall be capable of being installed in any direction without affecting flow measurement and shall provide the following functions:
- a. Precise flow measurement.
 - b. Precision flow balancing.
 - c. Positive shut-off with no drip seat.
 - d. 3/4" drain port suitable for hose bib fitting. (Sizes 2" and below.)

- e. Valves shall have four, 3600 adjustment turns (2" and below), eight, 3600 adjustment turns (2-1/2" - 6"), twelve, 3600 adjustment turns (8", 10"), and sixteen, 360° adjustment turns (12"). Hand wheels shall have digital indicators with hidden memory and tamper-proof setting features.
- f. Valves 2" and below shall be non-ferrous, pressure die-cast, non-porous Ametal copper alloy, with soldered ends.
- g. Valves 2-1/2" and over shall be ductile iron body with all other metal parts of non-ferrous copper alloy. End connections shall be flanged or grooved.
- h. Pressure ratings shall be 300 psi for 2" and below and 250 psi for flanged and 300 psi for grooved ends.
- i. Each valve shall have pressure/temperature readout ports with EPDM seals and attached shut-off valves.
- j. One, computerized hand-held, balancing meter shall be furnished to the Owner. The Testing and Balancing Contractor shall utilize this instrument for his work. The meter shall include the following:
 - k. Flow measurement direct in GPM.
 - l. Differential pressure measurement.
 - m. Temperature measurement.
 - n. Automatic calibration.
 - o. Automatic air purging.
 - p. Extended data logging functions.
- q. Balance valves 2" and under shall be Tour and Anderson Model STAS. Valves 2-1/2" and over shall be Tour and Anderson Models STAF-SG or STAG. The handheld meter shall be Tour and Anderson Model CBI with PCB data logging features. Balance valves manufactured by Armstrong or Victaulic shall be considered equivalent.

2.08: SHEETMETAL WORK

A. General Description:

- 1. Metal ductwork shall be fabricated and erected as shown on plans, herein specified, or as required to complete the work. If it is deemed advisable by the Contractor to change the location of any duct or dimension thereof, from that shown on the plans, the change must be submitted to the Designer and his approval received. General material Classification:
 - a. Indoor supply and return air ductwork - galvanized, wrapped.
- 2. Sheet metal work shall be fabricated in accordance with applicable requirements as set forth by ASHRAE or SMACNA and shall be high quality workmanship and construction.
- 3. General Scope of Work:
 - a. All ductwork, including but not limited flues, grilles & registers, duct silencers and Fire Dampers, in its entirety.

- b. Installation of HVAC subcontractor furnished control dampers (furnished by ATC Sub-sub) and all air moving devices.
 - c. Installing in ductwork of duct smoke detectors furnished by electrical trade.
- B. HVAC Ductwork - Ductwork shall be fabricated of galvanized sheet steel or stainless steel (SS) of the gauges herein specified, and shall be substantially air tight with joints neatly formed and finished and of sufficient strength to resist deformation. The inside surfaces of the ducts shall be smooth and free from pockets, burrs and projections. Pittsburgh lock longitudinal corner seams and double seams on the sides shall be used. Duct sections shall be connected as herein specified and joints secured with round head sheet metal screws. Screws shall not exceed 6" on center. No button punching will be accepted. Riveting of angles shall not exceed 6" on center. All ductwork shall be cross-broken. Transverse joints shall be neatly formed and sealed against leakage. Ducts shall be anchored securely to the building in an approved manner and shall be installed to be completely free from vibration under all conditions of operation.
1. Elbows and offsets - Changes in direction shall be accomplished by the use of "Easy Bends" having a center line radius of not less than 1-1/2 times the width of the duct or square elbows with streamline section turning vanes. All first elbows within 12-feet of the fan discharge and all ductwork having width of 12" or less shall be of radius type. Air turns shall be quiet and free from vibration. Offsets shall be made in a gradual manner using radius turns.
 2. Sealing - All outdoor ductwork shall be made air and water tight using joining system provided by ductwork manufacturer. Any external sealant to be utilized to meet the testing standards shall be weather and UV resistant and shall be guaranteed for minimum period of 5 years. Joints and seams in indoor all ductwork shall be sealed using HardCast Corporation Alron Grip water based non-hardening sealant, MEI Eco-Duct Seal N.F. or equal by 3M. All ductwork shall be tested for leakage, to meet maximum leakage rate not exceeding 5% of rated flow.
 3. Dampers - Volume balancing dampers shall be selected by air balancing sub-subcontractor and provided by this contractor where shown on plans or where otherwise indicated by the Engineer or wherever required for proper balancing of the air handling system. Back draft dampers shall be installed on all exhaust fans and at all ductwork where parallel fan installation has been incorporated, except where automatic control damper(s) is indicated.
 4. Duct Supports - Ductwork shall be rigidly supported from the structure, free from vibration and noise, using galvanized band iron hangers of not less than 12 U.S. Gauge, or rods, and spaced at not over 4' centers along the duct. Refer to details for outdoor ductwork supports.
 5. Duct Construction:
 - a. For indoor and outdoor supply, return and exhaust ductwork - shall be constructed of galvanized sheet metal. Duct gauges and joints will be as prescribed by ASHRAE and SMACNA Low Pressure Duct Construction

Standards.

6. Flexible Duct Connections - Shall be of 1/4" thick neoprene material with minimum of 2 inch clearance between the duct and the moving equipments. The flexible connections shall be used for duct connection to all equipments having potentially vibrating components.
 7. Flexible Round Ductwork:
 - a. For low pressure ductwork system shall be UL 181 class I labeled 1" thick insulated double skin flexible ductwork having wire coil embedded in inner skin to retain constant round cross-sectional area for air path. The flexible ductwork shall be rated for minimum of 2"SP, up to 12" diameter and minimum of 1" SP,W.g. over 12" in diameter, minimum of 200-degrees F., and 2500-fpm velocity.
 - b. The low pressure flexible duct shall be Johns-Manville Micro-Aire or equal by Clevaflex, Buckley or Owens-Corning having aluminum foil inner skin and low flame/low smoke vapor barrier outer skin. Flexible ductwork connections shall be made using nylon draw band(with the extra band length snipped off after a proper tightening) for the inner skin, and outer skin shall be either secured using the nylon draw band or duct tape.
 - c. Maximum of 5 feet may be used for final connections of diffusers and registers in concealed spaces, however, in no case the flexible connection shall be allowed to be used as a duct elbow exceeding 45- degrees.
 8. Duct Access Doors:
 - a. For Duct Cleaning: Provide 24"x24" high-pressure ductwork rated gasketed and hinged access doors on all ductwork 30" in width and larger every 50 linear feet minimum in addition to indicated.
 - b. At All Heating Coils: provide 12"x12" high-pressure ductwork rated gasketed access doors at upstream of all heating coils. For reheat coils on VAV boxes, provide large as possible access door downstream of the coil.
 - c. At All Fire Dampers, Back draft Dampers, VAV Terminal Boxes and Control Dampers: provide high-pressure ductwork rated gasketed access doors of sufficient size to allow for replacement of linkages, resetting, and repair to the components.
- C. Registers, Grilles & Diffusers
1. Approved manufacturers shall be Price, or approved equal by Metal-Aire, Titus or Krueger.
 2. Rectangular Ceiling Supply Diffusers - shall be Price Model AMDE, or approved equal, louvered face 24" x 24" lay in panel type (or cut in type) with rectangular neck (with square to round transition) and opposed blade damper, with inlet sizes and directional throw as indicated on drawings. Contractor shall study the full architectural plans and specifications to assure type of ceiling

being installed for the specific areas and select proper ceiling diffuser for the given ceiling types. Color and finish shall be selected by Designer from the manufacturer's standard color selections.

3. Perforated Ceiling Diffusers - shall be Price, or approved equal, 24"x24" perforated return grille with 12" deep 1" lined plenum used as high volume non-direction supply for the lab areas. Provide volume dampers in ductwork for air balancing. Color and finish shall be selected by Designer from the manufacturer's standard color selections.
4. Exhaust Grilles, Transfer Grilles & Registers:
 - a. For General Ceiling and High Wall Applications: Price 80D, or approved equal, with opposed blade dampers 1/2" x 1/2" x 1/2" aluminum cube core of sizes as indicated on drawings. When size is not indicated, 24" x 24" shall be provided.
 - b. Registers installed on wall within 6 feet from the finished floor shall be heavy duty Metal-Aire Model HD-RHD, or approved equal, with opposed blade dampers. Color and finish shall be selected by Designer from the manufacturer's standard color selections.
5. Supply Air Registers - shall be Price Model 520D, or approved equal, all aluminum construction double deflection. Size and capacity shall be as indicated on the drawings. Color and finish shall be selected by Designer from the manufacturer's standard color selections.

D. Fire Dampers

1. All fire dampers shall bear UL label and shall be specifically manufactured for horizontal or vertical position installation, and shall be as manufactured by Buckley, Ruskin or Arrow.
2. All duct mounted fire dampers shall be of "blades out of air stream" type, with minimum 1-1/2-hour UL fire resistive rating, with minimum 8" x 8" access door(s) of size, location, and quantity as required to provide adequate access for the fire damper inspections and resetting.
3. All fire dampers shall be installed at the fire rated structure opening, in strict accordance with the State Building Codes and NFPA.

E. Furnished by others, installed by Sheetmetal:

1. Duct mounted smoke detectors shall be furnished by electrical and mounted on duct by Sheetmetal.
2. Automatic control dampers indicated to be duct mounted shall be furnished under ATC section, and installed in duct by sheetmetal.

2.09: AIR FILTERS

- A. General: ASHRAE Standard 52-76 Disposable Filters.
- B. Filters for Fancoil Units: shall be 1" inch thick roughing filters. Farr, or equal by American Air Filter or Donaldson.
- C. Filters for RTU-1 shall be 2"-30% filters.

2.10: ROOFTOP HVAC UNITS

A. Constant Volume Units:

- 1. Shall be of one-piece air cooled electric cooling only type, double wall panels and shall be mounted on seismically rated vibration isolation curb with discharge arrangements as indicated on drawings. Hinged access doors shall be provided for all sections requiring inspections and/or services. Provide access doors to the following sections:
 - a. Indoor fans and motors.
 - b. Modulating 100% capacity exhaust fans and motors.
 - c. Electrical section.
 - d. Control Section.
 - e. Coil sections.
 - f. Filter sections.
 - g. Dampers.
- 2. Total capacity and performance of the unit shall be as scheduled on the drawing. Unit cabinet shall be constructed of galvanized steel, bonderized and coated with baked enamel.
- 3. The unit shall contain serviceable hermetic or full hermetic positive displacement type compressors with service valves, spring type vibration isolation, crankcase heaters, sight glass(es) and filter drier(s). Compressors shall have a five (5) year extended warranty.
- 4. Coils shall be aluminum plate fins (submit alternate add for copper fins) mechanically bonded to copper tubes. They shall be of an inter-twined design for equal circuit loading and full active coil on part load operation to assure proper treatment of conditioned air.
- 6. Modulating comparative enthalpy type outdoor air control package (Economizer) complete with integral factory mounted modulating power relief as indicated on drawings, shall provide "free cooling" with outside air. The package shall contain casketed low leak dampers rated 3% at 3-in. w.g. static pressure, contain spring return motor to close dampers during power failure, use 100% outside air during integrated (simultaneous) economizer cooling and mechanical cooling, utilize discharge air sensor and enthalpy changeover for damper control, and contain adjustable outdoor air thermostat to lock out mechanical cooling when outdoor air is below its setting. The outside air intake damper shall be closed tight for warm-up and set-back cycle and shall be in approximately its minimum setting (adjustable using factory supplied potentiometer) position for normal occupied operations.

7. Dehumidifier: shall have independent refrigerant circuit so that its evaporator coil can subcool air with modulating refrigerant controls so that condenser heat can be used for modulating hot gas reheat or rejected to outdoors.
6. The indoor supply and return air fans shall be of the DWDI forward curved (or BI, or AF) type AMCA rated centrifugal fan AMCA Class I or II as required, belt driven by a ODP or TEAO premium efficiency inverter duty motor with 1.15 service factor. The outdoor air fans shall be of the propeller type, each fan driven by an inherently protected weather proof motor.
7. Cooling system shall be protected by fusible plug, low and high pressure-stat, compressor motor overloads, and a timing device which will prohibit the compressor motor from being subjected to a starting current more than one every 5 minutes. Provide service valve.
8. Power wires in the unit shall be powered by single point terminal connections. All utility connections shall be routed through bottom of unit within curb perimeter.
9. The unit shall be furnished installed with 2"-30% disposable filters equal to AAF PM40.
10. Roof curb- shall be Mason Industries or equal by Vibration Mountings Company or Coppers seismically rated vibration isolation type curb, manufactured specifically for this rooftop unit model. Curb design shall comply with National Roofing Contractors Association requirements.
11. Full DDC interface through Lon-Talk or BACNet DDC interface with selected Campus DDC ATC system shall be required. Refer to ATC section for full requirements.
12. Rooftop Units shall be Carrier Centurion Model 50TC, or approved equal by Trane or Lennox.

2.11: DUCT MOUNTED HOT WATER COILS

- A. Copper tube having 1/2" or 5/8" OD, and aluminum plate fins, of spacing and face area to meet the scheduled values.
- B. Coil face area velocity shall not exceed 700 fpm and not exceeding 0.12" w.c. air pressure drop.
- C. Coil shall be minimum 2-row design and maximum 12 fins per inch.

2.12: MOTORS, WIRING, STARTERS & DISCONNECT SWITCHES

- A. Motors
 1. All HVAC equipments requiring motors shall be furnished complete with

premium efficiency inverter duty motors conforming to NEC, IEEE, and shall conform to the electrical characteristics as scheduled. Equipments shall be so designed and selected so that the equipments do not operate in the motor service factor region at the design points.

2. Unless otherwise specified, all motors smaller than 1/2 HP shall be selected to operate at 120-volt AC, single phase, 60Hz; motors 1/2 HP and larger shall be selected to operate at 208 volt AC, three phase, 60 Hz.
3. Motors shall be ODP or TEFC as specified and as required. Fractional horsepower motors smaller than 1/4 HP may be of PSC type with PF not less than 0.90 at full load.

B. VFD, Starters & Disconnects

1. All HVAC equipments shall be furnished with properly sized H-O-A type (with exception of equipments not requiring automatic operation or remote controls) motor starters (with auxiliary contacts for proper interface with ATC) or VFDs to be installed and wired by electrical contractor.
2. Disconnect switches for all equipments shall be furnished and installed by electrical. All starters and disconnects shall meet requirements of electrical specifications, services, duty interlocking, and control sequences.

C. Wiring

1. All low and high voltage wiring for controls (including equipment interlock required for controls) shall be covered under this contractors automatic temperature controls section.
2. All exposed low voltage wiring shall be run within metal with all connections made in the enclosed conjunction box. All electrical control components and wiring within the explosion hazard areas shall meet the appropriate NEMA class and division hazard classifications.

2.13: AUTOMATIC TEMPERATURE CONTROLS

A. Scope

1. Furnish design and installation of Automatic Temperature Controls (hereinafter referred as ATC) to achieve sequence of operation described herein and make the system complete and operable.
 - a. The ATC system shall be based on Johnson Controls (JCI) Metasys Direct Digital Controls (DDC), or equal by Honeywell or Invensys ENE.
 - b. This contractor shall be responsible for modification of any and all

- equipments, controls and components as required making the entire system compatible, complete, and operable.
- c. Assist Commissioning agent as required.
2. Remove from this building, and proper capping of, in its entirety, all existing controls associated with the construction scope area, including but not limited to control panels, pneumatic tubing, remote devices and components, control wiring, EP/PE switches, transducers, and other control appurtenances.
 3. All HVAC equipment, without exception, shall be controlled and monitored by DDC system.
 4. Air flow monitoring stations shall be selected by DDC sub-subcontractor to be fully compatible with its DDC system, based on capability of Ebtron, or approved equal system by Ebtron, Air Monitor or Yokogawa.
 5. Furnish all automatic control dampers and air flow measuring devices to be installed by Sheetmetal Sub-sub contractor. All control dampers shall be low leakage type.
 6. Furnish all automatic control valves, flow metering devices, flow switches, and sensors to be installed by HVAC subcontractor.
 7. Electrical trade provided Fire Alarm system shall shut off respective air handling devices when duct smoke detectors sense smoke in the system. Provide interface with the alarm system to include status report to the DDC system, so that on shut off conditions, the operator explicitly sees on screen that the shut off is due to or not due to fire alarm condition.
 8. All electrical power for all ATC requirements shall be by ATC sub-subcontractor.
- B. Sequence of Operations: Refer to drawings for additional information.
1. RTU-1:
 - a. Two occupancy sensors shall monitor the space occupancy for setback controls. Two CO₂ sensors shall monitor the occupancy rate for ventilation controls. Two temperature sensors are provided (1 at 5' AFF and 1 at high ceiling) for temperature controls and destratification strategy.
 - b. When occupied, RTU-1 shall operate continuously with its OA ACD set to 10% minimum position. Compressors cycled or hot water ACV modulated to maintain cooling set point of 74F (adj) and heating set point of 70F (adj). CO₂ sensors shall calculate the average CO₂ reading and modulate OA ACD up to the schedule maximum % to maintain maximum 800 ppm (adj). Economizer provides free cooling while modulating exhaust rate maintain the space pressurization within -0.05" to +0.05"WG.

- c. During scheduled unoccupied cooling periods, RTU-1 shall remain off.
- d. During scheduled unoccupied heating periods, unit will cycle with and HW ACV modulated to maintain 55F (adj) setback set point. If stratification between low and high sensors are greater than 8F (adj), fan will operate continuously. Second unit is energized if the first unit cannot maintain the set point, or two low sensors see temperature differential greater than 9F (adj).
- e. DDC system controls the heating, cooling, heat when operation, exhaust fan, supply fan, relief fan, economizer functions and monitors its status. DDC system continuously monitors space temperatures, space RH, space CO2 readings and outdoor CO2 readings.
- f. During scheduled occupied periods, if occupancy sensor detects that space is vacant for more than 30 minutes, space setback set point of 4F will be applied. Cooling set point of $74 + 4 = 78F$, heating set point of $70 - 4 = 64F$. Set points are adjustable.

PART 3 - EXECUTION

3.01: GENERAL

- A. The work of this section shall be coordinated with that of associated trades.
- B. The sub-contractor shall be fully responsible for the proper execution and performance of the work described herein.

3.02: INSPECTION

- A. The sub-contractor shall inspect all surfaces, areas and other contingent construction in or to which his work is to be installed and assure himself that they are in proper condition to receive the work to be performed under this section. The Contractor shall notify the Designer in writing, before any work is installed, of any condition requiring corrections. Failure to make such a report shall be construed as acceptance of the existing conditions and the responsibility to provide an acceptable installation.

3.03: COORDINATION

- A. Obtain detailed information from the manufacturers of apparatus which is to be furnished as to the proper method of installing and connecting same. Obtain all information from the General Contractor (or Owner) and other contractors which may be necessary to facilitate the work and to complete the whole project.
- B. Refer to the HVAC drawings and also to all other drawings for a full comprehension of the extent and detail of the work to be performed. Any HVAC work indicated, on any drawings, is to be considered as required.
- C. This sub-contractor, before installing any of his work shall see that it does not interfere with the clearance required for finished columns, pilasters, partitions, walls, and ceilings, as shown on the contract Architectural Drawings and details.

- D. Work installed by this sub-contractor, which interferes with or modifies the Architectural designs as shown on the contract drawings shall be changed as directed and at all costs incident to such changes shall be paid by the sub-contractor.
- E. In any and all cases of discrepancy in figures, plans or specifications, the matter shall be immediately submitted to the Designer for decision before doing any work.

3.04: WORKMANSHIP

- A. Any and all work under this section of the Specification found improper or of poor workmanship shall be removed, repaired, and/or replaced at no additional expense to the Contract.
- B. Specific requirement for installation of particular equipments and materials is specified in part 2 of this section, with pertinent reference implied to all applicable Codes, Standards, and regulations stated in Contract documents.

3.05: CODES, ORDINANCE AND PERMITS

- A. All work shall be performed in strict accordance with local and state codes and regulations of such offices having jurisdiction. All equipment shall comply with the requirements of all pertinent Codes and Authorities, including that of the Owner=s insurance company.
- B. Any material or labor called for or implied in the above mentioned requirements, even though not specified or shown on the drawings, shall be furnished and installed by the Sub-contractor as though they had been specifically mentioned or indicated. If the drawings or specifications are at variance with any of the above mentioned regulations, the bidder shall so notify the Designer in writing before signing the contract. Failure to do so shall relieve the Owner of responsibility in this regard.
- C. Secure and pay for any and all permits that may be necessary in connection with the installation of this work.

3.06: LOSS OR DAMAGE TO EQUIPMENT

- A. Any materials or equipment lost or damaged shall be replaced or repaired to the satisfaction of the Designer, at no additional cost to the Owner.

3.07: WIRING DIAGRAMS

- A. This Sub-contractor shall furnish wiring diagrams for all equipment furnished under this section for which wiring is to be installed by the Electrical Subcontractor, as directed by the General Contractor (or Owner).

3.08: BASES AND SUPPORTS

- A. Except where noted, the Sub-contractor shall provide all bases and supports not

part of the building structure, of required size, type and strength, as approved by Designer, for all equipment and materials furnished by him. All equipment, bases, curbs and supports shall be adequately anchored to the building structure or pads to prevent shifting of position under operating conditions. Provide counter flashing for flashing by roofing contractor.

3.09: IDENTIFICATION

A. General

1. All equipment, piping, and ductwork provided under this Section of the Specifications shall be marked for ease of identification.
2. Marking shall be done using self-adhering labels applied to clean, smooth surfaces. All lettering shall have sharply contrasting background for ease of identification. Colors shall be in accordance with ANSI A13.1 Standards. Samples of stickers together with color schedules shall be submitted for approval.

B. Equipment

1. Equipment marking shall be prominently located on the normally visible side of the equipment.
2. Equipment identification designations shall be taken from equipment schedules as indicated on the Drawings.

C. Ductwork

1. Ductwork marking shall be prominently mounted on all ductwork exposed to view. Marking spacing shall be every 20 feet and at all changes in direction.
2. Ductwork markers shall indicate the direction of airflow with ductwork designation to designate to which it is connected.
3. On each fume hood exhaust stub, label rooms serviced by each stub. Room names shall be engraved on black plastic tags (white lettering) and adhered to the stub using epoxy adhesive.

3.10: TESTING ADJUSTING AND BALANCING

A. Definitions

1. Adjust: To regulate fluid flow rate and air patterns at the terminal equipment, such as to reduce fan speed or adjust a damper.
2. Balance: To proportion flows within the distribution system, including submains, branches, and terminals, according to design quantities.

3. Draft: A current of air, when referring to localized effect caused by one or more factors of high air velocity, low ambient temperature, or direction of airflow, whereby more heat is withdrawn from a person's skin than is normally dissipated.
 4. Procedure: An approach to and execution of a sequence of work operations to yield repeatable results.
 5. Report Forms: Test data sheets for recording test data in logical order.
 6. Static Head: The pressure due to the weight of the fluid above the point of measurement. In a closed system, static head is equal on both sides of the pump.
 7. Suction Head: The height of fluid surface above the centerline of the pump on the suction side.
 8. System Effect: A phenomenon that can create undesired or unpredicted conditions that cause reduced capacities in all or part of a system.
 9. System Effect Factors: Allowances used to calculate a reduction of the performance ratings of a fan when installed under conditions different from those presented when the fan was performance tested.
 10. Terminal: A point where the controlled medium, such as fluid or energy, enters or leaves the distribution system.
 11. Test: A procedure to determine quantitative performance of a system or equipment.
 12. Testing, Adjusting, and Balancing Agent: The entity responsible for performing and reporting the testing, adjusting, and balancing procedures.
 13. AABC: Associated Air Balance Council.
 14. AMCA: Air Movement and Control Association.
 15. NEBB: National Environmental Balancing Bureau.
 16. SMACNA: Sheet Metal and Air Conditioning Contractors' National Association.
- B. Submittal
1. Submit in accordance with Section 01300, SAMPLES AND SHOP DRAWINGS for additional information.
 2. Provide separate and individual submissions for each item listed below with a separate cover sheet indicating the item name and the specification section the submittal refers to. Provide the sequence submission (first

submittal) (second submittal) (etc) and the date submitted. For scheduled items on the drawings or specifications, submit the equipment tag, the product construction and all of the associated scheduled appurtenances and performances called out on the drawings or specifications. Contractor shall provide the submissions listed but not limited to such.

3. Quality-Assurance Submittal: Within 30 days from the Contractor's Notice to Proceed, submit copies of evidence that the testing, adjusting, and balancing Agent and this Project's testing, adjusting, and balancing team members meet the qualifications specified in the `Quality Assurance Article below.
4. Contract Documents Examination Report: Within 45 days from the Contractor's Notice to Proceed, submit copies of the Contract Documents review report as specified in Part 3 of this Section.
5. Strategies and Procedures Plan: Within 60 days from the Contractor's Notice to Proceed, submit copies of the testing, adjusting, and balancing strategies and step-by-step procedures as specified in Part 3 "Preparation" Article below. Include a complete set of report forms intended for use on this Project.
6. Certified Testing, Adjusting, and Balancing Reports: Submit copies of reports prepared, as specified in this Section, on approved forms certified by the testing, adjusting, and balancing Agent.
7. Sample Report Forms: Submit sets of sample testing, adjusting, and balancing report forms.
8. Warranty: Submit copies of special warranty specified in the "Warranty" Article below.

C. Quality Assurance

1. Agent Qualifications: Engage a testing, adjusting, and balancing agent certified by AABC.
2. Agent Qualifications: Engage a testing, adjusting, and balancing agent certified by NEBB.
3. Agent Qualifications: Engage a testing, adjusting, and balancing agent certified by either AABC or NEBB.
4. Testing, Adjusting, and Balancing Conference: Meet with the Owner's and the designer on approval of the testing, adjusting, and balancing strategies and procedures plan to develop a mutual understanding of the details. Ensure the participation of testing, adjusting, and balancing team members, equipment manufacturers' authorized service representatives, HVAC controls Installer, and other support personnel. Provide 7 days' advance notice of scheduled meeting time and location. Agenda Items: Include at least the following:

- a. Submittal distribution requirements.
 - b. Contract Documents examination report.
 - c. Testing, adjusting, and balancing plan.
 - d. Work schedule and Project site access requirements.
 - e. Coordination and cooperation of trades and subcontractors.
 - f. Coordination of documentation and communication flow.
5. Certification of Testing, Adjusting, and Balancing Reports: Certify the testing, adjusting, and balancing field data reports. This certification includes the following:
- a. Review field data reports to validate accuracy of data and to prepare certified testing, adjusting, and balancing reports.
 - b. Certify that the testing, adjusting, and balancing team complied with the approved testing, adjusting, and balancing plan and the procedures specified and referenced in this Specification.
6. Testing, Adjusting, and Balancing Reports: Use standard forms from AABC's "National Standards for Testing, Adjusting, and Balancing."
7. Testing, Adjusting, and Balancing Reports: Use standard forms from NEBB's "Procedural Standards for Testing, Adjusting, and Balancing of Environmental Systems."
8. Testing, Adjusting, and Balancing Reports: Use standard forms from SMACNA's "HVAC Systems--Testing, Adjusting, and Balancing."
9. Testing, Adjusting, and Balancing Reports: Use testing, adjusting, and balancing Agent's standard forms approved by the Architect.
10. Instrumentation Type, Quantity, and Accuracy: As described in AABC national standards.
11. Instrumentation Type, Quantity, and Accuracy: As described in NEBB's "Procedural Standards for Testing, Adjusting, and Balancing of Environmental Systems," Section II, "Required Instrumentation for NEBB Certification."
12. Instrumentation Calibration: Calibrate instruments at least every 6 months or more frequently if required by the instrument manufacturer.
- D. Project Conditions
1. Full Owner Occupancy: The Owner will occupy the site and existing building during the entire testing, adjusting, and balancing period. Cooperate with the Owner during testing, adjusting, and balancing operations to minimize conflicts with the Owner's operations.
 2. Partial Owner Occupancy: The Owner may occupy completed areas of the building before Substantial Completion. Cooperate with the Owner during

testing, adjusting, and balancing operations to minimize conflicts with the Owner's operations.

E. Coordination

1. Assist Commissioning agent and ATC sub-subcontractor.
2. Coordinate the efforts of factory-authorized service representatives for systems and equipment, HVAC controls installers, and other mechanics to operate HVAC systems and equipment to support and assist testing, adjusting, and balancing activities.
3. Notice: Provide 7 days' advance notice for each test. Include scheduled test dates and times.
4. Perform testing, adjusting, and balancing after leakage and pressure tests on air and water distribution systems have been satisfactorily completed.

F. Warranty

1. General Warranty: The national project performance guarantee specified in this Article shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by the Contractor under requirements of the Contract Documents.
2. National Project Performance Guarantee: Provide a guarantee on AABC'S "National Standards" forms stating that AABC will assist in completing the requirements of the Contract Documents if the testing, adjusting, and balancing Agent fails to comply with the Contract Documents. Guarantee includes the following provisions:
3. Special Guarantee: Provide a guarantee on NEBB forms stating that NEBB will assist in completing the requirements of the Contract Documents if the testing, adjusting, and balancing Agent fails to comply with the Contract Documents. Guarantee includes the following provisions:
 - a. The certified Agent has tested and balanced systems according to the Contract Documents.
 - b. Systems are balanced to optimum performance capabilities within design and installation limits.

G. Examination

1. Examine Contract Documents to become familiar with project requirements and to discover conditions in systems' designs that may preclude proper testing, adjusting, and balancing of systems and equipment.
 - a. Contract Documents are defined in the General and Supplementary Conditions of the Contract.

- b. Verify that balancing devices, such as test ports, gage cocks, thermometer wells, flow-control devices, balancing valves and fittings, and manual volume dampers, are required by the Contract Documents. Verify that quantities and locations of these balancing devices are accessible and appropriate for effective balancing and for efficient system and equipment operation.
2. Examine approved submittal data of HVAC systems and equipment.
3. Examine project record documents described in Division 1, Section 01700 -CONTRACT CLOSEOUT.
4. Examine Designer's design data, including HVAC system descriptions, statements of design assumptions for environmental conditions and systems' output, and statements of philosophies and assumptions about HVAC system and equipment controls.
5. Examine equipment performance data, including fan and pump curves. Relate performance data to project conditions and requirements, including system effects that can create undesired or unpredicted conditions that cause reduced capacities in all or part of a system. Calculate system effect factors to reduce the performance ratings of HVAC equipment when installed under conditions different from those presented when the equipment was performance tested at the factory. To calculate system effects for air systems, use tables and charts found in AMCA 201, "Fans and Systems, Section 7 through 10; or in SMACNA's "HVAC Systems--Duct Design," Sections 5 and 6. Compare this data with the design data and installed conditions.
6. Examine system and equipment installations to verify that they are complete and that testing, cleaning, adjusting, and commissioning specified in individual Specification Sections have been performed.
7. Examine system and equipment test reports.
8. Examine HVAC system and equipment installations to verify that indicated balancing devices, such as test ports, gage cocks, thermometer wells, flow-control devices, balancing valves and fittings, and manual volume dampers, are properly installed, and their locations are accessible and appropriate for effective balancing and for efficient system and equipment operation.
9. Examine systems for functional deficiencies that cannot be corrected by adjusting and balancing.
10. Examine air-handling equipment to ensure clean filters have been installed, bearings are greased, belts are aligned and tight, and equipment with functioning controls is ready for operation.
11. Examine terminal units, such as variable-air-volume boxes and mixing

boxes, to verify that they are accessible and their controls are connected and functioning.

12. Examine plenum ceilings, utilized for supply air, to verify that they are airtight. Verify that pipe penetrations and other holes are sealed.
13. Examine strainers for clean screens and proper perforations.
14. Examine 3-way valves for proper installation for their intended function of diverting or mixing fluid flows.
15. Examine heat-transfer coils for correct piping connections and for clean and straight fins.
16. Examine open-piping-system pumps to ensure absence of entrained air in the suction piping.
17. Examine equipment for installation and for properly operating safety interlocks and controls.
18. Examine automatic temperature system components to verify the following:
 - a. Dampers, valves, and other controlled devices operate by the intended controller.
 - b. Dampers and valves are in the position indicated by the controller.
 - c. Integrity of valves and dampers for free and full operation and for tightness of fully closed and fully open positions. This includes dampers in multizone units, mixing boxes, and variable-air-volume terminals.
 - d. Automatic modulating and shutoff valves, including 2-way valves and 3-way mixing and diverting valves, are properly connected.
 - e. Thermostats and humidistat are located to avoid adverse effects of sunlight, drafts, and cold walls.
 - f. Sensors are located to sense only the intended conditions.
 - g. Sequence of operation for control modes is according to the Contract Documents.
 - h. Controller set points are set at design values. Observe and record system reactions to changes in conditions. Record default set points if different from design values. Interlocked systems are operating.
 - j. Changeover from heating to cooling mode occurs according to design values.
19. Report efficiencies discovered before and during performance of testing, adjusting and balancing procedures.

H. Preparation

1. Prepare a testing, adjusting, and balancing plan that includes strategies and step-by-step procedures.

2. Complete system readiness checks and prepare system readiness reports. Verify the following:
 - a. Permanent electrical power wiring is complete.
 - b. Hydronic systems are filled, clean, and free of air.
 - c. Automatic temperature-control systems are operational.
 - d. Equipment and duct access doors are securely closed.
 - e. Balance, smoke, and fire dampers are open.
 - f. Isolating and balancing valves are open and control valves are operational.
 - g. Ceilings are installed in critical areas where air-pattern adjustments are required and access to balancing devices is provided.
 - h. Windows and doors can be closed so design conditions for system operations can be met.
- I. General Testing and Balancing Procedures
 1. Perform testing and balancing procedures on each system according to the procedures contained in AABC national standards and this Section.
 2. Perform testing and balancing procedures on each system according to the procedures contained in NEBB's "Procedural Standards for Testing, Adjusting, and Balancing of Environmental Systems" and this Section.
 3. Perform testing and balancing procedures on each system according to the procedures contained in SMACNA's "HVAC Systems--Testing, Adjusting, and Balancing and this Section.
 4. Cut insulation, ducts, pipes, and equipment cabinets for installation of test probes to the minimum extent necessary to allow adequate performance of procedures. After testing and balancing, close probe holes and patch insulation with new materials identical to those removed. Restore vapor barrier and finish according to the insulation Specifications for this Project.
 5. Mark equipment settings with paint or other suitable, permanent identification material, including damper-control positions, valve indicators, fan-speed-control levers, and similar controls and devices, to show final settings.
- J. Fundamental Air Systems' Balancing Procedures
 1. Prepare test reports for both fans and outlets. Obtain manufacturer's outlet factors and recommended testing procedures. Cross check the summation of required outlet volumes with required fan volumes.
 2. Prepare schematic diagrams of systems' "as-built" duct layouts.
 3. For variable-air-volume systems, develop a plan to simulate diversity.
 4. Determine the best locations in main and branch ducts for accurate duct

airflow measurements.

5. Check the airflow patterns from the outside-air louvers and dampers and the return- and exhaust-air dampers, through the supply-fan discharge and mixing dampers.
6. Locate start-stop and disconnect switches, electrical interlocks, and motor starters.
7. Verify that motor starters are equipped with properly sized thermal protection.
8. Check dampers for proper position to achieve desired airflow path.
9. Check for airflow blockages.
10. Check condensate drains for proper connections and functioning.
11. Check for proper sealing of air-handling unit components.

K. Constant-Volume Air Systems' Balancing Procedures

1. The procedures in this Article apply to constant-volume supply, return, and exhaust-air systems. Additional procedures are required for variable-air-volume, multizone, dual-duct, induction-unit supply-air systems and process exhaust-air systems. These additional procedures are specified in other articles in this Section.
2. Adjust fans to deliver total design air flows within the maximum allowable rpm listed by the fan manufacturer.
 - a. Measure fan static pressures to determine actual static pressure as follows:
 - 1) Measure outlet static pressure as far downstream from the fan as practicable and upstream from restrictions in ducts such as elbows and transitions.
 - 2) Measure static pressure directly at the fan outlet or through the flexible connection.
 - 3) Measure inlet static pressure of single-inlet fans in the inlet duct as near the fan as possible, upstream from flexible connection and downstream from duct restrictions.
 - 4) Measure inlet static pressure of double-inlet fans through the wall of the plenum that houses the fan.
 - b. Measure static pressure across each air-handling unit component.
 - 1) Simulate dirty filter operation and record the point at which maintenance personnel must change filters.
 - c. Measure static pressures entering and leaving other devices such as sound traps, heat recovery equipment, and air washers under final balanced conditions.
 - d. Compare design data with installed conditions to determine variations in design static pressures versus actual static pressures. Compare

- actual system effect factors with calculated system effect factors to identify where variations occur. Recommend corrective action to align design and actual conditions.
- e. Adjust fan speed higher or lower than design with the approval of the Architect. Make required adjustments to pulley sizes, motor sizes, and electrical connections to accommodate fan-speed changes.
 - f. Do not make fan-speed adjustments that result in motor overload. Consult equipment manufacturers about fan-speed safety factors. Modulate dampers and measure fan-motor amperage to ensure no overload will occur. Measure amperage in full cooling, full heating, and economizer modes to determine the maximum required brake horsepower.
3. Adjust volume dampers for main duct, submain ducts, and major branch ducts to design air flows within specified tolerances.
 - a. Measure static pressure at a point downstream from the balancing damper and adjust volume dampers until the proper static pressure is achieved.
 - 1) Where sufficient space in submains and branch ducts is unavailable for Pitot-tube traverse measurements, measure airflow at terminal outlets and inlets and calculate the total airflow for that zone.
 - b. Remeasure each submain and branch duct after all have been adjusted. Continue to adjust submains and branch ducts to design airflows within specified tolerances.
 4. Measure terminal outlets and inlets without making adjustments.
 - a. Measure terminal outlets using a direct-reading hood or the outlet manufacturer's written instructions and calculating factors.
 5. Adjust terminal outlets and inlets for each space to design airflows within specified tolerances of design values. Make adjustments using volume dampers rather than extractors and the dampers at the air terminals.
 - a. Adjust each outlet in the same room or space to within specified tolerances of design quantities without generating noise levels above the limitations prescribed by the Contract Documents.
 - b. Adjust patterns of adjustable outlets for proper distribution without drafts.
- M. Fundamental Procedures for Hydronic Systems
1. Prepare test reports with pertinent design data and number in sequence starting at pump to end of system. Check the sum of branch-circuit flows against approved pump flow rate. Correct variations that exceed plus or minus 5 percent.
 2. Prepare schematic diagrams of systems' as-built' piping layouts.

3. Prepare hydronic systems for testing and balancing according to the following, in addition to the general preparation procedures specified above:
 - a. Open all manual valves for maximum flow.
 - b. Check expansion tank liquid level.
 - c. Check makeup-water-station pressure gage for adequate pressure for highest vent.
 - d. Check flow-control valves for specified sequence of operation and set at design flow.
 - e. Set differential-pressure control valves at the specified differential pressure. Do not set at fully closed position when pump is positive-displacement type, unless several terminal valves are kept open.
 - f. Set system controls so automatic valves are wide open to heat exchanger.
 - g. Check pump-motor load. If motor is overloaded, throttle main flow-balancing device so motor nameplate rating is not exceeded.
 - h. Check air vents for a forceful liquid flow exiting from vents when manually operated.

N. Hydronic Systems' Balancing Procedures

1. Determine water flow at pumps. Use the following procedures, except for positive-displacement pumps:
 - a. Verify impeller size by operating the pump with the discharge valve closed. Verify with the pump manufacturer that this will not damage pump. Read pressure differential across the pump. Convert pressure to head and correct for differences in gage heights. Note the point on the manufacturer's pump curve at zero flow and confirm that the pump has the intended impeller size.
 - b. Check system resistance. With all valves open, read pressure differential across the pump and mark the pump manufacturer's head-capacity curve. Adjust pump discharge valve until design water flow is achieved.
 - c. Verify pump-motor brake horsepower. Calculate the intended brake horsepower for the system based on the pump manufacturer's performance data. Compare calculated brake horsepower with nameplate data on the pump motor. Report conditions where actual amperage exceeds motor nameplate amperage.
 - d. Report flow rates that are not within plus or minus 5 percent of design.
2. Set calibrated balancing valves, if installed, at calculated presettings.
3. Measure flow at all stations and adjust, where necessary, to obtain first balance.
 - a. System components that have Cv rating or an accurately cataloged flow-pressure-drop relationship may be used as a flow-indicating

device.

4. Measure flow at main balancing station and set main balancing device to achieve flow that is 5 percent greater than design flow.
5. Adjust balancing stations to within specified tolerances of design flow rate as follows:
 - a. Determine the balancing station with the highest percentage over design flow.
 - b. Adjust each station in turn, beginning with the station with the highest percentage over design flow and proceeding to the station with the lowest percentage over design flow.
 - c. Record settings and mark balancing devices.
6. Measure pump flow rate and make final measurements of pump amperage, voltage, rpm, pump heads, and systems' pressures and temperatures, including outdoor-air temperature.
7. Measure the differential-pressure control valve settings existing at the conclusions of balancing.

P. Motors

1. Motors, 2 HP and Larger: Test at final balanced conditions and record the following data:
 - a. Manufacturer, model, and serial numbers.
 - b. Motor horsepower rating.
 - c. Motor rpm.
 - d. Efficiency rating if high-efficiency motor.
 - e. Nameplate and measured voltage, each phase.
 - f. Nameplate and measured amperage, each phase.
 - g. Starter thermal-protection-element rating.
2. Motors Driven by Variable-Frequency Controllers:
 - a. Obtain from motor manufacturer the minimum RPM which the motor can safely operate, to prevent operational problem or premature motor failure. Regardless of manufacturer's minimum RPM information, minimum continuous duty motor RPMs shall not be below 25% of its synchronous speed.
 - b. Test for proper operation at speeds varying from minimum to maximum.
 - c. Test the manual or automatic bypass for the controller to prove proper operation.
 - d. Record observations, including controller manufacturer, model and serial numbers, and nameplate data.

Q. Heat-Transfer Coils

1. Water Coils: Measure the following data for each coil:
 - a. Entering- and leaving-water temperatures in F.
 - b. Water flow rate in GPM.
 - c. Water pressure drop in Feet of WC, or psi.
 - d. Dry-bulb temperatures of entering and leaving air in F.
 - e. Wet-bulb temperatures of entering and leaving air for cooling coils in F.
 - f. Airflow in CFM.
 - g. Air pressure drop in inches, WC.

R. Temperature Testing

1. During testing, adjusting, and balancing, report need for adjustment in temperature regulation within the automatic temperature-control system.
2. Measure indoor wet-bulb and dry-bulb temperatures every other hour for a period of 2 successive 8-hour days, in each separately controlled zone, to prove correctness of final temperature settings. Measure when the building or zone is occupied.
3. Measure outside-air, wet- and dry-bulb temperatures.

S. Temperature-Control Verification

1. Verify that controllers are calibrated and commissioned.
2. Check transmitter and controller locations and note conditions that would adversely affect control functions.
3. Record controller settings and note variances between set points and actuator measurements.
4. Verify operation of limiting controllers (i.e., high- and low-temperature).
5. Verify free travel and proper operation of control devices such as damper and valve operators.
6. Verify sequence of operation of control devices. Note air pressures and device positions and correlate with airflow and water-flow measurements. Note the speed of response to input changes.
7. Confirm interaction of electrically operated switch transducers.
8. Confirm interaction of interlock and lockout systems.
9. Verify main control supply-air pressure and observe compressor and dryer operations.
10. Record voltages of power supply and controller output. Determine if the

system operates on a grounded or nongrounded power supply.

11. Note operation of electric actuators using spring return for proper fail-safe operations.

T. Tolerances

1. Set HVAC system airflow and water flow rates within the following tolerances:
 - a. Supply, Return, and Exhaust Fans: Plus 5 to plus 10 percent.
 - b. Air Outlets and Inlets: 0 to minus 10 percent.
 - c. Heating-Water Flow Rate: 0 to minus 10 percent.

U. Reporting

1. Initial Construction-Phase Report: Based on examination of the Contract Documents as specified in "Examination" Article above, prepare a report on the adequacy of design for systems' balancing devices. Recommend changes and additions to systems' balancing devices to facilitate proper performance measuring and balancing. Recommend Changes and additions to HVAC systems and general construction to allow access for performance measuring and balancing devices.
2. Status Reports: As Work progresses, prepare reports to describe completed procedures, procedures in progress, and scheduled procedures. include a list of deficiencies and problems found in systems being tested and balanced. Prepare a separate report for each system and each building floor for systems serving multiple floors.

V. Final Report

1. General: Typewritten, or computer printout in letter-quality font, on standard bond paper, in 3-ring binder, tabulated and divided into sections by tested and balanced systems.
2. Include a certification sheet in front of binder signed and sealed by the certified testing and balancing engineer.
 - a. Include a list of the instruments used for procedures, along with proof of calibration.
3. Final Report Contents: In addition to the certified field report data, include the following:
 - a. Pump curves.
 - b. Fan curves.
 - c. Manufacturers' test data.
 - d. Field test reports prepared by system and equipment installers.
 - e. Other information relative to equipment performance, but do not

include approved Shop Drawings and Product Data.

4. General Report Data: In addition to the form titles and entries, include the following data in the final report, as applicable:
 - a. Title page.
 - b. Name and address of testing, adjusting, and balancing Agent.
 - c. Project name.
 - d. Project location.
 - e. Architect's name and address.
 - f. Engineer's name and address.
 - g. Contractor's name and address.
 - h. Report date.
 - i. Signature of testing, adjusting, and balancing Agent who certifies the report.
 - j. Summary of contents, including the following:
 - 1) Design versus final performance.
 - 2) Notable characteristics of systems.
 - 3) Description of system operation sequence if it varies from the Contract Documents.
 - k. Nomenclature sheets for each item of equipment. Data for terminal units, including manufacturer, type size, and fittings.
 - m. Notes to explain why certain final data in the body of reports vary from design values.
 - n. Test conditions for fans and pump performance forms, including the following:
 - 1) Settings for outside-, return-, and exhaust-air dampers.
 - 2) Conditions of filters.
 - 3) Cooling coil, wet- and dry-bulb conditions.
 - 4) Face and bypass damper settings at coils.
 - 5) Fan drive settings, including settings and percentage of maximum pitch diameter.
 - 6) Inlet vane settings for variable-air-volume systems.
 - 7) Settings for supply-air, static-pressure controller.
 - 8) Other system operating Conditions that affect performance.
5. System Diagrams: Include schematic layouts of air and hydronic distribution systems. Present with single-line diagrams and include the following:
 - a. Quantities of outside, supply, return, and exhaust airflows.
 - b. Water and steam flow rates.
 - c. Duct, outlet, and inlet sizes.
 - d. Pipe and valve sizes and locations.
 - e. Terminal units.
 - f. Balancing stations.
 - 9) Outside-air damper position.
7. Apparatus-Coil Test Reports: For apparatus coils, include the following:

- a. Coil Data: Include the following:
 - 1) System identification.
 - 2) Location.
 - 3) Coil type.
 - 4) Number of rows.
 - 5) Fin spacing in fins per inch (mm o.c.).
 - 6) Make and model number.
 - 7) Face area in sq. ft. (sq. m).
 - 8) Tube size in NPS (DN).
 - 9) Tube and fin materials.
 - 10) Circuiting arrangement.
 - b. Test Data: Include design and actual values for the following:
 - 1) Airflow rate in cfm (Us).
 - 2) Average face velocity in fpm (mis).
 - 3) Air pressure drop in inches w.g. (Pa).
 - 4) Outside-air, wet- and dry-bulb temperatures in & (EC).
 - 5) Entering-air, wet- and dry-bulb temperatures in EF (EC).
 - 6) Leaving-air, wet- and dry-bulb temperatures in EF (EC).
 - 7) Water flow rate in gpm (Us).
 - 8) Water pressure differential in feet of head or psig (kPa).
 - 9) Entering-water temperature in EF (EC).
 - 10) Leaving-water temperature in EF (EC).
 - 11) Inlet steam pressure in psig (kPa).
9. Round, Flat-Oval, and Rectangular Duct Traverse Reports: Include a diagram with a grid representing the duct cross-section and record the following:
- a. Report Data: Include the following:
 - 1) System and air-handling unit number.
 - 2) Location and zone.
 - 3) Traverse air temperature in EF.
 - 4) Duct static pressure in inches w.g..
 - 5) Duct size in inches.
 - 6) Duct area in sq. ft.
 - 7) Design airflow rate in cfm.
 - 8) Design velocity in fpm.
 - 9) Actual airflow rate in cfm.
 - 10) Actual average velocity in f pm.
 - 11) Barometric pressure in psig.
10. Air-Terminal-Device Reports: For terminal units, include the following:
- a. Unit Data: Include the following:
 - 1) System and air-handling unit identification.
 - 2) Location and zone.
 - 3) Test apparatus used.
 - 4) Area served.
 - 5) Air-terminal-device make.

- 6) Air-terminal-device number from system diagram.
 - 7) Air-terminal-device type and model number.
 - 8) Air-terminal-device size.
 - 9) Air-terminal-device effective area in sq. ft.
 - b. Test Data: Include design and actual values for the following:
 - 1) Airflow rate in cfm (Us).
 - 2) Air velocity in fpm (mis).
 - 3) Preliminary airflow rate as needed in cfm (Us).
 - 4) Preliminary velocity as needed in fpm (mis).
 - 5) Final airflow rate in cfm (Us).
 - 6) Final velocity in fpm (mis).
 - 7) Space temperature in EF (EC).
 11. System-Coil Reports: For reheat coils and water coils of terminal units, include the following:
 - a. Unit Data: Include the following:
 - 1) System and air-handling unit identification.
 - 2) Location and zone.
 - 3) Room or riser served.
 - 4) Coil make and size.
 - 5) Flowmeter type.
 - b. Test Data: Include design and actual values for the following:
 - 1) Airflow rate in cfm (Us).
 - 2) Entering-water temperature in EF (EC).
 - 3) Leaving-water temperature in EF (EC).
 - 4) Water pressure drop in feet of head or psig (kPa).
 - 5) Entering-air temperature in EF (EC).
 - 6) Leaving-air temperature in EF (EC).
 12. Instrument Calibration Reports: For instrument calibration, include the following:
 - a. Report Data: Include the following:
 - 1) Instrument type and make.
 - 2) Serial number.
 - 3) Application.
 - 4) Dates of use.
 - 5) Dates of calibration.
- Z. Additional Tests
1. Within 90 days of completing testing, adjusting, and balancing, perform additional testing and balancing to verify that balanced conditions are being maintained throughout and to correct unusual conditions.
 2. Seasonal Periods: If initial testing, adjusting, and balancing procedures were not performed during near-peak summer and winter conditions, perform additional inspections, testing, and adjusting during near-peak summer and winter conditions.

AA. Executive Air Balance Summary Scope

1. Existing conditions reading of supply air and exhaust air systems in its entirety, with its CFM and SP readings, and summary of current control set points.
2. Full air balancing as hereinbefore defined. Existing basement Animal Room supply main shall be air balanced to match the existing conditions.

3.11: OPERATING INSTRUCTIONS

- A. All operating equipment installed under this section shall be placed in operation and shall function continuously in an operating test for a period of one week without shutdown due to mechanical failure or necessity of adjustment. Prior to scheduling the Project Final Inspection and after completion of all installation and running adjustments, the HVAC Subcontractor shall perform all work required to place the equipment in complete operating condition to meet all requirements under this Specification.
- B. During this running test period, the HVAC Subcontractor shall deliver to the designated representative of the Owner, through the Architect, six Complete sets of operating, service and replacement data for all equipment which will require operating maintenance or replacement and one copy of this literature shall be available during the instruction of the operating personnel while the other is checked for completeness by the Architect.

3.12: TRAINING

- A. Conduct a training course for the maintenance and operating staff. The training period of 40 hours normal working time shall start after the system is functionally complete but before the final acceptance tests. The training shall include all of the items contained in the operating and maintenance instructions as well as demonstrations of routine maintenance operations. The Owner's Representative shall be given at least two weeks advance notice of such training.
- B. During all working hours of the one week operating test, the HVAC Subcontractors instruction personnel shall be available for and provide thorough and detailed training to the Owner's operating and maintenance personnel in operation, maintenance and adjustment of all equipment installed. The instructions shall be video taped by the Subcontractor. The master tape and one (1) Copy shall be turned over to the Owner not more than 10 days following the completion of the training.
- C. Give sufficient notice to the designated operating personnel of the owner in advance of this period. Upon completion of instruction, obtain from such representatives written verification on that which the above mentioned instruction has been performed, such verification to be forwarded to the Designer.

3.13: CLEANING

- A. All items of work shall be thoroughly cleaned in a manner suitable for the work of trades to follow.
- B. All work adjacent to operations under this section shall be inspected for damage and stains and repaired or cleaned prior to the completion of work.

3.14: CLEAN-UP

- A. During the progress of the work, the Sub-contractor shall keep the premises clear of debris resulting from his operations and shall remove surplus and waste materials from the site daily.
- B. Upon completion of the work, the Sub-contractor shall remove from the site all equipment and materials used on the work as well as any debris resulting from the operations.

3.15: OBJECTIONABLE NOISE & VIBRATIONS

- A. All equipments shall operate without objectionable noise and vibration. If such objectionable noise or vibration should be produced and transmitted to portions of the building by apparatus or other part of mechanical work, make necessary changes and additions as approved without extra cost to the owner.
- B. Designer shall be the sole judge of the objectionable levels.

+ + + END OF SECTION + + +

VAV International, Inc.

file name: k:\HKT Architects\Gately Youth Center (2009-060)\spec-m.doc

Number	Revision	Date

Registrations

Consultants

VAV International Inc.
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WOBURN, MASSACHUSETTS 01890
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Project
**GATELY YOUTH CENTER
CAMBRIDGE, MA**

Drawing Title
PARTIAL ROOF LEVEL HVAC PLAN

FJS PGR
Drawn by Checked by

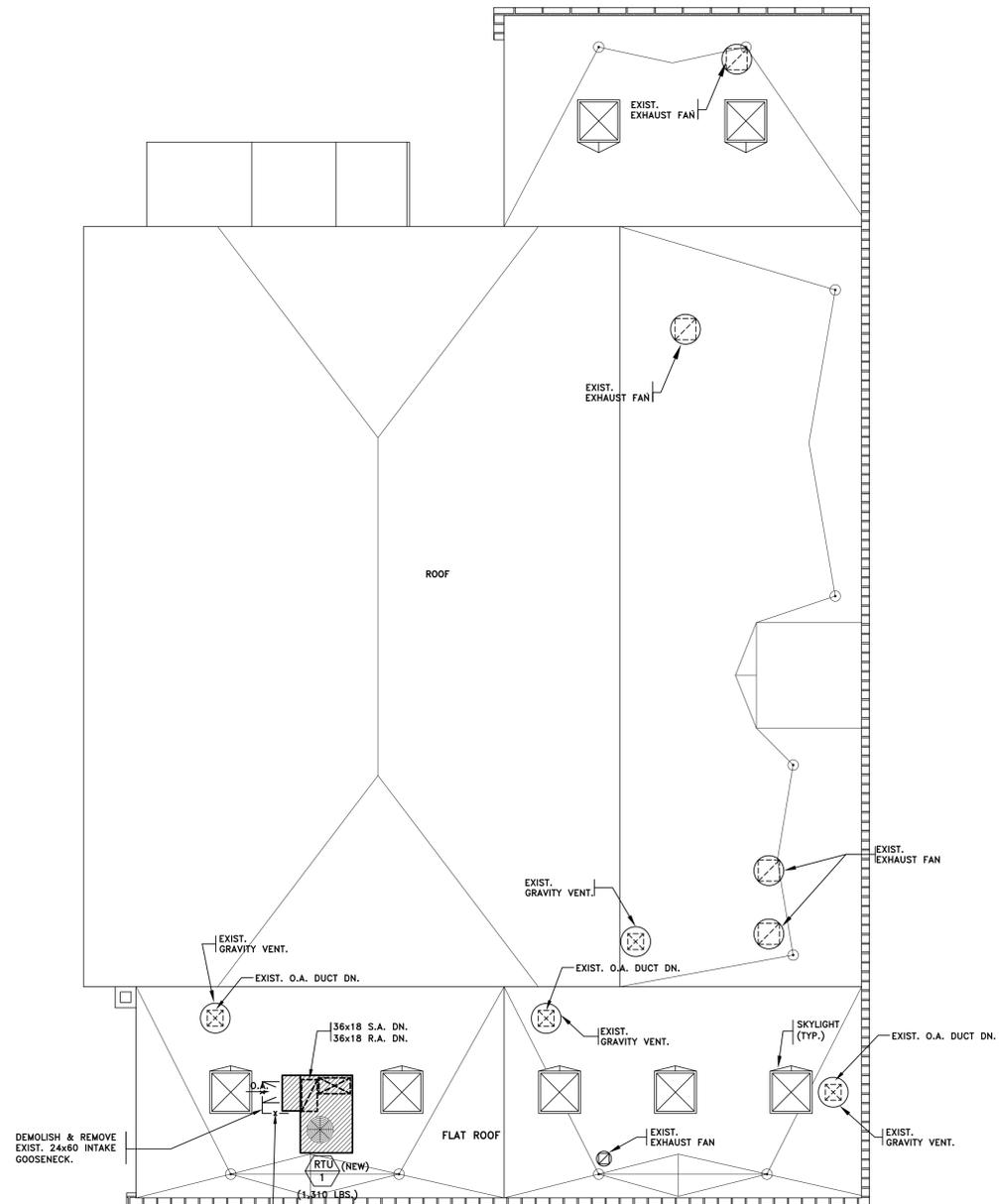
3-01-10
Date

20825
Job number

Drawing set

Drawing number

M-3



DEMOLISH & REMOVE EXIST. 24x60 INTAKE GOOSENECK.

LINETYPE DENOTES EXIST. DUCTWORK TO BE DEMOLISHED & REMOVED.

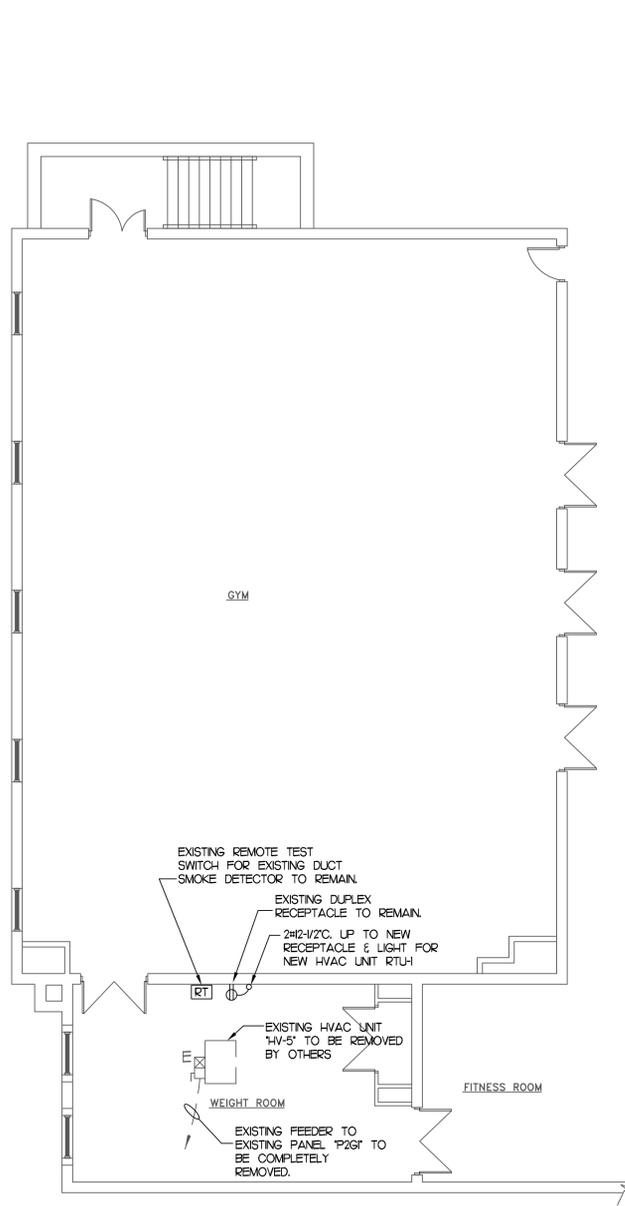
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M-3 SCALE: 1/8" = 1'-0"



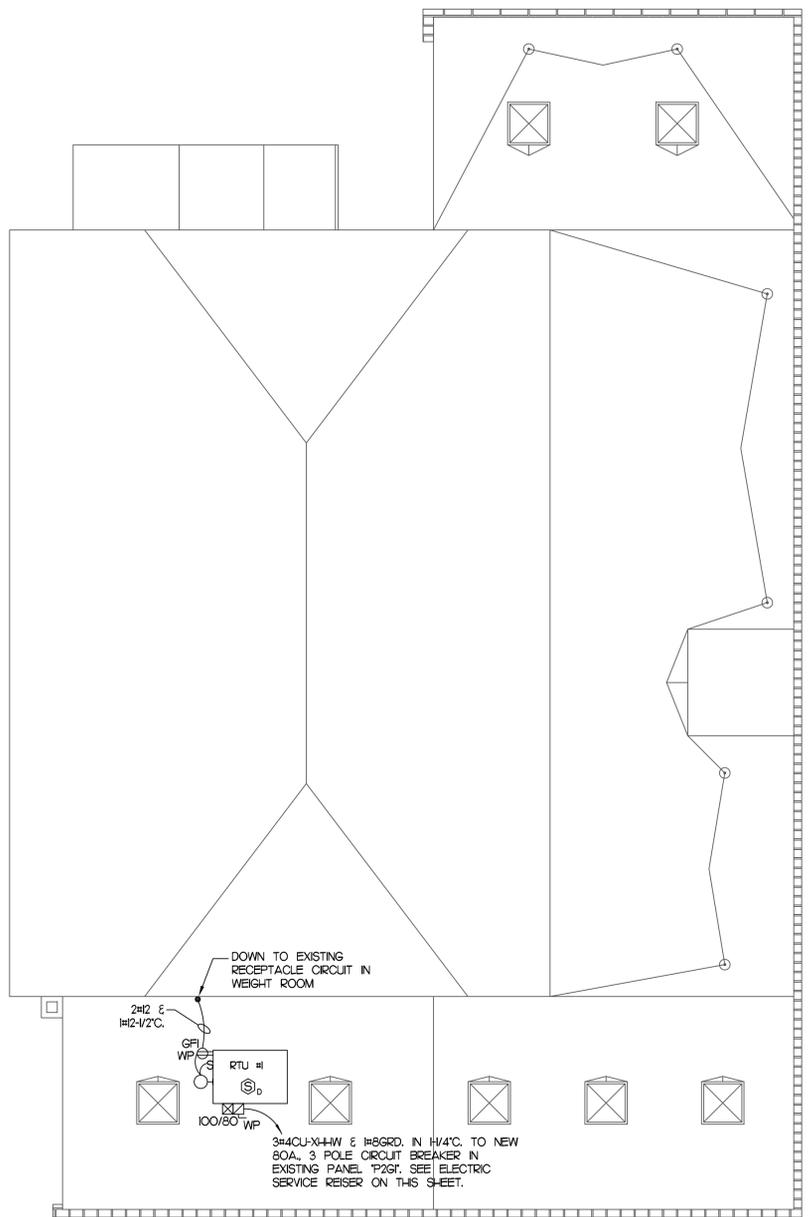
Number	Revision	Date

Registrations

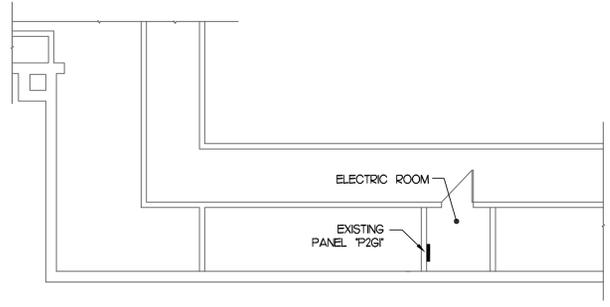
Consultants



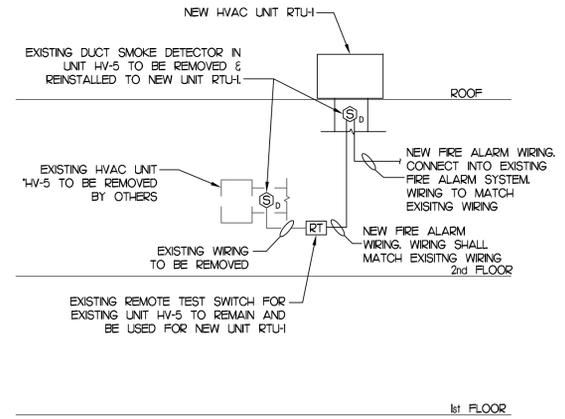
PARTIAL SECOND FLOOR PLAN
SCALE: 1/8"=1'-0"



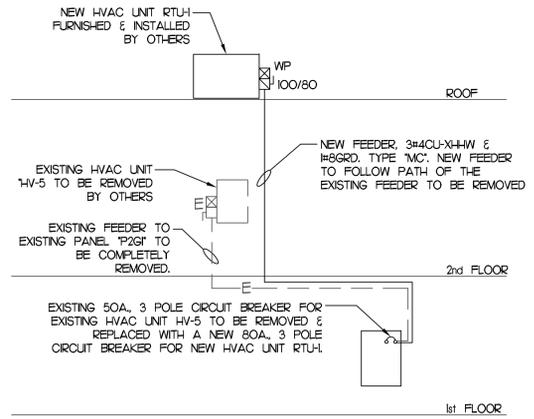
PARTIAL ROOF PLAN
SCALE: 1/8"=1'-0"



PARTIAL FIRST FLOOR PLAN
SCALE: 1/8"=1'-0"

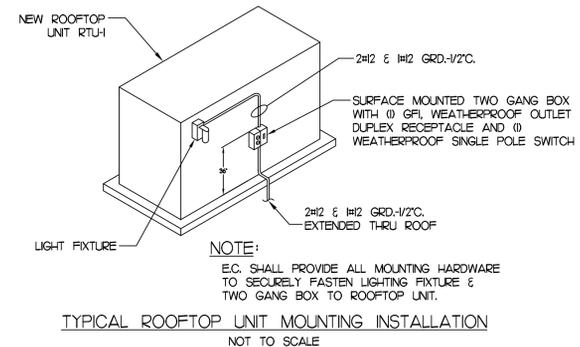


FIRE ALARM RISER for
NEW HVAC UNIT RTU-H
SCALE: 1/8"=1'-0"



ELECTRIC SERVICE RISER for
NEW HVAC UNIT RTU-H
SCALE: 1/8"=1'-0"

- ELECTRICAL SPECIFICATIONS:**
- ELECTRICAL CONTRACTOR SHALL OBTAIN ALL PERMITS AND PAY ALL FEES.
 - ELECTRICAL INSTALLATION SHALL BE IN CONFORMANCE WITH ALL LOCAL RULES AND REGULATIONS, OF THE ELECTRICAL AND STATE BUILDING CODES AND REQUIREMENTS OF THE TOWN FIRE DEPARTMENT AND WIRING INSPECTOR.
 - ELECTRICAL INSTALLATION AND MATERIALS SHALL BE GUARANTEED FOR A PERIOD OF ONE (1) YEAR UPON ACCEPTANCE OF ELECTRICAL INSTALLATION BY OWNER.
 - ALL BRANCH CIRCUIT WIRING IN CONDUIT SHALL BE 98% CONDUCTIVITY COPPER, #12 MINIMUM UNLESS OTHERWISE NOTED ON THE DRAWINGS.
 - ALL MATERIALS SHALL BE "UL" LISTED
 - PROVIDE LAMPS FOR ALL FIXTURES.
 - SUPPORT ALL ELECTRICAL WORK AND FIXTURES FROM BUILDING STRUCTURE IN A CODE APPROVED MANNER.
 - BEFORE SUBMITTAL OF BID, THOROUGHLY EXAMINE THE SITE AND EXISTING BUILDING. NO CLAIM FOR EXTRA COMPENSATION WILL BE RECOGNIZED IF DIFFICULTIES ARE ENCOUNTERED WHICH AN EXAMINATION OF EXISTING CONDITION PRIOR TO EXECUTING CONTRACT, WOULD HAVE REVEALED.
 - PRIOR TO THE INSTALLATION OF ANY NEW WORK, VERIFY THE LOCATION & ELEVATIONS OF THE EXISTING SYSTEMS TO WHICH NEW CONNECTIONS ARE SCHEDULED.
 - PROVIDE ALL CORING AND DRILLING THROUGH EXISTING WALLS AND FLOORS FOR THE INSTALLATION OF NEW CONDUIT SYSTEMS.
 - RECEPTACLES, SWITCHES, DEVICES AND RESPECTIVE PLATES AND FINISHES SHALL MATCH THOSE OF EXISTING.
 - PROVIDE NEW OUTLETS, DEVICES, DETECTORS AND RELATED EQUIPMENT FOR FIRE ALARM, AND ELECTRIC SERVICE EQUIPMENT AND CONNECT TO EXISTING SYSTEMS. ALL ITEMS SHALL BE OF THE SAME MANUFACTURER, TYPE AND FINISH AS EXISTING AND BE COMPATIBLE TO EXISTING SYSTEMS. COORDINATE INSTALLATION OF NEW ITEMS WITH SUPPLIERS OF EXISTING SYSTEMS AND EQUIPMENT AND MAKE NEW CONNECTIONS AS DIRECTED BY THEM. PROVIDE WIRING AS DIRECTED BY SUPPLIERS.
 - DISCONNECT AND REMOVE THE EXISTING DISCONNECT SWITCH, MOTOR STARTER, CIRCUIT BREAKER & BRANCH CIRCUIT WIRING FOR THE EXISTING HVAC UNIT "HV-5". THE OWNER WILL SELECT THE REMOVED ITEMS FOR HIS USE. ALL OTHER ITEMS WILL BELONG TO THE CONTRACTOR FOR HIS DISPOSAL.
 - ELECTRICAL CONTRACTOR SHALL PROVIDE ALL NECESSARY CIRCUIT BREAKERS IN THE EXISTING PANEL "P2GF" FOR THE NEW POWER CIRCUITS. PROVIDE AN UPDATED CIRCUIT BREAKER DIRECTORY CARD FOR PANEL "P2GF"



TYPICAL ROOFTOP UNIT MOUNTING INSTALLATION
NOT TO SCALE

ELECTRICAL LEGEND	
○	NEW LIGHT FIXTURE MOUNTED TO NEW HVAC UNIT RTU-H, TMS #69-02-F-W-126-H-120V-G-650, 120VOLT, WITH 1-26W CFL, CAST GUARD.
S	NEW WEATHERPROOF SINGLE POLE SWITCH
⊕	20A, 120VOLT, DUPLEX RECEPTACLE
Ⓢ _D	EXISTING DUCT SMOKE DETECTOR, SEE FIRE ALARM RISER FOR NEW UNIT RTU-H DIAGRAM ON THIS SHEET
RT	EXISTING REMOTE TEST SWITCH FOR EXISTING DUCT SMOKE DETECTOR, SEE FIRE ALARM RISER FOR NEW UNIT RTU-H ON THIS SHEET
⊠ _E	EXISTING MOTOR STARTER AND DISCONNECT SWITCH FOR EXISTING HVAC UNIT "HV-5" TO BE REMOVED.
⊠	NEW MOTOR STARTER FURNISHED BY OTHERS INSTALLED & WIRED BY ELECTRICAL CONTRACTOR
⊠	NEW FUSED DISCONNECT SWITCH SIZE AS INDICATED ON DRAWING
—E—	EXISTING BRANCH CIRCUIT WIRING TO BE REMOVED
—	NEW BRANCH CIRCUIT WIRING IN CONDUIT
—	NEW HOMERUN TO EXISTING PANEL "P2GF"
—○—	CONDUIT TURNING UP
—○—	CONDUIT TURNING DOWN
WP	WEATHERPROOF
GFI	GROUND FAULT INTERRUPTOR
CU	COPPER
C	CONDUIT

PROGRESS 3-8-10

Project
GATELY YOUTH CENTER
CAMBRIDGE, MA

Drawing Title
PARTIAL FLOOR PLANS &
MISCELLANEOUS DETAILS

JC	MAZ
Drawn by	Checked by
3-8-10	Date
20825	Job number
	Drawing set
	Drawing number

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