

Hardy School Addition

ADDENDUM NO. 2

January 12, 2018

The attention of bidders submitting proposals for the above subject is called to the following addendum to the specifications and drawings. The items set forth herein, whether of omission, addition, substitution, or clarification are all to be included in and form a part of the proposal submitted.

NOTICE TO CONTRACTORS:

Bidders to review changes below.

CHANGES TO SPECIFICATIONS:

Section 000001 Table of Contents has been revised to:

Add Division 00 Section 013 General Project Requirements

Remove Section 09 00 07 Paint from the Table of Contents. Remove the words (filed sub bid required) from Section 09 09 00 Painting and Coating.

Section 002 Instructions to Bidders has been revised to:

Section 1.1.C Change the date to read 'January 24, 2018' in lieu of 'January 17, 2018'.

Section 1.2.C Change the date to read 'Tuesday, January 30, 2018' in lieu of 'Wednesday, January 17, 2018'.

Paragraph 1.17. A replace the word 'March' with November.

Section 003 Invitation to Bid has been revised to:

Remove the words Metal Windows for the Filed Sub-Bid description. The Filed Sub-Bid description for this work are: Masonry, Waterproofing, Dampproofing & Caulking, Roofing & Flashing, Glass & Glazing, Acoustical Ceilings, Resilient Flooring, Fire Protection Plumbing, HVAC, Electrical.

Section 007a Subcontractor Payment Bond has been revised to:

Clear Construction Manager name.

Section 011b Standard AIA Document Agreement Between Owner and Contractor has been revised to:

Replace Document 011b.

Section 012200 Unit Prices has been revised to:

Section 1.3 Item 2. Estimated quantity replace 150sf with 225sf.

Section 075300 EPDM Roofing has been revised to:

Remove Section 1.4.D

Section 1.4.E remove the words ' and recommendations in FMG 1-49 Loss Prevention Data Sheet for Perimeter Flashings; FMG 1-29 Loss Prevention Data Sheet for Above Deck Roof Components'.

Remove Section 1.2.C.1 & 1.2.C.1.a.

Section 3.5.H.1 remove words 'under green roof areas and elsewhere,'.

Section 081110 Hollow Metal Doors and Frames has been revised to:

Remove Section 1.2.A.3.

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Section 099000 Painting and Coating has been revised to:

Remove the words (Part of Work of Section 090007- Painting, Filed Sub Bid Required)

Section 283111 Addressable Fire-Alarm System has been revised to:

- a. Paragraph 2.15.C, Replace the words "speaker" with "horn".
- b. Paragraph 3.5.B, Delete Subparagraph 3.5.B.4 in its entirety.

CHANGES TO DRAWINGS:

A310- Replace dampproofing with waterproofing at details 1 & 11.

A600- Include 5/8" substrate board at Roof Type A

A601- Add Silicone Sheet Extrusions to Storefront openings

A610- Refer to clouded hardware changes in the Door Schedule.

P-002 – Revision to voltage on ejector pump system, refer to clouded changes.

P-003 - Refer to clouded changes

FP-001 – Revise Hydrant flow test data to read, Sprinkler Contractor shall own hydrant flow test.

E100 - Lighting fixture schedule- Revise description for light fixture type D, manufacturer Lotus LED, model LY41RCD/30K, wired via RC3D

REQUEST FOR INFORMATION:

1. The invitation to bid lists Metal Windows as a filed sub-bid category, but no Metal Windows section exists. Please clarify.
No Metal Windows are included in the project. The Invitation to Bid specification Section 003 has been modified.
2. Online- where you would submit the painting bid for the above is missing from the list. But if you go to the specification sections there is FSB- Painting
Paint will not be required to be a Filed Sub-Bid as the projected bid is under the \$25,000 threshold. Section 000001 Table of Contents and Section 099000 Painting and Coating has been modified.
3. What types of audible notification devices will be required? There is mention of both horns and speakers in the specifications. Please clarify.
Horns are to be included; Audible notification speakers are not included. Section 283111 Addressable Fire- Alarm System has been revised.
4. What types of audible notification devices will be required? There is mention of both horns and speakers in the specifications and I want to be certain to carry the correct devices.

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Horns are to be included; Audible notification speakers are not included. Section 283111 Addressable Fire- Alarm System has been revised.

5. Detail 4 on P003 shows a point of use water heater mounted below the sink. The discharge of the temperature and pressure relief valve is shown going into an open ended drain with a backwater valve. Several issues arise with this type of installation. (1) This open ended drain is double trapped and will not be permitted by code. (2) the vent for this open ended drain must extend at least 6" above the flood level rim of the sink before it can connect back to the vent. (3) The trap for the open ended drain can potentially evaporate and release sewer gases into the sink base. Please advise if there is going to be a change in design for this installation.
Refer to revised details on P003.
6. Sink P-1 is a double bowl sink but shown as a single bowl sink. The fixture schedule lists a trap, valves, and connections but not a continuous waste to connect both bowls of the sink. Please provide specifications for a continuous waste that will be connected with the trap specified for this installation.
Refer to revised details on P003.
7. Please verify the completion date of 3/31/2018 listed in par. 1.17 of the instructions to bid along with the amount of liquidated damages. Thank you.
Completion date indicated in par 1.17 is incorrect. Substantial Completion shall be achieved by October 24, 2018. Liquidated Damages will be \$3,000 per day with no grace period. Please refer to the schedule provided as part of the bid documents for additional information.
8. For bid bond purposes, can you confirm the substantial date of completion as "March 2018" (Instructions to Bidders, Page 6, Paragraph 1.17).
The anticipated substantial completion date for the project is November 2018. Section 002 Instruction to Bidders section 1.7.A has been amended.
9. Section 01 10 00 – General Requirements: Kindly confirm the GC provides boom lifts/scaffolds/rigging, etc., as indicated on Page 16, 1.14 (H).
Yes, the GC is responsible to provide boom lifts/scaffolds/rigging, etc., as indicated on Page 16, 1.14 (H).
10. In the bid bond form provided the title says "Hardy Elementary School, but the body lists "Gibbs Middle School" can this be corrected and reissued so that we can use the correct form? If the correction is not possible at this please let us know if we can use the standard AIA form instead.
Please cross out the "Gibbs Middle School" and replace it with the Hardy Elementary School. It will be acceptable.
11. I was looking to see if you were looking for a number directly for the Division 27 Communications portion of the Hardy School Addition or if this portion was being bid through the Electrical Contractor. If you can update me in regard to this at your earliest convenience it would be greatly appreciated.
This should be bid through the Electrical Contractor.

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12. Section 081110 notes in paragraph 1.2 A.3 hollow metal doors are preglazed. Section 088010 Filed Sub-bid Interior Glazing paragraph 1.2
Hollow metal doors should be field glazed. 1. 2. A. 3. should be deleted.
13. Who is the base building Automatic Control Contractor and what Control System is currently in place at the existing Hardy School?
The existing control system is Johnson Controls.
14. The specs call to tie-in the new ATC to the existing. Can you tell me what the existing system is?
2x4 suspended ceiling tile on metal tee ceiling system.
15. Per Structural Drawing S000, noting this building is designated as a Seismic Design Category "B", will seismic bracing be required for the fire protection scope 210000? Per the Mass State Building Code, and ASCE 7-05 (paragraph 13.1.4), seismic bracing may be eliminated in buildings that fall under Seismic Design Category "B". Except in specific cases like Emergency shelters, or the like.
Fire protection does not require seismic bracing per Mass Code and ASCE7.
16. Please provide any existing hydrant flow test data for or around the site. The hydrant flow test data space shown on Fire Protection drawing FP001 is blank.
Refer to revised FP001 plan. Sprinkler contractor shall own hydrant flow test.
17. Please provide a liquidated damages amount.
Liquidated Damages will be \$3,000 per day with no grace period.
18. The insurance requirements have been edited and crossed out. Can you please provide complete insurance requirements for subcontractors?
Refer to revised Document 011b.
19. Please clarify the intent for the remote controls (2) called out in the Division 27 41 20 spec. for Speech Reinforcement Systems. The remotes do not control the Topcat or Microphones, instead are used to select individual small group speakers, which are not included in this spec. Please clarify intent of if the remotes should be remotored all together.
The project requires (2) wireless Flexmikes per classroom. No 2-Way wireless pods are planned for classrooms, therefore no pod remote control (2) are required.
20. Please refer to Page 075300-1 Paragraph 1.2/C/1. This instructs the roofer to install the roof drains (furnished by the plumber). However, Page 220001-2 Paragraph 1.3/B/5 states that the Plumbing FSB owns the roof drains. Our assumption is that the plumber installs the drain bodies, and the roofer's responsibility is limited to installing the clamping rings and strainers. If our interpretation is incorrect, please issue an addendum clarifying this issue.
All roof drain work to be installed and completed by plumber. Section 075300 remove section 1.2.C.1 & 1.2.C.1.a.
21. Please refer to Page 075300-1 Paragraph 1.2/C/2. This instructs the roofer to install the HVAC curbs (furnished by 230001).

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The HVAC contractor would provide and install the roof curbs for the RTU. The General Contractor would then roof around the curbs to make water-tight.

22. Please refer to Page 075300-2 Paragraph 1.4/D/1. There are 5 different uplift values listed. Which value does the installed.
Section 1.4.D is removed from the 075300 specifications, refer to the Structural Drawings for wind requirements.
23. Please refer to Page 075300-6 Paragraph 2.5/D/E. This specifies a substrate board. However, Roof Type A on A600 does not show a substrate board. Please clarify whether or no a substrate board is required.
Include 5/8" substrate board at Roof Type A.
24. Please refer to Page 075300-8 Paragraph 3.5/H. This instructs us to adhere the cover board at "...green roof areas and elsewhere, where indicated." There is no green roof on this job. However, Roof Type A on A600 does not specify whether cover board is to be mechanically attached or adhered. Please clarify.
The roof is mechanically fastened as noted in the specifications. Section 3.5.H.1 remove words 'under green roof areas and elsewhere,'.
25. Please specify thickness of aluminum coping.
Refer to Section 077100- 4, 2.4.B.1 Roof Specialties for thicknesses.
26. In 07 27 00 (Air Barriers), Page 6, Paragraph 2.2 L....calls for silicone sheet extrusions. We did not observe them in the drawings/details. If it is required, details need to be provided for locations, widths, installation etc. Please clarify. Thank you.
Refer to clouded changes on A601 for Silicon Sheet extrusion locations.
27. The attached bid bond that was provided indicates the project as the Gibbs Middle School, not the Hardy Elementary School. Will a new bid bond be provided?
Please just cross out the "Gibbs Middle School" and replace it with the Hardy Elementary School. It will be acceptable.
28. Regarding the Hardy School Addition Project, Door 048 (Music Storage Room) and Door 050 (Electric Closet) call for Hardware Sets 02 and 05 on the door schedule. In the Specifications (08 71 00) the particular rooms call for Hardware Sets 03 and 04 respectively. Please clarify.
Door 048 Refer to clouded hardware changes in the Door Schedule on A610.
29. Detail 9/A501 is shown on the floor plans and at detail 3/A301, at the new addition, but it is not in the drawings. Is it available?
Detail is on sheet A501 in the upper righthand corner.
30. Detail 8/A310 at existing foundation wall – will that be all vapor retarder or is it other materials/products? Will this be confined space?
Refer to Section 071300 Waterproofing for materials.

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31. Details on A310 indicate 'dampproofing'. There is no section under 07 00 01 for dampproofing. Please clarify.
Refer to revised clouded A310 details.
32. 07 00 01 indicates waterproofer carries 07 13 00, (sheet waterproofing and blindside waterproofing) - there are no details for this. Kindly clarify.
Rubberized- Asphalt Sheet Waterproofing to be applied on below grade vertical applications and HDPE waterproofing to be installed below concrete slab on grade.
33. There doesn't seem to be drawings showings heights of foundation walls/footing. Kindly clarify.
Refer to S101 & S400 for Top of Wall elevations.
34. 2/L501 indicates sealant at horizontal concrete pavement joints. They are not shown in the drawings, but they are every 30 feet OC. Where do they start/end? Can they be provided?
Expansion joints to occur at the beginning and end of each section of new concrete walk. Where a section of walk exceeds 30' in length, evenly distribute expansion joints to coincide with tooled control joint pattern, with a 15' minimum dimension between EJ's. DMLA estimates that 8-10 EJ's will be required, with a typical length of 6' (path is 6' wide).
35. Specification Section 075300-1(1.2-C), states that the roof drains are to be installed as furnished by Section 220001. Will the Plumbing FSB own this? Will the Roofing FSB own installing the clamp ring and the strainer basket?
Plumbing contractor would provide and install roof drains. The GC would then roof to the drains and make watertight.
36. Specification Section 075300-10(3.10-A), states that the Roofing FSB owns roof protection. Will the Roofing FSB only own protecting the roof during roof construction? Will the Roofing FSB own roof protection after the roof is complete?
Roofing FSB owns protection during roof construction. Protection after roof work to be included in General Conditions.
37. Does the Roofing FSB own Section 077100 – Roof Specialties?
Roof Specialties to be included in Roofing FSB.
38. Who owns the metal flashing on Details 11, 12, & 13 on Drawing A310?
Metal flashing included in Metal Composite Panel scope.
39. Does the tapered insulation have a minimum of R=40, or does it have an average of R=40?
Minimum R-40
40. Does the Masonry FSB own furnishing and installing the thru-wall flashing?
Yes, as noted in specification embedded flashing is included.
41. Does the GC own staging, hoisting, and the dumpster?

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Yes, GC will be responsible to provide staging, hoisting, and dumpsters as required to complete the Work.

42. Section 088010 Interior Glazing Paragraph 1.2 states "Provide labor, materials, and equipment to complete the work of this section, including...glass and glazing for...Steel doors, frames, and sidelights specified in Section 081110 – Hollow Metal Doors and Frames."
However, Section 081110 Paragraph 1.2 states "Provide labor, materials, and equipment necessary to complete the work of this section, including...glass lites for hollow-metal steel doors and frames."
Hollow metal doors should be field glazed. 1. 2. A. 3. should be deleted.
43. Which section owns the glazing in Hollow Metal Doors and Frames?
080002 Glass and Glazing.
44. 012200 has an estimated quantity of 150 SF of roof replacement. Is this in addition to the approximately 225 SF shown on A104? In other words, should we carrying an allowance of 150 SF in addition to the 225 SF? Please clarify.
Replace 150sf in estimated quantity of Section 012200 Unit Prices with 225sf. 225sf is the total allowance.
45. Anyway we can find out what the existing DDC is in the Harding School?
The existing DDC system is a Johnson Controls System.
46. In looking at the waterproofing/dampproofing for the Hardy School, the drawings indicate dampproofing on the new concrete foundation walls but the specifications call for a waterproofing material. Please advise.
Refer to revised clouded A310 details.

END OF ADDENDUM NO. 2

PROJECT MANUAL

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SECTION 002
INSTRUCTIONS TO BIDDERS

1.1 SCHEDULE OF DATES for SUB-CONTRACTOR BIDDERS

A. Bid Documents Available: December 20, 2017 at 2:00 PM EST at www.biddocsonline.com (may be viewed electronically and hard copy requested) or at Nashoba Blue, Inc. at 433 Main Street, Hudson, MA 01749 ([978-568-1167](tel:978-568-1167)).

B. An optional, but “recommended” site tour will take place for Trade Contractors at the school, located at 52 Lake St, Arlington, MA 02474, on ~~Thursday, January 4th at 11:00 AM.~~
Wednesday, January 10th at 11:00 AM. ADDENDUM #1- 01.04.18

C. Trade Contractor Bids for the Hardy Elementary School Project in Arlington, MA will be **received up until 2:00 PM on Wednesday, January 10, 2018** ~~January 17, 2018, January 24, 2018~~ by the Awarding Authority c/o Vivian Varbedian, JLL 730 Massachusetts Ave, Arlington, MA02476, and at that time will be publically opened and read aloud. Bids may be deposited at the office during regular business hours, between the hours of 8:00 AM and 4:00 PM. **ADDENDUM #1- 01.04.18 ADDENDUM #2- 01.12.18**

D. Questions and requests for interpretations may be submitted c/o JLL Attention: Vivian Varbedian via email Vivian.Varbedian@am.jll.com no later than **2pm on January 11, 2018.**

E. Addenda will be issued with interpretations as determined by the Architect.

1.2 SCHEDULE OF DATES for GENERAL CONTRACTOR BIDDERS

A. Bid Documents Available: **December 20, 2017 at 2:00 PM EST** at www.biddocsonline.com (may be viewed electronically and hard copy requested) or at Nashoba Blue, Inc. at 433 Main Street, Hudson, MA 01749 ([978-568-1167](tel:978-568-1167)).

B. An optional, but “recommended” site tour will take place for General Contractors at the school, located at 52 Lake St, Arlington, MA 02474, on ~~Thursday, January 4th at 11:00 AM.~~
Wednesday, January 10th at 11:00 AM. ADDENDUM #1- 01.04.18

C. General Contractor Bids for the Hardy Elementary School Project in Arlington, MA will be **received up until 2:00 PM on Wednesday, January 17, 2018** ~~Tuesday, January 30, 2018~~ by the Awarding Authority c/o Vivian Varbedian, JLL 730 Massachusetts Ave, Arlington, MA02476, and at that time will be publically opened and read aloud. Bids may be deposited at the office during regular business hours, between the hours of 8:00 AM and 4:00 PM.

ADDENDUM #2- 01.12.18

D. Questions and requests for interpretations may be submitted c/o JLL Attention: Vivian Varbedian via email Vivian.varbedian@am.jll.com no later than **2pm on January 11, 2018.**

E. Addenda will be issued with interpretations as determined by the Architect. HARDY ELEMENTARY SCHOOL ADDITION PROJECT – Construction Documents Finegold Alexander Architects, Inc. 52 Lake Street, Arlington, MA December 1, 2017

1.3 BIDDERS REPRESENTATION

A. Each Bidder by making a Bid represents that:

1. The Bidder has read and understands the Contract Documents and the Bid is made in

accordance therewith.

2. The Bidder has visited the site and is familiar with the local conditions under which the work has to be performed.

3. The GC and MEP/FP Bidders shall utilize the Building Information Modeling (BIM) & clash detection software to identify potential conflicts prior to putting any Work in Place

1.4 REQUESTS FOR INTERPRETATION

A. Bidders shall promptly notify JLL of any ambiguity, inconsistency, or error which they may discover upon examination of the Contract Documents, the site, and local conditions.

B. Bidders requiring clarifications or interpretations of the Contract Documents shall make such request to JLL.

1.5 PREPARATION AND SUBMISSION OF BIDS

A. Bids for the Work are subject to the provisions of General Laws, Chapter 149, Section 8. Regulations governing bidding procedures as set forth in above mentioned General Laws must be followed.

B. In the event of any inconsistencies between any of the provisions of these Bidding Documents, and of the cited statute, anything herein to the contrary notwithstanding, the provisions of the said statute shall control.

C. Bids shall be submitted on the appropriate Commonwealth of Massachusetts "Form for Trade Contractor Bid" included in the Project Manual.

D. All entries on the Bid Form shall be made by typewriter or in ink.

E. Where so indicated on the Bid Form, sums shall be expressed in both words and figures. Where there is a discrepancy between the Bid sum expressed in words and the Bid sum expressed in figures, the words shall control.

F. Bid Security shall be five (5%) percent of the highest possible bid amount, including all "add" alternates. They shall be made payable to the awarding authority and shall be either in the form of a bid bond issued by a surety licensed to do business in the Commonwealth of Massachusetts; a certified check, treasurer's or cashier's check issued by a responsible bank or trust company payable to the Town of Arlington. The bid deposit shall be satisfactory to the Awarding Authority and shall be conditioned upon the faithful performance by the Principal of the agreements contained in the bid.

G. Bid Securities of the three (3) lowest responsible and eligible Bidders shall be retained until the execution and delivery of the Owner/General Contractor Agreement.

H. Trade Contractor Bids and Bid Securities shall be submitted with the following:

1. A Certificate of Eligibility issued by the Division of Capital Asset Management and Maintenance showing that the Bidder has been approved to bid on projects the size and nature of this project.

a. It is the Bidder's responsibility to obtain the necessary forms from the Division of Capital Asset Management and Maintenance and make application in

sufficient time for evaluation of the application and issuance of a Certificate of Eligibility prior to bid.

2. A Contractor Update Statement, Division of Capital Asset Management and Maintenance Form CQ3.

b. The Contractor Update Statement is not a public record as defined in M.G.L. Chapter 149 Section 44D1/2 and will not be open to public inspection.

3. Bids will only be valid when accompanied by the Bid Deposit, Certificate of Eligibility, Affidavit of Prevailing Wage Compliance, Trade Contractor Bid Form, Certificate of Tax Compliance, Non-Collusion Certificate, Secretary's Certificate, Subcontractors Equal Employment Certified, and Contractor Update Statement, as outlined above.

I. The Bid, Bid Securities, Certificate of Eligibility, and Contractor Update Statement shall be enclosed in a sealed envelope with the following plainly marked on the outside:

1. BID FOR: TRADE CATEGORY

2. NAME OF AWARDING AUTHORITY AND PROJECT NAME:

TOWN OF ARLINGTON, MA

HARDY ELEMENTARY SCHOOL ADDITION PROJECT

PROJECT BID NUMBER: 17-61

3. BIDDER'S NAME AND BUSINESS ADDRESS:

4. PHONE NUMBER AND CONTACT PERSON:

J. Date and time for receipt of Bids is set forth in the invitation.

K. Timely delivery of a Bid at the location designated shall be the full responsibility of the Bidders. No Trade Contractor Bid received after the time, respectively established herein for the opening of Trade Contractor Bids, will be considered, regardless of the cause of the delay in the receipt of any such bid.

1.6 ADDENDA

A. Acknowledge all addenda. Indicate the numbers of each and every addendum on the appropriate place on the Form for Trade Contractor Bid. Failure to acknowledge all addenda may result in disqualification of the Bid. It is the responsibility of each Bidder to ascertain the number of addenda issued during the Bidding period.

1.7 WITHDRAWAL OF BIDS

A. Any bid may be withdrawn prior to the time designated for receipt of bids on written or telegraphic request. Telegraphic withdrawal of bids must be confirmed over the Bidder's signature by written notice post-marked on or before the date and time set for receipt of bids.

B. Withdrawn bids may be re-submitted up to the time designated for the receipt of bids.

C. No bids shall be withdrawn within thirty days, Saturday, Sundays, and legal holidays excluded,

after the opening of the bids. This applies to the Trade Contractor Bidders.

1.8 INTERPRETATION OF CONTRACT DOCUMENTS

- A. No oral interpretation will be made to any Bidder.
- B. Every interpretation requested shall be made in writing to JLL, no later than the dates and times listed in Para. 1.01 above. No such request after this date will be given consideration.
- C. Every interpretation made to a Bidder will be in the form of an addendum to the Bidding Documents, which will be made available to all persons to whom Bidding Documents have been issued.
- D. Failure of the Awarding Authority to send or of any Bidders to receive, any such addendum shall not relieve any Bidder from any obligation under his Bid as submitted.
- E. All such addenda shall form a part of the Contract Documents and modify the Bidding Documents.

1.9 PURCHASE AND MAILING OF BIDDING DOCUMENTS

- A. Documents may be obtained from BFS Printers, 76 South Street, Boston, MA 02111. Tel. (617) 482-7770; Fax (617) 423-2071; Web: www.bfsprinters.com. Each Trade Contractor may obtain one set of the contract documents by payment of a refundable deposit of \$200.00 per set, in the form of a certified, treasurer's or cashier's check, payable to the Town of Arlington. This deposit will be refunded upon return of the sets in good condition within thirty calendar days after the closing date for bids. Additional sets may be purchased for \$200.00 per set (non-refundable).
- B. Bidding Documents will be mailed to Trade Contractors upon request. Such requests must be accompanied by a non-refundable mailing fee of \$80.00, which must be in the form of a certified, treasurer's or cashier's check payable to BFS Business Printers to cover the cost of shipping and handling for each set of documents. Please mail payments to: BFS Business Printing, P.O. Box 52200, Boston, MA 02205-2200. This fee is for mailing (1) complete Bid Set. Additional copies of the Bid Set will require an additional payment of \$80.00 per additional set.

1.10 BID SECURITY

- A. The Trade Contractor's Bid must be accompanied by a bid security in the amount of 5% of the total Bid amount including all "add" Alternates as applicable to the Bidder. At the option of the Bidder, the security may be a bond, certified check, treasurer's check or cashier's check issued by a responsible bank or trust company. No other type of bid security is acceptable.
- B. Certified, treasurer's or cashier's checks shall be made payable to the Town of Arlington.
- C. The bid security shall secure the execution of the Contract and the furnishing of performance and payment bonds by the successful Bidder.
- D. Should any Bidder to whom an award is made fail to enter into a Contract therefore within five (5) days (Saturdays, Sundays and legal holidays excluded) after notice of award has been mailed to them or fail within such time to furnish a performance bond and also a labor and materials payment bond as required, the amount so received from such Bidder through their bid bond, certified check, treasurer's or cashier's check as bid security shall become the property of the Awarding Authority as liquidated damages; provided that the amount of the bid security which becomes the property of the Awarding Authority as liquidated damages shall not, in any

event exceed the difference between the bid price and the bid price of the next lowest responsible and eligible Bidder, and provided further that, in case of death, disability, bona fide clerical or mechanical error of a substantial nature, or other unforeseen circumstances affecting the General Bidder, their bid security shall be returned to them.

E. Bid bonds, certified check, treasurer's or cashier's check, for the amount thereof, of the three lowest responsible and eligible Bidders may be held by the Awarding Authority during the time stipulated for the execution of the Contract and the submission of performance and labor and material payment bonds, and may be disposed of in such a manner as will accomplish the purpose for which they are submitted. After the expiration of such period, bid guarantees not disposed of, or the amounts thereof, will be returned to such Bidders. The bid guarantees of the other Bidders will be returned within five (5) days (Saturdays, Sundays and legal holidays excluded) after the opening of Bids. Certified checks may be uncollected at Bidder's risk.

1.11 BID FORMS

A. Trade Contractor Bids shall be submitted on the "Form for Trade Contractor Bid" enclosed. Erasures or other changes must be explained or noted over the signature of the Bidder.

B. Bid forms must be completely filled in. Bids which are incomplete, conditional or obscure, or which contain additions not called for, will be rejected.

C. Bidders shall submit one set of executed bid forms to the Awarding Authority.

D. Acknowledge all addenda. Indicate the numbers of each and every addendum in the appropriate place on the Form for Bid. Failure to acknowledge all addenda may result in disqualification of the Bid. It is the responsibility of each Bidder to ascertain the number of addenda issued during the Bidding period.

1.12 CONTRACT AWARD

A. "Award" means the determination and selection of the lowest, responsible and eligible Bidder, by the Owner.

B. The words "lowest responsible and eligible Bidder" shall mean the Bidder whose Bid is the lowest of those Bidders demonstrably possessing the skill, ability and integrity necessary for the faithful performance of the Work and who meets the requirements set forth in M.G.L. Chapter 149, Section 44A-J and not debarred from bidding under M.G.L. Chapter 149, Section 44C; and who shall certify 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. Essential information in regard to such qualifications shall be submitted in such form as the Awarding Authority may require.

C. The Contract shall be awarded to the "lowest responsible and eligible General Bidder" on the basis of competitive bids in accordance with the procedures set forth in the provisions of Section 44A-J, of Chapter 149 of the General Laws of the Commonwealth of Massachusetts.

D. The Owner will award the contract to the lowest responsible and eligible Bidder within sixty (60) days (Saturdays, Sundays, and legal holidays excluded) after the opening of Bids.

E. The Owner reserves the right to waive any informality in or to reject any or all Bids if it be in the public interest to do so.

F. The Owner also reserves the right to reject any Bid if it determines that such Bid does not represent the Bid of a person competent to perform the work as specified or if less than three (3)

Bids are received.

1.13 FORMS REQUIRED AT CONTRACT APPROVAL

A. Upon award, the Bidder shall complete the following forms to ensure prompt contract validation. These forms are provided in the Project Manual. Submit three (3) originals of each form.

1. Owner/Contractor Agreement
2. Form of Corporate Vote (If Applicable)
3. Form of Certification of Payment of state Taxes and Non-Collusion Affidavit
4. Form of Payment Bond (See Conditions)
5. Form of Labor and material Payment Bond (See Condition)

B. Insurance Certificates for the General Contractor in the amount of the coverage required must be submitted prior to contract validation. General Contractors must indicate on Builder's Risk Insurance if stored materials are covered.

1.14 PERMITS AND INSPECTION FEES

A. A building permit and other municipal permits, as applicable, are required. It is the policy of the Town of Arlington that Trade Contractors shall apply for and obtain all building and other required permits in full accord with the General Laws and the applicable codes.

1.15 WAGES OF LABOR

A. In conformity with the provisions of the Labor Laws of the Commonwealth of Massachusetts, the minimum wages for a day's work paid to craftsmen, teamsters, mechanics and laborers shall be not less than those established by a schedule which has been prepared by the Department of Labor and Industries and which is included in the contract conditions. The Owner and Architect assume no responsibility for the accuracy of the rates set forth in this schedule and no claims for additional compensation will be considered because of any inaccuracy in the rates set forth herein.

1.16 PAYMENTS TO CONTRACTOR

A. Payments to the Trade Contractor shall be made in accordance with the provisions of Section 39K of Chapter 30 of the General Laws and as specified hereinafter in the attachments.

1.17 CONTRACT COMPLETION

A. The selected Trade Contractor must agree to commence the Work under this Contract in conformance with the Contract Documents and to substantially complete the Work no later than **March November 2018. ADDENDUM #2- 01.12.18**

B. In the event when work is not completed within the time specified, as per the Owner-Construction Manager at Risk Agreement, the Trade Contractor is liable for, not as a penalty but as liquidated damages, the sum of Two Thousand Dollars (\$2000.00) for each calendar day after which completion was required, up to and including the date of Substantial Completion.

1.18 INSURANCE

A. Reference is made to Division 00 – Procurement and Contracting Requirements for provisions pertaining to insurance.

1.19 MASSACHUSETTS SALES TAX

A. The Massachusetts Sales Tax does not apply to materials purchased for contracts with the United States, the Commonwealth of Massachusetts, or any political subdivision thereof, or their respective agencies.

1.20 EQUAL OPPORTUNITY, AFFIRMATIVE ACTION REQUIREMENTS

A. The Town of Arlington is an equal opportunity, affirmative action employer and encourages participation of minority-owned and women-owned businesses.

1.21 OSHA TRAINING CERTIFICATION

A. Each employee of the Trade Contractor and Subcontractors that will be present on the project site must have the state required OSHA training certification.

B. A copy of each employee's certification card must be readily available and on site throughout construction activities.

C. The Trade Contractor is responsible for ensuring that all employees and Subcontractors comply with all OSHA regulations.

1.22 CORI FORMS

A. Each employee of the Trade Contractor and Subcontractors that will be present on the project Site post occupancy must fill out a CORI form and present in person the form with a valid and legal picture identification card to the authorized CORI representative at the school for a criminal background check to be performed.

B. The CORI representative will provide the Trade Contractor with forms of identification for each employee of the Trade Contractor and Subcontractors that are cleared and authorized to be on site.

C. A copy of each employee's identification card must be readily visible at all times throughout construction activities.

D. No employee of the Trade Contractor or Subcontractors shall have any contact with any student at any time while on school premises.

1.23 MCAS SUBJECT AREA TEST DATES

A. A two hour period during the normal school day between the hours of 8:00 am and 3:00 pm during the months **of April 2, 2018 through May 25, 2018** will require quitter work to be performed during the designated two hour window in order for the school to maintain the testing schedule.

END OF SECTION

TOWN OF ARLINGTON
MASSACHUSETTS

SECTION 003
INVITATION TO BID

BID #17-61

THIS PROJECT IS BEING ELECTRONICALLY BID AND HARD COPY BIDS WILL NOT BE ACCEPTED. Please review the instructions in the bid documents on how to register as an electronic bidder. The bids are to be prepared and submitted at www.biddocsonline.com. Tutorials and instructions on how to complete the electronic bid documents are available online.

The Town of Arlington invites sealed bids from General Bidders and Sub-Bidders for the construction of the addition to the Hardy Elementary School, 52 Lake St, Arlington, Massachusetts 02474, in accordance with bid documents prepared by Finegold Alexander Architects, Inc., 77 North Washington Street, Boston, MA 02114.

The project consists of a new 3-story, addition onto the existing Hardy Elementary School including site work and minimal landscaping. The addition is approximately 5,550 sf to the existing school. The project includes six classrooms. The project is to meet the Stretch Code.

Estimated Construction Cost: \$2,800,000.00

General Bids due: WEDNESDAY JANUARY 24, 2018 2:00 P.M. at that time will be publicly opened forthwith online.

Filed Sub Bids due: WEDNESDAY JANUARY 17, 2018 2:00 P.M. at that time will be publicly opened forthwith online.

PRE-BID SITE VISIT WILL BE HELD ON ~~THURSDAY JANUARY 4, 2018~~ WEDNESDAY, JANUARY 10, 2018 AT 11:00 A.M. AT THE HARDY ELEMENTARY SCHOOL, 52 LAKE SREET, ARLINGTON MA. ALL PROSPECTIVE BIDDERS ARE ENCOURAGED TO ATTEND.
ADDENDUM #1- 01.04.18

DCAM CERTIFICATION: GENERAL BUILDING CONSTRUCTION

Each General Bidder and each Filed Sub-Bidder shall submit with his bid, a Certificate of prequalification issued by the DCAM, all as required by M.G.L. C.149, s 44A-J inclusive. Applicable sections of MGL Chapter 30, MGL Chapter 674 of the acts of 1981, and "Construction Reform" amendments continued in MGL Chapter 193 of the Acts of 2004.

All Bids should be submitted electronically online at www.biddocsonline.com and received no later than the date and time specified above.

Bid Forms and Contract Documents will be available for pick-up at www.biddocsonline.com (may be viewed electronically and hardcopy requested) or or at Nashoba Blue, Inc. at 433 Main Street, Hudson, MA 01749 (978-568-1167).

There is a plan deposit of **\$100** per set (maximum of 2 sets) payable to BidDocs Online Inc.

Deposits may be electronically paid or must be a check. This deposit will be refunded for up to two sets for general bidders and for one set for sub-bidders upon return of the sets in good condition within

thirty days of receipt of general bids. Otherwise the deposit shall be the property of the Awarding Authority.

Additional sets may be purchased for **\$100**.

Bidders requesting Contract Documents to be mailed to them shall include a separate check for **\$40.00** per set for UPS Ground (or \$65.00 per set for UPS overnight), payable to BidDocs ONLINE, Inc., to cover mail handling costs.

General bids and sub-bids shall be accompanied by a bid deposit that is not less than five (5%) of the greatest possible bid amount (considering all alternates), and made payable to the "Town of Arlington". No bidder may withdraw his bid for a period of thirty (30) days, Saturdays, Sundays and legal holidays excluded, after the date set for the opening of the General Bids.

The Filed Sub-Bids for this work are: Masonry, Waterproofing, Dampproofing & Caulking, Roofing & Flashing, ~~Metal Window~~, Glass & Glazing, Acoustical Ceilings, Resilient Flooring, Fire Protection Plumbing, HVAC, Electrical. **ADDENDUM #2**

Attention is called to the fact that minimum wage rates and health and welfare and pension fund contributions are established for this contract and are a part of the specifications.

The conditions of employment as set forth in Sections 26 to 27D and 27F of Chapter 149 of the General Laws, as amended, shall prevail in the execution of the work under this contract.

All bids for this project are subject to applicable bidding laws of Massachusetts, including General Laws Chapter 149, Section 44A to 44J inclusive, as amended as well as guidelines established by the Deputy Commissioner of the Division of Capital Asset Management Regulations 810 CMR 4.00. Sections 29, 34, 34A, and 44A through 44J of chapter 149 of the General Laws of the Commonwealth of Massachusetts are incorporated herein by reference, as well as Sections 39F through 39P of chapter 30 of the General Laws of the Commonwealth of Massachusetts and all other provisions of the General Laws applicable to public construction on this Project. Any inconsistency between the Advertisement For Bids, Instructions to Bidders, Bid Forms, General Conditions, or any other Contract Document or potential Contract Document and these statutes, or any other applicable statutes, by-laws, or regulations existing on the date on which a bid is submitted, shall not be grounds for invalidating the bidding procedure, but where required by law, such statute, by-law, or regulation shall be deemed to govern.

Attached By-Law of the Town of Arlington, Title I, Article 16, concerning Construction Projects which exceed \$200,000.00 is part and parcel of the bid.

Bids to receive consideration must be in the hands of the Purchasing Agent or his authorized representative not later than the day and hour above mentioned. The Awarding Authority reserves the right to waive any informalities and to reject any or all general bids. Performance and labor and materials payment bonds by a company authorized to do business in Massachusetts and satisfactory to the Awarding Authority, each in the amount of 100% of the Contract Price will be required of the successful General Bidder. Upon the return of Plans and Specifications in good condition and within sixty (30) days after the receipt of General Bids, plan deposit will be returned by the Awarding Authority.

Contract Documents are on file for Contractors' inspection at:

Office of the Town Manager/Purchasing Agent, Town of Arlington
Town Hall, 730 Massachusetts Avenue, Arlington, MA

END OF DOCUMENT

INVITATION TO BID
SECTION 003

DOCUMENT 007a
SUBCONTRACTOR PAYMENT BOND
PUBLIC BUILDING CONSTRUCTION
COMMONWEALTH OF MASSACHUSETTS

KNOW ALL MEN BY THESE PRESENTS:

That _____ as Principal, herein called Subcontractor, and _____, as Surety, herein called Surety, are held and firmly bound unto _____ as Obligee, herein called Construction Manager in the amount of _____ Dollars (\$ _____), for the payment whereof Subcontractor and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, Subcontractor has by written agreement dated _____ entered into a Contract with Construction Manager for section # _____ which Subcontract is by reference made a part hereof, and is hereinafter referred to as the Subcontract.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, THAT, if the Subcontractor shall defend, indemnify and hold harmless the Construction Manager and the Surety or Sureties under the labor and materials or payment bond furnished by such Construction Manager to the awarding authority against (1) all loss and expense related to or arising out of any claims, demands or suits in connection with said subcontract asserted against the Construction Manager or the labor and material or payment bond furnished by the Construction Manager to the awarding authority and (2) attorney's fees incurred by the Construction Manager or the Construction Manager's surety in connection with the defense of such claims, then this obligation shall be null and void; otherwise it shall remain in full force and virtue.

IN WITNESS WHEREOF the parties hereto have hereunto set their hands and affixed their seals on this ____ day of _____ 20 ____.

In the presence of: _____ (Seal) (Principal)

Witness _____ By _____

Witness _____ (Seal) (Surety)

By _____ Attorney-in-Fact

DRAFT AIA® Document A101™ - 2007

Standard Form of Agreement Between Owner and Contractor where the basis of payment is a Stipulated Sum

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

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

« »
« »
« »
« »

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

« »
« »
« »
« »

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

«PDS Atlanta»
« »
« »

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

« »
« »
« »
« »

The Owner and Contractor agree as follows.

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

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

AIA Document A201™-2007, General Conditions of the Contract for Construction, is adopted in this document by reference. Do not use with other general conditions unless this document is modified.

ELECTRONIC COPYING of any portion of this AIA® Document to another electronic file is prohibited and constitutes a violation of copyright laws as set forth in the footer of this document.

TABLE OF ARTICLES

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- 4 CONTRACT SUM
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ARTICLE 1 THE CONTRACT DOCUMENTS

The Contract Documents consist of this Agreement, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, Addenda issued prior to execution of this Agreement, other documents listed in this Agreement and Modifications issued after execution of this Agreement, all of which form the Contract, and are as fully a part of the Contract as if attached to this Agreement or repeated herein. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations or agreements, either written or oral. An enumeration of the Contract Documents, other than a Modification, appears in Article 9. In the event of a conflict between any provision in this Agreement and any provision of any other Contract Document, the provisions of this Agreement shall control. Where compliance with two or more requirements is indicated in any of the Contract Documents and where these requirements conflict in quantity or quality, Contractor shall comply with the most stringent requirements unless specifically indicated otherwise in the Contract Documents. In addition, where provisions in two or more of the Contract Documents are complementary, the more detailed provision shall control over the more general provision. It is the intent of the Contract Documents, and they shall be construed, to require high quality of contracted work and include all items necessary to produce the results intended by the Contract Documents. Where there is a conflict among the Contract Documents other than with this Agreement, the Architect and Owner shall, in a manner consistent with the foregoing, determine which provision shall apply.

ARTICLE 2 THE WORK OF THIS CONTRACT

§2.1 The Contractor shall fully execute the Work described in the Contract Documents or reasonably inferable as necessary to produce the results intended by the Contract Documents, except to the extent specifically indicated in the Contract Documents to be the responsibility of others.

§2.2 The Work is more specifically described in the Project Description, attached as Exhibit C, and in the Drawings and Specifications, an index of which is attached hereto and made a part hereof as Exhibit A.

§2.3 The Contractor shall furnish only skilled and properly trained staff for the performance of the Work. The key members of the Contractor's staff shall be persons agreed upon with the Owner and set forth in the Schedule of Key Personnel attached hereto and made a part hereof as Exhibit K. Such key members of the Contractor's staff: (i) shall be dedicated to the Project on the approximate percentage basis set forth in Exhibit K unless the Owner and the Contractor agree otherwise in writing, and (ii) shall not be changed without the written consent of the Owner, which consent shall not be unreasonably withheld or delayed, unless such personnel become unable to perform any required duties due to death, disability or voluntary termination of employment with the Contractor by such personnel. The Contractor acknowledges and agrees that the designation and dedication of such consultants and key personnel and their availability to work on this Project is a material inducement to the Owner entering into the

Agreement. The Owner and the Contractor shall agree in writing on mutually acceptable substitute personnel, if any.

§2.4 Notwithstanding anything contained herein to the contrary, Contractor hereby acknowledges that the Project is being built for, and shall ultimately be owned by, the Owner.

ARTICLE 3 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION

§ 3.1 The date of commencement of the Work shall be the date of this Agreement unless a different date is stated below or provision is made for the date to be fixed in a notice to proceed issued by the Owner to the Contractor in writing, which shall be issued no less than _____ (_____) days prior to the date of commencement.

(Insert the date of commencement if it differs from the date of this Agreement or, if applicable, state that the date will be fixed in a notice to proceed.)

« »

If, prior to the commencement of the Work, the Owner requires time to file mortgages and other security interests, the Owner's time requirement shall be as follows:

« »

§ 3.2 The Contract Time shall be measured from the date of commencement through Substantial Completion.

§ 3.3 The Contractor shall achieve Substantial Completion of the entire Work not later than [insert # of days] from the date of commencement, or as follows:

(Insert number of calendar days. Alternatively, a calendar date may be used when coordinated with the date of commencement. If appropriate, insert requirements for earlier Substantial Completion of certain portions of the Work.)

« »

Portion of Work

Substantial Completion Date

, subject to adjustments of this Contract Time as provided in the Contract Documents.

(Insert provisions, if any, for liquidated damages relating to failure to achieve Substantial Completion on time or for bonus payments for early completion of the Work.)

« »

§3.4 The Contractor shall complete all of the so-called "punch list" work within _____ days following the date of Substantial Completion, and shall achieve Final Completion, including, without limitation, all requirements for so-called "close-out" including, but not limited to, receipt of all "close out" documents, within _____ following the date of Substantial Completion.

§3.5 The Contractor acknowledges and recognizes that the Owner is entitled to full and beneficial occupancy and use of the completed Work following expiration of the Contract Time and that the Owner has entered into, or will enter into, binding agreements demising all or part of the premises where Work is to be completed to the Owner or its tenants based upon the Contractor achieving Substantial Completion of the Work within the Contract Time. The Contractor further acknowledges and agrees that if the Contractor fails to complete substantially, or cause the Substantial Completion of any portion of the Work within the Contract Time, the Owner will sustain extensive damages and serious loss as a result of such failure. The exact amount of such damages will be extremely difficult to ascertain. Therefore, the Owner and the Contractor agree as set forth below in this Paragraph 3.4.

§3.5.1 If the Contractor fails to achieve Substantial Completion of the Work within the Contract Time, the Owner shall be entitled to retain or recover from the Contractor, as liquidated damages and not as a penalty, the following per diem amounts commencing upon the first day following expiration of the Contract Time and continuing until the

actual Date of Substantial Completion. Such liquidated damages are hereby agreed to be a reasonable pre-estimate of damages the Owner will incur as a result of delayed completion of the work:

[insert a breakdown of per diem amounts as necessary]

§3.5.2 The Owner may deduct liquidated damages described in Subparagraph 3.4.1 from any unpaid amounts then or thereafter due the Contractor under this Agreement. Any liquidated damages not so deducted from any unpaid amounts due the Contractor shall be payable to the Owner at the demand of the Owner, together with interest from the date of the demand at a rate equal to the lower of the Treasury Bill Rate or the highest lawful rate of interest payable by the Contractor.

§3.6 [STRIKE IF NOT APPLICABLE] The Contractor may earn solely at Owner's discretion a bonus in the amount of _____ Dollars (\$ _____) provided the Contractor achieves Substantial Completion of the entire Work within the Contract Time (the "Bonus"); provided, however, that the Bonus shall not be payable until the time of final payment. If the Contractor has earned a Bonus with respect to the Work, the Owner shall have the right, at the Owner's election, to deduct from Bonus any amounts due from the Contractor to the Owner. The Contractor shall include a provision in each of its subcontracts in excess of _____ Dollars (\$ _____) ("Major Subcontracts") that requires the Contractor to pay such Major Subcontractor a share of any Bonus which bears the same ratio to the Bonus as the amount of the Major Subcontract bears to the Contract Sum. In no event shall the Contractor be awarded a partial bonus in connection with any portion of the Work which is substantially complete upon expiration of the Contract Time.

ARTICLE 4 CONTRACT SUM

§ 4.1 The Owner shall pay the Contractor the Contract Sum in current funds for the Contractor's performance of the Contract. The Contract Sum shall be « » (\$ « »), subject to additions and deductions as provided in the Contract Documents.

§ 4.2

(State the numbers or other identification of accepted alternates. If the bidding or proposal documents permit the Owner to accept other alternates subsequent to the execution of this Agreement, attach a schedule of such other alternates showing the amount for each and the date when that amount expires.)

The Contract Sum includes/does not include [strike inapplicable terms] the following alternates, which are described in the Contract Documents and may be accepted by the Owner in writing; provided, however, that the Contractor shall furnish the Owner with no less than fourteen (14) days' prior written notice of the date upon which any of the alternates set forth in this Paragraph 4.2 must be accepted by the Owner in order for the Contractor to perform the Work covered by such alternates for the price set forth in this Paragraph 4.2 and without any adjustment to a milestone date or in the Contract Time.

« »

§ 4.3 Unit prices, if any:

(Identify and state the unit price; state quantity limitations, if any, to which the unit price will be applicable.)

Unit prices are set forth in the "Schedule of Unit Prices" attached hereto and made a part hereof as Exhibit D. Such unit prices are considered complete and include (i) all materials, equipment, labor, delivery, installation, overhead and profit and (ii) any other costs or expenses in connection with, or incidental to, the performance of that portion of the Work to which unit prices apply.

ARTICLE 5 PAYMENTS

§ 5.1 PROGRESS PAYMENTS

§ 5.1.1 Based upon Applications for Payment including all supporting documentation submitted to the Architect by the Contractor and Certificates for Payment issued by the Architect, the Owner shall make progress payments on account of the Contract Sum to the Contractor as provided below and elsewhere in the Contract Documents.

§ 5.1.2 The period covered by each Application for Payment shall be one calendar month ending on the last day of the month, or as follows:

§ 5.1.3 The Owner shall make payment of the undisputed certified amount to the Contractor not later than **thirty (30)** days from date of submission of the Application for Payment.
(Federal, state or local laws may require payment within a certain period of time.)

§ 5.1.4 Each Application for Payment shall be based on the most recent schedule of values submitted by the Contractor in accordance with the Contract Documents. The schedule of values shall allocate the entire Contract Sum among the various portions of the Work. The schedule of values shall be prepared in such form and supported by such data to substantiate its accuracy as the Architect may require. This schedule, unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's Applications for Payment.

§ 5.1.5 Applications for Payment shall show the percentage of completion of each portion of the Work as of the end of the period covered by the Application for Payment.

In addition to other required items, each Application for Payment shall be accompanied by the following, all in form and substance satisfactory to the Owner and in compliance with applicable State statutes:

(i) A current Sworn Statement from the Contractor setting forth all Subcontractors and any materialmen with whom the Contractor has subcontracted, the amount of such subcontract, the amount requested for any Subcontractor or materialman in the Application for Payment and the amount to be paid to the Contractor from such progress payment, together with a current, duly executed waiver of mechanics and materialmen's liens from the Contractor establishing receipt of payment or satisfaction of the payment requested by the Contractor in the current Application for Payment.

(ii) Commencing with the second (2nd) Application for Payment submitted by the Contractor, duly executed so-called "after the fact" waivers of mechanics' and material suppliers' liens from all Subcontractors, material suppliers and, where appropriate, from lower tier Subcontractors, establishing receipt of payment or satisfaction of payment of all amounts requested on behalf of such entities and disbursed prior to submittal by the Contractor of the current Application for Payment, plus sworn statements from all Subcontractors, material suppliers and, where appropriate, from lower tier Subcontractors, covering all amounts described in this clause (ii) of Paragraph 5.5;

(iii) Such other information, documentation and materials as the Owner, the Architect [Insert Lender if applicable] or Title Company may require.

§ 5.1.6 Subject to other provisions of the Contract Documents, the amount of each progress payment shall be computed as follows:

- .1 Take that portion of the Contract Sum properly allocable to completed Work as determined by multiplying the percentage completion of each portion of the Work by the share of the Contract Sum allocated to that portion of the Work in the schedule of values, less retainage of ten percent (10%). Pending final determination of cost to the Owner of changes in the Work, amounts not in dispute shall be included as provided in Section 7.3.9 of AIA Document A201™-2007, as amended;
- .2 Add that portion of the Contract Sum properly allocable to materials and equipment delivered and suitably stored at the site for subsequent incorporation in the completed construction (or, if approved in advance by the Owner, suitably stored off the site at a location agreed upon in writing), less retainage of ten percent (10%); payment for stored materials shall be in accordance with Contract Documents;
- .3 Subtract the aggregate of previous payments made by the Owner; and
- .4 Subtract amounts, if any, for which the Architect has withheld or nullified a Certificate for Payment as provided in Section 9.5 of AIA Document A201-2007, as amended.

§ 5.1.7 The progress payment amount determined in accordance with Section 5.1.6 shall be further modified under the following circumstances:

- .1 Add, upon Substantial Completion of the Work, a sum sufficient to increase the total payments to the full amount of the Contract Sum, less such amounts as the Architect shall determine for incomplete Work, retainage applicable to such work and unsettled claims; and

(Section 9.8.5 of AIA Document A201–2007 requires release of applicable retainage upon Substantial Completion of Work with consent of surety, if any.)

- .2 Add, if final completion of the Work is thereafter materially delayed through no fault of the Contractor, any additional amounts payable in accordance with Section 9.10.3 of AIA Document A201–2007, as amended.

§ 5.1.8 Reduction or limitation of retainage, if any, shall be as follows:

(If it is intended, prior to Substantial Completion of the entire Work, to reduce or limit the retainage resulting from the percentages inserted in Sections 5.1.6.1 and 5.1.6.2 above, and this is not explained elsewhere in the Contract Documents, insert here provisions for such reduction or limitation.)

Owner reserves the right, in Owner's sole discretion, to reduce retainage of any or all contract line items.

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§ 5.1.9 Except with the Owner's prior approval, the Contractor shall not make advance payments to suppliers for materials or equipment which have not been delivered and stored at the site.

§ 5.2 FINAL PAYMENT

§ 5.2.1 Final payment, constituting the entire unpaid balance of the Contract Sum, shall be made by the Owner to the Contractor upon Final Completion when

- .1 the Contractor has fully performed the Contract including the completion of punch list items and receipt of close-out documentation except for the Contractor's responsibility to correct Work as provided in Section 12.2.2 of AIA Document A201–2007, as amended; and to satisfy other requirements, if any, which extend beyond final payment; and
- .2 a final Certificate for Payment has been issued by the Architect.

§ 5.2.2 The Owner's final payment to the Contractor shall be made no later than 30 days after the issuance of the Architect's final Certificate for Payment, subject to requirements from Lender, [public entities as appropriate], and Title Company, pursuant to the terms of the escrow agreement, if applicable or as follows:

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ARTICLE 6 DISPUTE RESOLUTION

§ 6.1 INITIAL DECISION MAKER

The Owner's Project Manager will serve as Initial Decision Maker pursuant to Section 15.2 of AIA Document A201–2007, as amended, unless the parties appoint below another individual, not a party to this Agreement, to serve as Initial Decision Maker.

(If the parties mutually agree, insert the name, address and other contact information of the Initial Decision Maker, if other than the Architect.)

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§ 6.2 BINDING DISPUTE RESOLUTION

For any Claim subject to, but not resolved by, mediation pursuant to Section 15.3 of AIA Document A201–2007, as amended, the method of binding dispute resolution shall be as follows:

(Check the appropriate box. If the Owner and Contractor do not select a method of binding dispute resolution below, or do not subsequently agree in writing to a binding dispute resolution method other than litigation, Claims will be resolved by litigation in a court of competent jurisdiction.)

[] Litigation in a court of competent jurisdiction

[] Other (Specify)

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ARTICLE 7 TERMINATION OR SUSPENSION

§ 7.1 The Contract may be terminated by the Owner or the Contractor as provided in Article 14 of AIA Document A201–2007, as amended.

§ 7.2 The Work may be suspended by the Owner as provided in Article 14 of AIA Document A201–2007, as amended.

ARTICLE 8 MISCELLANEOUS PROVISIONS

§ 8.1 Where reference is made in this Agreement to a provision of AIA Document A201–2007, as amended or another Contract Document, the reference refers to that provision as amended or supplemented by other provisions of the Contract Documents.

§ 8.2 Payments due and unpaid under the Contract shall bear interest from the date payment is due at the rate stated below, or in the absence thereof, at the legal rate in effect on the first day of the month when any payment becomes due at the place where the Project is located.
(Insert rate of interest agreed upon, if any.)
The prime rate, as published from time to time in the Wall Street Journal.

« per annum »

(Usury laws and requirements under the Federal Truth in Lending Act, similar state and local consumer credit laws and other regulations at the Owner’s and Contractor’s principal places of business, the location of the Project and elsewhere may affect the validity of this provision. Legal advice should be obtained with respect to deletions or modifications, and also regarding requirements, such as written disclosures or waivers.)

§ 8.3 The Owner’s representative:
(Name, address and other information)

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§ 8.4 The Contractor’s representative:
(Name, address and other information)

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§ 8.5 Neither the Owner’s nor the Contractor’s representative shall be changed without ten days written notice to the other party.

§ 8.6 Other provisions:

§ 8.6.1 The Contractor represents and warrants the following to the Owner (in addition to any other representation and warranties contained in the Contract Documents), as an inducement to the Owner to execute this Agreement, which representations and warranties shall survive the execution and delivery of this Agreement, any termination of the Agreement and the final completion of the Work:

.1 that the Contractor is, and throughout the performance of the Work shall remain, financially solvent, able to pay all debts as they mature and possessed of sufficient working capital to complete the Work and perform all obligations hereunder;

.2 that the Contractor is able to furnish the plant, tools, materials, supplies, equipment and labor required to complete the Work and perform his obligations hereunder and has sufficient experience and competence to do so;

.3 that the Contractor is authorized to do business in the State in which the Project is located and properly licensed by all necessary governmental and public and quasi-public authorities having jurisdiction over the Contractor, the Work and the Project;

.4 that the execution of this Agreement and performance thereof is within the duly authorized powers of the Contractor;

.5 that a duly authorized representative of the Contractor has visited the Project site, is familiar with the local conditions under which the Work is to be performed and has correlated such observations with the requirements of the Contract Documents; and

.6 that the Contractor possesses a high level of experience and expertise in the business administration, construction and superintendence of projects of the size and nature of the Work and will perform the Work with the care, skill and diligence of such a Contractor.

§8.6.2 If required by the Owner or the Owner's Construction Lender (the "Lender"), if any, all payments to the Contractor shall be made through a Construction Escrow (hereinafter referred to as the "Escrow") established with [Insert Name of Escrow Trustee] or such other entity (hereinafter referred to as "Escrowee") mutually acceptable to the Owner, Lender and the Contractor. The Contractor hereby agrees to execute an Escrow Agreement which shall be (i) consistent with the requirements of the Contract Documents, except as the standard procedures of the Escrowee may otherwise require, (ii) structured to provide that the Escrowee may disburse funds directly to Subcontractors or to the Contractor and Subcontractors payable jointly, if so directed by the Owner and approved by the Lender and Title Company, and (iii) otherwise reasonably satisfactory to all of the Owner, the Architect and the Contractor (the "Escrow Agreement"). All parties thereto shall cooperate with the Escrowee. After full execution, the Escrow Agreement shall be attached hereto and made part hereof as Exhibit N.

§8.6.3 Notwithstanding anything to the contrary in the Contract Documents, the Contract and all of its terms and conditions are subject to approval or modification by the Owner's Construction Lender, if any. The Contractor acknowledges that the Owner may be financing the Work with a lender and will comply with the requirements of such lender including, without limitation, the following: (i) making the site of the Work available at reasonable times for inspection by such lender; (ii) curing of defaults existing under the Contract Documents; and (iii) executing a consent to assignment of the Contract Documents in the form required by such lender and any other documents such lender may reasonably request.

§8.6.4 The Contractor agrees that the Owner upon five (5) business days' prior written notice may make payments directly to any Subcontractor or supplier if: (i) the Contractor fails to pay any Subcontractor or supplier within seven (7) business days after the date that the Contractor receives any payment from the Owner of amounts requested by or on behalf of such Subcontractor or supplier, (ii) the Contractor fails to request payment timely on behalf of a Subcontractor or supplier for Work presently performed, provided such Subcontractor or supplier has otherwise complied with the requirements of the applicable subcontract agreement or purchase order, (iii) the Owner is entitled to terminate the Contract, or (iv) if the Owner reasonably believes that the Contractor is in breach of the warranty made above in Clause 8.6.1.1. The Contractor shall promptly furnish the Owner, upon demand at any time, documentation reasonably satisfactory to the Owner to establish or verify the creditworthiness of the Contractor.

§8.6.5 In no event shall any present or future officer, director, employee, trustee, member or agent of the Owner have any personal liability, directly or indirectly and recourse shall not be had against any such officer, director, employee, trustee, member or agent, under or in connection with same. The Contractor hereby waives and releases any and all such personal liability and recourse.

§8.6.6 This Agreement has been negotiated and entered into by each party with the advice of independent counsel and shall not be construed against one party or the other based on which party drafted any portion of the Agreement.

§8.6.7 In addition to all other available remedies, the prevailing party in an arbitration, mediation, or litigation pertaining to this Agreement may collect its attorneys' fees and other costs related to such arbitration or litigation, in the discretion of the arbitrator or judge, as the case may be.

§8.6.8 The Contractor agrees that all Work, services and other activities rendered in connection with the Project prior to the date of this Agreement are hereby deemed part of the Work under this Contract and shall be governed hereby. The Contractor further represents and warrants to the Owner (i) all such Work, services and other activities rendered prior to the date of this Contract were performed in accordance with the requirements of the Contract Documents, and (ii) that the Contractor is not aware of any claims that the Contractor may have in connection with the Project as of the date of this Contract including, without limitation, any claim for an adjustment in compensation and the Contractor hereby waives and forfeits all right to any such claim of which the Contractor should have knowledge.

§8.6.9 If required by Owner the Contractor shall obtain payment and performance bonds satisfactory to Owner in connection with all or portions of the Work as outlined in AIA201 Section 11.5 as amended. The cost of such bonds shall be included in the Contract Price.

§8.6.10 Any consultant, representative, or designee of the Owner and any such consultant, representative, or designee of the municipal authority of the place where the Project is located shall have access to the Work at all reasonable times for the purpose of inspection.

§8.6.11 Subject to General Conditions and subject to Contractor's right to subcontract portions of the Work, Contractor shall not assign any of its rights or delegate any of its duties hereunder without the prior written consent of Owner, which Owner may withhold in its sole discretion. Any attempt to assign this agreement without prior written consent of the Owner shall be void.

§8.6.13 All notices required or permitted under the Contract Documents shall be in writing, unless otherwise specifically permitted, and notice shall be deemed to have been duly served if delivered in person to the individual or member of the firm or entity for whom it was intended, or if delivered at or sent by registered or certified mail to the following address:

Contractor:

Owner:

With a copy to:

§8.6.14 The Contractor shall maintain at the site for the Owner, one copy of all Drawings, Specifications, addenda, accepted shop drawings, change orders and other modifications in good order and marked to record all field changes made during construction. The Drawings, marked to record all field changes made during construction, shall be delivered in electronic form to the Owner promptly upon completion of the Work.

§8.6.15 The Contractor shall STRIKE INAPPLICABLE OR MODIFY AS APPROPRIATE: [obtain] OR [assist the Owner in obtaining] all necessary licenses, building and other permits, and similar authorizations and consents from all governmental authorities or private parties required to construct the Work and to perform each and every one of the Contractor's obligations hereunder and the Contractor shall give notices required by, and otherwise comply with, all applicable laws, ordinances, rules, regulations and restrictions. All means, methods, techniques, sequences and procedures employed by the Contractor in the performance of the Work shall be in compliance with all applicable regulations and restrictions and with the requirements of all insurance organizations having jurisdiction over the work or any body hereafter constituted having similar functions, and in the event of any non-compliance, the Contractor shall bear all loss, costs, damages, liabilities, or obligations resulting therefrom.

§8.6.16 Contractor shall attend progress meetings to discuss matters pertaining to the performance of the Work, including, without limitation, procedures, progress, problems and scheduling. Such meetings shall be held as frequently as Owner or Architect reasonably requires.

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ARTICLE 9 ENUMERATION OF CONTRACT DOCUMENTS

§ 9.1 The Contract Documents, except for Modifications issued after execution of this Agreement, are enumerated in the sections below.

§ 9.1.1 The Agreement is this executed AIA Document A101–2007, Standard Form of Agreement Between Owner and Contractor.

§ 9.1.2 The General Conditions are AIA Document A201–2007, as amended.

§ 9.1.3 The Supplementary and other Conditions of the Contract are those contained in the Project Manual dated _____, and are as follows:

Document	Title	Date	Pages

§ 9.1.4 The Specifications are those contained in the Project Manual dated as in Section 8.1.3, and are as follows: *(Either list the Specifications here or refer to an exhibit attached to this Agreement.)*

Title of Specifications exhibit: Exhibit A

Section	Title	Date	Pages

§ 9.1.5 The Drawings are as follows, and are dated _____, unless a different date is shown below: *(Either list the Drawings here or refer to an exhibit attached to this Agreement.)*

Title of Drawings exhibit: Exhibit A

Number	Title	Date

§ 9.1.6 The Addenda, if any:

Number	Date	Pages

Portions of Addenda relating to bidding requirements are not part of the Contract Documents unless the bidding requirements are also enumerated in this Article 9.

§ 9.1.7 Other documents, if any, forming part of the Contract Documents are as follows:

(List here any additional documents that are intended to form part of the Contract Documents. AIA Document A201–2007 provides that bidding requirements such as advertisement or invitation to bid, Instructions to Bidders, sample forms and the Contractor’s bid are not part of the Contract Documents unless enumerated in this Agreement. They should be listed here only if intended to be part of the Contract Documents.)

- Exhibit A Drawings and Specifications
- Exhibit B Project Milestones
- Exhibit C Project Description
- Exhibit D Schedule of Unit Prices

Exhibit K Key Personnel

ARTICLE 10 INSURANCE AND BONDS

The Contractor shall purchase and maintain insurance and provide bonds as set forth in Article 11 of AIA Document A201–2007, as amended.

(State bonding requirements, if any, and limits of liability for insurance required in Article 11 of AIA Document A201-2007.)

§10.1 Contractor shall at all times during the period in which this Agreement is in force provide, maintain, and require all Subcontractors to provide and maintain the following types of insurance protecting the interest of Contractor, Owner, Owner's project manager, and Architect, including naming each as an additional insured under Contractor's general liability policies, with limits not less than those set forth below.

Worker's Compensation Insurance (WC)

To cover statutory limits of the Workers' Compensation Laws of the State where the Project is located with Employers' Liability limits as follows:

Each Accident	\$500,000
Disease-Policy limit	\$500,000
Disease – Each Employee	\$500,000

Commercial General Liability Insurance (CGL)

All operations including the following:

1. Premises and Operations;
2. Products/Completed Operations;
3. Coverage for explosion, collapse, and underground (SCU), if applicable
4. Separation of Insurers;
5. Contractual Liability on a Blanket basis applicable to all oral and written contracts;
6. Personal Injury

Minimum Limits of Liability required:

General Aggregate	\$3,000,000
Products/Completed Operations Aggregate	\$3,000,000
Personal Injury Each Occurrence	\$1,000,000

Automobile Liability Coverage, Primary and Umbrella (AUTO)

Covering all owned, hired and non-owned vehicles used in connection with the Work within the following minimum limits of liability:

Liability – Combined Single Limit:	\$1,000,000 per occurrence
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Excess Liability Coverage (Umbrella)

To cover for ultimate net loss sustained by reason of liability whether imposed by law, assumed under contract or otherwise incurred excess of the aforementioned limits of liability for WC, CGL, and AUTO with limits as follows:

Each Occurrence	\$2,000,000
Annual Aggregate	\$2,000,000

The retroactive insurance date of such insurance shall be no later than the commencement date of the contract. Such insurance shall be provided for two years beyond the completion of the work.

§10.2 Before commencing the Work, the Contractor shall provide, and shall cause all Subcontractors to provide, to the Owner Certificates of Insurance, in form reasonably acceptable to the Owner, reflecting the coverages required herein. In the event expiration of coverage occurs during the Work period, or during any period thereafter in which the insurance is required to be maintained, renewal Certificates of Insurance shall be provided at least thirty days

(30) prior to such expiration. The Certificates of Insurance must indicate that coverage will not be cancelled, non-renewed or materially changed (reduced) without thirty (30) days prior written notice to the Owner of such cancellation, non-renewal or change.

§10.3 All general liability insurance coverage required herein or in any other Agreement between parties shall be written on an “occurrence basis.” The commercial general liability coverage shall name the Owner, the Owner’s project manager and the Architect as additional insureds.

§10.4 Neither the Owner nor the Architect shall be responsible for obtaining or maintaining in force any insurance on construction equipment, tools or personal effects (Business Personal Property) owned by or rented to or in the care, custody or control of the Contractor or the Subcontractors.

§10.5 All insurance required under the Contract shall be continuously maintained until final completion of the Work and until the expiration of any applicable warranty periods for such Work.

Type of insurance or bond	Limit of liability or bond amount (\$0.00)

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

OWNER *(Signature)*

« »
(Printed name and title)

CONTRACTOR *(Signature)*

« »
(Printed name and title)



CONSOLIDATED GENERAL CONDITIONS
OF THE CONTRACT FOR CONSTRUCTION

ARTICLE 1

GENERAL PROVISIONS

1.1 BASIC DEFINITIONS

1.1.1 THE CONTRACT DOCUMENTS

The Contract Documents consist of the Agreement between Owner and Contractor (hereinafter the Agreement), the Consolidated General Conditions of the Contract for Construction, the Supplemental Statutory Conditions, Drawings, Specifications, including all numbered sections, Addenda issued prior to execution of the Contract, Instructions to Bidders and Proposal, other documents listed in the Agreement and within the Building Requirements, Contract Forms and Conditions of the Contract (as set out in the Project Manual for the Arlington Highland Fire Station Renovation & Central Station Envelope Repair), and Modifications issued after execution of the Contract. A Modification is (1) a written amendment to the Contract signed by both parties, (2) a Change Order, (3) a Construction Change Directive or (4) a written order for a minor change in the Work issued by the Architect. Unless specifically enumerated in the Agreement, the Contract Documents do not include other documents such as bidding requirements (advertisement or invitation to bid, Instructions to Bidders, sample forms, the Contractor's bid or portions of addenda relating to bidding requirements).

In the event of any conflict among the Contract Documents, the 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:	Supplemental Statutory Conditions
Fifth Priority:	Specifications and Drawings
Sixth Priority:	Consolidated General Conditions
Seventh Priority:	Instructions to Bidders and Proposal

Any references throughout the contract documents (or any other project documents) to "General Conditions" or "Supplementary General Conditions" are deleted and "Consolidated General Conditions and Supplemental Statutory Conditions" is substituted therefor. All bidders and sub-bidders take note that the Town has consolidated and modified former versions of the standard form AIA Document A210 General Conditions of the Contract for Construction with the Town's desired Supplementary General Conditions into one document. The Supplemental Statutory Conditions remain intact and separate, and form a part of the Contract Documents.

1.1.2 THE CONTRACT

The Contract Documents form the Contract for Construction. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations or agreements, either written or oral. The Contract may be amended or modified only by a Modification. Except as provided in Paragraph 3.18, nothing contained in the Contract Documents shall be construed to create any contractual relationship (1) between the Architect and the Contractor, (2) between the Owner or the Architect and a Subcontractor or Sub-subcontractor, (3) between the Owner and the Architect, or (4) between any persons or entities other than the Owner and the Contractor. The Contract Documents shall comply with the requirements of Mass. Gen. Laws Chapter 44, Section 31C.

1.1.3 THE WORK

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

1.1.4 THE PROJECT

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

1.1.5 THE DRAWINGS

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

1.1.6 THE SPECIFICATIONS

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

1.1.7 THE PROJECT MANUAL

The Project Manual is the volume usually assembled for the work which may include the bidding requirements, sample forms, Consolidated General Conditions of the Contract and Specifications.

1.2 EXECUTION, CORRELATION AND INTENT

1.2.1 The Contract Documents shall be signed by the Owner and Contractor as provided in the Agreement. A copy of the signed set shall be deposited with the Architect. If either the Owner or Contractor or both do not sign all the Contract Documents, the Architect shall identify such unsigned Documents upon request.

1.2.2 Execution of the Contract by the Contractor is a representation that the Contractor has visited the site, become familiar with local conditions under which the Work is to be performed, and correlated personal observations with requirements of the Contract Documents. By executing the Contract, the Contractor also certifies, under penalties of perjury, that to the best of his information, knowledge and belief he has complied with all laws of the Commonwealth of Massachusetts relating to taxes.

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

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

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

1.2.6 Where codes, standards, requirements and publications of public and private bodies are referred to in the Specifications, references shall be understood to be to the latest revisions prior to the date of receiving bids, except where otherwise indicated.

1.2.7 Where no explicit quality or standards for materials or workmanship are established for Work, such Work or materials is to be of good, workmanlike quality for the intended use and consistent with the quality of the surrounding Work and of the construction of the Project generally.

1.2.8 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.

1.2.9 The Mechanical, Electrical 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 Owner 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 showing the exact alignment, physical location and configuration of the Mechanical, Electrical and Fire Protection installations and demonstrating to the Contractor's satisfaction that the installations will comply with the preceding sentence.

1.2.10 Exact locations of fixtures and outlets shall be obtained from the Architect as provided in Subparagraph 3.2.5 before the Work is roughed in; Work installed without such information from the Architect shall be relocated at the Contractor's expense.

1.2.11 Test boring or soil test information included with the Contract Documents or otherwise made available to the Contractor was obtained by the Owner for use by the Architect in the design of the Project or Work. The Owner 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 provided in Subparagraph 4.3.6.

1.3 OWNERSHIP AND USE OF ARCHITECT'S DRAWINGS, SPECIFICATIONS AND OTHER DOCUMENTS

1.3.1 The Drawings, Specifications and other documents prepared by the Architect are instruments of the Architect's service through which the Work to be executed by the Contractor is described. The Contractor may retain one contract record set. Neither the Contractor nor any Subcontractor, Sub-subcontractor or material or equipment supplier shall own or claim a copyright in the Drawings, Specifications and other documents prepared by the Architect, and unless otherwise indicated, and except as provided in the Owner/Architect Agreement for the Project, the Architect shall be deemed the author of them and will retain all common law, statutory and other reserved rights, in addition to the copyright. All copies of them, except the Contractor's record set, shall be returned or suitably accounted for to the Architect, on request, upon completion of the Work. The Drawings, Specifications and other documents prepared by the Architect, and copies thereof furnished to the Contractor, are for use solely with respect to this Project. They are not to be used by the Contractor or any Subcontractor, Sub-subcontractor or material or equipment supplier on other projects or for additions to this Project outside the scope of the Work without the specific written consent of the Owner and Architect. The Contractor, Subcontractors, Sub-subcontractors and material or equipment suppliers are granted a limited license to use and reproduce applicable portions of the Drawings, Specifications and other documents prepared by the Architect appropriate to and for use in the execution of their Work under the Contract Documents. All copies made under this license shall bear the statutory copyright notice, if any, shown on the Drawings, Specifications and other documents prepared by the Architect. Submittal or distribution to meet official regulatory requirements or for other purposes in connection with this Project is not to be construed as publication in derogation of the Architect's copyright or other reserved rights.

Notwithstanding anything herein to the contrary, as between the Owner and Architect, their rights and obligations with respect to the Architect's instruments of service are governed by the provisions of the Owner/Architect Agreement for the Project.

1.4 CAPITALIZATION

1.4.1 Terms capitalized in these General Conditions include those which are (1) specifically defined, (2) the titles of numbered articles and identified references to Paragraphs, Subparagraphs and Clauses in a document or (3) the titles of documents published by the American Institute of Architects.

1.5 INTERPRETATION

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

ARTICLE 2

OWNER

2.1 DEFINITIONS

2.1.1 The Owner is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. From time to time herein the Owner is referred to as the Town.

2.1.2 The Project Manager is the person or entity identified as such in writing by the Owner, at the Owner's option. The Project Manager shall act as the Owner's representative with respect to all matters pertaining to the Project. The duties, responsibilities, and obligations of the Project Manager under this Contract may be modified from time to time by the Town, so long as such modifications do not interfere materially with the Contractor's performance of the Work hereunder, and so long as the Contractor is given notice of any such modifications that affect the Contractor's performance of the Work.

2.2 INFORMATION AND SERVICES REQUIRED OF THE OWNER

2.2.1 The Owner upon reasonable written request shall furnish to the Contractor in writing information which is necessary and relevant for the Contractor to evaluate, give notice of, or enforce mechanic's lien rights. Such information shall include a correct statement of the record legal title to the property on which the Project is located, usually referred to as the site, and the Owner's interest therein at the time of execution of the Agreement.

2.2.2 The Owner shall furnish surveys describing physical characteristics, legal limitations and utility locations for the site of the Project, and a legal description of the site.

2.2.3 Except for permits and fees which are the responsibility of the Contractor under the Contract Documents, the Owner shall secure and pay for necessary approvals, easements, assessments and charges required for construction, use or occupancy of permanent structures, or for permanent changes in existing facilities.

2.2.4 Information or services required of the Owner hereunder shall be furnished by the Owner with reasonable promptness after receipt from the Contractor of a written request for such information or services.

2.2.5 Unless otherwise provided in the Contract Documents, the Contractor will be furnished, free of charge, such copies of Drawings and Project Manuals as are reasonably necessary for execution of the Work.

2.2.6 The foregoing are in addition to other duties and responsibilities of the Owner enumerated herein and especially those in respect to Article 6 (Construction by Owner or by Separate Contractors), Article 9 (Payments and Completion) and Article 11 (Insurance and Bonds).

2.3 OWNER'S RIGHT TO STOP THE WORK

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

2.3.2 The Owner 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 Owner; provided however, that if there is a suspension, delay or interruption ordered by the Owner for fifteen days or more or due to a failure of the Owner to act within the time specified in this Contract, the Owner shall make an adjustment in the Contract Sum 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 Owner shall not make any adjustment in the Contract Sum 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 Sum under any other contract provisions.

2.3.3 The Contractor must submit the amount of a claim under Subparagraph 2.3.2 to the Owner 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 21 days after the end thereof. Except for costs due to a suspension order, the Owner shall not approve any costs in the claim incurred more than twenty days before the Contractor notified the Owner in writing of the act or failure to act involved in the claim.

2.4 OWNER'S RIGHT TO CARRY OUT THE WORK

2.4.1 If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a seven-day period after receipt of written notice from the Owner to begin and prosecute correction of such default or neglect with diligence and promptness, the Owner may, without prejudice to other remedies the Owner may have, correct such deficiencies. In such case an appropriate Construction Change Directive shall be issued deducting from payments then or thereafter due 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. If payments then or thereafter due the Contractor are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner.

ARTICLE 3

CONTRACTOR

3.1 DEFINITION

3.1.1 The Contractor is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The term "Contractor" means the Contractor or the Contractor's authorized representative.

3.2 REVIEW OF CONTRACT DOCUMENTS AND FIELD CONDITIONS BY CONTRACTOR

3.2.1 Before starting the Work, and at frequent intervals during the progress thereof, the Contractor shall carefully study and compare the Contract Documents with each other and with any information furnished by the Owner pursuant to Subparagraph 2.2.2 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 7, subject to the requirements of Paragraph 1.2 and other provisions of the Contract Documents. If the Contractor proceeds with the Work without such notice to the Architect, having discovered such errors, inconsistencies or omissions, or if by reasonable study of the Contract Documents the Contractor could have discovered such, the Contractor shall bear all costs arising therefrom.

3.2.2 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. Any necessary change shall be ordered as provided in Article 7, subject to the requirements of Paragraph 1.2 and other provisions of the Contract Documents. If the Contractor proceeds with the Work without such notice to the Architect, having discovered such errors, inconsistencies or omissions, the Contractor shall bear all costs arising therefrom.

3.2.3 The Contractor shall perform the Work in accordance with the Contract Documents and any submittals made in accordance with Paragraph 3.12.

3.2.4 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.

3.2.5 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 Subparagraph 3.2.4. 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.

3.3 SUPERVISION AND CONSTRUCTION PROCEDURES

3.3.1 The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for, and have control over construction means, methods, techniques, sequences and procedures and for coordinating all portions of the Work under the Contract. 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, but 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 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 Owner and Architect in writing that such means, methods, techniques, sequences or procedures are not safe or suitable, and the Owner has then instructed the Contractor in writing to proceed at the Owner's risk.

3.3.2 The Contractor shall be responsible to the Owner for acts and omissions of the Contractor's employees, Subcontractors and their agents and employees, and other persons performing portions of the Work under a contract with the Contractor.

3.3.3 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.

3.3.4 The Contractor shall be responsible for inspection of portions of Work already performed under this Contract to determine that such portions are in proper condition to receive subsequent Work.

3.4 LABOR AND MATERIALS

3.4.1 Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for proper execution and completion of the Work, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work. The word “provide” shall mean furnish and install completely, including connections, unless otherwise specified.

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

3.5 WARRANTY

3.5.1 The Contractor warrants to the Owner and Architect that materials and equipment furnished under the Contract will be of good quality and new unless otherwise required or permitted by the Contract Documents, that the Work will be free from defects not inherent in the quality required or permitted, and that the Work will conform with the requirements of 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 occurring after Substantial Completion and caused by abuse, modifications not executed by the Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear under normal usage.

3.5.2 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.

3.5.3 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, in accordance with the procedures set forth in Mass. Gen. Laws Chapter 30, Section 39I.

3.5.4 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 meets or exceeds the requirements set forth in Mass. Gen. Laws Chapter 30, Section 39M(b). 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.

3.5.5 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 Owner.

3.5.6 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 Owner or the Architect, unless such substitution was made at the written request or direction of the Owner or the Architect.

3.5.7 The warranty provided in this paragraph 3.5 shall be in addition to and not in limitation of any other warranty required by the Contract Documents or otherwise prescribed by law.

3.5.8 The Contractor shall procure and deliver to the Architect, no later than the date claimed by the Contractor as the date of Substantial Completion, all special warranties required by the Contract Documents. Delivery by the Contractor shall constitute the Contractor's guarantee to the Owner that the warranties shall be performed in accordance with their terms and conditions.

3.6 TAXES

3.6.1 The Contractor shall pay sales, consumer, use and similar taxes for the Work or portions thereof provided by the Contractor which are legally enacted when bids are received or negotiations concluded, whether or not yet effective or merely scheduled to go into effect.

3.7 PERMITS, FEES AND NOTICES

3.7.1 Unless otherwise provided in the Contract Documents, the Contractor shall secure and pay for the building permit and other permits and governmental fees, licenses and inspections necessary for proper execution and completion of the Work which are customarily secured after execution of the Contract and which are legally required when bids are received or

negotiations concluded. Notwithstanding the foregoing, the Town hereby waives the fee for the Town's building permit for the Project.

3.7.2 The Contractor shall comply with and give notices required by laws, ordinances, rules, regulations and lawful orders of public authorities bearing on performance of the Work.

3.7.3 It is not the Contractor's responsibility to ascertain that the Contract Documents are in accordance with applicable laws, statutes, ordinances, building codes, and rules and regulations. However, if the Contractor observes that portions of the Contract Documents are at variance therewith, the Contractor shall promptly notify the Architect and Owner in writing, and necessary changes shall be accomplished by appropriate Modification.

3.7.4 If the Contractor performs Work knowing it to be contrary to laws, statutes, ordinances, building codes, and rules and regulations without such notice to the Architect and Owner, the Contractor shall assume full responsibility for such Work and shall bear the attributable costs.

3.8 ALLOWANCES

3.8.1-3.8.2 OMITTED.

3.9 SUPERINTENDENCE

3.9.1 The Contractor shall employ a competent superintendent, acceptable to the Owner, and necessary assistants who shall be in attendance at the Project site full time during the progress of the Work until the date of Substantial Completion, and for such additional time thereafter as the Architect may determine to be necessary for the expeditious completion of the Work. The superintendent shall be licensed to act as superintendent in accordance with all applicable laws for projects of this type. The Contractor shall remove the superintendent if requested to do so in writing by the Owner, and shall promptly replace him with a competent person reasonably acceptable to the Owner. The superintendent shall represent the Contractor, and communications given to the superintendent shall be as binding as if given to the Contractor.

3.9.2 The Contractor 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.

3.9.3 The Contractor shall establish the building grades, lines, levels, column, wall and partition lines required by the various Subcontractors in laying out their Work.

3.9.4 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. If such delays occur, the Owner may deduct anticipated liquidated damages from the Progress Payments to the Contractor. The Contractor and all Subcontractors shall at all times afford each trade, any separate contractor, or the Owner, every reasonable opportunity for the installation of Work and the storage of materials.

3.10 CONTRACTOR'S CONSTRUCTION SCHEDULES

3.10.1 The Contractor shall prepare and submit to the Architect a progress schedule, and shall comply with such schedule, as described in Subparagraphs 8.2.4 through 8.2.8.

3.11 DOCUMENTS AND SAMPLES AT THE SITE

3.11.1 The Contractor shall maintain at the site for the Owner one record copy of the Drawings, Specifications, Addenda, Change Orders and other Modifications, in good order and marked currently to record changes and selections made during construction, and in addition approved Shop Drawings, Product Data, Samples and similar required submittals. These shall be available to the Architect and shall be delivered to the Architect for submittal to the Owner upon completion of the Work.

3.12 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

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

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

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

3.12.4 Shop Drawings, Product Data, Samples and similar submittals are not Contract Documents. The purpose of their submittal 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. Review by the Architect is subject to the limitations of this Paragraph 3.12 and Paragraph 4.2.

3.12.5 The Contractor shall review, approve and submit to the Architect Shop Drawings, Product Data, Samples and similar submittals required by the Contract Documents with reasonable promptness, in accordance with the Contractor's progress schedule approved by the Architect, and in such sequence as to cause no delay in the Work or in the activities of the Owner or of separate contractors. Submittals made by the Contractor which are not required by the Contract Documents may be returned without action.

3.12.6 The Contractor shall perform no portion of the Work requiring submittal and review of Shop Drawings, Product Data, Samples or similar submittals until the respective submittal has been reviewed by the Architect. Such Work shall be in accordance with reviewed and approved submittals.

3.12.7 By approving and submitting Shop Drawings, Product Data, Samples, and similar 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 Shop Drawings, Product Data, Samples, or similar 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 Shop Drawings, Product Data, Samples, and similar submittals the Architect shall be entitled to rely upon the Contractor's representation that such information is correct and accurate.

3.12.8 The Contractor shall not be relieved of responsibility for deviations from requirements of the Contract Documents by the Architect's review of Shop Drawings, Product Data, Samples or similar 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 Shop Drawings, Product Data, Samples or similar submittals by the Architect's review thereof.

3.12.9 The Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, Product Data, Samples or similar submittals, to revisions other than those requested by the Architect on previous submittals. Unless such notice has been given, the Architect's review of a resubmitted Shop Drawing, Product Date, Sample, or similar submittal shall not constitute acceptance of any changes not requested on the prior submittal.

3.12.10 Informational submittals upon which the Architect is not expected to take responsible action may be so identified in the Contract Documents.

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

3.12.12 The Architect will not check dimensions or quantities on any Shop Drawings and will not assume any responsibility for any errors in dimensions or quantities on Shop Drawings.

3.13 USE OF SITE

3.13.1 The right of possession of the premises and the improvements made thereon by the Contractor shall remain at all times in the Owner. The Contractor's right to entry and use thereof arises solely from the permission granted by the Owner 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, ordinances, the Contract Documents and permits and/or directions of the Architect, and shall not unreasonably encumber the premises with the Contractor's materials. The Owner shall not be liable to the Contractor, the Subcontractors, their employees or anyone else with respect to the conditions of the premises, except only for a condition caused directly and solely by the negligence of the Owner.

3.14 CUTTING AND PATCHING

3.14.1 The Contractor and its Subcontractors shall be responsible for cutting, fitting or patching required to complete the Work or to make its parts fit together properly, all to be performed in accordance with the requirements of the Contract Documents.

3.14.2 The Contractor shall not damage or endanger a portion of the Work or fully or partially completed construction of the Owner or separate contractors by cutting, patching or otherwise altering such construction, or by excavation. The Contractor shall not cut or otherwise alter such construction by the Owner or a separate contractor except with written consent of the Owner and of such separate contractor; such consent shall not be unreasonably withheld. The Contractor shall not unreasonably withhold from the Owner or a separate contractor the Contractor's consent to cutting or otherwise altering the Work.

3.15 CLEANING UP

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

3.15.2 If the Contractor fails to clean up as provided in the Contract Documents, the Owner may do so and the cost thereof shall be charged to the Contractor.

3.15.3 The provisions of paragraphs 3.15.1 and 3.15.2 shall apply equally to all subcontractors at the project insofar as each subcontractor's work is concerned.

3.16 ACCESS TO WORK

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

3.17 ROYALTIES AND PATENTS

3.17.1 The Contractor shall pay all royalties and license fees. The Contractor shall defend suits or claims for infringement of patent rights and shall hold the Owner and Architect harmless from loss on account thereof, but shall not be responsible for such defense or loss when a particular design, process or product of a particular manufacturer or manufacturers is required by the Contract Documents. However, if the Contractor has reason to believe that the required design, process or product is an infringement of a patent, the Contractor shall be responsible for such loss unless such information is promptly furnished to the Architect.

3.18 INDEMNIFICATION

3.18.1 To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Owner, Architect, Architect's consultants, and agents and employees of any of them from and against claims, damages, losses and expense, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work, provided that such claim, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself) including loss of use resulting therefrom, caused in whole or in part by 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 3.18.

3.18.2 In claims against any person or entity indemnified under this Paragraph 3.18 by an employee of the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, the indemnification obligation under this Paragraph 3.18 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' or workmen's compensation acts, disability benefit acts, or other employee benefit acts.

3.18.3 The obligations of the Contractor under this Paragraph 3.18 shall not extend to the liability of the Architect, the Architect's consultants, and agents and 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.

3.19 COVENANT NOT TO SUE

3.19.1 In consideration of the Contractor's undertaking to indemnify and hold harmless the Architect, the Architect's consultants and agents or employees of any of them, in accordance with Paragraph 3.18, agree that the Architect will not bring any civil suit, action or other proceeding in law, equity or arbitration against the Contractor, or the officers, employees, agents and servants of the Contractor, for or on account of any action which the Architect may have arising out of or in any manner connected with the Work, except to enforce the provisions of

Paragraph 3.18 and this Paragraph 3.19; and 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 and servants 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.

3.20 RECORD KEEPING REQUIREMENTS

3.20.1 The Contractor shall comply with all applicable requirements of Mass. Gen. Laws Chapter 30, Section 39R.

ARTICLE 4

ADMINISTRATION OF THE CONTRACT

4.1 ARCHITECT

4.1.1 The Architect is the person lawfully licensed to practice architecture or an entity lawfully practicing architecture identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The term "Architect" means the Architect or the Architect's authorized representative.

4.1.2 Duties, responsibilities and limitations of authority of the Architect as set forth in the Contract Documents shall not be restricted, modified or extended without written consent of the Owner, Contractor and Architect. Consent shall not be unreasonably withheld. To the extent inconsistent herewith, the rights and responsibilities of the Architect shall be governed by the Owner/Architect Agreement for the Project.

4.1.3 In case of termination of employment of the Architect, the Owner shall appoint an architect whose status under the Contract Documents shall be that of the former architect.

4.2 ARCHITECT'S ADMINISTRATION OF THE CONTRACT

4.2.1 The Architect will provide administration of the Contract as described in the Contract Documents. The Architect will advise and consult with the Owner. The Architect will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents, unless otherwise modified by written instrument in accordance with other provisions of the Contract.

4.2.2 The Architect will visit the site at intervals appropriate to the stage of construction to become generally familiar with the progress and quality of the 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. The Architect will visit the site at least once per week during periods of active construction. The Architect will not be required to make exhaustive or continuous on-site inspections to check quality or quantity of the Work. On the basis of on-site observations as an architect, the Architect will keep the Owner informed

of progress of the Work, and will endeavor to guard the Owner against defects and deficiencies in the Work.

4.2.3 The Architect will not have control over or charge of and will not be responsible for construction means, methods, techniques, sequences or procedures, or for safety precautions and programs in connection with the Work, since these are solely the Contractor's responsibility as provided in Paragraph 3.3. 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 be responsible for acts or omissions of the Contractor, Subcontractors, or their agents or employees, or of any other persons performing portions of the Work.

4.2.4 Communications Facilitating Contract Administration. Except as otherwise provided in the Contract Documents or when direct communications have been specially authorized, the Owner and Contractor shall endeavor to communicate through the Project Manager. Communications by and with the Architect's consultants shall be through the Architect. Communications by and with Subcontractors and material suppliers generally shall be through the Contractor, although the Owner and Project Manager may have direct communications with subcontractors and suppliers intended to facilitate or expedite construction. Communications by and with separate contractors shall be through the Owner.

As to any written communications between two of the three of the Owner, Architect, and Contractor, a concurrent copy shall be sent to the third.

4.2.5 The Architect will have authority to reject Work which does not conform to 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 Subparagraphs 13.5.2 and 13.5.3, 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, material and equipment suppliers, their agents or employees, or other persons performing portions of the Work.

4.2.6 In accordance with generally accepted standards of professional practice the Architect will review, approve, and take other appropriate action upon the Contractor's submittals such as Shop Drawings, Product Data and Samples, for the purpose of checking for conformance with the Contract Documents. The Architect's action will be taken with reasonable promptness, while allowing sufficient time in the Architect's professional judgment to permit adequate review, and in any event shall take no longer than the time permitted by law. 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 obligations set forth in Paragraphs 3.3, 3.5 and 3.12. The Architect's review shall not constitute approval of safety precautions or, unless otherwise specifically stated by the Architect, of any construction means, methods,

techniques, sequences or procedures. The Architect's action with respect to any specific item shall not indicate approval of an assembly of which the item is a component.

4.2.7 The Architect will prepare Change Orders and Construction Change Directives, and may authorize minor changes in the Work as provided in Paragraph 7.4.

4.2.8 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 Owner for the Owner'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 compliance with the requirements of the Contract Documents.

4.2.9 If the Owner and Architect agree in writing, the Architect will provide one or more project representatives to assist in carrying out the Architect's responsibilities at the site. The duties, responsibilities and limitations of authority of such project representatives shall be as set forth in an exhibit to be incorporated in the Contract Documents. If no such exhibit has been so incorporated, the duties, responsibilities, and limitations of authority of such project representatives shall be as set forth in the edition of AIA Document B352 current as of the date of the Agreement.

4.2.10 The Architect will interpret and decide matters concerning performance under and requirements of the Contract Documents on written request of either the Owner or Contractor. The Architect's response to such requests will be made with reasonable promptness and within any time limits agreed upon. 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 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 additional cost or extension of the Contract Time. If the Contractor claims additional cost or time on account of such additional drawings or instructions, the Contractor shall give the notice provided in Subparagraph 4.3.7.

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

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

4.3 CLAIMS AND DISPUTES

4.3.1 Definition. A Claim is a demand or assertion by one of the parties seeking, as a matter of right, adjustment or interpretation of Contract terms, payment of money, extension of time or other relief with respect to the terms of the Contract. The term "Claim" includes Change

Order requests by the Contractor as well as other disputes and matters in question between the Owner and Contractor arising out of or relating to the Contract. Claims must be made by written notice. The responsibility to substantiate Claims shall rest with the party making the Claim.

4.3.2 Decision of Architect. Claims arising prior to final payment or the earlier termination of the Contract shall be referred initially to the Architect for action as provided in Paragraph 4.4. Action by the Architect, as provided in Paragraph 4.4, shall be required as a condition precedent to arbitration of a Claim between the Contractor and Owner as to all such matters arising prior to the date final payment is due. Action by the Architect in response to a Claim shall not be a condition precedent to arbitration in the event (1) the position of Architect is vacant; (2) the Architect has failed to take action as required under Subparagraph 4.4.1 within 15 days after the Claim is made; (3) the Architect has failed to take action required under Subparagraph 4.4.4 within 30 days after the Claim is made, unless the Architect has notified the parties in writing of the reasons why action could not be taken within 30 days, and of the date by which action will be taken; or (4) the Claim relates to a mechanic's lien.

4.3.3 Time Limits on Claim. Claims by either party must be made within 35 days after occurrence of the event giving rise to such Claim or within 35 days after the claimant first recognizes the condition giving rise to the Claim, whichever is later. Claims must be made by written notice. Any change or addition to a previously made Claim shall be made by timely written notice in accordance with this Subparagraph 4.3.3.

4.3.4 Continuing Contract Performance. 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 Owner shall continue to make payments in accordance with the Contract Documents.

4.3.5 Waiver of Claims: Final Payment. The making of final payment shall constitute a waiver of Claims by the Owner except those arising from:

- .1 liens, Claims, security interests or encumbrances arising out of the Contract and unsettled;
- .2 failure of the Work to comply with the requirements of the Contract Documents; or
- .3 terms of special warranties required by the Contract Documents.

Any Claim which has not been waived in accordance with this Subparagraph shall be deemed to have accrued upon discovery by the Owner of the condition or breach upon which such Claim is based, for the purpose of any applicable statute of limitation.

4.3.6 Claims for Differing Subsurface or Latent Physical Conditions. If, during the progress of the Work, the Contractor or the Owner discovers that the actual subsurface or latent physical conditions encountered at the site differ substantially or materially from those shown on the plans or indicated in the Contract Documents, either the Contractor or the Owner may request

an equitable adjustment in the Contract Sum 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 Owner shall make an investigation of such physical conditions, and, if they differ substantially or materially from those shown on the plans 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 plans 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 Owner shall make an equitable adjustment in the Contract Sum and the Contract shall be modified in writing accordingly.

4.3.6.1 Should conditions encountered below the surface of the ground require that footings, foundations or other parts of the building or other structure be raised, lowered or changed, or if additional depth of excavation below the levels shown on the Drawings is required in order to provide proper bearing for the building or other structure or for any permanent utilities on the site or for permanent grading or other permanent site work, any change in the amount of excavation, dewatering, sheeting, protection, rock excavation, backfill, concrete or other structural work, or any other work permanently incorporated in the building shall be considered a change in the Work, and the Contract Sum shall be adjusted as provided in this Article, provided that the Work has been ordered in writing as provided in 7.1.1.

4.3.7 Claims for Additional Cost or Time. If the Contractor claims that any acts or omissions of the Owner 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 Owner or 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 not proceed with the Work relating to such Claim until the Contractor has received a further written order to proceed except, as provided in Paragraph 10.3, in the case of an emergency affecting life or property. 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, and has received the further written order to proceed.

4.3.7.1 OMITTED

4.3.7.2 The Contractor shall have the burden of demonstrating the effect of the claimed act or omission on the Contract Sum or Contract Time, and shall furnish the Architect with such documentation relating thereto as the Architect may reasonably require. In the case of a continuing act or omission only one Claim is necessary.

4.3.7.3 Adverse weather conditions shall not be the basis for a Claim for additional time or cost.

4.3.8 Injury or Damage to Person or Property. If either party to the Contract suffers injury or damage to person or property because of an act or omission of the other party, of any of

the other party's employees or agents, or of others for whose acts such party is legally liable, written notice of such injury or damage, whether or not insured, shall be given to the other party within a reasonable time not exceeding 21 days after first observance. The notice shall provide sufficient detail to enable the other party to investigate the matter. If a Claim for additional cost or time related to this Claim is to be asserted, it shall be filed as provided in Subparagraph 4.3.7.

4.4 REVIEW OF CLAIMS BY ARCHITECT

4.4.1 The Architect shall take one or more of the following actions within ten days of receipt of a Claim: (1) defer any action with respect to all or any part of a Claim and request additional information from either party; (2) decline to render a decision for any reason which he deems appropriate (including but not limited to the fact that the Claim involves allegations of fault on the part of the Architect); (3) render a decision on all or a part of the Claim, or (4) submit a schedule to the parties indicating when the Architect expects to take action. The Architect shall notify the parties in writing of any action taken with respect to such Claim. If the Architect renders a decision or declines to render a decision, either party may proceed in accordance with Paragraph 4.5. If the Architect decides that the Work relating to such Claim should proceed regardless of his disposition of such Claim, the Architect shall issue to the Contractor a written order to proceed. The Contractor shall proceed as instructed, and all rights of both parties with respect to such Claim shall be deemed to have been reserved.

4.4.2 If a Claim is resolved by agreement of the parties, the Architect will prepare or obtain appropriate documentation indicating the parties' agreement to the resolution. In the absence thereof the Claim shall be treated as not resolved.

4.4.3 If a Claim has not been resolved, the party making the Claim shall, within ten days after the Architect's request, take one or more of the following actions: (1) submit additional supporting data requested by the Architect; (2) modify the initial Claim; (3) respond to the Architect's action under paragraph 4.4.1; or (4) notify the Architect that the initial Claim stands. Upon receipt of the response or supporting data, the Architect will either reject or approve the claim in whole or in part.

4.5 ARBITRATION

4.5.1 Controversies and Claims Subject to Arbitration. Any Claim arising out of or related to the Contract, or the breach thereof, except claims relating to aesthetic effect, shall be settled by arbitration, subject to the foregoing provisions of paragraph 4.4 and the provisions of Subparagraph 4.5.7. Arbitration will be conducted 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. In any such arbitration in which the amount stated in the demand is \$100,000 or less, a single arbitrator shall be appointed in accordance with the procedures set forth in the American Arbitration Association Construction Industry Arbitration Rules. In any such arbitration in which the amount stated in the demand is in excess of \$100,000, a panel of three arbitrators shall be appointed in accordance with the procedures set forth in the American Arbitration Association Construction Industry Arbitration Rules.

4.5.2 Rules For Arbitration. The parties may agree to any arbitration forum. If unable to agree, by default the forum shall be the American Arbitration Association. If the neutral arbitrator(s) is/are 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(s) is/are not appointed by the American Arbitration Association, then the arbitrator(s) 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. 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:

4.5.2.1 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.

4.5.2.2 After the neutral arbitrator has been appointed, neither party may engage in ex parte communication with the arbitrator appointed by that party.

4.5.3 Contract Performance During Arbitration. During arbitration proceedings, the Owner and Contractor shall comply with Subparagraph 4.3.4.

4.5.4 When a written decision of the Architect states that the decision is final, any demand for arbitration of the matter covered by such decision must be made within two months after substantial completion of the project, as determined by the Architect in accordance with paragraph 9.8.2 hereof. The failure to demand arbitration within said two month period will result in the Architect's decision becoming final and binding upon the Owner and the Contractor.

4.5.4.1 A demand for arbitration shall be made within the time limits specified in Subparagraph 4.5.4, and in no event shall 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.

4.5.5 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.

4.5.6 Judgment on Final Award. The award rendered by the arbitrator or arbitrators shall be final, and judgment may be entered upon it in accordance with applicable law in any court having jurisdiction thereof.

4.5.7 Notwithstanding any provision contained in this Paragraph 4.5 or elsewhere in the Contract Documents, the Owner reserves the following rights in connection with Claims and disputes between the Owner and the Contractor:

- .1 the right to institute legal action against the Contractor in any court of competent jurisdiction in lieu of demanding arbitration pursuant to this Paragraph 4.5, in which case the dispute or disputes which are the subject of such action shall be decided by such court, and not by arbitration;
- .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;
- .3 the right to require the Contractor to join as a party in any arbitration between the Owner 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.

In case the Owner elects to proceed in accordance with 4.5.7.1 or 4.5.7.2 above, the word “litigation” shall be deemed to replace the word “arbitration” wherever the latter word appears in the Contract Documents.

ARTICLE 5

SUBCONTRACTORS

5.1 DEFINITIONS

5.1.1 A Subcontractor is a person or entity who has a direct contract with the Contractor to perform a portion of the Work at the site. The term “Subcontractor” is referred to throughout the Contract Documents as if singular in number and means a Subcontractor or an authorized representative of the Subcontractor. The term “Subcontractor” does not include a separate contractor or Subcontractors of a separate contractor.

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

5.2 AWARD OF SUBCONTRACTS AND OTHER CONTRACTS FOR PORTIONS OF THE WORK

5.2.1 Unless otherwise stated in the Contract Documents or the bidding requirements, the Contractor, as soon as practicable after award of the Contract, shall furnish in writing to the

Owner through the Architect the names of persons or entities (including those who are to furnish materials or equipment fabricated to a special design) proposed for each principal portion of the Work. The Architect will promptly reply to the Contractor in writing stating whether or not the Owner or the Architect, after due investigation, has reasonable objection to any such proposed person or entity. Failure of the Owner or Architect to reply promptly shall constitute notice of no reasonable objection.

5.2.2 The Contractor shall not contract with a proposed person or entity to whom the Owner or Architect has made reasonable and timely objection. The Contractor shall not be required to contract with anyone to whom the Contractor has made reasonable objection, unless otherwise required by law to do so.

5.2.3 If the Owner or Architect has reasonable objection to a person or entity proposed by the Contractor, the Contractor shall propose another to whom the Owner or Architect has no reasonable objection. The Contract Sum shall be increased or decreased by the difference in cost occasioned by such change and an appropriate Change Order shall be issued. However, no increase in the Contract Sum shall be allowed for such change unless the Contractor has acted promptly and responsively in submitting names as required.

5.2.4 The Contractor shall not change a Subcontractor, person or entity previously selected if the Owner or Architect makes reasonable objection to such change.

5.2.5 The form of each filed Subcontract shall be submitted to the Owner for its acceptance, which shall not be unreasonably withheld or delayed. The form of subcontract shall be that set forth in Mass. Gen. Laws Chapter 149, Section 44F. Each Subcontract shall expressly provide for the contingent assignment referred to in Paragraph 5.4.

5.3 SUBCONTRACTUAL RELATIONS

5.3.1 By appropriate agreement, written where legally required for validity, the Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by terms of the Contract Documents, and to assume toward the Contractor all the obligations and responsibilities which the Contractor, by these Documents, assumes toward the Owner and Architect, including without limitation the obligations set forth in Paragraph 3.18. Each Subcontract agreement shall preserve and protect the rights of the Owner and Architect under the Contract Documents with respect to the Work to be performed by the Subcontractor so that Subcontracting thereof will not prejudice such rights, and shall allow to the Subcontractor, unless specifically provided otherwise in the Subcontract agreement, the benefit of all rights, remedies and redress against the Contractor that the Contractor, by the Contract Documents, has against the Owner. Where appropriate, the Contractor shall require each Subcontractor to enter into similar agreements with Sub-subcontractors. The Contractor shall make available to each proposed Subcontractor, prior to the execution of the Subcontract agreement, copies of the Contract Documents to which the Subcontractor will be bound, and, upon written request of the Subcontractor, identify to the Subcontractor terms and conditions of the proposed Subcontract agreement which may be at

variance with the Contract Documents. Subcontractors shall similarly make copies of applicable portions of such documents available to their respective proposed Sub-subcontractors.

5.4 CONTINGENT ASSIGNMENT OF SUBCONTRACTS

5.4.1 Each Subcontract agreement for a portion of the Work is assigned by the Contractor to the Owner provided that:

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

ARTICLE 6

CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTS

6.1 OWNER'S RIGHT TO PERFORM CONSTRUCTION AND TO AWARD SEPARATE CONTRACTS

6.1.1 The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, and to award separate contracts in connection with other portions of the Project or other construction or operations on the site under Conditions of the Contract identical or substantially similar to these, including those portions related to insurance and waiver of subrogation. If the Contractor claims that delay or additional cost is involved because of such action by the Owner, the Contractor shall make such Claim as provided elsewhere in the Contract Documents.

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

6.1.3 The Owner shall provide for coordination of the activities of the Owner's own forces and of each separate contractor with the work of the Contractor, who shall cooperate with them. The Contractor shall participate with other separate contractors and the Owner in reviewing their progress schedules when directed to do so. The Contractor shall make any revisions to the progress schedules and Contract Sum deemed necessary after a joint review and mutual agreement. The progress schedules shall then constitute the schedules to be used by the Contractor, separate contractors and the Owner until subsequently revised.

6.2 MUTUAL RESPONSIBILITY

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

6.2.2 If part of the Contractor's Work depends for proper execution or results upon construction or operations by the Owner or a separate contractor, the Contractor shall, prior to proceeding with that portion of the Work, promptly report to the Architect apparent discrepancies or defects in such other construction that would render it unsuitable for such proper execution and results. Failure of the Contractor so to report shall constitute an acknowledgement that the Owner's or separate contractors' completed or partially completed construction is fit and proper to receive the Contractor's Work, except as to defects not then reasonable discoverable.

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

6.2.4 The Contractor shall promptly remedy damage wrongfully caused by the Contractor to completed or partially completed construction or to property of the Owner or separate contractors as provided in Subparagraph 10.2.5. If such separate contractor sues or initiates an arbitration proceeding against the Owner on account of any damage alleged to have been caused by the Contractor, the Owner shall notify the Contractor, who shall defend such proceedings at the Contractor's expense, and if any judgment or award against the Owner arises therefrom the Contractor shall pay or satisfy it and shall reimburse the Owner for all attorneys' fees and court or arbitration costs which the Owner has incurred.

6.2.5 Claims and other disputes and matters in question between the Contractor and a separate contractor shall be subject to the provisions of Paragraph 4.3 provided the separate contractor has reciprocal obligations.

6.2.6 The Owner and each separate contractor shall have the same responsibilities for cutting and patching as are described for the Contractor in Paragraph 3.14.

6.3 OWNER'S RIGHT TO CLEAN UP

6.3.1 If a dispute arises among the Contractor, separate contractors and the Owner as to the responsibility under their respective contracts for maintaining the premises and surrounding area free from waste materials and rubbish as described in Paragraph 3.15, the Owner may clean up and allocate the cost among those responsible as the Architect determines to be just.

ARTICLE 7

CHANGES IN THE WORK

7.1 CHANGES

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

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

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

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

7.2 CHANGE ORDERS

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

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

7.3 CONSTRUCTION CHANGE DIRECTIVES

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

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

7.3.3 Upon request of the Owner or the Architect, the Contractor shall without cost to the Owner 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 contemplated by a Construction Change Directive. 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. 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. 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. 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.

7.3.3.1 If the Construction 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 Owner:

- (a) By unit prices stated in the Contract Documents or otherwise mutually agreed upon.
- (b) By Cost and Percentages (as defined below) estimated by the Contractor as provided in Subparagraph 7.3.3 and accepted by the Owner; 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.
- (c) By actual Cost determined after the Work covered by the change is completed, plus Percentage.
- (d) By use of the dispute resolution procedures set forth in Paragraph 4.3.

As used in this Paragraph 7.3, "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 workmen 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.

"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 10% of any net increase or decrease of Cost of any Work performed by the Sub-subcontractor's own forces plus 5% of any aggregate net increase in Cost of any Work performed for the Sub-subcontractor by other contractors. Percentage for a Subcontractor shall be such percentage allowances for overhead and profit as are set forth in the Subcontract between such Subcontractor and the Contractor. Percentage for the Contractor shall be 9 1/2% of any net increase or decrease of Cost of any Work performed by the Contractor's own forces plus 4 1/2% of any net increase or decrease in the Cost for all other Work covered by the change.

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

7.3.3.2 If the Owner elects to determine the cost of the Work as provided in method (a) of sub-Subparagraph 7.3.3.1, the unit prices shall be subject to Subparagraph 7.1.4. Notwithstanding the inclusion of unit prices in the Contract Documents, it shall be the Owner's option to require the Cost of any given change to be determined by one of the other methods stated in 7.3.3.1. If the Owner elects 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 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.

7.3.3.3 If the Owner elects to determine the cost of the Work as provided in methods (c) or (d) of sub-Subparagraph 7.3.3.1 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 materials costs applicable to the Work.

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

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

7.3.6 If the Owner and Contractor do not agree with the adjustment in Contract Sum or Contract Time or the method for determining the adjustment, the dispute shall be governed by the procedures set forth in Paragraph 4.3.

7.4 MINOR CHANGES IN THE WORK

7.4.1 The Architect will have authority to order minor changes in the Work not involving adjustment in the Contract Sum or extension of the Contract Time and not inconsistent with the intent of the Contract Documents. Such changes shall be effected by written order and shall be binding on the Owner and Contractor. The Contractor shall carry out such written orders promptly.

ARTICLE 8

TIME

8.1 DEFINITIONS

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

8.1.2 The date of commencement of the Work is the date established in the Agreement. The date shall not be postponed by the failure to act of the Contractor or of persons or entities for whom the Contractor is responsible.

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

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

8.2 PROGRESS AND COMPLETION

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

8.2.2 The Contractor shall not knowingly, except by agreement or instruction of the Owner in writing, prematurely commence operations on the site or elsewhere prior to the effective date of insurance required by Article 11 to be furnished by the Contractor. The date of commencement of the Work shall not be changed by the effective date of such insurance. Unless the date of commencement is established by a notice to proceed given by the Owner, the Contractor shall notify the Owner in writing not less than five days or other agreed period before commencing the Work to permit the timely filing of mortgages, mechanic's liens and other security interests.

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

8.2.4 Within two weeks after award of the Contract, the Contractor shall submit to the Architect a Progress Schedule showing for each class of work the percentage completion to be obtained and the total dollar value of work to be completed as of the first of each month until Substantial Completion.

8.2.5 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.

8.2.6 If in any application for payment as provided for in Paragraph 9.2, 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 Owner may, at the Owner's option, require the Contractor to accelerate the progress of the Work without cost to the Owner by increasing the work force or hours of work, or by other reasonable means approved by the Architect.

8.2.7 If each of three successive applications for payment indicate that the actual Work completed, as certified by the Architect, is less than 90% of the values estimated in the Progress Schedule to be completed by the respective dates, the Owner may at the Owner's option, treat the Contractor's delinquency as a default justifying the action permitted under Paragraph 14.2.

8.2.8 If the Architect has determined that the Contractor should be permitted to extend the time for completion as provided in Paragraph 8.3, 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 Work to be completed as of the first of each month shall be adjusted pro rata.

8.2.9 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 and to the best of the Architect's knowledge.

8.2.10 Nothing herein shall limit the Owner's right to liquidated or other damages for delays by the Contractor or to any other remedy which the Owner may possess under other provisions of the Contract Documents or by law.

8.2.11 The Progress Schedule required hereunder shall be a CPM Schedule in accordance with the Project Specifications and shall be updated in accordance therewith.

8.3 DELAYS AND EXTENSION OF TIME

8.3.1 If the Contractor is delayed at any time in progress of the Work by an act or neglect of the Owner or Architect, of an employee of either, or of a separate contractor employed by the Owner, 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 Owner, or by other causes which the Architect determines may justify delay, then the Contract Time shall be extended for such reasonable time as the Architect may determine.

8.3.2 Claims relating to time shall be made in accordance with applicable provisions of Paragraph 4.3.

8.3.3 The Contractor hereby agrees that the Contractor shall have no claim for damages of any kind against the Owner or the Architect on account of any delay in the commencement of the Work and/or any delay or suspension of any portion of the Work, whether such delay is caused by the Owner, the Architect, or otherwise, except as specifically provided in Subparagraphs 2.3.2 and 2.3.3. The Contractor acknowledges that, except as provided therein, the Contractor's sole remedy for any such delay and/or suspension will be an extension of time as provided in this Article.

8.3.4 No claim for delay shall be allowed on account of failure of the Architect to furnish Drawings, Specifications or instructions or to return Shop Drawings or Samples until the expiration of the applicable time period referred to in Mass. Gen. Laws Chapter 30, Section 39P, and not then unless such claim be reasonable.

8.3.5 No extension 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.

ARTICLE 9

PAYMENTS AND COMPLETION

9.1 CONTRACT SUM

9.1.1 The Contract Sum is stated in the Agreement and, including authorized adjustments, is the maximum amount payable by the Owner to the Contractor for performance of the Work under the Contract Documents, or in equity, should the Contractor assert a quantum meruit claim for the fair value of Contractor's Work, regardless of whether the Contractor is terminated hereunder.

9.2 APPLICATIONS FOR PAYMENT

9.2.1 Within fifteen days after receipt from the Contractor, at the place designated by the Owner if such a place is so designated, of a periodic estimate requesting payment of the amount due for the preceding month, the Owner 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 at 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 Owner, less (1) retention based on the Owner's 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 Subparagraph 9.6.2, and less (3) a retention not exceeding five percent of the approved amount of the periodic payment.

9.2.2 After the receipt of a periodic estimate requesting final payment and within sixty-five 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 Owner, less than one percent of the original Contract Sum, or (b) the Contractor substantially completes the work and the Owner takes possession for occupancy, whichever occurs first, the Owner 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 the cost of completing the incomplete and unsatisfactory items of Work and less (2) a retention for direct payments to Subcontractors based on demands for same in accordance with the provisions of Subparagraph 9.6.2, 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 Subparagraph 9.6.2. If the Owner fails to make payment as herein provided, there shall be added to each such payment daily interest at 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 days after receipt of such a periodic estimate from the Contractor, at the place designated by the Owner 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.

9.2.3 The Owner 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 Owner may, within seven 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 corrected periodic estimate in proper form and with arithmetically correct computations. The date of receipt of a periodic estimate received on a Saturday, Sunday, or holiday shall be the first working day thereafter.

9.2.4 All periodic estimates shall be submitted to the Owner, or to the Owner's representative, and the date of receipt by the Owner or its representative shall be marked on the estimate. All periodic estimates shall contain a separate item for each filed subtrade and each sub-subtrade listed in sub-bid form as required by the 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 Owner 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.

9.2.5 The format and number of copies of applications for payment shall be as directed by the Architect. Such application shall be notarized, if required, and supported by such data substantiating the Contractor's right to payment as the Owner or Architect may require, such as copies of requisitions from Subcontractors and material suppliers, and reflecting retainage if provided for elsewhere in the Contract Documents.

9.2.5.1 Such applications may include requests for payment on account of changes in the Work which have been properly authorized by Construction Change Directives but not yet included in Change Orders when such Construction Change Directives have set forth an adjustment to the Contract Sum.

9.2.5.2 Such applications may not include requests for payment of amounts the Contractor does not intend to pay to a Subcontractor or material supplier because of a dispute or other reason.

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

9.3 The Contractor warrants that title to all Work covered by an application for payment will pass to the Owner either by incorporation in the construction or upon receipt of payment by the Contractor, whichever occurs first, free and clear of all liens, claims, security interests or encumbrances, hereinafter referred to in this Article 9 as "liens."

9.4 CERTIFICATES FOR PAYMENT

9.4.1 The Architect will, within seven days after receipt of the Contractor's application for payment, either issue to the Owner a Certificate for Payment, with a copy to the Contractor, for such amount as the Architect determines is properly due, or notify the Contractor and Owner in writing of the Architect's reasons for withholding certification in whole or in part as provided in Subparagraph 9.5.1.

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

9.5 DECISIONS TO WITHHOLD CERTIFICATION

9.5.1 The Architect may decide not to certify payment and may withhold a Certificate for Payment in whole or in part, to the extent reasonably necessary to protect the Owner, if in the Architect's opinion the representations to the Owner required by Subparagraph 9.4.2 cannot be made. If the Architect is unable to certify payment in the amount of the Application, the Architect will notify the Contractor and Owner as provided in Subparagraph 9.4.1. If the Contractor and Architect cannot agree on a revised amount, the Architect will promptly issue a Certificate for Payment for the amount for which the Architect is able to make such representations to the Owner. The Architect may also 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 Owner from loss because of:

- .1 defective Work not remedied;
- .2 third party claims filed or reasonable evidence indicating probable filing of such claims;
- .3 failure of the Contractor to make payments properly to Subcontractors or for labor, materials or equipment;
- .4 reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;
- .5 damage to the Owner or another contractor;

- .6 reasonable evidence that the Work will not be completed within the Contract Time, and that the retainage currently held by the Owner would not be adequate to cover actual or liquidated damages for the anticipated delay; or
- .7 persistent failure to carry out the Work in accordance with the Contract Documents.

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

9.6 PROGRESS PAYMENTS

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

9.6.2 Payments to Subcontractors

9.6.2.1 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.

9.6.2.2 Not later than the sixty-fifth day after each Subcontractor substantially completes his work in accordance with the plans and Specifications, the entire balance due under the Subcontract less amounts retained by the Owner as the estimated cost of completing the incomplete and unsatisfactory items of work, shall be due the Subcontractor; and the Owner shall pay that amount to the Contractor. The Contractor shall forthwith pay to the Subcontractor the full amount received from the Owner less any amount specified in any court proceedings barring such payment and also less any amount claimed due from the Subcontractor by the Contractor.

9.6.2.3 Each payment made by the Owner to the Contractor pursuant to Subparagraphs 9.6.2.1 and 9.6.2.2 of this paragraph 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 Owner shall take reasonable steps to compel the Contractor to make each such payment to each such Subcontractor. If the Owner 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 included in a payment to the Contractor for payment to the Subcontractor as provided in Subparagraphs 9.6.2.1 and 9.6.2.2, the Owner shall act upon the demand as provided in this section.

9.6.2.4 If, within seventy 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 Owner as the estimated cost of completing the incomplete and unsatisfactory items of Work, the Subcontractor may demand direct payment of that balance from the Owner. The demand shall be by a sworn statement delivered to or sent by certified mail to the Owner, 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. 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 days after the Subcontractor has delivered or so mailed the demand to the Owner 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 Owner 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.

9.6.2.5 Within fifteen days after receipt of the demand by the Owner, but in no event prior to the seventieth day after substantial completion of the Subcontract work, the Owner 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 Owner 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 Owner 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 9.6.2.4. The Owner 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 Subparagraph.

9.6.2.6 The Owner shall forthwith deposit the amount deducted from a direct payment as provided in part (iii) of Subparagraph 9.6.2.5 in an interest-bearing joint account in the names of the Contractor and the Subcontractor in a bank in Massachusetts selected by the Owner 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.

9.6.2.7 All direct payments and all deductions from demands for direct payments deposited in an interest-bearing account or accounts in a bank pursuant to Subparagraph 9.6.2.6 shall be made out of amounts payable to the Contractor at the time of receipt of 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 Owner to the Contractor to the extent of such payment.

9.6.2.8 The Owner shall deduct from payments to the Contractor amounts which, together with the deposits in interest-bearing accounts pursuant to Subparagraph 9.6.2.6, 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.

9.6.2.9 If the Subcontractor does not receive payments as provided in Subparagraph 9.6.2.1 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 Subparagraph 9.6.2.1, the Subcontractor may demand direct payment by following the procedure in Subparagraph 9.6.2.4 and the Contractor may file a sworn reply as provided in that same Subparagraph. 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 Owner shall proceed as provided in Subparagraphs 9.6.2.5, 9.6.2.6, 9.6.2.7 and 9.6.2.8.

9.6.3 Neither the Owner nor Architect shall have an obligation to pay or to see to the payment of money to a Subcontractor, Sub-subcontractor or material supplier, except as provided in Subparagraph 9.6.2, or otherwise as provided by law.

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

9.6.5 “Subcontractor” as used in Sub-subparagraphs 9.6.2.1 through 9.6.2.9 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 awarding authority in writing as a person performing labor or both performing labor and furnishing materials pursuant to a contract with the Contractor. “Subcontractor” as used in other provisions of the Contract Documents shall, except as otherwise expressly provided, have the meaning set forth in Subparagraph 5.1.1.

9.7 FAILURE OF PAYMENT

9.7.1 If the Architect does not issue a Certificate for Payment, through no fault of the Contractor, within seven days after receipt of the Contractor’s application for payment, or if the Owner does not pay the Contractor within seven days after the date established in the Contract Documents the amount certified by the Architect, then the Contractor may, upon seven additional days’ written notice to the Owner and Architect, stop the Work until payment of the amount owing has been received. The Contract Time shall be extended as provided in Article 7.

9.8 SUBSTANTIAL COMPLETION

9.8.1 Substantial Completion is the stage in the progress of the Work when the Work is sufficiently complete in accordance with the Contract Documents so the Owner can occupy or utilize the Work for its intended use and only minor items which can be corrected or completed

without any material interference with the Owner's use of the Work remain to be corrected or completed.

9.8.2 When the Contractor considers that the Work, or a portion thereof designated in the Contract Documents for separate completion, is substantially complete and the premises comply with Subparagraph 3.15.1, the Contractor shall submit to the Architect (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 Subparagraph 13.5.4. The failure to include any items 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 Owner 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. Warranties required by the Contract Documents shall commence on the date of Substantial Completion. The Certificate of Substantial Completion shall be submitted to the Owner and Contractor for their written acceptance of the responsibilities assigned to them in such Certificate.

9.8.3 Upon Substantial Completion of the Work or designated portion thereof and upon application by the Contractor and certification by the Architect, the Owner shall make payment, reflecting adjustment in retainage, if any, for such Work or portion thereof as provided in the Contract Documents.

9.9 PARTIAL OCCUPANCY OR USE

9.9.1 The Owner may occupy or use any completed or partially completed portion of the Work at any stage. Such partial occupancy or use may begin whether or not the portion is substantially complete, provided that the respective responsibilities of the Owner and 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 Owner and 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 Paragraph 4.5.

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

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

9.10 FINAL COMPLETION AND FINAL PAYMENT

9.10.1 Upon receipt of written notice that the Work is ready for final inspection and acceptance and upon receipt of a final application for payment, the Architect will promptly make such inspection and, when the Architect finds the Work acceptable under the Contract Documents and the Contract fully performed, the Architect will promptly issue a final Certificate for Payment stating that to the best of the Architect's knowledge, information and belief, and on the basis of the Architect's observations and inspections, the Work has been completed in accordance with terms and conditions of the Contract Documents. The Architect's final Certificate for Payment will constitute a further representation that conditions listed in Subparagraph 9.10.2 as precedent to the Contractor's being entitled to final payment have been fulfilled.

9.10.2 Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Architect (1) an affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or the Owner's property might be responsible or encumbered (less amounts withheld by Owner) have been paid or otherwise satisfied, (2) a certificate evidencing that insurance required by the Contract Documents to remain in force after final payment is currently in effect and will not be canceled or allowed to expire until at least 30 days' prior written notice has been given to the Owner, (3) a written statement that the Contractor knows of no substantial reason that the insurance will not be renewable to cover the period required by the Contract Documents, (4) consent of surety, if any, to final payment and (5), if required by the Owner, other data establishing payment or satisfaction of obligations, such as receipts, releases and waivers of liens, claims, security interests or encumbrances arising out of the Contract, to the extent and in such form as may be designated by the Owner. If a Subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor may furnish a bond satisfactory to the Owner to indemnify the Owner against such lien. If such lien remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging such lien, including all costs and reasonable attorneys' fees.

9.10.3 If, after Substantial Completion of the Work, final completion thereof is materially delayed through no fault of the Contractor or by issuance of Change Orders affecting final completion, and the Architect so confirms, the Owner shall, upon application by the Contractor and certification by the Architect, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance for Work not fully completed or corrected is less than retainage stipulated in the Contract Documents, and if bonds have been furnished, the written consent of surety to payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by the Contractor to the Architect prior to certification of such payment. Such payment shall be made under terms and conditions governing final payment, except that it shall not constitute a waiver of claims. The making of final payment shall constitute a waiver of claims by the Owner to the extent provided in Subparagraph 4.3.5.

9.10.4 Acceptance of final payment by the Contractor, a Subcontractor or material supplier shall constitute a waiver of claims by that payee except those previously made in writing

and identified by that payee as unsettled at the time of final application for payment. Such waivers shall be in addition to the waiver described in Subparagraph 4.3.5.

ARTICLE 10

PROTECTION OF PERSONS AND PROPERTY

10.1 SAFETY PRECAUTIONS AND PROGRAMS

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

10.2 SAFETY OF PERSONS AND PROPERTY

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

- .1 employees performing the Work and other persons who may be affected thereby;
- .2 the Work and materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody or control of the Contractor or the Contractor's Subcontractors or Sub-subcontractors;
- .3 other property at the site or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction; and
- .4 any other property of the Owner, whether or not forming part of the Work, located at the site or adjacent thereto in areas to which the Contractor has access.

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

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

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

10.2.5 The Contractor shall promptly remedy damage and loss to property referred to in Clauses 10.2.1.2, 10.2.1.3 and 10.2.1.4. If the damage or loss is due in whole or in part to the Contractor's failure to take the precautions required by this Paragraph 10.2, the Contractor shall, subject to any reimbursement to which the Contractor is entitled under the property insurance required by the Contract Documents, bear the cost.

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

10.2.7 The Contractor shall not load or permit any part of the construction or site to be loaded so as to endanger its safety.

10.2.8 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 area within the site limits shall be kept orderly and clean, and all combustible rubbish shall be promptly removed from the site.

10.2.9 The Contractor shall at all time 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.

10.2.10 The Contractor shall remove snow and ice which might result in damage or delay.

10.2.11 During the progress of the Work and at all times prior to the date of Substantial Completion or occupancy of the Work by the Owner, whichever is earlier, the Contractor shall provide temporary heat, ventilation, and enclosure, as required by Mass. Gen. Laws Chapter 149, Section 44F(1). The permanent heating and ventilation systems may be used for these purposes when available unless otherwise provided in the Contract Documents.

10.3 EMERGENCIES

10.3.1 In an emergency affecting safety of persons or property, the Contractor shall act, at the Contractor's discretion, to prevent threatened damage, injury or loss. Additional compensation or extension of time claimed by the Contractor on account of an emergency shall be determined as provided in Paragraph 4.3 and Article 7.

10.4 VANDALISM

10.4.1 The Contractor shall be responsible for protecting the work, the work site, materials, and equipment stored at the site (or incorporated in the work), other property at the

site, or other property of the Owner, against vandalism by known or unknown persons. In discharging this obligation the Contractor shall utilize security personnel, measures, procedures, and equipment or materials necessary to prevent vandalism.

10.4.2 In the event of any damage caused by vandalism to the property/materials/equipment/items referenced in the preceding Article 10.4.1, and regardless of whether the Contractor has exercised due care in avoiding same, the Contractor shall be financially responsible therefor to whatever extent said damage is not indemnified by insurance coverage available to either the Contractor or Owner. The Contractor's obligation hereunder shall include payment of damages to whatever extent insurance coverage is unavailable due to self-insurance, a deductible, or a self-insured retention.

10.4.3 Any monies owed by the Contractor to the Owner on account of damages referenced in the preceding Article 10.4.2 may be offset by the Owner against any periodic payments made under the Contract.

ARTICLE 11

INSURANCE AND BONDS

11.1 CONTRACTOR'S LIABILITY INSURANCE

11.1.1 The Contractor shall purchase from and maintain in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located and to which the Owner has no reasonable objection such insurance as will protect the Contractor from claims set forth below which may arise out of or result from the Contractor's operations under the Contract and for which the Contractor may be legally liable, whether such operations be by the Contractor or by a Subcontractor or by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable:

- .1 claims under workers' or workmen's compensation, disability benefit and other similar employee benefit acts which are applicable to the Work to be performed;
- .2 claims for damages because of bodily injury, occupational sickness or disease, or death of the Contractor's employees;
- .3 claims for damages because of bodily injury, sickness or disease, or death of any person other than the Contractor's employees;
- .4 claims for damages insured by usual personal injury liability coverage which are sustained (1) by a person as a result of an offense directly or indirectly related to employment of such person by the Contractor, or (2) by another person;

- .5 claims for damages, other than to the Work itself, because of injury to or destruction of tangible property, including loss of use resulting therefrom;
- .6 claims for damages because of bodily injury, death of a person or property damage arising out of ownership, maintenance or use of a motor vehicle; and
- .7 claims involving contractual liability insurance applicable to the Contractor's obligations under Paragraph 3.18.

11.1.2 The insurance required by Subparagraph 11.1.1 shall include all major divisions of coverage, and shall be on a comprehensive general basis including Premises and Operations (including X-C-U), Owner's and Contractor's Protective, Products and Completed Operations, and Owned, Nonowned, and Hired Motor Vehicles. Such insurance shall be written for not less than any limits of liability required by law or those set forth in the Contract Documents, whichever is greater.

All insurance shall be written on an occurrence basis, unless the Owner approves in writing coverage on a claims-made basis. Coverages, whether written on an occurrence or claims-made basis, shall be maintained without interruption from date of commencement of the Work until date of final payment and termination of any coverage required to be maintained after final payment. The Owner shall be added as an Additional Insured on all policies, which shall constitute primary insurance for the Owner in relation to any similar or concurrent insurance independently maintained by the Owner.

11.1.3 Certificates of insurance acceptable to the Owner shall be filed with the Owner prior to commencement of the Work. These Certificates and the insurance policies required by this Paragraph 11.1 shall contain a provision that coverages afforded under the policies will not be canceled or allowed to expire until at least 30 days' prior written notice has been given to the Owner. These certificates shall set forth evidence of all coverage required by 11.1.1 and 11.1.2. The form of certificate shall be AIA Document G705. The Contractor shall furnish to the Owner copies of any endorsements that are subsequently issued amending limits of coverage. If any of the foregoing insurance coverages are required to remain in force after final payment and are reasonably available, an additional certificate evidencing continuation of such coverage shall be submitted with the final application for payment as required by Subparagraph 9.10.2.

11.1.4 In addition to Statutory Workers' Compensation Coverage, the Contractor shall provide Employers Liability Coverage at the following limits of liability:

Each accident - \$500,000;

Disease - policy limit \$500,000;

Disease - each employee \$500,000.

11.1.5 The liability insurance coverage purchased by the Contractor in order to comply with Section 11.1.1 (.1-.7) above shall contain the following limits of liability:

- \$3,000,000 - general aggregate;
- \$3,000,000 - products/completed operations aggregate;
- \$1,000,000 - personal injury and advertising;
- \$1,000,000 - each occurrence;
- \$1,000,000 - auto liability including hired and non-owned;
- \$2,000,000 - umbrella.

11.2 OWNER'S LIABILITY INSURANCE

11.2.1 The Owner shall be responsible for purchasing and maintaining the Owner's usual liability insurance. Optionally, the Owner may purchase and maintain other insurance for self-protection against claims which may arise from operations under the Contract. The Contractor shall not be responsible for purchasing and maintaining this optional Owner's liability insurance unless specifically required by the Contract Documents.

11.3 PROPERTY INSURANCE BUILDERS RISK POLICY

11.3.1 Unless otherwise provided, the Owner shall purchase and maintain, in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located, property insurance in the amount of the initial Contract Sum as well as subsequent modifications thereto for the entire Work at the site on a replacement cost basis. Such property insurance shall be maintained, unless otherwise provided in the Contract Documents or otherwise agreed in writing by all persons and entities who are beneficiaries of such insurance, until final payment has been made as provided in Paragraph 9.10 or until no person or entity other than the Owner has an insurable interest in the property required by this Paragraph 11.3 to be covered, whichever is earlier. This insurance shall include interests of the Owner, the Contractor, Subcontractors and Sub-subcontractors in the Work.

11.3.1.1 Property insurance shall be on an all-risk policy form and shall insure against the perils of fire and extended coverage and physical loss or damage including, without duplication of coverage, theft, vandalism, malicious mischief, collapse, false-work, 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 required as a result of such insured loss. Coverage for other perils shall not be required unless otherwise provided in the Contract Documents. The form of policy for this coverage shall provide for coverage in the event of a loss up to the contemplated value of the property following completion of all Work required under the Contract.

11.3.1.2 If the Owner does not intend to purchase such property insurance required by the Contract and with all of the coverages in the amount described above, the Owner shall so inform the Contractor in writing prior to commencement of the Work. The Contractor may then effect insurance which will protect the interests of the Contractor, Subcontractors and Sub-subcontractors in the Work, and by appropriate Change Order the cost thereof shall be charged to the Owner. If the Contractor is damaged by the failure or neglect of the Owner to purchase or maintain insurance as described above, without so notifying the Contractor, then the Owner shall bear all reasonable costs properly attributable thereto.

11.3.1.3 The property insurance maintained hereunder by the Owner has a deductible of \$100,000 applicable to each/any claim thereunder. In the event of any property damage arising from any occurrence prior to the Architect's issuance of a final Certificate for Payment under Section 9.10.1, including but not limited to property damage arising from vandalism or casualty of any kind, the Contractor shall be responsible for the cost of said property damage: (a) to the extent not indemnified by the Owner's insurance policy because of said deductible; or (b) to the extent not indemnified by the Owner's insurance policy for any other reason.

11.3.1.4 Property insurance for portions of the Work stored off site and in transit shall be procured and the cost borne by the Contractor, unless otherwise provided in the Contract Documents.

11.3.2 Boiler and Machinery Insurance. The Owner shall purchase and maintain boiler and machinery insurance required by the Contract Documents or by law, which shall specifically cover such insured objects during installation and until final acceptance by the Owner; this insurance shall include interests of the Owner, Contractor, Subcontractors and Sub-subcontractors in the Work, and the Owner and Contractor shall be named insureds.

11.3.3 Loss of Use Insurance. The Owner, at the Owner's option, may purchase and maintain such insurance as will insure the Owner against loss of use of the Owner's property due to fire or other hazards, however caused. The Owner waives all rights of action against the Contractor for loss of use of the Owner's property, including consequential losses due to fire or other hazards however caused, to the extent covered and paid by insurance under this Subparagraph 11.3.3.

11.3.4 If the Contractor requests in writing that insurance for risks other than those described herein or for other special hazards be included in the property insurance policy, the Owner shall, if possible, include such insurance, and the cost thereof shall be borne by the Contractor.

11.3.5 If during the Project construction period the Owner insures properties, real or personal or both, adjoining or adjacent to the site by property insurance under policies separate from those insuring the Project, or if after final payment property insurance is to be provided on the completed Project through a policy or policies other than those insuring the Project during the construction period, the Owner shall waive all rights in accordance with the terms of Subparagraph 11.3.7 for damages caused by fire or other perils covered by this separate property

insurance. All separate policies shall provide this waiver of subrogation by endorsement or otherwise.

11.3.6 Before an exposure to loss may occur, the Owner shall file with the Contractor a copy of each policy that includes insurance coverages required by this Paragraph 11.3. Each policy shall contain all generally applicable conditions, definitions, exclusions and endorsements related to this Project. Each policy shall contain a provision that the policy will not be canceled or allowed to expire until at least 30 days' prior written notice has been given to the Contractor.

11.3.7 Waivers of Subrogation. INTENTIONALLY OMITTED.

11.3.8 A loss insured under Owner's property insurance shall be adjusted by the Owner and made payable to the Owner on its behalf and on behalf of the insureds, as their interests may appear, subject to requirements of any applicable mortgagee clause and of Subparagraph 11.3.10. The Contractor shall pay Subcontractors their just shares of insurance proceeds received by the Contractor, and by appropriate agreements, written where legally required for validity, shall require Subcontractors to make payments to their Subcontractors in similar manner.

11.3.9 If required in writing by a party in interest, the Owner shall, upon occurrence of an insured loss, give bond for proper performance of the Owner's duties all subject to the requirements, if any, of the Owner's construction and/or permanent lender. The cost of required bonds shall be charged against proceeds received by Owner. The Owner shall deposit in a separate account proceeds so received, which the Owner shall distribute in accordance with such agreement as the parties in interest may reach, or in accordance with an arbitration award in which case the procedure shall be as provided in Paragraph 4.5.

11.3.10 The Owner shall have power to adjust and settle a loss with insurers unless one of the parties in interest shall object in writing within five days after occurrence of loss to the Owner's exercise of this power; if such objection be made, arbitrators shall be chosen as provided in Paragraph 4.5. The Owner shall, in that case, make settlement with insurers in accordance with directions of such arbitrators. If distribution of insurance proceeds by arbitration is required, the arbitrators will direct such distribution.

11.4 PERFORMANCE BOND AND PAYMENT BOND

11.4.1 The Contractor shall furnish bonds covering faithful performance of the Contract and payment of obligations arising thereunder as stipulated in bidding requirements or specifically required in the Contract Documents on the date of execution of the Contract. Said bonds shall satisfy the applicable statutory requirements of the place in which the Work is to be performed.

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

ARTICLE 12

UNCOVERING AND CORRECTION OF WORK

12.1 UNCOVERING OF WORK

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

12.1.2 If a portion of the Work has been covered in accordance with the requirements specifically expressed in the contract documents, and 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 such Work is in accordance with the Contract Documents, costs of uncovering and replacement shall, by appropriate Change Order, be charged to the Owner. If such Work is not in accordance with the Contract Documents, the Contractor shall pay such costs unless the condition was caused by the Owner or a separate contractor in which event the Owner shall be responsible for payment of such costs.

12.2 CORRECTION OF WORK

12.2.1 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 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 Owner resulting from such failure or defect.

12.2.2 If, within one year after the date of Substantial Completion of the Work or designated portion thereof, or after the date for commencement of warranties established under Subparagraph 9.9.1, 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 Owner to do so unless the Owner has previously given the Contractor a written acceptance of such condition. This period of one 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 under this Subparagraph 12.2.2 shall survive acceptance of the Work under the Contract and termination of the Contract. The Owner shall give such notice promptly after discovery of the condition.

12.2.3 The Contractor shall remove from the site 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 Owner.

12.2.4 If the Contractor fails to correct nonconforming Work within a reasonable time, the Owner may correct it in accordance with Paragraph 2.4. If the Contractor does not proceed with correction of such nonconforming Work within a reasonable time fixed by written notice from the Architect, the Owner may remove it and store the salvable materials or equipment at the Contractor's expense. If the Contractor does not pay costs of such removal and storage within ten days after written notice, the Owner may upon ten 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 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 Owner.

12.2.5 The Contractor shall bear the cost of correcting destroyed or damaged construction, whether completed or partially completed, of the Owner 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.

12.2.6 Nothing contained in this Paragraph 12.2 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 year as described in Subparagraph 12.2.2 relates only to the specific obligation of the Contractor to correct the Work, and has no relationship to the time within which the obligation to comply with the Contract Documents may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to the Contractor's obligations other than specifically to correct the Work.

12.3 ACCEPTANCE OF NONCONFORMING WORK

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

ARTICLE 13

MISCELLANEOUS PROVISIONS

13.1 GOVERNING LAW

13.1.1 The Contract shall be governed by the law of the place where the Project is located.

13.2 SUCCESSORS AND ASSIGNS

13.2.1 The Owner and 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. Except as hereinafter provided, neither party to the Contract shall assign the Contract or sublet it as a whole without the written consent of the other, nor shall the Contractor assign any moneys due or to become due to him hereunder, without the previous written consent of the Owner. The Owner may assign the Contract to any institutional lender providing construction or permanent financing for the Project or to any person acquiring the Owner's interest in the Project, and the Contractor agrees to execute all consents, certificates, and other documents required by such lender or other person in connection with such assignment.

13.2.2 If the Owner conveys its interest in the Project to a third party, any rights which the Owner may have against the Contractor arising from this Agreement shall automatically transfer to such third party.

13.3 WRITTEN NOTICE

13.3.1 Written notice shall be deemed to have been duly served if delivered in person to the individual or a member of the firm or entity or to an officer of the corporation for which it was intended, or if delivered at or sent by registered or certified mail to the last business address known to the party giving notice.

13.4 RIGHTS AND REMEDIES

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

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

13.5 TESTS AND INSPECTIONS

13.5.1 Tests, inspections and approvals of portions of the Work required by the Contract Documents or by laws, ordinances, rules, regulations or orders of public authorities having jurisdiction shall be made at an appropriate time. Unless otherwise provided, the Contractor shall make arrangements for such tests, inspections and approvals with an independent testing laboratory or entity acceptable to the Owner, or with the appropriate public authority, and shall bear all related costs of tests, inspections and approvals. The Contractor shall give the Architect timely notice of when and where tests and inspections are to be made so the Architect may

observe such procedures. The Owner shall bear costs of tests, inspections or approvals which do not become requirements until after bids are received or negotiations concluded.

13.5.2 If the Architect, Owner or public authorities having jurisdiction determine that portions of the Work require additional testing, inspection or approval not included under Subparagraph 13.5.1, the Architect will, upon written authorization from the Owner, instruct the Contractor to make arrangements for such additional testing, inspection or approval by an entity acceptable to the Owner, and the Contractor shall give timely notice to the Architect of when and where tests and inspections are to be made so the Architect may observe such procedures. The Owner shall bear such costs except as provided in Subparagraph 13.5.3.

13.5.3 If such procedures for testing, inspection or approval under Subparagraphs 13.5.1 and 13.5.2 reveal failure of the portions of the Work to comply with requirements established by the Contract Documents, the Contractor shall bear all costs made necessary by such failure including those of repeated procedures and compensation for the Architect's services and expenses.

13.5.4 The Contractor shall obtain and deliver promptly to the Architect any occupancy permit and any certificates of final inspection of any part of the Contractor's work and operating permits for any mechanical apparatus, such as elevators, escalators, boilers, air compressors, etc., which may be required by law to permit full use and occupancy of the premises by the Owner. Receipt of such permits or certificates by the Architect shall be a condition precedent to Substantial Completion of the Work.

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

13.6 LIMITATION OF LIABILITY

13.6.1 The Owner shall be liable only to the extent of its interest in the Project; and no officer, director, partner, agent or employee of the Owner (or any partner of a partner or any agent or employee of a partner) shall ever be personally or individually liable with respect to this Contract or the Work. Each Subcontract shall include the foregoing limitation, which shall be effective if the Owner ever succeeds to the Contractor's rights and obligations under a Subcontract.

13.7 The Contractor shall comply with any decisions of the Arlington Redevelopment Board applicable to the Project, and with any other Laws, By-Laws, Rules, and Regulations or Ordinances within the Town of Arlington.

ARTICLE 14

TERMINATION OR SUSPENSION OF THE CONTRACT

14.1 TERMINATION BY THE CONTRACTOR

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

- .1 issuance of an order of a court or other public authority having jurisdiction; or
- .2 an act of government, such as declaration of national emergency, making material unavailable.

14.1.2 If one of the above reasons exists, the Contractor may, upon seven additional days' written notice to the Owner and Architect, terminate the Contract and recover from the Owner payment for Work executed and for proven loss with respect to materials, equipment, tools, and construction equipment and machinery, including reasonable overhead, profit and damages.

14.1.3 If the Work is stopped for a period of 60 days through no act or fault of the Contractor or a Subcontractor or their agents or employees or any other persons performing portions of the Work under contract with the Contractor because the Owner has persistently failed to fulfill the Owner's obligations under the Contract Documents with respect to matters important to the progress of the Work, the Contractor may, upon seven additional days' written notice to the Owner and the Architect, terminate the Contract and recover from the Owner as provided in Subparagraph 14.1.2.

14.2 TERMINATION BY THE OWNER

14.2.1 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 workmen or proper materials, or if the Contractor fails to make prompt payment to Subcontractors for materials or labor, or persistently disregards laws, ordinances, rules, regulations or orders of any public authority having jurisdiction, or otherwise is guilty of a significant violation of any provision of the Contract, including the failure to perform the Work in Accordance With the Contract, then the Contractor shall be in default, and the Owner may, without prejudice to any other right or remedy, and upon seven days' 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 may terminate the employment of the Contractor, accept assignment of any or all Subcontracts pursuant to Paragraph 5.4, and finish the Work by whatever method the Owner may deem expedient. The Owner shall be entitled to collect from the Contractor all direct, indirect, liquidated, and consequential damages suffered by the Owner on account of the Contractor's default, including without limitation additional services and expenses of the Architect made necessary thereby. The Owner shall be entitled to hold all amounts due the Contractor at the date of termination until all of the Owner's damages have been established, and to apply such amounts to such damages.

14.2.2 When the Owner terminates the Contract for one of the reasons stated in Subparagraph 14.2.1, the Contractor shall not be entitled to receive further payment until the Work is finished. Any payment to the Contractor in quantum meruit shall be capped at the amount due under this Contract, including any adjustments, regardless of whether said termination by the Owner is deemed rightful or wrongful.

14.2.3 If the unpaid balance of the Contract Sum exceeds costs of finishing the Work, including compensation for the Architect's services and expenses made necessary thereby, such excess shall be paid to the Contractor. If such costs exceed the unpaid balance, the Contractor shall pay the difference to the Owner. The amount to be paid to the Contractor or Owner, as the case may be, shall be certified by the Architect, upon application, and this obligation for payment shall survive termination of the Contract.

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SUPPLEMENTAL STATUTORY CONDITIONS

ARTICLE 1 - WAGES AND EMPLOYMENT PRACTICES

- 1.1 Preference To Veterans and Citizens In Public Work; Rate of Wages. (Statutory reference: Mass. Gen. Laws Chapter 149, Section 26) This Paragraph applies to every contract or subcontract for the construction of public works by the Commonwealth or by a county, town or district, or by persons contracting or subcontracting for such works.
- 1.1.1 In the employment of mechanics and apprentices, teamsters, chauffeurs and laborers, preference shall first be given to citizens of the Commonwealth who have been residents of the Commonwealth for at least six months at the commencement of their employment, who are veterans as defined in Mass. Gen. Laws Chapter 4, Section 7, clause 43, and who are qualified to perform the work to which the employment relates; and secondly, to citizens of the Commonwealth generally who have been residents of the Commonwealth for at least six months at the commencement of their employment, and if they cannot be obtained in sufficient numbers, then to citizens of the United States, and every contract for such work shall contain a provision to this effect. Each county, town or district in the construction of public works, or persons contracting or subcontracting for such works, shall give preference to veterans and citizens who are residents of such county, town or district.
- 1.1.2 The rate per hour of the wages paid to said mechanics and apprentices, teamsters, chauffeurs and laborers in the construction of public works shall not be less than the rate or rates of wages to be determined by the Commissioner of Labor and Industries as hereinafter provided; provided, that the wages paid to laborers employed on said works shall not be less than those paid to laborers in the municipal service of the town or towns where said works are being constructed; provided, further, that where the same public work is to be constructed in two or more towns, the wages paid to laborers shall not be less than those paid to laborers in the municipal service of the town paying the highest rate; provided further, that if, in any of the towns where the works are to be constructed, a wage rate or wage rates have been established in certain trades and occupations by collective agreements or understandings in the private construction industry between organized labor and employers, the rate or rates to be paid on said works shall not be less than the rates so established; provided, further, that in towns where no such rate or rates have been so established, the wages paid to mechanics and apprentices, teamsters, chauffeurs and laborers on public works, shall not be less than the wages paid to the employees in the same trades and occupations by private employers engaged in the construction industry. This section shall also apply to regular employees of the Commonwealth or of a county, town or district, when such employees are employed in the construction, addition to or alteration of public buildings for which special appropriations of more than one thousand

dollars are provided. Payments by employers to health and welfare plans, pension plans and supplementary unemployment benefit plans under collective bargaining agreements or understandings between organized labor and employers shall be included for the purpose of establishing minimum wage rates as herein provided.

- 1.2 List of Jobs; Classifications; Determination of Rate of Wages; Schedule.
(Statutory reference; Mass. Gen. Laws Chapter 149, Section 27) This Paragraph applies to every contract or subcontract for the construction of public works by the Commonwealth, or by a county, town or district.

The Commissioner of Labor and Industries shall prepare, for the use of such public officials or public bodies whose duty it shall be to cause public works to be constructed, a list of the several jobs usually performed on various types of public works upon which mechanics and apprentices, teamsters, chauffeurs and laborers are employed. The Commissioner shall classify said jobs, and he may revise such classifications from time to time, as he may deem advisable. Prior to awarding a contract for the construction of public works, said public official or public body shall submit to the Commissioner a list of the jobs upon which mechanics and apprentices, teamsters, chauffeurs and laborers are to be employed, and shall request the Commissioner to determine the rate of wages to be paid on each job. Said rates shall apply to all persons engaged in transporting gravel or fill to the site of said public works or removing gravel or fill from such site, regardless of whether such persons are employed by a contractor or subcontractor or are independent contractors or owner-operators. The Commissioner, subject to the provisions of Paragraph 1.1 of these Supplementary Statutory Conditions, shall proceed forthwith to determine the same, and shall furnish said official or public body with a schedule of such rate or rates of wages as soon as said determination shall have been made. In advertising or calling for bids for said works, the awarding official or public body shall incorporate said schedule in the advertisement or call for bids by an appropriate reference thereto, and shall furnish a copy of said schedule without cost, to any person requesting the same. Said schedule shall be made a part of the contract for said works and shall continue to the minimum rate or rates of wages for said employees during the life of the contract. Any person engaged in the construction of said works shall cause a legible copy of said schedule to be kept posted in a conspicuous place at the site of said works during the life of the contract. The aforesaid rates of wages in the schedule of wage rates shall include payment by employers to health and welfare plans, pension plans, and supplementary unemployment benefit plans and such payments shall be considered as payments to persons under this section performing work as herein provided. Any employer engaged in the construction of such works who 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 said rates of wages, shall pay the amount of said payments directly to each employee engaged in said construction. Note: The awarding authority does not guarantee the accuracy of any schedule of wage rates

furnished to the Contractor hereunder, and the Contractor shall be responsible for ascertaining the prevailing wages in the area where the work will be performed.

1.3 Employment Records To Be Kept By Contractor, Subcontractor; Statement of Compliance. (Statutory reference; Mass. Gen. Laws Chapter 149, Section 27B) This Paragraph applies to every contract or subcontract for the construction of public works by the Commonwealth, or by a county, town or district.

Every Contractor, Subcontractor or public body engaged in said public works to which Paragraph 1.2 of these Supplementary Statutory Conditions applies shall keep a true and accurate record of all mechanics and apprentices, teamsters, chauffeurs and laborers employed thereon, showing the name, address and occupational classification of each such employee on said works, and the hours worked by, and the wages paid to, each such employee, and shall furnish to the Commissioner of Labor and Industries, upon his request, a copy of said record, signed by the employer or his authorized agent under the penalties of perjury. Such records shall be open to inspection by any authorized representative of the Department of Labor and Industries at any reasonable time, and as often as may be necessary.

Each such Contractor, Subcontractor or public body shall preserve its payroll records for a period of three years from the date of completion of the contract.

Each such Contractor, Subcontractor or public body shall furnish to the Commissioner of Labor and Industries within fifteen days after completion of its portion of the work a statement, executed by the Contractor, Subcontractor, or public body or by any authorized officer or employee of the Contractor, Subcontractor or public body who supervises the payment of wages in the following form:

STATEMENT OF COMPLIANCE _____, 2004

I, _____, _____ do hereby state:
(Name of signatory party) (Title)

That I pay or supervise the payment of the persons employed by (Contractor, Subcontractor or public body) _____ on the _____ and that all mechanics (building or project) and apprentices, teamsters, chauffeurs and laborers employed on said project have been paid in accordance with wages determined under the provisions of sections twenty-six and twenty-seven of chapter one hundred and forty-nine of the General Laws.

Signature

Title

The above mentioned copies of payroll records and statements of compliance shall be available for inspection by any interested party filing a written request to the Commissioner for such inspection.

- 1.4 Wages Paid to Operators of Trucks and Other Equipment. (Statutory reference: Mass. Gen. Laws Chapter 149, Section 27F) This Paragraph applies to every contract for the construction of public works by the Commonwealth, or by a county, city, town or district.

Prescribed rates of wages, as determined by the Commissioner of Labor and Industries, shall be paid to the operators of all trucks, vehicles or equipment employed on the Project. Said rates of wages shall be requested of said Commissioner by the awarding authority and shall be furnished by the Commissioner in a schedule containing the classification of jobs, and the rate of wages to be paid for each job. Said rates of wages shall include payments to health and welfare plans, or, if no such plan is in effect between employer and employees, the amount of such payments shall be paid directly to said operators.

- 1.5 Reserve Police Officers (Statutory reference: Mass. Gen. Laws. Chapter 149, Section 27B) This Paragraph 1.5 applies to every contract for the construction, alteration, maintenance, repair or demolition of, or addition to, any public works for the Commonwealth or any political subdivision thereof.

The Contractor shall pay to any reserve police officer employed by him in any city or town the prevailing rate of wage paid to regular police officers in such city or town.

- 1.6 Eight-Hour Day, etc. This Paragraph 1.6 applies only to contracts which are subject to the provisions of Mass. Gen. Laws Chapter 149, Sections 30 and 34.

No laborer, worker, mechanic, foreman 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 hours in any one day or more than forty-eight hours in any one week, or more than six days in any one week, except in cases of emergency.

- 1.7 Lodging, etc. (Statutory reference: Mass. Gen. Laws Chapter 149, Section 25) This Paragraph applies to every contract with the Commonwealth, a county, city or town, or with a department, board, commission, or officer acting therefor, for the doing of public work.

Every employee under this contract shall lodge, board and trade where and with whom he elects, and neither the Contractor nor his 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.

- 1.8 Access to Contractor's Records (Executive Order No. 195) This paragraph applies to every contract for the purchase of services or material by any agency, bureau, board, commission, institution, or department of the Commonwealth.

The Governor or his designee, the secretary of administration and finance, and the state auditor or his designee shall have the right at reasonable times and upon reasonable notice to examine the books, records, and other compilations of data of the Contractor which pertain to the performance and requirements of this contract.

- 1.9 Worker's Compensation Insurance (Statutory reference: Mass. Gen. Laws Chapter 149, Section 34A) This Paragraph 1.9 applies to every contract for the construction, alteration, maintenance, repair or demolition of, or addition to, any public building or other public works for the Commonwealth or any political subdivision thereof.

The Contractor shall, before commencing performance of the contract, provide by insurance for the payment of compensation and the furnishing of other benefits under Mass. Gen. Laws Chapter 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 1.9 must be furnished at the time of execution of this contract. Failure to provide and continue in force such insurance as aforesaid 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 awarding authority at least fifteen days prior to the intended effective date thereof, which date shall be expressed in full notice.

ARTICLE 2 - EQUAL EMPLOYMENT OPPORTUNITY AND AFFIRMATIVE ACTION

(Statutory reference: Mass. Gen. Laws Chapter 151B; Executive Orders No. 74, No. 116 and No. 246). The provisions of this Article 2 are intended to comply with the Commonwealth's Supplemental Equal Employment Opportunity Anti-Discrimination and Affirmative Action Program, referred to in Executive Order No. 116 and administered by the Massachusetts Commission Against Discrimination. If no specific percentage has been inserted in Subparagraph 2.2.3 below, the applicable minimum percentage provided for in such Supplemental Program shall be deemed to have been so inserted.

- 2.1 Definitions. For purposes of this Contract, "minority" refers to Asian-Americans, Blacks, Spanish-Surnamed Americans, North American Indians, and Cape Verdeans. "Commission" refers to the Massachusetts Commission Against Discrimination.

- 2.2 Non-Discrimination and Affirmative Action Requirements. During the performance of this Contract, the Contractor and all of his Subcontractors (hereinafter “Contractor”), for himself, his assignees and successors in interest, agree to comply with Subparagraphs 2.2.1 through 2.2.11.
- 2.2.1 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, age 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 hereafter in conspicuous places, available for employees and applicants for employment, notices to be provided by the Commission setting forth the provisions of the Fair Employment Practices Law of the Commonwealth.
- 2.2.2 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, age 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, age or sex. A purpose of this provision is to ensure to the fullest extent possible an adequate supply of skilled tradesmen for this and future Commonwealth public construction projects.
- 2.2.3 As part of his obligation of remedial action under the foregoing Subparagraph 2.2.2, the Contractor shall maintain on this project a not less than ten percent (10%) ratio of minority employee man hours to total man 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 Mass. Gen. Laws Chapter 149, Section 44F.
- 2.2.4 In the hiring of minority journeymen, apprentices, trainees and advanced trainees, the Contractor shall rely on referrals from a multi-employer affirmative action program approved by the Commission, traditional referral methods utilized by the construction industry, and referrals from agencies, not more than three in number at any one time, designated by the Liaison Committee (described in Subparagraph 2.2.5 below) or the Commission.

- 2.2.5 At the discretion of the Commission there may be established for the life of this Contract a body to be known as the Liaison Committee. The Liaison Committee shall be composed of one representative each from the agency or agencies administering this project, hereinafter called the administering agency, the Commission and such other representatives as may be designated by the Commission in conjunction with the administering agency.
- 2.2.6 The Contractor (or his agent, if any, designated by him as the on-site equal employment opportunity officer) shall recognize the Liaison Committee as an affirmative action body, and shall establish a continuing working relationship with the Liaison Committee, consulting with the Liaison Committee on all matters related to minority recruitment, referral, employment and training.
- 2.2.7 The Contractor shall prepare projected manning tables on a quarterly basis. These shall be broken down into projections, by week, of workers required in each trade. Copies shall be furnished one week in advance of the commencement of the period covered, and also when updated, to the Commission and Liaison Committee.
- 2.2.8 Records of employment referral orders, prepared by the Contractor, shall be made available to the Commission and to the Liaison Committee on request.
- 2.2.9 The Contractor shall prepare weekly reports in a form approved by the Commission of hours worked in each trade by each employee, identified as a minority or non-minority. Copies of these shall be provided at the end of each week to the Commission and to the Liaison Committee.

If the Contractor shall use any Subcontractor on any work performed under this Contract, he shall take affirmative action to negotiate with qualified minority Subcontractors. This affirmative action shall cover both pre-bid and post-bid periods. It shall include notification to the Office of Minority Business Assistance (within the Executive Office of Communities and Development) or its designee, while bids are in preparation, of all products, work or services for which the Contractor intends to negotiate bids.

In the employment of journeymen, apprentices, trainees and advanced trainees, the Contractor shall give preference, first, to citizens of the Commonwealth who have served in the armed forces of the United States in time of war and have been honorably discharged therefrom or released from active duty therein, and who are qualified to perform the work to which the employment relates, and, secondly, to citizens of the Commonwealth generally, and, if such cannot be obtained in sufficient numbers, then to citizens of the United States.

A designee of the Commission and a designee of the Liaison Committee shall each have right of access to the construction site.

2.2.10 The Contractor shall maintain as a goal on this project a not less than five percent ratio of women work force to total project hours in both the general contract and each individual filed sub-bid contract.

A Labor Scheduling Table will be used as a tool for achieving a range of women work force participation for the entire project in both the general contract and each individual filed sub-bid contract. Said Labor Scheduling Table shall be in a form acceptable to the Town.

2.2.11 Before starting work, the Contractors (includes the General Contractor, for itself and its Subcontractors, as well as all filed sub-bid Contractors) will submit plans for achievement of the equal opportunity goals of the contract. All Contractors will be required to make a good faith effort to achieve these goals. The plan will indicate if the Contractors expect to achieve the requirements during the first quarter. If there are reasons why the Contractors do not expect to achieve the requirements during the first quarter year of the contract construction phase, then the Contractors shall provide a plan calculated to address, to the extent reasonably possible, these obstacles to a good faith effort to achieve such goals.

Not more than ten days following the end of each work quarter, the Contractors will report on the achievement of the goals, detailing the good faith efforts that have been made and will continue to be made and any other appropriate efforts not yet undertaken.

All reports will be signed by an officer or principal of the company who has the authority to contractually obligate the company.

2.3 The Contractor shall comply with the provisions of Executive Order No. 74, as amended by Executive Order No. 166, dated May 1, 1975, and of Mass. Gen. Laws Chapter 151B, both of which are herein incorporated by reference and made a part of this Contract.

2.4 The Contractor, in the performance of all Work, and prior to completion of the Work, will not discriminate on grounds of race, color, religious creed, national origin, age or sex in employment practices, in the selection or retention of Subcontractors, or in the procurement of materials and rentals of equipment.

2.5 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.

2.6 The Contractor hereby certifies that he shall comply with the minority manpower ratio and specific action steps contained herein. The Contractor shall be required to obtain from each of its Subcontractors and submit to the administering agency

prior to the performance of any work under the Contract a certification by said Subcontractor, regardless of tier, that it will comply with the minority manpower ration and specific affirmative action steps contained herein. Such certification shall be provided on forms furnished by the administering agency or, in the absence thereof, on forms prescribed by the Commission.

2.7 The Contractor's certification form must be signed by all successful low bidder(s) prior to award by the administering agency.

2.8 Compliance Information, Reports and Sanctions.

2.8.1 The Contractor will provide all information and reports required by the administering agency or the Commission on instructions issued by either of them and will permit access to its facilities and books, records, accounts and other sources of information which may be determined by the Commission to affect the employment of personnel. This provision shall apply only to information pertinent to the Commonwealth's supplementary affirmative action contract requirements. Where information required is in the exclusive possession of another who fails or refuses to furnish this information, the Contractor shall so certify to the administering agency or the Commission as appropriate and shall set forth what efforts he has made to obtain the information.

2.8.2 Whenever the administering agency, the Commission or the Liaison Committee believes the Contractor or any Subcontractor may not be operating in compliance with the terms of this Paragraph 2.8, the Commission 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 Paragraph 2.8. If the Commission or its agent finds the Contractor or any Subcontractor not in compliance, it shall make a preliminary report on noncompliance, and notify such Contractor in writing of such steps as will in the judgment of the Commission or its agent bring such Contractor into compliance. In the event that such Contractor fails or refuses to fully perform such steps, the Commission shall make a final report of non-compliance, and recommend to the administering agency the imposition of one or more of the sanctions listed below. If, however, the Commission believes the Contractor or any Subcontractor has taken or is taking every possible measure to achieve compliance, it shall not make a final report of non-compliance. Within fourteen days of the receipt of the recommendations of the Commission, the administering agency shall move to impose one or more of the following sanctions, as it may deem appropriate to attain full and effective enforcement:

- (i) The recovery by the administering agency from the 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 administering agency from the Contractor, to be assessed by the Contractor as a back charge against

the Subcontractor, of 1/10 or 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;

- (ii) The suspension of any payment or part thereof due under the Contract until such time as the Contractor or any Subcontractor is able to demonstrate his compliance with the terms of the contract;
- (iii) The termination, or cancellation, of the Contract, in whole or in part, unless the Contractor or any subcontractor is able to demonstrate within a specified time his compliance with the terms of the Contract;
- (iv) The denial to the Contractor or any Subcontractor of the right to participate in any future contracts awarded by the administering agency for a period of up to three years.

If at any time after the imposition of one or more of the above sanctions a Contractor is able to demonstrate that he is in compliance with this Paragraph 2.8, he may request that the administering agency, in consultation with the Commission, suspend the sanctions conditionally, pending a final determination by the Commission as to whether the Contractor is in compliance. Upon final determination of the Commission, the administering agency, based on the recommendation of the Commission, shall either lift the sanctions or reimpose them.

Sanctions enumerated under Subparagraph 2.8.2 of this Paragraph 2.8 shall not be imposed by the administering agency except after an adjudicatory proceeding, as that term is used in Mass. Gen. Laws Chapter 30A, has been conducted. No investigation by the Commission or its agent shall be initiated without prior notice to the Contractor.

2.9 Severability. The provisions of this Article 2 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.

2.10 The Contractor shall comply with the provisions of Executive Order No. 246, relating to discrimination against and equal employment opportunity for the handicapped, which is herein incorporated by reference and made a part of this Contract. In connection with the performance of work under this Contract, the Contractor, Subcontractors and suppliers of goods and services shall not discriminate against the handicapped. Furthermore, Contractors, Subcontractors and suppliers of goods and services must give written notice of their commitments under this Paragraph 2.10 to any labor union, association or brotherhood with which they have a collective bargaining contract or other agreement, and must give such notice to handicapped contractors and to handicapped contractor

associations. A copy of such notice must be furnished to the awarding authority at the time of the signing of the contract.

2.11 Suspension of Payments.

2.11.1 If the awarding authority determines after investigation that the Contractor or any Subcontractor is not in compliance with the terms of Article 2, it may suspend any payment or portion thereof due under the Contract until the Contractor demonstrates compliance with the terms of Article 2.

2.11.2 Payment shall not be suspended if the awarding authority finds that the Contractor made his best efforts to comply with Article 2, or that some other justifiable reason exists for waiving the provisions of Article 2 in whole or in part.

2.11.3 Payment may be suspended only after the Contractor and any other interested party shall have been given the opportunity to present evidence in support of its position at an informal hearing held by the awarding authority and the awarding authority has concluded upon review of all the evidence that such penalty is justified.

2.11.4 This temporary suspension of payments by the awarding authority is separate from the sanctions set forth in Paragraph 2.8 above, which are determined by the Commission and recommended to the awarding authority.

ARTICLE 3 - MASSACHUSETTS PUBLIC CONSTRUCTION STATUTES

3.1 To whatever extent Massachusetts statutory laws regarding public construction apply to this project, said laws specifically are incorporated herein as if re-stated herein.

ARTICLE 4 - TITLE I GENERAL GOVERNMENT, ARTICLE 16 CONSTRUCTION PROJECTS, § 1-3 OF THE TOWN OF ARLINGTON GENERAL BY-LAWS

4.1 Women Work Force Participation.

4.1.1 The contractor shall maintain as a goal on this project a not less than five percent ratio of women work force to total project hours in both the general contract and each individual filed sub-bid contract, if applicable. The preceding sentence shall be included in all construction contracts whether entered into by the Town pursuant to the provisions of M.G.L. c. 149 or M.G.L. c. 30, § 39M et. seq. provided however, that if entered into under Chapter 30 same shall not be deemed to apply where the projected bid price as determined by the Director of Public Works is not likely to exceed \$200,000.

- 4.1.2 A Labor Scheduling Table which will be used as a tool for achieving a range of women work force participation for the entire project in both the general contract and each individual filed sub-bid contract.
- 4.2 Equal Opportunity Goal Compliance.
 - 4.2.1 Before starting work, the contractors (includes the general contractor, for itself and its subcontractors, as well as all filed sub-bid contractors, if applicable) will submit plans for achievement of the equal opportunity goals of the contract. All contractors will be required to make a good faith effort to achieve these goals. The plan will indicate if the contractors expect to achieve the requirements during the first quarter. If there are reasons why the contractors do not expect to achieve the requirements during the first quarter year of the contract construction phase, then the contractors shall provide a plan calculated to address, to the extent reasonably possible, these obstacles to a good faith effort to achieve such goals.
 - 4.2.2 Not more than ten days following the end of each work quarter, the contractors will report on the achievement of the goals, detailing the good faith efforts that have been made and will continue to be made and any other appropriate efforts not yet undertaken.
 - 4.2.3 All reports will be signed by an officer or principal of the company who has the authority to contractually obligate the company.
- 4.3 Recruitment and Training
 - 4.3.1 Any board, officer, committee, or other agency of the Town, which acts on behalf of the Town in making or supervising any contract, in any amount exceeding the sum of \$100,000 for the purchase of goods or services or for the construction, renovation, or repair of buildings or other improvement of real estate, may make arrangements with contractors and other interested agencies for special programs of recruitment and training in connection with the work to be performed on such contract, with the objective of promoting equal employment opportunity for members of minority groups protected by the fair employment laws of the Commonwealth and the United States. Any board, officer, committee or other Town agency may expend Town funds in carrying them out provided that appropriations specifically designed for such purposes have been voted by the Town Meeting.

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SECTION 012200

UNIT PRICES

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 - GENERAL REQUIREMENTS which are hereby made a part of this Section of the Specifications.

1.2 REQUIREMENTS INCLUDED

- A. Unit pricing shall be performed by the General Contractor and/or Subcontractor as applicable.
- B. Unit price work will be paid for in accordance with unit prices listed by the General Contractor, based on estimated quantities calculated by the Architect.
- C. All unit prices shall include their pro-rata share of all costs for overhead, profit, bond, labor, materials, disposal, and equipment to perform the work item complete, as identified.
- D. Unit Price Proposal Sheets shall be included with Subcontractor form for bid when applicable.
- E. The total amount of all unit price work shall be included in the amount to be entered in applicable bid forms.
- F. Unit Prices shall provide for a variance in quantities of plus or minus 100 percent of those listed on the Unit Price Proposal Sheet.
- G. If quantities exceed the units established in the contract, including the aforesaid overage percentage, an equitable unit price adjustment will be determined by the Owner's Project Manager.
- H. A change order will be initiated by the Owner to adjust the contract price resulting from the final quantities of the unit price work.

1.3 UNIT PRICES

- A. Should certain additional work be required, or should the quantities of certain classes of work be increased or decreased from those required by the Contract Documents, by authorization of the Owner, the below unit prices shall, at the option of the Owner, be the basis of payment to the General Contractor or credit to the Owner, for such increase or decrease in the work. The Unit Prices shall represent the exact net amount per unit to be paid the General Contractor (in the case of additions or increases) or to be refunded the Owner (in the case of decreases). No additional adjustment will be allowed for overhead, profit, insurance, or other direct or indirect expenses of the General Contractor or Subcontractors.

Item No.	Section	Item Description	Estimated Quantity	Unit Measure
1.	092409	Removal/repair and disposal of water damaged plaster in stairwell.	Plaster repair: 100 SF Assoc. Debris: 50 SF	SF SF
2.	075300	Removal/repair and disposal of existing EPDM roof system including membrane, insulation and other materials required to match existing roof installation.	Roof system: 150 SF 225 SF ADDENDUM #2 - 01.12.18	SF

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

UNIT PRICE PROPOSAL SHEET

HARDY SCHOOL ADDITION
 52 Lake Street, Arlington, MA

UNIT PRICES

- A. The following unit prices as defined in the specifications are designated for items of work on the basis of quantities estimated by the Architect. These unit prices will be used to add to or deduct from the dollar amounts shown, depending on whether the actual amount is greater or less than the estimated amount.

Item	Section	Item Description	Estimated Quantity	Unit Measure	Unit Price Dollars/ Cents	Total Amount Dollars/ Cents
1.	092110	Removal/repair and disposal of water damaged plaster in stairwell.	Plaster repair: 100 SF Assoc. Debris: 50 SF	SF SF	\$ _____	\$ _____
5.	075300	Removal/repair and disposal of existing EPDM roof system including membrane, insulation and other materials required to match existing roof installation	Roof system: 150 SF 225 SF Assoc. Debris: 150 SF 225 SF	SF	\$ _____	\$ _____

ADDENDUM #2 -01.12.18

1. The unit prices as requested herein shall include their pro-rata share of all costs for overhead, profit, bond, labor, materials and equipment costs and all other work incidental thereto, including disposal of materials.
2. Any unit price proposal that contains a unit price which is unduly high or low may be rejected as unbalanced, and thereby affect the total cost proposal of this contract.
3. Unit price proposal sheets must be submitted with the respective filed sub-bid bid form as applicable.
4. The total amount above shall be included in the amount to be entered into the General Contractor's bid.

END OF FORM

SECTION 075300

EPDM ROOFING

(Part of Work of Section 070002 - ROOFING AND FLASHING, Filed Sub-Bid Required)

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 - GENERAL REQUIREMENTS which are hereby made a part of this Section of the Specifications.

1.2 DESCRIPTION OF WORK

- A. Work Included: Provide labor, materials and equipment necessary to complete the work of this Section, including but not limited to the following:

1. Adhered membrane roofing system.
2. Cover board.
3. Roof insulation.
4. Vapor retarder.
5. Flashing for equipment mounted on roofing and roofing penetrations.
6. Roofing repair.

- B. Alternates: Not Applicable.

- C. Items To Be Installed Only: Install the following items as furnished by the designated Sections:

~~1. Section 220001 - PLUMBING:~~

- ~~a. Roof drains.~~ **ADDENDUM #2 01/12/18**

2. Section 230001 - HEATING, VENTILATING, AND AIR CONDITIONING:

- a. Roof curbs for HVAC equipment.

- D. Items To Be Furnished Only: Not Applicable.

- E. Related Work: The following items are not included in this Section and are specified under the designated Sections:

1. Section 061000 - ROUGH CARPENTRY for wood nailers, curbs, and blocking.
2. Section 076200 - SHEET METAL FLASHING AND TRIM for metal roof penetration flashings, flashings, and counterflashings.
3. Section 079200 - JOINT SEALANTS for sealants.
4. Division 22 - PLUMBING for roof drains.
5. Division 23 - HEATING, VENTILATING, AND AIR CONDITIONING for roof curbs for HVAC equipment.

1.3 DEFINITIONS

- A. Roofing Terminology: Refer to ASTM D 1079 and glossary of NRCA's "The NRCA Roofing and Waterproofing Manual" for definition of terms related to roofing work in this Section.

1.4 PERFORMANCE REQUIREMENTS

- A. General: Provide installed roofing membrane and base flashings that remain watertight; do not permit the passage of water; and resist specified uplift pressures, thermally induced movement, and exposure to weather without failure.

1. Accelerated Weathering: Roofing system shall withstand 2000 hours of exposure when tested according to ASTM G 152, ASTM G 154, or ASTM G 155.
2. Impact Resistance: Roofing system shall resist impact damage when tested according to ASTM D 3746 or ASTM D 4272.

- B. Material Compatibility: Provide roofing materials that are compatible with one another under conditions of service and application required, as demonstrated by roofing manufacturer based on testing and field experience.

- C. Roofing System Design: Roofing system shall be designed to withstand loads indicated on Drawings, but not less than loads required by Code.

- ~~D. FM Global Listing: Roofing, base flashings, and component materials shall comply with requirements in FM Global 4450 or FM Global 4470 as part of a roofing system, and shall be listed in FM Global's "RoofNav" for Class 1 or noncombustible construction, as applicable. Identify materials with FM Global markings.~~

- ~~1. Fire/Windstorm Classification: Class 1A-90 [Class 1A-60] [Class 1A-75] [Class 1A-105] [Class 1A-120] <Insert class>.~~
- ~~2. Hail-Resistance Rating: MH [SH].~~ **ADDENDUM #2 01/12/18**

- E. Flashings: Provide base flashings, perimeter flashings, detail flashings and component materials that comply with requirements and recommendations in FMG 1-49 Loss Prevention Data Sheet for Perimeter Flashings; FMG 1-29 Loss Prevention Data Sheet for Above Deck Roof Components; NRCA Roofing and Waterproofing Manual (Fifth Edition) for Construction Details and SMACNA Architectural Sheet Metal Manual (Seventh Edition) for Construction Details, as applicable. **ADDENDUM #2 01/12/18**

- F. Exterior Fire-Test Exposure: ASTM E 108 or UL 790, Class A for application and roof slopes indicated; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

1.5 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: For roofing system. Include plans, elevations, sections, details, and attachments to other Work.
1. Base flashings and membrane terminations.
 2. Tapered insulation, including slopes.

3. Insulation fastening patterns.
- C. Installer Certificates: Signed by roofing system manufacturer certifying that Installer is approved, authorized, or licensed by manufacturer to install roofing system.
 - D. Qualification Data: For Installer and manufacturer.
 - E. Manufacturer Certificates: Signed by roofing manufacturer certifying that roofing system complies with requirements specified in "Performance Requirements" Article.
 1. Submit evidence of complying with performance requirements.
 - F. Product Test Reports: For components of roofing system, tests performed by manufacturer and witnessed by a qualified testing agency.
 - G. Inspection Report: Copy of roofing system manufacturer's inspection report of completed roofing installation.
 - H. Maintenance Data: For roofing system to include in maintenance manuals.
- 1.6 QUALITY ASSURANCE
- A. Source Limitations: Obtain components for roofing system from or approved by roofing system manufacturer.
 - B. Roofing Inspector: Owner may engage a full-time roofing inspector during installation of the deck, insulation assembly, membrane, flashing and other appurtenances, and when a survey of the roof and roof drains is conducted. Cooperate with Owner's roofing inspector and allow unlimited access to roofing during construction.
 - C. Roofing Signage: At entry points to roof, provide signage-listing type of roofing system, manufacturer, date installed, and holder of the warranty.
 - D. Preinstallation Conference: Conduct conference at Project site. Comply with requirements in Division 01. Review methods and procedures related to roofing system including, but not limited to, the following:
 1. Meet with the Owner, Architect, Owner's insurer if applicable; testing and inspecting agency representative; roofing Installer; roofing system manufacturer's representative; deck Installer; and installers whose work interfaces with or affects roofing, including installers of roof accessories and roof-mounted equipment.
 2. Review methods and procedures related to roofing installation, including manufacturer's written instructions.
 3. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
 4. Examine deck substrate conditions and finishes for compliance with requirements, including flatness and fastening.
 5. Review structural loading limitations of roof deck during and after roofing.
 6. Review base flashings, special roofing details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that will affect roofing system.
 7. Review governing regulations and requirements for insurance and certificates if applicable.

8. Review temporary protection requirements for roofing system during and after installation.
9. Review roof observation and repair procedures after roofing installation.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver roofing materials to Project site in original containers with seals unbroken and labeled with manufacturer's name, product brand name and type, date of manufacture, and directions for storing and mixing with other components.
- B. Store liquid materials in their original undamaged containers in a clean, dry, protected location and within the temperature range required by roofing system manufacturer. Protect stored liquid material from direct sunlight.
 1. Discard and legally dispose of liquid material that cannot be applied within its stated shelf life.
- C. Protect roof insulation materials from physical damage and from deterioration by sunlight, moisture, soiling, and other sources. Store in a dry location. Comply with insulation manufacturer's written instructions for handling, storing, and protecting during installation.
- D. Handle and store roofing materials and place equipment in a manner to avoid permanent deflection of deck.

1.8 PROJECT CONDITIONS

- A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit roofing system to be installed according to manufacturer's written instructions and warranty requirements.

1.9 WARRANTY

- A. Roofing Contractor's Warranty: The roofing subcontractor shall supply Owner with a minimum two-year workmanship warranty for each roof. In the event any work related to the roofing, flashing, or metalwork is found to be defective within two years of substantial completion, the roofing contractor shall remove and replace such at no additional cost to the Owner. The roofing subcontractor's warranty obligation shall run directly to the Owner, and a copy the roofing signed warranty shall be sent to the roofing system's manufacturer.
 1. The duration of the Roofing Contractor's two-year warranty shall run concurrent with the roofing system's manufacturer's 20-year warranty.
- B. Roofing Systems Manufacturer's Warranty: The roofing manufacturer shall guarantee roof areas to be in a watertight condition, for a period of 20 years, from the date of final acceptance of the roofing system. The warranty shall be a 20-year no dollar limit (NDL), non-prorated total system labor and material warranty, for wind speed as required by Code or as indicated on the Drawings. Total system warranty shall include all roofing materials, related components and accessories including, but not limited to the substrate board, vapor retarder, insulation board, cover board, roofing membrane, membrane flashings, fasteners, adhesives, metal roof copings, metal roof edges and termination metals and roof drain assemblies. The manufacturer shall repair defects in materials and workmanship as promptly after observation as weather and site conditions permit.

PART 2 - PRODUCTS

2.1 EPDM ROOFING MEMBRANE

- A. EPDM Roofing Membrane: ASTM D 4637, Type I, nonreinforced uniform, flexible sheet made from EPDM, and as follows:
 - 1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Carlisle SynTec Incorporated.
 - b. Firestone Building Products Company.
 - c. Johns Manville International, Inc.
 - d. Mule-Hide Products Co., Inc.
 - e. Versico Inc.
 - 2. Thickness: 60 mils (1.5 mm) nominal.
 - 3. Exposed Face Color: Black.

2.2 AUXILIARY MATERIALS

- A. General: Auxiliary materials recommended by roofing system manufacturer for intended use and compatible with membrane roofing.
 - 1. Liquid-type auxiliary materials shall meet VOC limits of authorities having jurisdiction.
- B. Sheet Flashing: 60-mil-thick EPDM, partially cured or cured, according to application.
- C. Bonding Adhesive: Manufacturer's standard bonding adhesive.
- D. Seaming Material: Manufacturer's standard synthetic-rubber polymer primer and 3-inch- wide minimum with cover strip or 6-inch-wide, butyl splice tape with release film.
- E. Lap Sealant: Manufacturer's standard single-component sealant, color to match roofing membrane.
- F. Water Cutoff Mastic: Manufacturer's standard butyl mastic sealant.
- G. Metal Termination Bars: Manufacturer's standard predrilled stainless-steel or aluminum bars, approximately 1 by 1/8 inch thick; with anchors.
- H. Fasteners: Factory-coated steel fasteners and metal or plastic plates meeting corrosion-resistance provisions in FMG 4470, designed for fastening membrane to substrate, and acceptable to membrane roofing system manufacturer.
- I. Miscellaneous Accessories: Provide pourable sealers, preformed cone and vent sheet flashings, preformed inside and outside corner sheet flashings, T-joint covers, in-seam sealants, termination reglets, cover strips, and other accessories.

2.3 VAPOR RETARDER

- A. Self-Adhering Sheet Vapor Retarder: ASTM D 1970, minimum 40-mil- thick film laminated to layer of rubberized asphalt adhesive; maximum permeance rating of 0.1 perm; cold-applied, with slip-resisting surface and release paper backing. Provide primer when recommended by vapor-retarder manufacturer.

2.4 ROOF INSULATION

- A. General: Provide preformed roof insulation boards that comply with requirements and referenced standards, selected from manufacturer's standard sizes and of thicknesses indicated.
- B. Polyisocyanurate Board Insulation: ASTM C 1289, Type II, felt or glass-fiber mat facer on both major surfaces.
 - 1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Atlas Roofing Corporation.
 - b. Carlisle SynTec Incorporated.
 - c. Firestone Building Products Company.
 - d. GAF Materials Corp.
 - e. GenFlex Roofing Systems.
 - f. Johns Manville International Inc.
- C. Tapered Insulation: Provide factory-tapered insulation boards fabricated to slope of 1/4 inch per 12 inches unless otherwise indicated.
- D. Provide preformed saddles, crickets, tapered edge strips, and other insulation shapes where indicated for sloping to drain. Fabricate to slopes indicated.

2.5 INSULATION ACCESSORIES

- A. General: Furnish roof insulation accessories recommended by insulation manufacturer for intended use and compatible with membrane roofing.
- B. Fasteners: Factory-coated steel fasteners and metal or plastic plates meeting corrosion-resistance provisions in FMG 4470, designed for fastening roof insulation to substrate, and acceptable to roofing system manufacturer.
- C. Cover Board Adhesive: Manufacturer's cold fluid-applied adhesive formulated to adhere cover board to insulation substrate.
- D. Cover Board: Provide one of the following, as required by roofing manufacturer to comply with performance requirements and provide specified warranty.
 - 1. Cover Board: ASTM C 1278/C 1278M, cellulosic-fiber reinforced, water-resistant gypsum substrate, 1/2 or 5/8 inch thick.
 - 2. Cover Board: DOC PS 2, Exposure 1, oriented strand board, 7/16 inch (11 mm) thick.

- E. Substrate Board (Thermal Barrier): ASTM C 1177/C 1177M, glass-mat, water-resistant gypsum substrate, Type X, 5/8 inch (16 mm) thick, factory primed.

2.6 WALKWAYS

- A. Flexible Walkways: Factory-formed, nonporous, heavy-duty, solid-rubber, slip-resisting, surface-textured walkway pads or rolls approximately 3/16 inch thick, and acceptable to membrane roofing system manufacturer.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with the following requirements and other conditions affecting performance of roofing system:
 - 1. Verify that roof openings and penetrations are in place and set and braced and that roof drains are securely clamped in place.
 - 2. Verify that wood blocking, curbs, and nailers are securely anchored to roof deck at penetrations and terminations and that nailers match thicknesses of insulation.
 - 3. Verify that surface plane flatness and fastening of steel roof deck comply with requirements in Section 053100 - STEEL DECKING.
 - 4. Verify that minimum concrete drying period recommended by roofing system manufacturer has passed.
 - 5. Verify that concrete substrate is visibly dry and free of moisture. Test for capillary moisture by plastic sheet method according to ASTM D 4263.
 - 6. Verify that concrete curing compounds that will impair adhesion of roofing components to roof deck have been removed.
 - 7. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Clean substrate of dust, debris, moisture, and other substances detrimental to roofing installation according to roofing system manufacturer's written instructions. Remove sharp projections.
- B. Prevent materials from entering and clogging roof drains and conductors and from spilling or migrating onto surfaces of other construction. Remove roof-drain plugs when no work is taking place or when rain is forecast.
- C. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing system at the end of the workday or when rain is forecast. Remove and discard temporary seals before beginning work on adjoining roofing.

3.3 SUBSTRATE BOARD INSTALLATION

- A. Install substrate board with long joints in continuous straight lines, perpendicular to roof slopes with end joints staggered between rows. Tightly butt substrate boards together.

1. Fasten substrate board to top flanges of steel deck to resist uplift pressure at corners, perimeter, and field of roof according to roofing system manufacturers' written instructions and as required to comply with performance requirements.

3.4 VAPOR-RETARDER INSTALLATION

- A. Self-Adhering Sheet Vapor Retarder: Prime substrate if required by manufacturer. Install self-adhering sheet vapor retarder over area to receive vapor retarder, side, and end lapping each sheet a minimum of 3-1/2 inches and 6 inches, respectively. Seal laps by rolling.
- B. Completely seal vapor retarder at side laps, end laps, terminations, obstructions, and penetrations to prevent air movement into roofing system.

3.5 INSULATION AND COVERBOARD INSTALLATION

- A. Coordinate installing membrane roofing system components so insulation is not exposed to precipitation or left exposed at the end of the workday.
- B. Comply with membrane roofing system manufacturer's written instructions for installing roof insulation.
- C. Install tapered insulation under area of roofing to conform to slopes indicated.
- D. Install one or more layers of insulation under area of roofing to achieve required thickness. Install 2 or more layers with joints of each succeeding layer staggered from joints of previous layer a minimum of 6 inches in each direction.
- E. Trim surface of insulation where necessary at roof drains so completed surface is flush and does not restrict flow of water.
- F. Install insulation with long joints of insulation in a continuous straight line with end joints staggered between rows, abutting edges and ends between boards. Fill gaps exceeding 1/4 inch with insulation.
 1. Cut and fit insulation within 1/4 inch of nailers, projections, and penetrations.
- G. Mechanically Fastened Insulation: Install each layer of insulation and secure to deck using mechanical fasteners specifically designed and sized for fastening specified board-type roof insulation to deck type.
 1. Fasten insulation to resist uplift pressure at corners, perimeter, and field of roof.
 2. For insulation applied in multiple layers, loose-lay first layer and mechanically fasten top layer.
- H. Adhered Cover Boards: Install cover boards over mechanically-fastened insulation with long joints in continuous straight lines with end joints staggered between rows. Offset joints of insulation below a minimum of 6 inches in each direction. Adhere cover boards to mechanically-fastened insulation in ribbons of bead-applied adhesive or full-spread adhesive, as required to comply with performance and warranty requirements.
 1. Locations for Adhered Cover Board Installation: Provide ~~under green roof areas and elsewhere~~, where indicated. **ADDENDUM #2 01/12/18**

2. Adhere cover boards to resist uplift pressure at corners, perimeter, and field of roof.

3.6 ADHERED ROOFING MEMBRANE INSTALLATION

- A. Install roofing membrane over area to receive roofing according to membrane roofing system manufacturer's written instructions. Unroll roofing membrane and allow to relax before installing.
- B. Start installation of roofing membrane in presence of membrane roofing system manufacturer's technical personnel.
- C. Accurately align roofing membrane and maintain uniform side and end laps of minimum dimensions required by manufacturer. Stagger end laps.
- D. Bonding Adhesive: Apply bonding adhesive to substrate and underside of roofing membrane at rate required by manufacturer and allow to partially dry before installing roofing membrane. Do not apply bonding adhesive to splice area of roofing membrane.
- E. Mechanically or adhesively fasten roofing membrane securely at terminations, penetrations, and perimeter of roofing.
- F. Apply roofing membrane with side laps shingled with slope of roof deck where possible.
- G. Tape Seam Installation: Clean and prime both faces of splice areas, apply splice tape, and firmly roll side and end laps of overlapping roofing membranes according to manufacturer's written instructions to ensure a watertight seam installation. Apply lap sealant and seal exposed edges of roofing membrane terminations.
- H. Repair tears, voids, and lapped seams in roofing that does not meet requirements.
- I. Spread sealant or mastic bed over deck drain flange at deck drains and securely seal roofing membrane in place with clamping ring.

3.7 BASE FLASHING INSTALLATION

- A. Install sheet flashings and preformed flashing accessories and adhere to substrates according to membrane roofing system manufacturer's written instructions.
- B. Apply bonding adhesive to substrate and underside of sheet flashing at required rate and allow to partially dry. Do not apply bonding adhesive to seam area of flashing.
- C. Flash penetrations and field-formed inside and outside corners with cured or uncured sheet flashing.
- D. Clean splice areas, apply splicing cement, and firmly roll side and end laps of overlapping sheets to ensure a watertight seam installation. Apply lap sealant and seal exposed edges of sheet flashing terminations.
- E. Terminate and seal top of sheet flashings.

3.8 WALKWAY INSTALLATION

- A. Flexible Walkways: Install walkway products in locations indicated. Adhere walkway products to substrate with compatible adhesive according to roofing system manufacturer's written instructions.

3.9 FIELD QUALITY CONTROL

- A. Testing Agency: Owner will engage a qualified independent testing and inspecting agency to perform roof tests and inspections and to prepare test reports.
- B. Manufacturer's Technical Representative: Engage a qualified manufacturer's technical representative to perform roof tests and inspections and to prepare test reports.
- C. Final Roof Inspection: Engage roofing system manufacturer's technical personnel to inspect roofing installation on completion and submit report to Architect.
 - 1. Notify Architect and the Owner 48 hours in advance of date and time of inspection.
- D. Repair or remove and replace components of membrane roofing system where test results or inspections indicate that they do not comply with specified requirements.
- E. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

3.10 PROTECTING AND CLEANING

- A. Protect membrane roofing system from damage and wear during remainder of construction period. When remaining construction will not affect or endanger roofing, inspect roofing for deterioration and damage, describing its nature and extent in a written report, with copies to Architect and the Owner.
- B. Correct deficiencies in or remove membrane roofing system that does not comply with requirements, repair substrates, and repair or reinstall membrane roofing system to a condition free of damage and deterioration at time of Substantial Completion and according to warranty requirements.
- C. Clean overspray and spillage from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

END OF SECTION

SECTION 081110

HOLLOW METAL DOORS AND FRAMES

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 - GENERAL REQUIREMENTS which are hereby made a part of this Section of the Specifications.

1.2 DESCRIPTION OF WORK

- A. Work Included: Provide labor, materials and equipment necessary to complete the work of this Section, including but not limited to the following:

1. Standard hollow-metal steel doors.
2. Standard hollow-metal steel frames.
- ~~3. Glass lites for hollow metal steel doors and frames.~~ **ADDENDUM #2 01/12/18**

- B. Alternates: Not Applicable.

- C. Items To Be Installed Only: Not Applicable.

- D. Items To Be Furnished Only: Not Applicable.

- E. Related Work: The following items are not included in this Section and are specified under the designated Sections:

1. Section 042000 - UNIT MASONRY for building anchors into and grouting steel frames in masonry construction.
2. Section 087100 - DOOR HARDWARE for door hardware for steel doors.
3. Section 088010 - INTERIOR GLAZING for glass requirements for glazed lites.
4. Section 099000 - PAINTING AND COATING for field painting steel doors and frames.

1.3 SUBMITTALS

- A. Product Data: Include construction details, material descriptions, core descriptions, label compliance, fire-resistance rating, temperature-rise ratings, and finishes for each type of steel door and frame specified.

- B. Shop Drawings:

1. Elevations of each door design.
2. Details of doors, including vertical and horizontal edge details and metal thicknesses.
3. Frame details for each frame type, including dimensioned profiles and metal thicknesses.
4. Locations of reinforcement and preparations for hardware.
5. Details of each different wall opening condition.
6. Details of anchorages, joints, field splices, and connections.

7. Details of accessories.
8. Details of moldings, removable stops, and glazing.

- C. Schedule: Provide a schedule of hollow metal work prepared by or under the supervision of supplier, using same reference numbers for details and openings as those on Drawings. Coordinate with door hardware schedule.
- D. Qualification Data: For Installer.
- E. Product Test Reports: Based on evaluation of comprehensive fire tests performed by a qualified testing agency, for each type of standard steel door and frame.

1.4 QUALITY ASSURANCE

- A. Installer Qualifications: An employer of workers trained and approved by manufacturer.
- B. Source Limitations: Obtain standard steel doors and frames through one source from a single manufacturer.
- C. Fire-Rated Door, Assemblies: Assemblies complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire-protection ratings and temperature-rise limits indicated, based on testing at positive pressure according to NFPA 252 or UL 10C.
 1. Smoke- and Draft-Control Assemblies: Provide an assembly with gaskets listed and labeled for smoke and draft control by a qualified testing agency acceptable to authorities having jurisdiction, based on testing according to UL 1784 and installed in compliance with NFPA 105.
- D. Fire-Rated, Borrowed-Light Assemblies (Including Sidelights and Transoms): Complying with NFPA 80 and listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction for fire-protection ratings indicated, based on testing according to NFPA 257 or UL 9.
- E. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 01.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver doors and frames palletized, wrapped, or crated to provide protection during transit and Project-site storage. Do not use nonvented plastic.
- B. Deliver welded frames with two removable spreader bars across bottom of frames, tack welded to jambs and mullions.
- C. Store hollow metal work under cover at Project site. Place in stacks of five units maximum in a vertical position with heads up, spaced by blocking, on minimum 4-inch-high wood blocking. Do not store in a manner that traps excess humidity.
 1. Provide minimum 1/4-inch space between each stacked door to permit air circulation.

1.6 PROJECT CONDITIONS

- A. Field Measurements: Verify actual dimensions of openings by field measurements before fabrication.

1.7 COORDINATION

- A. Coordinate installation of anchorages for hollow metal frames. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors. Deliver such items to Project site in time for installation.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - 1. Ceco Door Products; an ASSA ABLOY Group Company.
 - 2. CURRIES Company; an ASSA ABLOY Group Company.
 - 3. Mesker Door Inc.
 - 4. Pioneer Industries, Inc.
 - 5. Philipp Manufacturing Company.
 - 6. Republic Builders Products Company.
 - 7. Steelcraft; an Allegion (formerly Ingersoll-Rand) company.

2.2 MATERIALS

- A. Cold-Rolled Steel Sheet: ASTM A 1008/A 1008M, Commercial Steel (CS), Type B; suitable for exposed applications.
- B. Hot-Rolled Steel Sheet: ASTM A 1011/A 1011M, Commercial Steel (CS), Type B; free of scale, pitting, or surface defects; pickled and oiled.
- C. Metallic-Coated Steel Sheet: ASTM A 653/A 653M, Commercial Steel (CS), Type B; with minimum G60 metallic coating.
- D. Frame Anchors: ASTM A 591/A 591M, Commercial Steel (CS), 40Z coating designation; mill phosphatized.
 - 1. For anchors built into exterior walls, steel sheet complying with ASTM A 1008/A 1008M or ASTM A 1011/A 1011M, hot-dip galvanized according to ASTM A 153/A 153M, Class B.
- E. Inserts, Bolts, and Fasteners: Hot-dip galvanized according to ASTM A 153/A 153M.
- F. Powder-Actuated Fasteners in Concrete: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with clips or other accessory devices for attaching hollow metal frames of type indicated.

- G. Grout: ASTM C 476, except with a maximum slump of 4 inches, as measured according to ASTM C 143/C 143M.
- H. Mineral-Fiber Insulation: ASTM C 665, Type I (blankets without membrane facing); consisting of fibers manufactured from slag or rock wool with 6- to 12-lb/cu. ft. density; with maximum flame-spread and smoke-development indexes of 25 and 50, respectively; passing ASTM E 136 for combustion characteristics.
- I. Glazing: Comply with requirements in Section 088000 - GLAZING.
- J. Isolation Coating: ASTM D 1187, cold-applied asphalt emulsion, VOC compliant, compounded for 15-mil dry film thickness per coat. Provide inert-type noncorrosive compound free of asbestos fibers, sulfur components, and other deleterious impurities.

2.3 STANDARD STEEL DOORS

- A. General: Provide doors of design indicated, not less than thickness indicated; fabricated with smooth surfaces, without visible joints or seams on exposed faces, unless otherwise indicated. Comply with ANSI A250.8.
 - 1. Design: Flush panel.
 - 2. Core Construction: Manufacturer's standard kraft-paper honeycomb, polystyrene, polyurethane, mineral-board, or vertical steel-stiffener core that produces doors complying with ANSI A250.8.
 - a. Fire Door Core: As required to provide fire-protection and temperature-rise ratings indicated.
 - b. Thermal-Rated (Insulated) Exterior Doors: Where indicated, provide doors fabricated with thermal-resistance value (R-value) of not less than 4.0 deg F x h x sq. ft./Btu when tested according to ASTM C 1363.
 - 3. Top and Bottom Edges: Closed with flush or inverted 0.042-inch-thick end closures or channels of same material as face sheets.
 - 4. Tolerances: Comply with SDI 117, "Manufacturing Tolerances for Standard Steel Doors and Frames."
- B. Interior Doors: Face sheets fabricated from cold-rolled steel sheet. Provide doors complying with requirements indicated below by referencing ANSI A250.8 for level and model and ANSI A250.4 for physical-endurance level:
 - 1. Level 2 and Physical Performance Level B (Heavy Duty), Model 2 (Seamless), 1-3/4 inches thick.
- C. Hardware Reinforcement: Fabricate according to ANSI/SDI A250.6 with reinforcing plates from same material as door face sheets.
- D. Fabricate concealed stiffeners and hardware reinforcement from either cold- or hot-rolled steel sheet.

2.4 STANDARD STEEL FRAMES

- A. General: Comply with ANSI A250.8 and with details indicated for type and profile.

- B. Interior Frames: Fabricated from cold-rolled steel sheet.
 - 1. Fabricate frames with full profile welded joints.
 - 2. Frames for Level 2 Steel Doors: 0.053-inch-thick steel sheet.
- C. Hardware Reinforcement: Fabricate according to ANSI/SDI A250.6 with reinforcement plates from same material as frames.

2.5 FRAME ANCHORS

- A. Jamb Anchors:
 - 1. Stud-Wall Type: Designed to engage stud, welded to back of frames; not less than 0.042 inch thick.
 - 2. Compression Type for Drywall Slip-on Frames: Adjustable compression anchors.
 - 3. Postinstalled Expansion Type for In-Place Concrete: Minimum 3/8-inch- diameter bolts with expansion shields or inserts. Provide pipe spacer from frame to wall, with throat reinforcement plate, welded to frame at each anchor location.
- B. Floor Anchors: Formed from same material as frames, not less than 0.042 inch (1.0 mm) thick, and as follows:
 - 1. Monolithic Concrete Slabs: Clip-type anchors, with two holes to receive fasteners.
 - 2. Separate Topping Concrete Slabs: Adjustable-type anchors with extension clips, allowing not less than 2-inch height adjustment. Terminate bottom of frames at finish floor surface.

2.6 HOLLOW METAL PANELS

- A. Provide hollow metal panels of same materials, construction, and finish as specified for adjoining hollow metal work.

2.7 STOPS AND MOLDINGS

- A. Moldings for Glazed Lites in Doors: Minimum 0.032 inch thick, fabricated from same material as door face sheet in which they are installed.
- B. Fixed Frame Moldings: Formed integral with hollow metal frames, a minimum of 5/8 inch high unless otherwise indicated.
- C. Loose Stops for Glazed Lites in Frames: Minimum 0.032 inch thick, fabricated from same material as frames in which they are installed.

2.8 GLAZING SYSTEMS

- A. Glazing: Provide factory installed glass products in accordance with requirements in Section 088000 - INTERIOR GLAZING.

2.9 ACCESSORIES

- A. Mullions and Transom Bars: Join to adjacent members by welding or rigid mechanical anchors.

- B. Ceiling Struts: Minimum 1/4-inch-thick by 1-inch-wide steel.
- C. Grout Guards: Formed from same material as frames, not less than 0.016 inch thick.

2.10 FABRICATION

- A. Fabricate hollow metal work to be rigid and free of defects, warp, or buckle. Accurately form metal to required sizes and profiles, with minimum radius for thickness of metal. Where practical, fit and assemble units in manufacturer's plant. To ensure proper assembly at Project site, clearly identify work that cannot be permanently factory assembled before shipment.
- B. Tolerances: Fabricate hollow metal work to tolerances indicated in SDI 117.
- C. Hollow Metal Doors:
 - 1. Glazed Lites: Factory cut openings in doors.
 - 2. Astragals: Provide overlapping astragal on one leaf of pairs of doors where required by NFPA 80 for fire-performance rating or where indicated. Extend minimum 3/4 inch beyond edge of door on which astragal is mounted.
- D. Hollow Metal Frames: Where frames are fabricated in sections due to shipping or handling limitations, provide alignment plates or angles at each joint, fabricated of same thickness metal as frames.
 - 1. Full Profile Welded Frames: Weld joints continuously; grind, fill, dress, and make smooth, flush, and not visible.
 - 2. Sidelight and Transom Bar Frames: Provide closed tubular members with no visible face seams or joints, fabricated from same material as doorframe. Fasten members at crossings and to jambs by butt welding.
 - 3. Provide countersunk, flat- or oval-head exposed screws and bolts for exposed fasteners unless otherwise indicated.
 - 4. Grout Guards: Weld guards to frame at back of hardware mortises in frames to be grouted.
 - 5. Floor Anchors: Weld anchors to bottom of jambs and mullions with at least four spot welds per anchor.
 - 6. Jamb Anchors: Provide number and spacing of anchors as follows:
 - a. Stud-Wall Type: Locate anchors not more than 18 inches from top and bottom of frame. Space anchors not more than 32 inches o.c. and as follows:
 - 1) Three anchors per jamb up to 60 inches high.
 - 2) Four anchors per jamb from 60 to 90 inches high.
 - 3) Five anchors per jamb from 90 to 96 inches high.
 - 4) Five anchors per jamb plus 1 additional anchor per jamb for each 24 inches or fraction thereof above 96 inches high.
 - 5) Two anchors per head for frames above 42 inches wide and mounted in metal-stud partitions.
 - b. Compression Type: Not less than two anchors in each jamb.
 - c. Postinstalled Expansion Type: Locate anchors not more than 6 inches from top and bottom of frame. Space anchors not more than 26 inches o.c.

7. Door Silencers: Except on weather-stripped doors, drill stops to receive door silencers as follows. Keep holes clear during construction.
 - a. Single-Door Frames: Drill stop in strike jamb to receive three door silencers.
 - b. Double-Door Frames: Drill stop in head jamb to receive two door silencers.

- E. Fabricate concealed stiffeners, edge channels, and hardware reinforcement from either cold- or hot-rolled steel sheet.

- F. Hardware Preparation: Factory prepare hollow metal work to receive templated mortised hardware; include cutouts, reinforcement, mortising, drilling, and tapping according to the Door Hardware Schedule and templates furnished as specified in Section 087100 - DOOR HARDWARE.
 1. Locate hardware as indicated, or if not indicated, according to ANSI/SDI A250.8.
 2. Reinforce doors and frames to receive nontemplated, mortised and surface-mounted door hardware.
 3. Comply with applicable requirements in ANSI/SDI A250.6 and ANSI/DHI A115 Series specifications for preparation of hollow metal work for hardware.

- G. Stops and Moldings: Provide stops and moldings around glazed lites where indicated. Form corners of stops and moldings with butted or mitered hairline joints.
 1. Single Glazed Lites: Provide fixed stops and moldings welded on secure side of hollow metal work.
 2. Multiple Glazed Lites: Provide fixed and removable stops and moldings, so that each glazed lite is capable of being removed independently.
 3. Provide fixed frame moldings on outside of exterior and on secure side of interior doors and frames.
 4. Provide loose stops and moldings on inside of hollow metal work.
 5. Coordinate rabbet width between fixed and removable stops with type of glazing and type of installation indicated.

2.11 STEEL FINISHES

- A. Prime Finish: Apply manufacturer's standard epoxy primer immediately after cleaning and pretreating.
 1. Shop Primer: Manufacturer's standard, fast-curing, lead- and chromate-free primer complying with ANSI/SDI A250.10 acceptance criteria; recommended by primer manufacturer for substrate; compatible with substrate and field-applied coatings despite prolonged exposure.
 2. Refer to Section 099000 – PAINTING AND COATING for field-applied coating.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

- B. Examine roughing-in for embedded and built-in anchors to verify actual locations before frame installation.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Remove welded-in shipping spreaders installed at factory. Restore exposed finish by grinding, filling, and dressing, as required to make repaired area smooth, flush, and invisible on exposed faces.
- B. Prior to installation, adjust and securely brace welded hollow metal frames for squareness, alignment, twist, and plumbness to the following tolerances:
 - 1. Squareness: Plus or minus 1/16 inch, measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.
 - 2. Alignment: Plus or minus 1/16 inch, measured at jambs on a horizontal line parallel to plane of wall.
 - 3. Twist: Plus or minus 1/16 inch, measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.
 - 4. Plumbness: Plus or minus 1/16 inch, measured at jambs on a perpendicular line from head to floor.
- C. Drill and tap doors and frames to receive nontemplated, mortised, and surface-mounted door hardware.

3.3 INSTALLATION

- A. General: Install hollow metal work plumb, rigid, properly aligned, and securely fastened in place; comply with Drawings and manufacturer's written instructions.
- B. Hollow Metal Frames: Install hollow metal frames of size and profile indicated. Comply with ANSI/SDI A250.11.
 - 1. Set frames accurately in position, plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is complete, remove temporary braces, leaving surfaces smooth and undamaged.
 - a. At fire-protection-rated openings, install frames according to NFPA 80.
 - b. Where frames are fabricated in sections because of shipping or handling limitations, field splice at approved locations by welding face joint continuously; grind, fill, dress, and make splice smooth, flush, and invisible on exposed faces.
 - c. Install frames with removable glazing stops located on secure side of opening.
 - d. Install door silencers in frames before grouting.
 - e. Remove temporary braces necessary for installation only after frames have been properly set and secured.
 - f. Check plumbness, squareness, and twist of frames as walls are constructed. Shim as necessary to comply with installation tolerances.
 - g. Field apply isolation coating to backs of frames that are filled with grout.
 - 2. Floor Anchors: Provide floor anchors for each jamb and mullion that extends to floor, and secure with postinstalled expansion anchors.

- a. Floor anchors may be set with powder-actuated fasteners instead of postinstalled expansion anchors if so indicated and approved on Shop Drawings.
 3. Metal-Stud Partitions: Solidly pack mineral-fiber insulation behind frames.
 4. Concrete Walls: Solidly fill space between frames and concrete with grout. Take precautions, including bracing frames, to ensure that frames are not deformed or damaged by grout forces.
 5. In-Place Concrete Construction: Secure frames in place with postinstalled expansion anchors. Countersink anchors, and fill and make smooth, flush, and invisible on exposed faces.
 6. In-Place Gypsum Board Partitions: Secure frames in place with postinstalled expansion anchors through floor anchors at each jamb. Countersink anchors, and fill and make smooth, flush, and invisible on exposed faces.
 7. Ceiling Struts: Extend struts vertically from top of frame at each jamb to overhead structural supports or substrates above frame unless frame is anchored to masonry or to other structural support at each jamb. Bend top of struts to provide flush contact for securing to supporting construction. Provide adjustable wedged or bolted anchorage to frame jamb members.
 8. Installation Tolerances: Adjust hollow metal door frames for squareness, alignment, twist, and plumb to the following tolerances:
 - a. Squareness: Plus or minus 1/16 inch, measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.
 - b. Alignment: Plus or minus 1/16 inch, measured at jambs on a horizontal line parallel to plane of wall.
 - c. Twist: Plus or minus 1/16 inch, measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.
 - d. Plumbness: Plus or minus 1/16 inch, measured at jambs at floor.
- C. Hollow Metal Doors: Fit hollow metal doors accurately in frames, within clearances specified below. Shim as necessary.
1. Non-Fire-Rated Standard Steel Doors:
 - a. Jambs and Head: 1/8 inch plus or minus 1/16 inch.
 - b. Between Edges of Pairs of Doors: 1/8 inch plus or minus 1/16 inch .
 - c. Between Bottom of Door and Top of Threshold: Maximum 3/8 inch.
 - d. Between Bottom of Door and Top of Finish Floor (No Threshold): Maximum 3/4 inch.
 2. Fire-Rated Doors: Install doors with clearances according to NFPA 80.
 3. Smoke-Control Doors: Install doors according to NFPA 105.
- D. Glazing: Comply with hollow metal manufacturer's written instructions.
1. Secure stops with countersunk flat- or oval-head machine screws spaced uniformly not more than 9 inches o.c. and not more than 2 inches o.c. from each corner.

3.4 ADJUSTING AND CLEANING

- A. Final Adjustments: Check and readjust operating hardware items immediately before final inspection. Leave work in complete and proper operating condition. Remove and replace defective work, including hollow metal work that is warped, bowed, or otherwise unacceptable.
- B. Remove grout and other bonding material from hollow metal work immediately after installation.
- C. Prime-Coat Touchup: Immediately after erection, sand smooth rusted or damaged areas of prime coat and apply touchup of compatible air-drying, rust-inhibitive primer.
- D. Metallic-Coated Surfaces: Clean abraded areas and repair with galvanizing repair paint according to manufacturer's written instructions.

END OF SECTION

SECTION 099000

PAINTING AND COATING

~~(Part of Work of Section 090007 - PAINTING, Filed Sub-Bid Required)~~ **ADDENDUM #2**
01/12/18

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 - GENERAL REQUIREMENTS which are hereby made a part of this Section of the Specifications.

1.2 DESCRIPTION OF WORK

- A. Work Included: Provide labor, materials and equipment necessary to complete the work of this Section, including but not limited to the following:
1. Field painting of exposed interior items and surfaces.
 2. Field painting of exposed exterior items and surfaces.
 3. Surface preparation for painting.
- B. Alternates: Not Applicable.
- C. Items To Be Installed Only: Not Applicable.
- D. Items To Be Furnished Only: Not Applicable.
- E. Related Work: The following items are not included in this Section and are specified under the designated Sections:
1. Section 051200 - STRUCTURAL STEEL FRAMING for shop priming structural steel.
 2. Section 055000 - METAL FABRICATIONS for shop priming ferrous metal.
 3. Section 064020 - INTERIOR ARCHITECTURAL WOODWORK for shop priming interior architectural woodwork.
 4. Section 081110 - HOLLOW METAL DOORS AND FRAMES for factory priming steel doors and frames.
 5. Section 081400 - FLUSH WOOD DOORS for factory finishing.
 6. Section 092110 - GYPSUM BOARD ASSEMBLIES for surface preparation of gypsum board.

1.3 DEFINITIONS AND EXTENT

- A. General: Standard coating terms defined in ASTM D 16 apply to this Section.
1. Flat refers to a lusterless or matte finish with a gloss range below 15 when measured at an 85-degree meter.
 2. Eggshell refers to low-sheen finish with a gloss range between 20 and 35 when measured at a 60-degree meter.

3. Semigloss refers to medium-sheen finish with a gloss range between 35 and 70 when measured at a 60-degree meter.
 4. Full gloss refers to high-sheen finish with a gloss range more than 70 when measured at a 60-degree meter.
- B. This Section includes surface preparation and field painting of exposed exterior and interior items and surfaces.
1. Surface preparation, priming, and finish coats specified in this Section are in addition to shop priming and surface treatment specified in other Sections.
- C. Paint exposed surfaces, except where these Specifications indicate that the surface or material is not to be painted or is to remain natural. If an item or a surface is not specifically mentioned, paint the item or surface the same as similar adjacent materials or surfaces. If a color of finish is not indicated, Architect will select from standard colors and finishes available.
1. Painting includes field painting of exposed bare and covered pipes and ducts (including color coding), hangers, exposed steel and iron supports, and surfaces of mechanical and electrical equipment that do not have a factory-applied final finish.
- D. Do not paint prefinished items, concealed surfaces, finished metal surfaces, operating parts, and labels.
1. Prefinished items include the following factory-finished components:
 - a. Interior Architectural woodwork.
 - b. Acoustical wall panels.
 - c. Metal lockers.
 - d. Finished mechanical and electrical equipment.
 - e. Light fixtures.
 2. Concealed surfaces include walls or ceilings in the following generally inaccessible spaces:
 - a. Foundation spaces.
 - b. Furred areas.
 - c. Ceiling plenums.
 - d. Utility tunnels.
 - e. Pipe spaces.
 - f. Duct shafts.
 3. Finished metal surfaces include the following:
 - a. Anodized aluminum.
 - b. Stainless steel.
 - c. Chromium plate.
 - d. Copper and copper alloys.
 - e. Bronze and brass.
 4. Operating parts include moving parts of operating equipment and the following:
 - a. Valve and damper operators.

- b. Linkages.
 - c. Sensing devices.
 - d. Motor and fan shafts.
5. Labels: Do not paint over UL, FMG, or other code-required labels or equipment name, identification, performance rating, or nomenclature plates.

1.4 SUBMITTALS

- A. Product Data: For each paint system indicated. Include block fillers and primers.
1. Material List: An inclusive list of required coating materials. Indicate each material and cross-reference specific coating, finish system, and application. Identify each material by manufacturer's catalog number and general classification.
 2. Manufacturer's Information: Manufacturer's technical information, including label analysis and instructions for handling, storing, and applying each coating material.
- B. Samples for Verification: For each color and material to be applied, with texture to simulate actual conditions, on representative Samples of the actual substrate.
1. Provide stepped Samples, defining each separate coat, including block fillers and primers. Use representative colors when preparing Samples for review. Resubmit until required sheen, color, and texture are achieved.
 2. Provide a list of materials and applications for each coat of each Sample. Label each Sample for location and application.
 3. Submit two eight inch by 12 inch Samples for each type of finish coating for Architect's review of color and texture only.
- C. Qualification Data: For Applicator.

1.5 QUALITY ASSURANCE

- A. Applicator Qualifications: A firm or individual experienced in applying paints and coatings similar in material, design, and extent to those indicated for this Project, whose work has resulted in applications with a record of successful in-service performance.
- B. Source Limitations: Obtain block fillers and primers for each coating system from the same manufacturer as the finish coats.
- C. Mockups: Provide a full-coat benchmark finish sample for each type of coating and substrate required. Comply with procedures specified in PDCA P5. Duplicate finish of approved sample Submittals.
1. Architect will select one room or surface to represent surfaces and conditions for application of each type of coating and substrate.
 - a. Wall Surfaces: Provide samples on at least 100 sq. ft.
 - b. Small Areas and Items: Architect will designate items or areas required.
 2. Apply benchmark samples, according to requirements for the completed Work, after permanent lighting and other environmental services have been activated. Provide required sheen, color, and texture on each surface.

- a. After finishes are accepted, Architect will use the room or surface to evaluate coating systems of a similar nature.

3. Final approval of colors will be from benchmark samples.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to Project site in manufacturer's original, unopened packages and containers bearing manufacturer's name and label and the following information:

1. Product name or title of material.
2. Product description (generic classification or binder type).
3. Manufacturer's stock number and date of manufacture.
4. Contents by volume, for pigment and vehicle constituents.
5. Thinning instructions.
6. Application instructions.
7. Color name and number.
8. VOC content.

- B. Store materials not in use in tightly covered containers in a well-ventilated area at a minimum ambient temperature of 45 deg F. Maintain storage containers in a clean condition, free of foreign materials and residue.

1. Protect from freezing. Keep storage area neat and orderly. Remove oily rags and waste daily.

1.7 PROJECT CONDITIONS

- A. Apply waterborne paints only when temperatures of surfaces to be painted and surrounding air are between 50 and 90 deg F.

- B. Apply solvent-thinned paints only when temperatures of surfaces to be painted and surrounding air are between 45 and 95 deg F.

- C. Do not apply paint in snow, rain, fog, or mist; or when relative humidity exceeds 85 percent; or at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.

1. Painting may continue during inclement weather if surfaces and areas to be painted are enclosed and heated within temperature limits specified by manufacturer during application and drying periods.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work are listed in the Finish Schedule at the end of this Section.

2.2 PAINT MATERIALS, GENERAL

- A. **Material Compatibility:** Provide block fillers, primers, and finish-coat materials that are compatible with one another and with the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.
- B. **Material Quality:** Provide manufacturer's best-quality paint material of the various coating types specified that are factory formulated and recommended by manufacturer for application indicated. Paint-material containers not displaying manufacturer's product identification will not be acceptable.
 - 1. **Proprietary Names:** Use of manufacturer's proprietary product names to designate colors or materials is not intended to imply that products named are required to be used to the exclusion of equivalent products of other manufacturers. Furnish manufacturer's material data and certificates of performance for proposed substitutions.
- C. **Colors:** Refer to Finish Schedule.
- D. **VOC Content:** Comply with California Department of Public Health (CDPH) Standard Method v1.1-2010

PART 3 - EXECUTION

3.1 EXAMINATION

- A. **Examine substrates, areas, and conditions, with Applicator present, for compliance with requirements for paint application.**
 - 1. Proceed with paint application only after unsatisfactory conditions have been corrected and surfaces receiving paint are thoroughly dry.
 - 2. Start of painting will be construed as Applicator's acceptance of surfaces and conditions within a particular area.
- B. **Coordination of Work:** Review other Sections in which primers are provided to ensure compatibility of the total system for various substrates. On request, furnish information on characteristics of finish materials to ensure use of compatible primers.
 - 1. Notify Architect about anticipated problems when using the materials specified over substrates primed by others.

3.2 PREPARATION

- A. **General:** Remove hardware and hardware accessories, plates, machined surfaces, lighting fixtures, and similar items already installed that are not to be painted. If removal is impractical or impossible because of size or weight of the item, provide surface-applied protection before surface preparation and painting.
 - 1. After completing painting operations in each space or area, reinstall items removed using workers skilled in the trades involved.

- B. Cleaning: Before applying paint or other surface treatments, clean substrates of substances that could impair bond of the various coatings. Remove oil and grease before cleaning.
 - 1. Schedule cleaning and painting so dust and other contaminants from the cleaning process will not fall on wet, newly painted surfaces.

- C. Surface Preparation: Clean and prepare surfaces to be painted according to manufacturer's written instructions and technical bulletins for each particular substrate condition and as specified.
 - 1. Provide barrier coats over incompatible primers or remove and reprime.
 - 2. Cementitious Materials: Prepare concrete, concrete unit masonry, cement plaster, and mineral-fiber-reinforced cement panel surfaces to be painted. Remove efflorescence, chalk, dust, dirt, grease, oils, and release agents. Roughen as required to remove glaze. If hardeners or sealers have been used to improve curing, use mechanical methods of surface preparation.
 - a. Use abrasive blast-cleaning methods if recommended by paint manufacturer.
 - b. Determine alkalinity and moisture content of surfaces by performing appropriate tests. If surfaces are sufficiently alkaline to cause the finish paint to blister and burn, correct this condition before application. Do not paint surfaces if moisture content exceeds that permitted in manufacturer's written instructions.
 - c. Clean concrete floors to be painted with a 5 percent solution of muriatic acid or other etching cleaner. Flush the floor with clean water to remove acid, neutralize with ammonia, rinse, allow to dry, and vacuum before painting.
 - 3. Wood: Clean surfaces of dirt, oil, and other foreign substances with scrapers, mineral spirits, and sandpaper, as required. Sand surfaces exposed to view smooth and dust off.
 - a. Scrape and clean small, dry, seasoned knots, and apply a thin coat of white shellac or other recommended knot sealer before applying primer. After priming, fill holes and imperfections in finish surfaces with putty or plastic wood filler. Sand smooth when dried.
 - b. Prime, stain, or seal wood to be painted immediately on delivery. Prime edges, ends, faces, undersides, and back sides of wood, including cabinets, counters, cases, and paneling.
 - c. If transparent finish is required, backprime with spar varnish.
 - d. Backprime paneling on interior partitions where masonry, plaster, or other wet wall construction occurs on back side.
 - e. Seal tops, bottoms, and cutouts of unprimed wood doors with a heavy coat of varnish or sealer immediately on delivery.
 - 4. Ferrous Metals: Clean ungalvanized ferrous-metal surfaces that have not been shop coated; remove oil, grease, dirt, loose mill scale, and other foreign substances. Use solvent or mechanical cleaning methods that comply with SSPC's recommendations.
 - a. Exterior Exposed Steel: Clean steel surfaces in accordance with SSPC-SP 6/NACE No. 3 Commercial Blast Cleaning. Abrasive blast cleaned surfaces shall exhibit a uniform, angular profile of 1.5-3.0 mils. Prime cleaned surfaces within 8 hours and prior to surface rusting.
 - b. Interior Exposed Steel, in Humid Environments: Clean steel surfaces in accordance with SSPC-SP 6/NACE No. 3 Commercial Blast Cleaning. Abrasive

- blast cleaned surfaces shall exhibit a uniform, angular profile of 1.5-3.0 mils. Prime cleaned surfaces within 8 hours and prior to surface rusting.
- c. Interior Exposed Steel, in Dry Environments: Clean steel surfaces in accordance with SSPC-SP2 or SP3 Hand or Power Tool Cleaning.
5. Galvanized Surfaces: Clean galvanized surfaces in accordance with SSPC-SP16 Brush off Blast Cleaning of Galvanized Steel and NonFerrous Metals, to achieve a minimum 1 mil anchor profile.
- D. Material Preparation: Mix and prepare paint materials according to manufacturer's written instructions.
- 1. Maintain containers used in mixing and applying paint in a clean condition, free of foreign materials and residue.
 - 2. Stir material before application to produce a mixture of uniform density. Stir as required during application. Do not stir surface film into material. If necessary, remove surface film and strain material before using.
 - 3. Use only thinners approved by paint manufacturer and only within recommended limits.
- E. Tinting: Tint each undercoat a lighter shade to simplify identification of each coat when multiple coats of same material are applied. Tint undercoats to match the color of the finish coat, but provide sufficient differences in shade of undercoats to distinguish each separate coat.

3.3 APPLICATION

- A. General: Apply paint according to manufacturer's written instructions. Use applicators and techniques best suited for substrate and type of material being applied.
- 1. Paint colors, surface treatments, and finishes are indicated in the paint schedules.
 - 2. Do not paint over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions detrimental to formation of a durable paint film.
 - 3. Provide finish coats that are compatible with primers used.
 - 4. The term "exposed surfaces" includes areas visible when permanent or built-in fixtures, grilles, convector covers, covers for finned-tube radiation, and similar components are in place. Extend coatings in these areas, as required, to maintain system integrity and provide desired protection.
 - 5. Paint surfaces behind movable equipment and furniture the same as similar exposed surfaces. Before final installation of equipment, paint surfaces behind permanently fixed equipment or furniture with prime coat only.
 - 6. Paint interior surfaces of ducts with a flat, nonspecular black paint where visible through registers or grilles.
 - 7. Paint backsides of access panels and removable or hinged covers to match exposed surfaces.
 - 8. Finish exterior doors and doors in wet areas on tops, bottoms, and side edges the same as exterior faces.
 - 9. Sand lightly between each succeeding enamel or varnish coat.
- B. Scheduling Painting: Apply first coat to surfaces that have been cleaned, pretreated, or otherwise prepared for painting as soon as practicable after preparation and before subsequent surface deterioration.

1. The number of coats and film thickness required are the same regardless of application method. Do not apply succeeding coats until previous coat has cured as recommended by manufacturer. If sanding is required to produce a smooth, even surface according to manufacturer's written instructions, sand between applications.
 2. Omit primer over metal surfaces that have been shop primed and touchup painted.
 3. If undercoats, stains, or other conditions show through final coat of paint, apply additional coats until paint film is of uniform finish, color, and appearance. Give special attention to ensure that edges, corners, crevices, welds, and exposed fasteners receive a dry film thickness equivalent to that of flat surfaces.
 4. Allow sufficient time between successive coats to permit proper drying. Do not recoat surfaces until paint has dried to where it feels firm, and does not deform or feel sticky under moderate thumb pressure, and until application of another coat of paint does not cause undercoat to lift or lose adhesion.
- C. Application Procedures: Apply paints and coatings by brush, roller, spray, or other applicators according to manufacturer's written instructions.
1. Brushes: Use brushes best suited for type of material applied. Use brush of appropriate size for surface or item being painted.
 2. Rollers: Use rollers of carpet, velvet-back, or high-pile sheep's wool as recommended by manufacturer for material and texture required.
 3. Spray Equipment: Use airless spray equipment with orifice size as recommended by manufacturer for material and texture required.
- D. Minimum Coating Thickness: Apply paint materials no thinner than manufacturer's recommended spreading rate to achieve dry film thickness indicated. Provide total dry film thickness of the entire system as recommended by manufacturer.
- E. Mechanical and Electrical Work: Painting of mechanical and electrical work is limited to items exposed in equipment rooms and occupied spaces.
- F. Mechanical items to be painted include, but are not limited to, the following:
1. Uninsulated metal piping.
 2. Uninsulated plastic piping.
 3. Pipe hangers and supports.
 4. Tanks that do not have factory-applied final finishes.
 5. Visible portions of internal surfaces of metal ducts, without liner, behind air inlets and outlets.
 6. Duct, equipment, and pipe insulation having "all-service jacket" or other paintable jacket material.
 7. Mechanical equipment that is indicated to have a factory-primed finish for field painting.
- G. Electrical items to be painted include, but are not limited to, the following:
1. Switchgear.
 2. Panelboards.
 3. Electrical equipment that is indicated to have a factory-primed finish for field painting.
- H. Block Fillers: Apply block fillers to concrete masonry block at a rate to ensure complete coverage with pores filled.

- I. Prime Coats: Before applying finish coats, apply a prime coat, as recommended by manufacturer, to material that is required to be painted or finished and that has not been prime coated by others. Recoat primed and sealed surfaces where evidence of suction spots or unsealed areas in first coat appears, to ensure a finish coat with no burn-through or other defects due to insufficient sealing.
- J. Pigmented (Opaque) Finishes: Completely cover surfaces as necessary to provide a smooth, opaque surface of uniform finish, color, appearance, and coverage. Cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness, or other surface imperfections will not be acceptable.
- K. Transparent (Clear) Finishes: Use multiple coats to produce a glass-smooth surface film of even luster. Provide a finish free of laps, runs, cloudiness, color irregularity, brush marks, orange peel, nail holes, or other surface imperfections.
 - 1. Provide satin finish for final coats.
- L. Completed Work: Match approved samples for color, texture, and coverage. Remove, refinish, or repaint work not complying with requirements.

3.4 FIELD QUALITY CONTROL

- A. The Owner reserves the right to invoke the following test procedure at any time and as often as the Owner deems necessary during the period when paint is being applied:
 - 1. The Owner will engage a qualified independent testing agency to sample paint material being used. Samples of material delivered to Project will be taken, identified, sealed, and certified in the presence of Contractor.
 - 2. Testing agency will perform appropriate tests for the following characteristics as required by the Architect.
 - 3. The Architect may direct Contractor to stop painting if test results show material being used does not comply with specified requirements. Contractor shall remove noncomplying paint from Project site, pay for testing, and repaint surfaces previously coated with the noncomplying paint. If necessary, Contractor may be required to remove noncomplying paint from previously painted surfaces if, on repainting with specified paint, the two coatings are incompatible.

3.5 CLEANING

- A. Cleanup: At the end of each workday, remove empty cans, rags, rubbish, and other discarded paint materials from Project site.
 - 1. After completing painting, clean glass and paint-spattered surfaces. Remove spattered paint by washing and scraping without scratching or damaging adjacent finished surfaces.

3.6 PROTECTION

- A. Protect work of other trades, whether being painted or not, against damage from painting. Correct damage by cleaning, repairing or replacing, and repainting, as approved by Architect.

- B. Provide "Wet Paint" signs to protect newly painted finishes. After completing painting operations, remove temporary protective wrappings provided by others to protect their work.
 - 1. After work of other trades is complete, touch up and restore damaged or defaced painted surfaces. Comply with procedures specified in PDCA P1.

3.7 PAINT SCHEDULE

- A. Schedule: Provide products and number of coats specified. Use of manufacturer's proprietary product names to designate colors, materials, generic class, standard of quality and performance criteria and is not intended to imply that products named are required to be used to the exclusion of equivalent performing products of other manufacturers.
- B. Exterior Paint Schedule:
 - 1. Exterior Galvanized Metal (not shop-finished under Section 051200 - STRUCTURAL STEEL FRAMING, Section 055000 - METAL FABRICATIONS, or Section 055100 - METAL STAIRS AND RAILINGS), Alliphatic Acrylic Polyurethane System:
 - a. Surface Preparation: SSPC-SP16 Brush-off Blast of Galvanized Steel.
 - b. One Coat:
 - 1) Tnemec 66HS Hi-Build Epoxoline at 3.0 mils DFT.
 - 2) PPG PMC Amerlock 400 Hi-Build Epoxy at 4.0-5.0 mils DFT.
 - 3) Dupont 25P High Solids at 4.0 mils DFT.
 - 4) International Intergard 475 HS at 5.0 to 10.0 mils DFT.
 - c. And One Coat:
 - 1) Tnemec 73 Endura-Shield at 3.0 mils DFT.
 - 2) PPG PMC Amercoat 450H Polyurethane at 3.0 mils DFT.
 - 3) Dupont Imron 2.8 Urethane at 3.0 to 4.0 mils DFT.
 - 4) International Interthane 990 HS at 3.0 to 4.0 mils DFT.
- C. Interior Paint Schedule:
 - 1. Interior Gypsum Wallboard, Latex Paint Finish:
 - a. One Coat, Primer:
 - 1) Moore Eco Spec WB Interior Latex Primer 372.
 - 2) Duron Genesis Latex Primer.
 - 3) S-W ProMar 200 Zero-VOC Latex Wall Primer.
 - 4) PPG Pure Performance Latex Primer.
 - 5) California Paint Envirotech Zero VOC Primer 646.
 - b. And Two Coats, Flat Finish: At ceilings, and elsewhere as indicated.
 - 1) Moore Eco Spec WB Interior Latex Flat 373.
 - 2) Duron Genesis Latex Flat.
 - 3) S-W ProMar 200 Zero-VOC Latex Flat.
 - 4) PPG Pure Performance Latex Eggshell.

- 5) California Paint Envirotech Zero VOC Flat 633.
- or
- c. And Two Coats, Eggshell Finish: At walls, and elsewhere as indicated.
 - 1) Moore Eco Spec WB Interior Latex Eggshell 374.
 - 2) Duron Genesis Latex Eggshell.
 - 3) S-W ProMar 200 Zero-VOC Latex Eggshell.
 - 4) PPG Pure Performance Latex Eggshell.
 - 5) California Paint Envirotech Zero VOC Eggshell 631.
- or
- d. And Two Coats, Semi-Gloss Finish: At toilet rooms, other wet areas, and elsewhere as indicated.
 - 1) Moore Eco Spec WB Interior Latex Semi-Gloss 376.
 - 2) Duron Genesis Latex Semi-Gloss.
 - 3) S-W ProMar 200 Zero-VOC Latex Semi-Gloss.
 - 4) PPG Pure Performance Latex Semi-Gloss.
 - 5) California Paint Envirotech Zero VOC Semi-Gloss 663.
- 2. Interior Gypsum Wallboard, Epoxy/Acrylic Coating:
 - a. Surface Preparation: Cured, clean and dry, free of surface contaminants.
 - b. Two Coats: Tnemec 27WB at 8-10 mils DFT.
 - c. And One Coat: Tnemec 1028 at 2-3 mils DFT.
- 3. Interior Architectural Woodwork, Finish Carpentry, (softwoods, paint grade hardwoods, MDF, MDO, and hardwood veneers), Latex Paint Finish:
 - a. One Coat, Primer:
 - 1) Moore Eco Spec WB Interior Latex Primer 372.
 - 2) Duron Genesis Latex Primer.
 - 3) S-W ProMar 200 Zero-VOC Latex Primer.
 - 4) PPG Pure Performance Latex Primer.
 - 5) California Paint Envirotech Zero VOC Primer 646.
 - b. And Two Coats, Semi-Gloss:
 - 1) Moore Eco Spec WB Interior Latex Semi-Gloss 376.
 - 2) Duron Genesis Latex Semi-Gloss.
 - 3) S-W ProMar 200 Zero VOC Latex Semi-Gloss.
 - 4) PPG Pure Performance Latex Semi-Gloss.
 - 5) California Paint Envirotech Zero VOC Semi Gloss 663.
- 4. Interior Metals (Not specified to receive other coating systems/not shop finished), Epoxy Painted Finish:
 - a. One Coat: Approved primer, in shop under other Sections (where specified). If not shop primed, provide primer recommended by finish coating manufacturer.
 - b. And One Coat:

- 1) Tnemec 1029 Enduratone at 2.0 mils DFT.
 - 2) PPG PMC Amerlock 400 at 2.0 to 4.0 mils DFT.
 - 3) Dupont 25P at 3.0 to 4.0 mils DFT.
 - 4) International Interseal 670 HS at 3.0 mils DFT.
 - c. And One Coat:
 - 1) Tnemec 1029 Enduratone at 2.0 to 3.0 mils DFT.
 - 2) PPG PMC Amerlock 400 at 2.0 to 4.0 mils DFT.
 - 3) Dupont High Solids Acrylic Coating 3.0 mils DFT.
 - 4) International Intercryl 530 at 3.0 to 4.0 mils DFT.
5. Interior Exposed Steel, Joists, Ductwork, Conduit and Similar Items (where indicated), Dry-Fall or Dry-Fog Painted System:
 - a. One Coat:
 - 1) Tnemec 115 WB Unibond at 2.5 to 3.0 mils DFT.
 - 2) International Intercryl 530 at 2.5 to 3.0 mils DFT.
 - 3) PPG PMC Amercoat 220 Acrylic at 3.0 mils DFT.
 - 4) RD Coatings Muracryl at 2.0 to 3.0 mils DFT.
 - 5) S-W WB Acrylic Dryfall B42 at 2.5 to 3.0 mils DFT.
6. Mechanical Room Concrete Floor System, Waterborne Urethane, dry film thickness 28 mils: Surface preparation: Grind concrete; shot-blast not required.
 - a. Primer: RD Unifix at 1.0-1.5 mils DFT.
 - b. Second Coat: RD Elastodeck Slurry with broadcast aggregate, 25 mils DFT.
 - c. Third Coat: RD Monograph pigmented topcoat, 2-3 mils DFT.
7. Concrete Floor, Clear Exposed Sealer:
 - a. One Coat:
 - 1) Curecrete Chemical; Ashford Formula.
 - 2) Chem Probe; CT Denisifyer.
 - 3) WR Meadows; Liqui-Hard.
 - 4) L&M; Sealhard.
8. Mechanical and Electrical Work: Paint all exposed items throughout the project except factory finished items with factory-applied baked enamel finishes which occur in mechanical rooms or areas, and excepting chrome or nickel plating, stainless steel, and aluminum other than mill finished. Paint all exposed ductwork and inner portion of all ductwork. Same as specified for other interior metals, hereinabove.

END OF SECTION

Section 283111
ADDRESSABLE FIRE-ALARM SYSTEM
(TRADE CONTRACT REQUIRED AS PART OF SECTION 260001)

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

- A. PUBLICLY BID TRADE CONTRACT REQUIREMENTS: As provided under Section 26 00 01 - ELECTRICAL and supplemented under the Bidding Requirements, Contract Forms, and Conditions of the Contract, and applicable parts of Division 1 - GENERAL REQUIREMENTS.
 - 1. Work of this Trade Contract includes all individual specification sections listed in Section 26 00 01.

1.2 RELATED DOCUMENTS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 - GENERAL REQUIREMENTS which are hereby made a part of this Section of the Specifications.

1.3 SCOPE OF WORK

- A. It is the intent of these specifications that the Contractor, Manufacturer and/or its Authorized System Integrator expeditiously furnishes and installs a system complete in every respect and ready to operate. All miscellaneous items and accessories required for such installation, whether or not each such item or accessory as shown on the plans or mentioned in these specifications, shall be furnished and installed.
- B. Work covered by this section includes the furnishing of labor, equipment, and materials for installation of the fire alarm system as indicated on the drawings and specifications.

1.4 SUBMITTALS

- A. General Submittal Requirements:
 - 1. Submittals shall be approved by authorities having jurisdiction prior to submitting them to Architect.
 - 2. Shop Drawings shall be prepared by persons with the following qualifications:
 - a. Trained and certified by manufacturer in fire-alarm system design.
 - b. NICET-certified fire-alarm technician, Level III minimum.
- B. Product Data: For each type of product indicated.

- C. Shop Drawings: For fire-alarm system. Include plans, elevations, sections, details, and attachments to other work.
 - 1. Comply with recommendations in the "Documentation" Section of the "Fundamentals of Fire Alarm Systems" Chapter in NFPA 72.
 - 2. Include voltage drop calculations for notification appliance circuits.
 - 3. Include battery-size calculations.
 - 4. Include performance parameters and installation details for each detector, verifying that each detector is listed for complete range of air velocity, temperature, and humidity possible when air-handling system is operating.
 - 5. Include plans, sections, and elevations of heating, ventilating, and air-conditioning ducts, drawn to scale and coordinating installation of duct smoke detectors and access to them. Show critical dimensions that relate to placement and support of sampling tubes, detector housing, and remote status and alarm indicators. Locate detectors according to manufacturer's written recommendations.
 - 6. Include floor plans to indicate final outlet locations showing address of each addressable device. Show size and route of cable and conduits.

- D. Delegated-Design Submittal: For smoke and heat detectors indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.
 - 1. Drawings showing the location of each smoke and heat detector, ratings of each, and installation details as needed to comply with listing conditions of the detector.
 - 2. Design Calculations: Calculate requirements for selecting the spacing and sensitivity of detection, complying with NFPA 72.

- E. Qualification Data: For qualified Installer.

- F. Seismic Qualification Certificates: For fire-alarm control unit, accessories, and components, from manufacturer.

- G. Field quality-control reports.

- H. Operation and Maintenance Data: For fire-alarm systems and components to include in emergency, operation, and maintenance manuals. In addition to items specified in Division 01 include the following:
 - 1. Comply with the "Records" Section of the "Inspection, Testing and Maintenance" Chapter in NFPA 72.
 - 2. Provide "Record of Completion Documents" according to NFPA 72 article "Permanent Records" in the "Records" Section of the "Inspection, Testing and Maintenance" Chapter.
 - 3. Record copy of site-specific software.

4. Provide "Maintenance, Inspection and Testing Records" according to NFPA 72 article of the same name and include the following:
 - a. Frequency of testing of installed components.
 - b. Frequency of inspection of installed components.
 - c. Requirements and recommendations related to results of maintenance.
 - d. Manufacturer's user training manuals.
 5. Manufacturer's required maintenance related to system warranty requirements.
 6. Abbreviated operating instructions for mounting at fire-alarm control unit.
 7. Copy of NFPA 25.
- I. Software and Firmware Operational Documentation:
1. Software operating and upgrade manuals.
 2. Program Software Backup: On magnetic media or compact disk, complete with data files.
 3. Device address list.
 4. Printout of software application and graphic screens.

1.5 AS-BUILT DRAWINGS

- A. At the conclusion of the project, the Contractor shall provide "as built" drawings. The "as built" drawings shall be a continuation of the Contractors shop drawings as modified, augmented, and reviewed during the installation, check out and acceptance phases of the project. All drawings shall be fully dimensioned and prepared in DWG format using the latest version of AutoCAD.
- B. The as-built drawings shall incorporate all updated system riser diagrams prepared in DWG format using the latest version of AutoCAD.

1.6 OPERATION AND MAINTANANCE MANUALS

- A. Manuals
 1. At the conclusion of the project, the Contractor shall provide copies of the manuals as described herein. Each manual's contents shall be identified on the cover. The manual shall include names, addresses, and telephone numbers of each system integrator installing equipment and systems and the nearest service representatives for each item of equipment for each system. The manuals shall have a table of contents and labeled sections. The manuals shall include all modifications made during installation, checkout, and acceptance. The manuals shall contain the following:
 2. Operators Manual

- a. The operator's manual shall fully explain all procedures and instructions for the operation of the system including:
 - 1) Computers and peripherals
 - 2) System start up and shut down procedures
 - 3) Use of system, command, and applications software
 - 4) Recovery and restart procedures
 - 5) Graphic alarm presentation
 - 6) Use of report generator and generation of reports
 - 7) Data entry
 - 8) Operator commands
 - 9) Alarm messages and reprinting formats
 - 10) System access requirements
3. Maintenance Manual
 - a. The maintenance manual shall include descriptions of maintenance for all equipment including inspection, periodic preventive maintenance, fault diagnosis, and repair or replacement of defective components.

1.7 QUALITY ASSURANCE

- A. Installer Qualifications: Personnel shall be trained and certified by manufacturer for installation of units required for this Project.
- B. Installer Qualifications: Installation shall be by personnel certified by NICET as fire-alarm Level III technician.
- C. Source Limitations for Fire-Alarm System and Components: Obtain fire-alarm system from single source from single manufacturer.
- D. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

1.8 SOFTWARE SERVICE AGREEMENT

- A. Comply with UL 864.
- B. Technical Support: Beginning with Substantial Completion, provide software support for two years.
- C. Upgrade Service: Update software to latest version at Project completion. Install and program software upgrades that become available within two years from date of Substantial Completion.

Upgrading software shall include operating system. Upgrade shall include new or revised licenses for use of software.

1. Provide 30 days' notice to Owner to allow scheduling and access to system and to allow Owner to upgrade computer equipment if necessary.

1.9 WARRANTY

- A. Comply with Section 260001.
- B. The Electrical Trade Contractor shall warranty that all materials furnished shall be free from defects of material for a period of one year from the date of Substantial Completion.
- C. The manufacturer shall guarantee that the fire alarm panel technology and firmware is the latest available and shall be supported for at least 10 years.
- D. The manufacturer shall guarantee that the system components shall be available for at least 10 years.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. SimplexGrinnell 4100 (existing system to be augmented)
- B. No substitutions allowed.

2.2 RELATED DOCUMENTS

- A. The system and all associated operations shall be in accordance with the following:
 1. Guidelines of the following Building Code: Massachusetts State Building Code 780 CMR, Latest edition.
 2. 527 CMR 1.00: Massachusetts Comprehensive Fire Safety Code
 3. NFPA 72, National Fire Alarm Code
 4. NFPA 70, National Electrical Code
 5. NFPA 101, Life Safety Code
 6. NFPA 90A, Standard for the Installation of Air Conditioning and Ventilating Systems
 7. Other applicable NFPA standards
 8. Local Jurisdictional Adopted Codes and Standards
 9. ADA Accessibility Guidelines

2.3 FIRE ALARM SYSTEM

A. Scope

1. This Section covers fire alarm systems, including initiating devices, notification appliances, controls, and supervisory devices.
2. Work covered by this section includes the furnishing of labor, equipment, and materials for installation of the fire alarm system as indicated on the drawings and specifications.
3. Point of contact shall be: SimplexGrinnell 35 Progress Avenue, Nashua, NH – Michael Chames – 603-521-1154.

2.4 SUBMITTALS

A. Submit complete sets of shop drawings to include:

1. Complete building drawings showing all devices, addresses and circuits.
2. Complete point-to-point riser diagram showing all equipment and size, type and number of all conductors and devices.
3. Large scale drawings of each panel showing module placement and spare capacity allowances.
4. Address listing of all field devices shown on floor plans for coordination of LCD message text assignments. Coordinate and obtain a written approval of room names and numbers from the Architect prior to programming the fire alarm panel.
5. Original catalog data sheets for all items to assure compliance with these specifications. This equipment shall be subject to approval, and no equipment shall be ordered without prior approval.
6. Provide calculations to support the size of standby batteries, audible and visual notification circuits, amplifiers and power supplies submitted. Calculations shall demonstrate proper current draw, voltage drop, db loss, wire size considerations and spare capacity allowances.
7. Sequence of Operation, in the form of a program matrix as described in NFPA 72.
8. Confirmation that the equipment supplier will provide on-site project management and supervision during system installation, and perform system testing and instruction.

B. Conform to all UL and NFPA standards for testing of the completed installation by the equipment supplier.

C. The equipment supplier shall conduct the initial programming of the system and a complete rack/test of hardware panels prior to delivery to the installing Contractor.

D. Provide verification that all room names and numbers on the construction drawings will be coordinated with final room names and numbers as designated by the school. Update all risers

and drawings accordingly for Operating & Maintenance manuals at the completion of the project. Addresses shall be programmed using final room names and numbers.

- E. Provide copies of Operating & Maintenance manuals with the request for final inspection. O & M Manuals shall include the following:
 - 1. All of the information submitted in the shop drawings.
 - 2. As-built documentation which incorporates all modifications to the system, whether made as a field change or by a change order.
 - 3. Include a copy of the final test report, Record of Completion and test contract.

2.5 SEQUENCE OF OPERATION

- A. The operation of smoke, heat detector, sprinkler flow switch, or manual fire alarm station, shall automatically:
 - 1. Initiate the-transmission of the alarm to the fire department via the existing masterbox.
 - 2. Activate the audible-visual evacuation alarms on all floors throughout the building.
 - 3. Operate prioritized outputs to release all magnetically held smoke doors and magnetically locked doors throughout the building.
 - 4. Automatically shut down HVAC equipment as required in conformance with NFPA 90A.
 - 5. Activate the exterior weatherproof beacon.
 - 6. Sound alarm signal at FACP and illuminate system alarm LED. Alarm signal shall pulse until appropriate acknowledge switch is depressed which shall cause it to be silenced. System alarm LED shall remain lit until alarm condition has been corrected. Subsequent alarms shall re-initiate this sequence.
 - 7. Display alarm condition at the FACP and annunciators.
 - 8. Record the alarm in the event history log, and print a record of the alarm on the system printer where applicable.
- B. The activation of a kitchen Ansul system shall immediately transmit an alarm signal to the fire department and initiate the sequence of operation described in A.1. to A.8. above.
- C. The activation of a duct smoke detector shall immediately transmit a supervisory signal to the fire department via the masterbox and shut down the HVAC unit in alarm.
- D. The activation of a carbon monoxide shall immediately transmit a supervisory signal to the fire department via the masterbox.
- E. The activation of a sprinkler system pressure or tamper switch shall immediately transmit a supervisory signal to the fire department via the masterbox.

- F. In the event of any System Trouble condition such as a device removed, loss of AC Power or wiring fault, a system Trouble condition shall occur as follows:
 - 1. The activation of a trouble device shall immediately transmit a trouble signal to the fire department via the masterbox.
 - 2. Flash a Trouble LED and sound an audible tone at the FACP and each system annunciator. Upon Acknowledgment, the LED shall light steadily and the audible shall silence. Subsequent Trouble conditions shall re initiate this sequence.
 - 3. Visually indicate the alarm initiating device type, status and location via the LCD display located at the FACP and each system annunciator.

2.6 ISOLATION MODULES

- A. Provide isolation modules to subdivide each signaling line circuit into groups of not more than 25 addressable devices between adjacent isolation modules.

2.7 ADDRESSABLE MANUAL PULL STATIONS

- A. Description: Addressable double-action type, red LEXAN, with molded, raised-letter operating instructions of contrasting color. Station will mechanically latch upon operation and remain so until manually reset by opening with a key common with the control units.
- B. Protective Shield: Provide a tamperproof, clear LEXAN shield and red frame that easily fits over manual pull stations. When shield is lifted to gain access to the station, a battery powered piercing warning horn shall be activated. The horn shall be silenced by lowering and realigning the shield. The horn shall provide 85dB at 10 feet and shall be powered by a 9 VDC battery.

2.8 SMOKE SENSORS

- A. General: Comply with UL 268, "Smoke Detectors for Fire Protective Signaling Systems." Include the following features:
 - 1. Factory Nameplate: Serial number and type identification.
 - 2. Operating Voltage: 24 VDC, nominal.
 - 3. Self-Restoring: Detectors do not require resetting or readjustment after actuation to restore normal operation.
 - 4. Plug-In Arrangement: Sensor and associated electronic components are mounted in a module that connects to a fixed base with a twist-locking plug connection. Base shall provide break-off plastic tab that can be removed to engage the head/base locking mechanism. No special tools shall be required to remove head once it has been locked. Removal of the detector head shall interrupt the supervisory circuit of the fire alarm detection loop and cause a trouble signal at the control unit.

5. Each sensor base shall contain an LED that will flash each time it is scanned by the Control Unit (once every 4 seconds). In alarm condition, the sensor base LED shall be on steady.
6. Each sensor base shall contain a magnetically actuated test switch to provide for easy alarm testing at the sensor location.
7. Each sensor shall be scanned by the Control Unit for its type identification to prevent inadvertent substitution of another sensor type. Upon detection of a "wrong device", the control unit shall operate with the installed device at the default alarm settings for that sensor; 2.5% obscuration for photoelectric sensor, 135-deg F and 15-deg F rate-of-rise for the heat sensor, but shall indicate a "Wrong Device" trouble condition.
8. The sensor's electronics shall be immune from false alarms caused by EMI and RFI.
9. Sensors include a communication transmitter and receiver in the mounting base having a unique identification and capability for status reporting to the FACP. Sensor address shall be located in base to eliminate false addressing when replacing sensors.
10. Panel shall have the ability to detect a sensor head that has been moved to another location.

B. Type: Smoke sensors shall be of the photoelectric type.

C. Bases: Provide standard bases but also provide isolator bases every 25 devices.

2.9 DUCT SMOKE SENSOR

- A. Photoelectric type, with sampling tube of design and dimensions as recommended by the manufacturer for the specific duct size and installation conditions where applied. Sensor shall include relays as required for fan shutdown.
- B. Environmental compensation, programmable sensitivity settings, status testing, and monitoring of sensor dirt accumulation for the duct sensor shall be provided by the FACP.
- C. The Duct Housing shall provide a supervised relay driver circuit for driving up to 15 relays with a single "Form C" contact rated at 7A@ 28VDC or 10A@ 120VAC. This auxiliary relay output shall be fully programmable. Relay shall be mounted within 3 feet of HVAC control circuit.
- D. Duct Housing shall provide a relay control trouble indicator Yellow LED.
- E. Compact Duct Housing shall have a transparent cover to monitor for the presence of smoke. Cover shall secure to housing by means of four (4) captive fastening screws.
- F. Duct Housing shall provide two (2) Test Ports for measuring airflow and for testing. These ports will allow aerosol injection in order to test the activation of the duct smoke sensor.
- G. Duct Housing shall provide a magnetic test area and Red sensor status LED.

- H. For maintenance purposes, it shall be possible to clean the duct housing sampling tubes by accessing them through the duct housing front cover.
- I. Each duct sensor shall have a Remote Test Station with an alarm LED and test switch.
- J. Include remote test station and test tubes with each duct smoke detector.
- K. Exterior Enclosure: A NEMA 4X weatherproof duct housing enclosure shall be provided for the circulation of conditioned air around the addressable duct sensor housing to maintain the sensor housing at its rated temperature range when the duct detector is mounted on the exterior of the building. The housing shall be UL Listed to Standard 268A.
- L. Sequence of operation:
 - 1. Upon sensing smoke, the duct smoke detector shall stop the fan(s) and de-energize controls through a direct circuit normally closed (NC) interlock contacts.
 - 2. A set of normally open (NO) contacts will close, to signal the fire alarm system to initiate a supervisory alarm. The fire alarm system will report the alarm to the fire department via the radio masterbox.
 - 3. A second set of NO contacts shall close and signal the building management system (BMS).

2.10 HEAT SENSORS

- A. Thermal Sensor: Combination fixed-temperature and rate-of-rise unit with plug-in base and alarm indication lamp; 135-deg F fixed-temperature setting except as indicated.
- B. Thermal sensor shall be of the epoxy encapsulated electronic design. It shall be thermistor-based, rate-compensated, self-restoring and shall not be affected by thermal lag.
- C. Sensor fixed temperature sensing shall be independent of rate-of-rise sensing and] programmable to operate at 135-deg F or 155-deg F. Sensor rate-of-rise temperature detection shall be selectable at the FACP for either 15-deg F or 20-deg F per minute.
- D. Sensor shall have the capability to be programmed as a utility monitoring device to monitor for temperature extremes in the range from 32-deg F to 155-deg F.

2.11 ADDRESSABLE CARBON MONOXIDE (CO) SENSOR

- A. Detectors shall be electro-mechanical suitable for ceiling or wall mount.
- B. Unit shall have Dual LED's. A green LED shall indicate normal operation, the red LED shall indicate alarm. Detector alarm and trouble conditions shall be reported to the fire alarm panel.
- C. An internal 85dB sounder shall activate with a temporal 4 pattern to indicate alarm and also activates once per minute to signal end of CO sensor life.

- D. Unit shall be UL listed to Standard 2075

2.12 DUCT CARBON MONOXIDE (CO) SENSOR

- A. Provide with sampling tube of design and dimensions as recommended by the manufacturer for the specific duct size and installation conditions where applied. Sensor to include relay as required for fan shutdown.
- B. Environmental compensation, programmable sensitivity settings, status testing, and monitoring of sensor dirt accumulation for the duct sensor shall be provided by the FACP.
- C. The Duct Housing shall provide a supervised relay driver circuit for driving up to 15 relays with a single "Form C" contact rated at 7A@ 28VDC or 10A@ 120VAC. This auxiliary relay output shall be fully programmable. Relay shall be mounted within 3 feet of HVAC control circuit.
- D. Duct Housing shall provide a relay control trouble indicator Yellow LED.
- E. Duct Housing shall provide two (2) Test Ports for measuring airflow and for testing.
- F. Duct Housing shall provide a magnetic test area and Red sensor status LED.
- G. For maintenance purposes, it shall be possible to clean the duct housing sampling tubes by accessing them through the duct housing front cover.
- H. Each duct sensor shall have a Remote Test Station with an alarm LED and test switch.
- I. A NEMA 4X weatherproof duct housing enclosure shall provide for the circulation of conditioned air around the internally mounted addressable duct sensor housing to maintain the sensor housing at its rated temperature range. The housing shall be UL Listed to Standard 268A.
- J. Remote test switches with indicator LEDs shall be installed at the fire alarm control panel and located within the fire alarm control panel or in an enclosure similar to the fire alarm control panel next to the panel.
- K. Indicator LEDs will be located on the ceiling or on the wall below the duct smoke detector so that it is visible to the responder.
- L. This Trade Contractor shall verify the locations of the remote test switches and the LED indicator lights with the fire department prior to installation.
- M. Exterior Enclosure: A NEMA 4X weatherproof duct housing enclosure shall be provided for the circulation of conditioned air around the addressable duct sensor housing to maintain the sensor housing at its rated temperature range when the duct detector is mounted on the exterior of the building. The housing shall be UL Listed to Standard 268A.

2.13 ADDRESSABLE CIRCUIT INTERFACE MODULES

- A. Addressable Circuit Interface Modules: Arrange to monitor one or more system components that are not otherwise equipped for addressable communication. Modules shall be used for monitoring of waterflow, valve tamper, non-addressable devices, and for control of evacuation indicating appliances and AHU systems.
- B. Addressable Circuit Interface Modules will be capable of mounting in a standard electric outlet box. Modules will include cover plates to allow surface or flush mounting. Modules will receive their operating power from the signaling line or a separate two wire pair running from an appropriate power supply as required.
- C. There shall be the following types of modules:
 - 1. Type 1: Monitor Circuit Interface Module
 - 2. Type 2: Line Powered Control Circuit Interface Module
 - a. This module shall provide control and status tracking of a Form "C" contact. The two-wire signaling line circuit shall supply power and communications to the module.
 - 3. All Circuit Interface Modules shall be supervised and uniquely identified by the control unit. Module identification shall be transmitted to the control unit for processing according to the program instructions. Modules shall have an on-board LED to provide an indication that the module is powered and communicating with the FACP. The LEDs shall provide a troubleshooting aid since the LED blinks on poll whenever the peripheral is powered and communicating.

2.14 MAGNETIC DOOR HOLDERS

- A. Description: Units shall be listed to UL 228. Units are equipped for wall or floor mounting as indicated and are complete with matching door plate. Unit shall operate from a 120VAC, a 24VAC or a 24VDC source, and develops a minimum of 25 lbs. holding force.

2.15 STANDARD ALARM NOTIFICATION APPLIANCES

- A. Horn: Piezoelectric type horn shall be listed to UL 464. The horn shall have a minimum sound pressure level of 85 dBA @ 24VDC. The horn shall mount directly to a standard single gang, double gang or 4" square electrical box, without the use of special adapter or trim rings.
- B. Visible/Only: Strobe shall be listed to UL 1971. The V/O shall consist of a xenon flash tube and associated lens/reflector system. The V/O enclosure shall mount directly to standard single gang, double gang or 4" square electrical box, without the use of special adapters or trim rings. V/O appliances shall be provided with different minimum flash intensities of 15cd, 75cd and 110cd. Provide a label inside the strobe lens to indicate the listed candela rating of the specific Visible/Only appliance.

- C. Horn/Visible: Combination **Horn/Visible** (H/V) units combine the **horn** and visible functions into a common housing. The H/V shall be listed to UL 1971 and UL 1480. **ADDENDUM #2 01/12/18**
- D. Notification Appliance Circuit provides synchronization of strobes at a rate of 1Hz and operates horns with a Temporal Code Pattern operation. The circuit shall provide the capability to silence the audible signals, while the strobes continue to flash, over a single pair of wires. The capability to synchronize multiple notification appliance circuits shall be provided.
- E. Accessories: The contractor shall furnish the necessary accessories.

2.16 NAC POWER EXTENDER

- A. The IDNet NAC Power Extender panel shall be a stand-alone panel capable of powering a minimum of 4 notification appliance circuits. Notification appliance circuits shall be Class B Style Y rated at 2 amps each. Panel shall provide capability to be expanded to 8 notification appliance circuits.
- B. The internal power supply & battery charger shall be capable of charging up 12.7 Ah batteries internally mounted or 18Ah batteries mounted in an external cabinet.
- C. The NAC extender panel may be mounted close to the host control panel or can be remotely located. The IDNET Addressable NAC Extender Panel when connected to an addressable panel shall connect to the host panel via an IDNet communications channel. Via the IDNET channel each output NAC can be individually controlled for general alarm or selective area notification.
- D. For IDNet connected NAC extender panels up to five panels can be connected on a single Class A wired IDNet channel.
- E. When connected to a conventional (non-addressable panel) one or two standard notification appliance circuits from the main control panel may be used to activate all the circuits on the NAC power extender panel.
- F. Alarms from the host fire panel shall signal the NAC power extender panel to activate. The panel shall monitor itself and each of its NACs for trouble conditions and shall report trouble conditions to the host panel.

2.17 TEST TOOL

- A. In order to expedite the installation process and ensure proper install of devices, include a manufacturer's certified technician test tool to be supplied to the installing Contractor that will identify opens and shorts in the addressable loop. The test tool shall also indicate errors in

2.18 GRAPHIC REPRESENTATION

- A. Provide a minimum 36"x24" framed graphic map next to the fire alarm annunciator. The graphic map shall show all fire alarm initiating devices and their addresses together with the room number associated with the device.
- B. The graphic map shall be submitted to the fire department for approval.
- C. The graphic map shall be provided at each annunciator location and at the fire alarm control panel.

PART 3 - EXECUTION

3.1 EQUIPMENT INSTALLATION

- A. Wire notification Class A.
- B. Wire initiation circuits Class A.
- C. Smoke or Heat Detector Spacing:
 - 1. Smooth ceiling spacing shall not exceed the rating of the detector.
 - 2. Spacing of heat detectors shall be determined based on guidelines and recommendations in NFPA 72.
- D. HVAC: Locate detectors not closer than 3 feet from air-supply diffuser or return-air opening.
- E. Duct Smoke Detectors: Comply with NFPA 72 and NFPA 90A. Install sampling tubes so they extend the full width of the duct.
 - 1. Photoelectric type, with sampling tube of design and dimensions as recommended by the manufacturer for the specific duct size and installation conditions where applied.
 - 2. Duct smoke detectors listed for use in the air distribution systems shall be located downstream of the air filters and ahead of the branch connections in both the supply and return side of air systems of greater than 2000-cfm capacity.
 - 3. In air systems having a capacity of over 15,000-cfm, the duct smoke detectors shall be located in both the supply and return side of the system.
 - 4. In air system having a capacity of over 15,000-cfm and serving more than one story, an additional duct smoke detector shall be located at each story prior to the connection to a common return and prior to any circulation or fresh air inlet connection.
 - 5. LED indicators marking the location of the detector shall be mounted directly below the device in areas where detectors are accessible via ceiling tiles. In areas where detectors are not accessible through ceiling tiles, the fire department shall dictate the location of remote test switches and LED's. The Contractor shall coordinate the location of the

remote test switches and the LED indicator lights with the fire department prior to installation. The remote test switches shall be mounted at the control panel inside the cabinet or in a cabinet next to the fire alarm control panel. The control panel shall enable the duct smoke detectors in the air handling systems to be tested from the panel. Provide wire guards for LED indicators in the gymnasium.

- F. Manual Pull Stations: The manual stations shall be installed not less than 3½ ft. (42") and not more than 4½ ft. (54") above finished floor. All Manual Stations shall be in unobstructed locations. Mark the unit's address on the inside housing.
- G. Smoke detectors: Mark the address and loop number on each detector's base. The location of detectors shown on the plans is schematic only. The detectors must be located according to code requirements.
- H. Remote Status and Alarm Indicators: Install near each detector that is not readily visible from normal viewing position.
- I. Audible/Visual Alarm-Indicating Devices: Install not less than 80 inches from the bottom of the strobe lens to the highest level of the finished floor or not less than 24" below finished ceiling, if the ceiling height is less.
- J. Device Location-Indicating Lights: Locate in public space near the device they monitor.

3.2 WIRING INSTALLATION

- A. Wiring within Enclosures: Separate power-limited and non-power-limited conductors as recommended by manufacturer to match existing conventions. Install conductors parallel with or at right angles to sides and back of the enclosure. Bundle, lace, and train conductors to terminal points with no excess. Connect conductors that are terminated, spliced, or interrupted in any enclosure associated with the fire alarm system to terminal blocks. Mark each terminal according to the system's wiring diagrams. Make all connections with approved crimp-on terminal spade lugs, pressure-type terminal blocks, or plug connectors.
- B. Cable Taps: Use numbered terminal strips in junction, pull, and outlet boxes, cabinets, or equipment enclosures where circuit connections are made.
- C. Color-Coding: Color-code fire alarm conductors differently from the normal building power wiring. Use one color-code for alarm circuit wiring and a different color-code for supervisory circuits. Color-code audible alarm-indicating circuits differently from alarm-initiating circuits. Use different colors for visible alarm-indicating devices. Paint fire alarm system junction boxes and covers red.
- D. All wiring for the system shall be in accordance with Articles 760, 725, and 800 of the National Electrical Code and local electrical codes.

- E. Provide complete wiring and conduit between all equipment. All devices shall be mounted upon and splices made in UL listed boxes. Wiring splices and transposing or changing of colors will not be permitted. Listed Type MC fire alarm cable may be used in lieu of conduit.
- F. All junction boxes shall be painted red and labeled as 'Fire Alarm System' with decal or approved markings
- G. Fire Alarm control systems and equipment shall be connected to separate dedicated branch circuits, sized as required for proper service. Circuits shall be labeled 'FIRE ALARM'.

3.3 IDENTIFICATION

- A. Identify system components, wiring, cabling, and terminals according to Division 16 Section "Electrical Identification."
- B. Install instructions frame in a location visible from the FACP.

3.4 GROUNDING

- A. Ground the FACP and associated circuits; comply with IEEE 1100. Install a ground wire from main service ground to the FACP.

3.5 FIELD QUALITY CONTROL

- A. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect test, and adjust field-assembled components and equipment installation, including connections and to assist in field testing. Report results in writing.
- B. Perform the following field tests and inspections and prepare test reports:
 - 1. Before requesting final approval of the installation, submit a written statement using the form for Record of Completion shown in NFPA 72.
 - 2. Perform each electrical test and visual and mechanical inspection listed in NFPA 72. Certify compliance with test parameters. All tests shall be conducted under the direct supervision of a NICET technician certified under the Fire Alarm Systems program at Level III.
 - a. Include the existing system in tests and inspections.
 - b. Visual Inspection: Conduct a visual inspection before any testing. Use as-built drawings and system documentation for the inspection. Identify improperly located, damaged, or nonfunctional equipment, and correct before beginning tests.
 - c. Testing: Follow procedure and record results complying with requirements in NFPA 72.
 - 3. Detectors that are outside their marked sensitivity range shall be replaced.

~~4. —Speakers shall be calculated at 1 watt each, and sound levels shall be measured and recorded in each space. All necessary adjustments shall be made to installed speakers to ensure proper sound levels and performance is achieved.~~

- a. ~~Test and Inspection Records: Prepare according to NFPA 72, including demonstration of sequences of operation by using the matrix style form in provided in the approved shop drawing submittals.~~ **ADDENDUM #2 01/12/18**

3.6 TESTING AND ACCEPTANCE

- A. The Contractor is responsible for giving all notices, filing all plans, obtaining all permits, fire alarm system testing and obtaining necessary approvals from authorities having jurisdiction.
- B. The authority having jurisdiction, the Fire Department., requests periodic inspection of the fire alarm system during the installation period. The Contractor shall contact the Fire Dept. to schedule these inspections.
- C. The Contractor shall schedule all fire alarm tests a minimum of 2 weeks in advance. Coordinate testing times with the Owner, Designers, and authorities having jurisdiction. Fire Alarm Testing will be performed before or after normal business hours or on weekends and holidays. Additional compensation will not be provided to the Contractor for non-business hours testing.

3.7 FINAL ACCEPTANCE TEST

- A. This test is required for issuance of the Certificate of Occupancy by the Fire Department. The Electrical Trade Contractor shall submit to the Fire Department the following documentation prior to requesting the final fire alarm system acceptance test:
1. Affidavit from the fire alarm system designer letter certifying the system has been installed according to plans and specifications and the system is 100% operational and ready for the final testing.
 2. Affidavit from the Electrical Trade Contractor letter certifying the fire alarm system has been installed according to the plans and specifications and is ready for final testing.
 3. Fire alarm manufacturer completed and signed NFPA Record of Completion form.
 4. Copy of the approved Fire Alarm Narrative, Matrix and English language device list.
 5. Copy of the fire alarm manufacturer's program notes and approved shop drawings.
 6. Copy of the stamped fire alarm drawings (as-built drawings if available).
- B. The Contractor shall schedule the final fire alarm test with the Fire Department, the Owner and other required participants.
- C. Required participants at the final acceptance test to include:
1. Fire Department
 2. General Contractor's site Superintendent

3. Electrical Trade Contractor
4. Owner's Representative
5. If the final acceptance fire alarm test is successful, the Fire Department will issue a letter of acceptance. If the fire alarm test is not successful the Contractor shall immediately provide the required changes and reschedule the fire alarm test.

3.8 TRAINING AND SERVICE

- A. Comply with Section 26 00 01.
- B. Conduct four 4-hour training sessions.

End of Section

PROJECT TEAM:

OWNER:
The Town of Arlington, Massachusetts
 730 Mass. Ave, Arlington MA 02476
 781-316-3070

Structural Engineer
RSE Associates, Inc.
 63 Pleasant Street, Suite 300
 Watertown, MA 02472
 617.926.9300

ME/P/E Engineers
BLW Engineers
 311 Great Rd, Littleton, MA 01460
 978.486.4301

Electrical Engineer
ART Engineering Corp.
 38 Front Street FL 3 Worcester, MA 01608
 508.797.0333

Civil Engineer
Nitsch Engineering, Inc.
 2 Center Plaza, Suite 430
 Boston, MA 02108-1928
 617.338.0063

Landscape Architect
Deborah Myers Landscape Architecture
 103 Terrace Street
 Boston, MA 02120
 617.922.6741

Code Consultant
Jensen Hughes
 1661 Worcester Rd, Framingham, MA 01701
 508.620.8900

KEY PLAN:

NORTH

SEAL:

PROJECT INFORMATION:
Hardy School Addition

52 Lake Street
 Arlington, MA 02474

PROJECT #: P0003.00

PROJECT ISSUE DATE: 12/01/2017

PROJECT STATUS: Construction Documents

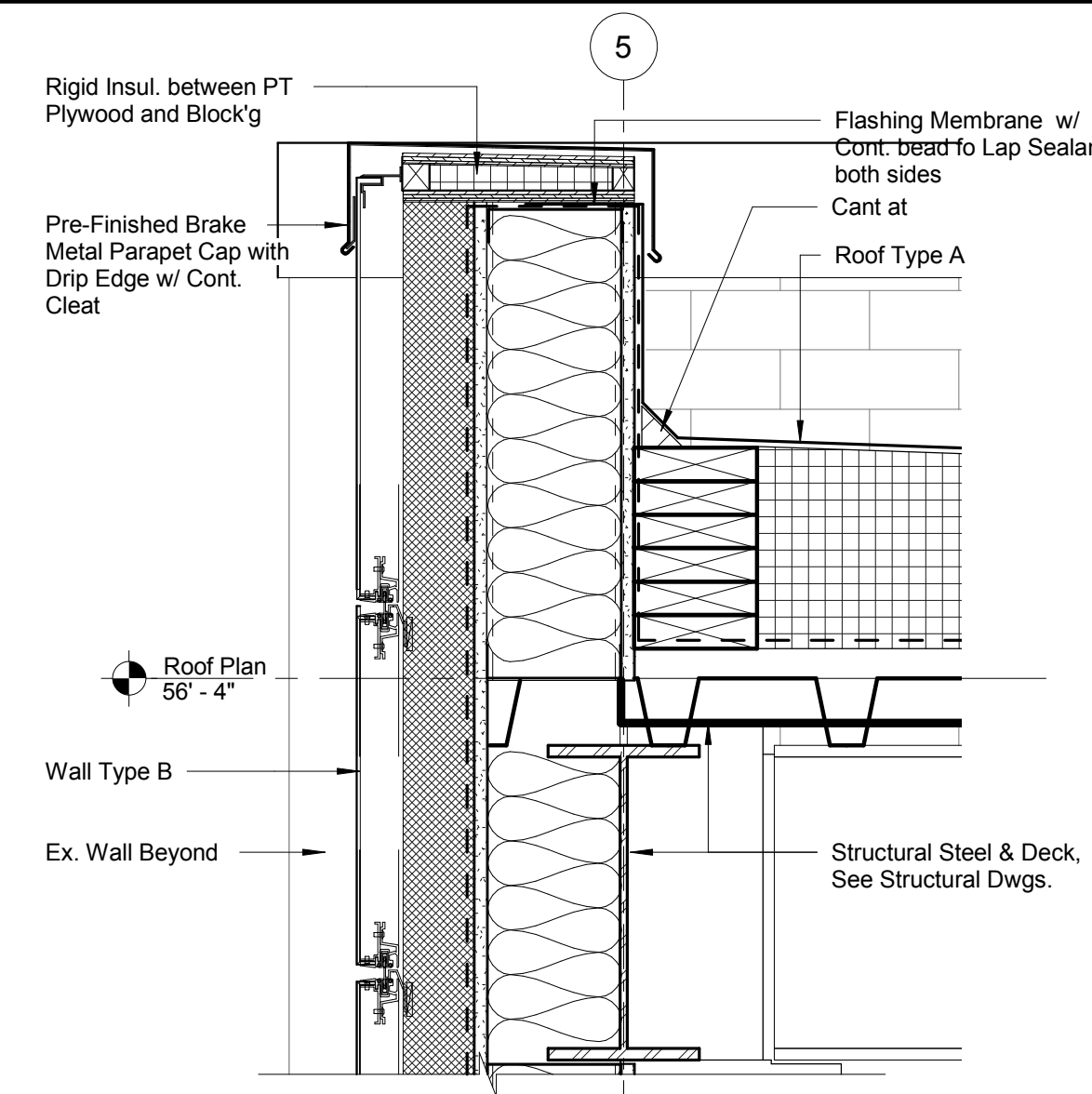
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Exterior Details

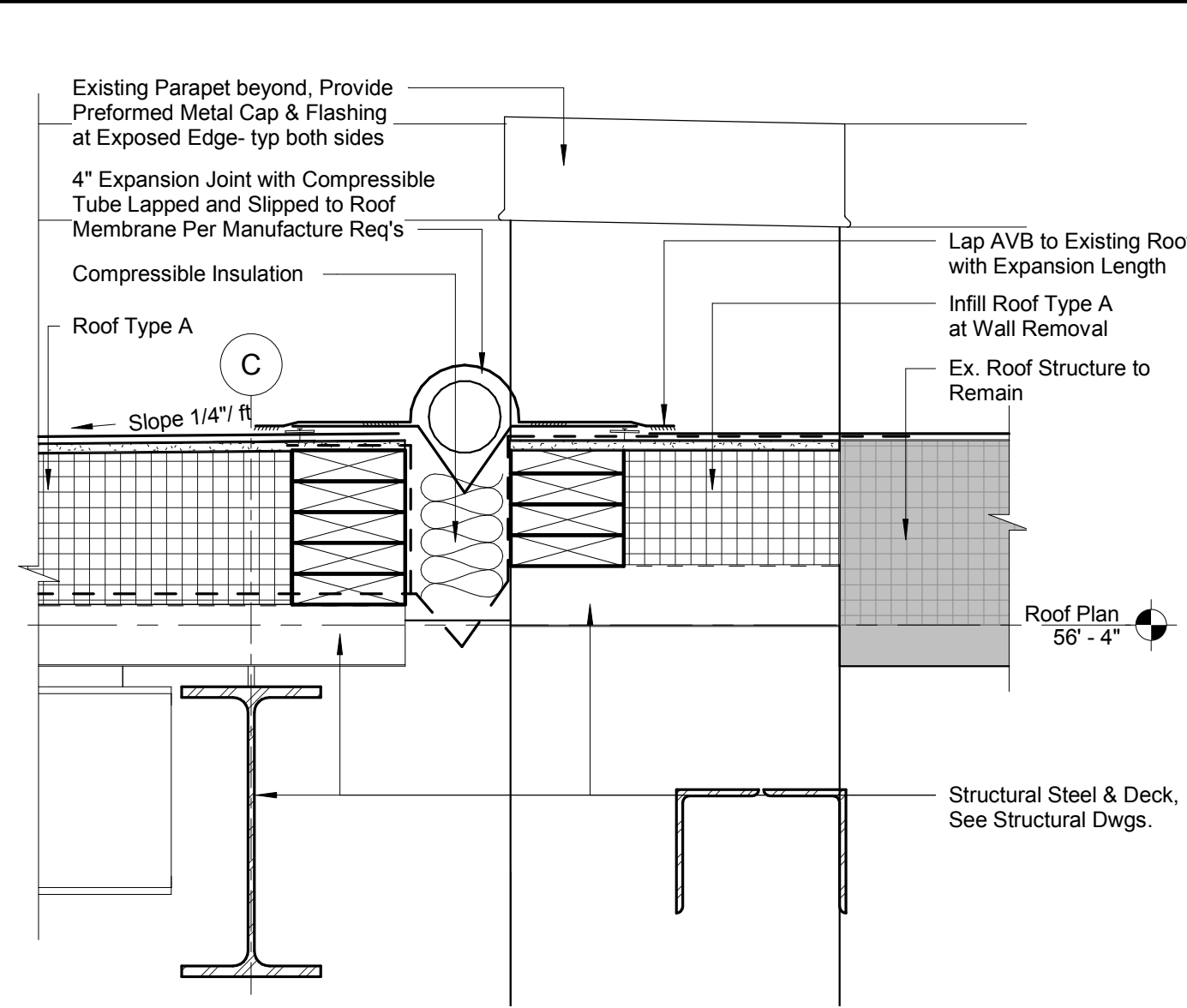
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 NO. DATE DESCRIPTION
 1 01.12.18 Addenda #2

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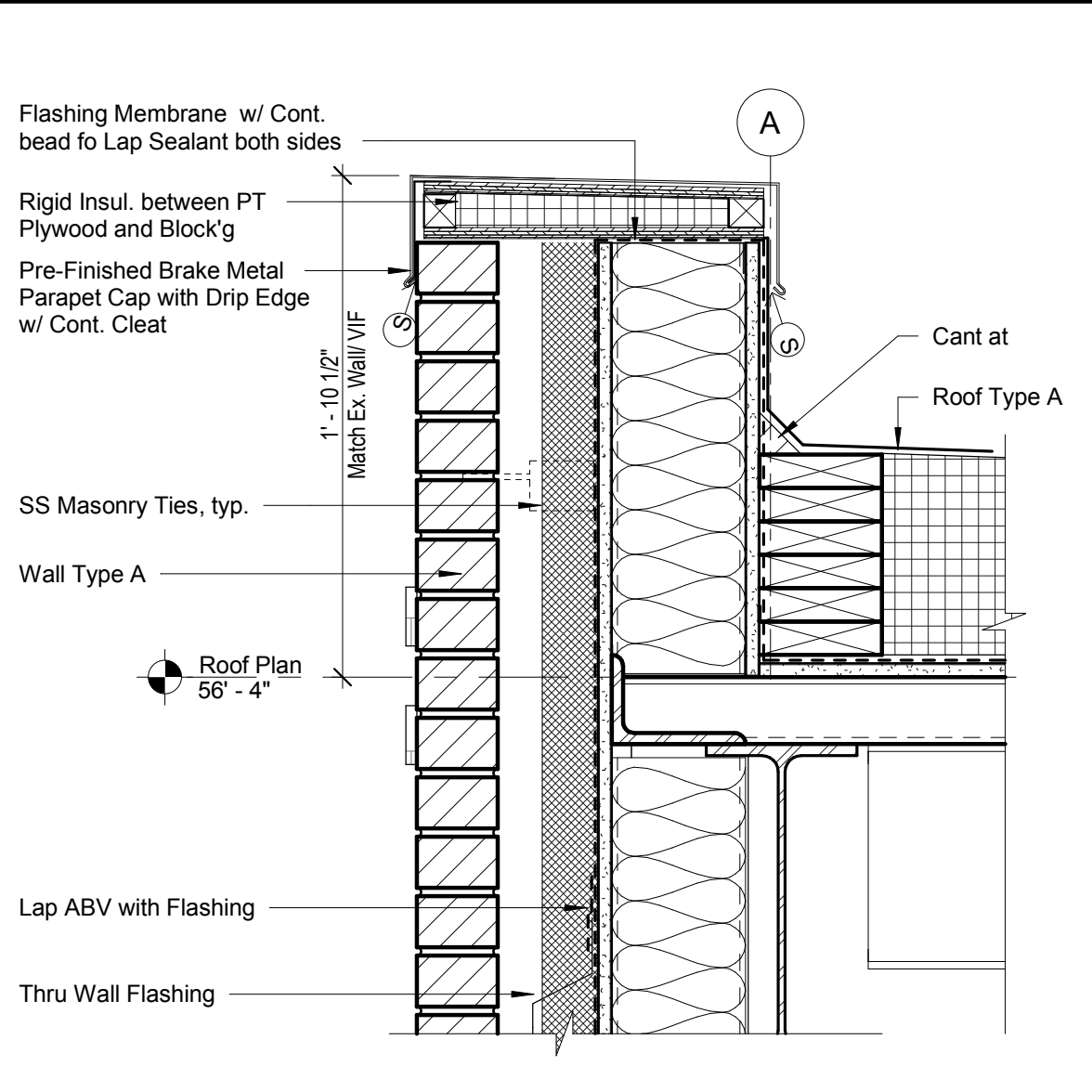
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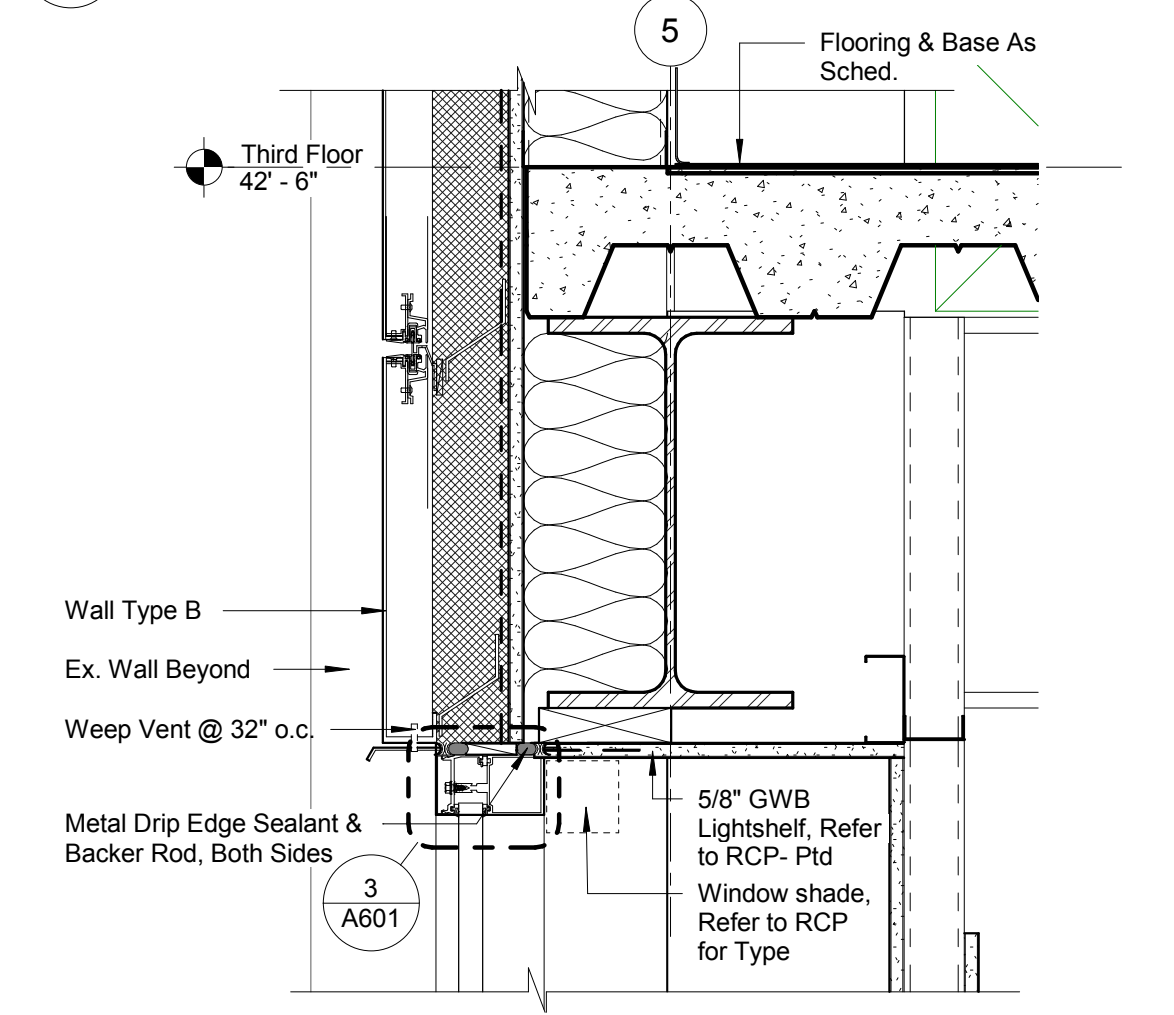
14 Roof Parapet at Metal Panel- Section
 1 1/2" = 1'-0"



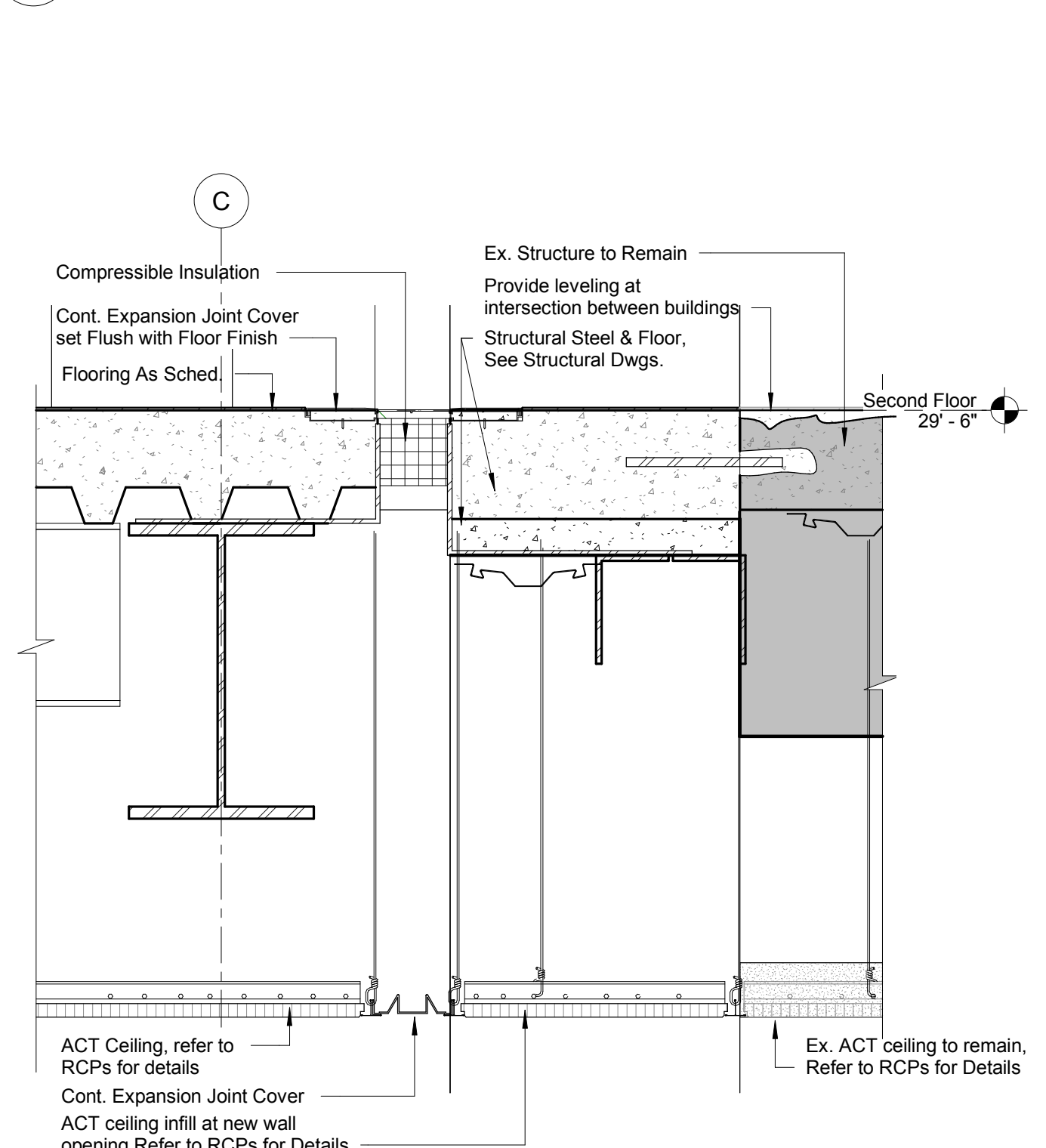
10 Roof at Existing Roof Intersection- Section
 1 1/2" = 1'-0"



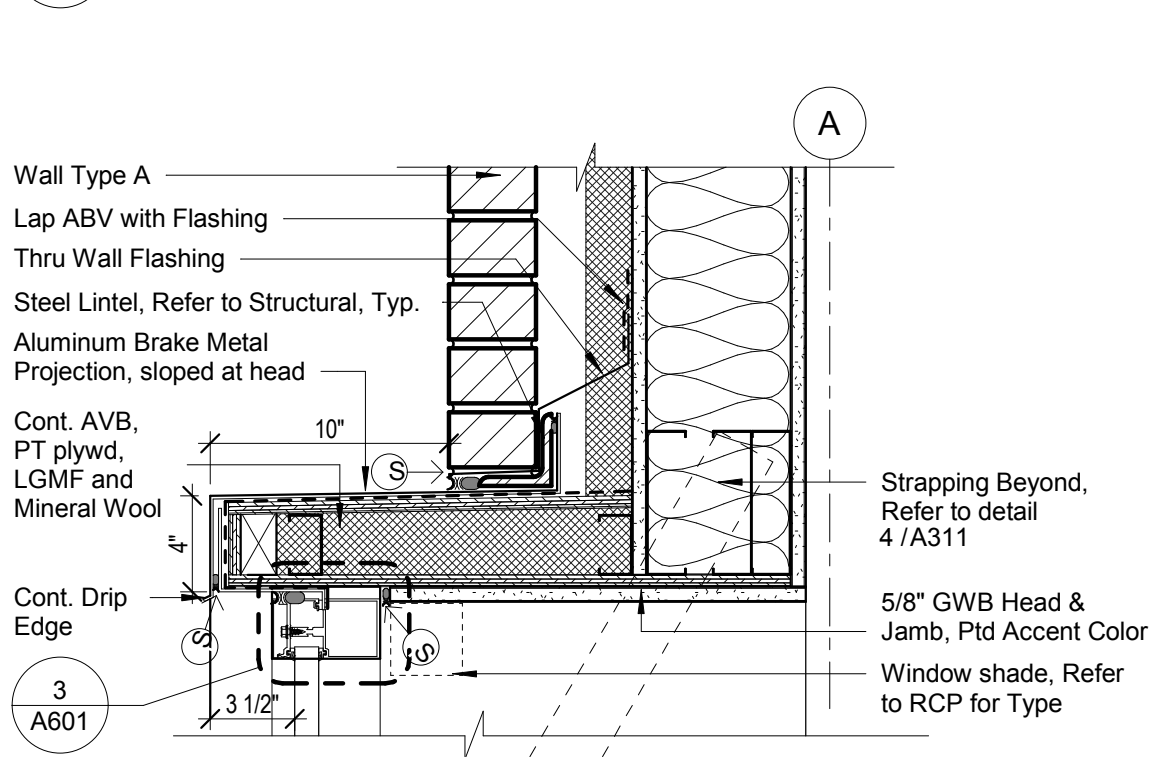
7 Brick Wall Section at Parapet, typ
 1 1/2" = 1'-0"



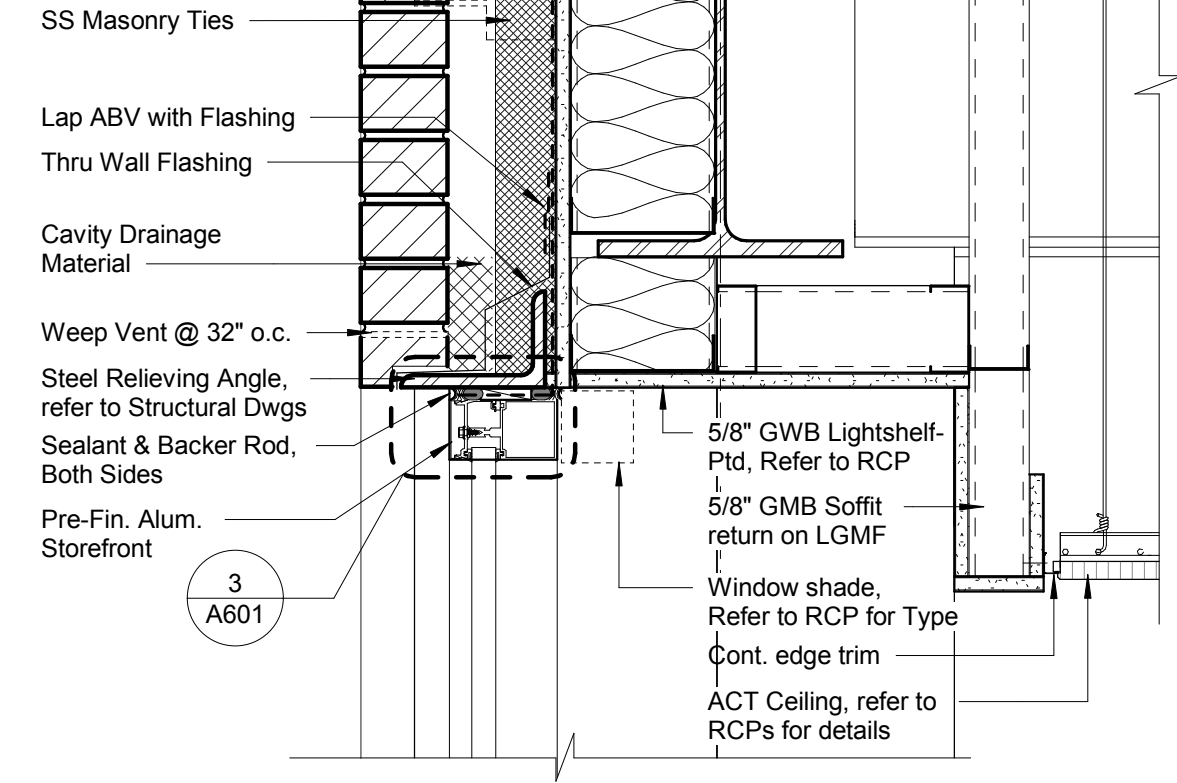
13 Floor Intersection at Metal Panel - Section
 1 1/2" = 1'-0"



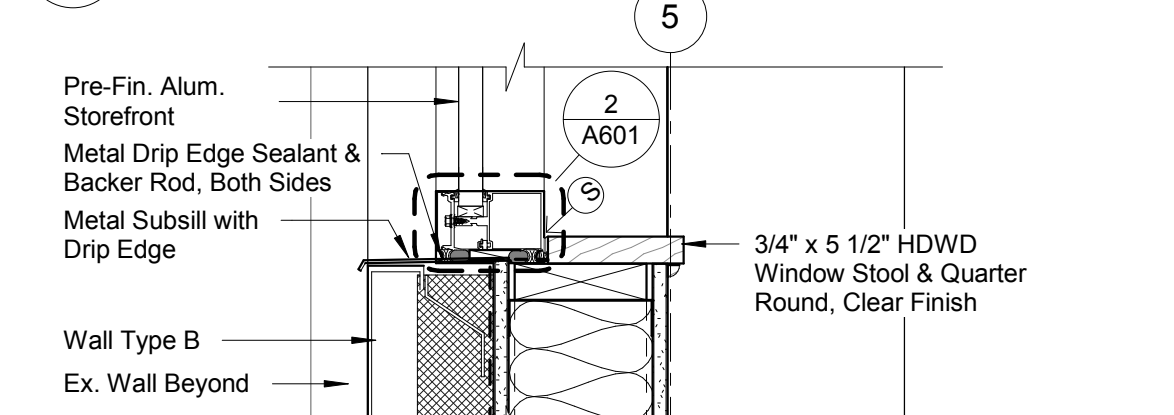
9 Foundation at Existing Floor Intersection- Section
 1 1/2" = 1'-0"



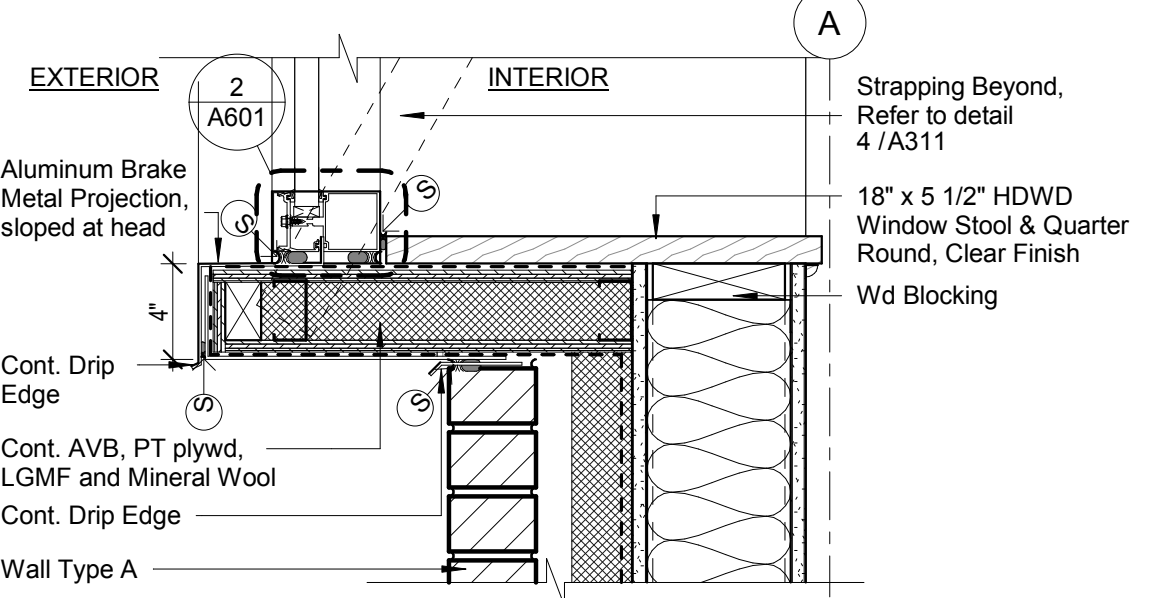
6 Wall Section at Window Head Extension
 1 1/2" = 1'-0"



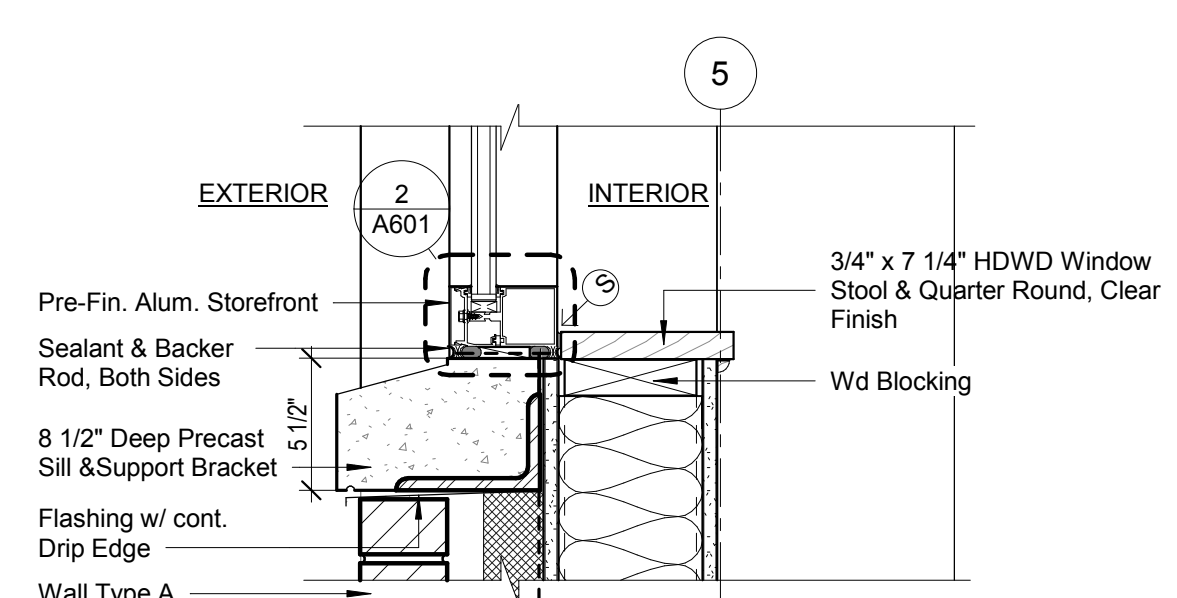
3 Brick Wall Storefront Window Head- Section
 1 1/2" = 1'-0"



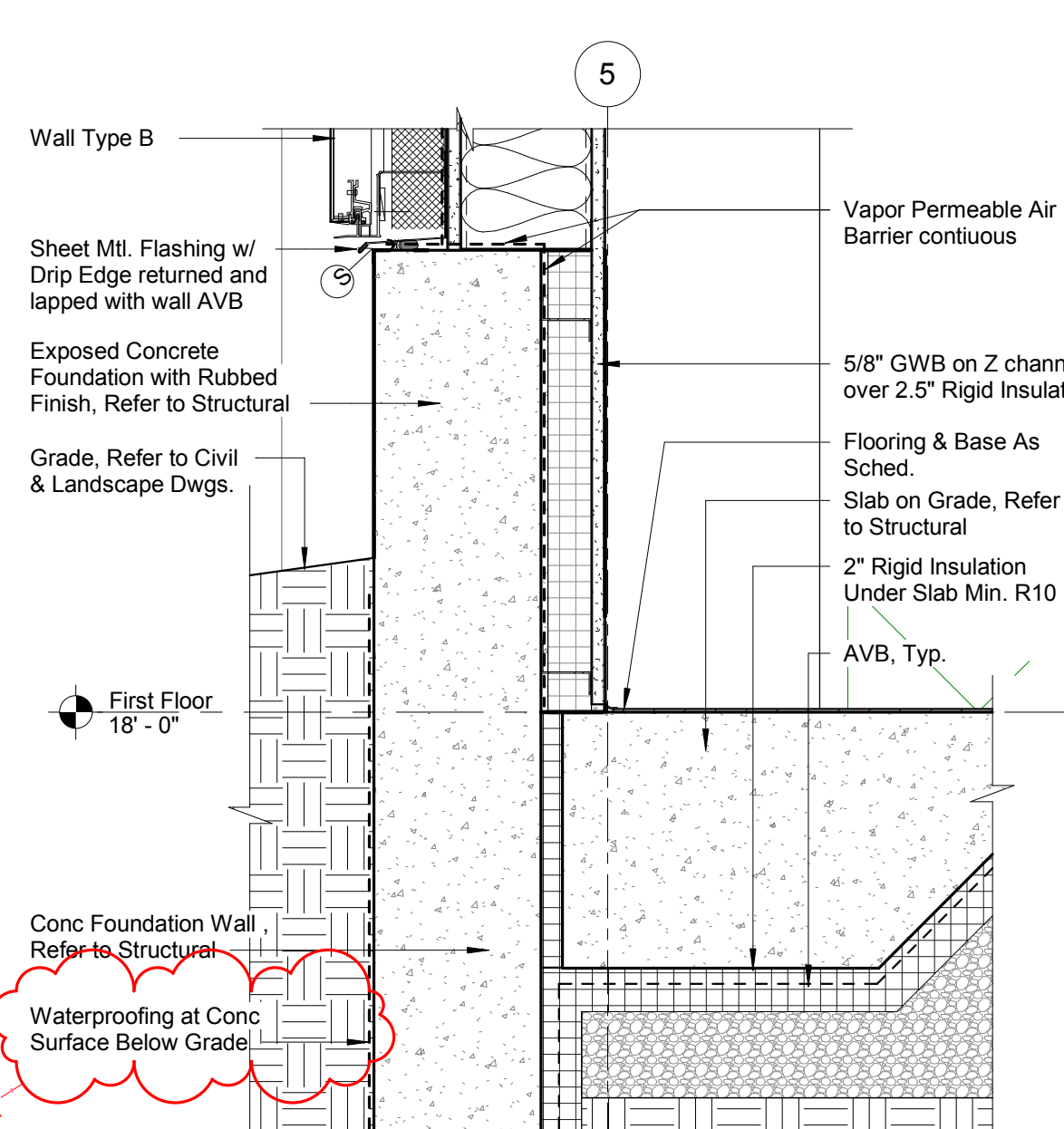
12 Window Sill at Metal Panel Wall- Section
 1 1/2" = 1'-0"



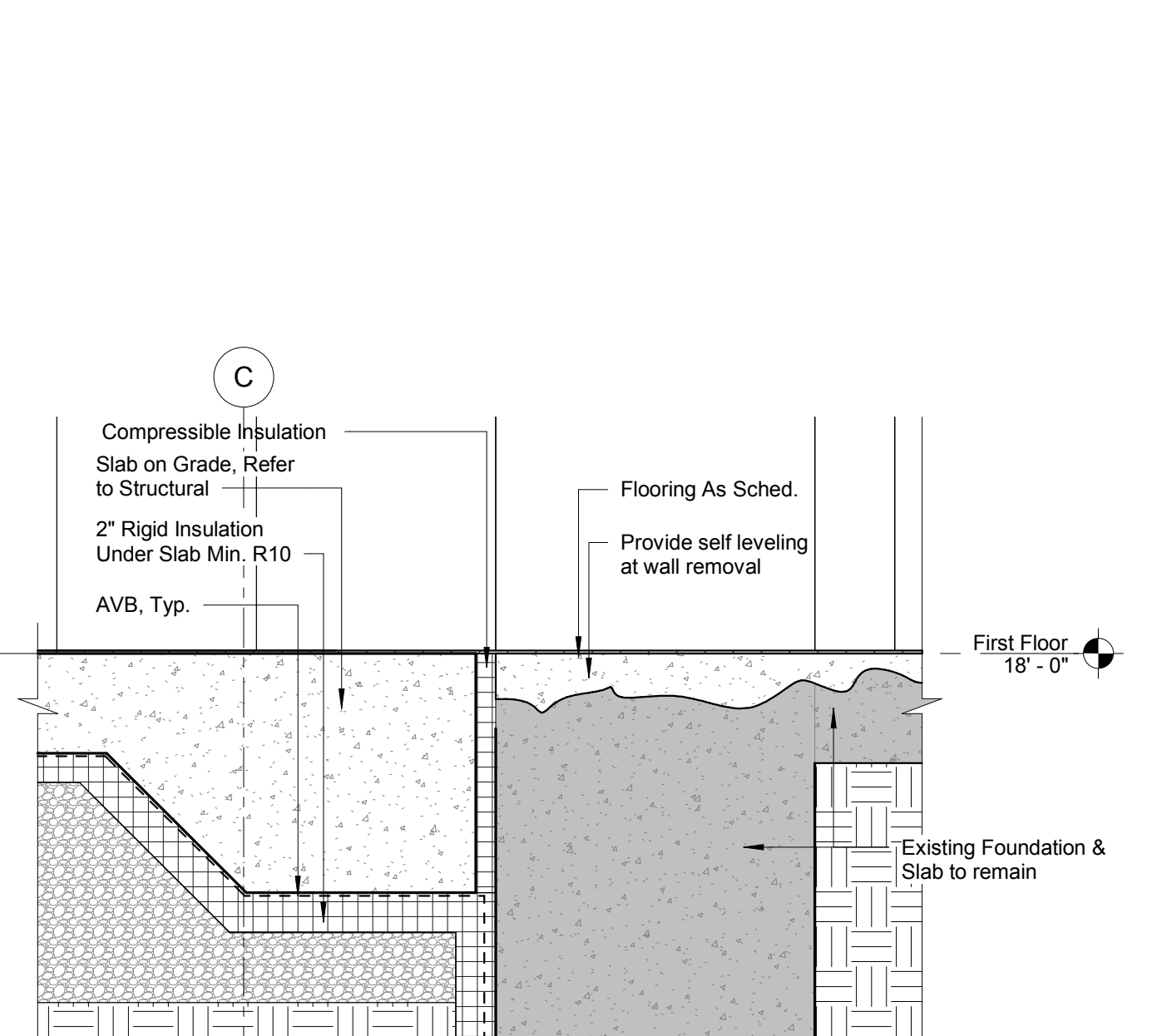
5 Wall Section at Window Sill Extension
 1 1/2" = 1'-0"



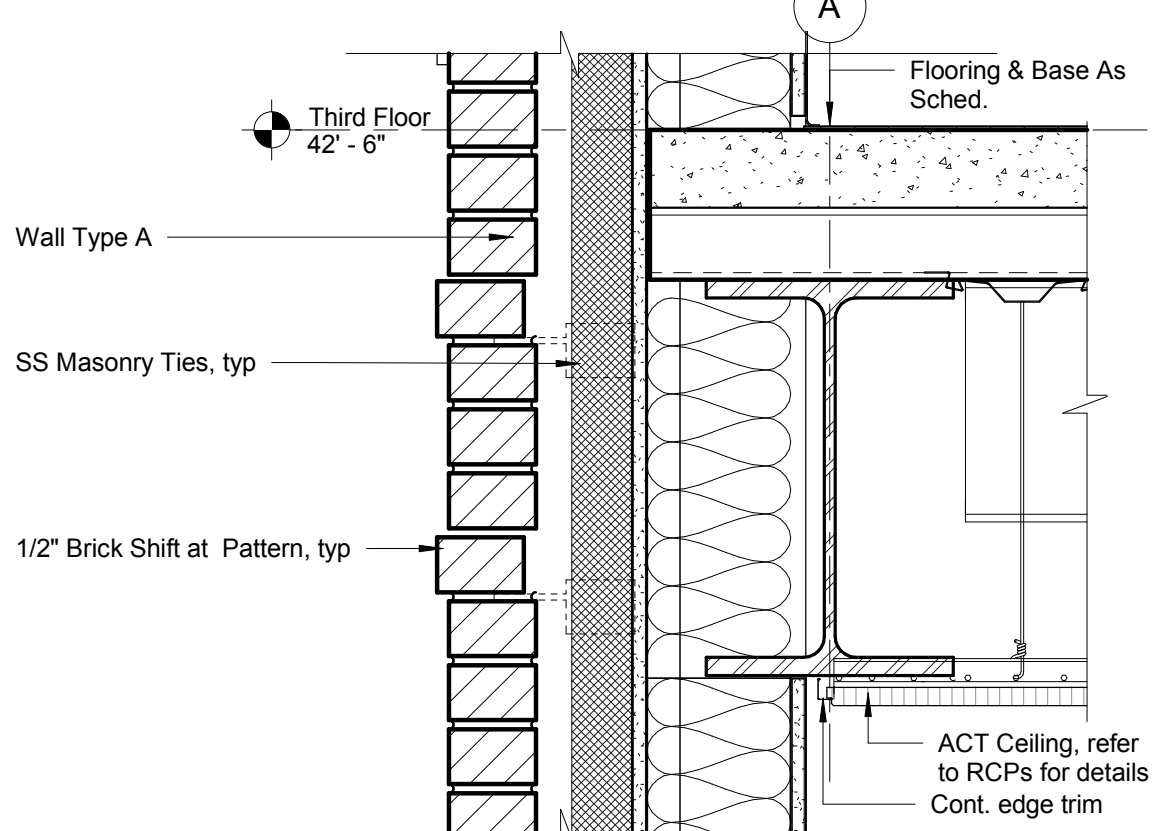
2 Brick Wall Storefront Window Sill- Section
 1 1/2" = 1'-0"



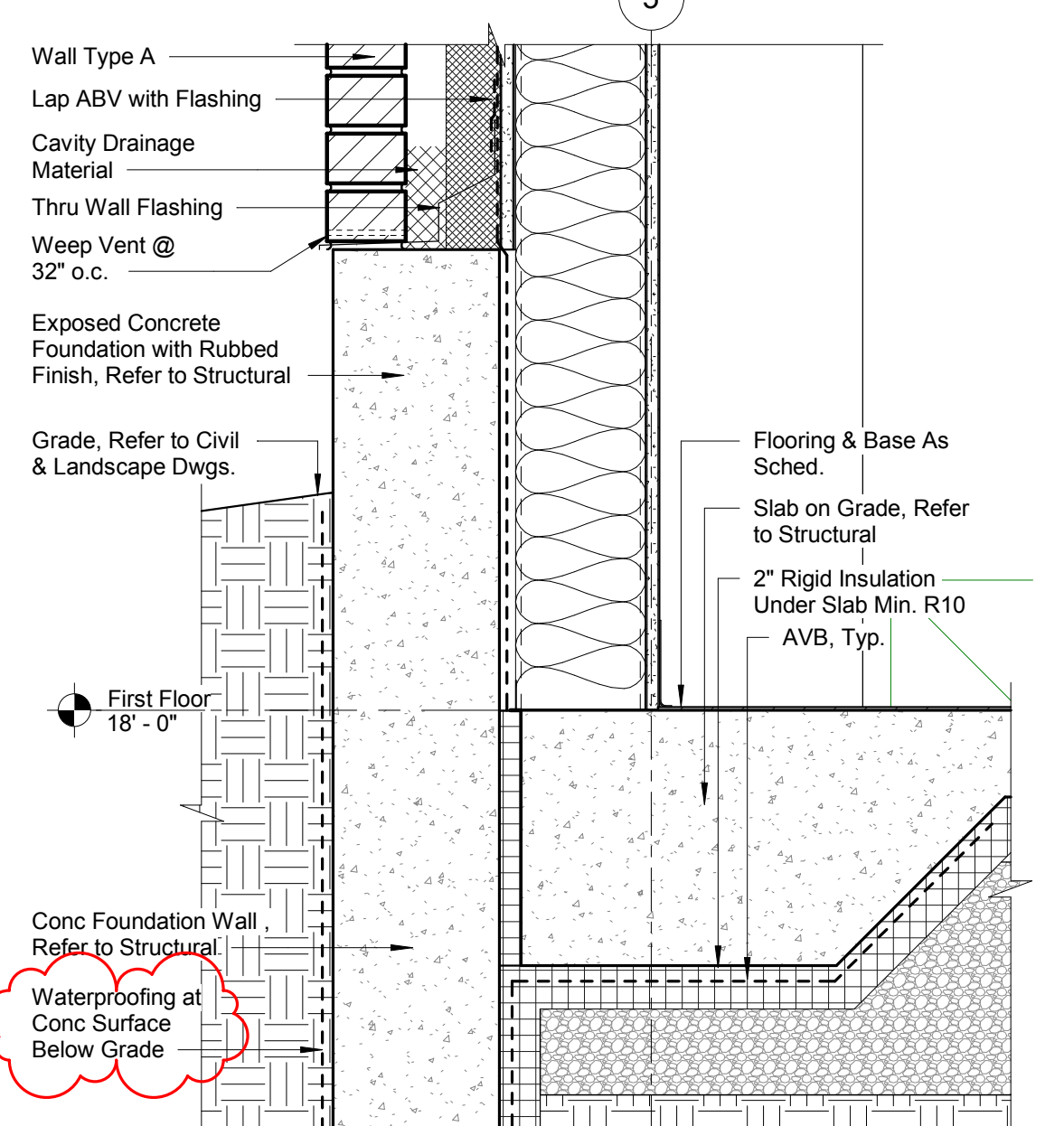
11 Foundation at Metal Panel Wall- Section
 1 1/2" = 1'-0"



8 Foundation at Existing Foundation- Section
 1 1/2" = 1'-0"



4 Brick Wall Section at South Face
 1 1/2" = 1'-0"



1 Foundation at Brick Wall- Section
 1 1/2" = 1'-0"

D:\Users\jfin@finalex.com\Projects\Hardy Elementary School - Central_Arc2018_LP\Detail 1/13/2018 5:05:32 PM

PROJECT TEAM:

OWNER:
The Town of Arlington, Massachusetts
 730 Mass. Ave, Arlington MA 02476
 781-316-3070

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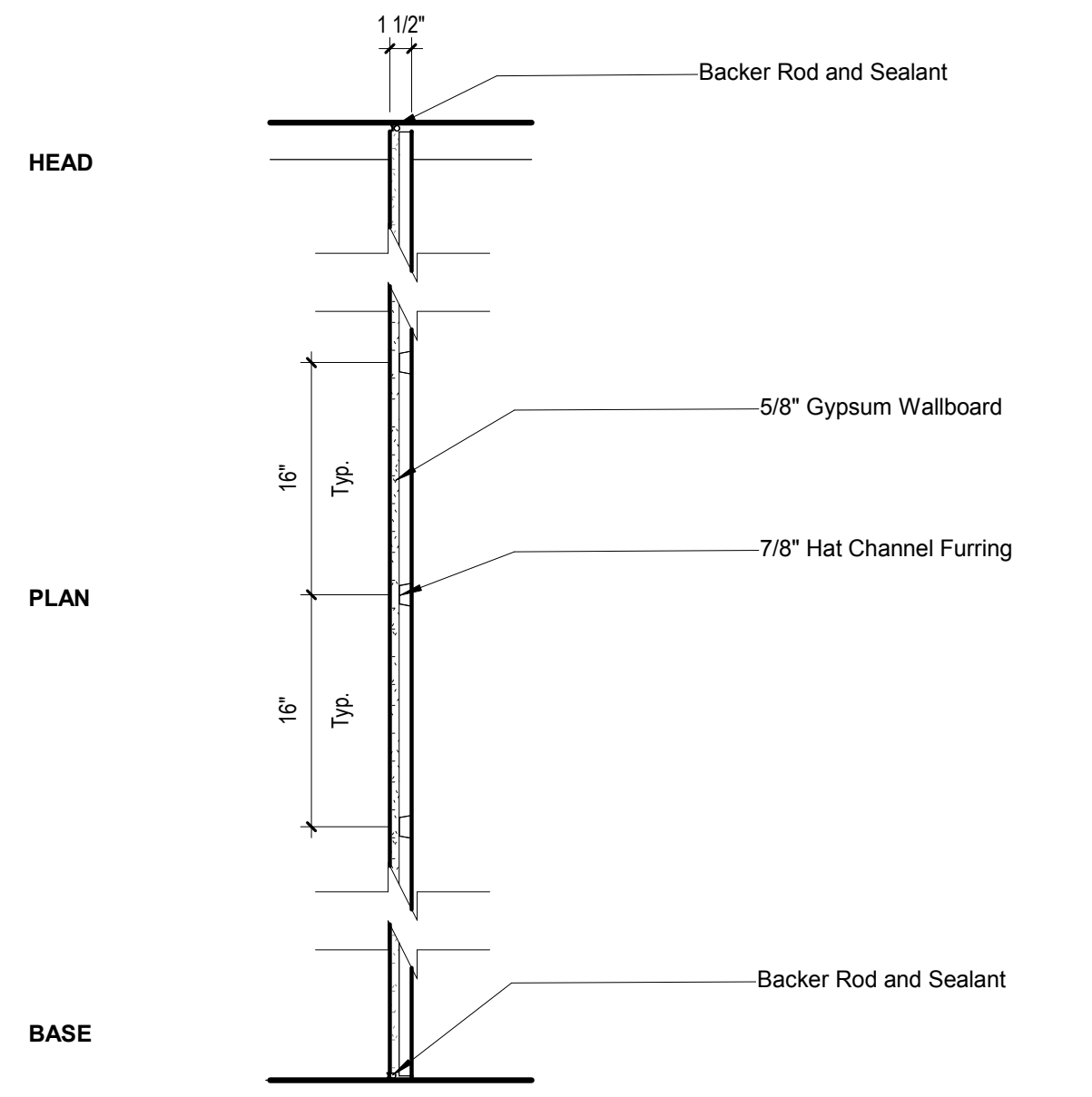
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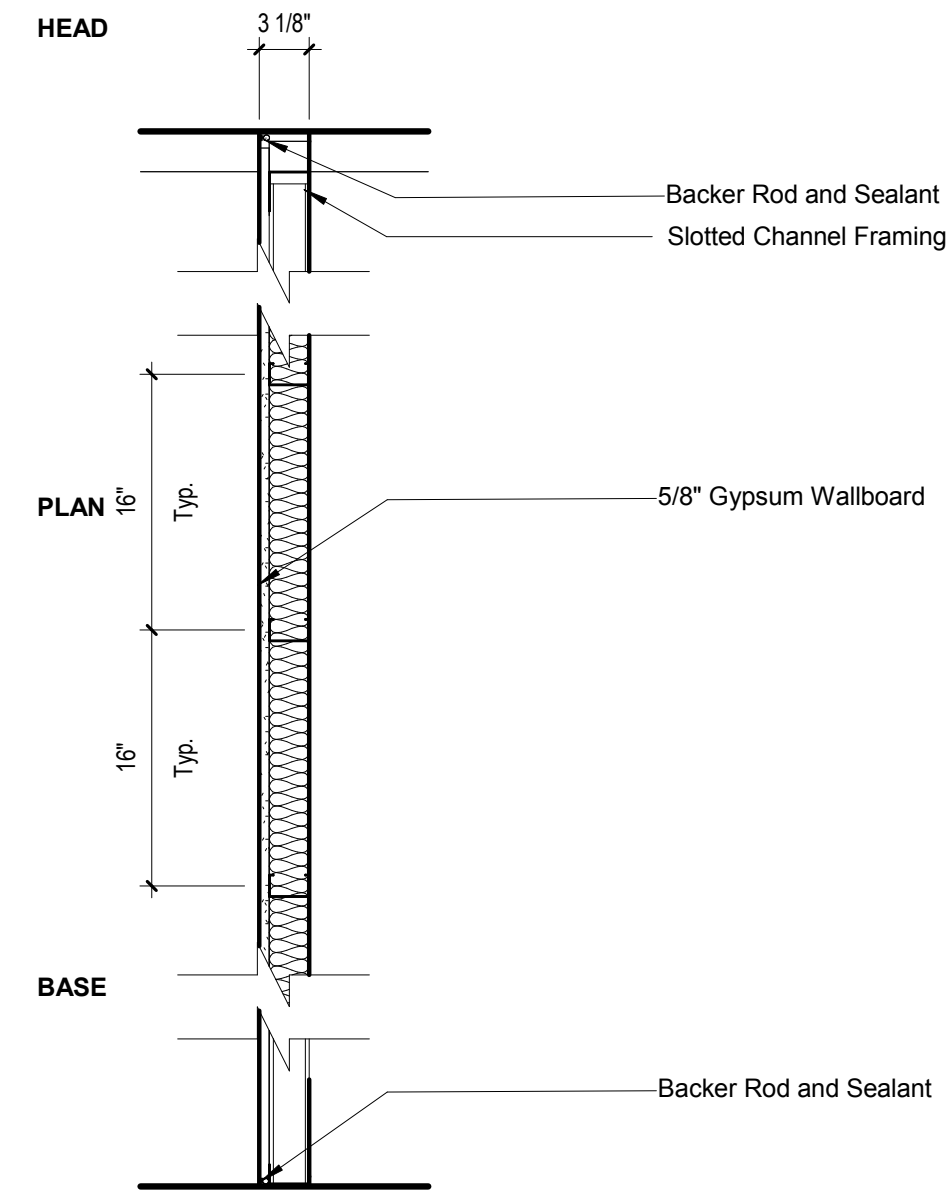
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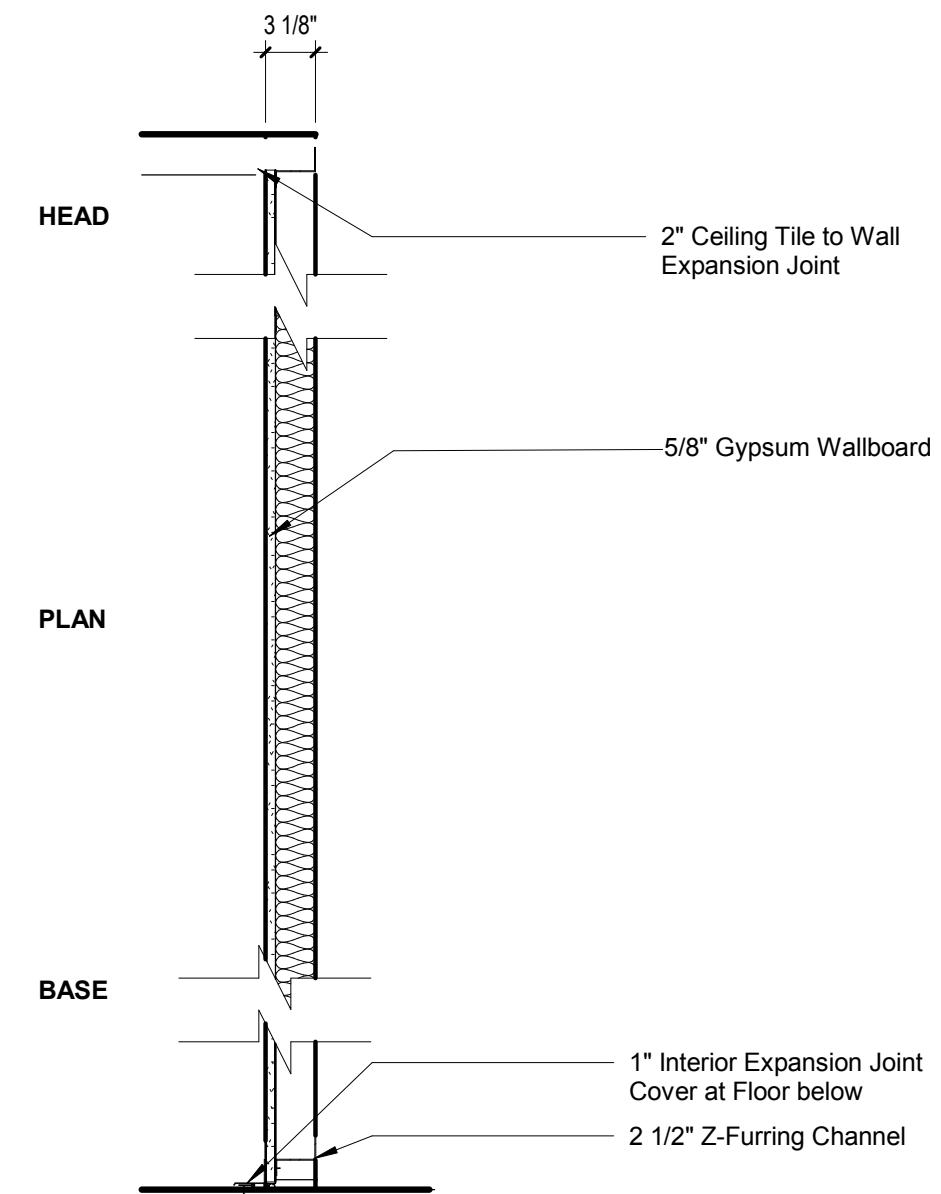
S1A

FIRE RATING
UL DESIGN
STC RATING



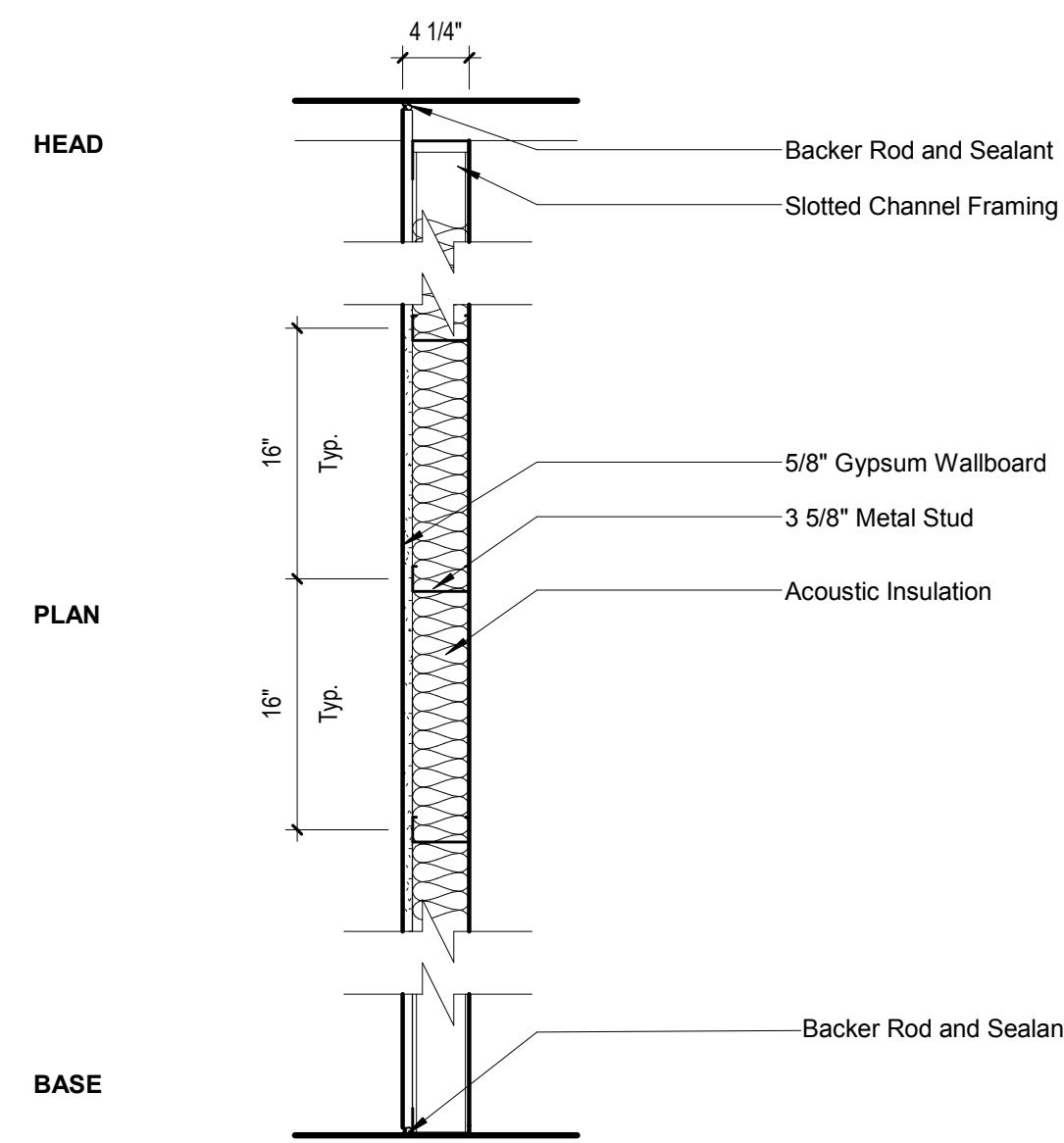
S2A

FIRE RATING
UL DESIGN
STC RATING



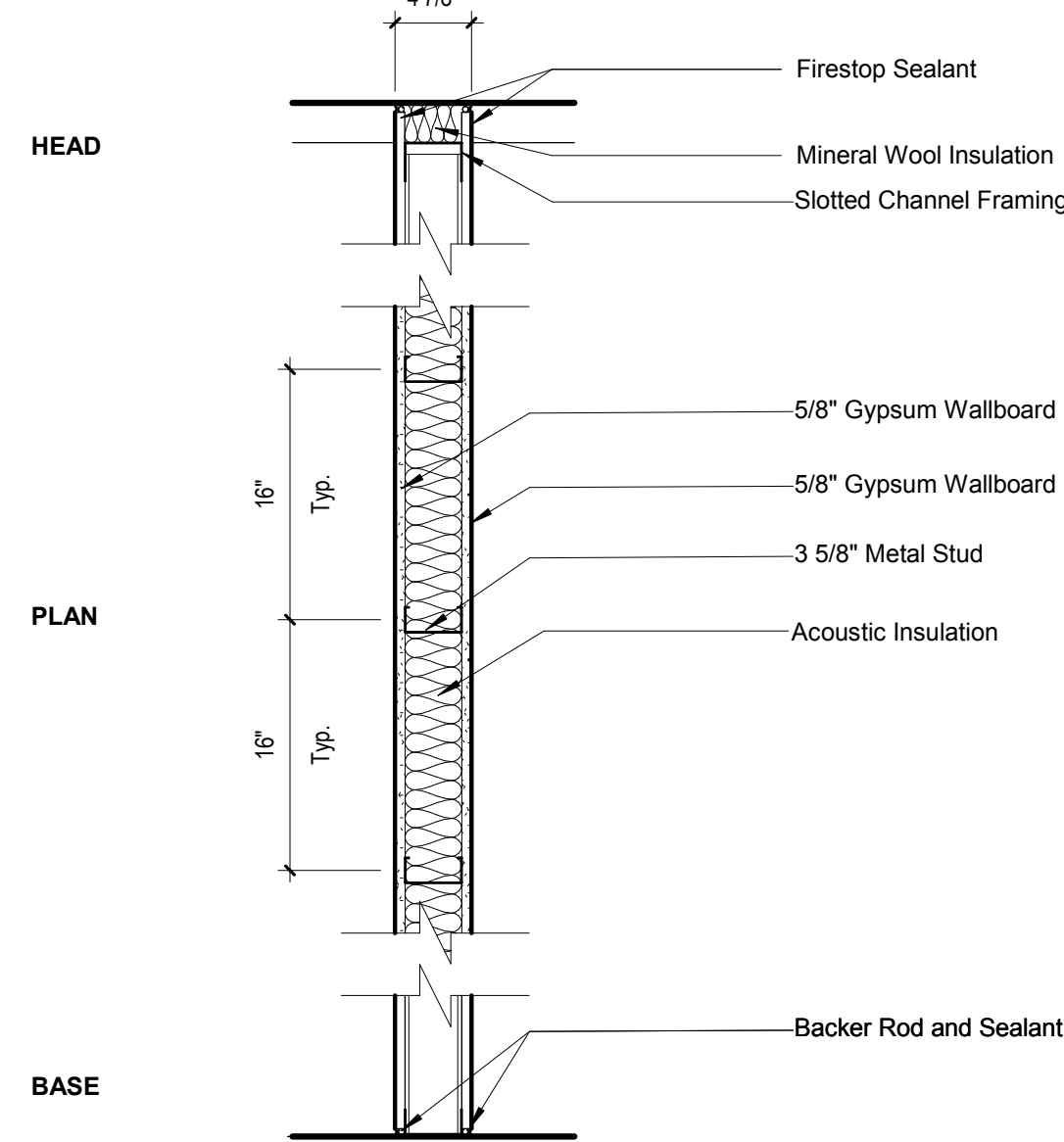
S2B

FIRE RATING
UL DESIGN
STC RATING



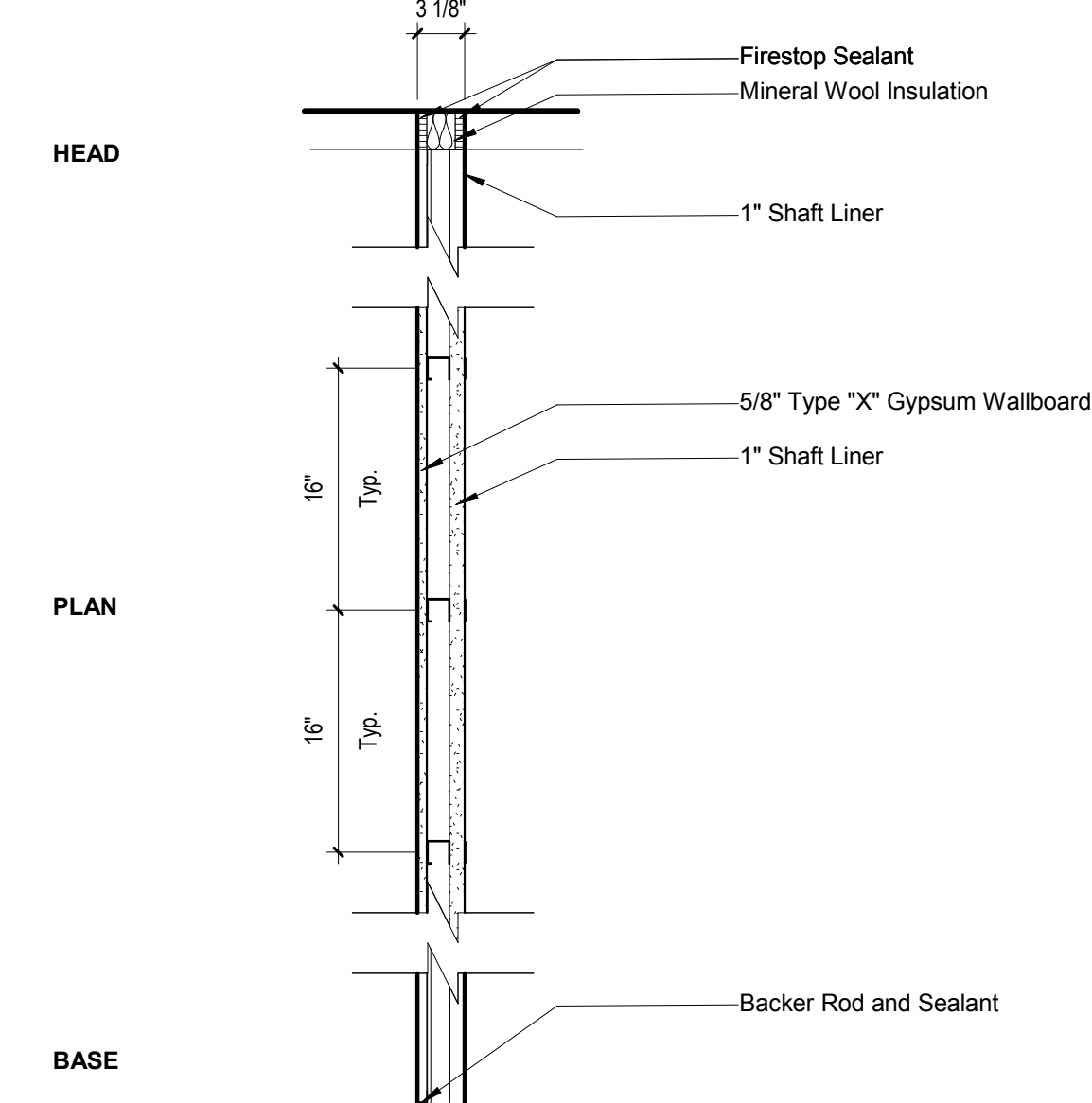
S3A

FIRE RATING
UL DESIGN
STC RATING



S3C

FIRE RATING
UL DESIGN
STC RATING



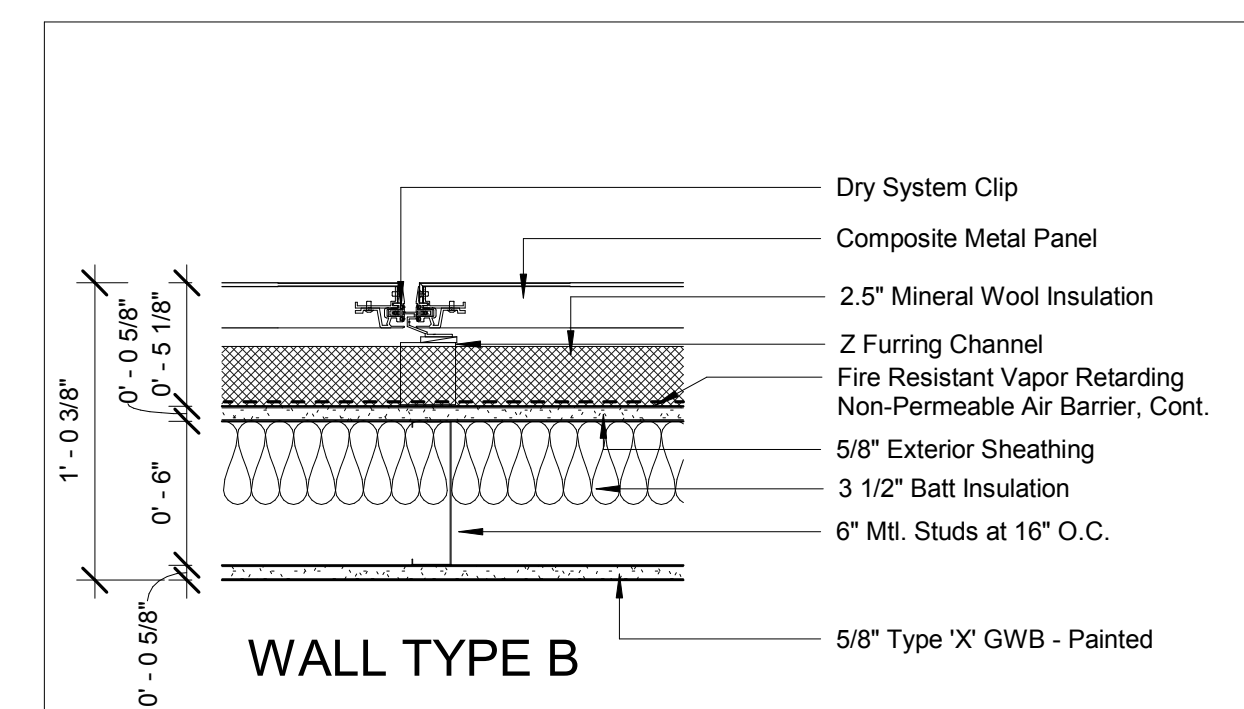
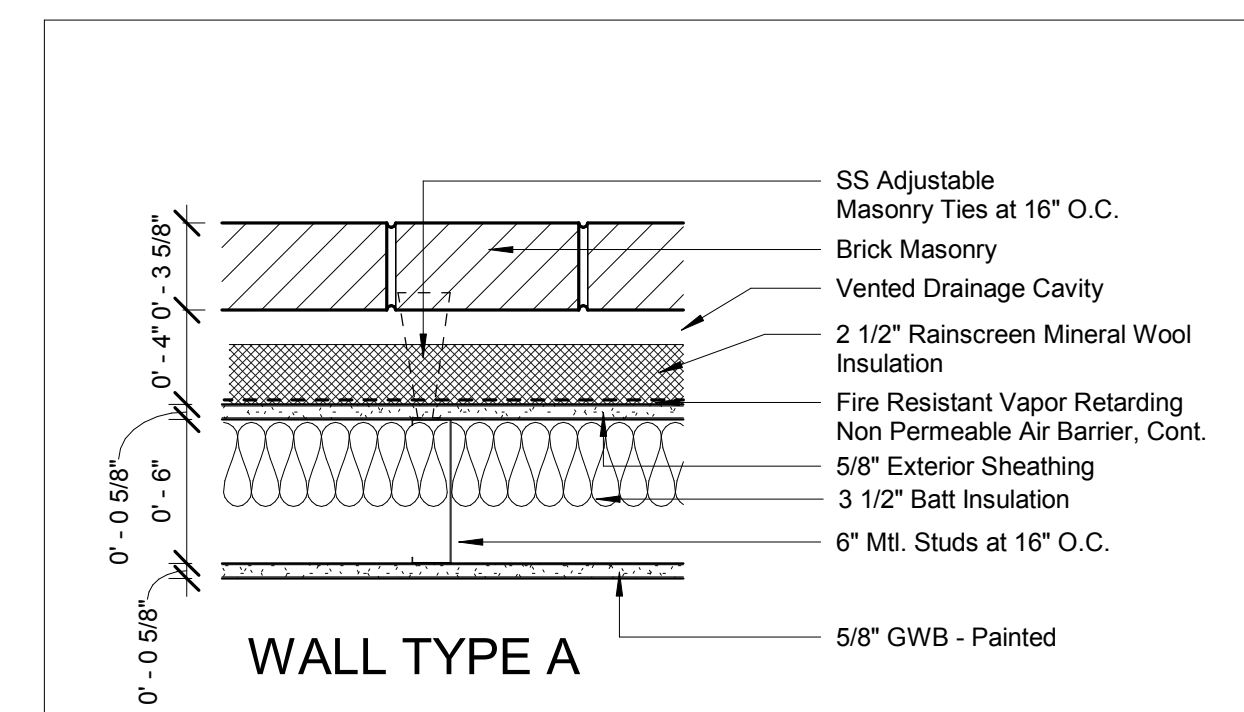
CH2A

FIRE RATING
UL DESIGN
STC RATING
1 HR U415

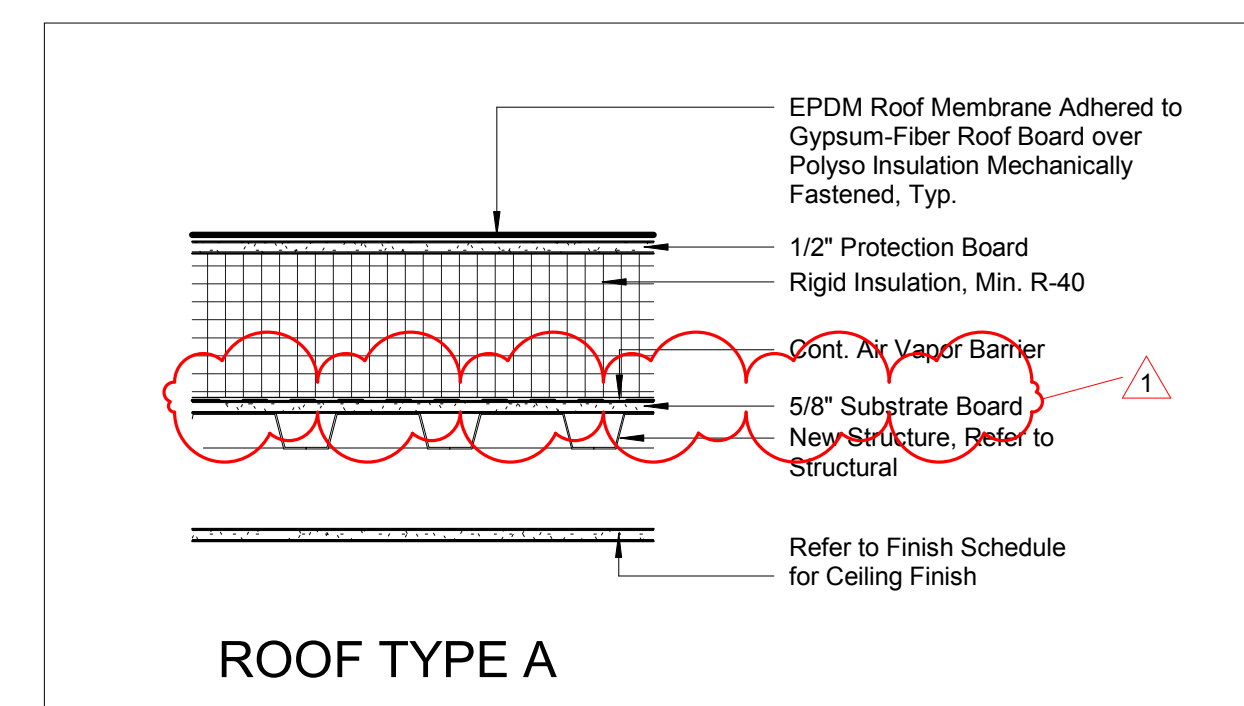
General Notes:

- At Metal Deck Flutes, All Metal Studs and Drywall to Extend Above Ribs to Underside of High Deck; Fill w/ Firestop and Sealant.

EXTERIOR WALL TYPES



EXTERIOR ROOF TYPES



KEY PLAN:

NORTH

SEAL:

PROJECT INFORMATION:
Hardy School Addition

52 Lake Street
 Arlington, MA 02474

PROJECT #: P0003.00
 PROJECT ISSUE DATE: 12/01/2017
 PROJECT STATUS: Construction Documents

SHEET NAME:
 Wall Types

DRAWING HISTORY:

NO.	DATE	DESCRIPTION
1	01.12.18	Addenda #2

SHEET #:

A600

PROJECT TEAM:

OWNER:
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KEY PLAN:

NORTH
 SEAL:

PROJECT INFORMATION:
Hardy School Addition

52 Lake Street
 Arlington, MA 02474
 PROJECT #: P0003.00
 PROJECT ISSUE DATE: 12/01/2017
 PROJECT STATUS: Construction Documents

SHEET NAME:
Storefront Legend, Details, and Glazing Types

DRAWING HISTORY:

NO.	DATE	DESCRIPTION
1	01.12.18	Addenda #2

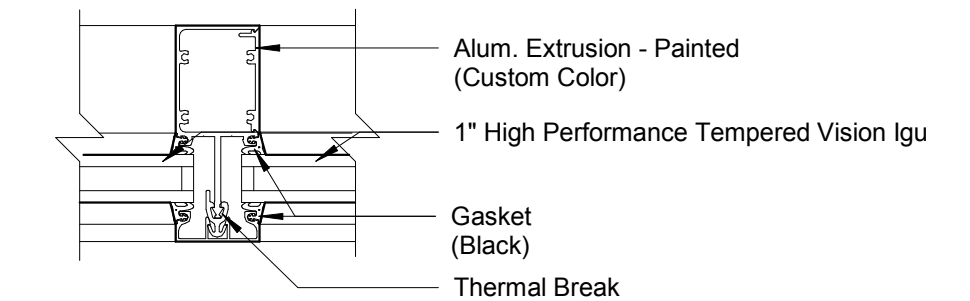
SHEET #:
A601

Glazing Legend

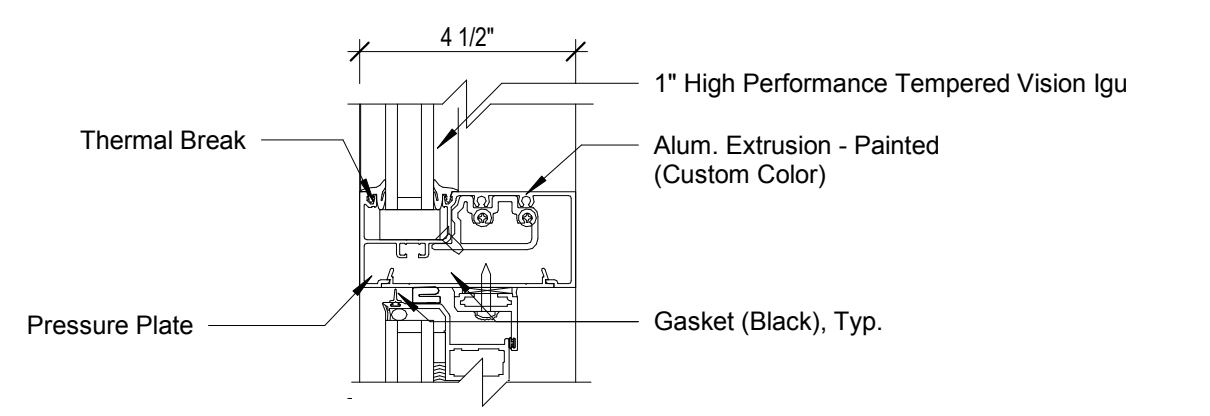
Typical Notes:
 1. Provide Tempered Glazing In All Locations Required By Code.
 2. All Glazing Dimensions Are Shown For Design Intent, Contractor To VIF All Openings Prior To Fabrication
 3. Unless otherwise noted, see specifications for glazing types.

IG Type: 1" IGU Solarban 60
 Visual Light Transmittance: 70%
 Reflectance Visible Light: 11%
 U-Value (Winter): .29
 Solar Heat Gain Coefficient: .39

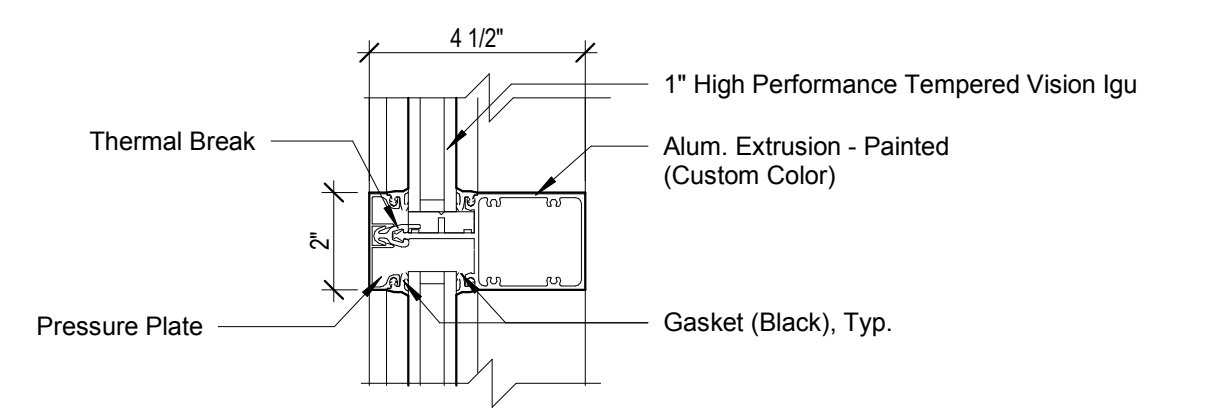
T Tempered



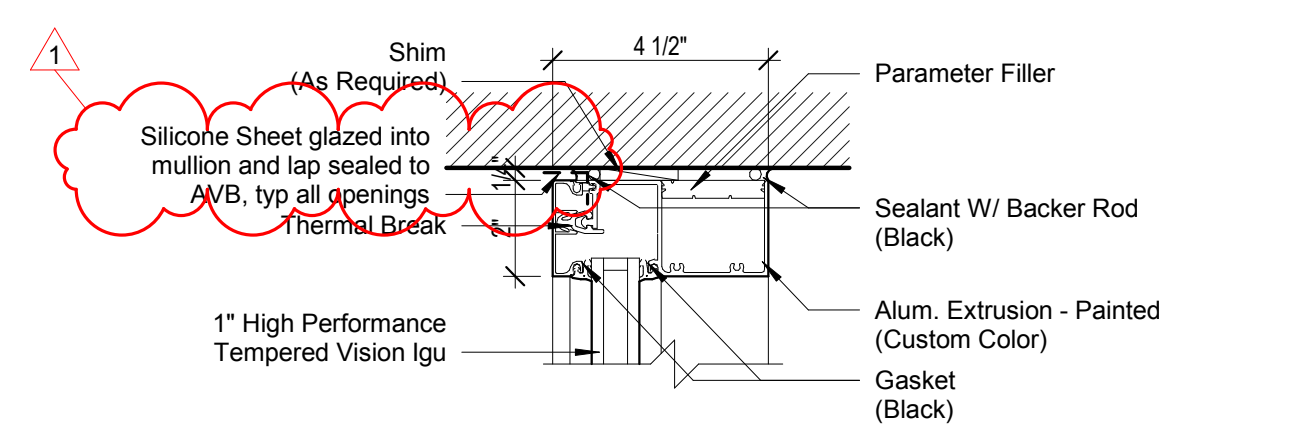
10 Storefront Vertical Mullion
 3" = 1'-0"



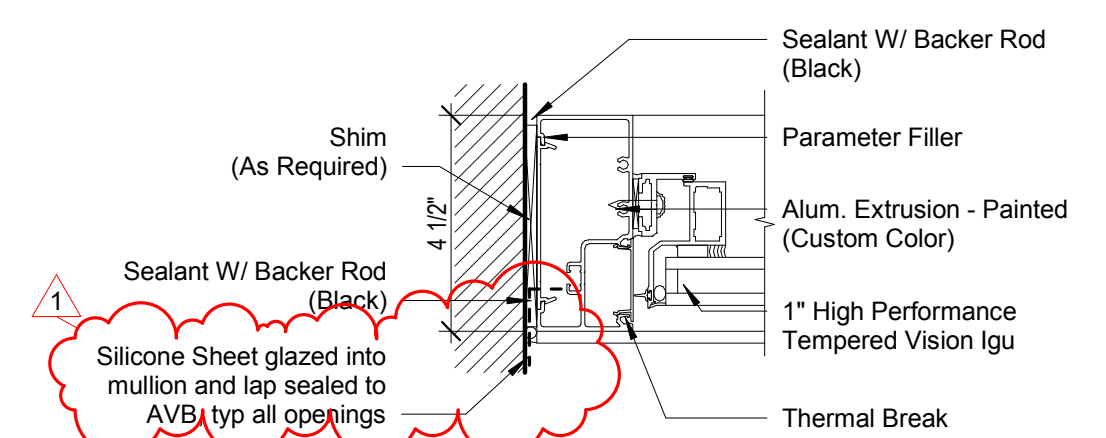
8 Storefront Awning Horizontal Mullion
 3" = 1'-0"



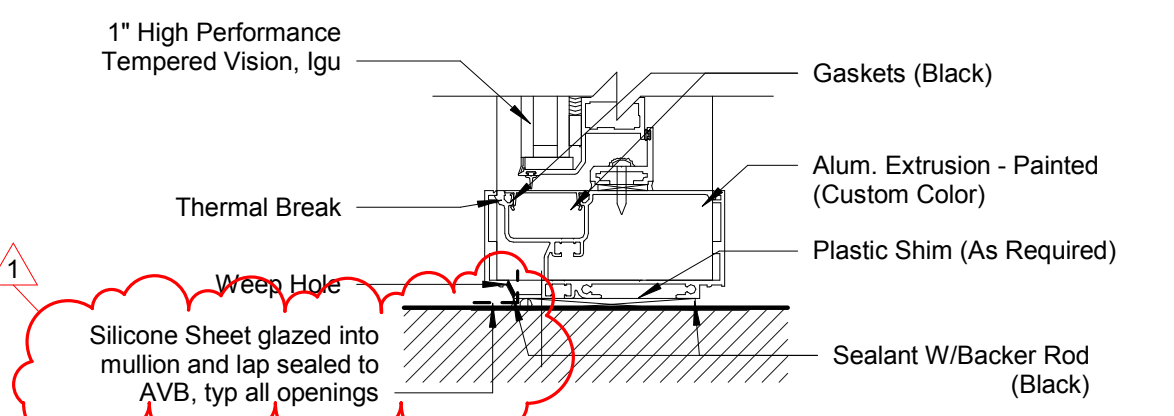
6 Storefront Horizontal Mullion
 3" = 1'-0"



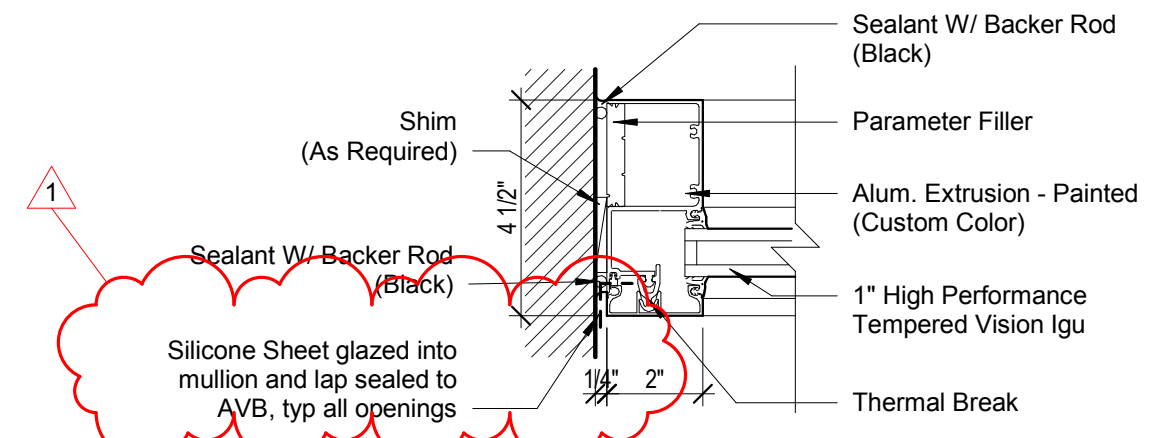
3 Storefront Head
 3" = 1'-0"



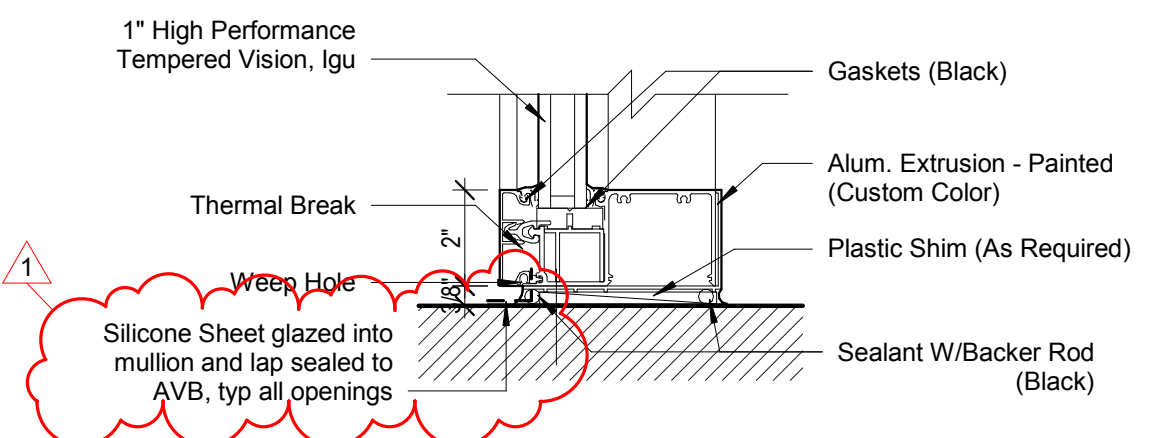
9 Storefront Awning Jamb
 3" = 1'-0"



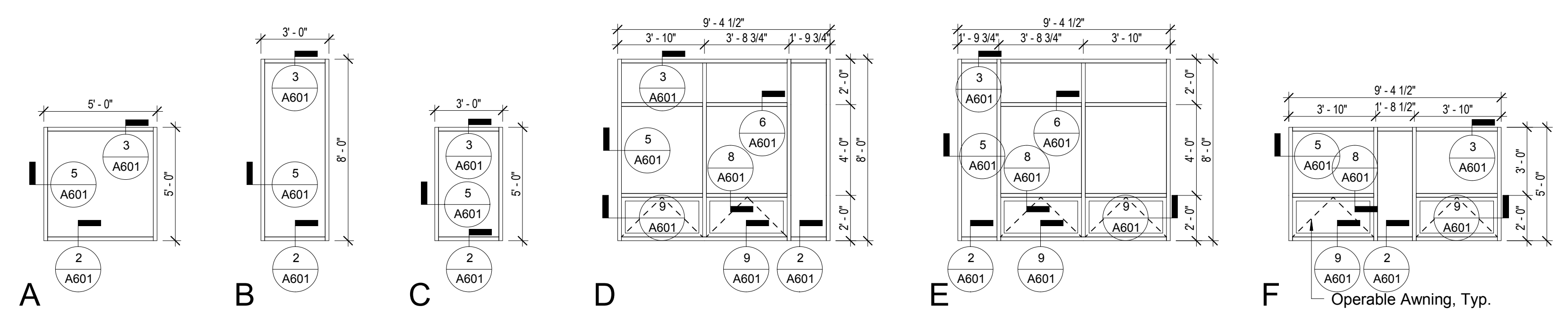
7 Storefront Awning Sill
 3" = 1'-0"



5 Storefront Jamb
 3" = 1'-0"



2 Storefront Sill
 3" = 1'-0"



1 Storefront Window Elevations
 1/4" = 1'-0"

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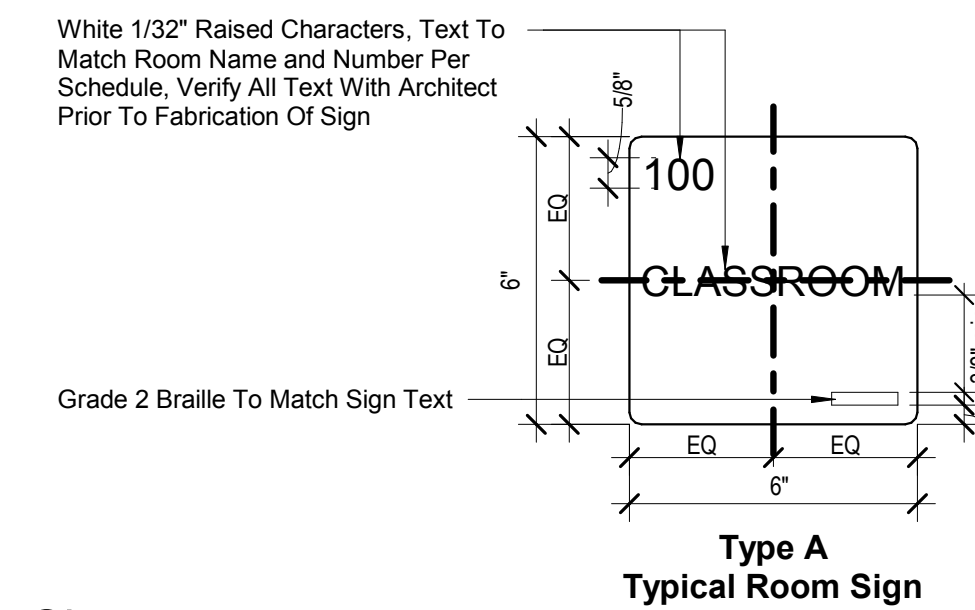
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Sign Schedule					
Plan Room #	Plan Room Name	Sign Room #	Sign Text	Sign Type	Signage Comments
First Floor					
G48	Music Storage		Storage	A	
G49	Corridor				
G50	Elect		Electrical Room	A	
G51	5th Grade Classroom #4		Classroom	A	
G52	Stor.				
G53	Music Room		Music Room	A	
S1S1	Stair #1	(Exist)	(Exist)	(Exist)	Install Salvaged Sign
Second Floor					
123	Corridor				
124	IT		Tel/ Data Room	A	
125	3rd Grade Classroom #1		Classroom	A	
126	Stor.				
127	3rd Grade Classroom #2		Classroom	A	
128	Stor.				
S1S2	Stair #1	(Exist)	(Exist)	(Exist)	Install Salvaged Sign
Third Floor					
223	3rd Grade Classroom #3		Classroom	A	
224	3rd Grade Classroom #4		Classroom	A	
225	Corridor				
226	Stor.				
227	Stor.				
S1S3	Stair 1	(Exist)	(Exist)	(Exist)	Install Salvaged Sign

- General Notes:**
1. Locate Sign On Wall Adjacent To Latch Side Of Door. If This Location Unavailable, Verify Alternate Location With Architect Prior To Installation.
 2. Mount Sign At A Height Of 60" From Finish Floor To Centerline Of Sign, Per MAAB Guidelines.
 3. U.O.N. All Raised Text Shall be White 1/32" Raised Characters.
 4. Signage To Be Furnished And Installed At All Room Entries, Typical.
 5. Mechanically Fastened With Tamper Resistant Screws.
 6. Coordinate Signage Text, Quantity And Location With Signage Schedule.
 7. Sign Color, Material and Size To Match Existing. Verify All Signage With Architect Prior To Fabrication.

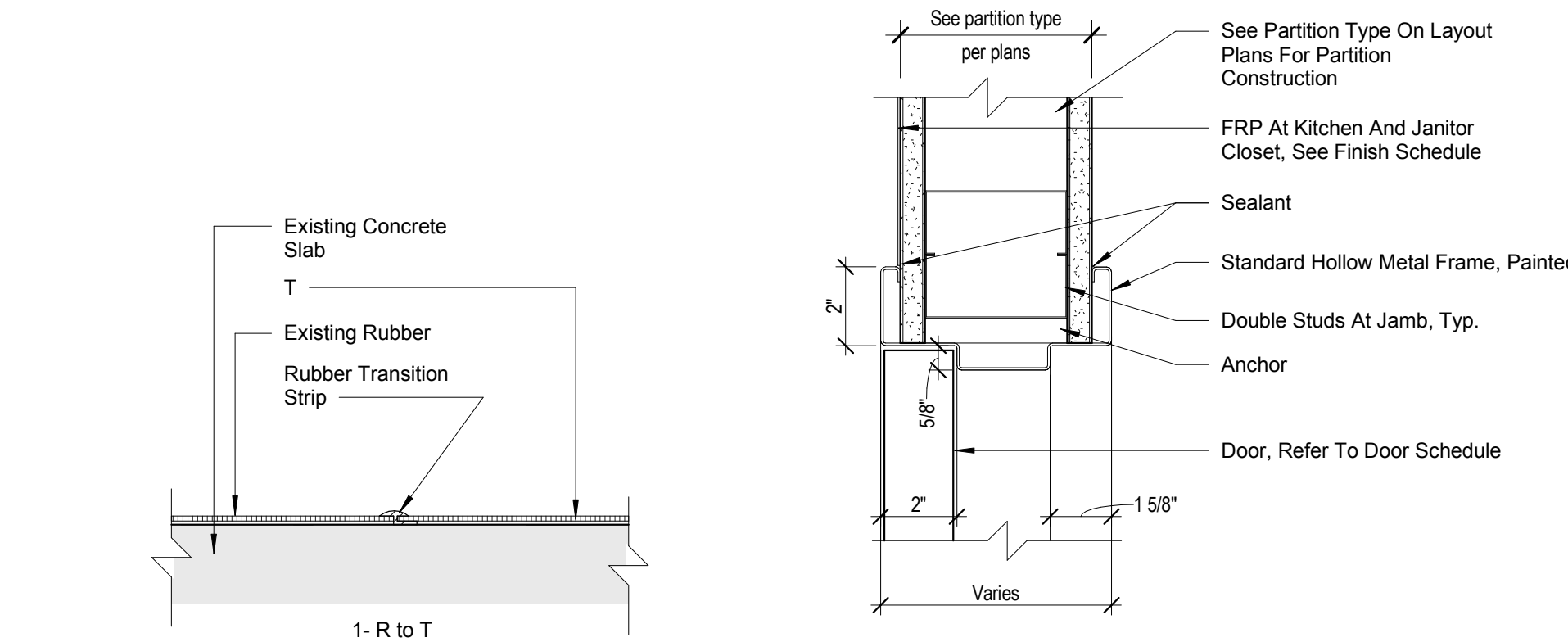


5 Signage
 3" = 1'-0"

Finish Schedule									
Room Number	Name	Floor		Base Finish	Wall		Ceiling		Comment
		Substrate	Finish		Finish	Substrate	Finish		
First Floor									
G48	Music Storage	EXIST	EXIST	RB	P1	GWB/ EXIST	ACT-2		Accent Paint P-3 at South Window Head & Jamb
G49	Corridor	CONC	VY	RB	P1	GWB	ACT-1		
G50	Elect	CONC	VY	RB	P1	GWB	GYP		
G51	5th Grade Classroom #4	CONC	VY	RB	P1	GWB	ACT-1		Accent Paint P-2 at South Window Head & Jamb
G52	Stor.	CONC	VY	RB	P1	GWB	GYP		
G53	Music Room	CONC	VY	RB	P1	GWB	ACT-1		
S1S1	Stair #1	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST		Patch and Repair at new Work. Repair Ex. Plaster at exterior wall.
Second Floor									
123	Corridor	CONC	VY	RB	P1	GWB	ACT-1		
124	IT	CONC	VY	RB	P1	GWB	ACT-1		
125	3rd Grade Classroom #1	CONC	VY	RB	P1	GWB	ACT-1		Accent Paint P-4 at South Window Head & Jamb
126	Stor.	CONC	VY	RB	P1	GWB	GYP		
127	3rd Grade Classroom #2	CONC	VY	RB	P1	GWB	ACT-1		Accent Paint P-5 at South Window Head & Jamb
128	Stor.	CONC	VY	RB	P1	GWB	GYP		
S1S2	Stair #1	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST		Patch and Repair at new Work. Repair Ex. Plaster at exterior wall.
Third Floor									
223	3rd Grade Classroom #3	CONC	VY	RB	P1	GWB	ACT-1		Accent Paint P-6 at South Window Head & Jamb
224	3rd Grade Classroom #4	CONC	VY	RB	P1	GWB	ACT-1		Accent Paint P-7 at South Window Head & Jamb
225	Corridor	CONC	VY	RB	P1	GWB	ACT-1		
226	Stor.	CONC	VY	RB	P1	GWB	GYP		
227	Stor.	CONC	VY	RB	P1	GWB	GYP		
S1S3	Stair 1	EXIST	EXIST	EXIST	P1	EXIST	EXIST		Patch and Repair at new Work.

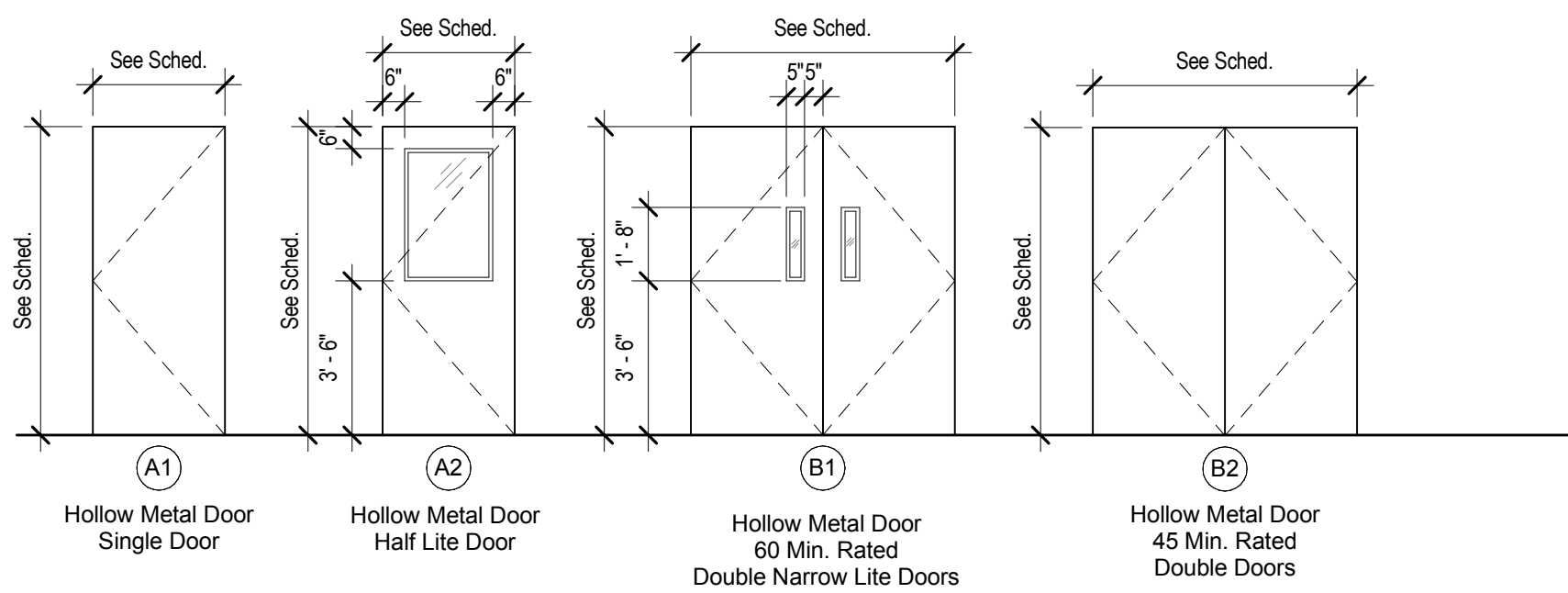
- General Door Schedule Notes**
1. See specification section 087100 for door hardware schedule.
 2. See sheet A603 for door details unless otherwise noted.
 3. See sheet A610 for threshold conditions unless otherwise noted.
 4. For veneers, Painted to Match Existing, quarter sawn with transparent finish. See specifications
 5. Maximum slope at thresholds not to exceed 1/4" per code.
 6. Thresholds must comply with MAAB.
 7. Contractor to coordinate all door frames all interior partition types prior to submitting shop drawings for doors frames.

Door Schedule														
Mark	Width	Height	Frame		Panel		Details				Hardware		Comments	
			Frame Type	Frame Finish	Panel Type	Panel Finish	Frame Throat	Jamb Type	Head Type	Threshold Type	Panic Hardware	Closer		Hardware
048	3'-0"	7'-0"	HM1	Painted	A1	Painted	4 5/8"	1	1	Continuous			03	
049	6'-0"	7'-0"	HM2	Painted	B1	Painted	4 5/8"	1	1	T1	Yes	Yes	01	60 Min. Rated
050	6'-0"	7'-0"	HM3	Painted	B2	Painted	4 7/8"	1	1	Continuous		Yes	04	45 Min. Rated
051	3'-0"	7'-0"	HM1	Painted	A2	Painted	4 7/8"	1	1	Continuous			02	
052	3'-0"	7'-0"	HM1	Painted	A2	Painted	4 7/8"	1	1	Continuous			02	
053	3'-0"	6'-0"	HM1		F		4 5/8"							
123	6'-0"	7'-0"	HM2	Painted	B1	Painted	4 5/8"	1	1	T1	Yes	Yes	01	60 Min. Rated
124	6'-0"	7'-0"	HM3	Painted	B2	Painted	4 7/8"	1	1	Continuous		Yes	05	45 Min. Rated
125	3'-0"	7'-0"	HM1	Painted	A2	Painted	4 7/8"	1	1	Continuous			02	
126	3'-0"	7'-0"	HM1	Painted	A2	Painted	4 7/8"	1	1	Continuous			02	
223	3'-0"	7'-0"	HM1	Painted	A2	Painted	4 7/8"	1	1	Continuous			02	
224	3'-0"	7'-0"	HM1	Painted	A2	Painted	4 7/8"	1	1	Continuous			02	
225	6'-0"	7'-0"	HM2	Painted	B1	Painted	4 5/8"	1	1	T1	Yes	Yes	01	60 Min. Rated



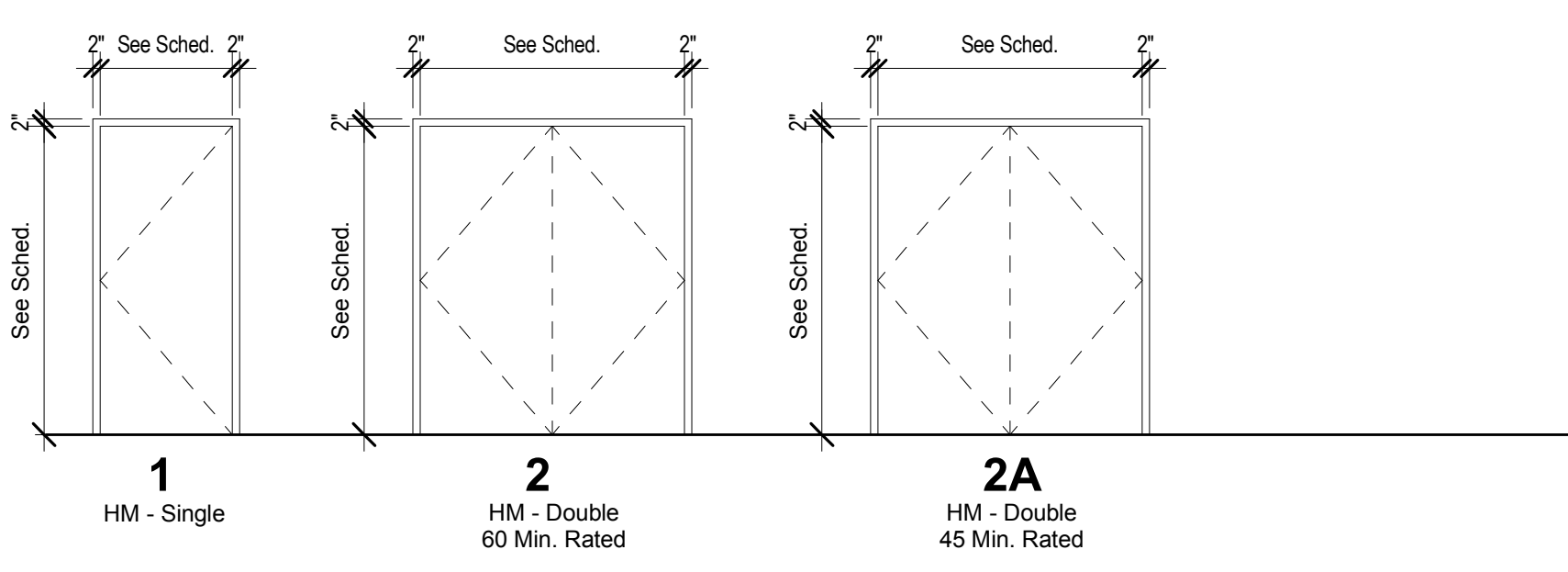
4 T1 - Floor Transition
 3" = 1'-0"

3 HM - Door Head/ Jamb Detail
 3" = 1'-0"



2 Door Types - Exterior & Interior
 SCALE: 1/4"=1'-0"

Note: Door Hardware Shown On These Elevations For Design Intent Only. Refer To Door Hardware Specification For All Hardware Info.



1 Frame Type Elevations
 SCALE: 1/4"=1'-0"

KEY PLAN:

NORTH

SEAL:

PROJECT INFORMATION:
Hardy School Addition

52 Lake Street
 Arlington, MA 02474
 PROJECT #: P0003.00
 PROJECT ISSUE DATE: 12/01/2017
 PROJECT STATUS: Construction Documents

SHEET NAME:
Signage, Finish, Door and Frame Types, Details and Schedule

DRAWING HISTORY:		
NO.	DATE	DESCRIPTION
1	01.12.18	Addenda #2

SHEET #:

A610

PROJECT TEAM:

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PLUMBING FIXTURE SCHEDULE																	
TAG NO	TYPE	LOCATION	MANUFACTURER	MODEL	SIZE	CW (in)	HW (in)	SAN (in)	V (in)	FLOW RATE	FITTINGS				CARRIER	REMARKS	
											SUPPLIES	TYPE	MANUFACTURER	MODEL			TRAP
P-1	SINK, DOUBLE BOWL	CLASSROOM	JUST MANUFACTURING	DL-ADA-2137-A-GR	31" x 27" OVERALL 18" x 16" x 5" BOWL	1/2"	1/2"	2"	2"	1.5 GPM	1/2" SWEAT X 1/2" COMP. EQUAL TO MCGUIRE LFH171	FAUCET	ELKAY	LKD2432BHC	1/2" x 1/2" 17 GA CAST BRASS CHROME PLATED P-TRAP W/ CO PLUG, EQUAL TO MCGUIRE B8912	COUNTER MOUNTED	PROVIDE W/ BASKET STRAINER.

NOTES: SINK & FAUCET SHALL BE BY JUST MANUFACTURING, ELKAY, MOEN, DELTA, OR APPROVED EQUAL. REFER TO ARCHITECTURAL PLANS FOR ADDITIONAL INFORMATION, INCLUDING FIXTURES MOUNTING HEIGHTS. PLUMBING FIXTURES AND ACCESSORIES SHALL BE COORDINATED WITH OWNER AND ARCHITECT PRIOR TO BID AND/OR PURCHASE. FIXTURES LISTED ABOVE SHALL BE USED AS A GENERAL GUIDELINE. BELOW SINK PIPING COVERS SHALL BE EQUAL TO TRUE BRO LAV GUARD, OR EQUAL BY MCGUIRE, KEENEY MANUFACTURING.

DRAIN SCHEDULE					
TAG NO	TYPE	MANUFACTURER	MODEL	STRAINER	REMARKS
FD-A	FLOOR	J.R. SMITH	2120-P050	12"	PROVIDE TRAP PRIMER AND SEDIMENT BUCKET.
RD-A	ROOF	J.R. SMITH	1015-E-R-C	-	-

NOTES: FLOOR DRAIN LOCATIONS AND QUANTITIES SHALL BE COORDINATED WITH KITCHEN CONSULTANT/CONTRACTOR. COORDINATE FLOOR DRAIN SELECTION WITH OWNER. DRAIN SHALL BE BY J.R. SMITH, WATTS, JOSAM OR APPROVED EQUAL.

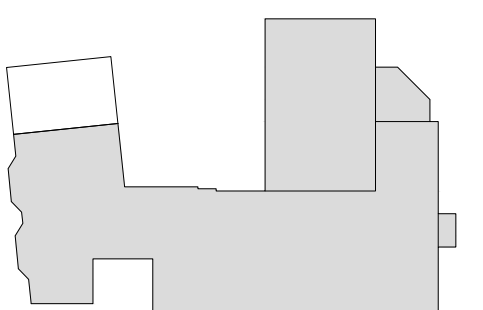
INSTANTANEOUS ELECTRIC WATER HEATER							
TAG NO	MANUFACTURER	MODEL	SET TEMPERATURE (°F)	ELECTRICAL REQUIREMENTS			REMARKS
				KW	VOLTS	PH	
EWH-1	EEMAX	EX 3208 T ML	110	3.0	208	1	PROVIDE ALL REQUIRED SUPPORT. COORDINATE WITH ELECTRICAL CONTRACTOR. PROVIDE WALL-MOUNTED SUPPORT BELOW LAVATORIES.

NOTES: WATER HEATER SHALL BE BY EEMAX, A.O. SMITH, RHEEM OR APPROVED EQUAL. WATER HEATER BELOW SINK SHALL BE MOUNTED CONCEALED BEHIND SLANTED PANEL.

EJECTOR PUMP SCHEDULE									
TAG NO	TYPE	MANUFACTURER	MODEL	CAPACITY		ELECTRICAL REQUIREMENTS			REMARKS
				FLOW (GPM)	HEAD (FT)	VOLTS	PH	HP	
EP-1	DUPLEX	ZOELLER	267 SERIES	15	15	208	1	1/2"	COORDINATE WITH ELECTRICAL CONTRACTOR.

NOTES: PUMP SHALL BE BY ZOELLER, LIBERTY PUMP, LITTLE GIANT, WEIL, OR APPROVED EQUAL.

KEY PLAN:



NORTH

SEAL:



PROJECT INFORMATION:
Hardy School Addition

52 Lake Street
 Arlington, MA 02474
 PROJECT #: P0003.00
 PROJECT ISSUE DATE: 12/01/17
 PROJECT STATUS: Construction Documents

SHEET NAME:
PLUMBING SCHEDULES

DRAWING HISTORY:		
NO.	DATE	DESCRIPTION
1	01.12.18	Addenda #2

SHEET #:

P002

PROJECT TEAM:

OWNER:
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BLW Engineers
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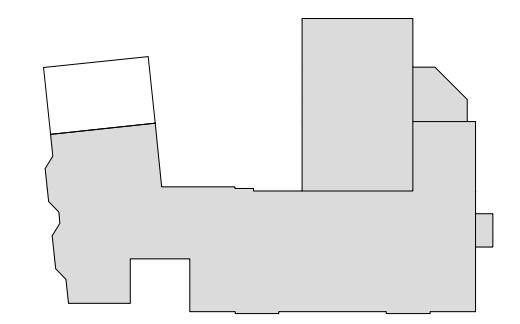
Electrical Engineer
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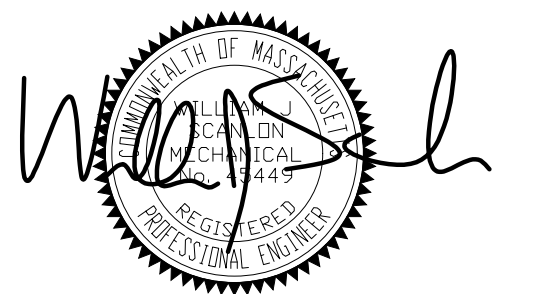
Code Consultant
Jensen Hughes
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 508.620.8900

KEY PLAN:



NORTH

SEAL:



PROJECT INFORMATION:

Hardy School Addition

52 Lake Street
 Arlington, MA 02474

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PROJECT ISSUE DATE: 12/01/17

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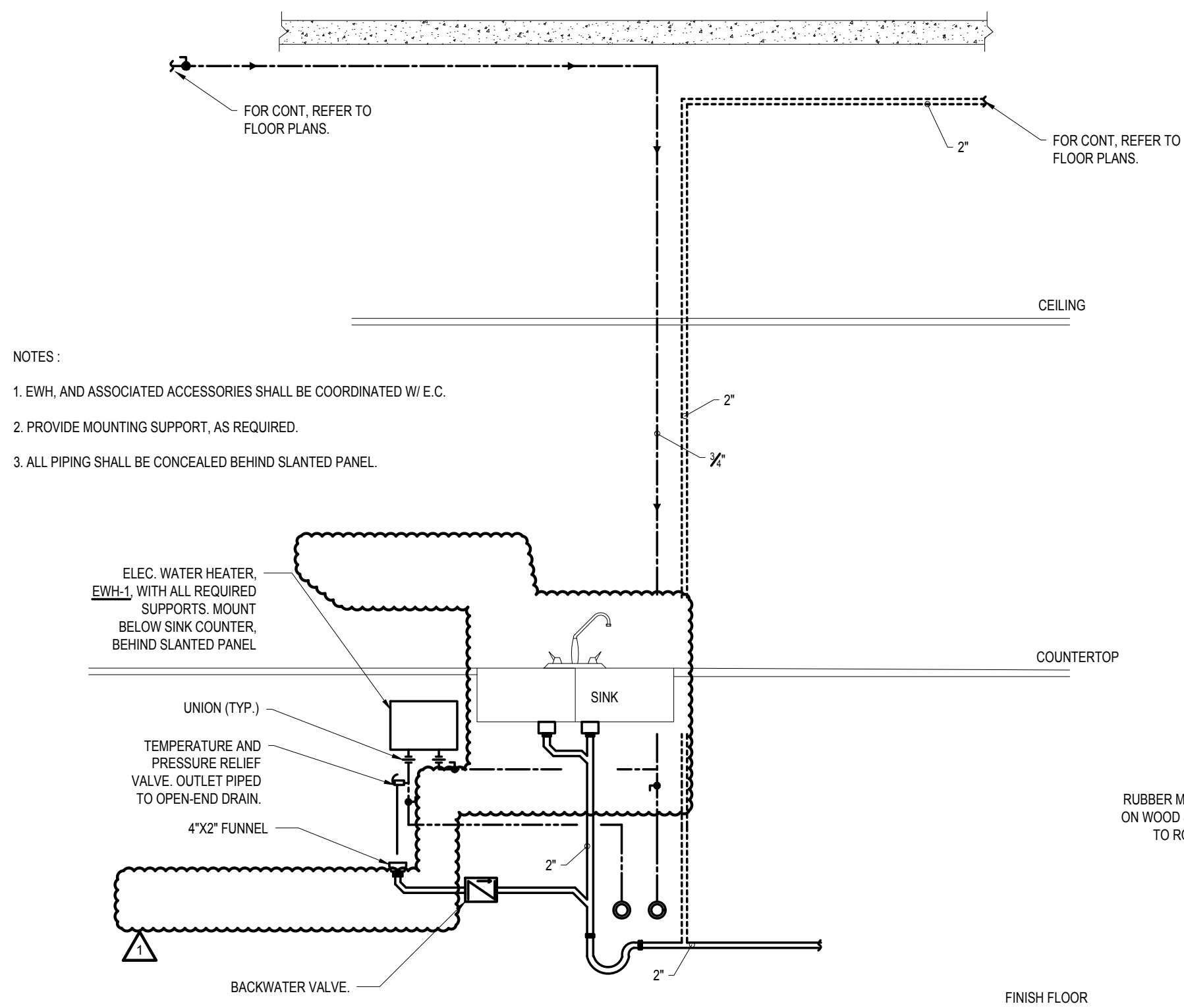
PLUMBING DETAILS & RISER DIAGRAMS

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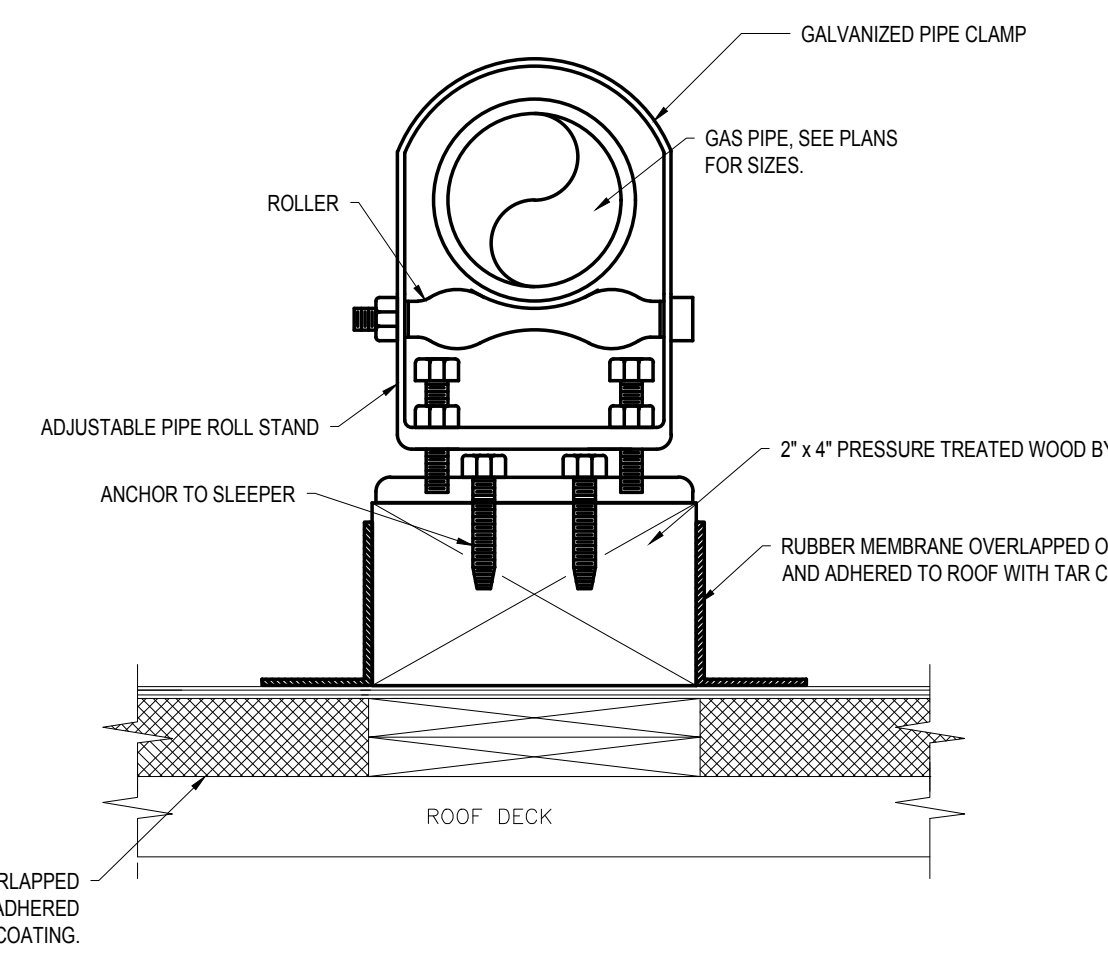
NO.	DATE	DESCRIPTION
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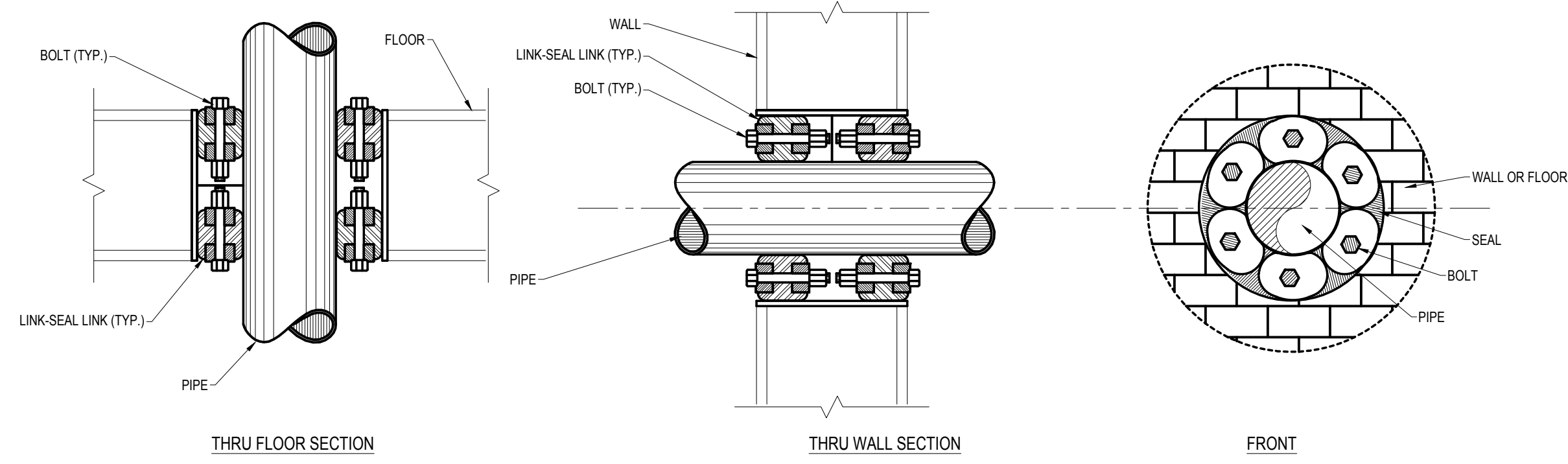
P003



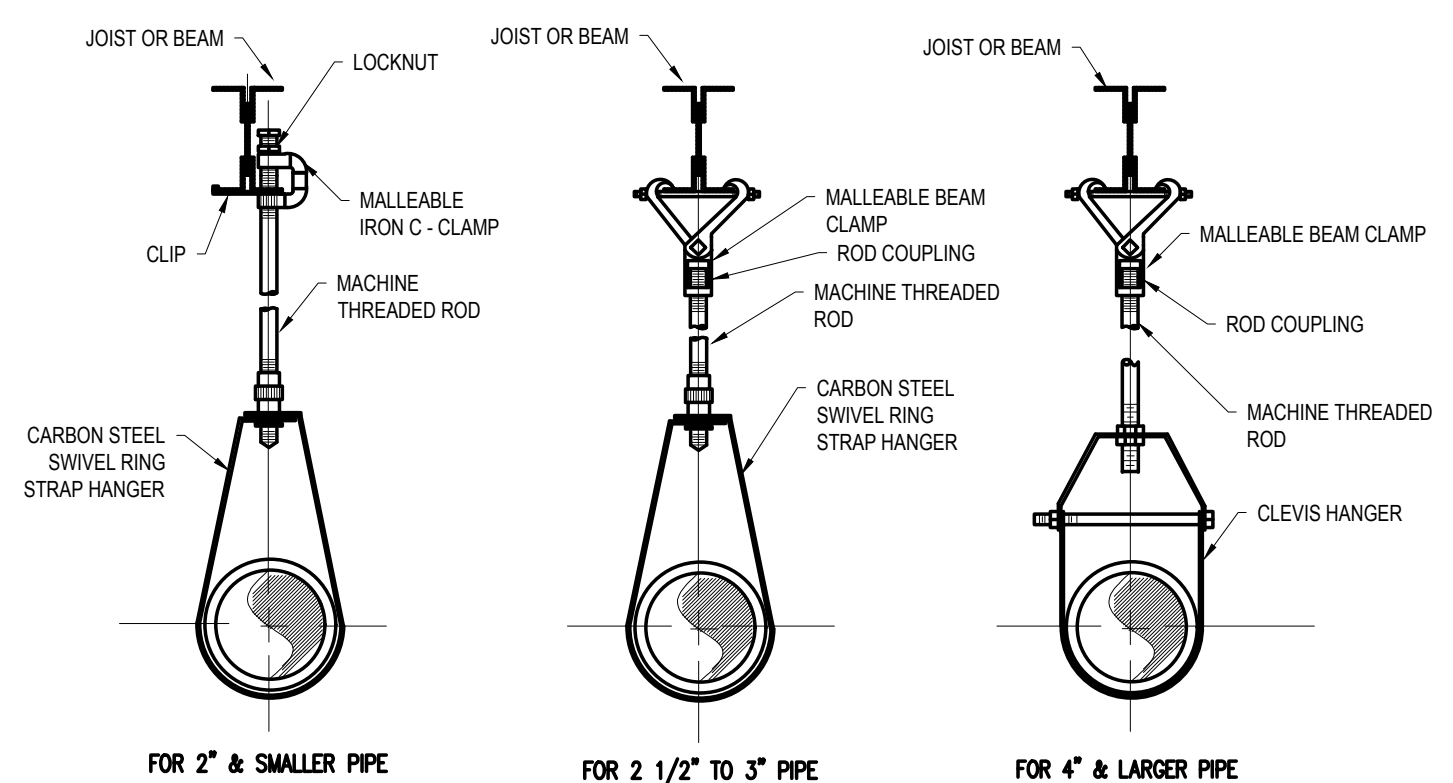
4 TYPICAL ELEC WATER HEATER MOUNTED BELOW SINK
 P003 NOT TO SCALE



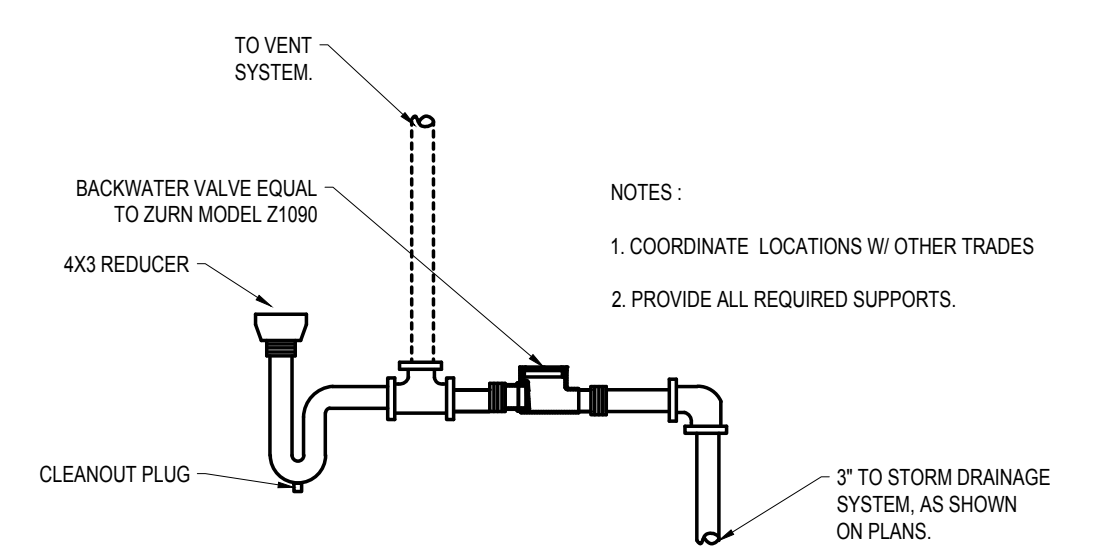
3 TYPICAL ROOF SLEEPER DETAIL
 P003 NOT TO SCALE



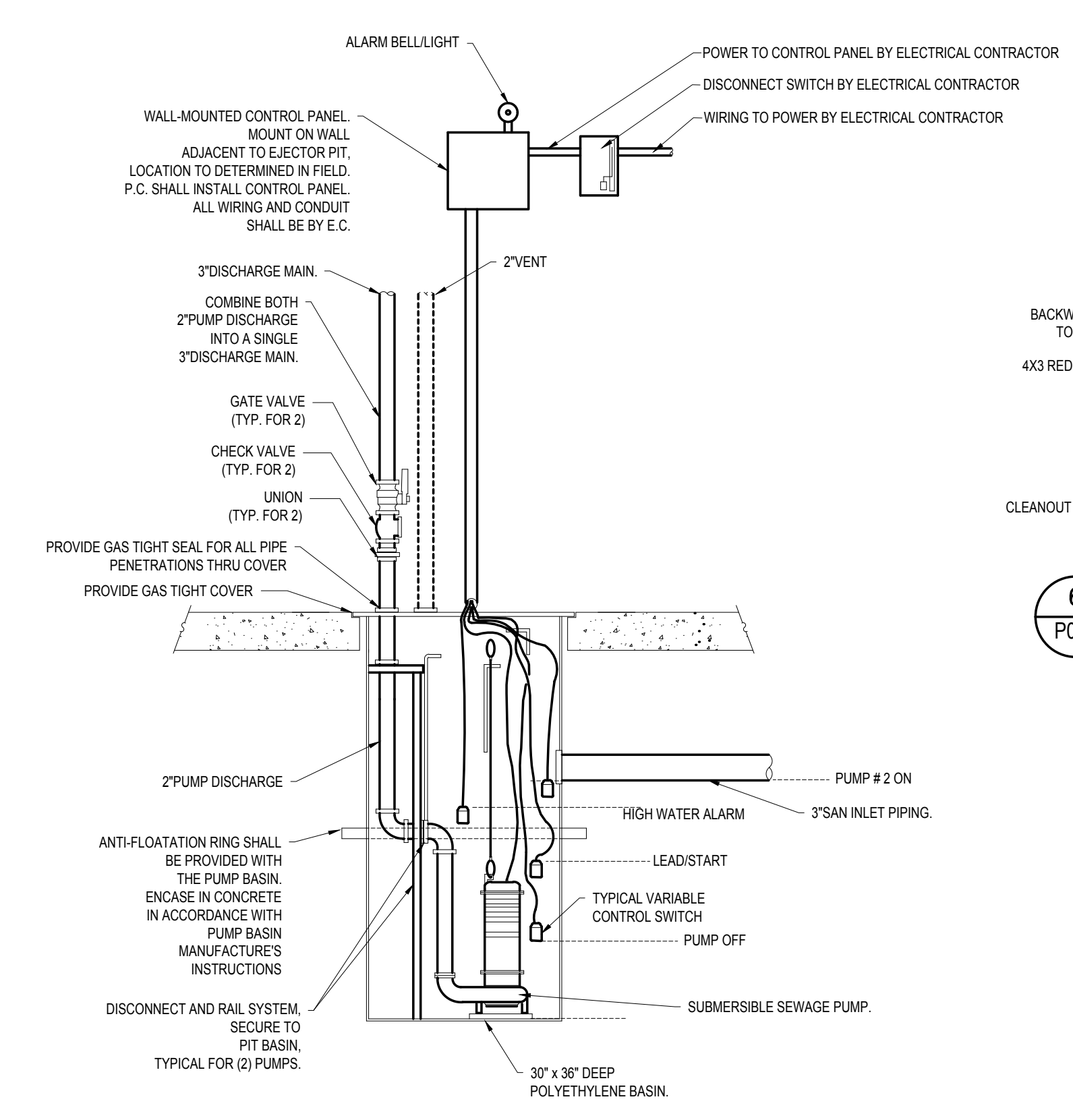
1 TYPICAL PIPING SLEEVE THRU WALL/FLOOR
 P003 NOT TO SCALE



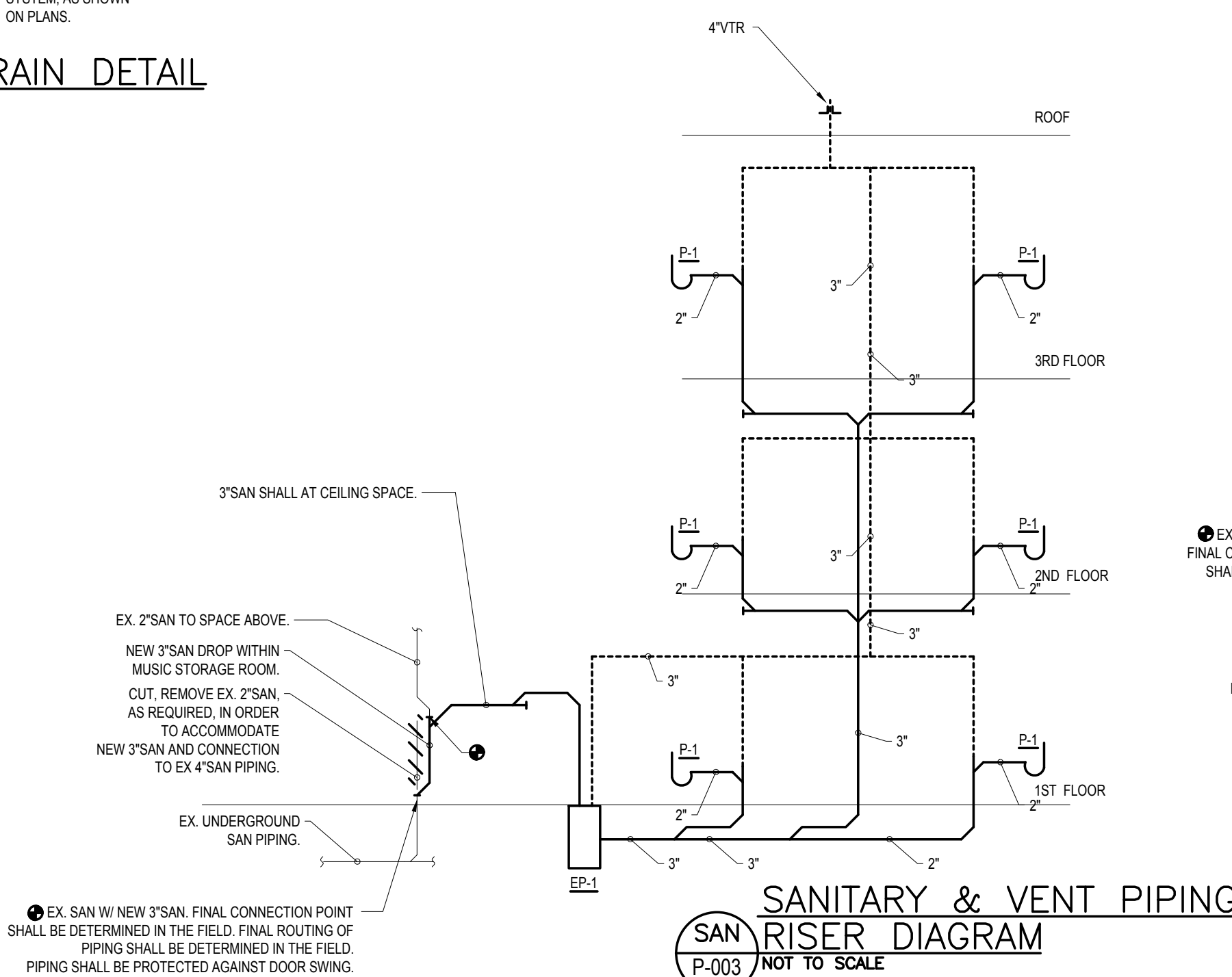
2 TYPICAL BAND HANGER
 P003 NOT TO SCALE



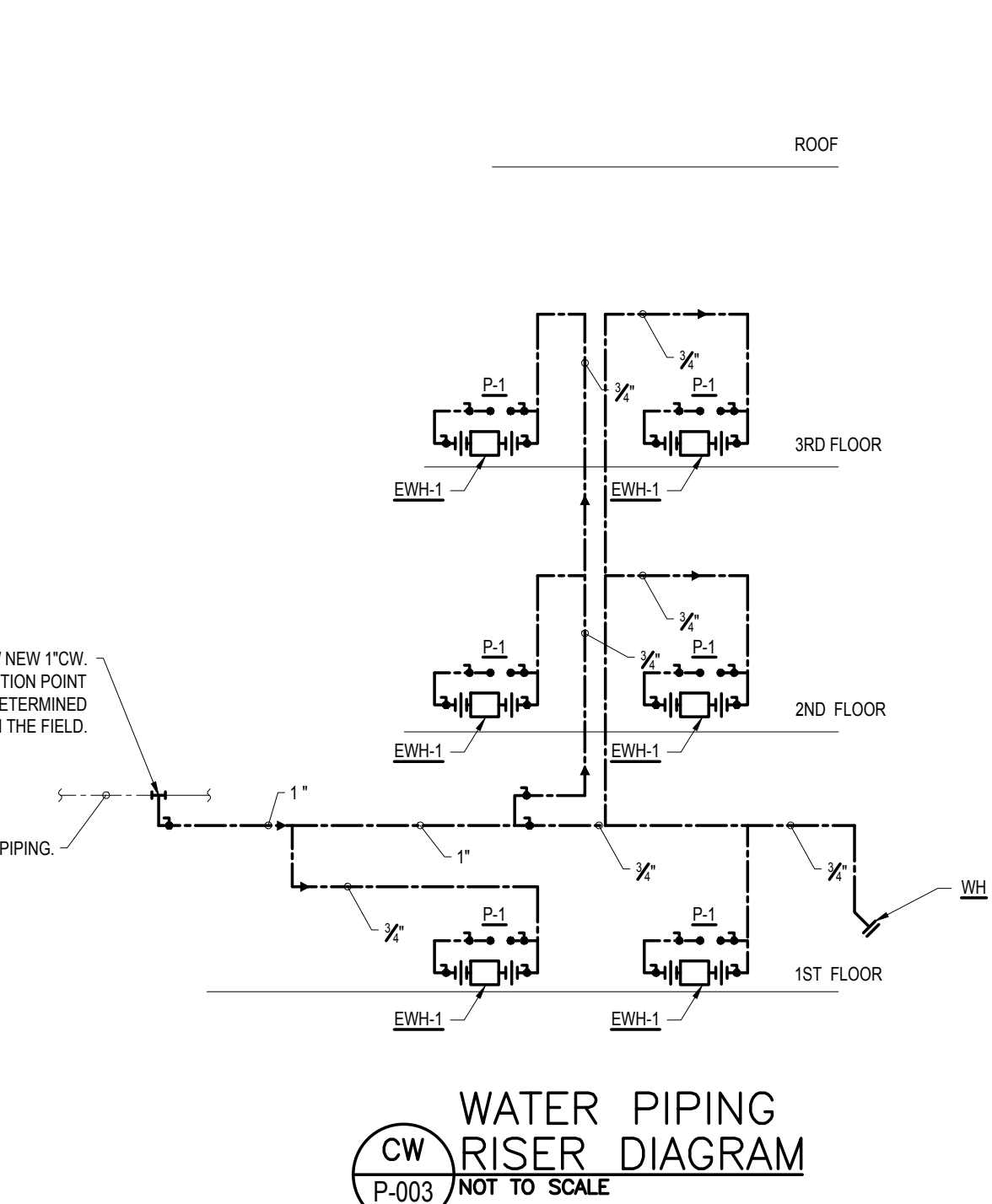
6 TYPICAL OPEN END DRAIN DETAIL
 P003 NOT TO SCALE



5 TYPICAL DUPLEX EJECTOR PUMP DETAIL
 P003 NOT TO SCALE



SANITARY & VENT PIPING RISER DIAGRAM
 SAN P-003 NOT TO SCALE



WATER PIPING RISER DIAGRAM
 CW P-003 NOT TO SCALE

FIRE PROTECTION LEGEND

	SPRINKLER HEAD - CONCEALED PENDANT ORDINARY TEMPERATURE, QUICK RESPONSE	ARCH	ARCHITECT
	SPRINKLER HEAD - UPRIGHT, ORDINARY TEMPERATURE, QUICK RESPONSE TYPE.	AFB	ABOVE FINISHED FLOOR
	SPRINKLER HEAD - SIDEWALL, ORDINARY TEMPERATURE, QUICK RESPONSE TYPE. REFER TO FLOOR PLANS FOR TYPE.	CLG	CEILING
	SPRINKLER HEAD GUARD	CONT	CONTINUATION
	ELBOW UP OR RISE	CTE	CONNECT TO EXISTING
	ELBOW DOWN OR DROP	DCV	DOUBLE CHECK VALVE ASSEMBLY
	WS WET SYSTEM SPRINKLER PIPING	DR	DRINKING FOUNTAIN
	DS DRY SYSTEM SPRINKLER PIPING	DS	DRY SYSTEM
	EXISTING SPRINKLER PIPING	DWG	DRAWING
	CAP	EC	ELECTRICAL CONTRACTOR
	FDC FIRE DEPARTMENT CONNECTION	ELEC	ELECTRICAL
	FVC FLOOR CONTROL VALVE ASSEMBLY	ETBR	EXISTING TO BE REMOVED
	DCVA DOUBLE CHECK VALVE ASSEMBLY	ETR	EXISTING TO REMAIN
	ALARM CHECK VALVE	FCV	FLOOR CONTROL VALVE ASSEMBLY
	CHECK VALVE	GC	GENERAL CONTRACTOR
	AREA OF DEMOLITION	GPM	GALLON PER MINUTE
	HYDRAULIC CALCULATION NODE	MIN	MINIMUM
	KEYNOTE DESIGNATION / DRAWING KEYNOTE	MAX	MAXIMUM
	DETAIL DESIGNATION NUMBER	NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
	DRAWING NUMBER	NIC	NOT IN CONTRACT
		NTS	NOT TO SCALE
		OED	OPEN-END DRAIN
		PC	PLUMBING CONTRACTOR
		SPR	SPRINKLER PIPING
		WS	WET SYSTEM

FLOW DATA

HYDRAULIC CALCULATIONS FOR THIS DESIGN HAS BEEN BASED ON THE FOLLOWING MINIMUM FLOW CRITERIA:

STATIC PRESSURE 20 PSI

RESIDUAL PRESSURE 44 PSI

FLOW 943.3 GPM

LOCATION: BROOKS AVENUE

DATE OF FLOW TEST: OCTOBER 5, 2017.

SOURCE: NITSCH ENGINEERING.

THE HYDRANT FLOW TEST DATA LISTED SHALL NOT BE USED BY THE SPRINKLER CONTRACTOR TO PERFORM THE HYDRAULIC CALCULATIONS FOR THE SPRINKLER CONTRACTOR SHOP DRAWINGS. THE SPRINKLER CONTRACTOR SHALL PERFORM A NEW HYDRANT FLOW TEST TO OBTAIN CURRENT FLOW AND PRESSURE, AND SHALL USE THIS NEWLY OBTAINED DATA TO PERFORM THE HYDRAULIC CALCULATIONS OF THE SPRINKLER SYSTEMS. THE HYDRANT FLOW TEST SHALL BE PERFORMED IN ACCORDANCE WITH THE NFPA-13. THE SPRINKLER CONTRACTOR SHALL PROVIDE ALL LABOR, EQUIPMENT, PAY ALL FEES, AND PERFORM ALL REQUIRED COORDINATION WITH THE LOCAL WATER AUTHORITY TO PERFORM THE FLOW TEST.

DESIGN CRITERIA

<u>GENERAL BUILDING AND RESIDENTIAL AREAS</u>	<u>MECHANICAL ROOMS, RETAIL AND GARAGE AREAS</u>
LIGHT HAZARD OCCUPANCY 0.10 GPM PER 1,500 SQUARE FEET 100 GPM HOSE STREAM ALLOWANCE	ORDINARY HAZARD GROUP 1 & 2 0.15/0.20 GPM PER 2,000 SQUARE FEET 250 GPM HOSE STREAM ALLOWANCE

DESIGN CRITERIA SHALL BE PER NFPA-13 AND BUILDING'S INSURANCE AUTHORITIES REGULATIONS AND REQUIREMENTS.

TYPICAL SPRINKLER BRANCH PIPING SCHEDULE (WHERE NOT EXPLICITLY INDICATED ON PLANS)

PIPE SIZE (in.)	NUMBER OF SPRINKLER HEADS						
	1	2	3	4	5	8	12
1	X						
1 1/2		X	X				
1 1/2				X	X		
2						X	
2 1/2							X

GENERAL NOTES

- ALL NEW FIRE PROTECTION SYSTEMS SHALL BE SEISMICALLY BRACED AS REQUIRED, ACCORDING TO THE APPLICABLE SECTIONS OF THE MASSACHUSETTS STATE BUILDING CODE AND NFPA-13. LATEST ACCEPTED EDITIONS. SPRINKLER CONTRACTOR SHALL COORDINATE ADDITIONAL REQUIREMENTS WITH THE BUILDING'S INSURANCE AUTHORITIES.
- ALL FIRE PROTECTION SYSTEMS, EQUIPMENT AND PIPING SHALL BE DESIGNED, INSTALLED AND TESTED BY A SPRINKLER CONTRACTOR LICENSED AND EXPERIENCED IN THE STATE OF MASSACHUSETTS IN THE DESIGN, INSTALLATION, AND TESTING OF SPRINKLER SYSTEMS.
- ALL WORK PERFORMED SHALL CONFORM TO THE APPLICABLE SECTIONS OF THE MASSACHUSETTS STATE BUILDING CODE AND NFPA-13 LATEST ACCEPTED EDITIONS AN ADDITION TO ALL RULES AND REGULATIONS OF THE AUTHORITY HAVING JURISDICTION.
- ALL PIPING SHALL BE RUN CONCEALED AND ABOVE CEILING, UNLESS OTHERWISE NOTED AND AREA CONTAINS NO CEILING. CARE SHALL BE TAKEN TO RUN ALL PIPING AS TIGHT TO CEILING AND WALLS AS POSSIBLE. ALL PIPING SHALL FOLLOW THE BUILDING LINES AND SHALL RUN PARALLEL TO WALL IN A NEAT MANNER. FINAL ROUTING AND LOCATION OF PIPING SHALL BE DETERMINED IN THE FIELD.
- CONTRACTOR SHALL PROVIDE FIRESTOPPING FOR ALL PENETRATIONS THRU FIRE WALLS AND FIRE RATED SEPARATIONS.
- ALL SPRINKLER PIPING AND HEADS ARE SHOWN DIAGMATICALLY. ALL SPRINKLER HEADS SHALL BE INSTALLED SYMMETRICALLY AND HARMONIOUSLY IN ALIGNMENT. CONTRACTOR SHALL COORDINATE WITH EXISTING CONDITIONS BEFORE WORK BEGINS TO ENSURE THAT NO INTERFERENCES EXIST AND THAT ALL COMPONENTS OF THE SPRINKLER SYSTEM WILL FIT INTO THE SPACE.
- CONTRACTOR SHALL COORDINATE WITH MECHANICAL AND ELECTRICAL CONTRACTOR FOR LOCATIONS OF DUCTWORK, DIFFUSERS, AND LIGHT FIXTURES. CONTRACTOR SHALL COORDINATE WITH THE EXISTING BUILDING CONDITIONS FOR CEILINGS, CEILING SPACES, AND ROOMS.
- CONTRACTOR SHALL FURNISH, INSTALL, AND MAINTAIN ALL SCAFFOLDING, HOISTING EQUIPMENT, AND DERRICKS NECESSARY FOR INSTALLATION OF WORK.
- THE DRAWINGS ARE FOR PRICING PURPOSES ONLY. THE CONTRACTOR SHALL PRODUCE A COMPLETE SET OF WORKING FIRE PROTECTION DRAWINGS IN ACCORDANCE WITH THE MASSACHUSETTS STATE BUILDING CODE AND NFPA-13, LATEST ACCEPTED EDITIONS. THE SYSTEM SHALL BE HYDRAULICALLY CALCULATED PER THE DESIGN CRITERIA REQUIRED BY CODE. ALL DRAWINGS AND CALCULATIONS SHALL BE STAMPED AND SIGNED BY THE CONTRACTOR'S REGISTERED FIRE PROTECTION ENGINEER, AND SHALL BE SUBMITTED TO THE LOCAL FIRE DEPARTMENT FOR APPROVAL. THIS SHALL BE DONE PRIOR TO THE COMMENCEMENT OF ANY SPRINKLER WORK.
- AN ADDITIONAL SET OF STAMPED FIRE PROTECTION DRAWINGS AND CALCULATIONS AS DESCRIBED ABOVE SHALL BE SUBMITTED TO THE OWNERS FOR APPROVAL. THIS SHALL BE DONE PRIOR TO THE COMMENCEMENT OF ANY SPRINKLER SYSTEM WORK.
- WRITTEN APPROVAL OF THE SPRINKLER CONTRACTOR'S SHOP DRAWINGS AND HYDRAULIC CALCULATIONS SHALL BE OBTAINED FROM THE LOCAL FIRE DEPARTMENT AND THE OWNER PRIOR TO THE COMMENCEMENT OF ANY WORK.
- THE DRAWINGS ARE NOT INTENDED TO SHOW EXACT SPRINKLER HEAD LOCATIONS, NUMBER OF SPRINKLER HEADS, OR THE EXACT ROUTING OF PIPING. THIS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL COORDINATE WITH THE ARCHITECTURAL DRAWINGS FOR ALL CEILING TYPES. CONTRACTOR SHALL VISIT THE SITE TO FAMILIARIZE THEMSELVES WITH ALL EXISTING ASPECTS OF CONSTRUCTION PRIOR TO BID.
- SPRINKLER CONTRACTOR SHALL PROVIDE ALL CORING, CUTTING AND PATCHING IN ORDER TO ACCOMMODATE THE SPRINKLER WORK.
- THE CONTRACTOR SHALL MAKE REASONABLE CHANGES TO THE SPRINKLER HEAD LOCATIONS AND SPRINKLER PIPE ROUTES, AS A RESULT OF COORDINATION WITH THE EXISTING CONDITIONS IN THE BUILDING AND NEW CEILINGS AT NO EXTRA COST.
- PROVIDE PAINTING ON ALL EXPOSED SPRINKLER PIPING. PIPING SHALL BE AS DIRECTED BY THE ARCHITECT.
- THE TERM "CONTRACTOR" SHALL MEAN "SPRINKLER CONTRACTOR".
- SPRINKLER PROTECTION SHALL BE PROVIDED AT LOW AND HIGH CEILINGS IN STRICT ACCORDANCE WITH NFPA-13 APPLICABLE OBSTRUCTION SECTIONS.
- PROVIDE WIRE CAGE GUARD PROTECTION FOR SPRINKLER HEADS INSTALLED WITHIN 8'-0" OFF THE FLOOR.
- THE FIRE DEPARTMENT CONNECTION TYPE AND LOCATION SHALL BE APPROVED BY THE LOCAL FIRE DEPARTMENT PRIOR TO PURCHASE AND INSTALLATION.
- THE CONTRACTOR SHALL PROVIDE A FIRE DEPARTMENT PERSONNEL STAFFED "FIRE WATCH" DURING ALL WELDING OPERATIONS.
- ALL MATERIALS AND EQUIPMENT USED FOR FIRE PROTECTION SYSTEMS SHALL BE UL LISTED AND/OR FM APPROVED FOR FIRE PROTECTION SERVICE, AND SHALL BE RATED AT MINIMUM 175 PSI WORKING PRESSURE.
- THE CONTRACTOR SHALL COORDINATE WITH THE BUILDING DEPARTMENT AND THE LOCAL FIRE DEPARTMENT FOR TESTING AND ACCEPTANCE OF ALL SPRINKLER WORK. THE CONTRACTOR SHALL FIX ANY DEFICIENCY FOUND DURING TESTING AND SHALL RETEST ALL SPRINKLER SYSTEMS UNTIL THE ENTIRE SYSTEM IS ACCEPTED BY THE LOCAL FIRE DEPARTMENT, AT NO ADDITIONAL COST.
- THE CONTRACTOR SHALL TEST AND FLUSH ALL SPRINKLER SYSTEMS IN ACCORDANCE WITH NFPA-13 & NFPA-25, AND SHALL PROVIDE FLUSHING AND TESTING REPORTS IN ACCORDANCE WITH NFPA-13 & NFPA-25, AND SHALL SUBMIT THESE REPORTS TO THE BUILDING DEPARTMENT AND THE LOCAL FIRE DEPARTMENT PRIOR TO FINAL ACCEPTANCE OF THE SPRINKLER SYSTEMS.
- THE DRAWINGS ARE NOT INTENDED TO SHOW ALL LOCATIONS WHERE FIRE RATED SLEEVES, SEALS OR CORE DRILLING WILL BE REQUIRED. IT SHALL BE THE RESPONSIBILITY OF THE SPRINKLER CONTRACTOR TO COORDINATE WITH THE ARCHITECT FOR LOCATIONS OF ALL FIRE RATED WALLS AND FLOORS AND TO DETERMINE THE LOCATIONS OF ALL FIRE RATED SLEEVES, SEALS AND CORE DRILLING.
- IT SHALL BE THE RESPONSIBILITY OF THE SPRINKLER CONTRACTOR TO SELECT ALL DESIGN AREAS, TEMPERATURE RATINGS AND DESIGN DENSITIES AS WELL AS THE NUMBER OF SPRINKLER HEADS IN ALL AREAS OF OPERATION THAT WILL BE USED TO CREATE THE SPRINKLER CONTRACTOR'S SHOP DRAWINGS, AND HYDRAULIC CALCULATIONS. ALL DESIGN AREAS, DESIGN DENSITIES AND THE NUMBER OF OPERATING SPRINKLER HEADS SHALL BE SELECTED BY THE SPRINKLER CONTRACTOR IN ACCORDANCE WITH NFPA-13.
- THE DRAWINGS ARE NOT INTENDED TO SHOW ALL CEILING CONDITIONS, LIGHT FIXTURES, HVAC DIFFUSER, MOLDING, SOFFITS OR ANY OTHER EXISTING FIXTURES OR EQUIPMENT IN THE CEILINGS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THE LOCATION OF ALL LIGHT FIXTURES, HVAC DIFFUSERS, MOLDING, SOFFITS, AND ALL OTHER FIXTURES OR EQUIPMENT IN THE CEILINGS AND SHALL INDICATE THESE CONDITIONS ON THE SPRINKLER SYSTEM SHOP DRAWINGS. THE CONTRACTOR SHALL USE THIS COORDINATION INFORMATION TO LOCATE HEADS IN THE BUILDING AND TO CREATE THE SPRINKLER SYSTEM SHOP DRAWINGS. PRIOR TO THE CREATING OF THE SPRINKLER SYSTEM SHOP DRAWINGS, THE CONTRACTOR SHALL COORDINATE WITH ARCHITECTURAL DRAWINGS TO VERIFY THE EXISTING CEILING CONDITIONS.
- PRIOR TO THE CREATION OF THE SPRINKLER CONTRACTOR'S SHOP DRAWINGS, THE SPRINKLER CONTRACTOR SHALL COORDINATE A SITE MEETING AT THE BUILDING REQUIRING NEW FIRE PROTECTION SYSTEMS AND SHALL WALK THRU THE BUILDING WITH THE OWNER TO DETERMINE THE EXACT ROUTING OF ALL SPRINKLER PIPING. THE SPRINKLER CONTRACTOR SHALL SURVEY ALL ROOMS AND SPACES IN THE BUILDING INCLUDING CONCEALED SPACES IN ORDER TO DETERMINE THE EXACT ROUTE OF ALL SPRINKLER PIPING AND THE LOCATIONS OF ALL REQUIRED SPRINKLER HEADS.
- THE DRAWINGS ARE NOT INTENDED TO SHOW EXACT BUILDING CONDITIONS. THE SPRINKLER CONTRACTOR SHALL USE THE FLOORS PLANS AS GENERAL REFERENCE ONLY. AS PART OF THE CREATION OF THE SPRINKLER CONTRACTOR'S SHOP DRAWINGS, THE SPRINKLER CONTRACTOR SHALL SURVEY THE BUILDING AND SHALL VERIFY THE EXACT ARCHITECTURAL CONDITIONS. THE SPRINKLER CONTRACTOR SHALL ALTER THE FLOOR PLANS AS REQUIRED TO ACCURATELY DEPICT THE ACTUAL EXISTING ARCHITECTURAL CONDITIONS IN THE BUILDING. THIS SHALL BE DONE PRIOR TO THE COMMENCEMENT OF ANY SPRINKLER DESIGN WORK.
- THE CONTRACTOR SHALL PAY ALL FEES, OBTAIN ALL PERMITS AND APPROVALS, AND SHALL FURNISH ALL LABOR AND MATERIALS NEEDED FOR THE COMPLETE INSTALLATION OF ALL FIRE PROTECTION SYSTEMS SHOWN ON THE PLANS.
- PRIOR TO BID, THE CONTRACTOR SHALL VISIT THE SITE AND FAMILIARIZE THEMSELVES WITH ALL EXISTING CONDITIONS AND THE ARCHITECTURAL AND FIRE PROTECTION DRAWINGS, AND ALL CONDITIONS THAT THE SPRINKLER WORK SHALL BE INSTALLED. ANY APPARENT DISCREPANCY IN THE DRAWINGS AND EXISTING OR PROPOSED CONDITIONS SHALL BE SUBMITTED TO THE ARCHITECT IN WRITING. FAILURE OF THE CONTRACTOR TO FAMILIARIZE THEMSELVES WITH ALL ASPECT OF THE PROJECT SHALL NOT BE GROUNDS FOR EXTRA COSTS TO THE CONTRACT.
- THE SPRINKLER CONTRACTOR SHALL CONDUCT A NEW FIRE HYDRANT FLOW TEST IN ORDER TO OBTAIN CURRENT FLOW AND PRESSURE DATA. THE CONTRACTOR SHALL USE THIS NEWLY OBTAINED DATA TO PERFORM HYDRAULIC CALCULATIONS FOR THE SPRINKLER SYSTEM SHOP DRAWINGS. HYDRAULIC CALCULATIONS SHALL BE STAMPED AND SIGNED BY THE CONTRACTOR'S REGISTERED FIRE PROTECTION ENGINEER, AND SHALL BE SUBMITTED WITH THE SPRINKLER SYSTEM SHOP DRAWINGS TO THE LOCAL FIRE DEPARTMENT AND OWNER INSURANCE AUTHORITY FOR FINAL APPROVAL. THIS SHALL BE DONE PRIOR TO THE COMMENCEMENT OF ANY SPRINKLER WORK.
- THE SPRINKLER CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS, TOOLS, EQUIPMENT AND SHALL PAY ALL FEES AND PERFORM ALL COORDINATION WITH THE LOCAL WATER DEPARTMENT, FIRE DEPARTMENT AND OWNER, THAT IS REQUIRED FOR THE CONDUCTING OF THE NEW FLOW TEST.
- THE SPRINKLER CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING SPRINKLER HEAD COVERAGE IN ALL COMBUSTIBLE AREAS, AS REQUIRED PER NFPA-13.
- PROVIDE FLEXIBLE EXPANSION JOINT ON ALL PIPING CROSS BETWEEN THE EXISTING BUILDING AND THE ADDITION.

Finegold Alexander Architects

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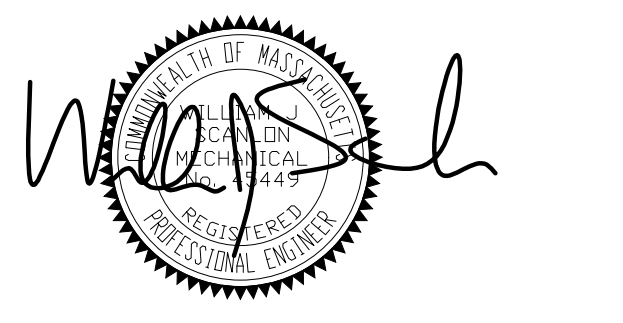
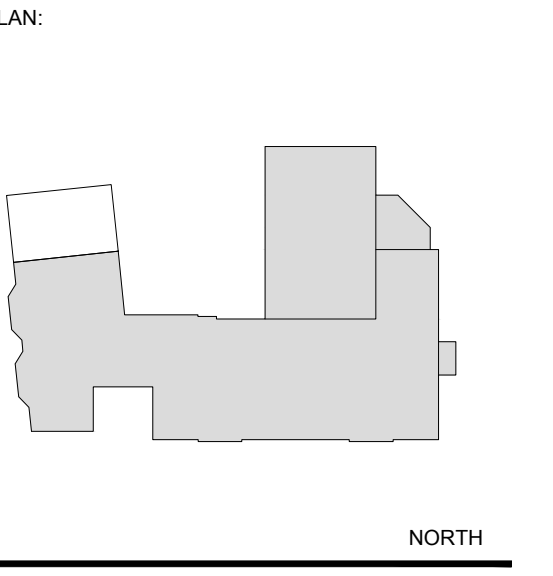
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52 Lake Street
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PROJECT #: P0003.00
 PROJECT ISSUE DATE: 12/01/17
 PROJECT STATUS: Construction Documents

SHEET NAME:
FIRE PROTECTION LEGEND, NOTES & ABBREVIATIONS

DRAWING HISTORY:

NO.	DATE	DESCRIPTION
1	01.12.18	Addenda #2

SHEET #:
FP001

LIGHTING FIXTURE SCHEDULE

TAG	DESCRIPTION	MANUF.	MODEL	LAMP	VOLTAGE	NOTES
AD24	Direct/Indirect Fixture	CORELITE	DSI-WS-3-L35-1-D-UNV-ACXX-COORDINATE PENDANT LENGTH WITH THE ARCHITECT-24'	LED	120 V	Wired via RC3D. Coordinate pendant length with the Architect prior to ordering.
D	Puck Light	Lotus LED Lights	LY41RCD/30K	LED	120 V	Wired via RC3D.
SL	Lensed Striplight	FAIL-SAFE	HVL8-4-LD4-1-STD-35-UNV-O-EDC-1-S	LED	120 V	
X2	Exit Sign - Double Sided With Battery Backup	SURE-LITES	LPX-7-WH-SD	LED	120 V	
X6	Emergency Battery Unit	COOPER	SEL-25-SD	LED	120 V	
ZW3	Wall Pack	LUMARK	XTOR3B-W-PC1-COLOR AS SELECTED BY ARCHITECT	LED	120 V	Coordinate mounting height with the Architect.

KEYED NOTES

- 1 CONNECT TO EXISTING CORRIDOR LIGHTING CIRCUIT.
- 2 CONNECT TO EXISTING STAIRWELL LIGHTING CIRCUIT.

Finegold Alexander Architects

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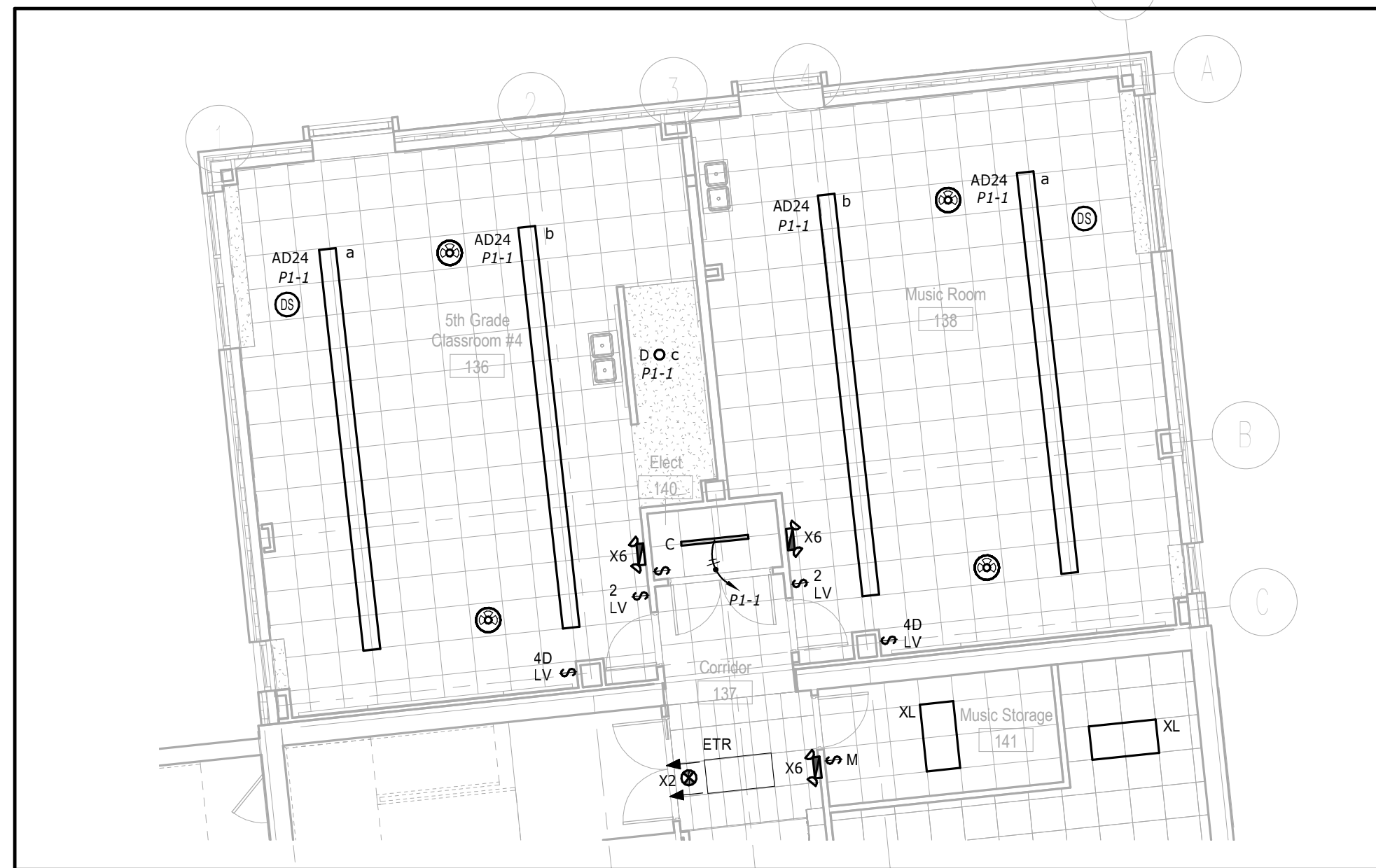
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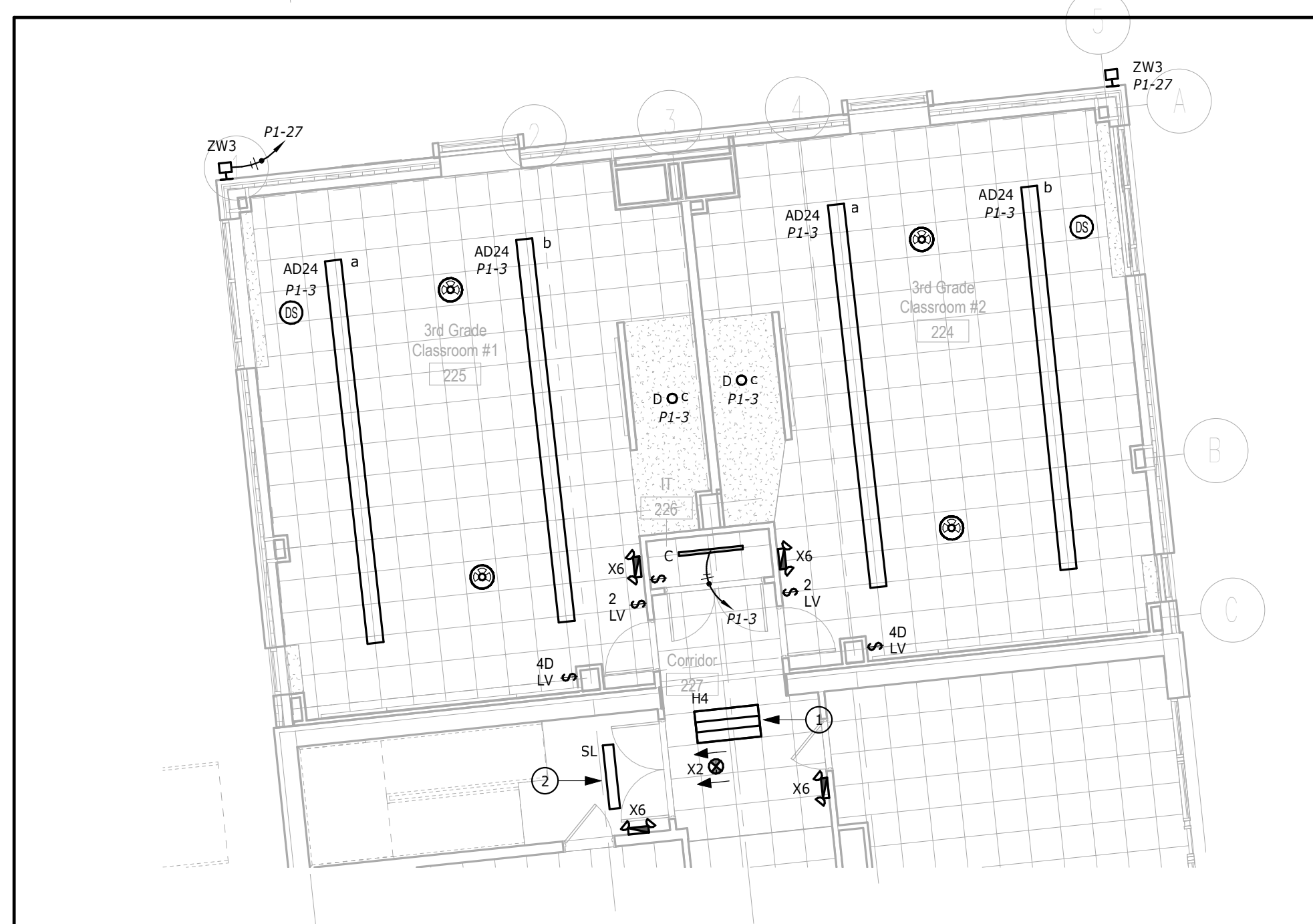
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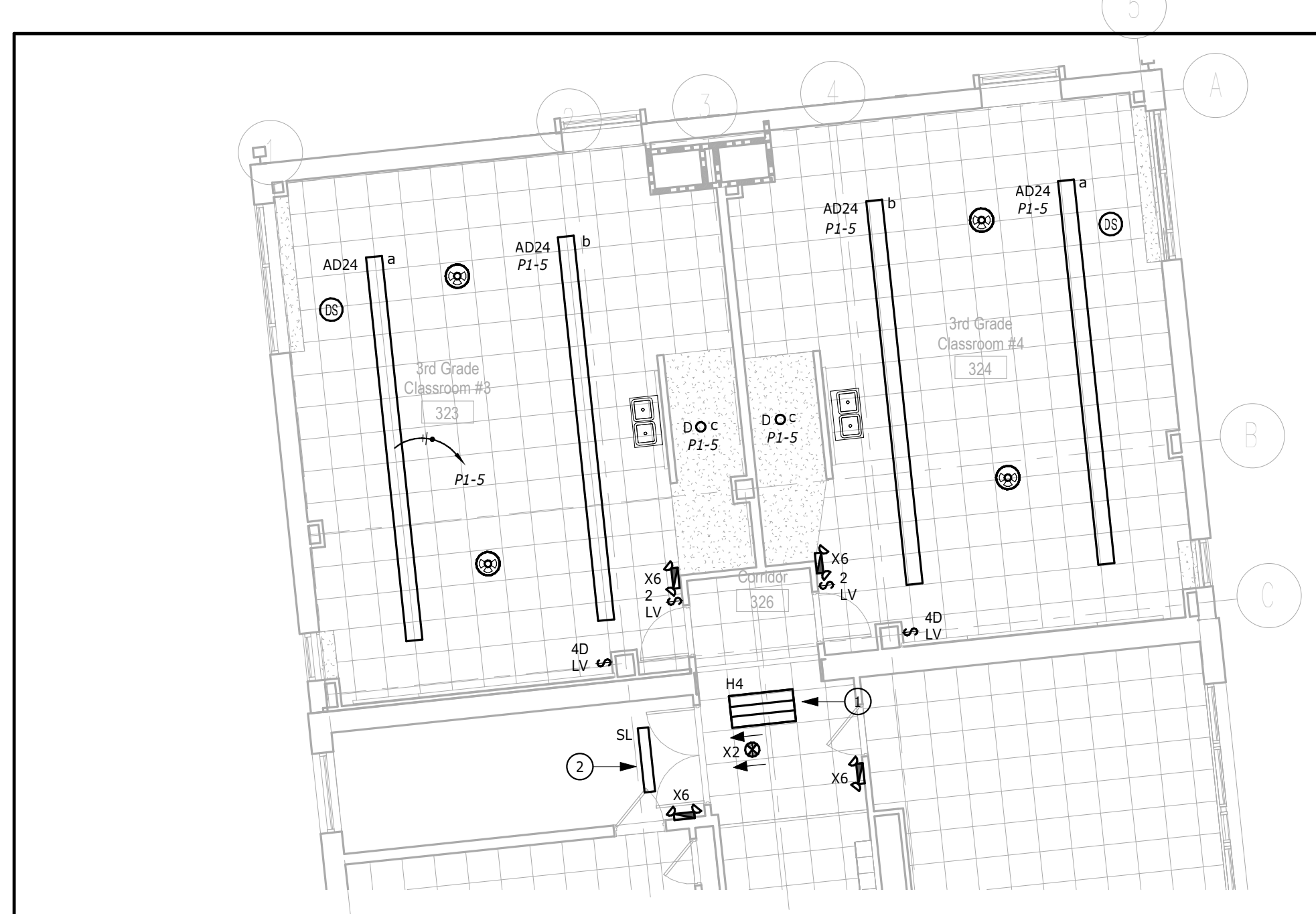
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1 Lighting - First Floor Proposed Plan
 1/8" = 1'-0"

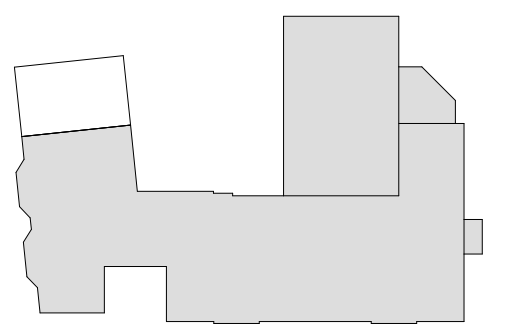


2 Lighting - Second Floor Proposed Plan
 1/8" = 1'-0"



3 Lighting - Third Floor Proposed Plan
 1/8" = 1'-0"

KEY PLAN:



NORTH

SEAL:

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Lighting

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SHEET #:

E100