

REQUEST FOR PROPOSALS (RFP)

MODULAR BUILDING TEMPORARY LIVING QUARTERS AT FIRE STATION ENGINE 3 255 SOMERVILLE AVENUE

RFP #15-40



CITY OF SOMERVILLE, MASSACHUSETTS

RELEASED:

OCTOBER 22, 2014

DUE BY:

NOVEMBER 12, 2014 – 11:00 A.M. EST

DELIVER TO:

**City of Somerville
Purchasing Department
Attn: ANGELA M. ALLEN
93 Highland Avenue
Somerville, MA 02143**

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**MODULAR BUILDING
TEMPORARY LIVING QUARTERS
AT FIRE STATION
ENGINE 3
RFP #15 - 40**

RESPONDENTS' CHECKLIST

Please ensure all documents listed on this checklist are included, and/or acknowledged, with your submission. Failure to do so may subject the proposer to disqualification. Refer to **Appendix A** for all forms listed below.

- _____ Respondents' Checklist
- _____ Non-Price Proposal, separately sealed envelope – Transmittal Form as Cover Sheet
- _____ City of Somerville Forms
 - 1. Past Performance/Reference Form _____
(or equivalent may be attached)
 - 2. Certificate of Non-Collusion and Tax Compliance _____
 - 3. Certificate of Signature Authority _____
 - 4. Somerville Living Wage Form _____
 - 5. Certificate of Good Standing _____
(will be required of awarded Vendor; please furnish with bid if available)
 - 6. Insurance Specifications _____
(bidders to review and include in bid package; furnish sample certificate with bid if possible)
 - 7. Prevailing Wage Compliance Form _____
 - 8. Sub-Vendor / Sub-Contractor Form _____
 - 9. Responsible Employer Ordinance Certification _____
- _____ Documentation of OSHA compliance (written statement on Contractor's letterhead)
- _____ Price Proposal Form, in separately sealed envelope
- _____ 5% Statutory Bid Bond or Guaranty
(place-holder – respondents to insert document here)
- _____ DCAMM Certificate of Eligibility and Update Statement, Modular Construction/Prefabrication or General Construction (place-holder – bidders to insert documentation in separate envelope to be submitted with bid)

**CITY OF SOMERVILLE MASSACHUSETTS
SOMERVILLE CITY HALL
93 HIGHLAND AVENUE
SOMERVILLE, MA 02143**

**BIDDING INSTRUCTIONS FOR
MODULAR BUILDING
TEMPORARY LIVING QUARTERS
AT FIRE STATION
ENGINE 3
255 SOMERVILLE AVENUE
RFP #15-40**

**SECTION 1.0
GENERAL INFORMATION ON BID PROCESS**

1.1 General

Enclosed you will find a Request for Proposal (RFP) for the following contractor services at Somerville Fire Station “Engine 3” located at 255 Somerville Avenue in Somerville, Massachusetts. The Scope of Work includes the following:

The City seeks construction services for construction/installation of new modular living quarters at the Somerville Fire Station “Engine 3,” located at 255 Somerville Avenue, Somerville, MA 02143. The project consists of demolition of existing foundations and utilities from a previous modular structure and construction of a new foundation and modular building living quarters for the Somerville Fire personnel assigned to this station.

Separately sealed price and non-price submissions will be received on or before **11:00AM, on November 12, 2014.**

When submitting proposals, please identify the solicitation title and number clearly on the submitted envelope. All responses must be sealed and delivered to:

**Purchasing Department
Attention: Angela M. Allen, Director
City of Somerville
93 Highland Avenue
Somerville, MA 02143.**

Proposals submitted must be an original.

The completion of the forms provided and listed in **Appendix A** is necessary for consideration of a potential contract award. When submitting proposal packages, please refer to the Respondent’s Checklist and retain the order of documents as originally provided.

City Hall hours: doors open daily at 8:30 a.m. and close at 4:30 p.m. Monday through Wednesday, 7:30 p.m. on Thursdays and 12:30 p.m. on Fridays.

It is the sole responsibility of the Applicant to insure that the submission arrives on time at the designated place. Late submissions will not be considered, and will be returned. Responses submitted must be an original.

One (1) original and two (2) copies, plus a CD/DVD with the complete submission shall be submitted by the deadline.

Electronic copies are to be submitted on CD/DVD or thumb drive saved in Microsoft Word or Adobe Acrobat format. ("Read only" files are acceptable). All disks shall be virus checked prior to submission.

A complete response consists of all documents listed on the Respondent's Checklist.

The signature of the Applicant's authorized official(s) must be provided on the cover letter and all the proposal forms. **An unsigned letter or one signed by an individual not authorized to bind the Applicant will be disqualified.**

The City of Somerville reserves the right to reject any or all proposals, waive minor informalities, and accept the proposal deemed to be in the best interest of the City.

The successful Applicant must be an Equal Opportunity Employer.

All information in the Applicant's response should be organized and presented in a clear / concise format, as outlined in the Respondent's Checklist. Accuracy and completeness are essential. The successful response will be incorporated into a contract as an exhibit; therefore, Applicants should not make claims to which they are not prepared to commit themselves contractually.

There must be no mention of the applicant's fee(s) in the non-price proposal package. Such mention of applicant's and/or its sub-applicant's fees will subject the submission to disqualification.

The solicitation may be obtained online via the Purchasing web page at <http://www.somervillema.gov/departments/finance/purchasing/bids> or by request from the Purchasing Department on and after **October 22, 2014** between the hours of 8:30 a.m. and 4:30 p.m. Monday – Wednesday, 8:30 a.m. to 7:30 p.m. on Thursdays and 8:30 a.m. to 12:30 p.m. on Fridays.

1.2 Questions

Questions concerning this solicitation must be submitted in writing to: Angela M. Allen, Purchasing Director, City of Somerville, Purchasing Department, 93 Highland Avenue, Somerville, MA 02143 **before November 6, 2014 at 12:00 noon EST.**

Questions may be delivered, mailed, faxed to 617-625-1344, or e-mailed to

amallen@somervillema.gov.

Answers will be provided in writing only, via an addendum, as noted below.

If any prospective respondents contact anyone employed by the City, outside of the Purchasing Department, regarding this bid/proposal, that bidder/proposer will be disqualified immediately.

1.3 Changes & Addenda

If any changes are made to this solicitation, an addendum will be issued. The City will post addenda on its website (<http://www.somervillema.gov/departments/finance/purchasing/bids>).

A link to all addenda will be emailed to all prospective applicants on record as having registered with the City *for this specific solicitation*. **Prospective applicants are highly encouraged to register by completing the online Active Bid Registration form at:** (<http://www.somervillema.gov/departments/finance/purchasing/vendor-resources>)

Applicants on the active bid registry for this bid will automatically receive addenda notifications as soon as they are issued. Applicants may also contact the Purchasing Department (purchasing@somervillema.gov) to report any issues with bid registration.

It is the responsibility of the respondent to also monitor the bid portal on the City's website for any updates, addenda, etc. regarding that specific solicitation. The web address is: <http://www.somervillema.gov/departments/finance/purchasing/bids>.

No changes may be made to the solicitation documents by the Applicants without written authorization and/or an addendum from the Purchasing Department.

1.4 Pre-Submission Briefing Session

Firms intending on submitting formal qualifications are highly encouraged to attend the **Briefing Session on November 5, 2014 at 11:00 a.m.**

The conference will be conducted at **255 Somerville Avenue**. Attendees shall meet at the building entrance promptly at 11:00 a.m.

1.5 Procedure for Evaluation of Responsive Proposals

The City reserves the right to re-advertise if there are fewer than four applicants that meet the minimum requirements.

The Mayor, or his designee, working through the Capital Projects and Planning Department (CPPD) and Purchasing, has established or will establish an evaluation committee (the "Committee") to review responsive proposals, and recommend to the Mayor a contractor to undertake the project. The Purchasing Director, CPPD Manager and Architect will screen

proposals and only forward responsive proposals from responsible contractors to the evaluation committee.

A responsive proposal is a proposal that complies with requirements stated in Section 2 of this Request for Proposals (RFP). A responsible contractor is a contractor that demonstrably possesses the skill, ability, and integrity necessary to faithfully perform the work called for in this procurement.

Each responsive proposal from a responsible contractor will be evaluated solely according to the criteria set forth in Section 2.4 of this RFP, "Comparative Evaluation Criteria." Each non-price proposal will be assigned a rating of *highly advantageous*, *advantageous*, *not advantageous*, or *unacceptable* with respect to each criterion, and the reasons for each rating will be set forth in writing.

Evaluators may take note of any recommendations for revisions to the proposed plan for providing modular buildings. The evaluators have the discretion to determine whether changes in an applicant's proposal would render it more advantageous; in such cases, evaluators will note such necessary changes in their written evaluations, and the award will be conditioned upon the negotiation of the changes noted in the evaluation, provided the applicant agrees to make these revisions without increasing the cost. Contract terms, scope of work, and price are *not* subject to negotiation.

Once ratings have been assigned on each criterion, a composite rating for each non-price proposal will be set forth in writing, along with the reasons for the rating.

The price proposals will not be disclosed to the individuals evaluating the non-price proposals (i.e. the evaluation committee) until the non-price proposal ratings are complete.

The evaluation committee will determine the most advantageous proposal from a responsible and responsive applicant, taking into consideration the non-price proposal composite ratings and proposal price. If the contract is awarded to an applicant that did not submit the lowest price, the evaluation committee will set forth a written explanation of the reasons for the award.

Rule for Award

The contract will be awarded to the applicant offering the most advantageous proposal, taking into consideration all evaluation criteria stated in the Request for Proposals (RFP) as well as price.

1.6 Bidding Schedule

Key dates for this Request for Proposals:

RFP Issued	10/22/2014
Deadline for Submitting Questions to RFP	11/6/2014 – 12:00 noon
Pre-proposal Site Visit Session	11/5/2014 – 11:00 a.m.
Responses Due and Opened	11/12/2014 – 11:00 a.m.
Evaluation Period	November 2014
Anticipated Contract Award	estimated 11/24/2014
Services Commence	12/1/2014
Substantial Completion Date	150 days from Notice to Proceed
Final Completion Date	30 days from Substantial Completion

1.7 Time for Acceptance of Responses to RFP

The City shall award a contract by written notice to the selected applicant by no later than sixty (60) calendar days after receipt of proposals, subject to an appropriation, unless the time for contract award is extended by mutual agreement between the City and the selected applicant. All proposals submitted in response to the RFP must remain firm for ninety (90) calendar days following the proposal submission deadline.

1.8 Unforeseen Office Closure

If, at the time of the scheduled deadline for submission of responses, Somerville City Hall is closed due to uncontrolled events such as fire, snow, ice, wind, or building evacuation, the bid opening will be postponed until 2:00 p.m. on the next normal business day. Responses will be accepted until that date and time.

Note: late deliveries of mail services (including but not limited to USPS, FedEx, UPS, DHL) are not the responsibility of the City. Respondents shall allow sufficient time for responses to be delivered to the City of Somerville's Purchasing Department.

1.9 Modification or Withdrawal of Responses, Mistakes, and Minor Informalities

An Applicant may correct, modify, or withdraw a response by written notice received by the City of Somerville *prior to* the time and date set as the deadline for submission responses. Modifications to a response must be submitted to the City's Purchasing Department in a sealed envelope clearly labeled "Modification No.____." Each modification must be numbered in sequence, and must reference the original solicitation.

After the deadline for responses to this RFP, an applicant may not change any provision of the response in a manner prejudicial to the interests of the City or fair competition. Minor informalities will be waived or the applicant will be allowed to correct them. If a mistake and the intended response are clearly evident on the face of the response, the mistake will be corrected to reflect the intended correct response, and the applicant will be notified in writing; the applicant may not withdraw the bid. An applicant may withdraw a response if a mistake is clearly evident on the face of the response, but the intended correct response is not similarly evident.

1.10 Right to Cancel/Reject Bids

The City of Somerville may cancel this solicitation, or reject in whole or in part any and all bids (i.e. responses), if the City determines that cancellation or rejection serves the best interests of the City.

SECTION 2.0 SPECIFICATIONS/SCOPE OF SERVICES

2.1 Scope of Services

Pursuant to M.G.L. c. 149, §44E(4), the City of Somerville (the City), as the Awarding Authority, requests proposals from qualified contractors for the modular building project outlined in this RFP at the fire station known as Engine 3, located at 255 Somerville Avenue. The Project consists of all services required to complete and deliver: (a) demolition of existing foundations and utilities from a previous modular structure; and, (b) the design, prefabrication, site assembly and/or installation of a modular building suitable for temporary living quarters at the above address.

The modular structure will meet the following characteristics. A detailed description of the design and building specifications will be found in the building program incorporated herein by reference and appended to this RFP as Appendices D and E.

- Approx. 24 SF x 56 SF foundation
- Two-story with a one story link to the existing Engine 3 fire station building
- 4 bedrooms
- 2 full baths on second (2nd) floor
- ½ bath, first (1st) floor
- Kitchen
- Day Room
- Dining Room
- Front entrance
- Rear entrance accessing the existing fire station
- Sliding glass door rear entrance with entry stairs and stone patio
- Crawl space basement with interior access panel

Preparation of Site: The contractor shall be responsible for the preparation of the site for construction of the foundation, including excavation.

Site work: The contractor is responsible for excavation, construction of the foundation, back-fill to the foundation, installation of on-site drainage, and preparation of the lot required for delivery of the modular home building to be assembled. The contractor is responsible for the placement of the modular structure on the building foundation at the site, including the provisioning of a crane and any required police details.

The contractor is responsible for the provision and expense of temporary power and sanitary facilities. The contractor must complete the hook-up to the water and sewer utilities already located at the site and coordinate the connection of the permanent gas and electric services, as provided by the owner, to the structure.

The contractor is responsible for the replacement of the existing driveway.

The work is estimated to cost approximately **\$600,000.00**.

The selected proposer is required to pay Massachusetts Prevailing Wage for all work performed at

the building site. The Prevailing Wages to be used for this project are incorporated herein by reference and appended to this RFP as Appendix B.

2.2 Specifications and Proposal Requirements

The contractor's responsibilities will include all of the following:

- Design and fabrication of modular units in accordance with all specifications set forth in this RFP and all program requirement and applicable building codes.
- Site design in accordance with all specifications set forth in this RFP and all program requirement and applicable building codes.
- Construction of foundations, on site drainage and backfill in accordance with the plans and specification set forth in this RFP.
- Provision and expense of all temporary utility and sanitary facilities at the project site.
- Costs of any police details required for the completion of the scope of work.
- Delivery of all modular units and construction materials to the construction site.
- Acquisition of all permits required for the transportation of modular units from the factory to the construction site.
- Acquisition of all required building permits.
- Complete installation and assembly of modular units in accordance with all plans and specifications set forth in the RFP and all applicable building codes.
- Connection of all electrical, telecommunication, water, and sanitary service in accordance with the plans and specifications set forth in the RFP.
- Complete driveway construction site work.
- Acquisition of all use and occupancy permits.
- Finish grading and removal of all debris from the site.
- All repairs and corrective work required by applicable warranties.

Specifications should be prepared with close attention to the RFP requirements and state building code requirement for:

- Foundations, or concrete footings, anchoring and skirting.
- Exterior stairs, entrance ramps and corridors.
- Floors: joists, bottom board, insulation, subflooring, weight load capacity, and floor

coverings.

- Walls: studs, insulation, composition, siding, weight load capacity, wind load capacity, ceiling height, sound proofing, and interior finishes.
- Roof: composition, sheathing, framing, weight load capacity, pitch, insulation, eaves and downspouts, and ceiling materials.
- Doors: number, size, construction of frames, materials, weatherstripping, and lockset and hardware details.
- Windows: number, size, construction of frames, glazing, weatherstripping, screens, and lock and hardware details.
- HVAC systems: functional requirements for and description of heating, ventilation, and cooling systems.
- Plumbing: requirements for supply, waste, and vent lines, and fittings; size, type, and capacity of water heaters; and description of plumbing fixture requirements, including sinks, and water closets.
- Electrical systems: service requirements, capacity, and outlets.
- Lighting: illumination requirements and type of fixtures.
- Fire protection: alarms, smoke detectors, and CO2 detectors,
- Miscellaneous: phone and internet hookups, special features.

2.3 Proposal Requirements

The non-price proposal shall consist of the following documents. All standard City forms are found in Appendix A. A response that does not provide the information and documentation requested may be deemed nonresponsive and thereafter rejected.

1. Certification by the State Board of Building Regulations and Standards that the manufacturer of the modular buildings meets state building code requirements for the Commonwealth of Massachusetts.
2. Applicants must include a set of detailed plans and specifications for the proposed modular building. Proposals must include all manufacturers' specifications governing the materials and equipment used in the modular buildings. The plans submitted with each proposal must provide all drawing necessary to portray to the City all pertinent design details of the modular buildings and the passageways connecting them to existing buildings, including:
 - mounting plans and details.

- architectural type floor plans.
 - factory plans and details of the buildings; interconnecting areas such as corridors, passageways, stairs and ramps.
 - all manufacturer specifications governing the materials, equipment, and fixtures used in the buildings.
 - the proposed installation plan.
3. A complete description of all warranties that apply to the building, its equipment and components, and the installation work provided by the manufacturer or by the applicant relative to the design, manufacture, and installation of the modular buildings, including both general warranties and special warranties associated with particular components and equipment.
 4. Certification that the proposed modular buildings will be either: (1) manufactured within Massachusetts, or (2) manufactured outside Massachusetts but within the United States, or (3) manufactured outside of the United States, signed and submitted with the Non-Price Proposal Transmittal Form appended to this RFP.
 5. Certification that the proposed modular building plans comply with all Building Codes, including the Stretch Building Code, and will meet the regulations and requirements of the Commonwealth's Manufactured Building Program, signed and submitted on the Non-Price Proposal Transmittal Form appended to this RFP.
 6. Non-Price Proposal Transmittal Form, signed by an individual authorized to bind the applicant contractually, certifying that the applicant will, if accepted for a contract award, execute a contract in accordance with the terms of this proposal within five (5) days of the notice of award and will furnish to the City a payment bond and a performance bond, each in the sum of the contract price, as required by M.G.L. c. 149, §44E, signed and submitted on the Non-Price Proposal Transmittal Form appended to this RFP.
 7. Certification that the applicant, if awarded a contract, will guarantee completion of all work required within 150 calendar days from the date of notification of award, signed and submitted on the Non-Price Proposal Transmittal Form appended to this RFP.
 8. Certification that the applicant can furnish labor that can work in concert with other elements of labor employed at the installation site, signed and submitted on the Non-Price Proposal Transmittal Form appended to this RFP.
 9. Certification of compliance with the registration requirements for foreign corporations, under M.G.L. c. 30, §39L, signed and submitted on the Non-Price Proposal Submittal Form appended to the RFP.

10. Certification of compliance with state tax laws, reporting of employees and contractors, and withholding and remitting of child support, as required by M.G.L. c. 62C, §49A, signed and submitted on the Form appended to this RFP.

The following forms (aside from DCAMM certificates) are found in Appendix A and are referenced on the Respondent's Checklist:

Required Submissions (included with response)

- o Past Performance / Reference Form
 - Contact names, phone numbers and e-mail addresses are required by the City of Somerville.
- o Certificate of Non-Collusion & Tax Compliance
- o Certificate of Signature Authority
- o Somerville Living Wage Ordinance Form
- o Prevailing Wage Compliance Form
- o Sub-Vendor/Sub-Contractor Form
- o Responsible Employer Ordinance Form
- o DCAMM Certificate of Eligibility for Modular Construction/Prefabrication or General Construction and Update Statement
- o Vendor TIN Certification Form

Required Submissions (to be provided post award)

- o Certificate of Good Standing: furnish with non-price proposal if possible
- o Insurance Certificate: As outlined on attached form included in this solicitation, must be provided by the **awarded vendor** within ten (10) business days of Notice of Award

The price proposal, in a separately sealed envelope, must consist of the following documents:

1. A firm, fixed price that includes the furnishing of all materials, services, labor, performance and payment bonds, insurance, allowances, and other costs incurred in the performance the contract, signed by an individual authorized to bind the applicant contractually, and submitted on Price Proposal Form appended to this RFP.

2. A proposal deposit payable to the **City of Somerville**, in the amount of 5% of the total contract price, considering all allowances, in the form of cash, certified check, treasurer's or cashier's check issued by a responsible bank or trust company, or a bid bond issued by a surety company licensed to do business in the Commonwealth of Massachusetts and satisfactory to the City of Somerville as the Awarding Authority.

SECTION 3.0

COMPARATIVE EVALUATION CRITERIA

Non-price proposals that meet all of the quality and submission requirements of this RFP, outlined in this section 2, will be evaluated and rated solely on the basis of the evaluation criteria contained in this section.

Comparative Evaluation Criteria will be applied uniformly to all proposals. Each criterion shall be rated as follows:

- **Highly Advantageous** - submission excels on the specific criterion
- **Advantageous** - submission meets evaluation standard for the criterion
- **Not Advantageous** - submission does not fully meet the evaluation criterion or leaves a question or issue not fully addressed
- **Unacceptable** - submission does not address the elements of this criterion

Each responsive non-price proposal will be assigned a rating for each of the following criteria:

1. Does the proposal meet the requirements for performance and materials set forth in the Technical Specifications?

Highly Advantageous: Exceeds the requirements; indicates that performance and materials will be better than the minimum required by the RFP.

Advantageous: Clearly and unambiguously meets the requirements.

Not Advantageous: Will meet the requirements with minor revisions.

Unacceptable: Will require significant revisions to meet the requirements.

2. Does the proposal meet the layout requirements set forth in the Drawings?

Highly Advantageous: Exceeds the requirements; improves on the layout depicted in the RFP drawings.

Advantageous: Clearly and unambiguously meets the requirements.

Not Advantageous: Will meet the requirements with minor revisions.

Unacceptable: Will require significant revisions to meet the requirements.

3. Is the proposal clear; is the intent of the Applicant clearly presented?

Highly Advantageous: Proposal is of outstanding quality.

Advantageous: Proposal is clear and unambiguous.

Not Advantageous: Proposal is somewhat unclear and ambiguous, but the items in question are not substantive.

Unacceptable: Proposal is unclear on significant issues.

4. Prior Similar Experience.

Highly Advantageous: if more than five (5) similar projects have been completed satisfactorily within the last three (3) years.

Advantageous: if three (3) to five (5) similar projects have been completed satisfactorily in the last three (3) years.

Not Advantageous: if fewer than three (3) similar projects have been completed satisfactorily in the last three (3) years.

Unacceptable: if no similar projects have been completed satisfactorily in the last three (3) years.

5. Schedule: See the timeline for substantial completion and final completion in section 1.6

Highly Advantageous - for the proposal that provides that the guaranteed date by which a Certificate of Occupancy will be secured, will be 30 days prior to the required date of Certificate of Occupancy.

Advantageous - for the proposal that provides that the guaranteed date by which a Certificate of Occupancy will be secured, will be the required date of Certificate of Occupancy.

Unacceptable - for the proposal that provides that the Certificate of Occupancy will not be secured by the required date of Certificate of Occupancy.

6. References: Based on reference checks and/or clearly accessible documentation of past performance.

Highly Advantageous: if more than five (5) references are from similar projects successfully completed in Massachusetts with the past five (5) years.

Advantageous: if three (3) to five (5) references are from similar projects successfully completed in Massachusetts within the past five (5) years.

Not Advantageous: if fewer than three (3) references are from similar projects successfully completed in Massachusetts within the past five (5) years.

Unacceptable: if no references are from similar projects successfully completed in Massachusetts within the past five (5) years.

In evaluating each non-price proposal, the evaluation committee shall assign a rating of *highly advantageous*, *advantageous*, *not advantageous*, or *unacceptable* for each of the criteria. The evaluation committee may identify any revisions necessary to change a rating on a criterion from *unacceptable* to *advantageous* and shall specify such changes in writing.

The evaluation committee shall assign a **composite rating** of *highly advantageous*, *advantageous*, *not advantageous*, or *unacceptable* for each non-price proposal. Each composite rating shall be justified in writing. After a composite rating has been assigned for each proposal

on the basis of the evaluation criteria in this section, the evaluation committee shall review the price proposals and determine the most advantageous proposal, taking into consideration the non-price proposal ratings and the price. If the evaluation committee selects a proposal other than the lowest-priced proposal, the evaluation committee shall explain in writing why the added benefits of the proposal justify its higher price. The award of the contract to any applicant whose non-price proposal was rate *unacceptable* with respect to one or more criteria will be conditioned on the negotiation of the revisions recommended by the evaluation committee at no increase in the proposed price.

APPENDICES

**APPENDIX A:
CITY OF SOMERVILLE STANDARD FORMS**

**APPENDIX B:
PREVAILING WAGES**

**APPENDIX C:
CITY OF SOMERVILLE OWNER-CONTRACTOR AGREEMENT FOR
PUBLIC CONSTRUCTION PROJECTS**

**APPENDIX D:
TECHNICAL SPECIFICATIONS**

**APPENDIX E:
CONSTRUCTION DOCUMENTS DRAWINGS**

Appendix A

City of Somerville Standard Forms

Proposal Package Forms

Please complete all of the following forms, starting with the Respondent's checklist, and submit these forms as your bid document.

DEADLINE FOR SUBMISSION / PROPOSAL OPENING:

Separately sealed non-price and price proposals (clearly identified on the sealed envelopes, labeled with the name and address of the applicant contractor) must be received at the Purchasing Department, First floor, City Hall, 93 Highland Avenue, Somerville, MA, 02143 on or before:

11:00 a.m., Wednesday, November 12, 2014,

at which time they will be opened and registered before a witness. In the event City Hall is closed, the deadline shall be 11:00 a.m. on the next day City Hall is open for business.

BID DOCUMENTS

The Respondent's Checklist and following documents, signed by the authorized signatory of the bidder, shall be included in the sealed bid (a cover sheet/checklist is included for the bidders' convenience).

MODULAR CONSTRUCTION
NON PRICE PROPOSAL TRANSMITTAL FORM

To the City of Somerville (Awarding Authority):

A. The undersigned proposes to furnish all labor and materials required for the **Design, Prefabrication, Site Assembly/Installation, and all services required to complete and deliver a modular building at 255 Somerville Avenue (Project)** in Somerville, Massachusetts, in accordance with the accompanying Construction Document Drawings and Specifications prepared by **CDR Maguire, Inc.** for the contract price specified below.

This proposal includes addenda numbered _____ through _____.

The undersigned certifies under the penalty of perjury that this proposal is in all respects bona fide, fair and made without collusion or fraud with any other person. As used in this subsection, the word "person" shall mean any natural person, joint venture, partnership, corporation or other business or legal entity.

The undersigned further certifies under penalty of perjury that if awarded a contract, he/she guarantees completion of all work required within 150 calendar days from the date of notification of award of contract.

The undersigned agrees that, if he/she is selected as general contractor, he/she will within five (5) calendar days, Saturdays, Sundays and legal holidays excluded, after presentation thereof by the Awarding Authority, execute a contract in accordance with the terms of this bid/proposal and furnish a performance bond and also a labor and materials or payment bond, each of a surety company qualified to do business under the laws of the Commonwealth and satisfactory to the Awarding Authority and each in the sum of the contract price, provided, however, that if there is more than one (1) surety company, the surety companies shall be jointly and severally liable.

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

The Proposer covenants, that (1) presently, there is no financial interest and shall not acquire any such interest direct or indirect, which would conflict in any manner or degree with the performance of services required to be performed under this Agreement or which would violate M.G.L. c. 268A, as amended; (2) in the performance of this Contract, no person having any such interest shall be employed by the Contractor or engaged as a subcontractor by the Contractor; and (3) no partner or employee of the firm is related by blood or marriage to any Board Member or employee of the Awarding Authority.

The following certifications or documents are attached to this proposal transmittal:

1. Current DCAMM Certificate of Eligibility for of Modular/Prefabricated Construction or General Construction.

2. Signed Contractor Update Statement.
3. A list of at least five (5) references relative to past performance of the proposed manufacturer's modular home buildings.
4. Certification by the State Board of Building Regulations and Standards that the manufacturer of the modular buildings meets state building code requirements of the Commonwealth of Massachusetts.
5. A set of detailed plans and specifications for the proposed modular building including all manufacturers' specifications governing the materials and equipment used in the modular buildings. The plans submitted provide all drawing necessary to portray to the City of Somerville all pertinent design details of the modular buildings and the passageways connecting them to existing buildings, including:
 - mounting plans and details.
 - architectural floor plans.
 - factory plans and details of the buildings; interconnecting areas such as corridors, passageways, stairs and ramps.
 - all manufacturer specifications governing the materials, equipment, and fixtures used in the buildings.
 - the proposed installation plan.
6. The complete terms of all warranties that apply to the building, its equipment and components, and the installation work provided by the undersigned or the manufacturer relative to the design, manufacture, and installation of the modular buildings, including both general warranties and special warranties associated with particular components and equipment.
7. Certification of whether the proposed modular building will be either (1) manufactured within Massachusetts, or (2) manufactured outside Massachusetts but within the United States, or (3) manufactured outside of the United States.
8. Certification that the proposed modular building plans comply with all Building Codes, including the Stretch Building Code, and will meet the regulations and requirements of the Commonwealth's Manufactured Building Program.

Date _____

(Company Name of Proposer)

By _____
(Signature of Authorized Signatory)

Print Name & Title of Person Signing Proposal)

(Business Address)

(City, State and Zip Code)

(Telephone Number & Fax Number)

(E-mail address)

PAST PERFORMANCE / REFERENCE SHEET

The City requires that the Contractor demonstrate experience providing similar services for a minimum of three (3) projects similar in Scope. Three (3) references shall be provided for past performance.

Please use the below format for all references submitted and provide as much detail as possible in the Summary section.

Past Performance / Reference Title:	
Period of Performance	
POC* Name & Title	
Telephone	
Fax	
Email	
Summary of supplies or services provided	

*Point of Contact of firm/agency providing reference. POCs shall be individuals that worked directly with the applicant.

Form:_____
Contract Number:_____

CITY OF SOMERVILLE

Rev. 08/01/12



Non-Collusion Form and Tax Compliance Certification

Instructions: Complete each part of this two-part form and sign and date where indicated below.

A. NON-COLLUSION FORM

I, the undersigned, hereby certify under penalties of perjury that this bid or proposal has been made and submitted in good faith and without collusion or fraud with any other person.

As used in this certification, the word "person" shall mean any natural person, business, partnership, corporation, union, committee, club, or other organization, entity, or group of individuals.

Signature: _____
(Individual Submitted Bid or Proposal)
Duly Authorized

Name of Business or Entity: _____

Date: _____

B. TAX COMPLIANCE CERTIFICATION

Pursuant to M.G.L. c. 62C, §49A, I certify under the penalties of perjury that, to the best of my knowledge and belief, I am in compliance with all laws of the Commonwealth relating to taxes, reporting of employees and contractors, and withholding and remitting child support, as well as paid all contributions and payments in lieu of contributions pursuant to MGL 151A, §19A(b).

Signature: _____
(Duly Authorized Representative of Vendor)

Name of Business or Entity: _____

Social Security Number or Federal Tax ID#: _____

Date: _____

Print



Certificate of Authority (Corporations Only)

Instructions: Complete this form and sign and date where indicated below.

1. I hereby certify that I, the undersigned, am the duly elected Clerk/Secretary of

(Insert Full Name of Corporation)

2. I hereby certify that the following individual _____
(Insert the Name of Officer who Signed the Contract and Bonds)

is the duly elected _____ of said Corporation.
(Insert the Title of the Officer in Line 2)

3. I hereby certify that on _____
(Insert Date: Must be on or before Date Officer Signed Contract/Bonds)

at a duly authorized meeting of the Board of Directors of said corporation, at which a quorum was present, it was voted that

(Insert Name of Officer from Line 2) (Insert Title of Officer from Line 2)

of this corporation be and hereby is authorized to make, enter into, execute, and deliver contracts and bonds in the name and on behalf of said corporation, and affix its Corporate Seal thereto, and such execution of any contract of obligation in this corporation's name and on its behalf, with or without the Corporate Seal, shall be valid and binding upon this corporation; and that the above vote has not been amended or rescinded and remains in full force and effect as of the date set forth below.

4. **ATTEST:**

Signature: _____
(Clerk or Secretary)

AFFIX CORPORATE SEAL HERE

Printed Name: _____

Printed Title: _____

Date: _____

(Date Must Be on or after Date Officer Signed Contract/Bonds)

Print

Form:_____
Contract Number:_____

CITY OF SOMERVILLE

Rev. 08/01/12



**Certificate of Authority
(Limited Liability Companies Only)**

Instructions: Complete this form and sign and date where indicated below.

1. I, the undersigned, being a member or manager of

(Complete Name of Limited Liability Company)

a limited liability company (LLC) hereby certify as to the contents of this form for the purpose of contracting with the City of Somerville.

2. The LLC is organized under the laws of the state of: _____.

3. The LLC is managed by **(check one)** a ☐ Manager or by its ☐ Members.

4. I hereby certify that each of the following individual(s) is:

- a member/manager of the LLC;
- duly authorized to execute and deliver this contract, agreement, and/or other legally binding documents relating to any contract and/or agreement on behalf of the LLC;
- duly authorized to do and perform all acts and things necessary or appropriate to carry out the terms of this contract or agreement on behalf of the LLC; and
- that no resolution, vote, or other document or action is necessary to establish such authority.

<u>Name</u>	<u>Title</u>

5. **Signature:**_____

Printed Name: _____

Printed Title:_____

Date: _____

Print



SOMERVILLE LIVING WAGE ORDINANCE CERTIFICATION FORM
CITY OF SOMERVILLE CODE OF ORDINANCES SECTION 2-397 et seq.*

Instructions: This form shall be included in all Invitations for Bids and Requests for Proposals which involve the furnishing of labor, time or effort (with no end product other than reports) by vendors contracting or subcontracting with the City of Somerville, where the contract price meets or exceeds the following dollar threshold: \$10,000. If the undersigned is selected, this form will be attached to the contract or subcontract and the certifications made herein shall be incorporated as part of such contract or subcontract. **Complete this form and sign and date where indicated below on page 2.**

Purpose: The purpose of this form is to ensure that such vendors pay a "Living Wage" (defined below) to all covered employees (i.e., all employees except individuals in a city, state or federally funded youth program). In the case of bids, the City will award the contract to the lowest responsive and responsible bidder paying a Living Wage. In the case of RFP's, the City will select the most advantageous proposal from a responsive and responsible offeror paying a Living Wage. In neither case, however, shall the City be under any obligation to select a bid or proposal that exceeds the funds available for the contract.

Definition of "Living Wage": For this contract or subcontract, as of 7/1/2014 "Living Wage" shall be deemed to be an hourly wage of no less than **\$12.05** per hour. From time to time, the Living Wage may be upwardly adjusted and amendments, if any, to the contract or subcontract may require the payment of a higher hourly rate if a higher rate is then in effect.

CERTIFICATIONS

1. The undersigned shall pay no less than the Living Wage to all covered employees who directly expend their time on the contract or subcontract with the City of Somerville.
2. The undersigned shall post a notice, (copy enclosed), to be furnished by the contracting City Department, informing covered employees of the protections and obligations provided for in the Somerville Living Wage Ordinance, and that for assistance and information, including copies of the Ordinance, employees should contact the contracting City Department. Such notice shall be posted in each location where services are performed by covered employees, in a conspicuous place where notices to employees are customarily posted.
3. The undersigned shall maintain payrolls for all covered employees and basic records relating hereto and shall preserve them for a period of three years. The records shall contain the name and address of each employee, the number of hours worked, the gross wages, a copy of the social

* Copies of the Ordinance are available upon request to the Purchasing Department.

Form: _____
Contract Number: _____

CITY OF SOMERVILLE

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security returns, and evidence of payment thereof and such other data as may be required by the contracting City Department from time to time.

4. The undersigned shall submit payroll records to the City upon request and, if the City receives information of possible noncompliance with the provisions the Somerville Living Wage Ordinance, the undersigned shall permit City representatives to observe work being performed at the work site, to interview employees, and to examine the books and records relating to the payrolls being investigated to determine payment of wages.

5. The undersigned shall not fund wage increases required by the Somerville Living Wage Ordinance by reducing the health insurance benefits of any of its employees.

6. The undersigned agrees that the penalties and relief set forth in the Somerville Living Wage Ordinance shall be in addition to the rights and remedies set forth in the contract and/or subcontract.

CERTIFIED BY:

Signature: _____
(Duly Authorized Representative of Vendor)

Title: _____

Name of Vendor: _____

Date: _____

INSTRUCTIONS: PLEASE POST

**NOTICE TO ALL EMPLOYEES
REGARDING PAYMENT OF LIVING WAGE**

Under the Somerville, Massachusetts' Living Wage Ordinance (Ordinance No. 1999-1), any person or entity who has entered into a contract with the City of Somerville is required to pay its employees who are involved in providing services to the City of Somerville no less than a "Living Wage".

The Living Wage as of 7/1/2014 is **\$12.05** per hour. The only employees who are not covered by the Living Wage Ordinance are individuals in a Youth Program. "Youth Program" as defined in the Ordinance, "means any city, state or federally funded program which employs youth, as defined by city, state or federal guidelines, during the summer, or as part of a school to work program, or in any other related seasonal or part-time program."

For assistance and information regarding the protections and obligations provided for in the Living Wage Ordinance and/or a copy of the Living Wage Ordinance, all employees should contact the City of Somerville's Purchasing Department directly.

CERTIFICATE OF GOOD STANDING

TO: Vendor

FROM: Purchasing Department

RE: **CERTIFICATE OF GOOD STANDING**

The **Awarded Vendor** must comply with our request for a **CURRENT “Certificate of Good Standing”**.

If you require information on how to obtain the “Certificate of Good Standing” or Certificate of Registration (Foreign Corporations) from the Commonwealth of Massachusetts, please call the Secretary of State’s Office at (617) 727-2850 (Press #1) located at One (1) Ashburton Place, 17th Floor, Boston, MA 02133 or you may access their web site at: www.sec.state.ma.us/corp/certificates/certificate_request.asp

If your company is incorporated outside of Massachusetts and therefore is a “foreign corporation”, but is registered to do business in Massachusetts, please comply with our request for the Certificate of Registration from the Commonwealth of Massachusetts. If your company is a foreign corporation, but is not registered to do business in Massachusetts, please provide the Certificate of Good Standing from your state of incorporation.

Please note that without the above certificate (s), the City of Somerville cannot execute your contract.

IMPORTANT NOTICE

Requests for Certificates of Good Standing by mail may take a substantial amount of time. A certificate may be obtained immediately in person at the Secretary’s Office at the address above. Also, at this time, the Secretary of State’s Office may not have your current annual report recorded. If this is the case, and you are therefore unable to obtain the Certificate of Good Standing, please forward a copy of your annual report filing fee check with your signed contracts. Please forward your original Certificate of Good Standing to the Purchasing Department upon receipt.

Thank You,

Purchasing Director

INSURANCE REQUIREMENTS

The Vendor/Contractor shall maintain in full force and effect during the duration of this contract insurance issued by companies qualified to do business in the Commonwealth of Massachusetts, as follows:

- a) COMMERCIAL GENERAL LIABILITY, in primary amounts not less than:

\$ 2,000,000.00 per occurrence
\$ 2,000,000.00 aggregate
- b) AUTOMOBILE LIABILITY, including the use of all vehicles owned, leased, hired or borrowed, with limits not less than \$ 2,000,000.00 combined single limit covering work performed under this contract.
- c) WORKER'S COMPENSATION, statutory coverage as provided by General Laws, Chapter 152, as amended.

The Vendor/Contractor shall deposit with City certificates of insurance for such coverage in form and substance satisfactory to the City, **naming the City as an additional insured**, and shall deliver to the City new policies or certificates thereof for any insurance about to expire at least ten (10) days before such expiration. The Vendor/Contractor shall furnish the City with the name and telephone number of the insurance agent and with copies of the insurance policies and endorsements. The Vendor/Contractor shall submit all changes or alterations in the policies to the City for its approval.

Certificate Should Be Made Out To:
City Of Somerville
Purchasing Department
93 Highland Avenue
Somerville, Ma. 02143

Note: If your insurance expires during the life of this contract, you shall be responsible to submit a new certificate(s) covering the period of the contract. No payment will be made on a contract with an expired insurance certificate

WEEKLY PAYROLL RECORDS REPORT & STATEMENT OF COMPLIANCE

In accordance with Massachusetts General Law c. 149, §27B, a true and accurate record must be kept of all persons employed on the public works project for which the enclosed rates have been provided. A Payroll Form has been printed on the reverse of this page and includes all the information required to be kept by law. Every contractor or subcontractor is required to keep these records and preserve them for a period of three years from the date of completion of the contract.

In addition, every contractor and subcontractor is required to submit a copy of their weekly payroll records to the awarding authority. For every week in which an apprentice is employed, a photocopy of the apprentice's identification card must be attached to the payroll report. Once collected, the awarding authority is also required to preserve those records for three years.

In addition, each such contractor, subcontractor, or public body shall furnish to the awarding authority directly, within fifteen days after completion of its portion of the work a statement, executed by the contractor, subcontractor or public body who supervises the payment of wages, in the following form:

STATEMENT OF COMPLIANCE

_____, 20_____

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

do hereby state:

That I pay or supervise the payment of the persons employed by
_____ on the _____

(Contractor, subcontractor or public body)

(Building or project)

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

Signature _____

Title _____

MASSACHUSETTS WEEKLY CERTIFIED PAYROLL REPORT FORM



Company's Name:		Address:		Phone No.:		Payroll No.:																
Employer's Signature:		Title:		Contract No.:		Tax Payer ID No.																
Awarding Authority's Name:		Public Works Project Name:		Public Works Project Location:		Min. Wage Rate Sheet No.																
General / Prime Contractor's Name:		Subcontractor's Name:		"Employer" Hourly Fringe Benefit Contributions																		
Employee Name & Complete Address	Employee is OSHA 10 Certified (?)	Work Classification:	Appr. Rate (%)	Worked							Hours		Project Hours (A)	Hourly Base Wage (B)	Health & Welfare Insurance (C)	ERISA Pension Plan (D)	Supp. Unemp. (E)	Total Hourly Prev. Wage (F)	(A x F)		Check No. (H)	
				Su.	Mo.	Tu.	We.	Th.	Fr.	Sa.	All Other Hours	Total Gross Wages (G)							Project Gross Wages			
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NOTE: Pursuant to MGL Ch. 149 s.27B, every contractor and subcontractor is required to submit a "true and accurate" copy of their weekly payroll records directly to the awarding authority. Failure to comply may result in the commencement of a criminal action or the issuance of a civil citation.

SUB-CONTRACTOR FORM

Please list below any sub-contractors that will be involved with this project.

9. Company Name: _____

Service Provided: _____

Contact Name: _____

Phone # _____

10. Company Name: _____

Service Provided: _____

Contact Name: _____

Phone # _____

11. Company Name: _____

Service Provided: _____

Contact Name: _____

Phone # _____

CITY OF SOMERVILLE
ORDINANCE NO. 2008-08
IN THE BOARD OF ALDERMEN: June 12, 2008

Be it ordained by the Board of Aldermen, in session assembled, that the Code of Ordinances of the City of Somerville, is hereby amended by adding a new Section 2-355 as follows:

Sec. 2-355. Responsible Employer Ordinance.

(a) The Board of Aldermen hereby finds and determines that the failure of certain construction firms awarded contracts funded by the City to include and enforce provisions requiring compliance with state laws governing the payment of prevailing wages, the provision of workers compensation coverage, and the proper classification of individuals as employees and not as independent contractors, as well as provisions concerning health insurance coverage and state-certified apprenticeship programs, is injurious to the life, health and happiness of individuals employed by such firms and is deleterious to the quality of life in the City where most of such individuals reside.

(b) Every contract awarded by the City under G. L. c. 149, § 44A (2) where the amount of the contract is more than one-hundred thousand dollars, and any subcontract awarded in connection with any such general contract where the amount of such subcontract is more than twenty-five thousand dollars, shall be deemed to incorporate by reference the provisions of sub-parts (1) through (5) of this subsection together with the provisions of subsections (c), (d) and (e) of this section.

1. The bidder and all subcontractors under the bidder shall comply with the requirements of G. L. c. 149 concerning the payment of prevailing wage rates to their employees;
2. The bidder and all subcontractors under the bidder must maintain and participate in a bona fide apprentice training program as defined by G. L. c. 23, §§ 11H & 11I for each apprenticeable trade or occupation represented in its workforce that is approved by the division of apprentice training of the department of labor and workforce development of the Commonwealth and must abide by the apprentice to journeymen ratio for each trade prescribed therein in the performance of the contract;
3. The bidder and all subcontractors under the bidder must offer, at its expense, hospitalization and medical benefits for all individuals employed on the project or coverage which is comparable to the hospitalization and medical benefits provided by the health and welfare plans in the applicable craft recognized by G. L. c. 149, § 26, in establishing minimum wage rates. All such plans shall meet or exceed state requirements for such plans.
4. The bidder and all subcontractors under the bidder must maintain appropriate industrial accident insurance coverage in accordance with G. L. c. 152 for all individuals employed on the project;
5. The bidder and all subcontractors under the bidder must properly classify individuals employed on the project as employees rather than independent contractors and comply with all laws concerning workers' compensation insurance coverage, unemployment taxes, social security taxes and income taxes as respects all such employees.

(c) All bidders and all subcontractors under such bidders who are awarded, or otherwise obtain, contracts from the city on projects governed by G. L. c. 149, § 44A (2), shall comply with the obligations described in sub-parts (1) through (5) of subsection (b) of this section for the entire duration of their work on the project, and an officer of each such bidder or subcontractor under the

bidder shall certify under oath and in writing on a weekly basis that they are in compliance with these obligations.

(d) Any bidder or subcontractor under the bidder who fails to comply with any of the obligations described in sub-parts (1) through (5) of subsection (b) of this section for any period of time, or fails to comply with the weekly certification obligations described in subsection (c) of this subsection shall be subject to any or all of the following sanctions:

1. temporary suspension of work on the project until compliance is obtained; or,
2. withholding by the City of payment due under the contract until compliance is obtained; or,
3. permanent removal from any further work on the project; or,
4. recovery by the city from the general contractor of 1/10 of 1% of the general contract or \$ 1,000.00, whichever sum is greater, in the nature of liquidated damages assessed for each week that the general contractor is in non-compliance or, if a subcontractor is in non-compliance, the recovery by the city from the general contractor as a back charge against the subcontractor of 1/10 of 1% of the subcontract price, or \$ 400.00, whichever sum is greater, in the nature of liquidated damages assessed for each week that the subcontractor is in non-compliance.

(e) In addition to these sanctions a general bidder or contractor shall be equally liable for any violation of the obligations described in sub-parts (1) through (5) of subsection (b) of this section committed by any of its subcontractors or sub bidders, excepting only those violations which arise from work performed by subcontractors with subcontracts governed by G. L. c. 149, § 44F. Any contractor or subcontractor who has been determined to have violated any of the provisions of subsections (b) or (c) of this section shall be barred from performing any work on any future contracts awarded by the City for six months for the first violation, three years for the second violation, and permanently for a third violation.

(f) The provisions of this section shall not apply to construction projects for which the low general bid was less than one-hundred thousand dollars, or to work performed pursuant to subcontracts governed by G. L. 149, § 44F where the bid for such subcontract was less than twenty-five thousand dollars.

Receipt Acknowledged _____ day of _____, _____.

Name of Vendor

By: _____
Name

Its: _____
Title

Signature

CITY OF SOMERVILLE
Responsible Employer Ordinance

WEEKLY COMPLIANCE FORM

In accordance with the Code of Ordinances of the City of Somerville, Section 2-355, all general contractors and all subcontractors under such general contractors who are awarded, or otherwise obtain, contracts from the city on projects governed by G. L. c. 149, § 44A (2), shall comply with the obligations described in sub-parts (1) through (5) of subsection (b) of this section for the entire duration of their work on the project, and an officer of each such general contractor or subcontractor under the general contractor where the amount of such subcontract is more than \$25,000.00, shall certify under oath and in writing on a weekly basis that they are in compliance with these obligations.

STATEMENT OF COMPLIANCE

Date _____

Period _____

I, _____, _____
(Print Name) (Title)

Do hereby state that _____ is in compliance with all
(Contractor or Subcontractor)

requirements of the City of Somerville's Responsible Employer Ordinance, City Ordinance Section 2-355, for the duration of all work performed on the

_____ by this general contractor or
(Building or Project)

subcontractor.

(Signature)

Signed under the pains and penalties of perjury

**Documentation of OSHA compliance
(to be inserted by bidder)**

MODULAR CONSTRUCTION
PRICE PROPOSAL FORM

To the City of Somerville (Awarding Authority):

A. The undersigned proposes to furnish all labor and materials required for the **Design, Prefabrication, Site Assembly/Installation, and all services required to complete and deliver a modular building at 255 Somerville Avenue (Project)** in Somerville, Massachusetts, in accordance with the accompanying Construction Document Drawings and Specifications prepared by **CDR Maguire, Inc.** for the contract price specified below.

B. This price proposal includes addenda numbered _____ through _____.

C. The price proposed contract price is:

_____ dollars \$ _____
(total bid proposal in words) (figures)

D. The undersigned submits along with this Price Proposal Form a proposal deposit equal to five percent (5%) of the total contract price, considering all allowances, payable to the City of Somerville is attached in the form of certified check, treasurer's check issued by a responsible, bank or trust company, or bid bond issued by a surety company licensed to do business in the Commonwealth of Massachusetts.

The undersigned further certifies under the penalty of perjury that this bid/proposal is in all respects bona fide, fair and made without collusion or fraud with any other person. As used in this subsection, the word "person" shall mean any natural person, joint venture, partnership, corporation or other business or legal entity. The undersigned further certifies under penalty of perjury that the said undersigned is not presently debarred from doing public construction work in the commonwealth under the provisions of section twenty-nine F (29F) of chapter twenty-nine (29), or any other applicable debarment provisions of any other chapter of the General Laws or any rule or regulation promulgated thereunder.

Date _____

(Company Name of General Bidder)*

By _____
(Signature of General Bidder)

Print Name & Title of Person Signing Bid)

(Business Address)

(City, State and Zip Code)

(Telephone Number & Fax Number)

Email address

* If a foreign corporation, the undersigned is registered to do business in Massachusetts required under M.G.L. c30 §39L and will obtain from the Secretary of State, Foreign Corporation Section, State House, Boston, MA, a certificate stating that our corporation is registered; and furnish said certificate to the City of Somerville as the Awarding Authority prior to execution of a contract.

Appendix B
Prevailing Wages



DEVAL L. PATRICK
Governor

THE COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF LABOR AND WORKFORCE DEVELOPMENT
DEPARTMENT OF LABOR STANDARDS

Prevailing Wage Rates

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

RACHEL KAPRIELIAN
Secretary
HEATHER E. ROWE
Director

Awarding Authority: City of Somerville
Contract Number: **City/Town:** SOMERVILLE
Description of Work: Fire Station 3 Modular Construction - Demolition of existing foundations and utilities from a previous modular structure and construction of a new foundation and modular building living quarters.
Job Location: 255 Somerville Avenue, Somerville, MA

Information about Prevailing Wage Schedules for Awarding Authorities and Contractors

- This wage schedule applies only to the specific project referenced at the top of this page and uniquely identified by the "Wage Request Number" on all pages of this schedule.
- An Awarding Authority must request an updated wage schedule from the Department of Labor Standards ("DLS") if it has not opened bids or selected a contractor within 90 days of the date of issuance of the wage schedule. For CM AT RISK projects (bid pursuant to G.L. c.149A), the earlier of: (a) the execution date of the GMP Amendment, or (b) the bid for the first construction scope of work must be within 90-days of the wage schedule issuance date.
- The wage schedule shall be incorporated in any advertisement or call for bids for the project as required by M.G.L. c. 149, § 27. The wage schedule shall be made a part of the contract awarded for the project. The wage schedule must be posted in a conspicuous place at the work site for the life of the project in accordance with M.G.L. c. 149 § 27. The wages listed on the wage schedule must be paid to employees performing construction work on the project whether they are employed by the prime contractor, a filed sub-bidder, or any sub-contractor.
- All apprentices working on the project are required to be registered with the Massachusetts Division of Apprentice Standards (DAS). Apprentice must keep his/her apprentice identification card on his/her person during all work hours on the project. An apprentice registered with DAS may be paid the lower apprentice wage rate at the applicable step as provided on the prevailing wage schedule. **If an apprentice rate is not listed on the prevailing wage schedule for the trade in which an apprentice is registered with the DAS, the apprentice must be paid the journeyworker's rate for the trade.**
- The wage rates will remain in effect for the duration of the project, except in the case of multi-year public construction projects. For construction projects lasting longer than one year, awarding authorities must request an updated wage schedule. Awarding authorities are required to request these updates no later than two weeks before the anniversary of the date the contract was executed by the awarding authority and the general contractor. For multi-year CM AT RISK projects, awarding authority must request an annual update no later than two weeks before the anniversary date, determined as the earlier of: (a) the execution date of the GMP Amendment, or (b) the execution date of the first amendment to permit procurement of construction services. Contractors are required to obtain the wage schedules from awarding authorities, and to pay no less than these rates to covered workers. The annual update requirement is not applicable to 27F "rental of equipment" contracts.
- Every contractor or subcontractor which performs construction work on the project is required to submit weekly payroll reports and a Statement of Compliance directly to the awarding authority by mail or email and keep them on file for three years. Each weekly payroll report must contain: the employee's name, address, occupational classification, hours worked, and wages paid. Do not submit weekly payroll reports to DLS. A sample of a payroll reporting form may be obtained at <http://www.mass.gov/dols/pw>.
- Contractors with questions about the wage rates or classifications included on the wage schedule have an affirmative obligation to inquire with DLS at (617) 626-6953.
- Employees not receiving the prevailing wage rate set forth on the wage schedule may report the violation to the Fair Labor Division of the office of the Attorney General at (617) 727-3465.
- Failure of a contractor or subcontractor to pay the prevailing wage rates listed on the wage schedule to all employees who perform construction work on the project is a violation of the law and subjects the contractor or subcontractor to civil and criminal penalties.

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
Construction						
(2 AXLE) DRIVER - EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE A</i>	08/01/2014	\$32.40	\$9.91	\$8.80	\$0.00	\$51.11
	12/01/2014	\$32.40	\$9.91	\$9.33	\$0.00	\$51.64
	06/01/2015	\$32.75	\$9.91	\$9.33	\$0.00	\$51.99
	08/01/2015	\$32.75	\$10.41	\$9.33	\$0.00	\$52.49
	12/01/2015	\$32.75	\$10.41	\$10.08	\$0.00	\$53.24
	06/01/2016	\$33.25	\$10.41	\$10.08	\$0.00	\$53.74
	08/01/2016	\$33.25	\$10.91	\$10.08	\$0.00	\$54.24
	12/01/2016	\$33.25	\$10.91	\$10.89	\$0.00	\$55.05
(3 AXLE) DRIVER - EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE A</i>	08/01/2014	\$32.47	\$9.91	\$8.80	\$0.00	\$51.18
	12/01/2014	\$32.47	\$9.91	\$9.33	\$0.00	\$51.71
	06/01/2015	\$32.82	\$9.91	\$9.33	\$0.00	\$52.06
	08/01/2015	\$32.82	\$10.41	\$9.33	\$0.00	\$52.56
	12/01/2015	\$32.82	\$10.41	\$10.08	\$0.00	\$53.31
	06/01/2016	\$33.32	\$10.41	\$10.08	\$0.00	\$53.81
	08/01/2016	\$33.32	\$10.91	\$10.08	\$0.00	\$54.31
	12/01/2016	\$33.32	\$10.91	\$10.89	\$0.00	\$55.12
(4 & 5 AXLE) DRIVER - EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE A</i>	08/01/2014	\$32.59	\$9.91	\$8.80	\$0.00	\$51.30
	12/01/2014	\$32.59	\$9.91	\$9.33	\$0.00	\$51.83
	06/01/2015	\$32.94	\$9.91	\$9.33	\$0.00	\$52.18
	08/01/2015	\$32.94	\$10.41	\$9.33	\$0.00	\$52.68
	12/01/2015	\$32.94	\$10.41	\$10.08	\$0.00	\$53.43
	06/01/2016	\$33.44	\$10.41	\$10.08	\$0.00	\$53.93
	08/01/2016	\$33.44	\$10.91	\$10.08	\$0.00	\$54.43
	12/01/2016	\$33.44	\$10.91	\$10.89	\$0.00	\$55.24
ADS/SUBMERSIBLE PILOT <i>PILE DRIVER LOCAL 56 (ZONE 1)</i>	08/01/2014	\$87.36	\$9.80	\$18.17	\$0.00	\$115.33
	08/01/2015	\$90.51	\$9.80	\$18.17	\$0.00	\$118.48
AIR TRACK OPERATOR <i>LABORERS - ZONE 1</i>	06/01/2014	\$34.85	\$7.30	\$12.70	\$0.00	\$54.85
	12/01/2014	\$35.60	\$7.30	\$12.70	\$0.00	\$55.60
	06/01/2015	\$36.35	\$7.30	\$12.70	\$0.00	\$56.35
	12/01/2015	\$37.10	\$7.30	\$12.70	\$0.00	\$57.10
	06/01/2016	\$37.85	\$7.30	\$12.70	\$0.00	\$57.85
	12/01/2016	\$38.85	\$7.30	\$12.70	\$0.00	\$58.85
For apprentice rates see "Apprentice- LABORER"						
ASBESTOS REMOVER - PIPE / MECH. EQUIPT. <i>HEAT & FROST INSULATORS LOCAL 6 (BOSTON)</i>	06/01/2014	\$31.58	\$10.40	\$5.95	\$0.00	\$47.93
	12/01/2014	\$32.48	\$10.40	\$5.95	\$0.00	\$48.83
	06/01/2015	\$33.43	\$10.40	\$5.95	\$0.00	\$49.78
	12/01/2015	\$34.38	\$10.40	\$5.95	\$0.00	\$50.73
ASPHALT RAKER <i>LABORERS - ZONE 1</i>	06/01/2014	\$34.35	\$7.30	\$12.70	\$0.00	\$54.35
	12/01/2014	\$35.10	\$7.30	\$12.70	\$0.00	\$55.10
	06/01/2015	\$35.85	\$7.30	\$12.70	\$0.00	\$55.85
	12/01/2015	\$36.60	\$7.30	\$12.70	\$0.00	\$56.60
	06/01/2016	\$37.35	\$7.30	\$12.70	\$0.00	\$57.35
	12/01/2016	\$38.35	\$7.30	\$12.70	\$0.00	\$58.35
For apprentice rates see "Apprentice- LABORER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
ASPHALT/CONCRETE/CRUSHER PLANT-ON SITE <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2014	\$41.49	\$10.00	\$14.20	\$0.00	\$65.69
	12/01/2014	\$42.49	\$10.00	\$14.20	\$0.00	\$66.69
	06/01/2015	\$43.24	\$10.00	\$14.20	\$0.00	\$67.44
	12/01/2015	\$44.49	\$10.00	\$14.20	\$0.00	\$68.69
	06/01/2016	\$45.24	\$10.00	\$14.20	\$0.00	\$69.44
	12/01/2016	\$46.49	\$10.00	\$14.20	\$0.00	\$70.69
	06/01/2017	\$47.49	\$10.00	\$14.20	\$0.00	\$71.69
	12/01/2017	\$48.49	\$10.00	\$14.20	\$0.00	\$72.69
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
BACKHOE/FRONT-END LOADER <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2014	\$41.49	\$10.00	\$14.20	\$0.00	\$65.69
	12/01/2014	\$42.49	\$10.00	\$14.20	\$0.00	\$66.69
	06/01/2015	\$43.24	\$10.00	\$14.20	\$0.00	\$67.44
	12/01/2015	\$44.49	\$10.00	\$14.20	\$0.00	\$68.69
	06/01/2016	\$45.24	\$10.00	\$14.20	\$0.00	\$69.44
	12/01/2016	\$46.49	\$10.00	\$14.20	\$0.00	\$70.69
	06/01/2017	\$47.49	\$10.00	\$14.20	\$0.00	\$71.69
	12/01/2017	\$48.49	\$10.00	\$14.20	\$0.00	\$72.69
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
BARCO-TYPE JUMPING TAMPER <i>LABORERS - ZONE 1</i>	06/01/2014	\$34.35	\$7.30	\$12.70	\$0.00	\$54.35
	12/01/2014	\$35.10	\$7.30	\$12.70	\$0.00	\$55.10
	06/01/2015	\$35.85	\$7.30	\$12.70	\$0.00	\$55.85
	12/01/2015	\$36.60	\$7.30	\$12.70	\$0.00	\$56.60
	06/01/2016	\$37.35	\$7.30	\$12.70	\$0.00	\$57.35
	12/01/2016	\$38.35	\$7.30	\$12.70	\$0.00	\$58.35
For apprentice rates see "Apprentice- LABORER"						
BLOCK PAVER, RAMMER / CURB SETTER <i>LABORERS - ZONE 1</i>	06/01/2014	\$34.85	\$7.30	\$12.70	\$0.00	\$54.85
	12/01/2014	\$35.60	\$7.30	\$12.70	\$0.00	\$55.60
	06/01/2015	\$36.35	\$7.30	\$12.70	\$0.00	\$56.35
	12/01/2015	\$37.10	\$7.30	\$12.70	\$0.00	\$57.10
	06/01/2016	\$37.85	\$7.30	\$12.70	\$0.00	\$57.85
	12/01/2016	\$38.85	\$7.30	\$12.70	\$0.00	\$58.85
For apprentice rates see "Apprentice- LABORER"						
BOILER MAKER <i>BOILERMAKERS LOCAL 29</i>	01/01/2010	\$37.70	\$6.97	\$11.18	\$0.00	\$55.85

Apprentice - BOILERMAKER - Local 29**Effective Date -** 01/01/2010

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	65	\$24.51	\$6.97	\$11.18	\$0.00	\$42.66
2	65	\$24.51	\$6.97	\$11.18	\$0.00	\$42.66
3	70	\$26.39	\$6.97	\$11.18	\$0.00	\$44.54
4	75	\$28.28	\$6.97	\$11.18	\$0.00	\$46.43
5	80	\$30.16	\$6.97	\$11.18	\$0.00	\$48.31
6	85	\$32.05	\$6.97	\$11.18	\$0.00	\$50.20
7	90	\$33.93	\$6.97	\$11.18	\$0.00	\$52.08
8	95	\$35.82	\$6.97	\$11.18	\$0.00	\$53.97

Notes:**Apprentice to Journeyworker Ratio:1:5**

BRICK/STONE/ARTIFICIAL MASONRY (INCL. MASONRY WATERPROOFING)	08/01/2014	\$48.96	\$10.18	\$18.22	\$0.00	\$77.36
BRICKLAYERS LOCAL 3 (BOSTON)	02/01/2015	\$49.52	\$10.18	\$18.22	\$0.00	\$77.92
	08/01/2015	\$50.42	\$10.18	\$18.29	\$0.00	\$78.89
	02/01/2016	\$50.99	\$10.18	\$18.29	\$0.00	\$79.46
	08/01/2016	\$51.89	\$10.18	\$18.37	\$0.00	\$80.44
	02/01/2017	\$52.46	\$10.18	\$18.37	\$0.00	\$81.01

Apprentice - BRICK/PLASTER/CEMENT MASON - Local 3 Boston**Effective Date -** 08/01/2014

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$24.48	\$10.18	\$18.22	\$0.00	\$52.88
2	60	\$29.38	\$10.18	\$18.22	\$0.00	\$57.78
3	70	\$34.27	\$10.18	\$18.22	\$0.00	\$62.67
4	80	\$39.17	\$10.18	\$18.22	\$0.00	\$67.57
5	90	\$44.06	\$10.18	\$18.22	\$0.00	\$72.46

Effective Date - 02/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$24.76	\$10.18	\$18.22	\$0.00	\$53.16
2	60	\$29.71	\$10.18	\$18.22	\$0.00	\$58.11
3	70	\$34.66	\$10.18	\$18.22	\$0.00	\$63.06
4	80	\$39.62	\$10.18	\$18.22	\$0.00	\$68.02
5	90	\$44.57	\$10.18	\$18.22	\$0.00	\$72.97

Notes:**Apprentice to Journeyworker Ratio:1:5**

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
BULLDOZER/GRADER/SCRAPER <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2014	\$41.10	\$10.00	\$14.20	\$0.00	\$65.30
	12/01/2014	\$42.09	\$10.00	\$14.20	\$0.00	\$66.29
	06/01/2015	\$42.83	\$10.00	\$14.20	\$0.00	\$67.03
	12/01/2015	\$44.07	\$10.00	\$14.20	\$0.00	\$68.27
	06/01/2016	\$44.82	\$10.00	\$14.20	\$0.00	\$69.02
	12/01/2016	\$46.05	\$10.00	\$14.20	\$0.00	\$70.25
	06/01/2017	\$47.04	\$10.00	\$14.20	\$0.00	\$71.24
	12/01/2017	\$48.03	\$10.00	\$14.20	\$0.00	\$72.23
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
CAISSON & UNDERPINNING BOTTOM MAN <i>LABORERS - FOUNDATION AND MARINE</i>	06/01/2014	\$35.20	\$7.30	\$12.90	\$0.00	\$55.40
	12/01/2014	\$35.95	\$7.30	\$12.90	\$0.00	\$56.15
	06/01/2015	\$36.70	\$7.30	\$12.90	\$0.00	\$56.90
	12/01/2015	\$37.45	\$7.30	\$12.90	\$0.00	\$57.65
	06/01/2016	\$38.20	\$7.30	\$12.90	\$0.00	\$58.40
	12/01/2016	\$39.20	\$7.30	\$12.90	\$0.00	\$59.40
For apprentice rates see "Apprentice- LABORER"						
CAISSON & UNDERPINNING LABORER <i>LABORERS - FOUNDATION AND MARINE</i>	06/01/2014	\$34.05	\$7.30	\$12.90	\$0.00	\$54.25
	12/01/2014	\$34.80	\$7.30	\$12.90	\$0.00	\$55.00
	06/01/2015	\$35.55	\$7.30	\$12.90	\$0.00	\$55.75
	12/01/2015	\$36.30	\$7.30	\$12.90	\$0.00	\$56.50
	06/01/2016	\$37.05	\$7.30	\$12.90	\$0.00	\$57.25
	12/01/2016	\$38.05	\$7.30	\$12.90	\$0.00	\$58.25
For apprentice rates see "Apprentice- LABORER"						
CAISSON & UNDERPINNING TOP MAN <i>LABORERS - FOUNDATION AND MARINE</i>	06/01/2014	\$34.05	\$7.30	\$12.90	\$0.00	\$54.25
	12/01/2014	\$34.80	\$7.30	\$12.90	\$0.00	\$55.00
	06/01/2015	\$35.55	\$7.30	\$12.90	\$0.00	\$55.75
	12/01/2015	\$36.30	\$7.30	\$12.90	\$0.00	\$56.50
	06/01/2016	\$37.05	\$7.30	\$12.90	\$0.00	\$57.25
	12/01/2016	\$38.05	\$7.30	\$12.90	\$0.00	\$58.25
For apprentice rates see "Apprentice- LABORER"						
CARBIDE CORE DRILL OPERATOR <i>LABORERS - ZONE 1</i>	06/01/2014	\$34.35	\$7.30	\$12.70	\$0.00	\$54.35
	12/01/2014	\$35.10	\$7.30	\$12.70	\$0.00	\$55.10
	06/01/2015	\$35.85	\$7.30	\$12.70	\$0.00	\$55.85
	12/01/2015	\$36.60	\$7.30	\$12.70	\$0.00	\$56.60
	06/01/2016	\$37.35	\$7.30	\$12.70	\$0.00	\$57.35
	12/01/2016	\$38.35	\$7.30	\$12.70	\$0.00	\$58.35
For apprentice rates see "Apprentice- LABORER"						
CARPENTER <i>CARPENTERS -ZONE 1 (Metro Boston)</i>	09/01/2014	\$41.65	\$9.80	\$16.11	\$0.00	\$67.56
	03/01/2015	\$42.67	\$9.80	\$16.11	\$0.00	\$68.58

Classification
Effective Date
Base Wage
Health
Pension
**Supplemental
Unemployment**
Total Rate
Apprentice - CARPENTER - Zone 1 Metro Boston
Effective Date - 09/01/2014

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$20.83	\$9.80	\$1.57	\$0.00	\$32.20
2	60	\$24.99	\$9.80	\$1.57	\$0.00	\$36.36
3	70	\$29.16	\$9.80	\$11.40	\$0.00	\$50.36
4	75	\$31.24	\$9.80	\$11.40	\$0.00	\$52.44
5	80	\$33.32	\$9.80	\$12.97	\$0.00	\$56.09
6	80	\$33.32	\$9.80	\$12.97	\$0.00	\$56.09
7	90	\$37.49	\$9.80	\$14.54	\$0.00	\$61.83
8	90	\$37.49	\$9.80	\$14.54	\$0.00	\$61.83

Effective Date - 03/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$21.34	\$9.80	\$1.57	\$0.00	\$32.71
2	60	\$25.60	\$9.80	\$1.57	\$0.00	\$36.97
3	70	\$29.87	\$9.80	\$11.40	\$0.00	\$51.07
4	75	\$32.00	\$9.80	\$11.40	\$0.00	\$53.20
5	80	\$34.14	\$9.80	\$12.97	\$0.00	\$56.91
6	80	\$34.14	\$9.80	\$12.97	\$0.00	\$56.91
7	90	\$38.40	\$9.80	\$14.54	\$0.00	\$62.74
8	90	\$38.40	\$9.80	\$14.54	\$0.00	\$62.74

Notes:
Apprentice to Journeyworker Ratio:1:5
CEMENT MASONRY/PLASTERING
BRICKLAYERS LOCAL 3 (BOSTON)

07/01/2014

\$43.77

\$10.90

\$18.71

\$1.30

\$74.68

01/01/2015

\$44.69

\$10.90

\$18.71

\$1.30

\$75.60

07/01/2015

\$45.29

\$10.90

\$18.71

\$1.30

\$76.20

01/01/2016

\$46.21

\$10.90

\$18.71

\$1.30

\$77.12

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - CEMENT MASONRY/PLASTERING - Eastern Mass (Boston)
Effective Date - 07/01/2014

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$21.89	\$10.90	\$12.21	\$1.30	\$46.30
2	60	\$26.26	\$10.90	\$13.71	\$1.30	\$52.17
3	65	\$28.45	\$10.90	\$14.71	\$1.30	\$55.36
4	70	\$30.64	\$10.90	\$15.71	\$1.30	\$58.55
5	75	\$32.83	\$10.90	\$16.71	\$1.30	\$61.74
6	80	\$35.02	\$10.90	\$17.71	\$1.30	\$64.93
7	90	\$39.39	\$10.90	\$18.71	\$1.30	\$70.30

Effective Date - 01/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$22.35	\$10.90	\$12.21	\$1.30	\$46.76
2	60	\$26.81	\$10.90	\$13.71	\$1.30	\$52.72
3	65	\$29.05	\$10.90	\$14.71	\$1.30	\$55.96
4	70	\$31.28	\$10.90	\$15.71	\$1.30	\$59.19
5	75	\$33.52	\$10.90	\$16.71	\$1.30	\$62.43
6	80	\$35.75	\$10.90	\$17.71	\$1.30	\$65.66
7	90	\$40.22	\$10.90	\$18.71	\$1.30	\$71.13

Notes:

Steps 3,4 are 500 hrs. All other steps are 1,000 hrs.

Apprentice to Journeyworker Ratio:1:3

CHAIN SAW OPERATOR	06/01/2014	\$34.35	\$7.30	\$12.70	\$0.00	\$54.35
LABORERS - ZONE 1	12/01/2014	\$35.10	\$7.30	\$12.70	\$0.00	\$55.10
	06/01/2015	\$35.85	\$7.30	\$12.70	\$0.00	\$55.85
	12/01/2015	\$36.60	\$7.30	\$12.70	\$0.00	\$56.60
	06/01/2016	\$37.35	\$7.30	\$12.70	\$0.00	\$57.35
	12/01/2016	\$38.35	\$7.30	\$12.70	\$0.00	\$58.35
For apprentice rates see "Apprentice- LABORER"						
CLAM SHELLS/SLURRY BUCKETS/HEADING MACHINES	06/01/2014	\$42.49	\$10.00	\$14.20	\$0.00	\$66.69
OPERATING ENGINEERS LOCAL 4	12/01/2014	\$43.49	\$10.00	\$14.20	\$0.00	\$67.69
	06/01/2015	\$44.24	\$10.00	\$14.20	\$0.00	\$68.44
	12/01/2015	\$45.49	\$10.00	\$14.20	\$0.00	\$69.69
	06/01/2016	\$46.24	\$10.00	\$14.20	\$0.00	\$70.44
	12/01/2016	\$47.49	\$10.00	\$14.20	\$0.00	\$71.69
	06/01/2017	\$48.49	\$10.00	\$14.20	\$0.00	\$72.69
	12/01/2017	\$49.49	\$10.00	\$14.20	\$0.00	\$73.69
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
COMPRESSOR OPERATOR <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2014	\$28.80	\$10.00	\$14.20	\$0.00	\$53.00
	12/01/2014	\$29.50	\$10.00	\$14.20	\$0.00	\$53.70
	06/01/2015	\$30.02	\$10.00	\$14.20	\$0.00	\$54.22
	12/01/2015	\$30.89	\$10.00	\$14.20	\$0.00	\$55.09
	06/01/2016	\$31.41	\$10.00	\$14.20	\$0.00	\$55.61
	12/01/2016	\$32.28	\$10.00	\$14.20	\$0.00	\$56.48
	06/01/2017	\$32.97	\$10.00	\$14.20	\$0.00	\$57.17
	12/01/2017	\$33.66	\$10.00	\$14.20	\$0.00	\$57.86

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

DELEADER (BRIDGE) <i>PAINTERS LOCAL 35 - ZONE 1</i>	07/01/2014	\$46.76	\$7.85	\$16.10	\$0.00	\$70.71
	01/01/2015	\$47.66	\$7.85	\$16.10	\$0.00	\$71.61
	07/01/2015	\$48.56	\$7.85	\$16.10	\$0.00	\$72.51
	01/01/2016	\$49.51	\$7.85	\$16.10	\$0.00	\$73.46
	07/01/2016	\$50.46	\$7.85	\$16.10	\$0.00	\$74.41
	01/01/2017	\$51.41	\$7.85	\$16.10	\$0.00	\$75.36

Apprentice - PAINTER Local 35 - BRIDGES/TANKS

Effective Date - 07/01/2014

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$23.38	\$7.85	\$0.00	\$0.00	\$31.23
2	55	\$25.72	\$7.85	\$3.66	\$0.00	\$37.23
3	60	\$28.06	\$7.85	\$3.99	\$0.00	\$39.90
4	65	\$30.39	\$7.85	\$4.32	\$0.00	\$42.56
5	70	\$32.73	\$7.85	\$14.11	\$0.00	\$54.69
6	75	\$35.07	\$7.85	\$14.44	\$0.00	\$57.36
7	80	\$37.41	\$7.85	\$14.77	\$0.00	\$60.03
8	90	\$42.08	\$7.85	\$15.44	\$0.00	\$65.37

Effective Date - 01/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$23.83	\$7.85	\$0.00	\$0.00	\$31.68
2	55	\$26.21	\$7.85	\$3.66	\$0.00	\$37.72
3	60	\$28.60	\$7.85	\$3.99	\$0.00	\$40.44
4	65	\$30.98	\$7.85	\$4.32	\$0.00	\$43.15
5	70	\$33.36	\$7.85	\$14.11	\$0.00	\$55.32
6	75	\$35.75	\$7.85	\$14.44	\$0.00	\$58.04
7	80	\$38.13	\$7.85	\$14.77	\$0.00	\$60.75
8	90	\$42.89	\$7.85	\$15.44	\$0.00	\$66.18

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
DEMO: ADZEMAN <i>LABORERS - ZONE 1</i>	06/01/2014	\$34.25	\$7.30	\$12.70	\$0.00	\$54.25
	12/01/2014	\$35.00	\$7.30	\$12.70	\$0.00	\$55.00
	06/01/2015	\$35.75	\$7.30	\$12.70	\$0.00	\$55.75
	12/01/2015	\$36.50	\$7.30	\$12.70	\$0.00	\$56.50
For apprentice rates see "Apprentice- LABORER"						
DEMO: BACKHOE/LOADER/HAMMER OPERATOR <i>LABORERS - ZONE 1</i>	06/01/2014	\$35.25	\$7.30	\$12.70	\$0.00	\$55.25
	12/01/2014	\$36.00	\$7.30	\$12.70	\$0.00	\$56.00
	06/01/2015	\$36.75	\$7.30	\$12.70	\$0.00	\$56.75
	12/01/2015	\$37.50	\$7.30	\$12.70	\$0.00	\$57.50
For apprentice rates see "Apprentice- LABORER"						
DEMO: BURNERS <i>LABORERS - ZONE 1</i>	06/01/2014	\$35.00	\$7.30	\$12.70	\$0.00	\$55.00
	12/01/2014	\$35.75	\$7.30	\$12.70	\$0.00	\$55.75
	06/01/2015	\$36.50	\$7.30	\$12.70	\$0.00	\$56.50
	12/01/2015	\$37.25	\$7.30	\$12.70	\$0.00	\$57.25
For apprentice rates see "Apprentice- LABORER"						
DEMO: CONCRETE CUTTER/SAWYER <i>LABORERS - ZONE 1</i>	06/01/2014	\$35.25	\$7.30	\$12.70	\$0.00	\$55.25
	12/01/2014	\$36.00	\$7.30	\$12.70	\$0.00	\$56.00
	06/01/2015	\$36.75	\$7.30	\$12.70	\$0.00	\$56.75
	12/01/2015	\$37.50	\$7.30	\$12.70	\$0.00	\$57.50
For apprentice rates see "Apprentice- LABORER"						
DEMO: JACKHAMMER OPERATOR <i>LABORERS - ZONE 1</i>	06/01/2014	\$35.00	\$7.30	\$12.70	\$0.00	\$55.00
	12/01/2014	\$35.75	\$7.30	\$12.70	\$0.00	\$55.75
	06/01/2015	\$36.50	\$7.30	\$12.70	\$0.00	\$56.50
	12/01/2015	\$37.25	\$7.30	\$12.70	\$0.00	\$57.25
For apprentice rates see "Apprentice- LABORER"						
DEMO: WRECKING LABORER <i>LABORERS - ZONE 1</i>	06/01/2014	\$34.25	\$7.30	\$12.70	\$0.00	\$54.25
	12/01/2014	\$35.00	\$7.30	\$12.70	\$0.00	\$55.00
	06/01/2015	\$35.75	\$7.30	\$12.70	\$0.00	\$55.75
	12/01/2015	\$36.50	\$7.30	\$12.70	\$0.00	\$56.50
For apprentice rates see "Apprentice- LABORER"						
DIRECTIONAL DRILL MACHINE OPERATOR <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2014	\$41.10	\$10.00	\$14.20	\$0.00	\$65.30
	12/01/2014	\$42.09	\$10.00	\$14.20	\$0.00	\$66.29
	06/01/2015	\$42.83	\$10.00	\$14.20	\$0.00	\$67.03
	12/01/2015	\$44.07	\$10.00	\$14.20	\$0.00	\$68.27
	06/01/2016	\$44.82	\$10.00	\$14.20	\$0.00	\$69.02
	12/01/2016	\$46.05	\$10.00	\$14.20	\$0.00	\$70.25
	06/01/2017	\$47.04	\$10.00	\$14.20	\$0.00	\$71.24
	12/01/2017	\$48.03	\$10.00	\$14.20	\$0.00	\$72.23
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
DIVER <i>PILE DRIVER LOCAL 56 (ZONE 1)</i>	08/01/2014	\$58.24	\$9.80	\$18.17	\$0.00	\$86.21
	08/01/2015	\$60.34	\$9.80	\$18.17	\$0.00	\$88.31
DIVER TENDER <i>PILE DRIVER LOCAL 56 (ZONE 1)</i>	08/01/2014	\$41.60	\$9.80	\$18.17	\$0.00	\$69.57
	08/01/2015	\$43.10	\$9.80	\$18.17	\$0.00	\$71.07
DIVER TENDER (EFFLUENT) <i>PILE DRIVER LOCAL 56 (ZONE 1)</i>	08/01/2014	\$62.40	\$9.80	\$18.17	\$0.00	\$90.37
	08/01/2015	\$64.65	\$9.80	\$18.17	\$0.00	\$92.62
DIVER/SLURRY (EFFLUENT) <i>PILE DRIVER LOCAL 56 (ZONE 1)</i>	08/01/2014	\$87.36	\$9.80	\$18.17	\$0.00	\$115.33
	08/01/2015	\$90.51	\$9.80	\$18.17	\$0.00	\$118.48

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
DRAWBRIDGE OPERATOR (Construction)	09/01/2014	\$44.79	\$13.00	\$15.04	\$0.00	\$72.83
<i>ELECTRICIANS LOCAL 103</i>	03/01/2015	\$45.17	\$13.00	\$15.40	\$0.00	\$73.57
	09/01/2015	\$46.13	\$13.00	\$15.43	\$0.00	\$74.56
	03/01/2016	\$47.08	\$13.00	\$15.46	\$0.00	\$75.54

For apprentice rates see "Apprentice- ELECTRICIAN"

ELECTRICIAN	09/01/2014	\$44.79	\$13.00	\$15.04	\$0.00	\$72.83
<i>ELECTRICIANS LOCAL 103</i>	03/01/2015	\$45.17	\$13.00	\$15.40	\$0.00	\$73.57
	09/01/2015	\$46.13	\$13.00	\$15.43	\$0.00	\$74.56
	03/01/2016	\$47.08	\$13.00	\$15.46	\$0.00	\$75.54

Apprentice - *ELECTRICIAN - Local 103*

Effective Date - 09/01/2014

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$17.92	\$13.00	\$0.54	\$0.00	\$31.46
2	40	\$17.92	\$13.00	\$0.54	\$0.00	\$31.46
3	45	\$20.16	\$13.00	\$11.33	\$0.00	\$44.49
4	45	\$20.16	\$13.00	\$11.33	\$0.00	\$44.49
5	50	\$22.40	\$13.00	\$11.67	\$0.00	\$47.07
6	55	\$24.63	\$13.00	\$12.01	\$0.00	\$49.64
7	60	\$26.87	\$13.00	\$12.35	\$0.00	\$52.22
8	65	\$29.11	\$13.00	\$12.68	\$0.00	\$54.79
9	70	\$31.35	\$13.00	\$13.02	\$0.00	\$57.37
10	75	\$33.59	\$13.00	\$13.36	\$0.00	\$59.95

Effective Date - 03/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$18.07	\$13.00	\$0.54	\$0.00	\$31.61
2	40	\$18.07	\$13.00	\$0.54	\$0.00	\$31.61
3	45	\$20.33	\$13.00	\$11.63	\$0.00	\$44.96
4	45	\$20.33	\$13.00	\$11.63	\$0.00	\$44.96
5	50	\$22.59	\$13.00	\$11.97	\$0.00	\$47.56
6	55	\$24.84	\$13.00	\$12.32	\$0.00	\$50.16
7	60	\$27.10	\$13.00	\$12.66	\$0.00	\$52.76
8	65	\$29.36	\$13.00	\$13.00	\$0.00	\$55.36
9	70	\$31.62	\$13.00	\$13.34	\$0.00	\$57.96
10	75	\$33.88	\$13.00	\$13.69	\$0.00	\$60.57

Notes: :
App Prior 1/1/03; 30/35/40/45/50/55/65/70/75/80

Apprentice to Journeyworker Ratio:2:3***

ELEVATOR CONSTRUCTOR	01/01/2012	\$52.45	\$8.78	\$6.96	\$0.00	\$68.19
<i>ELEVATOR CONSTRUCTORS LOCAL 4</i>						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
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Apprentice - ELEVATOR CONSTRUCTOR - Local 4

Effective Date - 01/01/2012

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$26.23	\$8.78	\$0.00	\$0.00	\$35.01
2	55	\$28.85	\$8.78	\$6.96	\$0.00	\$44.59
3	65	\$34.09	\$8.78	\$6.96	\$0.00	\$49.83
4	70	\$36.72	\$8.78	\$6.96	\$0.00	\$52.46
5	80	\$41.96	\$8.78	\$6.96	\$0.00	\$57.70

Notes:

Steps 1-2 are 6 mos.; Steps 3-5 are 1 year

Apprentice to Journeyworker Ratio:1:1

ELEVATOR CONSTRUCTOR HELPER <i>ELEVATOR CONSTRUCTORS LOCAL 4</i>	01/01/2012	\$38.59	\$8.78	\$6.96	\$0.00	\$54.33
For apprentice rates see "Apprentice - ELEVATOR CONSTRUCTOR"						
FENCE & GUARD RAIL ERECTOR <i>LABORERS - ZONE 1</i>	06/01/2014	\$34.35	\$7.30	\$12.70	\$0.00	\$54.35
	12/01/2014	\$35.10	\$7.30	\$12.70	\$0.00	\$55.10
	06/01/2015	\$35.85	\$7.30	\$12.70	\$0.00	\$55.85
	12/01/2015	\$36.60	\$7.30	\$12.70	\$0.00	\$56.60
	06/01/2016	\$37.35	\$7.30	\$12.70	\$0.00	\$57.35
	12/01/2016	\$38.35	\$7.30	\$12.70	\$0.00	\$58.35
For apprentice rates see "Apprentice- LABORER"						
FIELD ENG.INST.PERSON-BLDG,SITE,HVY/HWY <i>OPERATING ENGINEERS LOCAL 4</i>	05/01/2014	\$38.87	\$10.00	\$14.18	\$0.00	\$63.05
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FIELD ENG.PARTY CHIEF-BLDG,SITE,HVY/HWY <i>OPERATING ENGINEERS LOCAL 4</i>	05/01/2014	\$40.29	\$10.00	\$14.18	\$0.00	\$64.47
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FIELD ENG.ROD PERSON-BLDG,SITE,HVY/HWY <i>OPERATING ENGINEERS LOCAL 4</i>	05/01/2014	\$20.92	\$10.00	\$14.18	\$0.00	\$45.10
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FIRE ALARM INSTALLER <i>ELECTRICIANS LOCAL 103</i>	09/01/2014	\$44.79	\$13.00	\$15.04	\$0.00	\$72.83
	03/01/2015	\$45.17	\$13.00	\$15.40	\$0.00	\$73.57
	09/01/2015	\$46.13	\$13.00	\$15.43	\$0.00	\$74.56
	03/01/2016	\$47.08	\$13.00	\$15.46	\$0.00	\$75.54
For apprentice rates see "Apprentice- ELECTRICIAN"						
FIRE ALARM REPAIR / MAINTENANCE <i>LOCAL 103</i>	09/01/2014	\$33.59	\$13.00	\$13.36	\$0.00	\$59.95
/ COMMISSIONING <i>ELECTRICIANS</i>	03/01/2015	\$33.88	\$13.00	\$13.70	\$0.00	\$60.58
	09/01/2015	\$34.60	\$13.00	\$13.72	\$0.00	\$61.32
	03/01/2016	\$35.31	\$13.00	\$13.74	\$0.00	\$62.05
For apprentice rates see "Apprentice- TELECOMMUNICATIONS TECHNICIAN"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
FIREMAN (ASST. ENGINEER) <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2014	\$34.59	\$10.00	\$14.20	\$0.00	\$58.79
	12/01/2014	\$35.43	\$10.00	\$14.20	\$0.00	\$59.63
	06/01/2015	\$36.05	\$10.00	\$14.20	\$0.00	\$60.25
	12/01/2015	\$37.10	\$10.00	\$14.20	\$0.00	\$61.30
	06/01/2016	\$37.72	\$10.00	\$14.20	\$0.00	\$61.92
	12/01/2016	\$38.76	\$10.00	\$14.20	\$0.00	\$62.96
	06/01/2017	\$39.60	\$10.00	\$14.20	\$0.00	\$63.80
	12/01/2017	\$40.43	\$10.00	\$14.20	\$0.00	\$64.63
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FLAGGER & SIGNALER <i>LABORERS - ZONE I</i>	06/01/2014	\$20.50	\$7.30	\$12.70	\$0.00	\$40.50
	12/01/2014	\$20.50	\$7.30	\$12.70	\$0.00	\$40.50
	06/01/2015	\$20.50	\$7.30	\$12.70	\$0.00	\$40.50
	12/01/2015	\$20.50	\$7.30	\$12.70	\$0.00	\$40.50
	06/01/2016	\$20.50	\$7.30	\$12.70	\$0.00	\$40.50
	12/01/2016	\$20.50	\$7.30	\$12.70	\$0.00	\$40.50
For apprentice rates see "Apprentice- LABORER"						
FLOORCOVERER <i>FLOORCOVERERS LOCAL 2168 ZONE I</i>	09/01/2014	\$40.40	\$9.80	\$17.21	\$0.00	\$67.41

Apprentice - FLOORCOVERER - Local 2168 Zone I

Effective Date - 09/01/2014

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$20.20	\$9.80	\$1.79	\$0.00	\$31.79
2	55	\$22.22	\$9.80	\$1.79	\$0.00	\$33.81
3	60	\$24.24	\$9.80	\$11.84	\$0.00	\$45.88
4	65	\$26.26	\$9.80	\$11.84	\$0.00	\$47.90
5	70	\$28.28	\$9.80	\$13.63	\$0.00	\$51.71
6	75	\$30.30	\$9.80	\$13.63	\$0.00	\$53.73
7	80	\$32.32	\$9.80	\$15.42	\$0.00	\$57.54
8	85	\$34.34	\$9.80	\$15.42	\$0.00	\$59.56

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

FORK LIFT/CHERRY PICKER <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2014	\$41.49	\$10.00	\$14.20	\$0.00	\$65.69
	12/01/2014	\$42.49	\$10.00	\$14.20	\$0.00	\$66.69
	06/01/2015	\$43.24	\$10.00	\$14.20	\$0.00	\$67.44
	12/01/2015	\$44.49	\$10.00	\$14.20	\$0.00	\$68.69
	06/01/2016	\$45.24	\$10.00	\$14.20	\$0.00	\$69.44
	12/01/2016	\$46.49	\$10.00	\$14.20	\$0.00	\$70.69
	06/01/2017	\$47.49	\$10.00	\$14.20	\$0.00	\$71.69
	12/01/2017	\$48.49	\$10.00	\$14.20	\$0.00	\$72.69

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
GENERATOR/LIGHTING PLANT/HEATERS <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2014	\$28.80	\$10.00	\$14.20	\$0.00	\$53.00
	12/01/2014	\$29.50	\$10.00	\$14.20	\$0.00	\$53.70
	06/01/2015	\$30.02	\$10.00	\$14.20	\$0.00	\$54.22
	12/01/2015	\$30.89	\$10.00	\$14.20	\$0.00	\$55.09
	06/01/2016	\$31.41	\$10.00	\$14.20	\$0.00	\$55.61
	12/01/2016	\$32.28	\$10.00	\$14.20	\$0.00	\$56.48
	06/01/2017	\$32.97	\$10.00	\$14.20	\$0.00	\$57.17
	12/01/2017	\$33.66	\$10.00	\$14.20	\$0.00	\$57.86

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

GLAZIER (GLASS PLANK/AIR BARRIER/INTERIOR SYSTEMS) <i>GLAZIERS LOCAL 35 (ZONE 1)</i>	07/01/2014	\$42.05	\$7.85	\$16.10	\$0.00	\$66.00
	01/01/2015	\$42.95	\$7.85	\$16.10	\$0.00	\$66.90
	07/01/2015	\$43.85	\$7.85	\$16.10	\$0.00	\$67.80
	01/01/2016	\$44.80	\$7.85	\$16.10	\$0.00	\$68.75
	07/01/2016	\$45.75	\$7.85	\$16.10	\$0.00	\$69.70
	01/01/2017	\$46.70	\$7.85	\$16.10	\$0.00	\$70.65

Apprentice - GLAZIER - Local 35 Zone 1

Effective Date - 07/01/2014

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$21.03	\$7.85	\$0.00	\$0.00	\$28.88
2	55	\$23.13	\$7.85	\$3.66	\$0.00	\$34.64
3	60	\$25.23	\$7.85	\$3.99	\$0.00	\$37.07
4	65	\$27.33	\$7.85	\$4.32	\$0.00	\$39.50
5	70	\$29.44	\$7.85	\$14.11	\$0.00	\$51.40
6	75	\$31.54	\$7.85	\$14.44	\$0.00	\$53.83
7	80	\$33.64	\$7.85	\$14.77	\$0.00	\$56.26
8	90	\$37.85	\$7.85	\$15.44	\$0.00	\$61.14

Effective Date - 01/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$21.48	\$7.85	\$0.00	\$0.00	\$29.33
2	55	\$23.62	\$7.85	\$3.66	\$0.00	\$35.13
3	60	\$25.77	\$7.85	\$3.99	\$0.00	\$37.61
4	65	\$27.92	\$7.85	\$4.32	\$0.00	\$40.09
5	70	\$30.07	\$7.85	\$14.11	\$0.00	\$52.03
6	75	\$32.21	\$7.85	\$14.44	\$0.00	\$54.50
7	80	\$34.36	\$7.85	\$14.77	\$0.00	\$56.98
8	90	\$38.66	\$7.85	\$15.44	\$0.00	\$61.95

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
HOISTING ENGINEER/CRANES/GRADALLS <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2014	\$41.49	\$10.00	\$14.20	\$0.00	\$65.69
	12/01/2014	\$42.49	\$10.00	\$14.20	\$0.00	\$66.69
	06/01/2015	\$43.24	\$10.00	\$14.20	\$0.00	\$67.44
	12/01/2015	\$44.49	\$10.00	\$14.20	\$0.00	\$68.69
	06/01/2016	\$45.24	\$10.00	\$14.20	\$0.00	\$69.44
	12/01/2016	\$46.49	\$10.00	\$14.20	\$0.00	\$70.69
	06/01/2017	\$47.49	\$10.00	\$14.20	\$0.00	\$71.69
	12/01/2017	\$48.49	\$10.00	\$14.20	\$0.00	\$72.69

Apprentice - OPERATING ENGINEERS - Local 4

Effective Date - 06/01/2014

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	\$22.82	\$10.00	\$0.00	\$0.00	\$32.82
2	60	\$24.89	\$10.00	\$14.18	\$0.00	\$49.07
3	65	\$26.97	\$10.00	\$14.18	\$0.00	\$51.15
4	70	\$29.04	\$10.00	\$14.18	\$0.00	\$53.22
5	75	\$31.12	\$10.00	\$14.18	\$0.00	\$55.30
6	80	\$33.19	\$10.00	\$14.18	\$0.00	\$57.37
7	85	\$35.27	\$10.00	\$14.18	\$0.00	\$59.45
8	90	\$37.34	\$10.00	\$14.18	\$0.00	\$61.52

Effective Date - 12/01/2014

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	\$23.37	\$10.00	\$0.00	\$0.00	\$33.37
2	60	\$25.49	\$10.00	\$14.18	\$0.00	\$49.67
3	65	\$27.62	\$10.00	\$14.18	\$0.00	\$51.80
4	70	\$29.74	\$10.00	\$14.18	\$0.00	\$53.92
5	75	\$31.87	\$10.00	\$14.18	\$0.00	\$56.05
6	80	\$33.99	\$10.00	\$14.18	\$0.00	\$58.17
7	85	\$36.12	\$10.00	\$14.18	\$0.00	\$60.30
8	90	\$38.24	\$10.00	\$14.18	\$0.00	\$62.42

Notes:

Apprentice to Journeyworker Ratio:1:6

HVAC (DUCTWORK) <i>SHEETMETAL WORKERS LOCAL 17 - A</i>	08/01/2014	\$42.79	\$9.82	\$20.54	\$2.19	\$75.34
	02/01/2015	\$43.69	\$9.82	\$20.54	\$2.19	\$76.24
	08/01/2015	\$44.69	\$9.82	\$20.54	\$2.19	\$77.24
	02/01/2016	\$45.69	\$9.82	\$20.54	\$2.19	\$78.24
	08/01/2016	\$46.84	\$9.82	\$20.54	\$2.19	\$79.39
	02/01/2017	\$47.94	\$9.82	\$20.54	\$2.19	\$80.49
	08/01/2017	\$49.04	\$9.82	\$20.54	\$2.19	\$81.59
	02/01/2018	\$50.19	\$9.82	\$20.54	\$2.19	\$82.74

For apprentice rates see "Apprentice- SHEET METAL WORKER"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
HVAC (ELECTRICAL CONTROLS) <i>ELECTRICIANS LOCAL 103</i>	09/01/2014	\$44.79	\$13.00	\$15.04	\$0.00	\$72.83
	03/01/2015	\$45.17	\$13.00	\$15.40	\$0.00	\$73.57
	09/01/2015	\$46.13	\$13.00	\$15.43	\$0.00	\$74.56
	03/01/2016	\$47.08	\$13.00	\$15.46	\$0.00	\$75.54
For apprentice rates see "Apprentice- ELECTRICIAN"						
HVAC (TESTING AND BALANCING - AIR) <i>SHEETMETAL WORKERS LOCAL 17 - A</i>	08/01/2014	\$42.79	\$9.82	\$20.54	\$2.19	\$75.34
	02/01/2015	\$43.69	\$9.82	\$20.54	\$2.19	\$76.24
	08/01/2015	\$44.69	\$9.82	\$20.54	\$2.19	\$77.24
	02/01/2016	\$45.69	\$9.82	\$20.54	\$2.19	\$78.24
	08/01/2016	\$46.84	\$9.82	\$20.54	\$2.19	\$79.39
	02/01/2017	\$47.94	\$9.82	\$20.54	\$2.19	\$80.49
	08/01/2017	\$49.04	\$9.82	\$20.54	\$2.19	\$81.59
	02/01/2018	\$50.19	\$9.82	\$20.54	\$2.19	\$82.74
For apprentice rates see "Apprentice- SHEET METAL WORKER"						
HVAC (TESTING AND BALANCING - WATER) <i>PIPEFITTERS LOCAL 537</i>	09/01/2014	\$48.69	\$9.20	\$16.64	\$0.00	\$74.53
	03/01/2015	\$49.69	\$9.20	\$16.64	\$0.00	\$75.53
	09/01/2015	\$50.69	\$9.20	\$16.64	\$0.00	\$76.53
	03/01/2016	\$51.69	\$9.20	\$16.64	\$0.00	\$77.53
	09/01/2016	\$52.69	\$9.20	\$16.64	\$0.00	\$78.53
	03/01/2017	\$53.69	\$9.20	\$16.64	\$0.00	\$79.53
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"						
HVAC MECHANIC <i>PIPEFITTERS LOCAL 537</i>	09/01/2014	\$48.69	\$9.20	\$16.64	\$0.00	\$74.53
	03/01/2015	\$49.69	\$9.20	\$16.64	\$0.00	\$75.53
	09/01/2015	\$50.69	\$9.20	\$16.64	\$0.00	\$76.53
	03/01/2016	\$51.69	\$9.20	\$16.64	\$0.00	\$77.53
	09/01/2016	\$52.69	\$9.20	\$16.64	\$0.00	\$78.53
	03/01/2017	\$53.69	\$9.20	\$16.64	\$0.00	\$79.53
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"						
HYDRAULIC DRILLS <i>LABORERS - ZONE 1</i>	06/01/2014	\$34.85	\$7.30	\$12.70	\$0.00	\$54.85
	12/01/2014	\$35.60	\$7.30	\$12.70	\$0.00	\$55.60
	06/01/2015	\$36.35	\$7.30	\$12.70	\$0.00	\$56.35
	12/01/2015	\$37.10	\$7.30	\$12.70	\$0.00	\$57.10
	06/01/2016	\$37.85	\$7.30	\$12.70	\$0.00	\$57.85
	12/01/2016	\$38.85	\$7.30	\$12.70	\$0.00	\$58.85
For apprentice rates see "Apprentice- LABORER"						
INSULATOR (PIPES & TANKS) <i>HEAT & FROST INSULATORS LOCAL 6 (BOSTON)</i>	09/01/2014	\$43.31	\$11.25	\$12.60	\$0.00	\$67.16

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
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Apprentice - ASBESTOS INSULATOR (Pipes & Tanks) - Local 6 Boston

Effective Date - 09/01/2014

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$21.66	\$11.25	\$9.35	\$0.00	\$42.26
2	60	\$25.99	\$11.25	\$10.00	\$0.00	\$47.24
3	70	\$30.32	\$11.25	\$10.65	\$0.00	\$52.22
4	80	\$34.65	\$11.25	\$11.30	\$0.00	\$57.20

Notes:

Steps are 1 year

Apprentice to Journeyworker Ratio:1:4

IRONWORKER/WELDER	03/16/2014	\$41.19	\$7.70	\$19.25	\$0.00	\$68.14
IRONWORKERS LOCAL 7 (BOSTON AREA)						

Apprentice - IRONWORKER - Local 7 Boston

Effective Date - 03/16/2014

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$24.71	\$7.70	\$19.25	\$0.00	\$51.66
2	70	\$28.83	\$7.70	\$19.25	\$0.00	\$55.78
3	75	\$30.89	\$7.70	\$19.25	\$0.00	\$57.84
4	80	\$32.95	\$7.70	\$19.25	\$0.00	\$59.90
5	85	\$35.01	\$7.70	\$19.25	\$0.00	\$61.96
6	90	\$37.07	\$7.70	\$19.25	\$0.00	\$64.02

Notes:

** Structural 1:6; Ornamental 1:4

Apprentice to Journeyworker Ratio:**

JACKHAMMER & PAVING BREAKER OPERATOR	06/01/2014	\$34.35	\$7.30	\$12.70	\$0.00	\$54.35
LABORERS - ZONE 1						
	12/01/2014	\$35.10	\$7.30	\$12.70	\$0.00	\$55.10
	06/01/2015	\$35.85	\$7.30	\$12.70	\$0.00	\$55.85
	12/01/2015	\$36.60	\$7.30	\$12.70	\$0.00	\$56.60
	06/01/2016	\$37.35	\$7.30	\$12.70	\$0.00	\$57.35
	12/01/2016	\$38.35	\$7.30	\$12.70	\$0.00	\$58.35

For apprentice rates see "Apprentice- LABORER"

LABORER	06/01/2014	\$34.10	\$7.30	\$12.70	\$0.00	\$54.10
LABORERS - ZONE 1						
	12/01/2014	\$34.85	\$7.30	\$12.70	\$0.00	\$54.85
	06/01/2015	\$35.60	\$7.30	\$12.70	\$0.00	\$55.60
	12/01/2015	\$36.35	\$7.30	\$12.70	\$0.00	\$56.35
	06/01/2016	\$37.10	\$7.30	\$12.70	\$0.00	\$57.10
	12/01/2016	\$38.10	\$7.30	\$12.70	\$0.00	\$58.10

Classification
Effective Date
Base Wage
Health
Pension
**Supplemental
Unemployment**
Total Rate
Apprentice - LABORER - Zone 1
Effective Date - 06/01/2014

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$20.46	\$7.30	\$12.70	\$0.00	\$40.46
2	70	\$23.87	\$7.30	\$12.70	\$0.00	\$43.87
3	80	\$27.28	\$7.30	\$12.70	\$0.00	\$47.28
4	90	\$30.69	\$7.30	\$12.70	\$0.00	\$50.69

Effective Date - 12/01/2014

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$20.91	\$7.30	\$12.70	\$0.00	\$40.91
2	70	\$24.40	\$7.30	\$12.70	\$0.00	\$44.40
3	80	\$27.88	\$7.30	\$12.70	\$0.00	\$47.88
4	90	\$31.37	\$7.30	\$12.70	\$0.00	\$51.37

Notes:
Apprentice to Journeyworker Ratio:1:5
LABORER: CARPENTER TENDER
LABORERS - ZONE 1

06/01/2014	\$34.10	\$7.30	\$12.70	\$0.00	\$54.10
12/01/2014	\$34.85	\$7.30	\$12.70	\$0.00	\$54.85
06/01/2015	\$35.60	\$7.30	\$12.70	\$0.00	\$55.60
12/01/2015	\$36.35	\$7.30	\$12.70	\$0.00	\$56.35
06/01/2016	\$37.10	\$7.30	\$12.70	\$0.00	\$57.10
12/01/2016	\$38.10	\$7.30	\$12.70	\$0.00	\$58.10

For apprentice rates see "Apprentice- LABORER"

LABORER: CEMENT FINISHER TENDER
LABORERS - ZONE 1

06/01/2014	\$34.10	\$7.30	\$12.70	\$0.00	\$54.10
12/01/2014	\$34.85	\$7.30	\$12.70	\$0.00	\$54.85
06/01/2015	\$35.60	\$7.30	\$12.70	\$0.00	\$55.60
12/01/2015	\$36.35	\$7.30	\$12.70	\$0.00	\$56.35
06/01/2016	\$37.10	\$7.30	\$12.70	\$0.00	\$57.10
12/01/2016	\$38.10	\$7.30	\$12.70	\$0.00	\$58.10

For apprentice rates see "Apprentice- LABORER"

LABORER: HAZARDOUS WASTE/ASBESTOS REMOVER
LABORERS - ZONE 1

06/01/2014	\$34.25	\$7.30	\$12.70	\$0.00	\$54.25
12/01/2014	\$35.00	\$7.30	\$12.70	\$0.00	\$55.00
06/01/2015	\$35.75	\$7.30	\$12.70	\$0.00	\$55.75
12/01/2015	\$36.50	\$7.30	\$12.70	\$0.00	\$56.50

For apprentice rates see "Apprentice- LABORER"

LABORER: MASON TENDER
LABORERS - ZONE 1

06/01/2014	\$34.35	\$7.30	\$12.70	\$0.00	\$54.35
12/01/2014	\$35.10	\$7.30	\$12.70	\$0.00	\$55.10
06/01/2015	\$35.85	\$7.30	\$12.70	\$0.00	\$55.85
12/01/2015	\$36.60	\$7.30	\$12.70	\$0.00	\$56.60
06/01/2016	\$37.35	\$7.30	\$12.70	\$0.00	\$57.35
12/01/2016	\$38.35	\$7.30	\$12.70	\$0.00	\$58.35

For apprentice rates see "Apprentice- LABORER"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
LABORER: MULTI-TRADE TENDER <i>LABORERS - ZONE 1</i>	06/01/2014	\$34.10	\$7.30	\$12.70	\$0.00	\$54.10
	12/01/2014	\$34.85	\$7.30	\$12.70	\$0.00	\$54.85
	06/01/2015	\$35.60	\$7.30	\$12.70	\$0.00	\$55.60
	12/01/2015	\$36.35	\$7.30	\$12.70	\$0.00	\$56.35
	06/01/2016	\$37.10	\$7.30	\$12.70	\$0.00	\$57.10
	12/01/2016	\$38.10	\$7.30	\$12.70	\$0.00	\$58.10
For apprentice rates see "Apprentice- LABORER"						
LABORER: TREE REMOVER <i>LABORERS - ZONE 1</i>	06/01/2014	\$34.10	\$7.30	\$12.70	\$0.00	\$54.10
	12/01/2014	\$34.85	\$7.30	\$12.70	\$0.00	\$54.85
	06/01/2015	\$35.60	\$7.30	\$12.70	\$0.00	\$55.60
	12/01/2015	\$36.35	\$7.30	\$12.70	\$0.00	\$56.35
	06/01/2016	\$37.10	\$7.30	\$12.70	\$0.00	\$57.10
	12/01/2016	\$38.10	\$7.30	\$12.70	\$0.00	\$58.10
This classification applies to all tree work associated with the removal of standing trees, and trimming and removal of branches and limbs when the work is not done for a utility company for the purpose of operation, maintenance or repair of utility company equipment. For apprentice rates see "Apprentice- LABORER"						
LASER BEAM OPERATOR <i>LABORERS - ZONE 1</i>	06/01/2014	\$34.35	\$7.30	\$12.70	\$0.00	\$54.35
	12/01/2014	\$35.10	\$7.30	\$12.70	\$0.00	\$55.10
	06/01/2015	\$35.85	\$7.30	\$12.70	\$0.00	\$55.85
	12/01/2015	\$36.60	\$7.30	\$12.70	\$0.00	\$56.60
	06/01/2016	\$37.35	\$7.30	\$12.70	\$0.00	\$57.35
	12/01/2016	\$38.35	\$7.30	\$12.70	\$0.00	\$58.35
For apprentice rates see "Apprentice- LABORER"						
MARBLE & TILE FINISHERS <i>BRICKLAYERS LOCAL 3 - MARBLE & TILE</i>	08/01/2014	\$37.37	\$10.18	\$16.90	\$0.00	\$64.45
	02/01/2015	\$37.82	\$10.18	\$16.90	\$0.00	\$64.90
	08/01/2015	\$38.53	\$10.18	\$16.97	\$0.00	\$65.68
	02/01/2016	\$38.98	\$10.18	\$16.97	\$0.00	\$66.13
	08/01/2016	\$39.68	\$10.18	\$17.05	\$0.00	\$66.91
	02/01/2017	\$40.14	\$10.18	\$17.05	\$0.00	\$67.37

Classification

**Effective Date Base Wage Health Pension Supplemental
Unemployment Total Rate**

Apprentice - MARBLE & TILE FINISHER - Local 3 Marble & Tile

Effective Date - 08/01/2014

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$18.69	\$10.18	\$16.90	\$0.00	\$45.77
2	60	\$22.42	\$10.18	\$16.90	\$0.00	\$49.50
3	70	\$26.16	\$10.18	\$16.90	\$0.00	\$53.24
4	80	\$29.90	\$10.18	\$16.90	\$0.00	\$56.98
5	90	\$33.63	\$10.18	\$16.90	\$0.00	\$60.71

Effective Date - 02/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$18.91	\$10.18	\$16.90	\$0.00	\$45.99
2	60	\$22.69	\$10.18	\$16.90	\$0.00	\$49.77
3	70	\$26.47	\$10.18	\$16.90	\$0.00	\$53.55
4	80	\$30.26	\$10.18	\$16.90	\$0.00	\$57.34
5	90	\$34.04	\$10.18	\$16.90	\$0.00	\$61.12

Notes:

Apprentice to Journeyworker Ratio:1:3

MARBLE MASONS,TILELAYERS & TERRAZZO MECH	08/01/2014	\$49.00	\$10.18	\$18.22	\$0.00	\$77.40
BRICKLAYERS LOCAL 3 - MARBLE & TILE	02/01/2015	\$49.56	\$10.18	\$18.22	\$0.00	\$77.96
	08/01/2015	\$50.46	\$10.18	\$18.29	\$0.00	\$78.93
	02/01/2016	\$51.03	\$10.18	\$18.29	\$0.00	\$79.50
	08/01/2016	\$51.93	\$10.18	\$18.37	\$0.00	\$80.48
	02/01/2017	\$52.50	\$10.18	\$18.37	\$0.00	\$81.05

Classification
Effective Date
Base Wage
Health
Pension
**Supplemental
Unemployment**
Total Rate
Apprentice - MARBLE-TILE-TERRAZZO MECHANIC - Local 3 Marble & Tile
Effective Date - 08/01/2014

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$24.50	\$10.18	\$18.22	\$0.00	\$52.90
2	60	\$29.40	\$10.18	\$18.22	\$0.00	\$57.80
3	70	\$34.30	\$10.18	\$18.22	\$0.00	\$62.70
4	80	\$39.20	\$10.18	\$18.22	\$0.00	\$67.60
5	90	\$44.10	\$10.18	\$18.22	\$0.00	\$72.50

Effective Date - 02/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$24.78	\$10.18	\$18.22	\$0.00	\$53.18
2	60	\$29.74	\$10.18	\$18.22	\$0.00	\$58.14
3	70	\$34.69	\$10.18	\$18.22	\$0.00	\$63.09
4	80	\$39.65	\$10.18	\$18.22	\$0.00	\$68.05
5	90	\$44.60	\$10.18	\$18.22	\$0.00	\$73.00

Notes:
Apprentice to Journeyworker Ratio:1:5

MECH. SWEEPER OPERATOR (ON CONST. SITES)	06/01/2014	\$41.10	\$10.00	\$14.20	\$0.00	\$65.30
OPERATING ENGINEERS LOCAL 4	12/01/2014	\$42.09	\$10.00	\$14.20	\$0.00	\$66.29
	06/01/2015	\$42.83	\$10.00	\$14.20	\$0.00	\$67.03
	12/01/2015	\$44.07	\$10.00	\$14.20	\$0.00	\$68.27
	06/01/2016	\$44.82	\$10.00	\$14.20	\$0.00	\$69.02
	12/01/2016	\$46.05	\$10.00	\$14.20	\$0.00	\$70.25
	06/01/2017	\$47.04	\$10.00	\$14.20	\$0.00	\$71.24
	12/01/2017	\$48.03	\$10.00	\$14.20	\$0.00	\$72.23

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

MECHANICS MAINTENANCE	06/01/2014	\$41.10	\$10.00	\$14.20	\$0.00	\$65.30
OPERATING ENGINEERS LOCAL 4	12/01/2014	\$42.09	\$10.00	\$14.20	\$0.00	\$66.29
	06/01/2015	\$42.83	\$10.00	\$14.20	\$0.00	\$67.03
	12/01/2015	\$44.07	\$10.00	\$14.20	\$0.00	\$68.27
	06/01/2016	\$44.82	\$10.00	\$14.20	\$0.00	\$69.02
	12/01/2016	\$46.05	\$10.00	\$14.20	\$0.00	\$70.25
	06/01/2017	\$47.04	\$10.00	\$14.20	\$0.00	\$71.24
	12/01/2017	\$48.03	\$10.00	\$14.20	\$0.00	\$72.23

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

MILLWRIGHT (Zone 1)	10/01/2014	\$36.68	\$9.80	\$16.21	\$0.00	\$62.69
MILLWRIGHTS LOCAL 1121 - Zone 1	04/01/2015	\$37.64	\$9.80	\$16.21	\$0.00	\$63.65

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
Apprentice - MILLWRIGHT - Local 1121 Zone 1						
Effective Date - 10/01/2014						
Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	\$20.17	\$9.80	\$4.48	\$0.00	\$34.45
2	65	\$23.84	\$9.80	\$13.36	\$0.00	\$47.00
3	75	\$27.51	\$9.80	\$14.18	\$0.00	\$51.49
4	85	\$31.18	\$9.80	\$14.99	\$0.00	\$55.97
Effective Date - 04/01/2015						
Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	\$20.70	\$9.80	\$4.48	\$0.00	\$34.98
2	65	\$24.47	\$9.80	\$13.36	\$0.00	\$47.63
3	75	\$28.23	\$9.80	\$14.18	\$0.00	\$52.21
4	85	\$31.99	\$9.80	\$14.99	\$0.00	\$56.78
Notes:						
Steps are 2,000 hours						
Apprentice to Journeyworker Ratio:1:5						
MORTAR MIXER						
<i>LABORERS - ZONE 1</i>						
	06/01/2014	\$34.35	\$7.30	\$12.70	\$0.00	\$54.35
	12/01/2014	\$35.10	\$7.30	\$12.70	\$0.00	\$55.10
	06/01/2015	\$35.85	\$7.30	\$12.70	\$0.00	\$55.85
	12/01/2015	\$36.60	\$7.30	\$12.70	\$0.00	\$56.60
	06/01/2016	\$37.35	\$7.30	\$12.70	\$0.00	\$57.35
	12/01/2016	\$38.35	\$7.30	\$12.70	\$0.00	\$58.35
For apprentice rates see "Apprentice- LABORER"						
OILER (OTHER THAN TRUCK CRANES,GRADALLS)						
<i>OPERATING ENGINEERS LOCAL 4</i>						
	06/01/2014	\$21.48	\$10.00	\$14.20	\$0.00	\$45.68
	12/01/2014	\$22.00	\$10.00	\$14.20	\$0.00	\$46.20
	06/01/2015	\$22.38	\$10.00	\$14.20	\$0.00	\$46.58
	12/01/2015	\$23.03	\$10.00	\$14.20	\$0.00	\$47.23
	06/01/2016	\$23.42	\$10.00	\$14.20	\$0.00	\$47.62
	12/01/2016	\$24.07	\$10.00	\$14.20	\$0.00	\$48.27
	06/01/2017	\$24.58	\$10.00	\$14.20	\$0.00	\$48.78
	12/01/2017	\$25.10	\$10.00	\$14.20	\$0.00	\$49.30
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
OILER (TRUCK CRANES, GRADALLS)						
<i>OPERATING ENGINEERS LOCAL 4</i>						
	06/01/2014	\$25.03	\$10.00	\$14.20	\$0.00	\$49.23
	12/01/2014	\$25.64	\$10.00	\$14.20	\$0.00	\$49.84
	06/01/2015	\$26.09	\$10.00	\$14.20	\$0.00	\$50.29
	12/01/2015	\$26.84	\$10.00	\$14.20	\$0.00	\$51.04
	06/01/2016	\$27.30	\$10.00	\$14.20	\$0.00	\$51.50
	12/01/2016	\$28.05	\$10.00	\$14.20	\$0.00	\$52.25
	06/01/2017	\$28.65	\$10.00	\$14.20	\$0.00	\$52.85
	12/01/2017	\$29.26	\$10.00	\$14.20	\$0.00	\$53.46
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
OTHER POWER DRIVEN EQUIPMENT - CLASS II <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2014	\$41.10	\$10.00	\$14.20	\$0.00	\$65.30
	12/01/2014	\$42.09	\$10.00	\$14.20	\$0.00	\$66.29
	06/01/2015	\$42.83	\$10.00	\$14.20	\$0.00	\$67.03
	12/01/2015	\$44.07	\$10.00	\$14.20	\$0.00	\$68.27
	06/01/2016	\$44.82	\$10.00	\$14.20	\$0.00	\$69.02
	12/01/2016	\$46.05	\$10.00	\$14.20	\$0.00	\$70.25
	06/01/2017	\$47.04	\$10.00	\$14.20	\$0.00	\$71.24
	12/01/2017	\$48.03	\$10.00	\$14.20	\$0.00	\$72.23

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

PAINTER (BRIDGES/TANKS) <i>PAINTERS LOCAL 35 - ZONE 1</i>	07/01/2014	\$46.76	\$7.85	\$16.10	\$0.00	\$70.71
	01/01/2015	\$47.66	\$7.85	\$16.10	\$0.00	\$71.61
	07/01/2015	\$48.56	\$7.85	\$16.10	\$0.00	\$72.51
	01/01/2016	\$49.51	\$7.85	\$16.10	\$0.00	\$73.46
	07/01/2016	\$50.46	\$7.85	\$16.10	\$0.00	\$74.41
	01/01/2017	\$51.41	\$7.85	\$16.10	\$0.00	\$75.36

Apprentice - PAINTER Local 35 - BRIDGES/TANKS

Effective Date - 07/01/2014

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$23.38	\$7.85	\$0.00	\$0.00	\$31.23
2	55	\$25.72	\$7.85	\$3.66	\$0.00	\$37.23
3	60	\$28.06	\$7.85	\$3.99	\$0.00	\$39.90
4	65	\$30.39	\$7.85	\$4.32	\$0.00	\$42.56
5	70	\$32.73	\$7.85	\$14.11	\$0.00	\$54.69
6	75	\$35.07	\$7.85	\$14.44	\$0.00	\$57.36
7	80	\$37.41	\$7.85	\$14.77	\$0.00	\$60.03
8	90	\$42.08	\$7.85	\$15.44	\$0.00	\$65.37

Effective Date - 01/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$23.83	\$7.85	\$0.00	\$0.00	\$31.68
2	55	\$26.21	\$7.85	\$3.66	\$0.00	\$37.72
3	60	\$28.60	\$7.85	\$3.99	\$0.00	\$40.44
4	65	\$30.98	\$7.85	\$4.32	\$0.00	\$43.15
5	70	\$33.36	\$7.85	\$14.11	\$0.00	\$55.32
6	75	\$35.75	\$7.85	\$14.44	\$0.00	\$58.04
7	80	\$38.13	\$7.85	\$14.77	\$0.00	\$60.75
8	90	\$42.89	\$7.85	\$15.44	\$0.00	\$66.18

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
Painter (Spray or Sandblast, New) *	07/01/2014	\$43.45	\$7.85	\$16.10	\$0.00	\$67.40
* If 30% or more of surfaces to be painted are new construction, NEW paint rate shall be used. <i>PAINTERS LOCAL 35 - ZONE 1</i>	01/01/2015	\$44.35	\$7.85	\$16.10	\$0.00	\$68.30
	07/01/2015	\$45.25	\$7.85	\$16.10	\$0.00	\$69.20
	01/01/2016	\$46.20	\$7.85	\$16.10	\$0.00	\$70.15
	07/01/2016	\$47.15	\$7.85	\$16.10	\$0.00	\$71.10
	01/01/2017	\$48.10	\$7.85	\$16.10	\$0.00	\$72.05

Apprentice - PAINTER Local 35 Zone 1 - Spray/Sandblast - New

Effective Date - 07/01/2014

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$21.73	\$7.85	\$0.00	\$0.00	\$29.58
2	55	\$23.90	\$7.85	\$3.66	\$0.00	\$35.41
3	60	\$26.07	\$7.85	\$3.99	\$0.00	\$37.91
4	65	\$28.24	\$7.85	\$4.32	\$0.00	\$40.41
5	70	\$30.42	\$7.85	\$14.11	\$0.00	\$52.38
6	75	\$32.59	\$7.85	\$14.44	\$0.00	\$54.88
7	80	\$34.76	\$7.85	\$14.77	\$0.00	\$57.38
8	90	\$39.11	\$7.85	\$15.44	\$0.00	\$62.40

Effective Date - 01/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$22.18	\$7.85	\$0.00	\$0.00	\$30.03
2	55	\$24.39	\$7.85	\$3.66	\$0.00	\$35.90
3	60	\$26.61	\$7.85	\$3.99	\$0.00	\$38.45
4	65	\$28.83	\$7.85	\$4.32	\$0.00	\$41.00
5	70	\$31.05	\$7.85	\$14.11	\$0.00	\$53.01
6	75	\$33.26	\$7.85	\$14.44	\$0.00	\$55.55
7	80	\$35.48	\$7.85	\$14.77	\$0.00	\$58.10
8	90	\$39.92	\$7.85	\$15.44	\$0.00	\$63.21

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

Painter (Spray or Sandblast, Repaint)	07/01/2014	\$41.51	\$7.85	\$16.10	\$0.00	\$65.46
<i>PAINTERS LOCAL 35 - ZONE 1</i>	01/01/2015	\$42.41	\$7.85	\$16.10	\$0.00	\$66.36
	07/01/2015	\$43.31	\$7.85	\$16.10	\$0.00	\$67.26
	01/01/2016	\$44.26	\$7.85	\$16.10	\$0.00	\$68.21
	07/01/2016	\$45.21	\$7.85	\$16.10	\$0.00	\$69.16
	01/01/2017	\$46.16	\$7.85	\$16.10	\$0.00	\$70.11

Classification

**Effective Date Base Wage Health Pension Supplemental
Unemployment Total Rate**

Apprentice - PAINTER Local 35 Zone 1 - Spray/Sandblast - Repaint
Effective Date - 07/01/2014

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$20.76	\$7.85	\$0.00	\$0.00	\$28.61
2	55	\$22.83	\$7.85	\$3.66	\$0.00	\$34.34
3	60	\$24.91	\$7.85	\$3.99	\$0.00	\$36.75
4	65	\$26.98	\$7.85	\$4.32	\$0.00	\$39.15
5	70	\$29.06	\$7.85	\$14.11	\$0.00	\$51.02
6	75	\$31.13	\$7.85	\$14.44	\$0.00	\$53.42
7	80	\$33.21	\$7.85	\$14.77	\$0.00	\$55.83
8	90	\$37.36	\$7.85	\$15.44	\$0.00	\$60.65

Effective Date - 01/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$21.21	\$7.85	\$0.00	\$0.00	\$29.06
2	55	\$23.33	\$7.85	\$3.66	\$0.00	\$34.84
3	60	\$25.45	\$7.85	\$3.99	\$0.00	\$37.29
4	65	\$27.57	\$7.85	\$4.32	\$0.00	\$39.74
5	70	\$29.69	\$7.85	\$14.11	\$0.00	\$51.65
6	75	\$31.81	\$7.85	\$14.44	\$0.00	\$54.10
7	80	\$33.93	\$7.85	\$14.77	\$0.00	\$56.55
8	90	\$38.17	\$7.85	\$15.44	\$0.00	\$61.46

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER (TRAFFIC MARKINGS)	06/01/2014	\$34.10	\$7.30	\$12.70	\$0.00	\$54.10
LABORERS - ZONE 1	12/01/2014	\$34.85	\$7.30	\$12.70	\$0.00	\$54.85
	06/01/2015	\$35.60	\$7.30	\$12.70	\$0.00	\$55.60
	12/01/2015	\$36.35	\$7.30	\$12.70	\$0.00	\$56.35
	06/01/2016	\$37.10	\$7.30	\$12.70	\$0.00	\$57.10
	12/01/2016	\$38.10	\$7.30	\$12.70	\$0.00	\$58.10

For Apprentice rates see "Apprentice- LABORER"

PAINTER / TAPER (BRUSH, NEW) *	07/01/2014	\$42.05	\$7.85	\$16.10	\$0.00	\$66.00
* If 30% or more of surfaces to be painted are new construction, NEW paint rate shall be used. PAINTERS LOCAL 35 - ZONE 1	01/01/2015	\$42.95	\$7.85	\$16.10	\$0.00	\$66.90
	07/01/2015	\$43.85	\$7.85	\$16.10	\$0.00	\$67.80
	01/01/2016	\$44.80	\$7.85	\$16.10	\$0.00	\$68.75
	07/01/2016	\$45.75	\$7.85	\$16.10	\$0.00	\$69.70
	01/01/2017	\$46.70	\$7.85	\$16.10	\$0.00	\$70.65

Apprentice - PAINTER - Local 35 Zone 1 - BRUSH NEW**Effective Date - 07/01/2014**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$21.03	\$7.85	\$0.00	\$0.00	\$28.88
2	55	\$23.13	\$7.85	\$3.66	\$0.00	\$34.64
3	60	\$25.23	\$7.85	\$3.99	\$0.00	\$37.07
4	65	\$27.33	\$7.85	\$4.32	\$0.00	\$39.50
5	70	\$29.44	\$7.85	\$14.11	\$0.00	\$51.40
6	75	\$31.54	\$7.85	\$14.44	\$0.00	\$53.83
7	80	\$33.64	\$7.85	\$14.77	\$0.00	\$56.26
8	90	\$37.85	\$7.85	\$15.44	\$0.00	\$61.14

Effective Date - 01/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$21.48	\$7.85	\$0.00	\$0.00	\$29.33
2	55	\$23.62	\$7.85	\$3.66	\$0.00	\$35.13
3	60	\$25.77	\$7.85	\$3.99	\$0.00	\$37.61
4	65	\$27.92	\$7.85	\$4.32	\$0.00	\$40.09
5	70	\$30.07	\$7.85	\$14.11	\$0.00	\$52.03
6	75	\$32.21	\$7.85	\$14.44	\$0.00	\$54.50
7	80	\$34.36	\$7.85	\$14.77	\$0.00	\$56.98
8	90	\$38.66	\$7.85	\$15.44	\$0.00	\$61.95

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER / TAPER (BRUSH, REPAINT)

PAINTERS LOCAL 35 - ZONE 1

07/01/2014	\$40.11	\$7.85	\$16.10	\$0.00	\$64.06
01/01/2015	\$41.01	\$7.85	\$16.10	\$0.00	\$64.96
07/01/2015	\$41.91	\$7.85	\$16.10	\$0.00	\$65.86
01/01/2016	\$42.86	\$7.85	\$16.10	\$0.00	\$66.81
07/01/2016	\$43.81	\$7.85	\$16.10	\$0.00	\$67.76
01/01/2017	\$44.76	\$7.85	\$16.10	\$0.00	\$68.71

Classification

Effective Date Base Wage Health Pension Supplemental
Unemployment Total Rate

Apprentice - PAINTER Local 35 Zone 1 - BRUSH REPAINT
Effective Date - 07/01/2014

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$20.06	\$7.85	\$0.00	\$0.00	\$27.91
2	55	\$22.06	\$7.85	\$3.66	\$0.00	\$33.57
3	60	\$24.07	\$7.85	\$3.99	\$0.00	\$35.91
4	65	\$26.07	\$7.85	\$4.32	\$0.00	\$38.24
5	70	\$28.08	\$7.85	\$14.11	\$0.00	\$50.04
6	75	\$30.08	\$7.85	\$14.44	\$0.00	\$52.37
7	80	\$32.09	\$7.85	\$14.77	\$0.00	\$54.71
8	90	\$36.10	\$7.85	\$15.44	\$0.00	\$59.39

Effective Date - 01/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$20.51	\$7.85	\$0.00	\$0.00	\$28.36
2	55	\$22.56	\$7.85	\$3.66	\$0.00	\$34.07
3	60	\$24.61	\$7.85	\$3.99	\$0.00	\$36.45
4	65	\$26.66	\$7.85	\$4.32	\$0.00	\$38.83
5	70	\$28.71	\$7.85	\$14.11	\$0.00	\$50.67
6	75	\$30.76	\$7.85	\$14.44	\$0.00	\$53.05
7	80	\$32.81	\$7.85	\$14.77	\$0.00	\$55.43
8	90	\$36.91	\$7.85	\$15.44	\$0.00	\$60.20

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PANEL & PICKUP TRUCKS DRIVER	08/01/2014	\$32.23	\$9.91	\$8.80	\$0.00	\$50.94
TEAMSTERS JOINT COUNCIL NO. 10 ZONE A	12/01/2014	\$32.23	\$9.91	\$9.33	\$0.00	\$51.47
	06/01/2015	\$32.58	\$9.91	\$9.33	\$0.00	\$51.82
	08/01/2015	\$32.58	\$10.41	\$9.33	\$0.00	\$52.32
	12/01/2015	\$32.58	\$10.41	\$10.08	\$0.00	\$53.07
	06/01/2016	\$33.08	\$10.41	\$10.08	\$0.00	\$53.57
	08/01/2016	\$33.08	\$10.91	\$10.08	\$0.00	\$54.07
	12/01/2016	\$33.08	\$10.91	\$10.89	\$0.00	\$54.88
PIER AND DOCK CONSTRUCTOR (UNDERPINNING AND DECK)	08/01/2014	\$41.60	\$9.80	\$18.17	\$0.00	\$69.57
PILE DRIVER LOCAL 56 (ZONE 1)	08/01/2015	\$43.10	\$9.80	\$18.17	\$0.00	\$71.07
PILE DRIVER	08/01/2014	\$41.60	\$9.80	\$18.17	\$0.00	\$69.57
PILE DRIVER LOCAL 56 (ZONE 1)	08/01/2015	\$43.10	\$9.80	\$18.17	\$0.00	\$71.07

Classification

**Effective Date Base Wage Health Pension Supplemental
Unemployment Total Rate**

Apprentice - PILE DRIVER - Local 56 Zone 1

Effective Date - 08/01/2014

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$20.80	\$9.80	\$18.17	\$0.00	\$48.77
2	60	\$24.96	\$9.80	\$18.17	\$0.00	\$52.93
3	70	\$29.12	\$9.80	\$18.17	\$0.00	\$57.09
4	75	\$31.20	\$9.80	\$18.17	\$0.00	\$59.17
5	80	\$33.28	\$9.80	\$18.17	\$0.00	\$61.25
6	80	\$33.28	\$9.80	\$18.17	\$0.00	\$61.25
7	90	\$37.44	\$9.80	\$18.17	\$0.00	\$65.41
8	90	\$37.44	\$9.80	\$18.17	\$0.00	\$65.41

Effective Date - 08/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$21.55	\$9.80	\$18.17	\$0.00	\$49.52
2	60	\$25.86	\$9.80	\$18.17	\$0.00	\$53.83
3	70	\$30.17	\$9.80	\$18.17	\$0.00	\$58.14
4	75	\$32.33	\$9.80	\$18.17	\$0.00	\$60.30
5	80	\$34.48	\$9.80	\$18.17	\$0.00	\$62.45
6	80	\$34.48	\$9.80	\$18.17	\$0.00	\$62.45
7	90	\$38.79	\$9.80	\$18.17	\$0.00	\$66.76
8	90	\$38.79	\$9.80	\$18.17	\$0.00	\$66.76

Notes:

Apprentice to Journeyworker Ratio:1:3

PIPEFITTER & STEAMFITTER	09/01/2014	\$48.69	\$9.20	\$16.64	\$0.00	\$74.53
PIPEFITTERS LOCAL 537	03/01/2015	\$49.69	\$9.20	\$16.64	\$0.00	\$75.53
	09/01/2015	\$50.69	\$9.20	\$16.64	\$0.00	\$76.53
	03/01/2016	\$51.69	\$9.20	\$16.64	\$0.00	\$77.53
	09/01/2016	\$52.69	\$9.20	\$16.64	\$0.00	\$78.53
	03/01/2017	\$53.69	\$9.20	\$16.64	\$0.00	\$79.53

Classification
Effective Date
Base Wage
Health
Pension
**Supplemental
Unemployment**
Total Rate
Apprentice - PIPEFITTER - Local 537
Effective Date - 09/01/2014

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$19.48	\$9.20	\$7.50	\$0.00	\$36.18
2	45	\$21.91	\$9.20	\$16.64	\$0.00	\$47.75
3	60	\$29.21	\$9.20	\$16.64	\$0.00	\$55.05
4	70	\$34.08	\$9.20	\$16.64	\$0.00	\$59.92
5	80	\$38.95	\$9.20	\$16.64	\$0.00	\$64.79

Effective Date - 03/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$19.88	\$9.20	\$7.50	\$0.00	\$36.58
2	45	\$22.36	\$9.20	\$16.64	\$0.00	\$48.20
3	60	\$29.81	\$9.20	\$16.64	\$0.00	\$55.65
4	70	\$34.78	\$9.20	\$16.64	\$0.00	\$60.62
5	80	\$39.75	\$9.20	\$16.64	\$0.00	\$65.59

Notes:

** 1:3; 3:15; 1:10 thereafter / Steps are 1 yr.

Refrig/AC Mechanic **1:1;1:2;2:4;3:6;4:8;5:10;6:12;7:14;8:17;9:20;10:23(Max)

Apprentice to Journeyworker Ratio:**
PIPELAYER
LABORERS - ZONE 1

06/01/2014	\$34.35	\$7.30	\$12.70	\$0.00	\$54.35
12/01/2014	\$35.10	\$7.30	\$12.70	\$0.00	\$55.10
06/01/2015	\$35.85	\$7.30	\$12.70	\$0.00	\$55.85
12/01/2015	\$36.60	\$7.30	\$12.70	\$0.00	\$56.60
06/01/2016	\$37.35	\$7.30	\$12.70	\$0.00	\$57.35
12/01/2016	\$38.35	\$7.30	\$12.70	\$0.00	\$58.35

For apprentice rates see "Apprentice- LABORER"

PLUMBERS & GASFITTERS
PLUMBERS & GASFITTERS LOCAL 12

09/01/2014	\$49.66	\$10.32	\$14.54	\$0.00	\$74.52
03/01/2015	\$50.66	\$10.32	\$14.54	\$0.00	\$75.52
09/01/2015	\$51.66	\$10.32	\$14.54	\$0.00	\$76.52
03/01/2016	\$52.81	\$10.32	\$14.54	\$0.00	\$77.67
09/01/2016	\$53.86	\$10.32	\$14.54	\$0.00	\$78.72
03/01/2017	\$54.86	\$10.32	\$14.54	\$0.00	\$79.72

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
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Apprentice - PLUMBER/GASFITTER - Local 12

Effective Date - 09/01/2014

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	35	\$17.38	\$10.32	\$5.42	\$0.00	\$33.12
2	40	\$19.86	\$10.32	\$6.13	\$0.00	\$36.31
3	55	\$27.31	\$10.32	\$8.23	\$0.00	\$45.86
4	65	\$32.28	\$10.32	\$9.64	\$0.00	\$52.24
5	75	\$37.25	\$10.32	\$11.04	\$0.00	\$58.61

Effective Date - 03/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	35	\$17.73	\$10.32	\$5.42	\$0.00	\$33.47
2	40	\$20.26	\$10.32	\$6.11	\$0.00	\$36.69
3	55	\$27.86	\$10.32	\$8.22	\$0.00	\$46.40
4	65	\$32.93	\$10.32	\$9.62	\$0.00	\$52.87
5	75	\$38.00	\$10.32	\$11.03	\$0.00	\$59.35

Notes:

** 1:2; 2:6; 3:10; 4:14; 5:19/Steps are 1 yr
Step4 with lic\$55.42 Step5 with lic\$61.79

Apprentice to Journeyworker Ratio:**

PNEUMATIC CONTROLS (TEMP.)	09/01/2014	\$48.69	\$9.20	\$16.64	\$0.00	\$74.53
PIPEFITTERS LOCAL 537	03/01/2015	\$49.69	\$9.20	\$16.64	\$0.00	\$75.53
	09/01/2015	\$50.69	\$9.20	\$16.64	\$0.00	\$76.53
	03/01/2016	\$51.69	\$9.20	\$16.64	\$0.00	\$77.53
	09/01/2016	\$52.69	\$9.20	\$16.64	\$0.00	\$78.53
	03/01/2017	\$53.69	\$9.20	\$16.64	\$0.00	\$79.53
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"						
PNEUMATIC DRILL/TOOL OPERATOR	06/01/2014	\$34.35	\$7.30	\$12.70	\$0.00	\$54.35
LABORERS - ZONE 1	12/01/2014	\$35.10	\$7.30	\$12.70	\$0.00	\$55.10
	06/01/2015	\$35.85	\$7.30	\$12.70	\$0.00	\$55.85
	12/01/2015	\$36.60	\$7.30	\$12.70	\$0.00	\$56.60
	06/01/2016	\$37.35	\$7.30	\$12.70	\$0.00	\$57.35
	12/01/2016	\$38.35	\$7.30	\$12.70	\$0.00	\$58.35
For apprentice rates see "Apprentice- LABORER"						
POWDERMAN & BLASTER	06/01/2014	\$35.10	\$7.30	\$12.70	\$0.00	\$55.10
LABORERS - ZONE 1	12/01/2014	\$35.85	\$7.30	\$12.70	\$0.00	\$55.85
	06/01/2015	\$36.60	\$7.30	\$12.70	\$0.00	\$56.60
	12/01/2015	\$37.35	\$7.30	\$12.70	\$0.00	\$57.35
	06/01/2016	\$38.10	\$7.30	\$12.70	\$0.00	\$58.10
	12/01/2016	\$39.10	\$7.30	\$12.70	\$0.00	\$59.10
For apprentice rates see "Apprentice- LABORER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
POWER SHOVEL/DERRICK/TRENCHING MACHINE <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2014	\$41.49	\$10.00	\$14.20	\$0.00	\$65.69
	12/01/2014	\$42.49	\$10.00	\$14.20	\$0.00	\$66.69
	06/01/2015	\$43.24	\$10.00	\$14.20	\$0.00	\$67.44
	12/01/2015	\$44.49	\$10.00	\$14.20	\$0.00	\$68.69
	06/01/2016	\$45.24	\$10.00	\$14.20	\$0.00	\$69.44
	12/01/2016	\$46.49	\$10.00	\$14.20	\$0.00	\$70.69
	06/01/2017	\$47.49	\$10.00	\$14.20	\$0.00	\$71.69
	12/01/2017	\$48.49	\$10.00	\$14.20	\$0.00	\$72.69
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PUMP OPERATOR (CONCRETE) <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2014	\$41.49	\$10.00	\$14.20	\$0.00	\$65.69
	12/01/2014	\$42.49	\$10.00	\$14.20	\$0.00	\$66.69
	06/01/2015	\$43.24	\$10.00	\$14.20	\$0.00	\$67.44
	12/01/2015	\$44.49	\$10.00	\$14.20	\$0.00	\$68.69
	06/01/2016	\$45.24	\$10.00	\$14.20	\$0.00	\$69.44
	12/01/2016	\$46.49	\$10.00	\$14.20	\$0.00	\$70.69
	06/01/2017	\$47.49	\$10.00	\$14.20	\$0.00	\$71.69
	12/01/2017	\$48.49	\$10.00	\$14.20	\$0.00	\$72.69
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PUMP OPERATOR (DEWATERING, OTHER) <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2014	\$28.80	\$10.00	\$14.20	\$0.00	\$53.00
	12/01/2014	\$29.50	\$10.00	\$14.20	\$0.00	\$53.70
	06/01/2015	\$30.02	\$10.00	\$14.20	\$0.00	\$54.22
	12/01/2015	\$30.89	\$10.00	\$14.20	\$0.00	\$55.09
	06/01/2016	\$31.41	\$10.00	\$14.20	\$0.00	\$55.61
	12/01/2016	\$32.28	\$10.00	\$14.20	\$0.00	\$56.48
	06/01/2017	\$32.97	\$10.00	\$14.20	\$0.00	\$57.17
	12/01/2017	\$33.66	\$10.00	\$14.20	\$0.00	\$57.86
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
READY MIX CONCRETE DRIVERS after 4/30/10 (Drivers Hired After 4/30/2010) <i>TEAMSTERS LOCAL 25a</i>	07/01/2014	\$27.73	\$7.73	\$8.65	\$0.00	\$44.11
	05/01/2015	\$27.88	\$7.73	\$8.92	\$0.00	\$44.53
	07/01/2015	\$27.88	\$7.98	\$8.92	\$0.00	\$44.78
	05/01/2016	\$28.03	\$7.98	\$9.31	\$0.00	\$45.32
	07/01/2016	\$28.03	\$8.23	\$9.31	\$0.00	\$45.57
	05/01/2017	\$28.18	\$8.23	\$9.72	\$0.00	\$46.13
	07/01/2017	\$28.18	\$8.48	\$9.72	\$0.00	\$46.38
READY-MIX CONCRETE DRIVER <i>TEAMSTERS LOCAL 25a</i>	07/01/2014	\$30.99	\$7.73	\$8.65	\$0.00	\$47.37
	05/01/2015	\$31.14	\$7.73	\$8.92	\$0.00	\$47.79
	07/01/2015	\$31.14	\$7.98	\$8.92	\$0.00	\$48.04
	05/01/2016	\$31.29	\$7.98	\$9.31	\$0.00	\$48.58
	07/01/2016	\$31.29	\$8.23	\$9.31	\$0.00	\$48.83
	05/01/2017	\$31.44	\$8.23	\$9.72	\$0.00	\$49.39
	07/01/2017	\$31.44	\$8.48	\$9.72	\$0.00	\$49.64

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
RECLAIMERS	06/01/2014	\$41.10	\$10.00	\$14.20	\$0.00	\$65.30
<i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2014	\$42.09	\$10.00	\$14.20	\$0.00	\$66.29
	06/01/2015	\$42.83	\$10.00	\$14.20	\$0.00	\$67.03
	12/01/2015	\$44.07	\$10.00	\$14.20	\$0.00	\$68.27
	06/01/2016	\$44.82	\$10.00	\$14.20	\$0.00	\$69.02
	12/01/2016	\$46.05	\$10.00	\$14.20	\$0.00	\$70.25
	06/01/2017	\$47.04	\$10.00	\$14.20	\$0.00	\$71.24
	12/01/2017	\$48.03	\$10.00	\$14.20	\$0.00	\$72.23

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

RESIDENTIAL WOOD FRAME (All Other Work)	04/01/2011	\$37.25	\$8.67	\$15.51	\$0.00	\$61.43
<i>CARPENTERS -ZONE 1 (Residential Wood)</i>						

RESIDENTIAL WOOD FRAME CARPENTER **	05/01/2011	\$27.49	\$6.34	\$6.23	\$0.00	\$40.06
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** The Residential Wood Frame Carpenter classification applies only to the construction of new, wood frame residences that do not exceed four stories including the basement. *CARPENTERS -ZONE 1 (Residential Wood)*

As of 9/1/09 Carpentry work on wood-frame residential WEATHERIZATION projects shall be paid the RESIDENTIAL WOOD FRAME CARPENTER rate.

Apprentice - CARPENTER (Residential Wood Frame) - Zone 1

Effective Date - 05/01/2011

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$16.49	\$6.34	\$0.00	\$0.00	\$22.83
2	60	\$16.49	\$6.34	\$6.23	\$0.00	\$29.06
3	65	\$17.87	\$6.34	\$6.23	\$0.00	\$30.44
4	70	\$19.24	\$6.34	\$6.23	\$0.00	\$31.81
5	75	\$20.62	\$6.34	\$6.23	\$0.00	\$33.19
6	80	\$21.99	\$6.34	\$6.23	\$0.00	\$34.56
7	85	\$23.37	\$6.34	\$6.23	\$0.00	\$35.94
8	90	\$24.74	\$6.34	\$6.23	\$0.00	\$37.31

Notes:

Apprentice to Journeyworker Ratio:1:5

RIDE-ON MOTORIZED BUGGY OPERATOR	06/01/2014	\$34.35	\$7.30	\$12.70	\$0.00	\$54.35
<i>LABORERS - ZONE 1</i>	12/01/2014	\$35.10	\$7.30	\$12.70	\$0.00	\$55.10
	06/01/2015	\$35.85	\$7.30	\$12.70	\$0.00	\$55.85
	12/01/2015	\$36.60	\$7.30	\$12.70	\$0.00	\$56.60
	06/01/2016	\$37.35	\$7.30	\$12.70	\$0.00	\$57.35
	12/01/2016	\$38.35	\$7.30	\$12.70	\$0.00	\$58.35

For apprentice rates see "Apprentice- LABORER"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
ROLLER/SPREADER/MULCHING MACHINE <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2014	\$41.10	\$10.00	\$14.20	\$0.00	\$65.30
	12/01/2014	\$42.09	\$10.00	\$14.20	\$0.00	\$66.29
	06/01/2015	\$42.83	\$10.00	\$14.20	\$0.00	\$67.03
	12/01/2015	\$44.07	\$10.00	\$14.20	\$0.00	\$68.27
	06/01/2016	\$44.82	\$10.00	\$14.20	\$0.00	\$69.02
	12/01/2016	\$46.05	\$10.00	\$14.20	\$0.00	\$70.25
	06/01/2017	\$47.04	\$10.00	\$14.20	\$0.00	\$71.24
	12/01/2017	\$48.03	\$10.00	\$14.20	\$0.00	\$72.23

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

ROOFER (Inc.Roofing Waterproofing &Roofing Damproofg) <i>ROOFERS LOCAL 33</i>	08/01/2014	\$39.21	\$10.50	\$11.60	\$0.00	\$61.31
	02/01/2015	\$40.11	\$10.50	\$11.60	\$0.00	\$62.21
	08/01/2015	\$41.01	\$10.50	\$11.60	\$0.00	\$63.11
	02/01/2016	\$41.91	\$10.50	\$11.60	\$0.00	\$64.01

Apprentice - ROOFER - Local 33

Effective Date - 08/01/2014

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$19.61	\$10.50	\$3.38	\$0.00	\$33.49
2	60	\$23.53	\$10.50	\$11.60	\$0.00	\$45.63
3	65	\$25.49	\$10.50	\$11.60	\$0.00	\$47.59
4	75	\$29.41	\$10.50	\$11.60	\$0.00	\$51.51
5	85	\$33.33	\$10.50	\$11.60	\$0.00	\$55.43

Effective Date - 02/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$20.06	\$10.50	\$3.38	\$0.00	\$33.94
2	60	\$24.07	\$10.50	\$11.60	\$0.00	\$46.17
3	65	\$26.07	\$10.50	\$11.60	\$0.00	\$48.17
4	75	\$30.08	\$10.50	\$11.60	\$0.00	\$52.18
5	85	\$34.09	\$10.50	\$11.60	\$0.00	\$56.19

Notes: ** 1:5, 2:6-10, the 1:10; Reroofing: 1:4, then 1:1
Step 1 is 2000 hrs.; Steps 2-5 are 1000 hrs.

Apprentice to Journeyworker Ratio:**

ROOFER SLATE / TILE / PRECAST CONCRETE <i>ROOFERS LOCAL 33</i>	08/01/2014	\$39.46	\$10.50	\$11.60	\$0.00	\$61.56
	02/01/2015	\$40.36	\$10.50	\$11.60	\$0.00	\$62.46
	08/01/2015	\$41.26	\$10.50	\$11.60	\$0.00	\$63.36
	02/01/2016	\$42.16	\$10.50	\$11.60	\$0.00	\$64.26

For apprentice rates see "Apprentice- ROOFER"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
SHEETMETAL WORKER	08/01/2014	\$42.79	\$9.82	\$20.54	\$2.19	\$75.34
<i>SHEETMETAL WORKERS LOCAL 17 - A</i>	02/01/2015	\$43.69	\$9.82	\$20.54	\$2.19	\$76.24
	08/01/2015	\$44.69	\$9.82	\$20.54	\$2.19	\$77.24
	02/01/2016	\$45.69	\$9.82	\$20.54	\$2.19	\$78.24
	08/01/2016	\$46.84	\$9.82	\$20.54	\$2.19	\$79.39
	02/01/2017	\$47.94	\$9.82	\$20.54	\$2.19	\$80.49
	08/01/2017	\$49.04	\$9.82	\$20.54	\$2.19	\$81.59
	02/01/2018	\$50.19	\$9.82	\$20.54	\$2.19	\$82.74

Apprentice - SHEET METAL WORKER - Local 17-A

Effective Date - 08/01/2014

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$17.12	\$9.82	\$4.58	\$0.00	\$31.52
2	40	\$17.12	\$9.82	\$4.58	\$0.00	\$31.52
3	45	\$19.26	\$9.82	\$9.09	\$1.15	\$39.32
4	45	\$19.26	\$9.82	\$9.09	\$1.15	\$39.32
5	50	\$21.40	\$9.82	\$9.91	\$1.23	\$42.36
6	50	\$21.40	\$9.82	\$10.16	\$1.24	\$42.62
7	60	\$25.67	\$9.82	\$11.55	\$1.41	\$48.45
8	65	\$27.81	\$9.82	\$12.38	\$1.50	\$51.51
9	75	\$32.09	\$9.82	\$14.02	\$1.68	\$57.61
10	85	\$36.37	\$9.82	\$15.16	\$1.84	\$63.19

Effective Date - 02/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$17.48	\$9.82	\$4.58	\$0.00	\$31.88
2	40	\$17.48	\$9.82	\$4.58	\$0.00	\$31.88
3	45	\$19.66	\$9.82	\$9.09	\$1.16	\$39.73
4	45	\$19.66	\$9.82	\$9.09	\$1.16	\$39.73
5	50	\$21.85	\$9.82	\$9.91	\$1.25	\$42.83
6	50	\$21.85	\$9.82	\$10.16	\$1.25	\$43.08
7	60	\$26.21	\$9.82	\$11.55	\$1.43	\$49.01
8	65	\$28.40	\$9.82	\$12.38	\$1.52	\$52.12
9	75	\$32.77	\$9.82	\$14.02	\$1.70	\$58.31
10	85	\$37.14	\$9.82	\$15.16	\$1.86	\$63.98

Notes:

Steps are 6 mos.

Apprentice to Journeyworker Ratio:1:4

SIGN ERECTOR	06/01/2013	\$25.81	\$7.07	\$7.05	\$0.00	\$39.93
<i>PAINTERS LOCAL 35 - ZONE 1</i>						

Classification

**Effective Date Base Wage Health Pension Supplemental
Unemployment Total Rate**

Apprentice - SIGN ERECTOR - Local 35 Zone 1
Effective Date - 06/01/2013

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$12.91	\$7.07	\$0.00	\$0.00	\$19.98
2	55	\$14.20	\$7.07	\$2.45	\$0.00	\$23.72
3	60	\$15.49	\$7.07	\$2.45	\$0.00	\$25.01
4	65	\$16.78	\$7.07	\$2.45	\$0.00	\$26.30
5	70	\$18.07	\$7.07	\$7.05	\$0.00	\$32.19
6	75	\$19.36	\$7.07	\$7.05	\$0.00	\$33.48
7	80	\$20.65	\$7.07	\$7.05	\$0.00	\$34.77
8	85	\$21.94	\$7.07	\$7.05	\$0.00	\$36.06
9	90	\$23.23	\$7.07	\$7.05	\$0.00	\$37.35

Notes:

Steps are 4 mos.

Apprentice to Journeyworker Ratio:1:1
SPECIALIZED EARTH MOVING EQUIP < 35 TONS
TEAMSTERS JOINT COUNCIL NO. 10 ZONE A

08/01/2014	\$32.69	\$9.91	\$8.80	\$0.00	\$51.40
12/01/2014	\$32.69	\$9.91	\$9.33	\$0.00	\$51.93
06/01/2015	\$33.04	\$9.91	\$9.33	\$0.00	\$52.28
08/01/2015	\$33.04	\$10.41	\$9.33	\$0.00	\$52.78
12/01/2015	\$33.04	\$10.41	\$10.08	\$0.00	\$53.53
06/01/2016	\$33.54	\$10.41	\$10.08	\$0.00	\$54.03
08/01/2016	\$33.54	\$10.91	\$10.08	\$0.00	\$54.53
12/01/2016	\$33.54	\$10.91	\$10.89	\$0.00	\$55.34

SPECIALIZED EARTH MOVING EQUIP > 35 TONS
TEAMSTERS JOINT COUNCIL NO. 10 ZONE A

08/01/2014	\$32.98	\$9.91	\$8.80	\$0.00	\$51.69
12/01/2014	\$32.98	\$9.91	\$9.33	\$0.00	\$52.22
06/01/2015	\$33.33	\$9.91	\$9.33	\$0.00	\$52.57
08/01/2015	\$33.33	\$10.41	\$9.33	\$0.00	\$53.07
12/01/2015	\$33.33	\$10.41	\$10.08	\$0.00	\$53.82
06/01/2016	\$33.83	\$10.41	\$10.08	\$0.00	\$54.32
08/01/2016	\$33.83	\$10.91	\$10.08	\$0.00	\$54.82
12/01/2016	\$33.83	\$10.91	\$10.89	\$0.00	\$55.63

SPRINKLER FITTER
SPRINKLER FITTERS LOCAL 550 - (Section A) Zone 1

10/01/2014	\$53.73	\$8.42	\$14.60	\$0.00	\$76.75
01/01/2015	\$53.73	\$8.42	\$14.75	\$0.00	\$76.90
03/01/2015	\$54.73	\$8.42	\$14.75	\$0.00	\$77.90
10/01/2015	\$55.88	\$8.42	\$14.75	\$0.00	\$79.05
01/01/2016	\$55.88	\$8.67	\$14.90	\$0.00	\$79.45
03/01/2016	\$56.88	\$8.67	\$14.90	\$0.00	\$80.45
10/01/2016	\$58.03	\$8.67	\$14.90	\$0.00	\$81.60
03/01/2017	\$59.03	\$8.67	\$14.90	\$0.00	\$82.60

Apprentice - SPRINKLER FITTER - Local 550 (Section A) Zone 1**Effective Date -** 10/01/2014

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	35	\$18.81	\$8.42	\$8.25	\$0.00	\$35.48
2	40	\$21.49	\$8.42	\$8.25	\$0.00	\$38.16
3	45	\$24.18	\$8.42	\$8.25	\$0.00	\$40.85
4	50	\$26.87	\$8.42	\$8.25	\$0.00	\$43.54
5	55	\$29.55	\$8.42	\$8.25	\$0.00	\$46.22
6	60	\$32.24	\$8.42	\$8.25	\$0.00	\$48.91
7	65	\$34.92	\$8.42	\$8.25	\$0.00	\$51.59
8	70	\$37.61	\$8.42	\$8.25	\$0.00	\$54.28
9	75	\$40.30	\$8.42	\$8.25	\$0.00	\$56.97
10	80	\$42.98	\$8.42	\$8.25	\$0.00	\$59.65

Effective Date - 01/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	35	\$18.81	\$8.42	\$8.40	\$0.00	\$35.63
2	40	\$21.49	\$8.42	\$8.40	\$0.00	\$38.31
3	45	\$24.18	\$8.42	\$8.40	\$0.00	\$41.00
4	50	\$26.87	\$8.42	\$8.40	\$0.00	\$43.69
5	55	\$29.55	\$8.42	\$8.40	\$0.00	\$46.37
6	60	\$32.24	\$8.42	\$8.40	\$0.00	\$49.06
7	65	\$34.92	\$8.42	\$8.40	\$0.00	\$51.74
8	70	\$37.61	\$8.42	\$8.40	\$0.00	\$54.43
9	75	\$40.30	\$8.42	\$8.40	\$0.00	\$57.12
10	80	\$42.98	\$8.42	\$8.40	\$0.00	\$59.80

Notes: Apprentice entered prior 9/30/10;
40/45/50/55/60/65/70/75/80/85
Steps are 850 hours

Apprentice to Journeyworker Ratio:1:3

STEAM BOILER OPERATOR	06/01/2014	\$41.10	\$10.00	\$14.20	\$0.00	\$65.30
OPERATING ENGINEERS LOCAL 4	12/01/2014	\$42.09	\$10.00	\$14.20	\$0.00	\$66.29
	06/01/2015	\$42.83	\$10.00	\$14.20	\$0.00	\$67.03
	12/01/2015	\$44.07	\$10.00	\$14.20	\$0.00	\$68.27
	06/01/2016	\$44.82	\$10.00	\$14.20	\$0.00	\$69.02
	12/01/2016	\$46.05	\$10.00	\$14.20	\$0.00	\$70.25
	06/01/2017	\$47.04	\$10.00	\$14.20	\$0.00	\$71.24
	12/01/2017	\$48.03	\$10.00	\$14.20	\$0.00	\$72.23

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
TAMPERS, SELF-PROPELLED OR TRACTOR DRAWN <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2014	\$41.10	\$10.00	\$14.20	\$0.00	\$65.30
	12/01/2014	\$42.09	\$10.00	\$14.20	\$0.00	\$66.29
	06/01/2015	\$42.83	\$10.00	\$14.20	\$0.00	\$67.03
	12/01/2015	\$44.07	\$10.00	\$14.20	\$0.00	\$68.27
	06/01/2016	\$44.82	\$10.00	\$14.20	\$0.00	\$69.02
	12/01/2016	\$46.05	\$10.00	\$14.20	\$0.00	\$70.25
	06/01/2017	\$47.04	\$10.00	\$14.20	\$0.00	\$71.24
	12/01/2017	\$48.03	\$10.00	\$14.20	\$0.00	\$72.23

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

TELECOMMUNICATION TECHNICIAN <i>ELECTRICIANS LOCAL 103</i>	09/01/2014	\$33.59	\$13.00	\$13.36	\$0.00	\$59.95
	03/01/2015	\$33.88	\$13.00	\$13.70	\$0.00	\$60.58
	09/01/2015	\$34.60	\$13.00	\$13.72	\$0.00	\$61.32
	03/01/2016	\$35.31	\$13.00	\$13.74	\$0.00	\$62.05

Apprentice - TELECOMMUNICATION TECHNICIAN - Local 103

Effective Date - 09/01/2014

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$13.44	\$13.00	\$0.40	\$0.00	\$26.84
2	40	\$13.44	\$13.00	\$0.40	\$0.00	\$26.84
3	45	\$15.12	\$13.00	\$10.57	\$0.00	\$38.69
4	45	\$15.12	\$13.00	\$10.57	\$0.00	\$38.69
5	50	\$16.80	\$13.00	\$10.83	\$0.00	\$40.63
6	55	\$18.47	\$13.00	\$11.08	\$0.00	\$42.55
7	60	\$20.15	\$13.00	\$11.33	\$0.00	\$44.48
8	65	\$21.83	\$13.00	\$11.59	\$0.00	\$46.42
9	70	\$23.51	\$13.00	\$11.85	\$0.00	\$48.36
10	75	\$25.19	\$13.00	\$12.10	\$0.00	\$50.29

Effective Date - 03/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$13.55	\$13.00	\$0.41	\$0.00	\$26.96
2	40	\$13.55	\$13.00	\$0.41	\$0.00	\$26.96
3	45	\$15.25	\$13.00	\$10.87	\$0.00	\$39.12
4	45	\$15.25	\$13.00	\$10.87	\$0.00	\$39.12
5	50	\$16.94	\$13.00	\$11.13	\$0.00	\$41.07
6	55	\$18.63	\$13.00	\$11.38	\$0.00	\$43.01
7	60	\$20.33	\$13.00	\$11.64	\$0.00	\$44.97
8	65	\$22.02	\$13.00	\$11.89	\$0.00	\$46.91
9	70	\$23.72	\$13.00	\$12.15	\$0.00	\$48.87
10	75	\$25.41	\$13.00	\$12.41	\$0.00	\$50.82

Notes:

Apprentice to Journeyworker Ratio:1:1

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
TERRAZZO FINISHERS	08/01/2014	\$47.90	\$10.18	\$18.22	\$0.00	\$76.30
BRICKLAYERS LOCAL 3 - MARBLE & TILE	02/01/2015	\$48.46	\$10.18	\$18.22	\$0.00	\$76.86
	08/01/2015	\$49.36	\$10.18	\$18.29	\$0.00	\$77.83
	02/01/2016	\$49.93	\$10.18	\$18.29	\$0.00	\$78.40
	08/01/2016	\$50.83	\$10.18	\$18.37	\$0.00	\$79.38
	02/01/2017	\$51.40	\$10.18	\$18.37	\$0.00	\$79.95

Apprentice - TERRAZZO FINISHER - Local 3 Marble & Tile

Effective Date - 08/01/2014

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$23.95	\$10.18	\$18.22	\$0.00	\$52.35
2	60	\$28.74	\$10.18	\$18.22	\$0.00	\$57.14
3	70	\$33.53	\$10.18	\$18.22	\$0.00	\$61.93
4	80	\$38.32	\$10.18	\$18.22	\$0.00	\$66.72
5	90	\$43.11	\$10.18	\$18.22	\$0.00	\$71.51

Effective Date - 02/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$24.23	\$10.18	\$18.22	\$0.00	\$52.63
2	60	\$29.08	\$10.18	\$18.22	\$0.00	\$57.48
3	70	\$33.92	\$10.18	\$18.22	\$0.00	\$62.32
4	80	\$38.77	\$10.18	\$18.22	\$0.00	\$67.17
5	90	\$43.61	\$10.18	\$18.22	\$0.00	\$72.01

Notes:

Apprentice to Journeyworker Ratio:1:3

TEST BORING DRILLER	06/01/2014	\$35.45	\$7.30	\$12.90	\$0.00	\$55.65
LABORERS - FOUNDATION AND MARINE	12/01/2014	\$36.20	\$7.30	\$12.90	\$0.00	\$56.40
	06/01/2015	\$36.95	\$7.30	\$12.90	\$0.00	\$57.15
	12/01/2015	\$37.70	\$7.30	\$12.90	\$0.00	\$57.90
	06/01/2016	\$38.45	\$7.30	\$12.90	\$0.00	\$58.65
	12/01/2016	\$39.45	\$7.30	\$12.90	\$0.00	\$59.65

For apprentice rates see "Apprentice- LABORER"

TEST BORING DRILLER HELPER	06/01/2014	\$34.17	\$7.30	\$12.90	\$0.00	\$54.37
LABORERS - FOUNDATION AND MARINE	12/01/2014	\$34.92	\$7.30	\$12.90	\$0.00	\$55.12
	06/01/2015	\$35.67	\$7.30	\$12.90	\$0.00	\$55.87
	12/01/2015	\$36.42	\$7.30	\$12.90	\$0.00	\$56.62
	06/01/2016	\$37.17	\$7.30	\$12.90	\$0.00	\$57.37
	12/01/2016	\$38.17	\$7.30	\$12.90	\$0.00	\$58.37

For apprentice rates see "Apprentice- LABORER"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
TEST BORING LABORER <i>LABORERS - FOUNDATION AND MARINE</i>	06/01/2014	\$34.05	\$7.30	\$12.90	\$0.00	\$54.25
	12/01/2014	\$34.80	\$7.30	\$12.90	\$0.00	\$55.00
	06/01/2015	\$35.55	\$7.30	\$12.90	\$0.00	\$55.75
	12/01/2015	\$36.30	\$7.30	\$12.90	\$0.00	\$56.50
	06/01/2016	\$37.05	\$7.30	\$12.90	\$0.00	\$57.25
	12/01/2016	\$38.05	\$7.30	\$12.90	\$0.00	\$58.25
For apprentice rates see "Apprentice- LABORER"						
TRACTORS/PORTABLE STEAM GENERATORS <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2014	\$41.10	\$10.00	\$14.20	\$0.00	\$65.30
	12/01/2014	\$42.09	\$10.00	\$14.20	\$0.00	\$66.29
	06/01/2015	\$42.83	\$10.00	\$14.20	\$0.00	\$67.03
	12/01/2015	\$44.07	\$10.00	\$14.20	\$0.00	\$68.27
	06/01/2016	\$44.82	\$10.00	\$14.20	\$0.00	\$69.02
	12/01/2016	\$46.05	\$10.00	\$14.20	\$0.00	\$70.25
	06/01/2017	\$47.04	\$10.00	\$14.20	\$0.00	\$71.24
	12/01/2017	\$48.03	\$10.00	\$14.20	\$0.00	\$72.23
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
TRAILERS FOR EARTH MOVING EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE A</i>	08/01/2014	\$33.27	\$9.91	\$8.80	\$0.00	\$51.98
	12/01/2014	\$33.27	\$9.91	\$9.33	\$0.00	\$52.51
	06/01/2015	\$33.62	\$9.91	\$9.33	\$0.00	\$52.86
	08/01/2015	\$33.62	\$10.41	\$9.33	\$0.00	\$53.36
	12/01/2015	\$33.62	\$10.41	\$10.08	\$0.00	\$54.11
	06/01/2016	\$34.12	\$10.41	\$10.08	\$0.00	\$54.61
	08/01/2016	\$34.12	\$10.91	\$10.08	\$0.00	\$55.11
	12/01/2016	\$34.12	\$10.91	\$10.89	\$0.00	\$55.92
TUNNEL WORK - COMPRESSED AIR <i>LABORERS (COMPRESSED AIR)</i>	06/01/2014	\$46.33	\$7.30	\$13.30	\$0.00	\$66.93
	12/01/2014	\$47.08	\$7.30	\$13.30	\$0.00	\$67.68
	06/01/2015	\$47.83	\$7.30	\$13.30	\$0.00	\$68.43
	12/01/2015	\$48.58	\$7.30	\$13.30	\$0.00	\$69.18
	06/01/2016	\$49.33	\$7.30	\$13.30	\$0.00	\$69.93
	12/01/2016	\$50.33	\$7.30	\$13.30	\$0.00	\$70.93
For apprentice rates see "Apprentice- LABORER"						
TUNNEL WORK - COMPRESSED AIR (HAZ. WASTE) <i>LABORERS (COMPRESSED AIR)</i>	06/01/2014	\$48.33	\$7.30	\$13.30	\$0.00	\$68.93
	12/01/2014	\$49.08	\$7.30	\$13.30	\$0.00	\$69.68
	06/01/2015	\$49.83	\$7.30	\$13.30	\$0.00	\$70.43
	12/01/2015	\$50.58	\$7.30	\$13.30	\$0.00	\$71.18
	06/01/2016	\$51.33	\$7.30	\$13.30	\$0.00	\$71.93
	12/01/2016	\$52.33	\$7.30	\$13.30	\$0.00	\$72.93
For apprentice rates see "Apprentice- LABORER"						
TUNNEL WORK - FREE AIR <i>LABORERS (FREE AIR TUNNEL)</i>	06/01/2014	\$38.40	\$7.30	\$13.30	\$0.00	\$59.00
	12/01/2014	\$39.15	\$7.30	\$13.30	\$0.00	\$59.75
	06/01/2015	\$39.90	\$7.30	\$13.30	\$0.00	\$60.50
	12/01/2015	\$40.65	\$7.30	\$13.30	\$0.00	\$61.25
	06/01/2016	\$41.40	\$7.30	\$13.30	\$0.00	\$62.00
	12/01/2016	\$42.40	\$7.30	\$13.30	\$0.00	\$63.00
For apprentice rates see "Apprentice- LABORER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
TUNNEL WORK - FREE AIR (HAZ. WASTE) <i>LABORERS (FREE AIR TUNNEL)</i>	06/01/2014	\$40.40	\$7.30	\$13.30	\$0.00	\$61.00
	12/01/2014	\$41.15	\$7.30	\$13.30	\$0.00	\$61.75
	06/01/2015	\$41.90	\$7.30	\$13.30	\$0.00	\$62.50
	12/01/2015	\$42.65	\$7.30	\$13.30	\$0.00	\$63.25
	06/01/2016	\$43.40	\$7.30	\$13.30	\$0.00	\$64.00
	12/01/2016	\$44.40	\$7.30	\$13.30	\$0.00	\$65.00
For apprentice rates see "Apprentice- LABORER"						
VAC-HAUL <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE A</i>	08/01/2014	\$32.69	\$9.91	\$8.80	\$0.00	\$51.40
	12/01/2014	\$32.69	\$9.91	\$9.33	\$0.00	\$51.93
	06/01/2015	\$33.04	\$9.91	\$9.33	\$0.00	\$52.28
	08/01/2015	\$33.04	\$10.41	\$9.33	\$0.00	\$52.78
	12/01/2015	\$33.04	\$10.41	\$10.08	\$0.00	\$53.53
	06/01/2016	\$33.54	\$10.41	\$10.08	\$0.00	\$54.03
	08/01/2016	\$33.54	\$10.91	\$10.08	\$0.00	\$54.53
	12/01/2016	\$33.54	\$10.91	\$10.89	\$0.00	\$55.34
WAGON DRILL OPERATOR <i>LABORERS - ZONE 1</i>	06/01/2014	\$34.35	\$7.30	\$12.70	\$0.00	\$54.35
	12/01/2014	\$35.10	\$7.30	\$12.70	\$0.00	\$55.10
	06/01/2015	\$35.85	\$7.30	\$12.70	\$0.00	\$55.85
	12/01/2015	\$36.60	\$7.30	\$12.70	\$0.00	\$56.60
	06/01/2016	\$37.35	\$7.30	\$12.70	\$0.00	\$57.35
	12/01/2016	\$38.35	\$7.30	\$12.70	\$0.00	\$58.35
For apprentice rates see "Apprentice- LABORER"						
WASTE WATER PUMP OPERATOR <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2014	\$41.49	\$10.00	\$14.20	\$0.00	\$65.69
	12/01/2014	\$42.49	\$10.00	\$14.20	\$0.00	\$66.69
	06/01/2015	\$43.24	\$10.00	\$14.20	\$0.00	\$67.44
	12/01/2015	\$44.49	\$10.00	\$14.20	\$0.00	\$68.69
	06/01/2016	\$45.24	\$10.00	\$14.20	\$0.00	\$69.44
	12/01/2016	\$46.49	\$10.00	\$14.20	\$0.00	\$70.69
	06/01/2017	\$47.49	\$10.00	\$14.20	\$0.00	\$71.69
	12/01/2017	\$48.49	\$10.00	\$14.20	\$0.00	\$72.69
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
WATER METER INSTALLER <i>PLUMBERS & GASFITTERS LOCAL 12</i>	09/01/2014	\$49.66	\$10.32	\$14.54	\$0.00	\$74.52
	03/01/2015	\$50.66	\$10.32	\$14.54	\$0.00	\$75.52
	09/01/2015	\$51.66	\$10.32	\$14.54	\$0.00	\$76.52
	03/01/2016	\$52.81	\$10.32	\$14.54	\$0.00	\$77.67
	09/01/2016	\$53.86	\$10.32	\$14.54	\$0.00	\$78.72
	03/01/2017	\$54.86	\$10.32	\$14.54	\$0.00	\$79.72
For apprentice rates see "Apprentice- PLUMBER/PIPEFITTER" or "PLUMBER/GASFITTER"						
Outside Electrical - East						
CABLE TECHNICIAN (Power Zone) <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	09/01/2013	\$25.66	\$8.70	\$4.48	\$0.00	\$38.84
For apprentice rates see "Apprentice- LINEMAN"						
CABLEMAN (Underground Ducts & Cables) <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	09/01/2013	\$36.55	\$8.70	\$6.58	\$0.00	\$51.83
For apprentice rates see "Apprentice- LINEMAN"						
DRIVER / GROUNDMAN CDL <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	09/01/2013	\$29.94	\$8.70	\$6.05	\$0.00	\$44.69
For apprentice rates see "Apprentice- LINEMAN"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
DRIVER / GROUNDMAN -Inexperienced (<2000 Hrs) <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	09/01/2013	\$23.52	\$8.70	\$5.24	\$0.00	\$37.46
For apprentice rates see "Apprentice- LINEMAN"						
EQUIPMENT OPERATOR (Class A CDL) <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	09/01/2013	\$36.35	\$8.70	\$9.43	\$0.00	\$54.48
For apprentice rates see "Apprentice- LINEMAN"						
EQUIPMENT OPERATOR (Class B CDL) <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	09/01/2013	\$32.08	\$8.70	\$6.59	\$0.00	\$47.37
For apprentice rates see "Apprentice- LINEMAN"						
GROUNDMAN <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	09/01/2013	\$23.52	\$8.70	\$3.72	\$0.00	\$35.94
For apprentice rates see "Apprentice- LINEMAN"						
GROUNDMAN -Inexperienced (<2000 Hrs.) <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	09/01/2013	\$19.25	\$8.70	\$2.85	\$0.00	\$30.80
For apprentice rates see "Apprentice- LINEMAN"						
JOURNEYMAN LINEMAN <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	09/01/2013	\$42.77	\$8.70	\$11.78	\$0.00	\$63.25

Apprentice - LINEMAN (Outside Electrical) - East Local 104

Effective Date - 09/01/2013

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$25.66	\$8.70	\$4.24	\$0.00	\$38.60
2	65	\$27.80	\$8.70	\$4.71	\$0.00	\$41.21
3	70	\$29.94	\$8.70	\$5.43	\$0.00	\$44.07
4	75	\$32.08	\$8.70	\$6.16	\$0.00	\$46.94
5	80	\$34.22	\$8.70	\$6.88	\$0.00	\$49.80
6	85	\$36.35	\$8.70	\$7.62	\$0.00	\$52.67
7	90	\$38.49	\$8.70	\$8.83	\$0.00	\$56.02

Notes:

Apprentice to Journeyworker Ratio:1:2

TELEDATA CABLE SPLICER <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	07/16/2012	\$26.33	\$4.18	\$2.79	\$0.00	\$33.30
TELEDATA LINEMAN/EQUIPMENT OPERATOR <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	07/16/2012	\$24.78	\$4.18	\$2.74	\$0.00	\$31.70
TELEDATA WIREMAN/INSTALLER/TECHNICIAN <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	07/16/2012	\$24.78	\$4.18	\$2.74	\$0.00	\$31.70
TREE TRIMMER <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	01/29/2012	\$17.18	\$3.37	\$0.00	\$0.00	\$20.55
This classification applies only to tree work done: (a) for a utility company, R.E.A. cooperative, or railroad or coal mining company, and (b) for the purpose of operating, maintaining, or repairing the utility company's equipment, and (c) by a person who is using hand or mechanical cutting methods and is not on the ground. This classification does not apply to wholesale tree removal.						
TREE TRIMMER GROUNDMAN <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	01/29/2012	\$15.15	\$3.37	\$0.00	\$0.00	\$18.52

This classification applies only to tree work done: (a) for a utility company, R.E.A. cooperative, or railroad or coal mining company, and (b) for the purpose of operating, maintaining, or repairing the utility company's equipment, and (c) by a person who is using hand or mechanical cutting methods and is on the ground. This classification does not apply to wholesale tree removal.

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
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Additional Apprentices Information:

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

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

All steps are six months (1000 hours.)

Ratios are expressed in allowable number of apprentices to journeymen or fraction thereof, unless otherwise specified.

** Multiple ratios are listed in the comment field.

*** APP to JM; 1:1, 2:2, 2:3, 3:4, 4:4, 4:5, 4:6, 5:7, 6:7, 6:8, 6:9, 7:10, 8:10, 8:11, 8:12, 9:13, 10:13, 10:14, etc.

**** APP to JM; 1:1, 1:2, 2:3, 2:4, 3:5, 4:6, 4:7, 5:8, 6:9, 6:10, 7:11, 8:12, 8:13, 9:14, 10:15, 10:16, etc.

Appendix C
Sample Contract

**OWNER-VENDOR PUBLIC CONSTRUCTION AGREEMENT
CITY OF SOMERVILLE**

**THROUGH THE PURCHASING DEPARTMENT
FOR
MAYOR'S OFFICE OF STRATEGIC PLANNING
AND COMMUNITY DEVELOPMENT (OSPCD)**

AGREEMENT made this 1st day of month, year, by and between the City of Somerville, a Massachusetts municipal corporation, acting by and through its Purchasing Department, 93 Highland Ave., Somerville, MA 02143 (referred to variously in the Contract Documents as "City", "Owner", "Awarding Authority", and "School") and the following General Vendor (referred to in the Contract Documents as "Vendor" or "General Vendor"):

VENDOR

Name: Vendor name

Address: Vendor address, city, MA zip

PROJECT

Name: Somerville Fire Station #3 Living Quarters

Location: 255 Somerville Avenue, Somerville, MA

Brief Description:

The City seeks construction services for construction/installation of new modular living quarters at the Somerville Fire Station #3, located at 255 Somerville Avenue, Somerville, MA 02143. The project consists of demolition of existing foundations and utilities from a previous modular structure and construction of a new foundation and modular building living quarters for the Somerville Fire personnel assigned to this station.

ARCHITECT:

**CDR Maguire, Inc.
211 Congress Street, 11th Floor
Boston, MA 02110**

Contact: Kevin Witzell, Project Manager

Phone: (617) 778 - 1493

Fax: (617) 348 - 2413

LANDSCAPE ARCHITECT

Name: n/a

Address:

ENGINEER

Name: n/a

Address:

(The Architect is described herein as the "Design Professional".)

THIS CONTRACT IS A

- ___ Public Works Contract under \$10,000
- ___ Public Building Contract under \$10,000, subject to the price quote requirements of Chapter 149 of the General Laws
- ___ Public Building Contract estimated to cost more than \$10,000, but less than \$25,000, subject to the written response requirements of Chapter 149 of the General Laws
- ___ Public Works Contract estimated to cost more than \$10,000 thereby subject to the bidding requirements of Mass. Gen. Laws, Chapter 30, Section 39M
- ___ Public Building Contract estimated to cost more than \$25,000, but less than \$100,000, subject to the bidding requirements of Mass. Gen. Laws, Chapter 30, Section 39M
- ___ Public Building Contract estimated to cost more than \$100,000 subject to the bidding requirements of Mass. Gen. Laws, Chapter 149, Section 44A.
- X Public Modular Building Contract estimated to cost more than \$100,000 subject to the bidding requirements of Mass. Gen. Laws, Chapter 149, Section 44E(4).

(Chapter 149 and Chapter 30 contain interrelated provisions. When a provision applies only to Chapter 149 s. 44A contracts or only to Chapter 30, s. 39M contracts, it is so noted herein. Otherwise, any section of Chapter 30 or Chapter 149 cited in this contract shall be deemed to apply to both types of contracts.)

Section 1: CONTRACT DOCUMENTS.

The Contract Documents consist of the Owner-Vendor Agreement, Advertisement, Bidding Documents, Technical Specifications, Drawings, General Conditions, Supplementary Conditions, and Addenda issued prior to execution of this Contract, and Modifications agreed to in writing after the execution of this Contract. The following Appendices are attached hereto and are hereby incorporated by reference.

- ___ Appendix A - Advertisement; Notice to Bidders;
- ___ Appendix B - Bid Documents - Vendor's Bid
- ___ Appendix C - Scope of Services - includes a brief description of the project and the Plans and Technical Specifications (Plans on File)
- ___ Appendix D - Insurance Requirements with Vendor's Insurance Certificate(s)
- ___ Appendix E - General Conditions
- ___ Appendix F - Wage Rates; Living Wage Ordinance form
- ___ Appendix G - Performance Bond and Payment Bond, if contract is over \$2,000

The Contract Documents represent the entire Contract between the parties hereto and supersede prior negotiations, representations, or Contracts, whether written or oral.

Section 2: THE WORK.

The Vendor shall execute all work described in the Contract Documents, except to the extent that such work is specifically indicated in the Contract Documents to be the responsibility of others. In accordance with Chapter 30, section 39I of the General Laws, the Vendor shall perform all of work in conformity with the plans and specifications included herein as Appendix A. No willful or substantial deviation from such plans and specifications shall be made unless authorized in writing by the Commissioner of Public Works, which authorization shall be confirmed by written change order within thirty days.

Section 3: PROJECT DATES

(a) Commencement: The Date of Commencement shall be stipulated by a written Notice to Proceed given by the City to the Vendor.

(b) Substantial Completion: The Vendor shall achieve substantial completion of the work no later than scheduled in the bid documents or date after the Date of Commencement, time being of the essence. For good cause shown, the Commissioner of Public Works may, in his sole discretion, extend the date of substantial completion by written change order.

(c) Damages for Delay. The Vendor and the Vendor's surety shall be liable for and shall pay the City the sum of \$500.00 per calendar day, as liquidated damages, for each calendar day of delay until the work is substantially completed or, in the case of the portion of the work, for each calendar day of delay until the portion of the work is substantially completed. Substantial Completion shall mean either a) that the work, or portion of the work, has been completed, except for work having a contract price of less than one percent (1%) of the then adjusted total contract price; or b) that substantially all of the work has been completed and opened to public use, except for minor incomplete or unsatisfactory work items that do not materially impair the usefulness of the work.

(d) Suspension of the Work/Excusable Delays. If the City is required to suspend the work as a result of a request from the Office of the Attorney General in connection with a bid protest or an injunction, the Vendor shall not have a claim for damages, but the City shall extend the date of substantial completion for a period of time commensurate with the period of the suspension, and the liquidated damages clause shall not take effect until the extended date of substantial completion. If any of the following occurrences causes a delay in the work, the Vendor shall immediately notify THE CITY'S PROJECT MANAGER FOR THIS PROJECT in writing. If, upon investigation, the City finds that the delay is excusable, the City shall extend the date of substantial completion for a period of time commensurate with the period of the excusable delay, and the liquidated damages clause shall not take effect until the extended date of substantial completion:

(1) any acts of the Government, including controls or restrictions upon or requisitioning of materials, equipment, tools, or labor by reason of war, National Defense, or any other national emergency;

(2) delays which are caused by the City and which are not occasioned by the Vendor's failure to supply THE CITY'S PROJECT MANAGER FOR THIS PROJECT or its design professional with progress schedules, documents, samples, and the like, in a timely manner;

(3) causes not reasonably foreseeable by the parties to this Contract,

which are beyond the reasonable control of the Vendor, such as blizzards, floods, hurricanes, tornadoes, and strikes;

(4) any delay of any subVendor resulting from paragraphs (1), (2), or (3);

Section 4. CONTRACT SUM

The contract sum shall be \$contract amount. The contract sum may be increased or decreased by change order, as quantities which have been estimated in the bid documents become known, or as other additions or deletions to the work are made, or if the work is interrupted or suspended by the City, all as set forth herein.

Section 5. CHANGES IN THE CONTRACT

(2) Suspension, Delay, or Interruption due to order of Awarding Authority.

(1) The Awarding Authority may order the General Vendor 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 Awarding Authority; provided, however, that if there is a suspension, delay, or interruption for fifteen days or more or due to a failure of the Awarding Authority to act within the time specified in this contract, the Awarding Authority shall make an adjustment in the contract price for any increase in the cost of performance of this contract but shall not include any profit to the General Vendor on such increase; and provided further, that the Awarding Authority shall not make any adjustment in the contract price under this provision for any suspension, delay, interruption, or failure to act to the extent that such is due to any cause for which this contract provides for an equitable adjustment of the contract price under any other contract provisions.

(2) The General Vendor must submit the amount of a claim under provision (1) to the Awarding Authority in writing as soon as practicable after the end of the suspension, delay, interruption or failure to act and, in any event, not later than the date of final payment under this contract and, except for costs due to a suspension order, the Awarding Authority shall not approve any costs in the claim incurred more than twenty days before the General Vendor notified the Awarding Authority in writing of the act or failure to act involved in the claim.

(3) A subVendor shall have the same rights against the General Vendor for payment for an increase in the cost of its performance as provisions (1) and (2) give the General Vendor against the Awarding Authority, but nothing in provisions (1) and (2) shall in any way change, modify or alter any other rights which the General Vendor or the subVendor may have against each other.

(b) Change Orders. No willful and substantial deviation from the plans and specifications shall be made unless authorized in writing by the Awarding Authority or by the Design Professional in charge of the work who is duly authorized by the Awarding Authority to approve such deviations. In order to avoid delays in the prosecution of the work required by the contract, such deviation from the plans and specifications may be authorized by a written order of the Awarding Authority or Design Professional so authorized, to be confirmed at a later time by a written Change Order, signed under penalties of perjury, using AIA Document G701 (or its equivalent). The Change Order shall include the following: (1) if such deviation involves any substitution or elimination of materials, fixtures or equipment, the reasons why such materials, fixtures or equipment were included in the first instance and the reasons for substitution or elimination, and, if the deviation is of any other nature, the reasons for such deviation, giving justification therefor; (2) that the specified deviation does not materially injure the project as a whole; (3) that either the work substituted for the work specified is of the same cost and quality, or that an equitable adjustment

[increase or decrease as the case may be] has been agreed upon between the Contracting Agency and the General Vendor and the amount in dollars of such adjustment; and (4) that the deviation is in the best interest of the Contracting Authority. The Change Order shall also indicate whether or not the date of substantial completion has been extended. The equitable adjustment in price shall be determined by the unit prices, if any, in the General Vendor's bid; otherwise, it shall be a number which is agreed to by both parties as a fair adjustment and which can be itemized and substantiated to the reasonable satisfaction of the Contracting Authority. Where increases and decreases to the Contract Sum are included in one Change Order, the negotiated allowance for overhead and profit shall be calculated on the basis of the net increase, if any.

(c) Differing Subsurface or Latent Physical Conditions. In accordance with Chapter 30, section 39N of the General Laws, if, during the progress of the work, the Vendor or the Awarding Authority discovers that the actual physical 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 Vendor or the Contracting [Awarding] Authority may request an equitable adjustment in the contract price of the contract applying to work affected by the differing site conditions. A request for such an adjustment shall be in writing and shall be delivered by the party making such claim to the other party as soon as possible after such conditions are discovered. Upon receipt of such a claim from a Vendor, or upon its own initiative, the Contracting Authority 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 Contracting Authority shall make an equitable adjustment in the contract price and the contract shall be modified in writing accordingly.

Section 6. PAYMENTS TO THE VENDOR

(a) Progress Payments. The Vendor may submit requests for progress payments (hereafter, "Periodic Estimates") for work completed during the preceding month and for materials not incorporated in the work, but delivered and suitably stored at the site (or some other location agreed upon in writing). The Vendor's progress schedule and schedule of values, as modified by agreement of the parties, may be used by the City as a basis for reviewing the Vendor's Periodic Estimates. In the case of contracts for construction, reconstruction, alteration, remodeling, repair, or demolition of a public building, where the amount is more than two thousand dollars, the Vendor's Periodic Estimate shall contain a separate item for each filed subtrade and sub-subtrade, and a column listing the amount paid to each subVendor and sub-subVendor as of the date the periodic estimate is filed, as required by Chapter 30, Section 39K, of the General Laws.

(1) Time for Payment. In the case of contracts for construction, reconstruction, alteration, remodeling, repair or demolition of a public building, where the amount is more than two thousand dollars, the City shall, in accordance with Chapter 30, Section 39K, of the General Laws, make payment within fifteen days of receipt of the Vendor's Periodic Estimate; provided however, that the City may, within seven days of receipt of an estimate which is not in the required form or which is arithmetically incorrect, return the incorrect estimate to the Vendor for correction, whereupon the date of receipt shall be the date of receipt of the corrected Periodic Estimate. For all other construction contracts, progress payments are governed by Chapter 30, Section 39G of the General Laws, and the City is required to make payment within thirty-five days of receipt of a Periodic Estimate.

(2) Retainage prior to Substantial Completion. In all construction contracts, the City may hold back a retainage of up to five percent of each progress payment to ensure satisfactory completion of the work. In addition, the City may withhold any amounts in dispute, including disputed change orders and direct payments owed to subVendors pursuant to Chapter 30, Section 39F of the General Laws.

(b) Payment upon Substantial Completion. In the case of contracts for construction, reconstruction, alteration, repair, remodeling, or demolition of a public building, where the amount is more than \$2,000, Chapter 30, Section 39K, of the General Laws governs payment upon substantial completion. For all other contracts, Chapter 30, Section 39F of the General Laws governs payment upon substantial completion.

(1) Definition of Substantial Completion. Substantial Completion shall mean either a) that the work, or portion of the work, has been completed, except for work having a contract price of less than one percent (1%) of the then adjusted total contract price; or b) that substantially all of the work has been completed and opened to public use, except for minor incomplete or unsatisfactory work items that do not materially impair the usefulness of the work.

(2) Certificate of Substantial Completion. The Vendor shall give written notice to the City when the Vendor is of the opinion that the work has been substantially completed. Within twenty-one days of receipt of such notice, provided there is no dispute as to whether the work has been substantially completed, a Certificate of Substantial Completion signed by the City's Design Professional, or a written Declaration of Substantial Completion signed by the Executive Director of Mayor's Office of Strategic Planning and Community Development (on AIA form # G701 or its equivalent) shall be given to the Vendor. The date of such Certificate or Declaration shall be the Effective Date of Substantial Completion, subject to the provisions of Chapter 30, Section 39J, of the General Laws. If the City does not agree that the work has been substantially completed, the City or the City's Design Professional shall, within the twenty-one day period, present the Vendor with a written, itemized list of incomplete or unsatisfactory work items sufficient to demonstrate that the work has not been substantially completed. If the City fails to respond within the twenty-one day period, the date of the Vendor's notification of substantial completion shall become the "Effective Date of Substantial Completion". Within fifteen days after the effective date of the City's declaration of substantial completion, the City shall send to the Vendor by certified mail, return receipt requested, a complete list of all incomplete or unsatisfactory work items and, unless delayed by causes beyond his control, the Vendor shall complete all such work items within forty-five days after receipt of said list or before the date of substantial completion in the contract, whichever is later. If the Vendor fails to complete such work within such time, the City may send the Vendor a notice in writing by certified mail, return receipt requested, instructing the Vendor that if the work is not completed with seven days after receipt of the notice, the contract will be terminated and the City will complete the incomplete or unsatisfactory work items and charge the cost of the same to the Vendor and the Vendor's sureties.

(3) Retainage after Substantial Completion. Within sixty-five days after the Effective Date of Substantial Completion, the City shall pay the Vendor all but one percent retainage, minus: a) the amount of any disputed work item; and b) five (5) percent of the value of plant materials in the ground; and c) the City's estimated cost of completing all incomplete and unsatisfactory work items. The City shall also deduct an amount equal to the sum of all demands for direct payment filed by subVendors and not yet paid to subVendors or deposited in joint accounts pursuant to Chapter 30, Section 39F of the General Laws. The five (5) percent retainage of the value of all plant materials in the ground shall be withheld by the City until final acceptance of such plant materials at the end of the guarantee period.

(c) Final Payment. The City shall make final payment to the Vendor within thirty days of completion of the work and submission of all documentation required.

IF FORMS FOR WAGE CERTIFICATIONS AND OTHER DOCUMENTATION ARE SUPPLIED BY THE CITY TO THE VENDOR, THE VENDOR SHALL SUBMIT DOCUMENTATION ON SUCH FORMS.

(d) Interest. If the City fails to pay the Vendor within the time periods mandated by statute, the City shall pay interest to the Vendor in accordance with Chapter 30, Sections 39G and 39K, whichever is applicable.

Section 7. PAYMENT OF SUBVENDORS.

In accordance with Chapter 30, Section 39F of the General Laws, the subparagraphs a) through h) of this section shall be binding on contracts awarded pursuant to Chapter 30, Section 39M of the General Laws, and paragraphs a) through i) shall be binding on contracts awarded pursuant to Chapter 149, Section 44A of the General Laws:

(a) Immediately after the Vendor receives payment on account of a periodic estimate, the Vendor shall pay each subVendor the amount paid for labor performed and materials furnished by that subVendor, less any amount specified in any court proceedings barring such payment and also less any amount claimed due from the subVendor to the Vendor.

(b) Not later than the sixty-fifth day after each subVendor substantially completes his work in accordance with the plans and specifications, the entire balance due under the subcontract less amounts retained by the City as the estimated cost of completing the incomplete and unsatisfactory items of work, shall be due the subVendor; and the City shall pay that amount to the Vendor. The Vendor shall immediately pay to the subVendor the full amount received from the City less any amount specified in any court proceeding barring such payment and also less any amount claimed due from the subVendor by the Vendor.

(c) Each payment made by the City to the Vendor pursuant to subparagraphs a) and b) of this section for the labor performed and materials furnished by a subVendor shall be made to the Vendor for the account of that subVendor; and the City shall take reasonable steps to compel the Vendor to make each such payment to each such subVendor. If the City has received a demand for direct payment from a subVendor for any amount which has been included in a payment to the Vendor or which is to be included in a payment to the Vendor for payment to the subVendor as provided in subparagraphs a) and b), the City shall act upon the demand as provided in this section.

(2) If, within seventy days after the subVendor has substantially completed the subcontract work, the subVendor has not received from the Vendor the balance due under the subcontract, including any amount due for extra labor and materials furnished to the Vendor, less any amount retained by the City as the estimated cost of completing the incomplete and unsatisfactory items of work, the subVendor may demand direct payment of that balance from the City. The demand shall be by a sworn statement delivered to or sent by certified mail to the City, and a copy shall be delivered to or sent by certified mail to the Vendor 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 subVendor has substantially completed the subcontract work. Within ten days after the subVendor has delivered to or so mailed the demand to the City and delivered or so mailed a copy to the Vendor, the Vendor may reply to the demand. The reply shall be by sworn statement delivered to or sent by certified mail to the City and a copy shall be delivered to or sent by certified mail to the subVendor 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 Vendor and of the amount due for each claim made by the Vendor against the subVendor.

(e) Within fifteen days after receipt of the demand by the City, but in no event prior to the seventieth day after substantial completion of the subcontract work, the City shall make direct payment to the subVendor of the balance due under the subcontract including any amount due for extra labor and materials furnished to the Vendor, less any amount (1) retained by the City as the estimated cost of completing incomplete or unsatisfactory items of work, (2) specified in any court proceedings barring such payment, or (3) disputed by the Vendor in the sworn reply; provided, that the City shall not deduct from a direct payment any amount as provided in part (3) if the reply is not sworn to, or for which the sworn reply does not contain the detailed breakdown required by subparagraph (d). The City shall make further direct payment to the subVendor immediately after the removal of any basis for deductions set forth in (1) or (2) above.

(f) The City shall promptly deposit disputed amounts in an interest-bearing, joint account in the names of the Vendor and the subVendor, in a bank in Massachusetts selected by the City or agreed upon by the Vendor and the subVendor, and shall notify the Vendor and the subVendor 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 Vendor and the subVendor or as determined by decree of a court of competent jurisdiction.

(g) All direct payments and all deductions from demands for direct payments deposited in an interest-bearing account or accounts in a bank pursuant to subparagraph (f) shall be made out of amounts payable to the Vendor at the time of receipt of a demand for direct payment from a subVendor and out of amounts which later become payable to the Vendor and in the order of receipt of such demands from the subVendors. All direct payments shall discharge the obligation of the City to the Vendor to the extent of such payment.

(h) The City shall deduct from payments to the Vendor amounts which, together with the above-mentioned bank deposits, are sufficient to satisfy all unpaid demands for direct payment received from subVendors. All such amounts shall be earmarked for direct payments to such subVendors, whose claims shall have priority over all other creditors of the Vendor.

(i) If the subVendor does not receive payment as provided in subparagraph (a), or if the Vendor does not submit a Periodic Estimate for the value of the labor or materials performed or furnished by the subVendor, and the subVendor does not receive payment for the same when due less the deductions provided for in subparagraph (a), the subVendor may demand direct payment by following the procedure in subparagraph (d) and the Vendor 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 subVendor performed or furnished the labor and materials for which the subVendor seeks payment shall be valid even if delivered or mailed prior to the time payment was due on a Periodic Estimate from the Vendor. Thereafter, the City shall proceed as provided in subparagraph (e), (f) (g) and (h).

Section 8. PREVAILING WAGE REQUIREMENTS.

(2) The Vendor shall pay wages at no less than the wage rates set forth in Appendix G, incorporated as part of this Agreement: namely, State Prevailing Wage Rates; provided, however, that if any department of the City should make use of this Contract for a project which is federally funded, then the Vendor shall pay wages at the higher of the two rates. If a labor classification is

not listed the Vendor shall notify THE CITY'S PROJECT MANAGER FOR THIS PROJECT and request instructions. In addition, the Vendor shall:

- (1) pay wages at least once a week;
- (2) submit payroll information on a weekly basis in a format approved by THE CITY'S PROJECT MANAGER FOR THIS PROJECT, numbered in numerical sequence and signed by the Vendor (including forms for weeks when the Vendor is not on the site, in which case there shall be a notation to the effect "no work this payroll period" and a date anticipated for resuming work);

(b) The Vendor shall submit to THE CITY'S PROJECT MANAGER FOR THIS PROJECT within the first week of construction:

- (1) a list of apprenticeship programs with which the Vendor is affiliated;
- (2) the number of apprentices on the Project employed by the Vendor.
- (3) a list of the Vendor's employee fringe benefits;
- (4) a copy of each project schedule, including the anticipated commencement date for each SubVendor; and
- (5) a list of each SubVendor's suppliers and material men.

(c) The Vendor shall include language similar to the above in all subcontracts.

Section 9. EQUAL EMPLOYMENT OPPORTUNITY/NONDISCRIMINATION

a) the Vendor shall not discriminate against any employee or applicant for employment because of race, color, religion, sex, marital status, sexual orientation, national origin, age, disability, Vietnam Era veteran status or because an employee or applicant is a recipient of federal, state, or local public assistance or housing subsidies; and

b) the Vendor shall not discriminate, in any stage of the contract from award to completion, in the selection or retention of subVendors, suppliers, and materialmen, or in the procurement of materials or supplies, or the rental of equipment, on the basis of race, religion, sex, marital status, sexual orientation, national origin, age, disability, Vietnam Era veteran status, or because an individual is a recipient of federal, state, or local public assistance or housing subsidies; and

c) the Vendor shall post an equal employment opportunity notice in conspicuous places at the worksite, shall make copies of such notice available to employees and job applicants, and shall send such notice to each labor union or representative of workers with which the Vendor has a collective bargaining agreement or other contract or understanding; and

d) the Vendor shall, to the greatest extent feasible, give employment and on-site training opportunities, to lower-income, minority, women, and disabled members of the local community and shall award subcontracts, when possible, to Minority Business Enterprises (MBE) and Women Business Enterprises (WBE).

e) the Vendor shall include language similar to the above in all subcontracts.

Section 10. COPELAND ANTI-KICKBACK ACT.

If this contract is in excess of \$2,000 and is federally funded, the Vendor shall comply with the Copeland "Anti-Kickback Act" (18 U.S.C. 874 and 29 CFR Part 3) more fully set forth in Appendix G attached hereto, and shall not induce any person employed in the construction, completion, or repair of a public building or public work, to give up any part of the compensation to which he would otherwise be entitled.

Section 11. WORK HOURS AND SAFETY STANDARDS.

If this contract is in excess of \$2,000 and is federally funded, the Vendor shall comply with Sections 103 and 107 of the Contract Work Hours Safety Standards Acts (40 U.S.C. 327-333), as supplemented by Department of Labor regulations at 29 CFR part 5. To that end, the Vendor shall compute the wages of every mechanic and laborer on the basis of a standard workweek of 40 hours. Work in excess of the standard workweek is permissible, provided that the worker is compensated at a rate of not less than 1-1/2 times the basic rate of pay for all hours worked in excess of 40 hours in the workweek. The Vendor shall ensure that no laborer or mechanic is required to work in surroundings or under working conditions which are unsanitary, hazardous, or dangerous.

Section 12. CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT.

If this contract is in excess of \$100,000 and is federally funded, the Vendor shall comply with all applicable standards, orders, or regulations issued pursuant to the Clean Air Act (42 U.S.C. 7401 et seq.) and the Federal Water Pollution Control Act as amended (33 U.S.C. 1251 et seq.)

Section 13. VENDOR'S CERTIFICATIONS.

The Vendor hereby certifies under oath:

(a) That if this Contract is in excess of \$100,000 and is federally funded, the Vendor will abide by the Byrd Anti-Lobbying Amendment (31 U.S.C.1352), and more specifically:

(1) That no federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress, in connection with the awarding of this Federal contract and the extension, continuation, renewal, amendment, or modification of this Federal contract; and

(2) That if any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, the Vendor will complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying", in accordance with its instructions; and

(3) That the Vendor will include the language of this certification in all subcontracts, and that all subVendors shall certify and disclose accordingly.

THIS CERTIFICATION IS A MATERIAL REPRESENTATION OF FACT UPON WHICH RELIANCE WAS PLACED WHEN THIS THE AWARD OF THIS CONTRACT WAS MADE. ANY PERSON WHO FAILS TO FILE THE REQUIRED CERTIFICATION SHALL BE SUBJECT TO A CIVIL PENALTY OF NOT LESS THAN \$10,000 AND NOT MORE THAN \$100,000 FOR EACH FAILURE.

(b) Drug-Free Workplace Act of 1988 (42 U.S.C. 701):

That, if this Contract is federally funded, the Vendor will provide a drug-free workplace and comply with the HUD rules contained in 24 CFR part 24M, including notification to employees that the unlawful manufacture, distribution, dispensing, possession or use of a controlled substance is prohibited; that action will be taken against employees violating the prohibition; and that an employee who is convicted of manufacturing, distributing, dispensing, possession, or use of a controlled substance may be terminated or required to participate in a drug abuse assistance or rehabilitation program approved for such purpose by a Federal, State, or local health, law enforcement, or other appropriate agency.

(c) Debarment and Suspension: That the Vendor is a duly licensed general Vendor, and

(1) That neither the Vendor nor any of its principal employees are on the General Services Administration's List of Parties Excluded from Federal Procurement or Nonprocurement Programs [E.O. 12549 and E.O. 12689 at 24 CFR part 24, applicable to contracts exceeding the small purchase threshold of fixed by 41 U.S.C. 403 (11)]; and

(2) That the Vendor has not been debarred or suspended by any state agency or city or town in the Commonwealth of Massachusetts.

(d) Organization and Authority: That the Vendor is a duly organized and validly existing (corporation/general partnership/limited partnership, trust, or sole proprietorship) and is qualified to do business and is in good standing in the Commonwealth of Massachusetts; that this Contract has been duly executed and delivered on behalf of the Vendor by its _____ pursuant to and in full compliance with the authority granted by the Vendor's organizational documents and/or (in the case of a corporation) by a vote taken at duly called meeting at which a quorum was present and voting; that such authority is still in full force and effect as of the date of execution of this Contract; and that the person executing this Contract is the present holder of the title which he or she purports to hold.

(e) Noncollusion: That the bid upon which this Contract was based was made without collusion or fraud with any other person and was in all respects bona fide and fair. As used in this paragraph, the word "person" shall mean any natural person, joint venture, partnership, corporation, or other business or legal entity.

(f) Tax Compliance: That the Vendor is in full compliance with all federal and state laws relating to income taxes, and has paid all real estate and personal property/excise taxes, water charges, fines and other municipal lien charges due to the City of Somerville, and the Vendor's Federal Tax Identification Number is #_____.

Section 14. VENDOR'S RECORDS.

(a) Federal Requirements: The Vendor shall permit the City, HUD and/or any other administering agency named herein, the Comptroller General of the United States, or any of their duly authorized representatives, to have access to any books, documents, papers, and records of the Vendor

which are directly pertinent to a specific HUD program for the purpose of making audits, examinations, excerpts, and transcriptions.

(2) State Requirements: In accordance with G.L. Chapter 30, §39R, for contracts in an amount or estimated amount greater than \$100,000: (i) the General Vendor shall make and keep for at least six years after final payment, books, records, and accounts which in reasonable detail accurately and fairly reflect the transactions and dispositions of the Vendor; and (ii) until the expiration of six years after final payment, the office of the Inspector General and the Commissioner of Capital Asset Management and Maintenance shall have the right to examine any books, documents, papers or records of the Vendor or of his subVendors that directly pertain to and involve transactions relating to the Vendor or his subVendors; and (iii) the Vendor shall describe any change in the method of maintaining records or recording transactions which materially affect any statements filed with the Awarding Authority, including in his description the date of the change and reasons therefor and shall accompany said description with a letter from the Vendor's independent certified public accountant approving or otherwise commenting on the changes; and (iv) the Vendor shall have filed a Statement of Management on Internal Accounting Controls, as described in paragraph "(1)" below prior to the execution of the Contract; and (v) the Vendor has filed prior to execution of the Contract and will continue to file annually, an Audited Financial Statement for the most recent completed fiscal year as set forth in paragraph "(2)" below.

(1) The Statement of Management on Internal Accounting Controls is a written statement certifying that the system of internal accounting controls of the Vendor and its subsidiaries reasonably assures that transactions are executed in accordance with management's general and specific authorization; that transactions are recorded as necessary to permit preparation of financial statements in conformity with generally accepted accounting principles and to maintain accountability for assets; that access to assets is permitted only in accordance with management's general or specific authorization; and that recorded accountability for assets is compared with the existing assets at reasonable intervals and appropriate action was taken with respect to any difference.

(2) The Audited Financial Statement is a statement prepared and signed by an independent certified public accountant, stating that he has examined the Statement of Management on internal accounting controls, and expressing an opinion as to (i) whether such representations of management are, in addition, reasonable with respect to transactions and assets in amount which would be material when measured in relation to the applicant's financial statements.

The Vendor shall annually file with the Commissioner of Capital Asset Management and Maintenance during the term of the contract a financial statement prepared by an independent certified public accountant on the basis of an audit by such accountant. The final statement filed shall include the date of final payment. All statements shall be accompanied by an accountants report. Such statements shall be made available to the Awarding Authority upon request.

(c) Records and statements required to be made, kept or filed under the provisions of this section shall not be public records as defined in G.L. 4, §7 or equivalent federal legislation. They shall not be made available to the public, but shall be available only to the governmental authorities named herein.

Section 15. CONFLICT OF INTEREST LAWS.

The City and the Vendor shall comply with all federal and state conflict of interest statutes and regulations.

Section 16. EVENTS OF DEFAULT.

The following shall be considered Events of Default:

a. The Vendor makes a written admission of the Vendor's inability to pay debts; or the Vendor becomes the debtor or defendant in (i) a voluntary or involuntary petition in bankruptcy, (ii) a petition for appointment of a receiver, (iii) a levy of an attachment or execution, (iv) an assignment for the benefit of creditors, (v) a winding up or dissolution of a partnership or corporation; or (vi) any other proceeding under which a court of competent jurisdiction assumes custody or control over the Vendor.

b. The Vendor fails to prosecute the work with such diligence as will, in the reasonable estimation of the City, ensure substantial completion within the time specified in the Contract Documents; and/or

c. The Vendor is in breach of the Contract Documents and has failed to cure such breach after written notice from the City specifying 1) the breach, 2) what must be done to cure the breach; and 3) the time within which the breach must be cured.

Section 17. REMEDIES UPON DEFAULT.

a. HUD Action. If the Vendor is in default, HUD and/or any other administering agency named herein may, with or without the consent of the City, cancel,

suspend, or terminate this Contract in whole or in part; require the withholding or disallowance all or part of the funding for the project; declare the Vendor ineligible for further Government contracts or avail itself of any other remedies available under the law.

b. City Action. If the Vendor is in default, the City may elect to do any or all of the following: 1) temporarily withhold cash payments pending correction of the deficiency; and/or 2) terminate this Contract, and

(a) hold the Vendor and its sureties liable in damages;

(b) require the Vendor's sureties to complete the Contract;

(c) take possession and use any materials, machinery, implements, and tools on the site, without liability for loss or damage, following which use, the Vendor shall be liable for their removal from the site;

(d) complete the work using the services of another Vendor (in which case the City shall have no obligation to use a competitive process to obtain the lowest contract prices) and look to the Vendor and the Vendor's sureties for the difference between the cost to complete the work and the contract sum hereunder.

Section 18. TERMINATION FOR CONVENIENCE.

(a) The City may terminate this Contract without cause, at any time, effective upon the date of termination specified by written notice to the Contractor, in which case, the Contractor shall be compensated for: (1) sums due under this Contract incurred up to the date of termination for all Work performed and accepted by the City up to the termination date, calculated on a percentage completion basis covering the period of time between the last approved application for payment and the date of termination using the progress schedule and schedule of values. The Contractor shall use its best efforts to mitigate any expenses and shall in no event incur any new obligations after the date of termination.

(1) Payment by the City as provided in this section shall be deemed to fully compensate the Contractor for all expenses and those of any consultants, subcontractors and suppliers, directly or indirectly attributable to the termination. Lost profits shall not be payable. Any such termination shall not give rise to any cause of action for damages against the City.

(b) Contractor's Duties Upon Termination For Convenience. Upon termination of this Contract without cause, the Contractor shall: (1) immediately stop the Work; (2) stop placing orders and Subcontracts in connection with this Contract; (3) cancel all existing orders and Subcontracts; (4) surrender the site to City in a safe condition; and (5) promptly transfer to City all materials, supplies, work in process, appliances, facilities, equipment and machinery of this Contract, and all work product, plans, drawings, specifications and other information and documents used in connection with Services performed under this Contract. Failure by the Contractor to comply with said duties shall relieve the City of its obligation to compensate the Contractor, as provided for under this section.

Section 19. INSURANCE

The Vendor shall obtain and maintain in full force and effect the insurance coverage required under Appendix C and shall furnish the City with current certificates of insurance **naming the City of Somerville as a certificate holder.**

Section 20. INDEMNIFICATION.

The Vendor shall indemnify, defend, and save harmless the City from and against any and all liabilities, losses, damages, costs, expenses (including reasonable attorneys' fees), causes of action, suits, claims, and demands and shall pay any judgment entered against the City on account of personal injuries or damage to property arising out of the work of this Contract.

Section 21. NOTICES.

Notices shall be in writing, and may be transmitted by mail, federal express, or fax, provided such transmittal is evidenced by a U.S. Mail or Federal Express return receipt or a fax-generated receipt showing the number to which the fax transmission was made:

(a) to the Vendor, at the address set forth in this Agreement or such other address as the Vendor may have designated from time to time in writing, or to
FAX # _____.

(b) to the City, addressed to

Purchasing Director
93 Highland Avenue
Somerville, MA 02143
or to FAX # 617-625-1344

Notices shall be deemed given when mailed or faxed.

Section 22. MODIFICATION.

No amendment or modification to this Agreement shall take effect unless it is in writing, signed by all parties.

Section 23. ASSIGNMENT/SUBCONTRACTING.

The Vendor shall not assign or subcontract this Agreement or any portion of the work without the prior written consent of the City.

Section 24. GOVERNING LAW.

This Agreement shall be governed by the laws of the Commonwealth of Massachusetts and the United States of America.

Section 25. SEVERABILITY.

In the event that any provision of this Agreement is found to be legally unenforceable, the remainder of the Agreement shall remain in full force and effect.

Section 26. NON-APPLICABILITY OF FEDERAL REQUIREMENTS.

If this section is checked, it means that this contract has not been funded with federal funds and the obligations and requirements under federal law which are set forth in this contract do not apply.

 X (check here)

GENERAL TERMS AND CONDITIONS

1. VENDOR'S OBLIGATION

The Vendor shall and will, in good workmanlike manner, do and perform all work and furnish all supplies and materials, machinery, equipment, facilities and means, except as herein otherwise expressly specified, necessary or proper to perform and complete all the work required by this contract, within the time herein specified, in accordance with the provisions of this contract and said specifications and in accordance with the plans and drawings, and in accordance with the directions of the Design Professional or THE CITY'S PROJECT MANAGER FOR THIS PROJECT as given from time to time during the progress of the work. He shall furnish, erect, maintain and remove such construction plant and such temporary works as may be required.

The Vendor shall observe, comply with and be subject to all terms, conditions, requirements and limitations of the contract and specifications, and shall do, carry on and complete the entire work to the satisfaction of the Design Professional and THE CITY'S PROJECT MANAGER FOR THIS PROJECT.

2. PERFORMANCE/PAYMENT BONDS

The Vendor shall furnish a performance bond in an amount at least equal to one hundred percent (100%) of the contract price as security for the faithful performance of this Contract and also a payment bond in an amount not less than one hundred percent (100%) of the contract price or in a penal sum not less than that prescribed by State, territorial or local law, as security for payment of all persons performing labor on the project under this contract and furnishing materials in connection with this contract. The performance bond and the payment bond may be in one or in separate instruments in accordance with local law, and shall to the extent feasible be in the form developed by the American Institute of Architects (AIA).

3. DESIGN PROFESSIONAL'S AUTHORITY

The Design Professional shall give orders and directions contemplated under the contract and specifications, relative to the execution of the work. The Design Professional shall determine the amount, quality, acceptability and fitness of several kinds of work and the construction thereof. The Design Professional's estimates and decisions shall be final and conclusive, except as herein otherwise expressly provided. In case any questions shall arise between the parties hereto relative to said contract or specifications, the determination or decision of the Design Professional shall be a condition precedent to the right of the Vendor to receive any money or payment for work under this contract affected in any manner or to any extent by such question. The Design Professional shall decide the meaning and intent of any portion of the specifications and of any plans or drawings where the same may be found obscure or be in dispute. Any differences or conflicts in regard to their work which may arise between the Vendor under this contract and other Vendors performing work for THE CITY'S PROJECT MANAGER FOR THIS PROJECT shall be adjusted and determined by the Design Professional. In accordance with Chapter 30, section 30P of the General Laws the Design Professional's decision on interpretation of the specifications, approval of equipment or material, or any other approval, or progress of the work, shall be made promptly and, in any event, no later than thirty days after a written submission for decision; but if such decision requires extended investigation and study, the Awarding Authority or the Design Professional shall give the party making the submission written notice of the reasons why the decision cannot be made within the thirty day period and the date by which the decision will be made.

4. SUBCONTRACTING

- a. The Vendor may utilize the services of specialty subVendors on those parts of the work which, under normal contracting practices, are performed by specialty subVendors, subject to the provisions of this section.
- b. The Vendor shall not award any work to any subVendor without prior written approval of THE CITY'S PROJECT MANAGER FOR THIS PROJECT, which approval will not be given until the Vendor submits a written approval statement concerning the proposed award to the subVendor, which statement shall contain such information as THE CITY'S PROJECT MANAGER FOR THIS PROJECT may require. All subcontracts subject to Mass. General laws, Chapter 149, Sections 44A-J, shall comply with the filed sub-bid requirements of that statute.
- c. The Vendor shall be as fully responsible for the acts and omissions of his subVendors, and of persons either directly or indirectly employed by them, as he is for the acts and omissions of persons directly employed by him.
- d. The Vendor shall cause appropriate provisions to be inserted in all subVendors relative to the work to bind subVendors to the Vendor by the Terms of the General Conditions and other contract documents insofar as applicable to the work of subVendors and to give the Vendor the same power as regards terminating any subcontract that THE CITY'S PROJECT MANAGER FOR THIS PROJECT may exercise over the Vendor under any provision of the contract documents.
- e. Nothing contained in this contract shall create any contractual relation between any subVendor and THE CITY'S PROJECT MANAGER FOR THIS PROJECT.

5. PERMITS AND CODES

- a. It shall be the Vendor's responsibility to obtain and pay for all permits required in connection with the work. Unless otherwise agreed by the Awarding Authority in writing, the Vendor shall, prior to commencement of the work, (i) meet with the City of Somerville Inspectional Services Department to determine what permits are needed for the work; (ii) obtain all such permits; and (iii) provide copies of such permits to the Awarding Authority. Permits shall include, without limitation, demolition, foundation, digsafes, and building permits; permits for removal, sealing up, or installation of utilities, including gas, electrical, water and sewer; and permits for obstructing public streets and sidewalks.
- b. The Vendor shall comply with all state and local laws, ordinances, and codes. Before installing any work, the Vendor shall examine the Drawings and Technical Specifications for compliance with applicable laws, ordinances, and codes and shall immediately report any discrepancy to THE CITY'S PROJECT MANAGER FOR THIS PROJECT. Where the requirements of the Drawings and Technical Specification fail to comply with applicable laws, ordinances, or codes, OHCD will adjust the Contract by change order to conform to such laws, ordinances or codes (unless waivers in writing covering the differences have been granted by the governing body or department) and make appropriate adjustment in the Contract Price or stipulated unit prices. Should the Vendor fail to observe the foregoing provisions and proceed with the construction, (notwithstanding the fact that such construction is in compliance with the Drawings and Technical Specifications), the Vendor shall remove such work without cost to THE CITY'S PROJECT MANAGER FOR THIS PROJECT, and a change order will be issued to cover only the excess cost that the Vendor would have been entitled to receive if the change had been made before the Vendor commenced work on the items involved.

c. Notwithstanding the generality of the foregoing, the Vendor shall comply with federal, state and local laws, ordinances, and codes governing the disposal of excavation materials, and debris and rubbish on and off the Project site.

6. ADDITIONAL INSTRUCTIONS AND DETAIL DRAWINGS

The Vendor will be furnished additional instructions and detail drawings as necessary to carry out the work included in the contract. The additional drawings and instructions thus supplied to the Vendor will coordinate with the Contract Documents and will be so prepared that they can be reasonably interpreted as part thereof. The Vendor shall carry out the work in accordance with the additional detail drawings and instructions. The Vendor and the Design Professional or THE CITY'S PROJECT MANAGER FOR THIS PROJECT will prepare jointly (a) a schedule, fixing the dates at which special detail drawings will be required, such drawings, if any, to be furnished by the Design Professional or THE CITY'S PROJECT MANAGER FOR THIS PROJECT in accordance with said schedule, and (b) a schedule fixing the dates for the submission of shop drawings, the beginning of manufacture, testing and installation of materials, supplies and equipment, and the completion of the various parts of the work; each such schedule to be subject to change from time to time in accordance with the progress of the work.

7. TECHNICAL SPECIFICATIONS AND DRAWINGS

Anything mentioned in the Technical Specifications and not shown on the Drawings, or shown on the Drawings and not mentioned in the Technical Specifications, shall be of like effect as if shown on or mentioned in both. In case of any discrepancy in Drawings, or Technical Specifications, the **Vendor** shall provide, unless otherwise directed by a Modification of the Contract, the better quality or greater quantity of Work at no increase in the Contract Sum or in the Contract Time. Said discrepancy shall not be adjusted by the Vendor, save only at his own risk and expense.

8. SHOP DRAWINGS

a. All required shop drawings, machinery, details, layout drawings, etc. shall be submitted to the Designer or THE CITY'S PROJECT MANAGER FOR THIS PROJECT for approval sufficiently in advance of requirements to afford ample time for checking, including time for correcting, resubmitting and rechecking if necessary. The Vendor may proceed, only at his own risk and expense, with manufacture or installation of any equipment or work covered by said shop drawings, etc. until they are approved, and no claim by the Vendor for extension of the Contract time will be granted by reason of his failure in this respect.

b. Any drawings submitted without the Vendor's stamp of approval will not be considered and will be returned to him for proper resubmission. If any drawings show variations from the requirements of the Contract because of standard shop practice or other reason, the Vendor shall make specific mention of such variation in his letter of transmittal in order that, if acceptable, suitable action may be taken for proper adjustment of Contract price and/or time. Otherwise the Vendor will not be relieved of the responsibility for executing the work in accordance with the Contract even though the drawings have been approved.

c. If a shop drawing is in accord with the Vendor or involves only a minor adjustment in the interest of THE CITY'S PROJECT MANAGER FOR THIS PROJECT not involving a change in Contract price or time, the Designer or THE CITY'S PROJECT MANAGER FOR THIS PROJECT may approve the drawing. The approval shall be general and shall not relieve the Vendor from his responsibility for adherence to the contract or for any error in the drawing and shall contain in

substance the following: "The modification shown on the attached drawing is approved in the interest of THE CITY'S PROJECT MANAGER FOR THIS PROJECT to affect an improvement for the Project and is ordered with the understanding that it does not involve any change in the Contract Price or time; that it is subject generally to all Contract stipulation and covenants; and that it is without prejudice to any and all rights of THE CITY'S PROJECT MANAGER FOR THIS PROJECT under the Contract and surety bond or bonds."

9. MATERIALS AND WORKMANSHIP

- a. Unless otherwise specifically provided for in the Technical Specifications, all workmanship, equipment, materials and articles incorporated in the work shall be new and the best grade of the respective kinds for the purpose. Where equipment, materials, articles or workmanship are referred to in the Technical Specifications as "equal to" any particular standard, the Designer shall decide the question of equality.
- b. The Vendor shall furnish to THE CITY'S PROJECT MANAGER FOR THIS PROJECT for approval the manufacturer's detailed specifications for all machinery, mechanical equipment and other equipment articles and materials, together with complete information as to type, performance characteristics, and all other pertinent information. Machinery, mechanical and other equipment, materials or articles installed or used without such prior approval shall be at the risk of subsequent rejections.
- c. Materials specified by reference to the number or symbol of a specific standard, such as an A.S.T.M. Standard, or a Federal Specification or other similar standard, shall comply with requirements in the latest revision thereof and any amendment or supplement thereto in effect on the date of the invitation for Bids, except as limited to type, class or grade, or modified in such reference. The standards referred to, except as modified in the Technical Specifications, shall have full force and effect as though printed therein.
- f. THE CITY'S PROJECT MANAGER FOR THIS PROJECT may require the Vendor to dismiss from the work such employee or employees as, THE CITY'S PROJECT MANAGER FOR THIS PROJECT or the Designer may deem incompetent, careless, or insubordinate.

10. SAMPLES

- a. The Vendor shall/promptly submit all material and equipment samples called for in the Contract Documents or required by the Designer or THE CITY'S PROJECT MANAGER FOR THIS PROJECT. No such material or equipment shall be manufactured or delivered to the site, except at the Vendor's own risk and expense, until the required samples have been approved in writing by THE CITY'S PROJECT MANAGER FOR THIS PROJECT or the Designer. Any delay in the work caused by late or improper submission of samples for approval shall not be considered just cause for an extension of the contract time.

Each sample submitted by the Vendor shall carry a label giving the name of the Vendor, the project for which it is intended, and the name of the producer. The accompanying letter from the Vendor shall state that the sample complies with Contract requirements, shall give the name and brand of the product, its place of origin, the name and address of the producer and all specifications or other detailed information which will assist the Designer in passing upon the acceptability of the sample promptly. It shall also state that all materials or equipment furnished for use in the project will comply with the sample.

b. Approval of any sample shall be general only and shall not constitute a waiver of CITY's right to demand full compliance with Contract requirements. After actual deliveries, the Designer will have such check tests made as he deems necessary in each instance and may reject materials and equipment for cause, even though such materials and equipment have been given general approval. If materials or equipment which fail to meet check tests have been incorporated in the work, the Designer will have the right to cause their removal and replacement by proper materials and equipment or to demand and secure such reparation by the Vendor as is equitable.

c. Except as otherwise specifically stated in the Contract, the costs of samples and tests will be as follows:

- (1) The Vendor shall furnish without extra cost, including packing and delivery charges, all samples required for testing purposes, except those samples taken on the Project by the Designer.
- (2) The Vendor shall assume all costs of retesting materials which fail to meet contract requirement.
- (3) The Vendor shall assume all costs of testing materials offered in substitution for those found deficient.

11. INSPECTION OF THE WORK

a. All materials and workmanship shall be subject to inspection, examination, and/or testing by THE CITY'S PROJECT MANAGER FOR THIS PROJECT or its designated representative. THE CITY'S PROJECT MANAGER FOR THIS PROJECT shall have the right to reject defective material and workmanship and require it to be promptly segregated and removed from the Project Area and replaced with materials and workmanship of specified quality without charge. If the Vendor fails to proceed at once with the correction of rejected materials and workmanship, THE CITY'S PROJECT MANAGER FOR THIS PROJECT may proceed to correct the work itself and charge the cost of the same against any monies which may be due the Vendor, without prejudice to any other rights or remedies of THE CITY'S PROJECT MANAGER FOR THIS PROJECT.

b. The Vendor shall furnish promptly all materials reasonably necessary for any tests which may be required. All tests will be performed in such manner as not to delay the work unnecessarily and will be made in accordance with the provisions of the Technical Specifications.

c. The Vendor shall notify THE CITY'S PROJECT MANAGER FOR THIS PROJECT sufficiently in advance of covering or concealing any work in order to permit proper inspection. If any work is covered or concealed without the consent of THE CITY'S PROJECT MANAGER FOR THIS PROJECT, the Vendor shall uncover and recover such work for inspection at the Vendor's expense, when so requested by THE CITY'S PROJECT MANAGER FOR THIS PROJECT. Should it be considered necessary or advisable by THE CITY'S PROJECT MANAGER FOR THIS PROJECT to examine work already completed and covered, the Vendor shall on request promptly uncover said work. If such work is found to be defective in any important or essential respect the Vendor shall defray all the expenses of such examination and of satisfactory reconstruction. If, however, such work is found to meet the requirements of the Contract, the actual cost of labor and material necessarily involved in the examination and replacement, plus an additional amount equal to that allowed for change orders shall be allowed the Vendor and he shall, in addition, if completion of the work of the entire Contract has been delayed thereby, be granted a suitable extension of time on account of the additional work involved.

d. Whenever the quantity justifies it, inspections of work may be made at the place of production, manufacture or shipment, in which case, acceptance shall be final, except as regards (1) latent defects, (2) damage or loss in transit; or (3) fraud or such gross mistakes as amount to fraud. Otherwise, inspections of materials shall take place at the Project Site.

e. No examination, inspection, or testing, by THE CITY'S PROJECT MANAGER FOR THIS PROJECT or its agent shall relieve the Vendor or the Vendor's sureties of liability for defective materials or workmanship.

f. Any inspection party may include one or more HUD representatives and one or more representatives of each department of the City having jurisdiction over the work being inspected.

12. DEDUCTION FOR INCORRECTED WORK

If THE CITY'S PROJECT MANAGER FOR THIS PROJECT deems it expedient not to require the Vendor to correct work not done in accordance with the Contract Documents, an equitable deduction from the Contract Price will be made by agreement between the Vendor and THE CITY'S PROJECT MANAGER FOR THIS PROJECT. Any dispute regarding such deduction shall be subject to settlement, in case of dispute, as herein provided.

13. CONSTRUCTION SUPERINTENDENT

At the site of the work the Vendor shall employ a construction superintendent or foreman who shall have full authority to act for the Vendor. Such representative shall be acceptable to the Design Professional or THE CITY'S PROJECT MANAGER FOR THIS PROJECT and shall continue in that capacity for the duration of the job unless he ceases to be on the Vendor's payroll.

14. ACCIDENT PREVENTION

a. The Vendor shall exercise proper precaution at all times for the protection of persons and property and shall be responsible for all damages to persons or property, either on or off the site, which occur as a result of his prosecution of the work. The safety provisions of applicable laws and building and construction codes shall be observed and the Vendor shall take or cause to be taken such additional safety and health measures as THE CITY'S PROJECT MANAGER FOR THIS PROJECT may determine to be reasonably necessary. Machinery, equipment and all hazards shall be guarded in accordance with the safety provisions of the "Manual of Accident Prevention in Construction" published by the Associated General Vendors of America, Inc., to the extent that such provisions are not in conflict with applicable local laws.

b. The Vendor shall indemnify and save harmless THE CITY'S PROJECT MANAGER FOR THIS PROJECT from any claims for damages resulting from personal injury and/or death suffered or alleged to have been suffered by any person as a result of any work conducted under this Contract.

15. EXISTING UTILITY LINES

Should the Vendor in the execution of his work uncover or discover utility service lines not indicated on the relevant drawings, or that do not show signs of singular service to any existing structures being demolished, the Vendor shall cease work in that area immediately and promptly notify the Public Works Department. Within forty-eight hours, the Public Works Department will inspect the site and

issue written instructions to the Vendor. The Vendor shall proceed with only after such written instructions have been received and shall proceed in full compliance with such instructions. The above mentioned situation or similar circumstances and/or modification if any, shall not relieve the Vendor from his responsibilities in this Contract and also it is without prejudice to any and all rights of THE CITY'S PROJECT MANAGER FOR THIS PROJECT covering this said contract and surety or bonds.

16. CARE OF WORK

- a. The Vendor shall be responsible for all damages to persons or property that occur as a result of the Vendor's fault or negligence in connection with the prosecution of the work and shall be responsible for the proper care and protection of all materials delivered and work performed until completion and final acceptance by THE CITY'S PROJECT MANAGER FOR THIS PROJECT.
- b. The Vendor shall provide sufficient competent watchmen, both day and night, including Saturdays, Sundays and holidays, as necessary, from the time the work is commenced until final completion and acceptance. Sufficient lighting shall be provided to aid in the prevention of injury to passersby or vandalism to the property or other illegal activities.
- c. In an emergency affecting the safety of life or property, including adjoining property, the Vendor, without special instructions or authorization from THE CITY'S PROJECT MANAGER FOR THIS PROJECT is authorized to act at his discretion to prevent such threatened loss or injury, and he shall so act. He shall likewise act if instructed to do so by THE CITY'S PROJECT MANAGER FOR THIS PROJECT. Any compensation claimed by the Vendor on account of such emergency work will be determined by THE CITY'S PROJECT MANAGER FOR THIS PROJECT as provided in the Section - CHANGES IN THE WORK.
- d. The Vendor shall avoid damage as a result of its operations to existing sidewalks, streets, curbs, pavements, utilities (except those which are to be replaced or removed), adjoining property, etc. and the Vendor shall at its own expense completely repair any damage thereto caused by its operations.
- e. The Vendor shall shore up, brace, underpin, secure, and protect as may be necessary, all foundations and other parts of existing structure adjacent to, adjoining, and in the vicinity of the site, which may be in any way affected by the excavations or other operations connected with the construction of the improvements embraced in this Contract. The Vendor shall be responsible for the giving of any and all required notices to any adjoining or adjacent property owner or other party before the commencement of work. The Vendor shall indemnify and save harmless the City of Somerville and/or THE CITY'S PROJECT MANAGER FOR THIS PROJECT from any liability for damages on account of settlement or the loss of lateral support of adjoining property resulting from the Vendor's failure to comply with this section.

17. WEATHER PROTECTION

- a. In the event of temporary suspension of work, during inclement weather, the Vendor will carefully protect and will cause his subVendors to carefully protect all work and materials against damage or injury from the weather. If, in the opinion of the Design Professional or THE CITY'S PROJECT MANAGER FOR THIS PROJECT, any work or materials shall have been damaged or injured by reason of failure on the part of the Vendor or any of his SubVendors so to protect the work, such work or materials shall be removed and replaced at the expense of the Vendor.

b. It is the intent of these Specifications to require that, in all Chapter 149, s. 94A contracts, the General Vendor shall provide, if necessary, temporary enclosures and heat to permit construction work to be carried on during the months of November through March in compliance with M.G.L. Chapter 149, Section 44D (G). These Specifications are not to be construed as requiring enclosures or heat for operations that are not economically feasible to protect in the judgment of THE CITY'S PROJECT MANAGER FOR THIS PROJECT. Included in the preceding category, without limitation, are such items as site work, excavation, pile driving, steel erection, erection of certain "exterior" wall panels, roofing, and similar operation:

(1) "WEATHER PROTECTION" shall mean the temporary protection of that work adversely affected by moisture, wind and cold, by covering, enclosing and/or heating. This protection shall provide adequate working areas during the months of November through March as determined by the Design Professional and consistent with the approved construction schedule to permit the continuous progress of all work necessary to maintain an orderly and efficient sequence of construction operations. The General Vendor shall furnish and install all "Weather Protection" material and be responsible for all costs, including heating required to maintain a minimum temperature of 40 degrees F, at the working surface. This provision does not supersede any specific requirements for methods of construction, curing of materials or the applicable General Conditions set forth in the Contract Articles with added regard to performance obligations of the Vendor.

(2) Within 30 calendar days after his award of contract, the General Vendor shall submit in writing to THE CITY'S PROJECT MANAGER FOR THIS PROJECT for approval, three copies of his proposed methods for "Weather Protection".

(3) Installation of weather protection and heating devices shall comply with all safety regulations including provisions for adequate ventilation and fire protection devices. Heating devices which may cause damage to finish surfaces shall not be used.

(4) The General Vendor shall furnish and install one accurate Fahrenheit thermometer at each work area as designated by the Designer. However, one additional accurate Fahrenheit thermometer shall be provided for every 2,000 square feet of floor space where the work areas exceed 2,000 square feet.

18. SANITARY FACILITIES

The Vendor shall furnish, install and/or maintain ample sanitary facilities for the workmen. As the needs arise, a sufficient number of enclosed temporary toilets shall be conveniently placed as required by the sanitary codes of the State and Local Government. Drinking water shall be provided from an approved source, so piped or transported as to keep it safe and fresh and served from single service containers or satisfactory types of sanitary drinking stands or fountains. All such facilities and services shall be furnished in strict accordance with existing and governing health regulations. Nothing in this Section shall be construed as forbidding the use of facilities available in existing buildings on the job site if they meet the above requirements and the use of them will not interfere with the progress of the work.

19. USE OF PREMISES AND REMOVAL OF DEBRIS

The Vendor expressly undertakes at his own expense:

- a. to store his apparatus, materials, supplies and equipment in such orderly fashion at the site of the work as will not unduly interfere with the progress of his work or the work of any other Vendors;
- b. to place upon the work or any part thereof, only such loads as are consistent with the safety of that portion of the work.
- c. to clean up frequently all refuse, rubbish, scrap materials and debris caused by his operations, to the end that at all times the site of the work shall present a neat, orderly and workmanlike appearance.
- d. before final payment to remove all surplus material, false work, temporary structure, including foundations thereof, plant of any description and debris of every nature resulting from this operations, and to put the site in a neat, orderly condition.
- e. to effect all cutting, fitting or patching of his work required to make the same to conform to the plans and specifications and, except with the consent of the Design Professional or THE CITY'S PROJECT MANAGER FOR THIS PROJECT not to cut or otherwise work of any other Vendor.

20. COORDINATION WITH OTHER VENDORS

The Vendor shall coordinate his operations with those of other Vendors. Cooperation will be required in the arrangement for the storage of materials and in the detailed execution of work. The Vendor, including his subVendors, shall keep informed of the progress and the detail work of other Vendors and shall notify the Design Professional or THE CITY'S PROJECT MANAGER FOR THIS PROJECT immediately of lack of progress or defective workmanship on the part of other Vendors. Failure of a Vendor to keep informed of the work progressing on the site and failure to give notice of lack of progress of defective workmanship by others shall be construed as acceptance by him of the status of the work as being satisfactory for proper coordination with his own work.

21. QUANTITIES OR ESTIMATES

Wherever the estimated quantities of work to be done and materials to be furnished under this contract are shown in any of the documents including the proposal, they are given for use in comparing bids and the right is especially reserved herein otherwise specifically limited, to increase or diminish them as may be deemed reasonably necessary or desirable by THE CITY'S PROJECT MANAGER FOR THIS PROJECT to complete the work contemplated by the contract, nor shall any such increases or diminution shall in no way violate this contract, nor shall any such increase or diminution give cause for claims or liability for damages.

22. DISPUTES

a. All disputes arising under this Contract or its interpretation, whether involving law of fact or both, or extra work, and all claims for alleged breach of Contract shall within ten (10) days of commencement of the dispute be presented by the Vendor to THE CITY'S PROJECT MANAGER FOR THIS PROJECT for decision. All papers pertaining to claims shall state the facts surrounding the claims in sufficient detail to identify the claim, with its character and scope. In the meantime, the Vendor shall proceed with the work as directed. Any claim not presented within the time limit specified in this paragraph shall be deemed to have been waived, except that if the claim

is of a continuing character and notice of the claim is not given within ten (10) days of its commencement, the claim will be considered only for a period commencing ten (10) days prior to the receipt by THE CITY'S PROJECT MANAGER FOR THIS PROJECT of notice thereof.

b. The Vendor shall submit proof of the Vendor's claim in detail. Each decision by THE CITY'S PROJECT MANAGER FOR THIS PROJECT will be in writing and will be mailed to the Vendor by registered or certified mail, return receipt requested.

c. If the Vendor does not agree with THE CITY'S PROJECT MANAGER FOR THIS PROJECT's decision the Vendor shall not delay the work, but shall notify THE CITY'S PROJECT MANAGER FOR THIS PROJECT promptly that he is proceeding with the work under protest and he may then except the matter in question from the final release.

23. LAND AND RIGHTS-OF-WAY

Prior to the start of construction, THE CITY'S PROJECT MANAGER FOR THIS PROJECT shall obtain all lands and rights-of-way necessary for the carrying out and completion of work to be performed under this contract.

24. WARRANTY OF TITLE

No material, supplies, or equipment to be installed as part of the work shall be purchased subject to any chattel mortgage or under a conditional sale or other agreement by which an interest therein or in any part thereof is retained by the seller or supplier. The Vendor shall warrant good title to all materials, supplies, and equipment installed or incorporated in the work and, upon completion of all work, shall deliver the same to THE CITY'S PROJECT MANAGER FOR THIS PROJECT free from any claims, liens, or charges. Neither the Vendor nor any person, furnishing any material or labor for any work covered by this Contract shall have any right to a lien. Nothing contained in this paragraph, however, shall defeat or impair the right of persons furnishing materials or labor to recover under any bond given by the Vendor for their protection, or to recover under any laws permitting such persons to look to funds due the Vendor in the hands of THE CITY'S PROJECT MANAGER FOR THIS PROJECT. The provisions of this paragraph shall be given to all persons furnishing materials for the work when no formal contract is entered into for such materials.

25. GENERAL GUARANTY

Neither the final certificate of payment nor any provision in the Contract Documents, nor partial or entire occupancy of the premises by THE CITY'S PROJECT MANAGER FOR THIS PROJECT shall constitute any acceptance of work not done in accordance with the Contract Documents or relieve the Vendor of liability in respect to any express warranties or responsibility for faulty materials or workmanship. The Vendor shall remedy any defects in the work and pay for any damage to other work resulting therefrom, which shall appear within a period of one year from the date of final acceptance of the work unless a longer period is specified. THE CITY'S PROJECT MANAGER FOR THIS PROJECT will give notice of observed defects with reasonable promptness.

26. REVIEW OF RECORDS

THE CITY'S PROJECT MANAGER FOR THIS PROJECT, its authorized representative and agents and the HUD Representative for the Secretary shall, at all times have access to and be permitted to observe and review all work materials, equipment, payrolls, personnel records,

employment conditions, material invoices, and other relevant data and records pertaining to this Contract, provided, however, that all instructions and approval with respect to the work will be given to the Vendor only by the City through its authorized representatives or agents.

Appendix D

Technical Specifications

DIVISION 1 - General Requirements

- 012600 Contract Modification Procedures
- 012900 Payment Procedures
- 013100 Project Management and Coordination
- 013300 Submittal Procedures
- 014000 Quality Requirements
- 014200 References
- 016000 Product Requirements
- 017300 Execution
- 017700 Closeout Procedures
- 017820 Operation and Maintenance Data
- 017830 Project Record Documents

DIVISION 3 - Concrete

- 03300 Cast-In-Place Concrete

Appendix E

CONSTRUCTION DOCUMENT DRAWING LIST

Drawing Number Drawing Title

Cover Sheet

Architectural

A0	General Notes, Abbreviations, Legend
A1	Demolition Floor Plan
A2	Proposed Floor Plans
A3	Schedules
A4	Details and Enlarged Plans

Structural

S1	General Notes and Typical Details
S2	Demolition and Foundation Plans
S3	Foundation Elevations
S4	Building Elevations
S5	Sections and Details
S6	Sections and Details

Plumbing

P0.0	Plumbing Legend, Notes and Abbreviations
P0.1	Plumbing Specifications
P2.1	Plumbing First & Second Floor Plans
P2.1U	Plumbing Underground Plan
P7.0	Plumbing Details
P8.0	Plumbing Schedules

Fire Protection

FP0.0	Fire Protection Legend, Notes and Abbreviations
FP0.1	Fire Protection Specifications
FP1.0	Fire Protection Site Plan
FP2.1	Fire Protection Floor Plans

Electrical

E0.0	Electrical Legend, Notes and Abbreviations
E0.1	Electrical Specifications
ED1.0	Electrical Demolition Site Plan
E2.1	Electrical Lighting Floor Plans
E3.1	Electrical Power Floor Plans
E4.1	Electrical Fire Alarm Floor Plans
ED2.0	Electrical Demolition Plans

NOTE: Bidders shall check the attached documents with the above list to verify all parts are included before submitting a bid.

SECTION 012600- CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for handling and processing Contract modifications.

1.3 MINOR CHANGES IN THE WORK

- A. Architect will issue supplemental instructions authorizing minor changes in the Work, not involving adjustment to the Contract Sum or the Contract Time.

1.4 PROPOSAL REQUESTS

- A. Owner-Initiated Proposal Requests: Architect will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.
 - 1. Proposal Requests issued by Architect are not instructions either to stop work in progress or to execute the proposed change.
 - 2. Within time specified in Proposal Request or 14 days, when not otherwise specified, after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.
 - a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
 - b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
 - c. Include costs of labor and supervision directly attributable to the change.
 - d. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
 - e. Quotation Form: Use forms acceptable to Architect.
- B. Contractor-Initiated Proposals: If latent or changed conditions require modifications to the Contract, Contractor may initiate a claim by submitting a request for a change to Architect.
 - 1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.

2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
4. Include costs of labor and supervision directly attributable to the change.
5. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
6. Comply with requirements in Division 01 Section "Substitution Procedures" if the proposed change requires substitution of one product or system for product or system specified.
7. Proposal Request Form: Use CSI Form 13.6A "Change Order Request (Proposal)" with attachments CSI Form 13.6B "Proposal Worksheet Summary" and 13.6C "Proposal Worksheet Detail" form provided by Owner. Sample copy is included in Project Manual form acceptable to Architect.

1.5 CHANGE ORDER PROCEDURES

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

1.6 CONSTRUCTION CHANGE DIRECTIVE

- A. Construction Change Directive: Architect may issue a Construction Change Directive on AIA Document G714. Construction Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
 1. Construction Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.
- B. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive.
 1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION 012600

SECTION 012900 - PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section specifies administrative and procedure requirements governing Contractor's Applications for Payment.
- B. Related Sections: Section 013300, Submittal Procedures; for Contractor's Construction Schedule.

1.3 SCHEDULE OF VALUES

- A. Coordination: Coordinate preparation of Schedule of Values with preparation of Contractor's Construction Schedule.
- B. Submit Schedule of Values to Architect at earliest possible date, min. 7 days before date scheduled for submittal of initial Applications for Payment.
- C. Subschedules: Where work is separated into phases requiring separately phased payments, provide Subschedules showing values correlated with each phase of payment.
- D. Preparation Coordination:
 - 1. Coordinate preparation of Schedule of Values for work with preparation of Construction Schedule.
 - 2. Correlate Line Items in Schedule of Values with other required administrative Schedules and Forms, including:
 - a. Contractor's Construction Schedule.
 - b. Application for Payment form.
 - c. List of Subcontractors.
 - d. Schedule of Allowances.
 - e. Schedule of Alternates.
 - f. List of Products.
 - g. List of Principal Suppliers and Fabricators.
 - h. Schedule of Submittals.
- E. Form and Content:
 - 1. Use Project Manual Table of Contents as guide to establish format for Schedule of Values.
 - 2. Provide min. 1 line item for each Specification Section.

3. Include following Project identification on Schedule of Values:
 - a. Project name and location.
 - b. Name of Architect.
 - c. Project number.
 - d. Contractor's name and address.
 - e. Date of submittal.
 4. Arrange Schedule of Values in tabular form with separate columns to indicate following for each item listed.
 - a. Related Specification Section or Division.
 - b. Description of work.
 - c. Name of subcontractor.
 - d. Name of manufacturer or fabricator.
 - e. Name of supplier.
 - f. Change Order Numbers that affect value.
 - g. Dollar value; percentage of Contract Sum to nearest 1/100 percent, adjusted to total 100 percent.
 5. Provide breakdown of Contract Sum in sufficient detail to facilitate continued evaluation of Applications for Payment and Progress Reports; coordinate with Project Manual Table of Contents.
 6. Break principal subcontract amounts down into several line items.
 7. Round amounts to nearest whole dollar; total shall equal Contract Sum.
 8. For each part of work where Application for Payment may include materials or equipment, purchased or fabricated and stored but not yet installed, provide separate Line Items on Schedule of Values for initial cost of materials for each subsequent stage of completion, and for total installed value of that part of work.
 9. Provide separate line item in Schedule of Values for each part of work where Applications for Payment may include materials or equipment, purchased or fabricated and stored, but not yet installed.
 10. Differentiate between items stored onsite and items stored offsite; include requirements for insurance and bonded warehousing, if required.
- F. Margins of Cost:
1. Show line items for indirect costs and margins on actual costs only when such items are listed individually in Applications for Payment.
 2. Each item in Schedule of Values and Applications for Payment shall be complete.
 3. Include total cost and proportionate share of general overhead and profit margin for each item.
- G. Temporary Facilities: Show temporary facilities and other major cost items that are not direct cost of actual work-in-place either as separate line items in schedule of values, or distributed as general overhead expense, at Contractor's option.

- H. Schedule Updating: Update and resubmit Schedule of Values before next Application for Payment when Change Orders or Construction Change Directives result in change in Contract Sum.

1.4 STATUTORY REGULATIONS FOR PUBLIC CONSTRUCTION CONTRACTS

M.G.L. c.30, '39F: Construction contracts; assignment and subrogation; subcontractor defined; enforcement of claim for direct payment; deposit, reduction of disputed amounts

(1) Every contract awarded pursuant to sections forty-four A to L, inclusive, of chapter one hundred and forty-nine shall contain the following subparagraphs (a) through (i) and every contract awarded pursuant to section thirty-nine M of chapter thirty shall contain the following subparagraphs (a) through (h) and in each case those subparagraphs shall be binding between the general contractor and each subcontractor.

(a) Forthwith after the general contractor receives payment on account of a periodic estimate, the general 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 general contractor.

(b) 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 awarding authority as the estimated cost of completing the incomplete and unsatisfactory items of work, shall be due the subcontractor; and the awarding authority shall pay that amount to the general contractor. The general contractor shall forthwith pay to the subcontractor the full amount received from the awarding authority less any amount specified in any court proceedings barring such payment and also less any amount claimed due from the subcontractor by the general contractor.

(c) Each payment made by the awarding authority to the general contractor pursuant to subparagraphs (a) and (b) of this paragraph for the labor performed and the materials furnished by a subcontractor shall be made to the general contractor for the account of that subcontractor; and the awarding authority shall take reasonable steps to compel the general contractor to make each such payment to each such subcontractor. If the awarding authority has received a demand for direct payment from a subcontractor for any amount which has already been included in a payment to the general contractor or which is to be included in a payment to the general contractor for payment to the subcontractor as provided in subparagraphs (a) and (b), the awarding authority shall act upon the demand as provided in this section.

(d) If, within seventy days after the subcontractor has substantially completed the subcontract work, the subcontractor has not received from the general contractor the balance due under the subcontract including any amount due for extra labor and materials furnished to the general contractor, less any amount retained by the awarding authority as the estimated cost of completing the incomplete and unsatisfactory items of work, the subcontractor may demand direct payment of that balance from the awarding authority. The demand shall be by a sworn statement delivered to or sent by certified mail to the awarding authority, and a copy shall be delivered to or sent by certified mail to the general 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 awarding authority and delivered or so mailed a copy to the general contractor, the general contractor may reply to the demand. The reply shall be by a sworn statement delivered to or sent by certified mail to the awarding authority 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 general contractor and of the amount due for each claim made by the general contractor against the subcontractor.

(e) Within fifteen days after receipt of the demand by the awarding authority, but in no event prior to the seventieth day after substantial completion of the subcontract work, the awarding authority 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 general contractor, less any amount (i) retained by the awarding authority 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 general contractor in the sworn reply; provided, that the awarding authority shall not deduct from a direct payment any amount as provided in part (iii) if the reply is not sworn to, or for which the sworn reply does not contain the detailed breakdown required by subparagraph (d). The awarding authority 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.

(f) The awarding authority shall forthwith deposit the amount deducted from a direct payment as provided in part (iii) of subparagraph (e) in an interest-bearing joint account in the names of the general contractor and the subcontractor in a bank in Massachusetts selected by the awarding authority or agreed upon by the general contractor and the subcontractor and shall notify the general 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 general contractor and the subcontractor or as determined by decree of a court of competent jurisdiction.

(g) All direct payments and all deductions from demands for direct payments deposited in an interest-bearing account or accounts in a bank pursuant to subparagraph (f) shall be made out of amounts payable to the general contractor at the time of receipt of a demand for direct payment from a subcontractor and out of amounts which later become payable to the general contractor and in the order of receipt of such demands from subcontractors. All direct payments shall discharge the obligation of the awarding authority to the general contractor to the extent of such payment.

(h) The awarding authority shall deduct from payments to a general contractor amounts which, together with the deposits in interest-bearing accounts pursuant to subparagraph (f), are sufficient to satisfy all unpaid balances of demands for direct payment received from subcontractors. All such amounts shall be earmarked for such direct payments, and the subcontractors shall have a right in such deductions prior to any claims against such amounts by creditors of the general contractor.

(i) If the subcontractor does not receive payment as provided in subparagraph (a) or if the general 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 (a), the subcontractor may demand direct payment by following the procedure in subparagraph (d) and the general 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 general contractor. Thereafter the awarding authority shall proceed as provided in subparagraph (e), (f), (g) and (h).

(2) Any assignment by a subcontractor of the rights under this section to a surety company furnishing a bond under the provisions of section twenty-nine of chapter one hundred forty-nine shall be invalid. The assignment and subrogation rights of the surety to amounts included in a demand for direct payment which are in the possession of the awarding authority or which are on deposit pursuant to subparagraph (f) of paragraph (1) shall be subordinate to the rights of all subcontractors who are entitled to be paid under this section and who have not been paid in full.

(3) ""Subcontractor" as used in this section (i) for contracts awarded as provided in sections forty-four A to forty-four H, inclusive, of chapter one hundred forty-nine 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 general contractor, (ii) for contracts awarded as provided in paragraph (a) of section thirty-nine M of chapter thirty shall mean a person 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 general contractor, and (iii) for contracts with the commonwealth not awarded as provided in forty-four A to forty-four H, inclusive, of chapter one hundred forty-nine shall also mean a person contracting with the general contractor to supply materials used or employed in a public works project for a price in excess of five thousand dollars.

(4) A general contractor or a subcontractor shall enforce a claim to any portion of the amount of a demand for direct payment deposited as provided in subparagraph (f) of paragraph 1 by a petition in equity in the superior court against the other and the bank shall not be a necessary party. A subcontractor shall enforce a claim for direct payment or a right to require a deposit as provided in subparagraph (f) of paragraph 1 by a petition in equity in the superior court against the awarding authority and the general contractor shall not be a necessary party. Upon motion of any party the court shall advance for speedy trial any petition filed as provided in this paragraph. Sections fifty-nine and fifty-nine B of chapter two hundred thirty-one shall apply to such petitions. The court shall enter an interlocutory decree upon which execution shall issue for any part of a claim found due pursuant to sections fifty-nine and fifty-nine B and, upon motion of any party, shall advance for speedy trial the petition to collect the remainder of the claim. Any party aggrieved by such interlocutory decree shall have the right to appeal therefrom as from a final decree. The court shall not consolidate for trial the petition of any subcontractor with the petition of one or more subcontractors or the same general contract unless the court finds that a substantial portion of the evidence of the same events during the course of construction (other than the fact that the claims sought to be consolidated arise under the same general contract) is applicable to the petitions sought to be consolidated and that such consolidation will prevent unnecessary duplication of evidence. A decree in any such proceeding shall not include interest on the disputed amount deposited in excess of the interest earned for the period of any such deposit. No person except a subcontractor filing a demand for direct payment for which no funds due the general contractor are available for direct payment shall have a right to file a petition in court of equity against the awarding authority claiming a demand for direct payment is premature and such subcontractor must file the petition before the awarding authority has made a direct payment to the subcontractor and has made a deposit of the disputed portion as provided in part (iii) of subparagraph (e) and in subparagraph (f) of paragraph (1).

(5) In any petition to collect any claim for which a subcontractor has filed a demand for direct payment the court shall, upon motion of the general contractor, reduce by the amount of any deposit of a disputed amount by the awarding authority as provided in part (iii) of subparagraph (e) and in subparagraph (f) of paragraph (1) any amount held under a trustee writ or pursuant to a restraining order or injunction.

M.G.L. c.30, '39G: Completion of public works; semi-final and final estimates; payments; extra work; disputed items

Upon substantial completion of the work required by a contract with the commonwealth, or any agency or political subdivision thereof, for the construction, reconstruction, alteration, remodeling, repair or improvement of public ways, including bridges and other highway structures, sewers and, water mains, airports and other public works, the contractor shall present in writing to the awarding authority its certification that the work has been substantially completed. Within twenty-one days thereafter, the awarding authority shall present to the contractor either a written declaration that the work has been substantially completed or an itemized list of incomplete or unsatisfactory work items required by the contract sufficient to demonstrate that the work has not been substantially completed. The awarding authority may include with such list a notice setting forth a reasonable time, which shall not in any event be prior to the contract completion date, within which the contractor must achieve substantial completion of the work. In the event that the awarding authority fails to respond, by presentation of a written declaration or itemized list as aforesaid, to the contractor's certification within the twenty-one day period, the contractor's certification shall take effect as the awarding authority's declaration that the work has been substantially completed.

Within sixty-five days after the effective date of a declaration of a substantial completion, the awarding authority shall prepare and forthwith send to the contractor for acceptance a substantial completion estimate for the quantity and price of the work done and all but one per cent retainage on that work, including the quantity, price and all but one per cent retainage for the undisputed part of each work item and extra work item in dispute but excluding the disputed part thereof, less the estimated cost of completing all incomplete and unsatisfactory work items and less the total periodic payments made to date for the work. The awarding authority also shall deduct from the substantial completion estimate an amount equal to the sum of all demands for direct payment filed by subcontractors and not yet paid to subcontractors or deposited in joint accounts pursuant to section thirty-nine F, but no contract subject to said section thirty-nine F shall contain any other provision authorizing the awarding authority to deduct any amount by virtue of claims asserted against the contract by subcontractors, material suppliers or others.

If the awarding authority fails to prepare and send to the contractor any substantial completion estimate required by this section on or before the date herein above set forth, the awarding authority shall pay to the contractor interest on the amount which would have been due to the contractor pursuant to such substantial completion estimate at the rate of three percentage points above the rediscount rate then charged by the Federal Reserve Bank of Boston from such date to the date on which the awarding authority sends that substantial completion estimate to the contractor for acceptance or to the date of payment therefor, whichever occurs first. The awarding authority shall include the amount of such interest in the substantial completion estimate.

Within fifteen days after the effective date of the declaration of substantial completion, the awarding authority shall send to the contractor by certified mail, return receipt requested, a complete list of all incomplete or unsatisfactory work items, and, unless delayed by causes beyond his control, the

contractor shall complete all such work items within forty-five days after the receipt of such list or before the then contract completion date, whichever is later. If the contractor fails to complete such work within such time, the awarding authority may, subsequent to seven days' written notice to the contractor by certified mail, return receipt requested, terminate the contract and complete the incomplete or unsatisfactory work items and charge the cost of same to the contractor.

Within thirty days after receipt by the awarding authority of a notice from the contractor stating that all of the work required by the contract has been completed, the awarding authority shall prepare and forthwith send to the contractor for acceptance a final estimate for the quantity and price of the work done and all retainage on that work less all payments made to date, unless the awarding authority's inspection shows that work items required by the contract remain incomplete or unsatisfactory, or that documentation required by the contract has not been completed. If the awarding authority fails to prepare and send to the contractor the final estimate within thirty days after receipt of notice of completion, the awarding authority shall pay to the contractor interest on the amount which would have been due to the contractor pursuant to such final estimate at the rate hereinabove provided from the thirtieth day after such completion until the date on which the awarding authority sends the final estimate to the contractor for acceptance or the date of payment therefor, whichever occurs first, provided that the awarding authority's inspection shows that no work items required by the contract remain incomplete or unsatisfactory. Interest shall not be paid hereunder on amounts for which interest is required to be paid in connection with the substantial completion estimate as hereinabove provided. The awarding authority shall include the amount of the interest required to be paid hereunder in the final estimate.

The awarding authority shall pay the amount due pursuant to any substantial completion or final estimate within thirty-five days after receipt of written acceptance for such estimate from the contractor and shall pay interest on the amount due pursuant to such estimate at the rate hereinabove provided from that thirty-fifth day to the date of payment. Within 15 days, 30 days in the case of the commonwealth, after receipt from the contractor, at the place designated by the awarding authority, if such place is so designated, of a periodic estimate requesting payment of the amount due for the preceding periodic estimate period, the awarding authority shall make a periodic payment to the contractor for the work performed during the preceding periodic estimate period 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 awarding authority, upon certification by the contractor that he is the lawful owner and that the materials are free from all encumbrances. The awarding authority shall include with each such payment interest on the amount due pursuant to such periodic estimate at the rate herein above provided from the due date. In the case of periodic payments, the contracting authority may deduct from its payment a retention based on its estimate of the fair value of its claims against the contractor, a retention for direct payments to subcontractors based on demands for same in accordance with the provisions of section thirty-nine F, and a retention to secure satisfactory performance of the contractual work not exceeding five per cent of the approved amount of any periodic payment, and the same right to retention shall apply to bonded subcontractors entitled to direct payment under section thirty-nine F of chapter thirty; provided, that a five per cent value of all items that are planted in the ground shall be deducted from the periodic payments until final acceptance.

No periodic, substantial completion or final estimate or acceptance or payment thereof shall bar a contractor from reserving all rights to dispute the quantity and amount of, or the failure of the awarding authority to approve a quantity and amount of, all or part of any work item or extra work

item.

Substantial completion, for the purposes of this section, shall mean either that the work required by the contract has been completed except for work having a contract price of less than one per cent of the then adjusted total contract price, or substantially all of the work has been completed and opened to public use except for minor incomplete or unsatisfactory work items that do not materially impair the usefulness of the work required by the contract.

M.G.L. c.30, '39J: Public construction contracts; effect of decisions of contracting body or administrative board

Notwithstanding any contrary provision of any contract for the construction, reconstruction, alteration, remodeling, repair or demolition of any public building or public works by the commonwealth, or by any county, city, town, district, board, commission or other public body, when the amount of the contract is more than five thousand dollars in the case of the commonwealth and more than two thousand dollars in the case of any county, city, town, district, board, commission or other public body, a decision, by the contracting body or by any administrative board, official or agency, or by any architect or engineer, on a dispute, whether of fact or of law, arising under said contract shall not be final or conclusive if such decision is made in bad faith, fraudulently, capriciously, or arbitrarily is unsupported by substantial evidence, or is based upon error of law.

M.G.L. c.30, '39K: Public building construction contracts; payments

Every contract for the construction, reconstruction, alteration, remodeling, repair or demolition of any public building by the commonwealth, or by any county, city, town, district, board, commission or other public body, when the amount is more than five thousand dollars in the case of the commonwealth and more than two thousand dollars in the case of any county, city, town, district, board, commission or other public body, shall contain the following paragraph:-- Within fifteen days (30 days in the case of the commonwealth, including local housing authorities) after receipt from the contractor, at the place designated by the awarding authority if such a place is so designated, of a periodic estimate requesting payment of the amount due for the preceding month, the awarding authority 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 awarding authority, upon certification by the contractor that he is the lawful owner and that the materials are free from all encumbrances, but less (1) a retention based on its estimate of the fair value of its claims against the contractor and less (2) a retention for direct payments to subcontractors based on demands for same in accordance with the provisions of section thirty-nine F, and less (3) a retention not exceeding five per cent of the approved amount of the periodic payment. 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 awarding authority, less than one per cent of the original contract price, or (b) the contractor substantially completes the work and the awarding authority takes possession for occupancy, whichever occurs first, the awarding authority shall pay the contractor the entire balance due on the contract less (1) a retention based on its estimate of the fair value of its claims against the contractor and of the cost of completing the incomplete and unsatisfactory items of work and less (2) a retention for direct payments to subcontractors based on demands for same in accordance with the provisions of section thirty-nine F, 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 section thirty-nine F. If the awarding authority fails to make payment as herein provided, there shall be added to each such payment daily interest at the rate of three percentage points above the rediscount rate than 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 (twenty-four days in the case of the commonwealth) after receipt of such a periodic estimate from the contractor, at the place designated by the awarding authority 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.

The awarding authority 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 awarding authority 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 shall be the first working day thereafter. The provisions of section thirty-nine G shall not apply to any contract for the construction, reconstruction, alteration, remodeling, repair or demolition of any public building to which this section applies.

All periodic estimates shall be submitted to the awarding authority, or to its designee as set forth in writing to the contractor, and the date of receipt by the awarding authority or its designee shall be marked on the estimate. All periodic estimates shall contain a separate item for each filed subtrade and each sub-subtrade listed in sub-bid form as required by specifications and a column listing the amount paid to each subcontractor and sub-subcontractor as of the date the periodic estimate is filed. The person making payment for the awarding authority 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.

A certificate of the architect to the effect that the contractor has fully or substantially completed the work shall, subject to the provisions of section thirty-nine J, be conclusive for the purposes of this section.

Notwithstanding the provisions of this section, at any time after the value of the work remaining to be done is, in the estimation of the awarding authority, less than 1 per cent of the adjusted contract price, or the awarding authority has determined that the contractor has substantially completed the work and the awarding authority has taken possession for occupancy, the awarding authority may send to the general contractor by certified mail, return receipt requested, a complete and final list of all incomplete and unsatisfactory work items, including, for each item on the list, a good faith estimate of the fair and reasonable cost of completing such item. The general contractor shall then complete all such work items within 30 days of receipt of such list or before the contract completion date, whichever is later. If the general contractor fails to complete all incomplete and unsatisfactory work items within 45 days after receipt of such items furnished by the awarding authority or before the contract completion date, whichever is later, subsequent to an additional 14 days' written notice to the general contractor by certified mail, return receipt requested, the awarding authority may terminate the contract and

complete the incomplete and unsatisfactory work items and charge the cost of same to the general contractor and such termination shall be without prejudice to any other rights or remedies the awarding authority may have under the contract. The awarding authority shall note any such termination in the evaluation form to be filed by the awarding authority pursuant to the provisions of section 44D of chapter 149.

M.G.L. c.149, '44D: Submission of bid or offer; application for certification

(1) (a) Every bid or offer submitted for a contract subject to section forty-four A shall be accompanied by a copy of a certificate of eligibility issued by the commissioner showing that the bidder or offeror has the classification and capacity rating to perform the work required. The bid or offer shall also be accompanied by an update statement in such form as the commissioner shall prescribe. A blank copy of such form shall be furnished by the awarding authority to every person or business entity requesting a copy. The update form shall provide space for information regarding all projects completed by the bidder or offeror since the date of certification of eligibility, all projects which the bidder or offeror currently has under contract including the percentage of work on such projects not completed, the names and qualifications of the personnel who will have supervisory responsibility for the performance of the contract, any significant changes in the bidder's or offeror's financial position or business organization since the date of certification of eligibility, and such other relevant information as the commissioner shall prescribe. The bidder or offeror shall also include in its bid or offer and update statement the list of completed construction projects submitted to the division in its most recent application for contractor certification. Any bid or offer submitted without the appropriate certificate and update statement shall be invalid.

(b) The applicant shall certify under penalties of perjury at the conclusion of the application to bid that there have been no substantial changes in his financial position or business organization other than those changes noted within the application since the applicant's most recent prequalification statement and that the bid to be made will be in all respects bonafide, fair and made without collusion or fraud with any other person. ""Person" here means any natural person, joint venture, partnership, corporation or other business or legal entity which sells materials, equipment or supplies used in or for, or engages in the performance of, the same or similar construction, reconstruction, installation, demolition, maintenance or repair work or any part thereof.

(2) The division of capital asset management and maintenance shall accept applications for certification in such form as the commissioner shall prescribe, signed by the applicant under penalties of perjury, supplying information concerning the applicant's form of organization, its principals and key personnel; the applicant's experience on public and private construction projects over the past five years or on the twenty projects most recently completed; all legal or administrative proceedings currently pending against the applicant or concluded adversely to the applicant within the past five years which relate to the procurement or performance of any public or private construction contract, the nature of any financial, personal or familial relationship to any public or private construction project owners listed on the application as constituting prior construction experience; and such other information as the commissioner shall deem relevant to the determination of the applicant's qualifications and responsibility. The application shall include a statement of financial condition prepared by a certified public accountant which shall contain information concerning the applicant's current assets and liabilities, plant and equipment; bank and credit references, bonding company and maximum bonding capacity; and such other information as the commissioner shall deem relevant to an

evaluation of the applicant's financial capacity and responsibility. The information contained in the application shall be current at the time of filing; provided, however, that the statement of financial condition shall pertain to the applicant's most recent, completed fiscal year. Any materially false statement in the application or update statement may, in the discretion of the awarding authority, result in termination of any contract awarded the applicant by the awarding authority, and shall constitute cause for debarring the applicant from future public work as provided in section 44C and shall subject the applicant to the punishments for perjury as set forth in section 1 of chapter 268. Applications and evaluations shall not be public records as defined in section seven of chapter four and shall not be open to the public inspection.

(3) The division of capital asset management and maintenance shall evaluate every applicant on the basis of the application and on relevant past performance according to procedures and criteria which the commissioner shall prescribe by regulations or guidelines. Such criteria shall include the following:-- the record of the applicant's performance including, where available, written evaluations of the applicant's performance on public and private jobs over the past five years; the applicant's prior experience on projects of various size and type; the experience and qualifications of supervisory personnel; the maximum amount of work the applicant is capable of undertaking as demonstrated by the applicant's financial condition, bonding capacity, size of previous projects, and present and anticipated work commitments; and any other relevant criteria which the commissioner may prescribe. The regulations and guidelines shall provide that, to the extent possible, the criteria considered shall be assigned separate designated numerical values and weights, and the applicant shall be assigned an overall numerical rating on the basis of all criteria. The applicant shall indicate among categories established by the commissioner the classes of work and aggregate amount of work for which certification is sought. The division of capital asset management and maintenance shall issue a certificate as warranted by the evaluation which shall be effective for one year from the date issued, showing the classes of work and aggregate amount of work on which the applicant is eligible to bid. Said certificate shall include the number of prior construction projects evaluated by the division of capital asset management and maintenance, the contractor's average numerical value on those projects evaluated, and the number of projects given numerical values below a passing score, as defined by the division's regulations or guidelines, during each of the previous 5 years.

(4) The division of capital asset management and maintenance shall promptly notify an applicant of its preliminary determination regarding the conditions of the certification, or a denial of certification, or of decertification pursuant to this section, and the reasons therefor. An applicant aggrieved by the division's preliminary determination may, within five business days of receipt of notice, request copies of the information upon which the division relied in making its preliminary determination. Within ten business days of receipt of notice, the applicant may submit further information to the division with a request for reconsideration. The division shall issue a final determination regarding an application for certification within thirty business days from the date of its preliminary determination, unless the applicant and the division agree to extend the thirty day period.

Any applicant aggrieved by the final determination of the division may appeal in writing to the attorney general within five business days of receipt of final notice thereof. Within thirty calendar days of such appeal, the attorney general shall investigate the matter and issue a written decision. The attorney general may institute and prosecute proceedings in the superior court to enforce the provisions of this section on the same terms as set forth in section forty-four H. Following such decision by the attorney general, or failure to render a decision within the thirty-day period, either the division or the applicant may seek remedies at law.

(5) The commissioner may, upon receipt of additional information regarding a contractor's qualifications, decertify a contractor or reduce the classes of work and amount of work on which the contractor is eligible to bid during the period for which the contractor was prequalified. Upon such a decision, the commissioner shall follow the procedures established by this section.

(6) In determining who is the lowest responsible and eligible bidder as required in paragraph (2) of section forty-four A, the awarding authority shall consider the information submitted by the bidder in the update statement. If the awarding authority determines that the low bidder is not responsible and eligible, the awarding authority shall reject the bidder and evaluate the next low bidder in accordance with this section; the awarding authority shall give notice of such action to the division of capital asset management and maintenance.

In determining which is the most advantageous offer, the awarding authority shall consider the information submitted by the offerors on the update statement.

(7) The division of capital asset management and maintenance shall develop a standard contractor evaluation form that shall be completed by every public agency as defined in section 44A, upon completion of a building project under its control, and submitted to the division for the contractor's qualification file. The official from the public agency, or the owner's representative, shall certify that the information contained on the contractor evaluation form represents, to the best of his knowledge, a true and accurate analysis of the contractor's performance record on that contract. The public agency shall mail a copy of the contractor evaluation form to the contractor and the contractor shall, within 30 days, submit a written response to the division disputing any information contained in the evaluation form and setting forth any additional information concerning the building project or the oversight of the contract by the public agency that may be relevant to the evaluation of the contractor's performance on the contract. The division shall attach any such response to the evaluation form for inclusion in the contractor's qualification file. No person shall be liable for any injury or loss to a contractor as a result of the completion of a contractor evaluation form as required by this section unless the individual completing the form has been found by a court of competent jurisdiction to have acted in a willful, wanton or reckless manner. If a suit is commenced by a contractor against a public employee, an owner's representative, an architect or an engineer who has completed a contractor evaluation form as required by this section seeking to recover damages resulting from injury caused by such evaluation, the public agency for whom such evaluation form was completed, or the commonwealth if such evaluation was completed for a state agency, shall provide for the legal representation of said employee, owner's representative, architect or engineer. Such public agency, or the commonwealth, shall also indemnify such person from all financial loss and expenses, including but not limited to legal fees and filing costs, in an amount not to exceed \$1,000,000. No such person shall be indemnified for losses other than legal fees and filing costs under this section if such person is found by a court or a jury to have acted in a willful, wanton or reckless manner.

At approximately the 50 per cent completion stage of a building project under its control, the awarding authority shall advise the contractor in writing of the awarding authority's preliminary evaluation of the contractor's performance on the project for informational purposes.

Any public agency that fails to complete and submit the contractor evaluation form, together with any written response by any contractor, to the division within 70 days of the completion of a project shall be ineligible for the receipt of any public funds disbursed by the commonwealth for the purposes of any public buildings or public works projects.

(8) The provisions of this section do not apply to sub-bidders.

(9) The commissioner may issue such rules, regulations, orders, guidelines and policies as deemed necessary or expedient to effectuate the purposes of this section.

(10) All applications submitted by contractors for certification in the category of asbestos removal shall contain evidence of a current license issued under section six B. Failure to furnish such evidence shall require the division of capital asset management and maintenance to find the applicant ineligible to bid. A general contractor who subcontracts the asbestos removal work must certify in writing to the awarding authority that if awarded the contract, the general contractor will subcontract the work involving the removal, containment, or encapsulation of asbestos or material containing asbestos to a subcontractor who is licensed under said section six B.

In no event shall any public contract involving the removal, containment or encapsulation of asbestos or material containing asbestos be performed by anyone other than a general contractor or subcontractor licensed to perform such work.

1.5 APPLICATION FOR PAYMENT

A. General:

1. Each Application for Payment shall be consistent with previous Applications and payments as certified by Architect and paid for by Owner.
2. Initial Application for Payment, Application for Payment at Substantial Completion, and final Application for Payment involve additional requirements.

B. Payment Application Times:

1. Date for each progress payment is 15th day of each month.
2. Period covered by each Application for Payment starts on day following end of preceding period and ends 15 days before date for each progress payment.

C. Payment Application Forms: Use AIA Document G702 and Continuation Sheets G703 as form for Application for Payment.

D. Application Preparation:

1. Complete every entry on form.
2. Include notarization and execution by person authorized to sign legal documents on behalf of Contractor.
3. Architect will return incomplete Applications without action.
4. Entries shall match data on Schedule of Values and Contractor's Construction Schedule; use updated Schedules if revisions were made.
5. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by Application.

E. Transmittal:

1. Submit 4 signed and notarized original copies of each Application for Payment to Architect by method ensuring receipt within 24 hours.
 2. One copy shall be complete, including waivers of lien and similar attachments, when required.
 3. Transmit each copy with transmittal form listing attachments and recording appropriate information related to application, in manner acceptable to Architect.
- F. Waivers of Mechanic Lien: With each Application for Payment, submit waivers of mechanics lien from every entity who is lawfully entitled to file mechanics lien arising out of Contract and related to work covered by payment.
- G. Waiver Delays:
1. Submit each application for payment with Contractor's waiver of mechanics lien for period of construction covered by Application.
 2. Submit final Applications for Payment with or preceded by final waivers from every entity involved with performance of work covered by Application who is lawfully entitled to lien.
- H. Initial Application for Payment: Administrative actions and submittals, that must precede or coincide with submittal, include following:
1. List of subcontractors.
 2. List of principal suppliers and fabricators.
 3. Schedule of Values.
 4. Contractor Construction Schedule.
 5. Schedule of principal products.
 6. Submittal Schedule.
 7. List of Contractor's staff assignments.
 8. List of Contractor's principal consultants.
 9. Copies of building permits.
 10. Copies of authorizations and licenses from governing authorities for performance of work.
 11. Initial progress report.
 12. Report of preconstruction meeting.
 13. Certificates of insurance and insurance policies.
- I. Application of Payment at Substantial Completion:
1. Following issuance of Certificate of Substantial Completion, submit Application for Payment.
 2. Application shall reflect certificates of partial Substantial Completion issued previously for Owner occupancy of designated portions of work.
 3. Administrative actions and submittals shall precede or coincide with this Application and shall be as defined in Section 017700.
- J. Administrative Actions and Submittals that shall Proceed or Coincide with Application include:
1. Occupancy Permits and similar approvals.

2. Warranties (Guarantees) and Maintenance Agreements.
 3. Test/adjust/balance records.
 4. Maintenance instructions.
 5. Meter readings.
 6. Start-up Performance Reports.
 7. Changeover information related to Owner's occupancy, use, operation, and maintenance.
 8. Final cleaning.
 9. Application for reduction of retainage, and consent of surety.
 10. Advice on shifting insurance coverages.
 11. Final progress photographs.
 12. List of incomplete work, recognized as exceptions to Designer's Certificate of Substantial Completion.
- K. Final Payment Application: Administrative actions and submittals that must precede or coincide with submittal for final application for payment include following:
1. Completion of Project closeout requirements.
 2. Completion of items specified for completion after Substantial Completion.
 3. Ensure that unsettled claims will be settled.
 4. Ensure that incomplete work is not accepted and will be completed without undue delay.
 5. Transmittal of required Project construction record to Owner.
 6. Removal of temporary facilities and services.
 7. Removal of surplus materials, rubbish, and similar elements.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION 012900

SECTION 013100 - PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:
 - 1. Coordination drawings.
 - 2. Requests for Information (RFIs).
 - 3. Project meetings.
- B. Related Sections:
 - 1. Division 01 Section "Multiple Contract Summary" for a description of the division of work among separate contracts and responsibility for coordination activities not in this Section.
 - 2. Division 01 Section "Execution" for procedures for coordinating general installation and field-engineering services, including establishment of benchmarks and control points.

1.3 DEFINITIONS

- A. RFI: Request from Owner, Architect, or Contractor seeking information from each other during construction.

1.4 COORDINATION

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

1. Prepare similar memoranda for Owner and separate contractors if coordination of their Work is required.
- C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and activities of other contractors to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
 1. Preparation of Contractor's construction schedule.
 2. Preparation of the schedule of values.
 3. Installation and removal of temporary facilities and controls.
 4. Delivery and processing of submittals.
 5. Progress meetings.
 6. Preinstallation conferences.
 7. Project closeout activities.
 8. Startup and adjustment of systems.
 9. Project closeout activities.

1.5 COORDINATION DRAWINGS

- A. Coordination Drawings, General: Prepare coordination drawings in accordance with requirements in individual Sections, where installation is not completely shown on Shop Drawings, where limited space availability necessitates coordination, or if coordination is required to facilitate integration of products and materials fabricated or installed by more than one entity.
 1. Content: Project-specific information, drawn accurately to a scale large enough to indicate and resolve conflicts. Do not base coordination drawings on standard printed data. Include the following information, as applicable:
 - a. Indicate functional and spatial relationships of components of architectural, structural, civil, mechanical, and electrical systems.
 - b. Indicate dimensions shown on the Drawings. Specifically note dimensions that appear to be in conflict with submitted equipment and minimum clearance requirements. Provide alternate sketches to Architect indicating proposed resolution of such conflicts. Minor dimension changes and difficult installations will not be considered changes to the Contract.
- B. Coordination Drawing Organization: Organize coordination drawings as follows:
 1. Floor Plans and Reflected Ceiling Plans: Show architectural and structural elements, and mechanical, plumbing, fire protection, fire alarm, and electrical Work. Show locations of visible ceiling-mounted devices relative to acoustical ceiling grid.
 2. Plenum Space: Indicate subframing for support of ceiling and wall systems, mechanical and electrical equipment, and related Work. Locate components within ceiling plenum to accommodate layout of light fixtures indicated on Drawings.
 3. Mechanical Rooms: Provide coordination drawings for mechanical rooms showing plans and elevations of mechanical, plumbing, fire protection, fire alarm, and electrical equipment.
 4. Structural Penetrations: Indicate penetrations and openings required for all disciplines.

5. Slab Edge and Embedded Items: Indicate slab edge locations and sizes and locations of embedded items for metal fabrications, sleeves, anchor bolts, bearing plates, angles, door floor closers, slab depressions for floor finishes, curbs and housekeeping pads, and similar items.
6. Review: Architect will review coordination drawings to confirm that the Work is being coordinated, but not for the details of the coordination, which are the Contractor's responsibility.

1.6 REQUESTS FOR INFORMATION (RFIs)

- A. General: Immediately on discovery of the need for additional information or interpretation of the Contract Documents, Contractor shall prepare and submit an RFI in the form specified.
 1. Architect will return RFIs submitted to Architect by other entities controlled by Contractor with no response.
 2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.
- B. Content of the RFI: Include a detailed, legible description of item needing information or interpretation and the following:
 1. Project name.
 2. Project number.
 3. Date.
 4. Name of Contractor.
 5. Name of Architect.
 6. RFI number, numbered sequentially.
 7. RFI subject.
 8. Specification Section number and title and related paragraphs, as appropriate.
 9. Drawing number and detail references, as appropriate.
 10. Field dimensions and conditions, as appropriate.
 11. Contractor's suggested resolution. If Contractor's solution(s) impacts the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
 12. Contractor's signature.
 13. Attachments: Include sketches, descriptions, measurements, photos, Product Data, Shop Drawings, coordination drawings, and other information necessary to fully describe items needing interpretation.
- C. RFI Forms: AIA Document G716, or Software-generated form with substantially the same content as indicated above, acceptable to Architect.
- D. Architect's Action: Architect will review each RFI, determine action required, and respond. Allow seven working days for Architect's response for each RFI. RFIs received by Architect after 1:00 p.m. will be considered as received the following working day.
 1. The following RFIs will be returned without action:
 - a. Requests for approval of submittals.
 - b. Requests for approval of substitutions.

- c. Requests for coordination information already indicated in the Contract Documents.
 - d. Requests for adjustments in the Contract Time or the Contract Sum.
 - e. Requests for interpretation of Architect's actions on submittals.
 - f. Incomplete RFIs or inaccurately prepared RFIs.
2. Architect's action may include a request for additional information, in which case Architect's time for response will date from time of receipt of additional information.
3. Architect's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Proposal according to Division 01 Section "Contract Modification Procedures."
 - a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Architect in writing within 10 days of receipt of the RFI response.
- E. On receipt of Architect's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Architect within seven days if Contractor disagrees with response.
- F. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log upon request. Include the following:
 1. Project name.
 2. Name and address of Contractor.
 3. Name and address of Architect.
 4. RFI number including RFIs that were dropped and not submitted.
 5. RFI description.
 6. Date the RFI was submitted.
 7. Date Architect's response was received.
 8. Identification of related Minor Change in the Work, Construction Change Directive, and Proposal Request, as appropriate.

1.7 PROJECT MEETINGS

- A. General: Schedule and conduct meetings and conferences at Project site, unless otherwise indicated.
 1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Owner and Architect of scheduled meeting dates and times.
 2. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.
 3. Minutes: Entity responsible for conducting meeting will record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including Owner and Architect, within three days of the meeting.
- B. Preconstruction Conference: Schedule and conduct a preconstruction conference before starting construction, at a time convenient to Owner and Architect, but no later than 15 days after execution of the Agreement.

1. Attendees: Authorized representatives of Owner, Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the conference. Participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
 2. Agenda: Discuss items of significance that could affect progress, including the following:
 - a. Tentative construction schedule.
 - b. Phasing.
 - c. Critical work sequencing and long-lead items.
 - d. Designation of key personnel and their duties.
 - e. Procedures for processing field decisions and Change Orders.
 - f. Procedures for RFIs.
 - g. Procedures for testing and inspecting.
 - h. Procedures for processing Applications for Payment.
 - i. Distribution of the Contract Documents.
 - j. Submittal procedures.
 - k. Sustainable design requirements.
 - l. Preparation of record documents.
 - m. Use of the premises and existing building.
 - n. Work restrictions.
 - o. Working hours.
 - p. Owner's occupancy requirements.
 - q. Responsibility for temporary facilities and controls.
 - r. Procedures for moisture and mold control.
 - s. Procedures for disruptions and shutdowns.
 - t. Construction waste management and recycling.
 - u. Parking availability.
 - v. Office, work, and storage areas.
 - w. Equipment deliveries and priorities.
 - x. First aid.
 - y. Security.
 - z. Progress cleaning.
 3. Minutes: Entity responsible for conducting meeting will record and distribute meeting minutes.
- C. Preinstallation Conferences: Conduct a preinstallation conference at Project site before each construction activity that requires coordination with other construction.
1. Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise Architect of scheduled meeting dates.
 2. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including requirements for the following:
 - a. Contract Documents.
 - b. Options.

- c. Related RFIs.
 - d. Related Change Orders.
 - e. Purchases.
 - f. Deliveries.
 - g. Submittals.
 - h. Review of mockups.
 - i. Possible conflicts.
 - j. Compatibility problems.
 - k. Time schedules.
 - l. Weather limitations.
 - m. Manufacturer's written recommendations.
 - n. Warranty requirements.
 - o. Compatibility of materials.
 - p. Acceptability of substrates.
 - q. Temporary facilities and controls.
 - r. Space and access limitations.
 - s. Regulations of authorities having jurisdiction.
 - t. Testing and inspecting requirements.
 - u. Installation procedures.
 - v. Coordination with other work.
 - w. Required performance results.
 - x. Protection of adjacent work.
 - y. Protection of construction and personnel.
- 3. Record significant conference discussions, agreements, and disagreements, including required corrective measures and actions.
 - 4. Reporting: Distribute minutes of the meeting to each party present and to other parties requiring information.
 - 5. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at earliest feasible date.
- D. Progress Meetings: Conduct progress meetings at weekly intervals.
- 1. Attendees: In addition to representatives of Owner and Architect, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.
 - 2. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
 - a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's construction schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.

- 1) Review schedule for next period.
- b. Review present and future needs of each entity present, including the following:
 - 1) Interface requirements.
 - 2) Sequence of operations.
 - 3) Status of submittals.
 - 4) Deliveries.
 - 5) Off-site fabrication.
 - 6) Access.
 - 7) Site utilization.
 - 8) Temporary facilities and controls.
 - 9) Progress cleaning.
 - 10) Quality and work standards.
 - 11) Status of correction of deficient items.
 - 12) Field observations.
 - 13) Status of RFIs.
 - 14) Status of proposal requests.
 - 15) Pending changes.
 - 16) Status of Change Orders.
 - 17) Pending claims and disputes.
 - 18) Documentation of information for payment requests.
3. Minutes: Entity responsible for conducting the meeting will record and distribute the meeting minutes to each party present and to parties requiring information.
 - a. Schedule Updating: Revise Contractor's construction schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION 013100

SECTION 013300 - SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements for submittals required for performance of work, including:
 - 1. Contractor's Construction Schedule.
 - 2. Shop drawings.
 - 3. Product data.
 - 4. Samples.
 - 5. Applications for Payment.

1.3 SUBMITTAL PROCEDURES

- A. Coordination:
 - 1. Coordinate preparation and processing of submittals with performance of construction activities.
 - 2. Transmit each submittal sufficiently in advance of performance of related construction activities to avoid delay.
 - 3. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities requiring sequential activity.
 - 4. Coordinate transmittal of different types of submittals for related elements of work so processing will not be delayed by need to review submittals concurrently for coordination.
 - 5. Architect reserves right to withhold action on submittal requiring coordination with other submittals until related submittals are received.
- B. Processing:
 - 1. Allow sufficient review time so installation will not be delayed as result of time required to process submittals, including time for resubmittals.
 - 2. Allow 2 weeks for initial review.
 - 3. Allow additional time if processing must be delayed to permit coordination with subsequent submittals.
 - 4. Architect will promptly advise Contractor when submittal being processed must be delayed for coordination.
 - 5. If intermediate submittal is necessary, process same as initial submittal.
 - 6. Allow 2 weeks for reprocessing each submittal.
 - 7. No extension of Contract Time will be authorized because of failure to transmit submittals to Architect sufficiently in advance of work to permit processing.

C. Submittal Preparation:

1. Place permanent label or title block on each submittal for identification.
2. Indicate name of entity who prepared each submittal on label or title block.
3. Provide space approximately 4 in. x 5 in. on label or beside title block on shop drawings to record Contractor's review and approval markings and action taken.
4. Include following information on label for processing and recording action taken:
 - a. Project Name.
 - b. Date.
 - c. Name and address of Architect.
 - d. Name and address of Contractor.
 - e. Name and address of Subcontractor.
 - f. Name and address of Supplier.
 - g. Name of Manufacturer.
 - h. Number and Title of appropriate Specification Section, including paragraph number from PART 2 – PRODUCTS.
 - i. Submittal number or other unique identifier, including revision identifier as follows:
 - 1) Submittal number shall be the Specification Section number followed by a decimal point and then a sequential number, followed by a decimal point and the submission number (e.g. 042000.01.01). Resubmittal number shall coincide times submitted (e.g. 042000.01.02)
 - 2) Submittals shall not contain items for more than one Specification Section number.
 - j. Drawing Number and Detail References, as appropriate.

D. Submittal Transmittal:

1. Package each submittal appropriately for transmittal and handling.
2. Transmit each submittal from Contractor to Architect using transmittal form.
3. Submittals received from sources other than Contractor will be returned without action.
4. On transmittal record relevant information and requests for data.
5. On Form, or Separate Sheet, record deviations from Contract Document requirements, including minor variations and limitations.
6. Include Contractor's certification that information complies with Contract Document requirements.
7. Transmittal Form: AIA Document G810.

- E. Submit minimum 5 hard copies of each type of Submittal. Alternatively, submit 1 electronic copy of submittal.

1.4 CONTRACTOR'S CONSTRUCTION SCHEDULE

A. Bar-Chart Schedule (for entire project and each individual station):

1. Prepare fully developed, horizontal bar-chart-type Contractor's Construction Schedule.
2. Submit within 30 days of date established for start of work.

3. Provide separate time bar for each significant construction activity.
4. Provide continuous vertical line to identify first working day of each week.
5. Within each time bar indicate estimated completion percentage in 10 percent increments.
6. As work progresses, place contrasting mark in each bar to indicate Actual Completion.
7. Prepare Schedule on sheet, or series of sheets, of stable transparency, or other reproducible media, of sufficient width to show data for entire construction period.
8. Secure time commitments for performing critical elements of work from parties involved.
9. Coordinate each element on Schedule with other construction activities; include minor elements involved in sequence of work.
10. Show each activity in proper sequence.
11. Indicate graphically sequences necessary for completion of related portions of work.
12. Indicate completion in advance of date established for Substantial Completion.
13. Indicate Substantial Completion on Schedule to allow time for Architect's procedures necessary for certification of Substantial Completion.
14. Work Stages: Indicate important stages of construction for each major portion of work, including testing and installation.
15. Area Separations:
 - a. Provide separate time bar to identify each major construction area for each major portion of work.
 - b. Indicate where each element in area must be sequenced or integrated with other activities.
16. Cost Correlation:
 - a. At head of Schedule, provide two-item cost correlation line, indicating precalculated and actual costs.
 - b. On line shown dollar-volume of work performed as of dates used for preparation of payment requests.
17. Distribution:
 - a. Following response to initial submittal, print and distribute copies to Architect, Owner, subcontractors, and other parties required to comply with scheduled dates.
 - b. Post copies in Project Meeting Room and Temporary Field Office.
 - c. When revisions are made, distribute to same parties and post in same locations.
 - d. Delete parties from distribution when they have completed their assigned portion of work and are no longer involved in construction activities.
18. Schedule Updating:
 - a. Revise Schedule after each meeting or activity, where revisions have been recognized or made.
 - b. Issue updated Schedule concurrently with report of each meeting.

1.5 SHOP DRAWINGS

A. General:

1. Submit newly prepared information, drawn to accurate scale.

2. Highlight, encircle, or otherwise indicate deviations from Contract Documents.
3. Do not reproduce Contract Documents or copy standard information as basis of shop drawings.
4. Standard information prepared without specific reference to Project is not considered shop drawings.
5. Shop drawings include Fabrication and Installation Drawings, Setting Diagrams, Schedules, Patterns, Templates, and similar Drawings.
6. Include following information:
 - a. Dimensions.
 - b. Identification of products and materials included.
 - c. Compliance with specified standards.
 - d. Notation of coordination requirements.
 - e. Notation of dimensions established by field measurement.
7. Submittal:
 - a. Submit 5 prints.
 - b. 1 print will be retained; remainder returned.
 - c. Mark up and maintain one of returned prints as Record Document.
8. Do not use shop drawings without appropriate final stamp indicating action taken in connection with construction.

B. Coordination Drawings:

1. A special type of shop drawing showing relationship and integration of different construction elements requiring careful coordination during fabrication or installation to fit in space provided or function as intended.
2. Preparation of coordination drawings may include components previously shown in detail on shop drawings or product data.
3. Submit Coordination Drawings for integration of different construction elements.
4. Show sequences and relationships of separate components to avoid conflicts in use of space.

1.6 PRODUCT DATA

A. General:

1. Collect product data into single submittal for each element of construction or system.
2. Product data includes printed information such as Manufacturer's Installation Instructions, Catalog Cuts, Standard Color Charts, Roughing-In Diagrams and Templates, Standard Wiring Diagrams, and Performance Curves.
3. Where product data must be specially prepared because standard printed data is not suitable for use, submit as shop drawings.
4. Mark each copy to show applicable choices and options.
5. Where printed product data includes information on several products, some of which are not required, mark copies to indicate applicable information.
6. Include following information:

- a. Manufacturer's printed recommendations.
 - b. Compliance with recognized Trade Association standards.
 - c. Compliance with recognized Testing Agency standards.
 - d. Application of Testing Agency Labels and Seals.
 - e. Notation of dimensions verified by field measurements.
 - f. Notation of coordination requirements.
 7. Do not submit product data until compliance with requirements of Contract Documents has been confirmed.
 - B. Material Safety Data Sheets (MSDS):
 1. Submit three copies of MSDS for all products scheduled or planned for use on Project.
 2. Do not purchase any products until MSDS have been submitted to Architect and reviewed.
 3. Label MSDS with Project Manual Section Number.
 - C. Preliminary Submittal: Submit preliminary single copy of product data where selection of options is required.
 - D. Submittals:
 1. Submit 8 copies of each required submittal; submit 4 copies where required for Maintenance Manuals.
 2. Architect will retain one, and will return other marked with action taken and corrections or modifications required.
 3. Unless noncompliance with Contract Document provisions is observed, submittal may serve as final submittal.
 - E. Distribution:
 1. Furnish copies of final submittal to installers, subcontractors, suppliers, manufacturers, fabricators, and others required for performance of construction activities; show distribution on Transmittal Forms.
 2. Do not proceed with installation until applicable copy of product data applicable is in installer's possession.
 3. Do not permit use of unmarked copies of product data in connection with construction.
- 1.7 SAMPLES
- A. General:
 1. Submit full-size, fully fabricated samples cured and finished as specified and physically identical with material or product proposed.
 2. Samples include Partial Sections of Manufactured or Fabricated Components, Cuts or Containers of Materials, Color Range Sets, and Swatches showing color, texture, and pattern.
 3. Mount, display, or package samples in manner specified to facilitate review of qualities indicated.
 4. Prepare samples to match Architect's sample.

5. Include following:
 - a. Generic description of sample.
 - b. Sample source.
 - c. Product name or name of manufacturer.
 - d. Compliance with recognized Standards.
 - e. Availability and delivery time.
 6. Submit samples for review of kind, color, pattern, and texture, for final check of these characteristics with other elements, and for comparison of these characteristics between final submittal and actual component as delivered and installed.
 7. Where variation in color, pattern, texture, or other characteristics are inherent in material or product represented, submit min. 3 multiple units showing approximate limits of variations.
 8. Refer to other Specification Sections for requirements for samples illustrating installation, fabrication techniques, details of assembly, connections, operations, and similar construction characteristics.
 9. Refer to other Sections for samples to be returned to Contractor for incorporation in work; such samples must be undamaged at time of use.
 10. On Transmittal, indicate special requests regarding disposition of sample submittals.
- B. Preliminary Submittals:
1. Where samples are for selection of color, pattern, texture, or similar characteristics from range of standard choices, submit full set of choices for material or product.
 2. Preliminary submittals will be reviewed and returned with Architect's mark indicating selection and other action.
- C. Submittals:
1. Except for samples illustrating assembly details, installation, fabrication techniques, connections, operation, and similar characteristics, submit 3 sets; one will be returned marked with action taken.
 2. Maintain sets of samples, as returned, at Project site, for quality comparisons throughout course of construction.
 3. Unless noncompliance with Contract Document provisions is observed, submittal may serve as final submittal.
 4. Sample sets may be used to obtain final Acceptance of construction associated with each set.
- D. Distribution of Samples:
1. Prepare and distribute additional sets to subcontractors, manufacturers, fabricators, suppliers, installers, and others as required for performance of work.
 2. Show distribution on Transmittal Forms.
- E. Field Samples:
1. Specified in individual Sections are special types of samples.

2. Field samples are full-size examples erected on site to illustrate finishes, coatings, or finish materials and to establish standard by which work will be judged.
3. Comply with submittal requirements to fullest extent possible.
4. Process Transmittal Forms to provide record of activity.

1.8 APPLICATIONS FOR PAYMENT

A. Schedule of Values:

1. Coordination: Coordinate preparation of Schedule of Values with preparation of Contractor's Construction Schedule.
2. Submit Schedule of Values to Architect at earliest possible date, min. 7 days before date scheduled for submittal of initial Applications for Payment.
3. Subschedules: Where work is separated into phases requiring separately phased payments, provide Subschedules showing values correlated with each phase of payment.
4. Margins of Cost:
 - a. Show line items for indirect costs and margins on actual costs only when such items are listed individually in Applications for Payment.
 - b. Each item in Schedule of Values and Applications for Payment shall be complete.
 - c. Include total cost and proportionate share of general overhead and profit margin for each item.
5. Temporary Facilities: Show temporary facilities and other major cost items that are not direct cost of actual work-in-place either as separate line items in schedule of values, or distributed as general overhead expense, at Contractor's option.
6. Schedule Updating: Update and resubmit Schedule of Values before next Application for Payment when Change Orders or Construction Change Directives result in change in Contract Sum.

B. Schedule of Values - Form and Content:

1. Use Project Manual Table of Contents as guide to establish format for Schedule of Values.
2. Provide min. 1 line item for each Specification Section.
3. Include following Project identification on Schedule of Values:
 - a. Project name and location.
 - b. Name of Architect.
 - c. Project number.
 - d. Contractor's name and address.
 - e. Date of submittal.
4. Arrange Schedule of Values in tabular form with separate columns to indicate following for each item listed.
 - a. Related Specification Section or Division.
 - b. Description of work.
 - c. Name of subcontractor.
 - d. Name of manufacturer or fabricator.

- e. Name of supplier.
 - f. Change Order Numbers that affect value.
 - g. Dollar value; percentage of Contract Sum to nearest 1/100 percent, adjusted to total 100 percent.
- 5. Provide breakdown of Contract Sum in sufficient detail to facilitate continued evaluation of Applications for Payment and Progress Reports; coordinate with Project Manual Table of Contents.
 - 6. Break principal subcontract amounts down into several line items.
 - 7. Round amounts to nearest whole dollar; total shall equal Contract Sum.
 - 8. Provide separate line item in Schedule of Values for each part of work where Applications for Payment may include materials or equipment, purchased or fabricated and stored, but not yet installed.
 - 9. Differentiate between items stored onsite and items stored offsite; include requirements for insurance and bonded warehousing, if required.
- C. Payment Application:
- 1. Each Application for Payment shall be consistent with previous Applications and payments as certified by Architect and paid for by Owner.
 - 2. Initial Application for Payment, Application for Payment at Substantial Completion, and final Application for Payment involve additional requirements.
 - 3. Payment Application Times:
 - a. Date for each progress payment is 15th day of each month.
 - b. Period covered by each Application for Payment starts on day following end of preceding period and ends 15 days before date for each progress payment.
 - 4. Payment Application Forms: Use AIA Document G702 and Continuation Sheets G703 as form for Application for Payment.
 - 5. Application Preparation:
 - a. Complete every entry on form.
 - b. Include notarization and execution by person authorized to sign legal documents on behalf of Contractor.
 - c. Architect will return incomplete Applications without action.
 - d. Entries shall match data on Schedule of Values and Contractor's Construction Schedule; use updated Schedules if revisions were made.
 - e. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by Application.
 - 6. Transmittal:
 - a. Submit 4 signed and notarized original copies of each Application for Payment to Architect by method ensuring receipt within 24 hours.
 - b. One copy shall be complete, including waivers of lien and similar attachments, when required.
 - c. Transmit each copy with transmittal form listing attachments and recording appropriate information related to application, in manner acceptable to Architect.

7. Waivers of Mechanic Lien: With each Application for Payment, submit waivers of mechanics lien from every entity who is lawfully entitled to file mechanics lien arising out of Contract and related to work covered by payment.
8. Waiver Delays:
 - a. Submit each application for payment with Contractor's waiver of mechanics lien for period of construction covered by Application.
 - b. Submit final Applications for Payment with or preceded by final waivers from every entity involved with performance of work covered by Application who is lawfully entitled to lien.
9. Initial Application for Payment: Administrative actions and submittals, that must precede or coincide with submittal, include following:
 - a. List of subcontractors.
 - b. List of principal suppliers and fabricators.
 - c. Schedule of Values.
 - d. Contractor Construction Schedule.
 - e. Schedule of principal products.
 - f. Submittal Schedule.
 - g. List of Contractor's staff assignments.
 - h. List of Contractor's principal consultants.
 - i. Copies of building permits.
 - j. Copies of authorizations and licenses from governing authorities for performance of work.
 - k. Initial progress report.
 - l. Report of preconstruction meeting.
 - m. Certificates of insurance and insurance policies.
10. Application of Payment at Substantial Completion:
 - a. Following issuance of Certificate of Substantial Completion, submit Application for Payment.
 - b. Application shall reflect certificates of partial Substantial Completion issued previously for Owner occupancy of designated portions of work.
 - c. Administrative actions and submittals shall precede or coincide with this Application and shall be as defined in Section 017700.
11. Final Payment Application: Administrative actions and submittals that must precede or coincide with submittal for final application for payment include following:
 - a. Completion of Project closeout requirements.
 - b. Completion of items specified for completion after Substantial Completion.
 - c. Ensure that unsettled claims will be settled.
 - d. Ensure that incomplete work is not accepted and will be completed without undue delay.
 - e. Transmittal of required Project construction record to Owner.
 - f. Removal of temporary facilities and services.

- g. Removal of surplus materials, rubbish, and similar elements.

1.9 ARCHITECT'S ACTION

A. General:

- 1. Except for submittals for record, information, or similar purposes, where action and return is required or requested, Architect will review each submittal, mark to indicated action taken, and promptly return.
- 2. Compliance with specified characteristics is Contractor's responsibility.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION 013300

SECTION 014000 - QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for quality assurance and quality control.
- B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.
 - 1. Specific quality-assurance and -control requirements for individual construction activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover production of standard products.
 - 2. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and -control procedures that facilitate compliance with the Contract Document requirements.
 - 3. Requirements for Contractor to provide quality-assurance and -control services required by Architect, Owner, Construction Manager, or authorities having jurisdiction are not limited by provisions of this Section.
- C. Related Sections:
 - 1. Division 1 for developing a schedule of required tests and inspections.
 - 2. Divisions 2 through 32 Sections for specific test and inspection requirements.
- D. Testing by Independent Agency Hired by Owner:
 - 1. Concrete slump and compression.
 - 2. Structural steel connections, welds.
 - 3. Soil testing and compaction.

1.3 DEFINITIONS

- A. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.
- B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Services do not include contract enforcement activities performed by Architect or Construction Manager.

- C. Preconstruction Testing: Tests and inspections performed specifically for the Project before products and materials are incorporated into the Work to verify performance or compliance with specified criteria.
- D. Product Testing: Tests and inspections that are performed by an NRTL, an NVLAP, or a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with specified requirements.
- E. Source Quality-Control Testing: Tests and inspections that are performed at the source, i.e., plant, mill, factory, or shop.
- F. Field Quality-Control Testing: Tests and inspections that are performed on-site for installation of the Work and for completed Work.
- G. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.
- H. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations.
 - 1. Use of trade-specific terminology in referring to a trade or entity does not require that certain construction activities be performed by accredited or unionized individuals, or that requirements specified apply exclusively to specific trade or trades.
- I. Experienced: When used with an entity or individual, "experienced" means having successfully completed a minimum of three previous projects similar in nature, size, and extent to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

1.4 CONFLICTING REQUIREMENTS

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

1.5 INFORMATIONAL SUBMITTALS

- A. Contractor's Statement of Responsibility: When required by authorities having jurisdiction, submit copy of written statement of responsibility sent to authorities having jurisdiction before starting work on the following systems.

1. Seismic-force resisting system, designated seismic system, or component listed in the designated seismic system quality assurance plan prepared by the Architect.
 2. Main wind-force resisting system or a wind-resisting component listed in the wind-force-resisting system quality assurance plan prepared by the Architect.
- B. Testing Agency Qualifications: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.
- C. Schedule of Tests and Inspections: Prepare in tabular form and include the following:
1. Specification Section number and title.
 2. Entity responsible for performing tests and inspections.
 3. Description of test and inspection.
 4. Identification of applicable standards.
 5. Identification of test and inspection methods.
 6. Number of tests and inspections required.
 7. Time schedule or time span for tests and inspections.
 8. Requirements for obtaining samples.
 9. Unique characteristics of each quality-control service.

1.6 CONTRACTOR'S QUALITY-CONTROL PLAN

- A. Quality-Control Plan, General: Submit quality-control plan within 10 days of Notice to Proceed, and not less than five days prior to preconstruction conference. Submit in format acceptable to Architect. Identify personnel, procedures, controls, instructions, tests, records, and forms to be used to carry out Contractor's quality-assurance and quality-control responsibilities. Coordinate with Contractor's construction schedule.
- B. Quality-Control Personnel Qualifications: Engage qualified full-time personnel trained and experienced in managing and executing quality-assurance and quality-control procedures similar in nature and extent to those required for Project.
1. Project quality-control manager may also serve as Project superintendent.
- C. Submittal Procedure: Describe procedures for ensuring compliance with requirements through review and management of submittal process. Indicate qualifications of personnel responsible for submittal review.
- D. Testing and Inspection: Include in quality-control plan a comprehensive schedule of Work requiring testing or inspection, including the following:
1. Contractor-performed tests and inspections including subcontractor-performed tests and inspections. Include required tests and inspections and Contractor-elected tests and inspections.
 2. Special inspections required by authorities having jurisdiction and indicated on the "Statement of Special Inspections."
 3. Owner-performed tests and inspections indicated in the Contract Documents.
- E. Continuous Inspection of Workmanship: Describe process for continuous inspection during construction to identify and correct deficiencies in workmanship in addition to testing and

inspection specified. Indicate types of corrective actions to be required to bring work into compliance with standards of workmanship established by Contract requirements and approved mockups.

- F. Monitoring and Documentation: Maintain testing and inspection reports including log of approved and rejected results. Include work Architect has indicated as nonconforming or defective. Indicate corrective actions taken to bring nonconforming work into compliance with requirements. Comply with requirements of authorities having jurisdiction.

1.7 REPORTS AND DOCUMENTS

- A. Test and Inspection Reports: Prepare and submit certified written reports specified in other Sections. Include the following:

1. Date of issue.
2. Project title and number.
3. Name, address, and telephone number of testing agency.
4. Dates and locations of samples and tests or inspections.
5. Names of individuals making tests and inspections.
6. Description of the Work and test and inspection method.
7. Identification of product and Specification Section.
8. Complete test or inspection data.
9. Test and inspection results and an interpretation of test results.
10. Record of temperature and weather conditions at time of sample taking and testing and inspecting.
11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
12. Name and signature of laboratory inspector.
13. Recommendations on retesting and reinspecting.

- B. Manufacturer's Technical Representative's Field Reports: Prepare written information documenting manufacturer's technical representative's tests and inspections specified in other Sections. Include the following:

1. Name, address, and telephone number of technical representative making report.
2. Statement on condition of substrates and their acceptability for installation of product.
3. Statement that products at Project site comply with requirements.
4. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
5. Results of operational and other tests and a statement of whether observed performance complies with requirements.
6. Statement whether conditions, products, and installation will affect warranty.
7. Other required items indicated in individual Specification Sections.

- C. Factory-Authorized Service Representative's Reports: Prepare written information documenting manufacturer's factory-authorized service representative's tests and inspections specified in other Sections. Include the following:

1. Name, address, and telephone number of factory-authorized service representative making report.
2. Statement that equipment complies with requirements.

3. Results of operational and other tests and a statement of whether observed performance complies with requirements.
4. Statement whether conditions, products, and installation will affect warranty.
5. Other required items indicated in individual Specification Sections.

- D. Permits, Licenses, and Certificates: For Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

1.8 QUALITY ASSURANCE

- A. General: Qualifications paragraphs in this article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.
- B. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- C. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- D. Installer Qualifications: A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.
- E. Testing Agency Qualifications: An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspecting indicated, as documented according to ASTM E 329; and with additional qualifications specified in individual Sections; and where required by authorities having jurisdiction, that is acceptable to authorities.
1. NRTL: A nationally recognized testing laboratory according to 29 CFR 1910.7.
 2. NVLAP: A testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program.
- F. Manufacturer's Technical Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to observe and inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.
- G. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.
- H. Preconstruction Testing: Where testing agency is indicated to perform preconstruction testing for compliance with specified requirements for performance and test methods, comply with the following:
1. Contractor responsibilities include the following:

- a. Provide test specimens representative of proposed products and construction.
2. Testing Agency Responsibilities: Submit a certified written report of each test, inspection, and similar quality-assurance service to Architect, through Construction Manager, with copy to Contractor. Interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from the Contract Documents.

1.9 QUALITY CONTROL

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

3. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
 4. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.
 5. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
 6. Do not perform any duties of Contractor.
- E. Associated Services: Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:
1. Access to the Work.
 2. Incidental labor and facilities necessary to facilitate tests and inspections.
 3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
 4. Facilities for storage and field curing of test samples.
 5. Preliminary design mix proposed for use for material mixes that require control by testing agency.
 6. Security and protection for samples and for testing and inspecting equipment at Project site.
- F. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and -control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.
1. Schedule times for tests, inspections, obtaining samples, and similar activities.
- G. Schedule of Tests and Inspections: Prepare a schedule of tests, inspections, and similar quality-control services required by the Contract Documents as a component of the Contractor's quality-control plan. Coordinate and submit concurrently with Contractor's construction schedule. Update as the Work progresses. .
1. Distribution: Distribute schedule to Owner, Architect, Construction Manager, testing agencies, and each party involved in performance of portions of the Work where tests and inspections are required.
- 1.10 SPECIAL TESTS AND INSPECTIONS
- A. Special Tests and Inspections: Engage a qualified testing agency to conduct special tests and inspections required by authorities having jurisdiction as the responsibility of Owner:
1. Verifying that manufacturer maintains detailed fabrication and quality-control procedures and reviewing the completeness and adequacy of those procedures to perform the Work.
 2. Notifying Architect, Construction Manager, and Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.
 3. Submitting a certified written report of each test, inspection, and similar quality-control service to Architect, through Construction Manager, with copy to Contractor and to authorities having jurisdiction.

4. Submitting a final report of special tests and inspections at Substantial Completion, which includes a list of unresolved deficiencies.
5. Interpreting tests and inspections and stating in each report whether tested and inspected work complies with or deviates from the Contract Documents.
6. Retesting and reinspecting corrected work.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

3.1 TEST AND INSPECTION LOG

- A. Prepare a record of tests and inspections. Include the following:
 1. Date test or inspection was conducted.
 2. Description of the Work tested or inspected.
 3. Date test or inspection results were transmitted to Architect.
 4. Identification of testing agency or special inspector conducting test or inspection.
- B. Maintain log at Project site. Post changes and modifications as they occur. Provide access to test and inspection log for Architect's and Construction Manager's reference during normal working hours.

3.2 REPAIR AND PROTECTION

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

END OF SECTION 014000

SECTION 014200 - REFERENCES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 DEFINITIONS

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

1.3 INDUSTRY STANDARDS

- A. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.

- B. Publication Dates: Comply with standards in effect as of date of the Contract Documents unless otherwise indicated.
- C. Copies of Standards: Each entity engaged in construction on Project should be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.
 - 1. Where copies of standards are needed to perform a required construction activity, obtain copies directly from publication source.

1.4 ABBREVIATIONS AND ACRONYMS

- A. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities indicated in Gale's "Encyclopedia of Associations" or in Columbia Books' "National Trade & Professional Associations of the United States."
- B. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list.

AA	Aluminum Association, Inc. (The)
ABAA	Air Barrier Association of America
AF&PA	American Forest & Paper Association
AGC	Associated General Contractors of America (The)
AIA	American Institute of Architects (The)
ALSC	American Lumber Standard Committee, Incorporated
ANSI	American National Standards Institute
APA	APA - The Engineered Wood Association
ARMA	Asphalt Roofing Manufacturers Association
ASTM	ASTM International (American Society for Testing and Materials International)
AWI	Architectural Woodwork Institute
AWPA	American Wood Protection Association (Formerly: American Wood Preservers' Association)
CSI	Construction Specifications Institute (The)
FM Approvals	FM Approvals LLC

FM Global	FM Global (Formerly: FMG - FM Global)
FSC	Forest Stewardship Council
GA	Gypsum Association
HPVA	Hardwood Plywood & Veneer Association
ISO	International Organization for Standardization Available from ANSI
MHIA	Material Handling Industry of America
MPI	Master Painters Institute
NAAMM	National Association of Architectural Metal Manufacturers
NAIMA	North American Insulation Manufacturers Association
NeLMA	Northeastern Lumber Manufacturers' Association
NFPA	NFPA (National Fire Protection Association)
NLGA	National Lumber Grades Authority
NRCA	National Roofing Contractors Association
PDCA	Painting & Decorating Contractors of America
SPIB	Southern Pine Inspection Bureau
SSPC	SSPC: The Society for Protective Coatings
SWRI	Sealant, Waterproofing, & Restoration Institute
UL	Underwriters Laboratories Inc.
WCLIB	West Coast Lumber Inspection Bureau
WI	Woodwork Institute (Formerly: WIC - Woodwork Institute of California)
WMMPA	Wood Moulding & Millwork Producers Association
WWPA	Western Wood Products Association

- C. Code Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list.

ICC International Code Council

UBC Uniform Building Code
(See ICC)

- D. Federal Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

CPSC Consumer Product Safety Commission

DOC Department of Commerce

DOE Department of Energy

EPA Environmental Protection Agency

NIST National Institute of Standards and Technology

OSHA Occupational Safety & Health Administration

PBS Public Buildings Service
(See GSA)

PHS Office of Public Health and Science

SD State Department

- E. Standards and Regulations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the standards and regulations in the following list. Names are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

CFR Code of Federal Regulations
Available from Government Printing Office

FED-STD Federal Standard
(See FS)

FS Federal Specification
Available from Department of Defense Single Stock Point

Available from Defense Standardization Program

Available from General Services Administration

Available from National Institute of Building Sciences

FTMS Federal Test Method Standard
(See FS)

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION 014200

SECTION 016000 - PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements governing Contractor's selection of products for use in Project where named by specific manufacturer and/or product or described by physical properties without naming manufacturer and/or product.
- B. Related Sections:
 - 1. Division 1 for, Submittal Procedures; for Contractor's Construction Schedule and Schedule of Submittals.
 - 2. Division 1 for, Product Substitutions; for procedures related to substitution requests for specified products, materials, equipment, or construction methods.
- C. Definitions:
 - 1. General:
 - a. Definitions used in this Article are not intended to change meaning of other terms used in Contract Documents, such as, specialties, systems, structure, finishes, accessories, and similar terms.
 - b. Such terms are self-explanatory and have well-recognized meanings in construction industry.
 - 2. Products:
 - a. Items purchased for incorporation in work, whether purchased for Project or taken from previously purchased stock.
 - b. The term product includes terms material, equipment, system, and terms of similar intent.
 - c. Named Products: Items identified by manufacturer's product name, including make or model designation, indicated in manufacturer's published product literature, current as of date of Contract Documents.
 - 3. Materials: Products substantially shaped, cut, worked, mixed, finished, refined, or otherwise fabricated, processed, or installed to form part of work.
 - 4. Equipment: Product with operational parts, whether motorized or manually operated, requiring service connections such as wiring or piping.

D. Deviations from Plans and Specifications:

M.G.L. c.30, '39I: Deviations from plans and specifications.

Every contractor having a contract for the construction, alteration, maintenance, repair or demolition of, or addition to, any public building or public works for the commonwealth, or of any political subdivision thereof, shall perform all the work required by such contract in conformity with the plans and specifications contained therein. No willful and substantial deviation from said plans and specifications shall be made unless authorized in writing by the awarding authority or by the engineer or architect in charge of the work who is duly authorized by the awarding authority to approve such deviations. In order to avoid delays in the prosecution of the work required by such contract such deviation from the plans or specifications may be authorized by a written order of the awarding authority or such engineer or architect so authorized to approve such deviation. Within thirty days thereafter, such written order shall be confirmed by a certificate of the awarding authority stating:

(1) if such deviation involves any substitution or elimination of materials, fixtures or equipment, the reasons why such materials, fixtures or equipment were included in the first instance and the reasons for substitution or elimination, and, if the deviation is of any other nature, the reasons for such deviation, giving justification therefor;

(2) that the specified deviation does not materially injure the project as a whole;

(3) that either the work substituted for the work specified is of the same cost and quality, or that an equitable adjustment has been agreed upon between the contracting agency and the contractor and the amount in dollars of said adjustment; and

(4) that the deviation is in the best interest of the contracting authority.

Such certificate shall be signed under the penalties of perjury and shall be a permanent part of the file record of the work contracted for.

Whoever violates any provision of this section willfully and with intent to defraud shall be punished by a fine of not more than five thousand dollars or by imprisonment for not more than six months, or both.

1.3 SUBMITTALS

A. Product List Schedule:

1. Prepare Schedule showing products specified in tabular form acceptable to Architect.
2. Include generic names of products required.
3. Include manufacturer's name and proprietary product names for each item listed.
4. Coordinate Product List Schedule with Contractor's Construction Schedule and Schedule of Submittals.
5. Form: Prepare Product Listing Schedule with information on each item tabulated under following column headings.
 - a. Related Specification Section number.
 - b. Generic name as used in Contract Documents.
 - c. Proprietary name, model number, and similar designations.
 - d. Manufacturer's name and address.

- e. Supplier's name and address.
- f. Installer's name and address.
- g. Projected delivery date, or time span of delivery period.

B. Submittal:

- 1. Within 30 days after date of commencement of work, submit 3 copies of initial Product List Schedule.
- 2. Provide written explanation for omissions of data, and for known variations from Contract requirements.
- 3. At Contractor's option, initial submittal may be limited to product selections and designations that must be established early in Contract period.

C. Completed Schedule:

- 1. Within 60 days after commencement of work, submit 3 copies of completed Product List Schedule.
- 2. Provide written explanation for omissions of data and for known variations from Contract requirements.

D. Architect's Action:

- 1. Architect will respond to Contractor in writing within 2 weeks of receipt of completed Product List Schedule.
- 2. No response within this time constitutes no objection to listed products or manufacturers, but does not constitute waiver of requirement that products comply with Contract Documents.
- 3. Architect's response will include following: List of unacceptable product selections, containing brief explanation of reasons for this action.

1.4 QUALITY ASSURANCE

A. Source Limitations:

- 1. To fullest extent possible, provide products of same kind, from single source.
- 2. When specified products are available only from sources that do not or cannot produce quantity adequate to complete Project requirements in timely manner, consult with Architect for determination of most important product qualities before proceeding.
- 3. Qualities may include attributes relating to visual appearance, strength, structural, durability, or compatibility.
- 4. When determination has been made, select products from sources that produce products possessing these qualities, to fullest extent possible.

B. Compatibility of Options:

- 1. When Contractor is given option of selecting between two or more products for use on Project, product selected shall be compatible with products previously selected, even if previously selected products were also options.
- 2. Each prime Contractor is responsible for providing products and construction methods

- compatible with products and construction methods of other prime or separate Contractors.
 - 3. If dispute arises between prime Contractors over concurrently selectable, but incompatible products, Architect will determine which products shall be retained and which are incompatible and must be replaced.
- C. Nameplates:
- 1. Except for required labels and operating data, do not attach or imprint manufacturers or producer's nameplates or trademarks on exposed surfaces of products that will be exposed to view in occupied spaces or on exterior.
 - 2. Labels: Locate required product labels and stamps on concealed surface or, where required for observation after installation, on accessible surface that is not conspicuous.
 - 3. Equipment Nameplates:
 - a. Provide permanent nameplate on each item of service-connected or power-operated equipment.
 - b. Locate on easily accessible surface that is inconspicuous in occupied spaces.
 - c. Nameplate shall contain following information and other essential operating data: Name of Product or Manufacturer, Model and Serial Number, Capacity, Speed, Ratings.

1.5 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle products in accordance with manufacturer's recommendations, using means and methods to prevent damage, deterioration and loss, including theft.
- B. Delivery:
- 1. Schedule delivery to minimize long-term storage at site and to prevent overcrowding of construction spaces.
 - 2. Coordinate delivery and installation to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
 - 3. Deliver products to site in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
 - 4. Inspect products on delivery to ensure compliance with Contract Documents, and to ensure products are undamaged and properly protected.
- C. Storage:
- 1. Store products at site to facilitate inspection and measurement of quantity or counting of units.
 - 2. Store heavy materials away from Project structure in manner that will not endanger supporting construction.
 - 3. Store products subject to damage by elements above ground, under cover in weathertight enclosure, with ventilation adequate to prevent condensation.
 - 4. Maintain temperature and humidity within range required by manufacturer's instructions.

PART 2 - PRODUCTS

2.1 PRODUCT SELECTION

A. General Product Requirements:

1. Provide undamaged products complying with Contract Documents and, unless otherwise indicated, unused at time of installation.
2. Provide products complete with all accessories, trim, finish, safety guards, and other devices and details needed for complete installation and for intended use and effect.
3. Standard Products: Where available, provide standard products of types that have been produced and used successfully in similar situations on other projects.

B. Product Selection Procedures:

1. Product selection is governed by Contract Documents and governing regulations, not by previous Project experience.
2. Semi-Proprietary Specification Requirements:
 - a. Where three or more products or manufacturers are named, provide one of indicated products.
 - b. Where products or manufacturers are specified by name, it is inferred terms "or equal," or "or approved equal," are included in compliance with M.G.L. Chapter 30, '39M; comply with SECTION 016310 concerning "substitutions" for "or equal," or "or approved equal," to obtain approval for use of unnamed product; substitutions will be processed as Change Order Requests.
3. Performance Specification Requirements:
 - a. Where Specifications require compliance with performance requirements, provide products complying with these requirements, and are recommended by manufacturer for application indicated.
 - b. General overall performance of product is implied where product is specified for specific application.
 - c. Manufacturer's recommendations may be contained in published product literature, or by manufacturer's certification of performance.
4. Compliance with Standards, Codes and Regulations: Where Specifications only require compliance with imposed code, standard, or regulation, select product complying with standards, codes, or regulations specified.
5. Visual Matching:
 - a. Where Specifications require matching established sample, Architect's decision will be final on whether proposed product matches satisfactorily.
 - b. Where no product available within specified category matches satisfactorily and also complies with other specified requirements, comply with provisions of Contract Documents concerning "substitutions" for selection of matching product

in another product category, or for noncompliance with specified requirements.

6. Visual Selection:

- a. Where specified product requirements include phrase " . . . as selected from manufacturer's standard colors, patterns, textures . . . " or similar phrase, select product and manufacturer complying with other specified requirements.
- b. Architect will select color, pattern, and texture from product line selected.

PART 3 - EXECUTION

3.1 INSTALLATION OF PRODUCTS

- A. Comply with manufacturer's instructions and recommendations for installation of products in applications indicated.
- B. Anchor each product securely in space, accurately located, and aligned with other work.
- C. Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

END OF SECTION 016000

SECTION 017300 - EXECUTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes general administrative and procedural requirements governing execution of the Work including, but not limited to, the following:
 - 1. Construction layout.
 - 2. Installation of the Work.
 - 3. Cutting and patching.
 - 4. Progress cleaning.
 - 5. Starting and adjusting.
 - 6. Protection of installed construction.
 - 7. Correction of the Work.
- B. Related Sections:
 - 1. Division 1 Section "Closeout Procedures" for submitting final property survey with Project Record Documents, recording of Owner-accepted deviations from indicated lines and levels, and final cleaning.

1.3 QUALITY ASSURANCE

- A. Cutting and Patching: Comply with requirements for and limitations on cutting and patching of construction elements.
 - 1. Structural Elements: When cutting and patching structural elements, notify Architect of locations and details of cutting and await directions from the Architect before proceeding. Shore, brace, and support structural element during cutting and patching. Do not cut and patch structural elements in a manner that could change their load-carrying capacity or increase deflection
 - 2. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety.
 - 3. Other Construction Elements: Do not cut and patch other construction elements or components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety.
 - 4. Visual Elements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch exposed construction in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.

1.4 WARRANTY

- A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during installation or cutting and patching operations, by methods and with materials so as not to void existing warranties.

PART 2 - PRODUCTS

2.1 MATERIALS

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

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examination and Acceptance of Conditions: Before proceeding with each component of the Work, examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.
 - 1. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
 - 2. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
 - 3. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
 - 4. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.2 PREPARATION

- A. Existing Utility Information: Furnish information to local utility that is necessary to adjust, move, or relocate existing utility lines, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.
- B. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

- C. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.
- D. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents caused by differing field conditions outside the control of the Contractor, submit a request for information to Architect according to requirements in Division 01 Section "Project Management and Coordination."

3.3 CONSTRUCTION LAYOUT

- A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings. If discrepancies are discovered, notify Architect promptly.

3.4 INSTALLATION

- A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
 - 1. Make vertical work plumb and make horizontal work level.
 - 2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
 - 3. Conceal pipes, ducts, and wiring in finished areas, unless otherwise indicated.
- B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.
- C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.
- D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.
- E. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.
- F. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.
- G. Attachment: Provide blocking and attachment plates and anchors and fasteners of adequate size and number to securely anchor each component in place, accurately located and aligned with other portions of the Work. Where size and type of attachments are not indicated, verify size and type required for load conditions.
 - 1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
 - 2. Allow for building movement, including thermal expansion and contraction.
 - 3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

- H. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.
- I. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

3.5 CUTTING AND PATCHING

- A. Cutting and Patching, General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.
 - 1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.
- B. Temporary Support: Provide temporary support of work to be cut.
- C. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.
- D. Adjacent Occupied Areas: Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.
- E. Existing Utility Services and Mechanical/Electrical Systems: Where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting to minimize interruption to occupied areas.
- F. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.
 - 1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots neatly to minimum size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
 - 2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
 - 3. Concrete: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
 - 4. Excavating and Backfilling: Comply with requirements in applicable Division 31 Sections where required by cutting and patching operations.
 - 5. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
 - 6. Proceed with patching after construction operations requiring cutting are complete.
- G. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other work. Patch with durable seams that are as invisible as practicable. Provide materials and comply with installation requirements specified in other Sections, where applicable.

1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate physical integrity of installation.
2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will minimize evidence of patching and refinishing.
3. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and appearance. Remove in-place floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.
4. Ceilings: Patch, repair, or rehang in-place ceilings as necessary to provide an even-plane surface of uniform appearance.
5. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition.

H. Cleaning: Clean areas and spaces where cutting and patching are performed. Remove paint, mortar, oils, putty, and similar materials from adjacent finished surfaces.

3.6 PROGRESS CLEANING

A. General: Clean Project site and work areas daily, including common areas. Enforce requirements strictly. Dispose of materials lawfully.

1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
2. Do not hold waste materials more than seven days during normal weather or three days if the temperature is expected to rise above 80 deg F (27 deg C).
3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.

B. Site: Maintain Project site free of waste materials and debris.

C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.

1. Remove liquid spills promptly.
2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.

D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.

E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.

F. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

G. Waste Disposal: Do not bury or burn waste materials on-site. Do not wash waste materials down sewers or into waterways.

- H. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.
- I. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.
- J. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

3.7 STARTING AND ADJUSTING

- A. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.
- B. Adjust equipment for proper operation. Adjust operating components for proper operation without binding.
- C. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
- D. Manufacturer's Field Service: Comply with qualification requirements in Division 01 Section "Quality Requirements."

3.8 PROTECTION OF INSTALLED CONSTRUCTION

- A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.
- B. Comply with manufacturer's written instructions for temperature and relative humidity.

3.9 CORRECTION OF THE WORK

- A. Repair or remove and replace defective construction. Restore damaged substrates and finishes.
 - 1. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment.
- B. Restore permanent facilities used during construction to their specified condition.
- C. Remove and replace damaged surfaces that are exposed to view if surfaces cannot be repaired without visible evidence of repair.
- D. Repair components that do not operate properly. Remove and replace operating components that cannot be repaired.
- E. Remove and replace chipped, scratched, and broken glass or reflective surfaces.

END OF SECTION 017300

SECTION 017700 - CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements for Project Closeout including, but not limited to:
 - 1. Inspection procedures.
 - 2. Project Record Document submittal.
 - 3. Operating and Maintenance Manual submittal.
 - 4. Submittal of Warranties.
 - 5. Final cleaning.
- B. Closeout requirements for specific construction activities are included in appropriate Sections in Divisions 2 through 16.

1.3 SUBSTANTIAL COMPLETION

- A. Preliminary Procedures: Before requesting inspection for certification of Substantial Completion, complete following.
 - 1. List exceptions in request.
 - 2. In Application for Payment that coincides with, or first follows, date Substantial Completion is claimed, show 100 percent Completion for portion of work claimed as Substantially Complete.
 - 3. Include supporting documentation for Completion as indicated in these Contract Documents and statement showing accounting of changes to Contract Sum.
 - 4. If 100 percent Completion cannot be shown, include list of incomplete items, value of incomplete construction, and reasons work is not complete.
 - 5. Advise Owner of pending insurance change-over requirements.
 - 6. Submit specific warranties, workmanship bonds, release of liens from material suppliers or subcontractors as work progresses, maintenance agreements, final certifications, and similar documents.
 - 7. Obtain and submit releases enabling Owner unrestricted use of work and access to services and utilities; include occupancy permits, operating certificates, and similar releases.
 - 8. Submit Record Drawings, Maintenance Manuals, Damage or Settlement Survey, Property Survey, and similar final Record information.
 - 9. Deliver tools, spare parts, extra stock, and similar items.
 - 10. Make final change-over of permanent locks and transmit keys to Owner.
 - 11. Advise Owner's personnel of change-over in security provisions.
 - 12. Complete start-up testing of systems, and instruction of Owner's operating and

- maintenance personnel.
- 13. Discontinue or change-over and remove temporary facilities from site, along with construction tools, mockups, and similar elements.
- 14. Complete final clean up requirements, including touch-up painting.
- 15. Touch-up and otherwise repair and restore marred exposed finishes.

B. Inspection Procedures:

- 1. On receipt of request for inspection, Architect will either proceed with inspection or advise Contractor of unfulfilled requirements.
- 2. The Architect will prepare Certificate of Substantial Completion following inspection, or advise Contractor of construction that must be completed or corrected before Certificate will be issued.
- 3. The Architect will repeat inspection when requested and assured that work has been Substantially Completed.
- 4. Results of completed inspection will form basis of requirements for Final Acceptance.

1.4 FINAL ACCEPTANCE

A. Preliminary Procedures: Before requesting final inspection for certification of Final Acceptance and Final Payment, complete following.

- 1. List exceptions in request.
- 2. Submit Final Payment Request with final releases, including all releases of liens from material suppliers and subcontractors for all placed work, and supporting documentation not previously submitted and accepted.
- 3. Include certificates of insurance for products and completed operations where required.
- 4. Submit updated final statement, accounting for final additional changes to Contract Sum.
- 5. Submit certified copy of Architect's final inspection list of items to be completed or corrected, stating that each item has been completed or otherwise resolved for Acceptance and list has been endorsed and dated by Architect.
- 6. Submit final meter readings for utilities, measured record of stored fuel, and similar data as of date of Substantial Completion, or when Owner took possession of and responsibility for corresponding elements of work.
- 7. Submit consent of surety to Final Payment.
- 8. Submit final Liquidated Damages Settlement Statement.
- 9. Submit evidence of final, continuing insurance coverage complying with insurance requirements.

B. Reinspection Procedure:

- 1. The Architect will reinspect work on receipt of notice that work, including inspection list items from earlier inspections, has been completed, except items whose completion has been delayed because of circumstances acceptable to Architect.
- 2. On completion of reinspection, Architect will prepare Certificate of Final Acceptance, or advise Contractor of work that is incomplete or of obligations that have not been fulfilled but are required for Final Acceptance.
- 3. If necessary, reinspection will be repeated.

1.5 RECORD DOCUMENT SUBMITTALS

A. General:

1. Do not use Record Documents for construction purposes; protect from deterioration and loss in secure, fire-resistive location.
2. Provide access to Record Documents for Architect's reference during normal working hours.

B. Record Drawings:

1. Maintain clean, undamaged set of blue or black line white-prints of Contract Drawings and Shop Drawings.
2. Mark set to show actual installation where installation varies substantially from work as originally shown.
3. Mark whichever drawing is most capable of showing conditions fully and accurately.
4. Where shop drawings are used, record cross-reference at corresponding location on Contract Drawings.
5. Give particular attention to concealed elements that would be difficult to measure and record at later date.
6. Mark Record Sets with red erasable pencil; use other colors to distinguish between variations in separate categories of work.
7. Mark new information that is important to Owner, but was not shown on Contract Drawings or Shop Drawings.
8. Note related Change Order numbers where applicable.
9. Organize Record Drawing Sheets into manageable sets, bind with durable paper cover sheets, and print suitable titles, dates, and other identification on cover of each set.

C. Record Specifications:

1. Maintain one complete copy of Project Manual, including addenda, and one copy of other written Construction Documents such as Change Orders and modifications issued in printed form during construction.
2. Mark these documents to show substantial variations in actual work performed in comparison with text of Specifications and modifications.
3. Give particular attention to substitutions, selection of options, and similar information on elements that are concealed or cannot otherwise be readily discerned later by direct observation.
4. Note related Record Drawing information and Product Data.
5. On completion of work, submit Record Specifications to Architect for Owner's records.

D. Record Product Data:

1. Maintain one copy of each product data submittal.
2. Mark these documents to show significant variations in actual work performed in comparison with information submitted.
3. Include variations in products delivered to site and from manufacturer's installation instructions and recommendations.
4. Give particular attention to concealed products and portions of work that cannot otherwise

- be readily discerned later by direct observation.
 - 5. Note related Change Orders and mark-up of Record Drawings and Specifications.
 - 6. On completion of mark-up, submit complete set of Record Product Data to Architect for Owner's records.
- E. Record Sample Submittal:
- 1. Immediately before date or dates of Substantial Completion, Contractor will meet at site with Architect and Owner's personnel to determine which of submitted Samples that have been maintained during progress of work, are to be transmitted to Owner for record purposes.
 - 2. Comply with delivery to Owner's sample storage area.
- F. Miscellaneous Record Submittals:
- 1. Refer to other Specification Sections for requirements of miscellaneous record-keeping and submittals in connection with actual performance of work.
 - 2. Immediately before date or dates of Substantial Completion, complete miscellaneous records and place in good order, properly identified and bound or filed, ready for continued use and reference.
 - 3. Submit to Architect for Owner's records.
- G. Maintenance Manuals:
- 1. Organize operating and maintenance data into suitable sets of manageable size.
 - 2. Bind properly indexed data in individual heavy-duty 2 in., 3-ring vinyl-covered binders, with pocket folders for folded sheet information.
 - 3. Mark appropriate identification on front and spine of each binder.
 - 4. Include following type of information:
 - a. Emergency instructions.
 - b. Spare parts list.
 - c. Copies of warranties.
 - d. Recommended turn-around cycles.
 - e. Inspection procedures.
 - f. Shop drawings and product data.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

3.1 FINAL CLEANING

- A. General: General Cleaning during construction is required by General Conditions and is included in Section 015000.

B. Cleaning:

1. Clean each surface or unit to condition expected in normal, commercial building cleaning and maintenance program.
2. Comply with manufacturer's instructions.
3. Complete following cleaning operations before requesting inspection for Certificate of Substantial Completion.
 - a. Remove labels that are not permanent labels.
 - b. Clean exposed exterior hard-surfaced finishes to dust-free condition, free of stains, films, and similar foreign substances.
 - c. Wipe surfaces of mechanical and electrical equipment.
 - d. Clean site, including landscape development areas, of rubbish, litter, and other foreign substances.
 - e. Sweep paved areas broom clean; remove stains, spills, and other foreign deposits.
 - f. Rake grounds that are neither paved nor planted, to smooth even-textured surface.

C. Removal of Protection: Remove temporary protection and facilities installed for protection of work during construction.

D. Compliance:

1. Comply with regulations of authorities having jurisdiction and safety standards for cleaning.
2. Do not burn waste materials.
3. Do not bury debris or excess materials on Owner's property.
4. Do not discharge volatile, harmful, or dangerous materials into drainage systems.
5. Remove waste materials from site and dispose of in lawful manner.
6. Where extra materials of value remaining after completion of associated work have become Owner's property, arrange for disposition of these materials as directed.

END OF SECTION 017700

SECTION 017820 - OPERATION AND MAINTENANCE DATA

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for preparing maintenance manuals, including the following:
 - 1. Maintenance documentation directory.
 - 2. Emergency manuals.
 - 3. Product maintenance manuals.
 - 4. Systems and equipment maintenance manuals.
- B. Related Sections:
 - 1. Divisions 2 through 32 Sections for specific operation and maintenance manual requirements for the Work in those Sections.

1.3 CLOSEOUT SUBMITTALS

- A. Format: Submit operations and maintenance manuals in the following format:
 - 1. PDF electronic file. Assemble each manual into a composite electronically-indexed file. Submit on digital media acceptable to Architect.
 - a. Name each indexed document file in composite electronic index with applicable item name. Include a complete electronically-linked operation and maintenance directory.
 - b. Enable inserted reviewer comments on draft submittals.
 - 2. Three paper copies. Include a complete operation and maintenance directory. Enclose title pages and directories in clear plastic sleeves. Architect, through Construction Manager, will return two copies.
- B. Manual Submittal: Submit each manual in final form prior to requesting inspection for Substantial Completion and at least 15 days before commencing demonstration and training. Architect will return copy with comments.
 - 1. Correct or modify each manual to comply with Architect's comments. Submit copies of each corrected manual within 15 days of receipt of Architect's comments and prior to commencing demonstration and training.

PART 2 - PRODUCTS

2.1 REQUIREMENTS FOR EMERGENCY MAINTENANCE MANUALS

- A. Organization: Unless otherwise indicated, organize each manual into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system. Each manual shall contain the following materials, in the order listed:
 - 1. Title page.
 - 2. Table of contents.
 - 3. Manual contents.
- B. Title Page: Include the following information:
 - 1. Subject matter included in manual.
 - 2. Name and address of Project.
 - 3. Name and address of Owner.
 - 4. Date of submittal.
 - 5. Name and contact information for Contractor.
 - 6. Name and contact information for Architect.
 - 7. Names and contact information for major consultants to the Architect that designed the systems contained in the manuals.
 - 8. Cross-reference to related systems in other operation and maintenance manuals.
- C. Table of Contents: List each product included in manual, identified by product name, indexed to the content of the volume, and cross-referenced to Specification Section number in Project Manual.
- D. Manual Contents: Organize into sets of manageable size. Arrange contents alphabetically by system, subsystem, and equipment. If possible, assemble instructions for subsystems, equipment, and components of one system into a single binder.
- E. Manuals, Electronic Files: Submit manuals in the form of a multiple file composite electronic PDF file for each manual type required.
 - 1. Electronic Files: Use electronic files prepared by manufacturer where available. Where scanning of paper documents is required, configure scanned file for minimum readable file size.
 - 2. File Names and Bookmarks: Enable bookmarking of individual documents based upon file names. Name document files to correspond to system, subsystem, and equipment names used in manual directory and table of contents. Group documents for each system and subsystem into individual composite bookmarked files, then create composite manual, so that resulting bookmarks reflect the system, subsystem, and equipment names in a readily navigated file tree. Configure electronic manual to display bookmark panel upon opening file.
- F. Manuals, Paper Copy: Submit manuals in the form of hard copy, bound and labeled volumes.
 - 1. Binders: Heavy-duty, three-ring, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents, sized to hold 8-1/2-by-11-inch paper; with clear

plastic sleeve on spine to hold label describing contents and with pockets inside covers to hold folded oversize sheets.

- a. Identify each binder on front and spine, with printed title "MAINTENANCE MANUAL," Project title or name, and subject matter of contents, and indicate Specification Section number on bottom of spine. Indicate volume number for multiple-volume sets.
2. Dividers: Heavy-paper dividers with plastic-covered tabs for each section of the manual. Mark each tab to indicate contents. Include typed list of products and major components of equipment included in the section on each divider, cross-referenced to Specification Section number and title of Project Manual.
3. Protective Plastic Sleeves: Transparent plastic sleeves designed to enclose diagnostic software storage media for computerized electronic equipment.
4. Drawings: Attach reinforced, punched binder tabs on drawings and bind with text.
 - a. If oversize drawings are necessary, fold drawings to same size as text pages and use as foldouts.
 - b. If drawings are too large to be used as foldouts, fold and place drawings in labeled envelopes and bind envelopes in rear of manual. At appropriate locations in manual, insert typewritten pages indicating drawing titles, descriptions of contents, and drawing locations.

2.2 PRODUCT MAINTENANCE MANUALS

- A. Content: Organize manual into a separate section for each product, material, and finish. Include source information, product information, maintenance procedures, repair materials and sources, and warranties and bonds, as described below.
- B. Source Information: List each product included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual.
- C. Product Information: Include the following, as applicable:
 1. Product name and model number.
 2. Manufacturer's name.
 3. Color, pattern, and texture.
 4. Material and chemical composition.
 5. Reordering information for specially manufactured products.
- D. Maintenance Procedures: Include manufacturer's written recommendations and the following:
 1. Inspection procedures.
 2. Types of cleaning agents to be used and methods of cleaning.
 3. List of cleaning agents and methods of cleaning detrimental to product.
 4. Schedule for routine cleaning and maintenance.
 5. Repair instructions.

- E. Repair Materials and Sources: Include lists of materials and local sources of materials and related services.
- F. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.

2.3 SYSTEMS AND EQUIPMENT MAINTENANCE MANUALS

- A. Content: For each system, subsystem, and piece of equipment not part of a system, include source information, manufacturers' maintenance documentation, maintenance procedures, maintenance and service schedules, spare parts list and source information, maintenance service contracts, and warranty and bond information, as described below.
- B. Source Information: List each system, subsystem, and piece of equipment included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual.
- C. Manufacturers' Maintenance Documentation: Manufacturers' maintenance documentation including the following information for each component part or piece of equipment:
 - 1. Standard maintenance instructions and bulletins.
 - 2. Drawings, diagrams, and instructions required for maintenance, including disassembly and component removal, replacement, and assembly.
 - 3. Identification and nomenclature of parts and components.
 - 4. List of items recommended to be stocked as spare parts.
- D. Maintenance Procedures: Include the following information and items that detail essential maintenance procedures:
 - 1. Test and inspection instructions.
 - 2. Troubleshooting guide.
 - 3. Precautions against improper maintenance.
 - 4. Disassembly; component removal, repair, and replacement; and reassembly instructions.
 - 5. Aligning, adjusting, and checking instructions.
 - 6. Demonstration and training video recording, if available.
- E. Maintenance and Service Schedules: Include service and lubrication requirements, list of required lubricants for equipment, and separate schedules for preventive and routine maintenance and service with standard time allotment.
- F. Spare Parts List and Source Information: Include lists of replacement and repair parts, with parts identified and cross-referenced to manufacturers' maintenance documentation and local sources of maintenance materials and related services.
- G. Maintenance Service Contracts: Include copies of maintenance agreements with name and telephone number of service agent.
- H. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.

PART 3 - EXECUTION

3.1 MANUAL PREPARATION

- A. Product Maintenance Manual: Assemble a complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into the Work.
- B. Manufacturers' Data: Where manuals contain manufacturers' standard printed data, include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data include more than one item in a tabular format, identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable.
- C. Drawings: Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems and to illustrate control sequence and flow diagrams. Coordinate these drawings with information contained in record Drawings to ensure correct illustration of completed installation.
 - 1. Do not use original project record documents as part of operation and maintenance manuals.
- D. Comply with Division 01 Section "Closeout Procedures" for schedule for submitting operation and maintenance documentation.

END OF SECTION 017820

SECTION 017830 - PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for project record documents, including the following:
 - 1. Record Drawings.
 - 2. Record Specifications.
 - 3. Record Product Data.
- B. Related Sections:
 - 1. Division 1 Section "Operation and Maintenance Data" for operation and maintenance manual requirements.
 - 2. Divisions 2 through 32 Sections for specific requirements for project record documents of the Work in those Sections.

1.3 CLOSEOUT SUBMITTALS

- A. Record Drawings: Comply with the following:
 - 1. Number of Copies: Submit copies of record Drawings as follows:
 - a. Initial Submittal: Submit one paper copy set of marked-up record prints and one set(s) of plots from corrected record digital data files. Architect will indicate whether general scope of changes, additional information recorded, and quality of drafting are acceptable.
 - b. Final Submittal: Submit one paper copy set of marked-up record prints, one set(s) of record digital data files, and three set(s) of record digital data file plots. Plot each drawing file, whether or not changes and additional information were recorded.
- B. Record Specifications: Submit one paper copy of Project's Specifications, including addenda and contract modifications.
- C. Record Product Data: Submit one paper copy of each submittal.

PART 2 - PRODUCTS

2.1 RECORD DRAWINGS

- A. Record Prints: Maintain one set of marked-up paper copies of the Contract Drawings and Shop Drawings.
 - 1. Preparation: Mark record prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to provide information for preparation of corresponding marked-up record prints.
 - a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
 - b. Record data as soon as possible after obtaining it.
 - c. Record and check the markup before enclosing concealed installations.
 - 2. Mark the Contract Drawings and Shop Drawings completely and accurately. Utilize personnel proficient at recording graphic information in production of marked-up record prints.
 - 3. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.
 - 4. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.
- B. Format: Identify and date each record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.
 - 1. Record Prints: Organize record prints and newly prepared record Drawings into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.
 - 2. Identification: As follows:
 - a. Project name.
 - b. Date.
 - c. Designation "PROJECT RECORD DRAWINGS."
 - d. Name of Architect.
 - e. Name of Contractor.
- C. Record CAD Drawings: Immediately before inspection for Certificate of Substantial Completion, review marked-up Record Prints with Engineer. When authorized, prepare a full set of corrected CAD Drawings of the Contract Drawings, as follows:
 - 1. Format: Same CAD program, version, and operating system as the original Contract Drawings.
 - 2. Incorporate changes and additional information previously marked on Record Prints. Delete, redraw, and add details and notations where applicable.
 - 3. Refer instances of uncertainty to Engineer for resolution.
 - 4. Engineer will furnish Contractor one set of CAD Drawings of the Contract Drawings for use in recording information.

- a. Architect makes no representations as to the accuracy or completeness of CAD Drawings as they relate to the Contract Drawings.

2.2 RECORD SPECIFICATIONS

- A. Preparation: Mark Specifications to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.
 - 1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
 - 2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
 - 3. Record the name of manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.
 - 4. Note related Change Orders, record Product Data, and record Drawings where applicable.
- B. Format: Submit record Specifications as paper copy.

2.3 RECORD PRODUCT DATA

- A. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.
 - 1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
 - 2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
 - 3. Note related Change Orders, record Specifications, and record Drawings where applicable.
- B. Format: Submit record Product Data as paper copy.

2.4 MISCELLANEOUS RECORD SUBMITTALS

- A. Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.
- B. Format: Submit miscellaneous record submittals as paper copy.

PART 3 - EXECUTION

3.1 RECORDING AND MAINTENANCE

- A. Recording: Maintain one copy of each submittal during the construction period for project record document purposes. Post changes and modifications to project record documents as they occur; do not wait until the end of Project.

- B. Maintenance of Record Documents and Samples: Store record documents and Samples in the field office apart from the Contract Documents used for construction. Do not use project record documents for construction purposes. Maintain record documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to project record documents for Architect's reference during normal working hours.

END OF SECTION 017830

SECTION 03300 - CAST-IN-PLACE CONCRETE

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes cast-in-place concrete, including formwork, reinforcement, concrete materials, mixture design, placement procedures, and finishes, for the following:

1.3 DEFINITIONS

- A. Cementitious Materials: Portland cement alone or in combination with one or more of the following: blended hydraulic cement, fly ash and other pozzolans, ground granulated blast-furnace slag, and silica fume; subject to compliance with requirements.

1.4 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Design Mixtures: For each concrete mixture. Submit alternate design mixtures when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.
 - 1. Indicate amounts of mixing water to be withheld for later addition at Project site.
- C. Steel Reinforcement Shop Drawings: Placing drawings that detail fabrication, bending, and placement. Include bar sizes, lengths, material, grade, bar schedules, stirrup spacing, bent bar diagrams, bar arrangement, splices and laps, mechanical connections, tie spacing, hoop spacing, and supports for concrete reinforcement.
- D. Construction Joint Layout: Indicate proposed construction joints required to construct the structure.
 - 1. Location of construction joints is subject to approval of the Engineer.
- E. Qualification Data: For Installer, manufacturer, testing agency.
- F. Welding certificates.
- G. Material Certificates: For each of the following, signed by manufacturers:
 - 1. Cementitious materials.
 - 2. Admixtures.

3. Form materials and form-release agents.
4. Steel reinforcement and accessories.
5. Curing compounds.
6. Floor and slab treatments.
7. Bonding agents.
8. Semirigid joint filler.
9. Joint-filler strips.
10. Repair materials.

H. Material Test Reports: For the following, from a qualified testing agency, indicating compliance with requirements:

1. Aggregates.

I. Floor surface flatness and levelness measurements indicating compliance with specified tolerances.

J. Field quality-control reports.

K. Minutes of preinstallation conference.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: A qualified installer who employs on Project personnel qualified as ACI-certified Flatwork Technician and Finisher and a supervisor who is an ACI-certified Concrete Flatwork Technician.

B. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94/C 94M requirements for production facilities and equipment.

1. Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities."

C. Testing Agency Qualifications: An independent agency, acceptable to the Owner and the Engineer, qualified according to ASTM C 1077 and ASTM E 329 for testing indicated.

1. Personnel conducting field tests shall be qualified as ACI Concrete Field Testing Technician, Grade 1, according to ACI CP-1 or an equivalent certification program.
2. Personnel performing laboratory tests shall be ACI-certified Concrete Strength Testing Technician and Concrete Laboratory Testing Technician - Grade I. Testing Agency laboratory supervisor shall be an ACI-certified Concrete Laboratory Testing Technician - Grade II.

D. Source Limitations: Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant, obtain aggregate from single source, and obtain admixtures from single source from single manufacturer.

- E. Welding Qualifications: Qualify procedures and personnel according to AWS D1.4/D 1.4M, "Structural Welding Code - Reinforcing Steel."
- F. ACI Publications: Comply with the following unless modified by requirements in the Contract Documents:
 - 1. ACI 301, "Specifications for Structural Concrete," Sections 1 through 5.
 - 2. ACI 117, "Specification for Tolerances for Concrete Construction and Materials."
- G. Concrete Testing Service: Engage a qualified independent testing agency to perform material evaluation tests and to design concrete mixtures.
- H. Preinstallation Conference: Conduct conference at Project site.
 - 1. Before submitting design mixtures, review concrete design mixture and examine procedures for ensuring quality of concrete materials. Require representatives of each entity directly concerned with cast-in-place concrete to attend, including the following:
 - a. Contractor's superintendent.
 - b. Independent testing agency responsible for concrete design mixtures.
 - c. Ready-mix concrete manufacturer.
 - d. Concrete subcontractor.
 - e. Special concrete finish subcontractor.
 - 2. Review special inspection and testing and inspecting agency procedures for field quality control, concrete finishes and finishing, cold- and hot-weather concreting procedures, curing procedures, forms and form removal limitations, shoring and reshoring procedures, vapor-retarder installation, anchor rod and anchorage device installation tolerances, steel reinforcement installation, floor and slab flatness and levelness measurement, concrete repair procedures, and concrete protection.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Steel Reinforcement: Deliver, store, and handle steel reinforcement to prevent bending and damage.

PART 2 - PRODUCTS

2.1 FORM-FACING MATERIALS

- A. Smooth-Formed Finished Concrete: Form-facing panels that will provide continuous, true, and smooth concrete surfaces. Furnish in largest practicable sizes to minimize number of joints.
 - 1. Plywood, metal, or other approved panel materials.
 - 2. Exterior-grade plywood panels, suitable for concrete forms, complying with DOC PS 1, and as follows:
 - a. High-density overlay, Class 1 or better.

- b. Medium-density overlay, Class 1 or better; mill-release agent treated and edge sealed.
 - c. Structural 1, B-B or better; mill oiled and edge sealed.
 - d. B-B (Concrete Form), Class 1 or better; mill oiled and edge sealed.
- B. Rough-Formed Finished Concrete: Plywood, lumber, metal, or another approved material. Provide lumber dressed on at least two edges and one side for tight fit.
- C. Chamfer Strips: Wood, metal, PVC, or rubber strips, 3/4 by 3/4 inch, minimum.
- D. Form-Release Agent: Commercially formulated form-release agent that will not bond with, stain, or adversely affect concrete surfaces and will not impair subsequent treatments of concrete surfaces.
 - 1. Formulate form-release agent with rust inhibitor for steel form-facing materials.
- E. Form Ties: Factory-fabricated, removable or snap-off metal or glass-fiber-reinforced plastic form ties designed to resist lateral pressure of fresh concrete on forms and to prevent spalling of concrete on removal.
 - 1. Furnish units that will leave no corrodible metal closer than 1 inch to the plane of exposed concrete surface.

2.2 STEEL REINFORCEMENT

- A. Reinforcing Bars: ASTM A 615/A 615M, Grade 60, deformed.
- B. Low-Alloy-Steel Reinforcing Bars: ASTM A 706/A 706M, deformed, for welded rebar.
- C. Plain-Steel Welded Wire Reinforcement: ASTM A 185/A 185M, plain, fabricated from as-drawn steel wire into flat sheets.

2.3 REINFORCEMENT ACCESSORIES

- A. Joint Dowel Bars: ASTM A 615/A 615M, Grade 60, plain-steel bars, cut true to length with ends square and free of burrs.
- B. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire reinforcement in place. Manufacture bar supports from steel wire, plastic, or precast concrete according to CRSI's "Manual of Standard Practice," of greater compressive strength than concrete and as follows:
 - 1. For concrete surfaces exposed to view where legs of wire bar supports contact forms, use CRSI Class 1 plastic-protected steel wire or CRSI Class 2 stainless-steel bar supports.

2.4 CONCRETE MATERIALS

- A. Cementitious Material: Use the following cementitious materials, of the same type, brand, and source, throughout Project:
 - 1. Portland Cement: ASTM C 150, Type I/II, gray:
- B. Normal-Weight Aggregates: ASTM C 33, Class 3S coarse aggregate or better, graded. Provide aggregates from a single source.
 - 1. Maximum Coarse-Aggregate Size: 1-1/2 inches nominal.
 - 2. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.
- C. Water: ASTM C 94/C 94M and potable.

2.5 ADMIXTURES

- A. Air-Entraining Admixture: ASTM C 260.
- B. Chemical Admixtures: Provide admixtures certified by manufacturer to be compatible with other admixtures and that will not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride.
 - 1. Water-Reducing Admixture: ASTM C 494/C 494M, Type A.
 - 2. Retarding Admixture: ASTM C 494/C 494M, Type B.
 - 3. Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type D.
 - 4. High-Range, Water-Reducing Admixture: ASTM C 494/C 494M, Type F.
 - 5. High-Range, Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type G.
 - 6. Plasticizing and Retarding Admixture: ASTM C 1017/C 1017M, Type II.
- C. Non-Set-Accelerating Corrosion-Inhibiting Admixture: Commercially formulated, non-set-accelerating, anodic inhibitor or mixed cathodic and anodic inhibitor; capable of forming a protective barrier and minimizing chloride reactions with steel reinforcement in concrete.
 - 1. Products: Subject to compliance with requirements, provide one of the following:
 - a. BASF Construction Chemicals - Building Systems; Rheocrete 222+.
 - b. Cortec Corporation; MCI- 2000 2005NS.
 - c. Grace Construction Products, W. R. Grace & Co.; DCI-S.
 - d. Sika Corporation; FerroGard 901.

2.6 CURING MATERIALS

- A. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. when dry.
- B. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.

C. Water: Potable.

D. Curing Compound:

1. L&M Cure by L&M Construction Chemicals
2. Kurez DR by Euclid Chemical Company
3. Or equal.

2.7 SEALER AND HARDENER

A. Dress and Seal WB30 by L&M Construction Chemicals.

B. Super Diamond Clean by Euclid Chemical Company.

C. Or approved equal.

2.8 RELATED MATERIALS

A. Bonding Agent: ASTM C 1059/C 1059M, Type II, non-redispersible, acrylic emulsion or styrene butadiene.

2.9 CONCRETE MIXTURES, GENERAL

A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, according to ACI 301.

1. Use a qualified independent testing agency for preparing and reporting proposed mixture designs based on laboratory trial mixtures.

B. Limit water-soluble, chloride-ion content in hardened concrete to 0.15 percent by weight of cement.

C. Admixtures: Use admixtures according to manufacturer's written instructions.

1. Use water-reducing, high-range water-reducing or plasticizing admixture in concrete, as required, for placement and workability.
2. Use water-reducing and retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.
3. Use water-reducing admixture in pumped concrete, concrete for heavy-use industrial slabs, concrete required to be watertight, and concrete with a water-cementitious materials ratio below 0.50.
4. Use corrosion-inhibiting admixture in concrete mixtures where indicated.

2.10 CONCRETE MIXTURES

A. Proportion normal-weight concrete mixture for pavement as follows:

1. Minimum Compressive Strength: 4000 psi at 28 days.
2. Maximum Water-Cementitious Materials Ratio: 0.45.

3. Slump Limit: 8 inches for concrete with verified slump of 2 to 4 inches before adding high-range water-reducing admixture or plasticizing admixture, plus or minus 1 inch.
4. Air Content: 5.5 percent, plus or minus 1.5 percent at point of delivery for 1-1/2-inch nominal maximum aggregate size.

B. Concrete Toppings: Proportion normal-weight concrete mixture as follows:

1. Minimum Compressive Strength: 4000 psi at 28 days.
2. Minimum Cementitious Materials Content: 470 lb/cu. yd.
3. Slump Limit: 4 inches, plus or minus 1 inch.
4. Maximum aggregate size: 3/8 inch.
5. Air Content: Do not allow air content of trowel-finished toppings to exceed 3 percent.

2.11 FABRICATING REINFORCEMENT

- A. Fabricate steel reinforcement according to CRSI's "Manual of Standard Practice."

2.12 CONCRETE MIXING

- A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94/C 94M, and furnish batch ticket information.
1. When air temperature is between 85 and 90 deg F, reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F, reduce mixing and delivery time to 60 minutes.

PART 3 - EXECUTION

3.1 FORMWORK

- A. Design, erect, shore, brace, and maintain formwork, according to ACI 301, to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until structure can support such loads.
- B. Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117.
- C. Limit concrete surface irregularities, designated by ACI 347 as abrupt or gradual, as follows:
1. Class A, 1/8 inch for smooth-formed finished surfaces.
 2. Class B, 1/4 inch for rough-formed finished surfaces.
- D. Construct forms tight enough to prevent loss of concrete mortar.
- E. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush or wrecking plates where stripping may damage cast concrete surfaces. Provide top forms for inclined surfaces steeper than 1.5 horizontal to 1 vertical.

1. Install keyways, reglets, recesses, and the like, for easy removal.
 2. Do not use rust-stained steel form-facing material.
- F. Set edge forms, bulkheads, and intermediate screed strips for slabs to achieve required elevations and slopes in finished concrete surfaces. Provide and secure units to support screed strips; use strike-off templates or compacting-type screeds.
- G. Provide temporary openings for cleanouts and inspection ports where interior area of formwork is inaccessible. Close openings with panels tightly fitted to forms and securely braced to prevent loss of concrete mortar. Locate temporary openings in forms at inconspicuous locations.
- H. Chamfer exterior corners and edges of permanently exposed concrete.
- I. Form openings, chases, offsets, sinkages, keyways, reglets, blocking, screeds, and bulkheads required in the Work. Determine sizes and locations from trades providing such items.
- J. Clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, and other debris just before placing concrete.
- K. Retighten forms and bracing before placing concrete, as required, to prevent mortar leaks and maintain proper alignment.
- L. Coat contact surfaces of forms with form-release agent, according to manufacturer's written instructions, before placing reinforcement.

3.2 EMBEDDED ITEMS

- A. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
1. Install anchor rods, accurately located, to elevations required and complying with tolerances in Section 7.5 of AISC's "Code of Standard Practice for Steel Buildings and Bridges."
 2. Install reglets to receive waterproofing and to receive through-wall flashings in outer face of concrete frame at exterior walls, where flashing is shown at lintels, shelf angles, and other conditions.
 3. Install dovetail anchor slots in concrete structures as indicated.

3.3 REMOVING AND REUSING FORMS

- A. General: Formwork for sides of beams, walls, columns, and similar parts of the Work that does not support weight of concrete may be removed after cumulatively curing at not less than 50 deg F for 24 hours after placing concrete. Concrete has to be hard enough to not be damaged by form-removal operations and curing and protection operations need to be maintained.
1. Leave formwork for beam soffits, joists, slabs, and other structural elements that supports weight of concrete in place until concrete has achieved at least 70 percent of its 28-day design compressive strength.

2. Remove forms only if shores have been arranged to permit removal of forms without loosening or disturbing shores.

- B. Clean and repair surfaces of forms to be reused in the Work. Split, frayed, delaminated, or otherwise damaged form-facing material will not be acceptable for exposed surfaces. Apply new form-release agent.
- C. When forms are reused, clean surfaces, remove fins and laitance, and tighten to close joints. Align and secure joints to avoid offsets. Do not use patched forms for exposed concrete surfaces unless approved by Architect.

3.4 STEEL REINFORCEMENT

- A. General: Comply with CRSI's "Manual of Standard Practice" for placing reinforcement.
 - 1. Do not cut or puncture vapor retarder. Repair damage and reseal vapor retarder before placing concrete.
- B. Clean reinforcement of loose rust and mill scale, earth, ice, and other foreign materials that would reduce bond to concrete.
- C. Accurately position, support, and secure reinforcement against displacement. Locate and support reinforcement with bar supports to maintain minimum concrete cover. Do not tack weld crossing reinforcing bars.
 - 1. Weld reinforcing bars according to AWS D1.4/D 1.4M, where indicated.
- D. Set wire ties with ends directed into concrete, not toward exposed concrete surfaces.
- E. Install welded wire reinforcement in longest practicable lengths on bar supports spaced to minimize sagging. Lap edges and ends of adjoining sheets at least one mesh spacing. Offset laps of adjoining sheet widths to prevent continuous laps in either direction. Lace overlaps with wire.

3.5 JOINTS

- A. General: Construct joints true to line with faces perpendicular to surface plane of concrete.
- B. Construction Joints: Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Engineer.
 - 1. Place joints perpendicular to main reinforcement. Continue reinforcement across construction joints unless otherwise indicated. Do not continue reinforcement through sides of strip placements of floors and slabs.
 - 2. Form keyed joints as indicated. Embed keys at least 1-1/2 inches into concrete.
 - 3. Locate joints for beams, slabs, joists, and girders in the middle third of spans. Offset joints in girders a minimum distance of twice the beam width from a beam-girder intersection.
 - 4. Locate horizontal joints in walls at underside of floors, slabs, beams, and girders and at the top of floor slabs.

5. Space vertical joints in walls as indicated. Locate joints near corners, and in concealed locations where possible.
 6. Use a bonding agent at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.
 7. Use epoxy-bonding adhesive at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.
- C. Doweled Joints: Install dowel bars and support assemblies at joints where indicated. Lubricate or asphalt coat one-half of dowel length to prevent concrete bonding to one side of joint.

3.6 CONCRETE PLACEMENT

- A. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections have been performed.
- B. Do not add water to concrete during delivery, at Project site, or during placement unless approved by Engineer.
- C. Before test sampling and placing concrete, water may be added at Project site, subject to limitations of ACI 301.
1. Do not add water to concrete after adding high-range water-reducing admixtures to mixture.
- D. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete will be placed on concrete that has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as indicated. Deposit concrete to avoid segregation.
1. Deposit concrete in horizontal layers of depth to not exceed formwork design pressures and in a manner to avoid inclined construction joints.
 2. Consolidate placed concrete with mechanical vibrating equipment according to ACI 301.
 3. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations to rapidly penetrate placed layer and at least 6 inches into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to lose plasticity. At each insertion, limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing mixture constituents to segregate.
- E. Deposit and consolidate concrete for floors and slabs in a continuous operation, within limits of construction joints, until placement of a panel or section is complete.
1. Consolidate concrete during placement operations so concrete is thoroughly worked around reinforcement and other embedded items and into corners.
 2. Maintain reinforcement in position on chairs during concrete placement.
 3. Screed slab surfaces with a straightedge and strike off to correct elevations.
 4. Slope surfaces uniformly to drains where required.
 5. Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane, before excess bleedwater appears on the surface. Do not further disturb slab surfaces before starting finishing operations.

- F. Cold-Weather Placement: Comply with ACI 306.1 and as follows. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.
1. When average high and low temperature is expected to fall below 40 deg F for three successive days, maintain delivered concrete mixture temperature within the temperature range required by ACI 301.
 2. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.
 3. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in mixture designs.

G. Hot-Weather Placement: Comply with ACI 301 and as follows:

1. Maintain concrete temperature below 90 deg F at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated to total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.
2. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade uniformly moist without standing water, soft spots, or dry areas.

3.7 FINISHING FLOORS AND SLABS

A. General: Comply with ACI 302.1R recommendations for screeding, restraighening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.

B. Float Finish: Consolidate surface with power-driven floats or by hand floating if area is small or inaccessible to power driven floats. Restraighten, cut down high spots, and fill low spots. Repeat float passes and restraighening until surface is left with a uniform, smooth, granular texture.

1. Apply float finish to concrete topping slab.

C. Trowel Finish: After applying float finish, apply first troweling and consolidate concrete by hand or power-driven trowel. Continue troweling passes and restraighten until surface is free of trowel marks and uniform in texture and appearance. Grind smooth any surface defects that would telegraph through applied coatings or floor coverings.

1. Apply a trowel finish to surfaces exposed to view.
2. Finish surfaces to the following tolerances, according to ASTM E 1155, for a randomly trafficked floor surface:
 - a. Specified overall values of flatness, F(F) 30; and of levelness, F(L) 20; with minimum local values of flatness, F(F) 24; and of levelness, F(L) 15; for suspended slabs.

D. Broom Finish: Apply a broom finish to concrete pavement slabs.

1. Immediately after float finishing, slightly roughen trafficked surface by brooming with fiber-bristle broom perpendicular to main traffic route. Coordinate required final finish with Engineer before application.

3.8 MISCELLANEOUS CONCRETE ITEMS

A. Filling In: Fill in holes and openings left in concrete structures after work of other trades is in place unless otherwise indicated. Mix, place, and cure concrete, as specified, to blend with in-place construction. Provide other miscellaneous concrete filling indicated or required to complete the Work.

B. Curbs: Provide monolithic finish to interior curbs by stripping forms while concrete is still green and by steel-troweling surfaces to a hard, dense finish with corners, intersections, and terminations slightly rounded.

- C. Equipment Bases and Foundations: Provide machine and equipment bases and foundations as shown on Drawings. Set anchor bolts for machines and equipment at correct elevations, complying with diagrams or templates from manufacturer furnishing machines and equipment.

3.9 CONCRETE PROTECTING AND CURING

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and ACI 301 for hot-weather protection during curing.
- B. Evaporation Retarder: Apply evaporation retarder to unformed concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.
- C. Formed Surfaces: Cure formed concrete surfaces, including underside of beams, supported slabs, and other similar surfaces. If forms remain during curing period, moist cure after loosening forms. If removing forms before end of curing period, continue curing for the remainder of the curing period.
- D. Unformed Surfaces: Begin curing immediately after finishing concrete. Cure unformed surfaces, including floors and slabs, concrete floor toppings, and other surfaces.
- E. Cure concrete according to ACI 308.1, by one or a combination of the following methods:
 - 1. Moisture Curing: Keep surfaces continuously moist for not less than seven days with the following materials:
 - a. Water.
 - b. Continuous water-fog spray.
 - c. Absorptive cover, water saturated, and kept continuously wet. Cover concrete surfaces and edges with 12-inch lap over adjacent absorptive covers.
 - 2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches, and sealed by waterproof tape or adhesive. Cure for not less than seven days. Immediately repair any holes or tears during curing period using cover material and waterproof tape.
 - a. Moisture cure or use moisture-retaining covers to cure concrete surfaces to receive floor coverings.
 - b. Moisture cure or use moisture-retaining covers to cure concrete surfaces to receive penetrating liquid floor treatments.
 - c. Cure concrete surfaces to receive floor coverings with either a moisture-retaining cover or a curing compound that the manufacturer certifies will not interfere with bonding of floor covering used on Project.
 - 3. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall

within three hours after initial application. Maintain continuity of coating and repair damage during curing period.

4. Sealer and Hardener: Apply uniformly to topping slab in a continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Repeat process 24 hours later and apply a second coat. Maintain continuity of coating and repair damage during curing period.

3.10 JOINT FILLING

- A. Prepare, clean, and install joint filler according to manufacturer's written instructions.
 1. Defer joint filling until concrete has aged at least three months. Do not fill joints until construction traffic has permanently ceased.
- B. Remove dirt, debris, saw cuttings, curing compounds, and sealers from joints; leave contact faces of joint clean and dry.
- C. Install semirigid joint filler full depth in saw-cut joints and at least 2 inches deep in formed joints. Overfill joint and trim joint filler flush with top of joint after hardening.

3.11 CONCRETE SURFACE REPAIRS

- A. Defective Concrete: Repair and patch defective areas when approved by Engineer. Remove and replace concrete that cannot be repaired and patched to Engineer's approval.
- B. Patching Mortar: Mix dry-pack patching mortar, consisting of one part portland cement to two and one-half parts fine aggregate passing a No. 16 sieve, using only enough water for handling and placing.
- C. Repairing Formed Surfaces: Surface defects include color and texture irregularities, cracks, spalls, air bubbles, honeycombs, rock pockets, fins and other projections on the surface, and stains and other discolorations that cannot be removed by cleaning.
 1. Immediately after form removal, cut out honeycombs, rock pockets, and voids more than 1/2 inch in any dimension to solid concrete. Limit cut depth to 3/4 inch. Make edges of cuts perpendicular to concrete surface. Clean, dampen with water, and brush-coat holes and voids with bonding agent. Fill and compact with patching mortar before bonding agent has dried. Fill form-tie voids with patching mortar or cone plugs secured in place with bonding agent.
 2. Repair defects on surfaces exposed to view by blending white portland cement and standard portland cement so that, when dry, patching mortar will match surrounding color. Patch a test area at inconspicuous locations to verify mixture and color match before proceeding with patching. Compact mortar in place and strike off slightly higher than surrounding surface.
 3. Repair defects on concealed formed surfaces that affect concrete's durability and structural performance as determined by Engineer.
- D. Repairing Unformed Surfaces: Test unformed surfaces, such as floors and slabs, for finish and verify surface tolerances specified for each surface. Correct low and high areas. Test surfaces sloped to drain for trueness of slope and smoothness; use a sloped template.

1. Repair finished surfaces containing defects. Surface defects include spalls, popouts, honeycombs, rock pockets, crazing and cracks in excess of 0.01 inch wide or that penetrate to reinforcement or completely through unreinforced sections regardless of width, and other objectionable conditions.
 2. After concrete has cured at least 14 days, correct high areas by grinding.
 3. Correct localized low areas during or immediately after completing surface finishing operations by cutting out low areas and replacing with patching mortar. Finish repaired areas to blend into adjacent concrete.
 4. Correct other low areas scheduled to receive floor coverings with a repair underlayment. Prepare, mix, and apply repair underlayment and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface. Feather edges to match adjacent floor elevations.
 5. Correct other low areas scheduled to remain exposed with a repair topping. Cut out low areas to ensure a minimum repair topping depth of 1/4 inch to match adjacent floor elevations. Prepare, mix, and apply repair topping and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface.
 6. Repair defective areas, except random cracks and single holes 1 inch or less in diameter, by cutting out and replacing with fresh concrete. Remove defective areas with clean, square cuts and expose steel reinforcement with at least a 3/4-inch clearance all around. Dampen concrete surfaces in contact with patching concrete and apply bonding agent. Mix patching concrete of same materials and mixture as original concrete except without coarse aggregate. Place, compact, and finish to blend with adjacent finished concrete. Cure in same manner as adjacent concrete.
 7. Repair random cracks and single holes 1 inch or less in diameter with patching mortar. Groove top of cracks and cut out holes to sound concrete and clean off dust, dirt, and loose particles. Dampen cleaned concrete surfaces and apply bonding agent. Place patching mortar before bonding agent has dried. Compact patching mortar and finish to match adjacent concrete. Keep patched area continuously moist for at least 72 hours.
- E. Perform structural repairs of concrete, subject to Engineer's approval, using epoxy adhesive and patching mortar.
- F. Repair materials and installation not specified above may be used, subject to Engineer's approval.

3.12 FIELD QUALITY CONTROL

- A. Testing and Inspecting: Engage a qualified testing and inspecting agency to perform tests and inspections and to submit reports.
- B. Inspections:
 - 1. Steel reinforcement placement.
 - 2. Steel reinforcement welding.
 - 3. Headed bolts and studs.
 - 4. Verification of use of required design mixture.
 - 5. Concrete placement, including conveying and depositing.
 - 6. Curing procedures and maintenance of curing temperature.
 - 7. Verification of concrete strength before removal of shores and forms from beams and slabs.
- C. Concrete Tests: Testing of composite samples of fresh concrete obtained according to ASTM C 172 shall be performed according to the following requirements:
 - 1. Testing Frequency: Obtain one composite sample for each day's pour of each concrete mixture exceeding 5 cu. yd., but less than 25 cu. yd., plus one set for each additional 50 cu. yd. or fraction thereof.
 - a. When frequency of testing will provide fewer than five compressive-strength tests for each concrete mixture, testing shall be conducted from at least five randomly selected batches or from each batch if fewer than five are used.
 - 2. Slump: ASTM C 143/C 143M; one test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mixture. Perform additional tests when concrete consistency appears to change.
 - 3. Air Content: ASTM C 231, pressure method, for normal-weight concrete; ASTM C 173/C 173M, volumetric method, for structural lightweight concrete; one test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
 - 4. Concrete Temperature: ASTM C 1064/C 1064M; one test hourly when air temperature is 40 deg F and below and when 80 deg F and above, and one test for each composite sample.
 - 5. Compression Test Specimens: ASTM C 31/C 31M.
 - a. Cast and laboratory cure two sets of two standard cylinder specimens for each composite sample.
 - 6. Compressive-Strength Tests: ASTM C 39/C 39M; test one set of two laboratory-cured specimens at 7 days and one set of two specimens at 28 days.
 - a. A compressive-strength test shall be the average compressive strength from a set of two specimens obtained from same composite sample and tested at age indicated.
 - 7. When strength of field-cured cylinders is less than 85 percent of companion laboratory-cured cylinders, Contractor shall evaluate operations and provide corrective procedures for protecting and curing in-place concrete.

8. Strength of each concrete mixture will be satisfactory if every average of any three consecutive compressive-strength tests equals or exceeds specified compressive strength and no compressive-strength test value falls below specified compressive strength by more than 500 psi.
9. Test results shall be reported in writing to Engineer, concrete manufacturer, and Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing and inspecting agency, location of concrete batch in Work, design compressive strength at 28 days, concrete mixture proportions and materials, compressive breaking strength, and type of break for both 7- and 28-day tests.
10. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Engineer but will not be used as sole basis for approval or rejection of concrete.
11. Additional Tests: Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Engineer. Testing and inspecting agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42/C 42M or by other methods as directed by Engineer.
12. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.
13. Correct deficiencies in the Work that test reports and inspections indicate do not comply with the Contract Documents.

D. Measure floor and slab flatness and levelness according to ASTM E 1155 within 24 hours of finishing.

END OF SECTION 03300

GENERAL NOTES	
1.	PLUMBING WORK SHALL BE DONE IN ACCORDANCE WITH THE LATEST EDITION OF THE STATE PLUMBING AND GAS CODE INCLUDING ALL LOCAL AMENDMENTS.
2.	OBTAIN ALL PERMITS AND PAY ALL FEES ASSOCIATED WITH THIS WORK PRIOR TO COMMENCEMENT.
3.	PIPING AND EQUIPMENT IS SHOWN DIAGRAMMATICALLY. THE ACTUAL ROUTING OF PIPING AND EXACT LOCATION OF EQUIPMENT SHALL BE DETERMINED IN THE FIELD.
4.	IN ADDITION TO REVIEWING AND COORDINATING WITH THE OTHER TRADES (CIVIL, STRUCTURAL, ARCHITECTURAL, FIRE PROTECTION AND ELECTRICAL) THE CONTRACTOR SHALL VISIT THE SITE AND FAMILIARIZE HIMSELF WITH DETAILS OF CONSTRUCTION.
5.	FURNISH AND INSTALL ALL NECESSARY PIPING, EQUIPMENT SUPPORTS AND ANY EQUIPMENT NOT SHOWN ON DRAWINGS OR CALLED FOR IN THE SPECIFICATIONS BUT NECESSARY TO PROVIDE A COMPLETE AND WORKABLE SYSTEM.
6.	PROVIDE ACCESSIBLE SHUTOFF VALVES ON ALL BRANCH PIPING AND ON ALL SUPPLY PIPING TO INDIVIDUAL FIXTURES AND EQUIPMENT.
7.	PROVIDE ACCESS TO ALL EQUIPMENT REQUIRING PERIODIC SERVICE AND MAINTENANCE.
8.	FURNISH ACCESS PANELS TO THE GENERAL CONTRACTOR FOR INSTALLATION UNDER THE RELATED TRADES.
9.	PITCH ALL WATER LINES TO DRAIN.
10.	INSTALL HORIZONTAL RUNS OF WATER PIPING AS HIGH AS POSSIBLE AND PROVIDE DRAIN-OFFS AT ALL LOW POINTS.
11.	PIPING SHALL RUN CONCEALED IN ALL AREAS WITH THE EXCEPTION OF STORAGE ROOM AREAS WHERE NO CEILING EXISTS OR WHERE NOTED ON THE PLANS.
12.	INSTALL DIELECTRIC COUPLINGS BETWEEN DISSIMILAR MATERIALS.
13.	REQUIRED FIRE RESISTANCE RATING OF FLOORS, WALLS AND CEILINGS SHALL BE MAINTAINED WHEN PIPE PENETRATIONS ARE MADE.
14.	SEE SPECIFICATIONS FOR OTHER REQUIREMENTS.

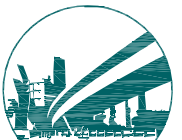
DEMO NOTES	
DEMOLITION NOTES:	
1.	REFER TO THE ARCHITECTURAL DRAWINGS FOR THE EXTENT OF THE DEMOLITION SCOPE OF WORK AND AREA. THE DEMOLITION PLANS INDICATE THE GENERAL INTENT AND ARE NOT INTENDED TO SHOW ALL ITEMS TO BE REMOVED OR RETAINED.
2.	VISIT THE SITE PRIOR TO SUBMISSION OF THE BIDS TO BECOME FAMILIAR WITH THE ACTUAL CONDITIONS AND EXTENT OF THE WORK.
3.	TRACE AND LABEL ALL EXISTING SYSTEMS WITHIN THE DEMOLITION AREA AND BEYOND PRIOR TO DISCONNECTION AND REMOVAL TO ENSURE THAT NO AREA OUTSIDE THE DEMOLITION AREA IS AFFECTED. REVIEW IN DETAIL WITH THE GENERAL CONTRACTOR AND OWNER WHAT IS TO BE REMOVED AND REMAIN PRIOR TO WORK COMMENCING THE DEMOLITION. THERE SHALL BE NO INTERRUPTION OF SERVICES OUTSIDE THE DEMOLITION AREA WITHOUT APPROVAL FROM THE OWNER'S REPRESENTATIVE.
4.	NOTIFY THE OWNER'S REPRESENTATIVE IMMEDIATELY OF ANY UNANTICIPATED HIDDEN CONDITIONS ENCOUNTERED DURING THE DEMOLITION.
5.	ALL ITEMS REMOVED SHALL BE OFFERED TO THE OWNER FOR SALVAGE. IF THE OWNER DOES NOT TAKE POSSESSION, DISPOSE OF THE ITEMS IN A SAFE AND LEGAL MANNER. ALL ITEMS CLASSIFIED AS HAZARDOUS SHALL BE DISPOSED AS HAZARDOUS WASTES AND A UNIFORM HAZARDOUS WASTE MANIFEST SHALL BE PROVIDED TO THE OWNER.
6.	NOTIFY UTILITY COMPANIES IN ACCORDANCE WITH THEIR REQUIREMENTS PRIOR TO DEMOLITION. VERIFY THAT THE UTILITIES HAVE BEEN DISCONNECTED, VALVED, CAPPED AND MADE SAFE PRIOR TO DEMOLITION.
7.	ENSURE THE SAFE PASSAGE OF PERSONS IN AND AROUND THE BUILDING DURING DEMOLITION. PREVENT INJURY TO PERSONS AND DAMAGE TO PROPERTY. PROVIDE ADEQUATE SHORING AND BRACING TO PREVENT COLLAPSE. IMMEDIATELY REPAIR DAMAGED PROPERTY TO THE CONDITION BEFORE BEING DAMAGED. TAKE EFFECTIVE MEASURES TO PREVENT WINDBLOWN DUST.
8.	DO NOT USE CUTTING TORCHES UNTIL WORK AREA IS CLEARED OF FLAMMABLE MATERIALS. AT CONCEALED SPACES, SUCH AS DUCT AND PIPE INTERIORS, VERIFY CONDITION AND CONTENTS OF HIDDEN SPACE BEFORE STARTING FLAME-CUTTING OPERATIONS. MAINTAIN FIRE WATCH AND PORTABLE FIRE-SUPPRESSION DEVICES DURING FLAME-CUTTING OPERATIONS. MAINTAIN ADEQUATE VENTILATION WHEN USING CUTTING TORCHES.
9.	PRIOR TO DEMOLITION, MAKE SAFE ALL SERVICE PIPE TERMINATIONS TO THE AREA. PROVIDE VALVE AND CAPS ON PRESSURE SERVICES TO THE AREA THAT ARE TO REMAIN IN SERVICE.
10.	PROPERLY LABEL ALL UNLABELED SERVICE PIPELINES AND VALVES TO REMAIN WITH COLOR PIPE MARKERS AND VALVE TAGS. MOUNT A VALVE AND SERVICE CHART IN THE AREA OF DEMOLITION THAT IDENTIFIES ALL LABELED SERVICES. TURN ONE COPY OF SAME OVER TO THE CM

ABBREVIATIONS	
ACT	ACOUSTICAL TILE
AFF	ABOVE FINISH FLOOR
AP	ACCESS PANEL
ARCH	ARCHITECT
BLDG	BUILDING
CI	CAST IRON
CLG	CEILING
CO	CLEANOUT
CONC	CONCRETE
CONT	CONTINUATION
CONTR	CONTRACTOR
CP	CHROME PLATED
CTE	CONNECT TO EXISTING
CW	COLD WATER
DIA	DIAMETER
DN	DOWN
DWG	DRAWING
EC	ELECTRICAL CONTRACTOR
EL/ELEV	ELEVATION
EX	EXISTING
FCO	FLOOR CLEANOUT
FFE	FINISH FLOOR ELEVATION
FLR	FLOOR
FT	FOOT
FV	FLUSH VALVE
GC	GENERAL CONTRACTOR
GPF	GALLON PER FLUSH
GPM	GALLONS PER MINUTE
HC	HANDICAPPED
HW	HOT WATER
HWR	HOT WATER RETURN
ID	INSIDE DIAMETER
INV	INVERT
IW	INDIRECT WASTE
LPC	LIMIT OF PLUMBING CONTRACTOR
MECH	MECHANICAL
NTS	NOT TO SCALE
NIC	NOT IN CONTRACT
OD	OUTSIDE DIAMETER
OED	OPEN END DRAIN
PC	PLUMBING CONTRACTOR
PLBG	PLUMBING
PSI	POUNDS PER SQUARE INCH
SPEC	SPECIFICATION
SS	SOIL STACK
ST.ST.	STAINLESS STEEL
TYP	TYPICAL
V	VENT
VB	VACUUM BREAKER
VS	VENT STACK
W	WASTE
WC	WATER CLOSET-FIXTURE IDENTIFICATION

PIPING LEGEND		
	CW	COLD WATER
	S or W	SOIL OR WASTE ABOVE GROUND
	S or W	SOIL OR WASTE BELOW SLAB
	V	VENT ABOVE GROUND
	V	VENT BELOW SLAB
	PD	PUMP DISCHARGE

GENERAL		
	CO	CLEANOUT
	FCO	FLOOR CLEANOUT
	GCO	GRADE CLEANOUT
		ELBOW UP OR RISE
		ELBOW DOWN OR DROP
		CAP OR END OF PIPE
		TEE LOOKING UP
		TEE LOOKING DOWN
		UNION
	CTE	CONNECT TO EXISTING
	ETR	EXISTING TO REMAIN
	ETBR	EXISTING TO BE REMOVED
		FLOW IN DIRECTION OF ARROW

VALVE LEGEND		
		BALL VALVE
		ANGLE VALVE
	T&P	TEMPERATURE AND PRESSURE RELIEF VALVE
		VACUUM RELIEF VALVE
		AQUASTAT
		THERMOMETER
	PG	PRESSURE GAUGE

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REVISIONS		
Number	Description	Date

ISSUED FOR:
BID



FIRE STATION
ENGINE No.3
LIVING QUARTERS

255 Somerville Ave.
Somerville, MA 02143

PLUMBING
LEGEND, NOTES AND
ABBREVIATIONS

PROJECT NUMBER: 20140474

DESIGNED BY: RDB

DRAWN BY: DJF

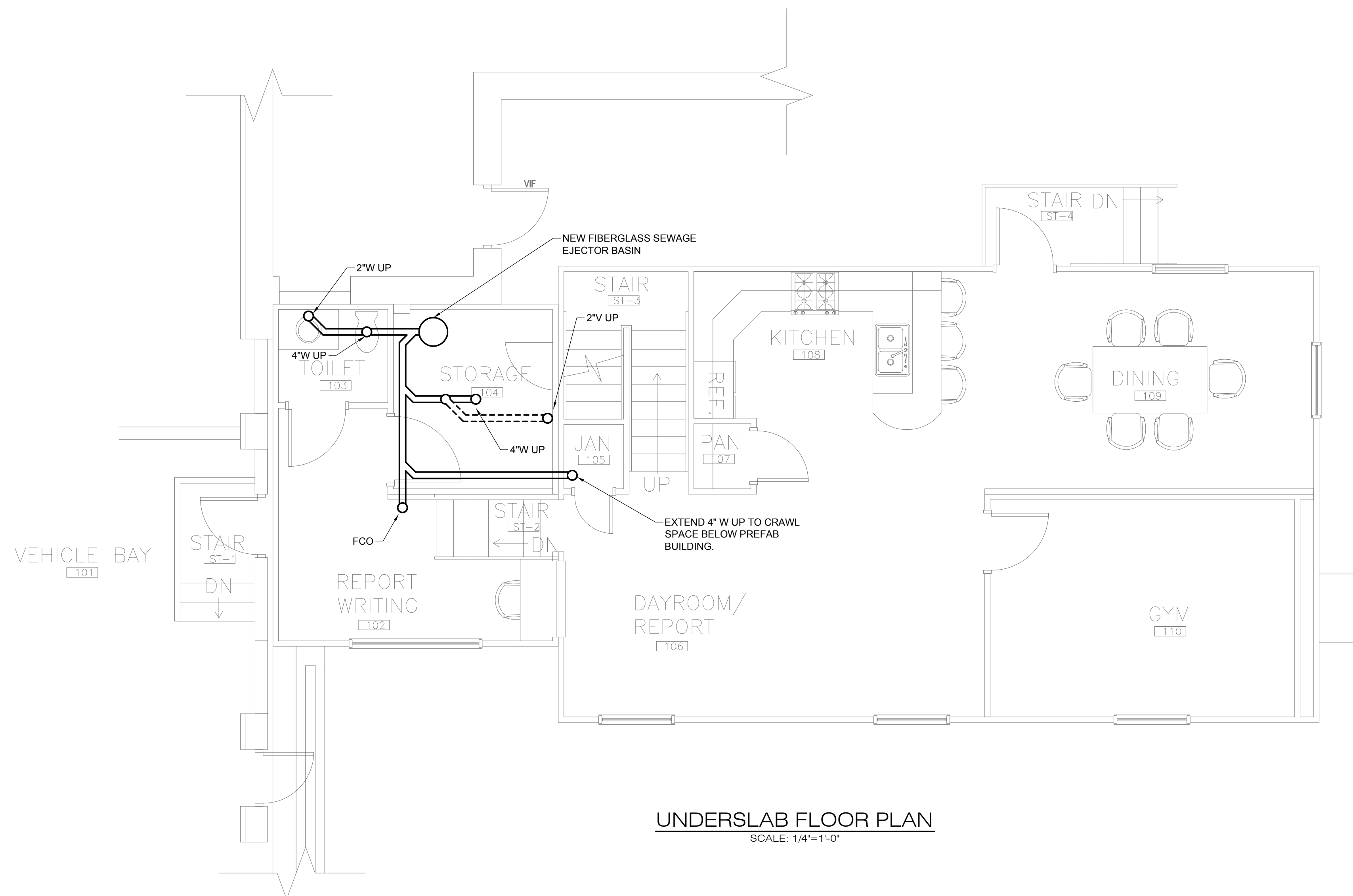
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DATE: OCTOBER 22, 2014

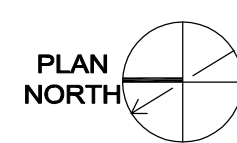
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UNDERSLAB FLOOR PLAN
SCALE: 1/4"=1'-0"

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ISSUED FOR:
BID



FIRE STATION
ENGINE No.3
LIVING QUARTERS

255 Somerville Ave.
Somerville, MA 02143

PLUMBING UNDERGROUND PLAN

PROJECT NUMBER: 20140474

DESIGNED BY: RDE

DRAWN BY: DJF

CHECKED BY: RDE

DATE: OCTOBER 22, 2014

SCALE: 1/4" = 1'-0"

SHEET NUMBER

P2.1U

DRAWING FILE: C:\001420140474 - Somerville PD Prefabricated Trailer Replacement\1200 Drawings\1202 Plumbing\Plu Floor\0140474 P2.1 PLUMBING FIRST AND SECOND FLOOR PLANS.dwg PLOTTED: Oct 21 2014 3:54pm BY: dmp@redwin BY: dmp@redwin
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ELEC: INITIAL&DATE

MECH: INITIAL&DATE

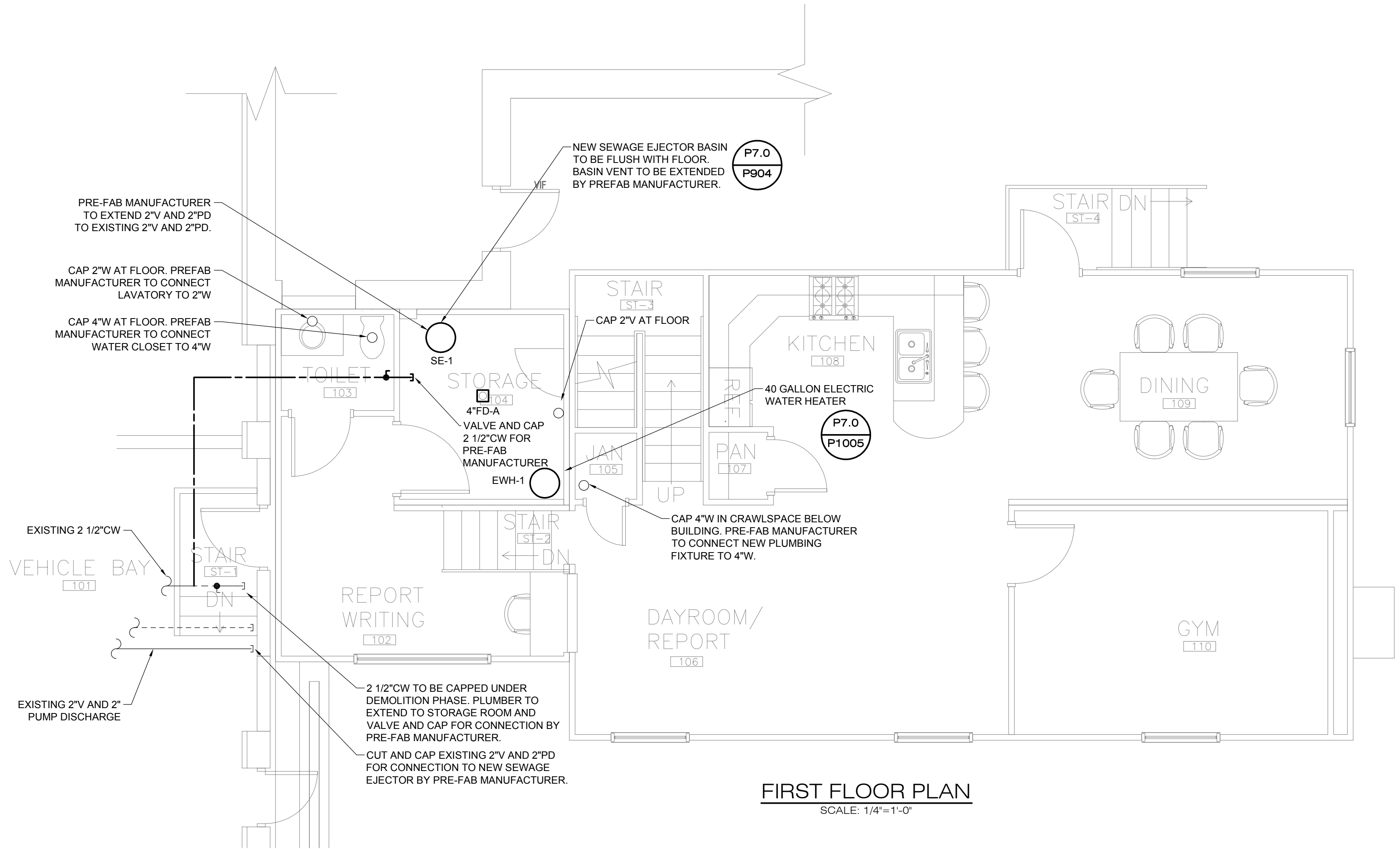
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PLUM: INITIAL&DATE

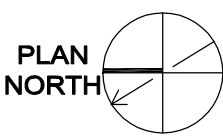
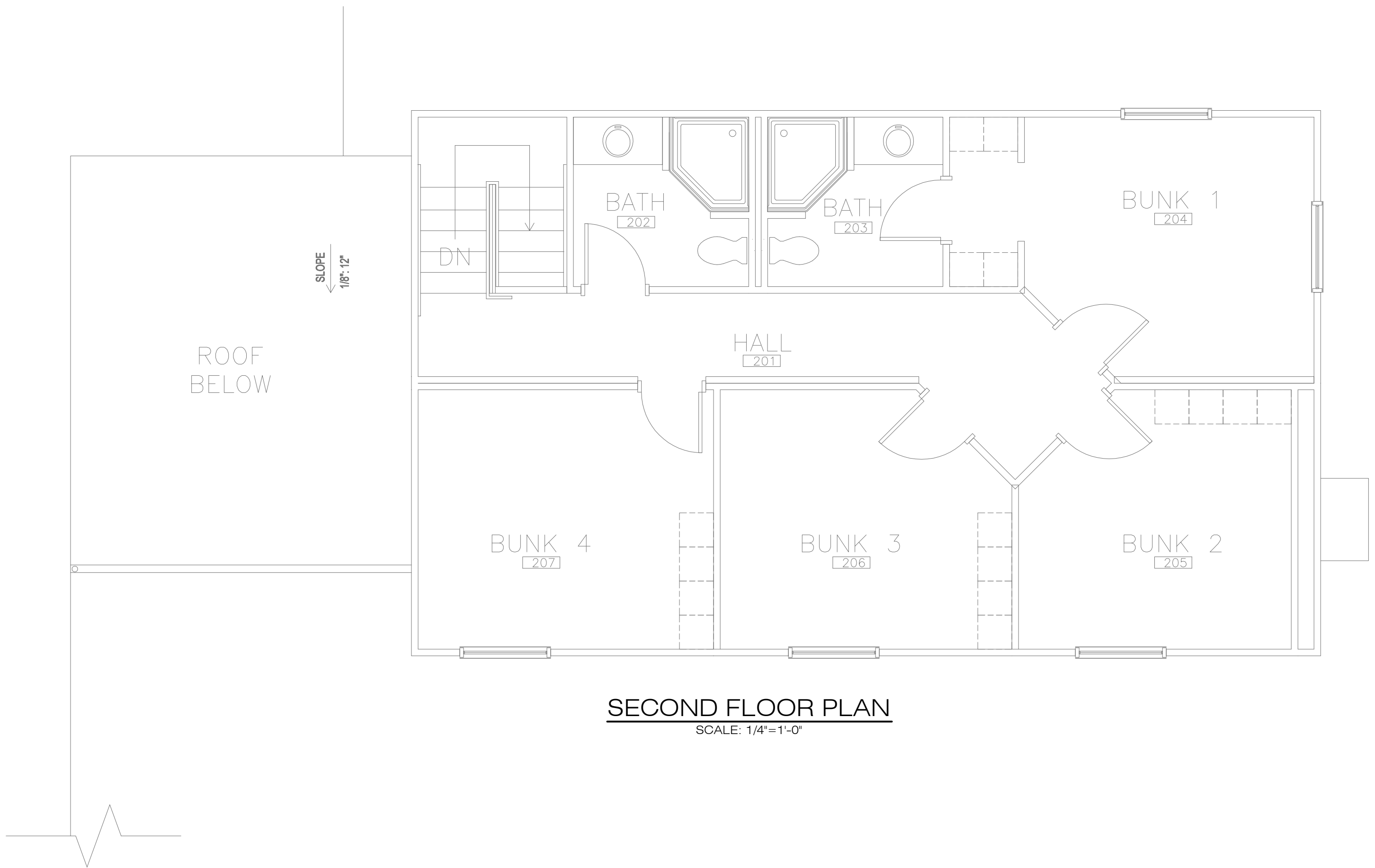
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ARCH: INITIAL&DATE

CIVIL: INITIAL&DATE



- NOTES:
1. ALL PLUMBING FIXTURES WITHIN PREFAB BUILDING SHALL BE FURNISHED AND INSTALLED BY PREFAB MANUFACTURER.
 2. ALL WASTE, WATER AND VENT PIPING SHALL BE BY PREFAB MANUFACTURER UNLESS OTHERWISE INDICATED ON THE DRAWINGS.



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REVISIONS

Number	Description	Date

ISSUED FOR:
BID



FIRE STATION
ENGINE No.3
LIVING QUARTERS

255 Somerville Ave.
Somerville, MA 02143

PLUMBING
FIRST & SECOND
FLOOR PLANS

PROJECT NUMBER: 20140474

DESIGNED BY: RDB

DRAWN BY: DJF

CHECKED BY: RDB

DATE: OCTOBER 22, 2014

SCALE: 1/4" = 1'-0"

SHEET NUMBER:

P2.1

SHEET 16 OF 28

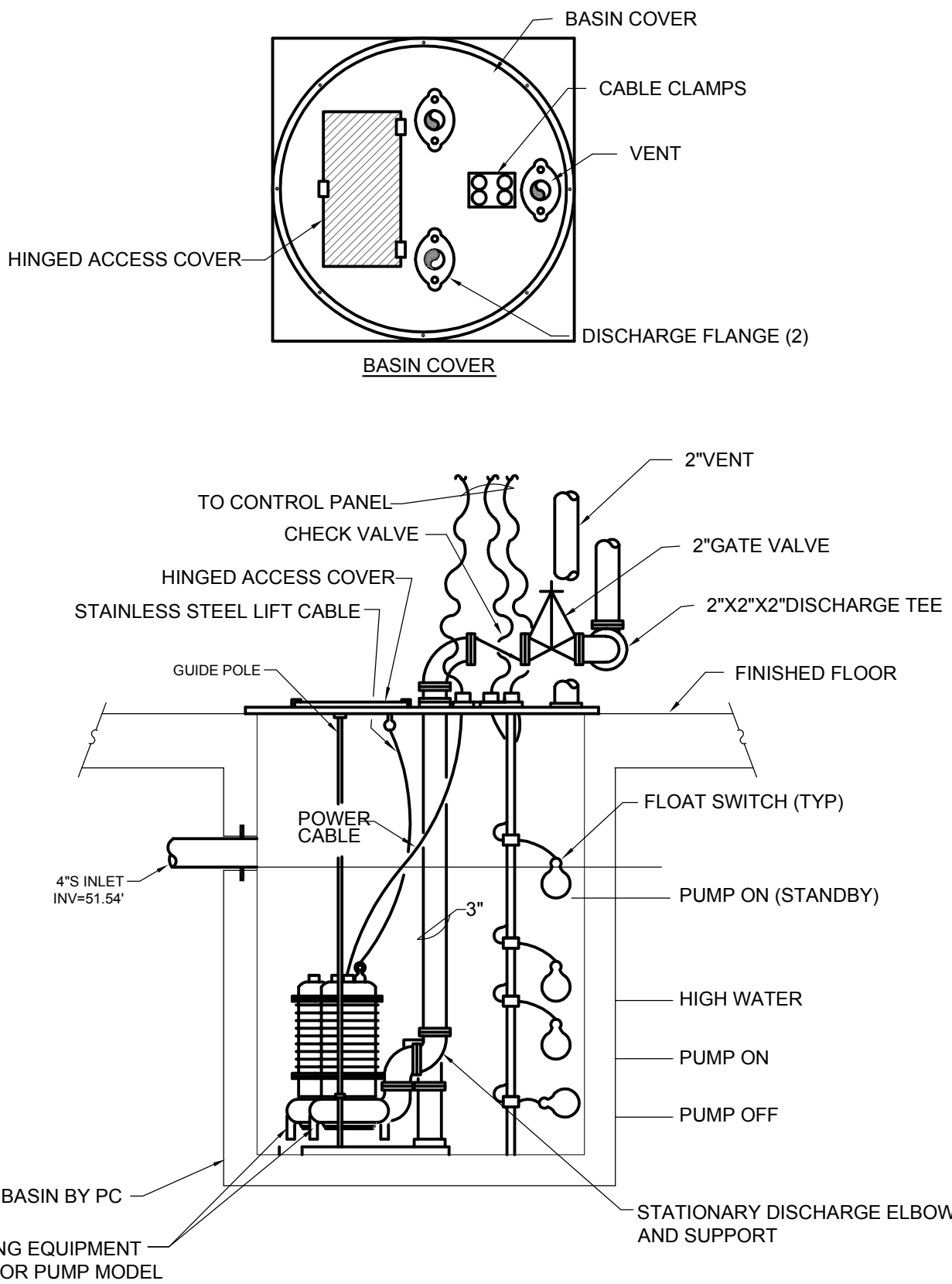
DRAWING FILE: Q:\2014\20140474 - Somerville PD Prefabricated Trailer Replacement\1200 Drawings\1202 Plumbing\Plu File\20140474 P7.0 PLUMBING DETAILS.dwg PLOTTED: Oct 21, 2014 3:55pm BY: dfranzak
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REVIEWED BY: CIVIL INITIAL DATE ARCH INITIAL DATE PLUM INITIAL DATE STRU INITIAL DATE FIRE INITIAL DATE MECH INITIAL DATE ELEC INITIAL DATE

NOTE 1: ELECTRICAL CONTRACTOR TO FURNISH POWER TO CONTROL PANEL. PLUMBING CONTRACTOR TO CONNECT PUMP POWER & FLOAT WIRING TO CONTROL PANEL AND PERFORM FULL START UP OF EQUIPMENT.

NOTE 2: ALL WIRING (CONTROLS AND POWER) NECESSARY FOR THE PROPER OPERATION OF THE SPECIFIED EQUIPMENT BEYOND A SINGLE CONNECTION TO THE POWER SOURCE IS THE RESPONSIBILITY OF THE PLUMBING CONTRACTOR. ALL WIRING INSTALLATION SHALL COMPLY WITH NFPA 70 (NEC) AND ALL LOCAL AMENDMENTS AND BE INSTALLED BY LICENSED ELECTRICIANS UNDER CONTRACT WITH THE PLUMBING CONTRACTOR.

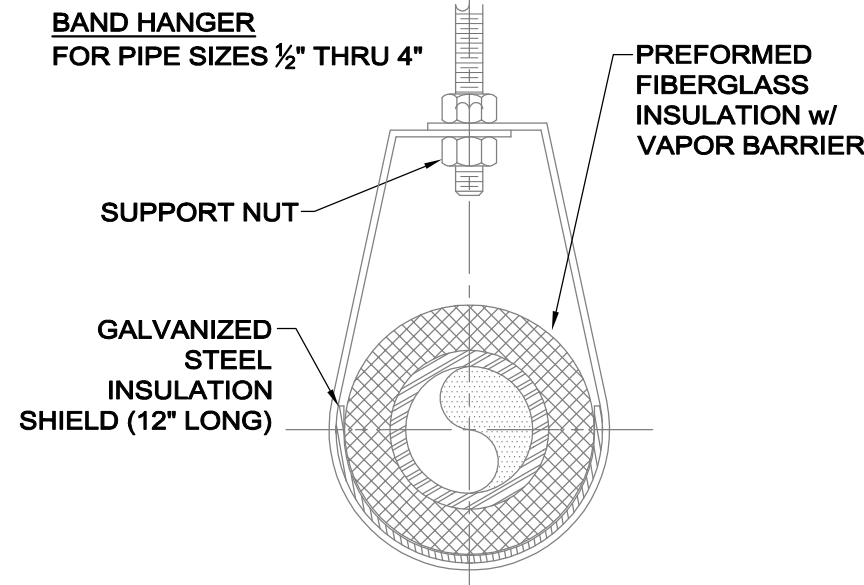
NOTE 3: ALL EXPOSED INTERIOR BRANCH CIRCUITRY AND CONTROLS SHALL BE INSTALLED IN EMT WITH FLEXIBLE CONNECTIONS TO ALL MECHANICAL EQUIPMENT. FLEXIBLE METAL CONDUIT NOT TO EXCEED 18". ALL CONDUIT SUPPORTS SHALL BE HOT DIPPED GALVANIZED.



RDk

DUPLEX SEWAGE EJECTOR PUMP

P904

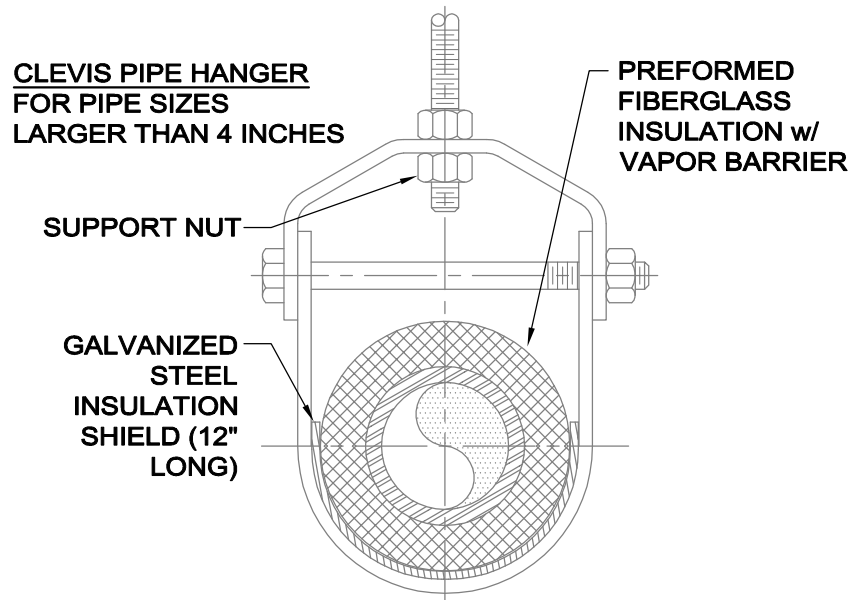


NOTES:
1. SEE SPECIFICATION FOR HANGER SIZES AND MATERIAL.
2. DISTANCE BETWEEN HANGERS SHALL BE IN ACCORDANCE WITH THE APPLICABLE PLUMBING CODE.
3. HANGER ROD SHALL BE PER MANUFACTURER'S RECOMMENDATIONS.

RDk

BAND HANGER WITH INSULATED PIPE

P801



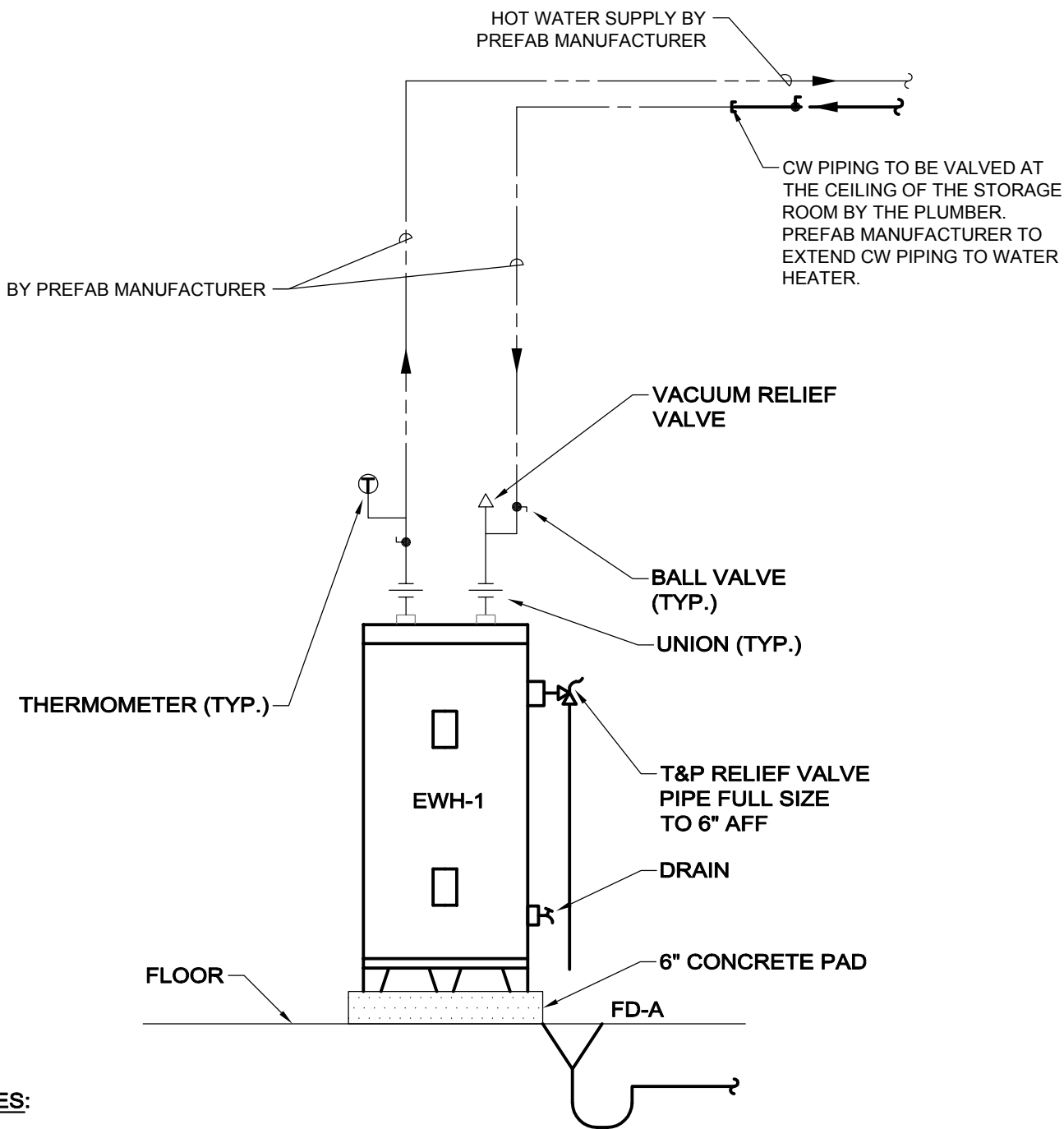
NOTES:
1. SEE SPECIFICATION FOR HANGER SIZES AND MATERIAL.
2. DISTANCE BETWEEN HANGERS SHALL BE IN ACCORDANCE WITH THE APPLICABLE PLUMBING CODE.
3. HANGER ROD SHALL BE PER MANUFACTURER'S RECOMMENDATIONS.

RDk

CLEVIS PIPE HANGER SUPPORT WITH INSULATED PIPE

P803

DETAIL NOTE:
1. WATER HEATER SHALL BE SUPPLIED INSTALLED BY THE PLUMBING CONTRACTOR. THE PRE-FAB MANUFACTURER SHALL PROVIDE ALL PLUMBING CONNECTIONS TO THE WATER HEATER.



NOTES:
1. REFER TO PLANS FOR PIPE SIZES

RDk

ELECTRIC WATER HEATER

P1005

ISSUED FOR:
BID



FIRE STATION
ENGINE No.3
LIVING QUARTERS

255 Somerville Ave.
Somerville, MA 02143

PLUMBING
DETAILS

PROJECT NUMBER: 20140474

DESIGNED BY: RDB

DRAWN BY: DJF

CHECKED BY: RDB

DATE: OCTOBER 22, 2014

SCALE: N.T.S.

SHEET NUMBER:

P7.0

SHEET 17 OF 28

DRAWING FILE: C:\00142014\0474 - Somerville PD Prefabricated Trailer Replacement\1200 Drawings\1202 Plumbing\Plu Files\0140474 PILO PLUMBING SCHEDULES.dwg PLOTTED: Oct 21, 2014 3:55pm BY: dfranzak
C:\00142014\0474 - Somerville PD Prefabricated Trailer Replacement\1200 Drawings\1202 Plumbing\Plu Files\0140474 PILO PLUMBING SCHEDULES.dwg [Work] October 21, 2014 - 3:55pm dfranzak

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REVIEWED BY:

DRAIN SCHEDULE					
TAG NO.	TYPE	MANUFACTURER	MODEL NO.	STRAINER	REMARKS
FD-A	FLOOR DRAIN	WATTS	FD-340Y-SET	12" DI TOP WITH BUCKET	STORAGE AREAS

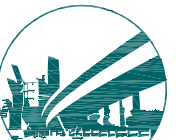
SERVICE	MAXIMUM SERVICE OPERATING LIMITS			PIPE CLASS	PIPE SIZE RANGE						
	LEGEN D	PRESS (PSIG)	TEMP ("F)		1/2" TO 3"				4" AND LARGER		
					PIPE	FITTINGS	JOINTS	MECHANICAL JOINTS	PIPE	FITTINGS	JOINTS
DOMESTIC COLD WATER	CW	100	250	A10	Seamless copper water tube, drawn temper, Type L or K. ASTM B-88.	Wrought copper, solder-joint. ASME B16.22	ASTM B-32 solder filler material, Alloy Sb5 "95/5." ASTM B-813 liquid or paste flux. Soldering procedures shall comply with ASTM B-828.	Cast copper alloy unions, hexagonal stock with ball-and-socket joint, solder joint ends. ASME B16.18.	Cement Lined Ductile Iron Class 52.	Cement Lined Ductile Iron. Ductile iron coupling with copper alkyd enamel paint coating, ASTM A-536. Grade "E" EPDM elastomer gasket, ASTM D-2000. Equal to Victaulic Style 606 coupling. ASTM B-75 copper alloy fittings. ASTM B-584 grooved end cast bronze fittings for 6" pipe size.	Mechanical Joints with retainer glands. Rolled groove prepared and assembled in accordance with manufacturer instructions.
DOMESTIC HOT WATER	HW	100	250	A10					Seamless copper water tube, drawn temper, Type L or K. ASTM B-88.		
Notes: 1. Below grade water piping 3" and smaller shall be Type K copper with bituminous coating and copper brazed joints, BcUP filler alloy. ANSI/AWS A5.8. procedures shall be per ANSI/AWS B2.2. 2. Contact between dissimilar metals shall be made with di-electric couplings or di-electric flanges. Contact between ferrous and stud bolts and bronze flanges shall be electrically insulated with non-metallic washers. 3. Provide mechanical joint connections to all equipment such as water heaters, pumps, compressors, etc.											

SERVICE	MAXIMUM SERVICE OPERATING LIMITS			PIPE CLASS	ABOVE GRADE			BELOW GRADE		
	LEGEND	PRESS. (PSIG)	TEMP (°F)		PIPE	FITTINGS	JOINTS	PIPE	FITTINGS	JOINTS
SANITARY WASTE & VENT	S, W, V	GRAVITY	120	D10	3" And Larger: Hubless Cast Iron Soil Pipe, Service Weight. ASTM-A-888, CISPI 301. 2½" And Smaller: Hubless Cast Iron Soil Pipe, Service Weight. ASTM A-888, CISPI 301 Or Type L Copper Tubing. ASTM B8872.	3" And Larger: Hubless Cast Iron Fittings, Service Weight. ASTM-A-888, CISPI 801. 2½" And Smaller: Hubless Cast Iron Fittings, Service Weight. ASTM A-888, CISPI 301 Or Wrought Copper DWV Fittings.	Hubless Cast Iron: Heavy Duty Stainless Steel Band Coupling With Neoprene Gasket. Bank Torque Of 80 Foot-Pounds. 15 PSIG Pressure Rating. Husky SD 4000 Or Clamp-All Hi-Torq 80. Copper: 95/5 Solder.	2" And Larger: Hub And Spigot Cast Iron Soil Pipe, Extra Heavy. ASTM A-74 Or Service Weight If Code Approved. Piping Shall Be Asphalt Or Coal Tar Pitch Coated.	2" And Larger: Hub And Spigot Cast Iron Fittings, Extra Heavy. ASTM A-74. Asphalt Or Coal Tar Pitch Coated. DWV Pattern.	Neoprene Compression Gaskets Conforming To ASTM C-564.
Notes: 1. Copper Tube And Fittings Shall Not Be Used On Urinal Wastes. 2. CISPI 310 No-Hub Couplings Will Not Be Accepted As Equal To Manufacturers Listed. 3. Piping through electric rooms: sanitary, storm, and vent piping through electric rooms shall be sleeved through a sufficiently sized schedule 10 galvanized sleeve piping with Grooved style fittings and couplings. Extend dual wall piping to a distance of 1 foot beyond the exterior on each side of the electric room. Terminate with a closure method comprised of a caulked joint at each end with a closed ¾" ball valve available to monitor the containment area of the piping system										

SERVICE	MAXIMUM SERVICE OPERATING LIMITS			PIPE CLASS	PIPE SIZE RANGE							
	LEGEND	PRESS. (PSIG)	TEMP (°F)		3" AND SMALLER			4" AND LARGER				
					PIPE	FITTINGS	UNIONS	FLANGES	PIPE	FITTINGS	UNIONS	
FORCE MAIN (SANITARY OR STORM)	FM	50	120	D11	Schedule 40 Galvanized Steel, ASTM A53 Grade B, A106 Grade A or A120.	Screwed Cast Iron 125 PSI Galvanized.	Screwed 150# Malleable Iron A105 Grade II, Galvanized.	150# Raised Face, Screwed, A105 Galvanized.	Schedule 40 Galvanized Steel, ASTM A53 Grade B, A106 Grade A or A120.	Grooved Malleable Iron 125 PSI Galvanized.	Use Flanges.	150# Raised Face Galvanized Uniflange, ASTM A181, Grade I. 150# Flat Face for Cast Iron Valve.

SEWAGE EJECTOR SCHEDULE														
TAG NO.	LOCATION	TYPE	ARRANGEMENT SIMPLEX/DUPLEX	CAPACITY (GPM)	HEAD (FT)	ELECTRICAL DATA				BASIN		MANUFACTURER	MODEL NO.	REMARKS
						HP	VOLTS	PHASE	HZ	MATERIAL	SIZE/SHAPE			
SE-1	STORAGE CLOSET	SUBMERSIBLE	DUPLEX	75	20	1	208	3	60	FIBERGLASS	36" ROUND x 60" DEEP	WEIL	1607	1
NOTES: 1. PROVIDE: (4) WEIL SERIES 8234 FLOAT SWITCHES SUSPENDED FROM COVER, (1) NEMA 4X 8136 DUPLEX CONTROL PANEL, (2) MAGNETIC STARTERS w/ 3 COIL OL PROTECTION, (1) TWO MOTOR CIRCUIT PROTECTORS, (1) AUTOMATIC ALTERNATOR, (2) H.O.A. SELECTOR SWITCHES, (2) PUMP RUNNING LIGHTS, (1) CONTROL CIRCUIT TRANSFORMER, (1) ALARM HORN w/ SILENCER, (1) SET OF ISOLATED CONTACTS FOR REMOTE ALARM, (1) 40" ROUND STEEL COVER WITH ALL NECESSARY OPENINGS.														

ELECTRIC WATER HEATER SCHEDULE												
TAG NO.	STORAGE CAPACITY (gal.)	RECOVERY		ELECTRICAL DATA				TEMP. SETTING (°F)	MANUFACTURER	MODEL NO.		REMARKS
		RATE (GPH)	DEG. RISE (°F)	NO. OF ELEMENTS	TOTAL KW	VOLTS	PHASE	HZ				
EWH-1	50	61	80	3	12	208	3	60	120	STATE	CSB-52-12-SFE	

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200 Brickstone Square
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REVISIONS		
Number	Description	Date

ISSUED FOR:
BID



FIRE STATION
ENGINE No.3
LIVING QUARTERS

255 Somerville Ave.
Somerville, MA 02143

PLUMBING
SCHEDULES

PROJECT NUMBER: 20140474

DESIGNED BY: RDB

DRAWN BY: DJF

CHECKED BY: RDB

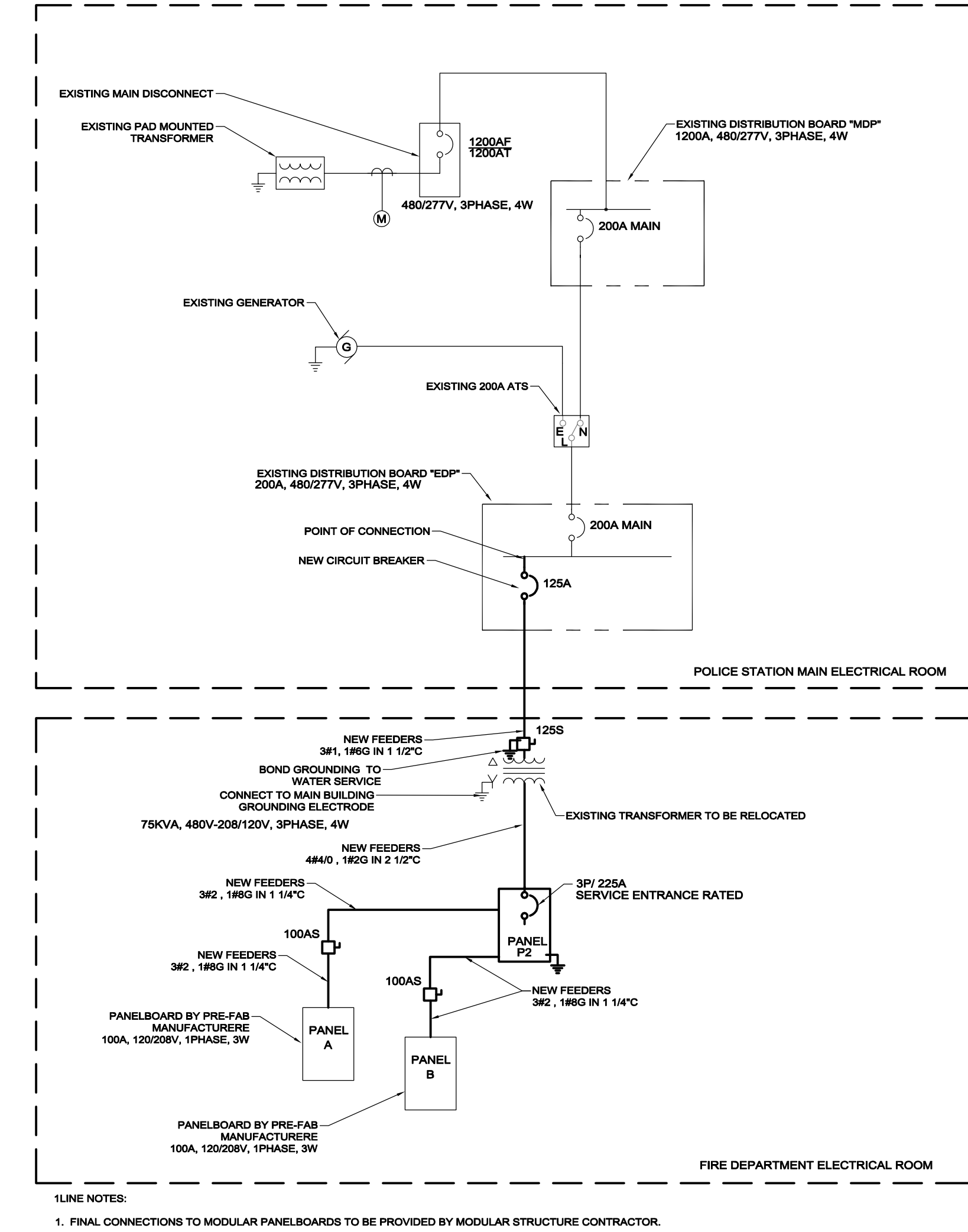
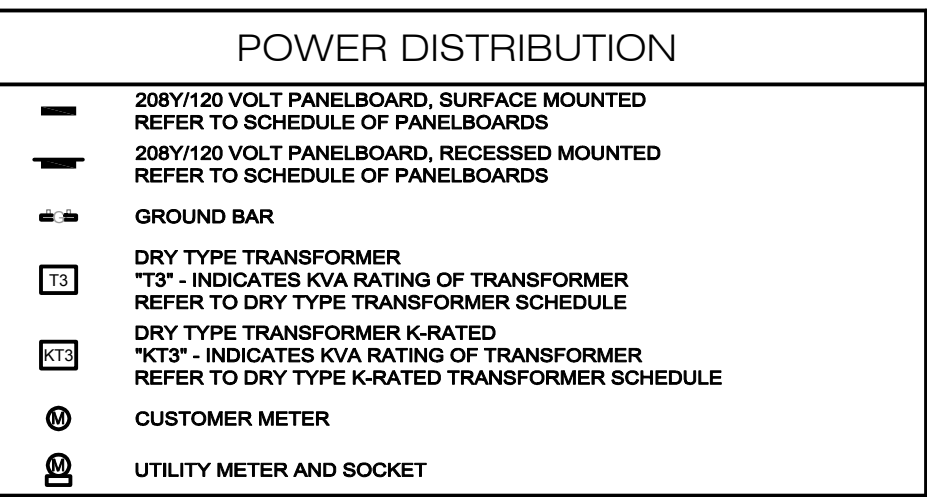
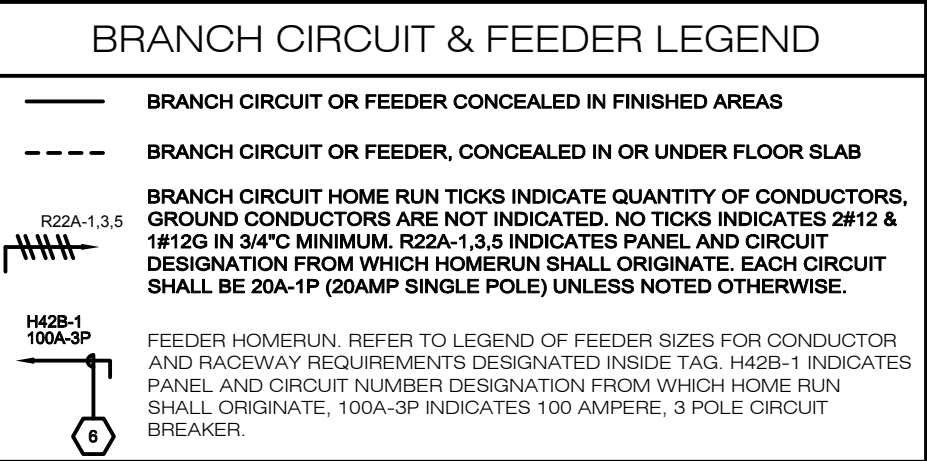
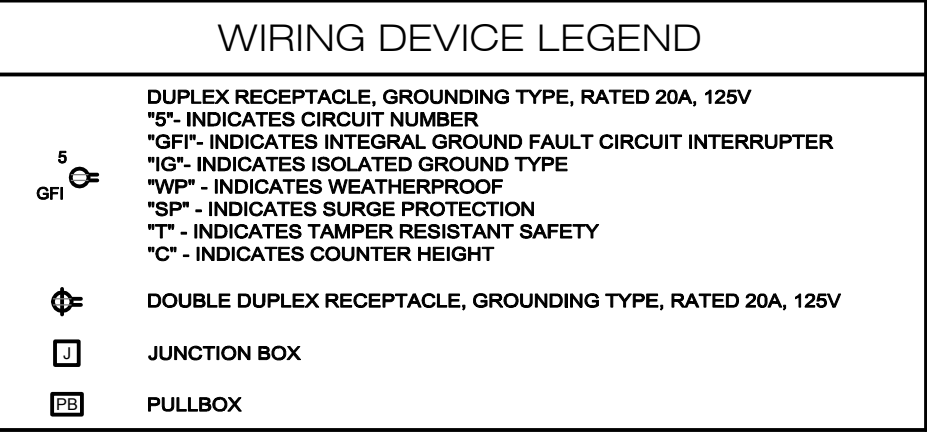
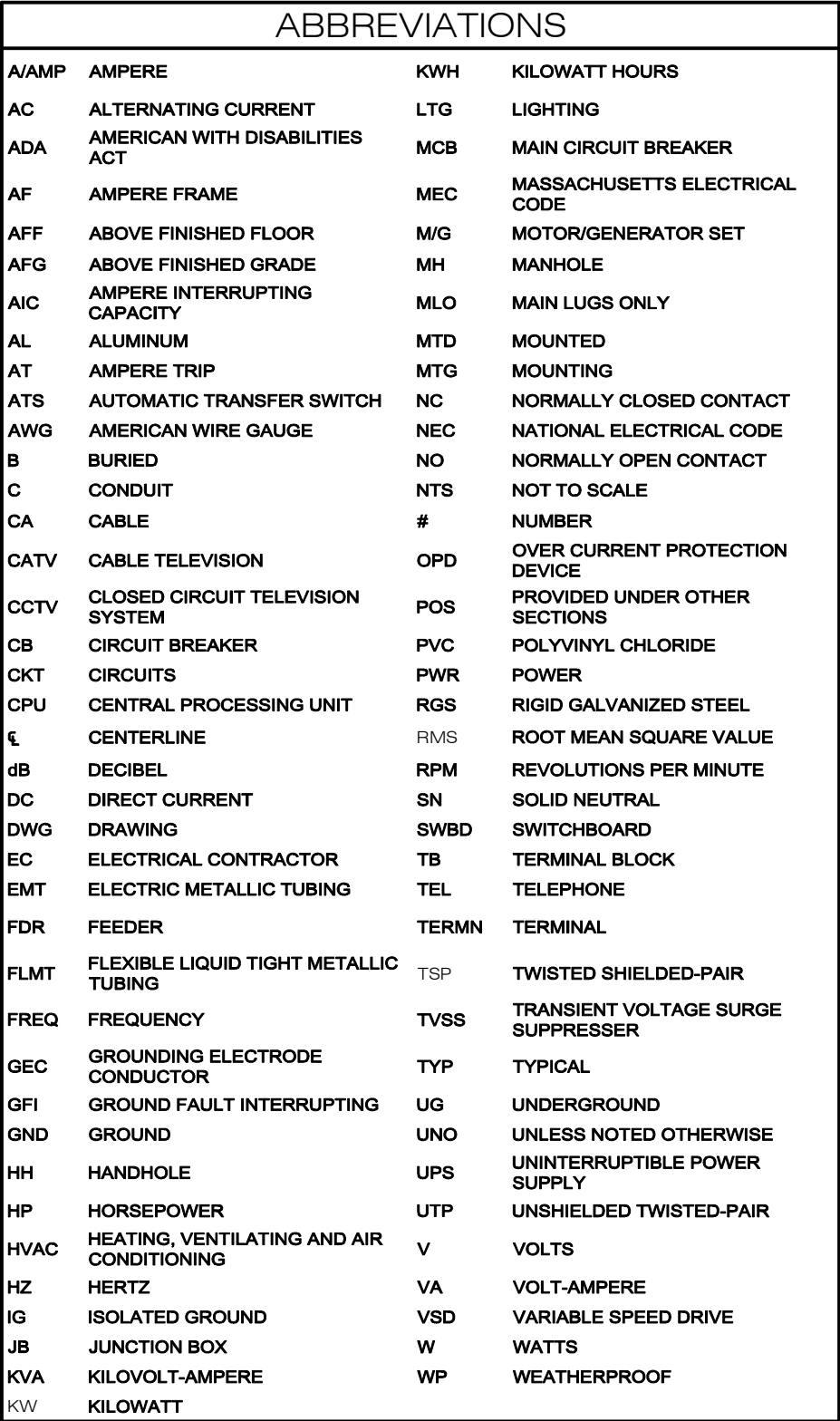
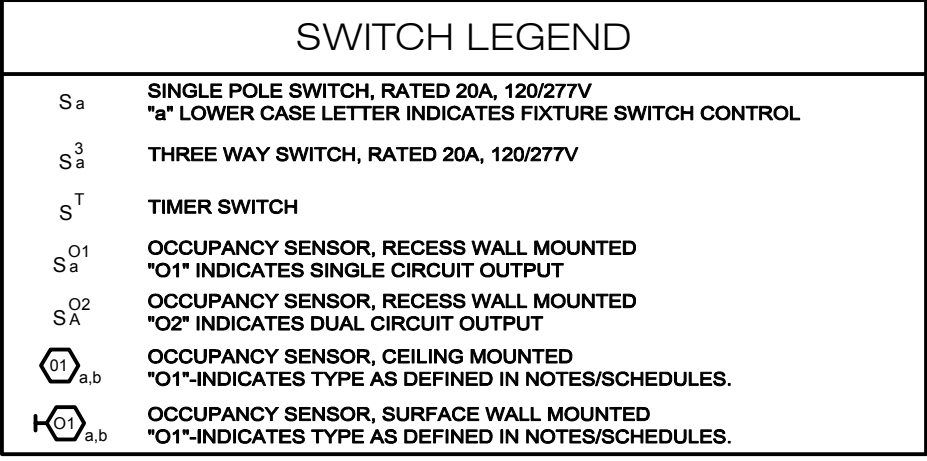
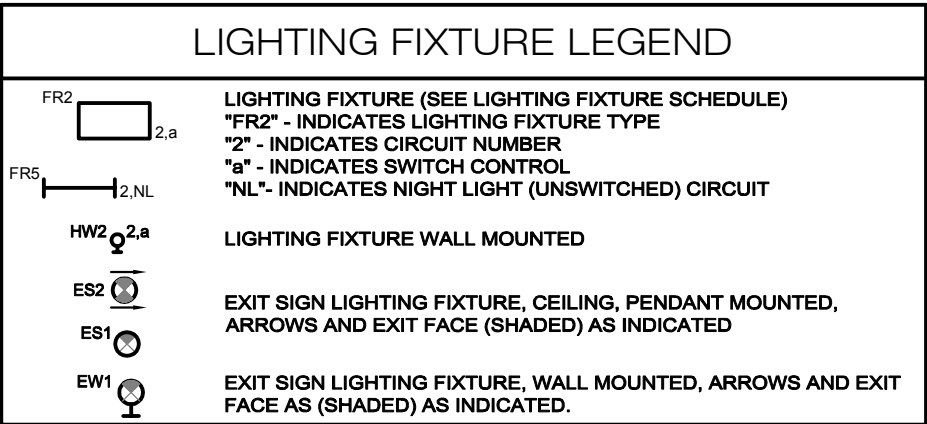
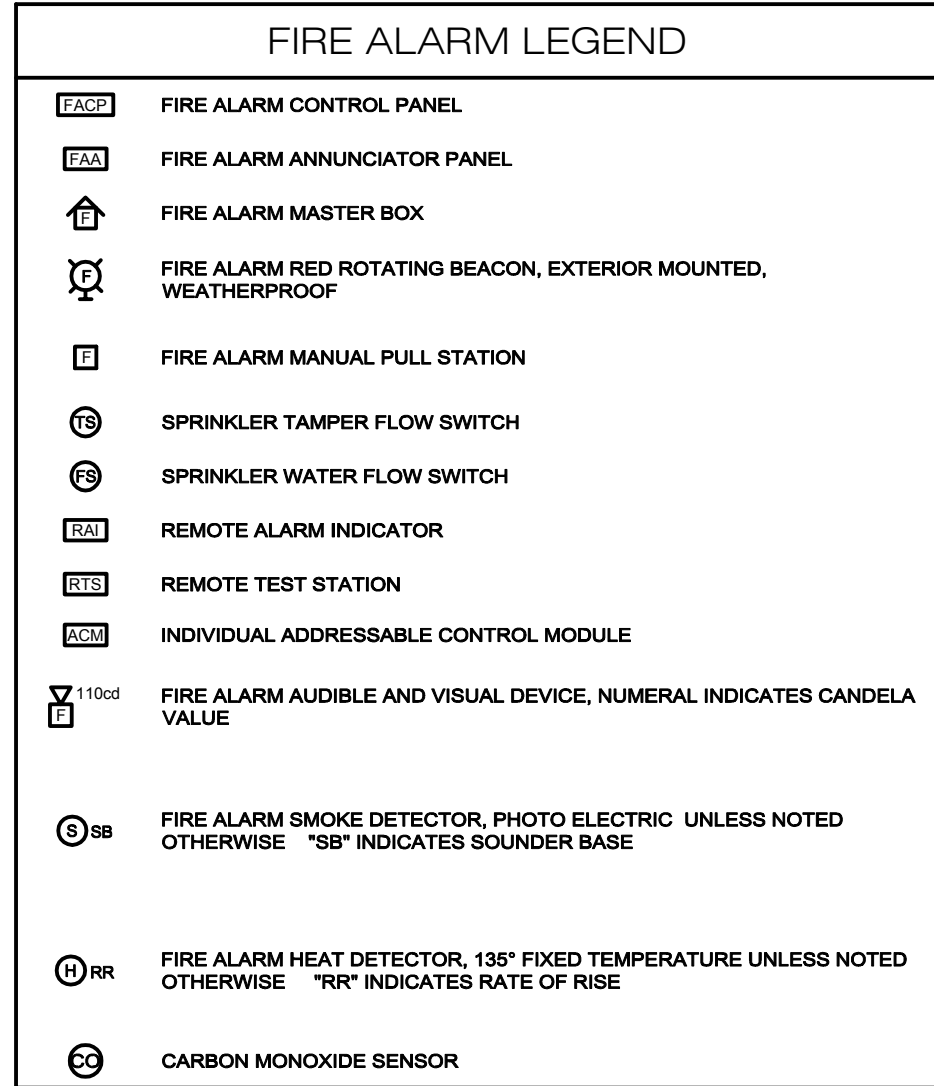
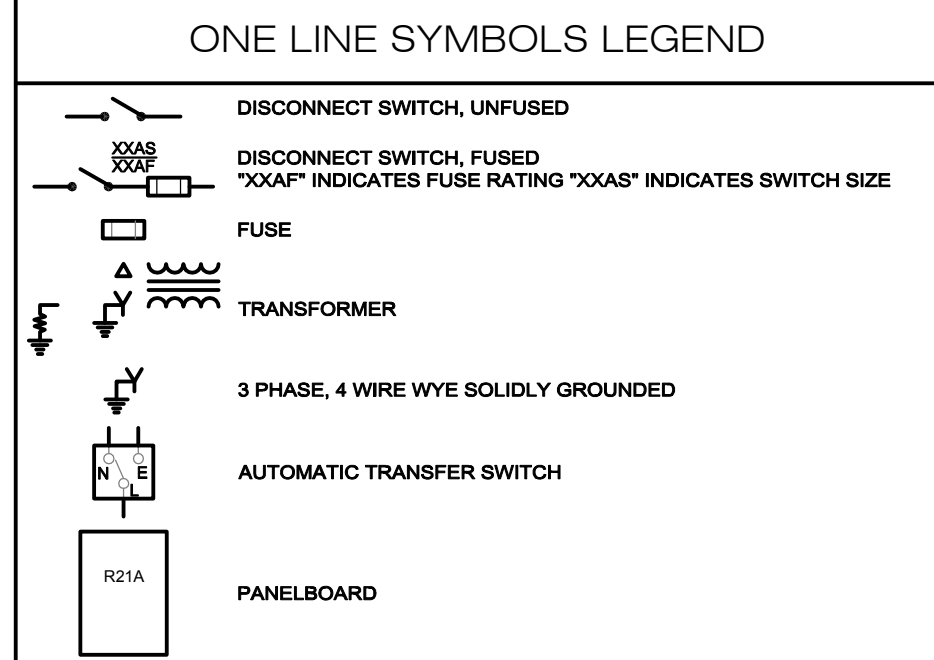
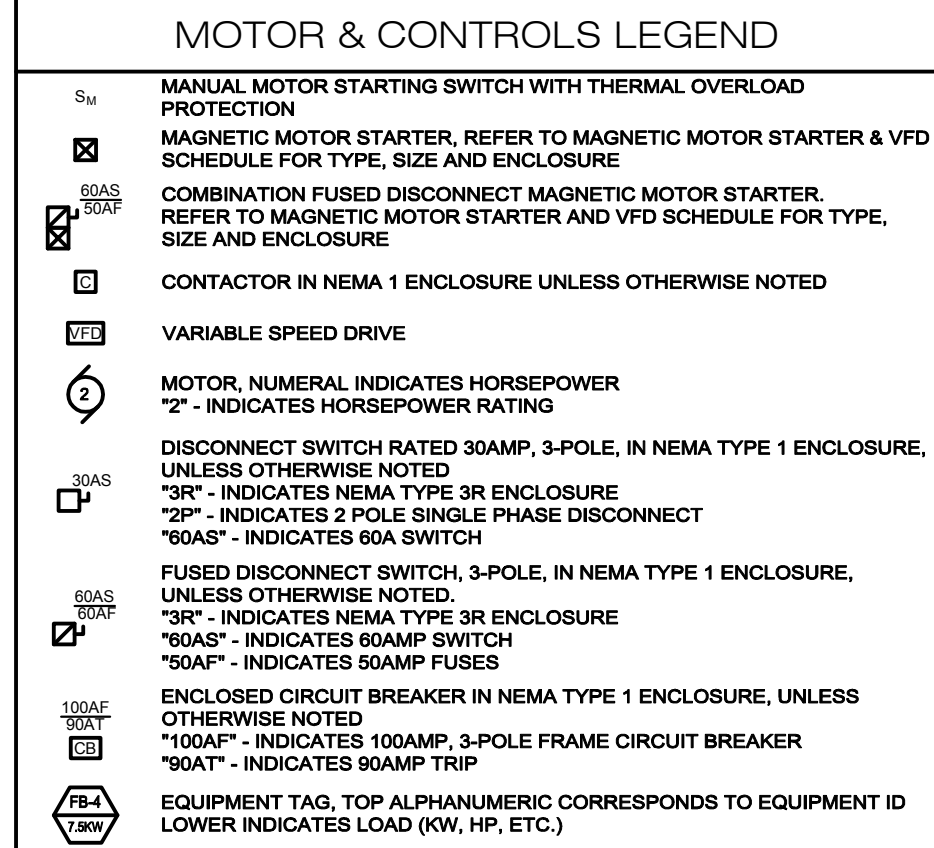
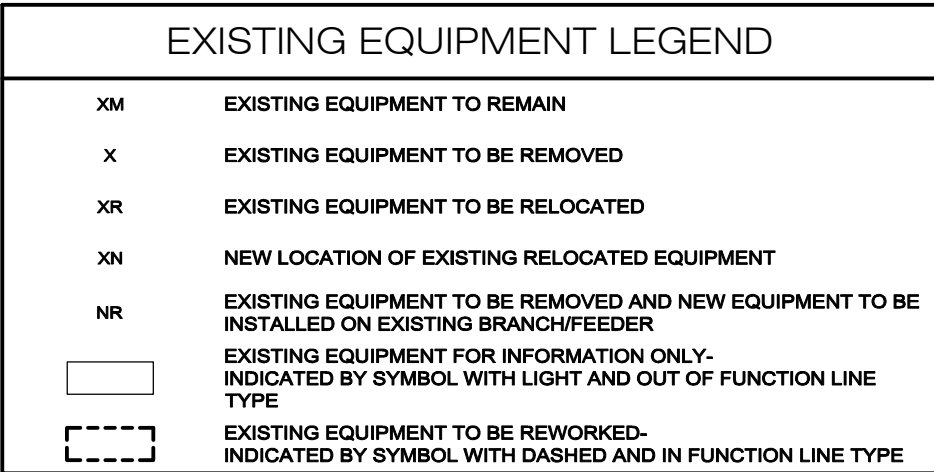
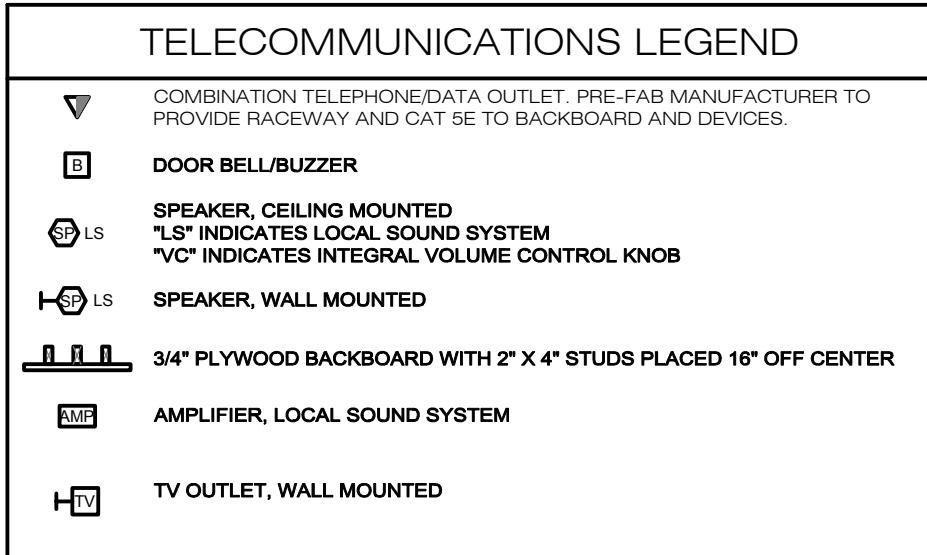
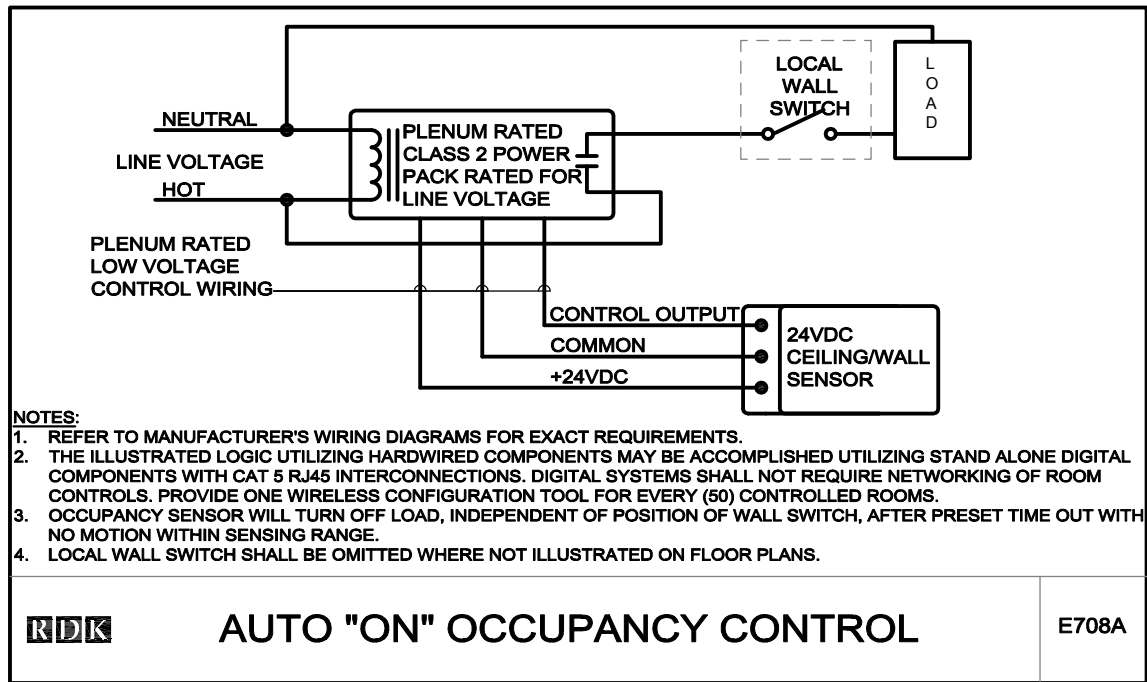
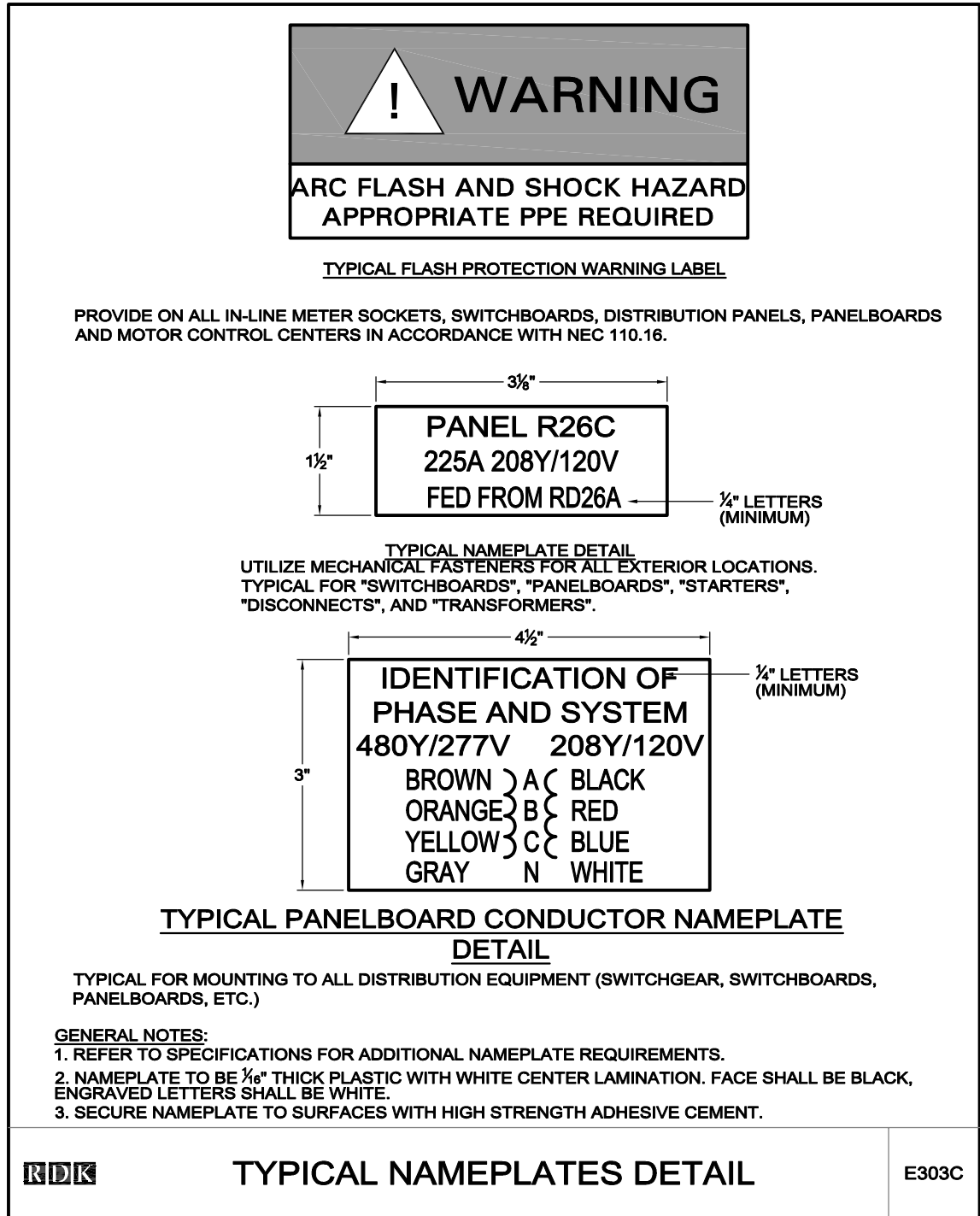
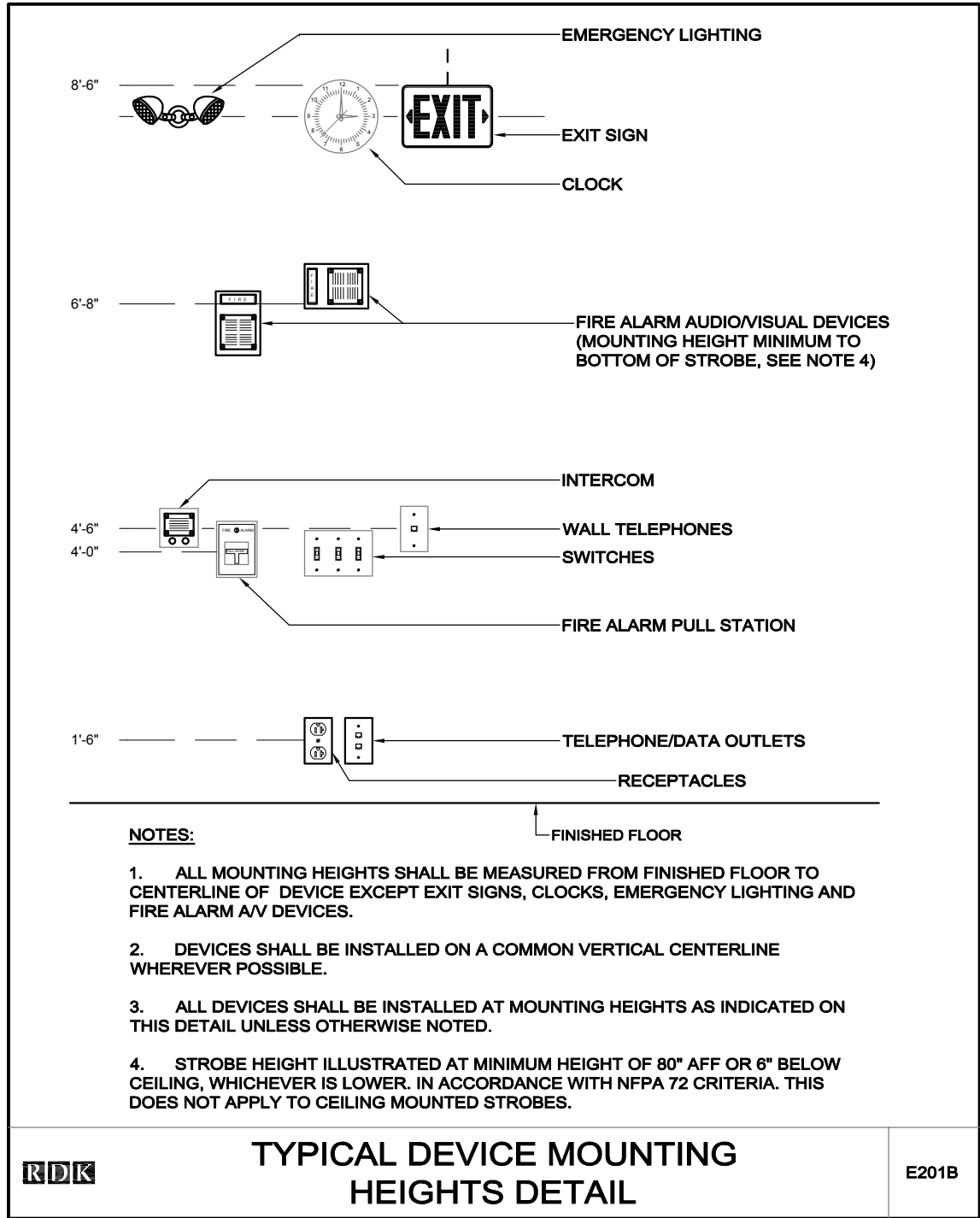
DATE: OCTOBER 22, 2014

SCALE: N.T.S.

SHEET NUMBER:

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SHEET 18 OF 28



PANELBOARD SCHEDULE

PANEL	P2	VOLTS	208Y/120	AMP'S	225	MOUNT	SURFACE	GROUND BUS	Y
MAIN	225A	AMP'S	225	NC	10 500	ISOLATED GROUND BUS	N		
		PH WIRE	3/4	LOC	STORAGE	200% NEUTRAL	N		
QIR	AMPS/ POLES	DESCRIPTION OF LOAD	LOAD KVA	LOAD BY PHASE KVA	LOAD KVA	DESCRIPTION OF LOAD	AMPS/ POLES	QIR	
1	100/2	PANEL A	6.90	6.90	7.40	0.50	201	2	
3			6.90	6.90	7.40	0.50	201	4	
5	100/2	PANEL B	6.90	6.90	7.40	0.50	201	6	
7			6.90	6.90	7.40	0.50	201	8	
9	80/2	WATER HEATER EWH-1	6.00	6.00	6.60		201	10	
11			6.00	6.00	6.60		201	12	
13	SPACE				0.50			14	
15	SPACE				0.50			16	
17	SPACE				0.50			18	
CONNECTED KVA BY PHASE:			13.80	13.40	13.40				
						TOTAL CONNECTED KVA	40.60		
						TOTAL DEMAND KVA	40.60		
						TOTAL DEMAND AMPERES	112.75		

1. ALTERNATE PHASING FOR SINGLE PHASE LOADS TO PROVIDE BALANCED LOADS AT THE PANELBOARD AS SHOWN.

MECHANICAL EQUIPMENT SCHEDULE

		LOAD							STARTER										POWER SOURCE			
LOAD TAG	STARTER LOCATION	HP	FLA	KVA	VOLT	PH	NEMA SIZE	TYPE	OVERCURRENT CB	RK1	MCP	PS	HQA	R	O	A	CPT	AUXILIARY CONTACTS	NO	NC	PANEL	
SEA-1	STORAGE	1	4.5	1.0	200	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	P2-4B
EWHT-1	STORAGE	-	87.7	12.0	200	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	P2-11

NOTES

1. NOTES 2-6 APPLY TO ALL APPLICABLE LOADS.

2. PROVIDE THERMAL OVERLOAD UNIT'S FOR ALL STARTERS SIZED TO MATCH LOAD NAMEPLATE AND NEC REQUIREMENTS

3. BRANCH CIRCUIT WIRING METHODS SHALL BE AS NOTED ON THE DRAWINGS AND/OR SPECIFICATIONS FOR THE APPLICABLE LOCATION. THE FINAL THREE FEET WIRE RUN SHALL BE FLEXIBLE METAL OR LIQUID TIGHT FLEXIBLE METAL CONDUIT

4. COPPER BRANCH CIRCUIT CONDUCTOR SIZING BASED UPON NEC TABLE 310.15(B)(16) MAKE ADJUSTMENTS TO CONDUCTORS FOR TEMPERATURE OR VOLTAGE DROP THAT EXCEEDS NEC AND SPECIFICATION CRITERIA

5. RACEWAY SIZES ARE BASED UPON DRIP AND LMC WITH THIN CONDUCTORS

6. VFD SHALL BE CONTROLLED VIA REMOTE 4-20mA OR 3-5V SIGNAL PROVIDED BY THE HVAC ATC CONTRACTOR

7. REQUIRE A DISCONNECT & PROVIDE INTEGRAL FUSES W/ MECHANICAL EQUIPMENT

8. REQUIRE 2 STARTERS & PROVIDE INTEGRAL FUSES W/ MECHANICAL EQUIPMENT

9. DISCONNECT FOR 251 W/AND 252W MOTORS SHALL BE 6X 6X 6X

10. PROVIDE NEUTRAL FROM SOURCE TO STARTER ONLY FOR 120V CONTROL POWER OF 208V 3PH UNITS

11. FUSES FOR DISCONNECT SWITCHES SHALL BE CLASS B&D

KEY

PWR FULL VOLTAGE NON-REVERSING

PVR FULL VOLTAGE REVERSING

CB CIRCUIT BREAKER

MCP MOTOR CIRCUIT PROTECTOR

PBT START AND STOP PUSH-BUTTON

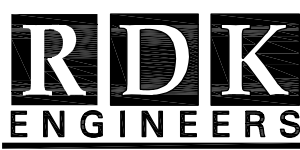
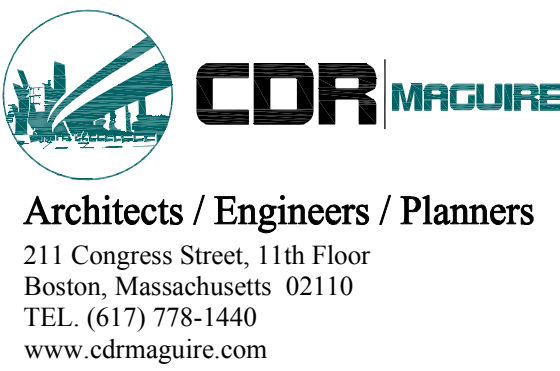
HQA HAND-OFF-AUTOMATIC SELECTOR SWITCH

CPT CONTROL POWER TRANSFORMER

VFD VARIABLE FREQUENCY DRIVE W/ 6X 6X 6X

VDR VARIABLE FREQUENCY DRIVE W/ 6X 6X 6X

CONTR CONTRACTOR NO THERMAL OVERLOAD



RDK Engineers
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REVISIONS

Number	Description	Date

ISSUED FOR:
BID



FIRE STATION
ENGINE No.3
LIVING QUARTERS

255 Somerville Ave.
Somerville, MA 02143

ELECTRICAL LEGEND,
NOTES AND
ABBREVIATIONS

PROJECT NUMBER: 20140474

DESIGNED BY: AM

DRAWN BY: DF

CHECKED BY: GM

DATE: OCTOBER 22, 2014

SCALE: N.T.S.

SHEET NUMBER:

E0.0

ELECTRICAL SPECIFICATIONS

PART 1 - GENERAL

- GENERAL PROVISIONS: DRAWINGS ARE DIAGRAMMATIC AND INDICATE GENERAL ARRANGEMENT OF WORK IN CONTRACT. REFER TO ALL DRAWINGS ASSOCIATED WITH THIS PROJECT (EACH TRADE) FOR EXACT LOCATION OF ALL EQUIPMENT AND REQUIRED MOUNTING HEIGHTS.
- SCOPE: PERFORM WORK AND PROVIDE NEW MATERIAL AND EQUIPMENT AS SHOWN ON DRAWINGS AND AS SPECIFIED IN THIS SECTION OF THE SPECIFICATIONS. PROVIDE ALL COMPONENTS AND MATERIALS, WHETHER SPECIFICALLY SHOWN OR NOT, THAT ARE NECESSARY TO MAKE THE SYSTEMS COMPLETE AND FULLY OPERATIONAL. WORK SHALL INCLUDE, BUT NOT BE LIMITED TO: 1) THE DESIGN INTENT IS ILLUSTRATED ON THESE DRAWINGS, 2) ALL TESTING AND CERTIFICATIONS NECESSARY FOR COMPLIANCE AND ANY REQUIRED REMEDIAL ACTIONS AND RETESTING DUE TO FAILURE, 3) ALL REQUIREMENTS FOR THIS PROJECT INCLUDED IN THE "NARRATIVE REPORT FOR COMPLIANCE WITH THE ENERGY CONSERVATION SECTION OF THE STATE BUILDING CODE - AIR CONDITIONING AND VENTILATION" AND 4) REQUIREMENTS FOR THIS PROJECT INCLUDED IN THE "NARRATIVE REPORT FOR COMPLIANCE WITH THE FIRE PROTECTION AND LIFE SAFETY SECTION OF THE STATE BUILDING CODE - FIRE PROTECTION CONSTRUCTION DOCUMENTS".
 - SITE VISIT: VISIT AND CAREFULLY EXAMINE SITE TO IDENTIFY EXISTING CONDITIONS THAT MAY AFFECT WORK OF THIS SECTION BEFORE SUBMITTING BID. NO EXTRA PAYMENT WILL BE ALLOWED FOR ADDITIONAL WORK CAUSED BY UNFAMILIARITY WITH SITE CONDITIONS THAT ARE VISIBLE OR READILY DISCERNED.
 - RELATED WORK: THE FOLLOWING WORK IS NOT INCLUDED IN THIS SECTION AND WILL BE PROVIDED UNDER OTHER SECTIONS: 1) TEMPORARY LIGHTING AND POWER FOR USE DURING CONSTRUCTION AND TESTING UNLESS SPECIFICALLY NOTED IN OTHER SPECIFICATION SECTIONS, 2) TELECOMMUNICATIONS WIRING AND DEVICES UNLESS SPECIFICALLY NOTED ON THE DRAWINGS 3) AUTOMATIC TEMPERATURE CONTROL AND DIRECT DIGITAL COMMUNICATIONS WIRING UNLESS SPECIFICALLY NOTED ON THE DRAWINGS AND 4) PAINTING.
 - CODES, STANDARDS, AUTHORITIES AND PERMITS: ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST EDITIONS OF THE STATE BUILDING CODE, THE STATE ELECTRICAL CODE, NFPA, ANSINCEA INSTALLATION STANDARDS AND OTHER APPLICABLE CODES, REGULATIONS AND LAWS OF LOCAL, STATE AND FEDERAL GOVERNMENT, OTHER AUTHORITIES HAVING JURISDICTION AND ANY APPLICABLE BUILDING STANDARDS, RULES AND SPECIFICATIONS. CODES, LAWS AND ORDINANCES PROVIDE A BASIS FOR THE MINIMUM INSTALLATION CRITERIA. THESE DRAWINGS AND SPECIFICATIONS ILLUSTRATE THE SCOPE REQUIRED FOR THIS PROJECT, WHICH MAY EXCEED MINIMUM CODE, LAW AND STANDARDS CRITERIA. GIVE NOTICES, FILE PLANS, OBTAIN PERMITS AND LICENSES, PAY BACKCHARGES AND OBTAIN NECESSARY APPROVALS FROM UTILITIES TO COMPLY WITH ALL APPLICABLE CODES AND STANDARDS REQUIRED FOR THE EXECUTION OF ALL WORK ASSOCIATED WITH THIS PROJECT.
 - INTERPRETATION OF DOCUMENTS: ADVISE THE ENGINEER IN WRITING (RFI) PRIOR TO PROCEEDING WITH PROCUREMENT OR INSTALLATION THAT THE DESIGN INTENT IS UNCLEAR OR THAT CONSTRUCTION DOCUMENTS DO NOT COINCIDE WITH THE APPLICABLE BUILDING STANDARDS, RULES AND SPECIFICATIONS. IT IS NECESSARY TO RESOLVE DISCREPANCIES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
 - REQUEST FOR INFORMATION: RFI ISSUED TO RESOLVE A CONFLICT OR DISCREPANCY SHALL BE PROVIDED WITH THE PREFERRED SOLUTION VIA WRITTEN DESCRIPTION OR SKETCH.
 - SUBMITTALS: PROVIDE SPECIFIED MATERIALS AND EQUIPMENT UNLESS "EQUAL" OR "APPROVED EQUAL" IS EXPLICITLY INDICATED ON THE DRAWINGS. DEVIATIONS TO SPECIFIED MATERIALS SHALL BE AT THE SOLE RISK OF THE CONTRACTOR, WHO SHALL BE RESPONSIBLE FOR ALL ASSOCIATED CHANGES TO THIS AND OTHER SUBMITTALS. THE CONTRACTOR SHALL RECOMMEND AND APPROVE BY THE RESPONSIBLE CONTRACTOR, SUBMIT FOR REVIEW (6) SETS OF MANUFACTURER'S PRODUCT DATA FOR ALL LIGHTING, LAMPS, BALLASTS AND CONTROLS; DEVICES (RECEPTACLES AND SWITCHES) AND PLATES; FIRE ALARM SYSTEM COMPONENTS; PANELBOARDS, CIRCUIT BREAKERS AND TRANSFORMERS; DISCONNECT SWITCHES AND STARTERS. ALLOW ENGINEER A MINIMUM OF 10 WORKING DAYS FOR PROCESSING AND REVIEW OF EACH SUBMISSION.
 - OPERATION AND MAINTENANCE DATA: SUBMIT (3) SETS OF OPERATING AND MAINTENANCE MANUALS INCLUDING SYSTEM DESCRIPTION, WIRING DIAGRAMS, WRITTEN WARRANTY, RECOMMENDED SPARE PARTS AND ROUTINE MAINTENANCE REQUIREMENTS WITH RECOMMENDED INTERVALS FOR ALL SUPPLIED EQUIPMENT.
 - RECORD DRAWINGS: CAD RECORD DRAWING FILES SHALL BE SUBMITTED AT THE COMPLETION OF THE PROJECT SHOWING THE "AS-BUILT" CONDITION INCLUDING WORK INSTALLED AND ALL MODIFICATIONS OR ADDITIONS TO ORIGINAL DESIGN. OBTAIN THE AUTOCAD FILES FOR PREPARATION OF AS-BUILT DRAWINGS FROM THE ARCHITECT. THE ARCHITECT AND ENGINEER ARE NOT GRANTING ANY OWNERSHIP OR INTELLECTUAL PROPERTY RIGHTS IN THE CAD DRAWINGS BY THE DELIVERY OF THE CAD FILES. THE RIGHTS TO USE THE CAD FILES AND DRAWINGS ARE LIMITED TO USE FOR THE SOLE PURPOSE OF ASSISTING IN THE PERFORMANCE OF CONTRACTUAL OBLIGATIONS WITH RESPECT TO THIS PROJECT. ANY REUSE AND/OR OTHER USE WILL BE AT THE CONTRACTOR'S SOLE RISK AND WITHOUT LIABILITY TO THE ARCHITECT AND ENGINEER.
 - WARRANTIES: WARRANTY INSTALLATION IN WRITING FOR ONE YEAR FROM DATE OF OWNER'S ACCEPTANCE OF CERTIFICATE OF SUBSTANTIAL COMPLETION. REPAIR, REPLACE OR PROVIDE TEMPORARY ACCOMMODATIONS FOR DEFECTIVE MATERIALS, EQUIPMENT, WORKMANSHIP AND INSTALLATION THAT DEVELOP WITHIN 24 HOURS OF NOTIFICATION. TWO (2) SETS SHALL INCLUDE A CONTACT PERSON (NAME AND 24 HOUR TELEPHONE NUMBER) FOR SERVICE REQUESTS. CORRECT DAMAGE CAUSED WHILE MAKING NECESSARY REPAIRS AND REPLACEMENTS UNDER WARRANTY PERIOD AT NO ADDITIONAL COST.
 - COORDINATION: CONFER WITH ALL OTHER TRADES RELATIVE TO LOCATION OF ALL APPARATUS AND EQUIPMENT TO BE INSTALLED AND SELECT LOCATIONS SO AS NOT TO CONFLICT WITH OR HINDER PROGRESS OF WORK OF OTHER SECTIONS. WORK INSTALLED THAT CREATES INTERFERENCE OR RESTRICTS ACCESS REQUIRED BY CODE OR TO CONDUCT MAINTENANCE AND/OR ADJUSTMENTS SHALL BE MODIFIED AT NO ADDITIONAL COST TO THE OWNER.
 - SUPPORTS: INCLUDE ALL STRUCTURAL STEEL SUPPORTS, HANGER BRACKETS, ETC., REQUIRED FOR THE EXECUTION OF THE WORK OF THIS SECTION. HANGERS SHALL BE PREFINISHED CHANNEL AND THREADED ROD USED WITH APPROVED CLAMPS, HARDWARE, ETC. CHANNEL INSTALLED IN EXTERIOR LOCATIONS SHALL BE GALVANIZED STEEL WITH STAINLESS STEEL HARDWARE.
 - CUTTING AND PATCHING: INCLUDE ALL CORING, CUTTING, PATCHING AND FIREPROOFING NECESSARY FOR THE EXECUTION OF THE WORK OF THIS SECTION. STRUCTURAL ELEMENTS SHALL NOT BE CUT WITHOUT WRITTEN APPROVAL OF THE ARCHITECT. THIS CONTRACTOR SHALL BE RESPONSIBLE FOR TAKING ALL PRECAUTIONS REQUIRED TO IDENTIFY HIDDEN PIPING, CONDUITS, ETC., BEFORE ANY CORE DRILLING AND/OR CUTTING OF SLABS OR CONCRETE. WHEN RAYING OR PATCHING IS REQUIRED, SUBMITTALS PROVIDE FIRE STOPPING TO MAINTAIN THE FIRE RATING OF THE FIRE RESISTANCE-RATED ASSEMBLY. ALL PENETRATIONS AND ASSOCIATED FIRE STOPPING SHALL BE INSTALLED IN ACCORDANCE WITH THE FIRE STOPPING MANUFACTURER'S LISTED INSTALLATION DETAILS AND BE LISTED BY UL OR FM.
 - HOISTING, SCAFFOLDING AND PLANKING: INCLUDE THE FURNISHING, SET-UP AND MAINTENANCE OF ALL HOISTING MACHINERY, CRANES, SCAFFOLDS, STAGING AND PLANKING AS REQUIRED FOR THE EXECUTION OF WORK FOR THIS SECTION.

16. SAFETY PRECAUTIONS: LIFE SAFETY AND ACCIDENT PREVENTION SHALL BE A PRIMARY CONSIDERATION. COMPLY WITH ALL OF THE SAFETY REQUIREMENTS OF THE OWNER AND OSHA THROUGHOUT THE ENTIRE CONSTRUCTION PERIOD OF THE PROJECT. FURNISH, PLACE AND MAINTAIN PROPER GUARDS AND ANY OTHER NECESSARY CONSTRUCTION REQUIRED TO SECURE SAFETY OF LIFE AND PROPERTY.
17. ACCESSIBILITY: ALL WORK PROVIDED UNDER THIS SECTION OF THE SPECIFICATION SHALL BE INSTALLED SO THAT PARTS REQUIRING PERIODIC INSPECTION, MAINTENANCE, AND REPAIR ARE READILY ACCESSIBLE. WORK OF THIS TRADE SHALL NOT INFRINGE UPON CLEARANCES REQUIRED BY EQUIPMENT OF OTHER TRADES.
18. PROTECTION OF WORK AND PROPERTY: THIS CONTRACTOR SHALL BE RESPONSIBLE FOR THE CARE AND PROTECTION OF ALL WORK INCLUDED UNDER THIS SECTION THROUGHOUT THE ENTIRE CONSTRUCTION PERIOD OF THIS PROJECT. PROTECT ALL EQUIPMENT AND MATERIALS FROM DAMAGE FROM ALL CAUSES INCLUDING, BUT NOT LIMITED TO FIRE, VANDALISM AND THEFT. ALL MATERIALS AND EQUIPMENT DAMAGED OR STOLEN SHALL BE REPAIRED OR REPLACED WITH EQUAL MATERIAL OR EQUIPMENT AT NO ADDITIONAL COST TO THE OWNER. PROTECT ALL EQUIPMENT, OUTLETS AND OPENINGS, AND ROOT PENETRATION WITH TEMPORARY PLUGS, CAPS AND COVERS. PROTECT WORK AND MATERIALS OF OTHER TRADES FROM DAMAGE THAT MIGHT BE CAUSED BY WORK OR WORKMEN UNDER THIS SECTION AND MAKE GOOD DAMAGE THIS CAUSED. DAMAGED MATERIALS ARE TO BE REMOVED FROM THE SITE; NO SITE STORAGE OF DAMAGED MATERIALS WILL BE ALLOWED. ANY DAMAGE TO EXISTING SYSTEMS AND EQUIPMENT CAUSED BY THIS CONTRACTOR DURING INSTALLATION SHALL BE REPAIRED AND/OR REPLACED AT THIS CONTRACTOR'S EXPENSE TO THE COMPLETE SATISFACTION OF THE BUILDING OWNER.
19. SEISMIC RESTRAINT REQUIREMENTS: PROVIDE SEISMIC RESTRAINTS AS REQUIRED IN ACCORDANCE WITH THE STATE BUILDING CODE. A REGISTERED PROFESSIONAL STRUCTURAL ENGINEER, LICENSED IN THE APPLICABLE STATE FOR PROFESSIONAL ENGINEERING SHALL REVIEW THE SEISMIC RESTRAINT DESIGN AND CERTIFY THAT THE DESIGN IS IN COMPLIANCE WITH THE STATE BUILDING CODE REQUIREMENTS.

PART 2 - PRODUCTS

- IDENTIFICATION: NAMEPLATES SHALL INDICATE EQUIPMENT TAG, VOLTAGE CHARACTERISTICS AND SOURCE OF POWER. REFER TO NAMEPLATE DETAIL FOR ADDITIONAL INFORMATION.
2. RACEWAYS AND CONDUIT: RIGID GALVANIZED STEEL CONDUIT (RGS) SHALL BE UTILIZED WITH THREADED FITTINGS ONLY. ELECTRICAL METALLIC TUBING (EMT) SHALL BE UTILIZED WITH SET SCREW TYPE FITTINGS. PROVIDE CONDUIT EXPANSION FITTINGS WITH EXTERNAL BONDING JUMPS EQUAL TO OZ GEDNEY TYPE EX FOR RGS AND TYPE TX FOR EMT WHEN CROSSING EXPANSION JOINTS. UL LISTED LIQUID TIGHT FLEXIBLE METAL CONDUIT (LFMC) AND FLEXIBLE METAL CONDUIT (FMC) SHALL BE USED FOR FINAL CONNECTIONS TO EQUIPMENT WHERE FLEXIBILITY OF CONNECTION IS REQUIRED. FMC SHALL BE UV RESISTANT WHEN INSTALLED IN AN EXTERIOR LOCATION.
3. WIRE AND CABLE: ALL CONDUCTORS SHALL BE TYPE THHN/THWN OR XHHW, COPPER, RATED 75°/90°C, 600 VOLT INSULATION UNLESS OTHERWISE NOTED. MINIMUM SIZE CONDUCTOR SHALL BE #12 AWG COPPER. CONDUCTORS #10 AWG AND LARGER SHALL BE STRANDED; #12 AWG COPPER CONDUCTORS SHALL BE SOLID. EACH BRANCH CIRCUIT SHALL BE PROVIDED WITH AN INSULATED GROUNDING CONDUCTOR SIZED IN ACCORDANCE WITH NEC TABLE 250.122. CONDUCTOR COLOR CODING SHALL BE IN ACCORDANCE WITH THE DETAILS ON THESE DRAWINGS. COLOR CODING SHALL BE CONSISTENT THROUGHOUT INCLUDING CONDUCTORS INSTALLED IN RACEWAYS AND IN ALL CABLE ASSEMBLIES (MC AND/OR AC). FLEXIBLE METAL CLAD (MC) CABLE SHALL BE UL LISTED WITH INSULATED THHN PHASE TO GROUND CONDUCTORS WITHIN A GALVANIZED STEEL OR ALUMINUM INTERLOCKING ARMOR.
4. WIRING DEVICES AND PLATES: ALL DEVICES SHALL BE SPECIFICATION GRADE WITH NYLON PLATE, COLOR AS SPECIFIED BY THE ARCHITECT OR TO MATCH EXISTING. ALL DEVICES SHALL HAVE A GREEN GROUNDING TERMINAL ON THE YOKE. RECEPTACLES SHALL BE UL FEDERAL SPECIFICATION WH-596 EXTRA HEAVY DUTY 250V 15A TYPE 1 OR 2 FOR UP TO 10% FIELD ADJUSTMENT. COMMERCIAL SPECIFICATION GRADE 20A 125V EQUAL TO COOPER VGF20. SWITCHES SHALL BE INDUSTRIAL-INSTITUTIONAL HEAVY DUTY SPECIFICATION GRADE 20A 120/277V EQUAL TO COOPER 1200 SERIES. DEVICES MOUNTED IN EXTERIOR APPLICATIONS SHALL BE WR LISTED.
5. SAFETY DISCONNECT SWITCHES: DISCONNECT SWITCHES SHALL BE THREE-POLE HEAVY DUTY TYPE RATED FOR 600 VOLT IN NEMA 1 (INTERIOR DRY APPLICATIONS) AND NEMA 3R (EXTERIOR APPLICATIONS) ENCLOSURES UNLESS NOTED OTHERWISE ON THE DRAWINGS. ALL SWITCHES SHALL BE HORSEPOWER RATED AND SUITABLE FOR SERVICE ENTRANCE USE WHERE INDICATED ON THE DRAWINGS. PROVIDE WITH SOLID NEUTRAL WHERE FOUR WIRE CIRCUITS ARE ILLUSTRATED. MANUAL MOTOR STARTERS SHALL HAVE QUICK MAKE, QUICK BREAK CONTACTS WITH 10% FIELD ADJUSTMENT. MANUAL MOTOR STARTERS SHALL BE SINGLE PHASE AND MAY BE USED FOR APPLICATIONS UP TO 1 HP AT 277 VOLT. ACCEPTABLE MANUFACTURERS SHALL BE SQUARE D, GE, SIEMENS OR EATON CUTLER-HAMMER.
6. MOTOR STARTERS: COMBINATION MOTOR STARTER/DISCONNECTS SHALL BE 600V NEMA RATED. UNITS SHALL BE RATED FOR 100KA SYMMETRICAL AT 480V. REFER TO THE MOTOR STARTER SCHEDULE FOR EITHER FUSING OF MOTOR CIRCUIT PROTECTOR REQUIREMENTS. CONTROL POWER TRANSFORMERS SHALL HAVE DUAL PRIMARY AND ONE SECONDARY FUSE. PILOT LIGHTS SHALL BE LED PUSH-TO-TEST TYPE. ENCLOSURES SHALL BE NEMA 12 GASKETED UNLESS NOTED OTHERWISE ON THE DRAWINGS. ACCEPTABLE MANUFACTURERS SHALL BE SQUARE D, GE, SIEMENS OR EATON CUTLER-HAMMER.
7. PANELBOARDS: PANELBOARDS SHALL BE CIRCUIT BREAKER TYPE WITH THERMAL MAGNETIC BOLT-ON MOLDED CASE CIRCUIT BREAKERS AND COPPER BUSES. MINIMUM INTERRUPTING CAPACITY SHALL BE 10,000 AMPS SYMMETRICAL AT 208 VOLT AND 14,000 AIC AT 480 VOLT. REFER TO PANEL SCHEDULES FOR EXACT AIC RATINGS OF EQUIPMENT. PANELBOARD COVERS SHALL BE DOOR-IN-DOOR DESIGNED TO BE REMOVED WITHOUT THE NEED FOR A REMOVAL TEST FACILITY TO ANSI C12.1 AND C12.16 SPECIFICATIONS. DEMAND DISPLAY WILL SHOW THE HIGHEST PEAK DEMAND. METERS SHALL BE PROVIDED WITH SELF CONTAINED BACKUP SYSTEM TO MAINTAIN THE MEMORY AND DISPLAY DURING POWER FAILURES. CURRENT SENSORS/CTS SHALL BE SPLIT CORE CONFIGURATION. SENSORS SHALL BE SIZED TO MATCH THE APPLICATION CIRCUIT RATING AMPS. METERS SHALL BE TESTED TO ANSI C12.1 AND C12.16.
8. CHECK METERING: PROVIDE ELECTRONIC KWH/KWD METERING WITH DIGITAL LCD DISPLAY AS INDICATED ON THE DRAWINGS. METERS SHALL BE ENCLOSED IN HEAVY DUTY ENCLOSURE WITH A METHOD OF LOCKING TO PREVENT UNAUTHORIZED ACCESS. METERS SHALL BE LISTED, CSA APPROVED AND CALIBRATED BY A NIST APPROVED INDEPENDENT TEST FACILITY TO ANSI C12.1 AND C12.16 SPECIFICATIONS. DEMAND DISPLAY WILL SHOW THE HIGHEST PEAK DEMAND. METERS SHALL BE PROVIDED WITH SELF CONTAINED BACKUP SYSTEM TO MAINTAIN THE MEMORY AND DISPLAY DURING POWER FAILURES. CURRENT SENSORS/CTS SHALL BE SPLIT CORE CONFIGURATION. SENSORS SHALL BE SIZED TO MATCH THE APPLICATION CIRCUIT RATING AMPS. METERS SHALL BE TESTED TO ANSI C12.1 AND C12.16.
9. DRY TYPE TRANSFORMERS: DRY TYPE TRANSFORMERS SHALL MEET NEMA ST20 AND TP-1, UL STANDARDS AND APPLICABLE ENERGY CODE EFFICIENCIES. TRANSFORMERS SHALL HAVE 220°C₁ INSULATION SYSTEM RATED FOR CONTINUOUS OPERATION AT RATED KVA. TRANSFORMERS TEMPERATURE RISE SHALL NOT EXCEED 150°C. COILS SHALL BE CONTINUOUS WOUND CONSTRUCTION OR DRY TYPE OR DRY TYPE WITH PREHEAT. COILS SHALL BE PROVIDED WITH (62.5% TAPS, K13 RATED TRANSFORMERS SHALL HAVE 200% NEUTRALS AND AN ELECTROSTATIC SHIELD WITH NOISE ATTENUATION OF 120db COMMON MODE AN

30db NORMAL MODE. ACCEPTABLE MANUFACTURERS SHALL BE SQUARE D, GE
SIEMENS OR EATON CUTLER-HAMMER.

- FLUORESCENT LIGHTING: FLUORESCENT FIXTURES SHALL HAVE ELECTRONIC BALLAST WITH HIGH POWER FACTOR AND SOUND RATING "A". TOTAL HARMONIC DISTORTION SHALL BE LESS THAN 10%. BALLAST SHALL BE PROGRAMMED RAMP START OR INSTANT START AND HAVE A MINIMUM BALLAST FACTOR OF 0.88. ACCEPTABLE BALLAST MANUFACTURERS ARE OSRAM SYLVANIA AND ADVANCE ELECTRIC, OR APPROVED EQUAL. ELECTRONIC BALLAST THAT OPERATE T-5 AND COMPACT FLUORESCENT LAMPS SHALL HAVE END-OF-LAMP-LIFE SHUT-DOWN TO PROTECT AGAINST LAMP OVER HEATING. LAMPS SHALL HAVE MINIMUM CRI RATING OF 82. FLUORESCENT LAMPS IN DIMMED FIXTURES SHALL BE SEASONED BY OPERATION AT FULL INTENSITY FOR 100 HOURS PRIOR TO DIMMING.
- 11. FIRE ALARM SYSTEM MODIFICATIONS:**
- MODIFICATIONS MADE TO THE BASE BUILDING FIRE ALARM SYSTEM SHALL BE MADE IN COMPLIANCE WITH ALL APPLICABLE CODES AND REQUIREMENTS. ALL NEW COMPONENTS SHALL BE UL LISTED FOR THEIR INTENDED PURPOSE AND CROSS-LISTED FOR USE ON THE EXISTING SYSTEM.
- THE ADDITION OF NEW INITIATING DEVICES OR NOTIFICATION APPLIANCES TO THE EXISTING SLC AND NAC SHALL NOT ADVERSELY EFFECT SUPERVISION. THE WIRING CLASS FOR THE ADDITION OF DEVICES SHALL BE CONSISTENT WITH EXISTING AND PER THE RISER DIAGRAM INCLUDED IN THESE DRAWINGS.
- NEW DEVICES SHALL BE PROGRAMMED TO INITIATE ACTION IN ACCORDANCE WITH THE EXISTING SEQUENCE OF OPERATION AS APPROVED BY THE A.H.J. SYSTEM SUBMITTAL SHALL INCLUDE AN INPUT/OUTPUT MATRIX CLEARLY DEFINING THE SEQUENCE FOR EACH ADDED DEVICE.
- PROVIDE DISTRIBUTED INTELLIGENT POWER SUPPLIES TO ACCOMMODATE THE POWER REQUIREMENTS OF THE CIRCUITS. POWER SUPPLIES SHALL BE COMMUNICATED WITH THE FACILITY DATA COMMUNICATIONS, WHEREBY EACH POWER SUPPLY SHALL REPORT A LOSS OF AC POWER, BATTERY FAIL OR GROUND FAULT, AND EACH NOTIFICATION APPLIANCE CIRCUIT SERVED SHALL BE INDIVIDUALLY MONITORED FOR WIRING INTEGRITY. POWER SUPPLIES/AMPLIFIERS SHALL BE SIZED TO ACCOMMODATE THE DESIGN LOAD PLUS RESERVE CAPACITY OF 50% OR 1 WATT/1,000 SF, WHICHEVER IS GREATER. STANDBY BATTERIES SHALL SUPPORT THE SYSTEM FOR A MINIMUM OF 24 HOURS OF OPERATION FOR 24 HOURS OF FULL SUPERVISORY OPERATION FOLLOWED BY 15 MINUTES OF ALARM. BATTERIES SHALL BE MOUNTED INTEGRAL TO THE POWER SUPPLY CABINET.
- PROVIDE FIRE ALARM TERMINAL CABINETS WHERE NECESSARY. THE CABINETS SHALL HAVE A REMOVABLE HINGED COVER WITH LOCK AND HIGH BARRIER TERMINAL BLOCKS WITH 64 OR 128 POINT CAPACITY MOUNTED TO A PLYWOOD BACKBOARD. THE TERMINAL CABINETS SHALL BE RED AND LABELED WITH PERMANENT WHITE LETTERING.
- VISUAL SIGNAL SHALL BE SELF-SYNCHRONIZING XENON STROBES RATED BY UL 197 TEST CRITERIA AND IN ACCORDANCE WITH NFPA 72. VISUAL SIGNALS SHALL HAVE A MINIMUM EFFECTIVE INTENSITY OF 15 CANDELA (CD) OR AS OTHERWISE SPECIFIED ON THE EXISTING DEVICES SCHEDULED AS 15CD SHALL BE 15/750D DUAL RATED. MULTIPLE STROBES VISIBLE FROM A SINGLE LOCATION SHALL BE SYNCHRONIZED.
- SUBMITTALS: PROVIDE THE FOLLOWING DOCUMENTS FOR REVIEW AND EVALUATION 1) POINT TO POINT WIRING DIAGRAMS OF THE PROPOSED MODIFICATION INCLUDING ALL CONDUCTOR QUANTITY AND CIZING 2) PANEL LAYOUTS INDICATING MODULE PLACEMENT AND CIZING 3) WIRING SCHEDULE FOR FUTURE EXPANSION 4) MANUFACTURERS CATALOG CUT SHEET OF ALL COMPONENTS AND DEVICES WITH INTERCONNECTION DIAGRAMS 4) BATTERY CAPACITY CALCULATIONS INDICATING REQUIRED AND SPARE CAPACITY 5) POWER SUPPLY CAPACITY CALCULATIONS INCLUDING EACH CIRCUIT LOAD, VOLTAGE DROP AND SPARE CAPACITY 6) WRITTEN TEST REPORT FOR NOTIFICATION OF SUCCESSFUL COMPLETION OF EACH REQUIRED TEST AND SYSTEM RECORD OF COMPLETION. 7) AS-BUILT DRAWINGS INCLUDING ALL DEVICE ADDRESSES AND ALPHANUMERIC DEScriptors ASSIGNED IN THE CONTROL PANEL.

PART 3 EXECUTION

1. GENERAL: ALL INTERRUPTIONS AND SHUTDOWNS OF EXISTING ELECTRICAL SYSTEMS AND SERVICES SHALL BE AS SHORT AS POSSIBLE AND AT A TIME AND DURATION APPROVED BY THE OWNER AND ENGINEER. THE CONTRACTOR SHALL INCLUDE ALL PREMIUM TIME ASSOCIATED WITH THE SYSTEM AND SERVICE INTERRUPTIONS AND SHUTDOWNS.
2. IDENTIFICATION: FURNISH AND INSTALL NAMEPLATES ON ALL ELECTRICAL EQUIPMENT INCLUDING PANELS, JUNCTION BOXES, DISCONNECT SWITCHES, TRANSFORMERS AND STARTERS.
3. RACEWAYS AND CONDUIT: REFER TO POWER, LIGHTING AND FIRE ALARM DRAWINGS FOR ALLOWABLE WIRING METHODS. EMT MAY BE USED WITH SET SCREW ENDINGS AND EXPOSED LOCATIONS SHALL BE PROTECTED AND NOT EXPOSED TO PHYSICAL DAMAGE OR MOISTURE. USE RIGID GALVANIZED STEEL WITH THREADED FITTINGS WHERE EMT PROHIBITED. ALL RACEWAYS, WHICH PASS THROUGH BUILDING EXPANSION JOINTS, SHALL BE EQUIPPED WITH EXPANSION FITTINGS. ALL CONDUITS SHALL BE SUPPORTED IN AN APPROVED MANNER TO THE BUILDING STRUCTURE. SUPPORT FROM CONDUITS, DUCTWORK, PIPING, ETC. WILL NOT BE PERMITTED. RACEWAYS SHALL BE RUN CONCEALED UNLESS NOTED OTHERWISE. PERPENDICULAR AND/OR PARALLEL TO THE BUILDING STRUCTURE. NEC STANDARDS SHALL DEFINE MINIMUM QUALITY LEVEL FOR INSTALLATION WHERE APPLICABLE.
4. WIRE AND CABLE: BRANCH CIRCUIT WIRING IS NOT ILLUSTRATED ON THE DRAWINGS AND IS INDICATED BY CIRCUIT NUMBERS NEXT TO FIXTURES, EQUIPMENT AND DEVICES. PROVIDE COMPLETE WIRING SYSTEM TO MEET ALL REQUIREMENTS. ALL BRANCH CIRCUIT HOMERUNS SHOWN ON THE DRAWINGS WITH MORE THAN 3 CURRENT CARRYING CONDUCTORS ARE SHOWN DIAGRAMMATICALLY. THE INSTALLATION OF MORE THAN 3 CURRENT CARRYING CONDUCTORS IN A COMMON RACEWAY SHALL REQUIRE THE DERATING OF ALL ASSOCIATED CONDUCTORS. ALL CIRCUITS SHALL CONTAIN A FULL SIZE, INSULATED GROUND CONDUCTOR.
5. WIRING DEVICES AND PLATES: ALL DEVICES OTHER THAN 20A 120V SHALL BE CLEARLY LABELED WITH PERMANENTLY APPLIED NAMEPLATES (OR ENGRAVED FACEPLATES) DETAILING THE VOLTAGE CHARACTERISTICS AND CIRCUIT NUMBER.
6. SAFETY DISCONNECT SWITCHES: FUSES SHALL BE CLASS RK-1 SIZED PER DRAWING AND NAMEPLATE REQUIREMENTS. INSTALL RELEASE CLIPS TO PROHIBIT INSTALLATION OF OTHER THAN CURRENT LIMITING FUSES.
7. MOTOR STARTERS: SELECT CLASS R FUSING IN ACCORDANCE WITH NEC REQUIREMENTS OR ADJUST MOTOR CIRCUIT PROTECTORS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. MOTOR OVERLOAD SIZING SHALL BE IN ACCORDANCE WITH NEC AND THE MOTOR NAMEPLATE.
8. PANELBOARDS: THE CONTRACTOR SHALL BALANCE PANELBOARD LOADS TO WITHIN 10% OF RATED CAPACITY AND OR UPDATE TYPE AND RATED CAPACITY DIRECTORIES OF BRANCH CIRCUITS IN ALL PANELBOARDS. NEW AND EXISTING, WHICH ARE MODIFIED UNDER THIS CONTRACT. INDICATE CIRCUIT CHANGES IN AS-BUILT RECORD DRAWINGS.
9. DRY TYPE TRANSFORMERS: PROVIDE VIBRATION ISOLATION TO PROHIBIT THE TRANSMISSION OF VIBRATION TO THE STRUCTURE. TRANSFORMER SHALL BE PLACED ON ISOLATOR (PAD OR SPRING) AND ALL ELECTRICAL CONNECTIONS SHALL BE MADE WITH 1/2" TO 1 1/2" LENGTHS OF GILVERE EMT CONDUIT.
10. PROVIDE THE CONTRACTOR CERTIFICATE OF COMPLETION IN ACCORDANCE WITH 780CMR 107.6.3 INDICATING THAT THE INSTALLATION IS IN CONFORMANCE WITH THE CONSTRUCTION DOCUMENTS AND ALL APPLICABLE LOCAL, STATE AND FEDERAL STATUTES AND CODES. PROVIDE CERTIFICATION FROM BOTH THE GENERAL CONTRACTOR AND ASSOCIATED TRADE CONTRACTOR FOR COMPLIANCE WITH 780CMR CHAPTERS 1, 9 & 13.
11. PROVIDE FIRE ALARM SYSTEMS DOCUMENTATION (INCLUDING BUT NOT LIMITED TO TIER II SHOP DRAWINGS AND TIER III RECORD DRAWINGS) IN ACCORDANCE WITH 780 CMR 901.2.1. RECORD DRAWINGS MUST BE PRODUCED BY THE CONTRACTOR AND SUBMITTED ON CONTRACTOR'S TITLE-BLOCK WITH ACCURATE DEPICTION OF THE FINAL INSTALLED SYSTEMS. CONTRACTOR IS RESPONSIBLE FOR ACCURATELY REPRESENTING THE FINAL INSTALLED SYSTEMS. ANY INACCURACIES BETWEEN THE INSTALLED CONDITION AND THE RECORD DRAWINGS WILL BE CAUSE FOR RETURNED RECORD DRAWINGS FOR CORRECTION BY THE CONTRACTOR. THE ADDITIONAL TIME INCURRED BY RDK TO RE-REVIEW THE RECORD DRAWINGS WILL RESULT IN BACK CHARGES.
12. PROVIDE "SYSTEM RECORD OF COMPLETION" AND "SYSTEM INSPECTION AND TESTING FORM" IN ACCORDANCE WITH NFPA 72 2010 CHAPTER 10 AND 14 REQUIREMENTS. WHERE SCOPE INCLUDES MODIFICATION OF AN EXISTING FIRE ALARM SYSTEM, VERIFICATION OF NFPA 72 14.4.1.2 REACCEPTANCE TESTING SHALL BE INCLUDED (TESTING OF 10% UP TO A MAX. OF 50 INITIATING DEVICES).
13. PROVIDE BACKUP DOCUMENTATION TO NFPA 72 TESTING INCLUDING AMBIENT AND ALARM SOUND PRESSURE LEVELS THROUGHOUT THE PROTECTED AREA, VERIFICATION OF INTELLIGIBILITY FOR SPEAKER SYSTEMS AND DUCT SMOKE DETECTOR SAMPLING TUBE DIFFERENTIAL PRESSURE READINGS.
14. NO FUNCTIONAL DEFICIENCIES IN THE EGRESS OR EXIT LIGHTING SYSTEMS, FIRE ALARM SYSTEM OR THE EMERGENCY POWER SYSTEM SHALL BE PRESENT WHEN REQUESTING SUBSTANTIAL COMPLETION SITE VISIT.
15. SUBSTANTIAL COMPLETION SITE VISIT BY THE ENGINEER SHALL BE CONDUCTED AFTER RECEIPT AND REVIEW OF THE CONTRACTOR'S CERTIFICATE OF COMPLETION AND ALL CODE MANDATED TEST REPORTS AND SUBMISSIONS LISTED ABOVE. SUBSTANTIAL COMPLETION SITE VISITS SHALL NOT BE REQUESTED UNTIL THE PROJECT IS SUBSTANTIALLY COMPLETE.
16. PREMATURE REQUESTS THAT REQUIRE ADDITIONAL/FOLLOW UP SITE VISITS BY THE ENGINEER FOR ITEMS (AREAS) NOT COMPLETE (SYSTEMS, EQUIPMENT, OPERATIONAL, ETC.) WILL RESULT IN BACK CHARGES OF THE COSTS ASSOCIATED WITH ANY ADDED VISITS.

1. LIGHTING: ALL LIGHT FIXTURES SHALL BE SUPPORTED IN AN APPROVED MANNER TO THE BUILDING STRUCTURE WITH A MINIMUM OF TWO SAFETY CHAINS, CONNECTED AT OPPOSITE ENDS OF THE FIXTURE. SUPPORT FROM CONDUITS, DUCTWORK, PIPING, ETC. WILL NOT BE PERMITTED.
11. FIRE ALARM SYSTEM MODIFICATIONS:
- ALL NEW DETECTORS SHALL BE LABELED WITH ASSIGNED ADDRESS ON BOTH THE DETECTOR HOUSING AND THE BASE WITH A BLACK ON CLEAR TYPE LABEL EQUAL TO THE ADDRESS. THE BASE ADDRESS SHALL BE LEGIBLE WITHOUT REMOVAL OF THE DETECTOR. THE DETECTOR ADDRESS SHALL BE CONCEALED WHEN PLACED INTO THE BASE.
- ALL JUNCTION BOXES SHALL BE SPRAYED RED AND LABELED "FIRE ALARM". CONDUIT COUPLINGS SHALL BE SPRAY PAINTED RED PRIOR TO INSTALLATION.
- CONNECTIONS AND SPLICES SHALL BE MADE USING SCREW TERMINAL BLOCKS. THE USES OF WIRE NUT TYPE CONNECTORS ARE PROHIBITED IN THE SYSTEM.
- PERFORM INSULATION TESTING (MEGGER), CONTINUITY AND LOOP RESISTANCE CHECKS ON ALL SYSTEM CONDUCTORS TO DETERMINE THAT THE SYSTEM IS FREE FROM GROUNDED, SHORTED, OR OPEN CIRCUITS. THESE TESTS SHALL BE CONDUCTED PRIOR TO THE INSTALLATION OF FIRE ALARM EQUIPMENT. LOOP RESISTANCE MEASUREMENT SHALL VERIFY THAT THE LOOP RESISTANCE DOES NOT EXCEED THE MANUFACTURERS SPECIFIED LIMITS. CORRECTIONS SHALL BE MADE AND THE SYSTEM SHALL BE RETESTED IF DEFICIENCIES ARE FOUND. A WRITTEN REPORT SHALL BE SUBMITTED DETAILING THE RESULTS OF THE PRELIMINARY TESTS. SHALL ACCOMPANY THE REQUEST FOR FINAL ACCEPTANCE TEST.
- THE FIRM WHO HOLDS THE EXISTING SYSTEM MAINTENANCE CONTRACT SHALL PERFORM FINAL CONNECTIONS, PROGRAMMING, AND TESTING. THE CONTRACTOR SHALL CARRY ALL COSTS ASSOCIATED WITH FINAL CONNECTIONS, PROGRAMMING AND TESTING AS WELL AS DISABLING CONNECTIONS TO THE MUNICIPAL LOOP DURING FINAL CONNECTIONS AND TESTING.
- CERTIFY INSTALLATION WITH THE SUCCESSFUL COMPLETION OF ALL ASSOCIATED NFPA 72 TESTS. MEASURE SOUND PRESSURE LEVELS IN ALL ROOMS WITHIN THE SCOPE OF THIS PROJECT AND VERIFY INTELLIGIBILITY OF VOICE EVACUATION SYSTEMS IN ACCORDANCE WITH NFPA 72. ADJUST TAP SETTINGS AND RETEST WHERE SOUND LEVELS ARE NON-CONFORMING. SUBMIT THE TEST REPORTS FOR REVIEW PRIOR TO REQUEST FOR FINAL PUNCH LIST INSPECTION.
13. EQUIPMENT TESTING AND CLEANING:
- CLEAN THE INTERIOR AND EXTERIOR OF ALL EQUIPMENT AT PROJECT COMPLETION OF ALL CONSTRUCTION DEBRIS AND RESIDUE. DAMAGED SURFACES SHALL BE REPAIRED AND FINISHES TOUCHED UP PAINT TO MATCH THE MANUFACTURER'S FINISH. EXTENSIVELY DAMAGED ENCLOSURES SHALL BE REPLACED.
- TEST THE INSULATION RESISTANCE BETWEEN EACH PHASE AND GROUND OF ALL FEEDERS ILLUSTRATED ON THE ONE LINE DIAGRAM. PROVIDE A TEST REPORT INDICATING THE RESULTS. REPLACE ALL CONDUCTORS THAT FAIL TO COMPLY WITH NFPA TESTING STANDARDS.
- VERIFY VOLTAGE AT THE ASSOCIATED PANELBOARD UNDER LOAD AND ADJUST TAP SETTINGS AS NECESSARY TO DELIVER NOMINAL VOLTAGE DURING NORMAL AND LIGHTLY LOADED CONDITIONS.

PART 4 PROJECT CLOSEOUT

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ITEMS ASSOCIATED WITH PROJECT CLOSEOUT. ALLOW SUFFICIENT TIME IN THE CONSTRUCTION SCHEDULE TO ENSURE THAT THE INSTALLATION IS SUBSTANTIALLY COMPLETE AND ALL REQUIRED TESTING AND ACCURATELY COMPLETED DOCUMENTATION IS DELIVERED TO THE ENGINEER AT LEAST TWO WEEKS PRIOR TO ENGINEER'S SUBSTANTIAL COMPLETION SITE VISIT. FAILURE TO ADEQUATELY PLAN OR SUBMISSION OF INCOMPLETE/INCORRECT DOCUMENTATION WILL RESULT IN BACKCHARGES OF ALL COSTS ASSOCIATED WITH ADDED WORK PERFORMED BY RDK ENGINEERS.
2. PROVIDE THE CONTRACTOR CERTIFICATE OF COMPLETION IN ACCORDANCE WITH 780CMR 107.63 INDICATING THAT THE INSTALLATION IS IN CONFORMANCE WITH THE CONSTRUCTION DOCUMENTS AND ALL APPLICABLE LOCAL, STATE AND FEDERAL STATUTES AND CODES. PROVIDE CERTIFICATION FROM BOTH THE GENERAL CONTRACTOR AND ASSOCIATED TRADE CONTRACTOR FOR COMPLIANCE WITH 780CMR CHAPTERS 1, 9 & 13.
3. PROVIDE FIRE ALARM SYSTEMS DOCUMENTATION (INCLUDING BUT NOT LIMITED TO TIER II SHOP DRAWINGS AND TIER II RECORD DRAWINGS) IN ACCORDANCE WITH 780 CMR 901.2.1. RECORD DRAWINGS MUST BE PRODUCED BY THE CONTRACTOR AND SUBMITTED ON CONTRACTOR'S TITLE-BLOCK WITH ACCURATE DEPICTION OF THE FINAL INSTALLED SYSTEMS. CONTRACTOR IS RESPONSIBLE FOR PROVIDING A REPRESENTATIVE TITLED TITLED INSTALLED SYSTEMS. ANY INACCURACIES BETWEEN THE INSTALLED CONDITION AND THE RECORD DRAWINGS WILL BE CAUSE FOR RETURNED RECORD DRAWINGS FOR CORRECTION BY THE CONTRACTOR. THE ADDITIONAL TIME INCURRED BY RDK TO RE-REVIEW THE RECORD DRAWINGS WILL RESULT IN BACK CHARGES.
4. PROVIDE "SYSTEM RECORD OF COMPLETION" AND "SYSTEM INSPECTION AND TESTING FORM" IN ACCORDANCE WITH NFPA 72 2010 CHAPTER 10 AND 14 REQUIREMENTS. WHERE SCOPE INCLUDES MODIFICATION OF AN EXISTING FIRE ALARM SYSTEM, VERIFICATION OF NFPA 72 14.4.1.2 REACCEPTANCE TESTING SHALL BE INCLUDED (TESTING OF 10% UP TO A MAX. OF 50 INITIATING DEVICES).
5. PROVIDE BACKUP DOCUMENTATION TO NFPA 72 TESTING INCLUDING AMBIENT AND ALARM SOUND PRESSURE LEVELS THROUGHOUT THE PROTECTED AREA, VERIFICATION OF INTELLIGIBILITY FOR SPEAKER SYSTEMS AND DUCT SMOKE DETECTOR SAMPLING TUBE DIFFERENTIAL PRESSURE READINGS.
6. NO FUNCTIONAL DEFICIENCIES IN THE EGRESS OR EXIT LIGHTING SYSTEMS, FIRE ALARM SYSTEM OR THE EMERGENCY POWER SYSTEM SHALL BE PRESENT WHEN REQUESTING SUBSTANTIAL COMPLETION SITE VISIT.
7. SUBSTANTIAL COMPLETION SITE VISIT BY THE ENGINEER SHALL BE CONDUCTED AFTER RECEIPT AND REVIEW OF THE CONTRACTOR'S CERTIFICATE OF COMPLETION AND ALL CODE MANDATED TEST REPORTS AND SUBMISSIONS LISTED ABOVE. SUBSTANTIAL COMPLETION SITE VISITS SHALL NOT BE REQUESTED UNTIL THE PROJECT IS SUBSTANTIALLY COMPLETE.



REVISIONS:

[illegible]

ISSUED FOR
BID



FIRE STATION
ENGINE No.3
LIVING QUARTERS

255 Somerville Ave.
Somerville, MA 02143

ELECTRICAL SPECIFICATIONS

PROJECT NUMBER: 20140474

DESIGNED BY: DE

DRAWN BY: AM

CHECKED BY: GM

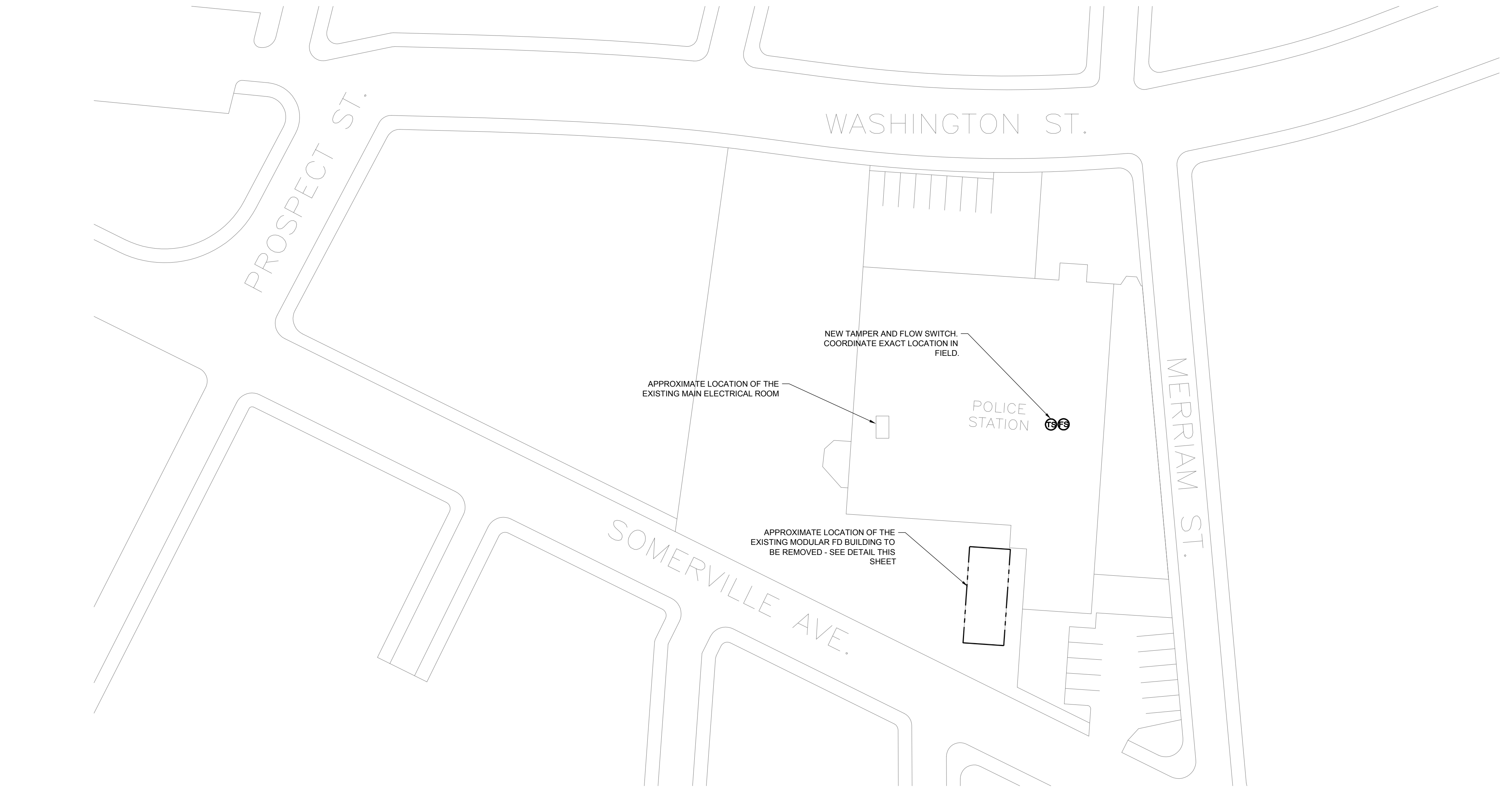
DATE: OCTOBER 1964

SCALE: NTS

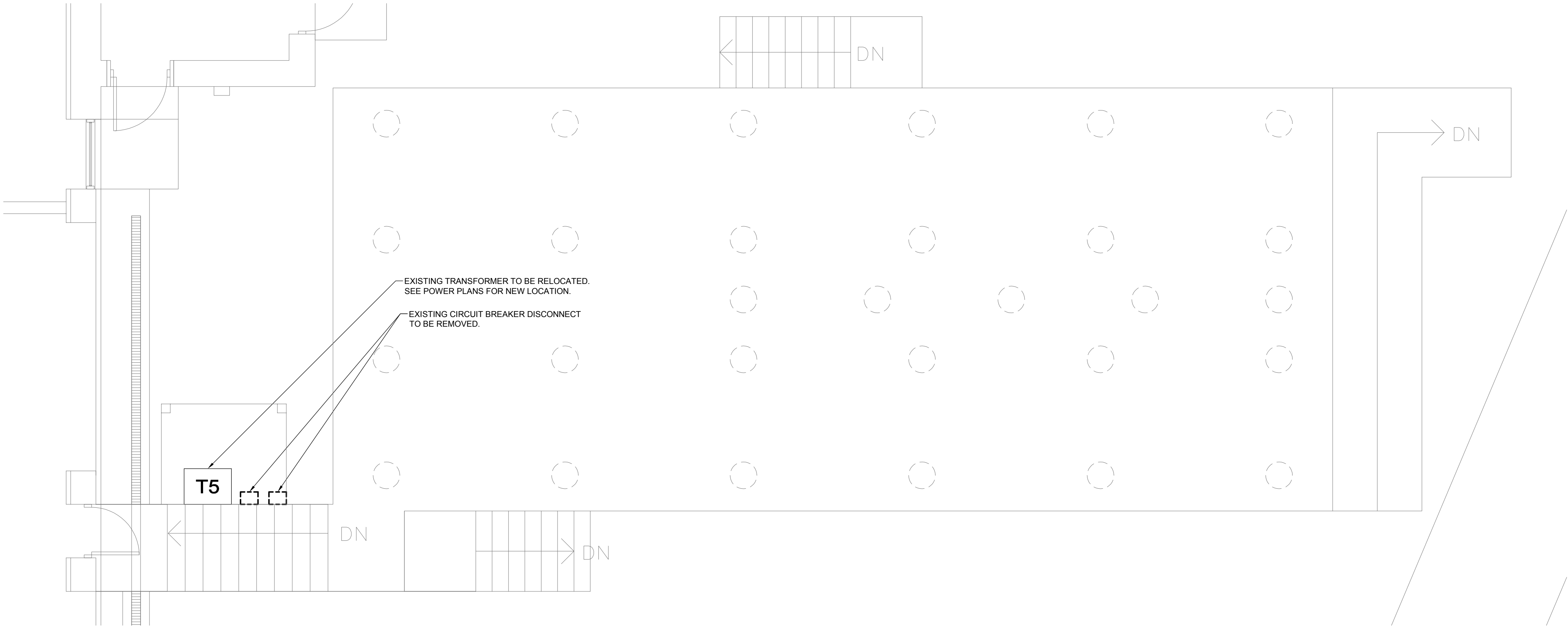
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DRAWING FILE: Q:\2014\20140474 - Somerville PD Prefabricated Trailer Replacement\1204 Electrical\Plot Files\20140474 ED1.0 ELECTRICAL DEMOLITION AND SITE PLAN.dwg PLOTTED: Oct 21, 2014 3:55pm BY: dfrank VIEWED BY: CIVIL: INITIAL DATE: ARCH: INITIAL DATE: STRU: INITIAL DATE: PLUM: INITIAL DATE: FIRE: INITIAL DATE: MECH: INITIAL DATE: ELEC: INITIAL DATE: Q:\2014\20140474 - Somerville PD Prefabricated Trailer Replacement\1204 Electrical\Plot Files\20140474 ED1.0 ELECTRICAL DEMOLITION AND SITE PLAN.dwg PLOTTED: October 21, 2014 3:55pm dfrank



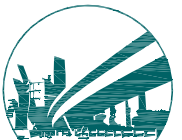
DEMOLITION AND NEW WORK SITE PLAN PLAN
SCALE: 1"=40'-0"



DEMOLITION MODULAR FD BUILDING
SCALE: 1/4"=1'-0"

DEMOLITION GENERAL NOTES:

1. REFER TO THE ARCHITECTURAL DRAWINGS FOR THE FULL EXTENT OF THE SCOPE OF DEMOLITION. DISCONNECT AND MAKE SAFE ALL ELECTRICAL EQUIPMENT IDENTIFIED FOR REMOVAL. THE ELECTRICAL SCOPE MAY EXTEND BEYOND THE AREA DEFINED BY THE ARCHITECTURAL DEMOLITION LIMITS TO FULLY COMPLY WITH VARIOUS REQUIREMENTS DEFINED BY THESE NOTES.
2. THE ELECTRICAL DEMOLITION PLANS AND DETAILS INDICATE THE GENERAL INTENT AND ARE NOT INTENDED TO SHOW ALL ITEMS TO BE REMOVED OR RETAINED. VISIT THE SITE PRIOR TO THE SUBMISSION OF BIDS TO BECOME FAMILIAR WITH THE ACTUAL CONDITIONS AND EXTENT OF WORK. NOTIFY THE OWNER'S REPRESENTATIVE OF ANY UNANTICIPATED HIDDEN CONDITIONS ENCOUNTERED DURING DEMOLITION.
3. REPAIR ALL SYSTEMS OR BUILDING COMPONENTS DAMAGED DURING THE EXECUTION OF THE WORK. DAMAGE SHALL INCLUDE BUT NOT BE LIMITED TO DESTRUCTION OR DISPOSAL OF ITEMS INTENDED TO REMAIN OR TO BE SALVAGED.
4. DE-ENERGIZE AND REMOVE ALL CONDUCTORS TO THEIR POINTS OF ORIGIN WITHIN THE AREA OF DEMOLITION SCOPE. ITEMS IDENTIFIED FOR DEMOLITION SHALL NOT BE ABANDONED IN PLACE.
5. ALL ITEMS REMOVED SHALL BE OFFERED TO THE OWNER FOR SALVAGE. IF THE OWNER DOES NOT TAKE POSSESSION, DISPOSE OF THE ITEMS IN A SAFE AND LEGAL MANNER. ALL ITEMS CLASSIFIED AS HAZARDOUS SHALL BE DISPOSED AS HAZARDOUS WASTES AND A UNIFORM HAZARDOUS WASTE MANIFEST SHALL BE PROVIDED TO THE OWNER.
7. REMOVED HID LAMPS SHALL BE RECYCLED BY A FACILITY APPROVED BY THE OWNER'S REPRESENTATIVE. A UNIFORM HAZARDOUS WASTE MANIFEST SHALL BE PREPARED FOR ALL DISPOSALS AND RETURNED WITH ALL APPLICABLE SIGN OFFS PRIOR TO APPLICATION FOR FINAL PAYMENT.
8. COORDINATE WITH THE OWNER'S REPRESENTATIVE ANY POWER INTERRUPTION TO THE SITE.

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REVISIONS

Number	Description	Date

ISSUED FOR:
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FIRE STATION
ENGINE No.3
LIVING QUARTERS

255 Somerville Ave.
Somerville, MA 02143

ELECTRICAL
DEMOLITION AND
SITE PLAN

PROJECT NUMBER: 20140474

DESIGNED BY: AM

DRAWN BY: DF

CHECKED BY: GM

DATE: OCTOBER 22, 2014

SCALE: N.T.S.

SHEET NUMBER:

ED1.0

DRAWING FILE: C:\0301020140474 - Somerville PD Prefabricated Trailer Replacement\1204 Drawings\1204 Electrical\Plan Files\0140474 E2.1 ELECTRICAL LIGHTING FLOOR PLANS.dwg PLOTTED: Oct 21, 2014 3:59pm BY: dfranzak
C:\0301020140474 - Somerville PD Prefabricated Trailer Replacement\1204 Drawings\1204 Electrical\Plan Files\0140474 E2.1 ELECTRICAL LIGHTING FLOOR PLANS.dwg (Work) October 21, 2014 - 3:59pm dfranzak

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MECH: INITIAL DATE

FIRE: INITIAL DATE

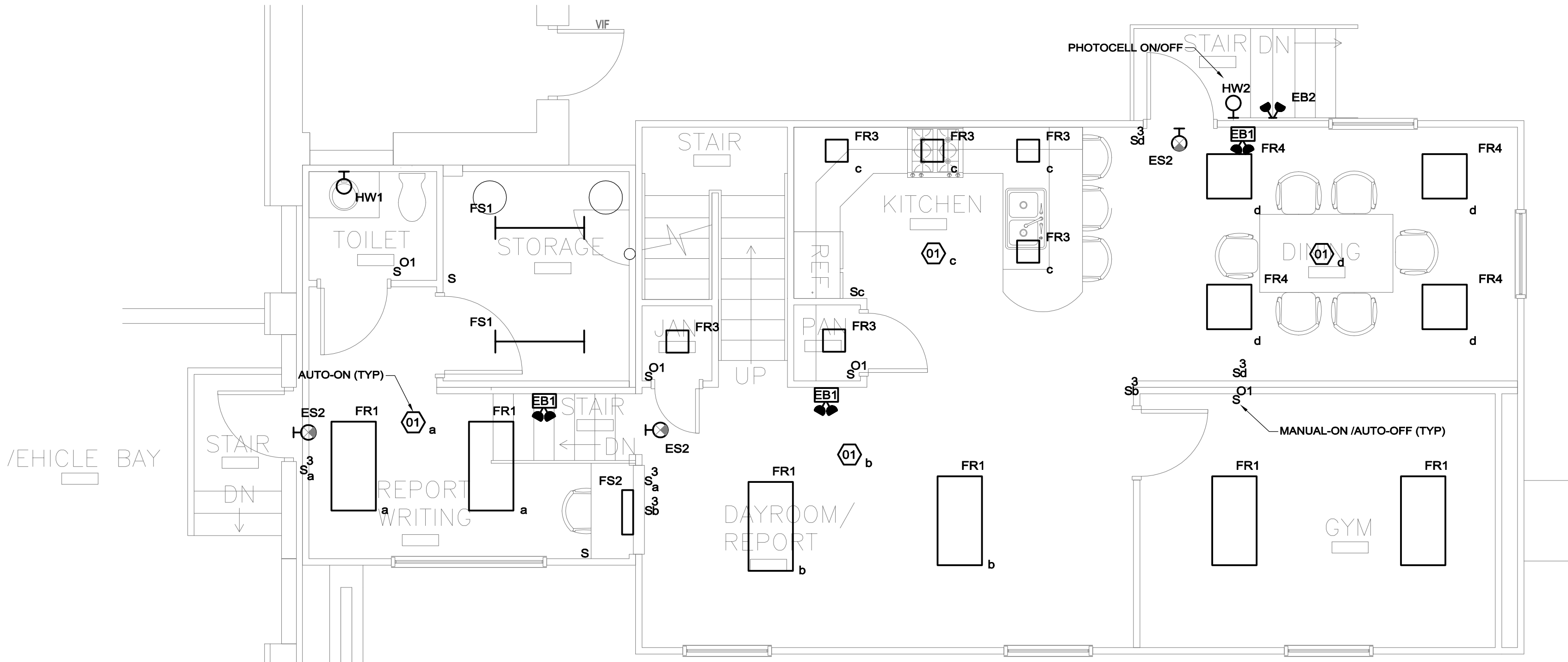
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STRU: INITIAL DATE

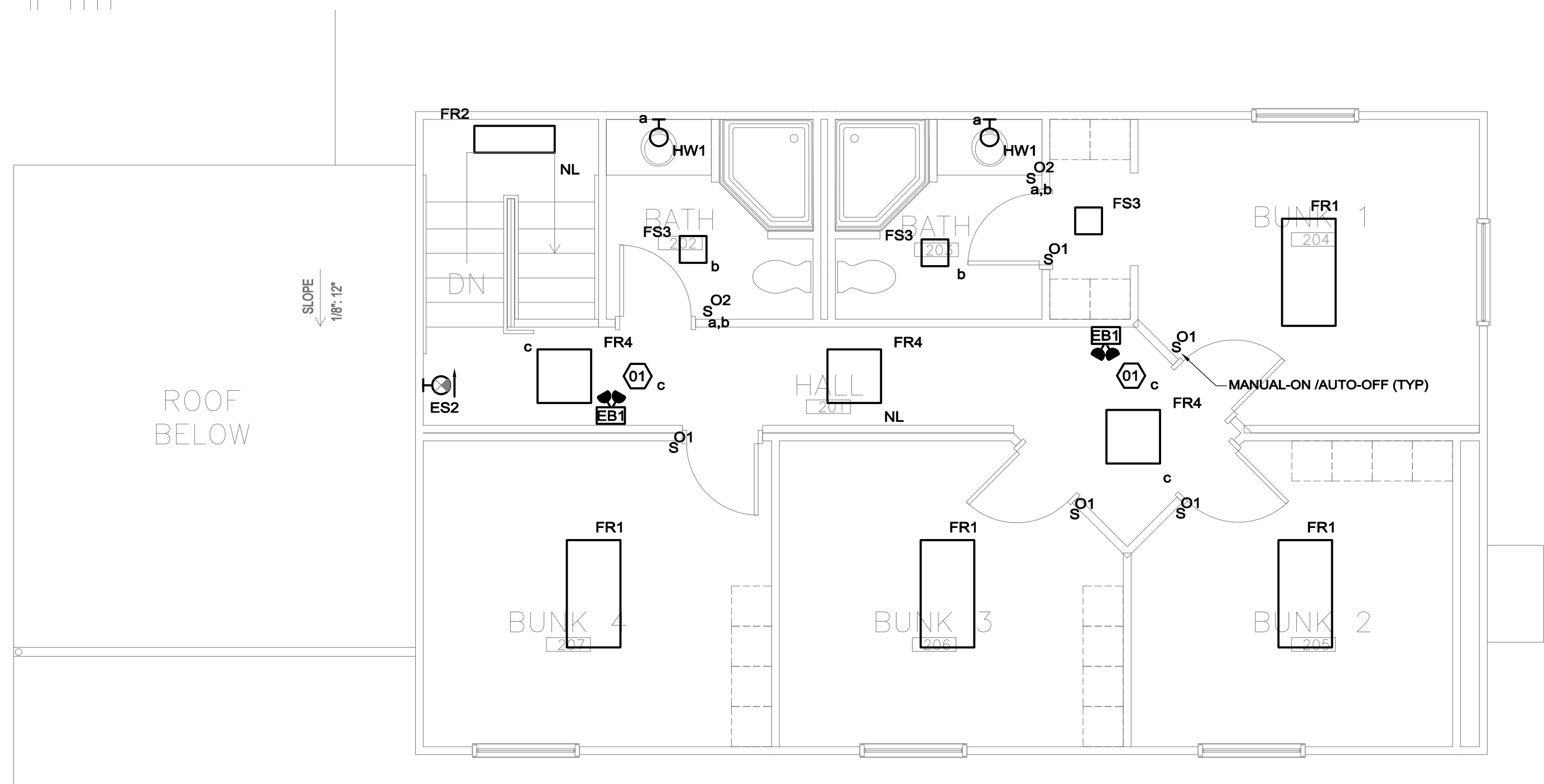
ARCH: INITIAL DATE

CIVIL: INITIAL DATE

REVIEWED BY: dfranzak



FIRST FLOOR PLAN
SCALE: 1/4"=1'-0"

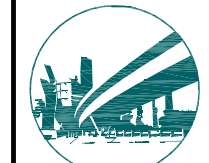


SECOND FLOOR PLAN
SCALE: 1/4"=1'-0"

LIGHTING FIXTURE SCHEDULE								
TYPE	MANUFACTURERS	CATALOG NUMBER	DESCRIPTION	LAMPS		INPUT		REMARKS
				QTY	TYPE	WATTS	VOLTS	
EB1	X	X	EMERGENCY LIGHT	X	X	2	120	X
EB2	X	X	WEATHERPROOF EMERGENCY LIGHT	X	X	2	120	X
ES2	X	X	EMERGENCY EXIT	X	X	X	120	X
FR1	X	X	2X4 RECESSED LIGHT FIXTURE	2	32T8	56	120	X
FR2	X	X	1X4 RECESSED LIGHT FIXTURE	2	32T8	56	120	X
FR3	X	X	1X1 RECESSED LIGHT FIXTURE	2	17T8	34	120	X
FR4	X	X	2X2 RECESSED LIGHT FIXTURE	2	17T8	34	120	X
FS1	X	X	4' STRIP LIGHT	2	32T8	56	120	X
FS2	X	X	UNDER CABINET LIGHT	X	X	X	120	X
FS3	X	X	SURFACE WATERPROOF BATHROOM FIXTURE	X	X	X	120	X
HW1	X	X	VANITY SCONCE LIGHT FIXTURE	X	X	X	120	X
HW2	X	X	WEATHERPROOF SCONCE LIGHT FIXTURE	X	X	X	120	X

NOTES:
1. NOTES 2-9 APPLY TO ALL APPLICABLE LIGHTING FIXTURES. THE REMARKS COLUMN SHALL NOTE ADDITIONAL REQUIREMENTS.
2. VERIFY EXACT MOUNTING CONDITIONS AND PROVIDE APPROPRIATE ACCESSORIES AND HARDWARE TO ACCOMMODATE REQUIREMENTS.
3. PROVIDE ALL FLUORESCENT FIXTURES WITH ELECTRONIC BALLASTS WITH MAXIMUM THD OF 10%, PF GREATER THAN 97% AND BF GREATER THAN 0.88. BALLASTS SHALL BE PROGRAMMED RAPID START WITH END-OF-LAMP-LIFE PROTECTION UNLESS NOTED OTHERWISE. BALLASTS SHALL BE UL LISTED AND MANUFACTURED BY ADVANCE ELECTRIC, GE, OSRAM SYLVANIA OR UNIVERSAL.
4. BALLAST EFFICIENCY SHALL BE GREATER THAN THAT REQUIRED TO ENSURE THAT THE VALUE LISTED FOR INPUT WATTS IS NOT EXCEEDED.
5. FLUORESCENT LAMPS SHALL HAVE A MINIMUM CRI OF 92. LAMP SHALL BE MANUFACTURED BY OSRAM SYLVANIA, GE OR PHILLIPS.
6. PROVIDE EXIT SIGNS WITH ARROWS AND MOUNTING ACCESSORIES AS INDICATED ON THE PLANS.

- LIGHTING NOTES:**
1. REFER TO DRAWING E0.00 FOR LEGEND, SYMBOLS AND GENERAL NOTES.
 2. ALL FIXTURES AND SWITCHES ARE SHOWN FOR LOCATIONS ONLY.
 3. PRE-FAB MANUFACTURER TO PROVIDE AND INSTALL FIXTURES, BOXES CONDUITS, WIRES AND ALL ASSOCIATED WITH LIGHTING, EMERGENCY LIGHTS, EXIT SIGNS AND SWITCHING TO MEET CURRENT ELECTRICAL AND BUILDING CODES.
 4. PRE-FAB MANUFACTURER SHALL BE RESPONSIBLE FOR ALL REQUIRED LABELING AND CODE COMPLIANCE OF THE INSTALLATION.

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REVISIONS		
Number	Description	Date

ISSUED FOR:
BID



FIRE STATION
ENGINE No.3
LIVING QUARTERS

255 Somerville Ave.
Somerville, MA 02143

ELECTRICAL LIGHTING
FLOOR PLANS

PROJECT NUMBER: 20140474
DESIGNED BY: AM
DRAWN BY: DF
CHECKED BY: GM
DATE: OCTOBER 22, 2014
SCALE: 1/4" = 1'-0"
SHEET NUMBER:

E2.1



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PLUM: INITIAL&DATE

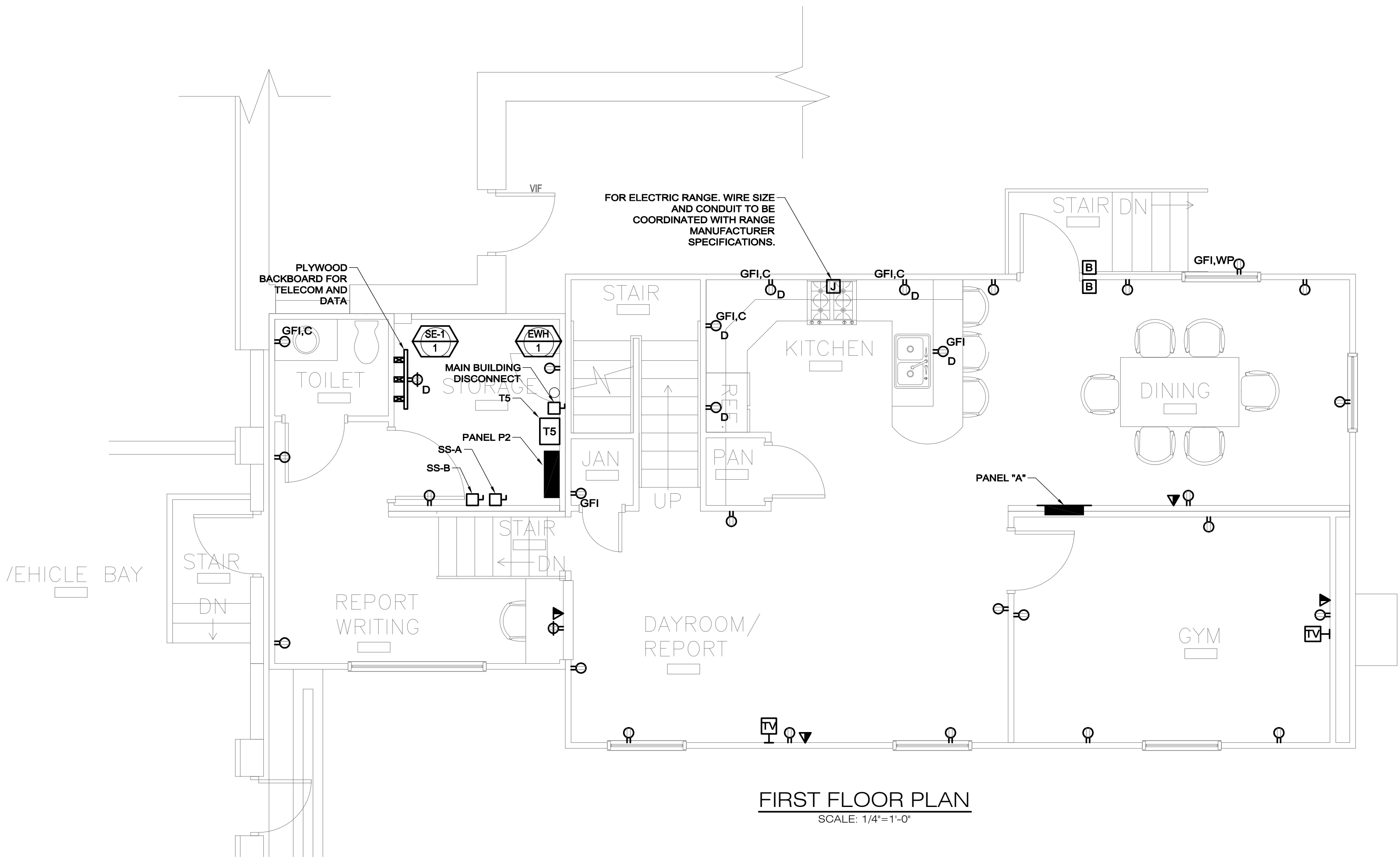
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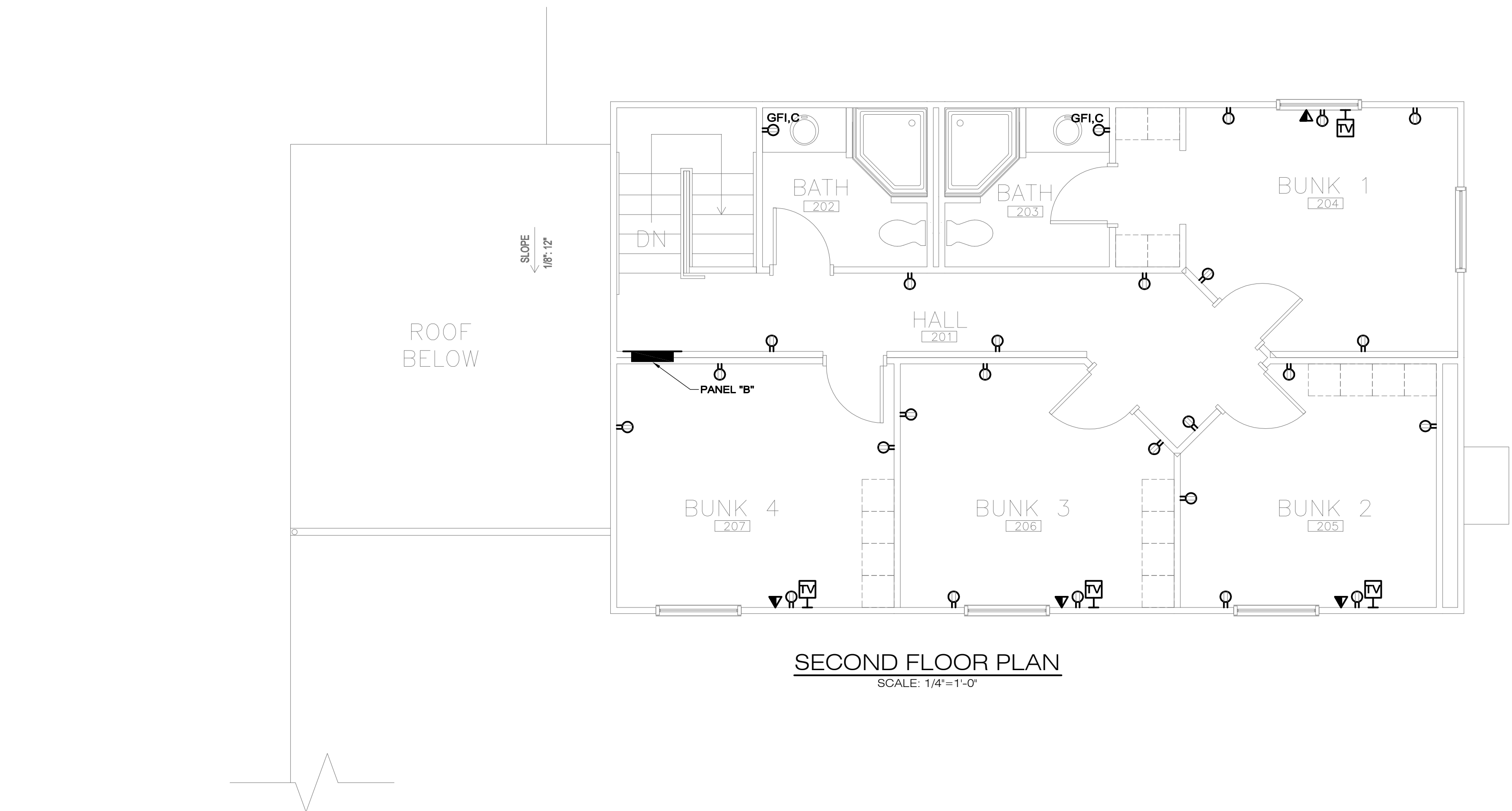
CIVIL: INITIAL&DATE

REVIEWED BY:

DESIGNED BY: dfranzak



FIRST FLOOR PLAN
SCALE: 1/4"=1'-0"



SECOND FLOOR PLAN
SCALE: 1/4"=1'-0"

POWER NOTES:

1. REFER TO DRAWING E0.00 FOR LEGEND, SYMBOLS AND GENERAL NOTES.
2. ALL DEVICES LOCATED IN PRE-FAB BUILDING ARE SHOWN FOR LOCATION ONLY.
3. RE-FAB MANUFACTURER TO PROVIDE AND INSTALL ELECTRICAL DEVICE, PANELBOARDS, BOXES CONDUITS, WIRES AND ALL ASSOCIATED WITH ELECTRICAL DEVICES TO MEET CURRENT ELECTRICAL CODES AND LOCAL CODES.
4. POWER BRANCH CIRCUITRY SHALL BE INSTALLED IN CONDUIT FROM THE PANEL TO THE FIRST DEVICE AND/OR WHERE EXPOSED, POWER BRANCH CIRCUITRY MAY BE TYPE MC CABLE WHERE CONCEALED ABOVE SUSPENDED CEILINGS AND IN METAL STUD WALLS.
6. SWITCHBOARDS, PANELBOARDS, METER SOCKET ENCLOSURES AND MOTOR CONTROL CENTERS SHALL BE FIELD MARKED TO WARN QUALIFIED PERSONS OF POTENTIAL ELECTRIC ARC FLASH HAZARDS. THE MARKING SHALL BE LOCATED SO AS TO BE CLEARLY VISIBLE TO QUALIFIED PERSONS BEFORE EXAMINATION, ADJUSTMENT, SERVICING, OR MAINTENANCE OF THE EQUIPMENT.
7. GROUND-FAULT CIRCUIT-INTERRUPTER PROTECTION FOR PERSONNEL SHALL BE PROVIDED AS REQUIRED IN 210.8(A).
8. ARC-FAULT CIRCUIT-INTERRUPTER PROTECTION SHALL BE PROVIDED AS REQUIRED IN 210.12.
9. ELECTRIC SPACE HEATING SHALL BE SEPARATELY CONTROLLED UNITS IN FOUR OR MORE ZONES TO ALLOW DEMAND FACTOR OF 40% OF THE NAMEPLATE RATINGS PER NEC 220.82 (C).

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Andover, MA 01810-1485
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REVISIONS

Number	Description	Date

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FIRE STATION
ENGINE No.3
LIVING QUARTERS

255 Somerville Ave.
Somerville, MA 02143

ELECTRICAL POWER
FLOOR PLANS

PROJECT NUMBER: 20140474

DESIGNED BY: AM

DRAWN BY: DF

CHECKED BY: GM

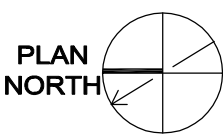
DATE: OCTOBER 22, 2014

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SHEET NUMBER:

E3.1

SHEET 27 OF 28



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MECH: INITIAL&DATE

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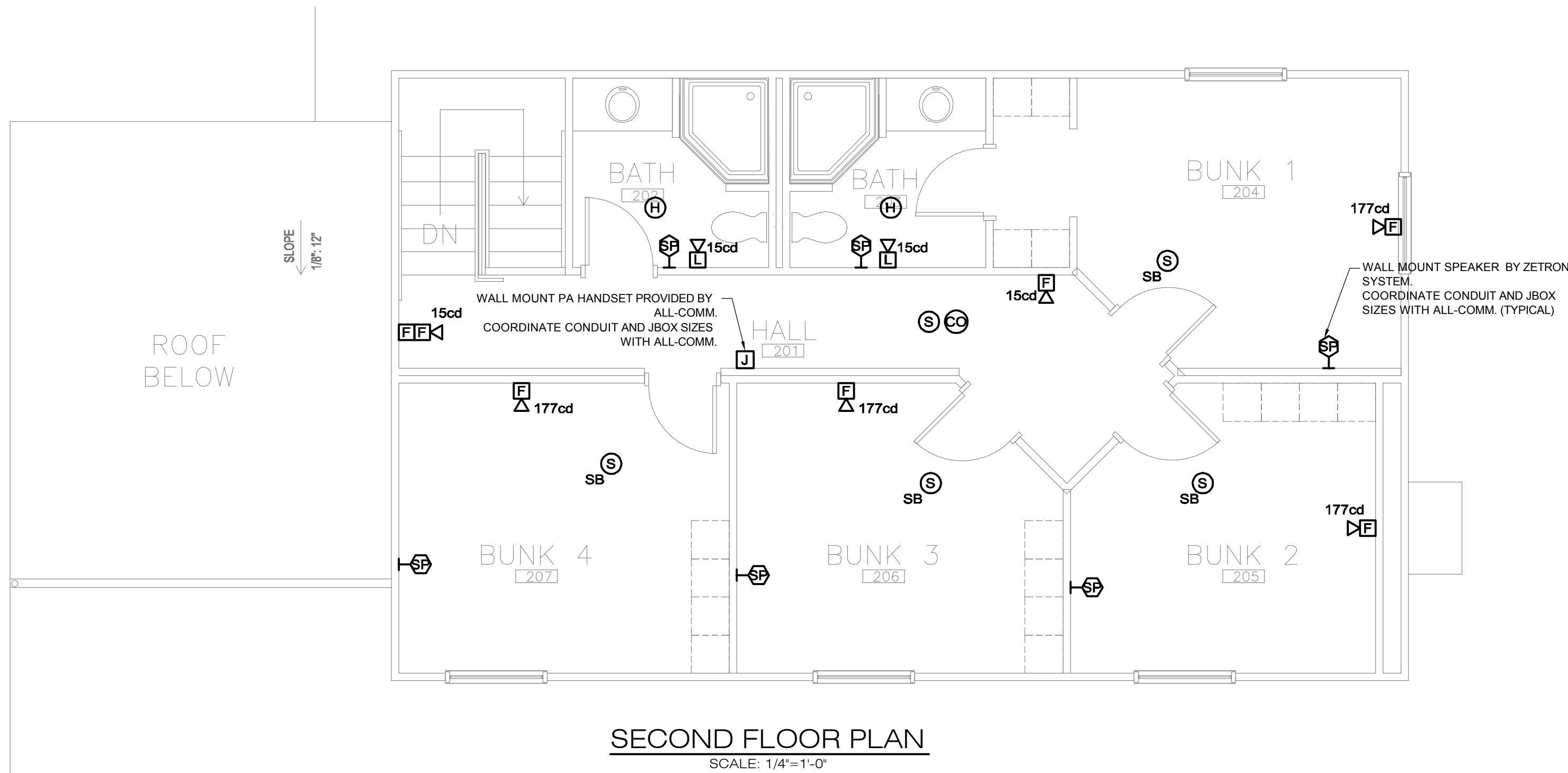
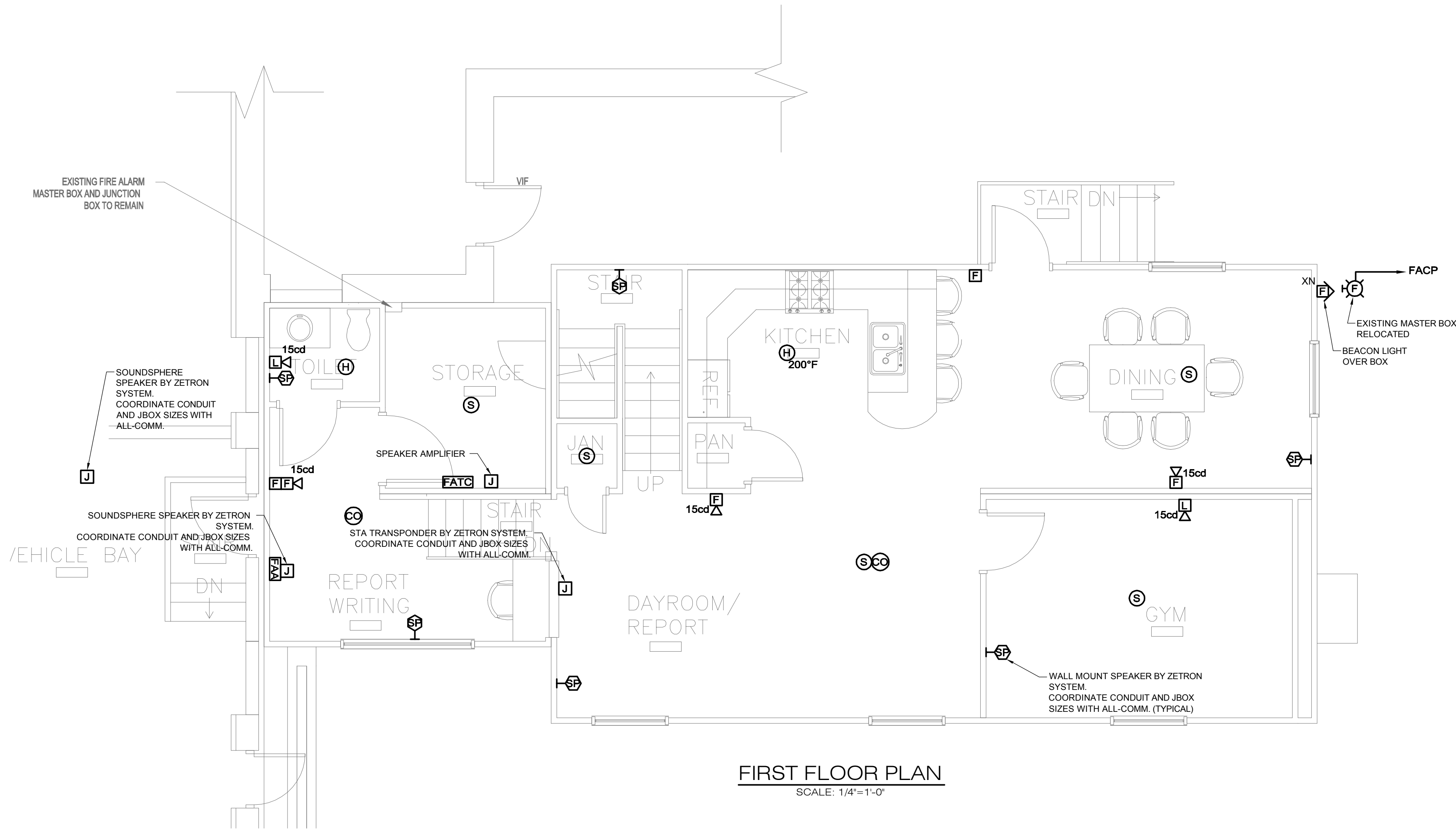
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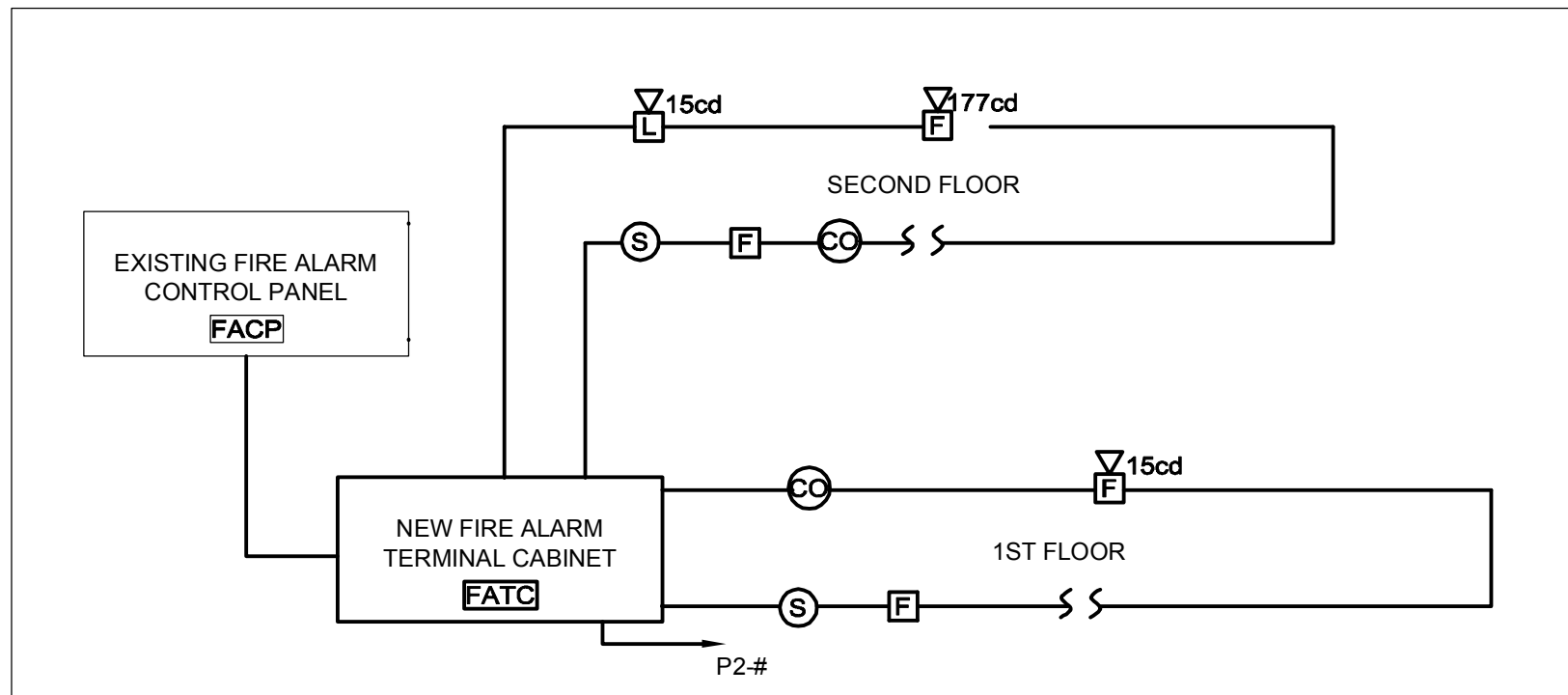
CIVIL: INITIAL&DATE

REVIEWED BY: dfrazmak



FIRE ALARM NOTES:

1. REFER TO DRAWING E0.00 FOR LEGEND, SYMBOLS AND GENERAL NOTES.
2. ALL DEVICES LOCATED IN PRE-FAB BUILDING ARE SHOWN FOR LOCATION ONLY.
3. RE-FAB MANUFACTURER TO PROVIDE AND INSTALL FIRE ALARM BOXES, CONDUITS, AND ALL ASSOCIATED WITH FIRE ALARM DEVICES TO MEET CURRENT ELECTRICAL CODES AND LOCAL CODES.
4. FIRE ALARM BRANCH CIRCUITRY SHALL BE INSTALLED IN CONDUIT FROM THE PANEL TO THE FIRST DEVICE AND/OR WHERE EXPOSED. FIRE ALARM BRANCH CIRCUITRY MAY BE TYPE MC CABLE WHERE CONCEALED ABOVE SUSPENDED CEILINGS AND IN METAL STUD WALLS.
5. MC CABLE FOR FIRE ALARM SERVICE SHALL HAVE A RED IDENTIFIER ALONG ITS ENTIRE LENGTH. JUNCTION BOX COVERS AND CONDUIT COUPLINGS FOR ALL FIRE ALARM WIRING RACEWAYS SHALL BE PAINTED RED PRIOR TO INSTALLATION.
6. MAINTAIN CONTINUITY OF BRANCH CIRCUITRY ASSOCIATED WITH ALL EXISTING FIRE ALARM DEVICES TO REMAIN.



FIRE ALARM RISER DIAGRAM

N.T.S.

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REVISIONS

Number	Description	Date

ISSUED FOR:
BID



FIRE STATION
ENGINE No.3
LIVING QUARTERS

255 Somerville Ave.
Somerville, MA 02143

ELECTRICAL
FIRE ALARM
FLOOR PLANS

PROJECT NUMBER: 20140474

DESIGNED BY: AM

DRAWN BY: DF

CHECKED BY: GM

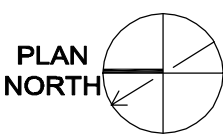
DATE: OCTOBER 22, 2014

SCALE: 1/4" = 1'-0"

SHEET NUMBER:

E4.1

SHEET 28 OF 28



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MECH: INITIAL&DATE
FIRE: INITIAL&DATE
PLUM: INITIAL&DATE
STRU: INITIAL&DATE
ARCH: INITIAL&DATE
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REVIEWED BY:
DRAWING FILE: N:\PROJECTS\19431.06-Somerville_Engine_3_Living_Quarters\A040\ARCH\19431.BS-101.dwg PLOTTED: Oct 21, 2014 4:14:09pm By: kevin.chen

GENERAL

- STRUCTURAL DRAWINGS TO BE USED IN CONJUNCTION WITH ARCHITECTURAL, MECHANICAL, ELECTRICAL, AND CIVIL DRAWINGS AND SPECIFICATIONS.
- CODES AND STANDARDS:
 - MASSACHUSETTS STATE BUILDING CODE, LATEST EDITION.
 - ACI 318, BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE.
 - AISC SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS, LATEST EDITION.
 - ASCE 7-05 MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES.
- ALL SAFETY REGULATIONS TO BE FOLLOWED STRICTLY. METHODS OF CONSTRUCTION AND ERECTION OF STRUCTURAL MATERIALS IS CONTRACTOR'S RESPONSIBILITY.
- UNLESS OTHERWISE NOTED, DETAILS SHOWN ON ANY DRAWING ARE TO BE CONSIDERED TYPICAL FOR ALL SIMILAR CONDITIONS.
- EXISTING DIMENSIONS AND CONDITIONS MUST BE VERIFIED OR DETERMINED IN THE FIELD BY THE CONTRACTOR. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT/ENGINEER BEFORE PROCEEDING WITH THE AFFECTED PORTION OF THE WORK.

FOUNDATIONS

- ALLOWABLE BEARING CAPACITY, 2.0 KSF.
- ALL EXTERIOR BUILDING FOUNDATION INVERTS SHALL BE A MINIMUM OF 4'-0" BELOW FINISHED GRADE FOR FROST PROTECTION.
- REMOVE ALL UNSUITABLE AND UNSATISFACTORY MATERIALS FROM BENEATH SLABS-ON-GRADE, FOOTINGS, FOUNDATIONS AND UTILITIES COMPLETELY.
- REFILL ALL EXCAVATIONS FOR SLABS-ON-GRADE, FOOTINGS AND FOUNDATIONS WITH ENGINEERED FILL OR SOIL MATERIAL FROM ON-SITE SOURCES MEETING THE REQUIREMENTS FOR ENGINEERED FILL.
- ALL FILL MATERIALS WITHIN THE BUILDING AREA SHALL BE COMPACTED TO NOT LESS THAN 95%-PERCENT OF THE ASTM 1557 MAXIMUM DRY DENSITY.
- A MINIMUM OF 12 INCHES OF COMPACTED ENGINEERED FILL SHALL BE PLACED BENEATH ALL FOUNDATION WALLS, FOOTINGS AND SLAB-ON-GRADE ELEMENTS, UNLESS OTHERWISE SHOWN. THE 12 INCH ENGINEERED FILL LAYER DIRECTLY BENEATH NEW FOOTINGS AND SLABS SHALL BE PLACED AND COMPACTED IN TWO LIFTS OF EQUAL THICKNESS. THE EXPOSED FINAL SUBGRADE SURFACE SHALL BE PROOF COMPACTED BY AN OBSERVED 4 TO 6 PASSES WITH APPROVED VIBRATORY COMPACTION EQUIPMENT. ANY LOOSE OR UNSUITABLE SOILS SHALL BE REMOVED AND REPLACED WITH COMPACTED ENGINEERED FILL. SUBGRADE AND ENGINEERED FILL COMPACTION IN/AROUND FOOTING INVERT ELEVATION SHALL BE SUBJECT TO GOOD ENGINEERING JUDGEMENT RELATIVE TO EXISTING SOIL AND GROUND WATER CONDITIONS.
- FINAL FOOTING EARTHWORK, FINAL FOOTING EXCAVATION, SUBGRADE PROOF COMPACTION AND MINIMUM 12 INCH LAYER OF COMPACTED ENGINEERED FILL PLACEMENT FOR AN INDIVIDUAL COLUMN FOOTING SHALL BE INITIATED/COMPLETED IN ONE WORKING DAY. PARTICULAR ATTENTION SHALL BE DIRECTED TO EARTHWORK PERFORMED ADJACENT TO AND BELOW EXISTING FOOTING INVERT ELEVATION. IF SIGNIFICANT UNDERMINING OF EXISTING FOOTINGS IS OBSERVED AS A RESULT OF NEW FOOTING EARTHWORK, THE CONTRACTOR SHALL STOP WORK AND PROPOSE TO THE ENGINEER ALTERNATIVE MEANS AND METHODS.
- GROUNDWATER LEVELS SHALL BE MAINTAINED A MINIMUM OF 2'-0" BELOW THE DEEPEST EXCAVATION ELEVATION.
- ALL WALLS RETAINING EARTH SHALL BE SHORED AGAINST LATERAL EARTH PRESSURE UNTIL FLOOR SLABS AND WALLS ABOVE ARE IN PLACE AND CONCRETE HAS ATTAINED ITS 28 DAY COMPRESSIVE STRENGTH.
- DO NOT PLACE CONCRETE ON FROZEN GROUND OR IN WATER. FOUNDATIONS SHALL NOT BE PARTLY SUPPORTED ON ROCK AND PARTLY ON SOIL. ALL NEW FOOTINGS SHALL BE SUPPORTED ON A MINIMUM 6 INCH LAYER OF COMPACTED ENGINEERED FILL.
- DO NOT PLACE BACKFILL UNBALANCED BY MORE THAN 2'-0" ON EITHER SIDE OF FOUNDATION WALLS AND PIERS, OR BY THE AMOUNT OF FINISH GRADE DIFFERENTIAL.
- PROVIDE TEMPORARY OR PERMANENT SUPPORTS TO PREVENT HORIZONTAL MOVEMENT OR VERTICAL SETTLEMENT OF EXISTING STRUCTURES, STREETS, SOIL OR UTILITIES ADJACENT TO OR ON THE PROJECT SITE.
- PROVIDE CONTINUOUS CONTROL OF SURFACE AND SUBSURFACE WATER DURING CONSTRUCTION AS NECESSARY TO PERFORM FOUNDATION WORK IN THE DRY AND ON UNDISTURBED SUBGRADE MATERIAL.
- PROTECT FOUNDATIONS AND SLABS FROM FROST FOR A MINIMUM OF 28 DAYS AFTER CONCRETE POUR.
- FOUNDATION CONSTRUCTION SHALL COMPLY WITH ALL OSHA REGULATIONS.

CONCRETE

- ALL CONCRETE SHALL HAVE ULTIMATE COMPRESSIVE STRENGTH OF 4,000 PSI AT 28 DAYS, UNLESS OTHERWISE NOTED.
- ALL CONCRETE WORK SHALL CONFORM TO THE "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE" (ACI 318) AND TO "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS" (ACI 301).
- ALL CONCRETE SUBJECT TO FREEZE-THAW SHALL BE AIR-ENTRAINED. VERIFY AIR CONTENT BEFORE PLACEMENT OF ALL CONCRETE.
- REINFORCING STEEL SHALL CONFORM TO ASTM A615, GRADE 60 (UNLESS OTHERWISE NOTED), OR ASTM A706 WHERE DOWELS ARE INDICATED TO BE WELDED.
- WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185.
- CONCRETE COVER FROM FACE OF CONCRETE TO MAIN REINFORCING SHALL BE AS FOLLOWS UNLESS SHOWN OTHERWISE:

SLABS AND WALLS
(NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND).....1"
FACE OF WALLS AND TOP OF SLABS
EXPOSED TO EARTH, WEATHER, OR IMMERSED.....2"
FOOTINGS, BOTTOM OF WALLS AND STRUCTURAL SLABS
CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH.....3"
- BAR PLACING SHALL CONFORM TO CONCRETE REINFORCING STEEL INSTITUTE'S RECOMMENDED PRACTICE FOR PLACING REINFORCING BARS.
- REINFORCING BARS SHALL BE DETAILED IN ACCORDANCE WITH LATEST ACI MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES (ACI 315)
- UNLESS INDICATED OTHERWISE ON THE DRAWINGS, REBAR SPLICES SHALL BE STAGGERED WITH NOT MORE THAN 50 PERCENT OF THE REBARS SPICED WITHIN A REQUIRED LAP LENGTH. LOCATIONS OF ALL SPLICES SHALL BE SUBJECT TO THE APPROVAL OF THE ENGINEER.
- REINFORCING BARS SHALL BE LAPPED 36 BAR DIAMETER.
- WELDED WIRE FABRIC SHALL BE LAPPED 2 MESHES AT SIDES AND ENDS.
- ALL EXPOSED CORNERS OF CONCRETE SHALL HAVE A 3/4" x 45 DEGREE CHAMFER.
- PROVIDE WELDED WIRE FABRIC IN ALL SLABS-ON-GRADE, CONCRETE SIDEWALKS AND RAMPS AS FOLLOWS UNLESS SHOWN OTHERWISE:

4" SLABS-ON-GRADE 6x6-W1.4xW1.4
5" SLABS-ON-GRADE 6x6-W2.9xW2.9
- SLABS-ON-GRADE SHALL BE PLACED IN ALTERNATE STRIPS BOUNDED BY CONSTRUCTION AND CONTRACTION JOINTS. ALLOW 72 HOURS TO ELAPSE BETWEEN ADJACENT CONCRETE PLACEMENTS.
- MAXIMUM LENGTH OF CONCRETE WALL POUR SHALL BE 40 FEET. CONSTRUCTION JOINTS SHALL NOT BE LOCATED AT ANY CORNER OF WALLS. CONCRETE SHALL BE POURED IN LEVEL COURSES FULL HEIGHT. CONCRETE WALLS SHALL BE PLACED IN ALTERNATE SECTIONS BETWEEN VERTICAL CONSTRUCTION JOINTS.
- CONCRETE SLABS, INCLUDING CONCRETE PLACED ON STEEL DECK, SHALL BE PLACED SO THAT THE SLAB THICKNESS IS AT NO POINT LESS THAN THAT INDICATED ON THE DRAWINGS. THIS WILL REQUIRE THAT THE SLAB NOT BE CAST DEAD LEVEL WHERE SUPPORTING BEAMS, GIRDERS, OR TRUSSES HAVE AN UPWARD CAMBER. PROVIDE ADDITIONAL CONCRETE AS REQUIRED TO COMPENSATE FOR DEFLECTIONS OF STEEL BEAMS AND DECK.
- PROVIDE THE NECESSARY ACCESSORIES TO HOLD REINFORCEMENT SECURELY IN POSITION. MINIMUM REQUIREMENTS SHALL BE: HIGH CHAIRS, 4'-0" O.C. WITH CONTINUOUS #5 SUPPORT BAR; SLAB BOLSTERS, CONTINUOUS AND 3'-6" O.C.; BEAM BOLSTERS, 5'-0" O.C.
- DOWELS SHALL MATCH SIZE AND NUMBER OF MAIN BARS, UNLESS OTHERWISE NOTED.
- NO PIPES, CONDUITS AND SIMILAR NON-STRUCTURAL ELEMENTS SHALL BE EMBEDDED IN THE SLAB WITHOUT PERMISSION OF THE ENGINEER.

MASONRY

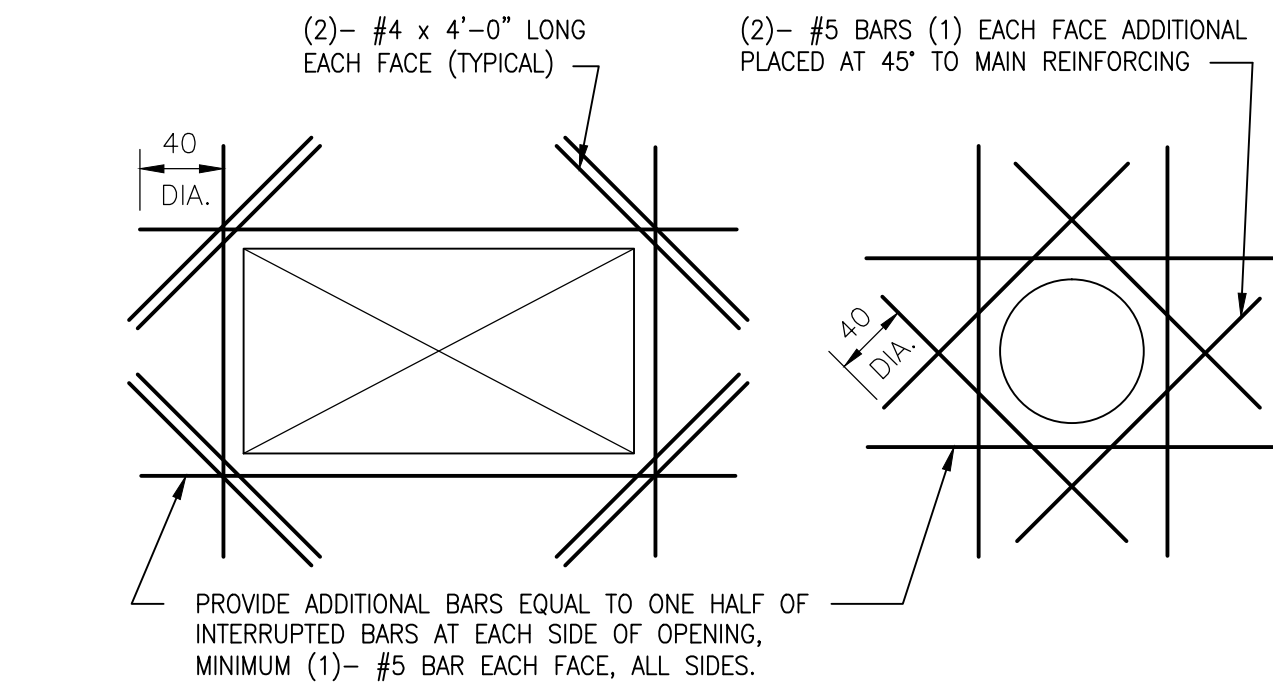
- ALL MASONRY CONSTRUCTION SHALL CONFORM TO "BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES" (ACI 530) AND TO "SPECIFICATIONS FOR MASONRY STRUCTURES" (ACI 530.1)
- ALL MASONRY UNITS SHALL CONFORM TO ASTM C90 TYPE 1, MINIMUM F'm = 2000 PSI.
- ALL GROUT SHALL CONFORM TO ASTM C476, FINE OR COARSE 3. GROUT, MINIMUM COMPRESSIVE STRENGTH, 3000 PSI.
- ALL MORTAR FOR CONCRETE MASONRY UNITS SHALL CONFORM TO ASTM C270, TYPE S.
- MORTAR FOR BRICK VENEER SHALL CONFORM TO ASTM C270, TYPE N.
- REINFORCING BARS SHALL CONFORM TO ASTM A615 GRADE 60, DEFORMED.
- ALL CORES OF MASONRY CONTAINING REINFORCING BARS AND ALL BOND BEAMS SHALL BE FILLED SOLID WITH GROUT. VERTICAL BARS SHALL BE LOCATED AT THE CENTER OF WALL. FILLING CORES AND BOND BEAMS WITH MORTAR IS STRICTLY PROHIBITED. EXERCISE CARE TO KEEP CORES FREE FROM MORTAR DROPPINGS.
- VERTICAL AND HORIZONTAL REINFORCING SHALL BE SECURELY HELD IN PROPER ALIGNMENT AND POSITION DURING GROUTING OPERATIONS BY USING HOT-DIPPED GALVANIZED REBAR POSITIONERS.
- GROUT SHALL BE PLACED USING LOW-LIFT GROUTING PROCEDURES CONFORMING TO NCMA REQUIREMENTS. THE MAXIMUM GROUT LIFT SHALL NOT EXCEED 4'-8". ALTERNATE GROUT POURS 1 1/2" BELOW TOP COURSE OF POUR. REINFORCING SHALL BE SPICED A MINIMUM OF 48 BAR DIAMETERS.
- REINFORCEMENT FOR CONCRETE MASONRY BOND BEAMS SHALL BE (2)- #5 BARS CONTINUOUS, UNLESS OTHERWISE NOTED.
- HORIZONTAL REINFORCEMENT FOR CONCRETE MASONRY WALLS SHALL BE PROVIDED BY HORIZONTAL JOINT REINFORCING SPACED 16" O.C. VERTICALLY AND ABOVE AND BELOW WINDOW OPENINGS.

6" CMU: #5 @ 32" O.C.
8" CMU UP TO 10'-0" UNSUPPORTED LENGTH: #5 @ 32" O.C.
8" CMU UP TO 20'-0" UNSUPPORTED LENGTH: #5 @ 16" O.C.
12" CMU: #6 @ 8" O.C.

PROVIDE ADDED BARS AT WALL ENDS, AND CORNERS AS SHOWN.

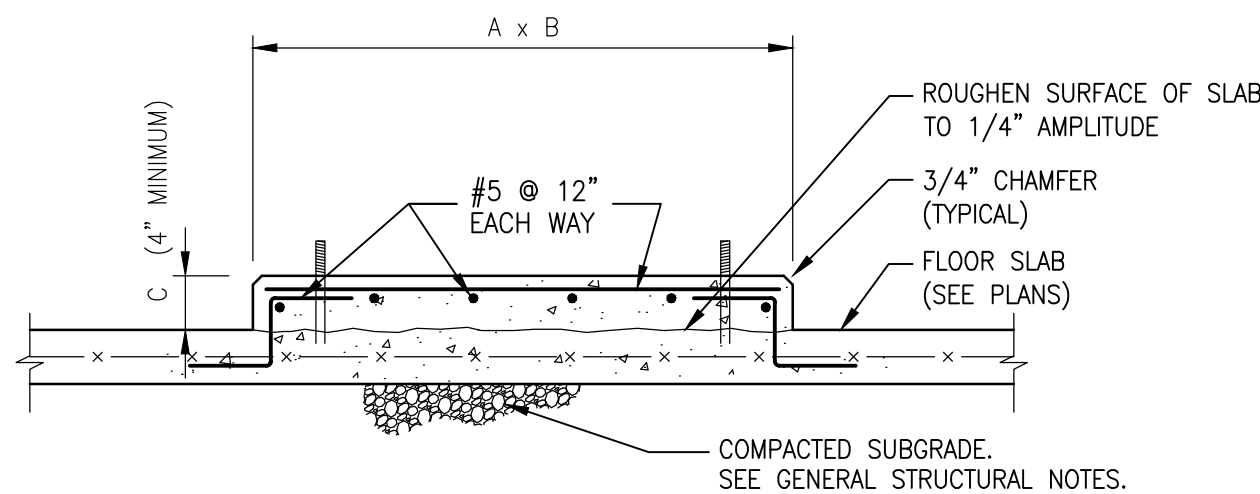
DEMOLITION

- PERFORM ALL DEMOLITION PROCEDURES WITH CARE TO AVOID DAMAGE TO ADJACENT STRUCTURAL ELEMENTS & FINISHES.
- SAWCUT ALONG ALL BOUNDARIES OF CONCRETE TO BE DEMOLISHED.
- CONCRETE AND REINFORCING STEEL SURFACES EXPOSED BY DEMOLITION SHALL BE FREE OF RUST, OIL SOLVENT, GREASE, DIRT, DUST, BITUMEN, LOOSE PARTICLES, AND OTHER FOREIGN MATTER.
- WHERE NEW CONCRETE IS TO BE PLACED AGAINST EXISTING SURFACES, ANY EXPOSED REINFORCING BARS AND NEWLY EXPOSED CONCRETE SURFACES SHALL BE THOROUGHLY CLEANED BY GRIT BLASTING OR OTHER MECHANICAL ABRASION METHODS AS APPROVED BY THE ENGINEER.



TYPICAL REINFORCING AT SLAB AND WALL OPENIGS

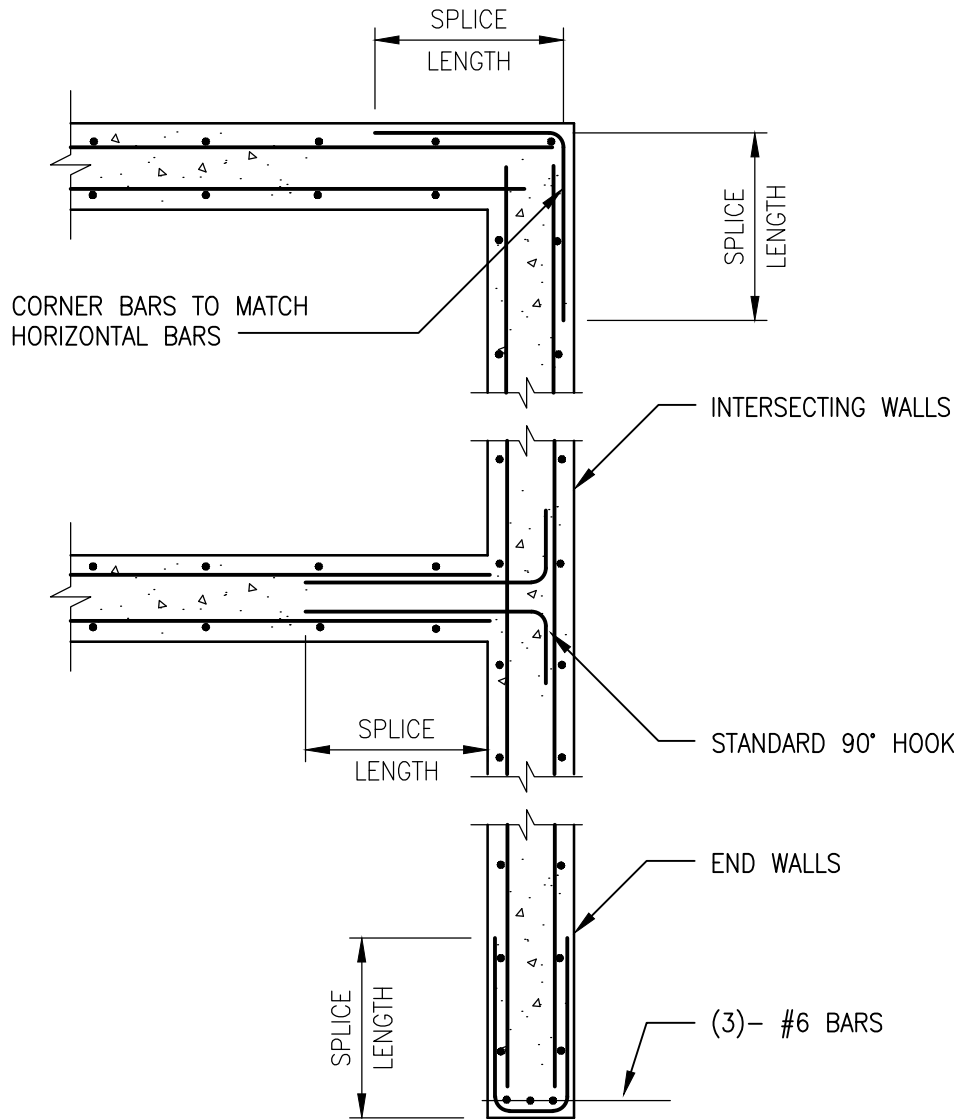
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NOTE: LOCATION, SIZE OF PAD (A, B & C DIMENSIONS) AND ANCHOR RODS AS REQUIRED BY EQUIPMENT MANUFACTURER. DRILLED IN EPOXY ANCHORS MAY BE SUBSTITUTED AT CONTRACTOR'S OPTION. (ANCHOR RODS TO BE SUPPLIED BY MISCELLANEOUS METAL SUB-CONTRACTOR AND INSTALLED BY CONCRETE CONTRACTOR)

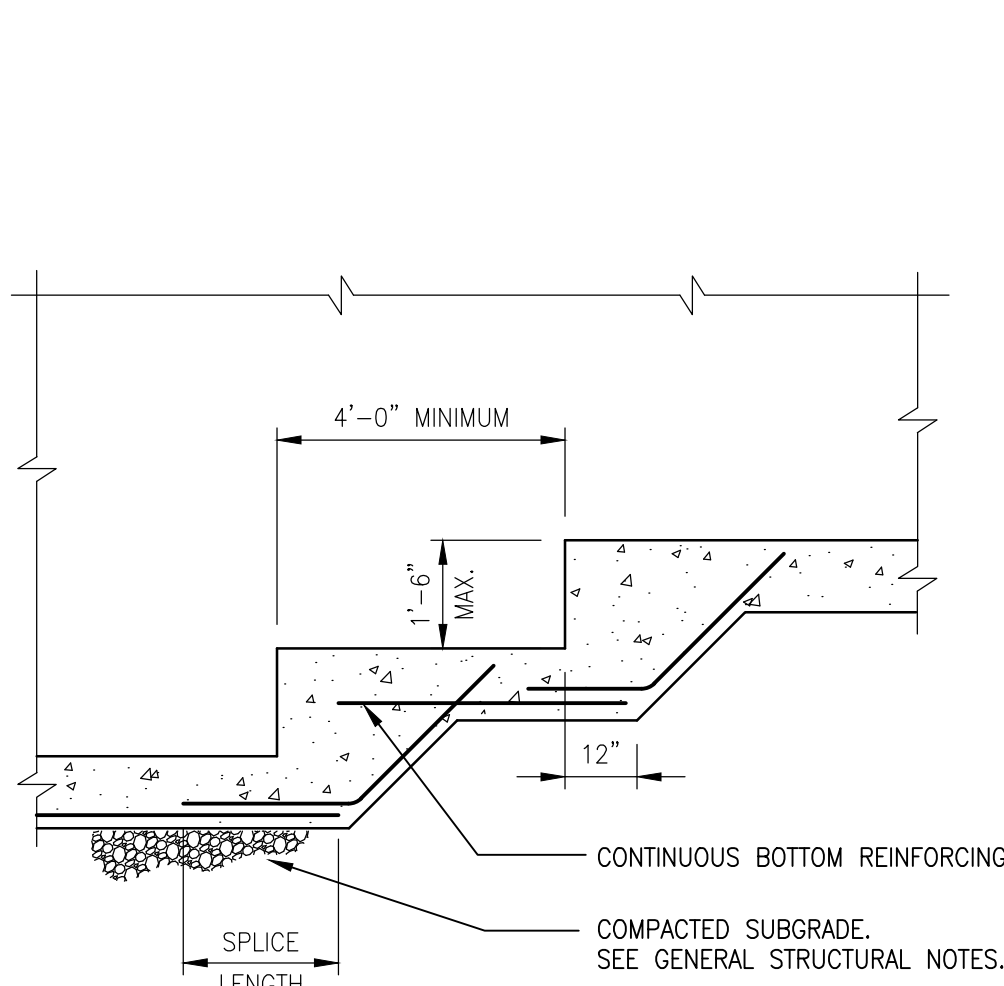
EQUIPMENT PAD ON NEW SLAB DETAIL

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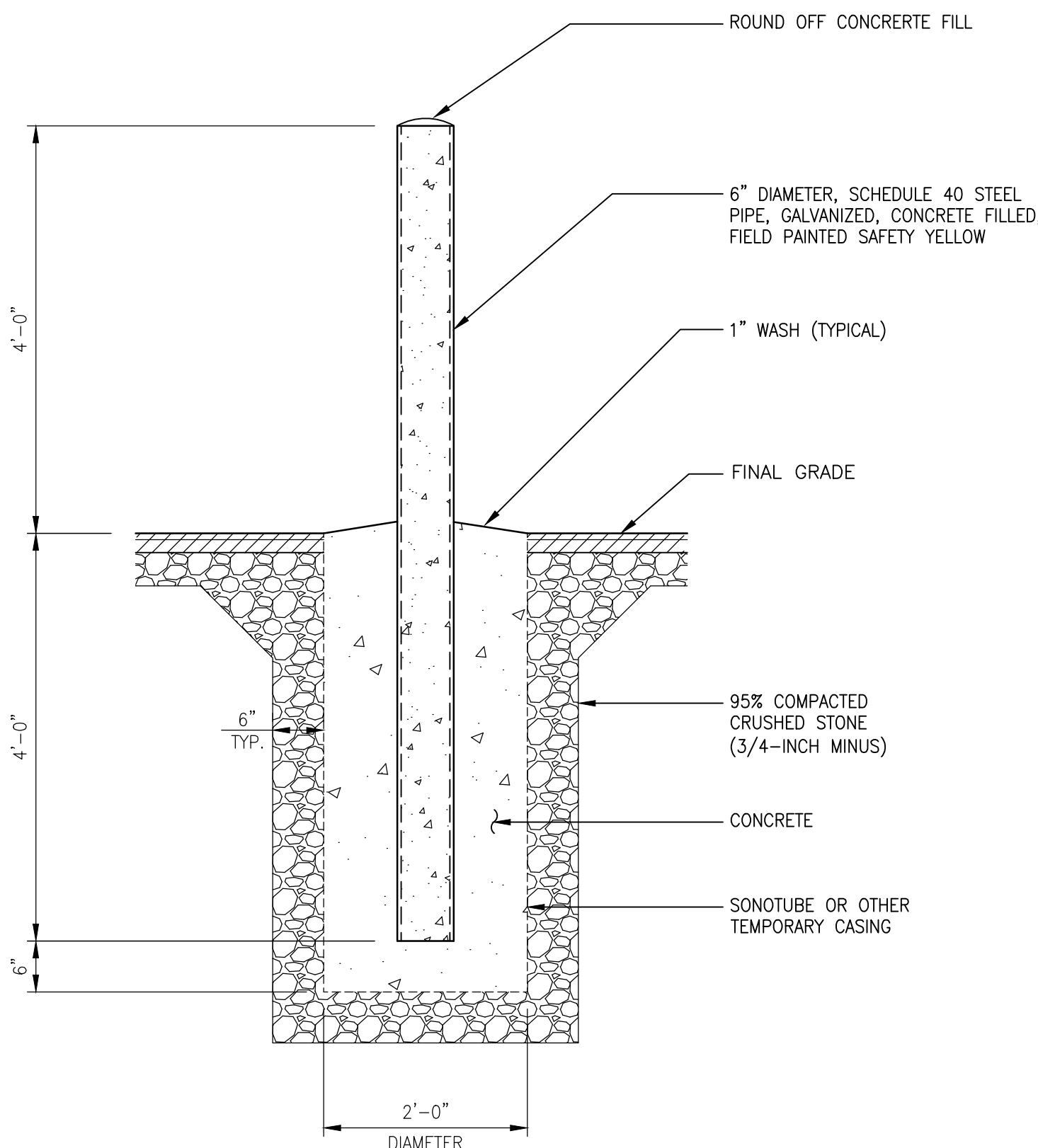
CONCRETE WALL REINFORCING DETAIL

SCALE: NONE



STEPPED FOOTING DETAIL

SCALE: NONE



EXTERIOR GUARD POST/BOLLARD DETAIL

SCALE: NONE

REVISIONS

Number	Description	Date

ISSUED FOR:
BID



FIRE STATION
ENGINE No.3
LIVING QUARTERS

255 Somerville Ave.
Somerville, MA 02143

GENERAL NOTES AND TYPICAL DETAILS

PROJECT NUMBER: 19431.06

DESIGNED BY: JS

DRAWN BY: KC

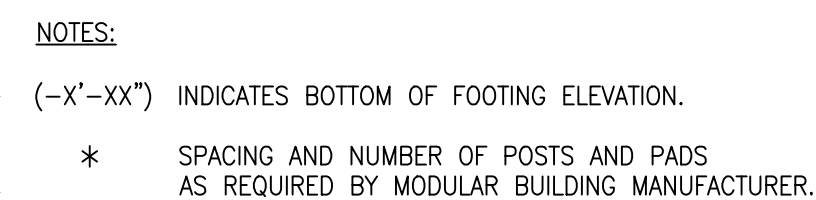
CHECKED BY:

DATE: OCTOBER 22, 2014

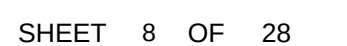
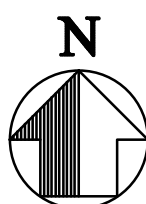
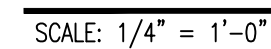
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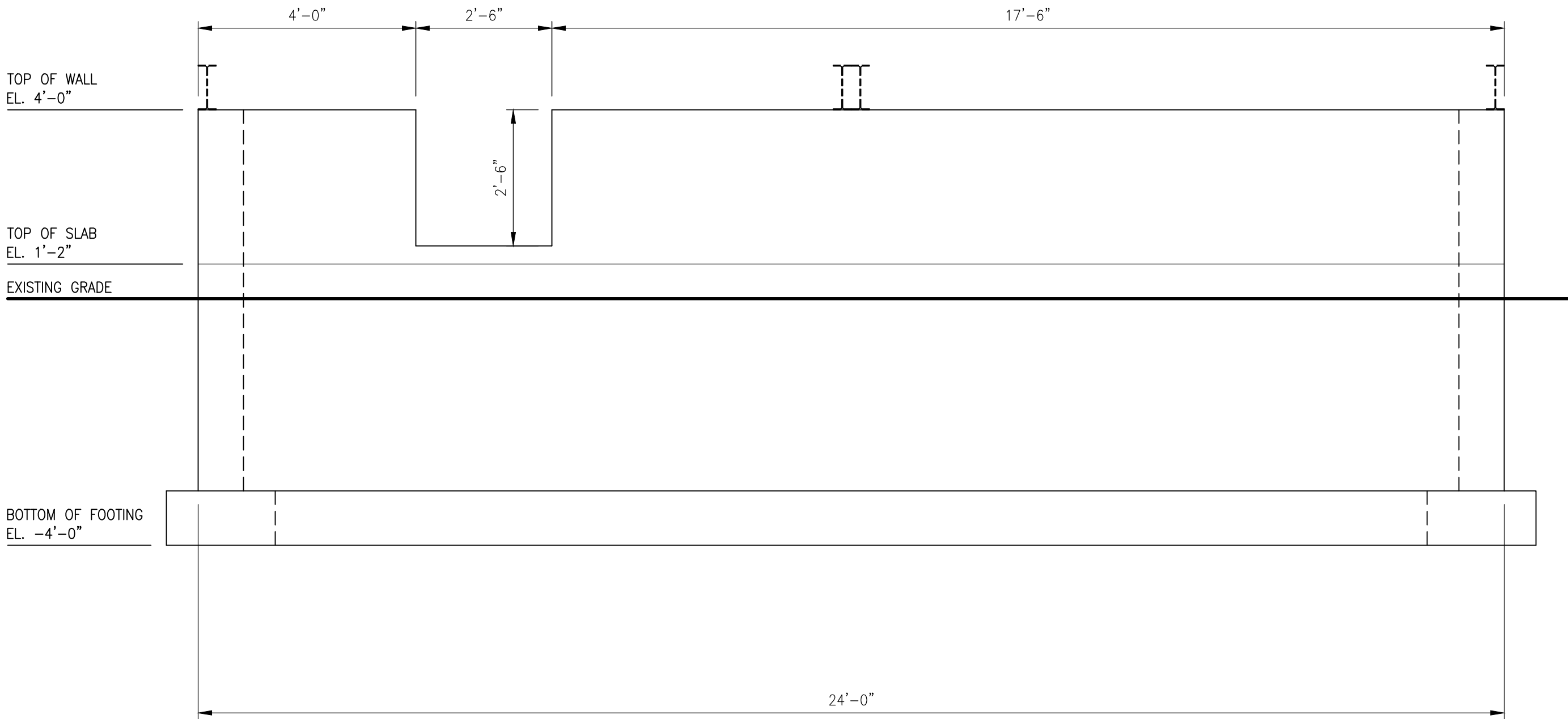
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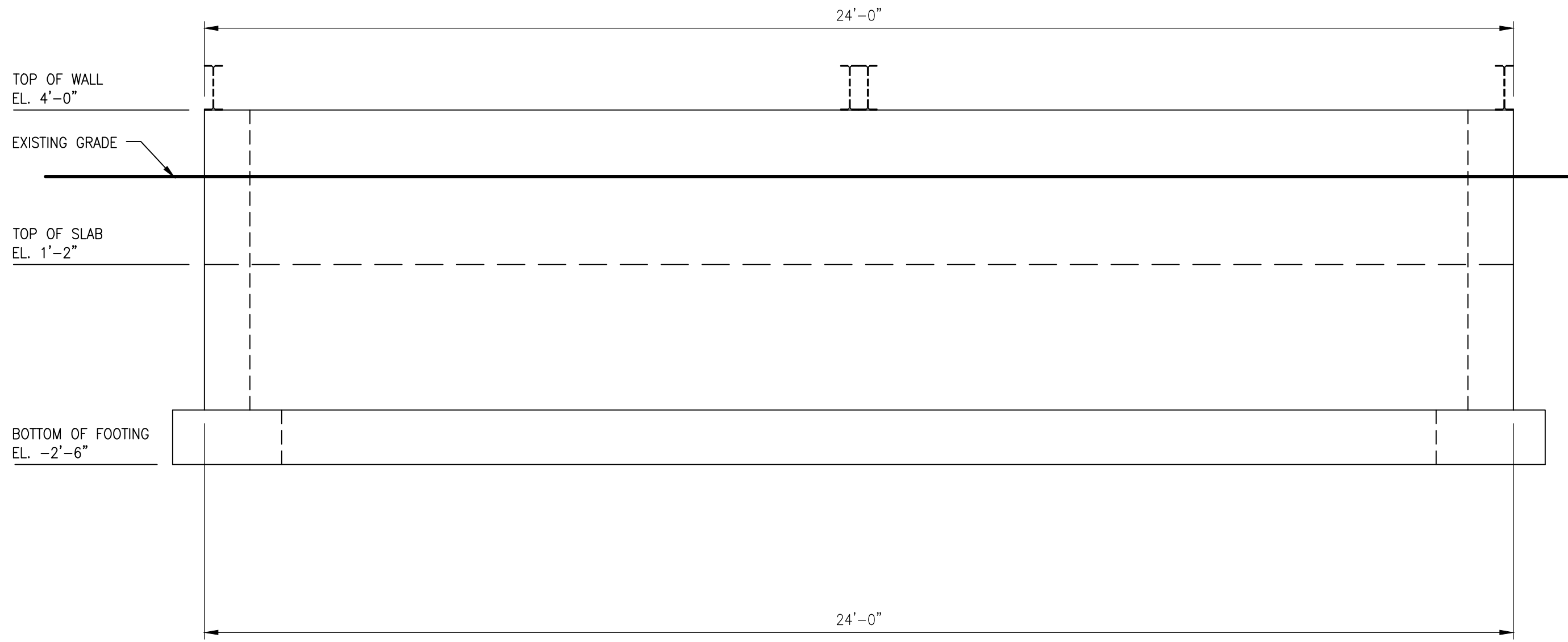
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MECH: INITIAL&DATE
FIRE: INITIAL&DATE
PLUM: INITIAL&DATE
STRU: INITIAL&DATE
ARCH: INITIAL&DATE
CIVIL: INITIAL&DATE
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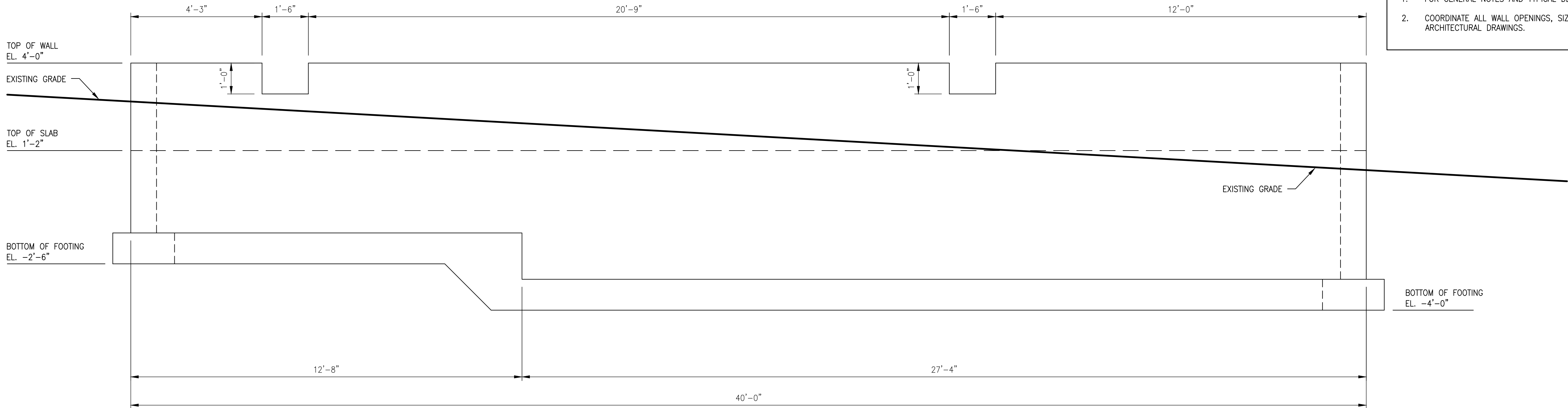


A WEST ELEVATION
SCALE: 1/4" = 1'-0"

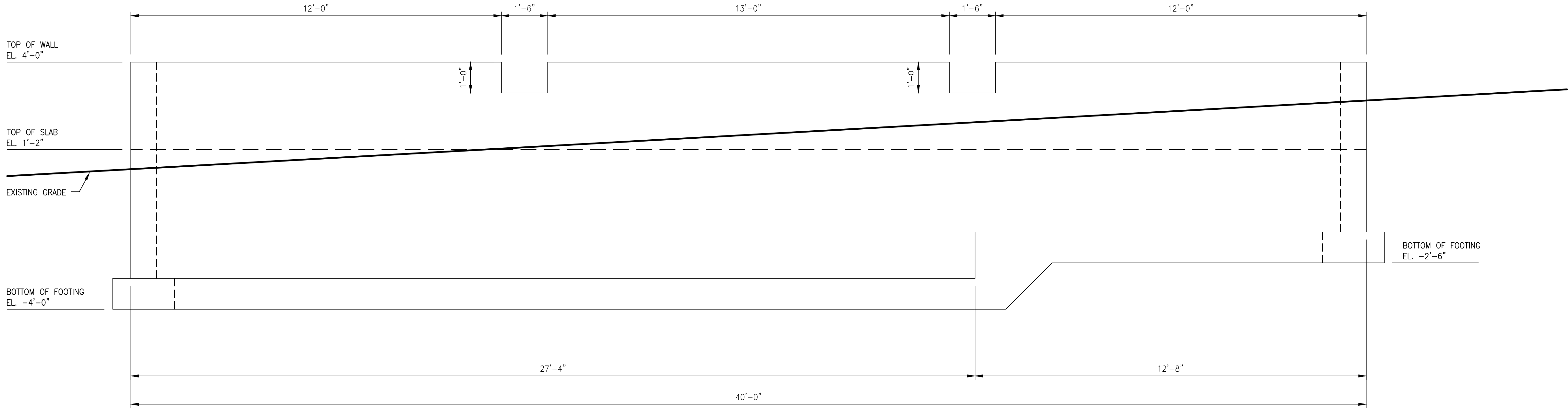


B EAST ELEVATION
SCALE: 1/4" = 1'-0"

- SHEET NOTES**
- FOR GENERAL NOTES AND TYPICAL DETAILS, SEE SHEET S1
 - COORDINATE ALL WALL OPENINGS, SIZE AND LOCATION, WITH ARCHITECTURAL DRAWINGS.



C NORTH ELEVATION
SCALE: 1/4" = 1'-0"



D SOUTH ELEVATION
SCALE: 1/4" = 1'-0"

REVISIONS		
Number	Description	Date

ISSUED FOR:
BID



FIRE STATION
ENGINE No.3
LIVING QUARTERS

255 Somerville Ave.
Somerville, MA 02143

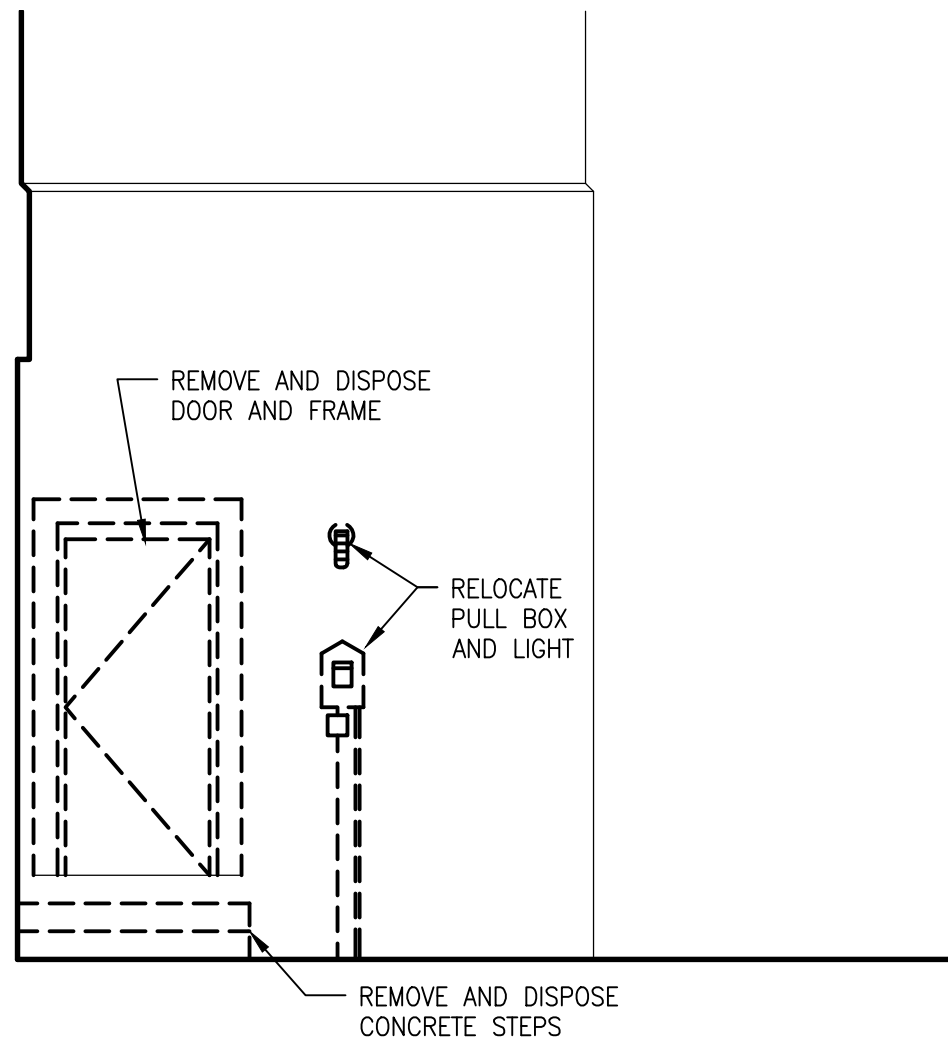
FOUNDATION
ELEVATIONS

PROJECT NUMBER: 19431.06
DESIGNED BY: JS
DRAWN BY: KC
CHECKED BY:
DATE: OCTOBER 22, 2014
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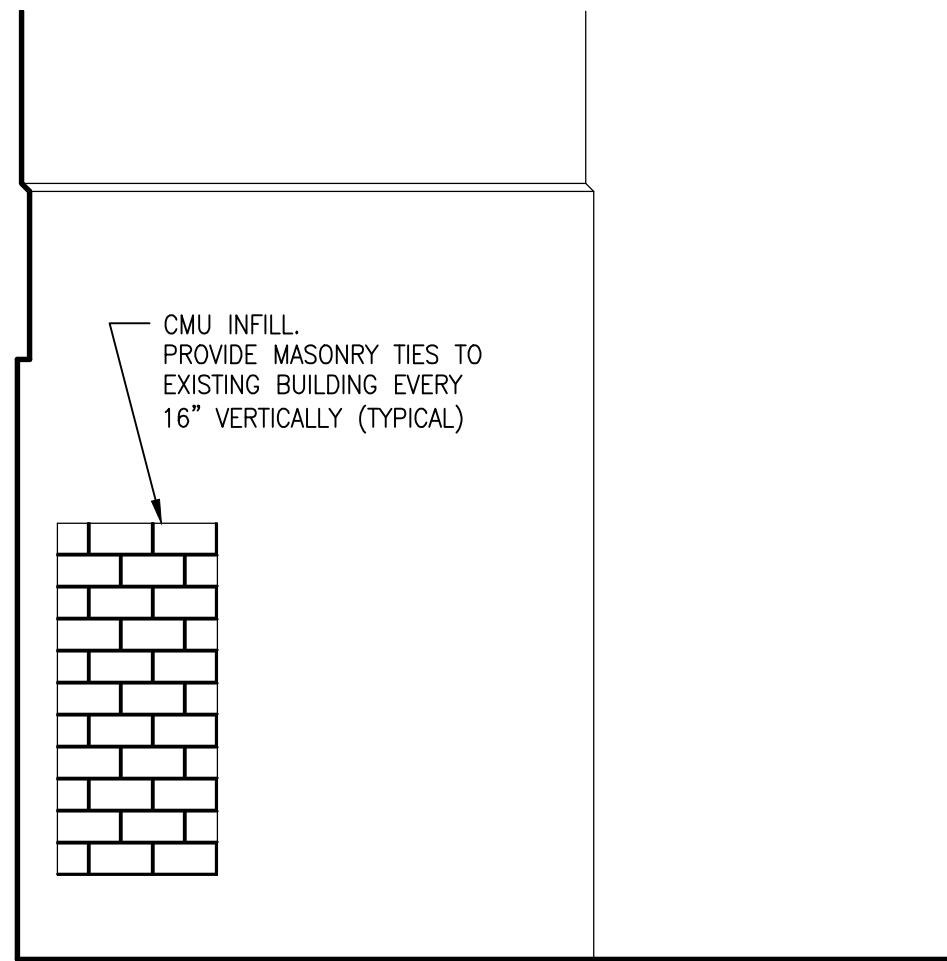
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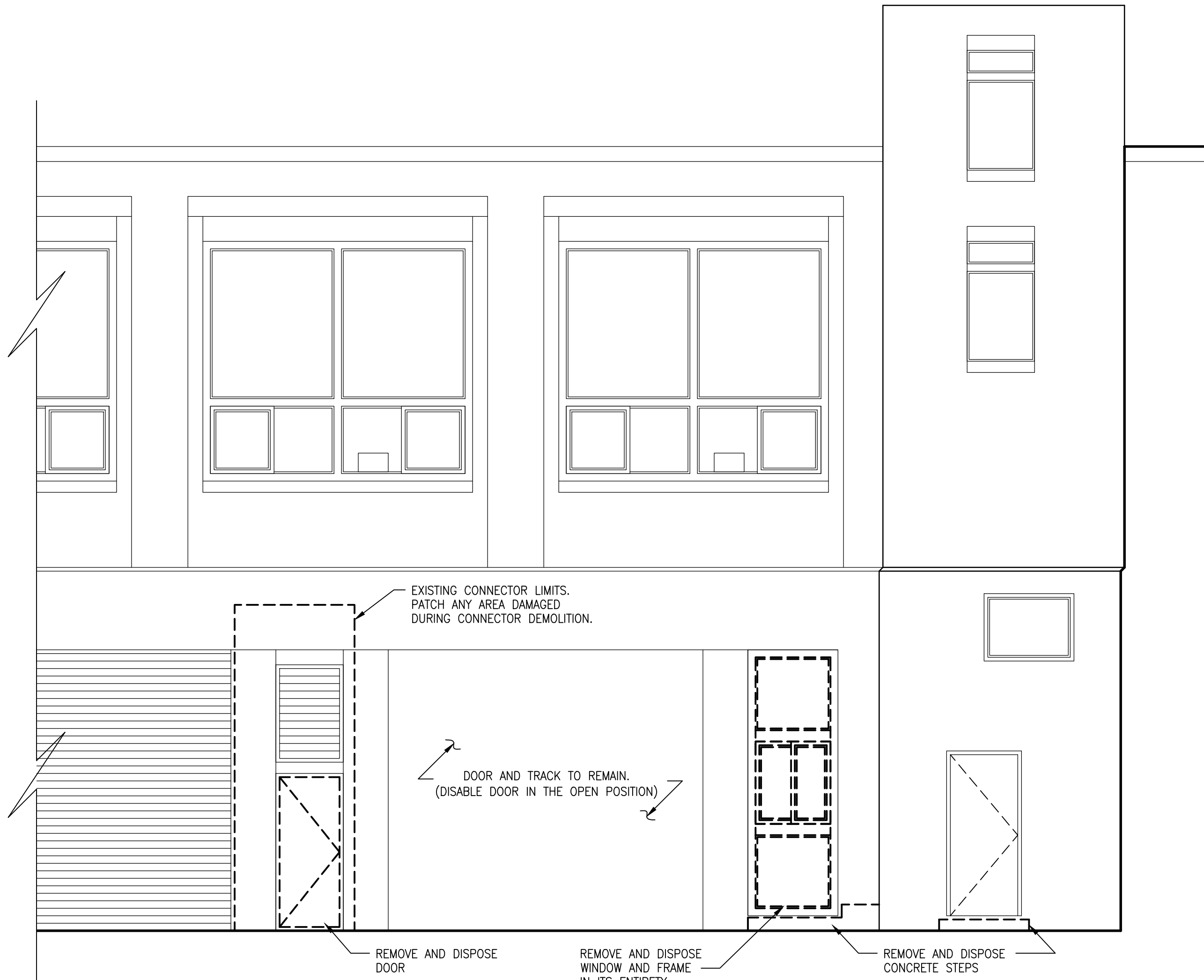
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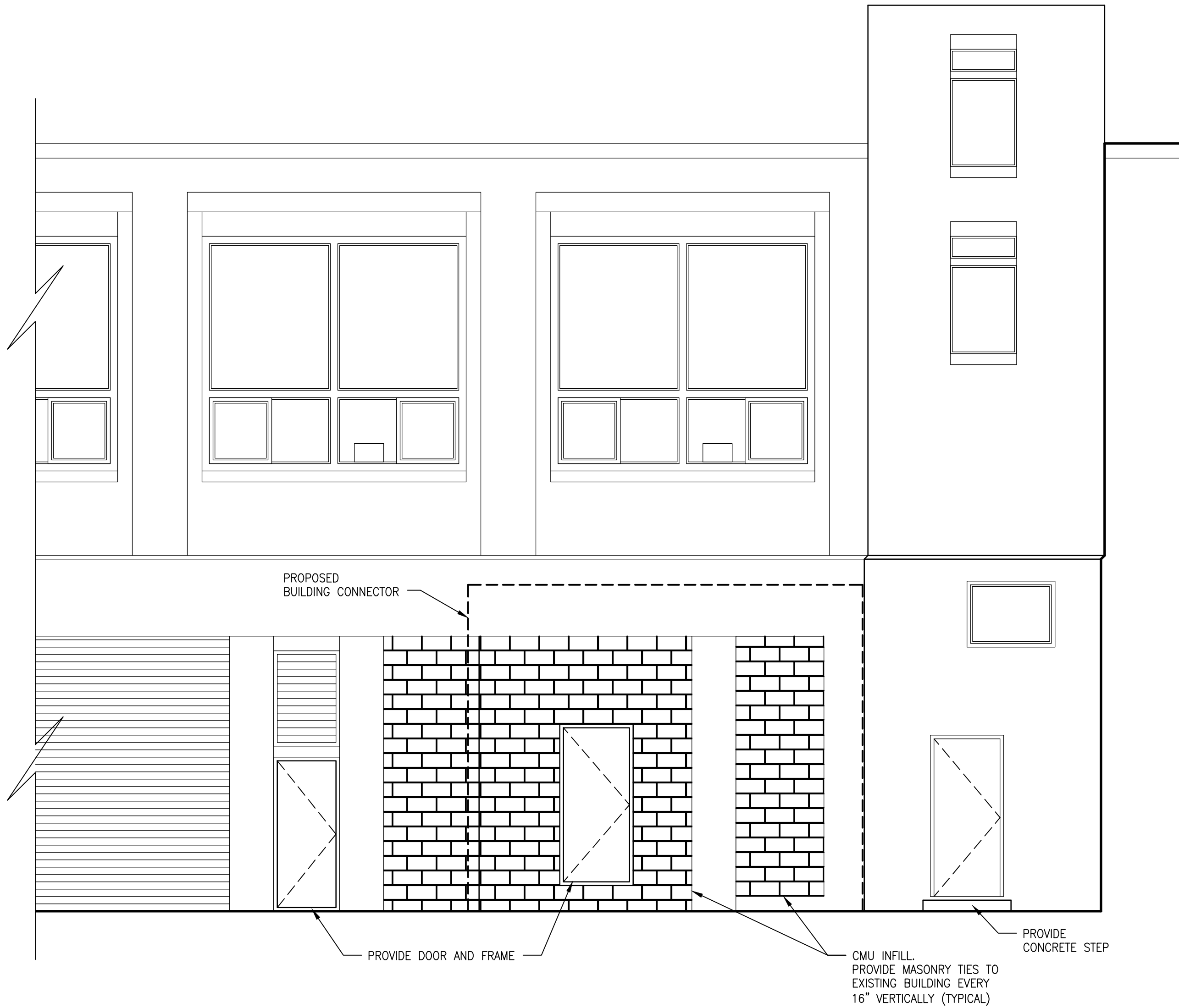
A EAST ELEVATION - DEMOLITION
SCALE: 1/4" = 1'-0"



C EAST ELEVATION - NEW WORK
SCALE: 1/4" = 1'-0"



B SOUTH ELEVATION - DEMOLITION
SCALE: 1/4" = 1'-0"



D SOUTH ELEVATION - NEW WORK
SCALE: 1/4" = 1'-0"

REVISIONS		
Number	Description	Date

ISSUED FOR:
BID



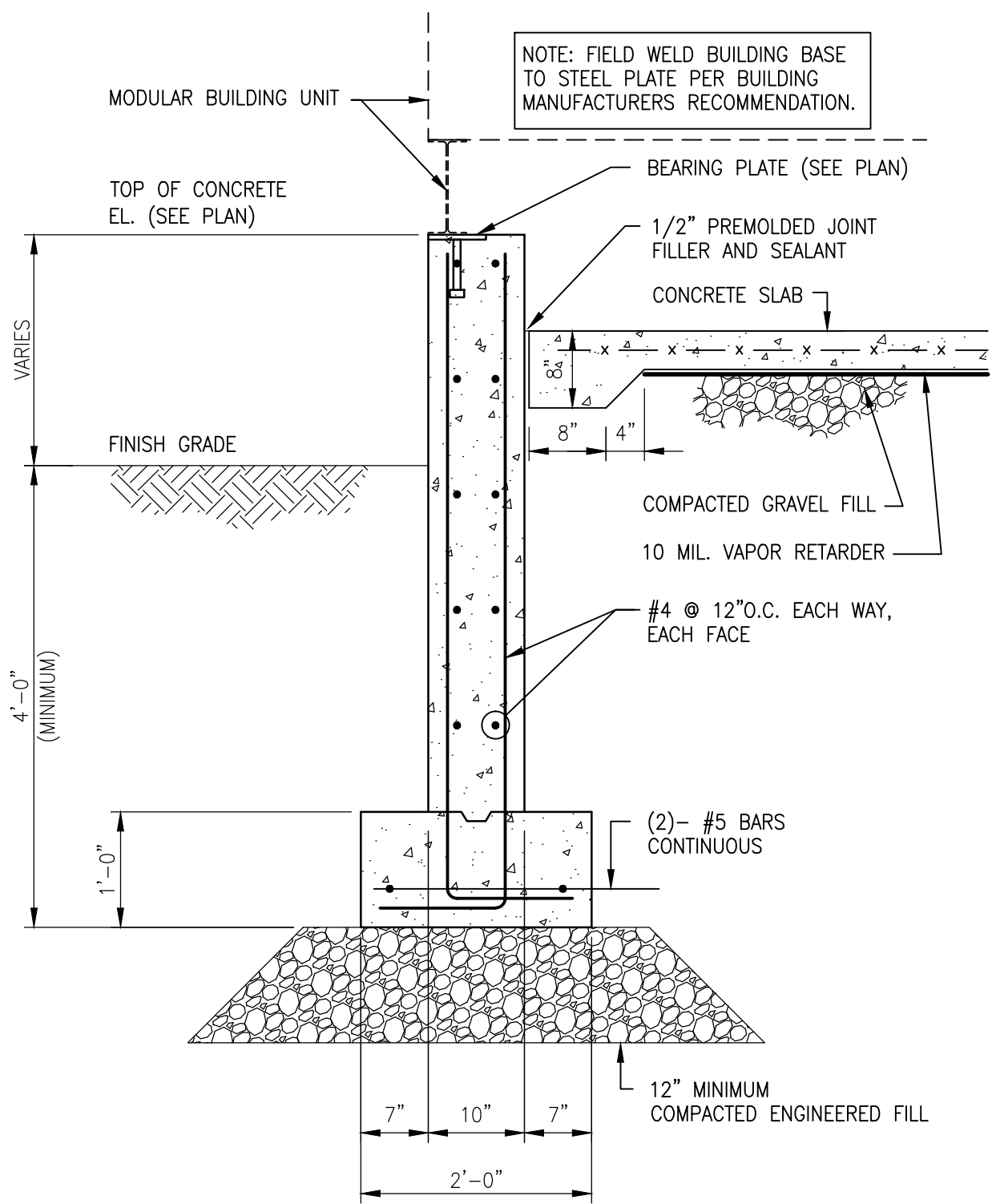
FIRE STATION
ENGINE No.3
LIVING QUARTERS
255 Somerville Ave.
Somerville, MA 02143

BUILDING
ELEVATIONS

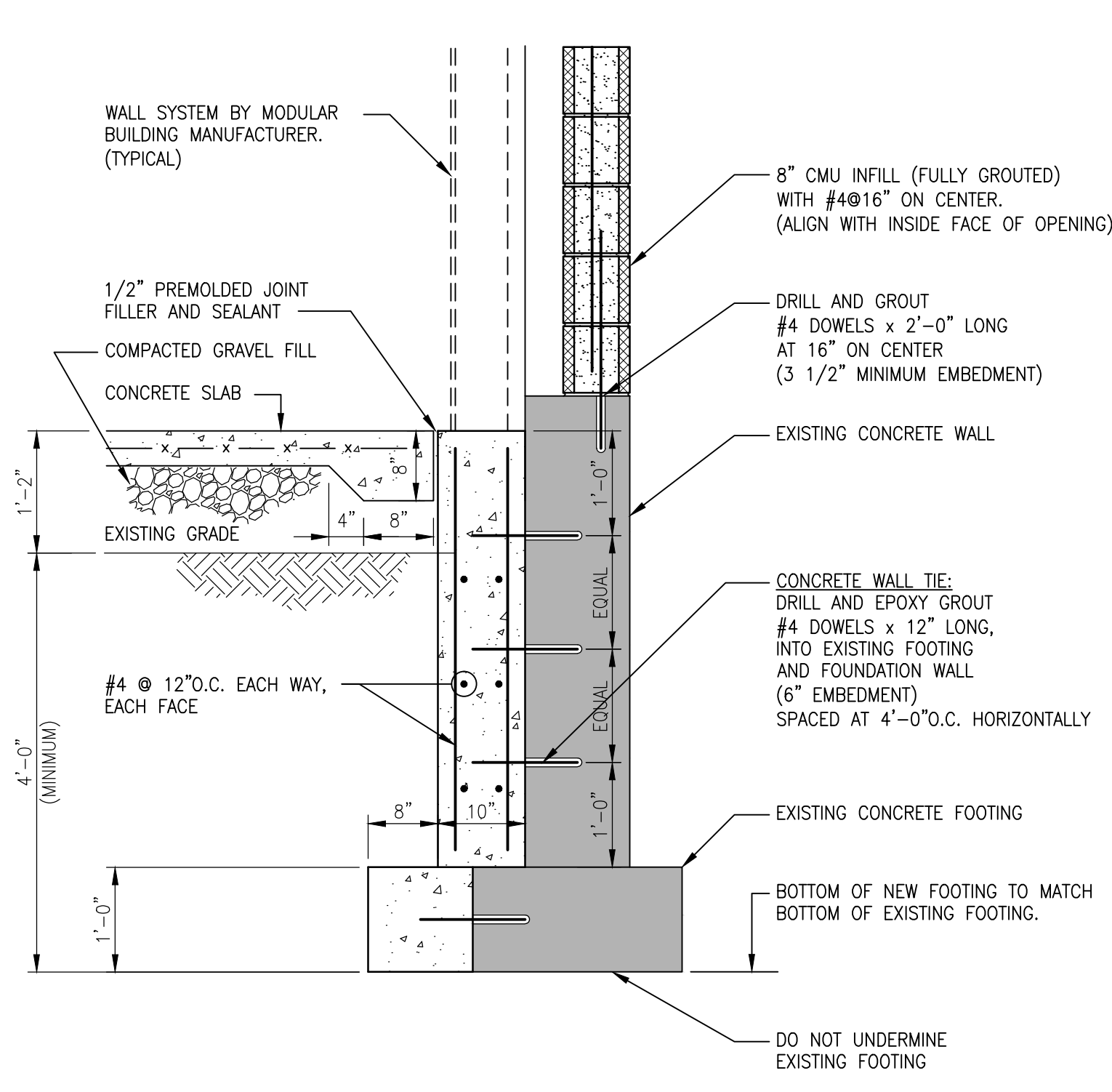
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SHEET NUMBER:

S4

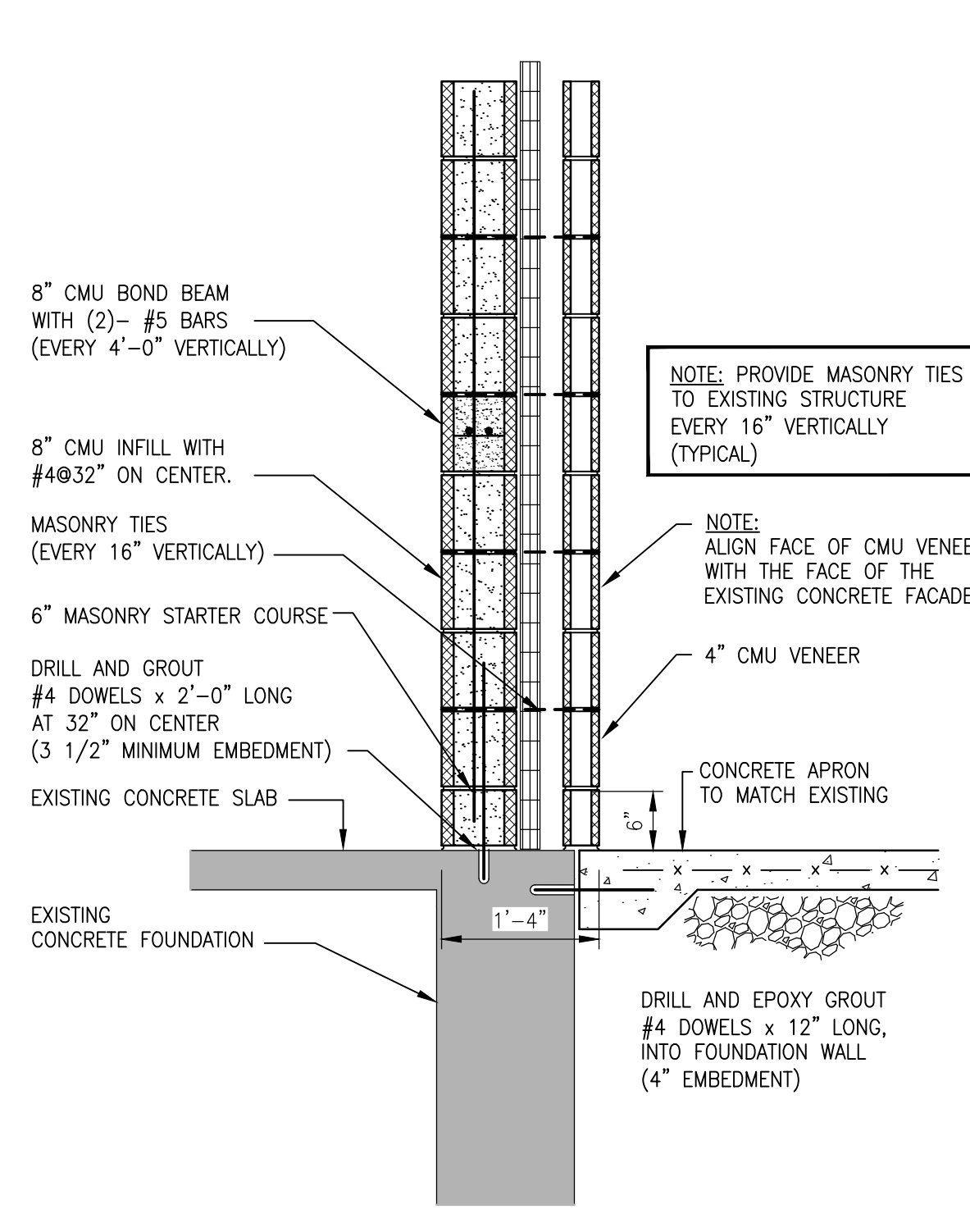
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STRU: INITIAL&DATE
ARCH: INITIAL&DATE
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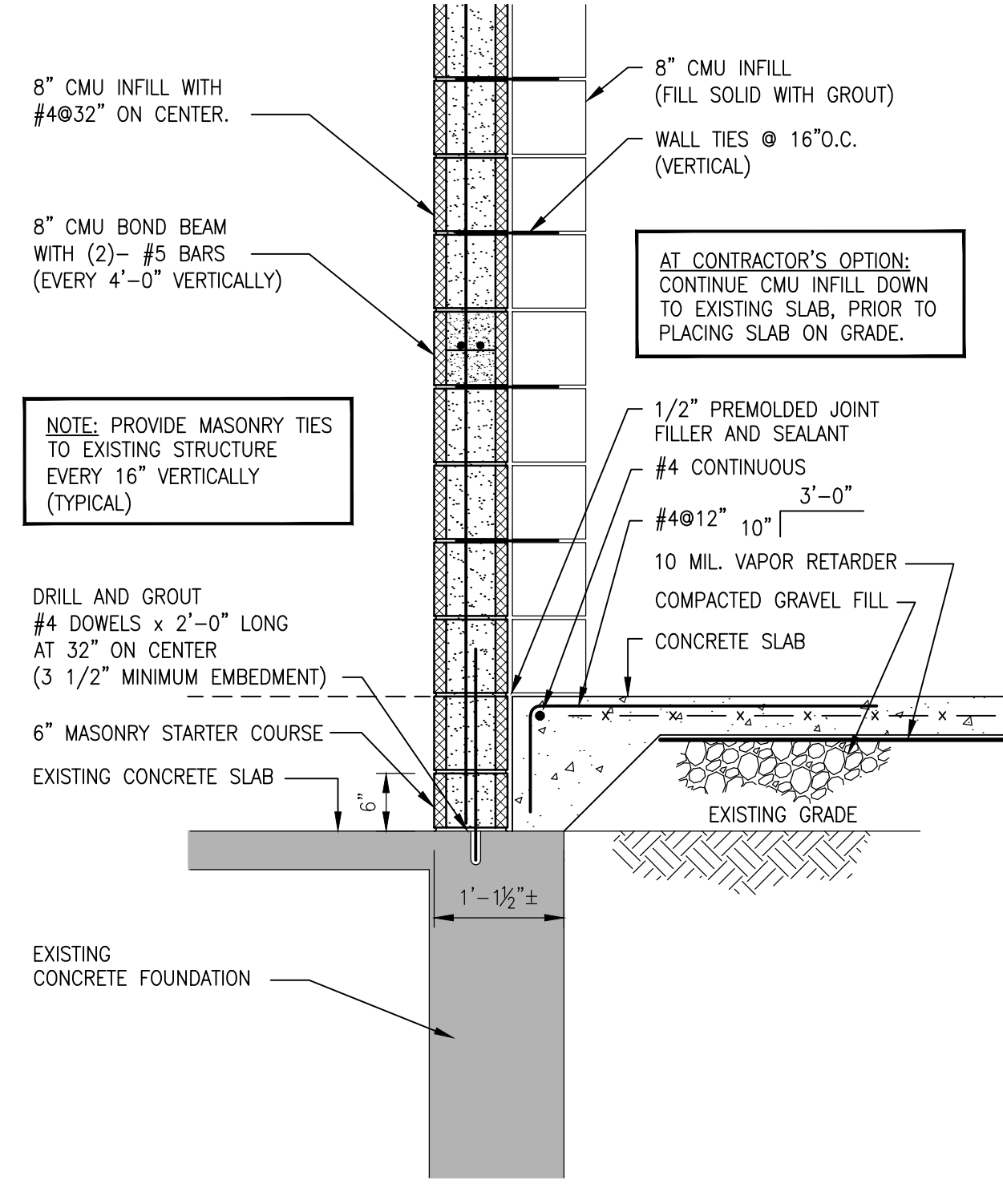
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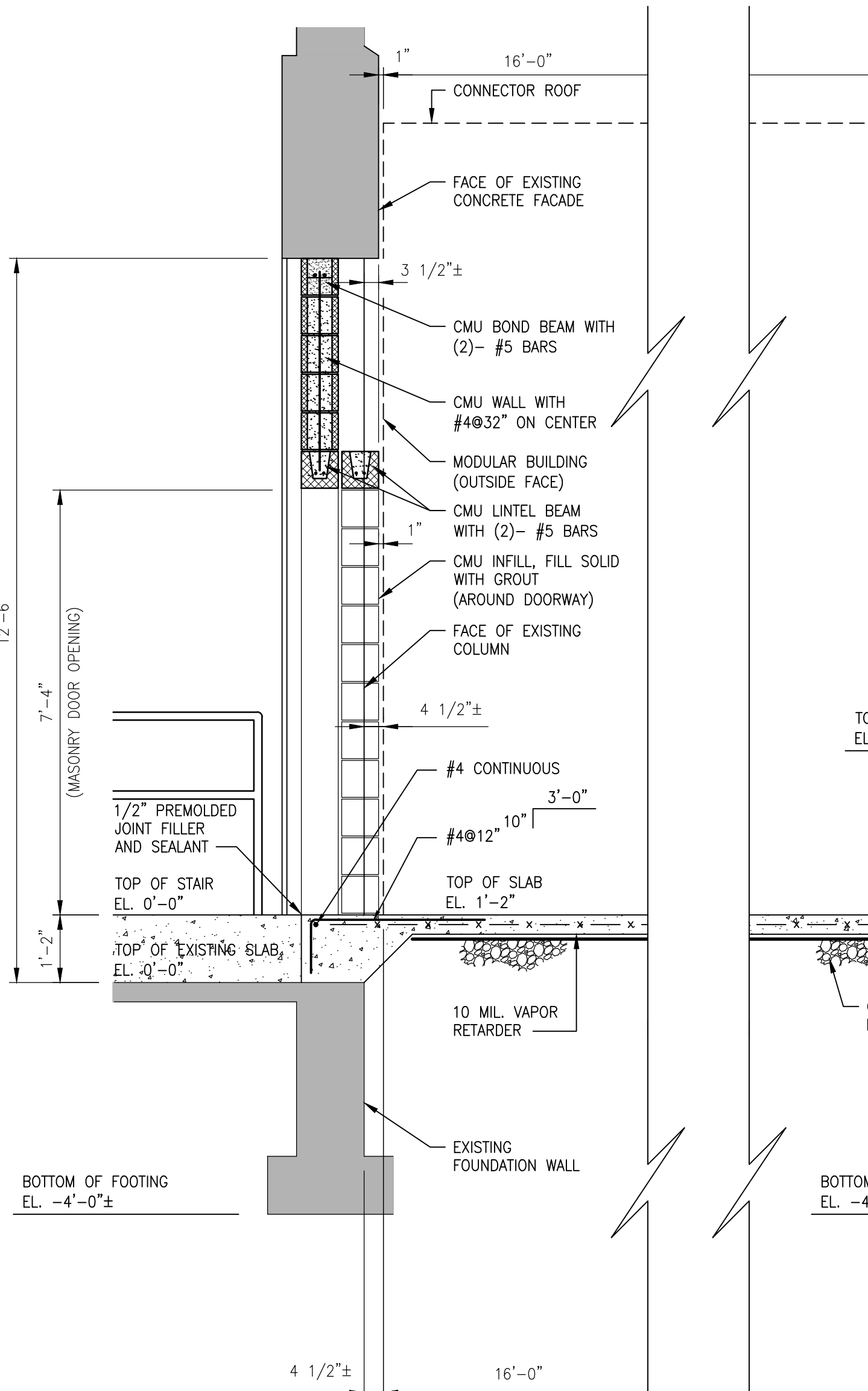
2 SECTION
SCALE: 3/4" = 1'-0"



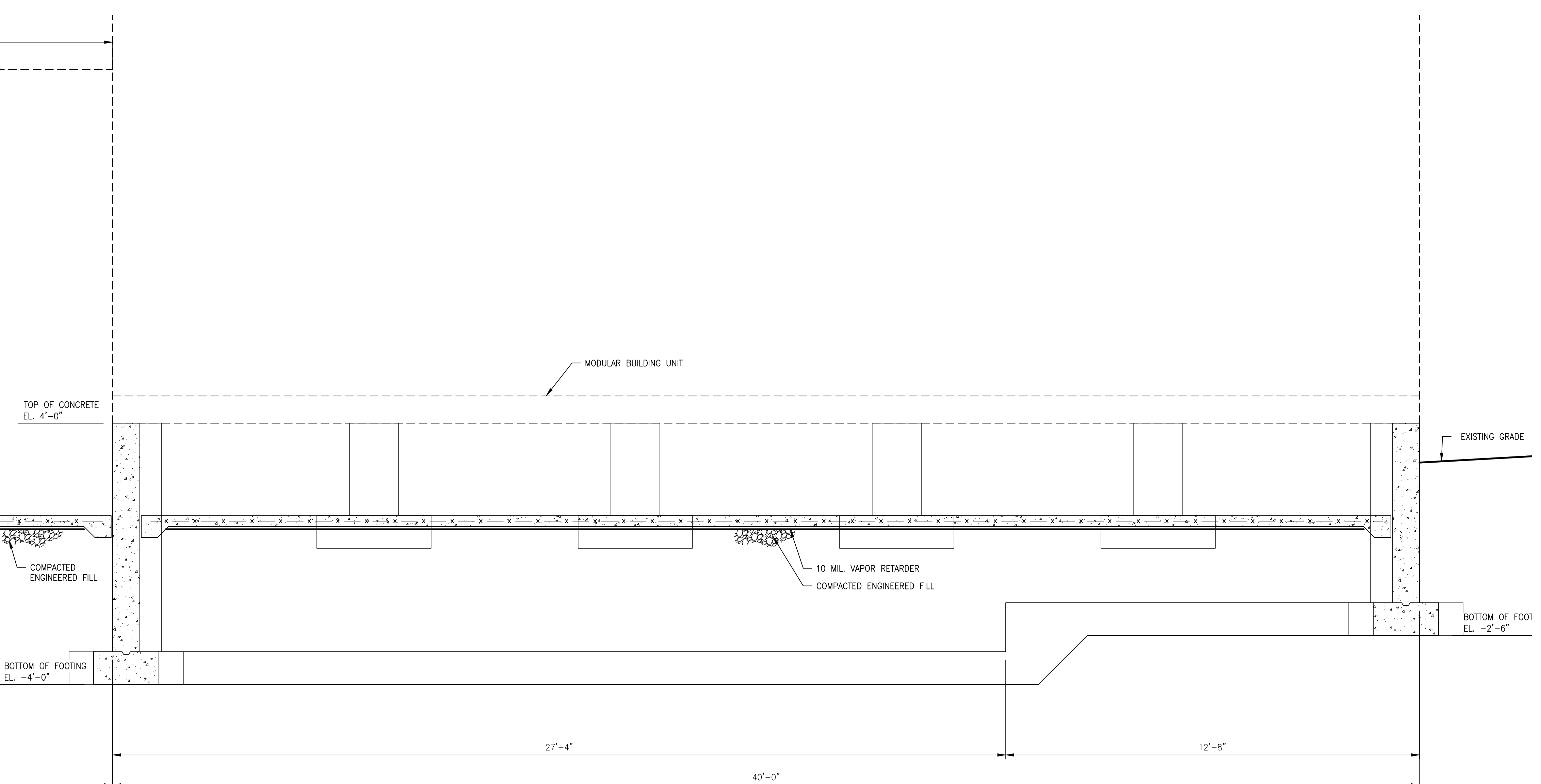
3 SECTION
SCALE: 3/4" = 1'-0"



4 SECTION
SCALE: 3/4" = 1'-0"



A SECTION
SCALE: 1/2" = 1'-0"



REVISIONS		
Number	Description	Date

ISSUED FOR:
BID



FIRE STATION
ENGINE No.3
LIVING QUARTERS

255 Somerville Ave.
Somerville, MA 02143

SECTIONS
AND
DETAILS

PROJECT NUMBER: 19431.06
DESIGNED BY: JS
DRAWN BY: KC
CHECKED BY:
DATE: OCTOBER 22, 2014
SCALE: AS NOTED

SHEET NUMBER:

S5

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REVIEWED BY: CIVIL INITIAL & DATE

ARCH: INITIAL & DATE

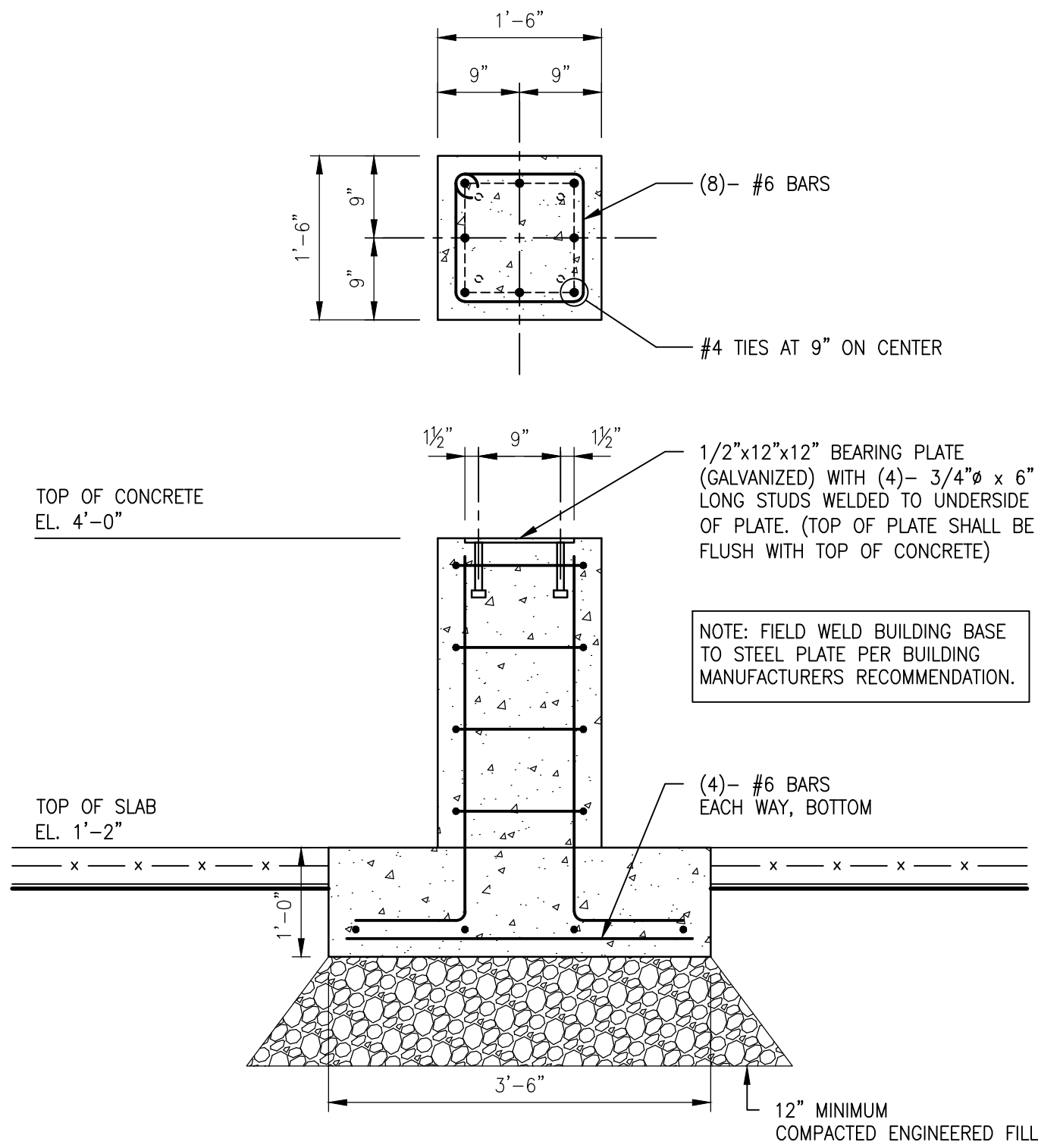
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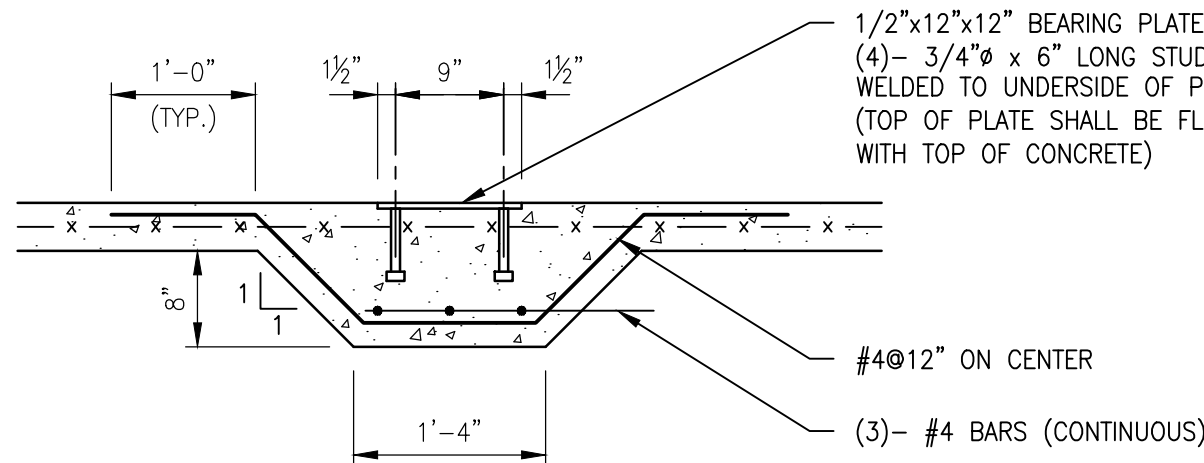
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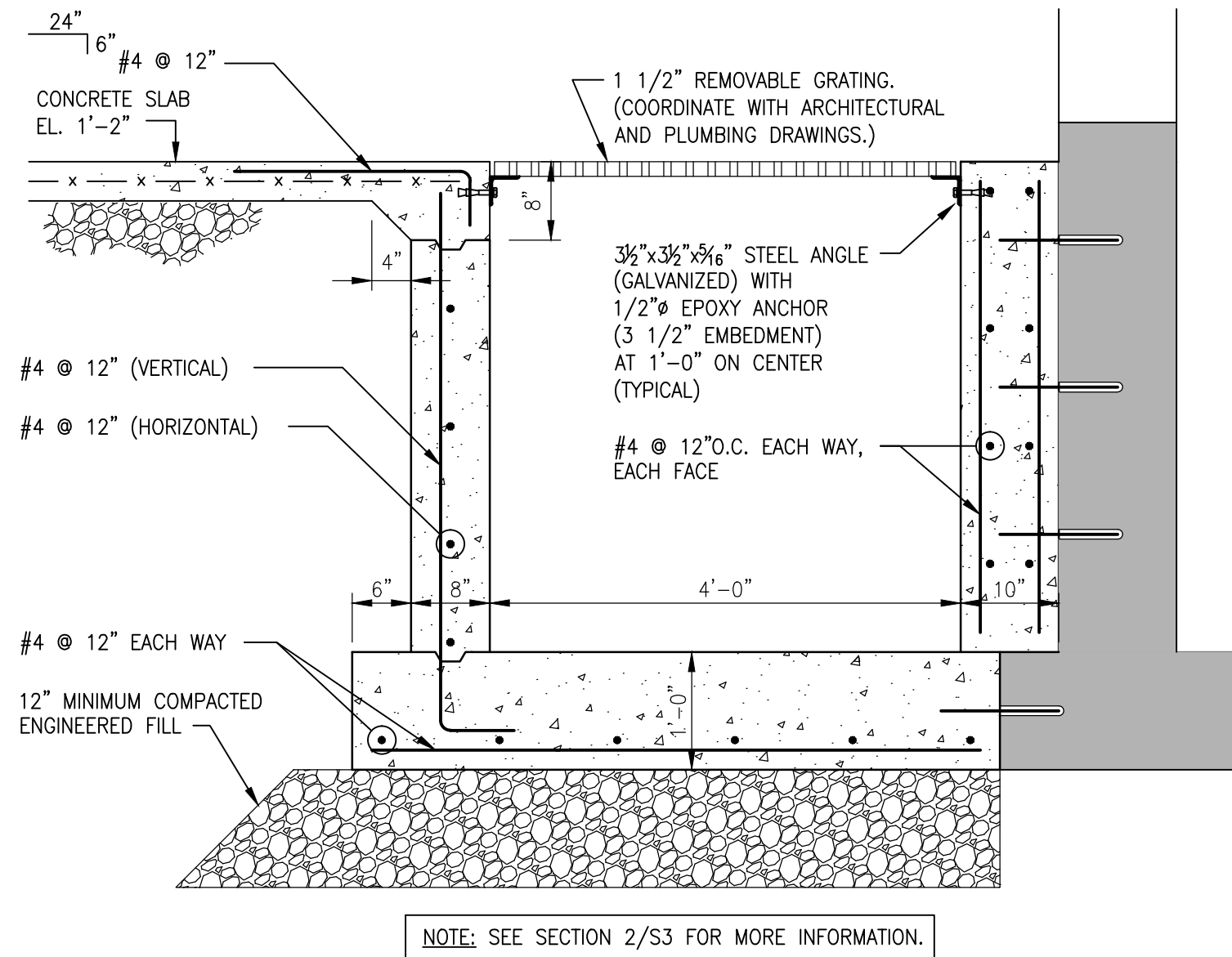
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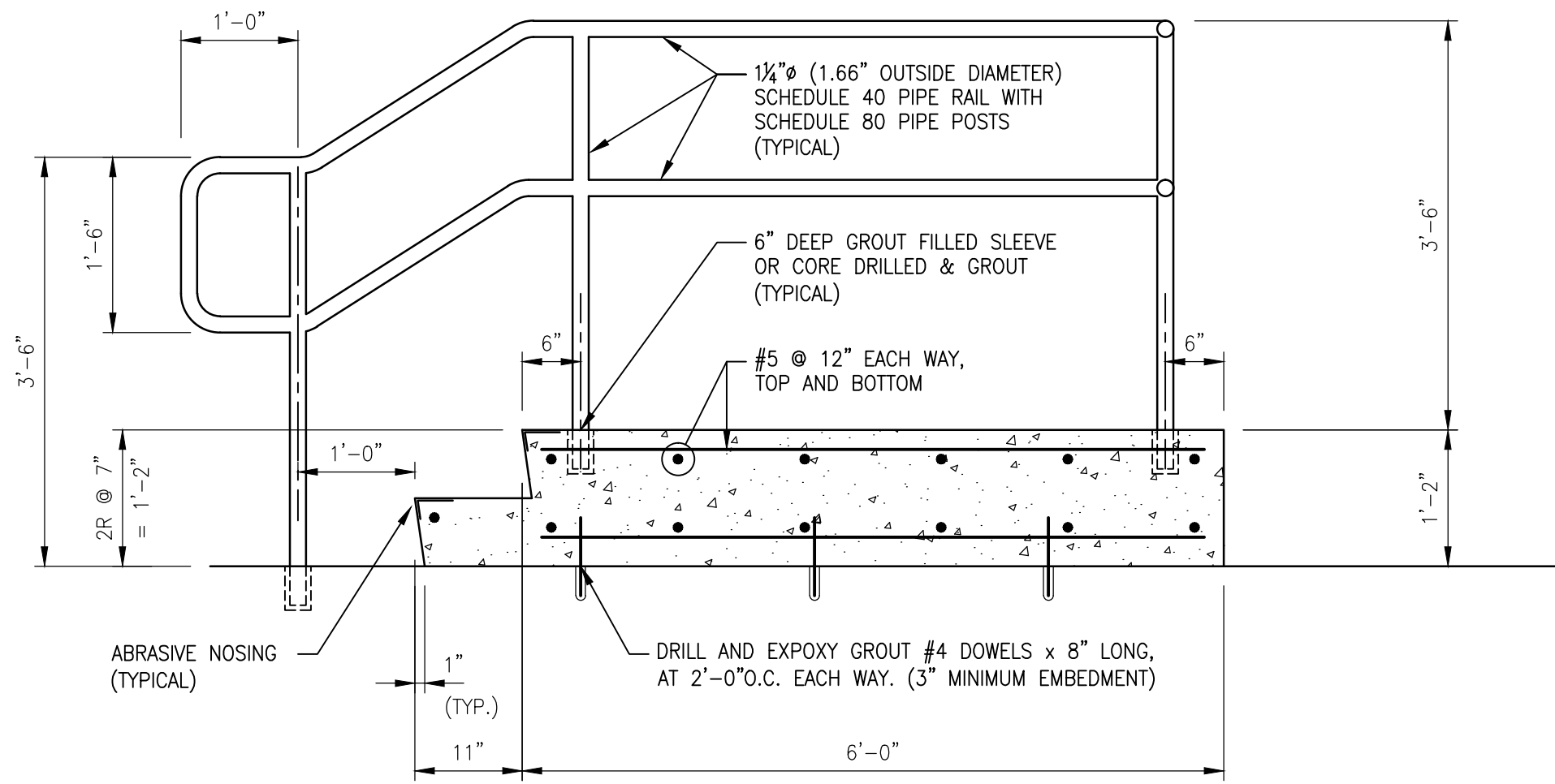
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SCALE: 3/4" = 1'-0"



2 SECTION
SCALE: 3/4" = 1'-0"



3 SECTION
SCALE: 3/4" = 1'-0"



4 SECTION
SCALE: 3/4" = 1'-0"

REVISIONS		
Number	Description	Date

ISSUED FOR:
BID



FIRE STATION
ENGINE No.3
LIVING QUARTERS

255 Somerville Ave.
Somerville, MA 02143

SECTIONS
AND
DETAILS

PROJECT NUMBER: 19431.06
DESIGNED BY: JS
DRAWN BY: KC
CHECKED BY:
DATE: OCTOBER 22, 2014
SCALE: AS NOTED

SHEET NUMBER:

S6

Fire Station Engine No. 3

LIVING QUARTERS RENOVATION

255 Somerville Ave.

Somerville, MA 02143

ISSUED FOR
BID
10/22/14

LIST OF DRAWINGS

GENERAL

COVER SHEET

ARCHITECTURAL

- A0 GENERAL NOTES, ABBREVIATIONS, LEGEND
- A1 DEMOLITION FLOOR PLAN
- A2 PROPOSED FLOOR PLANS
- A3 SCHEDULES
- A4 DETAILS AND ENLARGED PLANS

STRUCTURAL

- S1 GENERAL NOTES AND TYPICAL DETAILS
- S2 DEMOLITION AND FOUNDATION PLANS
- S3 FOUNDATION ELEVATIONS
- S4 BUILDING ELEVATIONS
- S5 SECTIONS AND DETAILS
- S6 SECTIONS AND DETAILS

PLUMBING

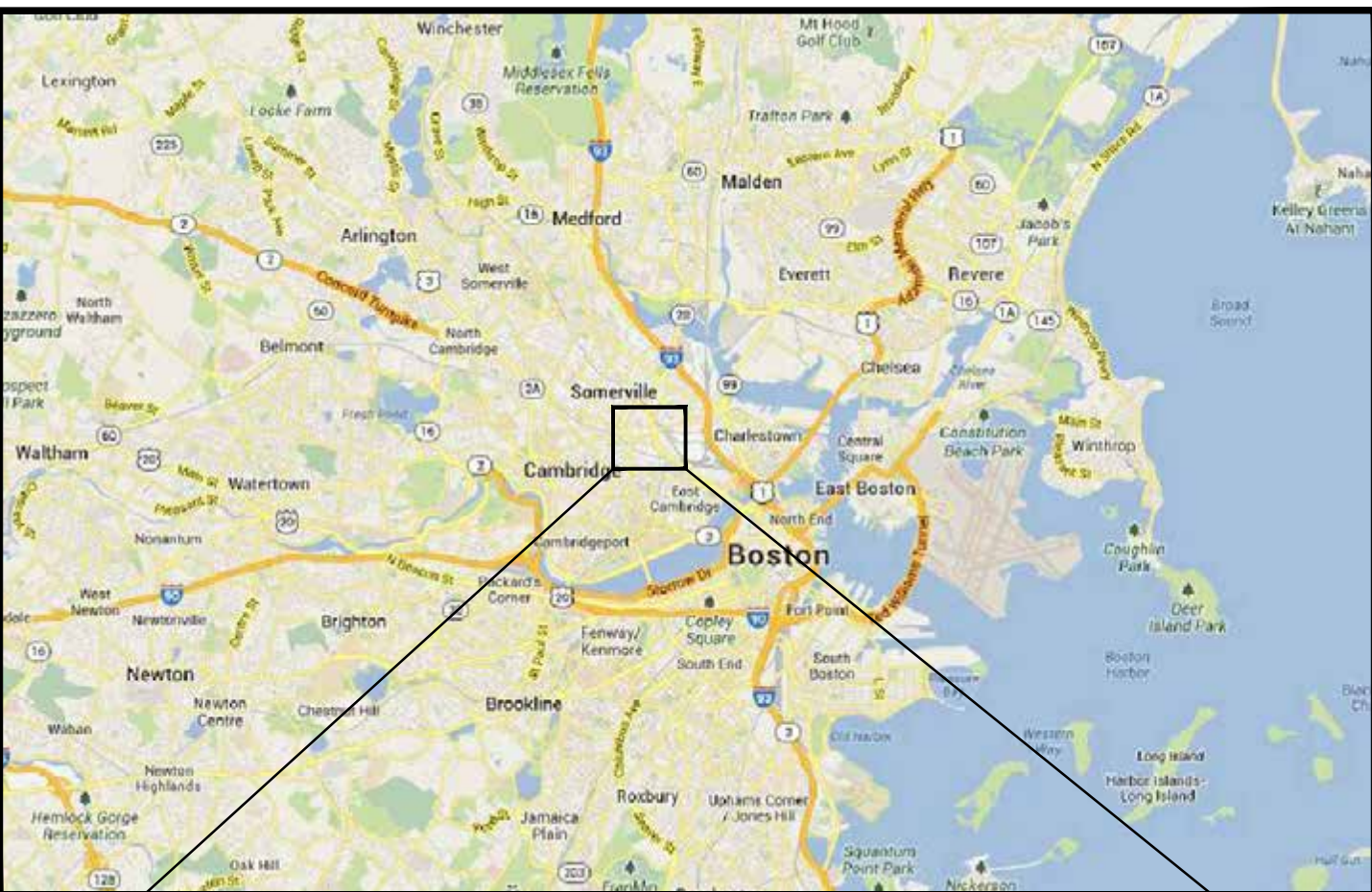
- P0.0 PLUMBING LEGEND, NOTES AND ABBREVIATIONS
- P0.1 PLUMBING SPECIFICATIONS
- P2.1 PLUMBING FIRST & SECOND FLOOR PLANS
- P2.1U PLUMBING UNDERGROUND PLAN
- P7.0 PLUMBING DETAILS
- P8.0 PLUMBING SCHEDULES

FIRE PROTECTION

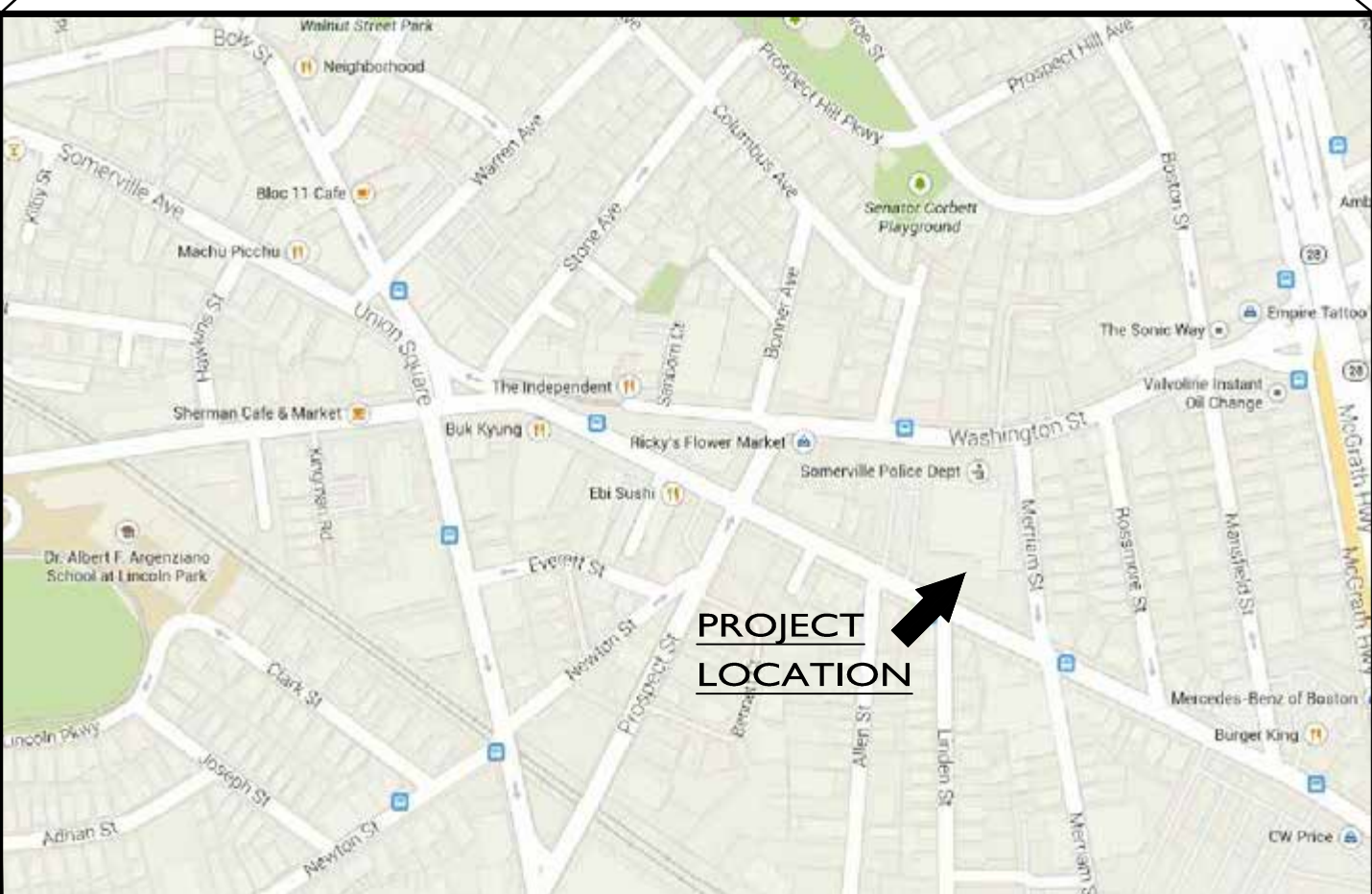
- FP0.0 FIRE PROTECTION LEGEND, NOTES AND ABBREVIATIONS
- FP0.1 FIRE PROTECTION SPECIFICATIONS
- FP1.0 FIRE PROTECTION SITE PLAN
- FP2.1 FIRE PROTECTION FLOOR PLANS

ELECTRICAL

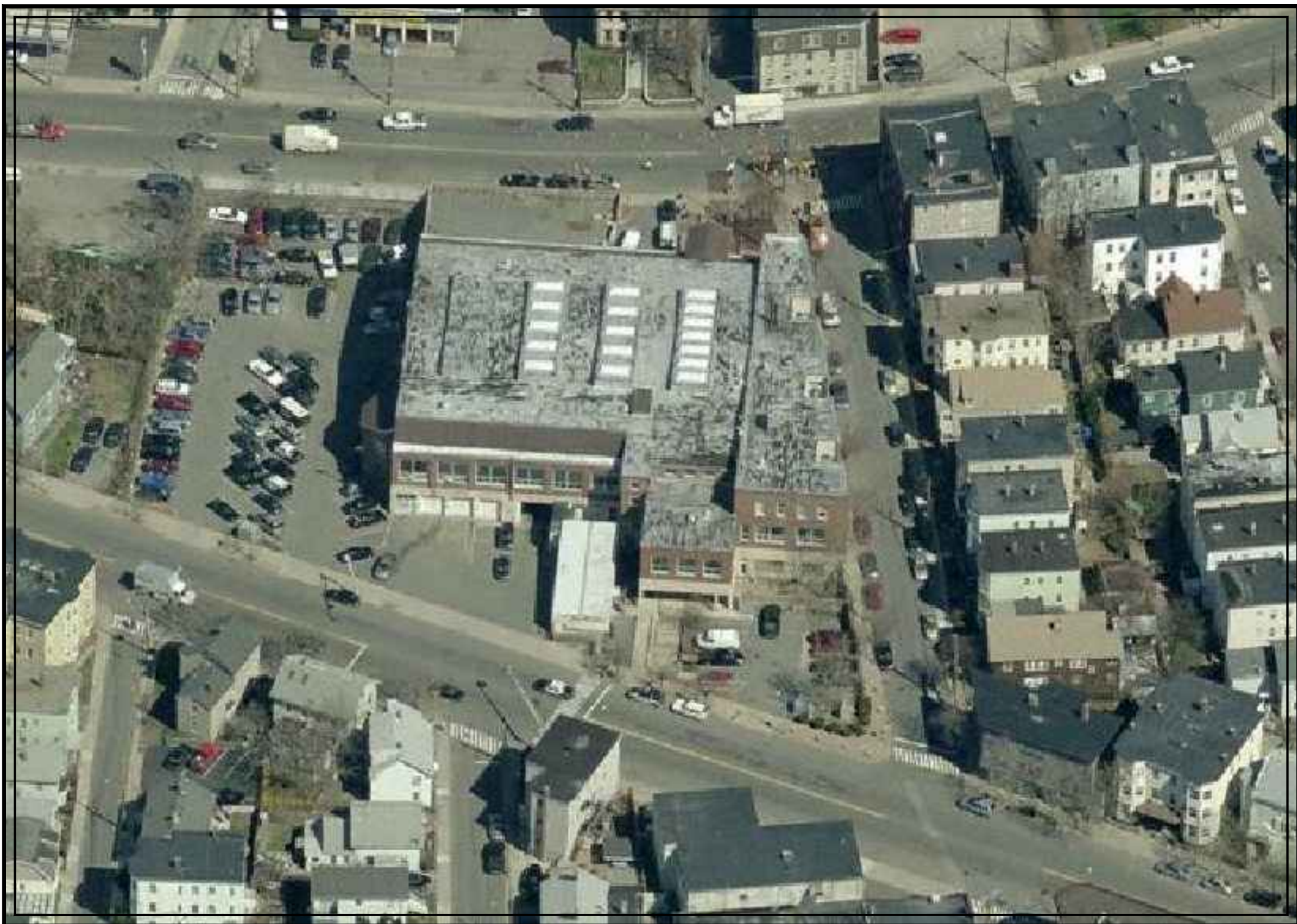
- E0.0 ELECTRICAL LEGEND, NOTES AND ABBREVIATIONS
- E0.1 ELECTRICAL SPECIFICATIONS
- ED1.0 ELECTRICAL DEMOLITION SITE PLAN
- E2.1 ELECTRICAL LIGHTING FLOOR PLANS
- E3.1 ELECTRICAL POWER FLOOR PLANS
- E4.1 ELECTRICAL FIRE ALARM FLOOR PLANS



VICINITY MAP



LOCUS MAP



PROJECT PHOTO

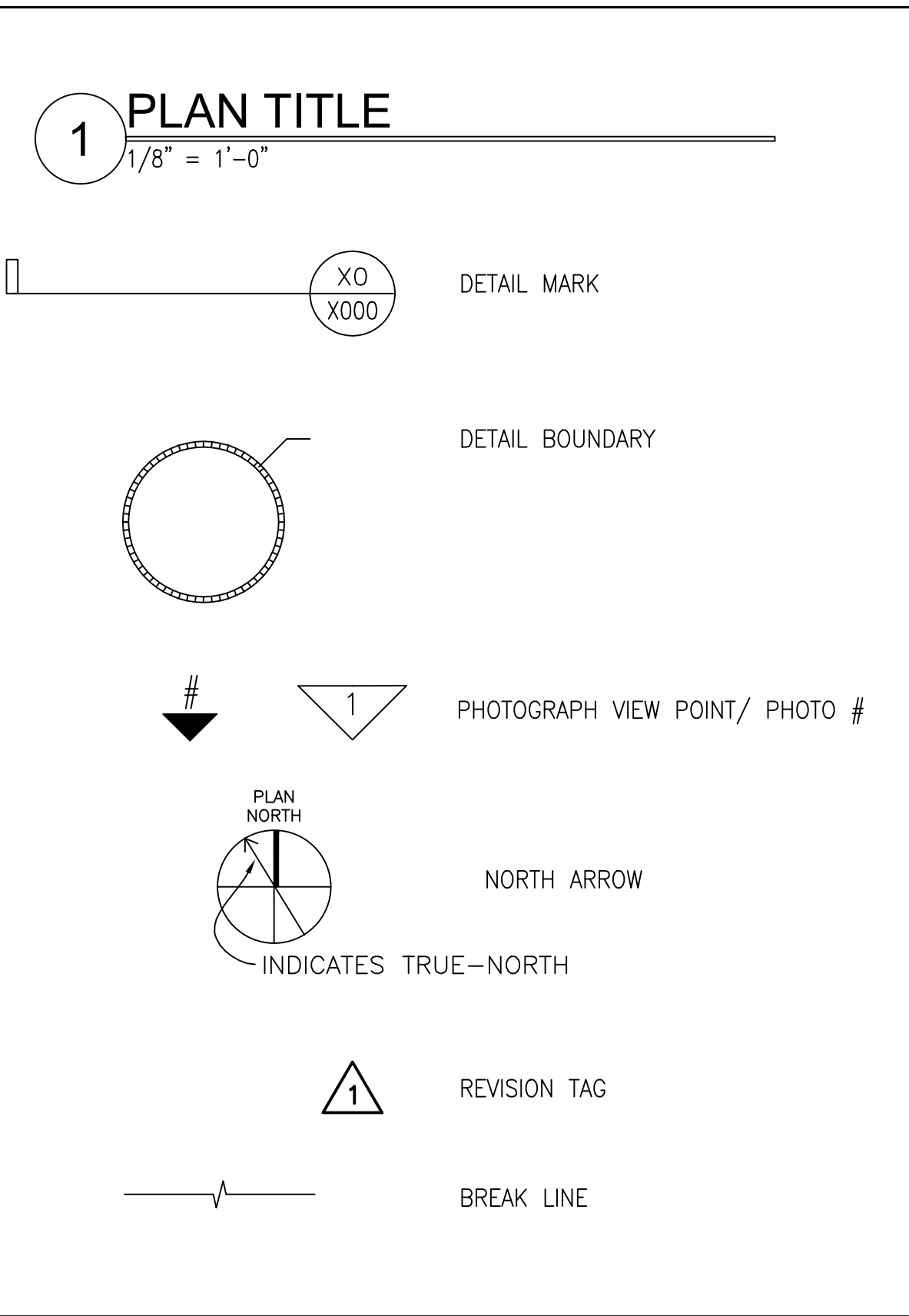


Architects / Engineers / Planners
211 Congress Street, 11th Floor
Boston, Massachusetts 02110

ABBREVIATIONS LIST

[illegible]

TYPICAL SYMBOLS AND INDICATORS



MODULAR BUILDING SPECIFICATIONS:

- | | | | | |
|--|---|---|---|---|
| <ul style="list-style-type: none"> Project Name: Somerville Fire Department Project Address: 244 Somerville Ave., Somerville, MA Modular Units (Size and Qty): (4) 12x40 and (2) 10x16 Building Sq Ft: 2,240 Shipping Height: 13'-6" Construction Type: SB Use Group: R Code: MA State Seal(s): MA Engineering Certifications/Stamps: MA Floor Live Load: 50/151 Wind Load: per local Code | <p>Floor:</p> <ul style="list-style-type: none"> Bottom Board: 0.040 Simplex Paper Insulation: R-19 Kraft Faced Fiberglass Batt (First floor modules) Joists: 2"x8" #2 @ 16" O.C. Decking: Double Layer 5/8" T&G Plywood Sheathing Finish: 1/8" Vinyl Tile, Basis of Design as Altro Quartz Tile or equal Sports Flooring: Kodiak Sports, 2"x2"x3/8" interlocking rubber tile or equal Tire Treads and ribs: Roppe Corp. Fiesta raised textured design #933. Cove Base: 4" Vinyl Cove Base Sub-Floor Preparation: For Plywood Floor Decking Building Manufacturer Shall fill all voids and sanded. <p>Exterior Walls:</p> <ul style="list-style-type: none"> Framing: 2"x6" #2 @ 16" O.C. Interior Finish: 5/8" Gypsum Misc: Joint Finish Sheathing: 1/2" thermally or Equal Insulation: R-19 Kraft Faced Fiberglass Batt Exterior Finish: Hardie Siding or Equal Exposure of Siding: 5" typ. Trim: PVC AZAK or equal Skirting: To match siding, Assume 48" High Average | <p>Interior Walls:</p> <ul style="list-style-type: none"> Finish: 5/8" Gypsum Finish: Joint Finish Fire Walls: Fire Rated partitions as required by Code Sound Insulation: Fiberglass Batt <p>Roof:</p> <ul style="list-style-type: none"> Framing: Transverse Ridge Truss Framing Type: Wood Roof Load: 45# Roof Live Load Mate Beam: Plywood Laminated Beam Posts: No Exposed Post Concealed in walls Finish: Suspended Ceiling (24"x48" Tile) in Steel Grid, Square Edge Ceiling Height: 8'-0" A.F.F. Sub-Ceiling: 1/2" Unfinished Gypsum Insulation: R-30 Kraft Faced (2nd floor and single story only) Sheathing: 1/2" CDX Plywood Roofing: 45 Mil EPDM (Black) Roof Warranty: 20 Years Vents: Power Vents One story roof to be 2 hr fire rated Trim: PVC AZAK or equal Skirting: To match siding, Assume 48" High Average | <p>Interior & Exterior Doors:</p> <ul style="list-style-type: none"> Exterior Door: 36x80 Commercial Insulated Hollow Metal with Steel Jamb. Door 102-Interior Hollow Metal knock-down frame, 16 gauge Door 101-Storefront Frame EFCO 403T with EFCO D518 heavy Duty Entrance Door. Both with a Kynar Finish Keying: Master Keying to match City of Somerville Standard with Construction Codes Interior Door: (Qty:9) 36x80 Prehung, Prefinished Solid Core Wood, Steel Jamb <p>Windows:</p> <ul style="list-style-type: none"> Windows: 36"x60" VINYL CLAD Heavy commercial grade Type: Single Hung Blinds: 1" Alum. Mini-Blinds at all windows <p>Plumbing:</p> <ul style="list-style-type: none"> Restroom Accessories: Toilet Paper Holder/ Dispenser Restroom Accessories: 18"Wx24"H Stainless Steel Frame Mirror Restroom Accessories: All restroom accessories shall be "Bobrick" or Equal | <p>H.V.A.C.:</p> <ul style="list-style-type: none"> Heating/Cooling: (Qty:2) Wall Mounted "Bard" or Equal with Electrical Resistant Heat Strip, Sized as Required Supply Ducting: Fiberglass Duct Board Supply Diffuser: 24"x24" Lay In Suspended Ceiling with Adjustable Damper Ceiling Mounted Return System: Ducted above the ceiling Return Ducting: Fiberglass Duct Board Restroom Exhaust Fans: As required by Code Thermostat: Auto Change Over heat/Cool with 7 Day Clock and Override Timer <p>Miscellaneous:</p> <ul style="list-style-type: none"> Wall Cabinets: High Pressure Laminate, AWI Custom Grade Base Cabinets: High Pressure Laminate, AWI Custom Grade Counters: Solid Surface Coordinate welding plate sizes with modular needs for steel channel framing. |
|--|---|---|---|---|

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ISSUED FOR:
BID



FIRE STATION
ENGINE No.3
LIVING QUARTERS

255 Somerville Ave.
Somerville, MA 02143

GENERAL NOTES, ABBREVIATIONS, LEGEND

PROJECT NUMBER: 19431.06

DESIGNED BY: FC

DRAWN BY:

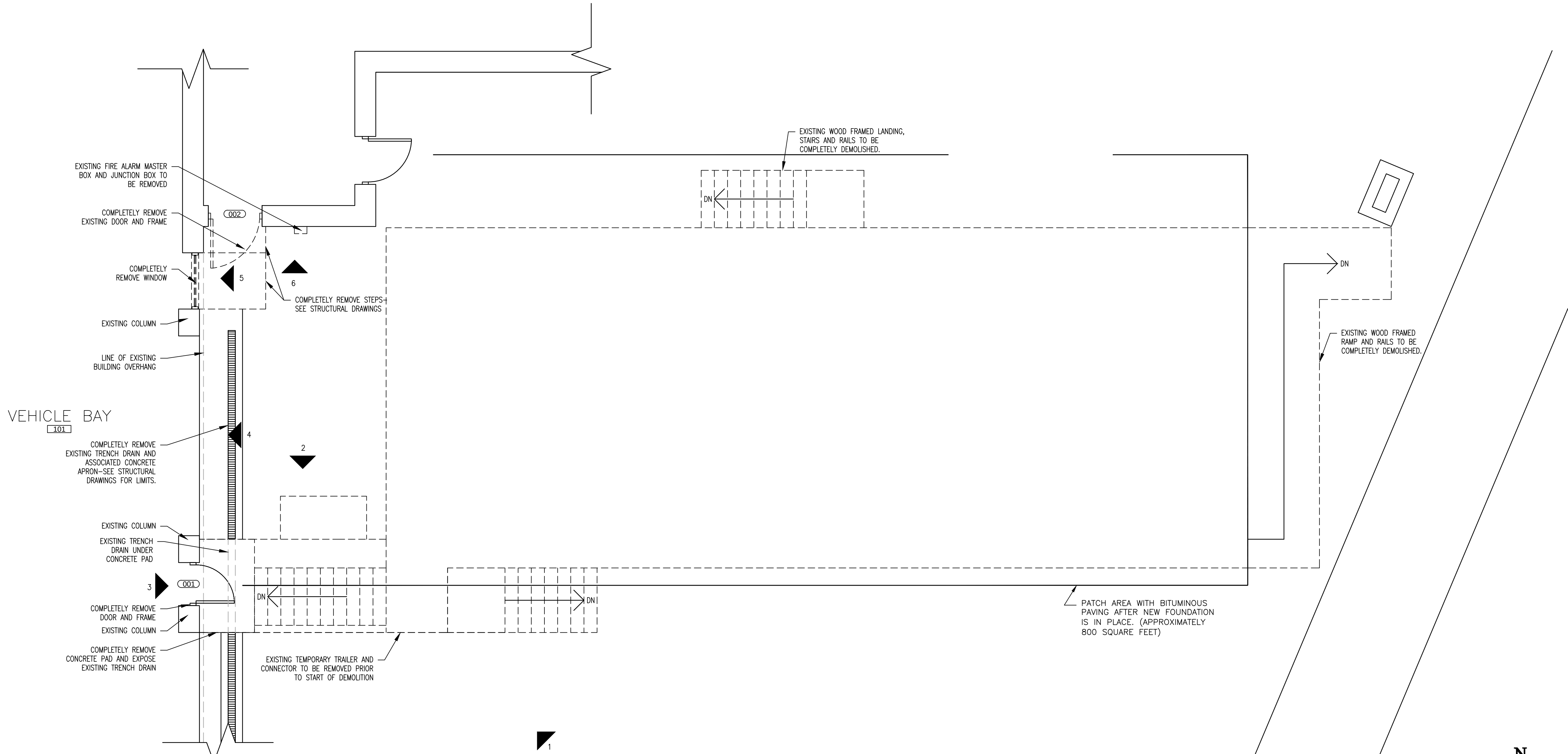
DATE: OCTOBER 22, 2014

SCALE: AS NOTED

SHEET NUMBER:

A0

REVIEWED BY: CIVIL INITIAL&DATE ARCH: INITIAL&DATE STRU: INITIAL&DATE PLUM: INITIAL&DATE FIRE: INITIAL&DATE MECH: INITIAL&DATE ELEC: INITIAL&DATE
DRAWING FILE: N:\PROJECTS\19431.06-Somerville_Engine_3_Living_Quarters\ACAD\PDF\Demolition Somerville FD.dwg PLOTTED: Oct. 21, 2014 - 1:52pm BY: megan.rogoff



1 DEMOLITION FLOOR PLAN
SCALE: 1/4" = 1'-0"

GENERAL DEMO NOTES

1. REMOVAL OF ANY WORK OR ITEM SHALL INCLUDE LEGAL DISPOSAL OF SAME UNLESS INDICATED TO BE SALVAGED. ALL REMOVAL AND DISPOSAL WORK SHALL BE PERFORMED IN A SAFE AND LEGAL MANNER. DOCUMENTATION OF RECYCLED WASTE IS REQUIRED.
2. CONTRACTOR SHALL VERIFY ALL CONDITIONS IN THE FIELD PRIOR TO COMMENCEMENT OF DEMOLITION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER'S ARCHITECT CM IN WRITING IMMEDIATELY UPON DISCOVERY.
3. DRAWINGS MAY NOT FULLY SHOW EVERY DETAIL OR CONDITION. CONTRACTOR SHALL COORDINATE WITH NEW CONSTRUCTION WORK TO PROVIDE ALL DEMOLITION WORK REQUIRED TO MEET NEW DESIGN BASED ON ALL INFORMATION PROVIDED.
4. CONTRACTOR SHALL FIELD VERIFY THE LOCATIONS OF ALL STRUCTURAL MEMBERS PRIOR TO DEMOLITION AND SHALL PROVIDE ALL NECESSARY SHORING, BRACING AND TEMPORARY SUPPORTS REQUIRED TO ENSURE STRUCTURAL STABILITY AND PREVENT COLLAPSE OF EXISTING STRUCTURE AND CONSTRUCTION TO REMAIN.
5. CONTRACTOR SHALL PROTECT ALL ADJACENT CONSTRUCTION THAT IS TO REMAIN AND SHALL REPAIR AND PATCH ANY EXISTING TO REMAIN CONSTRUCTION THAT IS DAMAGED DURING DEMOLITION OPERATIONS. REPAIRS SHALL MATCH EXISTING IN APPEARANCE AND INTEGRITY.
6. REFER TO THE PLUMBING, ELECTRICAL AND MECHANICAL NOTES FOR REMOVAL AND DISPOSAL OF EQUIPMENT, PIPES, CONDUITS, WIRING OR OTHER ITEMS THAT ARE INCLUDED AS PART OF THE SCOPE OF DEMOLITION WORK IN THIS CONTRACT.
7. REMOVE PORTION OF EXISTING MASONRY WALL AS REQUIRED TO ACCOMMODATE PLUMBING PENETRATIONS. REFER TO PLUMBING DRAWINGS.

CDR MAGUIRE
Architects / Engineers / Planners
211 Congress Street, 11th Floor
Boston, Massachusetts 02110
TEL: (617) 778-1440
www.cdrmaguire.com

REVISIONS

Number	Description	Date

ISSUED FOR:
BID



**FIRE STATION
ENGINE No.3
LIVING QUARTERS**

255 Somerville Ave.
Somerville, MA 02143

**DEMOLITION
FLOOR PLAN**

PROJECT NUMBER: 19431.06

DESIGNED BY: FC

DRAWN BY: MLR

CHECKED BY:

DATE: OCTOBER 22, 2014

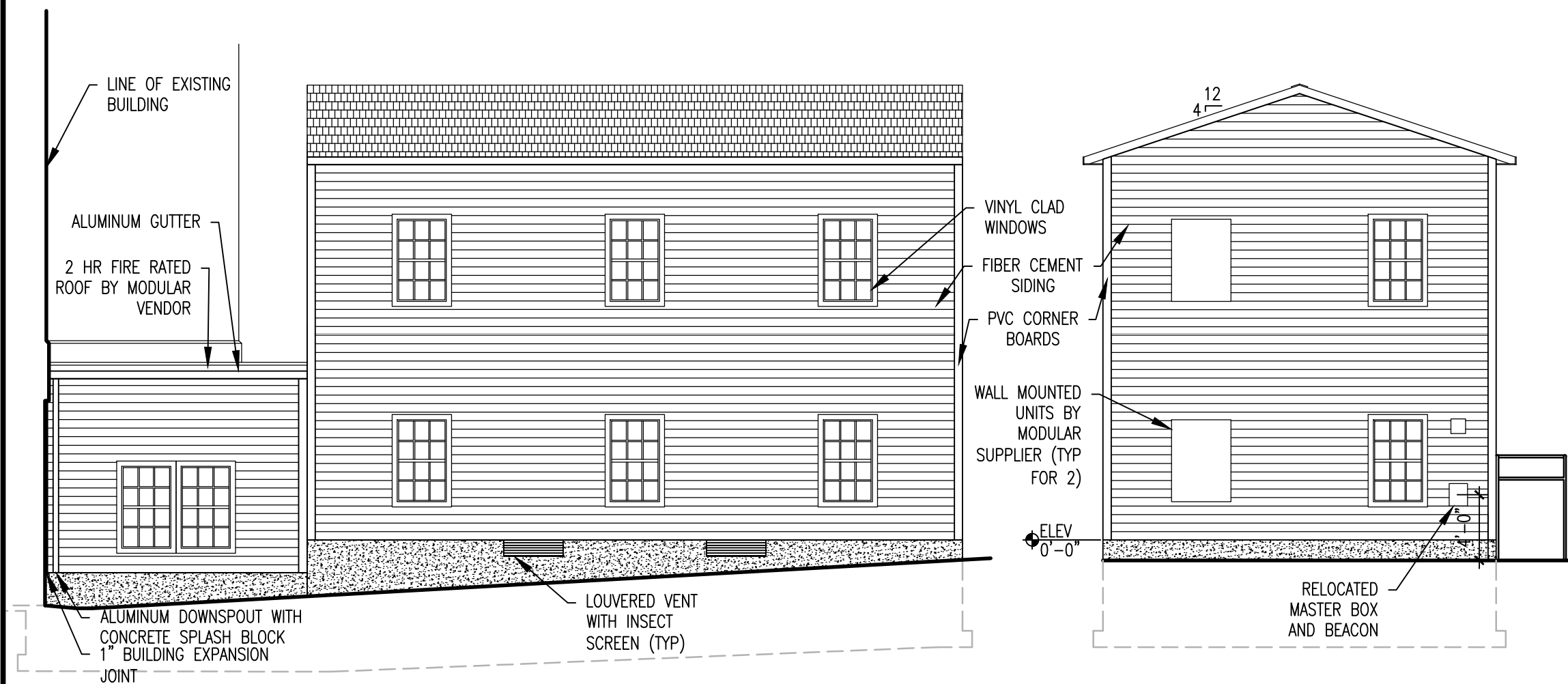
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SHEET NUMBER:

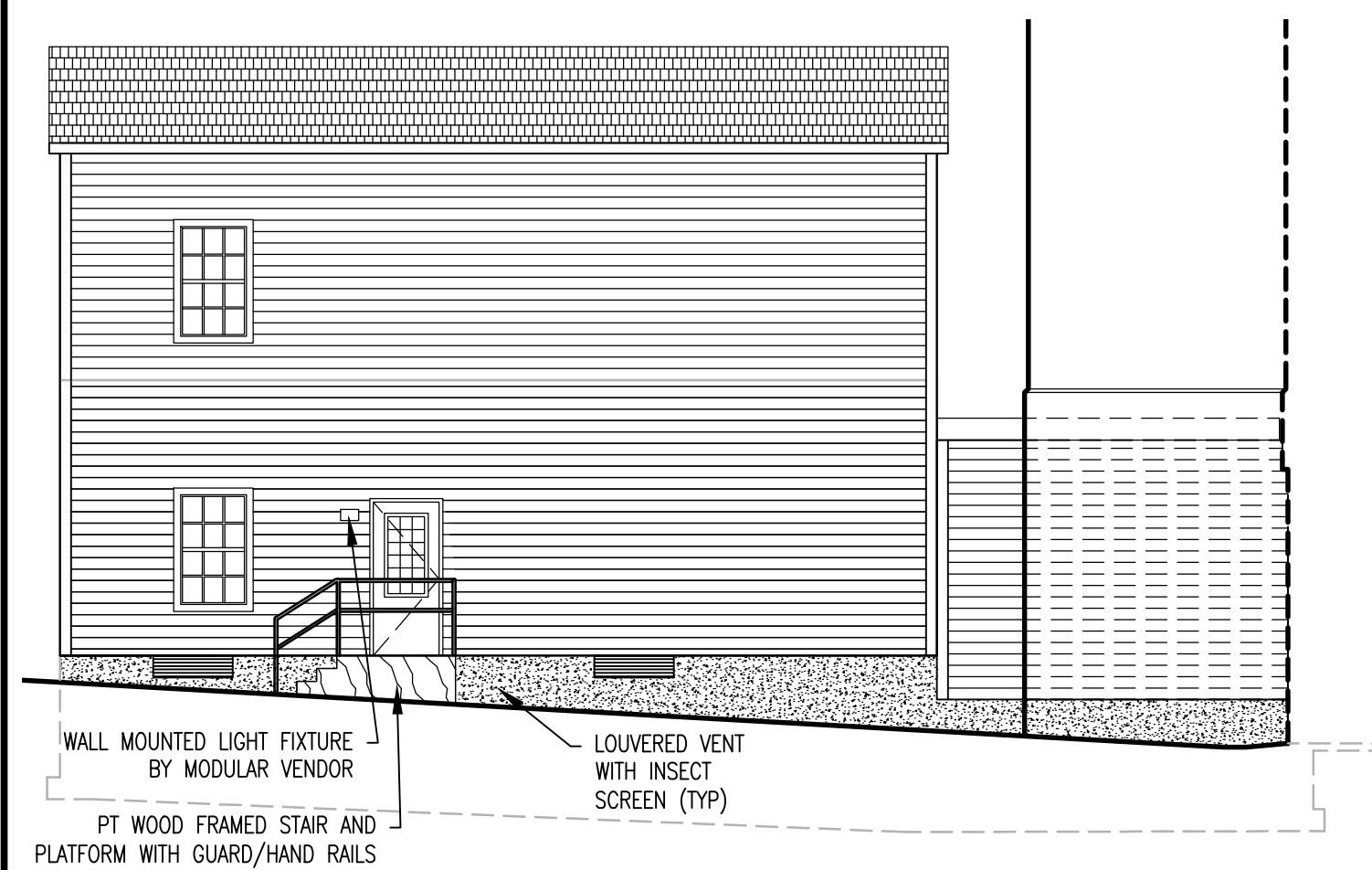
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SHEET 3 OF 28

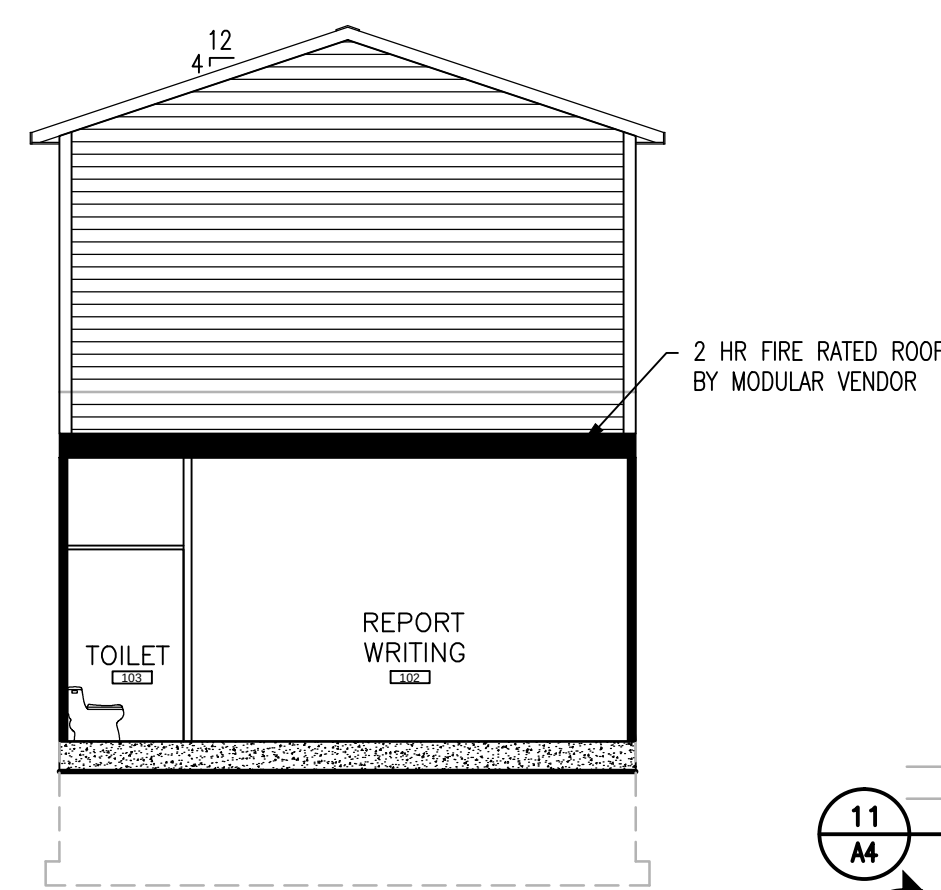
1. COORDINATE ALL NEW WORK WITH PLUMBING, MECHANICAL AND ELECTRICAL DRAWINGS. NOTIFY ARCHITECT OF ANY DISCREPANCIES BEFORE PROCEEDING WITH WORK.
2. ALL DIMENSIONS TO NEW CONSTRUCTION ARE FACE TO FACE OF MASONRY UNLESS NOTED OTHERWISE.
3. ALL DIMENSIONS TO EXISTING CONSTRUCTION ARE TO FACE OF FINISH UNLESS OTHERWISE NOTED.
4. REPAIR AND PATCH ALL CMU INFILL WALLS.
5. AT MINIMUM REMOVE WHOLE BLOCKS ONLY. PATCH AND REPAIR USING WHOLE BLOCKS ONLY. MASONRY INFILL SHALL MATCH EXISTING CONSTRUCTION.
6. NEW CMU WALL



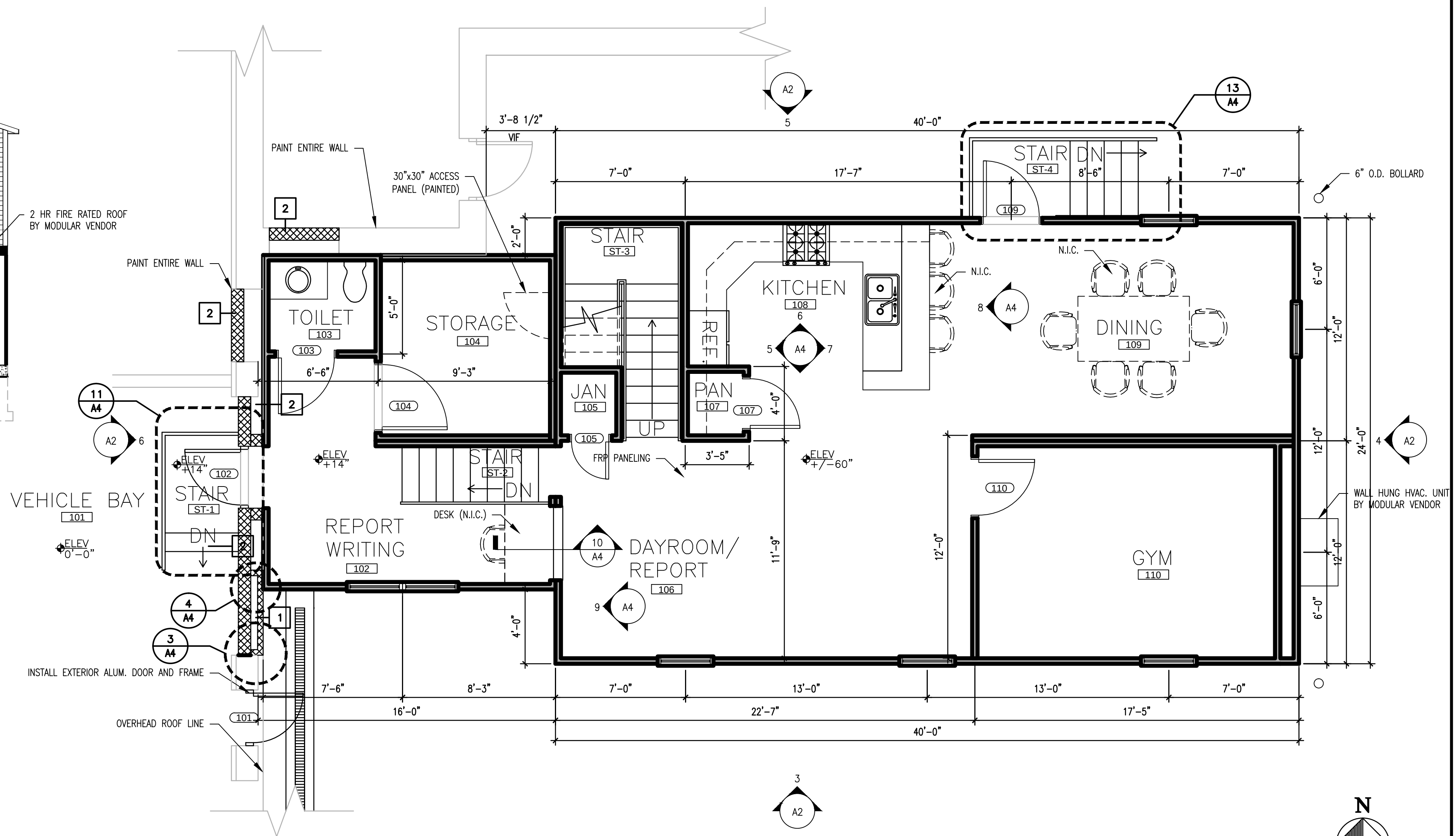
4 EAST ELEVATION
SCALE: 1/8" = 1'-0"



5 NORTH ELEVATION
SCALE: 1/8" = 1'-0"

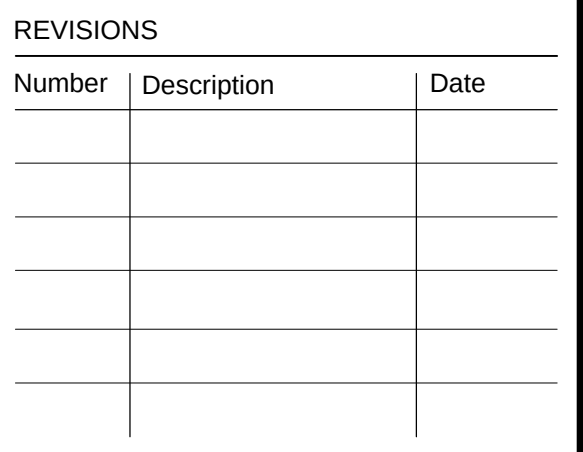


6 WEST ELEVATION
SCALE: 1/8" = 1'-0"



1 PROPOSED FIRST FLOOR PLAN

SCALE: 1/4" = 1'-0"



FIRE STATION
ENGINE No.3
LIVING QUARTERS

255 Somerville Ave.
Somerville, MA 02143

PROJECT NUMBER: 19431.06

DESIGNED BY: FC

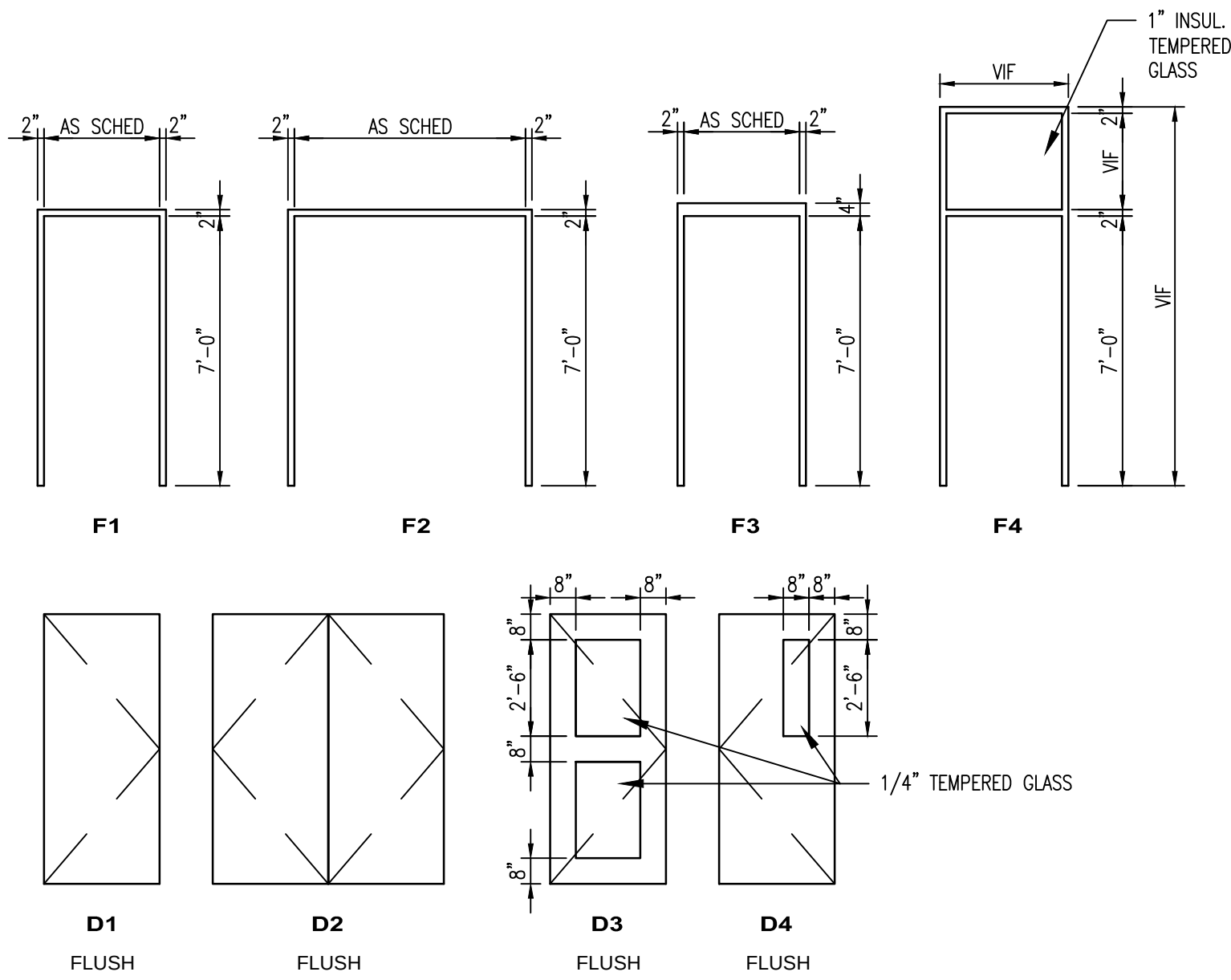
DRAWN BY: MLR

CHECKED BY:

DATE: OCTOBER 22, 2014

SCALE: AS NOTED

SHEET NUMBER:



DOOR AND FRAME SCHEDULE													
ROOM NAME	MARK	DOOR				FRAME				FIRE RATING (MIN.)	HWDRE SET NO.	NOTES	
		WD	HGT	THK	MATL	EL	MATL	EL	DETAIL				
VEHICLE BAY	101				ALUM	D3	ALUM	F4			1	PAINT DOOR AND FRAME, SEE NOTE 2	
REPORT WRITING	102	3'-0"	7'-0"	1 3/4"	HM	D1	HM	F3		60 MIN	2	PAINT DOOR AND FRAME, SEE NOTE 1	
TOILET	103	3'-0"	7'-0"	1 3/4"	WD	D1	HM	F1			4	PAINT DOOR AND FRAME	
STORAGE	104	3'-6"	7'-0"	1 3/4"	WD	D2	HM	F2			3	PAINT DOOR AND FRAME	
JAN	105		7'-0"	1 3/4"	WD	D1	HM	F1			5	PAINT DOOR AND FRAME	
NOT USED	106												
PANTRY	107	3'-0"	7'-0"	1 3/4"	HM	D1	HM	F1			5	PAINT DOOR AND FRAME	
NOT USED	108												
DINING	109	3'-0"	7'-0"	1 3/4"	WD	D1	HM	F1			6	PAINT DOOR AND FRAME	
GYM	110	3'-0"	7'-0"	1 3/4"	WD	D4	HM	F1			5	PAINT DOOR AND FRAME	
NOT USED	201												
BATH	202	3'-0"	7'-0"	1 3/4"	WD	D1	HM	F1			4	PAINT DOOR AND FRAME	
BATH	203	3'-0"	7'-0"	1 3/4"	WD	D1	HM	F1			4	PAINT DOOR AND FRAME	
BUNK 1	204	3'-0"	7'-0"	1 3/4"	WD	D1	HM	F1			7	PAINT DOOR AND FRAME	
BUNK 2	205	3'-0"	7'-0"	1 3/4"	WD	D1	HM	F1			7	PAINT DOOR AND FRAME	
BUNK 3	206	3'-0"	7'-0"	1 3/4"	WD	D1	HM	F1			7	PAINT DOOR AND FRAME	
BUNK 4	207	3'-0"	7'-0"	1 3/4"	WD	D1	HM	F1			7	PAINT DOOR AND FRAME	

- GENERAL NOTES:
- INTERIOR HM FRAME 16 GAUGE-KNOCKDOWN TYPE
 - STOREFRONT FRAME EFCC 403T WITH EFCC D518 HEAVY DUTY ENTRANCE DOOR. BOTH WITH A KYNAR FINISH.

DOOR SCHEDULE	
ABBREVIATIONS:	GENERAL NOTES:
A. Door materials:	
HM Hollow Metal	1. Glass in 60 MIN doors shall not exceed 1,296 sq.in.
WD Solid Core Wood	2. All glass in interior non-rated doors and hollow metal frames shall be 1/4" clear tempered glass unless otherwise specified.
ALUM Aluminum	3. Numbered notes indicated at pairs of doors shall apply to frame and both leaves of doors.
	4. The standard undercut for all doors shall be 5/8" above the finished floor unless otherwise noted.
	5. All steel exterior doors and frames shall be galvanized and all steel exterior doors shall be insulated.

DOOR HARDWARE MANUFACTURERS SHALL BE AS FOLLOWS:

Exit Device
Lock/Latchsets
Push/Pulls
Closers
Kickplates
Stops/Silencers

Sargent
Sargent
Rockwood
McKinney
Rockwood
Ives

HARDWARE SCHEDULE

SET NUMBERS	SET NUMBERS							
	NO. 1	NO. 2	NO. 3	NO. 4	NO. 5	NO. 6	NO. 7	NO. 8
CYLINDER LOOKS	X	X	X			X		
PIVOT HINGE								
LOCKSET	X	X	X			X		
LATCHSET					X			
PRIVACY SET				X			X	
EXIT DEVICE	X	X				X		
PUSH PLATE								
PULL								
CLOSER	X	X	X			X		
KICKPLATE	X	X	X	X	X	X	X	
STOP		X	X	X			X	
SILENCERS			X	X	X	X		
WEATHERSTRIPPING	X	X				X		
ALUM. THRESHOLD	X			X		X		
HINGES (3 PER LEAF)	X	X	X	X	X	X	X	
LABELED								
LEVERED HANDLES	X	X	X	X	X	X	X	
NUMBERED NOTES	32	7	6	5		37		
	38							

FINISH SCHEDULE

GENERAL NOTES :		C. Base Finishes:	
1. Provide vinyl cove base typical.		Y Vinyl Base - 4" high	
2. Refer to floor and ceiling plans, and interior elevations as appropriate for limits of finishes.		NFR No new finishes are required	
3. Paint all exposed gypsum board with a prime coat and two finish coats.			
ABBREVIATIONS :		D. Ceiling Finishes :	
A. Wall Finishes		AP-1 Tegular tile (2 x 4) Acoustical Suspended Panel System	
RAILS Painted Metal Railing		GBP Gypsum Board Moisture Resistant Painted	
GBP Gypsum Board - Painted		NFR No new finishes are required	
(Benjamin Moore Ultra Spec 500) Eggshell Finish			
NFR No new finishes are required			
B. Floor Finishes:		E. Numbered Notes:	
CH Concrete, Dust-Proof Hardener.		1. Paint required on new work only	
SV Sheet Vinyl		2. Provide finishes as scheduled to all levels of this room.	
SF Sports Flooring (Kodiak Sports or equal)		3. Provide rubber tile (RT) finish at all treads and risers and intermediate landing, at all stairs ST-1 and ST-2. (Roppe Corp. Fiesta raised textured design #993.)	
VT Vinyl Tile (Altra Quartz Tile or Equal)		4. Paint treads, risers, and landings.	
NFR No new finishes are required			

FINISH SCHEDULE

ROOM DESCRIPTION		WALLS										FLOOR	BASE	CEILING	NOTE				
NO.	NAME	G W P	R A I L S	N F R	N=NORTH					S=SOUTH						TYPE	HGT		
					A=ALL														
					E=EAST													W=WEST	
FIRST FLOOR LEVEL																			
101	VEHICLE BAY		A										NFR	NFR	NFR	—	1		
102	REPORT WRITING	A											VT	V	—	12'-2"			
103	TOILET	A											SV	V	AP-1	8'-0"			
104	STORAGE	A											CH	V	—	12'-2"			
105	JANITOR	A											VT	V	AP-1	8'-0"			
106	DAYROOM	A											VT	V	AP-1	8'-0"			
107	PANTRY	A											VT	V	AP-1	8'-0"			
108	KITCHEN	A											VT	V	AP-1	8'-0"			
109	DINING	A											VT	V	AP-1	8'-0"			
110	GYM	A											SF	V	AP-1	8'-0"			
SECOND FLOOR LEVEL																			
201	HALL		A										VT	V	AP-1	8'-0"			
202	BATH		A										SV	V	AP-2	8'-0"			
203	BATH		A										SV	V	AP-2	8'-0"			
204	BUNK 1		A										VT	V	AP-1	8'-0"			
205	BUNK 2		A										VT	V	AP-1	8'-0"			
206	BUNK 3		A										VT	V	AP-1	8'-0"			
207	BUNK 4		A										VT	V	AP-1	8'-0"			
ST-1	STAIR 1			P	A								CH	—	—	—			
ST-2	STAIR 2		A	P									VT	V	AP-1	VARIES	2, 3		
ST-3	STAIR 3		A	P									VT	V	AP-1	VARIES	2, 3		
ST-4	STAIR 4			P									NFR	—	—	—			

REVISIONS

Number	Description	Date

ISSUED FOR:
BID



FIRE STATION
ENGINE No.3
LIVING QUARTERS

255 Somerville Ave.
Somerville, MA 02143

SCHEDULES

PROJECT NUMBER: 19431.06

DESIGNED BY: FC

DRAWN BY: MLR

CHECKED BY:

DATE: OCTOBER 22, 2014

SCALE: AS NOTED

SHEET NUMBER:

A3

DRAWING FILE: Q:\2014\20140474 - Somerville PD Prefabricated Trailer Replacement\1201 Fire Protection\Plot Files\20140474 FP0.0 Fire Protection Legend, Notes and Abbreviations.dwg PLOTTED: Oct 21, 2014 3:54pm by: dmpark
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ELEC- INITIAL DATE

MECH- INITIAL DATE

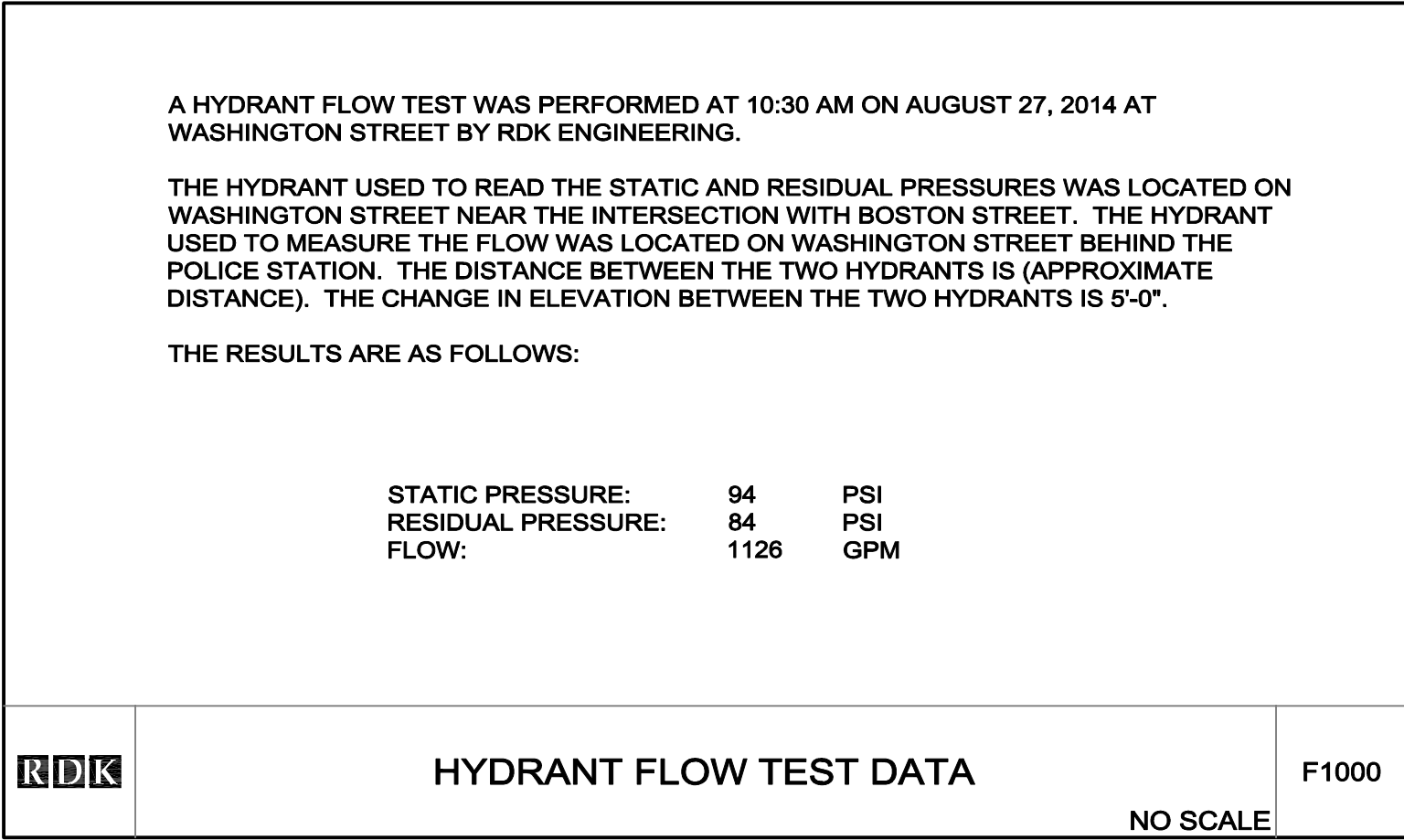
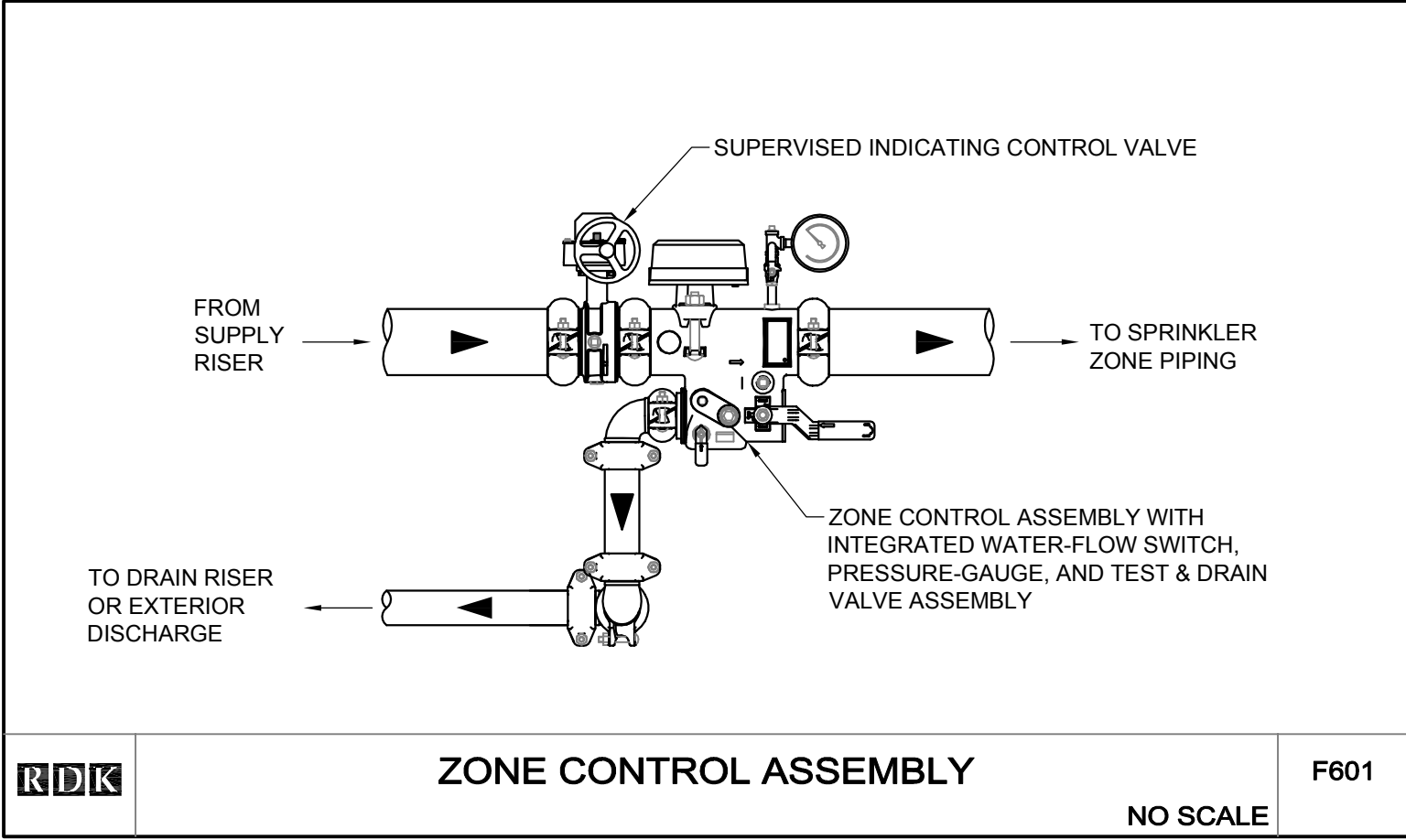
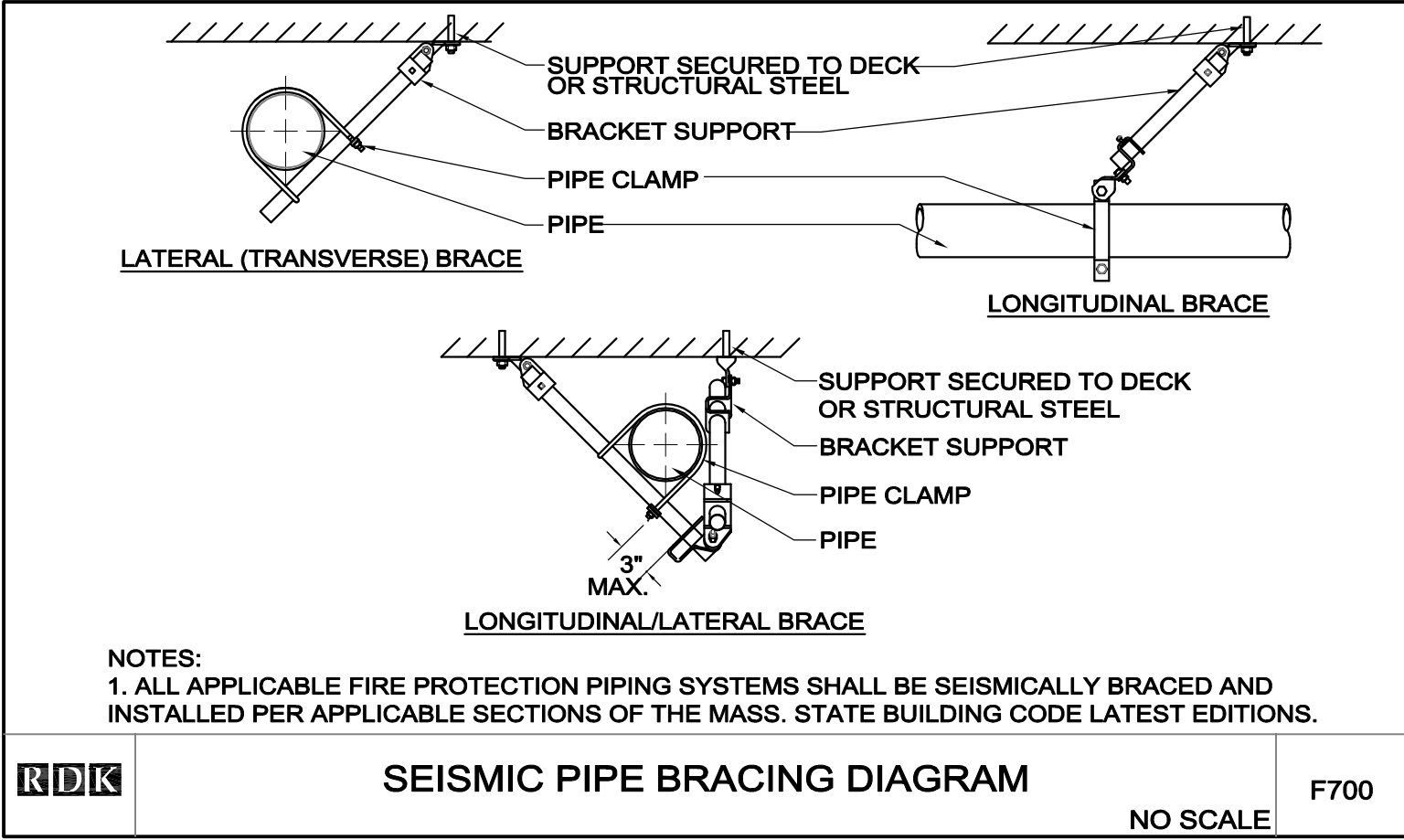
FIRE- INITIAL DATE

PLUM- INITIAL DATE

STRU- INITIAL DATE

ARCH- INITIAL DATE

MECHANICAL- INITIAL DATE



DEMOLITION NOTES

- DEMOLITION NOTES:
- REFER TO THE ARCHITECTURAL DRAWINGS FOR THE EXTENT OF THE DEMOLITION SCOPE OF WORK AND AREA. THE DEMOLITION PLANS INDICATE THE GENERAL INTENT AND ARE NOT INTENDED TO SHOW ALL ITEMS TO BE REMOVED OR RETAINED.
 - VISIT THE SITE PRIOR TO SUBMISSION OF THE BIDS TO BECOME FAMILIAR WITH THE ACTUAL CONDITIONS AND EXTENT OF THE WORK.
 - TRACE AND LABEL ALL EXISTING SYSTEMS WITHIN THE DEMOLITION AREA AND BEYOND PRIOR TO DISCONNECTION AND REMOVAL TO ENSURE THAT NO AREA OUTSIDE THE DEMOLITION AREA IS AFFECTED. REVIEW IN DETAIL WITH THE GENERAL CONTRACTOR AND OWNER WHAT IS TO BE REMOVED AND REMAIN PRIOR TO WORK COMMENCING THE DEMOLITION. THERE SHALL BE NO INTERRUPTION OF SERVICES OUTSIDE THE DEMOLITION AREA WITHOUT APPROVAL FROM THE OWNER'S REPRESENTATIVE.
 - NOTIFY THE OWNER'S REPRESENTATIVE IMMEDIATELY OF ANY UNANTICIPATED HIDDEN CONDITIONS ENCOUNTERED DURING THE DEMOLITION.
 - ALL ITEMS REMOVED SHALL BE OFFERED TO THE OWNER FOR SALVAGE. IF THE OWNER DOES NOT TAKE POSSESSION, DISPOSE OF THE ITEMS IN A SAFE AND LEGAL MANNER. ALL ITEMS CLASSIFIED AS HAZARDOUS SHALL BE DISPOSED AS HAZARDOUS WASTES AND A UNIFORM HAZARDOUS WASTE MANIFEST SHALL BE PROVIDED TO THE OWNER.
 - NOTIFY UTILITY COMPANIES IN ACCORDANCE WITH THEIR REQUIREMENTS PRIOR TO DEMOLITION. VERIFY THAT THE UTILITIES HAVE BEEN DISCONNECTED, VALVED, CAPPED AND MADE SAFE PRIOR TO DEMOLITION.
 - ENSURE THE SAFE PASSAGE OF PERSONS IN AND AROUND THE BUILDING DURING DEMOLITION. PREVENT INJURY TO PERSONS AND DAMAGE TO PROPERTY. PROVIDE ADEQUATE SHORING AND BRACING TO PREVENT COLLAPSE. IMMEDIATELY REPAIR DAMAGED PROPERTY TO THE CONDITION BEFORE BEING DAMAGED. TAKE EFFECTIVE MEASURES TO PREVENT WINDBLOWN DUST.
 - DO NOT USE CUTTING TORCHES UNTIL WORK AREA IS CLEARED OF FLAMMABLE MATERIALS. AT CONCEALED SPACES, SUCH AS PIPE INTERIORS, VERIFY CONDITION AND CONTENTS OF HIDDEN SPACE BEFORE STARTING FLAME-CUTTING OPERATIONS. MAINTAIN FIRE WATCH AND PORTABLE FIRE-SUPPRESSION DEVICES DURING FLAME-CUTTING OPERATIONS. MAINTAIN ADEQUATE VENTILATION WHEN USING CUTTING TORCHES.
 - THE EXISTING FIRE PROTECTION SYSTEM SHALL REMAIN FULLY FUNCTIONAL DURING THE ENTIRE DEMOLITION AND CONSTRUCTION PERIOD. ALL REQUIRED SYSTEM SHUTDOWNS SHALL BE COORDINATED WITH AND APPROVED BY THE OWNER'S REPRESENTATIVE AND THE AUTHORITY HAVING JURISDICTION.
 - CREATE AND SUBMIT IMPAIRMENT PLANS TO THE AHJ IF ANY PORTION OF THE EXISTING FIRE PROTECTION SYSTEM IS TAKEN OUT OF SERVICE DURING THE EXECUTION OF THE PROJECT.
 - REMOVE ABANDONED AND/OR SCHEDULED TO BE DEMOLISHED FIRE PROTECTION SPRINKLERS, PIPE, FITTINGS, HANGERS, AND SUPPORTS BACK TO THE LAST ACTIVE MAIN OR BRANCHLINE. CAP OR PLUG ALL OPEN OUTLETS.

GENERAL NOTES

- FIRE PROTECTION WORK SHALL BE DONE IN ACCORDANCE WITH THE LATEST EDITION OF THE STATE BUILDING CODE, LOCAL AMENDMENTS AND THE REFERENCED NATIONAL FIRE PROTECTION ASSOCIATION CODES INCLUDING 13, 14, 20, AND 24.
- ALL FIRE PROTECTION SYSTEMS, EQUIPMENT, PIPING AND VALVES SHALL BE INSTALLED AND TESTED BY A SPRINKLER CONTRACTOR LICENSED BY THE STATE AND EXPERIENCED IN THE INSTALLATION OF SPRINKLER SYSTEMS.
- OBTAIN ALL PERMITS AND PAY ALL FEES ASSOCIATED WITH THIS WORK PRIOR TO COMMENCEMENT.
- PIPING AND EQUIPMENT IS SHOWN DIAGRAMMATICALLY THE ACTUAL ROUTING OF PIPING AND EXACT LOCATION OF EQUIPMENT SHALL BE DETERMINED IN THE FIELD.
- THE DRAWINGS SUGGEST ROUTING OF PIPING, PIPE SIZES AND APPROXIMATE LOCATION OF HEADS. THE CONTRACTOR SHALL PRODUCE A COMPLETE SET OF WORKING PLANS IN ACCORDANCE WITH NFPA 13. THE SYSTEM SHALL BE HYDRAULICALLY CALCULATED PER THE DESIGN CRITERIA SPECIFIED. ALL PLANS AND CALCULATIONS SHALL BE STAMPED BY THE CONTRACTOR'S REGISTERED FIRE PROTECTION ENGINEER AND SHALL BE SUBMITTED TO THE LOCAL AUTHORITY AND OWNER'S UNDERWRITER FOR APPROVAL.
- IN ADDITION TO REVIEWING AND COORDINATING WITH THE OTHER TRADES (CIVIL, STRUCTURAL, ARCHITECTURAL, AND ELECTRICAL) THE CONTRACTOR SHALL VISIT THE SITE AND FAMILIARIZE HIMSELF WITH THE DETAILS OF CONSTRUCTION.
- FURNISH AND INSTALL ALL NECESSARY PIPING EQUIPMENT SUPPORTS AND ANY EQUIPMENT NOT SHOWN ON DRAWINGS OR CALLED FOR IN THE SPECIFICATIONS BUT NECESSARY TO PROVIDE A COMPLETE AND WORKABLE SYSTEM.
- PROVIDE ACCESS TO ALL EQUIPMENT REQUIRING PERIODIC SERVICE AND MAINTENANCE.
- FURNISH ACCESS PANELS TO THE GENERAL CONTRACTOR FOR INSTALLATION UNDER THE RELATED TRADES.
- PITCH ALL PIPING TO DRAIN, PROVIDE AN AUXILIARY DRAIN AT ALL LOW POINTS.
- PROVIDE WATER TIGHT SLEEVES ON ALL PIPES PASSING THROUGH EXTERIOR WALLS AND BASEMENT FLOORS.
- ALL VALVES CONTROLLING FIRE PROTECTION MAINS SHALL BE PROVIDED WITH TAMPER/SUPERVISORY SWITCHES WIRED TO THE FIRE ALARM CONTROL PANEL.
- CONTRACTOR SHALL PROVIDE FIRE STOPPING FOR ALL PENETRATIONS THRU FIRE WALLS AND FIRE RATED SEPERATIONS, CONTRACTOR SHALL COORDINATE WITH THE ARCHITECTURAL DRAWINGS FOR LOCATIONS AND RATINGS OF ALL FIRE RATED SEPARATIONS AND BARRIERS, INSTALLATION OF FIRE STOPPING SHALL BE IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.
- ALL FIRE PROTECTION SYSTEMS SHALL BE SEISMICALLY BRACED ACCORDING TO THE APPLICABLE SECTIONS OF THE STATE BUILDING CODE AND THE REFERENCED EDITION OF NFPA-13.

ABBREVIATIONS

ACT	ACOUSTICAL TILE
AFF	ABOVE FINISH FLOOR
AP	ACCESS PANEL
BLDG	BUILDING
BFP	BACKFLOW PREVENTER
CLG	CEILING
CTE	CONNECT TO EXISTING
CONT	CONTINUATION
DCVA	DOUBLE CHECK VALVE ASSEMBLY
DIA	DIAMETER
DN	DOWN
DWG	DRAWING
EL/ELEV	ELEVATION
ETBR	EXISTING TO BE REMOVED
ETR	EXISTING TO REMAIN
EX	EXISTING
F	FIRE SERVICE/MAIN/BUIDING WET PIPING
FFE	FINISH FLOOR ELEVATION
FLR	FLOOR
FP	FIRE PROTECTION
FS	FLOW SWITCH
GC	GENERAL CONTRACTOR
GPM	GALLONS PER MINUTE
MECH	MECHANICAL
NTS	NOT TO SCALE
NIC	NOT IN CONTRACT
OS&Y	OUTSIDE SCREW & YOLK
PG	PRESSURE GAUGE
PSI	POUNDS PER SQUARE INCH
SPEC	SPECIFICATION
SPD	SPRINKLER DRAIN
SPR	WET SPRINKLER SYSTEM
TS	TAMPER SWITCH
TYP	TYPICAL
VIV	VALVE IN VERTICAL
ZCA	SPRINKLER ZONE CONTROL ASSEMBLY

PIPING LINETYPES

SPR	WET PIPE SPRINKLER SYSTEM
---	EXISTING TO REMAIN
+++++	EXISTING TO BE REMOVED

EQUIPMENT & VALVES

	WET SYSTEM MAIN RISER
	BACKFLOW PREVENTER
	FLOW SWITCH

WATER SUPPLY INFORMATION

TYPE:	MUNICIPAL SUPPLY
DATE:	8/28/14
SOURCE:	RDk ENGINEERS

RESULTS:

STATIC:	94 PSI
RESIDUAL:	84 PSI
FLOW:	1,126 GPM

PIPING SYMBOLS

	OPEN END DRAIN
	ELBOW UP OR RISE
	ELBOW DOWN OR DROP
	TEE LOOKING DOWN
	TEE LOOKING UP
	FLOW IN DIRECTION OF ARROW
	CAP OR END OF PIPE
	PIPE SLEEVE
	CONNECT TO EXISTING

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Andover, MA 01810-1485
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REVISIONS

Number	Description	Date

ISSUED FOR:
BID



FIRE STATION
ENGINE No.3
LIVING QUARTERS

255 Somerville Ave.
Somerville, MA 02143

FIRE PROTECTION
LEGEND, NOTES AND
ABBREVIATIONS

PROJECT NUMBER: 20140474

DESIGNED BY: RDB

DRAWN BY: CSL

CHECKED BY: RDB

DATE: OCTOBER 22, 2014

SCALE: N.T.S.

SHEET NUMBER:

FP0.0

DRAWING FILE: Q:\001\020140474 - Somerville PD Prefabricated Trailer Replacement\1201 Fire Protection\Specs\Fire\20140474 FP0.1 FIRE PROTECTION SPECIFICATIONS.dwg PLOTTED: Oct 21, 2014 3:34pm BY: dfrmae\VIEWED BY: CIVIL: INITIAL DATE: ARCH: INITIAL DATE: STRU: INITIAL DATE: PLUMB: INITIAL DATE: FIRE: INITIAL DATE: MECH: INITIAL DATE: ELEC: INITIAL DATE: Q:\001\001\020140474 - Somerville PD Prefabricated Trailer Replacement\1200 Drawings\1201 Fire Protection\Specs\Fire\20140474 FP0.1 FIRE PROTECTION SPECIFICATIONS.dwg [Work] October 21, 2014 - 3:56pm dfrmae

PIPE, FITTING, HANGER, VALVE AND FIRE ALARM SWITCH SCHEDULE									
SERVICE	MAXIMUM SERVICE OPERATING LIMITS			PIPE SIZE RANGE					
				1" TO 1½"			1½" AND LARGER		
	LEGEND	PRESS. (PSIG)	TEMP (°F)	PIPE	FITTINGS	HOLE CUT OUTLETS	PIPE	FITTINGS	HOLE CUT OUTLETS
Sprinkler and Standpipe (Wet Pipe)	SPR/STP/ FDC	175	70	UL 852, ASTM A53 welded and seamless carbon steel, schedule 40 threaded and coupled.	ANSI/ASME B16.4 cast iron class 125 threaded.	UL 213 two-piece ductile iron (ASTM A536) body, bolt assembled with grade "E" EPDM gasket. U-bolt or strap-on fittings are not acceptable. Listed for same working pressure as pipe.	UL 852, ASTM A53 welded and seamless carbon steel, schedule 40 threaded and coupled or, schedule 10 roll grooved ends.	ANSI/ASME B16.4 cast iron class 125 threaded or, UL 213, ASTM A536 ductile iron grooved.	UL 213 two-piece ductile iron (ASTM A536) body, bolt assembled with grade "E" EPDM gasket. U-bolt or strap-on fittings are not acceptable. Listed for same working pressure as pipe.
Sprinkler Drain Piping	SPD	175	70	UL 852, ASTM A53 welded and seamless galvanized steel, schedule 40 threaded and coupled.	ANSI/ASME B16.4, ASTM A153 galvanized cast iron class 125 threaded.	UL 213 two-piece galvanized (ASTM A153) ductile iron (ASTM A536) body, bolt assembled with grade "E" EPDM gasket. U-bolt or strap-on fittings are not acceptable. Listed for same working pressure as pipe.	UL 852, ASTM A53 welded and seamless galvanized steel, schedule 40 threaded and coupled or, schedule 10 roll grooved ends.	ANSI/ASME B16.4, ASTM galvanized cast iron class 125 threaded or, UL 213, ASTM A536 galvanized ductile iron grooved.	UL 213 two-piece galvanized (ASTM A153) ductile iron (ASTM A536) body, bolt assembled with grade "E" EPDM gasket. U-bolt or strap-on fittings are not acceptable. Listed for same working pressure as pipe.
				ACCEPTABLE MANUFACTURERS					
				Allied Tube & Conduit Corp.; Bullmoose Tube Co.; Wheatland Tube Co.	Anvil International LP; Tyco Fire & Building Products; Ward Manufacturing Inc.	Tyco Fire & Building Products; Grinnell; Victaulic Co.	Allied Tube & Conduit Corp.; Bullmoose Tube Co.; Wheatland Tube Co.	Anvil International LP; Tyco Fire & Building Products; Ward Manufacturing Inc.	Tyco Fire & Building Products; Grinnell; Victaulic Co.
Pipe Support	UL 203 band hanger with threaded steel rod and UL 203 beam clamp. Acceptable manufacturers: Afcon Inc; Cooper B-Line Inc; Erico Inc; PHD Manufacturing Inc; Tolco (Nibco Co.)								
Seismic Restraint	UL 203A rigid sway brace assembly with attachment fittings appropriate to building structure. Acceptable manufacturers: Afcon Inc; Erico Inc; Tolco (Nibco Co.)								
Control Valves	UL 1091 butterfly type ductile iron body with grooved ends, integral indicating device and pre-wired supervisory switch. Acceptable manufacturers: Victaulic Co; Viking Corp; Tyco Fire and Building Products; Reliable Sprinkler Co.								
FIRE ALARM MONITORING SWITCHES									
General			Water-flow switches	Pressure switches		Valve supervisory switches		Acceptable Manufacturers	
NEMA enclosure suitable for intended application; include tamper resistant cover; 250 psig pressure rating; two sets, single pole double throw form C contacts.			UL 346 vane-type with field adjustable 0-90 second retard feature.	UL 753 field adjustable and configured to allow for function as either a waterflow indicator upon pressure increase or as a low-pressure indicator upon pressure decrease.		UL 753 with normally closed contacts and compatible with valve stem to be monitored.		Gamewell Co, System Sensor, Potter Electric Signal Co.	
GENERAL MATERIAL NOTES:									
1. Pipe, fittings and valves shall conform to the latest standards per relevant sections of ANSI, ASTM, AWWA and NFPA. In addition, adhere to state and local plumbing and fire codes.									
2. Rate system components for the maximum working pressure to which they are exposed but not less than 175 psig.									
3. Pipe, tube valves and fittings shall meet or exceed ASTM/ANSI standards listed in the National Fire Codes and specifically in NFPA 13 and NFPA 14.									
4. All threaded piping and fittings shall conform to thread cuts listed in ANSI/ASME B1.20.1.									
5. Welding methods shall comply with all the requirements listed in American Welding Society document B2.1.									
6. Each length of pipe, each pipe fitting, material or device used in the respective system shall have cast, stamped or indelibly marked the maker's name or mark, weight and quality of the product when such marking is required by the approved standards to which it applies.									
7. All fire service piping shall be seismically braced per applicable sections of the state building code. Standards for braces and seismic joints shall be installed per the National Fire Prevention Code NFPA 13 as referenced by the state building code.									
8. Fittings into which sprinklers, drop nipples or riser nipples are screwed shall be threaded type. Plain end fittings with mechanical couplings, fittings which use steel gripping devices to bite into the pipe and segmented welded fittings shall not be used.									
9. On threaded pipe joints, apply joint compound or teflon tape to male pipe threads.									

GENERAL

1. SCOPE

- A. PROJECT SCOPE INCLUDES THE DEMOLITION OF AND THE INSTALLATION OF A NEW FIRE STATION IN SOMERVILLE MA.
- B. THE WORK UNDER THIS SECTION INCLUDES ALL LABOR, MATERIALS, FEES AND ACTIVITIES NECESSARY TO INSTALL, TEST AND COMMISSION A FULLY FUNCTIONAL AND CODE COMPLIANT AUTOMATIC WET-PIPE SPRINKLER SYSTEM, AND PRE-ACTION SPRINKLER SYSTEM FOR THE AREAS SHOWN.
- C. SUBMITTALS SHALL BE PREPARED AND FORWARDED TO THE ARCHITECT/ENGINEER FOR REVIEW. SUCCESSFULLY COMPLETING THE SUBMITTAL AND REVIEW PROCESS OF FIRE SPRINKLER SYSTEM PRODUCT DATA, SHOP DRAWINGS, AS-BUILT DRAWINGS AND TEST CERTIFICATES SHALL BE A PREREQUISITE TO ISSUING FINAL ENGINEER APPROVAL CERTIFICATION FOR OCCUPANCY.
- D. THE WORK SHALL BE AS DESCRIBED DIRECTLY BY THESE DRAWINGS AND RELATED DOCUMENTS UNDER THIS SECTION AND AS AFFECTED BY RELATED DOCUMENTS NOT EXCLUSIVE TO THE WORK OF THIS SECTION.

2. PURPOSE OF ENGINEERING DRAWINGS

- A. THE DRAWINGS ARE DIAGRAMMATIC IN NATURE AND ARE INTENDED FOR PURPOSES OF OBTAINING A BUILDING PERMIT AND AS THE BASIS OF DESIGN FOR PREPARATION OF DETAILED SHOP DRAWINGS (WORKING PLANS). THE DRAWINGS ARE NOT INTENDED TO SHOW EXACT LOCATIONS, BUT TO DEMONSTRATE THE CONFIGURATION OF MAJOR SYSTEM COMPONENTS AND APPROXIMATE SPRINKLER LOCATIONS. FIELD VERIFY LOCATIONS OF ALL SPRINKLERS AND SYSTEM PIPING.
- B. ALL COMPONENTS SHOWN ARE NEW UNLESS SPECIFICALLY NOTED AS EXISTING.

3. RELATED DOCUMENTS

- A. ARCHITECTURAL, STRUCTURAL & ENGINEERING DRAWINGS & SPECIFICATIONS
- B. OWNER AND/OR TENANT CONSTRUCTION STANDARDS OF PRACTICE
- C. FIRE SPRINKLER SYSTEM SPECIFICATIONS

4. CODES & STANDARDS

- A. BUILDING CODE: MASSACHUSETTS STATE BUILDING CODE, 8TH ED. (780 CMR)
- B. FIRE CODE: MASSACHUSETTS STATE FIRE PREVENTION CODE (527 CMR)
- C. SPRINKLER STANDARD: NFPA 13 (2013)
- D. FIRE ALARM CODE: NFPA 72 (2010)

5. QUALITY ASSURANCE

- A. PRODUCTS: DOMESTICALLY MANUFACTURED, UL LISTED & FM APPROVED FOR USE WITH FIRE SPRINKLER SYSTEMS.
- B. INSTALLERS: LICENSED IN GOOD STANDING AS SPRINKLER PIPE FITTERS IN MASSACHUSETTS.

6. WARRANTEE

- A. WARRANTEE WORK OF THIS SECTION IN WRITING FOR ONE YEAR FROM DATE OF OWNER'S ACCEPTANCE OF CERTIFICATE OF SUBSTANTIAL COMPLETION. REPAIR OR REPLACE DEFECTIVE MATERIALS, EQUIPMENT, WORKMANSHIP AND INSTALLATION THAT DEVELOP WITHIN THE PERIOD, PROMPTLY AND TO OWNER'S SATISFACTION AND CORRECT DAMAGE CAUSED IN MAKING NECESSARY REPAIRS AND REPLACEMENTS UNDER GUARANTEE WITHIN CONTRACT PRICE.

7. INSPECTION OF SITE CONDITIONS

- A. AT THE TIME OF BID, ALL EXCEPTIONS TAKEN TO THESE DRAWINGS AND RELATED DOCUMENTS, VARIANCES FROM SAME AND ALL SUBSTITUTIONS OF EQUIPMENT SPECIFIED SHALL BE LISTED IN WRITING AND INCLUDED IN THE BID FOR REVIEW. ANY SUCH EXCEPTIONS, VARIANCES, OR SUBSTITUTIONS, WHICH WERE NOT LISTED AT THE TIME OF BID SHALL NOT BE APPROVED OR CONSIDERED.

9. UNIT PRICES

- A. INCLUDE IN BID, FOR EACH TYPE OF SPRINKLER SPECIFIED, UNIT PRICE TO FURNISH AND INSTALL ONE SPRINKLER INCLUDING 10-FT OF PIPE, ASSOCIATED FITTINGS, AND HANGERS.

10. CUTTING AND PATCHING: INCLUDE ALL CORING, CUTTING, PATCHING AND FIREPROOFING NECESSARY FOR THE EXECUTION OF THE WORK OF THIS SECTION. STRUCTURAL ELEMENTS SHALL NOT BE CUT WITHOUT WRITTEN APPROVAL OF THE ARCHITECT. THIS CONTRACTOR SHALL BE RESPONSIBLE FOR TAKING ALL PRECAUTIONS REQUIRED TO IDENTIFY HIDDEN PIPING, CONDUITS, ETC. BEFORE ANY CORE DRILLING AND/OR CUTTING OF SLABS COMMENCES,INCLUDING X-RAYING THE AFFECTED SLABS. PROVIDE FIRE STOPPING TO MAINTAIN THE FIRE RATING OF THE FIRE RESISTANCE-RATED ASSEMBLY. ALL PENETRATIONS AND ASSOCIATED FIRE STOPPING SHALL BE INSTALLED IN ACCORDANCE WITH THE FIRE STOPPING MANUFACTURER'S LISTED INSTALLATION DETAILS AND BE LISTED BY UL OR FM.

PRODUCTS

1. REFER TO PRODUCT SCHEDULES.

EXECUTION OF WORK

1. PREPARATION, PRIOR TO BEGINNING WORK

- A. SITE VISIT: VISIT AND EXAMINE SITE FOR CONNECTION POINTS TO EXISTING FIRE SPRINKLER SYSTEM, PARTITIONS TO BE PENETRATED, CLEARANCES TO OBSTRUCTIONS, AND OTHER EXISTING FACILITY FEATURES THAT WILL AFFECT THE WORK.
- B. OBTAIN NECESSARY PERMITS AND APPROVALS FROM LOCAL AUTHORITIES HAVING JURISDICTION.

2. IMPAIRMENTS & TEMPORARY PROTECTION

- A. COORDINATE SYSTEM IMPAIRMENTS WITH THE OWNER AND LOCAL AUTHORITIES HAVING JURISDICTION.
- B. PROVIDE TEMPORARY FIRE SPRINKLER PROTECTION, TEMPORARY HOSE VALVE INSTALLATION AND/OR SIMILAR PROVISIONS IN ACCORDANCE WITH LOCAL AUTHORITIES HAVING JURISDICTION REQUIREMENTS.

3. COORDINATION

- A. COORDINATE INSTALLATION WITH OTHER SECTIONS OF THE WORK.
- B. COORDINATE FIRE ALARM MONITORING DEVICE TESTING WITH THE FIRE ALARM PORTION OF THE WORK.

4. GENERAL SYSTEM INSTALLATION

- A. INSTALL PIPING IN A NEAT AND WORKMANLIKE MANNER WITH PIPING PARALLEL OR PERPENDICULAR TO INTERIOR BUILDING FEATURES.
- B. INSTALL PIPE WITH PROPER PITCH FOR DRAINAGE. INSTALL AUXILIARY DRAIN VALVES AND PLUGS AS REQUIRED BY NFPA 13 WHERE TRAPPED SECTIONS OF PIPING CANNOT BE AVOIDED.
- C. SUPPORT PIPE WITH HANGERS SPACED IN ACCORDANCE WITH NFPA 13. ALL ATTACHMENTS SHALL BE TO BUILDING STRUCTURAL ELEMENTS.
- D. PROTECT SYSTEM FROM EARTHQUAKE DAMAGE VIA SWAY-BRACING INSTALLED IN ACCORDANCE WITH NFPA 13.
- E. INSTALL VALVES IN ACCESSIBLE LOCATIONS WITH INDICATORS VISIBLE FROM THE ADJACENT FLOOR LEVEL.

- F. INSTALL FIRE ALARM MONITORING DEVICES IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. ADJUST WATERFLOW SWITCH RETARD FEATURE TO 30-SECONDS.

5. PENETRATIONS

- A. USE APPROPRIATE TOOLS AND SAWS FOR MAKING PENETRATIONS.
- B. SLEEVE PENETRATIONS WITH GALVANIZED SCHEDULE 10 PIPE SLEEVE AND PROTECT WITH FIRE-STOPPING IN ACCORDANCE WITH MANUFACTURER'S LISTING REQUIREMENTS. COORDINATE WALL RATING REQUIREMENTS WITH ARCHITECTURAL PLANS.
- C. COVER PENETRATIONS WITH ESCUTCHEON PLATE.

7. CLEANING

- A. CLEAN INSTALLATION THOROUGHLY UPON COMPLETION TO REMOVE GREASE, METAL CUTTINGS, DIRT AND OTHER FOREIGN MATERIALS.
- B. REPAIR STOPPAGES, DISCOLORATION AND DAMAGE THAT RESULT FROM FAILURE TO CLEAN PIPING PROPERLY WITHIN CONTRACT PRICE.

8. TESTING

- A. HYDROSTATICALLY TEST SYSTEM AS REQUIRED BY NFPA 13. EXISTING SYSTEM RETROFITS WHERE NEW WORK CANNOT BE ISOLATED FROM EXISTING PIPING SHALL BE TESTED AT NORMAL SYSTEM PRESSURE. MONITOR FOR LEAKS FOR A PERIOD OF TWO (2) HOURS. REMOVE DEFECTIVE MATERIALS, REPLACE WITH NEW AND REPEAT TESTS AS NECESSARY.
- B. COORDINATE FIRE ALARM MONITORING DEVICE TESTING WITH FIRE ALARM PORTION OF WORK. OPERATE AND ADJUST SWITCHES TO ACHIEVE SATISFACTORY RESULTS.

PROJECT CLOSEOUT

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ITEMS ASSOCIATED WITH PROJECT CLOSEOUT. ALLOW SUFFICIENT TIME IN THE CONSTRUCTION SCHEDULE TO ENSURE THAT THE INSTALLATION IS SUBSTANTIALLY COMPLETE AND ALL REQUIRED TESTING AND ACCURATELY COMPLETED DOCUMENTATION IS DELIVERED TO THE ENGINEER AT LEAST TWO WEEKS PRIOR TO ENGINEER'S SUBSTANTIAL COMPLETION SITE VISIT. FAILURE TO ADEQUATELY PLAN OR SUBMISSION OF INCOMPLETE/INCORRECT DOCUMENTATION WILL RESULT IN BACK CHARGES OF ALL COSTS ASSOCIATED WITH ADDED WORK PERFORMED BY RDK ENGINEERS.

2. PROVIDE THE CONTRACTOR CERTIFICATE OF COMPLETION IN ACCORDANCE WITH 780CMR 107.6.3 INDICATING THAT THE INSTALLATION IS IN CONFORMANCE WITH THE CONSTRUCTION DOCUMENTS AND ALL APPLICABLE LOCAL, STATE AND FEDERAL STATUTES AND CODES. PROVIDE CERTIFICATION FROM BOTH THE GENERAL CONTRACTOR AND ASSOCIATED TRADE CONTRACTOR FOR COMPLIANCE WITH 780CMR CHAPTERS 1, 9 & 13.

3. PROVIDE FIRE PROTECTION SYSTEMS DOCUMENTATION (INCLUDING BUT NOT LIMITED TO TIER II SHOP DRAWINGS AND TIER III RECORD DRAWINGS) IN ACCORDANCE WITH 780 CMR 901.2.1 RECORD DRAWINGS MUST BE PRODUCED BY THE CONTRACTOR AND SUBMITTED ON CONTRACTOR'S TITLE-BLOCK WITH ACCURATE DEPICTION OF THE FINAL INSTALLED SYSTEMS. CONTRACTOR IS RESPONSIBLE FOR ACCURATELY REPRESENTING THE FINAL INSTALLED SYSTEMS. ANY INACCURACIES BETWEEN THE INSTALLED CONDITION AND THE RECORD DRAWINGS WILL BE CAUSE FOR RETURNED RECORD DRAWINGS FOR CORRECTION BY THE CONTRACTOR. THE ADDITIONAL TIME INCURRED BY RDK TO RE-REVIEW THE RECORD DRAWINGS WILL RESULT IN BACK CHARGES.

4. PROVIDE NFPA 13 CONTRACTOR'S MATERIAL AND TEST CERTIFICATES FOR ABOVE GROUND PIPING.

5. PROVIDE "SYSTEM RECORD OF COMPLETION" AND "SYSTEM INSPECTION AND TESTING FORM" IN ACCORDANCE WITH NFPA 72 (2010) CHAPTERS 10 AND 14 REQUIREMENTS FOR THE PRE-ACTION DETECTION AND CONTROL SYSTEMS.

6. NO LIFE SAFETY DEFICIENCIES IN THE SPRINKLER OR THE STANDPIPE SYSTEM SHALL BE PRESENT WHEN REQUESTING SUBSTANTIAL COMPLETION SITE VISIT.

7. SUBSTANTIAL COMPLETION SITE VISIT BY THE ENGINEER SHALL BE CONDUCTED AFTER RECEIPT AND REVIEW OF THE CONTRACTORS CERTIFICATE OF COMPLETION AND ALL CODE MANDATED TEST REPORTS AND SUBMISSIONS LISTED ABOVE. SUBSTANTIAL COMPLETION SITE VISITS SHALL NOT BE REQUESTED UNTIL THE PROJECT IS SUBSTANTIALLY COMPLETE.

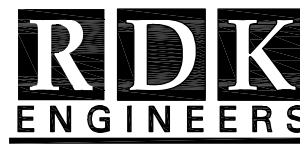
8. PREMATURE REQUESTS THAT REQUIRE ADDITIONAL/FOLLOW UP SITE VISITS BY THE ENGINEER OF DEFICIENT ITEMS (AREAS INCOMPLETE, SYSTEMS NOT OPERATIONAL, ETC.) WILL RESULT IN BACK CHARGES OF THE COSTS ASSOCIATED WITH ANY ADDED VISITS.



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REVISIONS

Number	Description	Date

ISSUED FOR:
BID



FIRE STATION
ENGINE No.3
LIVING QUARTERS

255 Somerville Ave.
Somerville, MA 02143

FIRE PROTECTION
SPECIFICATIONS

PROJECT NUMBER: 20140474

DESIGNED BY: RDB

DRAWN BY: CSL

CHECKED BY: RDB

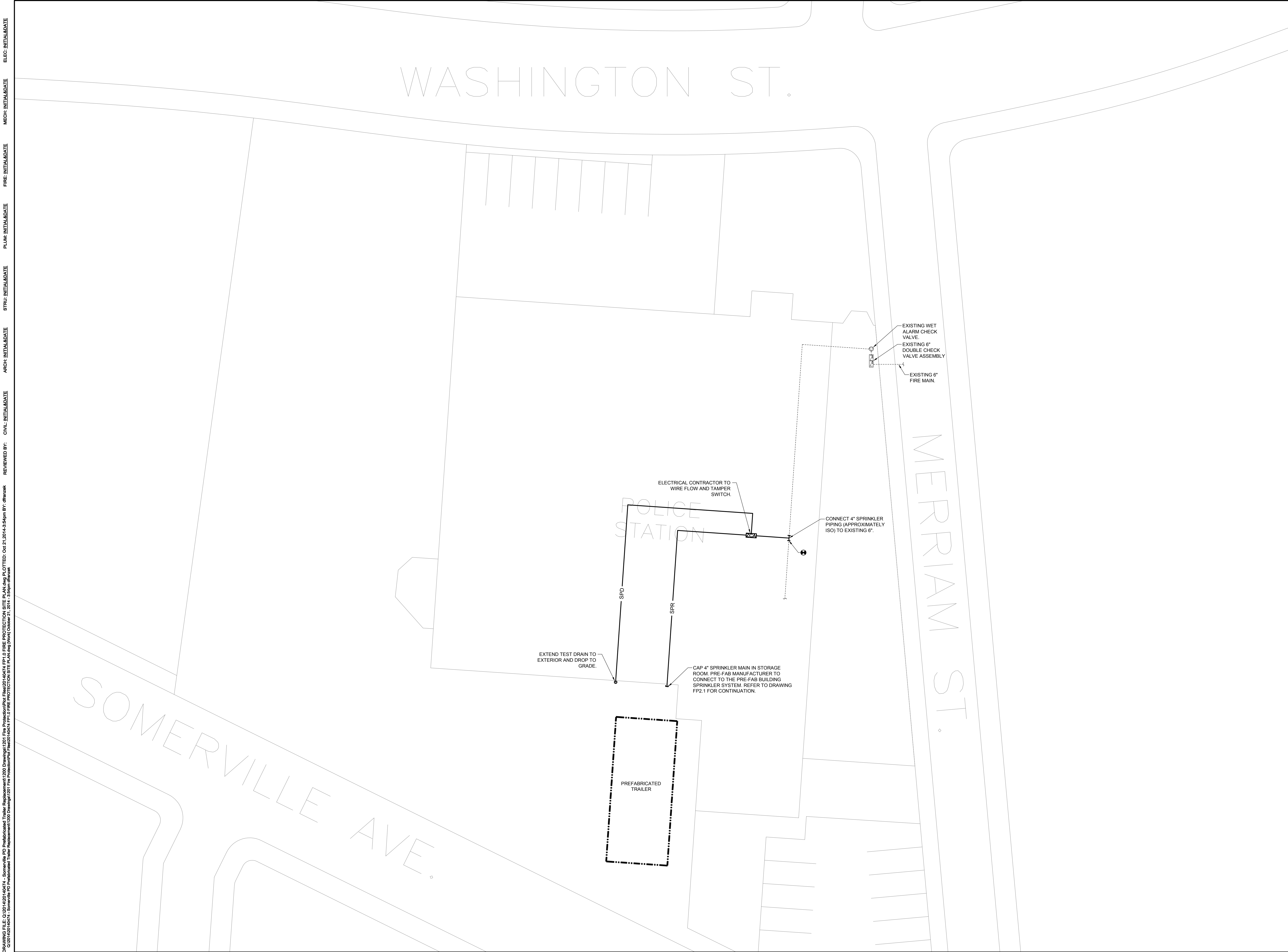
DATE: OCTOBER 22, 2014

SCALE: N.T.S.

SHEET NUMBER:

FP0.1

SHEET 20 OF 28



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ELEC: INITIAL DATE

MECH: INITIAL DATE

FIRE: INITIAL DATE

PLUM: INITIAL DATE

STRU: INITIAL DATE

ARCH: INITIAL DATE

CIVIL: INITIAL DATE

REVIEWED BY:

Oct 21, 2014, 3:54pm BY: dfransk



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REVISIONS		
Number	Description	Date

ISSUED FOR:
BID



**FIRE STATION
ENGINE No.3
LIVING QUARTERS**

255 Somerville Ave.
Somerville, MA 02143

**FIRE PROTECTION
SITE PLAN**

PROJECT NUMBER: 20140474
DESIGNED BY: RDB
DRAWN BY: CSL
CHECKED BY: RDB
DATE: OCTOBER 22, 2014
SCALE: N.T.S.

SHEET NUMBER:

FP1.0

SHEET 21 OF 28

DRAWING FILE: Q:\2014\20140474 - Somerville PD Prefabricated Trailer Replacement\1201 Drawings\1201 Fire Protection\Floor Plans.dwg PLOTTED: Oct 21, 2014, 3:54pm BY: dfranzak
Q:\2014\20140474 - Somerville PD Prefabricated Trailer Replacement\1201 Drawings\1201 Fire Protection\Floor Plans.dwg PLOTTED: Oct 21, 2014, 3:54pm BY: dfranzak

ELEC: INITIAL & DATE

MECH: INITIAL & DATE

FIRE: INITIAL & DATE

PLUM: INITIAL & DATE

STRU: INITIAL & DATE

ARCH: INITIAL & DATE

CIVIL: INITIAL & DATE

REVIEWED BY:

BY: dfranzak

DATE: October 21, 2014

SCALE: 1/4" = 1'-0"

SHEET: 22 OF 28

PROJECT: 20140474

DESIGNED BY: RDB

DRAWN BY: CSL

CHECKED BY: RDB

DATE: OCTOBER 22, 2014

SCALE: 1/4" = 1'-0"

SHEET NUMBER:

FP2.1

PLAN NORTH

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