SPECIFICATIONS FOR
PORTSMOUTH FIRE STATION 1
MODIFICATIONS

APPARATUS ENTRY DOOR REPLACEMENT;
WIDENING OF FOUR ENTRY DOORS AND
ASSOCIATED STRUCTURAL MODIFICATIONS

PORTSMOUTH, NEW HAMPSHIRE

PROJECT NO. 51-08

July 24, 2008

PREPARED BY:

Paradigm Engineering LLC

463 US ROUTE ONE
YORK, MAINE 03909

PREPARED FOR:

CITY OF PORTSMOUTH
DEPARTMENT OF PUBLIC WORKS
680 PEVERLY ROAD
PORTSMOUTH, NEW HAMPSHIRE 03801

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CONTRACT DOCUMENTS

for

Portsmouth Fire Station 1 (Central Station) Modifications
Replacement of Six Overhead Doors, Widening Four Apparatus Entries
Historic Brickwork & Misc. Structural Repairs
Bid 51-08

John P. Bohenko, City Manager

City of Portsmouth, New Hampshire

Prepared by:

City of Portsmouth
Engineering Division
Public Works Department

BID #51-08

City of Portsmouth
Portsmouth, New Hampshire
Department of Public Works

Portsmouth Fire Station 1 (Central Station) Modifications
Replacement of Six Overhead Doors, Widening Four Apparatus Entries
Historic Brickwork & Misc. Structural Repairs
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INVITATION TO BID
For Pre-Qualified Bidders

Sealed bid proposals for pre-qualified bidders only, **plainly marked,** (Portsmouth Fire Station 1 (Central Station) Modifications, Bid Proposal #51-08) **on the outside of the mailing envelope as well as the sealed bid envelope,** addressed to the Finance/Purchasing Department, City Hall, 1 Junkins Avenue, Portsmouth, New Hampshire, 03801, will be accepted until July 31, 2008 at 2:00PM; at which time all bids will be publicly opened and read aloud.

There will be a mandatory pre-bid meeting on July 24, 2008 at 10:00AM. The pre-bid meeting will be held on site at the Central Fire Station located at 170 Court Street in Portsmouth, NH.

The project includes replacement of six overhead doors with replicas of historic carriage house doors; widening of four apparatus entryways; removal of structural brick masonry pilasters; replacement of pilasters with structural steel columns; temporary support of brick façade; and replacement of entryway lintel beams.

Specifications and bid proposal forms may be obtained from the Finance/Purchasing Department on the third floor at the above address, at our website www.cityofportsmouth.com, or by calling the Purchasing Coordinator at 603-610-7227.

Completion date will be 120 calendar days from the date of the Notice to Proceed. Liquidated damages shall be assessed at $100.00 per day.

Bidders must determine the quantities of work required and the conditions under which the work will be performed.

The City of Portsmouth reserves the right to reject any or all bids, to waive technical or legal deficiencies, and to accept any bid that it may deem to be in the best interest of the City.

Each Bidder shall furnish a bid security in the amount of ten percent (10%) of the bid. The Bid Security may be in the form of a certified check drawn upon a bank within the State of New Hampshire or a bid bond executed by a surety company authorized to do business in the State of New Hampshire, made payable to the City of Portsmouth, N.H.

INSTRUCTION TO BIDDERS

BIDDING REQUIREMENTS AND CONDITIONS

1. Special Notice to Bidders

a) Appended to these specifications is a complete set of bidding and general contract forms. These forms may be detached from the specifications and executed for the submittal of bids.

b) The plans, specifications, and other documents designated in the proposal form will be considered as part of the proposal, whether attached or not.

2. Interpretation of Quantities in Bid Schedules

The quantities appearing in the bid schedule are approximate only and are prepared for the comparison of bids. Payment to the contractor will be made only for actual work performed and accepted in accordance with the contract. Any scheduled item of work to be done and materials to be furnished may be increased, decreased or omitted as hereinafter provided, and no claim for loss, anticipated profits or costs incurred in anticipation of work not ultimately performed will be allowed due to such increase or decrease.

INSTRUCTION TO BIDDERS(continued)

3. Examination of Plans, Specifications and Site Work

a) The bidder is expected to examine carefully the site of the proposed work, the plans, standard specifications, supplemental specifications, special provisions and contract forms before submitting a proposal. The submission of a bid shall be considered conclusive evidence that the bidder has made such examination and is satisfied as to the conditions to be encountered in performing the work and as to the requirements of the contract. It will be conclusive evidence that the bidder has also investigated and is satisfied with the sources of supply for all materials.

b) Plans, surveys, measurements, dimensions, calculations, estimates and statements as to the condition under which the work is to be performed are believed to be correct, but the contractors must examine for themselves, as no allowance will be made for any errors or inaccuracies that maybe found therein.

4. Familiarity with Laws

The bidder is assumed to have made himself or herself familiar with all federal and state laws and all local by-laws, ordinances and regulations which in any manner affect those engaged or employed on the work or affect the materials or equipment used in the work or affect the conduct of the work, and the bidder, if awarded the contract, shall be obligated to perform the work in conformity with said laws, by-laws, ordinances and regulations notwithstanding his or her ignorance thereof. If the bidder shall discover any provision in the plans or specifications which is in conflict with any such law, by-law, ordinance or regulation the bidder shall forthwith report it to the engineer in writing.

5. Preparation of Proposal

a) The bidder shall submit his or her proposal upon the forms furnished by the Owner. The bidder shall specify a lump sum price both in words and figures, for each pay item for which a quantity is given and shall also show the products of the respective prices and quantities written in figures in the column provided for that purpose and the total amount of the proposal obtained by adding the amount of the several items. All words and figures shall be in ink or typed.

If a unit price or a lump sum bid already entered by the bidder on the proposal form is to be altered it should be crossed out with ink, the new unit price or lump sum bid entered above or below it and initialed by the bidder, also with ink. In case of discrepancy between the prices written in words and those written in figures, the prices written in words shall govern.

b) The bidder's proposal must be signed with ink by the individual, by one or more general partners of a partnership, by one or more members or officers of each firm representing a joint venture; by one or more officers of a corporation, by one or more members (if member-managed) or managers (if manager-managed) of a limited liability company, or by an agent of the contractor legally qualified and acceptable to the owner. If the proposal is made by an individual, his name and post office address must be shown, by a partnership the name and post office address of each general and limited partner must be shown; as a joint venture, the name and post office address of each venturer must be shown; by a corporation, the name of the corporation and its business address must be shown, together with the name of the state in which it is incorporated, and the names, titles and business addresses of the president, secretary and treasurer.

INSTRUCTION TO BIDDERS (continued)

6. Nonconforming Proposals

Proposals will be considered nonconforming and may be rejected in the Owner's sole discretion for any of the following reasons:

a) If the proposal is on a form other than that furnished by the Owner, or if the form is altered or any portion thereof is detached.

b) If there are unauthorized additions, conditional or altered bids, or irregularities of any kind which may tend to make the proposal or any portion thereof incomplete, indefinite or ambiguous as to its meaning.

c) If the bidder adds any provisions reserving the right to accept or reject an award, or to enter into a contract pursuant to an award.

d) If the proposal does not contain a unit price for each pay item listed except in the case of authorized alternate pay items.

7. Proposal Guaranty

No proposal will be considered unless accompanied by a bid bond, surety, or similar guaranty of the types and in an amount not less than the amount indicated in the proposal form made payable to the "City of Portsmouth". If the bidder uses a bid bond it shall be:

a) In a form satisfactory to the Owner.

b) With a surety company licensed, authorized to do business in, and subject to the jurisdiction of the courts of the State of New Hampshire.

c) Conditioned upon the faithful performance by the principal of the agreements contained in the sub-bid or the general bid.

In the event any irregularities are contained in the proposal guaranty, the bidder will have until 5:00 p.m. on the date five days from the date on which bids are opened, to correct any irregularities. If such irregularities are not corrected to the satisfaction of the Owner in its sole discretion, the bid may be rejected.

8. Delivery of Proposals

When sent by mail, the sealed proposal shall be addressed to the Owner at the address and in the care of the official in whose office the bids are to be received. All proposals shall be filed prior to the time and at the place specified in the invitation for bids. Proposals received after the time for opening of the bids will be returned to the bidder, unopened.

9. Withdrawal of Proposals

a) A bidder will be permitted to withdraw his or her proposal unopened after it has been submitted if the Owner receives a request for withdrawal in writing prior to the time specified for opening the proposals.

INSTRUCTION TO BIDDERS (continued)

10. Public Opening of Proposals

Proposals will be opened and read publicly at the time and place indicated in the invitation for bids. Bidders, their authorized agents, and other interested parties are invited to be present.

11. Disqualification of Bidders

a) Any or all of the following reasons may be deemed by Owner in its sole discretion as being sufficient for the disqualification of a bidder and the rejection of his proposal or proposals:

1. More than one proposal for the same work from an individual, firm, or corporation under the same or different name.
2. Evidence of collusion among bidders.
3. Failure to submit all required information requested in the bid specifications.
4. Such disqualification would be in the best interests of the Owner.

b) No award will be made to any Bidder who cannot meet all of the following requirements:

5. The Bidder shall not have defaulted or turned the work over to the bonding company on any contract within three years prior to the bid date.
6. The Bidder shall maintain a permanent place of business.
7. The Bidder shall have adequate personnel and equipment to perform the work expeditiously.
8. The Bidder shall have suitable financial status to meet the obligations incidental to the Work.
9. The Bidder shall have appropriate technical experience satisfactory to the City Engineer in the class of work involved.
10. The Bidder shall be registered with the Secretary of State to do business in New Hampshire.
11. The Bidder shall have performed to the satisfaction of the Owner and the City Engineer on previous contracts. A history or record of poor performance will result in disqualification.
12. The Bidder shall have a good reputation for completing a project “on budget.”
13. The Bidder shall not have repeatedly failed to complete work or meet deadlines on previous contracts with Owner or any other party except in those cases where the failure or delay was caused by someone other than Bidder or otherwise excused.

    A HISTORY OR RECORD OF POOR PERFORMANCE WILL RESULT IN DISQUALIFICATION.

12. Material Guaranty and Samples

Before any contract is awarded, the bidder may be required to furnish a complete statement of the origin, composition and manufacture of any or all materials to be used in the construction of the work, and the Owner may, in its sole discretion, reject said bid based on the contents of said statement or as a result of the failure of the bidder to submit said statement.

AWARD AND EXECUTION OF CONTRACT

1. Consideration of Proposals

a) After the proposals are opened and read, they will be compared on the basis of the total price to be charged to perform the work. The results of such comparisons will be available to the public. In case of a discrepancy between the prices written in words and those written figures, the prices written in words shall govern. In case of a discrepancy between the total shown in the proposal and that obtained by adding the products of the quantities of items and unit bid prices, the latter shall govern.

b) The City reserves the right to reject any or all proposals, to waive technicalities or to advertise for new proposals, if in the sole discretion of the Owner the best interest of the City of Portsmouth will be promoted thereby.

2. Award of Contract

Within 30 calendar days after the opening of proposals, if a contract is to be awarded, the award will be made to the lowest responsible and qualified bidder whose proposal complies with all the requirements prescribed. A qualified bidder is one who has been pre-qualified for this project. The successful bidder will be notified, in writing, mailed to the address on his or her proposal, that his or her bid has been accepted and that the bidder has been awarded the contract.

The award shall not be considered official until such time that a Purchase Order, fully executed contract or an award letter has been issued by the Finance Director.
No presumption of award shall be made by the bidder until such documents are in hand. Verbal notification of award is not considered official. Any action by the bidder to assume otherwise is done so at his/her own risk and the City will not be held liable for any expense incurred by a bidder that has not received an official award.

3. Cancellation of Award

The Owner reserves the right to cancel the award of any contract at any time before the execution of such contract by all parties without any liability of the Owner.

4. Return of Proposal Guaranty

All proposal guaranties, except those of the three lowest bidders, will be returned, upon request, immediately following the opening and checking of the proposals. The proposal guaranties of the three lowest bidders will be returned, upon request, following the award of the contract.

5. Contract Bonds

At the time of the execution of the contract, the successful bidder shall furnish:

a) A performance bond in the amount of 100 percent of the contract amount.

b) Labor and materials payment bond in the sum equal to 100 percent of the contract amount.

At the Owner's option at the time of project completion, the successful bidder may furnish a maintenance bond in the amount equal to 20 percent of the contract amount. Such bond shall guarantee the repair of all damage due to faulty materials or

workmanship provided or done by the contractor. The guarantee shall remain in effect for a period of one year after the date of final acceptance of the job by the Owner. The Owner has the option of holding the retainage of 10 percent for the same period.

AWARD AND EXECUTION OF CONTRACT (continued)

Each bond shall be:

1. In a form satisfactory to the Owner.

2. With a surety company licensed and authorized to do business and with a resident agent designated for services of process in the State of New Hampshire.

3. Conditioned upon the faithful performance by the principal of the agreements contained in the original bid.

All premiums for the contract bonds are to be paid by the contractor.

6. Execution and Approval of Contract

The successful bidder will be required to present all contract bonds and execute the contract within 15 days following notification of acceptance of his or her bid. No contract shall be considered as in effect until it has been fully executed by all parties thereto.

7. Failure to Execute Contract

Failure to execute the contract and file acceptable bonds within 7 days after notification of acceptance of bid shall be just cause for the cancellation of the award and the forfeiture of the proposal guarantee which shall become the property of the Owner, not as a penalty, but in liquidation of damages sustained. Award may then be made to the next lowest responsible bidder, or the work may be re-advertised as the Owner may determine in its sole discretion.

Portsmouth Fire Station 1 (Central Station) Modifications
Replacement of Six Overhead Doors, Widening Four Apparatus Entries
Historic Brickwork & Misc. Structural Repairs
Bid 51-08

PROPOSAL FORM

CITY OF PORTSMOUTH, N.H.

To the City of Portsmouth, New Hampshire, herein called the Owner.

The undersigned, as Bidder, herein referred to as singular and masculine declares as follows:

1. All interested in the Bid as Principals are named herein.

2. This bid is not made jointly, or in conjunction, cooperation or collusion with any other person, firm, corporation, or other legal entity;

3. No officer, agent or employee of the Owner is directly or indirectly interested in this Bid.

4. The bidder has carefully examined the site of the proposed work and fully informed and satisfied himself as to the conditions there existing, the character and requirements of the proposed work, the difficulties attendant upon its execution and the accuracy of all estimated quantities stated in this Bid, and the bidder has carefully read and examined the Drawings, Agreement, Specifications and other Contract Documents therein referred to and knows and understands the terms and provisions thereof;

5. The bidder understands that the quantities of work calculated in the Bid or indicated on the Drawings or in the Specifications or other Contract Documents are approximate and are subject to increase or decrease or deletion as deemed necessary by the Portsmouth City Engineer. Any such changes will not result in or be justification for any penalty or increase in contract prices; and agrees that, if the Bid is accepted the bidder will contract with the Owner, as provided in the Contract Documents, this Bid Form being part of said Contract Documents, and that the bidder will supply or perform all labor, services, plant, machinery, apparatus, appliances, tools, supplies and all other activities required by the Contract Documents in the manner and within the time therein set forth, and that the bidder will take in full payment therefore the following item prices, to wit:

THIS PROJECT SHALL BE BID BY LUMP SUM PRICES:

BASE BID

The undersigned agrees to perform all work indicated in the Contract Documents for modifications to Portsmouth Fire Station 1 for the Lump Sum of

_____ _____dollars ($_____ _____)
Price in Words Price in Figures

BASE BID BREAKDOWN

The above base bid consists of the following line items which include cost of fees, insurance, and bonds proportionately:

1. The cost of transporting construction materials to the site as herein indicated, and transport and disposal of demolition and construction debris/refuse is:

_____ dollars ($_____) ,
Price in Words Price in Figures

which includes, labor, packaging, vessels, and all pertinent aspects of materials.

2. The cost of removal, cleaning, storage and re-installation of existing masonry and installation of new masonry to match existing herein indicated is:

_____ _____dollars ($_____),
Price in Words Price in Figures

which includes labor, packaging, vessels, and all pertinent aspects of materials.

3. The cost of temporary support of existing masonry to remain and temporary support of existing structural elements to remain is

_____ _____dollars ($_____)
Price in Words Price in Figures

4. The cost of permanent structural steel installation is:

_____ _____dollars ($_____)
Price in Words Price in Figures

5. All other costs attributable to completion of this project whether on or off site is consisting of (*state nature of other costs on separate sheet*)

_____ _____dollars ($_____)
Price in Words Price in Figures

Notice to Contractors: The sum of line items 1 through 5 inclusive shall be equal to the base bid.

UNIT COSTS

The City of Portsmouth, a municipal government, is exempt from state and federal taxes.

All applicable taxes, fees, insurances, and bonds shall be included in the bids herein stated in words and figures. (In case of discrepancy, words govern.)

The undersigned agrees that for extra work, if any, performed in accordance with the terms and provisions of the Contract Documents, the bidder will accept compensation as stipulated therein.

_____ _____
Date Company

By:_____
Print Name

By:_____
Signature

Title:_____

_____
Business Address

_____
City, State, Zip Code

Telephone:_____

The Bidder has received and acknowledged Addenda No. _____ through _____.
All Bids are to be submitted on this form and in a sealed envelope, plainly marked on the outside with the Bidder's name and address and the Project name as it appears at the top of the Proposal Form.

BID SECURITY BOND

(This format provided for convenience, actual Bid Bond is acceptable in lieu of, if compatible.)

KNOW ALL MEN BY THESE PRESENTS, that we the undersigned

_____, as Principal, and

_____, as Surety, are hereby

held and firmly bound unto _____

IN THE SUM OF _____

as liquidated damages for payment of which, well and truly to be made we hereby jointly and severally bind ourselves, our heirs, executors, administrators, successors and assigns.

The condition of this obligation is such that whereas the Principal has submitted to the _____
_____
A CERTAIN Bid attached hereto and hereby made a part hereof to enter into a contract in writing, hereinafter referred to as the "AGREEMENT" and or "CONTRACT", for
_____
_____
_____

NOW THEREFORE,

(a) If said Bid shall be rejected or withdrawn as provided in the INFORMATION FOR BIDDERS attached hereto or, in the alternative,

(b) If said Bid shall be accepted and the Principal shall duly execute and deliver the form of AGREEMENT attached hereto and shall furnish the specified bonds for the faithful performance of the AGREEMENT and/or CONTRACT and for the payment for labor and materials furnished for the performance of the AGREEMENT and or CONTRACT,

then this obligation shall be void , otherwise it shall remain in full force and effect; it being expressly understood and agreed that the liability of the Surety for any and all claims hereunder in no event shall exceed the amount of this obligation.

BID SECURITY BOND (continued)

The Surety, for value received, hereby agrees that the obligation of said surety and its bond shall be in no way impaired or affected by any extensions of the time within such BID may be accepted, and said Surety does hereby waive notice of any such extension.

IN WITNESS WHEREOF, the parties hereto have duly executed

this bond on the _____ day of _____, 20__.

_____L.S.
(Name of Principal)

(SEAL)

BY _____

_____
(Name of Surety)

BY _____

CONTRACT AGREEMENT

Portsmouth Fire Station 1 (Central Station) Modifications
Replacement of Six Overhead Doors, Widening Four Apparatus Entries
Historic Brickwork & Misc. Structural Repairs
Bid 51-08

THIS AGREEMENT made as of the **XXth** day of **August** in the year **2008,** by and between the City of Portsmouth, New Hampshire (hereinafter call the Owner) and XXXXXXXXXXX (hereinafter called the Contractor),

WITNESSETH; that the Owner and Contractor, in consideration of the mutual covenants hereinafter set forth, agree as follows:

ARTICLE I- Work - The Contractor shall perform all work as specified or indicated in the Contract Documents for the completion of the Project. The Contractor shall provide, at his expense, all labor, materials, equipment and incidentals as may be necessary for the expeditious and proper execution of the Project.

ARTICLE II - ENGINEER - The City Engineer, or his authorized representative will act as engineer in connection with completion of the Project in accordance with the Contract Documents.

ARTICLE III - CONTRACT TIME - The work will commence and finish in accordance with the Notice to Proceed.

ARTICLE IV - CONTRACT PRICE - Owner shall pay Contractor for performance of the work in accordance with the Contract Documents as shown under item prices in the Bid Proposal.

ARTICLE V - PAYMENT - Partial payments will be made in accordance with the Contract Documents. Upon final acceptance of the work and settlement of all claims, Owner shall pay the Contractor the unpaid balance of the Contract Price, subject to additions and deductions provided for in the Contract Documents.

ARTICLE VI - RETAINAGE – To insure the proper performance of this Contract, the Owner shall retain ten percent of the Contract Price as specified in the Contract Documents.

ARTICLE VII - LIQUIDATED DAMAGES - In event the Contractor fails to successfully execute the work within the specified contract time the Owner shall assess the Contractor liquidated damages in the amount of **one hundred dollars ($100)** for each calendar day beyond the specified completion date for each section of work. Liquidated damages shall be deducted from the Contract Price prior to final payment of the Contractor.

CONTRACT AGREEMENT (continued)

ARTICLE VIII – CONTRACT DOCUMENTS – The Contract Documents which comprise the contract between Owner and Contractor are attached hereto and made a part hereof and consist of the following:

8.1 This Agreement
8.2 Contractor's Bid and Bonds
8.3 Notice of Award, Notice to Proceed
8.4 Instruction to Bidders
8.5 General Requirements, Control of Work, Temporary Facilities, Measurement and Payment, Standard Specifications
8.6 Insurance Requirements
8.7 Standard and Technical Specifications
8.8 Drawings
8.9 Special Provisions
8.10 Any modifications, including change orders, duly delivered after execution of this Agreement.

ARTICLE IX – TERMINATION FOR DEFAULT – Should contractor at any time refuse, neglect, or otherwise fail to supply a sufficient number or amount of properly skilled workers, materials, or equipment, or fail in any respect to prosecute the work with promptness and diligence, or fail to perform any of its obligations set forth in the Contract, Owner may, at its election, terminate the employment of Contractor, giving notice to Contractor in writing of such election, and enter on the premises and take possession, for the purpose of completing the work included under this Agreement, of all the materials, tools and appliances belonging to Contractor, and to employ any other persons to finish the work and to provide the materials therefore at the expense of the Contractor.

ARTICLE X – INDEMNIFICATION OF OWNER – Contractor will indemnify Owner against all suits, claims, judgments, awards, loss, cost or expense (including without limitation attorneys' fees) arising in any way out of the Contractor's negligent performance of its obligations under this Contract. Contractor will defend all such actions with counsel satisfactory to Owner at its own expense, including attorney's fees, and will satisfy any judgment rendered against Owner in such action.

ARTICLE XI – PERMITS – The Contractor will secure at its own expense, all permits and consents required by law as necessary to perform the work and will give all notices and pay all fees and otherwise comply with all applicable City, State, and Federal laws, ordinances, rules and regulations.

ARTICLE XII – INSURANCE – The Contractor shall secure and maintain, until acceptance of the work, insurance with limits not less than those specified in the Contract.

ARTICLE XIII – MISCELLANEOUS –

A. Neither Owner nor Contractor shall, without the prior written consent of the other, assign, sublet or delegate, in whole or in part, any of its rights or obligations under any of the Contract Documents; and, specifically not assign any monies due, or to become due, without the prior written consent of Owner.

B. Owner and Contractor each binds himself, his partners, successors, assigns and legal representatives, to the other party hereto in respect to all covenants, agreements and obligations contained in the Contract Documents.

C. The Contract Documents constitute the entire Agreement between Owner and Contractor and may only be altered amended or repealed by a duly executed written instrument.

D. The laws of the State of New Hampshire shall govern this Contract without reference to the conflict of law principles thereof.

E. Venue for any dispute shall be the Rockingham County Superior Court unless the parties otherwise agree.

IN WITNESS WHEREOF, the parties hereunto executed this

AGREEMENT the day and year first above written.

BIDDER:

BY:_____

TITLE:_____

CITY OF PORTSMOUTH, N.H.

BY:_____
John P. Bohenko

TITLE: City Manager

NOTICE OF INTENT TO AWARD

Date:

TO:

IN AS MUCH as you were the low responsible bidder for work entitled:

Portsmouth Fire Station 1 (Central Station) Modifications
Replacement of Six Overhead Doors, Widening Four Apparatus Entries
Historic Brickwork & Misc. Structural Repairs
Bid 51-08

You are hereby notified that the City intends to award the aforesaid project to you.

Immediately take the necessary steps to execute the Contract and to provide required bonds and proof of insurance within seven (7) calendar days from the date of this Notice.

The City reserves the right to revoke this Notice if you fail to take the necessary steps to execute this Contract.

City of Portsmouth
Portsmouth, New Hampshire

Judie Belanger,
Finance Director

NOTICE TO PROCEED

DATE:

Portsmouth Fire Station 1 (Central Station) Modifications
Replacement of Six Overhead Doors, Widening Four Apparatus Entries
Historic Brickwork & Misc. Structural Repairs
Bid 51-08

TO:

YOU ARE HEREBY NOTIFIED TO COMMENCE WORK IN ACCORDANCE WITH THE AGREEMENT DATED XXXXXXX, WITHIN TEN (10) DAYS FROM THE NOTICE TO PROCEED.

CITY OF PORTSMOUTH, N.H.

_____
BY: Steven F. Parkinson, PE

TITLE: Public Works Director

ACCEPTANCE OF NOTICE

RECEIPT OF THE ABOVE NOTICE TO PROCEED IS HEREBY ACKNOWLEDGED BY

_____

This the _____day of_____ 20__

By:_____

Title:_____

CHANGE ORDER

Change Order Number_____ Date of Issuance_____

Owner: CITY OF PORTSMOUTH, N.H

Contractor:

You are directed to make the following changes in the Contract Documents:

Description:

Purpose of Change Order:

Attachments:

CHANGE IN CONTRACT PRICE	CHANGE IN CONTRACT TIME
Original Contract Price: $	Original Completion Date:
Contract Price prior to this Change Order: $_____	Contract Time prior to this Change Order: _____days
Net Increase or Decrease of this Change Order: $_____	Net Increase or Decrease of this Change Order: _____days
Contract Price with all approved Change Orders: $_____	Contract Time with all approved Change Orders: _____days

RECOMMENDED:	APPROVED:	APPROVED:	
by_____	by_____	by_____	by_____
PW Director	City Finance	City Manager	Contractor

PERFORMANCE BOND

(This format provided for convenience, actual Performance Bond is acceptable in lieu, if compatible)

Bond Number _____

KNOW ALL MEN BY THESE PRESENTS

that _____as Principal, hereinafter called Contractor, and _____ (Surety Company) a corporation organized and existing under the laws of the State of_____ and authorized to do business in the State of New Hampshire as surety, hereinafter called Surety, are held and firmly bound unto the City of Portsmouth, N.H. Obligee, hereinafter called Owner, in the amount of _____ Dollars ($_____), for the payment whereof Contractor and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents. WHEREAS, Contractor has by written agreement dated _____ entered into a contract with Owner for _____in accordance with drawings and specifications prepared by the Public Works Department, 680 Peverly Hill Road, Portsmouth, N.H. 03801, which contract is by reference made a part hereof, and is hereinafter referred to as the Contract.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that if the Contractor shall well and faithfully do and perform the things agreed by him to be done and performed, according to the terms of said Contract and such alterations as may be made in said Contract during progress work, and shall further indemnify and save harmless the said Owner in accordance with the Contract and shall remedy without cost to the Owner any defect which may develop within one year from the time of completion and acceptance of the work.

The Surety hereby waives notice of any alteration in work or extension of time made by the Owner or any of its agents or representatives.

Whenever Contractor shall be, and declared by Owner to be, in default under the Contract, the Owner having performed Owner's obligations thereunder, the Surety may promptly remedy the default, or shall promptly:

(1) Complete the Contract in accordance with its terms and conditions, or

PERFORMANCE BOND (continued)

(2) Obtain a bid or bids for submission to the Owner for completing the Contract in accordance with its terms and conditions, and upon determination by Owner and Surety of the lowest responsible bidder, arrange for a contract between such bidder and Owner and make available as work progresses (even though there should be a default or a succession of defaults under the contract of completion arranged under this paragraph) sufficient funds to pay the cost of completion less the balance of the contract price; but not exceeding, including other costs and damages for which the Surety may be liable hereunder, the amount set forth in the first paragraph hereof. The term "balance of the contract price", as used in this paragraph, shall mean the total amount payable by the Owner to Contractor under the Contract and any amendments thereto, less the amount paid by Owner to Contractor.

Any suit under this bond must be instituted before the expiration of (2) years from the date on which final payment under the contract falls due.

No right of action shall accrue on this bond to or for the use of any person or corporation other than the Owner named herein or the heirs, executors, administrators or successors of Owner.

Signed and sealed this _____ day of _____

A.D., 20___ .

In the presence of:

_____ BY: _____
(Witness) (Principal) (Seal)

_____
(Surety Company)

_____ BY: _____
(Witness) (Title) (Seal)

Note:
If the Principal (Contractor) is a partnership, the Bond should be signed by each of the partners.

If the Principal (Contractor) is a corporation, the Bond should be signed in its correct corporate name by its duly authorized Officer or Officers.

If this bond is signed on behalf of the Surety by an attorney-in-fact, there should be attached to it a duly certified copy of his Power of Attorney showing his authority to sign such Bonds.

There should be executed an appropriate number of counterparts of the bond corresponding to the number of counterparts of the Agreement.

LABOR AND MATERIAL PAYMENT BOND

(This format provided for convenience, actual Labor and Material Bond is acceptable in lieu, if compatible)

Bond Number _____

KNOW ALL MEN BY THESE PRESENTS:

that

_____

as Principal, hereinafter called Contractor, and _____ (Surety Company) a corporation organized and existing under the laws of the State of

_____ and authorized to do business in the State of New Hampshire hereinafter called Surety, are held and firmly bound unto the City of Portsmouth, N.H. Obligee, hereinafter called Owner, for the use and benefit of claimants as herein below defined, in the

amount of _____ Dollars ($_____), for the payment whereof Principal and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, Principal has by written agreement dated _____ entered into a

contract with Owner for _____ in accordance with drawings and specifications prepared by the Public Works Department, 680 Peverly Hill Road, Portsmouth, N.H. 03801, which contract is by reference made a part hereof, and is hereinafter referred to as the Contract.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that the Principal shall promptly make payment to all claimants as hereinafter defined, for all labor and material used or reasonably required for use in the performance of the Contract and for the hire of all equipment, tools, and all other things contracted for or used in connection therewith, then this obligation shall be void, otherwise it shall remain in full force and effect, subject however, to the following conditions:

(1) A claimant is defined as one having a direct contract with the Principal or, with a subcontractor of the Principal for labor, material, equipment, or other things used or reasonably required for use in the performance of the Contract. "Labor and material" shall include but not be limited to that part of water, gas, power, light, heat, oil and gasoline, telephone service or rental of equipment applicable to the Contract.

(2) The above named Principal and Surety hereby jointly and severally agree with the Owner that every claimant as herein defined, who has not been paid in full before the expiration of a period of ninety (90) days after the date on which the last of such claimant's work or labor was done or performed, or materials were furnished by such a claimant, may sue on this bond for the use of such claimant, prosecute the suit by final judgment for such sum or sums as may be

LABOR AND MATERIAL PAYMENT BOND (continued)

justly due claimant, and have execution thereon. The Owner shall not be liable for the payment of any such suit or any costs or expenses of any such suit, and principal and surety shall jointly and severally indemnify, defend and hold the Owner harmless for any such suit, costs or expenses.

(3) No suit or action shall be commenced hereunder by any claimant:

(a) Unless Claimant, other than one having a direct contract with the Principal, shall have given notice to all the following:

The Principal, the Owner and the Surety above named, within six (6) calendar months after such claimant did or performed the last of the work or labor, or furnished the last of the materials for which said claim is made, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were furnished, or for whom the work or labor was done or performed. Such notice shall be served by mailing the same by registered mail or certified mail, postage prepaid, in an envelope addressed to the Principal, Owner, and Surety, at any place where an office is regularly maintained for the transaction of business, or served in any manner in which legal process may be served in the State of New Hampshire save that such service need not be made by a public officer.

(b) After the expiration of one (1) year following the date on which Principal ceased all work on said contract, it being understood , however, that if any limitation embodied in this bond is prohibited by any law controlling the construction hereof, such limitation shall be deemed to be amended so as to be equal to the minimum period of limitation permitted by such law.

(c) Other than in a State court of competent jurisdiction in and for the county or other political subdivision of the State in which the project, or any part thereof, is situated, or in the United States District Court for the district in which the project, or any part thereof, is situated, and not elsewhere. (4) The amount of this bond may be reduced by and to the extent of any payment of payments made in good faith hereunder, inclusive of the payment by Surety of mechanics' liens which may be filed on record against said improvement, whether or not claim for the amount of such lien by presented under and against this bond.

Signed and sealed this _____ day of _____, 20____. In the presence of:

_____ BY: _____
(Witness) (Principal) (Seal)

_____
(Surety Company)

_____ BY: _____
(Witness) (Title) (Seal)

LABOR AND MATERIAL PAYMENT BOND (continued)

Note:
If the Principal (Contractor) is a partnership, the Bond should be signed by each of the partners.

If the Principal (Contractor) is a corporation, the Bond should be signed in its correct corporate name by its duly authorized Officer or Officers.

If this bond is signed on behalf of the Surety by an attorney-in-fact, there should be attached to it a duly certified copy of his Power of Attorney showing his authority to sign such Bonds.

There should be executed an appropriate number of counterparts of the bond corresponding to the number of counterparts of the Agreement.

MAINTENANCE BOND

At the Owner's election, a maintenance bond may be substituted for retainage at the completion of the project. If the Owner permits a maintenance bond, it shall be in the amount of **Twenty Percent (20%)** of the contract price with a corporate surety approved by the Owner. Such bond shall be provided at the time of Contract completion and shall guarantee the repair of all damage due to faulty materials or workmanship provided or done by the Contractor. This guarantee shall remain in effect for a period of one year after the date of final acceptance of the job by the Owner.

CONTRACTOR'S AFFIDAVIT

STATE OF _____:

COUNTY OF _____:

Before me, the undersigned, a _____
(Notary Public, Justice of the Peace)

in and for said County and State personally appeared, _____
(Individual, Partner, or duly authorized representative of Corporate)

who, being duly sworn, according to law deposes and says that the cost of labor, material, and equipment and outstanding claims and indebtedness of whatever nature arising out of the performance of the Contract between

CITY OF PORTSMOUTH, NEW HAMPSHIRE

and _____
(Contractor)

of _____

Dated: _____

has been paid in full for Construction of:

Portsmouth Fire Station 1 (Central Station) Modifications
Replacement of Six Overhead Doors, Widening Four Apparatus Entries
Historic Brickwork & Misc. Structural Repairs
Bid 51-08

_____
(Individual, Partner, or duly authorized representative of Corporate Contractor)

Sworn to and subscribed
before me this _____day
of _____ 20____

_____

CONTRACTOR'S RELEASE

KNOW ALL MEN BY THESE PRESENTS that

_____(Contractor) of

_____, County of _____, and State

of _____ does hereby

acknowledge that_____(Contractor)

has on this day had, and received from the CITY OF PORTSMOUTH NEW

HAMPSHIRE, final and completed payment for the Construction of:

Portsmouth Fire Station 1 (Central Station) Modifications
Replacement of Six Overhead Doors, Widening Four Apparatus Entries
Historic Brickwork & Misc. Structural Repairs Bid 51-08

NOW THEREFORE, the said _____

(Contractor)

for myself, my heirs, executors, and administrators) (for itself, its successors and assigns) do/does by these presents remise, release, quit-claim and forever discharge the City of Portsmouth, New Hampshire, its successors and assigns, of and from all claims and demands arising from or in connection with the said Contract dated _____, and of and from all, and all manners of action and actions, cause and causes of action and actions, suits, debts, dues, duties, sum and sums of money, accounts, reckonings, bonds, bills, specifications, covenants, contracts, agreements, promises, variances, damages, judgments, extents, executions, claims and demand, whatsoever in law of equity, or otherwise, against the City of Portsmouth, New Hampshire, its successors and assigns, which (I, my heirs, executors, or administrators) (it, its successors and assigns) ever had, now have or which (I, my heirs, executors, or administrators) (it, its successors and assigns) hereafter can shall or may have, for, upon or by reason of any matter, cause, or thing whatsoever; from the beginning of record time to the date of these presents.

IN WITNESS WHEREOF,

Contractor:

_____

By:_____

print name of witness:_____ Its Duly Authorized

_____

Dated: _____

GENERAL REQUIREMENTS

SCOPE OF WORK

1. INTENT OF CONTRACT

The intent of the Contract is to provide for the construction and completion in every detail of the work described. The Contractor shall furnish all labor, materials, equipment, tools, transportation and supplies required to complete the work in accordance with the terms of the Contract. The Contractor shall be required to conform to the intent of the plans and specifications. No extra claims shall be allowed for portions of the work not specifically addressed in the plans and specifications but required to produce a whole and complete project, such work will be considered subsidiary to the bid items.

2. INCIDENTAL WORK

Incidental work items for which separate payment is not measured includes, but is not limited to, the following items:

a. Clearing, grubbing and stripping (unless otherwise paid for)
b. Clean up
c. Plugging existing sewers and manholes
d. Signs
e. Mobilization/Demobilization (unless otherwise paid for)
f. Restoration of property
g. Cooperation with other contractors, abutters and utilities.
h. Utility crossings, (unless otherwise paid for)
i. Minor items - such as replacement of fences, guardrails, rock wall, etc.
j. Steel and/or wood sheeting as required.
k. Accessories and fasteners or components required to make items paid for under unit prices or lump sum items complete and functional.

3. ALTERATION OF PLANS OR OF CHARACTER OF WORK

The Owner reserves the right, without notice to Surety, to make such alterations of the plans or of the character of the work as may be necessary or desirable to complete fully and acceptably the proposed construction; provided that such alterations do not increase or decrease the contract cost. Within these cost limits, the alterations authorized in writing by the Owner shall not impair or affect any provisions of the Contract or bond and such increases or decreases of the quantities as a result from these alterations or deletions of certain items, shall not be the basis of claim for loss or for anticipated profits by the contractor. The contractor shall perform the work as altered at the contract unit price or prices.

4. EXTRA WORK ITEMS

Extra work shall be performed by the Contractor in accordance with the specifications and as directed, and will be paid for at a price as provided in the Contract documents or if such pay items are not applicable than at a price negotiated between the contractor and the Owner or at the unit bid price. If the Owner determines that extra work is to be performed, a change order will be issued.

5. CHANGE ORDERS

The Owner reserves the right to issue a formal change order for any increase, decrease, deletion, or addition of work or any increase in contract time or price. The contractor shall be required to sign the change order and it shall be considered as part of the Contract documents.

6. FINAL CLEANING UP

Before acceptance of the work, the contractor shall remove from the site all machinery, equipment, surplus materials, rubbish, temporary buildings, barricades and signs. All parts of the work shall be left in a neat and presentable condition. On all areas used or occupied by the contractor, regardless of the contract limits, the bidder shall clean-up all sites and storage grounds.

The items prescribed herein will not be paid for separately, but shall be paid for as part of the total contract price.

7. ERRORS AND INCONSISTENCY IN CONTRACT DOCUMENTS

Any provisions in any of the Contract Documents that may be in conflict with the paragraphs in these General Requirements shall be subject to the following order of precedence for interpretation.

1. Standard General Conditions of the Construction Contract will govern General Requirements.

2. Technical Specifications will govern General Conditions of the Construction Contract.

3. Plans will govern Technical Specifications, and General Requirements.

CONTROL OF WORK

1. AUTHORITY OF ENGINEER

(a) All work shall be done under supervision of the City Engineer and to his satisfaction. The City Engineer will decide all questions which may arise as to the quality and acceptability of materials furnished and work performed and as to the rate of progress of the work; all questions that may arise as to the interpretation of the plans and specifications; and all questions as to the acceptable fulfillment of the Contract by the Contractor.

(b) The City Engineer will have the authority to suspend the work wholly or in part for such periods as he may deem necessary due to the failure of the Contractor to correct conditions unsafe for workers or the general public; for failure to carry out provisions of the Contract; for failure to carry out orders; for conditions considered unsuitable for the prosecution of the work, including unfit weather; or for any other condition or reason deemed to be in the public interest. The Contractor shall not be entitled any additional payments arising out of any such suspensions.

(c) The Owner reserves the right to demand a certificate of compliance for a material or product used on the project. When the certificate of compliance is determined to be unacceptable to the City Engineer the Contractor may be required to provide engineering and testing services to guarantee that the material or product is suitable for use in the project, at its expense (see Sample of Certificate of Compliance).

2. PROTECTION AND RESTORATION OF PROPERTY AND LANDSCAPES

(a) The Contractor shall use every precaution to prevent injury or damage to wires, poles, or other property of public utilities; trees, shrubbery, crops, and fences along and adjacent to the right-of-way, all underground structures such as pipes and conduits, within or outside of the right-of-way; and the Contractor shall protect and carefully preserve all property marks until an authorized agent has witnessed or otherwise referenced their location.

(b) The Contractor shall be responsible for all damage or injury to property of any character, during the prosecution of the work, resulting from any act, omission, neglect, or misconduct in his manner or method of executing the work, or at any time due to defective work or materials, and said responsibility will not be released until the project shall have been completed and accepted.

(c) When or where any direct or indirect damage or injury is done to public or private property by or on account of any act, omission, neglect, or misconduct in the execution of the work, or as a result of the failure to perform work by the Contractor, the Contractor shall restore, at its own expense, such property to a condition similar or equal to that existing before such damage or injury was done, by repairing rebuilding, or otherwise restoring as may be directed, or the Contractor shall make good such damage or injury in an acceptable manner.

(d) The Contractor shall paint with tree paint all scars made on fruit or ornamental trees by equipment, construction operations, or the removal of limbs larger than one inch in diameter. Damaged trees must be replaced if so determined by the City Arborist, in his or her sole discretion.

CONTROL OF WORK (continued)

(e) If the Contractor fails to repair, rebuild or otherwise restore such property as may be deemed necessary, the Owner, after 48 hours notice, may proceed to do so, and the cost thereof may be deducted from any money due or which may become due the Contractor under the contract.

(f) It is the intent of the Parties that the Contractor preserve, to as great an extent as possible, the natural features of the site.

3. MAINTENANCE DURING CONSTRUCTION

The Contractor shall maintain the work during construction and until the project is accepted. This maintenance shall constitute continuous and effective work prosecuted day by day, with adequate equipment and workers to ensure that the structure is kept in satisfactory conditions at all times.

4. SAFETY PRECAUTIONS

Upon commencement of work, the Contractor shall be responsible for initiating, maintaining and supervising all safety precautions necessary to ensure the safety of employees on the site, other persons who may be affected thereby, including the public, and other property at the site or adjacent thereto.

5. PERMITS

It will be the responsibility of the Contractor to obtain all permits required for the operation of equipment in, or on, all city streets and public ways.

6. BARRICADES, WARNING SIGNS AND TRAFFIC OFFICERS

(a) The Contractor shall provide, erect and maintain all necessary barricades, suitable and sufficient lights, danger signals, signs and other traffic control devices, and shall take all necessary precautions for the protection of the work and safety of the public. Roadway closed to traffic shall be protected by effective barricades. Obstructions shall be illuminated during hours of darkness. Suitable warning signs shall be provided to control and direct traffic in a proper manner, as approved by the engineer.

(b) The Contractor will be held responsible for all damage to the work from traffic, pedestrians, animals or any other cause due to lack of adequate controlling devices.

(c) The Contractor shall provide such police officers as the City Engineer deems necessary for the direction and control of traffic within the site of project.

The work prescribed herein will not be paid for separately but will be paid for as part of the Contract Price unless specifically appearing as a bid item.

TEMPORARY FACILITIES

1. STORAGE FACILITIES

(a) The Contractor shall not store materials or equipment in a public right-of-way beyond the needs of one working day. Equipment and materials shall be stored in an approved location.

(b) The Contractor shall protect all stored materials from damage by weather or accident and shall insure adequate drainage at and about the storage location.

(c) Prior to final acceptance of the work all temporary storage facilities and surplus stored materials shall be removed from the site.

2. SANITARY FACILITIES

(a) The Contractor shall provide for toilet facilities for the use of the workers employed on the work.

(b) Temporary toilet facilities may be installed provided that the installation and maintenance conform with all State and local laws, codes, regulations and ordinances governing such work. They shall be properly lit and ventilated, and shall be kept clean at all times.

(c) Prior to final acceptance of the work all temporary toilet facilities shall be removed from the site.

3. TEMPORARY WATER

The Contractor shall make all arrangements with the local water department for obtaining water connections to provide the water necessary for construction operations and shall pay all costs.

4. TEMPORARY ELECTRICITY

The Contractor shall make all arrangements with the Public Service Company for obtaining electrical connections to provide the electrical power necessary for construction operations and security lighting and shall pay all electrical connection and power costs.

The Contractor shall be responsible with obtaining an electrical permit from the City Electrical Inspector.

INSURANCE REQUIREMENTS

Insurance shall be in such form as will protect the Contractor from all claims and liabilities for damages for bodily injury, including accidental death, and for property damage, which may arise from operations under this contract whether such operation by himself or by anyone directly or indirectly employed by him.

AMOUNT OF INSURANCE

A) Comprehensive General Liability:
Bodily injury or Property Damage - $2,000,000
Per occurrence and general aggregate

B) Automobile and Truck Liability:
Bodily Injury or Property Damage - $2,000,000
Per occurrence and general aggregate

Additionally, the Contractor shall purchase and maintain the following types of insurance:

A) Full Workers Comprehensive Insurance coverage for all people employed by the Contractor to perform work on this project. This insurance shall at a minimum meet the requirements of the most current laws of the State of New Hampshire.

B) Contractual Liability Insurance coverage in the amounts specified above under Comprehensive General Liability.

C) Product and Completed Operations coverage to be included in the amounts specified above under Comprehensive General Liability.

ADDITIONAL INSURED

All liability policies (including any excess policies used to meet coverage requirements) shall include the City of Portsmouth, New Hampshire as named Additional Insureds.

1) The contractor's insurance shall be primary in the event of a loss.
2) City of Portsmouth shall be listed as a Certificate Holder. The City shall be identified as follows:

City of Portsmouth
Attn: Legal Department
1 Junkins Avenue
Portsmouth, NH 03801

MEASUREMENT AND PAYMENT

1. MEASUREMENT OF QUANTITIES

(a) All work completed under the contract will be measured according to the United States standard measure.

(b) The method of measurement and computations to be used in determination of quantities of material furnished and of work performed under the contract will be those methods generally recognized as conforming to good engineering practice. Unless otherwise stated all quantities measured for payment shall be computed or adjusted for "in place" conditions.

(c) Unless otherwise specified, longitudinal measurements for area computations will be made horizontally, and no deductions will be made for individual fixtures having an area of 9 square feet or less. Unless otherwise specified, transverse measurements for area computations will be the dimensions shown on the plans or ordered in writing.

(d) Structures will be measured according to lines shown on the plans or as ordered unless otherwise provided for elsewhere in the specifications.

(e) In computing volumes of excavation, embankment, and borrow, the average end area method will be used. Where it is impracticable to measure by the cross-section method, acceptable methods involving three-dimensional measurement may be used. When measurement of borrow in vehicles is permitted, the quantity will be determined as 80 percent of the loose volume.

(f) In computing volumes of concrete, stone and masonry, the prismoidal method will be used. The term "ton" will mean the short ton consisting of 2,000 pounds avoirdupois.

(g) Except as specified below, all materials that are measured or proportioned by weight shall be weighed on scales which the Contractor has had sealed by the State or by a repairman registered by the Commissioner of Agriculture. All weighing shall be performed in a manner prescribed under the Rules and Regulations of the Bureau of Weights and Measures of the New Hampshire Department of Agriculture.

(h) Weighing of materials on scales located outside New Hampshire will be permitted for materials produced or stored outside the state, when requested by the Contractor and approved. Out-of-state weighing in order to be approved, must be performed by a licensed public weigh master or a person of equal authority in the state concerned on scales accepted in the concerned state.

(i) Each truck used to haul material being paid for by weight shall bear a plainly legible identification mark, and if required, shall be weighed empty daily at such times as directed.

(j) When material is weighed, the individual weight slips, which shall be furnished by the Contractor, for trucks, trailers, or distributors, shall show the following information: the date; the project; the material or commodity; the dealer or vendor; the Contractor or Subcontractor; the location of the scales; the vehicle registration number or other approved legible identification mark; the tare and net weights, with gross weights when applicable; and the weigher's signature or his signed initials.

MEASUREMENT AND PAYMENT (continued)

(k) The right is reserved to weight any truck, trailer, or distributor, at locations designated, before and after making deliveries to the project.

(l) Bituminous materials will be measured by the gallon or ton.

(m) When material is specified to be measured by the cubic yard but measurement by weight is approved, such material may be weighed and the weight converted to cubic yards for payment purposes. Necessary conversion factors will be determined by the Owner.

(n) The term "lump sum" when used as an item of payment will mean complete payment for the work described in the item.

(o) When a complete structure or structural unit (in effect, "lump sum" work) is specified as the unit of measurement, the unit will be construed to include all necessary fittings and accessories, so as to provide the item complete and functional. Except as may be otherwise provided, partial payments for lump sum items will be made approximately in proportion to the amount of the work completed on those items.

(p) Material wasted without authority will not be included in the final estimate.

2. SCOPE OF PAYMENT

(a) The Contractor shall receive and accept compensation provided for in the contract as full payment for furnishing all materials and for performing all work under the contract in a complete and acceptable manner and for all risk, loss, damage or expense of whatever character arising out of the nature of the work or the prosecution thereof.

(b) The Contractor shall be liable to the Owner for failure to repair, correct, renew or replace, at his own expense, all damage due or attributable to defects or imperfections in the construction which defects or imperfections may be discovered before or at the time of the final inspection and acceptance of the work.

(c) No monies, payable under the contract or any part thereof, except the first estimate, shall become due or payable if the Owner so elects, until the Contractor shall satisfy the Owner that the Contractor has fully settled or paid all labor performed or furnished for all equipment hired, including trucks, for all materials used, and for fuels, lubricants, power tools, hardware and supplies purchased by the Contractor and used in carrying out said contract and for labor and parts furnished upon the order of said Contractor for the repair of equipment used in carrying out said contract; and the Owner, if he so elects, may pay any and all such bills, in whole or in part, and deduct the amount of amounts so paid from any partial or final estimate, excepting the first estimate.

MEASUREMENT AND PAYMENT (continued)

3. COMPENSATION FOR ALTERED QUANTITIES

(a) Except as provided for under the particular contract item, when the accepted quantities of work vary from the quantities in the bid schedule the Contractor shall accept as payment in full, so far as contract items are concerned, at the original contract unit prices for the accepted quantities of work done. No allowance will be made for any increased expense, loss of expected reimbursement, or loss of anticipated profits suffered or claimed by the Contractor resulting either directly from such alterations or indirectly from unbalanced allocation among the contract items of overhead expense on the part of the Bidder and subsequent loss of expected reimbursements therefore or from any other cause.

(b) Extra work performed will be paid for at the contract bid prices or at the price negotiated between the Owner and the Contractor if the item was not bid upon. If no agreement can be negotiated, the Contractor will accept as payment for extra work, cost plus 15% (overhead and profit). Costs shall be substantiated by invoices and certified payroll.

4. PARTIAL PAYMENTS

Partial payments will be made on a monthly basis during the contract period. From the total amount ascertained as payable, an amount equivalent to ten percent (10%) of the whole will be deducted and retained by the Owner until such time as the work receives final acceptance.

5. FINAL ACCEPTANCE

Upon due notice from the Contractor of presumptive completion of the entire project, the City Engineer will make an inspection. If all construction provided for and contemplated by the contract is found complete to his satisfaction, this inspection shall constitute the final inspection and the City Engineer will make the final acceptance and notify the Contractor in writing of this acceptance as of the date of the final inspection.

If, however, the inspection discloses any work in whole or in part, as being unsatisfactory, the City Engineer will give the Contractor the necessary instructions for correction of such work, and the Contractor shall immediately comply with and execute such instructions. Upon correction of the work, another inspection will be made which shall constitute the final inspection provided the work has been satisfactorily completed. In such event, the City Engineer will make the final acceptance and notify the Contractor in writing of this acceptance as of the date of final inspection.

MEASUREMENT AND PAYMENT (continued)

6. ACCEPTANCE AND FINAL PAYMENT

(a) When the project has been accepted and upon submission by the Contractor of all required reports, completed forms and certifications, the Owner will review the final estimate of the quantities of the various classes of work performed. The Contractor may be required to certify that all bills for labor and material used under this contract have been paid.

(b) The Contractor shall file with the Owner any claim that the Contractor may have regarding the final estimate at the same time the Contractor submits the final estimate. Failure to do so shall be a waiver of all such claims and shall be considered as acceptance of the final estimate. From the total amount ascertained as payable, an amount equal to ten percent (10%) of the whole will be deducted and retained by the Owner for the guaranty period. This retainage may be waived, at the discretion of the City, provided the required Maintenance Bond has been posted. After approval of the final estimate by the Owner, the Contractor will be paid the entire sum found to be due after deducting all previous payments and all amounts to be retained or deducted under the provisions of the contract.

(c) All prior partial estimates and payments shall be subject to correction in the final estimate and payment.

7. GENERAL GUARANTY AND WARRANTY OF TITLE

(a) Neither the final certification of payment nor any provision in the contract nor partial or entire use of the improvements embraced in this Contract by the Owner or the public shall constitute an acceptance of work not done in accordance with the Contract or relieve the Contractor of liability in respect to any express or implied warranties or responsibility for faulty materials or workmanship. The Contractor shall promptly remedy any defects in the work and pay for any damage to other work resulting therefrom which shall appear within a period of twelve (12) months from the date of final acceptance of the work. The Owner will give notice of defective materials and work with reasonable promptness.

(b) No material, supplies or equipment to be installed or furnished under this Contract shall be purchased subject to any chattel mortgage or under a conditional sale, lease purchase or other agreement by which an interest therein or in any part thereof is retained by the Seller or supplier. The Contractor 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 together with all improvements and appurtenances constructed or placed thereon by him to the Owner free from any claims, liens or charges. Neither the Contractor nor any person, firm or corporation furnishing any material or labor for any work covered by this Contract shall have the right to a lien upon any improvements or appurtenances thereon.

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 Contractor for their protection or any rights under any law permitting such persons to look to funds due the Contractor in the hands of the Owner. The provisions of this paragraph shall be inserted in all subcontractors and material contracts and notice of its provisions shall be given to all persons furnishing materials for the work when no formal contract is entered into for such materials.

MEASUREMENT AND PAYMENT (continued)

8. NO WAIVER OF LEGAL RIGHTS

(a) Upon completion of the work, the Owner will expeditiously make final inspection and notify the Contractor of acceptance. Such final acceptance, however, shall not preclude or stop the Owner from correcting any measurement, estimate, or certificate made before or after completion of the work, nor shall the Owner be precluded or be stopped from recovering from the Contractor or his Surety, or both, such overpayment as it may sustain by failure on the part of the Contractor to fulfill his obligations under the contract. A waiver on the part of the Owner of any breach of any part of the contract shall not be held to be a waiver of any other or subsequent breach.

(b) The Contractor, without prejudice to the Contract shall be liable to the terms of the Contract, shall be liable to the Owner for latent defects, fraud or such gross mistakes as may amount to fraud, and as regards the Owner's right under any warranty or guaranty.

9. TERMINATION OF CONTRACTOR'S RESPONSIBILITY

Whenever the improvement provided for by the Contract shall have been completely performed on the part of the Contractor and all parts of the work have been released from further obligations except as set forth in his bond and as provided in Section 8 above.

SECTION 01010
SUMMARY OF WORK

PART 1 - GENERAL

1.01 REFERENCES

A. Work included to be performed under this contract shall include all work described in the following sections.

B. Cooperate and coordinate with all trades in executing the work described herein.

C. The materials and workmanship to be provided, including all accessories, shall conform with all local, State and Federal statues, regulations and safety codes, and applicable test procedures of the following organizations: Publications and amendments current edition referenced, as of the date of issue of these specifications, shall be applicable.

1. American Society for Testing and Materials (ASTM)

2. 2006 International Building Code

3. American National Standards Institute (ANSI)

4. Federal Specifications (F.S.)

5. Underwriters' Laboratories (UL)

6. National Board of Fire Underwriters (NFBU)

7. Factory Mutual (FM)

8. Portland Cement Association (PCA)

9. National Fire Protection Association (NFPA)

1.03 SCOPE

A. The general scope of work to be performed under this contract is as follows:

   1. Provide all labor, equipment, transportation, supervision and materials necessary to replacement of six overhead doors; widening of four apparatus entryways and improving overhead clearance between column lines 2 and 3.

   2. Provide all work indicated or reasonably implied in the Contract Specifications to accomplish thorough completion of the work.

B. The work shall consist of, but not necessarily be limited to the following:

1. The work consists of replacement of six overhead doors with replicas of original historic carriage house doors; widening of four apparatus entryways; removal of five structural brick masonry pilasters; replacement of masonry pilasters with structural steel columns; providing temporary support of brick façade to remain; replacement of four lintel beams; replacement of overhead structural steel on column line D between column lines 2 and 3; rebuilding of brick masonry around structural steel to match existing adjacent masonry; cleaning of existing masonry; disposal of all construction materials, refuse and debris.

2. Contractor shall be responsible for paying all fees and acquiring all permits, as required.

3. Contractor shall provide transport of all materials and labor to and from the project site and be responsible for site security during the construction period, unless indicated otherwise by City.

5. Perform all related work necessary to accomplish the work described herein. Clean work site daily as work progresses.

7. Achieve substantial completion of the work no later than _____, 2008, and final completion no later than _____, 2008.

C. This contract does not include the following:

1. Asbestos and hazardous material demolition, handling and removal. All hazardous material related work is the responsibility of the City.

D. Contractor is advised to refer to detailed work descriptions outlined in the Technical Sections of this Specification to obtain the full description of work.

1.05 JOB CONDITIONS

A. Schedule of work shall be coordinated with the City of Portsmouth, Station 1 Fire Chief to minimize disruption to Contractor operations. The facility will be occupied during construction and must remain accessible to Fire Department personnel. Project security shall be the Contractor's responsibility during the construction period. City Police shall be notified to assist in this regard. The interruption of any utility or service shall be scheduled and the Contractor shall notify the City 48 hours in advance of any such interruption and shall proceed only on the City's approval.

B. Before submitting proposal, Contractor shall visit the site, examine its condition, and thoroughly acquaint himself with the obstacles and advantages for performing the work. Contractor shall also study the specifications of the work to be performed and compare them with the information gathered by the examination of the site.

1.06 QUALITY ASSURANCES

A. Acceptance of Installation Conditions:

1. Contractor shall be fully responsible for the proper execution and performance of the work described herein. It shall be his responsibility to inspect all installation conditions which may affect his work adversely. He shall report to the Engineer in writing prior to commencing any portion of his work, any failure to provide suitable installation conditions for each portion of the work. Commencement of work by Contractor will be considered as unqualified acceptance of installation conditions.

2. Coordinate work with all trade subcontractors to ensure conformance to applicable tolerances for proper and complete installations of all work.

B. Product Acceptance Standards:

1. Where the words “or approved equal” or other synonymous terms are used, it is expressly understood that they shall mean that the acceptance of any such submission is vested in the Engineer whose decision shall be final and binding upon all concerned. All submissions are subject to such review.

C. Review of Non-Specified Products:

1. For acceptance of products other than those specified, Contractor shall submit written approval from the selected vendor that such products will fully preserve manufacturer’s material warranty coverage. Approval documentation shall clearly define and describe the product for which approval is obtained and shall be accompanied by manufacturer’s literature, specifications, drawings, cuts performance data, list of reference of other information necessary to completely describe the item.

2. Substitutions will not be considered if their implementation requires a substantial revision of the Contract Documents in order to accommodate their use.

D. Manufacturer’s Insignia or Identification:

1. The installation of any item, element or assembly which bears on any exposed finish surface any name, trademark, or other insignia which is intended to identify the manufacturer, the vendor, or other resources from which such object has been obtained is prohibited. Also forbidden is the installation of any articles which bear visible evidence that an insignia, name or other device, has been removed.

E: Contractor’s Insignia or Identification:

1. Contractor shall not be permitted display and/or install any sign, item, element or assembly which bears any name, trademark, or other insignia

which is intended to identify the Contractor, subcontractors, vendors, or other resources.

1.07 SUBMITTALS

A. Submit all data, catalogue cuts, samples required for Engineer review and approval prior to commencement of installation. All submittals shall be made within four (4) days following written bid acceptance.

B. Product manufacturer's written recommendations, installation manuals and schedules.

F. Samples.

1. Samples of all clay and glazed brick materials showing color, texture and appearance compared to existing masonry to remain; paint colors, and overhead door materials shall be submitted to the Engineer for review in accordance with the requirements state herein.

2. Painted coatings shall be of colors approved by the Engineer.

1.08 GUARANTEES

A. Bid submission is the Contractor's implicit certification that he has read and is familiar with the codes, reference materials, installation manuals, guidelines and other requirements cited in this specification and on the plans. The Contractor shall guarantee material and workmanship to be compatible and suitable for the purpose specified herein. If any material provided hereunder shall within three years from date of substantial completion be found to be inadequate or defective as to installation, material or workmanship, the Contractor shall replace same at no expense to the City. Additional guarantees may be indicated in the individual specification sections.

B. Correction of Defective Work:

1. Should the work under this contract be found defective in materials or workmanship, it shall be corrected in accord with the following provisions: If, within three years after the date of substantial completion or within such longer period of time as may be prescribed by the Contract Documents, the Contractor shall correct it promptly after receipt of written notice from the City. The City shall give such notice promptly after discovery of the condition. If exploratory work is required to determine the cause of the defects, the cost of this work shall be borne by the Contractor. The Contractor shall be responsible for continuing corrections to defective work beyond the guarantee period if initial corrective measures were executed per the requirements as noted above but later found to be inadequate or not acceptable after the specified guarantee period.

END OF SECTION

SECTION 01016
CONTRACTOR FURNISHED ITEMS

PART 1 - GENERAL

1.01 RELATED WORK SPECIFIED ELSEWHERE

A. Summary of Work - Section 01010

1.02 GENERAL ITEMS TO BE SUPPLIED BY THE CONTRACTOR

The Contractor shall supply everything necessary to complete the work called for in these specifications and as described in Section 01010.

A. It shall be the Contractor's responsibility to repair or replace any damage to permanent surfaces or finish materials caused by removal or construction activities.

B. All tools, equipment, hoists, scaffolds, safety equipment, and other incidental items required to complete the job.

C. All permits and licenses required by law to carry out the work.

D. Transportation of all equipment and material to the site, unless indicated otherwise by City, and unloading, storing, protecting and erection of those materials.

E. It is the Contractor's responsibility to furnish security as required for the protection of the work of this contract and his own equipment and materials until the time of final acceptance of the work by the City.

F. Sole responsibility for protection of existing facilities, new work, the public, etc., lies with the Contractor. He shall carefully plan all work and erect all required temporary moisture protection, shoring, barriers, barricades, closures, drop cloth etc., as required to protect existing facilities, new work, grounds and landscape, and the public, and maintain such protective devices in proper condition for the duration of the contract.

END OF SECTION

SECTION 01040
COORDINATION AND PHASING

PART 1 — GENERAL

1.01 COORDINATION AND PHASING

A. Initiate Project Meetings coordinating procedures before work in the field begins. Portsmouth Fire Station will be occupied during construction. Access to second floor level and remaining apparatus floor space not under construction in a specific phase shall be maintained in service for fire apparatus and personnel. Schedule and coordinate work with City's Fire Department representative to minimize delays. Resolve schedule, sequencing, interfacing, and priorities of simultaneous work among involved parties to advance the Project's planned progress and achieve specified results with special regard to protection of new roofing materials.

B. Strategies for expediting completion of the work include the following:

1. Phasing to control disruption to planned progress and contain disruption within pre-determined limits.

2. Pre-purchase of all materials is intended to minimize delays during construction.

3. An area suitable for location of a project superintendent trailer and/or an equipment/material trailer, shall be provided by the City of Portsmouth at the Contractor's request.

C. Continue coordinating procedures by actively controlling job conditions as follows:

1. Verify that products are stored in orderly fashion, under conditions complying with manufacturer's instructions and/or these specifications, and at planned locations.

2. Verify that environmental conditions before, during, and after execution of work comply with industry standards and/or these specification.

3. Verify that tolerances and clearances are maintained as work progresses.

4. Inspect job conditions continuously and in compliance with these specifications. Allow no work to proceed until unsatisfactory conditions, which would prevent execution of new work, are corrected.

5. Notify the Engineer forty eight (48) hours prior to required project inspections as indicated in the specifications sections, and Contractor's approved work schedule. Failure to provide such notification may result in removal and re-installation of work in order to provide Engineer an unobstructed view of elements subject to inspection, all of which shall be at no additional cost to the City.

1.02 EXISTING UTILITIES, INTERRUPTIONS

A. Where connections or other work specified in the Contract necessitates an interruption of any service, first make the necessary arrangements for each interruption of service with the City and responsible Public Utility. Notify the City's Representative at least seventy-two (72) hours in advance of intent to connect, disconnect, turn on, or turn off any utility services. The City will turn off facilities and other services required for those existing utilities under the exclusive control of the City. Interruptions in City services will occur during normal working hours wherever possible as approved by the City. If the City requires interruptions in services to occur on weekends or at night as approved by the City, it shall be done at no additional cost to the City.

B. Modifications, extension, and/or tests of the City's existing utility service systems will be done under the observation of the City's Representative.

C. Provide all necessary labor, materials and equipment to make necessary disconnections and connections as required.

D. Provide advanced notice to public utility companies as required by law, and provide proper disposition of all existing pipe lines, conduits, sewers, drains, poles, wiring, and other utilities that in any way interfere with the work. Immediately notify the City and appropriate authorities when coming across unknown utility lines, and await decisions as to disposition of same. When an existing utility line must be cut and plugged or capped, moved, or relocated, or has become damaged, notify the City and the Utility Company involved, and assure protection and support. Upon approval by the Utility Company, move the utilities to adjust with the new work. Be responsible for protection of and all damage caused to existing, active utilities under the work of this Contract, wherever shown or noted in other documents/records available to the Contractor.

1.03 DISRUPTIONS

A. Contractor shall schedule forty eight (48) hours ahead of time with the City all work which will disrupt the normal operation of the City's existing facilities. Disruption includes noise, work activities within an occupied area, or interruption of utilities or services.

PART 2 - INSTALLATION

2.01 DEBRIS, CHUTES, AND DROP CLOTHS

A. Plastic sheeting, drop cloths and all other necessary means shall be neat in appearance and utilized by the Contractor to minimize dispersal of dust and debris on or about the project site and to minimize air borne particulate dispersal.

B. Clean as work progresses and at end of each work day.

END OF SECTION

SECTION 01300
SUBMITTALS

PART 1 - GENERAL

1.01 CONSTRUCTION SCHEDULES

A. Prepare a detailed schedule in a bar chart or Critical Path Management format and arrange in the order of occurance for the start of each work item. Divide the chart into weekly segments.

B. Include the following activities.

1. Project and or system start and completion date.

2. Major element construction and completion date.

3. Substantial completion date.

4. Final completion date.

C. Identify the scheduled percentage complete for the total project beginning the first day of each week.

D. Identify any special construction phasing required to coordinate Contractor/City operation needs.

E. Identify required Engineer inspections as indicated herein.

F. Furnish a sub schedule to define critical portions of entire schedule as applicable.

G. Submit one copy to City and one copy to Engineer.

H. Upon review by all concerned parties, revise the schedule, as necessary within two (2) calendar days as requested and distribute two (2) copies to each the City and Engineer.

1.02 SUBMITTAL REVIEW SCHEDULE

A. Submit to the Engineer within four (4) calendar days after bid acceptance all required submittals.

B. Include the following items:

1. Submit copies of product data sheets, and samples for each type of masonry material to be used on the project.

2. Submit work schedule, including expected starting and ending dates, as well as anticipated work progress milestones. Float time for weather related delays is to be included in schedule.

3. Submit roster of personnel to be working on project.

4. Submit listing of equipment to be utilized.

5. Submit means and method of accessing site so as to not impair ongoing Fire Department operations.

6. Submit means and method for proper, legal debris disposal, daily site clean-up, and control of debris during construction operations.

7. Installation manuals.

8. Material ordering dates.

9. Product site delivery or receipt dates.

1.04 PRODUCT DATA, AND SAMPLES

A. Submit manufacturers product data to the Engineer in packets of two (2) copies each minimum for distribution and filing as Engineer may prescribe and one (1) copy to the City. Accompany each submission with an appropriate transmittal form. Attach a properly completed Submittal Form with Submittal Number for each individual product type. Include complete manufacturers specifications, spec. data, performance data, certified laboratory testing report data, installation instructions, health and safety precautions, and maintenance instructions, and show illustrated capacities, characteristic, controls, and other pertinent information for complete product use and description. If more than one product size or type is shown on any printed sheet, indicate clearly the intended items(s) for review.

B. When rejected or revision required, the Engineer and/or City will retain one copy and return to the Contractor one copy.

C. For the purpose of this Section, the term “samples” shall include requirements for models and templates.

D. Provide and submit samples to the Engineer by or through the Contractor only. Samples “rejected” or designated as “resubmit” shall be picked up at the Engineer’s office in a timely fashion or will be disposed of. Resubmit new samples.

E. Submit samples in duplicate unless otherwise specified and clearly identify. Accompany each with an appropriate transmittal form and Submittal Form. Provide each sample type with an individual project Submittal Number.

F. Identify on each sample the following information:

1. Project Submittal Number.

2. Project Name or Number.

3. Submission Date.

1.05 SUBMITTAL - PRODUCT DESCRIPTION

A. Complete information on the Form accurately from information in the Contract Documents for each individual product, manufacturer's product data, and product sample. Include it with the submittal to the Engineer for review.

END OF SECTION

SECTION 01322
PHOTOGRAPHIC DOCUMENTATION

PART 1 -GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes administrative and procedural requirements for the following:

1. Preconstruction photographs.
2. Periodic construction photographs.
3. Final Completion construction photographs.

B. Related Sections include the following:

1. Division 1 Section "Submittals" for submitting photographic documentation.

1.3 ALLOWANCE

A. Costs: Photographer's services are included under the cash allowance for construction photographs established in Division 1 Section "Allowances."

1.4 UNIT PRICES

A. Basis for Bids: Base number of construction photographs on four photographs per week over the duration of Project.

1.5 SUBMITTALS

A. Qualification Data: For photographer.

B. Key Plan: Submit key plan of Project site and building with notation of vantage points marked for location and direction of each photograph. Indicate elevation of construction. Include same label information as corresponding set of photographs.

C. Construction Photographs: Submit two prints of each photographic view within seven days of taking photographs.

1. Format: 8-by-10-inch (203-by-254-mm) smooth-surface matte prints on single-weight commercial-grade photographic paper, enclosed back to back in clear plastic sleeves that are punched for standard 3-ring binder.

2. Identification: On back of each print, provide an applied label or rubber-stamped impression with the following information:

    a. Name of Project.
    b. Name and address of photographer.
    c. Name of Engineer and Construction Manager.
    d. Name of Contractor.
    e. Date photograph was taken if not date stamped by camera.
    f. Description of vantage point, indicating location, direction (by compass point), and elevation or story of construction.
    g. Unique sequential identifier.

1. Negatives: Submit a complete set of photographic negatives in individually protected negative sleeves as a Project Record Document. Identify negatives with label matching photographic prints.

2. Digital Images: Submit a complete set of digital image electronic files as a Project Record Document on CD-ROM. Identify electronic media with date photographs were taken. Submit images that have same aspect ratio as the sensor, uncropped.

3. Transcript: Prepared on 8-1/2-by-11-inch (215-by-280-mm) paper, punched and bound in heavy-duty, 3-ring, vinyl-covered binders. Mark appropriate identification on front and spine of each binder. Include a cover sheet with same label information as corresponding videotape. Include name of Project and date of videotape on each page.

1.6 QUALITY ASSURANCE

A. Photographer Qualifications: An individual who has been regularly engaged as a photographer of construction projects for not less than three years.

1.7 COORDINATION

A. Auxiliary Services: Cooperate with photographer and provide auxiliary services requested, including access to Project site and use of temporary facilities, including temporary lighting required to produce clear, well-lit photographs without obscuring shadows.

1.8 USAGE RIGHTS

A. Obtain and transfer copyright usage rights from photographer to City for unlimited reproduction of photographic documentation.

1.9 EXTRA PRINTS

A. Negatives: Photographer shall retain photographic negatives for three years after date of Substantial Completion. During this period, photographer shall fill orders by Engineer**,** or City for extra prints. Photographer shall price extra prints at prevailing local commercial prices.

B. Extra Prints: If requested by Engineer, photographer shall prepare extra prints of photographs. Photographer shall distribute these prints directly to designated parties who will pay the costs for extra prints.

PART 2 -PRODUCTS

2.1 PHOTOGRAPHIC MEDIA

A. Digital Images: Provide images in uncompressed TIFF format, produced by a digital camera with minimum sensor size of 6.0 megapixels, and at an image resolution of not less than 1600 by 1200 pixels.

PART 3 -EXECUTION

3.1 CONSTRUCTION PHOTOGRAPHS

A. Photographer: Engage a qualified photographer to take construction photographs.

B. General: Take photographs using the maximum range of depth of field, and that are in focus, to clearly show the Work. Photographs with blurry or out-of-focus areas will not be accepted.

1. Maintain key plan with each set of construction photographs that identifies each photographic location.

C. Film Images:

1. Date Stamp: Unless otherwise indicated, date and time stamp each photograph as it is being taken so stamp is integral to photograph.

2. Field Office Prints: Retain one set of prints of progress photographs in the field office at Project site, available at all times for reference. Identify photographs same as for those submitted to Engineer.

D. Digital Images: Submit digital images exactly as originally recorded in the digital camera, without alteration, manipulation, editing, or modifications using image-editing software.

1. Date and Time: Include date and time in filename for each image.

2. Field Office Images: Maintain one set of images on CD-ROM in the field office at Project site, available at all times for reference. Identify images same as for those submitted to Engineer

E. Preconstruction Photographs: Before commencement of demolition take color, digital photographs of Project site and surrounding properties, including existing items to remain during construction, from different vantage points, as directed by Engineer

.

1. Flag construction limits before taking construction photographs.

2. Take a minimum of eight photographs to show existing conditions adjacent to property before starting the Work.

3. Take a minimum of eight photographs of existing buildings either on or adjoining property to accurately record physical conditions at start of construction.

4. Take additional photographs as required to record settlement or cracking of adjacent structures, pavements, and improvements.

F. Periodic Construction Photographs: Take 12 color, digital photographs weekly, with timing each month adjusted to coincide with the cutoff date associated with each Application for Payment. Select vantage points to show status of construction and progress since last photographs were taken.

G. Engineer Directed Construction Photographs: From time to time, Engineer will instruct photographer about number and frequency of color, digital photographs and general directions on vantage points. Select actual vantage points and take photographs to show the status of construction and progress since last photographs were taken.

1. Frequency: Take photographs weekly, with timing each month adjusted to coincide with the cutoff date associated with each Application for Payment.
2. Vantage Points: Following suggestions by Engineer and Contractor, photographer to select vantage points. During each of the following construction phases, take not less than two of the required shots from same vantage point each time to create a time-lapse sequence as follows:
   a. Commencement of the Work, through completion of demolition.
   b. Above-grade structural framing.
   c. Exterior building masonry.
   d. Interior Work, through date of Substantial Completion.

I. Final Completion Construction Photographs: Take eight color photographs after date of Substantial Completion for submission as Project Record Documents. Engineer will direct photographer for desired vantage points.

1. Do not include date stamp.

J. Additional Photographs: Engineer may issue requests for additional photographs, in addition to periodic photographs specified. Additional photographs will be paid for by Change Order and are not included in the Contract Sum Three days' notice will be given, where feasible.

1. In emergency situations, take additional photographs within 24 hours of request.

2. Circumstances that could require additional photographs include, but are not limited to, the following:

a. Special events planned at Project site.
b. Immediate follow-up when on-site events result in construction damage or losses.
c. Photographs to be taken at fabrication locations away from Project site. These photographs are not subject to unit prices or unit-cost allowances.
d. Substantial Completion of a major phase or component of the Work.
e. Extra record photographs at time of final acceptance.
f. City's request for special publicity photographs.

END OF SECTION

SECTION 01351

SPECIAL PROCEDURES FOR HISTORIC TREATMENT

PART 1 -GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, apply to this Section.

1.2 SUMMARY

A. This Section includes special procedures for historic treatment on Project including, but not limited to, the following:

1. Storage and protection of existing historic materials.
2. Temporary protection of historic materials during construction.
3. Protection during application of chemicals.
4. Protection during use of heat-generating equipment.
5. Historic treatment procedures.
6. Removal of bird excrement.

B. Related Sections include the following:

1. Division 1 Section "Photographic Documentation" for preconstruction photographs taken before historic treatment.

1.3 DEFINITIONS

A. "Preservation": To apply measures necessary to sustain the existing form, integrity, and materials of a historic property. Work may include preliminary measures to protect and stabilize the property.

B. "Rehabilitation": To make possible a compatible use for a property through repair, alterations, and additions while preserving those portions or features that convey its historical, cultural, or architectural values.

C. "Restoration": To accurately depict the form, features, and character of a property as it appeared at a particular period of time by means of the removal of features from other periods in its history and the reconstruction of missing features from the restoration period.

D. "Reconstruction": To reproduce in the exact form and detail a building, structure, or artifact as it appeared at a specific period in time.

E. "Stabilize": To apply measures designed to reestablish a weather-resistant enclosure and the structural reinforcement of an item or portion of the building while maintaining the essential form as it exists at present.

F. "Protect and Maintain": To remove deteriorating corrosion, reapply protective coatings, and install

protective measures such as temporary guards; to provide the least degree of intervention.

G. "Repair": To stabilize, consolidate, or conserve; to retain existing materials and features while employing as little new material as possible. Repair includes patching, piecing-in, splicing, consolidating, or otherwise reinforcing or upgrading materials. Within restoration, repair also includes limited replacement in kind, rehabilitation, and reconstruction, with compatible substitute materials for deteriorated or missing parts of features when there are surviving prototypes.

H. "Replace": To duplicate and replace entire features with new material in kind. Replacement includes the following conditions:

1. Duplication: Includes replacing elements damaged beyond repair or missing. Original material is indicated as the pattern for creating new duplicated elements.
2. Replacement with New Materials: Includes replacement with new material when original material is not available as patterns for creating new duplicated elements.
3. Replacement with Substitute Materials: Includes replacement with compatible substitute materials. Substitute materials are not allowed, unless otherwise indicated.

I. "Remove": To detach items from existing construction and legally dispose of them off-site unless indicated to be removed and salvaged or removed and reinstalled.

J. "Remove and Stockpile": To detach items from existing construction and store them to be ready for reuse.

K. "Remove and Reinstall": To detach items from existing construction, repair and clean them for reuse, and reinstall them where indicated.

L. "Existing to Remain" or "Retain": Existing items of construction that are not to be removed and that are not otherwise indicated to be removed and salvaged, or removed and reinstalled.

M. "Material in Kind": Material that matches existing materials, as much as possible, in species, cut, color, grain, and finish.

1.4 SUBMITTALS

A. Historic Treatment Program: Submit a written plan for each phase or process including protection of surrounding materials during operations. Describe in detail materials, methods, and equipment to be used for each phase of work.

B. Alternative Methods and Materials: If alternative methods and materials to those indicated are proposed for any phase of work, provide a written description including evidence of successful use on other, comparable projects, and program of testing to demonstrate effectiveness for use on this Project.

C. Qualification Data: For historic treatment specialists and supervisory personnel. Include list of completed projects with the scope of work and budget for each.

D. Photographs or Videotape: Show existing conditions of adjoining construction and site improvements, including finish surfaces, that might be misconstrued as damage caused by historic

treatment operations. Submit to Engineer before work begins.

E. Record Documents: Include modifications to manufacturer's written instructions and procedures, as documented in the historic treatment preconstruction conference and as the Work progresses.

1.5 QUALITY ASSURANCE

A. Historic Treatment Specialist Qualifications: A firm that employs personnel, including supervisory personnel, experienced and skilled in the processes and operations indicated.

B. Historic Treatment Preconstruction Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Management and Coordination."

1. Review manufacturer's written instructions for precautions and effects of products and procedures on building materials, components, and vegetation.

a. Record procedures established as a result of the review and distribute to affected parties.

1.6 STORAGE AND PROTECTION OF HISTORIC MATERIALS

A. Removed and Salvaged Historic Materials:

1. Clean salvaged historic items.
2. Pack or crate items after cleaning. Identify contents of containers.
3. Store items in a secure area until delivery to City.
4. Transport items to City's storage area on-site as designated by City.
5. Protect items from damage during transport and storage.
6. Do not dispose of items removed from existing construction without prior written consent of City.

B. Removed and Reinstalled Historic Materials:

1. Clean and repair historic items to functional condition adequate for intended reuse.
2. Pack or crate items after cleaning and repairing. Identify contents of containers.
3. Protect items from damage during transport and storage.
4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.

C. Existing Historic Materials to Remain: Protect construction indicated to remain against damage and soiling during historic treatment. When permitted by Engineer, items may be removed to a suitable, protected storage location during historic treatment, cleaned and reinstalled in their original locations after historic treatment operations are complete.

D. Storage and Protection: When removed from their existing location, store historic materials within a weathertight enclosure where they are protected from wetting by rain, snow, or ground water, and temperature variations. Secure stored materials to protect from theft.

1. Identify removed items with an inconspicuous mark indicating their original location.

1.7 PROJECT-SITE CONDITIONS

A. Exterior Cleaning and Repairing:

1. Proceed with the work only when forecasted weather conditions are favorable.

a. Wet Weather: Do not attempt repairs during rainy or foggy weather. Do not apply primer, paint, putty, or epoxy when the relative humidity is above 80 percent. Do not remove exterior elements of structures when rain is forecast or in progress.
b. Do not perform exterior wet work when the air temperature is below 40 deg F (5 deg C).
c. Do not begin cleaning, patching, or repairing when there is any likelihood of frost or freezing.
d. Do not begin cleaning when either the air or the surface temperature is below 45 deg F (7 deg C) unless approved means are provided for maintaining a 45 deg F (7 deg C) temperature of the air and materials during, and for 48 hours subsequent to, cleaning.

2. Perform cleaning and rinsing of the exterior only during daylight hours.

B. City will occupy portions of building immediately adjacent to historic treatment area. Conduct historic treatment so City's operations will not be disrupted. Provide not less than 72 hours' notice to City of activities that will affect City's operations.

PART 2 -PRODUCTS - (Not Used)

PART 3 -EXECUTION

3.1 PROTECTION, GENERAL

A. Comply with manufacturer's written instructions for precautions and effects of products and procedures on adjacent building materials, components, and vegetation.

B. Ensure that supervisory personnel are present when work begins and during its progress.

C. Temporary Protection of Historic Materials during Construction:

1. Protect existing materials during installation of temporary protections and construction. Do not deface or remove existing materials unless specifically required by the plans.
2. Attachments of temporary protection to existing construction shall be approved by Engineer prior to installation.

D. Existing Drains: Prior to the start of work or any cleaning operations, test drains and other water removal systems to ensure that drains and systems are functioning properly. Notify Engineer immediately of drains or systems that are stopped or blocked. Do not begin Work of this Section until the drains are in working order.

1. Provide a method to prevent solids including stone or mortar residue from entering the drains or drain lines. Clean out drains and drain lines that become blocked or filled by sand or any other solids because of work performed under this Contract.

2. Protect storm drains from pollutants. Block drains or filter out sediments, allowing only clean water to pass.

3.2 PROTECTION DURING APPLICATION OF CHEMICALS

A. Protect persons, motor vehicles, surrounding surfaces of building being restored, building site, plants, and surrounding buildings from harm or damage resulting from applications of chemical cleaners and paint removers.

B. Comply with requirements in Division 1 Section "Temporary Facilities and Controls."

C. Cover adjacent surfaces with materials that are proven to resist chemical cleaners selected for Project unless chemicals being used will not damage adjacent surfaces. Use covering materials that contain only waterproof, UV-resistant adhesives. Apply masking agents to comply with manufacturer's written instructions. Do not apply liquid masking agent to painted or porous surfaces. When no longer needed, promptly remove masking to prevent adhesive staining.

D. Do not clean surfaces during winds of sufficient force to spread cleaning solutions to unprotected surfaces.

E. Neutralize and collect alkaline and acid wastes and dispose of off City's property.

F. Dispose of runoff from chemical operations by legal means and in a manner that prevents soil erosion, undermining of paving and foundations, damage to landscaping, and water penetration into building interiors.

3.3 PROTECTION DURING USE OF HEAT-GENERATING EQUIPMENT

A. Comply with the following procedures while performing work with heat-generating equipment, including welding, cutting, soldering, brazing, paint removal with heat, and other operations where open flames or implements utilizing heat are used:

1. Obtain City's approval for operations involving use of open-flame or welding equipment.

    a. Notification shall be given for each occurrence and location of work with heat-generating equipment.

2. As far as practical, use heat-generating equipment in shop areas or outside the building.

3. Before work with heat-generating equipment commences, furnish personnel to serve as a fire watch (or watches) for location(s) where work is to be performed.

4. Do not perform work with heat-generating equipment in or near rooms or in areas where flammable liquids or explosive vapors are present or thought to be present. Use a combustible gas indicator test to ensure that the area is safe.

5. Remove and keep the area free of combustibles, including, rubbish, paper, waste, etc., within area of operations.

    a. If combustible material cannot be removed, provide fireproof blankets to cover such materials.

1. Where possible, furnish and use baffles of metal or gypsum board to prevent the spraying of sparks or hot slag into surrounding combustible material.
2. Prevent the extension of sparks and particles of hot metal through open windows, doors, holes, and cracks in floors, walls, ceilings, roofs, and other openings.
3. Inspect each location of the day's work not sooner than 30 minutes after completion of operations to detect hidden or smoldering fires and to ensure that proper housekeeping is maintained.

B. Where sprinkler protection exists and is functional, maintain it without interruption while operations are being performed. If operations are performed close to automatic sprinkler heads, shield the individual heads temporarily with guards.

3.4 HISTORIC TREATMENT PROCEDURES

A. The principal aim of preservation work is to halt the process of deterioration and stabilize the item's condition, unless otherwise indicated. Repair is required where specifically indicated. The following procedures shall be followed:

1. Retain as much existing material as possible; repair and consolidate rather than replace.
2. Use additional material or structure to reinforce, strengthen, prop, tie, and support existing material or structure.
3. Use reversible processes wherever possible.
4. Use traditional replacement materials and techniques. New work shall be distinguishable to the trained eye, on close inspection, from old work.
5. Record the work before the procedure with preconstruction photos and during the work with periodic construction photos. Photographic documentation is specified in Division 1 Section Photographic Documentation.

B. Prohibit smoking by personnel performing work on or near historic structures.

C. Obtain Engineer's review and written approval in the form of a Constructive Change Directive or Supplemental Instruction before making changes or additions to construction or removing historic materials.

D. Notify Engineer of visible changes in the integrity of material or components whether due to environmental causes including biological attack, UV degradation, freezing, or thawing; or due to structural defects including cracks, movement, or distortion.

1. Do not proceed with the work in question until directed by Engineer.

E. Where missing features are indicated to be repaired or replaced, provide features whose designs are based on accurate duplications rather than on conjectural designs, subject to the approval of Engineer and Preservation Specialist.

F. Where Work requires existing features to be removed, cleaned, and reused, perform these operations without damage to the material itself, to adjacent materials, or to the substrate.

G. Identify new or replacement materials and features with inconspicuous, permanent marks to distinguish them from original materials. Record the legend of identification marks and the locations of these marks on Record Drawings.

H. When cleaning, match samples of existing materials that have been cleaned and identified for acceptable cleaning levels. Avoid overcleaning to prevent damage to existing materials during cleaning.

3.5 REMOVAL OF BIRD EXCREMENT

A. General: Before disturbing accumulated bird excrement, consult with an occupational medicine physician, industrial hygienist, and authorities having jurisdiction to determine acceptable removal procedures and appropriate protective measures for personnel.

B. Removing Bird Excrement: Treat bird excrement before its removal as required by authorities having jurisdiction.

1. Prior to removal, dampen excrement to prevent it from becoming airborne.
2. Use only nonmetallic tools (plastic spatulas and brushes with natural fiber or nylon bristles, or their equivalent) to remove excrement.
3. Collect removed excrement and legally disposed of off site.
4. Perform bird excrement removal work from the outside of the building with windows and other openings in the building closed.

END OF SECTION 01351

SECTION 01500
TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.01 DESCRIPTION

A. Provide and install temporary facilities required to properly perform the work including the transportation and placement of temporary utilities, scaffold, staging, shoring, tarps, drop cloths and rigging.

B. Removal of temporary equipment and materials upon completion of the work and repair damage caused by the work performed and installation and use of temporary facilities.

C. Make necessary applications and arrangements for electric power, light, water, and other utilities with the City or local service and utility companies when required at no additional cost to the City.

1.02 QUALITY ASSURANCE

A. Requirements of Regulatory Agencies:

1. Obtain permits as required by local government authorities.

2. Comply with the latest National Electrical Code.

3. Comply with all local, state and federal codes, laws, and regulations.

1.03 TEMPORARY UTILITY SERVICES

A. Electrical Service: Existing as is electric service is made available by the City of Portsmouth to Contractor. Contractor shall inspect and assess if existing capacity is adequate to meet his needs per NEC. Provide accordingly as follows:

1. Contractor shall make necessary arrangements with the City and/or Utility Companies for temporary connection to existing power service for electrical power requirements. If power cannot reasonably be made available to the Contractor, portable electrical generator(s) shall be supplied by the Contractor at his own expense.

2. Install temporary service in conformity with the National Electrical Code and in accordance with local ordinances and requirements of the municipal power authority and in consideration of temporary power requirements.

3. Remove temporary electric service equipment and accessories when use is no longer necessary.

4. Provide necessary electrical energy to:

   a. All necessary points on the construction site so that power can be obtained at any desired point with extension cords not longer than 100 feet.

   b. Construction site offices.

   c. Lighting as required for safe working conditions at any location on the construction site.

   d. Night security light, if required.

5. Maintain electrical energy throughout the entire construction period as required.

6. Provide and maintain adequate capacity of electrical service for construction use by all trades during the construction period at the locations necessary.

7. Installation:

a. Install all work with a neat and orderly appearance.

b. Have all installations performed by a qualified electrician.

c. Modify services as job progress requires.

d. Locate all installations to avoid interference with material handling equipment, storage areas, traffic areas and other work.

B. Water Service:

1. Make necessary arrangements and provide connection to the City's existing water system and provide extensions, as required, for the operation of this project. Contractor shall provide for potable water on project site.

2. Protect and maintain temporary or permanent lines from damage and as required by City of Portsmouth.

3. Provide an adequate drinking water supply, satisfactorily cooled, for workers.

4. Remove temporary facilities at completion of work when no longer needed.

1.04 TEMPORARY CONSTRUCTION FACILITIES

A. Emergency Weather Protection:

1. Provide waterproof coverings around open wall areas, and the like. Coverings shall be of heavy duty waterproof polyethylene sheeting securely attached building in a manner which will prevent entry of rain into the building enclosure. Maintain temporary waterproof coverings in good standing ready condition and remove only when permanent roof covering has been installed.

B. Temporary Scaffolding and Conveyances:

1. The Contractor or Subcontractor shall furnish, install, maintain, and remove temporary shoring, staging and planking, stairs, ladders, ramps, hoisting including operator, rigging and safety devices.

2. Contractor shall meet the requirements of Labor Laws, State Laws and Regulations applicable thereto and/or, the Authorities having jurisdiction over such apparatus, equipment, and construction.

3. Contractor shall provide protection from materials falling from shoring and/or scaffolding. Repair or replace damaged work caused by such falling material at no additional expense to City.

4. Contractor shall install and use hoists and chutes in a manner to preventing damage, staining, or marring of permanent work. Repair damaged work caused thereby.

F. Miscellaneous Facilities: Contractor shall provide miscellaneous facilities as needed, such as ramps, ladders, runways, staging, shoring, scaffolding, railings, bracing, barriers, platforms, waste chutes and similar items, in locations approved by the Engineer and City. Failure to request approval shall under no condition constitute implicit approval.

1.05 TEMPORARY SUPPORT FACILITIES

A. General: In location(s) approved by the City, Contractor shall provide facilities and services that may be needed to properly support primary construction process and meet governing regulations. Do not use permanent facilities except as otherwise indicated, and except after time of substantial completion.

B. Contractor’s Field Office: At Contractor’s option, a mobile office, complete with lighting, locked entrance, power outlets, office desk, plan table, chairs, letter file, accessories and tackboard, sample storage, and record document area.

1. Progress meetings shall take place at the project site or in another location approved by the City.

C. Drinking Water: Provide potable water; so that personnel at site will travel no more than 300 feet.

D. Toilets: Where permitted by governing regulations, the Contractor shall provide a single occupant, self contained unit, glass fiber reinforced polyester enclosure, equipped with urinal and stool fixtures. Supply units with tissue and alcohol based hand sanitation gel. Locate per City’s approval.

E. Telephones: Contractor is to maintain wireless telephones, on separate lines; one instrument on island and one at field office as applicable, unless otherwise approved. Contractor contact numbers are to be provided to City and Engineer.

F. Post listing of operational and emergency numbers at each telephone site.

1.06 SECURITY AND PROTECTION

A. General: Provide facilities and services as necessary to effectively protect project from losses and persons from injury during the course of construction.

B. Fire Protection:

1. In addition to temporary water service as applicable for construction, provide fire extinguishers of types and sizes recommended by NFPA. Provide Type A extinguishers in field offices, island site and at scaffolding; Extinguishers shall be Type ABC in construction areas. Smoking is prohibited except in areas designated and approved by the City. Smoking is strictly prohibited in work areas and on scaffolding,. Discarded butts, boxes, cigarette packs, matches shall be collected and removed from the site.

2. Store gasoline and other flammable liquids in and dispensed from U.L. listed safety containers in conformance with NFPA 30 and ICC Fire Prevention Code. Store outside the limits and away from permanent buildings.

3. Keep building and building site free of rubbish and debris.

4. Make recommendations for periodical inspection by local fire protection authorities. Cooperate with authorities and promptly carry out their recommendations. Comply with all applicable laws and ordinances and with City's fire prevention requirements.

5. Use Tarpaulins which are resistant to fire, water, and weather, and bear U.L. approval in compliance with FS-CC-C-746.

6. Approve welding operations before such work is started, and provide chemical extinguishers at location where work is in progress.

7. Smoke and/or open fires of any kind will not be permitted in or about the premises, unless specified herein.

END OF SECTION

SECTION 01700
PROJECT CLOSEOUT

PART 1 - GENERAL

1.01 GENERAL DEFINITIONS

A. The provisions of this section apply primarily to closeout of actual physical work, not to administrative matters such as final payment and changeover of insurances. Closeout requirements relate to both final completion amid substantial completion of work and apply to individual portions of completed work as well as the total work. Specific requirements in other sections have precedence over general requirements of this section.

1.02 PROCEDURES AT SUBSTANTIAL COMPLETION

A. Prerequisite: Comply with General Conditions and complete the following before requesting Engineer's inspection of the work, or designated portion thereof, for substantial completion:

1. Submit executed warranties, performance and payment bonds, inspection certificates and similar required documentation for specific units of work, enabling City's unrestricted use.

2. Submit record documentation, maintenance manuals, tools, spare parts, keys and similar items.

3. Complete final cleaning, and remove temporary facilities and tools.

B. Inspection Procedures: Upon receipt of Contractor's request, Engineer will either proceed promptly with inspection or advise Contractor of prerequisites not fulfilled. Following initial inspection, Engineer will either prepare certificate of substantial completion, or advise Contractor of work which must be performed prior to issuance of certificate; and repeat inspection when requested and assured that work has been substantially completed. Results of completed inspection will form initial "punch—list" for final acceptance.

1.03 PROCEDURES AT FINAL ACCEPTANCE

A. Re-inspection Procedure: Upon receipt of Contractor's notice that work has been completed, including punch list items resulting from earlier inspections, and excepting incomplete items delayed because of acceptable circumstances, Engineer will re-inspect work. Upon completion of re-inspection, Engineer will either recommend final acceptance and final payment or advise Contractor of work not completed or obligations not fulfilled as required for final acceptance. If necessary, procedure will be repeated.

1.04 RECORD DOCUMENTATION

A. Maintenance Manuals: Provide 3-ring vinyl covered binders containing required maintenance manuals, properly identified and indexed. Include operating and maintenance instruction; extended to cover emergencies, spare parts, warranties, inspection procedures, diagrams, safety, security, and similar appropriate data for each system or item.

1.05 GENERAL CLOSEOUT REQUIREMENTS

A. Operator Instruction: Require each Installer of systems requiring continued operation/maintenance by City's operating personnel, to provide reasonable on location instruction to City's personnel, sufficient to ensure safe, secure, efficient, inspection, maintenance repair, and non failing utilization and operation of systems.

END OF SECTION

SECTION 01900
DEMOLITION, ALTERATIONS AND PATCHING

PART 1 - GENERAL

1.01 REFERENCES

A. Cooperate and coordinate with all other trades in executing the work described in this Section.

B. Where referred to, standard specifications of the Technical Societies, Manufacturers' Associations and Federal, State and Local Agencies shall include all amendments current as of the date of issue of these Specifications.

1.02 SCOPE

A. It is not the intent herein to describe all the items and work to be removed, demolished, cut, patched or altered under this Section. The Contractor shall assure himself that all of the work not otherwise specified herein, but required for the full completion of the project shall be removed, demolished, cut patched or altered under this Section at no additional cost to the City.

B. The Contractor shall examine all Sections of these Specifications and become familiar with their provisions regarding the removal of existing items and work. Contractor shall understand that all items and work not specifically mentioned to be removed by the requirements of other Sections of these Specifications shall be removed as part of the work under this Section.

C. Within the portion of this contract which is to be renovated or altered, carefully remove, clean and store existing clay brick and stone to avoid damage to masonry units removed and those remaining in place to the greatest extent possible using only hand tools.

D. Properly handle, load, haul, and dispose of all demolition debris and construction refuse in compliance with all applicable laws and regulations. Contractor shall pay for all fees and permits, as required.

1.03 MISCELLANEOUS PROVISIONS

A. The Contractor shall be responsible for the methods used in all demolition work, for properly supporting and protecting from water damage and infiltrating the existing structure and otherwise protecting against damage to this and all adjacent buildings and utility lines encountered within this building and within the limits adjacent to the site of this construction. Responsibility for coordinating the demolition and new work will remain with the Contractor and no additional compensation will be allowed on account of the methods used in performing this work.

B. The Contractor shall repair to the Engineer's satisfaction, at no expense to the City, Engineer or any of their consultants, all such damage which does occur.

C. The Contractor shall indemnify and hold harmless the City and Engineer from any claims, liens, or suits arising from such damage or movement, real or alleged, and shall repair such damage to the satisfaction of the City and Engineer, at no expense to the City or any of their consultants for any such damage which does occur.

D. All salvaged or demolished material and construction refuse shall become the property of the Contractor unless otherwise indicated and shall be removed promptly from the site at the Contractor's expense, except that the City shall have the right to retain such material as desired. Material which the City wishes to retain shall be carefully removed by the Contractor and delivered to the City Department of Public Works.

E. At close of work each day, material (rubbish) shall be placed in a refuse container and the site shall be left in a neat condition. The Contractor must ascertain the legal regulations of the containment and final disposition of all solvents, refuse, rubble, etc., in order that an appropriate dumping place is ascertained for each. No extra will be entertained, should the Town or neighboring municipality refuse to take same. Refuse from all sections shall be properly and legally disposed of under this Section.

F. The use of flame cutting torches or other spark producing tools shall not be used on the project site, unless the method for protecting surrounding combustible material is approved by the Engineer. Fire extinguishers shall always be within 6 feet of all heat generating cutting or grinding. Prior to any cutting within the renovation area, the Engineer shall be notified and permission granted by him.

G. Existing masonry and structural works to remain, which may be damaged or demolished shall be restored at no additional cost to the City.

I. Fire extinguishers must be maintained in all working areas.

R. The Contractor shall be finally responsible for all cutting, fitting, patching and final finishing that may be required to make the several parts of the work fit together properly, or to receive or to be received properly by the work of other contractors.

S. Where alterations occur, or new and old work join the immediate adjacent surfaces, so much thereof as is required by the involved conditions, the material and surfaces shall be cut, removed, patched, repaired or refinished, and left in as good a condition as existing prior to the start of the work. The materials and workmanship employed in the rehabilitation involving existing construction, unless otherwise shown or specified, shall conform to that of the existing or otherwise specified work in type, quality, design, texture and color.

T. Where new work or the installation of new materials on the existing roof requires altering, removing or restoration of masonry, all masonry work shall be performed by or under the direction of a historic masonry restoration specialist, unless otherwise specified.

END OF SECTION

SECTION - 03300
CAST-IN-PLACE CONCRETE

PART 1 GENERAL

1.01 SCOPE OF WORK

A. All materials and labor required for the complete installation of the work of this Section, including but not limited to the following:

1. Furnishing, placing, curing, finishing, and protection of reinforced cast-in-place concrete.

2. Furnishing and erection of formwork, shoring and removal of same.

3. Furnishing and placing of reinforcing steel and related positioning and securing accessories, including galvanizing where specified.

4. Furnishing and installation of admixtures, and similar items in conjunction with concrete work.

5. Installation of anchor bolts.

6. Furnishing and installation of non-shrink grout under leveling plates and base plates.

1.02 STANDARDS

A. Except as otherwise specified herein, perform work in accordance with specifications and codes noted below.

1. "The 2006 International Building Code.

2. "Building Code Requirements for Reinforced Concrete" ACI 318, latest edition per the American Concrete Institute.

3. "Specifications for Structural Concrete for Buildings" ACI 301 latest edition per the American Concrete Institute.

4. “Cold Weather Concreting” ACI 306R latest Edition per the American Concrete Institute.

1.03 SUBMITTALS

A. Submit the followings:

1. Job standards for reinforcing steel and formwork details proposed.

2. Erection drawings.

3. Detailed shop drawings showing size and quantity of reinforcement, method of support and fastening, bending and placing schedules, diagrams, material grades, etc.

1.04 INSPECTION, TESTING, AND QUALITY CONTROL

A. Inspection and testing of cast-in-place concrete work will be performed by an independent Testing Agency, under a separate contract with the Owner. Testing shall include, but not limited to:

1. Slump test.

2. Air content.

PART 2 PRODUCTS

2.01 CONCRETE CONSTITUENTS

A. Cement: American-made Portland Cement Type I or Type II, ASTM C150.

B. Normalweight Fine Aggregate: shall be washed, inert, natural sand conforming to ASTM C33.

C. Normalweight Coarse Aggregate: shall be well graded crushed stone or washed gravel conforming to ASTM C33.

D. Water: shall be from approved source, potable, clean and free from oils, acids, alkali, organic matter and other deleterious material.

E. Admixtures:

1. Water-reducing agent: ASTM C494 Type A.

2. Air-entraining agent: ASTM C260.

2.02 CONCRETE MIXTURES

A. Concrete strength shall be 4,000 psi minimum.

2.03 FORM MATERIALS

A. Unexposed Concrete Surfaces: Forms shall be made of wood, metal, or other material subject to approval of Engineer.

2.04 REINFORCEMENT AND ACCESSORIES

A. Reinforcing Steel Bars: shall be newly rolled billet steel conforming to ASTM A615 Grade 60. Bars shall be bent cold.

2.05 MISCELLANEOUS MATERIALS

A. Grout: Grout used under steel column baseplates shall be ready-to-use non-metallic aggregate product requiring only addition of water at job site such as "Embeco Pre-mixed Grout" by Master Builder's; "Vibro-Foil Ready-Mixed" by W.R. Grace & Co.; "Ferrolith G" by Sonneborn Building Products, Inc.; or equal approved by Engineer. Compressive strength of grout (2" x 2" cubes) shall not be less than 5000 psi at 7 days, and 7500 psi at 28 days.

PART 3 EXECUTION

3.01 HANDLING, STORAGE, AND PROTECTION OF MATERIALS

A. Handle and store materials separately in such manner as to prevent intrusion of foreign matter, segregation, or deterioration.

3.02 ERECTION OF FORMWORK, SHORING AND RESHORING

A. Set and maintain formwork to insure complete concrete work within tolerance limits listed in ACI 347 latest edition, "Recommended Practice for Concrete Formwork".

B. Before form materials can be re-used, surfaces that will be in contact with freshly cast concrete shall be thoroughly cleaned, damaged areas repaired and projecting nails withdrawn. Re-use of form material shall be subject to approval by Engineer.

3.03 PLACING OF REINFORCEMENT

A. Reinforcement shall be placed in accordance with requirements of CRSI 68, "Recommended Practice for Placing Reinforcing Bars" and CRSI 63, "Recommended Practice for Placing Bar Supports" and with further requirements below.

B. Bending, welding or cutting reinforcement in field in any manner other than as shown on Drawings, is prohibited.

C. Before concrete is cast, Contact Enginer to verify that reinforcement placement conforms to Contract Documents and approved Shop Drawings.

3.04 JOINTS

A. Construction and control joints indicated on Drawings are mandatory and shall not be omitted.

B. Pre-formed expansion joint filler shall be secured in place prior to placing concrete.

C. Re-entrant corners from sawcut concrete shall not be permitted.

3.05 INSTALLATION OF EMBEDDED ITEMS

A. Anchor bolts for column baseplates shall be drilled into hardened concrete.

3.06 MIXING, CONSISTENCY, AND DELIVERY OF CONCRETE

A. Concrete may be redi-mixed, but if field mixing is preferred due to the low volume, such proportions and additives shall be made under the supervision of the Engineer.

B. Consistency of concrete at time of deposit shall be as follows:

Portion of Structure	Slump Recommended	Slump Max. Range
Slab	3"	2" - 4"

C. Retempering of concrete which has partially hardened, that is, mixing with or without additional cement, aggregates, or water, shall not be permitted.

3.07 PLACING CONCRETE

A. Remove water and foreign matter from forms and excavations and, except in freezing weather or as otherwise directed, thoroughly wet wood forms just prior to placing concrete. Place no concrete on frozen soil and provide adequate protection against frost action during freezing weather.

B. To secure full bond at construction joints, surfaces of concrete already placed shall be thoroughly cleaned of foreign materials and laitance, roughened with suitable tools such as chipping hammers or wire brushes, and recleaned by stream of water or compressed air.

C. Do not place concrete having slump outside of allowable slump range.

D. Concrete shall be placed in such manner as to prevent segregation, and accumulations of hardened concrete on forms or reinforcement above mass of concrete being placed.

3.08 FINISHING OF UNFORMED CONCRETE SURFACES

A. Concrete slab surfaces: Match existing floor finish.

B. Rough struck surface shall be provided at top of pile caps.

3.09 CURING AND PROTECTION

A. When concrete is placed at or below ambient air temperatures of 40 degrees F. or whenever lower temperatures are likely to occur within 48 hours after placement of concrete, cold weather concreting procedures, according to ACI 306 shall be followed.

B. Protect concrete work against injury from heat, cold, and defacement of any nature during construction operations.

C. Concrete shall be treated and protected immediately after concreting or cement finishing is completed, to provide continuous moist curing above 50 degrees F. for at least seven days, regardless of ambient air temperatures.

END OF SECTION

SECTION 04901
CLAY MASONRY RESTORATION AND CLEANING

PART 1 - GENERAL RELATED DOCUMENTS

1.01 DESCRIPTION OF WORK

A. The work in this section includes the following:

1. Cleaning of all exterior masonry [clay brick] surfaces to receive water repellent coatings.

2. Removal of existing caulk and cleaning of bonded surfaces in preparation for new caulking work.

3. Preparing voids and re-pointing joints, voids and cracks in existing adjacent masonry.

4. Patching selected areas of missing or damaged brick to provide a weather tight and visually acceptable surface.

5. Removal, stockpile, clean and reuse existing brick.

6. Rebuild masonry wall, re-point mortar joints and clean adjacent masonry to remain.

7. Requirements for qualifications of historic masonry restoration specialist

B. Allowance and Unit Prices: The extent of the work is indicated on Drawings S1 through S10.

1. Unit prices apply to authorized work covered by estimated quantities.
2. Unit prices apply to additions to and deletions from Work as authorized by Change Orders.

1.02 RELATED WORK:

A. Carefully examine the Contract Documents for requirements which affect the work of the section. Other specifications which directly relate to the work of this section include the following:

1. Division 1 Section "Special Procedures for Historic Treatment."
2. Section 7100 - Brick Water Repellent.

1.03 INTENT:

A. REMOVING: Existing clay brick for the areas to be modified shall be carefully removed, cleaned, stockpiled and reused to the greatest extent practical.

B. CLEANING: Clean exterior masonry **surfaces** using the gentlest materials and techniques possible which produce an acceptable degree of cleaning.

1. Use the lowest concentration of cleaning solutions necessary to obtain an acceptable degree of cleaning.

C. RE-POINTING AND REBUILDING: Rebuild masonry and point mortar joints to match the color,

texture and tooling of acceptable original work exposed to view. Repointing work is intended to fill holes and voids in masonry construction, to replace deteriorated mortar with sound mortar, to replace previously poor workmanship, and to make the existing walls as weatherproof and watertight as possible.

D. MATCHING: All new work is to match the color, profile, texture, and appearance of undamaged and unaltered original work on building.

1.04. QUALITY ASSURANCE AND TESTING

A. CONTRACTOR: A masonry restoration specialist which has at least five years experience in work of the type required by in this section, which employs skilled and experienced personnel, and which can demonstrate a consistent record of performance of successful masonry restoration work in the field.

B. PRECONSTRUCTION TESTING SERVICES: Contractor shall engage a qualified testing agency to perform preconstruction testing on masonry units as follows.

1. Provide test specimens as indicated and representative of proposed materials and construction.

2. Existing Mortar: Test according to ASTM C 295, modified as agreed by testing service and Engineer for Project requirements, to determine proportional composition of original ingredients, sizes and colors of aggregates, and approximate strength. Carefully remove existing mortar from within joints at five locations designated by Engineer. Material properties of existing mortar shall be established through a wet chemical analysis to be reviewed by a historic Architect employed by the contractor, where results and conclusions of such testing shall be submitted for approval by the Engineer.

C. SUBMITTALS

1. Product Data: For each type of product indicated. Include recommendations for application and use. Include test data substantiating that products comply with requirements.

2. Samples for the following:

a. Mortar: Submit sets of mortar in the form of sample mortar strips, 6 inches long by 1/4 inch wide, set in aluminum or plastic channels. Have each set contain a close color range of at least three Samples of different mixes of colored sands and cements that produce a mortar matching the cleaned masonry when cured and dry. Submit with precise measurements on ingredients, proportions, gradations, and sources of colored sands from which each Sample was made.

b. Masonry Brick: Each type of masonry unit to be used for replacing existing units. Include sets of Samples as necessary to show the full range of shape, color, and texture to be expected. For each brick type, provide straps or panels containing at least four bricks. Include multiple straps for brick with a wide range.

D. QUALITY ASSURANCE

1. Contractor: **Contractor must employ a historic** masonry restoration specialist which has at least five years **demonstrated** experience **and formal education** in **historic masonry** work of the type required in this section**, whose qualifications to provide such work shall be subject to approval by the City. This specialist** shall have completed work similar in material, design, and extent to that indicated for this Project with a record of successful in-service performance. Experience installing standard unit masonry is not sufficient experience for **this historic** masonry restoration work.

2. Field Supervision: **Masonry r**estoration specialist **firm** shall maintain experienced full-time supervisors on Project site during times that clay masonry **removal,** restoration, cleaning **and repointing** work is in progress. Supervisors shall not be changed during Project except for causes beyond the control of **masonry** restoration specialist **firm.**

3. Power Tool Acceptability: A test panel (approximately 36 inches high by 48 inches wide) shall be performed by the contractor to determine the acceptability of power tools. Acceptability shall be determined by the engineer. If power tools are permitted, the contractor must establish a written quality control procedure to account for workers fatigue and similar variables that might affect the quality of work.

4. Techniques: Two test panels (approximately 36 inches high by 48 inches wide) of brick masonry shall be prepared by the mason using the same techniques that will be used on the remainder of the project. These panels shall establish the acceptable standard of work and shall serve as benchmark for evaluating and accepting subsequent work on the building.

   a. Approval of test panels does not constitute approval of deviations from the Contract Documents contained in mockups unless Engineer specifically approves such deviations in writing.

   b. Approved test panel may become part of the completed Work if undisturbed at time of Substantial Completion.

5. Source Limitations: Obtain each type of material for masonry restoration (face brick, glazed tile brick, cement, sand, etc.) from one source with resources to provide materials of consistent quality in appearance and physical properties.

6. Restoration Program: Prepare a written, detailed description of materials, methods, equipment, and sequence of operations to be used for each phase of restoration work including protection of surrounding materials and Project site.

1.05 DELIVERY, STORAGE, AND HANDLING

1. Existing masonry shall be removed with care and reused to the greatest extent possible. Removal of existing brick masonry shall be accomplished with only hand tools, carefully stacked on wood pallets and protectively stored on site to avoid breakage. Excess mortar shall be removed from brick masonry without damaging the clay brick to the greatest extent possible.

2. Deliver materials and products in unopened factory labeled packages. Store and handle in strict compliance with manufacturers' instructions and recommendations. Protect from all possible damage. Protect liquid materials from freezing. Protect cementicious materials and aggregates from intrusion of foreign materials and moisture.

3. Deliver masonry units to Project site strapped together in suitable packs or pallets or in heavy-duty cartons.

4. Store cementicious materials on elevated platforms, under cover, and in a dry location. Do not use cementicious materials that have become damp.

5. Store lime putty covered with water in sealed containers.

6. Store sand where grading and other required characteristics can be maintained and contamination avoided.

1.06 PROJECT CONDITIONS

A. WEATHER LIMITATIONS: Proceed with installation only when existing and forecasted weather conditions permit masonry restoration work to be performed according to Brick Institute of America's recommendations. Install masonry units and point mortar joints only when air temperature is between 40 and 90 deg F and is predicted to remain so for at least 7 days after completion of the Work unless otherwise indicated.

D. HOT-WEATHER REQUIREMENTS: Protect masonry repair and mortar-joint pointing when temperature and humidity conditions produce excessive evaporation of water from mortar and repair materials. Provide artificial shade and wind breaks and use cooled materials as required to minimize evaporation. Do not apply mortar to substrates with temperatures of 90 deg F and above unless otherwise indicated.

E. PROTECTION: Protect persons, property, motor vehicles, non-masonry surfaces and site from injury or damage due to Contractors' operations. Do not permit mortar to contact surfaces that can be damaged by such contact. Protect sills, ledges, and other projections from mortar droppings by coating with sand or other effective technique.

1.06 COORDINATION

A. Coordinate masonry restoration with Fire Chief in order to maintain normal operations of the Fire Station.

1.07 SEQUENCING AND SCHEDULING

A. Order replacement materials at earliest possible date to avoid delaying completion of the Work.

B. Perform masonry restoration work according to Page S9 -"Construction Phasing":

PART 2 - PRODUCTS

2.01 MASONRY MATERIALS AND PRODUCTS

A. REPLACEMENT FACE BRICK: Provide new **exterior** face brick **as** red waterstruck clay fired brick

conforming to ASTM C216, type FBX, grade SW. Provide brick to match color, color variation within units, surface texture, size, shape and type of original existing being replaced as directed by **the historic masonry restoration specialist and** approved by the Engineer.

B. INTERIOR GLAZED BRICK: Provide glazed brick matching the size, shape, color and surface texture of existing adjacent brick.

B. BRICK NOT EXPOSED TO VIEW: Provide building brick complying with ASTM C 62, Grade SW, MW, or NW, for concealed backup of same vertical dimension as face brick, for masonry work concealed from view.

C. SALVAGED BRICK: Existing brick shall be removed from the building as indicated on drawings to be cleaned, stockpiled and re-used to the greatest extent possible. Carefully remove and clean residual mortar from brick surfaces using mechanical means and a mild chemical cleaner.

D. MORTAR MATERIALS:

1. Portland Cement: ASTM C 150, Type I or Type II. White cement, type II, may be required for color matching of exposed mortar. Provide cement containing not more than 0.60 percent total alkali when tested according to ASTM C 114.

2. Lime Putty: ASTM C 5. Lime putty shall be of high calcium lime and shall be aged to ensure complete slaking before using and shall weigh no more then 83 lbs per cubic foot.

3. Mortar Sand: ASTM C 144 unless otherwise indicated.

   a. Color: Provide natural sand of color necessary to produce required mortar color.
   b. For pointing mortar, provide sand with rounded edges.
   c. Match size, texture, and gradation of existing mortar sand as closely as possible. Blend several sands if necessary to achieve suitable match.

4. Admixtures: None permitted.

5. Water: Clean, free of oils, acids, alkali, salts, organic matter, and drinkable.

E. MORTAR MIXES

1. New mortar shall meet the requirements of ASTM C270, type “O” or type “K” unless otherwise approved by the engineer.

   a. Mortar Proportions: Mix mortar materials in the following proportions by volume: Type “O” (1 part cement, 2 parts lime and 9 parts sand) or Type “K” (1 part cement, 3 parts lime and 11 parts sand).

   b. Mixed Mortar: Use mortar within one half hour of final mixing; do not re-temper or use partially hardened material.

   c. Do not use admixtures in mortar unless otherwise indicated.

   d. Rebuilding mortar is same Type as pointing mortar.

PART 3 - EXECUTION

3.01 INSPECTION

A. Contractor shall examine substrates and conditions under which this work is to be performed and notify Engineer of conditions detrimental to the proper completion of the work. Do not proceed with work until unsatisfactory conditions are corrected. Construction Drawings have been developed using information regarding existing construction or conditions based on available record drawings which may or may not truly reflect actual conditions. Contractor shall verify all existing dimensions at the site. Discrepancies shall be brought immediately to the attention of the Engineer before proceeding with that part of the work or fabrication of structural steel. Beginning work means Contractor accepts substrates and conditions.

3.02 PREPARATION AND INSTALLATION

A. PROTECTION

1. Protect persons, motor vehicles, surrounding surfaces of building being restored, building site, plants, and surrounding buildings from harm resulting from masonry restoration work.

   a. Erect temporary protective covers over walkways and at points of pedestrian and vehicular entrance and exit that must remain in service during course of restoration and cleaning work.

2. Prevent mortar from staining face of surrounding masonry and other surfaces.

   a. Cover sills, ledges, and projections to protect from mortar droppings.

   b. Keep wall area wet below rebuilding and pointing work to discourage mortar from adhering.

   c. Immediately remove mortar in contact with exposed masonry and other surfaces.

   d. Clean mortar splatters from scaffolding at end of each day.

3. Remove lamps adjacent to masonry and store where indicated during masonry restoration and cleaning. Reinstall when masonry restoration and cleaning are complete.

   a. Provide temporary lights during work as needed.

B. BRICK REMOVAL

1. At locations indicated on pages S8 and S9 remove bricks that are to be reused. Carefully remove entire units from joint to joint, without damaging surrounding masonry, in a manner that permits reusing them.

   a. Remove mortar and lose particles from brick by cleaning with hand chisels, brushes, and water. Power tools may not be used, unless the Contractor can demonstrate that he can use power tools without damaging the masonry and only if obtaining the Engineer's prior written permission.

b. Store brick for reuse. Store off ground, on skids, and protected from weather.

c. Clean bricks surrounding removal areas by removing mortar, dust, and loose particles.

2. Support and protect remaining masonry that surrounds removal area. Refer to pages S6 and S9 of structural drawings for more information. Maintain flashing, reinforcement, lintels, and adjoining construction in an undamaged condition.

3. Notify Engineer of unforeseen detrimental conditions including voids, cracks, bulges, and loose units in existing masonry backup, rotted wood, rusted metal, and other deteriorated items.

C. PAINTING STEEL UNCOVERED DURING THE WORK

1. Inspect steel exposed during masonry removal. Where Engineer determines that it is structural prepare and paint it as follows:

a. Remove paint, rust, and other contaminants according to SSPC-SP 2, "Hand Tool Cleaning" as applicable to meet paint manufacturer's recommended preparation.

b. Immediately paint exposed steel with two coats of antirust coating, following coating manufacturer's written instructions and without exceeding manufacturer's recommended rate of application (dry film thickness per coat).

c. If on inspection and rust removal, the cross section of a steel member is found to be reduced from rust by more than 1/16 inch, notify Engineer before proceeding.

E. RESETING AND REBUILDING

1. After installing structural steel as indicated on Structural Drawings rebuild the wall as indicated on pages S8 and S9. Follow the phased process as explained on page S9.

2. Wall is to be rebuild using salvage and new bricks. Exactly match the pattern, coursing and joint width of original work. Securely bond new work to old work.

3. Mortar mixing: Measure mortar materials carefully using known volume measures; do not batch by shovelful. Mix well together in a mechanical mixer in specified proportions. Mix in small batches that can be used within 30 min. of mixing. Use the minimum amount of water that produces workable mix.

4. Pointing: Point joints up to ½" deep at the time. Install pointing mortar in layers not over ½" deep for joints over ½" deep. Do not spread mortar over masonry faces and do not feather edge the mortar. Do not make joints appear wider than original joints.

a. Use setting buttons or shims to set units accurately spaced with uniform joints.

b. When mortar is sufficiently hard to support units, remove shims and other devices interfering with pointing of joints.

c. Tooling: Tool joints to form dense, weather-tight surfaces. Size, tooling and appearance of finished joints shall match original joints in good condition and shall match approved panels. In order to more closely match adjacent masonry joints, the freshly placed mortar joint may be brushed with a stiff bristle brush after the mortar has dried but before it is fully cured (1 to 2 hours).

d. Curing: Moist cure masonry using a hand sprayer with a fine nozzle for 24 to 48 hours after the mortar joints are thumb-print hard and have been finish tooled. Local conditions will dictate the frequency of wetting, but initially may be as often as every hour and gradually reduced to every three or four hours. Walls shall be covered with burlap for the first three days after being constructed. Plastic sheathing may be used, but should be tented out and not placed directly against wall.

e. Cleaning: Clean excess mortar from masonry surfaces before it sets using bristle brushes or rubbing with burlap or clean sand. Remove dried mortar with dilute solutions of Hydro clean HT-455, SureKlean 600, or SureKlean 101 depending on the type of masonry surface.

3.03 FIELD QUALITY CONTROL

A. The contractor shall establish and maintain throughout the work in this section an effective quality control program to ensure that work is performed as required by the Contract Documents. Establish specific procedures to prevent damage from cleaning operations, damage to masonry edges during rebuilding and feathering of mortar during pointing.

B. Engineer will perform weekly observation of the work progress and prepare test reports. Allow Engineer use of lift devices and scaffolding, as needed, to perform observation.

C. Notify Engineer in advance of times when lift devices and scaffolding will be relocated. Do not relocate lift devices and scaffolding until Engineer has had reasonable opportunity to make observations of work areas at lift device or scaffold location.

3.04 FINAL CLEANING

A. Repair minor damage to eliminate all evidence of repair.

B. After mortar has fully hardened, thoroughly clean exposed masonry surfaces of excess mortar and foreign matter; use wood scrapers, stiff-nylon or -fiber brushes, and clean water, spray applied at low pressure. Use methods recommended by Brick Institute of America.

1. Do not use metal scrapers or brushes.

2. Do not use acidic or alkaline cleaners other then those listed in Section 3.02.E.4.e.

C. Sweep and rake adjacent pavement and grounds to remove mortar and debris. Where necessary, pressure wash pavement surfaces to remove mortar, dust, dirt, and stains.

END OF SECTION 04901

SECTION 05100
STRUCTURAL STEEL

PART 1 GENERAL

1.01 Attention is directed to the printed form of Contract, Supplementary Conditions and the entire Division 1, General Requirements.

1.02 Equality of material, article, assembly or system, other than those named or described in this Section, will be determined in accordance with the provisions of Article VI of the contract form.

1.03 SCOPE OF WORK

A. Provide all labor, materials, equipment, services and transportation required to complete structural steel work shown on Drawings, as specified herein, or both, including but not limited to items noted below.

1. Furnishing of anchor bolts and loose leveling plates.

2. Furnishing and erection of base plates, HSS columns, channels, beams, hangers, bracing (temporary and permanent), brackets, anchors, angles, stiffeners, plates, bolsters, clips, lintels or relieving angles affixed to structural steel, masonry and corresponding connections (bolted and welded).

3. Furnishing and application of shop paint, including finish coat(s) when required, and field touch-up paint for designated structural steel items.

4. Furnishing and application of hot-dip galvanizing for designated steel items.

5. Design and shop drawings of bolted/welded structural connections.

6. Furnishing of structural steel items, required to be built into or form part of work specified under other Sections, to appropriate trade at proper time with complete instructions and templates to facilitate installation. Verify proper installation of same.

14. Unless specifically excluded, furnishing and installation of any other items of structural steel work indicated on Drawings, specified or obviously needed to make work of this Section complete.

B. Related Work Specified Elsewhere:

1. Cast-in-Place Concrete (03300)

2. Coordination Requirements (Division #1)

3. Painting (excluding touch up of prefinished surfaces and shop coats as required) (09900)

4. Rough Carpentry (06100)

1.04 STANDARDS

A. Except as otherwise specified herein, perform work in accordance with specifications noted below, including latest editions of applicable specifications, codes, and standards cited therein, and latest applicable addenda and supplements. Copies of these items shall be kept available in shop and field. Field copies shall be purchased by the General Contractor.

1. "The 2006 International Building Code".

2. "Specifications for Structural Steel Buildings", American Institute of Steel Construction.

3. "Code of Standard Practice for Steel Buildings and Bridges", American Institute for Steel Construction.

4. "Structural Welding Code (AWS D1.1)", American Welding Society, latest edition.

5. "Specifications for Structural Joints Using ASTM A325 or A490 Bolts", Research Council on Riveted and Bolted Structural Joints of Engineering Foundation.

6. "Painting Manual, Vol. 1, Good Painting Practice" and "Painting Manual, Vol. 2, Systems and Specifications", Steel Structures Painting Council.

7. ASTM A-6 "General Requirements for Delivery of Rolled Steel Plates, Shapes, Sheet Piling and Bars for Structural Use". The latest issue date as listed in ASTM Index shall apply.

B. Any material or operation specified by reference to published specifications of manufacturer or published standard shall comply with said specification or standard. In case of conflict between referenced specifications, most stringent requirement shall govern. In case of conflict between referenced specifications and Project Specifications, Project Specifications shall govern.

1.05 SUBSTITUTIONS

A. Substitutions for member sizes, type(s) of steel, connection details or any other modifications proposed by Contractor will be considered by Engineer only under following conditions:

1. That request has been made and accepted prior to submission of Shop Drawings.

2. That there is a substantial cost advantage or time advantage to City; or that proposed revision is necessary to obtain required materials or methods at proper times to accomplish work in time scheduled.

3. That sufficient sketches, engineering calculations, and other data have been submitted to facilitate checking by Engineer, including cost reductions or savings in time to complete work.

4. That the cost of reviewing the substitutions shall be paid for by Contractor.

1.06 SUBMITTALS

A. Job Standards: Submit to Engineer connection details proposed prior to submitting detailed Shop Drawings.

B. Joint Welding Procedures: Submit to Engineer joint welding procedures and program of welding sequence (for each component and for welding components together) before any welding is done.

After return of submittal, welding procedures and sequences shall be followed without deviation. Engineer may require requalification of these welding procedures by tests prescribed in AWS "Standard Qualification Procedure".

C. Joint Welding Testing: Submit to Engineer prior to start of fabrication, non-destructive testing method to be used for specific typical joints. Results of such tests during the course of work shall, upon request by Engineer, be made available for review by Engineer and/or Testing Agency.

D. Method of Erection: Submit to Engineer, in accordance with requirements of Contract Documents, prior to starting work, description of methods, sequence of erection, and type of equipment proposed for use in erecting structural steel work. This submission shall not relieve Contractor of his responsibility for providing proper methods, equipment, workmanship, and safety precautions.

E. Shop Drawings: Submit to Engineer detailed Shop Drawings, including erection drawings, schedules and index sheets showing: grades of steel; identification mark of members; dimensions; size, arrangement, and weight of members; orientation and relation of members to appropriate grid lines; setting elevations for column bases; framing to support metal deck; location and size of openings, slots, and holes; requirements, such as punched or drilled holes, for attachment of other materials or parts of construction; type, size, and extent of welds; joint welding procedures; welding sequences (use welding symbols adopted by American Welding Society); cleaning requirements prior to painting; type and dry thickness of paint. Members to be galvanized shall be so noted on shop drawings.

1. Except as otherwise noted, approval of Shop Drawings will be for size and arrangement of components. Errors in dimensions shown on Shop Drawings shall be responsibility of Contractor. Check and coordinate structural steel work with work of other trades before submitting Shop Drawings.

2. Do not proceed with fabrication of material or performance of work until corresponding item on Shop Drawing has been approved by Engineer.

F. Mill Test Certification: Submit to Engineer prior to delivery of structural steel to job site, triplicate copies of certified mill test reports of structural steel (including names and locations of mills and shops, and analyses of chemical and physical properties), properly correlated to structural steel to be used in this project.

G. Connection Material Certification: Submit to Engineer triplicate copies of manufacturer's certification of bolts, nuts, washers, and filler metal for welding.

H. Painting Certification: Submit to Engineer triplicate copies of certification stating that requirements pertaining to pre-paint cleaning and painting of steel have been performed in accordance with Contract Documents.

I. Galvanizing Certification: Submit to Engineer triplicate copies of certification stating that requirements pertaining to pre-galvanizing cleaning and galvanizing of steel have been performed in accordance with Contract Documents.

J. Samples: Submit to Engineer, on request by Engineer samples and/or descriptive literature of materials, products and methods.

1. Do not proceed with fabrication of material/product or performance of work until sample has been approved by Engineer.

2. Galvanizing is to be spot checked by Preece Test Method per ASTM A239.

K. Corrective Work: Submit to Engineer drawings showing details of proposed corrective work prior to performing corrective work.

L. Affidavit: Submit to Engineer, on request by Engineer, manufacturer's and/or fabricator's and/or erector's affidavit stating that material or product provided complies with Contract Documents.

M. Maintain records of shop and field welding procedures and records of welders employed, date of qualification and identification symbol or mark. Maintain records for each impact wrench used in shop and field, showing dates, sizes of bolts tested and the corresponding torque values. Certified copies of the records shall be made available to Contractor, Engineer and City's testing laboratory.

N. Provide setting drawings, templates, and directions for the installation of anchor bolts, or other items to be installed by others. Verify proper installation of same.

O. All dimensions indicated on the plans shall be verified as correct in the field by the Contractor before fabrication. Field dimensions shall be shown on the Shop Drawings and shall be noted as having been verified in the field.

1.07 INSPECTION, TESTING AND QUALITY CONTROL

A. Inspection and testing of structural steel fabrication and erection shall be performed by an independent Testing Agency, under a separate contract with the City. Materials and workmanship shall be subjected to inspection and testing in mill, shop and/or field by Testing Agency. Such inspection and testing shall not relieve Contractor of his responsibility to provide his own inspection, testing, and quality control as necessary to furnish materials and workmanship in accordance with requirements of Contract Documents.

B. Contractor shall maintain his own inspection and quality control of shop and field work. Quality control and inspection of welding work shall consist of meticulous supervision by Contractor's own welding inspector using non-destructive spot testing, at rate of at least one test per 50 linear feet of weld by each welder, except that partial penetration and full penetration welds shall be tested 100 percent. Non-destructive testing shall be done by radiographic-, magnetic particle-, or ultrasonic method, whichever is most effective for joint to be tested. Results of such tests shall be provided to Engineer and/or Testing Agency when requested.

C. Notify Engineer and Testing Agency prior to start of any fabrication, erection, or other phases of work so as to afford them reasonable opportunity to observe the work.

D. Facilitate inspection and testing by Testing Agency. Contractor shall, at his own expense, furnish Testing Agency, upon request, with:

1. Complete sets of approved Shop Drawings and corrective work procedures at fabricating shop(s) and in field.

2. Cutting lists, order lists, material bills, and shipping lists.

3. Information as to time and place of all rollings and shipments of material to shops and field.

4. Representative sample pieces requested for testing.

5. Full and ample means and assistance for testing materials, and proper facilities for inspection of work, in mill, shop and field.

E. Testing Agency shall inspect and test welded and bolted work as required by Engineer. Each lot of bolts shall be checked in the Skidmore-Wilhelm device for conformity with standard requirements.

F. Do not remove any marks or tags applied by Testing Agency identifying rejected work.

G. Any work found deficient shall be corrected or replaced in accordance with these specifications. Deficient welds shall be cut out to sound material and rewelded. Deficient assemblies shall be taken apart, corrected and reassembled, using new materials as required. A490 bolts, if used, shall not be reused. A325 bolts may be retightened once only.

H. Structural steel work which has been rejected by Engineer and/or Testing Agency in mill, shop, or field, shall be corrected without delay and at no additional expense to the City.

I. The fact that steel work has been accepted at the shop shall not prevent its final rejection at the job site, or even after it has been erected, if it is found to be defective.

J. Qualifications for Welding Work:

1. Qualify welding processes and welding operators in accordance with the latest edition AWS "Standard Qualification Procedure".

2. Provide certification that welders to be employed in the work have satisfactorily passed AWS qualification tests within the previous 12 months and have been welding regularly.

PART 2 PRODUCTS

2.01 GENERAL

A. Provide positive identification for each steel type and tensile strength classification, except A36 steel, by a uniform marking system on each piece. All steel shall be newly rolled steel.

2.02 STEEL MATERIALS

A. High strength carbon steel - high strength low alloy steel, ASTM A572 Grade 50 (Fy=50 ksi), or ASTM A588. Use A588 or A572-modified for plates over 1-1/2 inch thick where Fy=50 ksi is required.

B. Carbon steel - shapes, plate and bar shapes, ASTM A36. HSS Tubing, ASTM A500 Grade B.

C. Anchor Bolts: ASTM A307 (Galvanized).

D. High Strength Bolts: ASTM A325.

E. Filler Metal for Welding: E70XX low hydrogen as per Table J 2.5 of AISC "Specifications for Structural Steel Buildings".

F. Structural Steel Primer Paint: "Tnemec 99", "Rust Oleum 1069", or approved equivalent.

G. Galvanizing: Hot dip galvanize designated steel after fabrication in compliance with ASTM A123. All hot-dip galvanized steel shall be inspected for compliance with ASTM A123 and shall be marked with

a stamp that indicates that ASTM number of ounces of zinc per square foot of surface. After galvanizing, steel shall be dipped in a 0.2 percent chromic acid solution. A notarized Certificate of Compliance with all of the above will be required from the galvanizer. Galvanizing shall be spot checked by Preece Test Method per ASTM A239.

H. Coating for Finished Bearing Surfaces (e.g., columns): "Magnafilm 1043" by Magnus Chemical Co., Garwood, N.J.; "M-2658, Blue Lacquer" by U.S. Steel Corp., Pittsburgh, PA or approved equivalent.

PART 3 EXECUTION

3.01 INSPECTION

A. Examine all work prepared by others to receive work of this Section and report any defects affecting installation to Contractor for correction. Commencement of work will be construed as complete acceptance of preparatory work by others.

3.02 HANDLING AND STORAGE

A. Handle and stack materials carefully to prevent deformation or damage. Store structural steel carefully on substantial timbers and blocking, so arranged that steel will be free from earth and properly drained, preventing any splattering with dirt or accumulation of water in or about steel. Take care to prevent damage to any shop painted surfaces and to prevent accumulation of mud, dirt, or other foreign matter on steel. Any accumulation shall be completely removed prior to erection.

3.03 FABRICATION

A. Except as otherwise indicated on Drawings or specified herein, fabricate structural steel in accordance with "STANDARDS" in this Section.

B. Permissible tolerances for steel members shall conform to ASTM A6. The as-fabricated tolerances shall conform to the cited AISC Specifications, AISC Code and the AWS Code, except where closer tolerances and straightness of members are required for fitting of the work in fabrication or erection.

C. Provision for attachment of other materials: Punch and drill steel for attachment of other materials indicated on Drawings or noted in Specifications to be attached to steel.

D. The Contractor shall design and detail all connections not specifically detailed on Drawings. Fabrication and erection details shall supplement and be consistent with details shown on the Drawings. Do not use one-sided or other eccentric connections, except where they are specifically detailed and in isolated cases where approval of Engineer is obtained.

E. Welding:

1. Provide quality control and qualification of welders and welding procedures and operations as specified under "Inspection, Testing, and Quality Control" in this Section.

2. Shop Welding Process: Use shielded metal-arc, submerged arc, gas metal-arc, and flux cored-arc, or other process approved by Engineer.

3. Groove Welds: Provide complete penetration unless otherwise noted on Drawings.

4. Base metal shall be checked by Contractor to insure absence of laminations or other defects. Welds shall be sound throughout and have no cracks or imperfections.

5. Where structural joints are required to be welded, details of joints, technique of welding employed, appearance and quality of welds made, and methods used in correcting defective work shall conform to applicable requirements noted under "STANDARDS" in this Section.

6. Prepare joint welding procedures and program of welding sequence (for each component and for welding joining components to each other) and submit to Engineer for approval before any welding is done. After approval, welding procedures and sequences shall be followed without deviation unless specific approval for change is obtained from Engineer. Engineer may require requalifications of these welding procedures by tests prescribed in AWS "Standard Qualification Procedure".

7. Each welder working on the project shall be assigned an identification symbol or mark. Each welder shall mark or stamp his identification symbol at each weldment completed, whether in shop or field.

F. Manual oxygen cutting shall be done only with a mechanically guided torch, except as permitted below.

1. Gas cut edges which are not welded and will be free of substantial stresses, as determined by the Engineer, may be cut manually with an unguided torch provided that specified AISC edge distances to holes are maintained.

2. Gas cut edges which will be subjected to substantial stress (over one-half the allowable stress), as determined by the Engineer, or which are to be welded may be cut manually with an unguided torch to a line not within 1/8 inch of the finished dimension, with final removal of material completed by chipping or grinding to produce a surface quality equivalent to that of the base metal edges.

G. Openings in Structural Steel.

1. Cutting of openings differing from or in addition to those shown on approved shop drawings will not be permitted without written approval of Engineer.

H. Corrective Work: Structural steel elements having fabrication errors and/or which do not satisfy tolerance limits shall not be incorporated in finished work. Such elements may be corrected if permitted by Engineer and/or Testing Agency. Submit to Engineer drawings showing details of proposed corrective work. These drawings shall be approved by Engineer prior to performing corrective work. Corrective work shall be performed in accordance with requirements of Contract Documents. Corrective work and any retesting which may be required shall be at Contractor's expense.

1. Identification: Structural steel members shall have an assigned position and identification mark or symbol, clearly indicated on each piece near one end. Marks shall correspond to that given on Shop Drawings and erection drawings related to specific members.

3.04 SHOP PAINTING

A. Unexposed Steel

1. Except as otherwise indicated on Drawings or specified herein, paint structural steel work in accordance with "STANDARDS" in this Section.

2. Steel to be painted:

a. Clean steel surfaces in accordance with SSPC-SP2, Hand Tool Cleaning.

b. Unless specifically excluded or modified, apply one shop coat of structural steel primer paint to steel.

c. Apply paint to surfaces requiring paint only to within two inches of any field weld or high strength bolted friction-type connection. If for any reason surface to be field welded or bolted is painted, remove such paint completely to within limits before field welding or bolting.

3. Steel to be left unpainted:

a. Clean steel surfaces in accordance with SSPC-SP3.

c. Contact surfaces of high strength bolted connection.

d. Finishing Bearing Surfaces and Surfaces to be weld-spliced in field: Protect surfaces (e.g., bearing surfaces of columns and column base plates) against corrosion by use of rust-inhibiting coating that can be easily removed prior to erection or which has characteristics that make removal unnecessary prior to erection.

4. Shop coat application:

a. After steel has been properly prepared as specified above, apply structural steel primer paint to dry steel surfaces by brush, spray, or roller, assuring no running or sagging in accordance with manufacturer's directions as approved by Engineer.

b. Apply 2.0 to 3.0 dry mil thickness of shop primer.

c. Inspection of shop painting - as specified under "Inspection, Testing, and Quality Control" in this Section.

B. Exposed Steel

1. It is intended that the protective coating system for all steel exposed to weather or encased in brick masonry shall be hot dip galvanized. Provisions shall be made for proper handling at all stages of the coating, shipping, storing at the job site and erection that will protect the finished surfaces from damage or soiling.

2. Care shall be exercised to maintain clean surfaces. Remove all dust and residue immediately prior to application of zinc coating.

3. Hot-dip galvanize designated structural steel items after fabrication. Galvanizer shall stamp galvanized steel items indicating ASTM number and weight of zinc in ounces per square foot.

C. Notification:

Notify Testing Agency five (5) days prior to shipment of any structural steel so paint inspection can be made. At these inspections dry mil thickness of paint film will be checked. Steel containing mill scale that can easily be removed with blade of pocket knife will be subject to recleaning and repainting at no expense to the City.

3.07 ERECTION

A. Except as otherwise indicated on Drawings or specified herein, erect structural steel in accordance with "STANDARDS" in this Section.

B. Methods of Erection: Prior to starting work submit to Engineer description of methods, sequence of erection, and type of equipment proposed for use for erecting structural steel work. This submission, and approval of same by Engineer, shall not relieve Contractor of his responsibility for providing proper methods, equipment, workmanship, or safety precautions.

C. Provide temporary flooring, planking, and scaffolding necessary in connection with erection of structural steel in accordance with applicable O.S.H.A. requirements.

D. Field Connections (unless otherwise indicated): Use welded or slip-critical type high strength bolts installed by "modified turn-of-nut method". Beams shall have framed connections using 3/4 inch diameter (min.) high strength bolts in accordance with requirements of AISC "Manual of Steel Construction" and Contract Documents. Do not use one-sided or other eccentric connections, except where they are specifically detailed on drawings and in isolated cases where approval of Engineer is obtained.

E. Errors in shop fabrication or deformations resulting from handling and/or transportation that prevent proper assembly and fitting of parts shall be reported immediately to Engineer for approval of method of correction. Approved corrections shall be made at Contractor's expense.

F. Furnish instructions for setting of drilled in anchor bolts and other items to be embedded in cast-in-place concrete, in ample time so that this work will not be delayed.

G. Setting Plates: Set base plates level to correct elevations and support temporarily on steel wedges, shims, leveling devices, or as shown on Drawings, until corresponding supported member has been positioned, plumbed and anchor-bolted. Entire area under plates shall then be packed solidly with non-shrink grout. Leave protruding leveling devices in place until after grout has attained required strength, and then cut off flush with top or edges of base plates, or both, except as otherwise noted.

H. Columns supporting existing steel lintels shall be cut to fit in the field at the bottom of column to ensure e “tight” fit. Baseplates shall be set, leveled and welded to columns. Entire area under plate shall then be packed solidly with non-shrink grout.

I. Align, level, and adjust members accurately prior to final fastening. Fasten compression member splices only after abutting surfaces have been brought completely into contact.

J. As erection progresses connect work securely and introduce supplemental temporary bracing and shoring wherever necessary. Leave such supplemental bracing and shoring in place as long as may be required for safety.

K. High Strength Steel Bolts

1. Bolt length shall provide at least two full threads beyond nut after tightening. Provide bearing-type connections for beams to girders only.

2. Perform installation by using pneumatic powered impact wrenches with sufficient capacity and adequate supply of compressed air.

3. Perform installation in accordance with turn-of-nut method outlined in RCRBSJ "Specification for Structural Joints Using ASTM A325 or A490 Bolts", with modifications noted below.

   a. Use hardened washer under bolt head or nut, whichever is turned in tightening, unless oversize holes have been approved which require such washer under both head and nut. Use not more than two washers.

   b. Qualification of high strength bolting procedures and operations shall be as specified under "Inspection, Testing and Quality Control", in this Section.

   c. Refer to this bolting installation method as "Modified Turn-of-nut Tightening Method".

4. Make joints without use of erection bolts. H.S. bolts required for joint shall serve that purpose.

5. Correct poor matching of holes by drilling to next larger size and using larger size bolt, if approved by Engineer. Welding for redrilling will not be permitted.

L. Field Welding: Execute in accordance with requirements under "FABRICATION" in this Section, excepting those requirements which manifestly apply to shop conditions only.

M. Field Oxygen Cutting: Not to be performed without written consent of Engineer. Once approval is obtained, execute in accordance with requirements under "FABRICATION" in this Section.

N. Openings in structural steel required in field:

1. Make no openings without the specific written approval of the Engineer. All re-entrant corners shall be shaped notch-free to a radius of at least 1/2 inch at blocks, copes, cuts and openings.

2. Openings in structural steel shall be cut and/or reinforced only by structural steel Contractor, and only with specific prior written approval of the Engineer.

3.08 FIELD PAINTING

A. Field Coat Application:

1. Use same type of paint as used for shop coat.

2. Use spray applied zinc galvanizing for field welded steel surface and to touch-up hot dipped galvanized steel surfaces.

2. After erection, touch-up field welds and connections and other surfaces required to be painted. Do not paint connections until after inspection and approval of Testing Agency.

3. Do not paint when ambient temperature is below 40 degrees F. or when conditions differ from paint manufacturer's recommendations, as approved by Engineer.

END OF SECTION

SECTION 06100
ROUGH CARPENTRY

PART 1 GENERAL

1.01 GENERAL PROVISIONS

A. Attention is directed to the Contract and General Conditions and all Sections within Division 1, General Requirements, which are hereby made a part of this specification Section

1.02 SCOPE OF WORK

A. Provide all rough carpentry work, as indicated on the Drawings and as specified herein. Work shall include but not be limited to furnishing all labor, material and equipment necessary for completion of the following work:

1. Exterior wood trim.
2. Shoring for existing floor framing and brickwork to remain.
3. Load-bearing and non-load-bearing exterior wall framing.
4. Load-bearing and non-load-bearing interior wall framing.
5. Floor framing.
6. Built-up wood beams and columns.
7. Exterior APA performance-rated panel sheathing at walls.
8. Miscellaneous furring for wall finishes.
9. Miscellaneous blocking and wood cants.
10. Rough hardware.
11. All rough wood framing including cant strips, screeds, bracing, ledgers, grounds, furring, strapping, curbs, bucks, nailing strips, nailing inserts, sleepers, and all other incidental rough carpentry items.
12. All rough hardware, inserts, screws, nails, anchor bolts not embedded in concrete, fasteners and other related metal components necessary to the installation of the rough carpentry.
13. Plywood backboards for electrical and telephone equipment.
14. All blocking, backing and other concealed wood supports within floors, walls and ceiling for entire job including, but not limited to, blocking for specialties,

plumbing fixtures, accessories and casework. Blocking within partitions for specialties, door frames and other components as required.

15. Preservative treatment of all wood exposed to moisture and in contact with concrete or masonry.

16. Fire-retardant treated wood paneling, furring and electrical backboards as required by code.

17. Building felts for work of this Section, and protective papers.

18. Other usual items of normal rough carpentry work indicated on the Drawings or necessary for the proper completion of the Project, even though not specifically mentioned herein.

1.03 RELATED WORK

A. Examine Contract Documents for requirements that affect work of this Section. Other Specification Sections that directly relate to work of this Section include, but are not limited to:

1. Section 03300, CAST-IN-PLACE CONCRETE; Inserts and anchor bolt installation.
2. Section 09900, PAINTING; Painting and staining of trim.

B. Work Furnished but not installed:

1. Anchor bolts or welded masonry hangers built into concrete or masonry for support of wood framing: Installed under Section 03300 Cast in Place Concrete, or Section 04200 Unit Masonry, or Section 04230 Reinforced Unit Masonry.

1.04 QUALITY ASSURANCE

A. Reference Standards:

1. Wood Framing: Comply with requirements of the 2006 International Building Code and National Design Specification for Wood Construction, Latest Edition, as published by the National Forest Products Association.

1. Materials and workmanship shall conform to applicable local governing codes, latest edition.

B. Provide lumber and plywood bearing the grade-trademark of the association under the rules or standards of which it was produced. Grade-trademarks shall conform to the rule or standard under which the material is produced, including requirements for qualifications and authority of the inspection organization, usage of authorized identification, and information included in the identification.

1. Grades specified are the minimum acceptable. Lumber grades shall be determined in accordance with ASTM D 245.

2. Lumber shall bear the grade mark of an American Lumber Standards Committee, Board of Review-approved agency. Lumber shall conform to USDC PS 20.

3. Lumber shall bear a mark of mill identification.

4. Plywood shall comply with APA Ref. 1 grading requirements, USDC PS 1, and ANSI Al 99. 1.

5. Non-plywood type performance-rated construction panels shall conform to APA PRP-108, as well as to USDC PS 2-92.

6. Fasteners shall comply with CABO NER-272.

7. Fire Treatment: Each piece required to be fire treated shall carry UL approved identification or other acceptable marking.

C. Qualifications of workmen: Provide sufficient workmen and supervisors who shall be present at all times during the execution of the portion of the Work, and who shall be thoroughly familiar with the type of construction involved and the materials and techniques specified.

D. Rejection: In the acceptance or rejection of rough carpentry, the Engineer will make no allowance for lack of skill on the part of the workmen.

1.05 SUBMITTALS

A. General: Submittals shall be made in compliance with the requirements of Division 1.

B. Product Data: Submit manufacturer's printed product data, specifications, standard details, installation instructions, use limitations and recommendations for each material used. Provide certifications that materials and systems comply with specified requirements.

C. Material Certificates

1. Lumber producer’s grading rules or other data attesting to the strength of lumber.

2. Certification that chemical treatment for moisture resistance is as specified and in conformance with the applicable standards. State process used, chemical content, moisture content and finish restrictions.

3. Certificate that chemical treatment for fire resistance is as specified and is in conformance with the applicable standards. State process used, chemical content, moisture content and finish restrictions.

D. Shop Drawings: Provide large scale shop drawings for fabrication, installation and erection of all parts of the work. Provide plans, elevations, and details of anchorage,

connections and accessory items. Provide installation templates for work installed by others. Show all interfaces and relationships to work of other trades.

E. Field Measurements: Take field measurements before preparation of shop drawings and fabrication. Do not delay progress of the job. If field measurements are not possible prior to fabrication, allow for field cutting and fitting.

F. Initial Selection Samples: Submit samples showing complete range of colors, textures, and finishes available for each material used.

G. Verification Samples: Submit representative samples of each material that is to be exposed in the completed work. Show full color ranges and finish variations expected. Provide samples having minimum size of 144 sq. in.

H. Manufacturer's Data

1. Chemical treatment manufacturer's instruction for handling, storing, cutting and finishing of treated lumber, for both moisture and fire resistance treatment.

1.06 DELIVERY, STORAGE AND HANDLING

A. Materials when delivered to site shall be stacked and stored above the ground under protective coverings or indoors in such manner as to insure proper drainage, ventilation, and protection.

B. Rough carpentry materials shall be stored on elevated piles to allow for air circulation below and tipped in one direction to effectively drain moisture. Lumber shall be wrapped completely, including bottoms, in waterproof tarps. Tarps shall be tied down to protect against wind blow-off. Should delays in Project be anticipated, lumber shall be stored in covered storage trailers.

C. Do not leave any newly installed wood blocking exposed. Cover and protect all new wood daily with the new roof systems or other suitable covering approved by the Engineer.

1.07 COORDINATION

A. Coordinate the work of this Section with the work of other Sections to assure the steady progress of all the work of the Contract.

PART 2 PRODUCTS

2.01 FRAMING LUMBER

A. Sound, thoroughly seasoned, surfaced four sides and bearing the grade and trademark of the association under whose rules it is produced, and a mark of mill identification. Lumber shall be new, of consistent size, free of stains and mildew, well manufactured, and free from warp not correctable by bridging, blocking or nailing. Where exposed or semiexposed, wood members shall be selected for best possible appearance from the grade of stock specified.

B. Moisture Content: Maximum of 19 percent for nominal 2" dimension or less, and a maximum of 15 percent for nominal dimension of more than 2".

C. General Framing: Spruce-Pine-Fir, Standard or Stud grade or better.

D. Studs: Spruce-Pine-Fir, Stud or No. 3 grade or better.

E. Plates: Spruce-Pine-Fir No. 2 grade or better.

F. Joists, Headers, and Rafters: Spruce-Pine-Fir, No. 2 grade or better.

G. Beams, Stringers, Posts and Timbers: Hem-Fir No. 1 grade or better.

H. Blocking: Spruce-Pine-Fir, Utility grade or better.

I. Furring: Spruce-Pine-Fir, Standard grade or better.

L. Provide lumber and plywood with fire resistant treatment, when noted or required by code,

1. Treat to UL FR-5 (flame spread less than 25, no combustion).

M. Provide lumber and plywood with moisture resistant treatment as follows:

1. Pressure Preservative Treated Lumber for Above Ground Use: Pressure preservative treat lumber above ground and in contact with metal and concrete in conformance with AWPA C2. Provide pressure preservative treated lumber with a minimum net retention of 0.25 pcf. Dry lumber to maximum moisture content of 19% after treatment. Use only waterborne preservatives which conform to AWPA P5. Creosote preservatives are not acceptable.

   a. Pressure preservative treat lumber in contact with ground in compliance with AWPA C2 with a minimum net retention of 0.40 pcf.

   b. Above grade, treat with 0.25 #/Ft^3 CCA per A.W.P.B quality designation LP-2, "Above Ground Use."

N. Treated lumber and plywood is to conform to (FS) TT.IV.571 and American Wood Preservers Association Book of Standards.

O. Decks and exterior steps shall be 5/4" No. 1 pressure treated Southern Yellow Pine.

P. Fire-Retardant Treated Plywood for Exterior Use: Where indicated, provide plywood sheathing UL fire-retardant treated with treatment which yields aflame spread of not more than 25 when tested in conformance with ASTM E 84, conforms to AWPA C 27 for Exterior Type, and has successfully passed a rain test conforming to ASTM D 2898. Kiln dry after treatment to a maximum moisture content of 15%.

2.03 SHEATHING

A. Wall Sheathing: A.P.A. CD interior with exterior glue. Thickness and panel index as indicated.

D. Plywood shall conform to the requirements of APA Design/Construction Guide, Residential and Commercial.

E. Non-plywood type performance-rated construction panels shall meet or exceed APA PRP-1 08. Provide APA Rated Sheathing, Exposure 1, for wall sheathing.

F. General Carpentry Material Schedule shall be as follows:

Item	Grade	Species
Exterior Standing and Running Trim	A Grade	Spruce-Pine-Fir
Plywood, exposed	USDC PS 1, pressure treated APA A-C plugged, exterior glue	Western Red Cedar
Plywood sheathing at exterior walls	APA Rated sheathing Exposure 1, APA C-D plugged, exterior glue	Group 1 Species
Treated wood	MCQ 0.25 pcf Pressure Treated, SPC Select and No. 1 Grade, kiln-dried	Southern Pine

2.04 ROUGH HARDWARE AND ANCHORS

A. Provide all rough hardware required to complete this work and to attach this work in a secure and rigid manner to work of this and other trades, including all inserts, anchors, anchor bolts, lag bolts, screws, washers, nuts, nails, and other rough hardware. Assist other trades as necessary in the placement of inserts and anchor bolts in concrete and masonry and furnish full instructions regarding locations, sizes, and other requirements of the items in order that they may properly prepare their work to receive same. Rough hardware shall comply in all respects with requirements of the governing laws and codes.

B. Rough hardware items for use at framing, blocking, nailers, etc., and other exterior uses, and to be exposed in the finished interior work, shall be hot-dip galvanized zinc or cadmium-plated steel, or stainless steel in accordance with ASTM A153, or non-ferrous, as indicated or as approved by Engineer. Galvanizing shall conform to ASTM A153. Concealed interior nails shall be bright. Other concealed items shall be cadmium plated or zinc chromate plated. Rough hardware items shall be of appropriate type and of proper capacity and size as required for each specific application.

D. Unless otherwise called out, wood framing, blockings, nailers, etc., of 2 in. nominal thickness or greater shall be bolted to back-up material with 5/8 in. bolts (galvanized at exterior locations and at roofs) located 4 in. from ends and splices, and spaced not greater than 24 in. on center along lengths of the members, to develop positive and secure anchorage to the back-up material. Nails shall be of sufficient length to penetrate the receiving member a minimum of 1-1/2 in.

E. Unless otherwise called out, wood framing, nailers, furring, etc., less than 2 in. nominal thickness shall be secured to back-up material by use of appropriate fasteners located 4 in. from ends and spaced not greater than 16 in. on center along lengths of the members. Type and length of fastening devices shall be such as to develop positive and secure anchorage to the back-up material.

F. Refer to Structural Drawings for connection requirements for structural lumber. Where a specific hanger is not indicated an cannot be provided from available hanger manufacturers, provide custom fabricated wood connector of 3/16" thick minimum steel plate, galvanized at exterior locations, and designed to support the maximum end reaction of the supported wood member.

G. General: Provide with nails and bolts according to manufacturer's requirements.

2.05 FASTENERS

A. Nails: Use common wire nail lengths and diameters unless noted. Threaded, hardened steel nails may be substituted for common size nails of corresponding size. Use annular-ring, common-wire, galvanized nails for plywood. Galvanized nails shall be hot-dip galvanized, ASTM A153.

B. Bolts and Lag Screws: Common hexagonal head bolts and screws, ASTM A307.

C. Washers: Provide steel washers under all heads and nuts bearing against wood. Surface area of washer to be minimum of 16 times the shank area of the receiving bolt or lag screw. Thickness not less than 1/10 of the washer diameter or length of longest side.

D. Steel Plates, Straps and Weldments: ASTM A36, size as indicated. Where welded, provide minimum of 3/16" fillet welds all sides and full length of contact surfaces unless noted. Use E60 or E70 welding electrodes. Prime with shop paint.

2.06 POWER-DRIVEN ANCHORS

A. Ramset or equivalent low velocity power driven fasteners, minimum 1/8" shank diameter. Length as required to penetrate receiving member and back-up material in accordance with manufacturer's recommendations.

2.07 EXPANSION BOLTS

A. Comply with FS FF-S-325, Group II, Type 4, size as indicated. McCullough Industries, "Kwik-Bolt Concrete Anchors", Wej-It Expansion Products, Inc., "Wej-It Concrete Anchors"; or approved equal.

1. Use galvanized anchors.

2.12 EXTERIOR STANDING AND RUNNING TRIM

A. Scope: Exterior standing and running trim work includes, but is not limited to, the following:

1. Door Trim
2. Miscellaneous molding and trim.

B. Quality Standard: Provide AWI Custom Grade materials and workmanship.

C. Wood Species and Cuts: Provide as follows:

1. Painted Work (except as specified): Spruce-Pine-Fir.
2. Plywood Panels: APA Exterior Grade, MDO facing.

2.13 MISCELLANEOUS MATERIALS

A. Inserts, Anchors, and Fasteners: Provide inserts, anchors, anchor bolts, lag bolts, screws, washers, nuts, nails, and other rough hardware. Assist other trades as necessary in the placement of inserts and anchor bolts in concrete and masonry. Furnish full instructions regarding locations, sizes, and other requirements to ensure proper preparation. Provide rough hardware which complies with requirements of the governing building codes.

B. Rough Hardware: Provide hot-dip galvanized steel finish or stainless steel finish for rough hardware items for use at exterior. Hot dip galvanizing shall be in accordance with ASTM A 153. Provide other concealed items cadmium plated or zinc chromate plated.

C. Provide hammer driven anchors and fasteners for securing wood framing, blocking or plywood into masonry of sufficient length to penetrate the receiving member 1 ½" minimum.

PART 3 EXECUTION

3.01 ROUGH CARPENTRY WORK, GENERAL

A. No attempt is made in this Specification to list the various elements of rough carpentry work, as the major part of the work to be done is clearly shown on or reasonably inferred from the Drawings. The rough carpentry work required shall include all such work, regardless of whether or not each and every item is specifically called for. Refer to Drawings to determine the major extent of the rough carpentry work required.

B. The Contractor shall be responsible for structural integrity, connections, and anchorage of rough carpentry work. All nailing shall be in accordance with the 2006 International Building Code.

B. The Contractor shall be responsible for structural integrity, connections, and anchorage of rough carpentry work, All nailing shall be in accordance with the 2006 International Building Code.

C. Discard units of material which are unsound, warped, bowed, twisted, improperly treated, not adequately seasoned, or too small to fabricate with minimum number of joint or optimum jointing arrangements, or which are of defective quality with respect to surfaces or sizes.

D. Butt joints in wood shall be flush to provide a smooth, uniform line with no irregularities. Built-up blocking shall have butt joints staggered 4 in. minimum layer to layer. The minimum length of any individual piece of woodwork shall be 12 in. All lengths of woodwork shall have a minimum of four fasteners.

E. Construct all rough carpentry work plumb, level, and true with tight, close fitting joints, securely attached and braced to surrounding construction, all in a first class workmanlike manner. Counterbore for bolt heads, nuts, and washers where required to avoid interference with other materials.

F. Structural members shall be full-length without splices, and spaced not farther than 16 in. on center, except as may be otherwise specifically indicated on the Drawings.

1. Wood framing members shall be one-piece full length for maximum strength. Wood blockings, edgings, nailers, etc., shall be installed as indicated or specified and shall be furnished in not less than 12 ft. lengths, except where shorter lengths are required.

J. Wood blockings, nailers, edgings, etc., shall be installed as indicated or specified and shall be furnished in lengths not less than 12 ft., except where shorter lengths are required.

K. All connections, nailing, and fastening of rough carpentry work shall conform to requirements of the governing building code.

L. Install all wood grounds plaster wallboard work, including those required by other trades to properly attach their work, such as grounds to assure proper lines and levels and for attachment of fixtures, louvers, grilles, registers, diffusers, etc. Do not, however, include fixture support blockings at steel stud framed or furred gypsum wallboard finished walls or partitions as work of this Section.

M. If nailing, drilling, or powder-driving into concrete or masonry causes puncturing of conduits, pipes, ducts, etc., embedded in such work, shall be repaired at no expense to the City.

3.02 INSPECTION

A. Verify that surfaces to receive rough carpentry are prepared to required grades and dimensions. Do not begin work until unsatisfactory conditions are corrected.

3.03 COORDINATION

A. Coordinate with other trades. Provide required grounds, blocking, wood backing and framing. Perform cutting and patching or rough carpentry work as required.

3.04 ROUGH HARDWARE

A. Provide and install rough hardware and metal fastenings as indicated, specified or required for proper installation of rough carpentry.

1. Nails, spikes, screws and bolts, and similar items shall be sizes and types to properly secure members in place.

2. All nails are to be galvanized.

3. Use threaded nails wherever possible.

4. Use nails which are specifically intended for the application.

5. Countersink bolt heads into wood framing members where exposed to view unless noted otherwise.

B. Fasteners

1. Nails: Where splitting is likely to occur, pre-drill nail holes ½ size of nail diameter and use threaded, hardened steel nail.

2. Bolts: Bolt holes shall be 1/32” to 1/16” larger than the bolt diameter. Carefully center bolt hole between side plates and main members. Provide steel washers between wood and bolt heads and/or nuts.

3. Lag Screws: Provide steel washer between wood screw head. Provide lead holes for the screw portion as follows.

Lag Screw Nominal Diameter	Lead Hole Diameter
½ in. dia	5/16 in. dia
5/8 in. dia	13/32 in. dia
¾ in. dia	½ in. dia

Lead holes for the shank shall have a diameter and length equal to the unthreaded portion of the screw shank. Lubricate screw with soap before installing.

C. Anchors: Anchor carpentry work to masonry or concrete where required. Anchors as follows, unless otherwise indicated:

1. Wall Plates: ½” x 8” bolts with washers at 4’ on center unless otherwise indicated.

2. Non-loadbearing Partition Plates on Concrete Floors: Expansion bolts or power-driven anchors at 4" on center.

E. Joists and Beams: Sizes and spacing as indicated. Set crown edge up with 3-1/2" bearing unless noted otherwise. Toenail joist or secure with metal connectors. Lap and splice joists over supports. Double joists under nonbearing partitions. Provide 3" fire cut bevel where joists are built into masonry. Provide 3/8" minimum air space or heat welded bituthene wrap on sides pre-fastened to beam prior to installation, end and top of all beams built into masonry. Provide blocking or suitable edge support between members as necessary to support edges of sheathing or sub-flooring. Provide special framing at party walls for sound control as indicated.] Galvanize all connecting hardware.

F. Bridging:

1. Solid Bridging: Provide between joists over all supports and as indicated; 2" x depth of framing members, staggered for end nailing.

G. Studs: 2x6 in., spacing on center as indicated in the schedules provided, unless otherwise indicated in the details. Single bottom plate and double top plates with joints staggered. Triple studs at corners and intersections unless otherwise indicated. Provide plywood sheathing 4'-0 minimum each way at corners. Provide a minimum of double 2x8 headers over openings or as otherwise indicated. Set studs directly over joints where possible. Provide blocking as necessary. Provide blocking 24" on center between studs to receive vertical wood siding. Install continuous fiberglass will sealer under all exterior plates bearing directly on concrete or masonry. For staggered stud partitions, install top and bottom plates with two rows of 2x4 or 2 x 6 studs 16 in. on center, staggered.

3.05 PLYWOOD SHEATHING INSTALLATION

A. Wall Sheathing (except shear walls): Install plywood panels vertically with all edges supported. Nail 6" on center along all edges and 12" on center along all intermediate supports unless indicated otherwise. Use 6d nails for ½" thickness and 8d nails for greater thickness.

3.06 TREATED LUMBER

A. All exterior lumber is to be pressure treated for moisture resistance. Lumber shall be treated for fire resistance where noted and where required by code.

3.07 WOOD FURRING

Provide wood furring on masonry on concrete wall in sizes and spacing as indicated. Securely fasten wood furring at maximum 3'-0 on center with toggle or expansion bolts, cut concrete nails or power-driven anchors as required. Install furring around openings and at corners. Erect furring plumb, level, and shim out as required.

3.08 WOOD GROUNDS AND BLOCKING

Provide grounds and blocking of size required for plaster, for securing wood trim and other work or equipment. Set true to line, level or plumb, well secured in place. Bolt blocking or nailers on steel framing.

3.09 BUILDING FELT AND PROTECTIVE PAPER

A. Provide all building felt required for installation of work of this Section and protective paper required for protection of finished floors except where specified to be provided by a different trade.

3.12 FASTENING OF EXTERIOR CARPENTRY FRAMING, SHEATHING, AND TRIM

A. Wood shall be secured to wood substrates and other wood to wood connection with nails spaced 12 in. on center maximum staggered along the centerline of the member being installed. All nail heads must be flush with the top surface.

B. Wood to masonry connections shall be completed using hammer driven anchors through predrilled holes spaced 8 in. on center maximum. Predrill the hole, insert fastener sleeve, and secure in place with nail.

C. Plywood installed to masonry surfaces shall be secured using hammer driven anchors through predrilled holes spaced 12 in. on center along the top and bottom edges. Keep fasteners 3 in. minimum from the board edge. Fastener heads shall be driven flush with the surface. Plywood installed to wood substrates shall be secured with nails at same spacing as hammer driven anchors.

D. Installation and nailing of performance-rated construction panels and sheathing shall be in strict accordance with the published specifications and recommendations of the American Plywood Association (APA), including APA Ref. 1. Unless otherwise indicated on the Drawings, all sheathing shall be nailed at 3 in. o.c. at edges and 12 in. o.c. for panel field nailing, with 10d galvanized steel nails.

E. Standing and Running trim: Install with minimum number of joints possible, using full-length pieces (from maximum lengths of lumber available) to the greatest extent possible. Stagger joints in adjacent and related members. Cope at returns, miter at corners, to produce tight fitting joints with full surface contact throughout length of joint. Use scarf joints for end-to-end joints, carefully fitting pieces to provide water-resistant joints. Anchor trim work to anchorage devices or blocking built-in or directly attached to substrates. Secure to grounds, stripping, and blocking with countersunk, concealed fasteners and blind nailing as required for a complete installation. Use fine finishing nails for exposed nailing, countersunk and filled flush with finished surface, matching final finish.

END OF SECTION

SECTION 07190
WATER REPELLENTS

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. This Section includes penetrating water-repellent coatings for the following vertical and horizontal surfaces:

1. Brick masonry.
2. Stonework.

B. Related Sections include the following:

1. Division 3 Section "Cast-in-Place Concrete" for curing compounds, curing and sealing compounds, and penetrating liquid floor treatments.

4. Division 4 Section "Clay Masonry Restoration and Cleaning" for brick and clay tile restoration and cleaning.

8. Division 7 Section "Joint Sealants."

9. Division 9 Painting Section for paints and coatings.

1.3 PERFORMANCE REQUIREMENTS

A. Performance Testing: Provide water repellents that comply with test-performance requirements indicated, as evidenced by reports of tests performed by manufacturer and based on Project-specific preconstruction testing by a qualified independent testing agency on manufacturer's standard products applied to substrates simulating those on Project using same application methods to be used for Project.

1. [**Owner will engage**] [**Engage**] testing agency to perform preconstruction tests on laboratory mockups.

2. Select sizes and configurations of assemblies to adequately demonstrate capability of water repellents to comply with performance requirements.

3. Notify Architect seven days in advance of the dates and times when assemblies will be constructed.

B. Absorption: Minimum 90 percent reduction of absorption after 24 hours in comparison of treated and untreated specimens.

1. Brick: ASTM C 67.
2. Stone: ASTM C 97.
3. Concrete Unit Masonry: ASTM C 140.
4. Hardened Concrete: ASTM C 642.

C. Water-Vapor Transmission: Maximum 10 percent reduction in rate of vapor transmission in comparison of treated and untreated specimens, per ASTM E 96.

D. Permeability: Minimum 80 percent water-vapor transmission in comparison of treated and untreated specimens, per ASTM D 1653.

E. Water Penetration and Leakage through Masonry: Minimum 90 percent reduction in leakage rate in comparison of treated and untreated specimens, per ASTM E 514.

F. Durability: Maximum 5 percent loss of water repellency after 2500 hours of weathering in comparison to specimens before weathering, per ASTM G 154.

G. Chloride-Ion Intrusion in Concrete: NCHRP Report 244, Series II tests.

1. Reduction of Water Absorption: 80 percent.
2. Reduction in Chloride Content: 80 percent.

1.4 SUBMITTALS

A. Product Data: For each type of product indicated.

1. Include manufacturer's printed statement of VOC content.
2. Include manufacturer's standard colors.

B. Samples: For each type of water repellent and substrate indicated, 12 by 12 inches (300 by 300 mm) in size, with specified water-repellent treatment applied to half of each Sample.

C. Manufacturer Certificates: Signed by manufacturers certifying that water repellents comply with requirements.

D. Qualification Data: For Installer, workers trained and approved by manufacturer having demonstrated experience successfully applying silane waterproofing on comparably similar historic clay brick buildings within the past five years.

E. Preconstruction Testing Reports: For water-repellent-treated substrates.

F. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for assemblies.

G. Warranty: Special warranty specified in this Section.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: An employer of workers trained and approved by manufacturer.

B. Testing Agency Qualifications: An independent agency qualified according to ASTM E 548 for testing indicated.

C. Test Application: Apply a finish sample for each type of water repellent and substrate required. Duplicate finish of approved sample.

1. Locate each test application as directed by Engineer.
2. Size: 25 sq. ft..
3. Final approval by Architect of water-repellent application will be from test applications.

D. Pre-installation Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Management and Coordination."

1.6 PROJECT CONDITIONS

A. Limitations: Proceed with application only when the following existing and forecasted weather and substrate conditions permit water repellents to be applied according to manufacturers' written instructions and warranty requirements:

1. Ambient temperature is above 40 deg F (4.4 deg C).
2. Concrete surfaces and mortar have cured for more than 28 days.
3. Concrete or brick masonry walls are not treated prior to 30 days after building close-in.
4. Rain or snow is not predicted within 24 hours.
5. Application proceeds more than seven days after surfaces have been wet.
6. Substrate is not frozen, or surface temperature is above 40 deg F (4.4 deg C).
7. Windy conditions do not exist that may cause water repellent to be blown onto vegetation or surfaces not intended to be treated.

1.7 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer and Applicator agree to repair or replace materials that fail to maintain water repellency specified in Part 1 "Performance Requirements" Article within specified warranty period.

1. Warranty Period: Two years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, products listed in other Part 2 articles.

B. Products: Subject to compliance with requirements, provide one of the products listed in

other Part 2 articles.

2.2 PENETRATING WATER REPELLENTS

A. Silane, Penetrating Water Repellent: Clear, monomeric compound containing 20 percent or more solids of alkyltrialkoxysilanes; with alcohol, mineral spirits, water, or other proprietary solvent carrier; and with 3.3 lb/gal. (400 g/L) or less of VOCs.

1. Available Products:

a. Advanced Chemical Technologies, Inc.; Sil-Act Multiguard.
b. Anti-Hydro International, Inc.; Aridox 40M.
c. ChemMasters; Aquanil Plus 40.
d. Gemite Products, Inc.; Gem Guard SL.
e. Hydrozo, a division of ChemRex; Enviroseal 20.
f. Nox-Crete Products Group; Stifel VC.
g. Pecora Corporation; Klear-Seal 9100 S.
h. Seal-Krete, Inc.; S-K High Solids.
i. Sonneborn Building Products, a division of ChemRex; White Rox 10 VOC.
j. Tamms Industries, Inc.; Baracade Silane 100.
k. Wacker Chemical Corp.; 1316.

PART 3 - EXECUTION

3.1 PREPARATION

A. Clean substrate of substances that might interfere with penetration or performance of water repellents. Test for moisture content, according to water-repellent manufacturer's written instructions, to ensure that surface is dry enough.

1. Clay Brick Masonry: Clean clay brick masonry per ASTM D 5703 and Division 4 Section "Clay Masonry Restoration and Cleaning."

B. Test for pH level, according to water-repellent manufacturer's written instructions, to ensure chemical bond to silicate minerals.

C. Protect adjoining work, including sealant bond surfaces, from spillage or blow-over of water repellent. Cover adjoining and nearby surfaces of aluminum and glass if there is the possibility of water repellent being deposited on surfaces. Cover live plants and grass.

D. Coordination with Sealants: Do not apply water repellent until sealants for joints adjacent to surfaces receiving water-repellent treatment have been installed and cured.

1. Water-repellent work may precede sealant application only if sealant adhesion and compatibility have been tested and verified using substrate, water repellent, and sealant materials identical to those used in the work.

E. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 APPLICATION

A. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect the substrate before application of water repellent and to instruct Applicator on the product and application method to be used.

B. Apply a heavy-saturation spray coating of water repellent on surfaces indicated for treatment using low-pressure spray equipment. Comply with manufacturer's written instructions for using airless spraying procedure, unless otherwise indicated.

C. Apply a second saturation spray coating, repeating first application. Comply with manufacturer's written instructions for limitations on drying time between coats and after rainstorm wetting of surfaces between coats. Consult manufacturer's technical representative if written instructions are not applicable to Project conditions.

3.3 CLEANING

A. Immediately clean water repellent from adjoining surfaces and surfaces soiled or damaged by water-repellent application as work progresses. Repair damage caused by water-repellent application. Comply with manufacturer's written cleaning instructions.

END OF SECTION 07190

SECTION 08360
OVERHEAD DOORS

PART 1 – GENERAL

1.01 SUMMARY

A. Provide Sectional overhead doors where shown on drawings, as specified herein, and as needed for a complete and proper installation.

B. Section Includes

1. Electric motor operated doors
2. Manually operated doors

C. Related Documents/Sections: Carefully examine the contract documents for requirements which affect work of this section. Documents and specification sections containing requirements which relate to this section include but are not necessarily limited to:

1. Drawings and general provisions of the contract applied to work of this section.

1.02 SUBMITTALS

A. General:

1. Identify proposed changes, differences, and discrepancies, including verbiage, terms, and definitions, between contract documents and submittals.

B. Product Data:

1. For each type of product indicated, submit manufacturer’s specifications and other data needed to provide compliance with the specified requirements.

C. Shop Drawings:

1. Submit drawings in sufficient detail to show fabrication, installation, anchorage, and interface of the work of this section with the work of adjacent trades.

2. Provide setting drawings, templates, and directions for the installation of anchor bolts and other anchorages installed as a unit of work under other sections.

3. Submit wiring diagram and electrical component locations indicating all connections for electrically operated units.

D. Samples:

1. Samples for Verification Purposes:

a. Finish color.

E. Quality Control Submittals:

1. Certificates
   a. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

2. Qualification Data

   a. Submit data for firms and persons specified under “Quality Assurance” article to demonstrate their capabilities and experience. Include list of completed projects with project name(s), addresses, names of Engineer(s) and Owner(s), plus other specified information.

3. Manufacturer’s Instructions:

   a. Submit manufacturer’s recommended installation procedures which, when reviewed by the Engineer, may become the basis for accepting or rejecting actual installation procedures used on the work.

F. Contract Closeout submittals:

1. Upon completion of this portion of the Work, and as a condition of its acceptance, deliver to the Engineer requisite copies of the following.

   a. Project Record Documents.

   b. Operation and Maintenance Data.

1.03 QUALITY ASSURANCE

A. Manufacturer Qualifications: Door manufacturer must have demonstrated experience fabricating custom overhead doors for fire stations apparatus entryways. Contractor shall install each sectional overhead door as a complete unit produced by a single manufacturer, in accordance with manufacturer’s recommendations including frames, sections, brackets, guides, tracks, counterbalance mechanisms, hardware, operators, and installation accessories.

B. Inserts and Anchorages: Furnish inserts and anchoring devices that must be set in concrete or built into masonry for unit installation. Contractor shall submit setting drawings,

templates, and directions for installation of anchorages devices to Engineer for review. Coordinate delivery with other work to avoid delay.

C. See concrete and masonry sections for instruction on installing inserts and anchorage devices.

D. Wind Loading: Design and reinforce sectional overhead doors to withstand 20 psf wind-loading pressure.

PART 2 – PRODUCTS

2.01 MANUFACTURERS

A. Available Manufacturers

1. Fimbel Architectural Door Specialties, 8 Coddington Road, Whitehouse, N.J. 08888, Phone 908-534-1732, Fax-908-534-1358
2. Moulton Custom Door of Vermont, 3759 VT Route 100, Duxbury, VT, 05676, Phone: 802-244-5357, Fax: 802-244-8649

2.02 SECTIONS

A. Insulated, Paint Grade Carriage Style Doors. Sections to have continuous 1/2 inch thick precision machined V Groove (or beadboard Dur-a-Tek) composite hardwood face. Dur-a-Tek overlays to be machined and inlaid into the door face so no water can penetrate exterior skin. Interior skin may be tempered hardboard. Both faces to be laminated to a heavy duty insulated core to form a rigid sandwich panel 1 3/4 inch thick. Section to be waterproof sealed and factory primed.

2.03 TRACKS, SUPPORTS, AND ACCESSORIES

A. Tracks: Provide low headroom 2 inch angle galvanized steel track system, sizing for door size and weight, and designed clearance shown. Contractor to verify clearance in field and provide information to manufacturer. Provide complete track assembly including brackets, bracing and reinforcing for rigid support of ball-bearing roller guides for required door type and size. Slope tracks at proper angle from vertical or otherwise design to ensure tight closure at jambs when door unit is closed. Weld or bolt to track supports.

B. Track Reinforcement and Supports: Provide galvanized steel track reinforcement and support members. Secure, reinforce and support tracks as required for size and weight of door to provide strength, and rigidity without sag, sway, and vibration during opening and closing of doors.

C. Support and attach tracks to opening jambs with continuous angle welded to tracks and securely fastened to wall. Support horizontally (ceiling tracks) with continuous angle

welded to track and supported by laterally braced attachments to overhead structural members at curve and end of tracks.

D. Weather Seals: Provide continuous rubber, neoprene, or flexible vinyl adjustable weather-strip gasket at tops and compressible astragals on bottoms of each overhead door.

1. In addition, provide continuous flexible seals at doorjamb edges for a fully weather-tight installation.

E. Provide vision panels of type and size as indicated on the drawings. Exterior face of glass sections to be ¾" thick Dur-a-Tek composite precision machined to design shown. Sections to be glazed with insulated tempered glass.

2.04 HARDWARE

A. General: Provide heavy-duty, rust-resistant hardware, with galvanized or cadmium-plated or stainless steel fasteners, to suit type of door.

B. Hinges: Provide 11ga. heavy-duty steel hinges at each end stile and at each intermediate stile, per manufacturer's recommendation for size of door. Attach hinges to door sections with heavy duty lags. Provide double-end hinges.

C. Rollers: Provide heavy-duty rollers, with steel ball bearings in case hardened steel races mounted with varying projections to suit slope of track. Extend roller shaft through both hinges, double hinges are required. 2-inch diameter for 2-inch angle mounted track and as follows:

1. Hardened steel tires for normal installations

D. Fabricate locking device assembly with Interior Side Lock, spring-loaded dead bolt, chromium-plated operating handle, cam plate, and adjustable locking bar to engage through slots in tracks.

2.05 COUNTERBALANCING MECHANISM

A. Extension Springs: Operation by extension-spring counterbalance mechanism, consisting of dual, tempered-steel extension springs mounted along horizontal door tracks and fitted with internal safety cables. Connect to door with galvanized aircraft-type lift cables. Provide springs calibrated for 10,000 cycles minimum. Set tension as per normal operating specifications

B. Provide a spring bumper at each horizontal track to cushion door at end of opening operation.

2.06 DOOR OPERATORS

A. General: Furnish electric door-operator assembly of size and capacity recommended and provided by door manufacturer, complete with electric motor and factory pre-wired motor controls, reduction unit, solenoid-operated brake, clutch, remote-control stations and control devices.

B. Provide hand operated disconnect or mechanism for automatically engaging sprocket-chain Operator and releasing brake for emergency manual operation. Include interlock device to automatically prevent motor from operating when emergency sprocket is engaged.

C. Design operator so that motor may be removed without disturbing limit-switch adjustment and without affecting emergency auxiliary operator.

D. Door Operator Type: Provide the following:

1. Trolley Electric Operator of drawbar type, V-belt and roller chain and sprocket primary drive, and chain and sprocket secondary drive.

E. Electric Motors: Provide high-starting torque, reversible, constant duty, Class A-insulated electric motors with overload protection, sized to move door in either direction, from a position, at not less than 2/3 foot or more than 1 foot per second.

1. Coordinate wiring requirements and current characteristics of motors with building electrical system

2. Provide ¾ HP. open-drip-proof type motor, and a controller with NEMA Type I enclosure.

F. Remote Control Station: Provide momentary-contact, three-button control station with push button controls labeled Open, Close, and Stop.

1. Provide interior units, full-geared, surface-mounted, heavy-duty, with general purpose NEMA Type I enclosure.

G. Automatic Reversing Control: Furnish each door with automatic safety switch, extending full door width of bottom door, and located within neoprene or rubber astragal mounted to bottom door rail. Contact with switch will immediately reverse downward door travel. Furnish manufacturers standard take-up reel or self-coiling cable.

1. Provide either electrically or pneumatically actuated bottom bar as standard with manufacturer.

PART 3 – EXECUTION

3.01 INSTALLATION

A. General: Install door, and track, and electrical operating equipment complete with necessary hardware, electrical devices and wiring, door openers, jamb and head mold stops, anchors, inserts, hangers, and equipment supports according to shop drawings, manufacturers instructions, and as specified.

B. Fasten Vertical track assembly to framing at not less than 24 inches o.c. Hang horizontal track from structural overhead framing with angle or channel hangers, welded and bolt-fastened in place. Provide sway bracing, diagonal bracing, and reinforcing as required for rigid installation of track and door operating equipment.

C. After completing installation, including work by other trades, lubricate, test, and adjust doors to operate easily, free from warp, twist, or distortion and fitting weather-tight for entire perimeter.

END OF SECTION
08360

SECTION 09900
PAINTING

PART 1 - GENERAL

1.01 REFERENCES

A. Include all labor, materials, equipment, appliances and services necessary to furnish, fabricate and install all work specified herein.

B. Cooperate and coordinate with all other trades in executing the work described in this Section.

C. Where referred to, standard specifications of technical societies, manufacturer's associations and Federal Agencies shall include all amendments current as of the date of issue of these Specifications.

D. Except where specifically noted otherwise elsewhere in this Section, provide a completely painted finish on all exposed exterior siding and wood trim.

1.02 SCOPE OF WORK

A. This section includes preparation and painting of existing and new wood surfaces from potential damage caused by roofing operations. Hand scraping of existing paint where paint is loose or visually evident paint buildup has occurred shall be required.

B. Unless otherwise indicated, all bare wood surfaces shall be painted with not less than one (1) prime coat and two (2) finish coats of an appropriate paint and all existing surfaces shall be washed, cleaned, scraped, sanded, primed and painted two (2) finish coats, unless specifically indicated to the contrary.

1.03 SAMPLES

A. The subcontractor shall submit samples of the color match of the actual paint, a complete list of the brand names of the paints, both factory and job mixed, which he proposed to use to the Town's representative for approval before commencing any work.

B. All colors shall be as selected by the Engineer and no painting shall be done until such color samples as described have been approved.

C. Samples of paint colors shall be applied to surfaces on the job in sizes and locations as the Engineer may direct; change samples until desired colors are obtained. Progressive coats shall be satisfactorily shaded of f from finish coat. No sample shall be painted out or destroyed without the express permission of the Engineer.

D. All samples shall be prepared by a technician especially skilled in the mixing of colors and applied on the materials on which they are to occur, with the same

number of coats applied in the same manner and with the same amount of time allowed for drying as is hereinafter specified for finish work.

1.04 STORAGE AND USE OF MATERIALS

A. All materials shall be stored in designated spaces in a manner which meets the requirements of applicable codes and fire regulations. When not in use, such spaces shall be kept locked and inaccessible to those not employed under this Section. Each space shall be provided with a fire extinguisher of Carbon Dioxide or Dry Chemical Type bearing the label of the National Board of Fire Underwriter's and tag of recent inspection.

1.05 ACCEPTANCE OF INSTALLATION CONDITIONS

A. This subcontractor shall be fully responsible for the proper execution and performance of the work described herein. It shall be his responsibility to inspect all installation conditions and request the Contractor to correct any conditions which may affect his work adversely. He shall report to the Contractor in writing with a copy to the Engineer any failure of the Contractor to provide suitable installation conditions. Commencement of any portion of the work by this subcontractor will be considered as unqualified approval of installation conditions for that portion.

1 .06 SUBCONTRACTOR'S QUALIFICATIONS

A. All work shall be performed by skilled painters having been in business for at least five (5) years and knowledgeable and experienced in the restoration of historic buildings.

PART 2 - PRODUCTS

2.01 MANUFACTURER

A. General: Materials specified shall be delivered to the job, unopened in original containers bearing the manufacturer's name, brand and formula, with seals unbroken and labels intact. No claim by the painting subcontractors as to the unsuitability or unavailability of any material specified, or his unwillingness to use same or his inability to produce first class work with same, shall be entertained unless such claim is made in writing and submitted with his bid. All materials shall be used only as specified by the manufacturer's direction label on the container.

B. Hot-dip galvanizing repair shall be Z.R.C. cold galvanizing compound as manufactured by the Sealube Company, Quincy, Massachusetts or approved equal.

C. Sealers of resinous areas shall be Kilz II as manufactured by Masterchem, or as recommended by the finish paint manufacturer.

D. Wood filler shall be waterproof and of the paste type.

E. Tinting material unless otherwise recommended by paint manufacturer, shall be ground in pure linseed oil, lime proof, non fading, and lead free.

F. Linseed oil shall be pure, settled, clear and raw or boiled as required to produce best results.

G. Thinner shall be the best grade, pure grain spirits of turpentine distilled form the sap of live trees.

H. Where manufacturer makes more than one (1) grade of any material specified, this contractor shall use the highest grade of each type, whether or not the material is mentioned by trade name in these Specifications.

I. All paints and finishes shall be of one manufacturer. Sherwin Williams has been used to set the standard.

2.02 PAINTING SCHEDULE

A. Number of coats scheduled is minimum. Thin only as required for method of application and in strict conformance with the manufacturers written recommendations, unless otherwise indicated.

B. Surfaces not to be painted: finishes for the following are either included under other appropriate Sections or require no painting unless due to repair of damage caused by this or other trades:

1. Chrome or nickel platings, stainless steel, copper, bronze, brass, and aluminum, unless otherwise specified.

2. Factory final finished materials, equipment, hardware, specialties, and accessories, unless otherwise specified.

3. Brick, mortar, ceramic, tile, glass, plastic, laminated plastic, roofing and exterior metal siding and woodwork not included in scope of work.

C. Exterior Painting Schedule: Alternate equal products upon approval of the Engineer only.

01. Exterior Woodwork, use full bodied, no thinning shall be acceptable:

One Coat	A1OO Alkyd Primer
One Coat	Tinted Undercoat of SWV Alkyd Gloss Paint
One Coat	Finish Coat of SWP Alkyd Gloss Paint

PART 3 - EXECUTION

3.01 PREPARATION OF SURFACES AND WORKMANSHIP

A. The starting of work will be construed as acceptance of such surfaces as being satisfactory, and any defects in work resulting from such accepted surfaces shall be corrected by the Painting Subcontractor at his own expense.

B. Hand scrape areas of defective paint and areas where paint buildup is visually evident to a smooth sound undercoat or outer wood surface as required. Rough up any surfaces, to be painted. Sand as required only. Minimize sanding of previously painted surfaces. Heat elements or chemical removals shall be prohibited from job site.

C. All spaces shall be cleaned with stiff natural bristle brush and all surfaces dry and free of salt spray residue before painting is started. All salt dust, dirt, plaster, grease, rust and other extraneous matter affecting the finish work shall be removed. Foreign matter on surfaces left by other trades shall be removed by the respective trades. Remove mildew and algae from all wood surfaces to receive finish by hand scraping, then wash with 20% solution household chlorine bleach, then rinse with approved potable water.

D. All work shall be done in a workmanlike manner and by skilled tradesmen. All materials shall be cut in neatly to spread evenly, flowed on smoothly, free from brush marks, hair, runs and sags. No paint or enamel shall be applied until preceding coat is thoroughly dry and hard.

E. In general and unless otherwise specified, exterior paints shall be allowed to dry dependent on existing conditions, per manufacturers recommendation, or at least 24 hours between coats. All nail holes, open places or cracks shall be filled with wood filler, tinted to match finish after the priming coat has been applied. Coordinate with other trades.

F. All materials shall be applied in accordance with the manufacturer’s directions and any thinning required shall be done in the manner and exclusively with the type of reducer recommended, Woodwork shall be painted with full bodied paint, no thinning shall be considered.

G. All new exterior painted woodwork shall be back painted with one (1) coat of approved exterior primer. Paint or seal edges of other material where they present an unfinished appearance.

H. All scratches, cuts, cracks, and abrasions in woodwork surfaces shall be cut out as required, then filled with wood filler or other approved wood restorative repeating thin applications until flush with adjoining surfaces and when dry shall be sanded and sealed with adjoining surfaces before application of priming coat.

3.02 JOB CONDITIONS

A. No work shall be done in rain, dew or fog when the wind chill factored temperature is below 50 F, or before the materials to be painted or finished have thoroughly dried out. Avoid painting exterior surfaces while they are exposed to the hot sun.

B. Grounds, roof and adjacent surfaces, as well as surfaces to be painted, shall be clean before and after painting.

C. Utilize drop cloths and any methods required to maintain cleanliness of job site and facilitate cleanup.

3.03 PROTECTION

A. Furnish masking tape as required and lay drop cloths in all areas where preparation of material and surfaces, painting and finishing is being done, to adequately protect grounds and other work from all damage during painting work.

D. The painter shall not use any plumbing fixture or pipe for the disposal of waste materials. Carry all water required to the mixing area and store all waste materials in containers outside the building. Removal of oily rags and other combustible and other waste materials from the project site daily under Section 01700.

E. Exercise great care not to deface adjacent work; protect by drop cloths and other approved means.

F. Any extraneous paint shall be removed and damage to adjacent work caused by paint or painting operations shall be rectified by this subcontractor immediately.

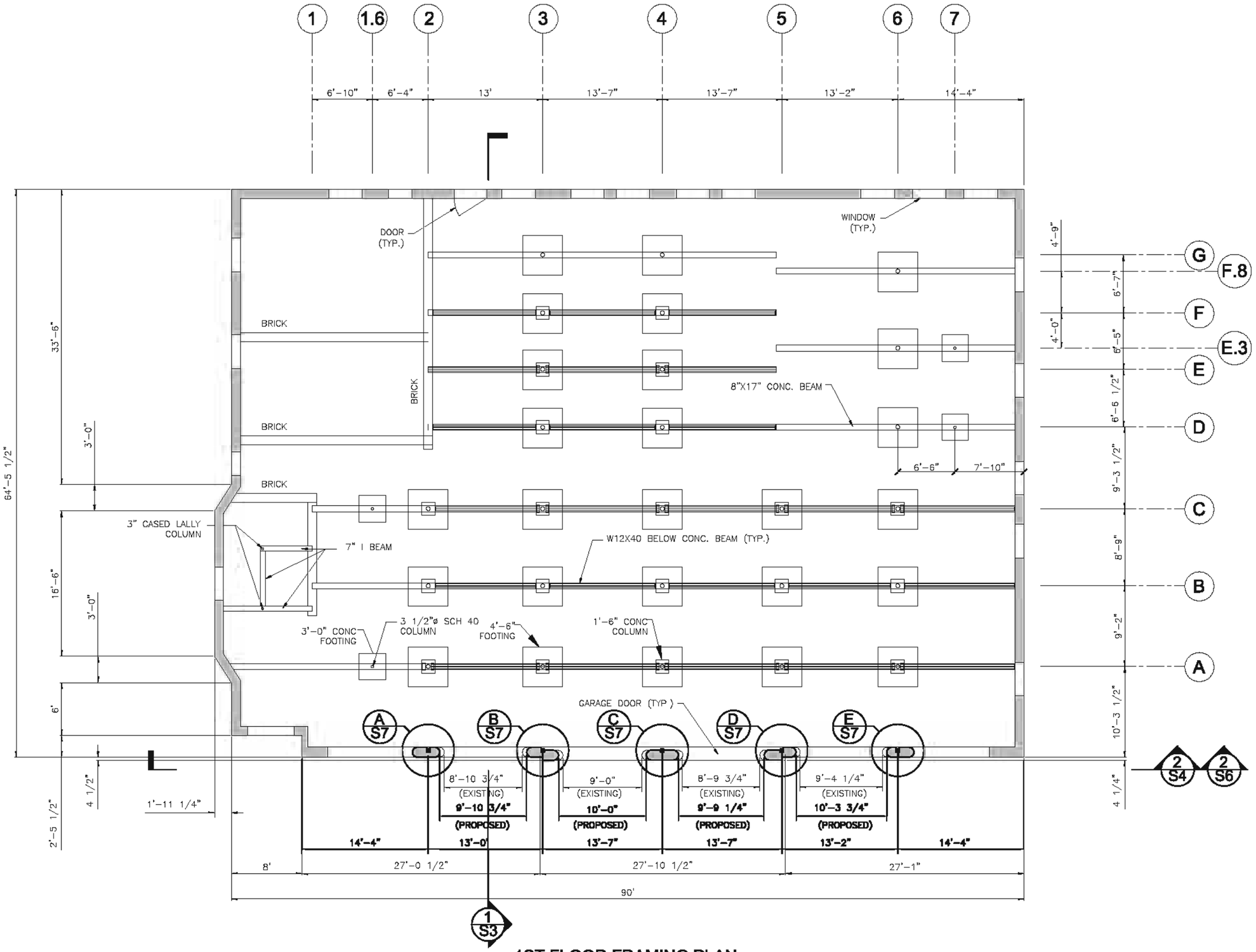
3.04 CLEANING AND PATCHING

A. Cleaning: as work progresses and at the completion of the work, remove from the site all paint spots and all oil, grease, or other stains caused by this work from grounds, roof, glass, siding, fixtures, equipment, materials and debris caused by work. Surfaces shall be left in a clean condition insofar as this work is concerned.

B. Retouching: Touch-up and repair any work applied under the Contract which for any reason, has been damaged during the construction work.

C. Final Inspection: Protect all painted surfaces against damage until the date of substantial completion of work. The Engineer will at this time conduct a final inspection of all painting work. All areas which do not comply with the requirements of this Specification shall be repainted or retouched to the satisfaction of the Engineer at no additional cost to the Owner.

END OF SECTION



1ST FLOOR FRAMING PLAN

SCALE: 3/16" = 1'–0"

Paradigm Engineering
Structural & Civil Engineering

463 US Route One
York, Maine 03909
207-363-5248, fax. 207.363.3237
email smcnally@maine.rr.com
http://www.paradigmeng.com

NO.	REVISION	DATE

SCALE: AS NOTED — DRAWN BY: NMH/HMI
DATE: 12–31–07 — CHECKED BY: SEM

PROJECT

PORTSMOUTH FIRE STATION
170 COURT STREET
PORTSMOUTH, NH 03801

TITLE

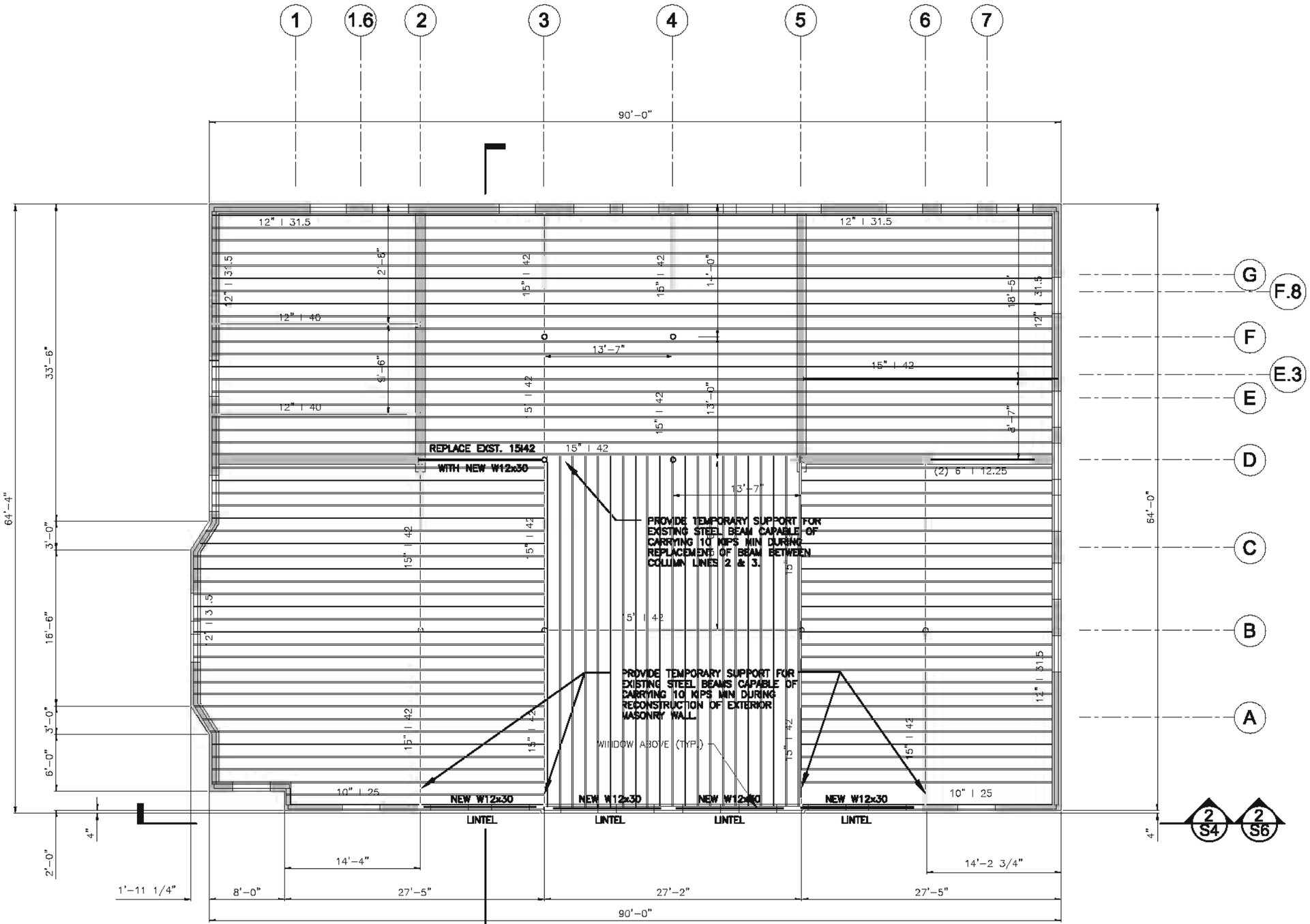
1ST FLOOR FRAMING PLAN

CLIENT

CITY OF PORTSMOUTH
DEPARTMENT OF PUBLIC WORKS
680 BEVERLY HILL ROAD
PORTSMOUTH, NH 03801

DRAWING NO.

S1



2ND FLOOR FRAMING PLAN

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

Paradigm Engineering
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York, Maine 03909
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NO.	REVISION	DATE

SCALE: AS NOTED DRAWN BY: NMH
DATE: 12-31-07 CHECKED BY: SEM

PROJECT

PORTSMOUTH FIRE STATION
170 COURT STREET
PORTSMOUTH, NH 03801

TITLE

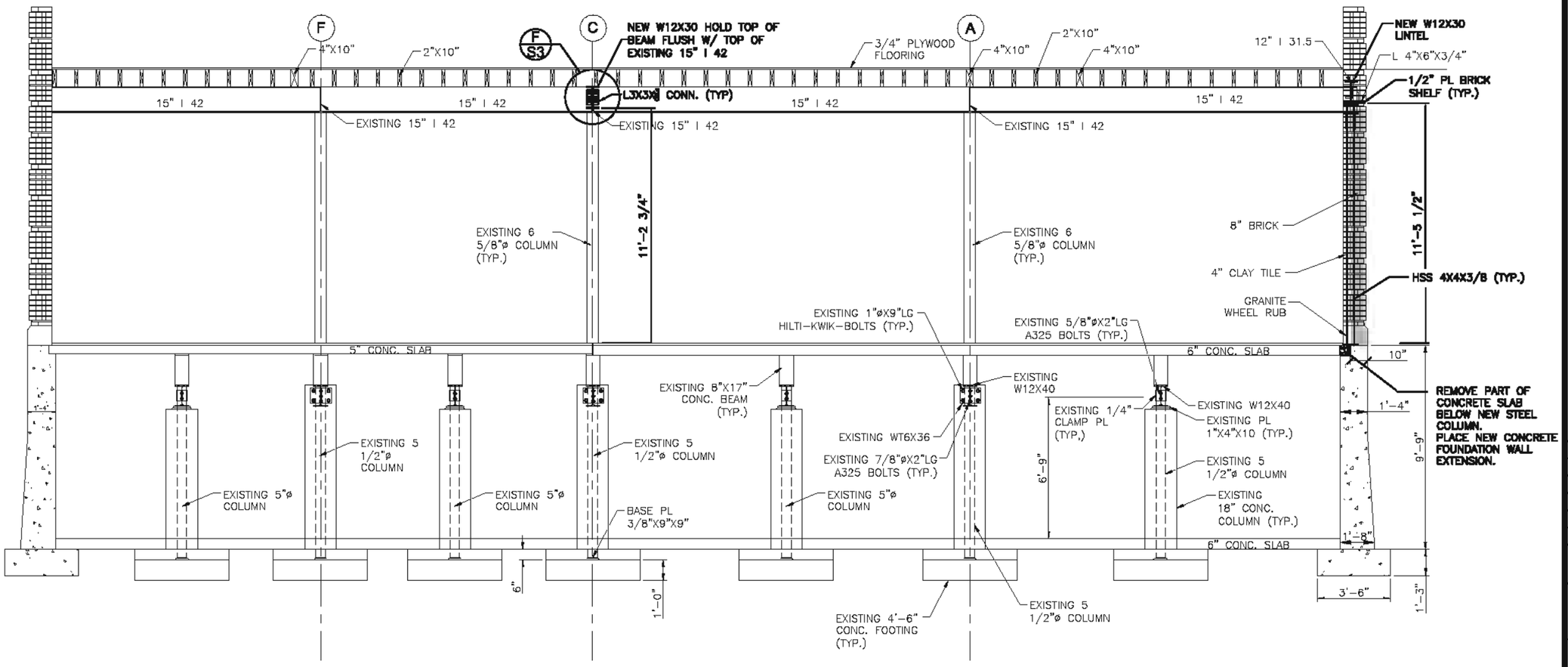
2ND FLOOR FRAMING PLAN

CLIENT

CITY OF PORTSMOUTH
DEPARTMENT OF PUBLIC WORKS
680 BEVERLY HILL ROAD
PORTSMOUTH, NH 03801

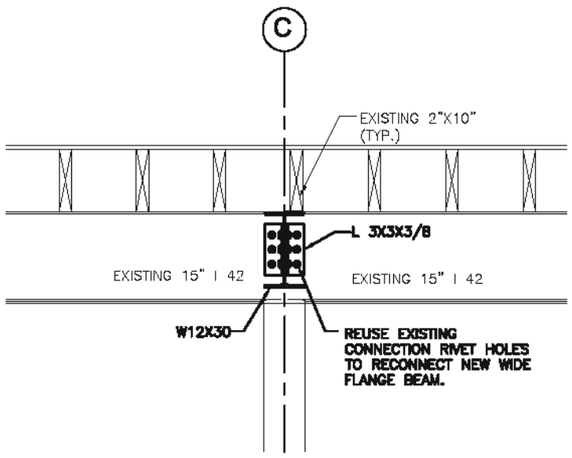
DRAWING NO.

S2



1 S1 1 S2 SECTION

SCALE: 3/8" = 1'-0"



F S3 DETAIL OF NEW W12X30

SCALE: 1" = 1'-0"

NOTE: FILED VERIFY AND DRILL NEW HOLES TO MATCH EXISTING RIVET HOLES. DO NOT BURN HOLES.

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NO.	REVISION	DATE

SCALE: AS NOTED DRAWN BY: NMH
DATE: 12-31-07 CHECKED BY: SEM

PROJECT

PORTSMOUTH FIRE STATION
170 COURT STREET
PORTSMOUTH, NH 03801

TITLE

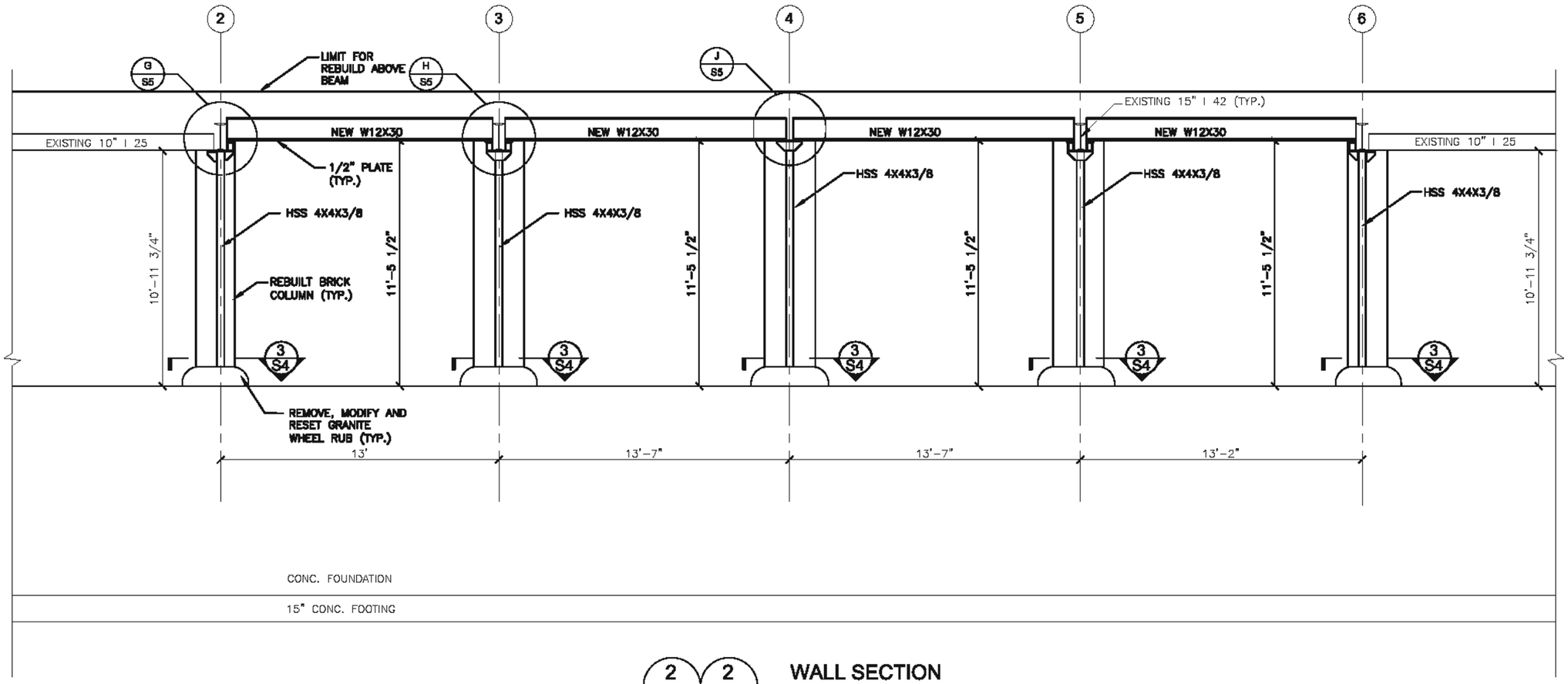
SECTIONS AND DETAILS

CLIENT

CITY OF PORTSMOUTH
DEPARTMENT OF PUBLIC WORKS
680 BEVERLY HILL ROAD
PORTSMOUTH, NH 03801

DRAWING NO.

S3



2 S1 / 2 S2 **WALL SECTION**
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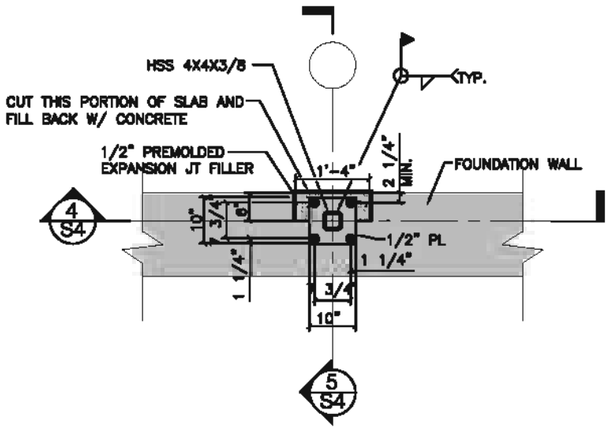

3 / S4 **COLUMN BASE DETAIL**
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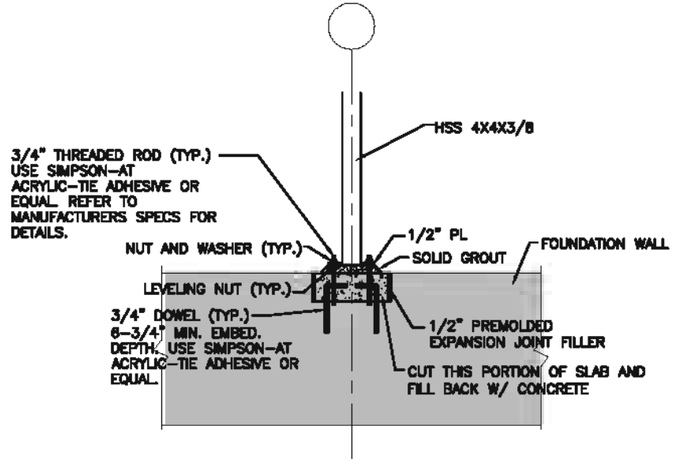

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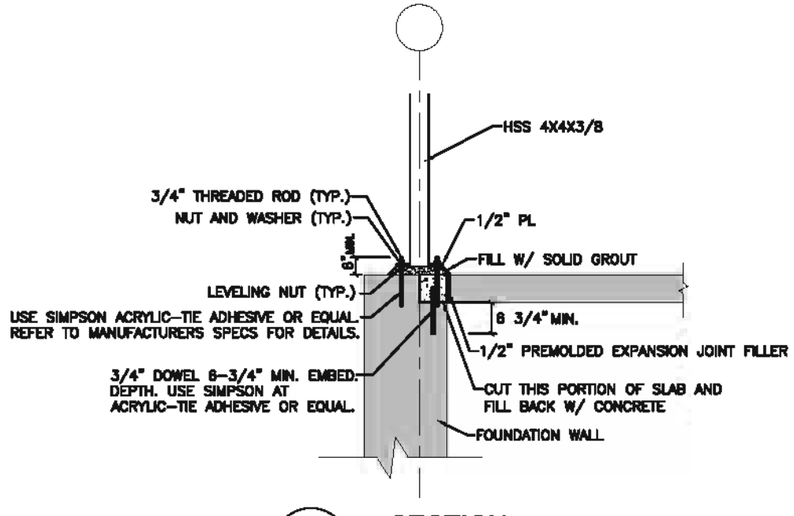

5 / S4 **SECTION**
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NO.	REVISION	DATE

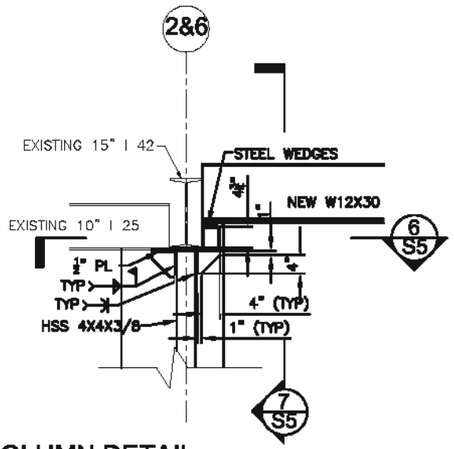
SCALE: AS NOTED DRAWN BY: HMI
DATE: 12-31-07 CHECKED BY: SEM

PROJECT
PORTSMOUTH FIRE STATION
170 COURT STREET
PORTSMOUTH, NH 03801

TITLE
SECTIONS AND DETAILS

CLIENT
CITY OF PORTSMOUTH
DEPARTMENT OF PUBLIC WORKS
680 BEVERLY HILL ROAD
PORTSMOUTH, NH 03801

DRAWING NO.
S4



G S4 COLUMN DETAIL

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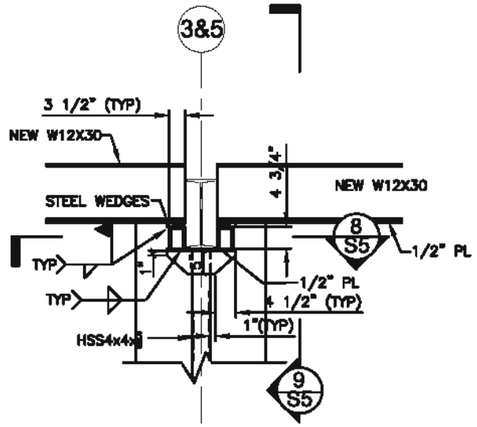

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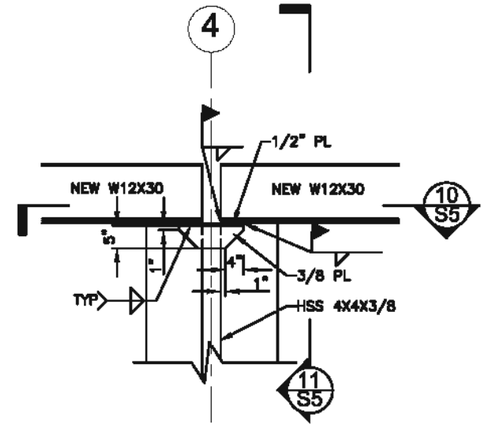

J S4 COLUMN DETAIL

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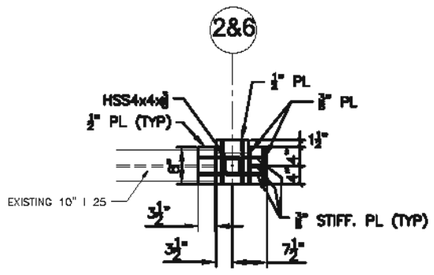

6 S5 SECTION

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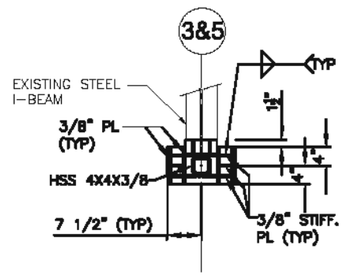

8 S5 SECTION

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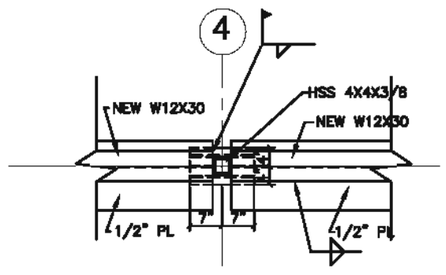

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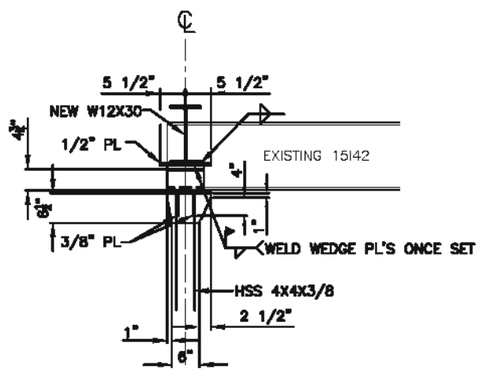
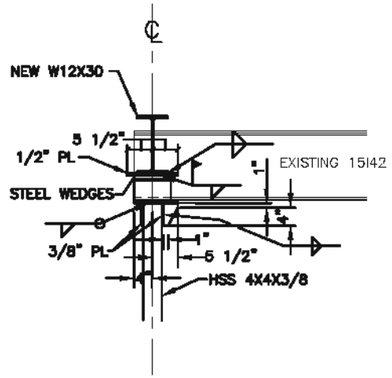


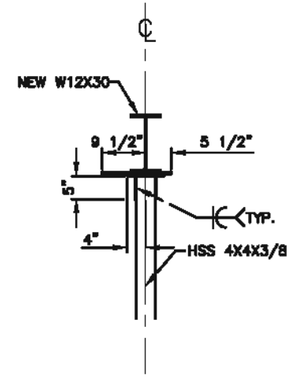
7 S5 SECTION

SCALE: 3/4" = 1'-0"



9 S5 SECTION

SCALE: 3/4" = 1'-0"



11 S5 SECTION

SCALE: 3/4" = 1'-0"

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http://www.paradigmeng.com

NO.	REVISION	DATE

SCALE: AS NOTED DRAWN BY: HMI
DATE: 12-31-07 CHECKED BY: SEM

PROJECT

PORTSMOUTH FIRE STATION
170 COURT STREET
PORTSMOUTH, NH 03801

TITLE

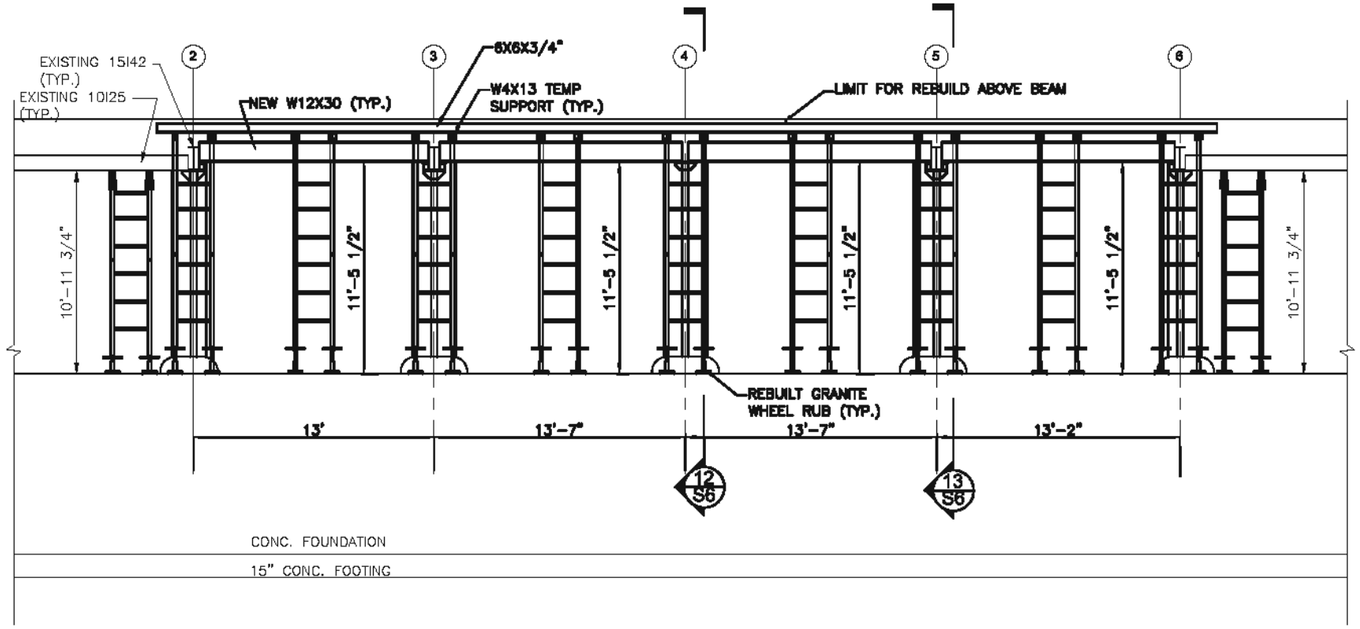
SECTIONS AND DETAILS

CLIENT

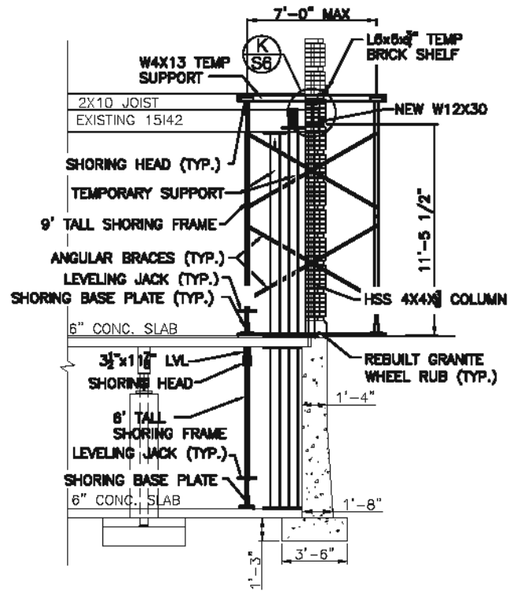
CITY OF PORTSMOUTH
DEPARTMENT OF PUBLIC WORKS
680 BEVERLY HILL ROAD
PORTSMOUTH, NH 03801

DRAWING NO.

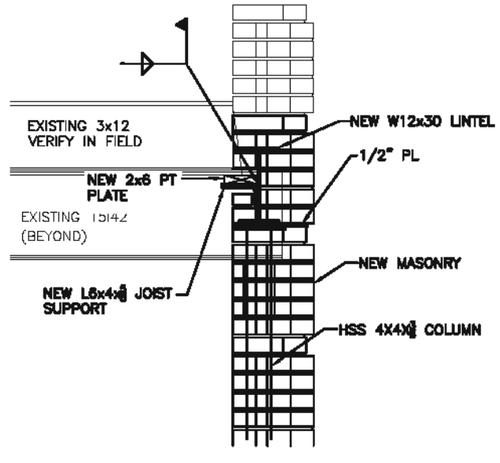
S5



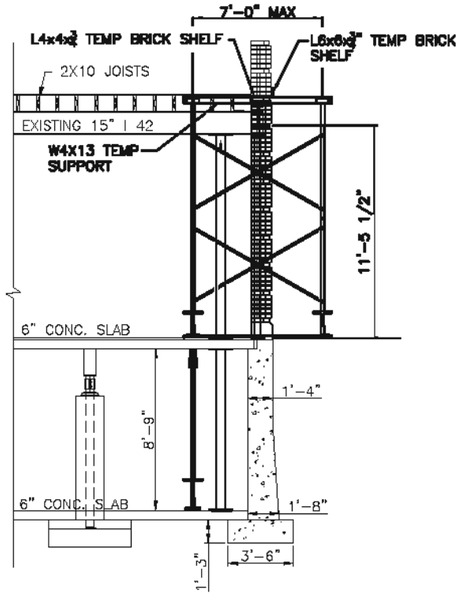
2 / S1 — 2 / S2 **SHORING ELEVATION**
SCALE: 1/4" = 1'-0"



12 / S6 **SHORING SECTION**
SCALE: 1/4" = 1'-0"



K / S6 **DETAIL**
SCALE: 1" = 1'-0"



13 / S6 **SHORING SECTION**
SCALE: 1/4" = 1'-0"

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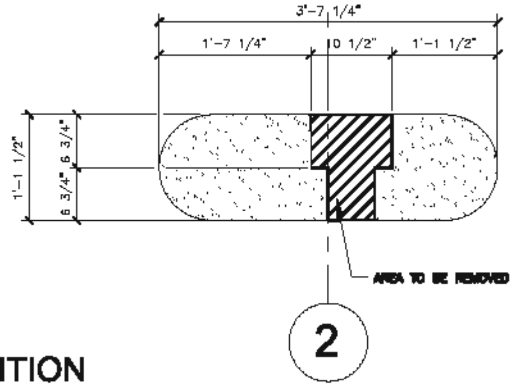
PROJECT
PORTSMOUTH FIRE STATION
170 COURT STREET
PORTSMOUTH, NH 03801

TITLE
SHORING SECTION AND DETAILS

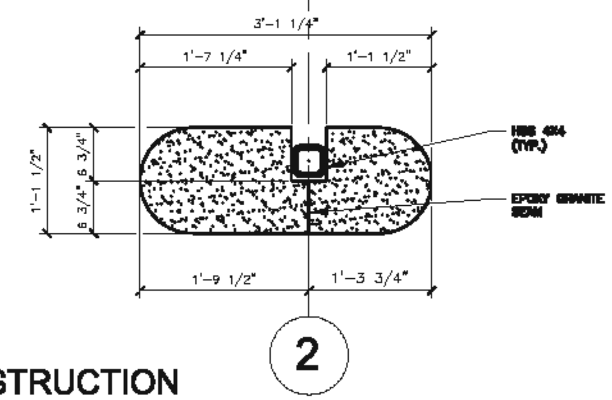
CLIENT
CITY OF PORTSMOUTH
DEPARTMENT OF PUBLIC WORKS
680 BEVERLY HILL ROAD
PORTSMOUTH, NH 03801

DRAWING NO.
S6

DEMOLITION



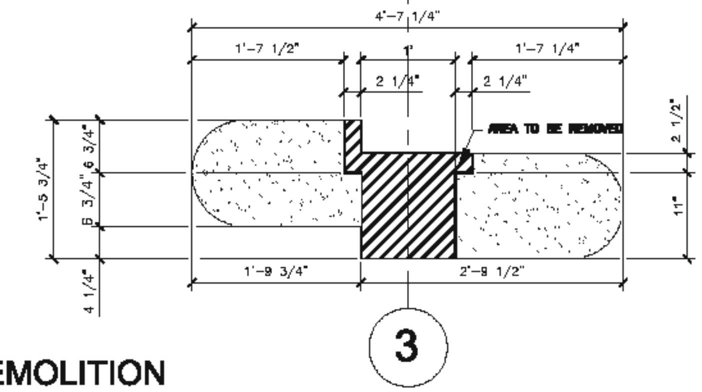
RECONSTRUCTION



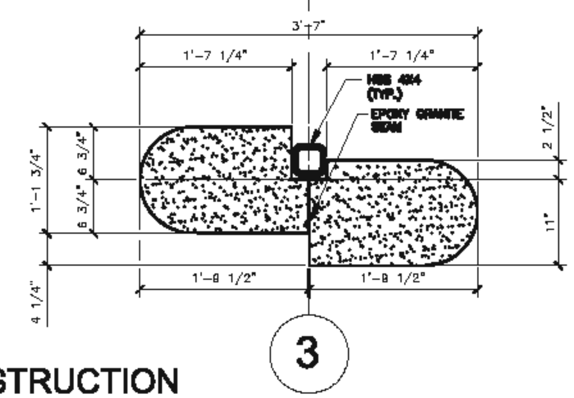
A / S1 — WHEEL RUB SECTION- LINE 2

SCALE: 1" = 1'-0"

DEMOLITION



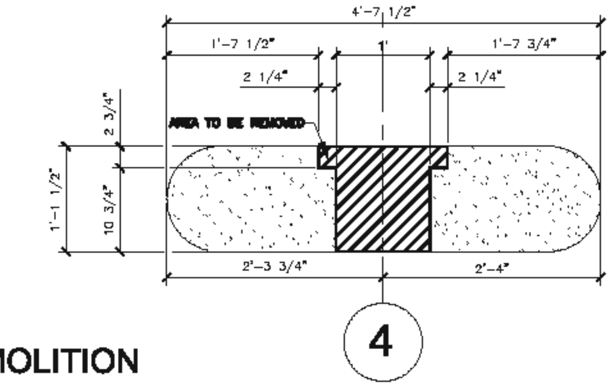
RECONSTRUCTION



B / S1 — WHEEL RUB SECTION- LINE 3

SCALE: 1" = 1'-0"

DEMOLITION



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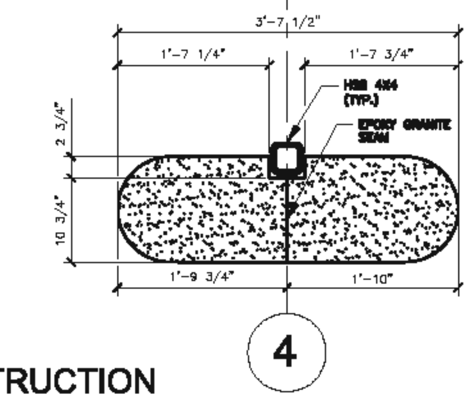
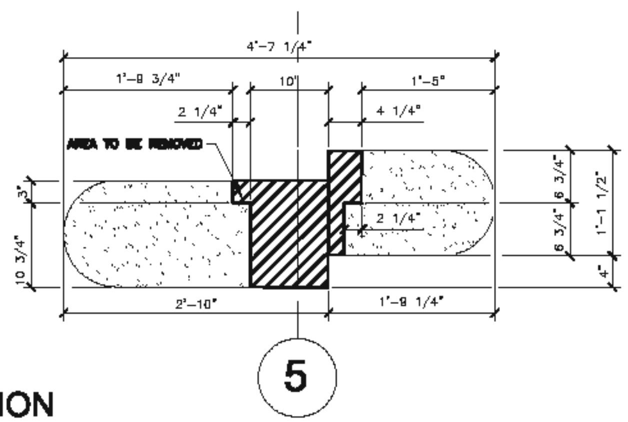


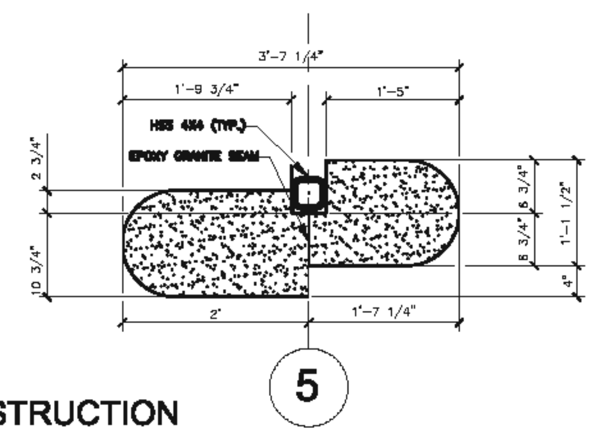
C / S1 — WHEEL RUB SECTION- LINE 4

SCALE: 1" = 1'-0"

DEMOLITION



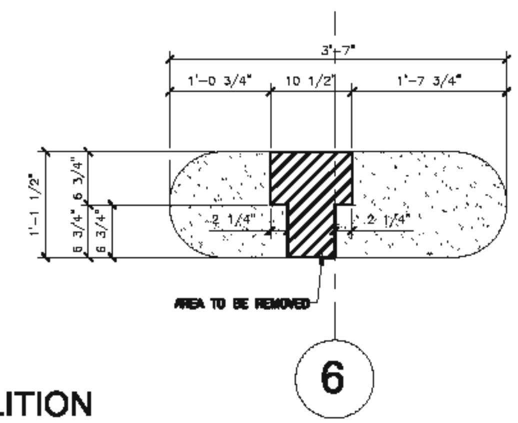
RECONSTRUCTION



D / S1 — WHEEL RUB SECTION- LINE 5

SCALE: 1" = 1'-0"

DEMOLITION



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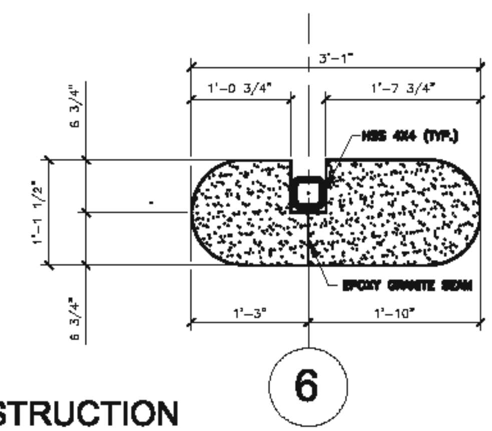

E / S1 — WHEEL RUB SECTION- LINE 6

SCALE: 1" = 1'-0"

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NO.	REVISION	DATE

SCALE: AS NOTED — DRAWN BY: HM
DATE: 12-31-07 — CHECKED BY: SEM

PROJECT

PORTSMOUTH FIRE STATION
170 COURT STREET
PORTSMOUTH, NH 03801

TITLE

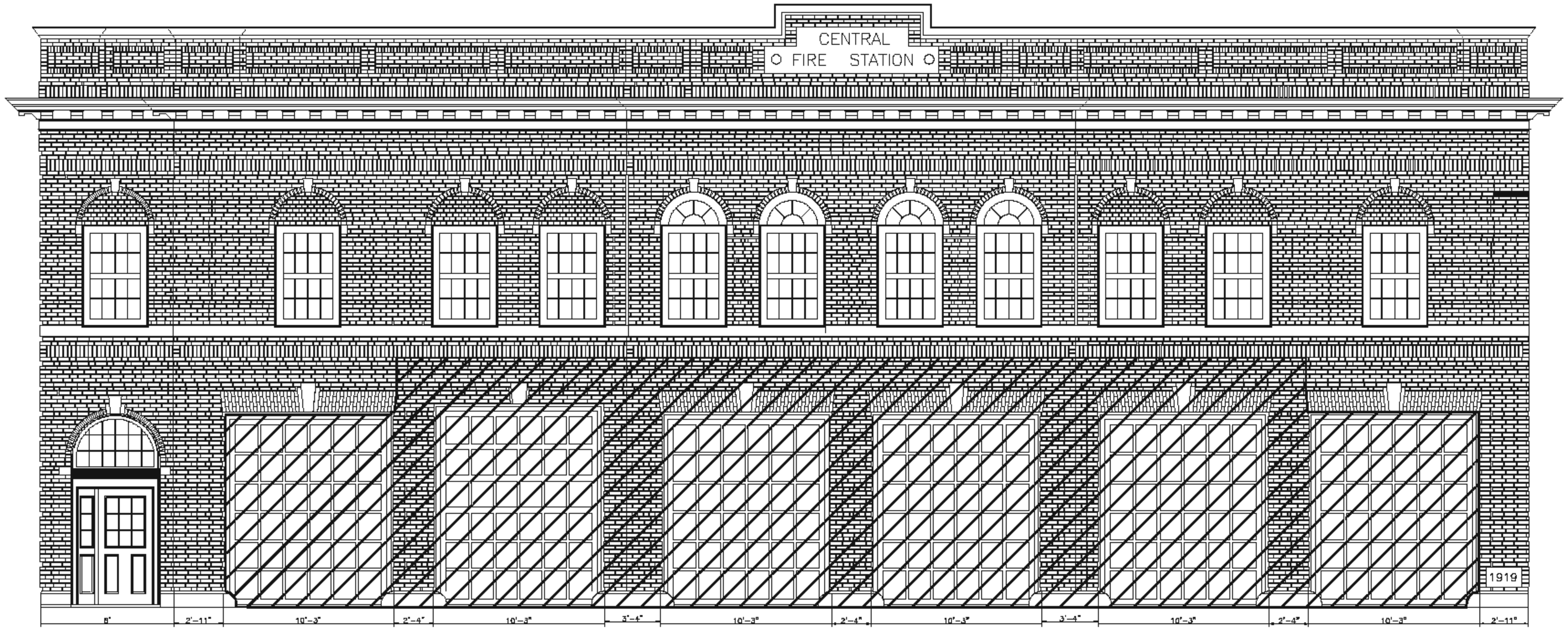
WHEEL RUB SECTIONS AND DETAILS

CLIENT

CITY OF PORTSMOUTH
DEPARTMENT OF PUBLIC WORKS
680 BEVERLY HILL ROAD
PORTSMOUTH, NH 03801

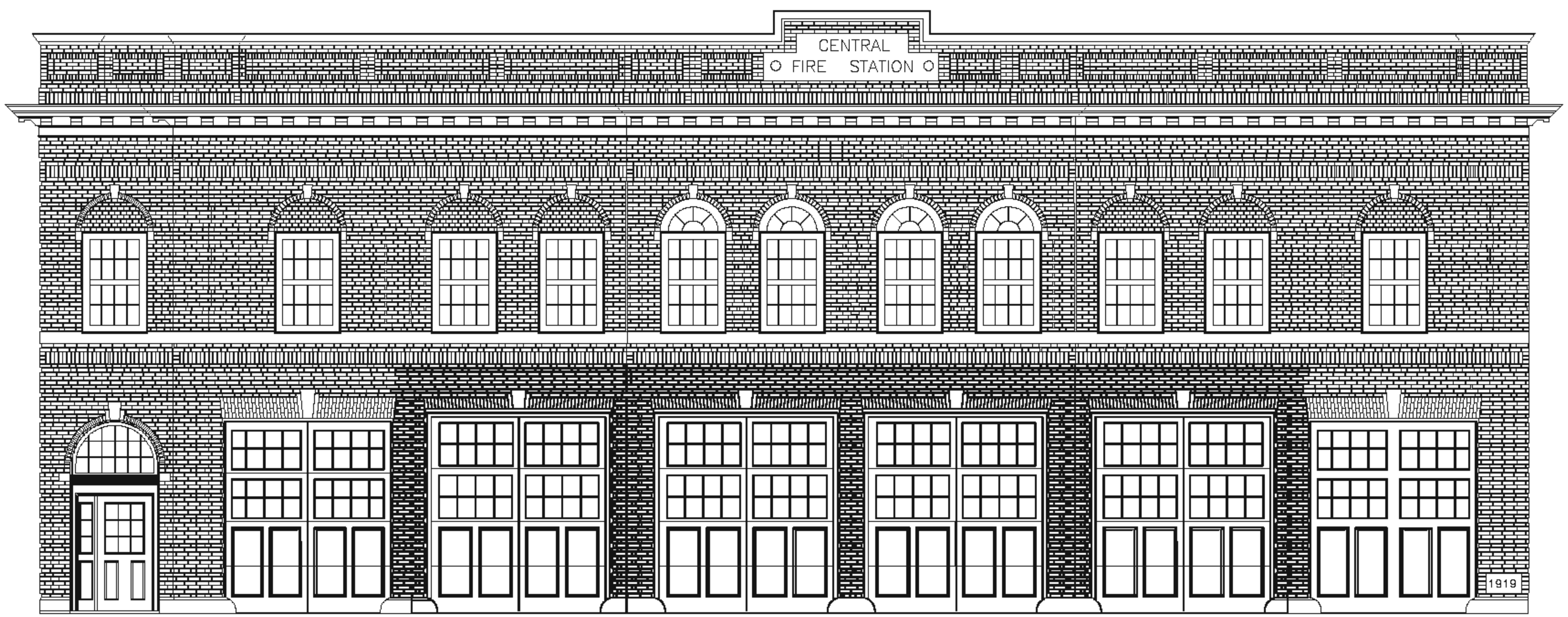
DRAWING NO.

S7



FRONT ELEVATION - DEMOLITION

SCALE: 1/4" = 1'-0"



FRONT ELEVATION - POST CONSTRUCTION

SCALE: 1/4" = 1'-0"

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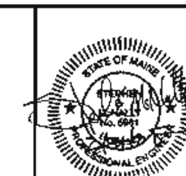


PROJECT

PORTSMOUTH FIRE STATION
170 COURT STREET
PORTSMOUTH, NH 03801

TITLE

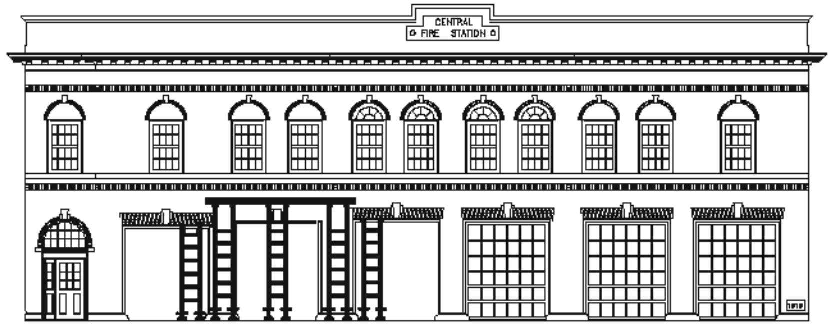
ELEVATIONS

CLIENT

CITY OF PORTSMOUTH
DEPARTMENT OF PUBLIC WORKS
680 BEVERLY HILL ROAD
PORTSMOUTH, NH 03801

DRAWING NO.

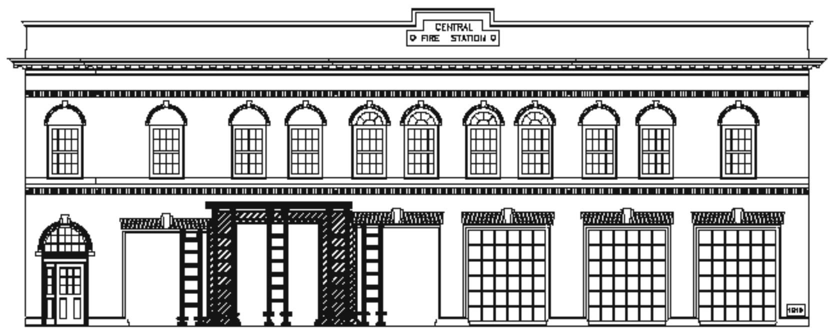
S8



1. REMOVE DOORS FROM BAYS 1, 2 & 3
2. INSTALL SHORING UNDER DOOR LINTELS IN BAYS 1&2
3. INSTALL TEMPORARY EXTERIOR BRICK SHELF ANGLE
4. INSTALL WIDE FLANGE BEAMS THROUGH WALL TO SUPPORT TEMP BRICK SHELF ANGLE
5. INSTALL SHORING UNDER WIDE FLANGE BEAMS IN BAY 2 AND AT COLUMN LINES 2 & 3
6. INSTALL TEMP STUD WALL SHORING FOR EXISTING FLOOR FRAMING IN BAY 3
7. INSTALL SHORES UNDER EXISTING 15I42 CARRYING BEAM AT COLUMN LINES 2 & 3

PHASE ONE

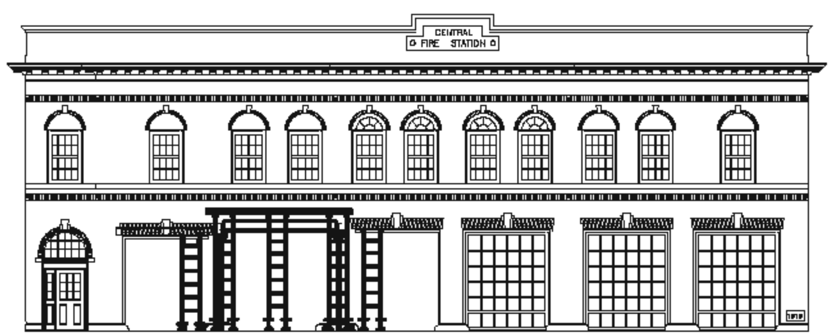
SCALE: NTS



1. REMOVE, CLEAN & STOCKPILE INTERIOR GLAZED, EXTERIOR FACE BRICK AND CORE BRICK FOR SUBSEQUENT RE-USE
2. REMOVE GRANITE WHEEL RUBS AT COLUMN LINES 2 & 3
3. REMOVE CONCRETE SLAB NEAR NEW COLUMN LOCATIONS
4. PLACE NEW CONCRETE FOUNDATION EXTENSIONS

PHASE TWO

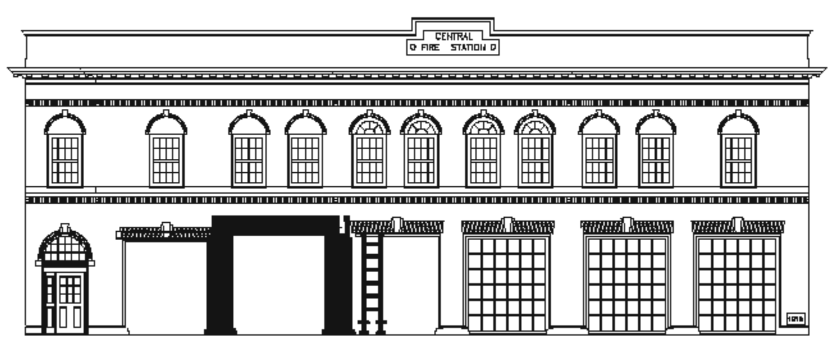
SCALE: NTS



1. INSTALL NEW HSS COLUMNS
2. INSTALL NEW WF DOOR LINTELS
3. CONNECT EXISTING DOOR LINTEL AT BAY 1 TO NEW COLUMN
4. INSTALL MODIFIED GRANITE WHEEL RUBS

PHASE THREE

SCALE: NTS



1. INSTALL NEW MASONRY WALL, REUSING UNDAMAGED INTERIOR GLAZED TILE AND EXTERIOR CLAY FACE BRICK TO THE GREATEST EXTENT
2. AFTER MORTAR HAS CURED FOR 28 DAYS, LOOSEN SHORING UNDER BAYS 1 & 2 3. GRADUALLY OVER A PERIOD OF 48 HOURS
4. INSTALL NEW OVERHEAD DOORS IN BAYS 1 & 2

PHASE FOUR

SCALE: NTS

1. REMOVE DOOR FROM BAYS 4 & 5
2. INSTALL SHORING UNDER EXISTING DOOR LINTEL AT BAY 5
3. INSTALL WIDE FLANGE BEAMS THROUGH WALL TO SUPPORT TEMP BRICK SHELF ANGLE
4. INSTALL SHORING UNDER WIDE FLANGE BEAMS IN BAY 3 & 4 AND AT COLUMN LINE 5
5. INSTALL TEMP STUD WALL SHORING FOR EXISTING FLOOR FRAMING IN BAY 4
6. INSTALL SHORES UNDER EXISTING 15I42 CARRYING BEAM AT COLUMN LINE 5

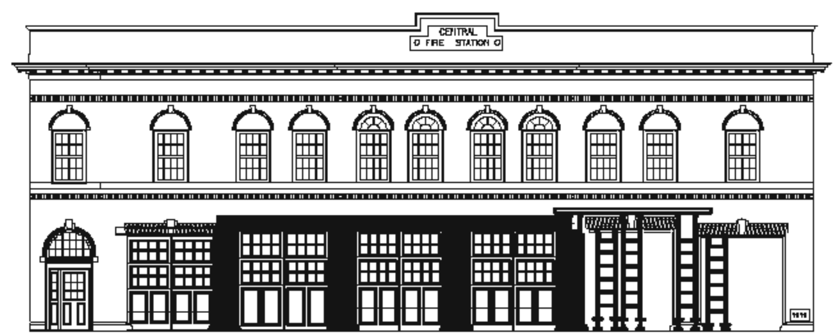
PHASE FIVE

SCALE: NTS

1. REMOVE, CLEAN & STOCKPILE INTERIOR GLAZED, EXTERIOR FACE BRICK AND CORE BRICK FOR SUBSEQUENT RE-USE
2. REMOVE GRANITE WHEEL RUBS AT COLUMN LINES 4 & 5
3. REMOVE CONCRETE SLAB NEAR NEW COLUMN LOCATIONS
4. PLACE NEW CONCRETE FOUNDATION EXTENSIONS
5. INSTALL NEW HSS COLUMNS
6. INSTALL NEW WF DOOR LINTELS
7. INSTALL MODIFIED GRANITE WHEEL RUBS

PHASE SIX

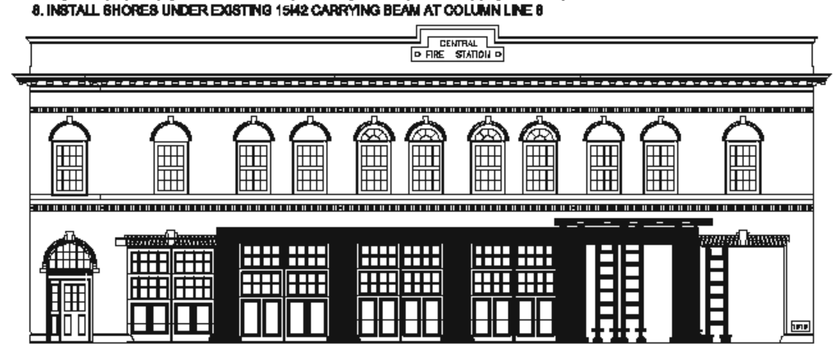
SCALE: NTS



1. INSTALL NEW MASONRY WALL, REUSING UNDAMAGED INTERIOR GLAZED TILE AND EXTERIOR CLAY FACE BRICK TO THE GREATEST EXTENT
2. AFTER MORTAR HAS CURED FOR 28 DAYS, LOOSEN SHORING UNDER BAYS 3 & 4 GRADUALLY OVER A PERIOD OF 48 HOURS
3. INSTALL NEW OVERHEAD DOORS IN BAYS 3 & 4
4. INSTALL SHORING UNDER DOOR LINTELS IN BAY 6
5. INSTALL TEMPORARY EXTERIOR BRICK SHELF ANGLE
6. INSTALL WIDE FLANGE BEAMS THROUGH WALL TO SUPPORT TEMP BRICK SHELF ANGLE
7. INSTALL SHORING UNDER WIDE FLANGE BEAMS IN BAY 5 AND AT COLUMN LINE 6
8. INSTALL SHORES UNDER EXISTING 15I42 CARRYING BEAM AT COLUMN LINE 6

PHASE SEVEN

SCALE: NTS



1. REMOVE, CLEAN & STOCKPILE INTERIOR GLAZED, EXTERIOR FACE BRICK AND CORE BRICK FOR SUBSEQUENT RE-USE
2. REMOVE GRANITE WHEEL RUBS AT COLUMN LINE 6
3. REMOVE CONCRETE SLAB NEAR NEW COLUMN LOCATION
4. PLACE NEW CONCRETE FOUNDATION EXTENSION

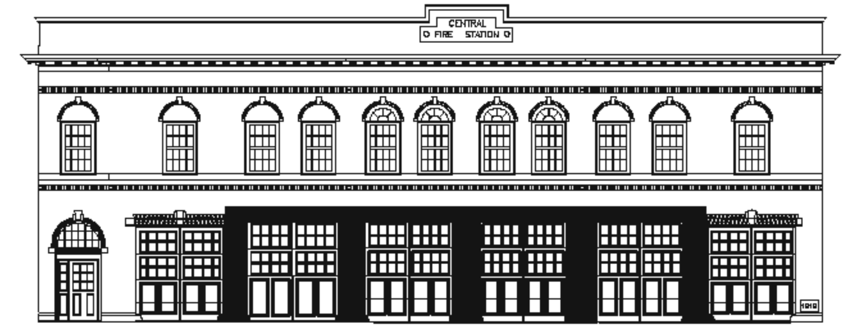
PHASE EIGHT

SCALE: NTS

1. INSTALL NEW HSS COLUMN
2. INSTALL NEW WF DOOR LINTEL
3. CONNECT EXISTING DOOR LINTEL AT BAY 6 TO NEW COLUMN
4. INSTALL MODIFIED GRANITE WHEEL RUBS

PHASE NNE

SCALE: NTS



1. INSTALL NEW MASONRY WALL, REUSING UNDAMAGED INTERIOR GLAZED TILE AND EXTERIOR CLAY FACE BRICK TO THE GREATEST EXTENT
2. AFTER MORTAR HAS CURED FOR 28 DAYS, LOOSEN SHORING UNDER BAYS 5 & 6 GRADUALLY OVER A PERIOD OF 48 HOURS
3. INSTALL NEW OVERHEAD DOORS IN BAYS 5 & 6

PHASE TEN

SCALE: NTS

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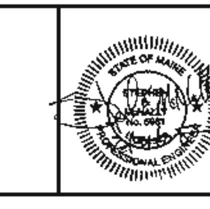

PORTSMOUTH FIRE STATION
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CONSTRUCTION PHASING

CITY OF PORTSMOUTH
DEPARTMENT OF PUBLIC WORKS
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PORTSMOUTH, NH 03801

DRAWING NO.

S9