CONTRACT DOCUMENTS AND SPECIFICATIONS

for

High Hanover Parking Facility Stairtower Project
Bid Proposal # 39-13

John P. Bohenko, City Manager

Prepared by:

City of Portsmouth
Engineering Division
Public Works Department

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Portsmouth, New Hampshire
Department of Public Works

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INVITATION TO BID

Sealed bid proposals, **plainly marked, High/Hanover Parking Facility Stairtower Project**, **Bid Proposal #39-13 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 Thursday, April 11, 2013 at 2:00 p.m. at which time all bids will be publicly opened and read aloud.

The work shall consist of removing and replacing stair treads, pans, and landings in the Fleet Street and High Street Stairtowers, as well as the rehabilitation of existing stair treads in the Ladd Street Stairtower.

Completion date will be 90 calendar days from the date of the Notice to Proceed. Liquidated damages shall be assessed at $50.00 per day.

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

Specifications and bid proposal forms may be obtained for a non-refundable fee of $20 from the Finance/Purchasing Department, on the third floor at the above address, by calling the Purchasing Coordinator at 603-610-7227, or from our website (no fee) www.cityofportsmouth.com. Questions may be directed to the Purchasing Coordinator. Addenda to this bid document, if any, including written answers to questions, will be posted on the City of Portsmouth website at http://www.cityofportsmouth.com/finance/purchasing.htm under the project heading. Addenda and updates will NOT be sent directly to vendors.

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

All contractors and subcontractors working on this project shall be qualified to perform their respective tasks. All welders shall provide certification they have passed AWS qualification tests within the previous 12 months and have been welding regularly.

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 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.

INSTRUCTIONS TO BIDDERS

BIDDING REQUIREMENTS AND CONDITIONS

1. Special Notice to Bidders

Appended to these instructions is a complete set of bidding and general contract forms. These forms may be detached and executed for the submittal of bids. The plans, specifications, and other documents designated in the proposal form will be considered as part of the proposal, whether attached or not.

The bidders must submit a statement of bidder's qualifications, if requested, subsequent to bid opening but prior to award.

Addenda to this proposal, if any, including written answers to questions, will be posted on the City of Portsmouth website at http://www.cityofportsmouth.com/finance/purchasing.htm under the project heading. Addenda and updates will NOT be sent directly to firms. Contractors submitting a proposal should check the web site daily for addenda and updates after the release date. Firms should print out, sign and return addenda with the proposal. Failure to do so may result in disqualification

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.

3. Examination of Plans, Specifications and Site Work

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.

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 its 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 its proposal upon the forms furnished by the Owner. The bidder shall specify a lump sum price in 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.

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 or her 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.

6. Nonconforming Proposals

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

- 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;
- 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;
- 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; or
- If the proposal does not contain a unit price for each pay item listed except in the case of authorized alter 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 Invitation to Bid. All sureties shall be made payable to the "City of Portsmouth". If a bid bond is used by the bidder it shall be:

- In a form satisfactory to the Owner;
- With a surety company licensed, authorized to do business in, and subject to the jurisdiction of the courts of the State of New Hampshire; and
- 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 four business days (not counting the day of opening) to correct any irregularities. The corrected guaranty must be received by 4:00 p.m. If irregularities are not corrected to the satisfaction of the Owner, the Owner, in its sole discretion, may rejected the bid.

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 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.

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

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:

- More than one proposal for the same work from an individual, firm, or corporation under the same or different name;
- Evidence of collusion among bidders;
- Failure to submit all required information requested in the bid specifications;
- Lack of competency, certifications, or qualification of any trade, adequate machinery, plant or other equipment, as revealed by the statement of bidders qualification or otherwise;
- Uncompleted work which, in the judgment of the owner, might hinder or prevent the prompt completion of additional work if awarded;
- Failure to pay, or satisfactorily settle, all bills due for labor and materials on former contracts;
- Default or unsatisfactory performance on previous contracts; or
- Such disqualification would be in the best interests of the Owner.

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 the bid based on the contents of the statement or as a result of the failure of the bidder to submit the statement.

AWARD AND EXECUTION OF CONTRACT

1. Consideration of Proposals

After the proposals are opened and read, they will be compared on the basis of the total price for all sections of work and any such additional considerations as may be identified in the bid documents. The results of such comparisons will be immediately 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.

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. 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.

3. Reservation of Rights

The Owner 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. The Owner further reserves the right to modify the scope of work in the event that bids exceed budgeted amounts. The City reserves the right to conduct such investigation of bidder as it deems necessary to assure itself that Contractor is qualified to do the work. Bidder may be asked to execute releases and to provide such additional information as may be requested by the City to evaluate the bidder. Failure to execute releases or provide information may result in disqualification.

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 following the opening and checking of the proposals. The proposal guaranties of the three lowest bidders will be returned within ten days following the award of the contract if requested.

5. Contract Bonds

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

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

At the time of project completion, the Owner may, in its sole discretion, permit the Contractor to substitute a maintenance bond in lieu of holding retainage for the entire guaranty period. If a bond is furnished it shall meet the following criteria:

- The bond shall be in an 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.

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; and (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 is required to present all contract bonds, to provide proof of insurance, and to execute the contract within 10 days following receipt of the City's notification of acceptance of the bid. No contract shall be considered as in effect until it has been fully executed by all parties.

7. Failure to Execute Contract

Failure to execute the contract and file acceptable bonds within 10 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 City may exercise its reserved rights including the rejection of all bids or re-advertisement.

PROPOSAL FORM

HIGH/HANOVER PARKING FACILITY MAINTENANCE PROJECT

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 sites 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:

PROPOSAL FORM (continued)

THIS PROJECT SHALL BE BID BY LUMP SUM PRICES:

ITEM #	ESTIMATED QUANTITY	ITEM DESCIPTION & UNIT PRICE IN WORDS	UNIT PRICE IN FIGURES	ITEM TOTAL IN FIGURES
1.	1 LS	Remove and Replace Stair Treads, Risers, and Landings in the Fleet Street Stair Tower, including Store Front Door Per Lump Sum	$_____	$_____
2.	1 LS	Remove and Replace Stair Treads, Risers, and Landings in the High Street Stair Tower Per Lump Sum	$_____	$_____
3.	1 LS	Repair Stair Treads in the Ladd Street Stair Tower Per Lump Sum	$_____	$_____

Total Bid of Items 1 through 3 complied by the Bidder using the estimated quantities listed above

In Figures $_____

In Words $_____

To Bidder: It is the intention of this contract that the items listed above describe completely and thoroughly the entirety of the work as shown on the plans and as described in the specifications. All other items required to accomplish the above items are considered to be subsidiary work, unless shown as a pay item.

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:_____
Signature

_____
Business Address

Title:_____

_____
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.

In order to follow the City's sustainability practices, future bid invitations/specifications may be sent electronically. Please provide an email address as to where I could email future bid invitations/specifications of this type. Thank you in advance for your cooperation.

Email
Address:_____

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 _____

STATEMENT OF BIDDER'S QUALIFICATIONS

Supply with Bid

All questions must be answered and the data given must be clear and comprehensive. This statement must be notarized. Add separate sheets if necessary

1. Name of Bidder

2. Permanent Main Office Address

3. Form of Entity

4. When Organized

5. Where Organized

6. How many years have you been engaged in the contracting business under your present name; also state names and dates of previous firm names, if any.

7. Contracts on hand; (schedule these, showing gross amount of each contract and the approximate anticipated dates of completion).

8. General character of work performed by your company.

9. Have you ever failed to complete any work awarded to you? _____(no)____(yes). If so, where and why?

10. Have you ever defaulted on a contract?
_____(no)_____(yes). If so, where and why?

11. Have you ever failed to complete a project in the time allotment according to the Contract Documents?
_____(no)_____(yes). If so, where and why?

12. List the most important contracts recently executed by your company, stating approximate cost for each, and the month and year completed.

13. List your major equipment available for this contract.

14. List your key personnel such as project superintendent and foremen available for this contract.

STATEMENT OF BIDDERS QUALIFICATIONS (continued)

15. List any subcontractors whom you would expect to use for the following (unless this work is to be done by your own organization).
    a. Steel Fabrication _____
    b. Concrete Work _____
    c. Welding _____
    d. Painting _____
    e. Sealant _____

Latest Financial Statements: The City reserves the right to request Bidders' latest Financial Statements. Certified audited statements if available, prepared by an independent certified public accountant, may be requested by Owner. If requested, such statements must be provided within five (5) business days or the bid proposal will be rejected. Certified Audited Statement are preferred. Internal statements may be used only if independent statements were not prepared.

Dated at _____ this _____ day of _____, 20___.

_____
Name of Bidder

BY_____

TITLE_____

State of_____

County of_____

_____being duly sworn, deposes and

says that the bidder is _____of_____
(Name of Organization)

and answers to the foregoing questions and all statements contained therein are true and correct.

Sworn to before me this ____day of _____, 20__.

_____
Notary of Public

My Commission expires_____

CONTRACT AGREEMENT

High Hanover Parking Facility Stairtower Project

THIS AGREEMENT made as of the **XXst** day of **XXXXX** in the year **2013,** by and between the City of Portsmouth, New Hampshire (hereinafter call the Owner) and XXXXXXXXX (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 shall mean the Director of Public Works, 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 and PAYMENT- Upon final acceptance of the work and settlement of all claims, Owner shall pay the Contractor the Contract Price as shown in the Bid Proposal, subject to additions and deductions (such as retainage) provided for in the Contract Documents.

ARTICLE V - 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 VI - LIQUIDATED DAMAGES - In event the Contractor fails to successfully complete the work within the specified contract time the Owner shall assess the Contractor liquidated damages in the amount of **fifty dollars ($50.00)** for each calendar day beyond the specified completion date. Liquidated damages shall be deducted from the Contract Price prior to final payment of the Contractor.

CONTRACT AGREEMENT (continued)

ARTICLE VII – 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 VIII – 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 IX – 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 attorneys' fees, and will satisfy any judgment rendered against Owner in such action.

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

ARTICLE XII – 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:

High Hanover Parking Facility Stairtower Project

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

Immediately take the necessary steps to execute the Contract and to provide required bonds and proof of insurance within ten (10) 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:

High Hanover Parking Facility Stairtower Project

TO:

YOU ARE HEREBY NOTIFIED TO COMMENCE WORK IN ACCORDANCE

WITH THE AGREEMENT DATED XXXXX, 2013 WITHIN THIRTY (30) DAYS FROM THE NOTICE TO PROCEED. ALL WORK SHALL BE COMPLETED WITHIN NINETY (90) DAYS OF CONTRACTOR'S COMMENCEMENT OF THE WORK.

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:

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:
Net Increase of this Change Order: $	Net Increase of this Change Order:
Contract Price with all approved Change Orders: $	Contract Time with all approved Change Orders:

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

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: **High/Hanover Parking Facility Stairtower Project**

_____
(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 _____(C

ontractor) 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:

High/Hanover Parking Facility Stairtower Project

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. Technical Specifications and Special Provisions will govern 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.

(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.

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

Coverage requirements can be met with excess policies

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.

D) Builder's Risk in the amount of the contract.

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.

SHOP DRAWINGS

The Contractor shall submit working and detail drawings, well in advance of the work, to the City Engineer for review.

The Contractor's drawings shall consist of shop detail, erection and other working plans showing dimensions, sizes and quality of material, details and other information necessary for the complete fabrication and erection of the pertinent work.

The Contractor shall submit two sets of drawings to the City Engineer.

Prior to the approval of the drawings, any work done or materials ordered for the work involved shall be at the Contractor's risk.

One set of the drawings will be returned to the Contractor approved or marked with corrections to be made. After approval has been given, the Contractor shall supply the City Engineer with two sets of the revised detail working drawings.

The City Engineer's approval of the Contractor's working drawings will not relieve the Contractor from responsibility for errors in dimensions or for incorrect fabrication processes, or from responsibility to complete the contract work.

TECHNICAL SPECIFICATIONS

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 for partial replacement of stairs and landings to the limits indicated in the contract plans for the Fleet Street, High Street and Ladd Street towers.

   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. Demolition work involves removal of existing cast-in-place concrete treads, concrete landings, metal pans, support angles, metal decking, street level entry door at the Fleet Street tower and nosing removal of the treads at the Ladd Street tower.

2. New work involves, cleaning, priming and painting existing steel including any painted CMUs damaged in the process, installation of new precast concrete treads, precast concrete risers, precast concrete landing slab segments, new steel support angles, water resistant expansion/contraction seals, cast-in-place concrete landings over metal decking, installation of new anodized aluminum entry door, frame and hardware. Repairs include cleaning, patching and coating treads and risers up to the third level and cleaning and painting stair stringers up to the first intermediate level in the Ladd Street tower. A repair to the spall located on the third level landing in the Ladd Street tower shall also be completed.

3. Protection work involves barriers to prevent pedestrians from entering the stair tower under construction, signage to redirect pedestrian traffic to alternate stair towers and protection to prevent damage to window glazing.

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

5. 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.

6. Perform all related work necessary to accomplish the work described herein. Work site shall be cleaned daily as work progresses.

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, Hanover Street Parking Garage staff to minimize disruption to Contractor operations. The facility will be occupied during construction and must remain accessible to the general public. Project security shall be the Contractor's responsibility during the construction period. 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 the Contractor's responsibility to measure and inspect all existing conditions which would affect his work. If any dimensions diverge from those dimensions stated on the plans, the Contractor shall report to the Engineer in writing prior to commencing any portion of his work. Commencement of work by Contractor shall 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 to 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 steel paint, masonry paint and elastomeric sealant showing color, texture and appearance compared to new and existing masonry; access door materials shall be submitted to the Engineer for review in accordance with the requirements state herein.

2. Painted coatings and aluminum anodizing 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 one year after the date of substantial completion or within such longer period of time as may be prescribed by any warranty, 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 be conducted by the City or their assigns 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, temporary supports and other incidental items required to complete the job.

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

D. All items to be demolished shall become the property of the Contractor and shall be taken from the site and if disposal is required, all refuse shall be disposed of in a safe and lawful manner.

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

F. 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.

G. 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. Only one tower shall have limited access due to construction at a time; the closure of any level of any tower shall not be permitted until all other towers are fully accessible, unless approved by the City. Initiate Project Meetings coordinating procedures before work in the field begins. The Hanover Street Parking Garage will be occupied during construction. Access to all floor levels not under construction shall remain in service for use by the general public. Schedule and coordinate work with City's Department of Public Works representative to redirect pedestrians to alternate means of ingress and egress. Resolve schedule, sequencing, interfacing, and priorities of simultaneous work among involved parties to advance the Project's planned progress and achieve specified results.

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 secured by the Contractor.

A. 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 lighting, 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 assure protection and support. Upon approval, 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 beyond the area under construction and to minimize air borne particulate dispersal.

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

END OF SECTION

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 occurrence 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 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.

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

3. Submit listing of equipment to be utilized.

4. Submit means and method of accessing site so as to not impair ongoing Parking Facility operations.

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

6. Submit means and method for temporary support of the Fleet Street tower entry door replacement.

7. Material ordering dates.

8. Product site delivery or receipt dates.

1.04 PRODUCT DATA, AND SAMPLES

A. Submit manufacturer's 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 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 may be made available by the City of Portsmouth to Contractor at City's option. 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 to building in a manner which will prevent entry of water into the building enclosure. Maintain temporary waterproof coverings in good standing ready condition.

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 OSHA safety regulations and other regulations applicable thereto and/or, the Authorities having jurisdiction over such apparatus, equipment, safety 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: If existing public facilities at the parking garage are excluded for use by the City and 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 all such damage which does occur as a result of construction operations to the Engineer's satisfaction, at no expense to the City, Engineer or any of their consultants.

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.

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

I. 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.

J. 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.

K. 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. (as required)

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.

3. Silica Fume

PART 2 PRODUCTS

2.01 CONCRETE CONSTITUENTS

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

B. Silica Fume: for use in Portland cement

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

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

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

F. Admixtures:

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

2. Air-entraining agent: ASTM C260. Maximum of 6% for ¾" diameter aggregate.
3. Silica Fume: to meet the requirements of "ASTM C1240 Standard Specification of Silica Fume Used in Cementitious Mixtures" and "EN 13263 Silica Fume For

Concrete". The minimum of 5% to a maximum of 10% of total cementitious material by weight is allowed.

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 Engineer 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	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 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.

2. Furnishing and erection of beams angles, channels, stiffeners, plates, bolsters, clips, lintels or relieving angles affixed to structural steel, masonry and corresponding connections (bolted and welded).

3. Furnishing and application of field applied primer and paint, including finish coat(s), and field touch-up paint for structural steel items.

4. Design and shop drawings of welded structural connections.

5. 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 & Phasing (01040)

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

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

6. 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.

7. ASTM A 123/A 123M – 12 "Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products". 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 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; and elevations; framing (if required) 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. 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.

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

K. 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.

L. 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.

M. 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.

N. 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 may 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.

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. Carbon steel - shapes, plate, angles and bar shapes, ASTM A36.
B. Anchor Bolts: ASTM A307 (Galvanized).

C. High Strength Bolts: ASTM A325.

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

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

F. 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.

G. Stair tower #4 structural steel within the parameters of treads to be coated with 100% solids epoxy flooring and areas indicated in the plans; Primer, two coats of Tnemec Series N69 Hi-Build Epoxiline II, 3 to 5 mils DFT each coat. Top coat, Series 73: 2 to 5 mils DFT.

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 of mitered support angle legs, 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. Existing stair stringers as shown on plans.

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

d. 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-SP10.

b. 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 atmospheric conditions shall be primed and painted. 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.

C. Notification:

Notify Testing Agency five (5) days prior to shipment of any structural steel so paint inspection may 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 in 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. 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.

E. 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.

F. 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.

I. Align, level, and adjust members accurately prior to final fastening.

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

K. 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.

L. 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. 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 City and/or Testing Agency.

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

3. All existing structural and miscellaneous steel (including handrails), as shown on the plans, shall be properly prepared as specified in this specification. Primer and paint shall be applied to dry steel surfaces by brush, spray, or roller, assuring no running or sagging in accordance with manufacturer's directions as approved by Engineer.

4. New steel access door shall be primed and painted in accordance with the shop painting provisions described in Section 3.04.

5. Stair tower #4, the parameters where the 100% epoxy flooring system will installed, all steel and concrete components shall be pre-cleaned with a bio-degradable cleaner to remove chlorides. Channels and riser shall be blast cleaned to SSPC CP-6 Commercial Blast Cleaning. Blasted steel shall be tested for chlorides prior to coating application. All areas/components shall be protected from over-blast damage. Refer to section 05100 Structural Steel Part 2 Sec. 2.02 subsection G for coating requirements.

END OF SECTION

SECTION 05511
STAIRS

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 the following:

1. Shop fabricated precast concrete stairs treads, risers and landing units.
2. Cast-in-place concrete landings
3. Abrasive tread nosing
4. Reinforcement and wire mesh

B. Related Sections include the following:

1. Division 3 Section "Cast-in-Place Concrete" for concrete fill for platforms.
2. Division 5 Section "Metal Fabrications" for metal nosings.

1.3 PERFORMANCE REQUIREMENTS

A. Structural Performance of Stairs: Provide precast concrete stairs capable of withstanding the effects of gravity loads and the following loads and stresses within limits and under conditions indicated:

1. Uniform Load: 100 lbf/sq. ft. (4.79 kN/sq. m).
2. Concentrated Load: 300 lbf (1.33 kN) applied on an area of 4 sq. in. (2580 sq. mm).
3. Uniform and concentrated loads need not be assumed to act concurrently.
4. Stair Framing: Capable of withstanding stresses resulting from railing loads in addition to loads specified above.
5. Limit deflection of treads, platforms, and framing members to L/240 or 1/4 inch (6.4 mm), whichever is less.

1.4 SUBMITTALS

A. Product Data:

1. Precast concrete treads.
2. Stair treads with nonslip-aggregate surface finish.
3. Abrasive nosings.
4. Paint products.
5. Grout.

B. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work.

C. Samples for Initial Selection: For products involving selection of color, texture, or design.

D. Samples for Verification: For the following products, in manufacturer's standard sizes:

1. Precast concrete treads.
2. Stair treads with nonslip-aggregate surface finish.
3. Abrasive nosings.

E. Welding certificates.

F. Qualification Data: For testing agency.

G. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for stairs.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: Fabricator of products.

B. Welding: Qualify procedures and personnel according to the following:

1. AWS D1.1, "Structural Welding Code--Steel."

1.6 COORDINATION

A. Coordinate installation of anchorages for metal stairs. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

B. Coordinate locations of hanger rods and struts with other work so that they will not encroach on required stair width and will be within the fire-resistance-rated stair enclosure.

PART 2 -PRODUCTS

MANUFACTURERS

A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:

1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, products specified.
2. Products: Subject to compliance with requirements, provide one of the products specified.
3. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, manufacturers specified.
4. Manufacturers: Subject to compliance with requirements, provide products by one of the manufacturers specified.

2.2 METALS, GENERAL

A. Metal Surfaces, General: Provide materials with smooth, flat surfaces, unless otherwise indicated. For components exposed to view in the completed Work, provide materials without seam marks, roller marks, rolled trade names, or blemishes.

2.3 FERROUS METALS

A. Steel Plates, Shapes, Angles and Bars: ASTM A 36/A 36M.

2.4 ABRASIVE NOSINGS

A. Cast-Metal Units: Cast gray iron, Class 20, aluminum with an integral abrasive finish consisting of aluminum oxide, silicon carbide, or a combination of both. Nosings are to be yellow in color. Fabricate units in sizes and configurations indicated and in lengths necessary to accurately fit openings or conditions.

1. Manufacturers:

a. American Safety Tread Co., Inc.
b. Balco Inc.
c. Barry Pattern & Foundry Co., Inc.
d. Granite State Casting Co.
e. Safe-T-Metal Co.
f. Wooster Products Inc.

1. Configuration: Cross-hatched units, 4 inches (100 mm) wide without lip.
2. Configuration: Cross-hatched angle-shaped units, same depth as bar-grating treads

and 1 to 1-1/2 inches (25 to 38 mm) wide.

B. Extruded Units: Extruded- aluminum units with abrasive filler consisting of aluminum oxide, silicon carbide, or a combination of both, in an epoxy-resin binder. Fabricate units in sizes and configurations indicated and in lengths necessary to accurately fit openings or conditions.

1. Manufacturers:

a. ACL Industries, Inc.
b. American Safety Tread Co., Inc.
c. Amstep Products.
d. Armstrong Products, Inc.
e. Balco Inc.
f. Granite State Casting Co.
g. Wooster Products Inc.

1. Provide ribbed units, with abrasive filler strips projecting 1/16 inch (1.5 mm) above aluminum extrusion.
2. Provide solid-abrasive-type units without ribs.
3. Nosings: Square-back units, 4 inches (100 mm) wide, without lip.
4. Nosings: Two-piece units, 3 inches (75 mm) wide, with subchannel for casting into concrete.

C. Provide anchors for embedding units in concrete, either integral or applied to units, as standard with manufacturer.

D. Apply bituminous paint to concealed bottoms, sides, and edges of cast-metal units set into concrete.

E. Apply clear lacquer to concealed bottoms, sides, and edges of extruded units set into concrete.

2.5 FASTENERS

A. General: Provide zinc-plated fasteners with coating complying with ASTM B 633, Class Fe/Zn 25 for exterior use, and Class Fe/Zn 5 where built into exterior walls. Select fasteners for type, grade, and class required.

2.6 MISCELLANEOUS MATERIALS

A. Welding Rods and Bare Electrodes: Select according to AWS specifications for metal alloy welded.

B. Shop Primers: Provide primers that comply with Division 9 painting Sections.

C. Universal Shop Primer: Fast-curing, lead- and chromate-free, universal modified-alkyd

primer complying with MPI#79.

1. Use primer with a VOC content of 420 g/L (3.5 lb/gal.)or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
2. Use primer containing pigments that make it easily distinguishable from zinc-rich primer.

D. Zinc-Rich Primer: Complying with SSPC-Paint 20 or SSPC-Paint 29 and compatible with topcoat.

1. Use primer with a VOC content of 420 g/L (3.5 lb/gal.) or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
2. Products:

a. Carboline Company; Carbozinc 621.
b. ICI Devoe Coatings; Catha-Coat 313.
c. International Coatings Limited; Interzinc 315 Epoxy Zinc-Rich Primer.
d. Moore, Benjamin, & Co.; Epoxy Zinc-Rich Primer CM18/19.
e. PPG Architectural Finishes, Inc.; Aquapon Zinc-Rich Primer 97-670.
f. Sherwin-Williams Company (The); Corothane I GalvaPac Zinc Primer.
g. Tnemec Company, Inc.; Tneme-Zinc 90-97.

E. Nonshrink, Nonmetallic Grout: Factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C 1107. Provide grout specifically recommended by manufacturer for interior and exterior applications.

F. Concrete Materials and Properties: Comply with requirements in Division 3 Section "Cast-in-Place Concrete" for normal-weight, air-entrained, ready-mix concrete with a minimum 28-day compressive strength of 4000 psi, unless otherwise indicated.

G. Nonslip-Aggregate Concrete Finish: Factory-packaged abrasive aggregate made from fused, aluminum-oxide grits or crushed emery; rustproof and nonglazing; unaffected by freezing, moisture, or cleaning materials.

2.8 PRECAST CONCRETE TREADS AND RISERS

A. Concrete Materials and Properties: Comply with requirements in Division 3 Section "Cast-in-Place Concrete" for normal-weight, ready-mixed concrete with a minimum 28-day compressive strength of 5000 psi (35 MPa) and a total air content of not less than 4 percent or more than 6 percent.

B. Reinforcing Wire Fabric: Galvanized, welded wire fabric, 2 by 2 inches (50 by 50 mm) by 0.192-inch-diameter wire; comply with ASTM A 185 and ASTM A 82.

C. Reinforcement: Galvanized, ASTM A615, Grade 60

2.9 FABRICATION, GENERAL

A. Provide complete stair assemblies, including precast concrete units, support angles, abrasive nosings, embedded plates reinforcement and other components necessary to support and anchor stairs and platforms on supporting structure.

1. Join components by welding, unless otherwise indicated.
2. Use connections that maintain structural value of joined pieces.
3. Fabricate treads and platforms of exterior stairs so finished walking surfaces slope to drain.

B. Cut, drill, and punch metals cleanly and accurately. Remove burrs and ease edges to a radius of approximately 1/32 inch (1 mm), unless otherwise indicated. Remove sharp or rough areas on exposed surfaces.

C. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing work.

D. Form exposed work true to line and level with accurate angles and surfaces and straight edges.

E. Weld connections to comply with the following:

1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
2. Obtain fusion without undercut or overlap.
3. Remove welding flux immediately.
4. Weld exposed corners and seams continuously, unless otherwise indicated.
5. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.

F. Fabricate joints that will be exposed to tracked-in moisture in a manner to provide weep holes where water may accumulate.

2.13 FINISHES

A. All precast stair treads shall receive a Nonslip-Aggregate Concrete Finish as described in Section 2.6G.

B. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

B. Preparation for Shop Priming: Prepare uncoated exposed ferrous-metal surfaces to comply with minimum requirements indicated below for SSPC surface preparation specifications

and environmental exposure conditions of installed products:

1. Interior Stair metals to Receive Zinc-Rich Primer (SSPC Zone 1A): SSPC-SP6/NACE No. 3, "Commercial Blast Cleaning."

C. Apply shop primer to uncoated surfaces of metal stair components, except those with galvanized finishes and those to be embedded in concrete or masonry unless otherwise indicated. Comply with SSPC-PA 1, "Paint Application Specification No. 1: Shop, Field, and Maintenance Painting of Steel," for shop painting.

1. Stripe paint corners, crevices, bolts, welds, and sharp edges.

PART 3 –EXECUTION 3.1 INSTALLATION, GENERAL

A. Fastening to In-Place Construction: Provide welded fastening to support angles for securing precast concrete stairs to existing steel stringers.

B. Cutting, Fitting, and Placement: Perform cutting, drilling, and fitting required for installing supports for precast concrete stair treads, risers and landing units. Set support angles and precast units accurately in location, alignment, and elevation, measured from established lines and levels and free of rack.

C. Install new tread, riser and landing support angles by welding to existing steel stair stringers, unless otherwise indicated.

D. Provide temporary bracing or anchors in formwork for items that are to be built into concrete, masonry, or similar construction.

E. Field Welding: Comply with the following requirements:

1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
2. Obtain fusion without undercut or overlap.
3. Remove welding flux immediately.
4. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.

F. Place and finish concrete fill for platforms to comply with Division 3 Section "Cast-in-Place Concrete."

G. Install new precast concrete treads, risers and landing segments by welding plates embedded into precast concrete units to new steel support angles.

3.3 ADJUSTING AND CLEANING

A. Touchup Painting: Immediately after erection, clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with the same material as used for shop painting.

1. Apply by brush or spray to provide a minimum 2.0-mil (0.05-mm) dry film thickness.

B. Touchup Painting: Cleaning and touchup painting of field welds and abraded areas of shop paint are specified in Division 9 painting Sections.

END OF SECTION 05511

SECTION 07920
JOINT SEALANTS

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 joint sealants for the applications indicated in the following applications, including those specified by reference to this Section.

1. Exterior joints in the following horizontal traffic surfaces:

    a. Joints between aluminum and steel window/door frames and unit masonry.

2. Interior joints in the following vertical surfaces and horizontal non-traffic surfaces:
    a. Perimeter joints of exterior door/window openings where indicated.
    b. Vertical joints between exposed surfaces of interior unit masonry walls with cast-in place concrete landing slabs and interior unit masonry walls with precast concrete.
    c. Joints between top of plant-precast structural concrete stair treads and bottom of precast concrete stair risers.
    d. Joints between bottom of plant-precast structural concrete stair treads and top of precast concrete stair risers.
    e. Joints between cast-in-place concrete and precast concrete units.
    f. Other joints as indicated.

4. Interior joints in the following horizontal traffic surfaces:

    a. Joints between precast concrete landing slab segments.
    b. Joints between precast concrete tread or landing units and cast-in-place concrete landings
    c. Other joints as indicated.

PERFORMANCE REQUIREMENTS

A. Provide elastomeric and mastic joint sealants that establish and maintain watertight continuous joint seals without staining or deteriorating joint substrates.

SUBMITTALS

A. Product Data: For each joint-sealant product indicated.

B. Samples for Initial Selection: Manufacturer's color charts consisting of strips of cured sealants showing the full range of colors available for each product exposed to view.

C. Samples for Verification: For each type and color of joint sealant required, provide Samples with joint sealants in 1/2-inch- (13-mm-) wide joints formed between two 6-inch- (150-mm-) long strips of material matching the appearance of exposed surfaces adjacent to joint sealants.

D. Product Certificates: For each type of joint sealant and accessory, signed by product manufacturer.

E. SWRI Validation Certificate: For each elastomeric sealant specified to be validated by SWRI's Sealant Validation Program.

F. Preconstruction Field Test Reports: Indicate which sealants and joint preparation methods resulted in optimum adhesion to joint substrates based on preconstruction testing specified in "Quality Assurance" Article.

G. Compatibility and Adhesion Test Reports: From sealant manufacturer, indicating the following:

1. Materials forming joint substrates and joint-sealant backings have been tested for compatibility and adhesion with joint sealants.
2. Interpretation of test results and written recommendations for primers and substrate preparation needed for adhesion.

J. Field Test Report Log: For each elastomeric or mastic sealant application.

K. Product Test Reports: Based on comprehensive testing of product formulations performed by a qualified testing agency, indicating that sealants comply with requirements.

L. Warranties: Special warranties specified in this Section.

QUALITY ASSURANCE

A. Installer Qualifications: Manufacturer's authorized Installer who is approved or licensed for installation of elastomeric sealants required for this Project.

B. Source Limitations: Obtain each type of joint sealant through one source from a single

manufacturer.

C. Preconstruction Compatibility and Adhesion Testing: Submit to joint-sealant manufacturers, for testing indicated below, samples of materials that will contact or affect joint sealants.

1. Use manufacturer's standard test method to determine whether priming and other specific joint preparation techniques are required to obtain rapid, optimum adhesion of joint sealants to joint substrates.

2. Submit not fewer than two pieces of each type of material, including joint substrates, shims, joint-sealant backings, secondary seals, and miscellaneous materials.

3. Schedule sufficient time for testing and analyzing results to prevent delaying the Work.

4. For materials failing tests, obtain joint-sealant manufacturer's written instructions for corrective measures including use of specially formulated primers.

5. Testing will not be required if joint-sealant manufacturers submit joint preparation data that are based on previous testing of current sealant products for adhesion to, and compatibility with, joint substrates and other materials matching those submitted.

D. Product Testing: Obtain test results for "Product Test Reports" Paragraph in "Submittals" Article from a qualified testing agency based on testing current sealant formulations within a 36-month period preceding the Notice to Proceed with the Work.

1. Testing Agency Qualifications: An independent testing agency qualified according to ASTM C 1021 to conduct the testing indicated, as documented according to ASTM E 548.

2. Test elastomeric joint sealants for compliance with requirements specified by reference to ASTM C 920, and where applicable, to other standard test methods.

3. Test elastomeric joint sealants according to SWRI's Sealant Validation Program for compliance with requirements specified by reference to ASTM C 920 for adhesion and cohesion under cyclic movement, adhesion-in-peel, and indentation hardness.

4. Test other joint sealants for compliance with requirements indicated by referencing standard specifications and test methods.

E. Preconstruction Field-Adhesion Testing: Before installing elastomeric sealants, field test their adhesion to Project joint substrates as follows:

1. Locate test joints where indicated on Project or, if not indicated, as directed by Engineer.

2. Conduct field tests for each application indicated below:

a. Each type of elastomeric sealant and joint substrate indicated.
b. Each type of non-elastomeric sealant and joint substrate indicated.

1. Notify Engineer seven days in advance of dates and times when test joints will be erected.

2. Arrange for tests to take place with joint-sealant manufacturer's technical representative present.

a. Test Method: Test joint sealants according to Method A, Field-Applied Sealant Joint Hand Pull Tab, in Appendix X1 in ASTM C 1193.

1) For joints with dissimilar substrates, verify adhesion to each substrate separately; extend cut along one side, verifying adhesion to opposite side. Repeat procedure for opposite side.

1. Report whether sealant in joint connected to pulled-out portion failed to adhere to joint substrates or tore cohesively. Include data on pull distance used to test each type of product and joint substrate. For sealants that fail adhesively, retest until satisfactory adhesion is obtained.

2. Evaluation of Preconstruction Field-Adhesion-Test Results: Sealants not evidencing adhesive failure from testing, in absence of other indications of noncompliance with requirements, will be considered satisfactory. Do not use sealants that fail to adhere to joint substrates during testing.

F. Mockups: The City may require that the Contractor build mockups incorporating sealant joints, as follows, to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.

1. Joints in mockups of assemblies specified in other Sections that are indicated to receive elastomeric joint sealants, which are specified by reference to this Section.

G. 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. Do not proceed with installation of joint sealants under the following conditions:

1. When ambient and substrate temperature conditions are outside limits permitted by joint-sealant manufacturer or are below 40 deg F.

2. When joint substrates are wet.

3. Where joint widths are greater than or less than those allowed by joint-sealant manufacturer

for applications indicated.

4. Contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

1.7 WARRANTY

A. Special Installer's Warranty: Installer's standard form in which Installer agrees to repair or replace elastomeric joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.

   1. Warranty Period: **Two** years from date of Substantial Completion.

B. Special Manufacturer's Warranty: Manufacturer's standard form in which elastomeric sealant manufacturer agrees to furnish elastomeric joint sealants to repair or replace those that do not comply with performance and other requirements specified in this Section within specified warranty period.

   1. Warranty Period: Two year from date of Substantial Completion.

C. Special warranties specified in this Article exclude deterioration or failure of elastomeric joint sealants from the following:

   1. Movement of the structure resulting in stresses on the sealant exceeding sealant manufacturer's written specifications for sealant elongation and compression caused by structural settlement or errors attributable to design or construction.

   2. Disintegration of joint substrates from natural causes exceeding design specifications.

   3. Mechanical damage caused by individuals, tools, or other outside agents.

   4. Changes in sealant appearance caused by accumulation of dirt or other atmospheric contaminants.

PART 2 - PRODUCTS

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.

MATERIALS, GENERAL

A. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by sealant manufacturer, based on testing and field experience.

B. VOC Content of Interior Sealants: Provide interior sealants and sealant primers that comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):

1. Sealants: 250 g/L.
2. Sealant Primers for Nonporous Substrates: 250 g/L.
3. Sealant Primers for Porous Substrates: 775 g/L.

C. Colors of Exposed Joint Sealants: As selected by City from manufacturer's full range.

ELASTOMERIC JOINT SEALANTS

A. Elastomeric Sealants: Comply with ASTM C 920 and other requirements indicated for each liquid-applied chemically curing sealant specified, including those referencing ASTM C 920 classifications for type, grade, class, and uses related to exposure and joint substrates.

. Stain-Test-Response Characteristics: Where elastomeric sealants are specified to be non-staining to porous substrates, provide products that have undergone testing according to ASTM C 1248 and have not stained porous joint substrates indicated for Project.

B. Multicomponent Nonsag Polysulfide Sealant [**ES-**<#>]:

1. Products:

a. Sika, Sikaflex 2c or approved equal

2. Type and Grade: M (multicomponent) and NS (nonsag).
3. Class: 25.
4. Use[**s**] Related to Exposure: T (traffic) and NT (non-traffic).
5. Uses Related to Joint Substrates: M, G, A, and, as applicable to joint substrates indicated, O.

R. Multicomponent Nonsag Urethane Sealant [**ES-**<#>]:

1. Products:

a. Schnee-Morehead, Inc.; Permathane SM 7200.
b. Sika Corporation, Inc.; Sikaflex - 2c NS TG.
c. Tremco; Vulkem 227.
d. Tremco; Vulkem 322 DS.

2. Type and Grade: M (multicomponent) and NS (nonsag).
3. Class: 25.
4. Uses Related to Exposure: T (traffic) and NT (nontraffic).
5. Uses Related to Joint Substrates: M, [**G,**]A, and, as applicable to joint substrates indicated, O.

G. Multicomponent Pourable Polysulfide Sealant (ie. MASTICS) [**ES-**<#>]:

1. Products:

a. Meadows, W. R., Inc.; Deck-O-Seal.
b. Pacific Polymers, Inc.; Elastoseal 227 Type I (Pourable).

2. Type and Grade: M (multicomponent) and P (pourable).
3. Class: 25.
4. Uses Related to Exposure: T (traffic) and NT (nontraffic).
5. Uses Related to Joint Substrates: M, [**G,**] [**A,**] and, as applicable to joint substrates indicated, O.

PREFORMED JOINT SEALANTS

A. Preformed Silicone-Sealant System: Manufacturer's standard system consisting of precured low-modulus silicone extrusion, in sizes to fit joint widths indicated, combined with a neutral-curing silicone sealant for bonding extrusions to substrates.

1. Products:

a. Dow Corning Corporation; 123 Silicone Seal.
b. GE Silicones; UltraSpan US1100.
c. Pecora Corporation; Sil-Span.
d. Tremco; Spectrem Ez Seal.

B. Preformed Foam Sealant [**PS-**<#>]: Manufacturer's standard preformed, precompressed, open-cell foam sealant that is manufactured from high-density urethane foam impregnated with a nondrying, water-repellent agent; is factory produced in precompressed sizes in roll or stick form to fit joint widths indicated; is coated on one side with a pressure-sensitive adhesive and covered with protective wrapping; develops a watertight and airtight seal when compressed to the degree specified by manufacturer; and complies with the following:

1. Products:

a. EMSEAL Joint Systems, Ltd.; Emseal 25V.
b. illbruck Sealant Systems, Inc.; Wilseal 600.
c. Polytite Manufacturing Corporation; Polytite B.
d. Polytite Manufacturing Corporation; Polytite Standard.
e. Sandell Manufacturing Co., Inc.; Polyseal.

2. Properties: Permanently elastic, mildew resistant, nonmigratory, nonstaining, and compatible with joint substrates and other joint sealants.

a. Density: Manufacturer's standard

PREFORMED TAPE SEALANTS

A. Back-Bedding Mastic Tape Sealant: Preformed, butyl-based elastomeric tape sealant with a solids content of 100 percent; nonstaining and nonmigrating in contact with nonporous surfaces; with or without spacer rod as recommended in writing by tape manufacturers for application indicated; packaged on rolls with a release paper backing; and complying with ASTM C 1281 and AAMA 800 for products indicated below:

1. AAMA 804.3 tape, where indicated.
2. AAMA 806.3 tape, for applications in which tape is subject to continuous pressure.
AAMA 807.3 tape, for applications in which tape is not subject to continuous pressure.

B. Expanded Cellular Tape Sealant: Closed-cell, PVC foam tape sealant; factory coated with adhesive on both surfaces; packaged on rolls with release liner protecting adhesive; and complying with AAMA 800 for the following types:

1. Type 1, for applications in which tape acts as the primary sealant.
2. Type 2, for applications in which tape is used in combination with a full bead of

liquid sealant.

JOINT-SEALANT BACKING

A. General: Provide sealant backings of material and type that are nonstaining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.

B. Cylindrical Sealant Backings: ASTM C 1330, Type C (closed-cell material with a surface skin) and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance:

C. Elastomeric Tubing Sealant Backings: Neoprene, butyl, EPDM, or silicone tubing complying with ASTM D 1056, nonabsorbent to water and gas, and capable of remaining resilient at temperatures down to minus 26 deg F (minus 32 deg C). Provide products with low compression set and of size and shape to provide a secondary seal, to control sealant depth, and to otherwise contribute to optimum sealant performance.

D. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint where such adhesion would result in sealant failure. Provide self-adhesive tape where applicable.

2.10 MISCELLANEOUS MATERIALS

A. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.

B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants to joint substrates.

C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

PART 3 - EXECUTION

EXAMINATION

A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint-sealant performance.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

PREPARATION

A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions and the following requirements:

1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.
2. Clean porous joint substrate surfaces by brushing, grinding, blast cleaning, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining after cleaning operations above by vacuuming or blowing out joints with oil-free compressed air. Porous joint substrates include the following:
    a. Concrete.
    b. Masonry.

1. Remove laitance and form-release agents from concrete.

2. Clean nonporous surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants. Nonporous joint substrates include the following:

    a. Metal.

B. Joint Priming: Prime joint substrates[, where recommended in writing by joint-sealant manufacturer, based on preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.

C. Masking Tape: Use masking tape where required to prevent contact of sealant with

adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

INSTALLATION OF JOINT SEALANTS

A. General: Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.

B. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.

D. Install sealant backings of type indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.

1. Do not leave gaps between ends of sealant backings.
2. Do not stretch, twist, puncture, or tear sealant backings.
3. Remove absorbent sealant backings that have become wet before sealant application and replace them with dry materials.

E. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.

F. Install sealants using proven techniques that comply with the following and at the same time backings are installed:

1. Place sealants so they directly contact and fully wet joint substrates.
2. Completely fill recesses in each joint configuration.
3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.

G. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.

1. Remove excess sealant from surfaces adjacent to joints.
2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
3. Provide concave joint configuration per Figure 5A in ASTM C 1193, unless otherwise indicated.
4. Provide flush joint configuration where indicated per Figure 5B in ASTM C 1193.
5. Provide recessed joint configuration of recess depth and at locations indicated per Figure 5C in ASTM C 1193.

a. Use masking tape to protect surfaces adjacent to recessed tooled joints.

H. Installation of Preformed Tapes: Install according to manufacturer's written instructions.

J. Installation of Preformed Foam Sealants: Install each length of sealant immediately after removing protective wrapping, taking care not to pull or stretch material, producing seal continuity at ends, turns, and intersections of joints. For applications at low ambient temperatures where expansion of sealant requires acceleration to produce seal, apply heat to sealant in compliance with sealant manufacturer's written instructions.

FIELD QUALITY CONTROL

A. Field-Adhesion Testing: Field test joint-sealant adhesion to joint substrates as follows:

1. Extent of Testing: Test completed elastomeric sealant joints as follows:

a. Perform 2 tests for each landing and stair run.

2. Test Method: Test joint sealants according to [Method A, Field-Applied Sealant Joint Hand Pull Tab]

a. For joints with dissimilar substrates, verify adhesion to each substrate separately; do this by extending cut along one side, verifying adhesion to opposite side. Repeat procedure for opposite side.

1. Inspect joints for complete fill, for absence of voids, and for joint configuration complying with specified requirements. Record results in a field-adhesion-test log.

2. Inspect tested joints and report on the following:

a. Whether sealants in joints connected to pulled-out portion failed to adhere to joint substrates or tore cohesively. Include data on pull distance used to test each type of product and joint substrate. Compare these results to determine if adhesion passes sealant manufacturer's field-adhesion hand-pull test criteria.
b. Whether sealants filled joint cavities and are free of voids.
c. Whether sealant dimensions and configurations comply with specified requirements.

1. Record test results in a field-adhesion-test log. Include dates when sealants were installed, names of persons who installed sealants, test dates, test locations, whether joints were primed, adhesion results and percent elongations, sealant fill, sealant configuration, and sealant dimensions.
2. Repair sealants pulled from test area by applying new sealants following same

procedures used originally to seal joints. Ensure that original sealant surfaces are clean and that new sealant contacts original sealant.

B. Evaluation of Field Test Results: Sealants not evidencing adhesive failure from testing or noncompliance with other indicated requirements will be considered satisfactory. Remove sealants that fail to adhere to joint substrates during testing or to comply with other requirements. Retest failed applications until test results prove sealants comply with indicated requirements.

CLEANING

A. Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

3.6 PROTECTION

A. Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from original work.

3.7 JOINT-SEALANT SCHEDULE

A. Joint-Sealant Application JS-[1]: Vertical and horizontal non-traffic construction joints between precast units and cast-in-place concrete.

1. Joint Sealant: Multi-component non-sag polysulfide sealant or Multi-component non-sag urethane sealant.
2. Joint-Sealant Color: As selected by City from manufacturer's full range.

B. Joint-Sealant Application JS-[2]: Exterior vertica and horizontal non-traffic joints between plant-precast concrete units.

1. Joint Sealant: Elastomeric Mastic, Multi-component non-sag polysulfide sealant, Multi-component non-sag urethane sealant.
2. Joint-Sealant Color: As selected by City from manufacturer's full range.

C. Joint-Sealant Application JS-[3]: Vertical control and expansion joints between precast units and unit masonry.

1. Joint Sealant: Elastomeric Mastic, Multi-component non-sag polysulfide sealant,

Multi-component non-sag urethane sealant.
2. Joint-Sealant Color: As selected by City from manufacturer's full range.

D. Joint-Sealant Application JS-[4]: Interior perimeter joints between masonry and frames of doors and windows.

1. Joint Sealant: Elastomeric Mastic
2. Joint-Sealant Color: [As selected by City from manufacturer's full range]

E. Joint-Sealant Application JS-[5]: Exterior perimeter joints between masonry and frames of doors and windows.

1. Joint Sealant: Elastomeric Mastic
2. Joint-Sealant Color: [As selected by City from manufacturer's full range]

END OF SECTION 07920

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 steel surfaces from potential damage caused by corrosion and construction operations. Removal and feathering of existing paint where loose or visually evident paint buildup has occurred shall be required.

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.

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. Tinting material unless otherwise recommended by paint manufacturer, shall be ground in pure linseed oil, lime proof, non fading, and lead free.

C. Linseed oil shall be pure, settled, clear and raw or boiled as required to produce best results.

D. Thinner shall be the best grade, pure grain spirits of turpentine distilled from the sap of live trees.

E. 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.

F. All paints and finishes shall be of one manufacturer.

2.02 PAINTING SCHEDULE

A. A minimum of two finish coats of paint is required over one coat of primer. Thin only as required for method of application and in strict conformance with the manufacturers written recommendations, unless otherwise indicated.

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. Wire brush and feather areas of defective paint and areas where paint buildup is visually evident to a smooth sound undercoat. Rough up any surfaces, to be painted. Clean surfaces in accordance with Section 05100. 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.

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.

3.02 JOB CONDITIONS

A. No work shall be done in rain, dew or fog when the temperature is below 50 F, or before the materials to be painted or finished have thoroughly dried out.

B. 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, pipe or drain 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, concrete, doors, glass, walls, fixtures, conduit, and other materials to remain. 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

SECTION 03600
TYPE I CONCRETE REPAIR

PART 1 - GENERAL

SCOPE OF WORK

A. The work shall include repairing surfaces of deteriorated and/or unsound concrete as indicated on the plans and other areas found during construction activity. The work shall include saw cutting, excavation and removal of the existing deteriorated or unsound concrete, and placement of patch material. The work shall be in accordance with the Type I repair as shown on the plans.

B. This item does not include spalls that exceed 2 inches in depth. For deteriorated areas exceeding 2 inches in depth, the contractor shall notify the City for direction to proceed.

C. The contractor shall comply with all manufacturers' instructions and recommendations.

PART 2 – MATERIAL

A. The cementitious mortar material used to repair/patch concrete surfaces shall be a polymer-modified, cementitious, 2-component, fast-setting, trowel grade patching mortar.

B. All materials for patching shall be from the NHDOT Qualified Products List.

PART 3 – EXECUTION

CONSTRUCTION METHODS

A. Prior to placement of the patch material, the concrete shall receive a coating of epoxy bonding compound. Fill patch area with mortar and finish the patch area as required in maximum 1" lifts. All materials removed in this repair shall become the property of the Contractor and shall be disposed of away from the work site.

B. The preparation, mixing, application and curing of the cementitious mortar shall be in accordance with the manufacturer's recommendations.

SECTION 09 67 23

100% SOLIDS EPOXY FLOORING SPECIFICATION

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

1. Furnish and install the 100% solids epoxy flooring system as specified and indicated. Prior to installation, provide decontamination and cleaning as specified. The term "100% solids epoxy flooring system" as used in this section will include the primers, resin systems and aggregate materials, optional topcoat, cove building materials, and any related materials for the project.

2. Complete the 100% solids epoxy flooring system installation in strict accordance with these specifications, the coating system manufacturer's most current requirements for surface preparation, application and inspection, and the instructions for safety. In the event of a conflict between these specifications and the manufacturer's instructions, the more stringent requirements will apply.

3. The Contractor shall be responsible for providing ventilation, initial cleaning, inspection, supervision, dust control and equipment protection as specified herein and related sections for the work associated with this Section. The Contractor is responsible for all other work associated with this Section including protection of existing equipment and structures in the work area, surface preparation, 100% solids epoxy flooring application, curing, coating repair, rework, inspection and supervision.

1.02 RELATED SECTIONS

Division 1 General Requirements
Section 05100 Structural Steel

1.03 REFERENCES:

1. Society for Protective Coatings (SSPC) Specifications and Standards:

    1. SSPC-PA-3: "A Guide to Safety in Paint Application".

    2. SSPC-SP-13: "Surface Preparation of Concrete".

    3. SSPC Development and Use of Quality Control Forms in Coating Contracting

2. NACE (National Association of Corrosion Engineers)

    1. NACE Publication 6D-173, "A Manual for Painter Safety".

    2. NACE Publication 6G-164, "Surface Preparation Abrasives for Industrial Maintenance Painting".

3. ASTM (American Society for Testing and Materials)

    1. ASTM D4541 - L.R. “Standard Method for Pull-Off Strength of Coatings using Portable Adhesion Testers”.

    2. ASTM E337 - L.R. “Standard Practice Test Method for Measuring Humidity with a Psychrometer”.

    3. ASTM D4263-83 (1999), “Standard Test Method for Indicating Moisture in Concrete by the Plastic Sheet Method”.

    4. ASTM F1869-98, “Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride”.

    5. ASTM D4414-95, “Standard Practice for Measurement of Wet Film Thickness by Notched Gages”.

    6. ICRI Guide No. 03732, “Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings and Polymer Overlays,” International Concrete Repair Institute, Sterling, VA.

    7. ASTM D4259, “Standard Practice for Abrading Concrete”.

1.04 DEFINITIONS

1. Terms used in this Section are defined as follows:

    A. 100% solids Epoxy: The aspects involved with proper application Flooring Workof the specified high solids flooring system, including but not limited to cleaning, surface preparation, mixing, application, curing, and quality control.

    B. Approved Materials: The coating system, blast media, and other specified materials for this coating work.

    C. Wet Film Thickness: The primer or coating films’ actual thickness immediately following application. Wet film thickness is measured in mils or thousandths of an inch (0.001") and is abbreviated WFT.

    D. Dry Film Thickness: The primer or coating films’ actual thickness following curing and drying. Dry film thickness is measured in mils or thousandths of an inch (0.001") and is abbreviated DFT.

    E. Coating System: Refers to the approved coating Manufacturer, Manufacturerabbreviated as CSM in this Section.

    F. Manufacturer’s Technical: Refers to the technical representative(s) of the Representative(s) approved CSM.

    G. A/E: Architectural or Engineering Firm.

1.05 QUALITY ASSURANCE

The Contractor shall meet the following requirements:

1. The Contractor is ultimately responsible for the workmanship and quality of the 100% solids epoxy flooring system installation. Inspections by the Owner, the Engineer, or others do not limit the Contractor's responsibility.

2. Do not use or retain contaminated, outdated, or diluted materials for flooring. Do not use materials from previously opened containers.

3. Use only products of the approved CSM. Provide the same products for repairs as for the original coating.

4. If any requirements of this specification are contradicted by a referenced standard or vice-versa, the matter shall be resolved in writing by the A/E or its representative.

5. Make available at all times all locations and phases of the work for access and inspection by the Engineer, the Owner, or other personnel designated by the Owner. The Contractor shall provide ventilation, egress, and whatever other means are required for the Owner, Engineer, or designated personnel to access and exit the work areas safely.

6. Conduct work so that the 100% solids epoxy flooring system is installed as specified herein. Inspect work continually to ensure that the coating system is installed as specified herein. The A/E shall inspect the work to determine conformance with the contract documents.

7. The Contractor's Supervisor shall be on site at all times and will be thoroughly familiar with the work in progress. This Supervisor shall have authority to receive and execute all direction provided by the A/E or the Owner.

8. The methods of construction shall be in accordance with all requirements of this specification and the best trade practices. Any changes in the 100% solids epoxy flooring system installation requirements shall be allowed only with the written approval of the A/E.

9. Installation shall be performed by an applicator having a minimum of 5 years satisfactory experience in the application of these or similar materials and be certified by the CSM.

1.06 SUBMITTALS

Submit the following prior to commencing with any phase of the work covered by this Section:

1. Manufacturer's current printed recommendations and product data sheets for all 100% solids epoxy flooring system products including performance criteria, surface preparation and applications, volatile organic compound (V.O.C.) data, and safety requirements.

2. Material Safety Data Sheets (MSDS) for any materials brought on-site including all coating system materials, solvents, and abrasive blast media.

3. Manufacturer shall provide 5 yr successful track record on similar projects. Project history shall include Owner POC, project description, and execution completion date.

4. Contractor's written verification that the personnel who will perform this work have the required experience as specified in 1.05 A. 9. This document must list the names of all of the Contractor's supervisors and tradespeople who will work on the project covered by this Section.

5. List of cleaning and thinner solutions allowed by the CSM.

6. Storage requirements including temperature, humidity, and ventilation for Coating System Materials.

7. Samples of coatings daily inspection reports, inspection reports shall meet the requirements of SSPC Development and Use of Quality Control Forms in Coating Contracting.

8. Owner, contractor, and manufacturer's representative shall review and mutually agree upon color, grade, and final texture of coating system before starting installation. The acceptance of a sample will constitute the job standard by which installation will proceed.

1.07 DELIVERY, STORAGE, AND HANDLING

1. Material shall be delivered to project site in manufacturer's original unopened containers.

2. Materials shall be stored indoors, protected from damage, moisture, direct sunlight and temperatures below 40 degrees F or above 90 degrees F.

3. Store all materials only in area or areas designated by the Owner solely for this purpose. Confine mixing, thinning, clean-up and associated operations, and storage of coating materials related debris before authorized disposal, to these areas. All materials are to be stored on pallets or similar storage/handling skids off the ground.

4. Mix all coating materials in a designated enclosed mixing area. This enclosed area must protect the mixing operation and materials from direct sunlight, inclement weather, freezing, or other means of damage or contamination. Protect all other concrete and metallic surfaces and finishes from any spillage of material(s) within the mixing area.

5. Do not use drain piping for disposal of coating materials.

6. The Contractor shall take all precautions and implement all measures necessary to avert potential hazards associated with the 100% solids epoxy flooring system materials as described on the pertinent Material Safety Data Sheets or container labels.

7. Deliver all materials to the job site in new, unopened containers. Each container shall bear the CSM's name and label.

8. Labels on all material containers must show the following information:

9. Name or title of product.
10. Manufacturer's batch number.
11. Manufacturer's name.
12. Generic type of material.

13. Application and mixing instructions.
14. Hazardous material identification label.
15. Shelf life date.

16. All containers shall be clearly marked indicating any personnel safety hazards associated with the use of or exposure to the materials.

17. All materials shall be handled and stored to prevent damage or loss of label.

18. Do not use or retain contaminated, outdated, prematurely opened, diluted materials, or materials which have exceeded their shelf life.

1.08 ENVIRONMENTAL CONDITIONS

1. Surfaces and surrounding air temperatures must exceed 55 degrees F, but must be less than 90 degrees F, with materials at not less than 70 degrees F during application.

2. Do not apply coating materials when dust is being generated.

3. If existing facility lighting is not adequate for flooring system application, the Contractor shall provide all temporary lighting during the work equivalent to one 200 watt explosion proof incandescent lamp per 100 square feet of work area.

PART 2 - PRODUCTS

2.01 MATERIALS

1. Migrating Corrosion Inhibitor: MCI 2020 Penetrating surface treatment.

2. Primer: Dur-A-Flex, Inc, Dur-A-Glaze #4 WB resin and hardener.

3. Intermediate: Series Dur-A-Flex, Inc, Dur-A-Gard resin and hardener.

4. Crack repair Flexible Underlayment:, flexible elastomeric epoxy underlayment used for bridging small substrate cracks in concrete and as a protective membrane under aggregate reinforced flooring systems. To be applied into crack chase grooves

2.02 MANUFACTURER

1. Crotec Corporation
2. Dur-A-Flex Inc
3. Or approved equal.

PART 3 - EXECUTION

3.01 GENERAL

2. Protection

   Mask, cover, or otherwise protect all surfaces, equipment, and finishes not to receive the 100% solids epoxy flooring system specified in this Section.

3. Strictly follow the approved CSM's written instructions and the requirements of this specification regarding all aspects of 100% solids epoxy flooring work including: mixing, application, recoat times and curing.

4. Mock-up

   1. Prior to commencing the installation, the Contractor shall install with the owner's approval, a mutually agreed upon mock-up test sample to show final color and appearance of the 100% solids epoxy flooring system.

   2. Non skid shall meet the requirements of the owner.

3.02 PREPARATION

1. Allow new concrete to cure for 28 days. Verify dryness by testing for moisture with a "plastic film tape-down test". (Reference ASTM D4263)

2. Protect surrounded areas from damage before and during surface preparation activities.

3. Pre-cleaning in accordance with SSPC-SP-1 to remove all contaminants utilizing bio degradable cleaner/degreaser and wash with 4000PSI 6 GPM. (Cleaning parameters include but are not limited to threads, riser and c channel. Refer to drawings for cleaning parameters.

4. Abrasive blast clean to remove laitance, curing compounds, sealers and other contaminants and to provide surface profile. (ICRI CSP 4-7).

5. Rout out concrete cracks with crack chaser min ¼ inch deep and 3/8 inch wide.

6. Vacuum clean concrete to remove all dirt, dust, and other loose materials.

7. After mechanically abrading, verify that all surfaces are clean, dry and free of any contaminants, which could adversely affect the adhesion of the flooring system.

8. If between final surface preparation work and 100% solids epoxy flooring system application, contamination of the prepared and cleaned substrates occurs, recleaning shall be required until the requirements of this Section are met.

3.03 INSTALLATION

1. Apply one coats of MCI 2020 to concrete threads at a rate of 150 sq ft per gallon Surface shall be rinsed or brush blasted prior to subsequent epoxy primer application.

2. Primer: The primer shall be mechanically mixed, applied and cured in strict accordance with manufacturer's printed instructions and applied uniformly at a film thickness of 5 to 10 dry mils.

3. 100% solids Epoxy Flooring: The material shall be mixed, applied and cured in strict accordance with the manufacturer's printed instructions. Apply by notched squeegee, notched trowel, or gauge rake and pork pine rolled to a thickness of 120 to 240 mils DFT. Additional coats may be applied for appearance.

4. Aluminum oxide shall be used as the non skid media.

5. Expansion joints, and all 100% solids epoxy flooring system terminations shall be installed as indicated on the Standard Flooring Details.

6. Fill all cracks and recessed joints, such as control and construction joints with manufacturer recommended material. When filled, joint should be flush with the floor surface.

3.04 CLEANUP

1. Remove waste materials, rubbish, and debris and dispose of them at the owner's direction. Leave work areas in a clean and tidy condition.

3.05 PROTECTION

1. Protect the completed work from water, airborne particles or other surface contaminants until cured for a minimum of 24 hours after application.

2. Protect from traffic, physical abuse, immersion and chemical exposure until the complete system has thoroughly cured for 24 hours at 75 degrees F. If Series 291 is used, a minimum of 96 hours @ 75 degrees F is required for full cure. For different temperatures, consult the manufacturer's representative about curing times.

3.06 FIELD QUALITY CONTROL INSPECTION AND TESTING

PART 1 Inspection by the Engineer, Owner or others does not limit the Contractor's responsibilities for quality as specified herein or as required by the CSM's instructions.

PART 2 The Contractor shall perform the Q.C. procedures listed below in conjunction with the requirements of this Section. The Engineer will inspect the work to determine conformance to the contract documents.

Degree of Cleanliness.

Visually inspect the degree of cleanliness of substrates to meet the requirements of this Section. The pH of the concrete substrates will be

measured using pH indicating papers. pH testing is to be performed once every 100 sq. ft. of surface area to be coated.

Acceptable pH values shall be between 8.0 and 11.0 as measured by a full-range (1-12) color indicating pH paper with readable color calibrations and a scale at whole numbers (minimum). Use Hydrion Insta-Chek Jumbo 0-13 or 1-12 or equal. The paper shall be touched to the surface once using moderate finger pressure. The surface shall not be wiped or moved laterally to disturb the surface during pH testing. Following the one touch, lift the paper vertically to not "wipe" the surface. Compare the color indicated with the scale provided and record the pH.

Note: If the surface of the concrete is dry, it is not possible to take a pH measurement. However, pH values are still important on dry surfaces. When a dry concrete substrate is encountered for a pH test, the surface where the pH test is to be performed shall be sprayed lightly with distilled, deionized water from a commercially available spray bottle that has been properly rinsed to preclude any dissolved solids. The spray shall just wet the surface to a "shiny" appearance. Wait 60 seconds to allow chemical equilibria to be established and then test the pH of the water on the surface. Perform this test in accordance with ASTM D4262.

Concrete Surface Profile

1. Using the replicate rubber specimens inspect the concrete surface profile in accordance with ICRI Guide No. 03732. This should be performed once for every 100 square feet of surface area to be coated.

2. Measure and record ambient air temperature once every two hours of each shift using a thermometer and measure and record substrate temperature once every two hours using a surface thermometer.

3. Measure and record relative humidity every two hours of each shift using a sling psychrometer in accordance with ASTM E337.

4. Inspect correct mixing of coating materials in accordance with the CSM's instructions.

5. Inspect and record that the "pot life" of coating materials used are not exceeded during installation.

6. Measure and record the thickness of the coating system using a notched gauge in accordance with ASTM D4414 for Wet Film Thickness at least once every 10 sq. ft. of coating area.

7. Perform moisture tests on concrete as follows:

8. Once for every 500 square feet of surface area to be coated, perform the plastic sheet test in accordance with ASTM D4263. If moisture is indicated, proceed to step 2 below.

9. Perform calcium chloride moisture tests in accordance with ASTM D1869 once for every

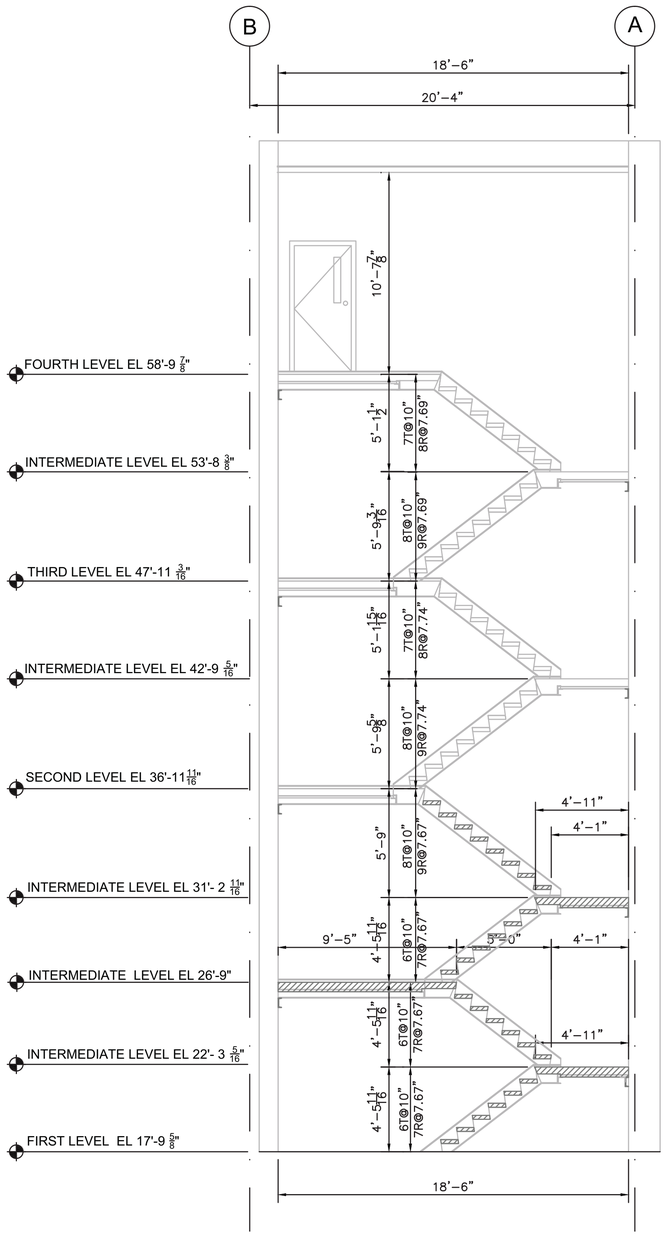
1000 square feet of surface area to be coated. The maximum limit for moisture vapor emissions rate should be 3.0 lbs. per 24 hours per 1000 sq. ft. If tests indicate rates higher than 3.0, consult with manufacturers Technical Service Department for further evaluation.

10. Verify with owner or its representative that the non skid is consistent with the owner's requirements.

11. Inspect to verify proper curing of the 100% solids epoxy flooring system as recommended by the CSM.

12. Provide the owner a copy of daily inspection reports.

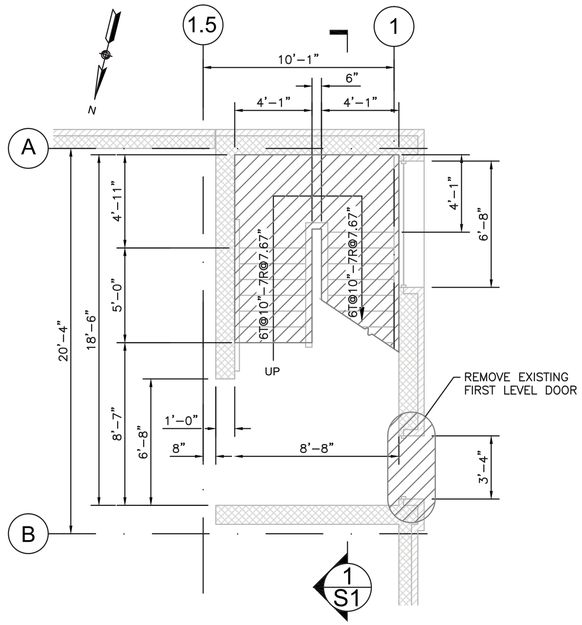
End of Section



DEMOLITION
CROSS-SECTION
STAIR TOWER #1

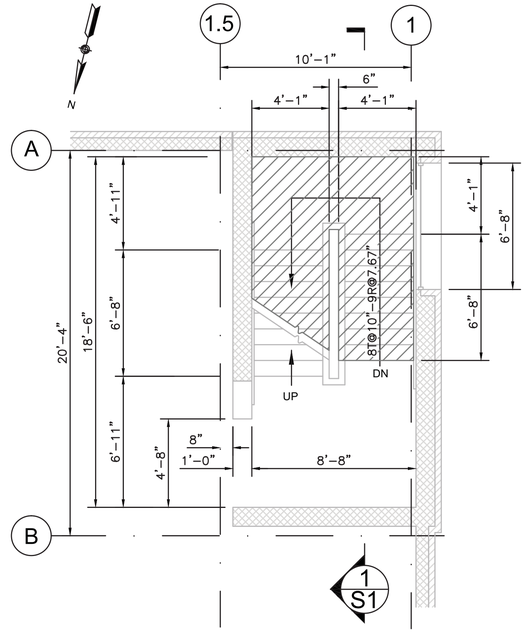
1/S1

SCALE: 1/4" = 1'-0"



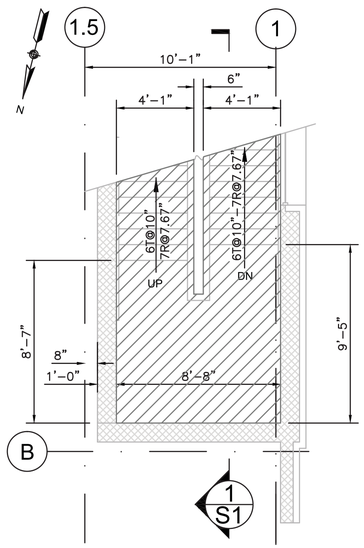
DEMOLITION
FIRST LEVEL PLAN - STAIR TOWER #1

SCALE: 1/4" = 1'-0"



DEMOLITION
SECOND LEVEL PLAN - STAIR TOWER #1

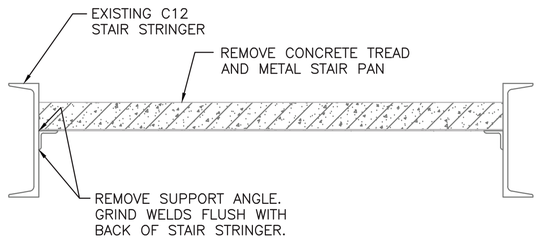
SCALE: 1/4" = 1'-0"



DEMOLITION
INTERMEDIATE LEVEL PLAN - STAIR TOWER #1

SCALE: 1/4" = 1'-0"

DENOTES REMOVAL



DEMOLITION
EXISTING PANS & TREADS

SCALE: 1 1/2" = 1'-0"

DEMOLITION NOTES:

1. CONTRACTOR IS RESPONSIBLE FOR SIGNING, BARRICADES AND ROUTING PEDESTRIAN ACCESS TO AN ALTERNATE STAIR TOWER AT EACH LEVEL AS DIRECTED BY THE CITY.
2. CONTRACTOR SHALL PROTECT EXISTING WINDOWS AND DOORS FROM DAMAGE DURING CONSTRUCTION. ANY DAMAGE CAUSED AS A RESULT OF CONSTRUCTION OPERATIONS SHALL BE REPAIRED BY CONTRACTOR AT NO ADDITIONAL EXPENSE TO THE CITY.
3. CONTRACTOR TO COORDINATE WITH DPW TO RESOLVE SUCH ISSUES AS MATERIAL LAY DOWN AREAS, CREW PARKING, DELIVERIES, AND EQUIPMENT LOCATIONS BEYOND THE LIMITS OF CONSTRUCTION.
4. CONTRACTOR SHALL BLAST CLEAN STRUCTURAL STEEL TO REMAIN TO SSPC–SP10 REQUIREMENTS FROM THE FIRST LEVEL UP TO THE SECOND LEVEL PLATFORM.

PORTSMOUTH PARKING GARAGE
DEMOLITION - STAIR TOWER #1

HANOVER STREET
PORTSMOUTH, NH

PROJECT:
STAIR TOWER REHABILITATION

PREPARED FOR:
CITY OF PORTSMOUTH

GPI Greenman-Pedersen, Inc.
Engineers, Architects, Planners, Construction Engineers & Inspectors
14 MANCHESTER SQUARE, SUITE 150, PORTSMOUTH, NH 03801
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NO.	REVISION	DATE

DESIGN/DRAWN BY:	SRL
CHECK BY:	JFW
DATE:	3/8/13
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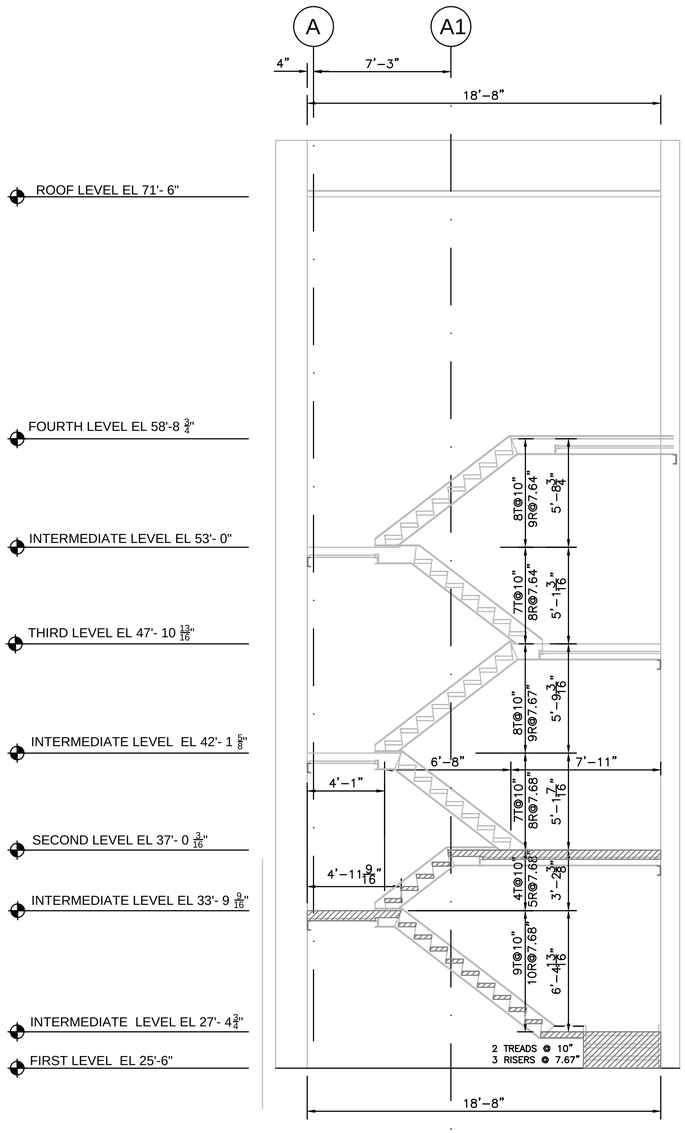
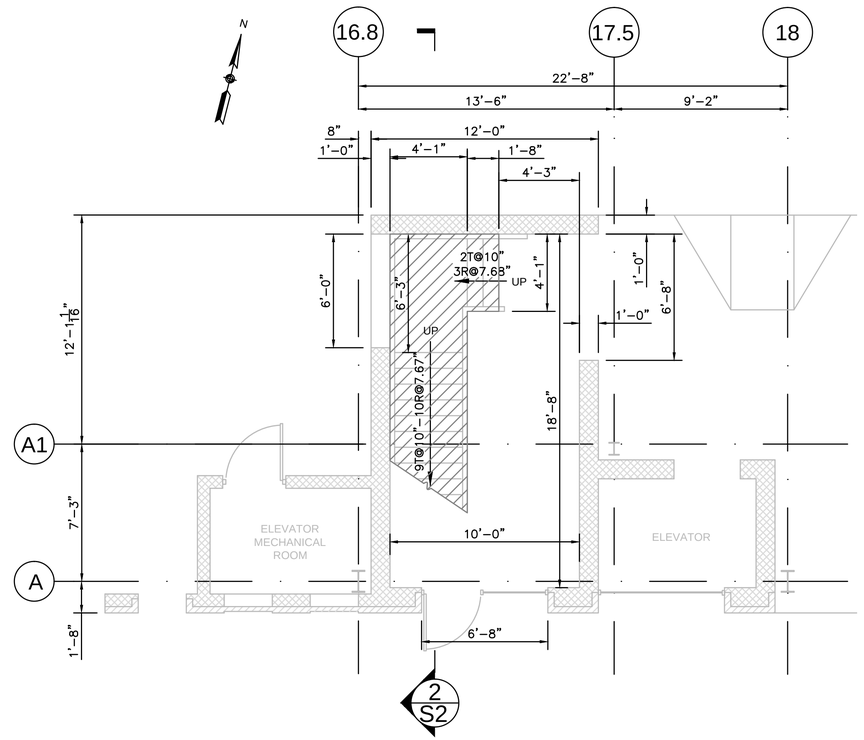


DEMOLITION
CROSS-SECTION
STAIR TOWER #2

1/S2

SCALE: 1/4" = 1'-0"

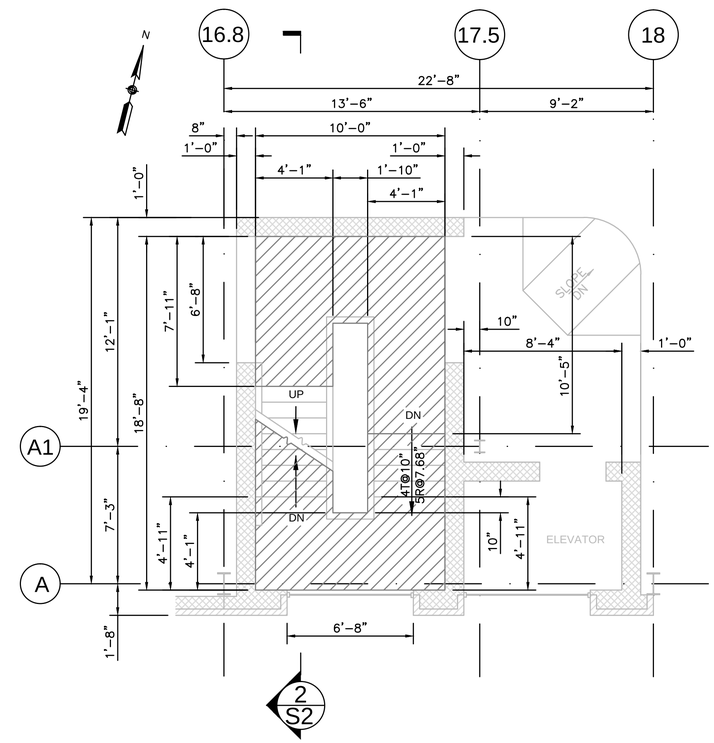


2/S2

DEMOLITION
SECOND LEVEL PLAN - STAIR TOWER #2

SCALE: 1/4" = 1'-0"

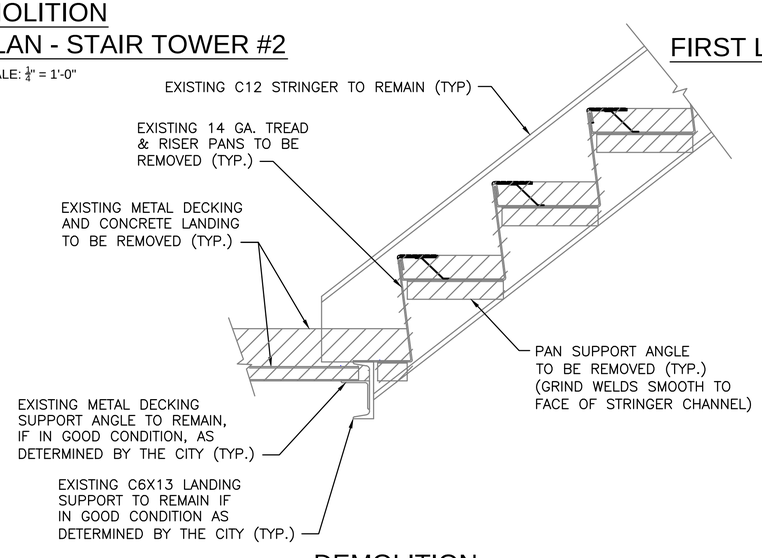
DENOTES REMOVAL



2/S2

DEMOLITION
FIRST LEVEL PLAN - STAIR TOWER #2

SCALE: 1/4" = 1'-0"



DEMOLITION
EXISTING STAIR LANDING, PANS & TREADS

SCALE: 1 1/2" = 1'-0"

PORTSMOUTH PARKING GARAGE
DEMOLITION - STAIR TOWER #2
HANOVER STREET
PORTSMOUTH, NH

PROJECT: STAIR TOWER REHABILITATION

PREPARED FOR: CITY OF PORTSMOUTH

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NO.	REVISION	DATE

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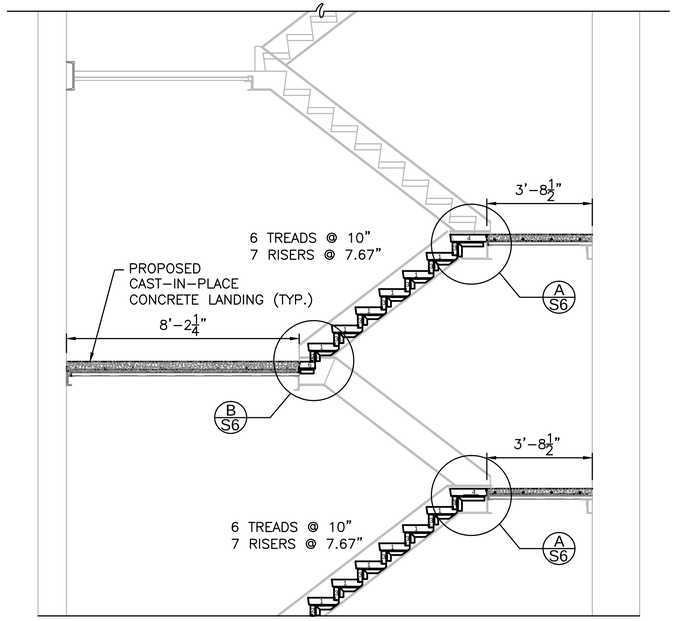
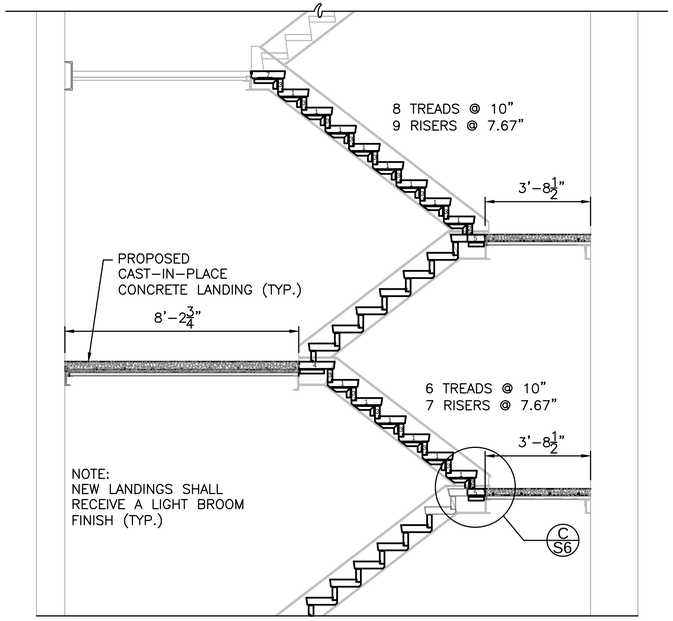


PROPOSED CROSS-SECTION STAIR TOWER #1

3 / S3

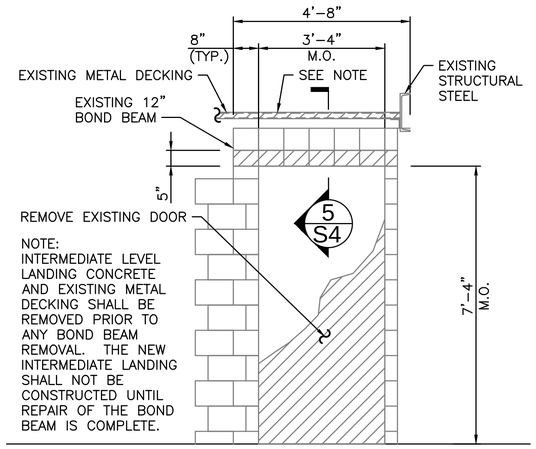
SCALE: ½" = 1'-0"



PROPOSED CROSS-SECTION STAIR TOWER #1

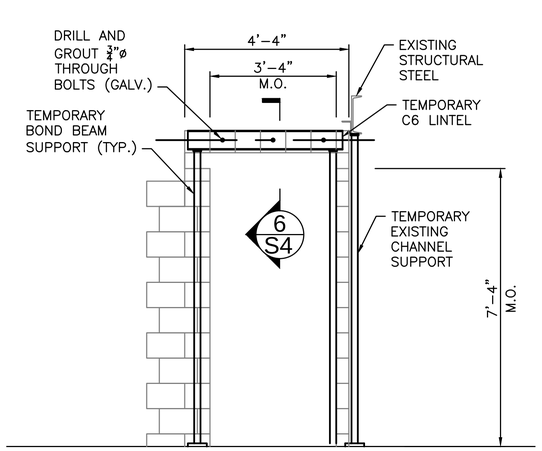
4 / S3

SCALE: ½" = 1'-0"



ENTRY DOOR REMOVAL ELEVATION STAIR TOWER #1

SCALE: ½" = 1'-0"

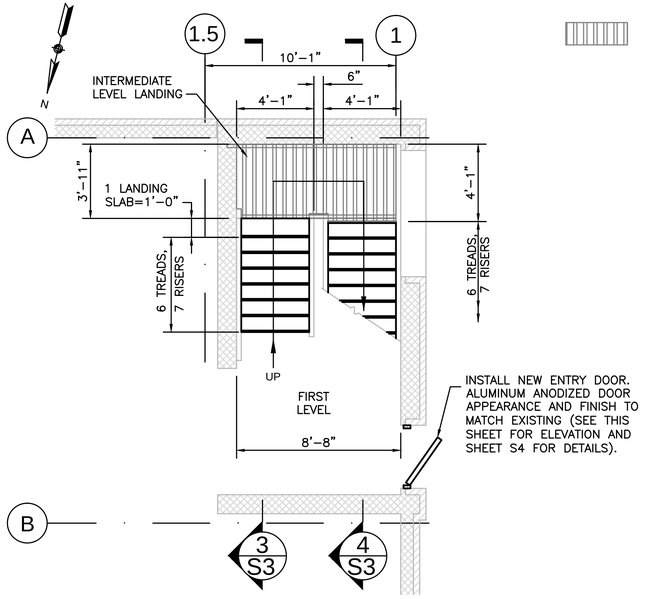


ENTRY DOOR TEMPORARY SUPPORT ELEVATION - STAIR TOWER #1

SCALE: ½" = 1'-0"

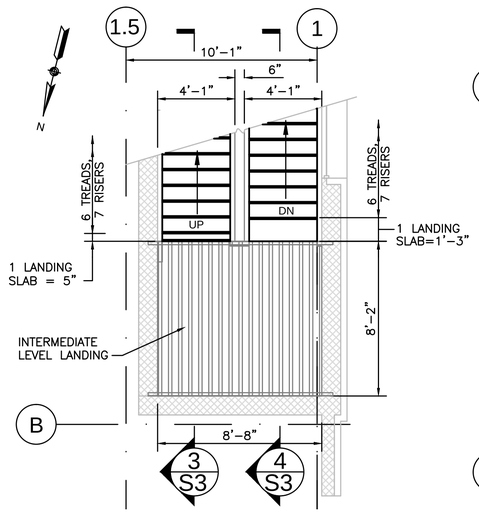
DENOTES REMOVAL

DENOTES NEW METAL DECKING.



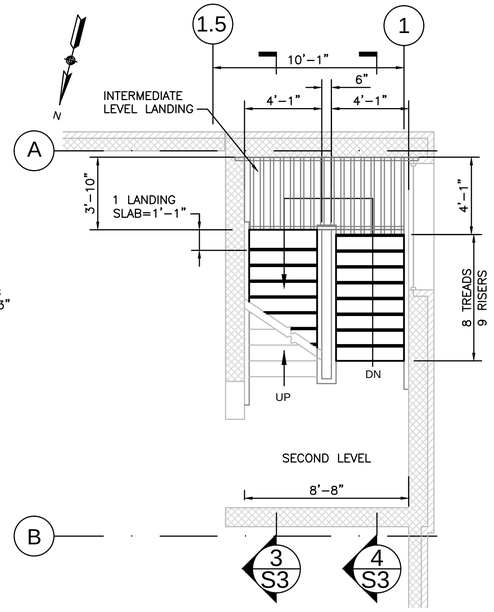
FIRST LEVEL PLAN - STAIR TOWER #1

SCALE: ¼" = 1'-0"



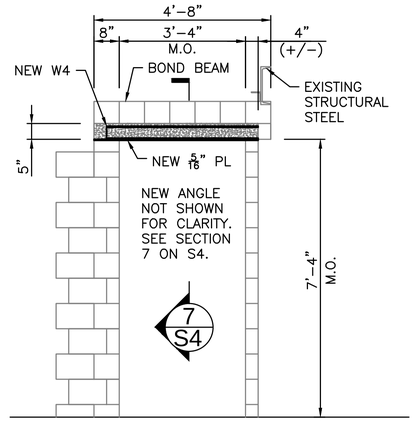
INTERMEDIATE LEVEL PLAN STAIR TOWER #1

SCALE: ¼" = 1'-0"



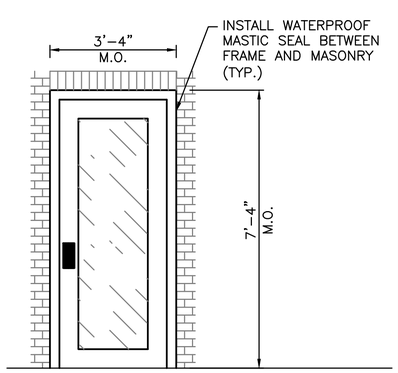
SECOND LEVEL PLAN - STAIR TOWER #1

SCALE: ¼" = 1'-0"



ENTRY DOOR ELEVATION STAIR TOWER #1

SCALE: ½" = 1'-0"



NEW ENTRY DOOR ELEVATION STAIR TOWER #1

SCALE: ½" = 1'-0"

PORTSMOUTH PARKING GARAGE
PROPOSED PLANS AND SECTIONS

HANOVER STREET
PORTSMOUTH, NH

PROJECT: STAIR TOWER REHABILITATION

PREPARED FOR: CITY OF PORTSMOUTH

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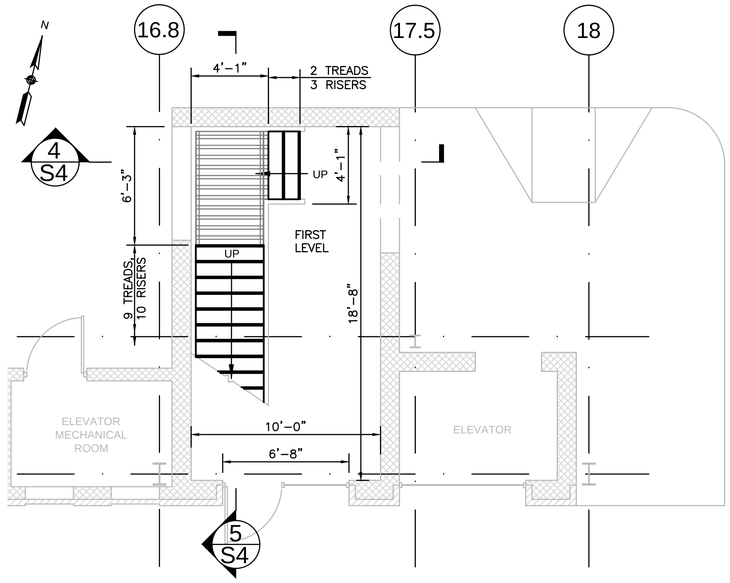
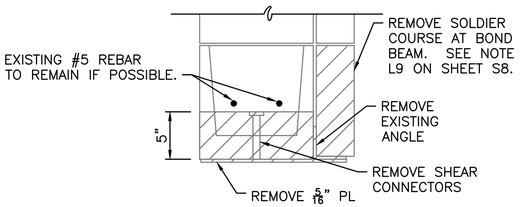


FIRST LEVEL PLAN - STAIR TOWER #2

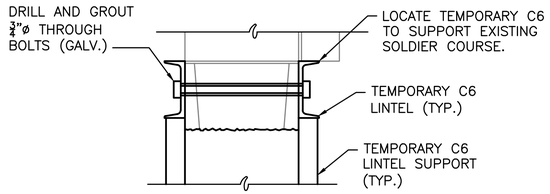
SCALE: $\frac{1}{4}$" = 1'-0"



ENTRY DOOR REMOVAL SECTION STAIR TOWER #1

5 / S3

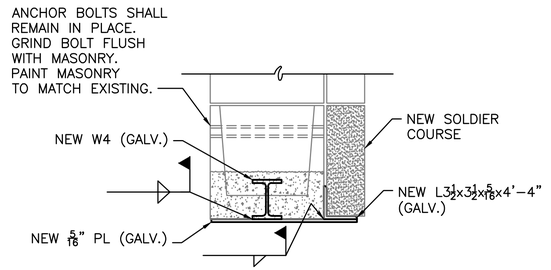
SCALE: $\frac{1}{2}$" = 1'-0"



ENTRY DOOR TEMPORARY SUPPORT SECTION - STAIR TOWER #1

6 / S3

SCALE: $\frac{1}{2}$" = 1'-0"

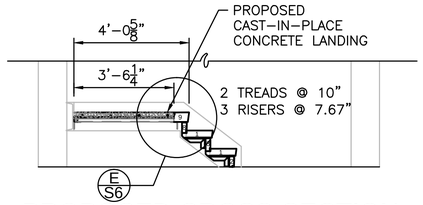


ENTRY DOOR SECTION STAIR TOWER #1

7 / S3

SCALE: $\frac{1}{2}$" = 1'-0"

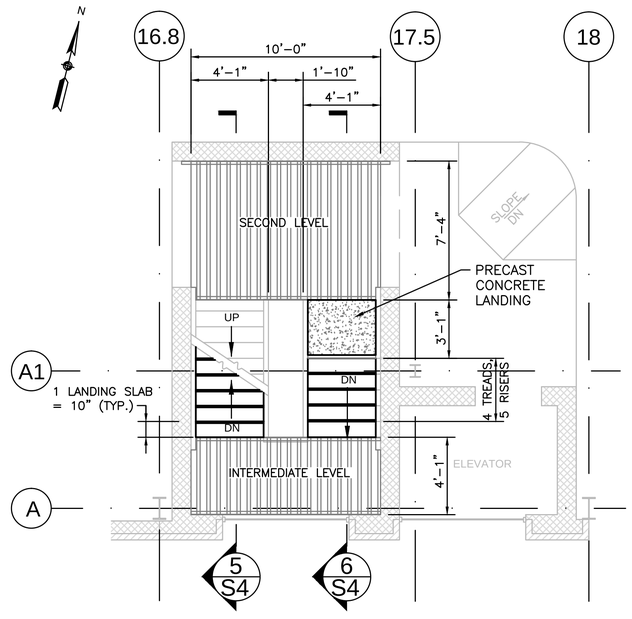
DENOTES REMOVAL



PROPOSED CROSS-SECTION STAIR TOWER #2

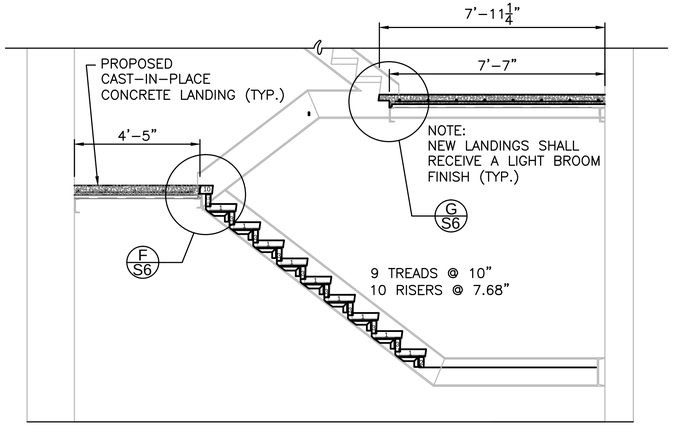
4 / S4

SCALE: $\frac{3}{8}$" = 1'-0"



SECOND LEVEL PLAN - STAIR TOWER #2

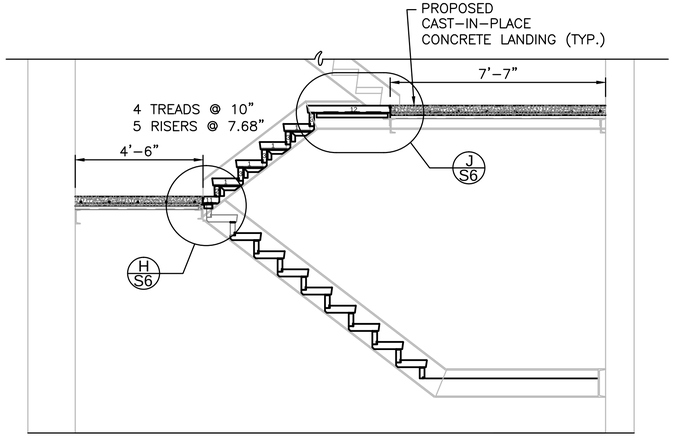
SCALE: $\frac{1}{4}$" = 1'-0"



PROPOSED CROSS-SECTION STAIR TOWER #2

5 / S4

SCALE: $\frac{3}{8}$" = 1'-0"



PROPOSED CROSS-SECTION STAIR TOWER #2

6 / S4

SCALE: $\frac{3}{8}$" = 1'-0"

PORTSMOUTH PARKING GARAGE
PROPOSED PLANS AND SECTIONS
HANOVER STREET
PORTSMOUTH, NH

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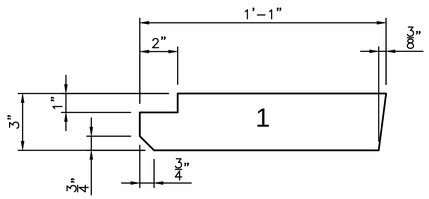
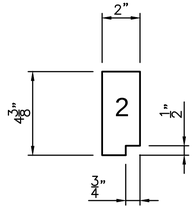


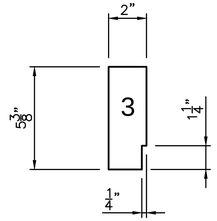
STAIR TREAD #1

SCALE: 3" = 1'-0"



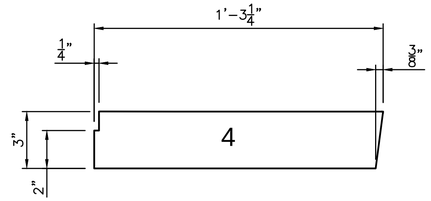
STAIR RISER #2

SCALE: 3" = 1'-0"



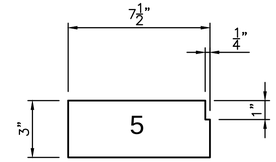
STAIR RISER #3

SCALE: 3" = 1'-0"



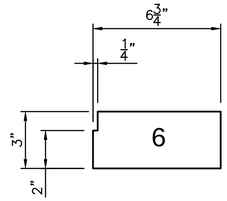
STAIR TREAD #4

SCALE: 3" = 1'-0"



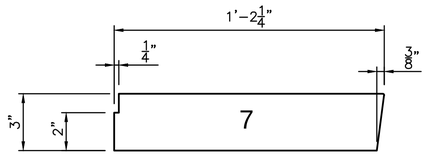
STAIR TREAD #5

SCALE: 3" = 1'-0"



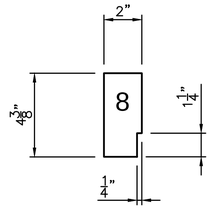
STAIR TREAD #6

SCALE: 3" = 1'-0"



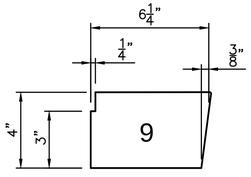
STAIR TREAD #7

SCALE: 3" = 1'-0"



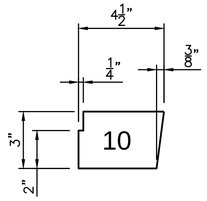
STAIR RISER #8

SCALE: 3" = 1'-0"



STAIR TREAD #9

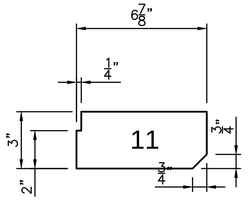
SCALE: 3" = 1'-0"



2"

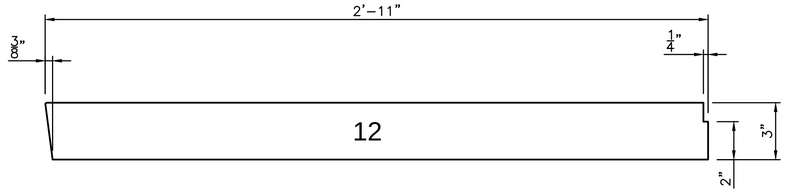
STAIR TREAD #10

SCALE: 3" = 1'-0"



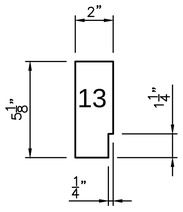
STAIR TREAD #11

SCALE: 3" = 1'-0"



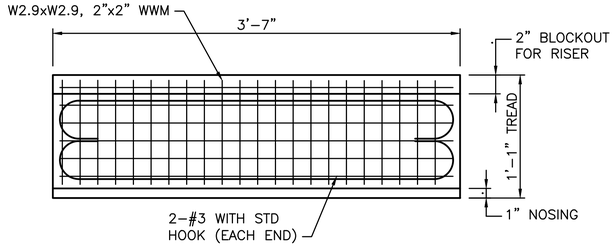
STAIR TREAD #12

SCALE: 3" = 1'-0"



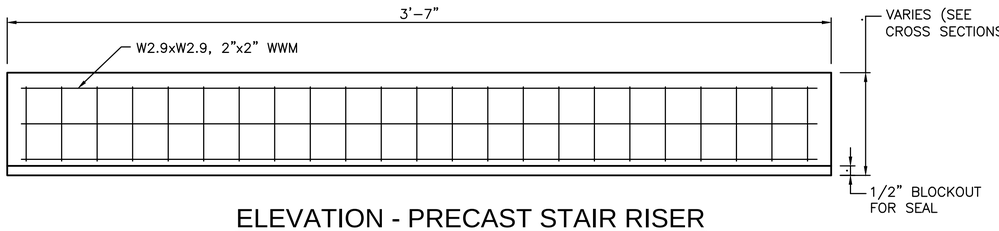
STAIR RISER #13

SCALE: 3" = 1'-0"



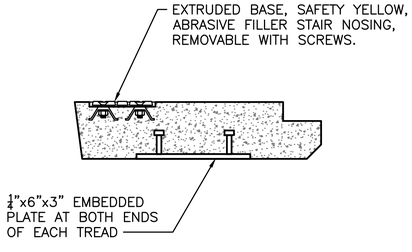
PLAN - PRECAST STAIR TREAD REINFORCEMENT

SCALE: 1 1/2" = 1'-0"



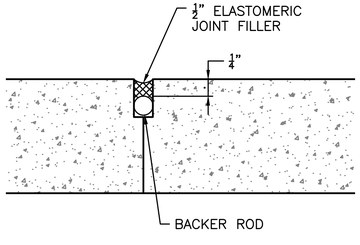
ELEVATION - PRECAST STAIR RISER REINFORCEMENT

SCALE: 3" = 1'-0"



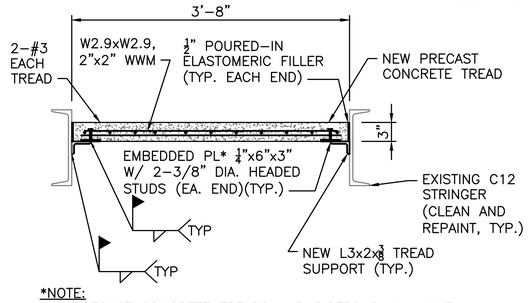
TYPICAL STAIR TREAD NOSING DETAIL

SCALE: 3" = 1'-0"



JOINT DETAIL

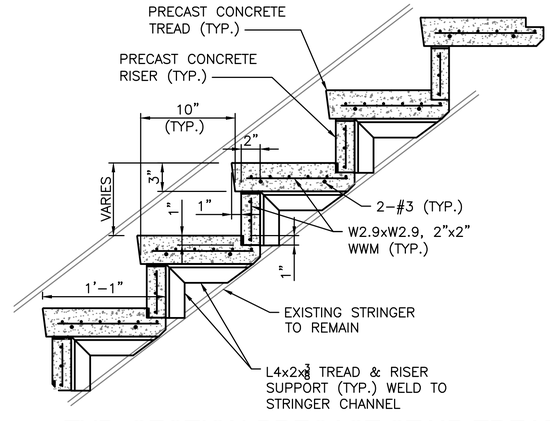
NTS



*NOTE:
ALL PRECAST CONCRETE TREADS AND RISERS SHALL HAVE EMBEDED PL 1/4" AT EACH END TO PROVIDE WELDED FASTENING TO STEEL ANGLE SUPPORTS. EXPOSED STEEL SHALL BE CLEANED, PRIMED, AND PAINTED SUBSEQUENT TO WELDING.

TYP. SECTION-PRECAST STAIR TREAD REINFORCEMENT

SCALE: 1 1/2" = 1'-0"



TYP. SECTION-PRECAST STAIR TREAD REINFORCEMENT

SCALE: 1 1/2" = 1'-0"

PORTSMOUTH PARKING GARAGE
STAIR TREAD AND RISER GEOMETRY

HANOVER STREET
PORTSMOUTH, NH

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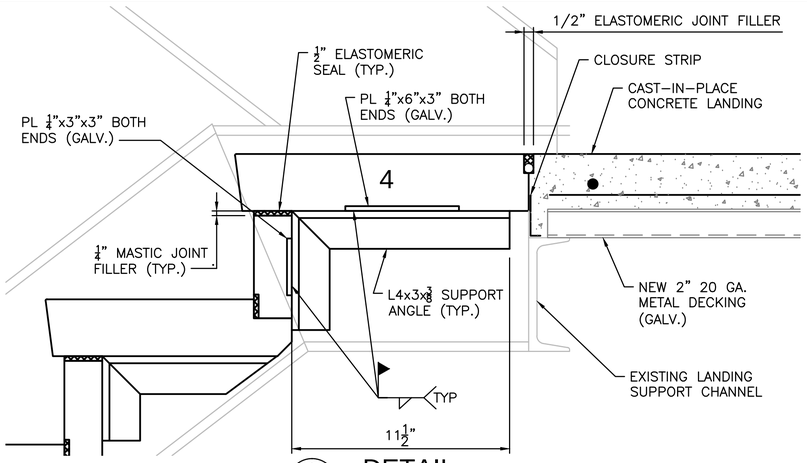
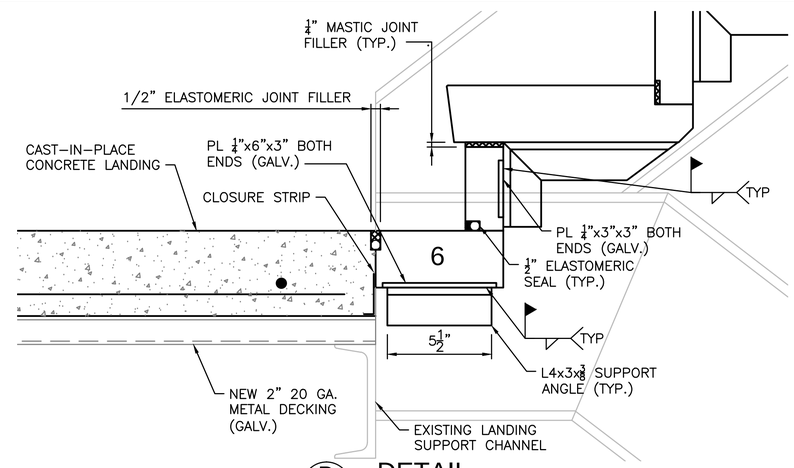
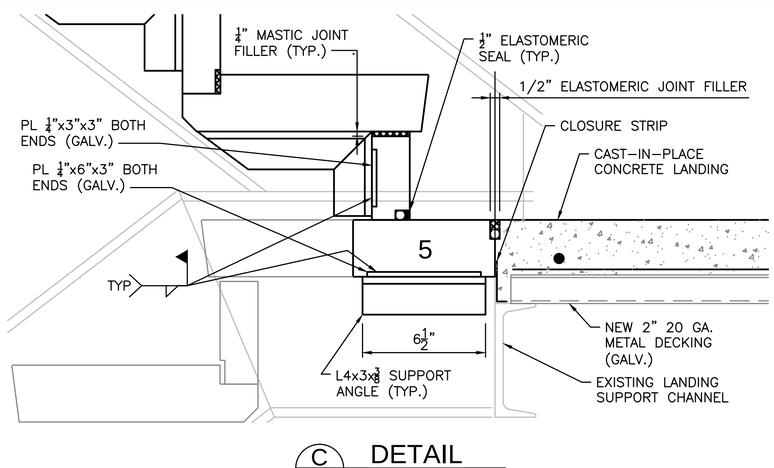


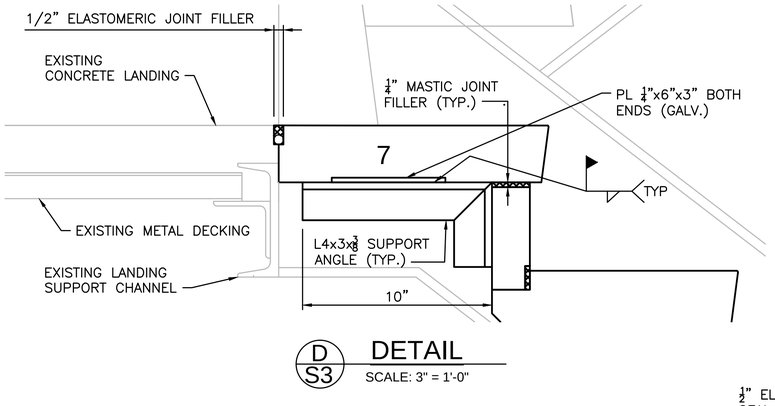
A S3 DETAIL
SCALE: 3" = 1'-0"



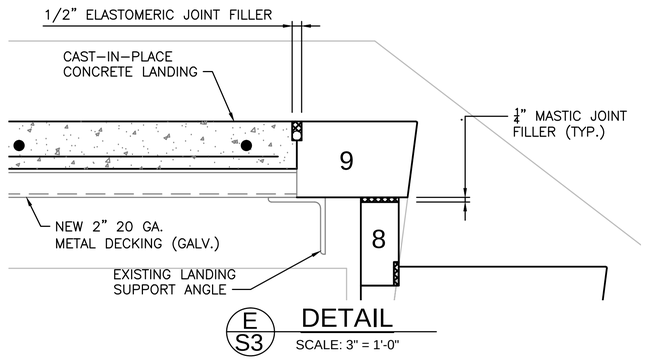
B S3 DETAIL
SCALE: 3" = 1'-0"



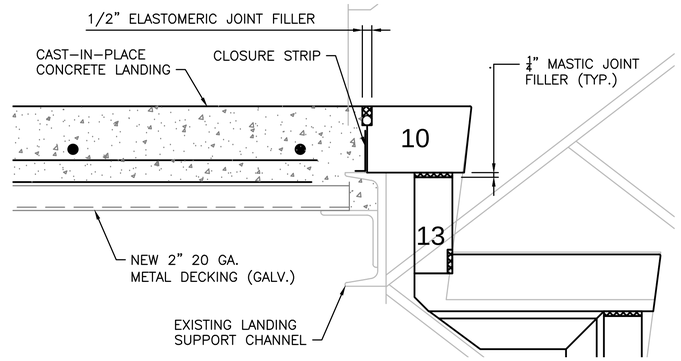
C S3 DETAIL
SCALE: 3" = 1'-0"



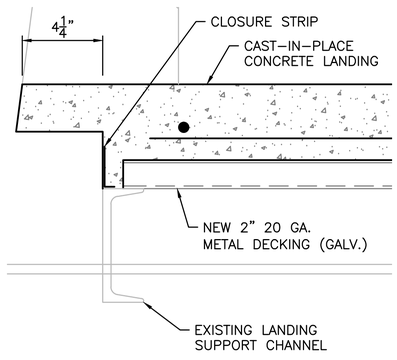
D S3 DETAIL
SCALE: 3" = 1'-0"



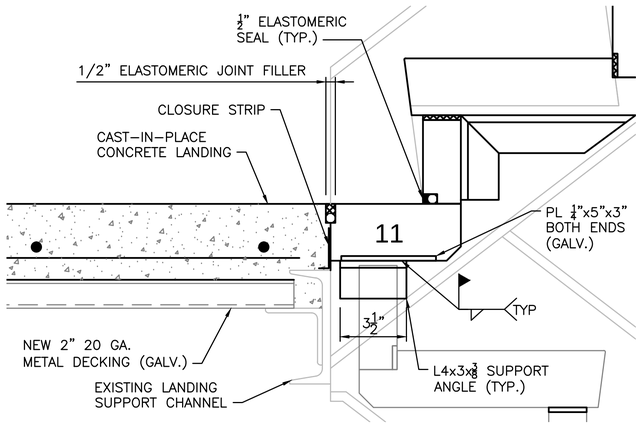
E S3 DETAIL
SCALE: 3" = 1'-0"



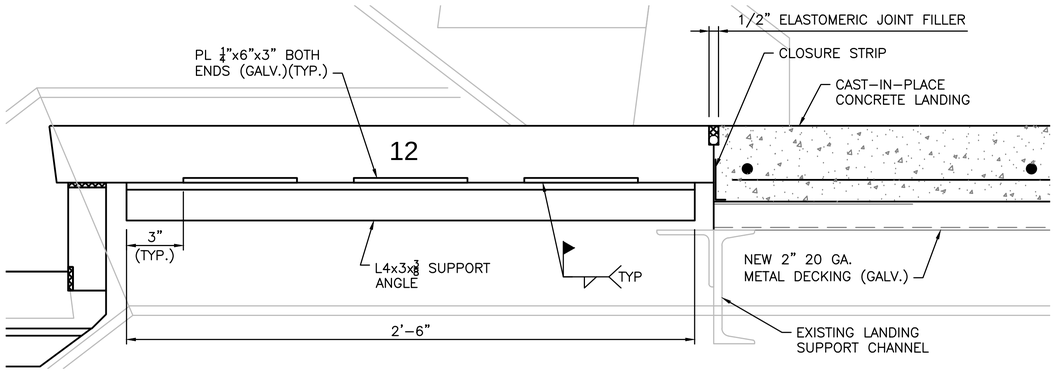
F S3 DETAIL
SCALE: 3" = 1'-0"



G S3 DETAIL
SCALE: 3" = 1'-0"



H S3 DETAIL
SCALE: 3" = 1'-0"



J S3 DETAIL
SCALE: 3" = 1'-0"

PORTSMOUTH PARKING GARAGE
STAIR TREAD AND RISER DETAILS
HANOVER STREET
PORTSMOUTH, NH

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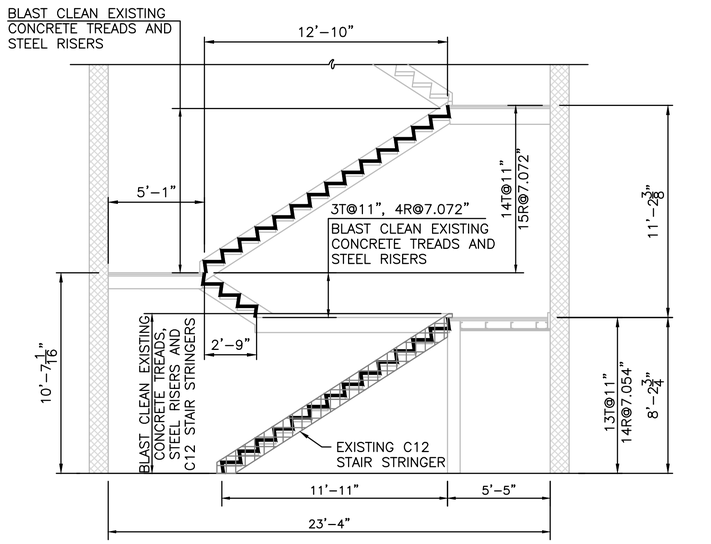
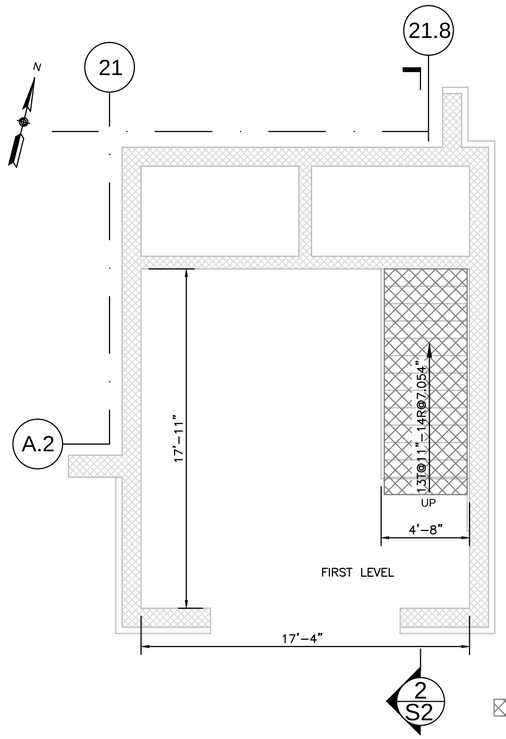


CROSS-SECTION STAIR TOWER #4

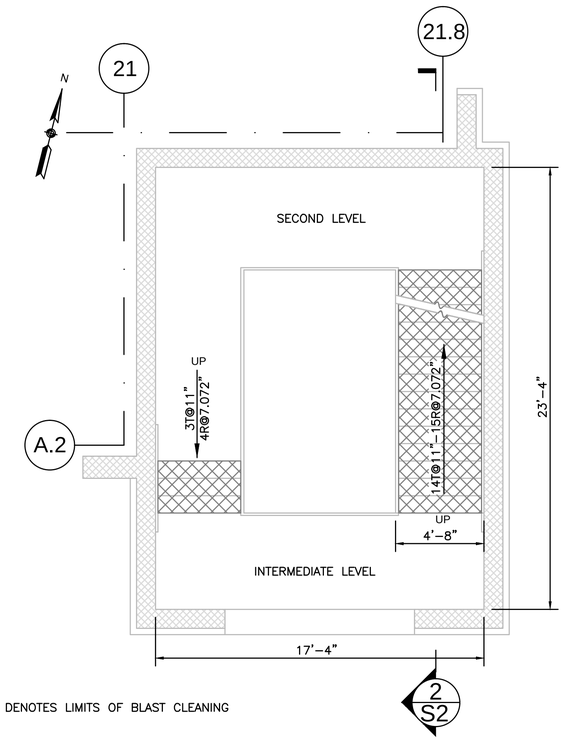
8/S7

SCALE: 1/4" = 1'-0"



FIRST LEVEL PLAN - STAIR TOWER #4

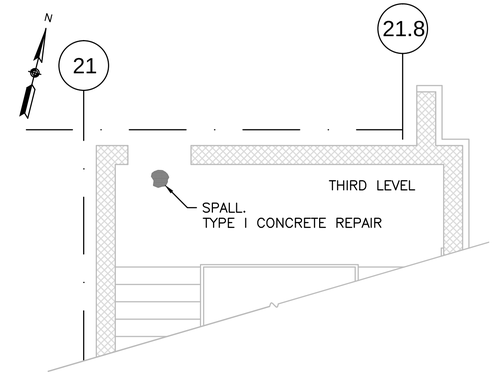
SCALE: 1/4" = 1'-0"



DENOTES LIMITS OF BLAST CLEANING

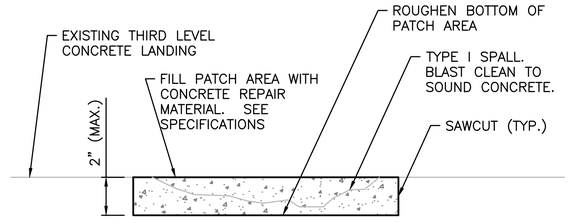
SECOND LEVEL PLAN - STAIR TOWER #4

SCALE: 1/4" = 1'-0"



THIRD LEVEL PLAN - STAIR TOWER #4

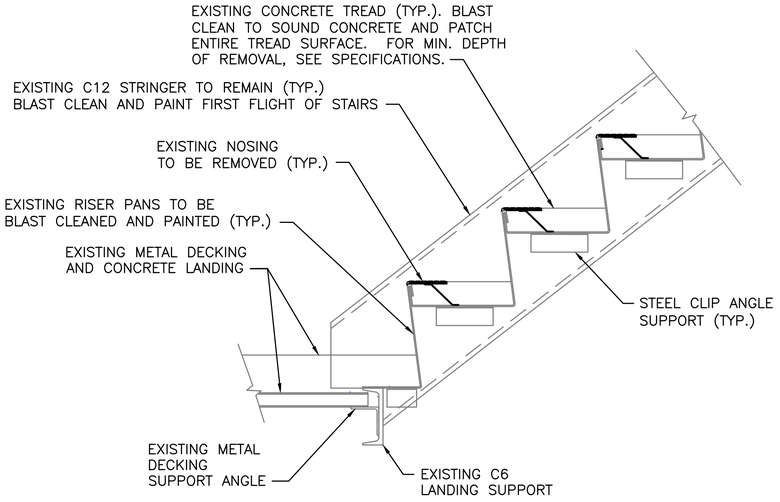
SCALE: 1/4" = 1'-0"



NOTE:
ABRASIVE BLAST CLEAN TO SOUND CONCRETE.
DO NOT DAMAGE EXISTING REINFORCING.
REPAIR OF ANY DAMAGE TO EXISTING REINFORCING SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

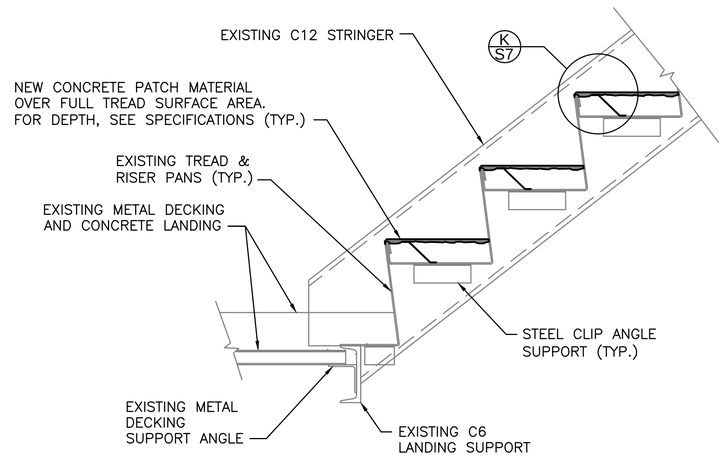
TYPE I CONCRETE REPAIR DETAIL

SCALE: 3" = 1'-0"



REMOVAL - EXISTING PANS & TREADS STAIR TOWER #4

SCALE: 1 1/2" = 1'-0"



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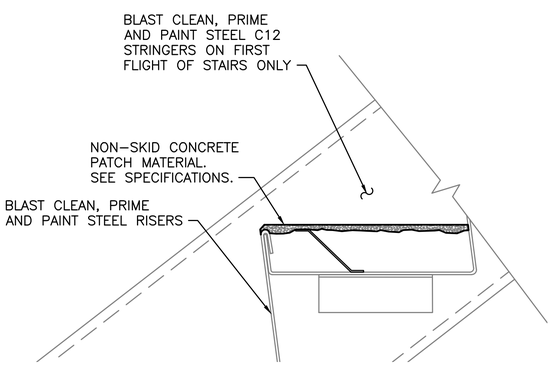

DETAIL K

SCALE: 3" = 1'-0"

PORTSMOUTH PARKING GARAGE
STAIR TOWER #4 - REPAIRS

HANOVER STREET
PORTSMOUTH, NH

PROJECT: STAIR TOWER REHABILITATION

PREPARED FOR: CITY OF PORTSMOUTH

GPI Greenman-Pedersen, Inc.
Engineers, Architects, Planners, Construction Engineers & Inspectors
14 MANCHESTER SQUARE, SUITE 150, PORTSMOUTH, NH 03801
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NO.	REVISION	DATE

DESIGN/DRAWN BY:	SRL
CHECK BY:	JFW
DATE:	3/8/13
SCALE:	AS SHOWN
JOB NO.:	MAX–2012075.00
FILE NAME:	___
DRAWING NO.:	S7 OF

STRUCTURAL GENERAL NOTES

G1 STAIR TOWER #1 = FLEET STREET TOWER
STAIR TOWER #2 = HIGH STREET TOWER
STAIR TOWER #4 = LADD STREET TOWER

G2 WORK SHALL CONFORM TO THE REQUIREMENTS OF THE INTERNATIONAL BUILDING CODE, 2006 AS ADOPTED BY THE CITY OF PORTSMOUTH, NH.

G3 CONTRACTOR SHALL EXAMINE EXISTING ARCHITECTURAL, MECHANICAL, PLUMBING AND ELECTRICAL DRAWINGS AND EXISTING CONDITIONS FOR VERIFICATION OF LOCATION AND DIMENSIONS OF CHASES, INSERTS, LIGHTING, OPENINGS, SLEEVES, WASHES, DRIPS, REVEALS, DEPRESSIONS, AND OTHER PROJECT REQUIREMENTS NOT SHOWN ON DRAWINGS. EXISTING DRAWINGS MAY BE EXAMINED AT THE CITY OF PORTSMOUTH, DEPARTMENT OF PUBLIC WORKS, 680 PEVERLY HILL ROAD, PORTSMOUTH, NH 03801

G4 CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DIMENSIONS ON THE DRAWINGS BASED ON HIS OWN FIELD MEASUREMENTS AT THE SITE PRIOR TO SUBMITTING SHOP DRAWINGS TO THE ENGINEER FOR FABRICATION OF NEW STAIR ELEMENTS. THE FIRST SHOP DRAWING SUBMISSION SHALL INCLUDE THESE FIELD ACQUIRED DIMENSIONS. ANY DISCREPANCIES WITH THE PLANS SHALL BE BROUGHT IMMEDIATELY TO THE ATTENTION OF THE ENGINEER FOR RESOLUTION BEFORE PROCEEDING WITH THAT PART OF THE WORK OR FABRICATION OF PRECAST CONCRETE OR STRUCTURAL STEEL.

G5 UNLESS OTHERWISE STATED IN THE NOTES AND PLANS, ANY REFERENCE TO THE ENGINEER ALSO REFERS TO THE CITY.

CONCRETE

C1 CONCRETE WORK SHALL CONFORM TO BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE (ACI 318) AND SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS (ACI 301), LATEST EDITION.

C2 THE USE OF SAWCUT JOINTS WHERE SHOWN ON THE DRAWINGS SHALL BE ACCOMPLISHED WITHOUT RE-ENTRANT CORNERS. IF RE-ENTRANT CORNERS ARE DISCOVERED BY THE ENGINEER, CONTRACTOR SHALL INCREASE THE SIZE OF THE CONCRETE REMOVAL AREA TO THE EXTENT THAT RE-ENTRANT CORNERS WILL BE ELIMINATED.

C3 CONCRETE SLAB SHALL BE CAST SO THAT THE SLAB THICKNESS IS AT NO POINT LESS THAN THAT INDICATED ON THE DRAWINGS.

C4 CAST-IN-PLACE CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS OF 4,000 PSI.

REINFORCEMENT

R1 DETAILING, FABRICATION, AND ERECTION OF REINFORCEMENT SHALL CONFORM TO THE LATEST EDITIONS OF ACI "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE (ACI 318)" AND ACI "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES (ACI 315)". CONTRACTOR SHALL MAINTAIN A COPY OF ABOVE REFERENCED ACI CODE REQUIREMENTS AT THE SITE.

R2 STEEL REINFORCEMENT SHALL CONFORM TO ASTM 615 GRADE 60 (Fy= 60,000 PSI) GALVANIZED.

R3 CONTRACTOR SHALL PROVIDE AND SCHEDULE ALL NECESSARY ACCESSORIES TO HOLD REINFORCEMENT SECURELY IN POSITION ON SHOP DRAWINGS.

R4 MINIMUM CONCRETE COVER FOR REINFORCEMENT UNLESS OTHERWISE NOTED SHALL BE ¾".

R5 WHERE REINFORCEMENT IS NOT SHOWN ON DRAWINGS, PROVIDE REINFORCEMENT IN ACCORDANCE WITH APPLICABLE TYPICAL DETAILS FOR MOST NEARLY SIMILAR SITUATIONS, AS DETERMINED BY THE ENGINEER. IN NO CASE SHALL REINFORCEMENT BE LESS THAN REQUIRED BY THE APPLICABLE CODES.

R6 WHERE REINFORCEMENT IS CALLED FOR IN SECTION, REINFORCEMENT IS CONSIDERED TYPICAL WHEREVER THE SECTION APPLIES.

R7 INSTALLATION OF REINFORCEMENT SHALL BE COMPLETED AT LEAST 24 HOURS PRIOR TO SCHEDULED CONCRETE PLACEMENT. NOTIFY ENGINEER OR CITY DESIGNATE OF COMPLETION AT LEAST 48 HOURS PRIOR TO SCHEDULED COMPLETION OF PLACEMENT OF REINFORCEMENT TO FACILITATE INSPECTIONS. NO CONCRETE SHALL BE PLACED UNTIL THE REINFORCING HAS BEEN INSPECTED BY THE ENGINEER OR THE CITY.

STRUCTURAL STEEL

S1 STRUCTURAL STEEL WORK SHALL CONFORM TO "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS – ALLOWABLE STRESS DESIGN " (AISC ASD); "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES" (AISC); AND "STRUCTURAL WELDING CODE – STEEL" (AWS D1.1), LATEST EDITION.

S2 STRUCTURAL STEEL (ANGLES, CHANNELS, PLATES, ETC.) SHALL BE NEW STEEL CONFORMING TO ASTM A36 (FY = 36 KSI).

S3 STRUCTURAL STEEL SHALL BE DETAILED AND, WHERE REQUIRED, DESIGNED IN ACCORDANCE WITH THE AISC SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS AND THE SHOP DRAFTING MANUAL, CURRENT EDITIONS.

S4 WELDING SHALL BE PERFORMED BY APPROVED WELDERS, WHOSE CERTIFICATION SHALL CONFORM TO THE AMERICAN WELDING SOCIETY CODE. ALL FILLET WELDS SHALL BE MADE WITH A RETURN LEG ON THE WELD END. THE MINIMUM SIZE OF FILLET WELDS SHALL BE DETERMINED IN ACCORDANCE WITH THE AISC SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS.

S5 ELECTRODES FOR FIELD AND SHOP WELDING SHALL CONFORM TO E70XX.

S6 ANCHOR BOLTS, LEVELING PLATES, OR BEARING PLATES SHALL BE LOCATED AND BUILT INTO CONNECTING WORK, PRESET BY TEMPLATES OR SIMILAR METHODS. PLATES SHALL BE SET IN FULL BEDS OF NON-SHRINK GROUT.

S7 ALL NEW STEEL SHALL RECEIVE A SHOP COAT OF PRIMER AND PAINT, EXCEPT IN THOSE AREAS TO BE WELDED OR UNLESS NOTED OTHERWISE. EXISTING STEEL SHALL FIRST BE CLEANED IN ACCORDANCE WITH THE PROVISIONS OF SSPC-SP10 AND THEN SHALL RECEIVE A FIELD COAT OF PRIMER AND PAINT.

S8 STRUCTURAL STEEL DETAILS NOT SPECIFICALLY SHOWN SHALL BE SIMILAR TO THOSE SHOWN FOR MOST NEARLY SIMILAR SITUATIONS AS DETERMINED BY THE ENGINEER.

S9 FIELD CUTTING OF STRUCTURAL STEEL TO REMAIN OR ANY FIELD MODIFICATIONS TO STRUCTURAL STEEL SHALL NOT BE MADE WITHOUT APPROVAL OF ENGINEER FOR EACH SPECIFIC CASE. CONTRACTOR SHALL SUBMIT SKETCH AND WRITTEN REQUEST FOR FIELD MODIFICATION FOR SIGNED APPROVAL BY ENGINEER.

S10 STRUCTURAL STEEL FRAMING SHALL BE TRUE AND PLUMB BEFORE CONNECTIONS ARE WELDED.

S11 MINIMUM CONNECTION PLATE THICKNESS SHALL BE 3/8".

RENOVATION AND RESTORATION

L1 THE CONTRACTOR SHALL NOTIFY THE ENGINEER WHEN, IN THE COURSE OF CONSTRUCTION OR DEMOLITION, CONDITIONS ARE UNCOVERED WHICH ARE UNANTICIPATED OR OTHERWISE APPEAR TO PRESENT A DANGEROUS CONDITION.

L2 CONTRACTOR IS RESPONSIBLE FOR SUPPLEMENTAL TEMPORARY SUPPORT OF ALL MASONRY IN THE WORK AREA TO PREVENT LOOSE MASONRY FROM FALLING AND INJURING WORKERS.

L3 INFORMATION REGARDING EXISTING CONSTRUCTION OR CONDITIONS IS BASED ON AVAILABLE RECORD DRAWINGS WHICH MAY OR MAY NOT TRULY REFLECT ACTUAL CONDITIONS. RECORD DRAWINGS ARE AVAILABLE IF THEY MAY BE OF INTEREST TO THE CONTRACTOR, BUT ENGINEER AND CITY ASSUMES NO RESPONSIBILITY FOR ITS ACCURACY OR COMPLETENESS.

L4 CONTRACTOR SHALL PROVIDE ALL LABOR AND MATERIAL FOR FRAMING REQUIRED TO CONNECT NEW FRAMING TO EXISTING CONSTRUCTION. WHEREVER IT IS NECESSARY TO REMOVE EXISTING CONSTRUCTION IN ORDER TO CONSTRUCT NEW WORK, THE AFFECTED AREA SHALL BE PATCHED AND REBUILT TO MATCH EXISTING ADJACENT WORK TO SATISFACTION OF THE CITY.

L5 DETAILS SHOWN ON DRAWINGS SHALL BE CONSIDERED TYPICAL FOR ALL SIMILAR CONDITIONS.

L6 STRUCTURAL MATERIALS AND COMPONENTS SELECTED BY THE CONTRACTOR SHALL BE SUBMITTED FOR APPROVAL OF THE ENGINEER.

L7 STRUCTURAL WORK ON THIS PROJECT SHALL BE PERFORMED UNDER THE SUPERVISION OF THE ENGINEER. ALTERATIONS OR MODIFICATIONS NOT INDICATED ON THE DRAWINGS MUST BE APPROVED BY THE ENGINEER IN WRITING BEFORE SUCH WORK IS INITIATED. THE ENGINEER SHALL INSPECT ALL STRUCTURAL ELEMENTS TO ASSURE COMPLIANCE WITH THE CONTRACT DOCUMENTS AND THE STRUCTURAL INTEGRITY OF THE BUILDING BEFORE SUCH ELEMENTS ARE ENCLOSED. EXISTING STRUCTURAL DEFICIENCIES NOT INDICATED ON THE DRAWINGS OR EXPOSED DURING CONSTRUCTION SHALL BE CORRECTED AS DIRECTED BY THE ENGINEER.

L8 STRUCTURAL ALTERATION SHALL BE PRECEDED BY INSTALLATION OF ADEQUATE SHORING AND BRACING AS INDICATED ON THE DRAWINGS.

L9 THE CONTRACTOR SHALL REMOVE THE EXISTING SOLDIER COURSE CAREFULLY IN AN EFFORT TO REUSE THEM AFTER TEMPORARY SHORING IS COMPLETED. SHOULD ANY OF THE SOLDIER COURSE BE DAMAGED AND UNACCEPTABLE FOR REUSE, THE CONTRACTOR SHALL REPLACE THEM WITH NEW SOLDIER COURSE SIMILAR TO EXISTING AND APPROVED BY THE CITY.

L10 THE NEW FLEET STREET TOWER ENTRY DOOR SHALL MATCH THE EXISTING DOOR IN MATERIAL, FINISH AND APPEARANCE. THE NEW DOOR SHALL BE KAWNEER OR APPROVED EQUAL.

DESIGN LOADS

DEAD LOADS
NEW AND EXISTING CONSTRUCTION: ACTUAL WEIGHT

LIVE LOADS
LANDING AND STAIR LIVE LOADS: 100 PSF UNIFORM
300 LBS CONCENTRATED ON 4 SQ IN
(UNIFORM AND CONCENTRATED LOADS NEED NOT BE CONSIDERED CONCURRENT)

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